RECEIVED
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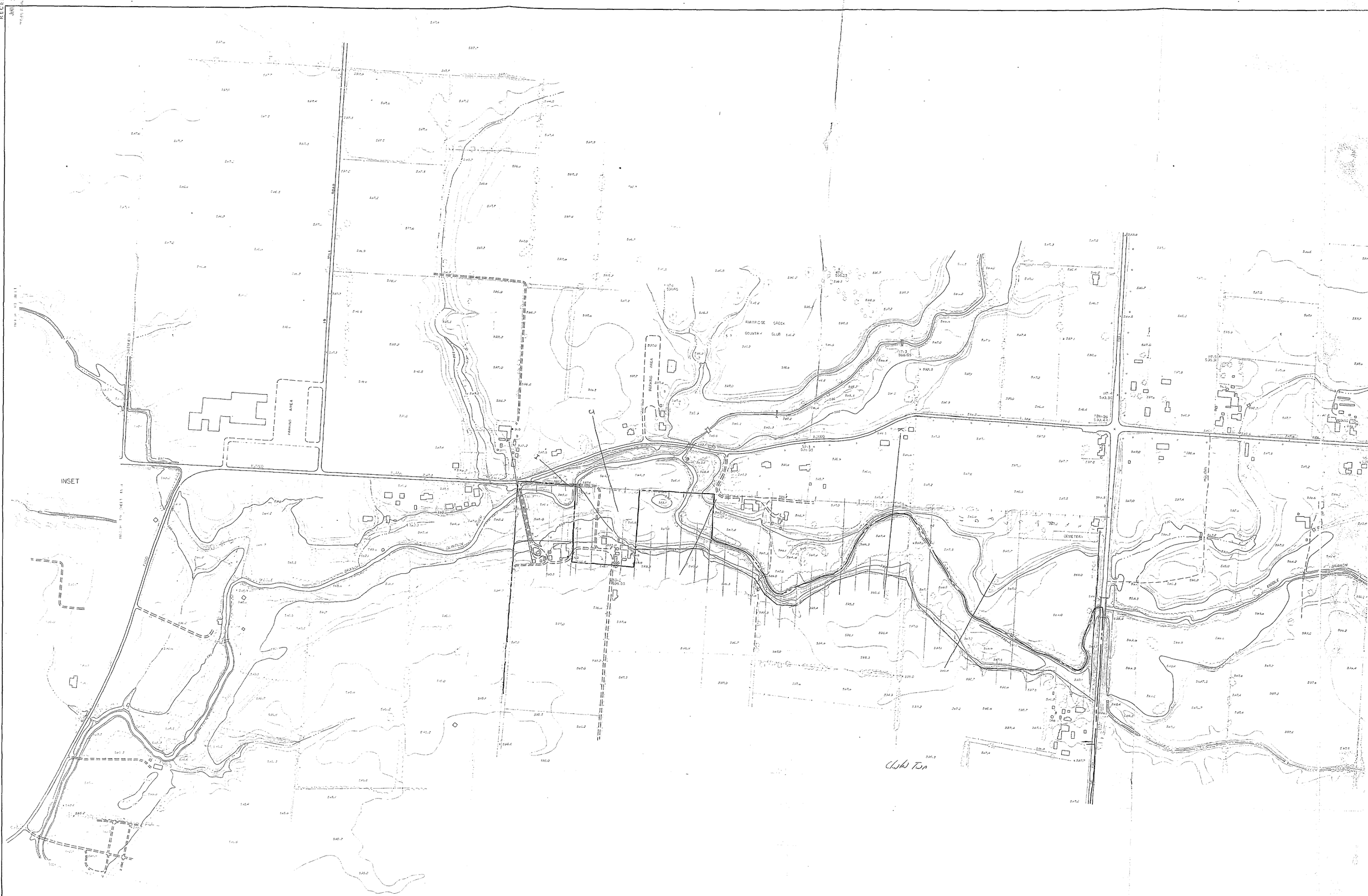


FR2

COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

N

200 0 200 400 600
SCALE 1" = 200'  CONTOUR INTERVAL 2'

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Belle River

4) DOCUMENT TYPE: 100 year - encroached

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  28 AUG 86 TIME    7:46:44              *
*****************************************************
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*************************************
*  U.S.  ARMY CORPS OF ENGINEERS    *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 440-2105 (FTS) 448-2105    *
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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MEMPHIS, MI - FIS
BELLE RIVER
ENCROACHED RUN
100 - YEAR FLOOD

THIS RUN EXECUTED 28 AUG 86 7:46:44

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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C
T1      MEMPHIS, MI - FIS
T2      100 YEAR FLOOD
T3      BELLE RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       2.        0.        0.  0.002000      0.00      0.0       0.    695.000    0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
   150.000  110.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.060     0.060     0.040     0.100     0.300     0.000     0.000     0.000     0.000     0.000
QT      2.000  6280.000  6280.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
X1      0.000    38.000   249.000   314.000     0.000     0.000     0.000     0.000    -3.900     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689.200   314.010   689.600   315.000   699.600   340.000   709.100   365.000
GR    709.300   390.000   709.700   415.000   710.300   440.000   710.900   465.000   711.700   490.000
GR    712.700   515.000   713.900   540.000   714.400   561.000     0.000     0.000     0.000     0.000

X1   1808.000     0.000     0.000     0.000  1808.000  1808.000  1808.000     0.000     3.600     0.000

ET      0.000     4.100     1.400   233.000   330.000     0.000     0.000     0.000     0.000     0.000
X1   1873.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.150     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
ET      0.000     4.100     1.400   249.000   314.000     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
X1   1938.000    38.000   249.000   314.000    65.000    65.000    65.000     0.000     0.000     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
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GR     689.200     314.000     689.200     314.010     689.600     315.000     699.600     340.000     709.100     365.000
GR     709.300     390.000     709.700     415.000     710.300     440.000     710.900     465.000     711.700     490.000
GR     712.700     515.000     713.900     540.000     714.400     561.000       0.000       0.000       0.000       0.000

NC       0.000       0.000       0.030       0.100       0.300       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       4.100     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         DOWNSTREAM FACE OF BORDMAN RD BRIDGE
X1    1939.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000
BT     -25.000       0.000     710.800       0.000      25.000     710.000       0.000      50.000     709.400       0.000
BT       0.000      75.000     708.900       0.000     100.000     708.500       0.000     125.000     708.400       0.000
BT       0.000     150.000     708.300       0.000     175.000     708.300       0.000     200.000     708.400       0.000
BT       0.000     225.000     708.600       0.000     248.990     708.600     689.500     249.000     708.600     705.600
BT       0.000     314.000     708.700     705.800     314.010     708.700     689.200     315.000     708.700       0.000
BT       0.000     340.000     708.900       0.000     365.000     709.100       0.000     390.000     709.300       0.000
BT       0.000     415.000     709.700       0.000     440.000     710.300       0.000     465.000     710.900       0.000
BT       0.000     490.000     711.700       0.000     515.000     712.700       0.000     540.000     713.900       0.000
BT       0.000     561.000     714.400       0.000       0.000       0.000       0.000       0.000       0.000       0.000

ET       0.000       4.100       4.100     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         UPSTREAM FACE OF BORDMAN RD BRIDGE
X1    1972.000       0.000       0.000       0.000      33.000      33.000      33.000       0.000       0.000       0.000
X2       0.000       0.000       0.000       0.000       0.000       0.000       1.000       0.000       0.000       0.000

NC       0.070       0.070       0.040       0.000       0.000       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       1.400     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
X1    1973.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000

X1    2007.000       0.000       0.000       0.000      34.000      34.000      34.000       0.000       0.300       0.000

NC       0.000       0.000       0.000       0.300       0.500       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       6.100     101.000     348.000     107.000     327.000       0.000       0.000       0.000
         FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
X1    2072.000      27.000     175.000     274.000      65.000      65.000      65.000       0.000       0.000       0.000
GR     697.300       0.000     696.900      25.000     696.200      50.000     696.300      75.000     696.500     100.000
GR     696.400     125.000     696.100     150.000     696.200     175.000     692.200     200.000     692.800     203.000
GR     690.500     210.000     688.900     220.000     688.700     230.000     689.700     240.000     689.800     250.000
GR     689.100     260.000     691.200     270.000     692.800     274.000     697.400     290.000     697.600     315.000
GR     698.000     340.000     698.400     365.000     698.700     390.000     699.500     415.000     700.900     440.000
GR     703.100     455.000     713.100     540.000       0.000       0.000       0.000       0.000       0.000       0.000

ET       0.000       4.100       1.400     253.000     717.000       0.000       0.000       0.000       0.000       0.000
         FIELD MEASURED CROSS SECTION
X1    2172.000      30.000     435.000     534.000     100.000     100.000     100.000       0.000       0.000       0.000
GR     710.000       0.000     705.000     180.000     700.000     250.000     697.300     260.000     696.900     285.000
GR     696.200     310.000     696.300     335.000     696.500     360.000     696.400     385.000     696.100     410.000
GR     696.200     435.000     692.200     460.000     692.800     463.000     690.500     470.000     688.900     480.000
GR     688.700     490.000     689.700     500.000     689.800     510.000     689.100     520.000     691.200     530.000
GR     692.800     534.000     697.400     550.000     697.600     575.000     698.000     600.000     698.400     625.000
GR     698.700     650.000     699.500     675.000     700.900     700.000     703.100     715.000     713.100     800.000
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NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400      0.000    800.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION REPEATED UPSTREAM
X1   2591.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION REPEATED UPSTREAM
X1   3010.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

        CROSS SECTION A MOVED DOWNSTREAM
X1   3429.000     30.000    113.000    200.000    419.000    419.000    419.000      0.000     -0.950      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

ET      0.000      4.100      4.100     29.750    438.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A
X1   3850.000     30.000    113.000    200.000    421.000    421.000    421.000      0.000      0.000      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

ET      0.000      0.000      0.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A REPEATED UPSTREAM
X1   4237.000     19.000    113.000    200.000    387.000    387.000    387.000      0.000      1.540      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    702.000    500.000    710.000    580.000    725.000    620.000      0.000      0.000

ET      0.000      4.100      1.400     33.060    247.840      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A REPEATED UPSTREAM
X1   4625.000      0.000      0.000      0.000    388.000    200.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5012.000      0.000      0.000      0.000    387.000    387.000    387.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED UPSTREAM
X1   5400.000      0.000      0.000      0.000    388.000    230.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5787.000      0.000      0.000      0.000    387.000    200.000    387.000      0.000      1.540      0.000
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        CROSS SECTION A REPEATED UPSTREAM
X1   6175.000      0.000      0.000      0.000    388.000    388.000    388.000      0.000      1.540      0.000

ET      0.000      4.100      1.400     60.000    253.000      0.000      0.000      0.000      0.000      0.000
X1   6368.000      0.000      0.000      0.000    193.000    193.000    193.000      0.000      0.770      0.000

NC      0.080      0.035      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400     86.500    226.500      0.000      0.000      0.000      0.000      0.000
X1   6468.000      0.000      0.000      0.000    100.000    100.000    100.000      0.000      0.600      0.000

ET      0.000      0.000      4.100     92.000    178.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6562.000     14.000    100.000    170.000     94.000     94.000     94.000      0.000     -1.550      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6850.000      0.000      0.000      0.000    288.000    288.000    288.000      0.000      1.150      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6900.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.200      0.000

ET      0.000      4.100      1.400     87.000    183.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
X1   6950.000     14.000    100.000    170.000     50.000     50.000     50.000      0.000      0.000      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
X1   7000.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.000      0.000

NC      0.080      0.050      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF M-19 BRIDGE
X1   7001.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT    -10.000      0.000    730.000      0.000     70.000    725.500      0.000    100.000    723.500    707.300
BT      0.000    101.100    724.000    718.500    170.000    721.500    716.000    170.100    721.000    706.400
BT      0.000    290.000    717.000      0.000    350.000    717.000      0.000    600.000    717.000      0.000
BT      0.000    700.000    720.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        UPSTREAM FACE OF M-19 BRIDGE
X1   7036.000      0.000      0.000      0.000     35.000     35.000     35.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
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NC      0.000      0.000      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
X1   7037.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100     90.000    180.000      0.000      0.000      0.000      0.000      0.000
X1   7047.000      0.000      0.000      0.000     10.000     10.000     10.000      0.000      0.000      0.000

ET      0.000      0.000      4.100     89.000    185.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7137.000      0.000      0.000      0.000     90.000     90.000     90.000      0.000      0.280      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      4.100     86.700    188.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7517.000      0.000      0.000      0.000    380.000    380.000    380.000      0.000      1.100      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7997.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   8477.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

NC      0.080      0.080      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
X1   8960.000     29.000    282.000    327.000    483.000    483.000    483.000      0.000      0.000      0.000
GR    725.000      0.000    720.000     30.000    718.800     50.000    718.800     75.000    718.900    100.000
GR    718.500    125.000    718.400    150.000    718.600    175.000    718.700    200.000    719.200    225.000
GR    715.700    250.000    712.200    277.000    711.800    282.000    711.800    282.010    710.700    285.000
GR    710.300    290.000    710.500    295.000    710.700    300.000    710.600    305.000    710.300    310.000
GR    711.000    315.000    711.700    320.000    712.400    322.000    713.700    327.000    721.200    340.000
GR    721.800    365.000    724.100    390.000    726.500    415.000    728.100    430.000      0.000      0.000

        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8961.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

SB      0.000      1.640      3.000      0.000     42.000      0.000    460.000      0.000      0.000      0.000
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8972.000      0.000      0.000      0.000     11.000     11.000     11.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    721.200    721.400      0.000      0.000      0.000      0.000      0.000
BT    -11.000    200.000    718.700      0.000    225.000    719.200      0.000    250.000    720.600      0.000
BT      0.000    277.000    721.400      0.000    282.000    721.400    711.800    282.010    721.400    720.000
BT      0.000    340.000    721.700    721.200    365.000    721.800      0.000    390.000    724.100      0.000
BT      0.000    415.000    726.500      0.000    430.000    728.100      0.000      0.000      0.000      0.000
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NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
X1   8973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   9200.000      0.000      0.000      0.000    227.000    227.000    227.000      0.000      0.000      0.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=    0.100 CEHV=    0.300
*SECNO 0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.53    695.63      0.00    695.00    696.51      0.87      0.00      0.00    685.60
    6280.      450.     5399.      431.      132.      677.      133.        0.        0.    685.30
     0.00      3.41      7.97      3.23     0.060     0.040     0.060     0.000    684.10    223.58
 0.002033        0.        0.        0.         0         0         3      0.00    116.25    339.83

*SECNO 1808.000
  1808.00     11.58    699.28      0.00      0.00    700.14      0.86      3.64      0.00    689.20
    6280.      453.     5393.      434.      133.      681.      135.       39.        5.    688.90
     0.07      3.40      7.92      3.21     0.060     0.040     0.060     0.000    687.70    223.42
 0.001991     1808.     1808.     1808.         1         0         0      0.00    116.56    339.98

*SECNO 1873.000

3470 ENCROACHMENT STATIONS=      233.0      330.0  TYPE=      1  TARGET=      97.000
  1873.00     11.53    699.38      0.00      0.00    700.29      0.91      0.13      0.01    689.35
    6280.      411.     5466.      402.      114.      677.      114.       41.        5.    689.05
     0.07      3.61      8.07      3.53     0.060     0.040     0.060     0.000    687.85    233.00
 0.002084       65.       65.       65.         2         0         0      0.00     97.00    330.00

CCHV=    0.300 CEHV=    0.500
*SECNO 1938.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.33    699.33      0.00      0.00    700.72      1.39      0.19      0.24    689.50
    6280.        0.     6280.        0.        0.      664.        0.        42.        5. 100000.00
     0.07      0.00      9.46      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004198       65.       65.       65.         2         0         0      0.00     65.00    314.00

CCHV=    0.100 CEHV=    0.300
*SECNO 1939.000

3370 NORMAL BRIDGE, NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80
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  SECND     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00     11.33    699.33      0.00      0.00    700.72      1.39      0.00      0.00    689.50
   6280.         0.     6280.        0.        0.      664.        0.       42.        5.  100000.00
    0.07      0.00      9.46      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002359        1.        1.        1.         0         0         0      0.00     65.00    314.00

*SECND 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80


3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00     11.44    699.44      0.00      0.00    700.80      1.36      0.08      0.00    689.50
   6280.         0.     6280.        0.        0.      671.        0.       42.        5.  100000.00
    0.07      0.00      9.36      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002285       33.       33.       33.         0         0         0      0.00     65.00    314.00

*SECND 1973.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00     11.44    699.44      0.00      0.00    700.80      1.36      0.00      0.00    689.50
   6280.         0.     6280.        0.        0.      671.        0.       42.        5.  100000.00
    0.07      0.00      9.36      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004059        1.        1.        1.         0         0         0      0.00     65.00    314.00


*SECND 2007.000
  2007.00     11.78    700.08      0.00      0.00    700.95      0.86      0.09      0.05    689.80
   6280.       405.     5486.      389.       138.      693.      140.       43.        5.    689.50
    0.08      2.93      7.91      2.78     0.070     0.040     0.070     0.000    688.30    222.91
 0.001938       34.       34.       34.         2         0         0      0.00    117.58    340.49


CCHV=   0.300 CEHV=   0.500
*SECND 2072.000

3470 ENCROACHMENT STATIONS=      101.0      348.0  TYPE=      1  TARGET=     247.000
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        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.09    700.79      0.00      0.00    701.18      0.39      0.09      0.14    696.20
    6280.      605.     5226.      449.      334.      967.      271.       45.        6.    692.80
     0.08      1.81      5.41      1.66     0.070     0.040     0.070     0.000    688.70    101.00
 0.001035       65.       65.       65.         2         0         0      0.00    247.00    348.00

*SECNO 2172.000

3470 ENCROACHMENT STATIONS=      253.0      717.0  TYPE=      1  TARGET=      464.000
        FIELD MEASURED CROSS SECTION
  2172.00     12.38    701.08      0.00      0.00    701.31      0.23      0.08      0.05    696.20
    6280.     1265.     4429.      586.      831.      995.      475.       49.        6.    692.80
     0.09      1.52      4.45      1.23     0.070     0.040     0.070     0.000    688.70    253.00
 0.000676      100.      100.      100.         2         0         0      0.00    448.26    701.26

CCHV=    0.100 CEHV=    0.300
*SECNO 2591.000
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.71    701.36      0.00      0.00    701.66      0.30      0.33      0.02    697.15
    6280.     1150.     4653.      477.      713.      929.      366.       70.       11.    693.75
     0.12      1.61      5.01      1.30     0.070     0.040     0.070     0.000    689.65    244.19
 0.000938      419.      419.      419.         2         0         0      0.00    447.15    691.34

*SECNO 3010.000
        CROSS SECTION REPEATED UPSTREAM
  3010.00     11.16    701.76      0.00      0.00    702.14      0.38      0.45      0.03    698.10
    6280.     1032.     4864.      385.      609.      873.      281.       88.       15.    694.70
     0.14      1.69      5.57      1.37     0.070     0.040     0.070     0.000    690.60    250.52
 0.001257      419.      419.      419.         2         0         0      0.00    430.89    681.41

*SECNO 3429.000
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00     10.79    702.34      0.00      0.00    702.62      0.27      0.46      0.01    693.95
    6280.      531.     4064.     1684.      319.      802.     1116.      107.       19.    696.45
     0.17      1.67      5.07      1.51     0.070     0.040     0.070     0.000    691.55     28.13
 0.000986      419.      419.      419.         2         0         0      0.00    536.97    565.10

*SECNO 3850.000

3470 ENCROACHMENT STATIONS=       29.8      438.0  TYPE=      1  TARGET=      408.250
        CROSS SECTION A
  3850.00     10.21    702.71      0.00      0.00    703.24      0.53      0.55      0.08    694.90
    6280.      554.     4917.      809.      270.      751.      488.      126.       24.    697.40
     0.19      2.06      6.55      1.66     0.070     0.040     0.070     0.000    692.50     29.75
 0.001795      421.      421.      421.         2         0         0      0.00    408.25    438.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
 4237.00     9.32    703.36     0.00      0.00    704.26      0.89      0.90      0.11    696.44
   6280.     458.     5448.     374.      197.     673.      144.      137.       27.     698.94
    0.21     2.33      8.09     2.60     0.070    0.040     0.070     0.000    694.04     32.18
0.003167     387.      387.     387.         2        0         0      0.00    244.18    276.36

*SECNO 4625.000

3470 ENCROACHMENT STATIONS=      33.1      247.8  TYPE=      1  TARGET=      214.780
        CROSS SECTION A REPEATED UPSTREAM
 4625.00     8.99    704.57     0.00      0.00    705.59      1.02      1.30      0.04    697.98
   6280.     405.     5529.     346.      171.     645.      128.      145.       29.     700.48
    0.22     2.37      8.57     2.71     0.070    0.040     0.070     0.000    695.58     33.06
0.003759     388.      388.     200.         2        0         0      0.00    214.78    247.84

*SECNO 5012.000
        CROSS SECTION A REPEATED
 5012.00     8.92    706.04     0.00      0.00    707.09      1.05      1.49      0.01    699.52
   6280.     392.     5549.     339.      164.     638.      124.      153.       31.     702.02
    0.23     2.38      8.69     2.73     0.070    0.040     0.070     0.000    697.12     33.28
0.003926     387.      387.     387.         2        0         0      0.00    213.99    247.27

*SECNO 5400.000
        CROSS SECTION A REPEATED UPSTREAM
 5400.00     8.87    707.53     0.00      0.00    708.60      1.07      1.51      0.01    701.06
   6280.     385.     5561.     335.      161.     634.      122.      161.       32.     703.56
    0.25     2.39      8.77     2.75     0.070    0.040     0.070     0.000    698.66     33.41
0.004023     388.      388.     230.         2        0         0      0.00    213.55    246.95

*SECNO 5787.000
        CROSS SECTION A REPEATED
 5787.00     8.85    709.05     0.00      0.00    710.13      1.08      1.53      0.00    702.60
   6280.     381.     5566.     333.      159.     633.      121.      169.       34.     705.10
    0.26     2.39      8.80     2.75     0.070    0.040     0.070     0.000    700.20     33.46
0.004069     387.      387.     200.         2        0         0      0.00    213.35    246.81
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6175.000
        CROSS SECTION A REPEATED UPSTREAM
  6175.00     8.89    710.63      0.00      0.00    711.70      1.06      1.56      0.00    704.14
    6280.     387.     5557.      336.      162.      636.      122.      177.       36.    706.64
     0.27     2.39      8.74      2.74     0.070     0.040     0.070     0.000    701.74     33.37
 0.003993     388.      388.      388.         1         0         0      0.00    213.68    247.05

*SECNO 6368.000

3470 ENCROACHMENT STATIONS=      60.0      253.0  TYPE=      1  TARGET=      193.000
  6368.00     8.87    711.38      0.00      0.00    712.50      1.11      0.79      0.02    704.91
    6280.     301.     5640.      339.      117.      634.      122.      181.       37.    707.41
     0.28     2.56      8.89      2.79     0.070     0.040     0.070     0.000    702.51     60.00
 0.004144     193.      193.      193.         2         0         0      0.00    186.94    246.94

CCHV=   0.500 CEHV=   1.000
*SECNO 6468.000

3470 ENCROACHMENT STATIONS=      86.5      226.5  TYPE=      1  TARGET=      140.000
  6468.00     8.70    711.81      0.00      0.00    712.99      1.18      0.43      0.06    705.51
    6280.     161.     5581.      538.       62.      618.       88.      183.       37.    708.01
     0.28     2.62      9.03      6.13     0.080     0.040     0.035     0.000    703.11     86.50
 0.004414     100.      100.      100.         1         0         0      0.00    140.00    226.50

*SECNO 6562.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00     9.01    712.26      0.00      0.00    713.92      1.66      0.45      0.48    705.75
    6280.      93.     5787.      400.       35.      546.       58.      184.       37.    704.75
     0.29     2.67     10.61      6.93     0.080     0.040     0.035     0.000    703.25     89.27
 0.005286      94.       94.       94.         2         0         0      0.00     96.20    185.46

CCHV=   0.100 CEHV=   0.300
*SECNO 6850.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00     9.45    713.85      0.00      0.00    715.32      1.46      1.38      0.02    706.90
    6280.     101.     5756.      423.       40.      577.       65.      188.       38.    705.90
     0.29     2.53      9.98      6.53     0.080     0.040     0.035     0.000    704.40     88.54
 0.004351     288.      288.      288.         2         0         0      0.00     97.84    186.38
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 6900.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
 6900.00     9.49     714.09      0.00       0.00     715.53      1.45       0.22       0.00     707.10
  6280.      102.      5754.      425.       40.       579.       65.        189.       38.      706.10
   0.30      2.52      9.93      6.50      0.080      0.040     0.035      0.000     704.60      88.47
0.004278     50.       50.       50.         0          0         0        0.00      97.99     186.46

*SECNO 6950.000

3470 ENCROACHMENT STATIONS=      87.0      183.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
 6950.00     9.50     714.30      0.00       0.00     715.75      1.45       0.21       0.00     707.30
  6280.      102.      5750.      428.       40.       580.       63.        190.       38.      706.30
   0.30      2.52      9.91      6.84      0.080      0.040     0.035      0.000     704.80      88.46
0.004259     50.       50.       50.         0          0         0        0.00      94.54     183.00

CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
 7000.00     9.59     714.39      0.00       0.00     716.17      1.78       0.26       0.17     707.30
  6280.        0.      6280.        0.         0.       586.        0.        191.       38.   100000.00
   0.30      0.00      10.71      0.00      0.000      0.040     0.000      0.000     704.80     100.00
0.006366     50.       50.       50.         2          0         0        0.00      70.00     170.00

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
 7001.00     9.59     714.39      0.00       0.00     716.18      1.79       0.00       0.00     707.30
  6280.        0.      6280.        0.         0.       584.        0.        191.       38.   100000.00
   0.30      0.00      10.75      0.00      0.000      0.030     0.000      0.000     704.80     100.00
0.003627      1.        1.        1.         0          0         0       -2.47      70.00     170.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7036.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0     170.0  TYPE=     1  TARGET=     70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00     9.80    714.60     0.00      0.00    716.31     1.71      0.12      0.01    707.30
   6280.        0.     6280.       0.        0.      598.       0.      191.       39.  100000.00
    0.30     0.00     10.50     0.00     0.000     0.030    0.000     0.000    704.80    100.00
 0.003368     35.       35.       35.         2         0        0     -2.62     70.00    170.00

*SECNO 7037.000

3470 ENCROACHMENT STATIONS=     100.0     170.0  TYPE=     1  TARGET=     70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00     9.84    714.64     0.00      0.00    716.32     1.68      0.00      0.00    707.30
   6280.        0.     6280.       0.        0.      604.       0.      191.       39.  100000.00
    0.30     0.00     10.41     0.00     0.000     0.040    0.000     0.000    704.80    100.00
 0.005823      1.        1.        1.         2         0        0      0.00     70.00    170.00

CCHV=   0.300 CEHV=   0.500
*SECNO 7047.000

3470 ENCROACHMENT STATIONS=      90.0     180.0  TYPE=     1  TARGET=     90.000
  7047.00    10.50    715.30     0.00      0.00    716.50     1.20      0.04      0.14    707.30
   6280.      121.     5876.     283.       50.      650.      65.      191.       39.    706.30
    0.30     2.43      9.04     4.33     0.080     0.040    0.050     0.000    704.80     90.00
 0.003045      10.       10.       10.         3         0        0      0.00     90.00    180.00

*SECNO 7137.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00    10.55    715.63     0.00      0.00    716.79     1.15      0.27      0.01    707.58
   6280.      122.     5814.     343.       53.      654.      84.      193.       39.    706.58
    0.30     2.29      8.90     4.09     0.080     0.040    0.050     0.000    705.08     86.72
 0.002923      90.       90.       90.         2         0        0      0.00    101.94    188.66

CCHV=   0.100 CEHV=   0.300
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 7517.000
CROSS SECTION AT M-19 BRIDGE REPEATED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7517.00 | 10.57 | 716.75 | 0.00 | 0.00 | 717.90 | 1.15 | 1.11 | 0.00 | 708.68 |
| 6280. | 123. | 5814. | 344. | 54. | 654. | 84. | 200. | 40. | 707.68 |
| 0.31 | 2.29 | 8.88 | 4.08 | 0.080 | 0.040 | 0.050 | 0.000 | 706.18 | 86.70 |
| 0.002910 | 380. | 380. | 380. | 2 | 0 | 0 | 0.00 | 101.98 | 188.69 |

*SECNO 7997.000
CROSS SECTION AT M-19 BRIDGE REPEATED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7997.00 | 10.58 | 718.14 | 0.00 | 0.00 | 719.29 | 1.14 | 1.39 | 0.00 | 710.06 |
| 6280. | 123. | 5813. | 344. | 54. | 656. | 85. | 209. | 41. | 709.06 |
| 0.33 | 2.28 | 8.86 | 4.07 | 0.080 | 0.040 | 0.050 | 0.000 | 707.56 | 86.67 |
| 0.002889 | 480. | 480. | 480. | 0 | 0 | 0 | 0.00 | 102.06 | 188.73 |

*SECNO 8477.000
CROSS SECTION AT M-19 BRIDGE REPEATED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8477.00 | 10.59 | 719.53 | 0.00 | 0.00 | 720.67 | 1.14 | 1.38 | 0.00 | 711.44 |
| 6280. | 123. | 5812. | 345. | 54. | 657. | 85. | 217. | 42. | 710.44 |
| 0.35 | 2.28 | 8.85 | 4.07 | 0.080 | 0.040 | 0.050 | 0.000 | 708.94 | 86.66 |
| 0.002878 | 480. | 480. | 480. | 0 | 0 | 0 | 0.00 | 102.09 | 188.75 |

*SECNO 8960.000
CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8960.00 | 10.87 | 721.17 | 0.00 | 0.00 | 722.08 | 0.91 | 1.38 | 0.02 | 711.80 |
| 6280. | 1975. | 4201. | 105. | 806. | 457. | 48. | 229. | 44. | 713.70 |
| 0.37 | 2.45 | 9.20 | 2.17 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 22.97 |
| 0.002842 | 483. | 483. | 483. | 2 | 0 | 0 | 0.00 | 316.98 | 339.95 |

*SECNO 8961.000
DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8961.00 | 10.87 | 721.17 | 0.00 | 0.00 | 722.08 | 0.91 | 0.00 | 0.00 | 711.80 |
| 6280. | 1974. | 4201. | 105. | 806. | 457. | 48. | 229. | 44. | 713.70 |
| 0.37 | 2.45 | 9.20 | 2.17 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 22.98 |
| 0.002843 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 316.97 | 339.95 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5070. VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.64 | 3.00 | 0.00 | 42.00 | 0.00 | 460.00 | 0.00 | 710.30 | 710.30 |

*SECNO 8972.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 725.92 | 722.08 | 0.00 | 2067. | 4242. | 460. | 458. | 721.20 | 721.40 |

UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8972.00 | 12.61 | 722.91 | 0.00 | 0.00 | 723.34 | 0.43 | 1.26 | 0.00 | 711.80 |
| 6280. | 2510. | 3607. | 163. | 1265. | 535. | 113. | 230. | 44. | 713.70 |
| 0.37 | 1.98 | 6.74 | 1.44 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 12.54 |
| 0.001237 | 11. | 11. | 11. | 2 | 0 | 2 | 0.00 | 364.51 | 377.06 |

CCHV= 0.100 CEHV= 0.300
*SECNO 8973.000
CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8973.00 | 12.61 | 722.91 | 0.00 | 0.00 | 723.34 | 0.43 | 0.00 | 0.00 | 711.80 |
| 6280. | 2510. | 3608. | 162. | 1265. | 535. | 113. | 230. | 44. | 713.70 |
| 0.37 | 1.98 | 6.75 | 1.44 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 12.56 |
| 0.001238 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 364.48 | 377.04 |

*SECNO 9200.000
CROSS SECTION AT UPSTREAM CORPORATE LIMIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9200.00 | 12.92 | 723.22 | 0.00 | 0.00 | 723.60 | 0.38 | 0.26 | 0.00 | 711.80 |
| 6280. | 2585. | 3518. | 177. | 1350. | 549. | 129. | 240. | 46. | 713.70 |
| 0.38 | 1.91 | 6.41 | 1.37 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 10.66 |
| 0.001079 | 227. | 227. | 227. | 2 | 0 | 0 | 0.00 | 369.81 | 380.47 |

THIS RUN EXECUTED 28 AUG 86 7:46:51

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
```

T1 MEMPHIS, MI - FIS
T2 100-YEAR FLOOD - ENCROACHED RUN
T3 BELLE RIVER

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 3. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 695.730 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000
 2800 NAT Q1=   1392.73  WSEL=    695.63  ENC Q1=   1392.73  WSEL=    695.73  RATIO=  0.0000
 NAT Q1=   1418.   RATIOS LOB,CH,ROB=  0.0725  0.8581  0.0694  WSEL=    695.73

3470 ENCROACHMENT STATIONS=     232.7     329.3  TYPE=     4  TARGET=       0.018
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.63    695.73     0.00    695.63    696.62     0.89      0.00      0.00    685.60
    6280.      417.     5470.     393.      117.      683.     113.        0.        0.     685.30
     0.00      3.58      8.01     3.49     0.060     0.040    0.060     0.000    684.10    232.75
 0.002024        0.        0.       0.         0         0        0      0.00     96.53    329.27

*SECNO 1808.000
 2800 NAT Q1=   1407.50  WSEL=    699.28  ENC Q1=   1407.50  WSEL=    699.38  RATIO=  0.0000
 NAT Q1=   1430.   RATIOS LOB,CH,ROB=  0.0729  0.8573  0.0698  WSEL=    699.38

3470 ENCROACHMENT STATIONS=     232.1     329.9  TYPE=     4  TARGET=       0.016
  1808.00     11.67    699.37     0.00    699.28    700.25     0.88      3.63      0.00    689.20
    6280.      424.     5454.     402.      119.      686.     116.       38.        4.     688.90
     0.07      3.55      7.95     3.47     0.060     0.040    0.060     0.000    687.70    232.15
 0.001987     1808.     1808.    1808.         2         0        0      0.00     97.70    329.85

*SECNO 1873.000
 2800 NAT Q1=   1375.73  WSEL=    699.38  ENC Q1=   1375.73  WSEL=    699.48  RATIO=  0.0000
 NAT Q1=   1418.   RATIOS LOB,CH,ROB=  0.0725  0.8581  0.0694  WSEL=    699.48

3470 ENCROACHMENT STATIONS=     235.6     326.7  TYPE=     4  TARGET=       0.030
  1873.00     11.61    699.46     0.00    699.38    700.40     0.93      0.13      0.02    689.35
    6280.      375.     5556.     349.      104.      682.     100.       39.        4.     689.05
     0.07      3.61      8.14     3.49     0.060     0.040    0.060     0.000    687.85    235.60
 0.002099       65.       65.       65.         2         0        0      0.00     91.09    326.68

CCHV=   0.300 CEHV=   0.500
*SECNO 1938.000
 2800 NAT Q1=    969.27  WSEL=    699.33  ENC Q1=   1177.33  WSEL=    699.43  RATIO= -0.2147
 NAT Q1=   1367.   RATIOS LOB,CH,ROB=  0.0707  0.8612  0.0681  WSEL=    699.43

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     4  TARGET=       0.139
```

```
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.43    699.43      0.00    699.33    700.80      1.36      0.18      0.21    689.50
    6280.        0.     6280.        0.        0.      671.        0.       41.        4.    689.20
     0.07      0.00      9.37      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004069       65.       65.       65.         2         0         0      0.00     65.00    314.00


CCHV=   0.100 CEHV=   0.300
*SECNO 1939.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80


3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00     11.44    699.44      0.00    699.33    700.80      1.36      0.00      0.00    689.50
    6280.        0.     6280.        0.        0.      671.        0.       41.        4.  100000.00
     0.07      0.00      9.36      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002287        1.        1.        1.         0         0         0      0.00     65.00    314.00


*SECNO 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80


3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00     11.54    699.54      0.00    699.44    700.88      1.33      0.07      0.00    689.50
    6280.        0.     6280.        0.        0.      678.        0.       41.        4.  100000.00
     0.07      0.00      9.27      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002218       33.       33.       33.         0         0         0      0.00     65.00    314.00


*SECNO 1973.000
 2800 NAT Q1=    985.71  WSEL=    699.44  ENC Q1=   1199.58  WSEL=    699.54  RATIO= -0.2170
 NAT Q1=   1368.  RATIOS LOB,CH,ROB=  0.0628  0.8771  0.0602  WSEL=    699.54

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     4  TARGET=       0.123
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00     11.55    699.55      0.00    699.44    700.88      1.33      0.00      0.00    689.50
    6280.        0.     6280.        0.        0.      678.        0.       41.        4.    689.20
     0.07      0.00      9.27      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.003941        1.        1.        1.         0         0         0      0.00     65.00    314.00


*SECNO 2007.000
 2800 NAT Q1=   1426.61  WSEL=    700.08  ENC Q1=   1426.61  WSEL=    700.18  RATIO=  0.0000
 NAT Q1=   1450.  RATIOS LOB,CH,ROB=  0.0652  0.8721  0.0627  WSEL=    700.18
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      232.2      330.0  TYPE=      4  TARGET=        0.016
  2007.00     11.83    700.13      0.00    700.08    701.02      0.89      0.09      0.04    689.80
    6280.      373.     5553.      355.      122.      696.      119.       42.        4.    689.50
     0.07      3.05      7.97      2.98     0.070     0.040     0.070     0.000    688.30    232.15
 0.001958       34.       34.       34.         2         0         0      0.00     97.85    330.00


CCHV=   0.300 CEHV=   0.500
*SECNO 2072.000

3470 ENCROACHMENT STATIONS=      107.0      327.0  TYPE=      1  TARGET=      220.000
        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.15    700.85      0.00    700.79    701.25      0.40      0.09      0.15    696.20
    6280.      575.     5328.      377.      312.      972.      214.       44.        5.    692.80
     0.08      1.84      5.48      1.76     0.070     0.040     0.070     0.000    688.70    107.00
 0.001056       65.       65.       65.         2         0         0      0.00    220.00    327.00


*SECNO 2172.000
 2800 NAT Q1=   2416.03  WSEL=    701.08  ENC Q1=   2416.03  WSEL=    701.18  RATIO=  0.0000
 NAT Q1=   2477.   RATIOS LOB,CH,ROB=  0.2051  0.6993  0.0956  WSEL=    701.18

3470 ENCROACHMENT STATIONS=      266.6      644.4  TYPE=      4  TARGET=        0.025
        FIELD MEASURED CROSS SECTION
  2172.00     12.45    701.15      0.00    701.08    701.39      0.24      0.08      0.05    696.20
    6280.     1237.     4510.      533.      797.     1001.      397.       48.        5.    692.80
     0.09      1.55      4.50      1.34     0.070     0.040     0.070     0.000    688.70    266.63
 0.000685      100.      100.      100.         2         0         0      0.00    377.72    644.35


CCHV=   0.100 CEHV=   0.300
*SECNO 2591.000
 2800 NAT Q1=   2050.51  WSEL=    701.36  ENC Q1=   2050.51  WSEL=    701.46  RATIO=  0.0000
 NAT Q1=   2103.   RATIOS LOB,CH,ROB=  0.1863  0.7352  0.0786  WSEL=    701.46

3470 ENCROACHMENT STATIONS=      270.9      626.1  TYPE=      4  TARGET=        0.025
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.78    701.43      0.00    701.36    701.75      0.31      0.34      0.02    697.15
    6280.     1114.     4745.      421.      670.      935.      287.       67.        9.    693.75
     0.11      1.66      5.07      1.47     0.070     0.040     0.070     0.000    689.65    270.94
 0.000952      419.      419.      419.         2         0         0      0.00    355.11    626.05
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 3010.000
 2800 NAT Q1=   1771.52  WSEL=    701.76  ENC Q1=   1771.52  WSEL=    701.86  RATIO=  0.0000
 NAT Q1=   1820.  RATIOS LOB,CH,ROB=  0.1679  0.7682  0.0639  WSEL=    701.86

3470 ENCROACHMENT STATIONS=     276.4     605.6  TYPE=     4  TARGET=       0.027
        CROSS SECTION REPEATED UPSTREAM
  3010.00    11.23   701.83     0.00   701.76   702.23     0.40     0.46     0.03   698.10
    6280.      991.    4966.     323.     564.     881.     202.      84.      12.   694.70
     0.14     1.76     5.64     1.60    0.070    0.040    0.070    0.000   690.60   276.36
 0.001275     419.     419.     419.        2        0        0     0.00   329.22   605.59


*SECNO 3429.000
 2800 NAT Q1=   2000.42  WSEL=    702.34  ENC Q1=   2000.42  WSEL=    702.44  RATIO=  0.0000
 NAT Q1=   2058.  RATIOS LOB,CH,ROB=  0.0857  0.6406  0.2737  WSEL=    702.44

3470 ENCROACHMENT STATIONS=      48.2     551.9  TYPE=     4  TARGET=       0.028
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00    10.88   702.43     0.00   702.34   702.71     0.28     0.47     0.01   693.95
    6280.      461.    4127.    1692.     270.     809.    1107.     103.      16.   696.45
     0.17     1.71     5.10     1.53    0.070    0.040    0.070    0.000   691.55    48.17
 0.000985     419.     419.     419.        2        0        0     0.00   503.72   551.89


*SECNO 3850.000

3470 ENCROACHMENT STATIONS=      29.8     438.0  TYPE=     1  TARGET=     408.250
        CROSS SECTION A
  3850.00    10.31   702.81     0.00   702.71   703.31     0.51     0.53     0.07   694.90
    6280.      565.    4875.     840.     278.     759.     511.     121.      21.   697.40
     0.19     2.03     6.42     1.65    0.070    0.040    0.070    0.000   692.50    29.75
 0.001701     421.     421.     421.        2        0        0     0.00   408.25   438.00


*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
  4237.00     9.38   703.42     0.00   703.36   704.29     0.87     0.87     0.11   696.44
    6280.      466.    5434.     380.     201.     678.     150.     132.      24.   698.94
     0.20     2.32     8.01     2.53    0.070    0.040    0.070    0.000   694.04    32.03
 0.003076     387.     387.     387.        2        0        0     0.00   313.32   345.35
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EQ        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 4625.000
 2800 NAT Q1=    1024.29  WSEL=     704.57  ENC Q1=    1024.29  WSEL=     704.67  RATIO=  0.0000
 NAT Q1=    1051.   RATIOS LOB,CH,ROB=  0.0670  0.8765  0.0564  WSEL=     704.67

3470 ENCROACHMENT STATIONS=       55.2      226.0  TYPE=      4  TARGET=        0.026
        CROSS SECTION A REPEATED UPSTREAM
  4625.00      9.00    704.58      0.00    704.57    705.66      1.08      1.31      0.06    697.98
    6280.       337.     5652.      291.      134.      645.       94.      140.       26.    700.48
     0.22      2.52      8.76      3.09     0.070     0.040     0.070     0.000    695.58     55.18
 0.003929      388.      388.      200.         2         0         0      0.00    170.79    225.97

*SECNO 5012.000
 2800 NAT Q1=    1002.30  WSEL=     706.04  ENC Q1=    1002.30  WSEL=     706.14  RATIO=  0.0000
 NAT Q1=    1030.   RATIOS LOB,CH,ROB=  0.0650  0.8796  0.0553  WSEL=     706.14

3470 ENCROACHMENT STATIONS=       56.8      225.3  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED
  5012.00      8.98    706.10      0.00    706.04    707.20      1.10      1.53      0.00    699.52
    6280.       328.     5664.      287.      129.      644.       92.      148.       27.    702.02
     0.23      2.54      8.80      3.13     0.070     0.040     0.070     0.000    697.12     56.84
 0.003979      387.      387.      387.         2         0         0      0.00    168.47    225.32

*SECNO 5400.000
 2800 NAT Q1=     990.07  WSEL=     707.53  ENC Q1=     990.07  WSEL=     707.63  RATIO=  0.0000
 NAT Q1=    1017.   RATIOS LOB,CH,ROB=  0.0639  0.8814  0.0547  WSEL=     707.63

3470 ENCROACHMENT STATIONS=       57.5      225.1  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED UPSTREAM
  5400.00      8.96    707.62      0.00    707.53    708.72      1.11      1.52      0.00    701.06
    6280.       323.     5671.      286.      127.      642.       90.      155.       28.    703.56
     0.24      2.55      8.84      3.16     0.070     0.040     0.070     0.000    698.66     57.47
 0.004029      388.      388.      230.         2         0         0      0.00    167.62    225.10

*SECNO 5787.000
 2800 NAT Q1=     984.50  WSEL=     709.05  ENC Q1=     984.50  WSEL=     709.15  RATIO=  0.0000
 NAT Q1=    1012.   RATIOS LOB,CH,ROB=  0.0633  0.8823  0.0544  WSEL=     709.15

3470 ENCROACHMENT STATIONS=       57.8      225.0  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED
  5787.00      8.94    709.14      0.00    709.05    710.27      1.12      1.54      0.00    702.60
    6280.       321.     5695.      264.      125.      640.       90.      163.       30.    705.10
     0.26      2.56      8.89      2.94     0.070     0.040     0.070     0.000    700.20     57.78
 0.004088      387.      387.      200.         2         0         0      0.00    167.21    224.99
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6175.000
 2800 NAT Q1=    993.82  WSEL=    710.63  ENC Q1=    993.82  WSEL=    710.73  RATIO=  0.0000
 NAT Q1=   1023.  RATIOS LOB,CH,ROB=  0.0644  0.8806  0.0550  WSEL=    710.73

3470 ENCROACHMENT STATIONS=      58.3     224.7  TYPE=     4  TARGET=       0.028
        CROSS SECTION A REPEATED UPSTREAM
  6175.00     8.99   710.73     0.00   710.63   711.84     1.11     1.57     0.00   704.14
    6280.     324.    5692.     264.     127.     644.      90.     170.      31.    706.64
     0.27     2.56     8.84     2.93    0.070    0.040    0.070    0.000   701.74    58.33
 0.004007     388.     388.     388.        2        0        0     0.00   166.38   224.72

*SECNO 6368.000
 2800 NAT Q1=    975.56  WSEL=    711.38  ENC Q1=    975.56  WSEL=    711.48  RATIO=  0.0000
 NAT Q1=   1017.  RATIOS LOB,CH,ROB=  0.0638  0.8815  0.0547  WSEL=    711.48

3470 ENCROACHMENT STATIONS=      68.0     220.8  TYPE=     4  TARGET=       0.041
  6368.00     8.97   711.48     0.00   711.38   712.64     1.16     0.79     0.01   704.91
    6280.     285.    5767.     228.     107.     643.      77.     174.      32.    707.41
     0.27     2.67     8.97     2.96    0.070    0.040    0.070    0.000   702.51    68.00
 0.004136     193.     193.     193.        0        0        0     0.00   152.84   220.83

CCHV=   0.500 CEHV=   1.000
*SECNO 6468.000
 2800 NAT Q1=    945.20  WSEL=    711.81  ENC Q1=    945.20  WSEL=    711.91  RATIO=  0.0000
 NAT Q1=   1013.  RATIOS LOB,CH,ROB=  0.0496  0.8504  0.0999  WSEL=    711.91

3470 ENCROACHMENT STATIONS=     106.4     221.6  TYPE=     4  TARGET=       0.067
  6468.00     8.80   711.91     0.00   711.81   713.12     1.21     0.43     0.05   705.51
    6280.     124.    5707.     449.      36.     628.      76.     176.      32.    708.01
     0.28     3.45     9.09     5.93    0.080    0.040    0.035    0.000   703.11   106.40
 0.004389     100.     100.     100.        2        0        0     0.00   115.19   221.59

*SECNO 6562.000

3470 ENCROACHMENT STATIONS=      92.0     178.0  TYPE=     1  TARGET=      86.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00     9.11   712.36     0.00   712.26   714.03     1.68     0.45     0.47   705.75
    6280.      93.    5864.     323.      33.     552.      45.     177.      33.    704.75
     0.28     2.80    10.62     7.17    0.080    0.040    0.035    0.000   703.25    92.00
 0.005215      94.      94.      94.        2        0        0     0.00    86.00   178.00
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 6850.000
 2800 NAT Q1=     952.04  WSEL=     713.85  ENC Q1=     952.04  WSEL=     713.95  RATIO=  0.0000
 NAT Q1=     972.   RATIOS LOB,CH,ROB=  0.0163  0.9155  0.0681  WSEL=     713.95

3470 ENCROACHMENT STATIONS=      97.6      179.6  TYPE=      4  TARGET=       0.021
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00      9.50    713.90      0.00    713.85    715.43      1.54      1.39      0.01    706.90
    6280.       27.     5875.      378.       15.      580.       54.      182.       33.    705.90
     0.29      1.83     10.14      6.98     0.080     0.040     0.035     0.000    704.40     97.63
 0.004456      288.      288.      288.         2         0         0      0.00     82.01    179.64


*SECNO 6900.000
 2800 NAT Q1=     960.18  WSEL=     714.09  ENC Q1=     960.18  WSEL=     714.19  RATIO=  0.0000
 NAT Q1=     979.   RATIOS LOB,CH,ROB=  0.0164  0.9152  0.0684  WSEL=     714.19

3470 ENCROACHMENT STATIONS=      97.3      179.9  TYPE=      4  TARGET=       0.019
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6900.00      9.54    714.14      0.00    714.09    715.66      1.51      0.22      0.00    707.10
    6280.       33.     5861.      386.       17.      583.       56.      182.       33.    706.10
     0.29      1.93     10.05      6.94     0.080     0.040     0.035     0.000    704.60     97.26
 0.004350       50.       50.       50.         2         0         0      0.00     82.66    179.91


*SECNO 6950.000
 2800 NAT Q1=     962.34  WSEL=     714.30  ENC Q1=     962.34  WSEL=     714.40  RATIO=  0.0000
 NAT Q1=     982.   RATIOS LOB,CH,ROB=  0.0165  0.9150  0.0685  WSEL=     714.40

3470 ENCROACHMENT STATIONS=      97.4      179.8  TYPE=      4  TARGET=       0.020
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
  6950.00      9.56    714.36      0.00    714.30    715.87      1.51      0.22      0.00    707.30
    6280.       31.     5865.      384.       16.      584.       55.      183.       33.    706.30
     0.29      1.89     10.05      6.93     0.080     0.040     0.035     0.000    704.80     97.38
 0.004336       50.       50.       50.         0         0         0      0.00     82.46    179.84


CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
  7000.00      9.71    714.51      0.00    714.39    716.24      1.73      0.26      0.11    707.30
    6280.        0.     6280.        0.         0.      594.        0.      184.       33. 100000.00
     0.29      0.00     10.57      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.006102       50.       50.       50.         2         0         0      0.00     70.00    170.00
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=      70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
  7001.00      9.70    714.50      0.00    714.39    716.25      1.75      0.00      0.00    707.30
   6280.         0.     6280.        0.        0.      592.        0.      184.       33.  100000.00
    0.29      0.00     10.61      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003477       1.        1.        1.         0         0         0     -2.55     70.00    170.00

*SECNO 7036.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=      70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00      9.90    714.70      0.00    714.60    716.37      1.67      0.12      0.01    707.30
   6280.         0.     6280.        0.        0.      605.        0.      184.       33.  100000.00
    0.29      0.00     10.37      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003250      35.       35.       35.         2         0         0     -2.69     70.00    170.00

*SECND 7037.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00      9.94    714.74      0.00    714.64    716.38      1.64      0.00      0.00    707.30
   6280.         0.     6280.        0.        0.      611.        0.      184.       33.  100000.00
    0.29      0.00     10.29      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.005620       1.        1.        1.         2         0         0      0.00     70.00    170.00

CCHV=   0.300 CEHV=   0.500
*SECND 7047.000

3470 ENCROACHMENT STATIONS=       90.0      180.0  TYPE=      1  TARGET=      90.000
  7047.00     10.58    715.38      0.00    715.30    716.56      1.18      0.04      0.14    707.30
   6280.       121.     5875.      284.       50.      655.       66.      184.       33.     706.30
    0.29      2.41      8.97      4.29     0.080     0.040     0.050     0.000    704.80     90.00
 0.002962      10.       10.       10.         3         0         0      0.00     90.00    180.00
```

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 7137.000

3470 ENCROACHMENT STATIONS=      89.0      185.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00     10.62    715.70      0.00    715.63    716.83      1.13      0.26      0.01    707.58
    6280.       124.     5806.      349.       53.      658.       82.      186.       34.    706.58
     0.30      2.36      8.82      4.27     0.080     0.040     0.050     0.000    705.08     89.00
 0.002847       90.       90.       90.         2         0         0      0.00     96.00    185.00


CCHV=   0.100 CEHV=   0.300
*SECNO 7517.000

3470 ENCROACHMENT STATIONS=      86.7      188.0  TYPE=      1  TARGET=     101.300
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7517.00     10.60    716.78      0.00    716.75    717.92      1.14      1.09      0.00    708.68
    6280.       123.     5807.      349.       54.      657.       85.      193.       35.    707.68
     0.31      2.28      8.84      4.12     0.080     0.040     0.050     0.000    706.18     86.70
 0.002867      380.      380.      380.         2         0         0      0.00    101.30    188.00


*SECNO 7997.000
 2800 NAT Q1=    1168.45  WSEL=     718.14  ENC Q1=    1168.45  WSEL=     718.24  RATIO=  0.0000
 NAT Q1=    1190.   RATIOS LOB,CH,ROB=  0.0199  0.9247  0.0554  WSEL=     718.24

3470 ENCROACHMENT STATIONS=      95.6      180.8  TYPE=      4  TARGET=       0.018
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7997.00     10.58    718.14      0.00    718.14    719.35      1.21      1.41      0.02    710.06
    6280.        61.     5917.      302.       30.      655.       69.      201.       36.    709.06
     0.32      2.03      9.03      4.36     0.080     0.040     0.050     0.000    707.56     95.55
 0.003000      480.      480.      480.         0         0         0      0.00     85.22    180.77


*SECNO 8477.000
 2800 NAT Q1=    1170.53  WSEL=     719.53  ENC Q1=    1170.53  WSEL=     719.63  RATIO=  0.0000
 NAT Q1=    1191.   RATIOS LOB,CH,ROB=  0.0199  0.9247  0.0555  WSEL=     719.63

3470 ENCROACHMENT STATIONS=      95.4      180.9  TYPE=      4  TARGET=       0.018
        CROSS SECTION AT M-19 BRIDGE REPEATED
  8477.00     10.65    719.59      0.00    719.53    720.77      1.19      1.42      0.00    711.44
    6280.        63.     5912.      305.       31.      660.       70.      210.       36.    710.44
     0.34      2.04      8.96      4.33     0.080     0.040     0.050     0.000    708.94     95.42
 0.002925      480.      480.      480.         2         0         0      0.00     85.46    180.88
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 8960.000
 2800 NAT Q1=    1178.03  WSEL=     721.17  ENC Q1=    1178.03  WSEL=     721.27  RATIO=  0.0000
 NAT Q1=    1208.   RATIOS LOB,CH,ROB=  0.3201  0.6629  0.0169  WSEL=     721.27

3470 ENCROACHMENT STATIONS=       52.7      329.0  TYPE=      4  TARGET=        0.024
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
  8960.00     10.95    721.25      0.00    721.17    722.20      0.95      1.40      0.02    711.80
    6280.     1982.     4279.       19.      780.      460.       14.      221.       38.    713.70
     0.36      2.54      9.29      1.36     0.080     0.040     0.080     0.000    710.30     52.66
 0.002867      483.      483.      483.         2         0         0      0.00    276.34    329.00


*SECNO 8961.000
 2800 NAT Q1=    1177.83  WSEL=     721.17  ENC Q1=    1177.83  WSEL=     721.27  RATIO=  0.0000
 NAT Q1=    1208.   RATIOS LOB,CH,ROB=  0.3203  0.6628  0.0170  WSEL=     721.27

3470 ENCROACHMENT STATIONS=       53.2      328.8  TYPE=      4  TARGET=        0.025
        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
  8961.00     10.95    721.25      0.00    721.17    722.20      0.95      0.00      0.00    711.80
    6280.     1981.     4283.       17.      778.      460.       13.      221.       39.    713.70
     0.36      2.55      9.30      1.30     0.080     0.040     0.080     0.000    710.30     53.21
 0.002875        1.        1.        1.         0         0         0      0.00    275.61    328.82


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.64      3.00      0.00     42.00      0.00    460.00      0.00    710.30    710.30

*SECNO 8972.000
 2800 NAT Q1=    1785.44  WSEL=     722.91  ENC Q1=    1785.44  WSEL=     723.01  RATIO=  0.0000
 NAT Q1=    1824.   RATIOS LOB,CH,ROB=  0.4035  0.5699  0.0266  WSEL=     723.01
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       37.0      336.7  TYPE=      4  TARGET=        0.021
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
  8972.00     12.69    722.99      0.00    722.91    723.43      0.44      0.02      0.05    711.80
    6280.     2515.     3657.      108.     1237.      538.       63.      221.       39.    713.70
     0.36      2.03      6.79      1.71     0.080     0.040     0.080     0.000    710.30     37.01
 0.001244       11.       11.       11.         0         0         2      0.00    299.72    336.74
```

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 8973.000
 2800 NAT Q1=   1784.71  WSEL=    722.91  ENC Q1=   1784.71  WSEL=    723.01  RATIO=  0.0000
 NAT Q1=   1824.  RATIOS LOB,CH,ROB=  0.4035  0.5699  0.0266  WSEL=    723.01

3470 ENCROACHMENT STATIONS=      37.4     336.5  TYPE=     4  TARGET=       0.022
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
  8973.00    12.69   722.99     0.00   722.91   723.43     0.44     0.00     0.00   711.80
    6280.    2515.    3659.     106.    1236.     538.      62.     221.      39.   713.70
     0.36     2.03     6.80     1.71    0.080    0.040    0.080    0.000   710.30    37.41
 0.001245       1.       1.       1.        0        0        0     0.00   299.08   336.48


*SECNO 9200.000
 2800 NAT Q1=   1912.06  WSEL=    723.22  ENC Q1=   1912.06  WSEL=    723.32  RATIO=  0.0000
 NAT Q1=   1953.  RATIOS LOB,CH,ROB=  0.4152  0.5558  0.0289  WSEL=    723.32

3470 ENCROACHMENT STATIONS=      35.3     338.7  TYPE=     4  TARGET=       0.021
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
  9200.00    13.01   723.31     0.00   723.22   723.70     0.39     0.26     0.01   711.80
    6280.    2592.    3567.     121.    1322.     553.      73.     231.      40.   713.70
     0.37     1.96     6.45     1.66    0.080    0.040    0.080    0.000   710.30    35.30
 0.001084     227.     227.     227.        2        0        0     0.00   303.42   338.72
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THIS RUN EXECUTED 28 AUG 86 7:46:55

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BELLE RIVER

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 695.63 | 0.63 | 696.51 | 116.25 | 449.92 | 5398.63 | 431.45 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 0.000 | 695.73 | 0.10 | 696.62 | 96.53 | 416.69 | 5470.21 | 393.10 | 0.02 | 232.75 | 249.00 | 314.00 | 329.28 |
| 1808.000 | 699.28 | 0.00 | 700.14 | 116.56 | 453.10 | 5393.38 | 433.52 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 1808.000 | 699.37 | 0.09 | 700.25 | 97.70 | 423.97 | 5454.47 | 401.56 | 0.02 | 232.15 | 249.00 | 314.00 | 329.85 |
| 1873.000 | 699.38 | 0.00 | 700.29 | 97.00 | 411.25 | 5466.34 | 402.41 | 97.00 | 233.00 | 249.00 | 314.00 | 330.00 |
| 1873.000 | 699.46 | 0.08 | 700.40 | 91.09 | 374.75 | 5556.21 | 349.04 | 0.03 | 235.60 | 249.00 | 314.00 | 326.68 |
| 1938.000 | 699.33 | 0.00 | 700.72 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1938.000 | 699.43 | 0.11 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 0.14 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1939.000 | 699.33 | 0.00 | 700.72 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1939.000 | 699.44 | 0.11 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1972.000 | 699.44 | 0.00 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1972.000 | 699.54 | 0.10 | 700.88 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1973.000 | 699.44 | 0.00 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1973.000 | 699.55 | 0.10 | 700.88 | 65.00 | 0.00 | 6280.00 | 0.00 | 0.12 | 249.00 | 249.00 | 314.00 | 314.00 |
| 2007.000 | 700.08 | 0.00 | 700.95 | 117.58 | 405.10 | 5485.89 | 389.00 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 2007.000 | 700.13 | 0.05 | 701.02 | 97.85 | 372.55 | 5552.90 | 354.55 | 0.02 | 232.15 | 249.00 | 314.00 | 330.00 |
| 2072.000 | 700.79 | 0.00 | 701.18 | 247.00 | 604.82 | 5226.08 | 449.10 | 247.00 | 101.00 | 175.00 | 274.00 | 348.00 |
| 2072.000 | 700.85 | 0.06 | 701.25 | 220.00 | 575.36 | 5327.98 | 376.66 | 220.00 | 107.00 | 175.00 | 274.00 | 327.00 |
| 2172.000 | 701.08 | 0.00 | 701.31 | 448.26 | 1265.03 | 4429.46 | 585.51 | 464.00 | 253.00 | 435.00 | 534.00 | 717.00 |
| 2172.000 | 701.15 | 0.07 | 701.39 | 377.72 | 1237.12 | 4510.11 | 532.77 | 0.02 | 266.63 | 435.00 | 534.00 | 644.35 |
| 2591.000 | 701.36 | 0.00 | 701.66 | 447.15 | 1150.25 | 4652.77 | 476.98 | 800.00 | 0.00 | 435.00 | 534.00 | 800.00 |
| 2591.000 | 701.43 | 0.07 | 701.75 | 355.11 | 1113.96 | 4745.05 | 420.99 | 0.03 | 270.94 | 435.00 | 534.00 | 626.06 |

| SECND | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3010.000 | 701.76 | 0.00 | 702.14 | 430.89 | 1031.59 | 4863.86 | 384.55 | 0.00 | 0.00 | 435.00 | 534.00 | 0.00 |
| 3010.000 | 701.83 | 0.07 | 702.23 | 329.22 | 990.61 | 4966.01 | 323.37 | 0.03 | 276.36 | 435.00 | 534.00 | 605.59 |
| 3429.000 | 702.34 | 0.00 | 702.62 | 536.97 | 531.45 | 4064.42 | 1684.12 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 3429.000 | 702.43 | 0.09 | 702.71 | 503.72 | 460.55 | 4127.06 | 1692.38 | 0.03 | 48.17 | 113.00 | 200.00 | 551.89 |
| 3850.000 | 702.71 | 0.00 | 703.24 | 408.25 | 554.37 | 4917.04 | 808.59 | 408.25 | 29.75 | 113.00 | 200.00 | 438.00 |
| 3850.000 | 702.81 | 0.10 | 703.31 | 408.25 | 564.64 | 4875.42 | 839.94 | 408.25 | 29.75 | 113.00 | 200.00 | 438.00 |
| 4237.000 | 703.36 | 0.00 | 704.26 | 244.18 | 457.56 | 5448.21 | 374.23 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 4237.000 | 703.42 | 0.06 | 704.29 | 313.32 | 466.24 | 5433.65 | 380.10 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 4625.000 | 704.57 | 0.00 | 705.59 | 214.78 | 405.18 | 5529.00 | 345.81 | 214.78 | 33.06 | 113.00 | 200.00 | 247.84 |
| 4625.000 | 704.58 | 0.00 | 705.66 | 170.79 | 336.84 | 5652.34 | 290.82 | 0.03 | 55.18 | 113.00 | 200.00 | 225.97 |
| 5012.000 | 706.04 | 0.00 | 707.09 | 213.99 | 391.98 | 5549.32 | 338.69 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5012.000 | 706.10 | 0.06 | 707.20 | 168.47 | 328.12 | 5664.46 | 287.42 | 0.03 | 56.84 | 113.00 | 200.00 | 225.32 |
| 5400.000 | 707.53 | 0.00 | 708.60 | 213.55 | 384.53 | 5560.80 | 334.67 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5400.000 | 707.62 | 0.08 | 708.72 | 167.62 | 323.03 | 5671.21 | 285.76 | 0.03 | 57.47 | 113.00 | 200.00 | 225.10 |
| 5787.000 | 709.05 | 0.00 | 710.13 | 213.35 | 381.11 | 5566.07 | 332.82 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5787.000 | 709.14 | 0.09 | 710.27 | 167.21 | 321.31 | 5694.56 | 264.13 | 0.03 | 57.78 | 113.00 | 200.00 | 224.99 |
| 6175.000 | 710.63 | 0.00 | 711.70 | 213.68 | 386.82 | 5557.27 | 335.90 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 6175.000 | 710.73 | 0.10 | 711.84 | 166.38 | 324.16 | 5692.07 | 263.77 | 0.03 | 58.33 | 113.00 | 200.00 | 224.72 |
| 6368.000 | 711.38 | 0.00 | 712.50 | 186.94 | 300.52 | 5640.30 | 339.19 | 193.00 | 60.00 | 113.00 | 200.00 | 253.00 |
| 6368.000 | 711.48 | 0.10 | 712.64 | 152.84 | 284.93 | 5767.22 | 227.85 | 0.04 | 68.00 | 113.00 | 200.00 | 220.84 |
| 6468.000 | 711.81 | 0.00 | 712.99 | 140.00 | 161.46 | 5580.99 | 537.55 | 140.00 | 86.50 | 113.00 | 200.00 | 226.50 |
| 6468.000 | 711.91 | 0.10 | 713.12 | 115.19 | 123.97 | 5706.54 | 449.48 | 0.07 | 106.40 | 113.00 | 200.00 | 221.59 |
| 6562.000 | 712.26 | 0.00 | 713.92 | 96.20 | 93.40 | 5787.04 | 399.55 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6562.000 | 712.36 | 0.09 | 714.03 | 86.00 | 93.48 | 5863.86 | 322.65 | 86.00 | 92.00 | 100.00 | 170.00 | 178.00 |
| 6850.000 | 713.85 | 0.00 | 715.32 | 97.84 | 100.98 | 5756.34 | 422.69 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6850.000 | 713.90 | 0.04 | 715.43 | 82.01 | 27.17 | 5874.59 | 378.24 | 0.02 | 97.63 | 100.00 | 170.00 | 179.64 |
| 6900.000 | 714.09 | 0.00 | 715.53 | 97.99 | 101.65 | 5753.59 | 424.76 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6900.000 | 714.14 | 0.06 | 715.66 | 82.66 | 32.99 | 5861.47 | 385.53 | 0.02 | 97.26 | 100.00 | 170.00 | 179.91 |
| 6950.000 | 714.30 | 0.00 | 715.75 | 94.54 | 101.73 | 5749.86 | 428.40 | 96.00 | 87.00 | 100.00 | 170.00 | 183.00 |
| 6950.000 | 714.36 | 0.06 | 715.87 | 82.46 | 31.06 | 5864.79 | 384.15 | 0.02 | 97.38 | 100.00 | 170.00 | 179.84 |
| 7000.000 | 714.39 | 0.00 | 716.17 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7000.000 | 714.51 | 0.12 | 716.24 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7001.000 | 714.39 | 0.00 | 716.18 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7001.000 | 714.50 | 0.12 | 716.25 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |

| SECNO | CWSEL | DIFKWS | EQ | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7036.000 | 714.60 | 0.00 | 716.31 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7036.000 | 714.70 | 0.10 | 716.37 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7037.000 | 714.64 | 0.00 | 716.32 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7037.000 | 714.74 | 0.10 | 716.38 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7047.000 | 715.30 | 0.00 | 716.50 | 90.00 | 120.55 | 5876.41 | 283.04 | 90.00 | 90.00 | 100.00 | 170.00 | 180.00 |
| 7047.000 | 715.38 | 0.08 | 716.56 | 90.00 | 121.48 | 5874.88 | 283.64 | 90.00 | 90.00 | 100.00 | 170.00 | 180.00 |
| 7137.000 | 715.63 | 0.00 | 716.79 | 101.94 | 122.43 | 5814.28 | 343.28 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7137.000 | 715.70 | 0.07 | 716.83 | 96.00 | 124.25 | 5806.47 | 349.28 | 96.00 | 89.00 | 100.00 | 170.00 | 185.00 |
| 7517.000 | 716.75 | 0.00 | 717.90 | 101.98 | 122.64 | 5813.63 | 343.72 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7517.000 | 716.78 | 0.04 | 717.92 | 101.30 | 123.35 | 5807.46 | 349.18 | 101.30 | 86.70 | 100.00 | 170.00 | 188.00 |
| 7997.000 | 718.14 | 0.00 | 719.29 | 102.06 | 122.99 | 5812.55 | 344.46 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7997.000 | 718.14 | 0.00 | 719.35 | 85.22 | 60.88 | 5917.06 | 302.07 | 0.02 | 95.55 | 100.00 | 170.00 | 180.77 |
| 8477.000 | 719.53 | 0.00 | 720.67 | 102.09 | 123.16 | 5812.03 | 344.81 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 8477.000 | 719.59 | 0.06 | 720.77 | 85.46 | 62.94 | 5912.33 | 304.73 | 0.02 | 95.42 | 100.00 | 170.00 | 180.88 |
| 8960.000 | 721.17 | 0.00 | 722.08 | 316.98 | 1974.66 | 4200.54 | 104.80 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8960.000 | 721.25 | 0.08 | 722.20 | 276.34 | 1982.25 | 4278.68 | 19.07 | 0.02 | 52.66 | 282.00 | 327.00 | 329.01 |
| 8961.000 | 721.17 | 0.00 | 722.08 | 316.97 | 1974.41 | 4200.79 | 104.80 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8961.000 | 721.25 | 0.08 | 722.20 | 275.61 | 1980.54 | 4282.86 | 16.60 | 0.03 | 53.21 | 282.00 | 327.00 | 328.82 |
| 8972.000 | 722.91 | 0.00 | 723.34 | 364.51 | 2510.39 | 3607.09 | 162.51 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8972.000 | 722.99 | 0.08 | 723.43 | 299.72 | 2515.07 | 3656.83 | 108.09 | 0.02 | 37.01 | 282.00 | 327.00 | 336.74 |
| 8973.000 | 722.91 | 0.00 | 723.34 | 364.48 | 2509.93 | 3607.64 | 162.43 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8973.000 | 722.99 | 0.08 | 723.43 | 299.08 | 2514.95 | 3658.89 | 106.16 | 0.02 | 37.41 | 282.00 | 327.00 | 336.48 |
| 9200.000 | 723.22 | 0.00 | 723.60 | 369.81 | 2585.13 | 3517.85 | 177.02 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 9200.000 | 723.31 | 0.08 | 723.70 | 303.42 | 2592.28 | 3566.86 | 120.86 | 0.02 | 35.30 | 282.00 | 327.00 | 338.72 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.63 | 0.00 | 696.51 | 20.33 | 7.97 | 942.31 | 1392.73 |
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.73 | 0.00 | 696.62 | 20.24 | 8.01 | 912.49 | 1395.97 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.28 | 0.00 | 700.14 | 19.91 | 7.92 | 949.29 | 1407.50 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.37 | 0.00 | 700.25 | 19.87 | 7.95 | 921.08 | 1408.98 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.38 | 0.00 | 700.29 | 20.84 | 8.07 | 905.20 | 1375.73 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.46 | 0.00 | 700.40 | 20.99 | 8.14 | 885.88 | 1370.89 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 41.98 | 9.46 | 663.60 | 969.27 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.43 | 0.00 | 700.80 | 40.69 | 9.37 | 670.55 | 984.55 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 23.59 | 9.46 | 663.79 | 1292.89 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.87 | 9.36 | 670.70 | 1313.23 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.85 | 9.36 | 670.87 | 1313.73 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.54 | 0.00 | 700.88 | 22.18 | 9.27 | 677.56 | 1333.48 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 40.59 | 9.36 | 671.05 | 985.71 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.55 | 0.00 | 700.88 | 39.41 | 9.27 | 677.70 | 1000.41 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.08 | 0.00 | 700.95 | 19.38 | 7.91 | 971.93 | 1426.61 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.13 | 0.00 | 701.02 | 19.58 | 7.97 | 937.41 | 1419.35 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.79 | 0.00 | 701.18 | 10.35 | 5.41 | 1571.69 | 1952.17 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.85 | 0.00 | 701.25 | 10.56 | 5.48 | 1498.22 | 1932.80 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.08 | 0.00 | 701.31 | 6.76 | 4.45 | 2300.35 | 2416.03 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.15 | 0.00 | 701.39 | 6.85 | 4.50 | 2195.17 | 2399.60 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.36 | 0.00 | 701.66 | 9.38 | 5.01 | 2006.90 | 2050.51 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.43 | 0.00 | 701.75 | 9.52 | 5.07 | 1892.75 | 2035.44 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.76 | 0.00 | 702.14 | 12.57 | 5.57 | 1763.05 | 1771.52 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.83 | 0.00 | 702.23 | 12.75 | 5.64 | 1646.67 | 1758.98 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.34 | 0.00 | 702.62 | 9.86 | 5.07 | 2236.27 | 2000.42 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.43 | 0.00 | 702.71 | 9.85 | 5.10 | 2186.31 | 2001.43 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.71 | 0.00 | 703.24 | 17.95 | 6.55 | 1507.85 | 1482.15 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.81 | 0.00 | 703.31 | 17.01 | 6.42 | 1547.31 | 1522.82 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.36 | 0.00 | 704.26 | 31.67 | 8.09 | 1013.87 | 1116.00 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.42 | 0.00 | 704.29 | 30.76 | 8.01 | 1029.26 | 1132.32 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.57 | 0.00 | 705.59 | 37.59 | 8.57 | 943.73 | 1024.29 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.58 | 0.00 | 705.66 | 39.29 | 8.76 | 873.15 | 1001.90 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.04 | 0.00 | 707.09 | 39.26 | 8.69 | 926.63 | 1002.30 |
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.10 | 0.00 | 707.20 | 39.79 | 8.80 | 864.64 | 995.57 |
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.53 | 0.00 | 708.60 | 40.23 | 8.77 | 917.05 | 990.07 |
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.62 | 0.00 | 708.72 | 40.29 | 8.84 | 858.95 | 989.38 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.05 | 0.00 | 710.13 | 40.69 | 8.80 | 912.67 | 984.50 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.14 | 0.00 | 710.27 | 40.88 | 8.89 | 855.67 | 982.20 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.63 | 0.00 | 711.70 | 39.93 | 8.74 | 919.99 | 993.82 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.73 | 0.00 | 711.84 | 40.07 | 8.84 | 860.77 | 992.08 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.38 | 0.00 | 712.50 | 41.44 | 8.89 | 873.17 | 975.56 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.48 | 0.00 | 712.64 | 41.36 | 8.97 | 826.72 | 976.45 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.81 | 0.00 | 712.99 | 44.14 | 9.03 | 767.66 | 945.20 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.91 | 0.00 | 713.12 | 43.89 | 9.09 | 739.37 | 947.98 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.26 | 0.00 | 713.92 | 52.86 | 10.61 | 638.32 | 863.76 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.36 | 0.00 | 714.03 | 52.15 | 10.62 | 630.70 | 869.66 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.85 | 0.00 | 715.32 | 43.51 | 9.98 | 681.24 | 952.04 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.90 | 0.00 | 715.43 | 44.56 | 10.14 | 648.63 | 940.82 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.09 | 0.00 | 715.53 | 42.78 | 9.93 | 685.13 | 960.18 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.14 | 0.00 | 715.66 | 43.50 | 10.05 | 655.58 | 952.19 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.30 | 0.00 | 715.75 | 42.59 | 9.91 | 682.99 | 962.34 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.36 | 0.00 | 715.87 | 43.36 | 10.05 | 655.59 | 953.73 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.17 | 63.66 | 10.71 | 586.22 | 787.10 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.51 | 0.00 | 716.24 | 61.02 | 10.57 | 594.36 | 803.94 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.18 | 36.27 | 10.75 | 584.10 | 1042.78 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.50 | 0.00 | 716.25 | 34.77 | 10.61 | 592.16 | 1064.95 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.60 | 0.00 | 716.31 | 33.68 | 10.50 | 598.35 | 1082.04 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.70 | 0.00 | 716.37 | 32.50 | 10.37 | 605.40 | 1101.63 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.64 | 0.00 | 716.32 | 58.23 | 10.41 | 603.51 | 823.00 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.74 | 0.00 | 716.38 | 56.20 | 10.29 | 610.54 | 837.73 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.30 | 0.00 | 716.50 | 30.45 | 9.04 | 764.88 | 1138.15 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.38 | 0.00 | 716.56 | 29.62 | 8.97 | 771.70 | 1153.96 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.63 | 0.00 | 716.79 | 29.23 | 8.90 | 791.11 | 1161.51 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.70 | 0.00 | 716.83 | 28.47 | 8.82 | 792.68 | 1176.91 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.75 | 0.00 | 717.90 | 29.10 | 8.88 | 792.32 | 1164.10 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.78 | 0.00 | 717.92 | 28.67 | 8.84 | 795.90 | 1172.92 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.29 | 28.89 | 8.86 | 794.35 | 1168.45 |
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.35 | 30.00 | 9.03 | 754.64 | 1146.58 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.53 | 0.00 | 720.67 | 28.78 | 8.85 | 795.32 | 1170.53 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.59 | 0.00 | 720.77 | 29.25 | 8.96 | 761.41 | 1161.08 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.42 | 9.20 | 1310.86 | 1178.03 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.25 | 0.00 | 722.20 | 28.67 | 9.29 | 1254.04 | 1172.77 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.43 | 9.20 | 1310.65 | 1177.83 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.25 | 0.00 | 722.20 | 28.75 | 9.30 | 1250.84 | 1171.18 |
| 8972.000 | 11.00 | 721.40 | 721.20 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.37 | 6.74 | 1912.86 | 1785.44 |
| 8972.000 | 11.00 | 999999.00 | 0.00 | 710.30 | 6280.00 | 722.99 | 0.00 | 723.43 | 12.44 | 6.79 | 1838.34 | 1780.43 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.38 | 6.75 | 1912.18 | 1784.71 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.99 | 0.00 | 723.43 | 12.45 | 6.80 | 1836.41 | 1779.73 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.22 | 0.00 | 723.60 | 10.79 | 6.41 | 2028.14 | 1912.06 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.31 | 0.00 | 723.70 | 10.84 | 6.45 | 1947.65 | 1907.73 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 6280.00 | 695.63 | 0.00 | 0.00 | 0.63 | 116.25 | 0.00 |
| 0.000 | 6280.00 | 695.73 | 0.10 | 0.00 | 0.10 | 96.53 | 0.00 |
| 1808.000 | 6280.00 | 699.28 | 0.00 | 3.65 | 0.00 | 116.56 | 1808.00 |
| 1808.000 | 6280.00 | 699.37 | 0.09 | 3.64 | 0.09 | 97.70 | 1808.00 |
| 1873.000 | 6280.00 | 699.38 | 0.00 | 0.10 | 0.00 | 97.00 | 65.00 |
| 1873.000 | 6280.00 | 699.46 | 0.08 | 0.09 | 0.08 | 91.09 | 65.00 |
| 1938.000 | 6280.00 | 699.33 | 0.00 | -0.06 | 0.00 | 65.00 | 65.00 |
| 1938.000 | 6280.00 | 699.43 | 0.11 | -0.03 | 0.11 | 65.00 | 65.00 |
| 1939.000 | 6280.00 | 699.33 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1939.000 | 6280.00 | 699.44 | 0.11 | 0.00 | 0.11 | 65.00 | 1.00 |
| 1972.000 | 6280.00 | 699.44 | 0.00 | 0.11 | 0.00 | 65.00 | 33.00 |
| 1972.000 | 6280.00 | 699.54 | 0.10 | 0.10 | 0.10 | 65.00 | 33.00 |
| 1973.000 | 6280.00 | 699.44 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1973.000 | 6280.00 | 699.55 | 0.10 | 0.00 | 0.10 | 65.00 | 1.00 |
| 2007.000 | 6280.00 | 700.08 | 0.00 | 0.64 | 0.00 | 117.58 | 34.00 |
| 2007.000 | 6280.00 | 700.13 | 0.05 | 0.58 | 0.05 | 97.85 | 34.00 |
| 2072.000 | 6280.00 | 700.79 | 0.00 | 0.71 | 0.00 | 247.00 | 65.00 |
| 2072.000 | 6280.00 | 700.85 | 0.06 | 0.72 | 0.06 | 220.00 | 65.00 |
| 2172.000 | 6280.00 | 701.08 | 0.00 | 0.29 | 0.00 | 448.26 | 100.00 |
| 2172.000 | 6280.00 | 701.15 | 0.07 | 0.30 | 0.07 | 377.72 | 100.00 |
| 2591.000 | 6280.00 | 701.36 | 0.00 | 0.28 | 0.00 | 447.15 | 419.00 |
| 2591.000 | 6280.00 | 701.43 | 0.07 | 0.28 | 0.07 | 355.11 | 419.00 |
| 3010.000 | 6280.00 | 701.76 | 0.00 | 0.39 | 0.00 | 430.89 | 419.00 |
| 3010.000 | 6280.00 | 701.83 | 0.07 | 0.40 | 0.07 | 329.22 | 419.00 |
| 3429.000 | 6280.00 | 702.34 | 0.00 | 0.59 | 0.00 | 536.97 | 419.00 |
| 3429.000 | 6280.00 | 702.43 | 0.09 | 0.60 | 0.09 | 503.72 | 419.00 |
| 3850.000 | 6280.00 | 702.71 | 0.00 | 0.36 | 0.00 | 408.25 | 421.00 |
| 3850.000 | 6280.00 | 702.81 | 0.10 | 0.37 | 0.10 | 408.25 | 421.00 |
| 4237.000 | 6280.00 | 703.36 | 0.00 | 0.65 | 0.00 | 244.18 | 387.00 |
| 4237.000 | 6280.00 | 703.42 | 0.06 | 0.61 | 0.06 | 313.32 | 387.00 |
| 4625.000 | 6280.00 | 704.57 | 0.00 | 1.21 | 0.00 | 214.78 | 388.00 |
| 4625.000 | 6280.00 | 704.58 | 0.00 | 1.16 | 0.00 | 170.79 | 388.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 5012.000 | 6280.00 | 706.04 | 0.00 | 1.46 | 0.00 | 213.99 | 387.00 |
| 5012.000 | 6280.00 | 706.10 | 0.06 | 1.52 | 0.06 | 168.47 | 387.00 |
| 5400.000 | 6280.00 | 707.53 | 0.00 | 1.49 | 0.00 | 213.55 | 388.00 |
| 5400.000 | 6280.00 | 707.62 | 0.08 | 1.52 | 0.08 | 167.62 | 388.00 |
| 5787.000 | 6280.00 | 709.05 | 0.00 | 1.52 | 0.00 | 213.35 | 387.00 |
| 5787.000 | 6280.00 | 709.14 | 0.09 | 1.53 | 0.09 | 167.21 | 387.00 |
| 6175.000 | 6280.00 | 710.63 | 0.00 | 1.58 | 0.00 | 213.68 | 388.00 |
| 6175.000 | 6280.00 | 710.73 | 0.10 | 1.59 | 0.10 | 166.38 | 388.00 |
| 6368.000 | 6280.00 | 711.38 | 0.00 | 0.75 | 0.00 | 186.94 | 193.00 |
| 6368.000 | 6280.00 | 711.48 | 0.10 | 0.75 | 0.10 | 152.84 | 193.00 |
| 6468.000 | 6280.00 | 711.81 | 0.00 | 0.43 | 0.00 | 140.00 | 100.00 |
| 6468.000 | 6280.00 | 711.91 | 0.10 | 0.43 | 0.10 | 115.19 | 100.00 |
| 6562.000 | 6280.00 | 712.26 | 0.00 | 0.45 | 0.00 | 96.20 | 94.00 |
| 6562.000 | 6280.00 | 712.36 | 0.09 | 0.45 | 0.09 | 86.00 | 94.00 |
| 6850.000 | 6280.00 | 713.85 | 0.00 | 1.59 | 0.00 | 97.84 | 288.00 |
| 6850.000 | 6280.00 | 713.90 | 0.04 | 1.54 | 0.04 | 82.01 | 288.00 |
| 6900.000 | 6280.00 | 714.09 | 0.00 | 0.23 | 0.00 | 97.99 | 50.00 |
| 6900.000 | 6280.00 | 714.14 | 0.06 | 0.25 | 0.06 | 82.66 | 50.00 |
| 6950.000 | 6280.00 | 714.30 | 0.00 | 0.21 | 0.00 | 94.54 | 50.00 |
| 6950.000 | 6280.00 | 714.36 | 0.06 | 0.22 | 0.06 | 82.46 | 50.00 |
| 7000.000 | 6280.00 | 714.39 | 0.00 | 0.09 | 0.00 | 70.00 | 50.00 |
| 7000.000 | 6280.00 | 714.51 | 0.12 | 0.14 | 0.12 | 70.00 | 50.00 |
| 7001.000 | 6280.00 | 714.39 | 0.00 | 0.00 | 0.00 | 70.00 | 1.00 |
| 7001.000 | 6280.00 | 714.50 | 0.12 | 0.00 | 0.12 | 70.00 | 1.00 |
| 7036.000 | 6280.00 | 714.60 | 0.00 | 0.22 | 0.00 | 70.00 | 35.00 |
| 7036.000 | 6280.00 | 714.70 | 0.10 | 0.20 | 0.10 | 70.00 | 35.00 |
| 7037.000 | 6280.00 | 714.64 | 0.00 | 0.04 | 0.00 | 70.00 | 1.00 |
| 7037.000 | 6280.00 | 714.74 | 0.10 | 0.04 | 0.10 | 70.00 | 1.00 |
| 7047.000 | 6280.00 | 715.30 | 0.00 | 0.66 | 0.00 | 90.00 | 10.00 |
| 7047.000 | 6280.00 | 715.38 | 0.08 | 0.64 | 0.08 | 90.00 | 10.00 |
| 7137.000 | 6280.00 | 715.63 | 0.00 | 0.33 | 0.00 | 101.94 | 90.00 |
| 7137.000 | 6280.00 | 715.70 | 0.07 | 0.32 | 0.07 | 96.00 | 90.00 |
| 7517.000 | 6280.00 | 716.75 | 0.00 | 1.11 | 0.00 | 101.98 | 380.00 |
| 7517.000 | 6280.00 | 716.78 | 0.04 | 1.08 | 0.04 | 101.30 | 380.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.40 | 0.00 | 102.06 | 480.00 |
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.36 | 0.00 | 85.22 | 480.00 |
| 8477.000 | 6280.00 | 719.53 | 0.00 | 1.39 | 0.00 | 102.09 | 480.00 |
| 8477.000 | 6280.00 | 719.59 | 0.06 | 1.44 | 0.06 | 85.46 | 480.00 |
| 8960.000 | 6280.00 | 721.17 | 0.00 | 1.64 | 0.00 | 316.98 | 483.00 |
| 8960.000 | 6280.00 | 721.25 | 0.08 | 1.67 | 0.08 | 276.34 | 483.00 |
| 8961.000 | 6280.00 | 721.17 | 0.00 | 0.00 | 0.00 | 316.97 | 1.00 |
| 8961.000 | 6280.00 | 721.25 | 0.08 | 0.00 | 0.08 | 275.61 | 1.00 |
| 8972.000 | 6280.00 | 722.91 | 0.00 | 1.74 | 0.00 | 364.51 | 11.00 |
| 8972.000 | 6280.00 | 722.99 | 0.08 | 1.74 | 0.08 | 299.72 | 11.00 |
| 8973.000 | 6280.00 | 722.91 | 0.00 | 0.00 | 0.00 | 364.48 | 1.00 |
| 8973.000 | 6280.00 | 722.99 | 0.08 | 0.00 | 0.08 | 299.08 | 1.00 |
| 9200.000 | 6280.00 | 723.22 | 0.00 | 0.32 | 0.00 | 369.81 | 227.00 |
| 9200.000 | 6280.00 | 723.31 | 0.08 | 0.32 | 0.08 | 303.42 | 227.00 |

FLOODWAY DATA, BELLE RIVER
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.000 | 97. | 912. | 6.9 | 695.7 | 695.6 | 0.1 |
| 1808.000 | 98. | 921. | 6.8 | 699.4 | 699.3 | 0.1 |
| 1873.000 | 91. | 886. | 7.1 | 699.5 | 699.4 | 0.1 |
| 1938.000 | 65. | 671. | 9.4 | 699.4 | 699.3 | 0.1 |
| 1939.000 | 65. | 671. | 9.4 | 699.4 | 699.3 | 0.1 |
| 1972.000 | 65. | 678. | 9.3 | 699.5 | 699.4 | 0.1 |
| 1973.000 | 65. | 678. | 9.3 | 699.5 | 699.4 | 0.1 |
| 2007.000 | 98. | 937. | 6.7 | 700.1 | 700.1 | 0.0 |
| 2072.000 | 220. | 1498. | 4.2 | 700.9 | 700.8 | 0.1 |
| 2172.000 | 378. | 2195. | 2.9 | 701.2 | 701.1 | 0.1 |
| 2591.000 | 355. | 1893. | 3.3 | 701.5 | 701.4 | 0.1 |
| 3010.000 | 329. | 1647. | 3.8 | 701.9 | 701.8 | 0.1 |
| 3429.000 | 504. | 2186. | 2.9 | 702.4 | 702.3 | 0.1 |
| 3850.000 | 408. | 1547. | 4.1 | 702.8 | 702.7 | 0.1 |
| 4237.000 | 313. | 1029. | 6.1 | 703.5 | 703.4 | 0.1 |
| 4625.000 | 171. | 873. | 7.2 | 704.6 | 704.6 | 0.0 |
| 5012.000 | 168. | 865. | 7.3 | 706.1 | 706.0 | 0.1 |
| 5400.000 | 168. | 859. | 7.3 | 707.6 | 707.5 | 0.1 |
| 5787.000 | 167. | 856. | 7.3 | 709.2 | 709.1 | 0.1 |
| 6175.000 | 166. | 861. | 7.3 | 710.7 | 710.6 | 0.1 |
| 6368.000 | 153. | 827. | 7.6 | 711.5 | 711.4 | 0.1 |
| 6468.000 | 115. | 739. | 8.5 | 711.9 | 711.8 | 0.1 |
| 6562.000 | 86. | 631. | 10.0 | 712.4 | 712.3 | 0.1 |
| 6850.000 | 82. | 649. | 9.7 | 713.9 | 713.9 | 0.0 |
| 6900.000 | 83. | 656. | 9.6 | 714.2 | 714.1 | 0.1 |
| 6950.000 | 82. | 656. | 9.6 | 714.4 | 714.3 | 0.1 |
| 7000.000 | 70. | 594. | 10.6 | 714.5 | 714.4 | 0.1 |
| 7001.000 | 70. | 592. | 10.6 | 714.5 | 714.4 | 0.1 |
| 7036.000 | 70. | 605. | 10.4 | 714.7 | 714.6 | 0.1 |
| 7037.000 | 70. | 611. | 10.3 | 714.7 | 714.6 | 0.1 |
| 7047.000 | 90. | 772. | 8.1 | 715.4 | 715.3 | 0.1 |
| 7137.000 | 96. | 793. | 7.9 | 715.7 | 715.6 | 0.1 |
| 7517.000 | 101. | 796. | 7.9 | 716.7 | 716.7 | 0.0 |
| 7997.000 | 85. | 755. | 8.3 | 718.1 | 718.1 | 0.0 |
| 8477.000 | 85. | 761. | 8.2 | 719.6 | 719.5 | 0.1 |
| 8960.000 | 276. | 1254. | 5.0 | 721.3 | 721.2 | 0.1 |
| 8961.000 | 276. | 1251. | 5.0 | 721.3 | 721.2 | 0.1 |
| 8972.000 | 300. | 1838. | 3.4 | 723.0 | 722.9 | 0.1 |
| 8973.000 | 299. | 1836. | 3.4 | 723.0 | 722.9 | 0.1 |
| 9200.000 | 303. | 1948. | 3.2 | 723.3 | 723.2 | 0.1 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Belle River

4) DOCUMENT TYPE: 100 Year Natural

00BREAK00

THIS RUN EXECUTED 28 AUG 86 8:32:07

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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C
T1      MEMPHIS, MI - FIS
T2      100 YEAR FLOOD
T3      BELLE RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        0.        0.        0.   0.002000    0.00      0.0      6280.    695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.060     0.060     0.040     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
X1      0.000    38.000   249.000   314.000     0.000     0.000     0.000     0.000    -3.900     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689.200   314.010   689.600   315.000   699.600   340.000   709.100   365.000
GR    709.300   390.000   709.700   415.000   710.300   440.000   710.900   465.000   711.700   490.000
GR    712.700   515.000   713.900   540.000   714.400   561.000     0.000     0.000     0.000     0.000

X1   1808.000     0.000     0.000     0.000  1808.000  1808.000  1808.000     0.000     3.600     0.000

X1   1873.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.150     0.000
X3      0.000     0.000     0.000   233.000     0.000   330.000     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
X1   1938.000    38.000   249.000   314.000    65.000    65.000    65.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   249.000     0.000   314.000     0.000     0.000     0.000     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689.200   314.010   689.600   315.000   699.600   340.000   709.100   365.000
GR    709.300   390.000   709.700   415.000   710.300   440.000   710.900   465.000   711.700   490.000
GR    712.700   515.000   713.900   540.000   714.400   561.000     0.000     0.000     0.000     0.000
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NC      0.000      0.000      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
X1   1939.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000
BT    -25.000      0.000    710.800      0.000     25.000    710.000      0.000     50.000    709.400      0.000
BT      0.000     75.000    708.900      0.000    100.000    708.500      0.000    125.000    708.400      0.000
BT      0.000    150.000    708.300      0.000    175.000    708.300      0.000    200.000    708.400      0.000
BT      0.000    225.000    708.600      0.000    248.990    708.600    689.500    249.000    708.600    705.600
BT      0.000    314.000    708.700    705.800    314.010    708.700    689.200    315.000    708.700      0.000
BT      0.000    340.000    708.900      0.000    365.000    709.100      0.000    390.000    709.300      0.000
BT      0.000    415.000    709.700      0.000    440.000    710.300      0.000    465.000    710.900      0.000
BT      0.000    490.000    711.700      0.000    515.000    712.700      0.000    540.000    713.900      0.000
BT      0.000    561.000    714.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        UPSTREAM FACE OF BORDMAN RD BRIDGE
X1   1972.000      0.000      0.000      0.000     33.000     33.000     33.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000

NC      0.070      0.070      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
X1   1973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000

X1   2007.000      0.000      0.000      0.000     34.000     34.000     34.000      0.000      0.300      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
X1   2072.000     27.000    175.000    274.000     65.000     65.000     65.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    101.000      0.000    348.000      0.000      0.000      0.000      0.000
GR    697.300      0.000    696.900     25.000    696.200     50.000    696.300     75.000    696.500    100.000
GR    696.400    125.000    696.100    150.000    696.200    175.000    692.200    200.000    692.800    203.000
GR    690.500    210.000    688.900    220.000    688.700    230.000    689.700    240.000    689.800    250.000
GR    689.100    260.000    691.200    270.000    692.800    274.000    697.400    290.000    697.600    315.000
GR    698.000    340.000    698.400    365.000    698.700    390.000    699.500    415.000    700.900    440.000
GR    703.100    455.000    713.100    540.000      0.000      0.000      0.000      0.000      0.000      0.000

        FIELD MEASURED CROSS SECTION
X1   2172.000     30.000    435.000    534.000    100.000    100.000    100.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    253.000      0.000    717.000      0.000      0.000      0.000      0.000
GR    710.000      0.000    705.000    180.000    700.000    250.000    697.300    260.000    696.900    285.000
GR    696.200    310.000    696.300    335.000    696.500    360.000    696.400    385.000    696.100    410.000
GR    696.200    435.000    692.200    460.000    692.800    463.000    690.500    470.000    688.900    480.000
GR    688.700    490.000    689.700    500.000    689.800    510.000    689.100    520.000    691.200    530.000
GR    692.800    534.000    697.400    550.000    697.600    575.000    698.000    600.000    698.400    625.000
GR    698.700    650.000    699.500    675.000    700.900    700.000    703.100    715.000    713.100    800.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
```

CROSS SECTION REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 2591.000 | 0.000 | 0.000 | 0.000 | 419.000 | 419.000 | 419.000 | 0.000 | 0.950 | 0.000 |

CROSS SECTION REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3010.000 | 0.000 | 0.000 | 0.000 | 419.000 | 419.000 | 419.000 | 0.000 | 0.950 | 0.000 |

CROSS SECTION A MOVED DOWNSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3429.000 | 30.000 | 113.000 | 200.000 | 419.000 | 419.000 | 419.000 | 0.000 | -0.950 | 0.000 |
| GR | 708.900 | 0.000 | 704.800 | 24.000 | 699.700 | 38.000 | 699.500 | 55.000 | 699.400 | 80.000 |
| GR | 700.200 | 105.000 | 696.000 | 108.000 | 694.900 | 113.000 | 692.500 | 115.000 | 692.800 | 120.000 |
| GR | 694.800 | 185.000 | 695.300 | 190.000 | 696.100 | 195.000 | 697.400 | 200.000 | 698.300 | 225.000 |
| GR | 701.800 | 250.000 | 700.500 | 275.000 | 702.100 | 300.000 | 701.600 | 325.000 | 701.500 | 350.000 |
| GR | 701.000 | 375.000 | 700.500 | 400.000 | 700.300 | 425.000 | 700.200 | 450.000 | 699.900 | 475.000 |
| GR | 699.700 | 500.000 | 699.200 | 525.000 | 696.500 | 550.000 | 710.000 | 580.000 | 725.000 | 620.000 |

CROSS SECTION A

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3850.000 | 30.000 | 113.000 | 200.000 | 421.000 | 421.000 | 421.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 438.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 708.900 | 0.000 | 704.800 | 24.000 | 699.700 | 38.000 | 699.500 | 55.000 | 699.400 | 80.000 |
| GR | 700.200 | 105.000 | 696.000 | 108.000 | 694.900 | 113.000 | 692.500 | 115.000 | 692.800 | 120.000 |
| GR | 694.800 | 185.000 | 695.300 | 190.000 | 696.100 | 195.000 | 697.400 | 200.000 | 698.300 | 225.000 |
| GR | 701.800 | 250.000 | 700.500 | 275.000 | 702.100 | 300.000 | 701.600 | 325.000 | 701.500 | 350.000 |
| GR | 701.000 | 375.000 | 700.500 | 400.000 | 700.300 | 425.000 | 700.200 | 450.000 | 699.900 | 475.000 |
| GR | 699.700 | 500.000 | 699.200 | 525.000 | 696.500 | 550.000 | 710.000 | 580.000 | 725.000 | 620.000 |

CROSS SECTION A REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4237.000 | 19.000 | 113.000 | 200.000 | 387.000 | 387.000 | 387.000 | 0.000 | 1.540 | 0.000 |
| GR | 708.900 | 0.000 | 704.800 | 24.000 | 699.700 | 38.000 | 699.500 | 55.000 | 699.400 | 80.000 |
| GR | 700.200 | 105.000 | 696.000 | 108.000 | 694.900 | 113.000 | 692.500 | 115.000 | 692.800 | 120.000 |
| GR | 694.800 | 185.000 | 695.300 | 190.000 | 696.100 | 195.000 | 697.400 | 200.000 | 698.300 | 225.000 |
| GR | 701.800 | 250.000 | 702.000 | 500.000 | 710.000 | 580.000 | 725.000 | 620.000 | 0.000 | 0.000 |

CROSS SECTION A REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4625.000 | 0.000 | 0.000 | 0.000 | 388.000 | 200.000 | 388.000 | 0.000 | 1.540 | 0.000 |

CROSS SECTION A REPEATED

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5012.000 | 0.000 | 0.000 | 0.000 | 387.000 | 387.000 | 387.000 | 0.000 | 1.540 | 0.000 |

CROSS SECTION A REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5400.000 | 0.000 | 0.000 | 0.000 | 388.000 | 230.000 | 388.000 | 0.000 | 1.540 | 0.000 |

CROSS SECTION A REPEATED

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5787.000 | 0.000 | 0.000 | 0.000 | 387.000 | 200.000 | 387.000 | 0.000 | 1.540 | 0.000 |

CROSS SECTION A REPEATED UPSTREAM

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6175.000 | 0.000 | 0.000 | 0.000 | 388.000 | 388.000 | 388.000 | 0.000 | 1.540 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 6368.000 | 0.000 | 0.000 | 0.000 | 193.000 | 193.000 | 193.000 | 0.000 | 0.770 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 253.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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NC      0.080      0.035      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
X1   6468.000      0.000      0.000      0.000    100.000    100.000    100.000      0.000      0.600      0.000
X3      0.000      0.000      0.000     86.500      0.000    226.500      0.000      0.000      0.000      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6562.000     14.000    100.000    170.000     94.000     94.000     94.000      0.000     -1.550      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6850.000      0.000      0.000      0.000    288.000    288.000    288.000      0.000      1.150      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6900.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.200      0.000

        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
X1   6950.000     14.000    100.000    170.000     50.000     50.000     50.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     87.000      0.000    183.000      0.000      0.000      0.000      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.500      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
X1   7000.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000

NC      0.080      0.050      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF M-19 BRIDGE
X1   7001.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000
BT    -10.000      0.000    730.000      0.000     70.000    725.500      0.000    100.000    723.500    707.300
BT      0.000    101.100    724.000    718.500    170.000    721.500    716.000    170.100    721.000    706.400
BT      0.000    290.000    717.000      0.000    350.000    717.000      0.000    600.000    717.000      0.000
BT      0.000    700.000    720.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        UPSTREAM FACE OF M-19 BRIDGE
X1   7036.000      0.000      0.000      0.000     35.000     35.000     35.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
X1   7037.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000
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NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
X1   7047.000      0.000      0.000      0.000     10.000     10.000     10.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     90.000      0.000    180.000      0.000      0.000      0.000      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7137.000      0.000      0.000      0.000     90.000     90.000     90.000      0.000      0.280      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7517.000      0.000      0.000      0.000    380.000    380.000    380.000      0.000      1.100      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7997.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   8477.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

NC      0.080      0.080      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
X1   8960.000     29.000    282.000    327.000    483.000    483.000    483.000      0.000      0.000      0.000
GR    725.000      0.000    720.000     30.000    718.800     50.000    718.800     75.000    718.900    100.000
GR    718.500    125.000    718.400    150.000    718.600    175.000    718.700    200.000    719.200    225.000
GR    715.700    250.000    712.200    277.000    711.800    282.000    711.800    282.010    710.700    285.000
GR    710.300    290.000    710.500    295.000    710.700    300.000    710.600    305.000    710.300    310.000
GR    711.000    315.000    711.700    320.000    712.400    322.000    713.700    327.000    721.200    340.000
GR    721.800    365.000    724.100    390.000    726.500    415.000    728.100    430.000      0.000      0.000

        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8961.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

SB      0.000      1.640      3.000      0.000     42.000      0.000    460.000      0.000      0.000      0.000
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8972.000      0.000      0.000      0.000     11.000     11.000     11.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    721.200    721.400      0.000      0.000      0.000      0.000      0.000
BT    -11.000    200.000    718.700      0.000    225.000    719.200      0.000    250.000    720.600      0.000
BT      0.000    277.000    721.400      0.000    282.000    721.400    711.800    282.010    721.400    720.000
BT      0.000    340.000    721.700    721.200    365.000    721.800      0.000    390.000    724.100      0.000
BT      0.000    415.000    726.500      0.000    430.000    728.100      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
X1   8973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   9200.000      0.000      0.000      0.000    227.000    227.000    227.000      0.000      0.000      0.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.53    695.63      0.00    695.00    696.51      0.87      0.00      0.00    685.60
    6280.      450.     5399.      431.      132.      677.      133.        0.        0.    685.30
     0.00      3.41      7.97      3.23     0.060     0.040     0.060     0.000    684.10    223.58
 0.002033        0.        0.        0.         0         0         3      0.00    116.25    339.83

*SECNO 1808.000
  1808.00     11.58    699.28      0.00      0.00    700.14      0.86      3.64      0.00    689.20
    6280.      453.     5393.      434.      133.      681.      135.       39.        5.    688.90
     0.07      3.40      7.92      3.21     0.060     0.040     0.060     0.000    687.70    223.42
 0.001991     1808.     1808.     1808.         1         0         0      0.00    116.56    339.98

*SECNO 1873.000

3470 ENCROACHMENT STATIONS=      233.0      330.0  TYPE=      1  TARGET=      97.000
  1873.00     11.53    699.38      0.00      0.00    700.29      0.91      0.13      0.01    689.35
    6280.      411.     5466.      402.      114.      677.      114.       41.        5.    689.05
     0.07      3.61      8.07      3.53     0.060     0.040     0.060     0.000    687.85    233.00
 0.002084       65.       65.       65.         2         0         0      0.00     97.00    330.00

CCHV=   0.300 CEHV=   0.500
*SECNO 1938.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.33    699.33      0.00      0.00    700.72      1.39      0.19      0.24    689.50
    6280.        0.     6280.        0.        0.      664.        0.       42.        5. 100000.00
     0.07      0.00      9.46      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004198       65.       65.       65.         2         0         0      0.00     65.00    314.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1939.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00     11.33    699.33      0.00      0.00    700.72      1.39      0.00      0.00    689.50
   6280.        0.     6280.        0.        0.      664.        0.       42.        5.  100000.00
     0.07     0.00      9.46      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002359       1.        1.        1.         0         0         0      0.00     65.00    314.00

*SECNO 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80


3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00     11.44    699.44      0.00      0.00    700.80      1.36      0.08      0.00    689.50
   6280.        0.     6280.        0.        0.      671.        0.       42.        5.  100000.00
     0.07     0.00      9.36      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002285      33.       33.       33.         0         0         0      0.00     65.00    314.00

*SECNO 1973.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00     11.44    699.44      0.00      0.00    700.80      1.36      0.00      0.00    689.50
   6280.        0.     6280.        0.        0.      671.        0.       42.        5.  100000.00
     0.07     0.00      9.36      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004059       1.        1.        1.         0         0         0      0.00     65.00    314.00


*SECNO 2007.000
  2007.00     11.78    700.08      0.00      0.00    700.95      0.86      0.09      0.05    689.80
   6280.      405.     5486.      389.       138.      693.      140.       43.        5.    689.50
     0.08     2.93      7.91      2.78     0.070     0.040     0.070     0.000    688.30    222.91
 0.001938      34.       34.       34.         2         0         0      0.00    117.58    340.49


CCHV=    0.300 CEHV=    0.500
*SECNO 2072.000

3470 ENCROACHMENT STATIONS=      101.0      348.0  TYPE=      1  TARGET=     247.000
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        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.09    700.79      0.00      0.00    701.18      0.39      0.09      0.14    696.20
    6280.      605.     5226.      449.      334.      967.      271.       45.        6.    692.80
     0.08      1.81      5.41      1.66     0.070     0.040     0.070     0.000    688.70    101.00
 0.001035       65.       65.       65.         2         0         0      0.00    247.00    348.00

*SECNO 2172.000

3470 ENCROACHMENT STATIONS=      253.0      717.0  TYPE=      1  TARGET=      464.000
        FIELD MEASURED CROSS SECTION
  2172.00     12.38    701.08      0.00      0.00    701.31      0.23      0.08      0.05    696.20
    6280.     1265.     4429.      586.      831.      995.      475.       49.        6.    692.80
     0.09      1.52      4.45      1.23     0.070     0.040     0.070     0.000    688.70    253.00
 0.000676      100.      100.      100.         2         0         0      0.00    448.26    701.26

CCHV=    0.100 CEHV=    0.300
*SECNO 2591.000
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.71    701.36      0.00      0.00    701.66      0.30      0.33      0.02    697.15
    6280.     1150.     4653.      477.      713.      929.      366.       70.       11.    693.75
     0.12      1.61      5.01      1.30     0.070     0.040     0.070     0.000    689.65    244.19
 0.000938      419.      419.      419.         2         0         0      0.00    447.15    691.34

*SECNO 3010.000
        CROSS SECTION REPEATED UPSTREAM
  3010.00     11.16    701.76      0.00      0.00    702.14      0.38      0.45      0.03    698.10
    6280.     1032.     4864.      385.      609.      873.      281.       88.       15.    694.70
     0.14      1.69      5.57      1.37     0.070     0.040     0.070     0.000    690.60    250.52
 0.001257      419.      419.      419.         2         0         0      0.00    430.89    681.41

*SECNO 3429.000
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00     10.79    702.34      0.00      0.00    702.62      0.27      0.46      0.01    693.95
    6280.      531.     4064.     1684.      319.      802.     1116.      107.       19.    696.45
     0.17      1.67      5.07      1.51     0.070     0.040     0.070     0.000    691.55     28.13
 0.000986      419.      419.      419.         2         0         0      0.00    536.97    565.10

*SECNO 3850.000

3470 ENCROACHMENT STATIONS=        0.0      438.0  TYPE=      1  TARGET=      437.999
        CROSS SECTION A
  3850.00     10.21    702.71      0.00      0.00    703.24      0.53      0.55      0.08    694.90
    6280.      554.     4917.      809.      270.      751.      488.      126.       24.    697.40
     0.19      2.06      6.55      1.66     0.070     0.040     0.070     0.000    692.50     29.74
 0.001795      421.      421.      421.         2         0         0      0.00    408.26    438.00
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```
  SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
 4237.00     9.32    703.36      0.00      0.00    704.26      0.89      0.90      0.11    696.44
   6280.      458.     5448.      374.      197.      673.      144.      137.       27.    698.94
    0.21     2.33      8.09      2.60     0.070     0.040     0.070     0.000    694.04     32.18
0.003167     387.      387.      387.         2         0         0      0.00    244.18    276.36

*SECNO 4625.000
        CROSS SECTION A REPEATED UPSTREAM
 4625.00     8.99    704.57      0.00      0.00    705.59      1.02      1.30      0.04    697.98
   6280.      405.     5529.      346.      171.      645.      128.      145.       29.    700.48
    0.22     2.37      8.57      2.71     0.070     0.040     0.070     0.000    695.58     33.06
0.003759     388.      388.      200.         2         0         0      0.00    214.78    247.84

*SECNO 5012.000
        CROSS SECTION A REPEATED
 5012.00     8.92    706.04      0.00      0.00    707.09      1.05      1.49      0.01    699.52
   6280.      392.     5549.      339.      164.      638.      124.      153.       31.    702.02
    0.23     2.38      8.69      2.73     0.070     0.040     0.070     0.000    697.12     33.28
0.003926     387.      387.      387.         2         0         0      0.00    213.99    247.27

*SECNO 5400.000
        CROSS SECTION A REPEATED UPSTREAM
 5400.00     8.87    707.53      0.00      0.00    708.60      1.07      1.51      0.01    701.06
   6280.      385.     5561.      335.      161.      634.      122.      161.       32.    703.56
    0.25     2.39      8.77      2.75     0.070     0.040     0.070     0.000    698.66     33.41
0.004023     388.      388.      230.         2         0         0      0.00    213.55    246.95

*SECNO 5787.000
        CROSS SECTION A REPEATED
 5787.00     8.89    709.05      0.00      0.00    710.13      1.08      1.53      0.00    702.60
   6280.      381.     5566.      333.      159.      633.      121.      169.       34.    705.10
    0.26     2.39      8.80      2.75     0.070     0.040     0.070     0.000    700.20     33.46
0.004069     387.      387.      200.         2         0         0      0.00    213.35    246.81

*SECNO 6175.000
        CROSS SECTION A REPEATED UPSTREAM
 6175.00     8.89    710.63      0.00      0.00    711.70      1.06      1.56      0.00    704.14
   6280.      387.     5557.      336.      162.      636.      122.      177.       36.    706.64
    0.27     2.39      8.74      2.74     0.070     0.040     0.070     0.000    701.74     33.37
0.003993     388.      388.      388.         1         0         0      0.00    213.68    247.05
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6368.000

3470 ENCROACHMENT STATIONS=      60.0      253.0  TYPE=      1  TARGET=      193.000
  6368.00     8.87    711.38     0.00      0.00    712.50     1.11      0.79      0.02    704.91
    6280.     301.     5640.     339.      117.      634.     122.      181.       37.    707.41
     0.28     2.56      8.89     2.79     0.070     0.040    0.070     0.000    702.51     60.00
 0.004144     193.      193.     193.         2         0        0      0.00    186.94    246.94

CCHV=    0.500 CEHV=    1.000
*SECNO 6468.000

3470 ENCROACHMENT STATIONS=      86.5      226.5  TYPE=      1  TARGET=      140.000
  6468.00     8.70    711.81     0.00      0.00    712.99     1.18      0.43      0.06    705.51
    6280.     161.     5581.     538.       62.      618.      88.      183.       37.    708.01
     0.28     2.62      9.03     6.13     0.080     0.040    0.035     0.000    703.11     86.50
 0.004414     100.      100.     100.         1         0        0      0.00    140.00    226.50

*SECNO 6562.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00     9.01    712.26     0.00      0.00    713.92     1.66      0.45      0.48    705.75
    6280.      93.     5787.     400.       35.      546.      58.      184.       37.    704.75
     0.29     2.67     10.61     6.93     0.080     0.040    0.035     0.000    703.25     89.27
 0.005286      94.       94.      94.         2         0        0      0.00     96.20    185.46

CCHV=    0.100 CEHV=    0.300
*SECNO 6850.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00     9.45    713.85     0.00      0.00    715.32     1.46      1.38      0.02    706.90
    6280.     101.     5756.     423.       40.      577.      65.      188.       38.    705.90
     0.29     2.53      9.98     6.53     0.080     0.040    0.035     0.000    704.40     88.54
 0.004351     288.      288.     288.         2         0        0      0.00     97.84    186.38

*SECNO 6900.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6900.00     9.49    714.09     0.00      0.00    715.53     1.45      0.22      0.00    707.10
    6280.     102.     5754.     425.       40.      579.      65.      189.       38.    706.10
     0.30     2.52      9.93     6.50     0.080     0.040    0.035     0.000    704.60     88.47
 0.004278      50.       50.      50.         0         0        0      0.00     97.99    186.46
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6950.000

3470 ENCROACHMENT STATIONS=      87.0      183.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
  6950.00      9.50    714.30      0.00      0.00    715.75      1.45      0.21      0.00    707.30
    6280.       102.     5750.      428.       40.      580.       63.      190.       38.    706.30
     0.30      2.52      9.91      6.84     0.080     0.040     0.035     0.000    704.80     88.46
 0.004259       50.       50.       50.         0         0         0      0.00     94.54    183.00

CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
  7000.00      9.59    714.39      0.00      0.00    716.17      1.78      0.26      0.17    707.30
    6280.        0.     6280.        0.        0.      586.        0.      191.       38.  100000.00
     0.30      0.00     10.71      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.006366       50.       50.       50.         2         0         0      0.00     70.00    170.00

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
  7001.00      9.59    714.39      0.00      0.00    716.18      1.79      0.00      0.00    707.30
    6280.        0.     6280.        0.        0.      584.        0.      191.       38.  100000.00
     0.30      0.00     10.75      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003627        1.        1.        1.         0         0         0     -2.47     70.00    170.00

*SECNO 7036.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00      9.80    714.60      0.00      0.00    716.31      1.71      0.12      0.01    707.30
    6280.        0.     6280.        0.        0.      598.        0.      191.       39.  100000.00
     0.30      0.00     10.50      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003368       35.       35.       35.         2         0         0     -2.62     70.00    170.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7037.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00     9.84    714.64      0.00      0.00    716.32      1.68      0.00      0.00    707.30
    6280.       0.     6280.        0.        0.      604.        0.      191.       39.  100000.00
     0.30     0.00     10.41      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.005823       1.        1.        1.         2         0         0      0.00     70.00    170.00

CCHV=   0.300 CEHV=   0.500
*SECNO 7047.000

3470 ENCROACHMENT STATIONS=       90.0      180.0  TYPE=      1  TARGET=      90.000
  7047.00    10.50    715.30      0.00      0.00    716.50      1.20      0.04      0.14    707.30
    6280.      121.     5876.      283.       50.      650.       65.      191.       39.    706.30
     0.30     2.43      9.04      4.33     0.080     0.040     0.050     0.000    704.80     90.00
 0.003045      10.       10.       10.         3         0         0      0.00     90.00    180.00

*SECNO 7137.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00    10.55    715.63      0.00      0.00    716.79      1.15      0.27      0.01    707.58
    6280.      122.     5814.      343.       53.      654.       84.      193.       39.    706.58
     0.30     2.29      8.90      4.09     0.080     0.040     0.050     0.000    705.08     86.72
 0.002923      90.       90.       90.         2         0         0      0.00    101.94    188.66

CCHV=   0.100 CEHV=   0.300
*SECNO 7517.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7517.00    10.57    716.75      0.00      0.00    717.90      1.15      1.11      0.00    708.68
    6280.      123.     5814.      344.       54.      654.       84.      200.       40.    707.68
     0.31     2.29      8.88      4.08     0.080     0.040     0.050     0.000    706.18     86.70
 0.002910     380.      380.      380.         2         0         0      0.00    101.98    188.69

*SECNO 7997.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7997.00    10.58    718.14      0.00      0.00    719.29      1.14      1.39      0.00    710.06
    6280.      123.     5813.      344.       54.      656.       85.      209.       41.    709.06
     0.33     2.28      8.86      4.07     0.080     0.040     0.050     0.000    707.56     86.67
 0.002889     480.      480.      480.         0         0         0      0.00    102.06    188.73
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 8477.000
       CROSS SECTION AT M-19 BRIDGE REPEATED
 8477.00    10.59    719.53     0.00      0.00    720.67     1.14      1.38      0.00    711.44
   6280.     123.     5812.     345.       54.     657.      85.      217.       42.    710.44
    0.39     2.28      8.85     4.07     0.080    0.040    0.050     0.000    708.94     86.66
0.002878     480.      480.     480.         0        0        0      0.00    102.09    188.75

*SECNO 8960.000
       CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
 8960.00    10.87    721.17     0.00      0.00    722.08     0.91      1.38      0.02    711.80
   6280.    1975.     4201.     105.      806.     457.      48.      229.       44.    713.70
    0.37     2.45      9.20     2.17     0.080    0.040    0.080     0.000    710.30     22.97
0.002842     483.      483.     483.         2        0        0      0.00    316.98    339.95

*SECNO 8961.000
       DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
 8961.00    10.87    721.17     0.00      0.00    722.08     0.91      0.00      0.00    711.80
   6280.    1974.     4201.     105.      806.     457.      48.      229.       44.    713.70
    0.37     2.45      9.20     2.17     0.080    0.040    0.080     0.000    710.30     22.98
0.002843       1.        1.       1.         0        0        0      0.00    316.97    339.95


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.64      3.00      0.00     42.00      0.00    460.00      0.00    710.30    710.30

*SECNO 8972.000
PRESSURE AND WEIR FLOW


 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA   TRAPEZOID     ELLC      ELTRD
                                                             AREA
   725.92    722.08     0.00     2067.     4242.     460.      458.      721.20    721.40


       UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
 8972.00    12.61    722.91     0.00      0.00    723.34     0.43      1.26      0.00    711.80
   6280.    2510.     3607.     163.     1265.     535.     113.      230.       44.    713.70
    0.37     1.98      6.74     1.44     0.080    0.040    0.080     0.000    710.30     12.54
0.001237       11.       11.       11.         2        0        2      0.00    364.51    377.06
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECND 8973.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
  8973.00    12.61   722.91     0.00      0.00   723.34      0.43      0.00      0.00    711.80
    6280.     2510.    3608.     162.     1265.     535.     113.      230.       44.    713.70
     0.37     1.98     6.75     1.44     0.080    0.040    0.080     0.000    710.30     12.56
 0.001238       1.       1.       1.         0        0        0      0.00    364.48    377.04


*SECND 9200.000
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
  9200.00    12.92   723.22     0.00      0.00   723.60      0.38      0.26      0.00    711.80
    6280.     2585.    3518.     177.     1350.     549.     129.      240.       46.    713.70
     0.38     1.91     6.41     1.37     0.080    0.040    0.080     0.000    710.30     10.66
 0.001079     227.     227.     227.         2        0        0      0.00    369.81    380.47
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THIS RUN EXECUTED 28 AUG 86 8:32:13

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.63 | 0.00 | 696.51 | 20.33 | 7.97 | 942.31 | 1392.73 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.28 | 0.00 | 700.14 | 19.91 | 7.92 | 949.29 | 1407.50 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.38 | 0.00 | 700.29 | 20.84 | 8.07 | 905.20 | 1375.73 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 41.98 | 9.46 | 663.60 | 969.27 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 23.59 | 9.46 | 663.79 | 1292.89 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.85 | 9.36 | 670.87 | 1313.73 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 40.59 | 9.36 | 671.05 | 985.71 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.08 | 0.00 | 700.95 | 19.38 | 7.91 | 971.93 | 1426.61 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.79 | 0.00 | 701.18 | 10.35 | 5.41 | 1571.69 | 1952.17 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.08 | 0.00 | 701.31 | 6.76 | 4.45 | 2300.35 | 2416.03 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.36 | 0.00 | 701.66 | 9.38 | 5.01 | 2006.90 | 2050.51 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.76 | 0.00 | 702.14 | 12.57 | 5.57 | 1763.05 | 1771.52 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.34 | 0.00 | 702.62 | 9.86 | 5.07 | 2236.27 | 2000.42 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.71 | 0.00 | 703.24 | 17.95 | 6.55 | 1507.85 | 1482.15 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.36 | 0.00 | 704.26 | 31.67 | 8.09 | 1013.87 | 1116.00 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.57 | 0.00 | 705.59 | 37.59 | 8.57 | 943.74 | 1024.29 |
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.04 | 0.00 | 707.09 | 39.26 | 8.69 | 926.63 | 1002.30 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.53 | 0.00 | 708.60 | 40.23 | 8.77 | 917.05 | 990.07 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.05 | 0.00 | 710.13 | 40.69 | 8.80 | 912.67 | 984.50 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.63 | 0.00 | 711.70 | 39.93 | 8.74 | 919.99 | 993.82 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.38 | 0.00 | 712.50 | 41.44 | 8.89 | 873.17 | 975.56 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.81 | 0.00 | 712.99 | 44.14 | 9.03 | 767.67 | 945.20 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.26 | 0.00 | 713.92 | 52.86 | 10.61 | 638.32 | 863.76 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.85 | 0.00 | 715.32 | 43.51 | 9.98 | 681.24 | 952.04 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.09 | 0.00 | 715.53 | 42.78 | 9.93 | 685.13 | 960.18 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.30 | 0.00 | 715.75 | 42.59 | 9.91 | 682.99 | 962.34 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.17 | 63.66 | 10.71 | 586.22 | 787.10 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.18 | 36.27 | 10.75 | 584.10 | 1042.78 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.60 | 0.00 | 716.31 | 33.68 | 10.50 | 598.35 | 1082.04 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.64 | 0.00 | 716.32 | 58.23 | 10.41 | 603.51 | 823.00 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.30 | 0.00 | 716.50 | 30.45 | 9.04 | 764.88 | 1138.15 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.63 | 0.00 | 716.79 | 29.23 | 8.90 | 791.11 | 1161.51 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.75 | 0.00 | 717.90 | 29.10 | 8.88 | 792.32 | 1164.10 |
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.29 | 28.89 | 8.86 | 794.35 | 1168.45 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.53 | 0.00 | 720.67 | 28.78 | 8.85 | 795.32 | 1170.53 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.42 | 9.20 | 1310.86 | 1178.03 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.43 | 9.20 | 1310.65 | 1177.83 |
| 8972.000 | 11.00 | 721.40 | 721.20 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.37 | 6.74 | 1912.86 | 1785.44 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.38 | 6.75 | 1912.18 | 1784.71 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.22 | 0.00 | 723.60 | 10.79 | 6.41 | 2028.14 | 1912.06 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 6280.00 | 695.63 | 0.00 | 0.00 | 0.63 | 116.25 | 0.00 |
| 1808.000 | 6280.00 | 699.28 | 0.00 | 3.65 | 0.00 | 116.56 | 1808.00 |
| 1873.000 | 6280.00 | 699.38 | 0.00 | 0.10 | 0.00 | 97.00 | 65.00 |
| 1938.000 | 6280.00 | 699.33 | 0.00 | -0.06 | 0.00 | 65.00 | 65.00 |
| 1939.000 | 6280.00 | 699.33 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1972.000 | 6280.00 | 699.44 | 0.00 | 0.11 | 0.00 | 65.00 | 33.00 |
| 1973.000 | 6280.00 | 699.44 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 2007.000 | 6280.00 | 700.08 | 0.00 | 0.64 | 0.00 | 117.58 | 34.00 |
| 2072.000 | 6280.00 | 700.79 | 0.00 | 0.71 | 0.00 | 247.00 | 65.00 |
| 2172.000 | 6280.00 | 701.08 | 0.00 | 0.29 | 0.00 | 448.26 | 100.00 |
| 2591.000 | 6280.00 | 701.36 | 0.00 | 0.28 | 0.00 | 447.15 | 419.00 |
| 3010.000 | 6280.00 | 701.76 | 0.00 | 0.39 | 0.00 | 430.89 | 419.00 |
| 3429.000 | 6280.00 | 702.34 | 0.00 | 0.59 | 0.00 | 536.97 | 419.00 |
| 3850.000 | 6280.00 | 702.71 | 0.00 | 0.36 | 0.00 | 408.26 | 421.00 |
| 4237.000 | 6280.00 | 703.36 | 0.00 | 0.65 | 0.00 | 244.18 | 387.00 |
| 4625.000 | 6280.00 | 704.57 | 0.00 | 1.21 | 0.00 | 214.78 | 388.00 |
| 5012.000 | 6280.00 | 706.04 | 0.00 | 1.46 | 0.00 | 213.99 | 387.00 |
| 5400.000 | 6280.00 | 707.53 | 0.00 | 1.49 | 0.00 | 213.55 | 388.00 |
| 5787.000 | 6280.00 | 709.05 | 0.00 | 1.52 | 0.00 | 213.35 | 387.00 |
| 6175.000 | 6280.00 | 710.63 | 0.00 | 1.58 | 0.00 | 213.68 | 388.00 |
| 6368.000 | 6280.00 | 711.38 | 0.00 | 0.75 | 0.00 | 186.94 | 193.00 |
| 6468.000 | 6280.00 | 711.81 | 0.00 | 0.43 | 0.00 | 140.00 | 100.00 |
| 6562.000 | 6280.00 | 712.26 | 0.00 | 0.45 | 0.00 | 96.20 | 94.00 |
| 6850.000 | 6280.00 | 713.85 | 0.00 | 1.59 | 0.00 | 97.84 | 288.00 |

| SECND | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 6900.000 | 6280.00 | 714.09 | 0.00 | 0.23 | 0.00 | 97.99 | 50.00 |
| 6950.000 | 6280.00 | 714.30 | 0.00 | 0.21 | 0.00 | 94.54 | 50.00 |
| 7000.000 | 6280.00 | 714.39 | 0.00 | 0.09 | 0.00 | 70.00 | 50.00 |
| 7001.000 | 6280.00 | 714.39 | 0.00 | 0.00 | 0.00 | 70.00 | 1.00 |
| 7036.000 | 6280.00 | 714.60 | 0.00 | 0.22 | 0.00 | 70.00 | 35.00 |
| 7037.000 | 6280.00 | 714.64 | 0.00 | 0.04 | 0.00 | 70.00 | 1.00 |
| 7047.000 | 6280.00 | 715.30 | 0.00 | 0.66 | 0.00 | 90.00 | 10.00 |
| 7137.000 | 6280.00 | 715.63 | 0.00 | 0.33 | 0.00 | 101.94 | 90.00 |
| 7517.000 | 6280.00 | 716.75 | 0.00 | 1.11 | 0.00 | 101.98 | 380.00 |
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.40 | 0.00 | 102.06 | 480.00 |
| 8477.000 | 6280.00 | 719.53 | 0.00 | 1.39 | 0.00 | 102.09 | 480.00 |
| 8960.000 | 6280.00 | 721.17 | 0.00 | 1.64 | 0.00 | 316.98 | 483.00 |
| 8961.000 | 6280.00 | 721.17 | 0.00 | 0.00 | 0.00 | 316.97 | 1.00 |
| 8972.000 | 6280.00 | 722.91 | 0.00 | 1.74 | 0.00 | 364.51 | 11.00 |
| 8973.000 | 6280.00 | 722.91 | 0.00 | 0.00 | 0.00 | 364.48 | 1.00 |
| 9200.000 | 6280.00 | 723.22 | 0.00 | 0.32 | 0.00 | 369.81 | 227.00 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Belle River

4) DOCUMENT TYPE: 100 year - encroached

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  28 AUG 86 TIME    7:46:44              *
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 440-2105 (FTS) 448-2105    *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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MEMPHIS, MI - FIS
BELLE RIVER
ENCROACHED RUN
100 - YEAR FLOOD

THIS RUN EXECUTED 28 AUG 86 7:46:44

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************

C
T1      MEMPHIS, MI - FIS
T2      100 YEAR FLOOD
T3      BELLE RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   0.002000     0.00      0.0       0.     695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

  150.000   110.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.060     0.060     0.040     0.100     0.300     0.000     0.000     0.000     0.000     0.000
QT      2.000  6280.000  6280.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
X1      0.000    38.000   249.000   314.000     0.000     0.000     0.000     0.000    -3.900     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689.200   314.010   689.600   315.000   699.600   340.000   709.100   365.000
GR    709.300   390.000   709.700   415.000   710.300   440.000   710.900   465.000   711.700   490.000
GR    712.700   515.000   713.900   540.000   714.400   561.000     0.000     0.000     0.000     0.000

X1   1808.000     0.000     0.000     0.000  1808.000  1808.000  1808.000     0.000     3.600     0.000

ET      0.000     4.100     1.400   233.000   330.000     0.000     0.000     0.000     0.000     0.000
X1   1873.000     0.000     0.000     0.000    65.000    65.000    65.000     0.000     0.150     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
ET      0.000     4.100     1.400   249.000   314.000     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
X1   1938.000    38.000   249.000   314.000    65.000    65.000    65.000     0.000     0.000     0.000
GR    710.800     0.000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264.000   689.300   269.000   689.700   274.000   689.700   279.000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
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GR     689.200     314.000     689.200     314.010     689.600     315.000     699.600     340.000     709.100     365.000
GR     709.300     390.000     709.700     415.000     710.300     440.000     710.900     465.000     711.700     490.000
GR     712.700     515.000     713.900     540.000     714.400     561.000       0.000       0.000       0.000       0.000

NC       0.000       0.000       0.030       0.100       0.300       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       4.100     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         DOWNSTREAM FACE OF BORDMAN RD BRIDGE
X1    1939.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000
BT     -25.000       0.000     710.800       0.000      25.000     710.000       0.000      50.000     709.400       0.000
BT       0.000      75.000     708.900       0.000     100.000     708.500       0.000     125.000     708.400       0.000
BT       0.000     150.000     708.300       0.000     175.000     708.300       0.000     200.000     708.400       0.000
BT       0.000     225.000     708.600       0.000     248.990     708.600     689.500     249.000     708.600     705.600
BT       0.000     314.000     708.700     705.800     314.010     708.700     689.200     315.000     708.700       0.000
BT       0.000     340.000     708.900       0.000     365.000     709.100       0.000     390.000     709.300       0.000
BT       0.000     415.000     709.700       0.000     440.000     710.300       0.000     465.000     710.900       0.000
BT       0.000     490.000     711.700       0.000     515.000     712.700       0.000     540.000     713.900       0.000
BT       0.000     561.000     714.400       0.000       0.000       0.000       0.000       0.000       0.000       0.000

ET       0.000       4.100       4.100     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         UPSTREAM FACE OF BORDMAN RD BRIDGE
X1    1972.000       0.000       0.000       0.000      33.000      33.000      33.000       0.000       0.000       0.000
X2       0.000       0.000       0.000       0.000       0.000       0.000       1.000       0.000       0.000       0.000

NC       0.070       0.070       0.040       0.000       0.000       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       1.400     249.000     314.000       0.000       0.000       0.000       0.000       0.000
         CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
X1    1973.000       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000

X1    2007.000       0.000       0.000       0.000      34.000      34.000      34.000       0.000       0.300       0.000

NC       0.000       0.000       0.000       0.300       0.500       0.000       0.000       0.000       0.000       0.000
ET       0.000       4.100       6.100     101.000     348.000     107.000     327.000       0.000       0.000       0.000
         FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
X1    2072.000      27.000     175.000     274.000      65.000      65.000      65.000       0.000       0.000       0.000
GR     697.300       0.000     696.900      25.000     696.200      50.000     696.300      75.000     696.500     100.000
GR     696.400     125.000     696.100     150.000     696.200     175.000     692.200     200.000     692.800     203.000
GR     690.500     210.000     688.900     220.000     688.700     230.000     689.700     240.000     689.800     250.000
GR     689.100     260.000     691.200     270.000     692.800     274.000     697.400     290.000     697.600     315.000
GR     698.000     340.000     698.400     365.000     698.700     390.000     699.500     415.000     700.900     440.000
GR     703.100     455.000     713.100     540.000       0.000       0.000       0.000       0.000       0.000       0.000

ET       0.000       4.100       1.400     253.000     717.000       0.000       0.000       0.000       0.000       0.000
         FIELD MEASURED CROSS SECTION
X1    2172.000      30.000     435.000     534.000     100.000     100.000     100.000       0.000       0.000       0.000
GR     710.000       0.000     705.000     180.000     700.000     250.000     697.300     260.000     696.900     285.000
GR     696.200     310.000     696.300     335.000     696.500     360.000     696.400     385.000     696.100     410.000
GR     696.200     435.000     692.200     460.000     692.800     463.000     690.500     470.000     688.900     480.000
GR     688.700     490.000     689.700     500.000     689.800     510.000     689.100     520.000     691.200     530.000
GR     692.800     534.000     697.400     550.000     697.600     575.000     698.000     600.000     698.400     625.000
GR     698.700     650.000     699.500     675.000     700.900     700.000     703.100     715.000     713.100     800.000
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NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400      0.000    800.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION REPEATED UPSTREAM
X1   2591.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION REPEATED UPSTREAM
X1   3010.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

        CROSS SECTION A MOVED DOWNSTREAM
X1   3429.000     30.000    113.000    200.000    419.000    419.000    419.000      0.000     -0.950      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

ET      0.000      4.100      4.100     29.750    438.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A
X1   3850.000     30.000    113.000    200.000    421.000    421.000    421.000      0.000      0.000      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.600    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

ET      0.000      0.000      0.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A REPEATED UPSTREAM
X1   4237.000     19.000    113.000    200.000    387.000    387.000    387.000      0.000      1.540      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    702.000    500.000    710.000    580.000    725.000    620.000      0.000      0.000

ET      0.000      4.100      1.400     33.060    247.840      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION A REPEATED UPSTREAM
X1   4625.000      0.000      0.000      0.000    388.000    200.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5012.000      0.000      0.000      0.000    387.000    387.000    387.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED UPSTREAM
X1   5400.000      0.000      0.000      0.000    388.000    230.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5787.000      0.000      0.000      0.000    387.000    200.000    387.000      0.000      1.540      0.000
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        CROSS SECTION A REPEATED UPSTREAM
X1   6175.000      0.000      0.000      0.000    388.000    388.000    388.000      0.000      1.540      0.000

ET      0.000      4.100      1.400     60.000    253.000      0.000      0.000      0.000      0.000      0.000
X1   6368.000      0 000      0.000      0.000    193.000    193.000    193.000      0.000      0.770      0.000

NC      0.080      0.035      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400     86.500    226.500      0.000      0.000      0.000      0.000      0.000
X1   6468.000      0.000      0.000      0.000    100.000    100.000    100.000      0.000      0.600      0.000

ET      0.000      0.000      4.100     92.000    178.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6562.000     14.000    100.000    170.000     94.000     94.000     94.000      0.000     -1.550      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6850.000      0.000      0.000      0.000    288.000    288.000    288.000      0.000      1.150      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6900.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.200      0.000

ET      0.000      4.100      1.400     87.000    183.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
X1   6950.000     14.000    100.000    170.000     50.000     50.000     50.000      0.000      0.000      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
X1   7000.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.000      0.000

NC      0.080      0.050      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF M-19 BRIDGE
X1   7001.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT    -10.000      0.000    730.000      0.000     70.000    725.500      0.000    100.000    723.500    707.300
BT      0.000    101.100    724.000    718.500    170.000    721.500    716.000    170.100    721.000    706.400
BT      0.000    290.000    717.000      0.000    350.000    717.000      0.000    600.000    717.000      0.000
BT      0.000    700.000    720.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        UPSTREAM FACE OF M-19 BRIDGE
X1   7036.000      0.000      0.000      0.000     35.000     35.000     35.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
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NC      0.000      0.000      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    100.000    170.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
X1   7037.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100     90.000    180.000      0.000      0.000      0.000      0.000      0.000
X1   7047.000      0.000      0.000      0.000     10.000     10.000     10.000      0.000      0.000      0.000

ET      0.000      0.000      4.100     89.000    185.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7137.000      0.000      0.000      0.000     90.000     90.000     90.000      0.000      0.280      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      4.100     86.700    188.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7517.000      0.000      0.000      0.000    380.000    380.000    380.000      0.000      1.100      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7997.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   8477.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

NC      0.080      0.080      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
X1   8960.000     29.000    282.000    327.000    483.000    483.000    483.000      0.000      0.000      0.000
GR    725.000      0.000    720.000     30.000    718.800     50.000    718.800     75.000    718.900    100.000
GR    718.500    125.000    718.400    150.000    718.600    175.000    718.700    200.000    719.200    225.000
GR    715.700    250.000    712.200    277.000    711.800    282.000    711.800    282.010    710.700    285.000
GR    710.300    290.000    710.500    295.000    710.700    300.000    710.600    305.000    710.300    310.000
GR    711.000    315.000    711.700    320.000    712.400    322.000    713.700    327.000    721.200    340.000
GR    721.800    365.000    724.100    390.000    726.500    415.000    728.100    430.000      0.000      0.000

        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8961.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

SB      0.000      1.640      3.000      0.000     42.000      0.000    460.000      0.000      0.000      0.000
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8972.000      0.000      0.000      0.000     11.000     11.000     11.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    721.200    721.400      0.000      0.000      0.000      0.000      0.000
BT    -11.000    200.000    718.700      0.000    225.000    719.200      0.000    250.000    720.600      0.000
BT      0.000    277.000    721.400      0.000    282.000    721.400    711.800    282.010    721.400    720.000
BT      0.000    340.000    721.700    721.200    365.000    721.800      0.000    390.000    724.100      0.000
BT      0.000    415.000    726.500      0.000    430.000    728.100      0.000      0.000      0.000      0.000
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NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
X1   8973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   9200.000      0.000      0.000      0.000    227.000    227.000    227.000      0.000      0.000      0.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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   SECND     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.53    695.63      0.00    695.00    696.51      0.87      0.00      0.00    685.60
    6280.      450.     5399.      431.      132.      677.      133.        0.        0.    685.30
     0.00      3.41      7.97      3.23     0.060     0.040     0.060     0.000    684.10    223.58
 0.002033        0.        0.        0.         0         0         3      0.00    116.25    339.83

*SECNO 1808.000
  1808.00     11.58    699.28      0.00      0.00    700.14      0.86      3.64      0.00    689.20
    6280.      453.     5393.      434.      133.      681.      135.       39.        5.    688.90
     0.07      3.40      7.92      3.21     0.060     0.040     0.060     0.000    687.70    223.42
 0.001991     1808.     1808.     1808.         1         0         0      0.00    116.56    339.98

*SECNO 1873.000

3470 ENCROACHMENT STATIONS=      233.0      330.0  TYPE=      1  TARGET=      97.000
  1873.00     11.53    699.38      0.00      0.00    700.29      0.91      0.13      0.01    689.35
    6280.      411.     5466.      402.      114.      677.      114.       41.        5.    689.05
     0.07      3.61      8.07      3.53     0.060     0.040     0.060     0.000    687.85    233.00
 0.002084       65.       65.       65.         2         0         0      0.00     97.00    330.00

CCHV=   0.300 CEHV=   0.500
*SECNO 1938.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.33    699.33      0.00      0.00    700.72      1.39      0.19      0.24    689.50
    6280.        0.     6280.        0.        0.      664.        0.       42.        5. 100000.00
     0.07      0.00      9.46      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004198       65.       65.       65.         2         0         0      0.00     65.00    314.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1939.000

3370 NORMAL BRIDGE, NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=     65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00    11.33   699.33     0.00      0.00   700.72     1.39      0.00      0.00    689.50
   6280.        0.    6280.       0.        0.     664.       0.       42.        5.  100000.00
    0.07     0.00     9.46     0.00     0.000    0.030    0.000     0.000    688.00    249.00
 0.002359       1.       1.       1.         0        0        0      0.00     65.00    314.00

*SECNO 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=     65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00    11.44   699.44     0.00      0.00   700.80     1.36      0.08      0.00    689.50
   6280.        0.    6280.       0.        0.     671.       0.       42.        5.  100000.00
    0.07     0.00     9.36     0.00     0.000    0.030    0.000     0.000    688.00    249.00
 0.002285      33.      33.      33.         0        0        0      0.00     65.00    314.00

*SECNO 1973.000
3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=     65.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00    11.44   699.44     0.00      0.00   700.80     1.36      0.00      0.00    689.50
   6280.        0.    6280.       0.        0.     671.       0.       42.        5.  100000.00
    0.07     0.00     9.36     0.00     0.000    0.040    0.000     0.000    688.00    249.00
 0.004059       1.       1.       1.         0        0        0      0.00     65.00    314.00


*SECNO 2007.000
  2007.00    11.78   700.08     0.00      0.00   700.95     0.86      0.09      0.05    689.80
   6280.      405.    5486.     389.      138.     693.     140.       43.        5.    689.50
    0.08     2.93     7.91     2.78     0.070    0.040    0.070     0.000    688.30    222.91
 0.001938      34.      34.      34.         2        0        0      0.00    117.58    340.49


CCHV=   0.300 CEHV=   0.500
*SECNO 2072.000

3470 ENCROACHMENT STATIONS=     101.0     348.0  TYPE=     1  TARGET=    247.000
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        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.09    700.79      0.00      0.00    701.18      0.39      0.09      0.14    696.20
    6280.      605.     5226.      449.      334.      967.      271.       45.        6.    692.80
     0.08      1.81      5.41      1.66     0.070     0.040     0 070     0.000    688.70    101.00
 0.001035       65.       65.       65.         2         0         0      0.00    247.00    348.00

*SECND 2172.000

3470 ENCROACHMENT STATIONS=      253.0      717.0  TYPE=      1  TARGET=      464.000
        FIELD MEASURED CROSS SECTION
  2172.00     12.38    701.08      0.00      0.00    701.31      0.23      0.08      0.05    696.20
    6280.     1265.     4429.      586.      831.      995.      475.       49.        6.    692.80
     0.09      1.52      4.45      1.23     0.070     0.040     0.070     0.000    688.70    253.00
 0.000676      100.      100.      100.         2         0         0      0.00    448.26    701.26

CCHV=   0.100 CEHV=   0.300
*SECND 2591.000
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.71    701.36      0.00      0.00    701.66      0.30      0.33      0.02    697.15
    6280.     1150.     4653.      477.      713.      929.      366.       70.       11.    693.75
     0.12      1.61      5.01      1.30     0.070     0.040     0.070     0.000    689.65    244.19
 0.000938      419.      419.      419.         2         0         0      0.00    447.15    691.34

*SECND 3010.000
        CROSS SECTION REPEATED UPSTREAM
  3010.00     11.16    701.76      0.00      0.00    702.14      0.38      0.45      0.03    698.10
    6280.     1032.     4864.      385.      609.      873.      281.       88.       15.    694.70
     0.14      1.69      5.57      1.37     0.070     0.040     0.070     0.000    690.60    250.52
 0.001257      419.      419.      419.         2         0         0      0.00    430.89    681.41

*SECND 3429.000
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00     10.79    702.34      0.00      0.00    702.62      0.27      0.46      0.01    693.95
    6280.      531.     4064.     1684.      319.      802.     1116.      107.       19.    696.45
     0.17      1.67      5.07      1.51     0.070     0.040     0.070     0.000    691.55     28.13
 0.000986      419.      419.      419.         2         0         0      0.00    536.97    565.10

*SECND 3850.000

3470 ENCROACHMENT STATIONS=       29.8      438.0  TYPE=      1  TARGET=      408.250
        CROSS SECTION A
  3850.00     10.21    702.71      0.00      0.00    703.24      0.53      0.55      0.08    694.90
    6280.      554.     4917.      809.      270.      751.      488.      126.       24.    697.40
     0.19      2.06      6.55      1.66     0.070     0.040     0.070     0.000    692.50     29.75
 0.001795      421.      421.      421.         2         0         0      0.00    408.25    438.00
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  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
 4237.00     9.32     703.36     0.00       0.00     704.26     0.89       0.90       0.11     696.44
   6280.     458.     5448.      374.       197.       673.     144.       137.        27.     698.94
   0.21      2.33      8.09      2.60      0.070      0.040    0.070      0.000     694.04     32.18
0.003167     387.      387.      387.          2          0        0       0.00     244.18    276.36

*SECNO 4625.000

3470 ENCROACHMENT STATIONS=      33.1      247.8  TYPE=      1  TARGET=      214.780
        CROSS SECTION A REPEATED UPSTREAM
 4625.00     8.99     704.57     0.00       0.00     705.59     1.02       1.30       0.04     697.98
   6280.     405.     5529.      346.       171.       645.     128.       145.        29.     700.48
   0.22      2.37      8.57      2.71      0.070      0.040    0.070      0.000     695.58     33.06
0.003759     388.      388.      200.          2          0        0       0.00     214.78    247.84

*SECNO 5012.000
        CROSS SECTION A REPEATED
 5012.00     8.92     706.04     0.00       0.00     707.09     1.05       1.49       0.01     699.52
   6280.     392.     5549.      339.       164.       638.     124.       153.        31.     702.02
   0.23      2.38      8.69      2.73      0.070      0.040    0.070      0.000     697.12     33.28
0.003926     387.      387.      387.          2          0        0       0.00     213.99    247.27

*SECNO 5400.000
        CROSS SECTION A REPEATED UPSTREAM
 5400.00     8.87     707.53     0.00       0.00     708.60     1.07       1.51       0.01     701.06
   6280.     385.     5561.      335.       161.       634.     122.       161.        32.     703.56
   0.25      2.39      8.77      2.75      0.070      0.040    0.070      0.000     698.66     33.41
0.004023     388.      388.      230.          2          0        0       0.00     213.55    246.95

*SECNO 5787.000
        CROSS SECTION A REPEATED
 5787.00     8.85     709.05     0.00       0.00     710.13     1.08       1.53       0.00     702.60
   6280.     381.     5566.      333.       159.       633.     121.       169.        34.     705.10
   0.26      2.39      8.80      2.75      0.070      0.040    0.070      0.000     700.20     33.46
0.004069     387.      387.      200.          2          0        0       0.00     213.35    246.81
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 6175.000
        CROSS SECTION A REPEATED UPSTREAM
  6175.00      8.89     710.63      0.00       0.00     711.70      1.06       1.56       0.00     704.14
    6280.       387.     5557.      336.       162.      636.       122.       177.        36.     706.64
     0.27      2.39       8.74      2.74      0.070     0.040      0.070      0.000     701.74      33.37
 0.003993      388.       388.      388.          1         0          0       0.00     213.68     247.05

*SECNO 6368.000

3470 ENCROACHMENT STATIONS=      60.0      253.0  TYPE=      1  TARGET=      193.000
  6368.00      8.87     711.38      0.00       0.00     712.50      1.11       0.79       0.02     704.91
    6280.       301.     5640.      339.       117.      634.       122.       181.        37.     707.41
     0.28      2.56       8.89      2.79      0.070     0.040      0.070      0.000     702.51      60.00
 0.004144      193.       193.      193.          2         0          0       0.00     186.94     246.94

CCHV=    0.500 CEHV=    1.000
*SECNO 6468.000

3470 ENCROACHMENT STATIONS=      86.5      226.5  TYPE=      1  TARGET=      140.000
  6468.00      8.70     711.81      0.00       0.00     712.99      1.18       0.43       0.06     705.51
    6280.       161.     5581.      538.        62.      618.        88.       183.        37.     708.01
     0.28      2.62       9.03      6.13      0.080     0.040      0.035      0.000     703.11      86.50
 0.004414      100.       100.      100.          1         0          0       0.00     140.00     226.50

*SECNO 6562.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00      9.01     712.26      0.00       0.00     713.92      1.66       0.45       0.48     705.75
    6280.        93.     5787.      400.        35.      546.        58.       184.        37.     704.75
     0.29      2.67      10.61      6.93      0.080     0.040      0.035      0.000     703.25      89.27
 0.005286       94.        94.       94.          2         0          0       0.00      96.20     185.46

CCHV=    0.100 CEHV=    0.300
*SECNO 6850.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00      9.45     713.85      0.00       0.00     715.32      1.46       1.38       0.02     706.90
    6280.       101      5756.      423.        40.      577.        65.       188.        38.     705.90
     0.29      2.53       9.98      6.53      0.080     0.040      0.035      0.000     704.40      88.54
 0.004351      288.       288.      288.          2         0          0       0.00      97.84     186.38
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6900.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6900.00     9.49    714.09      0.00      0.00    715.53      1.45      0.22      0.00    707.10
    6280.     102.     5754.      425.       40.      579.       65.      189.       38.    706.10
     0.30     2.52      9.93      6.50     0.080     0.040     0.035     0.000    704.60     88.47
 0.004278      50.       50.       50.         0         0         0      0.00     97.99    186.46

*SECNO 6950.000

3470 ENCROACHMENT STATIONS=      87.0      183.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
  6950.00     9.50    714.30      0.00      0.00    715.75      1.45      0.21      0.00    707.30
    6280.     102.     5750.      428.       40.      580.       63.      190.       38.    706.30
     0.30     2.52      9.91      6.84     0.080     0.040     0.035     0.000    704.80     88.46
 0.004259      50.       50.       50.         0         0         0      0.00     94.54    183.00

CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
  7000.00     9.59    714.39      0.00      0.00    716.17      1.78      0.26      0.17    707.30
    6280.       0.     6280.        0.        0.      586.        0.      191.       38.  100000.00
     0.30     0.00     10.71      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.006366      50.       50.       50.         2         0         0      0.00     70.00    170.00

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
  7001.00     9.59    714.39      0.00      0.00    716.18      1.79      0.00      0.00    707.30
    6280.       0.     6280.        0.        0.      584.        0.      191.       38.  100000.00
     0.30     0.00     10.75      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003627       1.        1.        1.         0         0         0     -2.47     70.00    170.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7036.000

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50


3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00      9.80    714.60      0.00      0.00    716.31      1.71      0.12      0.01    707.30
   6280.         0.     6280.        0.        0.      598.        0.      191.       39.  100000.00
    0.30      0.00     10.50      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003368      35.       35.       35.         2         0         0     -2.62     70.00    170.00


*SECNO 7037.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00      9.84    714.64      0.00      0.00    716.32      1.68      0.00      0.00    707.30
   6280.         0.     6280.        0.        0.      604.        0.      191.       39.  100000.00
    0.30      0.00     10.41      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.005823       1.        1.        1.         2         0         0      0.00     70.00    170.00


CCHV=   0.300 CEHV=   0.500
*SECNO 7047.000

3470 ENCROACHMENT STATIONS=       90.0      180.0  TYPE=      1  TARGET=       90.000
  7047.00     10.50    715.30      0.00      0.00    716.50      1.20      0.04      0.14    707.30
   6280.       121.     5876.      283.       50.      650.       65.      191.       39.     706.30
    0.30      2.43      9.04      4.33     0.080     0.040     0.050     0.000    704.80     90.00
 0.003045       10.       10.       10.         3         0         0      0.00     90.00    180.00


*SECNO 7137.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00     10.55    715.63      0.00      0.00    716.79      1.15      0.27      0.01    707.58
   6280.       122.     5814.      343.       53.      654.       84.      193.       39.     706.58
    0.30      2.29      8.90      4.09     0.080     0.040     0.050     0.000    705.08     86.72
 0.002923       90.       90.       90.         2         0         0      0.00    101.94    188.66


CCHV=   0.100 CEHV=   0.300
```

```
  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EQ         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 7517.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
 7517.00     10.57    716.75      0.00       0.00    717.90      1.15       1.11       0.00    708.68
   6280.      123.     5814.      344.        54.      654.       84.       200.        40.     707.68
    0.31      2.29      8.88      4.08      0.080     0.040     0.050      0.000     706.18      86.70
0.002910      380.      380.      380.          2         0         0       0.00     101.98     188.69

*SECNO 7997.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
 7997.00     10.58    718.14      0.00       0.00    719.29      1.14       1.39       0.00    710.06
   6280.      123.     5813.      344.        54.      656.       85.       209.        41.     709.06
    0.33      2.28      8.86      4.07      0.080     0.040     0.050      0.000     707.56      86.67
0.002889      480.      480.      480.          0         0         0       0.00     102.06     188.73

*SECNO 8477.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
 8477.00     10.59    719.53      0.00       0.00    720.67      1.14       1.38       0.00    711.44
   6280.      123.     5812.      345.        54.      657.       85.       217.        42.     710.44
    0.35      2.28      8.85      4.07      0.080     0.040     0.050      0.000     708.94      86.66
0.002878      480.      480.      480.          0         0         0       0.00     102.09     188.75

*SECNO 8960.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
 8960.00     10.87    721.17      0.00       0.00    722.08      0.91       1.38       0.02    711.80
   6280.     1975.     4201.      105.       806.      457.       48.       229.        44.     713.70
    0.37      2.45      9.20      2.17      0.080     0.040     0.080      0.000     710.30      22.97
0.002842      483.      483.      483.          2         0         0       0.00     316.98     339.95

*SECNO 8961.000
        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
 8961.00     10.87    721.17      0.00       0.00    722.08      0.91       0.00       0.00    711.80
   6280.     1974.     4201.      105.       806.      457.       48.       229.        44.     713.70
    0.37      2.45      9.20      2.17      0.080     0.040     0.080      0.000     710.30      22.98
0.002843        1.        1.        1.          0         0         0       0.00     316.97     339.95
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

5070. VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.64 | 3.00 | 0.00 | 42.00 | 0.00 | 460.00 | 0.00 | 710.30 | 710.30 |

*SECNO 8972.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 725.92 | 722.08 | 0.00 | 2067. | 4242. | 460. | 458. | 721.20 | 721.40 |

UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8972.00 | 12.61 | 722.91 | 0.00 | 0.00 | 723.34 | 0.43 | 1.26 | 0.00 | 711.80 |
| 6280. | 2510. | 3607. | 163. | 1265. | 535. | 113. | 230. | 44. | 713.70 |
| 0.37 | 1.98 | 6.74 | 1.44 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 12.54 |
| 0.001237 | 11. | 11. | 11. | 2 | 0 | 2 | 0.00 | 364.51 | 377.06 |

CCHV= 0.100 CEHV= 0.300
*SECNO 8973.000
CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8973.00 | 12.61 | 722.91 | 0.00 | 0.00 | 723.34 | 0.43 | 0.00 | 0.00 | 711.80 |
| 6280. | 2510. | 3608. | 162. | 1265. | 535. | 113. | 230. | 44. | 713.70 |
| 0.37 | 1.98 | 6.75 | 1.44 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 12.56 |
| 0.001238 | 1. | 1. | 1. | 0 | 0 | 0 | 0.00 | 364.48 | 377.04 |

*SECNO 9200.000
CROSS SECTION AT UPSTREAM CORPORATE LIMIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9200.00 | 12.92 | 723.22 | 0.00 | 0.00 | 723.60 | 0.38 | 0.26 | 0.00 | 711.80 |
| 6280. | 2585. | 3518. | 177. | 1350. | 549. | 129. | 240. | 46. | 713.70 |
| 0.38 | 1.91 | 6.41 | 1.37 | 0.080 | 0.040 | 0.080 | 0.000 | 710.30 | 10.66 |
| 0.001079 | 227. | 227. | 227. | 2 | 0 | 0 | 0.00 | 369.81 | 380.47 |

THIS RUN EXECUTED 28 AUG 86 7:46:51

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************
```

T1 MEMPHIS, MI - FIS
T2 100-YEAR FLOOD - ENCROACHED RUN
T3 BELLE RIVER

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | 0. | 3. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 695.730 | 0.000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 15.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000
 2800 NAT Q1=   1392.73  WSEL=    695.63  ENC Q1=   1392.73  WSEL=    695.73  RATIO=  0.0000
 NAT Q1=   1418.  RATIOS LOB,CH,ROB=  0.0725  0.8581  0.0694  WSEL=    695.73

3470 ENCROACHMENT STATIONS=     232.7     329.3  TYPE=     4  TARGET=       0.018
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.63   695.73     0.00   695.63   696.62     0.89     0.00     0.00   685.60
    6280.      417.    5470.      393.     117.     683.     113.       0.       0.   685.30
     0.00     3.58     8.01     3.49    0.060    0.040    0.060    0.000   684.10   232.75
 0.002024       0.       0.       0.        0        0        0     0.00    96.53   329.27


*SECNO 1808.000
 2800 NAT Q1=   1407.50  WSEL=    699.28  ENC Q1=   1407.50  WSEL=    699.38  RATIO=  0.0000
 NAT Q1=   1430.  RATIOS LOB,CH,ROB=  0.0729  0.8573  0.0698  WSEL=    699.38

3470 ENCROACHMENT STATIONS=     232.1     329.9  TYPE=     4  TARGET=       0.016
  1808.00     11.67   699.37     0.00   699.28   700.25     0.88     3.63     0.00   689.20
    6280.      424.    5454.      402.     119.     686.     116.       38.       4.   688.90
     0.07     3.55     7.95     3.47    0.060    0.040    0.060    0.000   687.70   232.15
 0.001987     1808.    1808.    1808.        2        0        0     0.00    97.70   329.85


*SECNO 1873.000
 2800 NAT Q1=   1375.73  WSEL=    699.38  ENC Q1=   1375.73  WSEL=    699.48  RATIO=  0.0000
 NAT Q1=   1418.  RATIOS LOB,CH,ROB=  0.0725  0.8581  0.0694  WSEL=    699.48

3470 ENCROACHMENT STATIONS=     235.6     326.7  TYPE=     4  TARGET=       0.030
  1873.00     11.61   699.46     0.00   699.38   700.40     0.93     0.13     0.02   689.35
    6280.      375.    5556.      349.     104.     682.     100.       39.       4.   689.05
     0.07     3.61     8.14     3.49    0.060    0.040    0.060    0.000   687.85   235.60
 0.002099       65.      65.       65.        2        0        0     0.00    91.09   326.68


CCHV=   0.300 CEHV=   0.500
*SECNO 1938.000
 2800 NAT Q1=    969.27  WSEL=    699.33  ENC Q1=   1177.33  WSEL=    699.43  RATIO= -0.2147
 NAT Q1=   1367.  RATIOS LOB,CH,ROB=  0.0707  0.8612  0.0681  WSEL=    699.43

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     4  TARGET=       0.139
```

```
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.43    699.43      0.00    699.33    700.80      1.36      0.18      0.21    689.50
   6280.         0.     6280.        0.        0.      671.        0.       41.        4.    689.20
    0.07      0.00      9.37      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004069      65.       65.       65.         2         0         0      0.00     65.00    314.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1939.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00     11.44    699.44      0.00    699.33    700.80      1.36      0.00      0.00    689.50
   6280.         0.     6280.        0.        0.      671.        0.       41.        4.  100000.00
    0.07      0.00      9.36      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002287        1.        1.        1.         0         0         0      0.00     65.00    314.00

*SECNO 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00     11.54    699.54      0.00    699.44    700.88      1.33      0.07      0.00    689.50
   6280.         0.     6280.        0.        0.      678.        0.       41.        4.  100000.00
    0.07      0.00      9.27      0.00     0.000     0.030     0.000     0.000    688.00    249.00
 0.002218       33.       33.       33.         0         0         0      0.00     65.00    314.00

*SECNO 1973.000
 2800 NAT Q1=    985.71  WSEL=    699.44  ENC Q1=   1199.58  WSEL=    699.54  RATIO= -0.2170
 NAT Q1=   1368.  RATIOS LOB,CH,ROB=  0.0628  0.8771  0.0602  WSEL=    699.54

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     4  TARGET=       0.123
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00     11.55    699.55      0.00    699.44    700.88      1.33      0.00      0.00    689.50
   6280.         0.     6280.        0        0.      678.        0.       41.        4.    689.20
    0.07      0.00      9.27      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.003941        1.        1.        1.         0         0         0      0.00     65.00    314.00

*SECNO 2007.000
 2800 NAT Q1=   1426.61  WSEL=    700.08  ENC Q1=   1426.61  WSEL=    700.18  RATIO=  0.0000
 NAT Q1=   1450.  RATIOS LOB,CH,ROB=  0.0652  0.8721  0.0627  WSEL=    700.18
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      232.2      330.0  TYPE=      4  TARGET=        0.016
  2007.00     11.83    700.13      0.00    700.08    701.02      0.89      0.09      0.04    689.80
    6280.      373.     5553.      355.      122.      696.      119.       42.        4.    689.50
     0.07      3.05      7.97      2.98     0.070     0.040     0.070     0.000    688.30    232.15
 0.001958       34.       34.       34.         2         0         0      0.00     97.85    330.00


CCHV=    0.300 CEHV=    0.500
*SECNO 2072.000

3470 ENCROACHMENT STATIONS=      107.0      327.0  TYPE=      1  TARGET=      220.000
        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.15    700.85      0.00    700.79    701.25      0.40      0.09      0.15    696.20
    6280.      575.     5328.      377.      312.      972.      214.       44.        5.    692.80
     0.08      1.84      5.48      1.76     0.070     0.040     0.070     0.000    688.70    107.00
 0.001056       65.       65.       65.         2         0         0      0.00    220.00    327.00


*SECNO 2172.000
 2800 NAT Q1=    2416.03  WSEL=     701.08  ENC Q1=    2416.03  WSEL=     701.18  RATIO=  0.0000
 NAT Q1=    2477.   RATIOS LOB,CH,ROB=  0.2051  0.6993  0.0956  WSEL=     701.18

3470 ENCROACHMENT STATIONS=      266.6      644.4  TYPE=      4  TARGET=        0.025
        FIELD MEASURED CROSS SECTION
  2172.00     12.45    701.15      0.00    701.08    701.39      0.24      0.08      0.05    696.20
    6280.     1237.     4510.      533.      797.     1001.      397.       48.        5.    692.80
     0.09      1.55      4.50      1.34     0.070     0.040     0.070     0.000    688.70    266.63
 0.000685      100.      100.      100.         2         0         0      0.00    377.72    644.35


CCHV=    0.100 CEHV=    0.300
*SECNO 2591.000
 2800 NAT Q1=    2050.51  WSEL=     701.36  ENC Q1=    2050.51  WSEL=     701.46  RATIO=  0.0000
 NAT Q1=    2103.   RATIOS LOB,CH,ROB=  0.1863  0.7352  0.0786  WSEL=     701.46

3470 ENCROACHMENT STATIONS=      270.9      626.1  TYPE=      4  TARGET=        0.025
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.78    701.43      0.00    701.36    701.75      0.31      0.34      0.02    697.15
    6280.     1114.     4745.      421.      670.      935.      287.       67.        9.    693.75
     0.11      1.66      5.07      1.47     0.070     0.040     0.070     0.000    689.65    270.94
 0.000952      419.      419.      419.         2         0         0      0.00    355.11    626.05
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 3010.000
 2800 NAT Q1=    1771.52  WSEL=     701.76  ENC Q1=    1771.52  WSEL=     701.86  RATIO=  0.0000
 NAT Q1=    1820.   RATIOS LOB,CH,ROB=  0.1679  0.7682  0.0639  WSEL=     701.86

3470 ENCROACHMENT STATIONS=      276.4      605.6  TYPE=      4  TARGET=        0.027
        CROSS SECTION REPEATED UPSTREAM
  3010.00     11.23    701.83      0.00    701.76    702.23      0.40      0.46      0.03    698.10
    6280.      991.     4966.      323.      564.      881.      202.       84.       12.    694.70
     0.14      1.76      5.64      1.60     0.070     0.040     0.070     0.000    690.60    276.36
 0.001275      419.      419.      419.         2         0         0      0.00    329.22    605.59


*SECNO 3429.000
 2800 NAT Q1=    2000.42  WSEL=     702.34  ENC Q1=    2000.42  WSEL=     702.44  RATIO=  0.0000
 NAT Q1=    2058.   RATIOS LOB,CH,ROB=  0.0857  0.6406  0.2737  WSEL=     702.44

3470 ENCROACHMENT STATIONS=       48.2      551.9  TYPE=      4  TARGET=        0.028
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00     10.88    702.43      0.00    702.34    702.71      0.28      0.47      0.01    693.95
    6280.      461.     4127.     1692.      270.      809.     1107.      103.       16.    696.45
     0.17      1.71      5.10      1.53     0.070     0.040     0.070     0.000    691.55     48.17
 0.000985      419.      419.      419.         2         0         0      0.00    503.72    551.89

*SECNO 3850.000

3470 ENCROACHMENT STATIONS=       29.8      438.0  TYPE=      1  TARGET=      408.250
        CROSS SECTION A
  3850.00     10.31    702.81      0.00    702.71    703.31      0.51      0.53      0.07    694.90
    6280.      565.     4875.      840.      278.      759.      511.      121.       21.    697.40
     0.19      2.03      6.42      1.65     0.070     0.040     0.070     0.000    692.50     29.75
 0.001701      421.      421.      421.         2         0         0      0.00    408.25    438.00


*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
  4237.00      9.38    703.42      0.00    703.36    704.29      0.87      0.87      0.11    696.44
    6280.      466.     5434.      380.      201.      679.      150.      132.       24.    698.94
     0.20      2.32      8.01      2.53     0.070     0.040     0.070     0.000    694.04     32.03
 0.003076      387.      387.      387.         2         0         0      0.00    313.32    345.35
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 4625.000
 2800 NAT Q1=    1024.29  WSEL=     704.57  ENC Q1=    1024.29  WSEL=     704.67  RATIO=  0.0000
 NAT Q1=    1051.   RATIOS LOB,CH,ROB=  0.0670  0.8765  0.0564  WSEL=     704.67

3470 ENCROACHMENT STATIONS=       55.2      226.0  TYPE=      4  TARGET=        0.026
        CROSS SECTION A REPEATED UPSTREAM
  4625.00      9.00    704.58      0.00    704.57    705.66      1.08      1.31      0.06    697.98
    6280.       337.     5652.       291.      134.      645.       94.      140.       26.    700.48
     0.22      2.52      8.76      3.09     0.070     0.040     0.070     0.000    695.58     55.18
 0.003929      388.      388.      200.         2         0         0      0.00    170.79    225.97


*SECNO 5012.000
 2800 NAT Q1=    1002.30  WSEL=     706.04  ENC Q1=    1002.30  WSEL=     706.14  RATIO=  0.0000
 NAT Q1=    1030.   RATIOS LOB,CH,ROB=  0.0650  0.8796  0.0553  WSEL=     706.14

3470 ENCROACHMENT STATIONS=       56.8      225.3  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED
  5012.00      8.98    706.10      0.00    706.04    707.20      1.10      1.53      0.00    699.52
    6280.       328.     5664.       287.      129.      644.       92.      148.       27.    702.02
     0.23      2.54      8.80      3.13     0.070     0.040     0.070     0.000    697.12     56.84
 0.003979      387.      387.      387.         2         0         0      0.00    168.47    225.32

*SECNO 5400.000
 2800 NAT Q1=     990.07  WSEL=     707.53  ENC Q1=     990.07  WSEL=     707.63  RATIO=  0.0000
 NAT Q1=    1017.   RATIOS LOB,CH,ROB=  0.0639  0.8814  0.0547  WSEL=     707.63

3470 ENCROACHMENT STATIONS=       57.5      225.1  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED UPSTREAM
  5400.00      8.96    707.62      0.00    707.53    708.72      1.11      1.52      0.00    701.06
    6280.       323.     5671.       286.      127.      642.       90.      155.       28.    703.56
     0.24      2.55      8.84      3.16     0.070     0.040     0.070     0.000    698.66     57.47
 0.004029      388.      388.      230.         2         0         0      0.00    167.62    225.10


*SECNO 5787.000
 2800 NAT Q1=     984.50  WSEL=     709.05  ENC Q1=     984.50  WSEL=     709.15  RATIO=  0.0000
 NAT Q1=    1012.   RATIOS LOB,CH,ROB=  0.0633  0.8823  0.0544  WSEL=     709.15

3470 ENCROACHMENT STATIONS=       57.8      225.0  TYPE=      4  TARGET=        0.027
        CROSS SECTION A REPEATED
  5787.00      8.94    709.14      0.00    709.05    710.27      1.12      1.54      0.00    702.60
    6280.       321.     5695.       264.      125.      640.       90.      163.       30.    705.10
     0.26      2.56      8.89      2.94     0.070     0.040     0.070     0.000    700.20     57.78
 0.004088      387.      387.      200.         2         0         0      0.00    167.21    224.99
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 6175.000
 2800 NAT Q1=    993.82  WSEL=    710.63  ENC Q1=    993.82  WSEL=    710.73  RATIO=  0.0000
 NAT Q1=   1023.  RATIOS LOB,CH,ROB=  0.0644  0.8806  0.0550  WSEL=    710.73

3470 ENCROACHMENT STATIONS=      58.3     224.7  TYPE=     4  TARGET=       0.028
        CROSS SECTION A REPEATED UPSTREAM
  6175.00     8.99   710.73     0.00   710.63   711.84     1.11     1.57     0.00   704.14
    6280.     324.    5692.     264.     127.     644.      90.     170.      31.    706.64
     0.27     2.56     8.84     2.93    0.070    0.040    0.070    0.000   701.74    58.33
 0.004007     398.     388.     388.        2        0        0     0.00   166.38   224.72


*SECNO 6368.000
 2800 NAT Q1=    975.56  WSEL=    711.38  ENC Q1=    975.56  WSEL=    711.48  RATIO=  0.0000
 NAT Q1=   1017.  RATIOS LOB,CH,ROB=  0.0638  0.8815  0.0547  WSEL=    711.48

3470 ENCROACHMENT STATIONS=      68.0     220.8  TYPE=     4  TARGET=       0.041
  6368.00     8.97   711.48     0.00   711.38   712.64     1.16     0.79     0.01   704.91
    6280.     285.    5767.     228.     107.     643.      77.     174.      32.    707.41
     0.27     2.67     8.97     2.96    0.070    0.040    0.070    0.000   702.51    68.00
 0.004136     193.     193.     193.        0        0        0     0.00   152.84   220.83


CCHV=   0.500 CEHV=   1.000
*SECNO 6468.000
 2800 NAT Q1=    945.20  WSEL=    711.81  ENC Q1=    945.20  WSEL=    711.91  RATIO=  0.0000
 NAT Q1=   1013.  RATIOS LOB,CH,ROB=  0.0496  0.8504  0.0999  WSEL=    711.91

3470 ENCROACHMENT STATIONS=     106.4     221.6  TYPE=     4  TARGET=       0.067
  6468.00     8.80   711.91     0.00   711.81   713.12     1.21     0.43     0.05   705.51
    6280.     124.    5707.     449.      36.     628.      76.     176.      32.    708.01
     0.28     3.45     9.09     5.93    0.080    0.040    0.035    0.000   703.11   106.40
 0.004389     100.     100.     100.        2        0        0     0.00   115.19   221.59


*SECNO 6562.000

3470 ENCROACHMENT STATIONS=      92.0     178.0  TYPE=     1  TARGET=      86.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00     9.11   712.36     0.00   712.26   714.03     1.68     0.45     0.47   705.75
    6280.      93.    5864.     323.      33.     552.      45.     177.      33.    704.75
     0.28     2.80    10.62     7.17    0.080    0.040    0.035    0.000   703.25    92.00
 0.005215      94.      94.      94.        2        0        0     0.00    86.00   178.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 6850.000
 2800 NAT Q1=     952.04  WSEL=     713.85  ENC Q1=     952.04  WSEL=     713.95  RATIO=  0.0000
 NAT Q1=     972.   RATIOS LOB,CH,ROB=  0.0163  0.9155  0.0681  WSEL=     713.95

3470 ENCROACHMENT STATIONS=       97.6      179.6  TYPE=      4  TARGET=       0.021
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00      9.50    713.90      0.00    713.85    715.43      1.54      1.39      0.01    706.90
    6280.       27.     5879.      378.       15.      580.       54.      182.       33.    705.90
     0.29      1.83     10.14      6.98     0.080     0.040     0.035     0.000    704.40     97.63
 0.004456      288.      288.      288.         2         0         0      0.00     82.01    179.64


*SECNO 6900.000
 2800 NAT Q1=     960.18  WSEL=     714.09  ENC Q1=     960.18  WSEL=     714.19  RATIO=  0.0000
 NAT Q1=     979.   RATIOS LOB,CH,ROB=  0.0164  0.9152  0.0684  WSEL=     714.19

3470 ENCROACHMENT STATIONS=       97.3      179.9  TYPE=      4  TARGET=       0.019
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6900.00      9.54    714.14      0.00    714.09    715.66      1.51      0.22      0.00    707.10
    6280.       33.     5861.      386.       17.      583.       56.      182.       33.    706.10
     0.29      1.93     10.05      6.94     0.080     0.040     0.035     0.000    704.60     97.26
 0.004350       50.       50.       50.         2         0         0      0.00     82.66    179.91


*SECNO 6950.000
 2800 NAT Q1=     962.34  WSEL=     714.30  ENC Q1=     962.34  WSEL=     714.40  RATIO=  0.0000
 NAT Q1=     982.   RATIOS LOB,CH,ROB=  0.0165  0.9150  0.0685  WSEL=     714.40

3470 ENCROACHMENT STATIONS=       97.4      179.8  TYPE=      4  TARGET=       0.020
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
  6950.00      9.56    714.36      0.00    714.30    715.87      1.51      0.22      0.00    707.30
    6280.       31.     5865.      384.       16.      584.       55.      183.       33.    706.30
     0.29      1.89     10.05      6.93     0.080     0.040     0.035     0.000    704.80     97.38
 0.004336       50.       50.       50.         0         0         0      0.00     82.46    179.84


CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
  7000.00      9.71    714.51      0.00    714.39    716.24      1.73      0.26      0.11    707.30
    6280.        0.     6280.        0.        0.      594.        0.      184.       33.  100000.00
     0.29      0.00     10.57      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.006102       50.       50.       50.         2         0         0      0.00     70.00    170.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
  7001.00      9.70    714.50      0.00    714.39    716.25      1.75      0.00      0.00    707.30
    6280.        0.     6280.        0.        0.      592.        0.      184.       33.  100000.00
     0.29      0.00     10.61      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003477        1.        1.        1.         0         0         0     -2.55     70.00    170.00

*SECNO 7036.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00      9.90    714.70      0.00    714.60    716.37      1.67      0.12      0.01    707.30
    6280.        0.     6280.        0.        0.      605.        0.      184.       33.  100000.00
     0.29      0.00     10.37      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003250       35.       35.       35.         2         0         0     -2.69     70.00    170.00

*SECNO 7037.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00      9.94    714.74      0.00    714.64    716.38      1.64      0.00      0.00    707.30
    6280.        0.     6280.        0.        0.      611.        0.      184.       33.  100000.00
     0.29      0.00     10.29      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.005620        1.        1.        1.         2         0         0      0.00     70.00    170.00

CCHV=   0.300 CEHV=   0.500
*SECNO 7047.000

3470 ENCROACHMENT STATIONS=       90.0      180.0  TYPE=      1  TARGET=       90.000
  7047.00     10.58    715.38      0.00    715.30    716.56      1.18      0.04      0.14    707.30
    6280.      121.     5875.      284.       50.      655.       66.      184.       33.     706.30
     0.29      2.41      8.97      4.29     0.080     0.040     0.050     0.000    704.80     90.00
 0.002962       10.       10.       10.         3         0         0      0.00     90.00    180.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7137.000

3470 ENCROACHMENT STATIONS=      89.0      185.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00     10.62    715.70      0.00    715.63    716.83      1.13      0.26      0.01    707.58
    6280.       124.     5806.      349.       53.      658.       82.      186.       34.     706.58
     0.30      2.36      8.82      4.27     0.080     0.040     0.050     0.000    705.08     89.00
 0.002847       90.       90.       90.         2         0         0      0.00     96.00    185.00


CCHV=   0.100 CEHV=   0.300
*SECNO 7517.000

3470 ENCROACHMENT STATIONS=      86.7      188.0  TYPE=      1  TARGET=     101.300
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7517.00     10.60    716.78      0.00    716.75    717.92      1.14      1.09      0.00    708.68
    6280.       123.     5807.      349.       54.      657.       85.      193.       35.     707.68
     0.31      2.28      8.84      4.12     0.080     0.040     0.050     0.000    706.18     86.70
 0.002867      380.      380.      380.         2         0         0      0.00    101.30    188.00


*SECNO 7997.000
 2800 NAT Q1=    1168.45  WSEL=     718.14  ENC Q1=    1168.45  WSEL=     718.24  RATIO=  0.0000
 NAT Q1=    1190.   RATIOS LOB,CH,ROB=  0.0199  0.9247  0.0554  WSEL=     718.24

3470 ENCROACHMENT STATIONS=      95.6      180.8  TYPE=      4  TARGET=       0.018
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7997.00     10.58    718.14      0.00    718.14    719.35      1.21      1.41      0.02    710.06
    6280.        61.     5917.      302.       30.      655.       69.      201.       36.     709.06
     0.32      2.03      9.03      4.36     0.080     0.040     0.050     0.000    707.56     95.55
 0.003000      480.      480.      480.         0         0         0      0.00     85.22    180.77


*SECNO 8477.000
 2800 NAT Q1=    1170.53  WSEL=     719.53  ENC Q1=    1170.53  WSEL=     719.63  RATIO=  0.0000
 NAT Q1=    1191.   RATIOS LOB,CH,ROB=  0.0199  0.9247  0.0555  WSEL=     719.63

3470 ENCROACHMENT STATIONS=      95.4      180.9  TYPE=      4  TARGET=       0.018
        CROSS SECTION AT M-19 BRIDGE REPEATED
  8477.00     10.65    719.59      0.00    719.53    720.77      1.19      1.42      0.00    711.44
    6280.        63.     5912.      305.       31.      660.       70.      210.       36.     710.44
     0.34      2.04      8.96      4.33     0.080     0.040     0.050     0.000    708.94     95.42
 0.002925      480.      480.      480.         2         0         0      0.00     85.46    180.88
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 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 8960.000
 2800 NAT Q1=    1178.03  WSEL=     721.17  ENC Q1=    1178.03  WSEL=     721.27  RATIO=  0.0000
 NAT Q1=    1208.   RATIOS LOB,CH,ROB=  0.3201  0.6629  0.0169  WSEL=     721.27

3470 ENCROACHMENT STATIONS=       52.7      329.0  TYPE=      4  TARGET=        0.024
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
  8960.00     10.95    721.25      0.00    721.17    722.20      0.95      1.40      0.02    711.80
    6280.     1982.     4279.       19.      780.      460.       14.      221.       38.    713.70
     0.36      2.54      9.29      1.36     0.080     0.040     0.080     0.000    710.30     52.66
 0.002867      483.      483.      483.         2         0         0      0.00    276.34    329.00


*SECNO 8961.000
 2800 NAT Q1=    1177.83  WSEL=     721.17  ENC Q1=    1177.83  WSEL=     721.27  RATIO=  0.0000
 NAT Q1=    1208.   RATIOS LOB,CH,ROB=  0.3203  0.6628  0.0170  WSEL=     721.27

3470 ENCROACHMENT STATIONS=       53.2      328.8  TYPE=      4  TARGET=        0.025
        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
  8961.00     10.95    721.25      0.00    721.17    722.20      0.95      0.00      0.00    711.80
    6280.     1981.     4283.       17.      778.      460.       13.      221.       39.    713.70
     0.36      2.55      9.30      1.30     0.080     0.040     0.080     0.000    710.30     53.21
 0.002875        1.        1.        1.         0         0         0      0.00    275.61    328.82


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XM        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.64      3.00      0.00     42.00      0.00    460.00      0.00    710.30    710.30

*SECNO 8972.000
 2800 NAT Q1=    1785.44  WSEL=     722.91  ENC Q1=    1785.44  WSEL=     723.01  RATIO=  0.0000
 NAT Q1=    1824.   RATIOS LOB,CH,ROB=  0.4035  0.5699  0.0266  WSEL=     723.01
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       37.0      336.7  TYPE=      4  TARGET=        0.021
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
  8972.00     12.69    722.99      0.00    722.91    723.43      0.44      0.02      0.05    711.80
    6280.     2515.     3657.      108.     1237.      538.       63.      221.       39.    713.70
     0.36      2.03      6.79      1.71     0.080     0.040     0.080     0.000    710.30     37.01
 0.001244       11.       11.       11.         0         0         2      0.00    299.72    336.74
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EQ        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 8973.000
 2800 NAT Q1=   1784.71  WSEL=    722.91  ENC Q1=   1784.71  WSEL=    723.01  RATIO=  0.0000
 NAT Q1=   1824.  RATIOS LOB,CH,ROB=  0.4035  0.5699  0.0266  WSEL=    723.01

3470 ENCROACHMENT STATIONS=      37.4     336.5  TYPE=     4  TARGET=       0.022
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
  8973.00    12.69   722.99     0.00   722.91   723.43     0.44     0.00     0.00   711.80
    6280.    2515.    3659.     106.    1236.     538.      62.     221.      39.   713.70
     0.36     2.03     6.80     1.71   0.080    0.040    0.080    0.000   710.30    37.41
 0.001245       1.       1.       1.       0        0        0     0.00   299.08   336.48


*SECNO 9200.000
 2800 NAT Q1=   1912.06  WSEL=    723.22  ENC Q1=   1912.06  WSEL=    723.32  RATIO=  0.0000
 NAT Q1=   1953.  RATIOS LOB,CH,ROB=  0.4152  0.5558  0.0289  WSEL=    723.32

3470 ENCROACHMENT STATIONS=      35.3     338.7  TYPE=     4  TARGET=       0.021
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
  9200.00    13.01   723.31     0.00   723.22   723.70     0.39     0.26     0.01   711.80
    6280.    2592.    3567.     121.    1322.     553.      73.     231.      40.   713.70
     0.37     1.96     6.45     1.66   0.080    0.040    0.080    0.000   710.30    35.30
 0.001084     227.     227.     227.        2        0        0     0.00   303.42   338.72
```

THIS RUN EXECUTED 28 AUG 86 7:46:55

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BELLE RIVER

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 695.63 | 0.63 | 696.51 | 116.25 | 449.92 | 5398.63 | 431.45 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 0.000 | 695.73 | 0.10 | 696.62 | 96.53 | 416.69 | 5470.21 | 393.10 | 0.02 | 232.75 | 249.00 | 314.00 | 329.28 |
| 1808.000 | 699.28 | 0.00 | 700.14 | 116.56 | 453.10 | 5393.38 | 433.52 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 1808.000 | 699.37 | 0.09 | 700.25 | 97.70 | 423.97 | 5454.47 | 401.56 | 0.02 | 232.15 | 249.00 | 314.00 | 329.85 |
| 1873.000 | 699.38 | 0.00 | 700.29 | 97.00 | 411.25 | 5466.34 | 402.41 | 97.00 | 233.00 | 249.00 | 314.00 | 330.00 |
| 1873.000 | 699.46 | 0.08 | 700.40 | 91.09 | 374.75 | 5556.21 | 349.04 | 0.03 | 235.60 | 249.00 | 314.00 | 326.68 |
| 1938.000 | 699.33 | 0.00 | 700.72 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1938.000 | 699.43 | 0.11 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 0.14 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1939.000 | 699.33 | 0.00 | 700.72 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1939.000 | 699.44 | 0.11 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1972.000 | 699.44 | 0.00 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1972.000 | 699.54 | 0.10 | 700.88 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1973.000 | 699.44 | 0.00 | 700.80 | 65.00 | 0.00 | 6280.00 | 0.00 | 65.00 | 249.00 | 249.00 | 314.00 | 314.00 |
| 1973.000 | 699.55 | 0.10 | 700.88 | 65.00 | 0.00 | 6280.00 | 0.00 | 0.12 | 249.00 | 249.00 | 314.00 | 314.00 |
| 2007.000 | 700.08 | 0.00 | 700.95 | 117.58 | 405.10 | 5485.89 | 389.00 | 0.00 | 0.00 | 249.00 | 314.00 | 0.00 |
| 2007.000 | 700.13 | 0.05 | 701.02 | 97.85 | 372.55 | 5552.90 | 354.55 | 0.02 | 232.15 | 249.00 | 314.00 | 330.00 |
| 2072.000 | 700.79 | 0.00 | 701.18 | 247.00 | 604.82 | 5226.08 | 449.10 | 247.00 | 101.00 | 175.00 | 274.00 | 348.00 |
| 2072.000 | 700.85 | 0.06 | 701.25 | 220.00 | 575.36 | 5327.98 | 376.66 | 220.00 | 107.00 | 175.00 | 274.00 | 327.00 |
| 2172.000 | 701 08 | 0.00 | 701.31 | 448.26 | 1265.03 | 4429.46 | 585.51 | 464.00 | 253.00 | 435.00 | 534.00 | 717.00 |
| 2172.000 | 701.15 | 0.07 | 701.39 | 377.72 | 1237.12 | 4510.11 | 532.77 | 0.02 | 266.63 | 435.00 | 534.00 | 644.35 |
| 2591.000 | 701.36 | 0.00 | 701.66 | 447.15 | 1150.25 | 4652.77 | 476.98 | 800.00 | 0.00 | 435.00 | 534.00 | 800.00 |
| 2591.000 | 701.43 | 0.07 | 701.75 | 355.11 | 1113.96 | 4745.05 | 420.99 | 0.03 | 270.94 | 435.00 | 534.00 | 626.06 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3010.000 | 701.76 | 0.00 | 702.14 | 430.89 | 1031.59 | 4863.86 | 384.55 | 0.00 | 0.00 | 435.00 | 534.00 | 0.00 |
| 3010.000 | 701.83 | 0.07 | 702.23 | 329.22 | 990.61 | 4966.01 | 323.37 | 0.03 | 276.36 | 435.00 | 534.00 | 605.59 |
| 3429.000 | 702.34 | 0.00 | 702.62 | 536.97 | 531.45 | 4064.42 | 1684.12 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 3429.000 | 702.43 | 0.09 | 702.71 | 503.72 | 460.55 | 4127.06 | 1692.38 | 0.03 | 48.17 | 113.00 | 200.00 | 551.89 |
| 3850.000 | 702.71 | 0.00 | 703.24 | 408.25 | 554.37 | 4917.04 | 808.59 | 408.25 | 29.75 | 113.00 | 200.00 | 438.00 |
| 3850.000 | 702.81 | 0.10 | 703.31 | 408.25 | 564.64 | 4875.42 | 839.94 | 408.25 | 29.75 | 113.00 | 200.00 | 438.00 |
| 4237.000 | 703.36 | 0.00 | 704.26 | 244.18 | 457.56 | 5448.21 | 374.23 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 4237.000 | 703.42 | 0.06 | 704.29 | 313.32 | 466.24 | 5433.65 | 380.10 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 4625.000 | 704.57 | 0.00 | 705.59 | 214.78 | 405.18 | 5529.00 | 345.81 | 214.78 | 33.06 | 113.00 | 200.00 | 247.84 |
| 4625.000 | 704.58 | 0.00 | 705.66 | 170.79 | 336.84 | 5652.34 | 290.82 | 0.03 | 55.18 | 113.00 | 200.00 | 225.97 |
| 5012.000 | 706.04 | 0.00 | 707.09 | 213.99 | 391.98 | 5549.32 | 338.69 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5012.000 | 706.10 | 0.06 | 707.20 | 168.47 | 328.12 | 5664.46 | 287.42 | 0.03 | 56.84 | 113.00 | 200.00 | 225.32 |
| 5400.000 | 707.53 | 0.00 | 708.60 | 213.55 | 384.53 | 5560.80 | 334.67 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5400.000 | 707.62 | 0.08 | 708.72 | 167.62 | 323.03 | 5671.21 | 285.76 | 0.03 | 57.47 | 113.00 | 200.00 | 225.10 |
| 5787.000 | 709.05 | 0.00 | 710.13 | 213.35 | 381.11 | 5566.07 | 332.82 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 5787.000 | 709.14 | 0.09 | 710.27 | 167.21 | 321.31 | 5694.56 | 264.13 | 0.03 | 57.78 | 113.00 | 200.00 | 224.99 |
| 6175.000 | 710.63 | 0.00 | 711.70 | 213.68 | 386.82 | 5557.27 | 335.90 | 0.00 | 0.00 | 113.00 | 200.00 | 0.00 |
| 6175.000 | 710.73 | 0.10 | 711.84 | 166.38 | 324.16 | 5692.07 | 263.77 | 0.03 | 58.33 | 113.00 | 200.00 | 224.72 |
| 6368.000 | 711.38 | 0.00 | 712.50 | 186.94 | 300.52 | 5640.30 | 339.19 | 193.00 | 60.00 | 113.00 | 200.00 | 253.00 |
| 6368.000 | 711.48 | 0.10 | 712.64 | 152.84 | 284.93 | 5767.22 | 227.85 | 0.04 | 68.00 | 113.00 | 200.00 | 220.84 |
| 6468.000 | 711.81 | 0.00 | 712.99 | 140.00 | 161.46 | 5580.99 | 537.55 | 140.00 | 86.50 | 113.00 | 200.00 | 226.50 |
| 6468.000 | 711.91 | 0.10 | 713.12 | 115.19 | 123.97 | 5706.54 | 449.48 | 0.07 | 106.40 | 113.00 | 200.00 | 221.59 |
| 6562.000 | 712.26 | 0.00 | 713.92 | 96.20 | 93.40 | 5787.04 | 399.55 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6562.000 | 712.36 | 0.09 | 714.03 | 86.00 | 93.48 | 5863.86 | 322.65 | 86.00 | 92.00 | 100.00 | 170.00 | 178.00 |
| 6850.000 | 713.85 | 0.00 | 715.32 | 97.84 | 100.98 | 5756.34 | 422.69 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6850.000 | 713.90 | 0.04 | 715.43 | 82.01 | 27.17 | 5874.59 | 378.24 | 0.02 | 97.63 | 100.00 | 170.00 | 179.64 |
| 6900.000 | 714.09 | 0.00 | 715.53 | 97.99 | 101.65 | 5753.59 | 424.76 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 6900.000 | 714.14 | 0.06 | 715.66 | 82.66 | 32.99 | 5861.47 | 385.53 | 0.02 | 97.26 | 100.00 | 170.00 | 179.91 |
| 6950.000 | 714.30 | 0.00 | 715.75 | 94.54 | 101.73 | 5749.86 | 428.40 | 96.00 | 87.00 | 100.00 | 170.00 | 183.00 |
| 6950.000 | 714.36 | 0.06 | 715.87 | 82.46 | 31.06 | 5864.79 | 384.15 | 0.02 | 97.38 | 100.00 | 170.00 | 179.84 |
| 7000.000 | 714.39 | 0.00 | 716.17 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7000.000 | 714.51 | 0.12 | 716.24 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7001.000 | 714.39 | 0.00 | 716.18 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7001.000 | 714.50 | 0.12 | 716.25 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7036.000 | 714.60 | 0.00 | 716.31 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7036.000 | 714.70 | 0.10 | 716.37 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7037.000 | 714.64 | 0.00 | 716.32 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7037.000 | 714.74 | 0.10 | 716.38 | 70.00 | 0.00 | 6280.00 | 0.00 | 70.00 | 100.00 | 100.00 | 170.00 | 170.00 |
| 7047.000 | 715.30 | 0.00 | 716.50 | 90.00 | 120.55 | 5876.41 | 283.04 | 90.00 | 90.00 | 100.00 | 170.00 | 180.00 |
| 7047.000 | 715.38 | 0.08 | 716.56 | 90.00 | 121.48 | 5874.88 | 283.64 | 90.00 | 90.00 | 100.00 | 170.00 | 180.00 |
| 7137.000 | 715.63 | 0.00 | 716.79 | 101.94 | 122.43 | 5814.28 | 343.28 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7137.000 | 715.70 | 0.07 | 716.83 | 96.00 | 124.25 | 5806.47 | 349.28 | 96.00 | 89.00 | 100.00 | 170.00 | 185.00 |
| 7517.000 | 716.75 | 0.00 | 717.90 | 101.98 | 122.64 | 5813.63 | 343.72 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7517.000 | 716.78 | 0.04 | 717.92 | 101.30 | 123.35 | 5807.46 | 349.18 | 101.30 | 86.70 | 100.00 | 170.00 | 188.00 |
| 7997.000 | 718.14 | 0.00 | 719.29 | 102.06 | 122.99 | 5812.55 | 344.46 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 7997.000 | 718.14 | 0.00 | 719.35 | 85.22 | 60.88 | 5917.06 | 302.07 | 0.02 | 95.55 | 100.00 | 170.00 | 180.77 |
| 8477.000 | 719.53 | 0.00 | 720.67 | 102.09 | 123.16 | 5812.03 | 344.81 | 0.00 | 0.00 | 100.00 | 170.00 | 0.00 |
| 8477.000 | 719.59 | 0.06 | 720.77 | 85.46 | 62.94 | 5912.33 | 304.73 | 0.02 | 95.42 | 100.00 | 170.00 | 180.88 |
| 8960.000 | 721.17 | 0.00 | 722.08 | 316.98 | 1974.66 | 4200.54 | 104.80 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8960.000 | 721.25 | 0.08 | 722.20 | 276.34 | 1982.25 | 4278.68 | 19.07 | 0.02 | 52.66 | 282.00 | 327.00 | 329.01 |
| 8961.000 | 721.17 | 0.00 | 722.08 | 316.97 | 1974.41 | 4200.79 | 104.80 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8961.000 | 721.25 | 0.08 | 722.20 | 275.61 | 1980.54 | 4282.86 | 16.60 | 0.03 | 53.21 | 282.00 | 327.00 | 328.82 |
| 8972.000 | 722.91 | 0.00 | 723.34 | 364.51 | 2510.39 | 3607.09 | 162.51 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8972.000 | 722.99 | 0.08 | 723.43 | 299.72 | 2515.07 | 3656.83 | 108.09 | 0.02 | 37.01 | 282.00 | 327.00 | 336.74 |
| 8973.000 | 722.91 | 0.00 | 723.34 | 364.48 | 2509.93 | 3607.64 | 162.43 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 8973.000 | 722.99 | 0.08 | 723.43 | 299.08 | 2514.95 | 3658.89 | 106.16 | 0.02 | 37.41 | 282.00 | 327.00 | 336.48 |
| 9200.000 | 723.22 | 0.00 | 723.60 | 369.81 | 2585.13 | 3517.85 | 177.02 | 0.00 | 0.00 | 282.00 | 327.00 | 0.00 |
| 9200.000 | 723.31 | 0.08 | 723.70 | 303.42 | 2592.28 | 3566.86 | 120.86 | 0.02 | 35.30 | 282.00 | 327.00 | 338.72 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.63 | 0.00 | 696.51 | 20.33 | 7.97 | 942.31 | 1392.73 |
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.73 | 0.00 | 696.62 | 20.24 | 8.01 | 912.49 | 1395.97 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.28 | 0.00 | 700.14 | 19.91 | 7.92 | 949.29 | 1407.50 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.37 | 0.00 | 700.25 | 19.87 | 7.95 | 921.08 | 1408.98 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.38 | 0.00 | 700.29 | 20.84 | 8.07 | 905.20 | 1375.73 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.46 | 0.00 | 700.40 | 20.99 | 8.14 | 885.88 | 1370.89 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 41.98 | 9.46 | 663.60 | 969.27 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.43 | 0.00 | 700.80 | 40.69 | 9.37 | 670.55 | 984.55 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 23.59 | 9.46 | 663.79 | 1292.89 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.87 | 9.36 | 670.70 | 1313.23 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.85 | 9.36 | 670.87 | 1313.73 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.54 | 0.00 | 700.88 | 22.18 | 9.27 | 677.56 | 1333.48 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 40.59 | 9.36 | 671.05 | 985.71 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.55 | 0.00 | 700.88 | 39.41 | 9.27 | 677.70 | 1000.41 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.08 | 0.00 | 700.95 | 19.38 | 7.91 | 971.93 | 1426.61 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.13 | 0.00 | 701.02 | 19.58 | 7.97 | 937.41 | 1419.35 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.79 | 0.00 | 701.18 | 10.35 | 5.41 | 1571.69 | 1952.17 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.85 | 0.00 | 701.25 | 10.56 | 5.48 | 1498.22 | 1932.80 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.08 | 0.00 | 701.31 | 6.76 | 4.45 | 2300.35 | 2416.03 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.15 | 0.00 | 701.39 | 6.85 | 4.50 | 2195.17 | 2399.60 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.36 | 0.00 | 701.66 | 9.38 | 5.01 | 2006.90 | 2050.51 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.43 | 0.00 | 701.75 | 9.52 | 5.07 | 1892.75 | 2035.44 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.76 | 0.00 | 702.14 | 12.57 | 5.57 | 1763.05 | 1771.52 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.83 | 0.00 | 702.23 | 12.75 | 5.64 | 1646.67 | 1758.98 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.34 | 0.00 | 702.62 | 9.86 | 5.07 | 2236.27 | 2000.42 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.43 | 0.00 | 702.71 | 9.85 | 5.10 | 2186.31 | 2001.43 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.71 | 0.00 | 703.24 | 17.95 | 6.55 | 1507.85 | 1482.15 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.81 | 0.00 | 703.31 | 17.01 | 6.42 | 1547.31 | 1522.82 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.36 | 0.00 | 704.26 | 31.67 | 8.09 | 1013.87 | 1116.00 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.42 | 0.00 | 704.29 | 30.76 | 8.01 | 1029.26 | 1132.32 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.57 | 0.00 | 705.59 | 37.59 | 8.57 | 943.73 | 1024.29 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.58 | 0.00 | 705.66 | 39.29 | 8.76 | 873.15 | 1001.90 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EQ | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.04 | 0.00 | 707.09 | 39.26 | 8.69 | 926.63 | 1002.30 |
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.10 | 0.00 | 707.20 | 39.79 | 8.80 | 864.64 | 995.57 |
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.53 | 0.00 | 708.60 | 40.23 | 8.77 | 917.05 | 990.07 |
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.62 | 0.00 | 708.72 | 40.29 | 8.84 | 858.95 | 989.38 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.05 | 0.00 | 710.13 | 40.69 | 8.80 | 912.67 | 984.50 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.14 | 0.00 | 710.27 | 40.88 | 8.89 | 855.67 | 982.20 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.63 | 0.00 | 711.70 | 39.93 | 8.74 | 919.99 | 993.82 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.73 | 0.00 | 711.84 | 40.07 | 8.84 | 860.77 | 992.08 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.38 | 0.00 | 712.50 | 41.44 | 8.89 | 873.17 | 975.56 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.48 | 0.00 | 712.64 | 41.36 | 8.97 | 826.72 | 976.45 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.81 | 0.00 | 712.99 | 44.14 | 9.03 | 767.66 | 945.20 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.91 | 0.00 | 713.12 | 43.89 | 9.09 | 739.37 | 947.98 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.26 | 0.00 | 713.92 | 52.86 | 10.61 | 638.32 | 863.76 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.36 | 0.00 | 714.03 | 52.15 | 10.62 | 630.70 | 869.66 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.85 | 0.00 | 715.32 | 43.51 | 9.98 | 681.24 | 952.04 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.90 | 0.00 | 715.43 | 44.56 | 10.14 | 648.63 | 940.82 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.09 | 0.00 | 715.53 | 42.78 | 9.93 | 685.13 | 960.18 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.14 | 0.00 | 715.66 | 43.50 | 10.05 | 655.58 | 952.19 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.30 | 0.00 | 715.75 | 42.59 | 9.91 | 682.99 | 962.34 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.36 | 0.00 | 715.87 | 43.36 | 10.05 | 655.59 | 953.73 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.17 | 63.66 | 10.71 | 586.22 | 787.10 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.51 | 0.00 | 716.24 | 61.02 | 10.57 | 594.36 | 803.94 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.18 | 36.27 | 10.75 | 584.10 | 1042.78 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.50 | 0.00 | 716.25 | 34.77 | 10.61 | 592.16 | 1064.95 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.60 | 0.00 | 716.31 | 33.68 | 10.50 | 598.35 | 1082.04 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.70 | 0.00 | 716.37 | 32.50 | 10.37 | 605.40 | 1101.63 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.64 | 0.00 | 716.32 | 58.23 | 10.41 | 603.51 | 823.00 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.74 | 0.00 | 716.38 | 56.20 | 10.29 | 610.54 | 837.73 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.30 | 0.00 | 716.50 | 30.45 | 9.04 | 764.88 | 1138.15 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.38 | 0.00 | 716.56 | 29.62 | 8.97 | 771.70 | 1153.96 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.63 | 0.00 | 716.79 | 29.23 | 8.90 | 791.11 | 1161.51 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.70 | 0.00 | 716.83 | 28.47 | 8.82 | 792.68 | 1176.91 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.75 | 0.00 | 717.90 | 29.10 | 8.88 | 792.32 | 1164.10 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.78 | 0.00 | 717.92 | 28.67 | 8.84 | 795.90 | 1172.92 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.29 | 28.89 | 8.86 | 794.35 | 1168.45 |
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.35 | 30.00 | 9.03 | 754.64 | 1146.58 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.53 | 0.00 | 720.67 | 28.78 | 8.85 | 795.32 | 1170.53 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.59 | 0.00 | 720.77 | 29.25 | 8.96 | 761.41 | 1161.08 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.42 | 9.20 | 1310.86 | 1178.03 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.25 | 0.00 | 722.20 | 28.67 | 9.29 | 1254.04 | 1172.77 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.43 | 9.20 | 1310.65 | 1177.83 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.25 | 0.00 | 722.20 | 28.75 | 9.30 | 1250.84 | 1171.18 |
| 8972.000 | 11.00 | 721.40 | 721.20 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.37 | 6.74 | 1912.86 | 1785.44 |
| 8972.000 | 11.00 | 999999.00 | 0.00 | 710.30 | 6280.00 | 722.99 | 0.00 | 723.43 | 12.44 | 6.79 | 1838.34 | 1780.43 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.38 | 6.75 | 1912.18 | 1784.71 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.99 | 0.00 | 723.43 | 12.45 | 6.80 | 1836.41 | 1779.73 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.22 | 0.00 | 723.60 | 10.79 | 6.41 | 2028.14 | 1912.06 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.31 | 0.00 | 723.70 | 10.84 | 6.45 | 1947.65 | 1907.73 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 6280.00 | 695.63 | 0.00 | 0.00 | 0.63 | 116.25 | 0.00 |
| 0.000 | 6280.00 | 695.73 | 0.10 | 0.00 | 0.10 | 96.53 | 0.00 |
| 1808.000 | 6280.00 | 699.28 | 0.00 | 3.65 | 0.00 | 116.56 | 1808.00 |
| 1808.000 | 6280.00 | 699.37 | 0.09 | 3.64 | 0.09 | 97.70 | 1808.00 |
| 1873.000 | 6280.00 | 699.38 | 0.00 | 0.10 | 0.00 | 97.00 | 65.00 |
| 1873.000 | 6280.00 | 699.46 | 0.08 | 0.09 | 0.08 | 91.09 | 65.00 |
| 1938.000 | 6280.00 | 699.33 | 0.00 | -0.06 | 0.00 | 65.00 | 65.00 |
| 1938.000 | 6280.00 | 699.43 | 0.11 | -0.03 | 0.11 | 65.00 | 65.00 |
| 1939.000 | 6280.00 | 699.33 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1939.000 | 6280.00 | 699.44 | 0.11 | 0.00 | 0.11 | 65.00 | 1.00 |
| 1972.000 | 6280.00 | 699.44 | 0.00 | 0.11 | 0.00 | 65.00 | 33.00 |
| 1972 000 | 6280.00 | 699.54 | 0.10 | 0.10 | 0.10 | 65.00 | 33.00 |
| 1973.000 | 6280.00 | 699.44 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1973.000 | 6280.00 | 699.55 | 0.10 | 0.00 | 0.10 | 65.00 | 1.00 |
| 2007.000 | 6280.00 | 700.08 | 0.00 | 0.64 | 0.00 | 117.58 | 34.00 |
| 2007.000 | 6280.00 | 700.13 | 0.05 | 0.58 | 0.05 | 97.85 | 34.00 |
| 2072.000 | 6280.00 | 700.79 | 0.00 | 0.71 | 0.00 | 247.00 | 65.00 |
| 2072.000 | 6280.00 | 700.85 | 0.06 | 0.72 | 0.06 | 220.00 | 65.00 |
| 2172.000 | 6280.00 | 701.08 | 0.00 | 0.29 | 0.00 | 448.26 | 100.00 |
| 2172.000 | 6280.00 | 701.15 | 0.07 | 0.30 | 0.07 | 377.72 | 100.00 |
| 2591.000 | 6280.00 | 701.36 | 0.00 | 0.28 | 0.00 | 447.15 | 419.00 |
| 2591.000 | 6280.00 | 701.43 | 0.07 | 0.28 | 0.07 | 355.11 | 419.00 |
| 3010.000 | 6280.00 | 701.76 | 0.00 | 0.39 | 0.00 | 430.89 | 419.00 |
| 3010.000 | 6280.00 | 701.83 | 0.07 | 0.40 | 0.07 | 329.22 | 419.00 |
| 3429.000 | 6280.00 | 702.34 | 0.00 | 0.59 | 0.00 | 536.97 | 419.00 |
| 3429.000 | 6280.00 | 702.43 | 0.09 | 0.60 | 0.09 | 503.72 | 419.00 |
| 3850.000 | 6280.00 | 702.71 | 0.00 | 0.36 | 0.00 | 408.25 | 421.00 |
| 3850.000 | 6280.00 | 702.81 | 0.10 | 0.37 | 0.10 | 408.25 | 421.00 |
| 4237.000 | 6280.00 | 703.36 | 0.00 | 0.65 | 0.00 | 244.18 | 387.00 |
| 4237.000 | 6280.00 | 703.42 | 0.06 | 0.61 | 0.06 | 313.32 | 387.00 |
| 4625.000 | 6280.00 | 704.57 | 0.00 | 1.21 | 0.00 | 214.78 | 388.00 |
| 4625.000 | 6280.00 | 704.58 | 0.00 | 1.16 | 0.00 | 170.79 | 388.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 5012.000 | 6280.00 | 706.04 | 0.00 | 1.46 | 0.00 | 213.99 | 387.00 |
| 5012.000 | 6280.00 | 706.10 | 0.06 | 1.52 | 0.06 | 168.47 | 387.00 |
| 5400.000 | 6280.00 | 707.53 | 0.00 | 1.49 | 0.00 | 213.55 | 388.00 |
| 5400.000 | 6280.00 | 707.62 | 0.08 | 1.52 | 0.08 | 167.62 | 388.00 |
| 5787.000 | 6280.00 | 709.05 | 0.00 | 1.52 | 0.00 | 213.35 | 387.00 |
| 5787.000 | 6280.00 | 709.14 | 0.09 | 1.53 | 0.09 | 167.21 | 387.00 |
| 6175.000 | 6280.00 | 710.63 | 0.00 | 1.58 | 0.00 | 213.68 | 388.00 |
| 6175.000 | 6280.00 | 710.73 | 0.10 | 1.59 | 0.10 | 166.38 | 388.00 |
| 6368.000 | 6280.00 | 711.38 | 0.00 | 0.75 | 0.00 | 186.94 | 193.00 |
| 6368.000 | 6280.00 | 711.48 | 0.10 | 0.75 | 0.10 | 152.84 | 193.00 |
| 6468.000 | 6280.00 | 711.81 | 0.00 | 0.43 | 0.00 | 140.00 | 100.00 |
| 6468.000 | 6280.00 | 711.91 | 0.10 | 0.43 | 0.10 | 115.19 | 100.00 |
| 6562.000 | 6280.00 | 712.26 | 0.00 | 0.45 | 0.00 | 96.20 | 94.00 |
| 6562.000 | 6280.00 | 712.36 | 0.09 | 0.45 | 0.09 | 86.00 | 94.00 |
| 6850.000 | 6280.00 | 713.85 | 0.00 | 1.59 | 0.00 | 97.84 | 288.00 |
| 6850.000 | 6280.00 | 713.90 | 0.04 | 1.54 | 0.04 | 82.01 | 288.00 |
| 6900.000 | 6280.00 | 714.09 | 0.00 | 0.23 | 0.00 | 97.99 | 50.00 |
| 6900.000 | 6280.00 | 714.14 | 0.06 | 0.25 | 0.06 | 82.66 | 50.00 |
| 6950.000 | 6280.00 | 714.30 | 0.00 | 0.21 | 0.00 | 94.54 | 50.00 |
| 6950.000 | 6280.00 | 714.36 | 0.06 | 0.22 | 0.06 | 82.46 | 50.00 |
| 7000.000 | 6280.00 | 714.39 | 0.00 | 0.09 | 0.00 | 70.00 | 50.00 |
| 7000.000 | 6280.00 | 714.51 | 0.12 | 0.14 | 0.12 | 70.00 | 50.00 |
| 7001.000 | 6280.00 | 714.39 | 0.00 | 0.00 | 0.00 | 70.00 | 1.00 |
| 7001.000 | 6280.00 | 714.50 | 0.12 | 0.00 | 0.12 | 70.00 | 1.00 |
| 7036.000 | 6280.00 | 714.60 | 0.00 | 0.22 | 0.00 | 70.00 | 35.00 |
| 7036.000 | 6280.00 | 714.70 | 0.10 | 0.20 | 0.10 | 70.00 | 35.00 |
| 7037.000 | 6280.00 | 714.64 | 0.00 | 0.04 | 0.00 | 70.00 | 1.00 |
| 7037.000 | 6280.00 | 714.74 | 0.10 | 0.04 | 0.10 | 70.00 | 1.00 |
| 7047.000 | 6280.00 | 715.30 | 0.00 | 0.66 | 0.00 | 90.00 | 10.00 |
| 7047.000 | 6280.00 | 715.38 | 0.08 | 0.64 | 0.08 | 90.00 | 10.00 |
| 7137.000 | 6280.00 | 715.63 | 0.00 | 0.33 | 0.00 | 101.94 | 90.00 |
| 7137.000 | 6280.00 | 715.70 | 0.07 | 0.32 | 0.07 | 96.00 | 90.00 |
| 7517.000 | 6280.00 | 716.75 | 0.00 | 1.11 | 0.00 | 101.98 | 380.00 |
| 7517.000 | 6280.00 | 716.78 | 0.04 | 1.08 | 0.04 | 101.30 | 380.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.40 | 0.00 | 102.06 | 480.00 |
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.36 | 0.00 | 85.22 | 480.00 |
| 8477.000 | 6280 00 | 719.53 | 0.00 | 1.39 | 0.00 | 102.09 | 480.00 |
| 8477.000 | 6280.00 | 719.59 | 0.06 | 1.44 | 0.06 | 85.46 | 480.00 |
| 8960.000 | 6280.00 | 721.17 | 0.00 | 1.64 | 0.00 | 316.98 | 483.00 |
| 8960.000 | 6280.00 | 721.25 | 0.08 | 1.67 | 0.08 | 276.34 | 483.00 |
| 8961.000 | 6280.00 | 721.17 | 0.00 | 0.00 | 0.00 | 316.97 | 1.00 |
| 8961.000 | 6280.00 | 721.25 | 0.08 | 0.00 | 0.08 | 275.61 | 1.00 |
| 8972.000 | 6280.00 | 722.91 | 0.00 | 1.74 | 0.00 | 364.51 | 11.00 |
| 8972.000 | 6280.00 | 722.99 | 0.08 | 1.74 | 0.08 | 299.72 | 11.00 |
| 8973.000 | 6280.00 | 722.91 | 0.00 | 0.00 | 0.00 | 364.48 | 1.00 |
| 8973.000 | 6280.00 | 722.99 | 0.08 | 0.00 | 0.08 | 299.08 | 1.00 |
| 9200.000 | 6280.00 | 723.22 | 0.00 | 0.32 | 0.00 | 369.81 | 227.00 |
| 9200.000 | 6280.00 | 723.31 | 0.08 | 0.32 | 0.08 | 303.42 | 227.00 |

FLOODWAY DATA, BELLE RIVER
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.000 | 97. | 912. | 6.9 | 695.7 | 695.6 | 0.1 |
| 1808.000 | 98. | 921. | 6.8 | 699.4 | 699.3 | 0.1 |
| 1873.000 | 91. | 886. | 7.1 | 699.5 | 699.4 | 0.1 |
| 1938.000 | 65. | 671. | 9.4 | 699.4 | 699.3 | 0.1 |
| 1939.000 | 65. | 671. | 9.4 | 699.4 | 699.3 | 0.1 |
| 1972.000 | 65. | 678. | 9.3 | 699.5 | 699.4 | 0.1 |
| 1973.000 | 65. | 678. | 9.3 | 699.5 | 699.4 | 0.1 |
| 2007.000 | 98. | 937. | 6.7 | 700.1 | 700.1 | 0.0 |
| 2072.000 | 220. | 1498. | 4.2 | 700.9 | 700.8 | 0.1 |
| 2172.000 | 378. | 2195. | 2.9 | 701.2 | 701.1 | 0.1 |
| 2591.000 | 355. | 1893. | 3.3 | 701.5 | 701.4 | 0.1 |
| 3010.000 | 329. | 1647. | 3.8 | 701.9 | 701.8 | 0.1 |
| 3429.000 | 504. | 2186. | 2.9 | 702.4 | 702.3 | 0.1 |
| 3850.000 | 408. | 1547. | 4.1 | 702.8 | 702.7 | 0.1 |
| 4237.000 | 313. | 1029. | 6.1 | 703.5 | 703.4 | 0.1 |
| 4625.000 | 171. | 873. | 7.2 | 704.6 | 704.6 | 0.0 |
| 5012.000 | 168. | 865. | 7.3 | 706.1 | 706.0 | 0.1 |
| 5400.000 | 168. | 859. | 7.3 | 707.6 | 707.5 | 0.1 |
| 5787.000 | 167. | 856. | 7.3 | 709.2 | 709.1 | 0.1 |
| 6175.000 | 166. | 861. | 7.3 | 710.7 | 710.6 | 0.1 |
| 6368.000 | 153. | 827. | 7.6 | 711.5 | 711.4 | 0.1 |
| 6468.000 | 115. | 739. | 8.5 | 711.9 | 711.8 | 0.1 |
| 6562.000 | 86. | 631. | 10.0 | 712.4 | 712.3 | 0.1 |
| 6850.000 | 82. | 649. | 9.7 | 713.9 | 713.9 | 0.0 |
| 6900.000 | 83. | 656. | 9.6 | 714.2 | 714.1 | 0.1 |
| 6950.000 | 82. | 656. | 9.6 | 714.4 | 714.3 | 0.1 |
| 7000.000 | 70. | 594. | 10.6 | 714.5 | 714.4 | 0.1 |
| 7001.000 | 70. | 592. | 10.6 | 714.5 | 714.4 | 0.1 |
| 7036.000 | 70. | 605. | 10.4 | 714.7 | 714.6 | 0.1 |
| 7037.000 | 70. | 611. | 10.3 | 714.7 | 714.6 | 0.1 |
| 7047.000 | 90. | 772. | 8.1 | 715.4 | 715.3 | 0.1 |
| 7137.000 | 96. | 793. | 7.9 | 715.7 | 715.6 | 0.1 |
| 7517.000 | 101. | 796. | 7.9 | 716.7 | 716.7 | 0.0 |
| 7997.000 | 85. | 755. | 8.3 | 718.1 | 718.1 | 0.0 |
| 8477.000 | 85. | 761. | 8.2 | 719.6 | 719.5 | 0.1 |
| 8960.000 | 276. | 1254. | 5.0 | 721.3 | 721.2 | 0.1 |
| 8961.000 | 276. | 1251. | 5.0 | 721.3 | 721.2 | 0.1 |
| 8972.000 | 300. | 1838. | 3.4 | 723.0 | 722.9 | 0.1 |
| 8973.000 | 299. | 1836. | 3.4 | 723.0 | 722.9 | 0.1 |
| 9200.000 | 303. | 1948. | 3.2 | 723.3 | 723.2 | 0.1 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Belle River

4) DOCUMENT TYPE: 100 Year Natural

00BREAK00

THIS RUN EXECUTED 28 AUG 86 8:32:07

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************
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C
T1      MEMPHIS, MI - FIS
T2      100 YEAR FLOOD
T3      BELLE RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        0.        0         0.   0.002000    0 00      0 0     6280.    695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1.000    0.000    -1.000     0.000     0 000     0.000     0.000     0.000     0.000     0.000

NC      0.060     0.060     0.040     0.100     0.300     0 000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
X1      0.000    38.000   249.000   314.000     0.000     0.000     0.000     0.000    -3.900     0.000
GR    710.800     0 000   710.000    25.000   709.400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125.000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689.500   248 990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689 000   264.000   689.300   269 000   689 700   274.000   689.700   279.000   689.600   284 000
GR    689.300   289 000   688.900   294.000   688 400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689.200   314.010   689.600   315.000   699.600   340.000   709.100   365.000
GR    709.300   390.000   709.700   415.000   710.300   440.000   710.900   465.000   711.700   490.000
GR    712.700   515.000   713.900   540.000   714.400   561.000     0.000     0.000     0.000     0.000

X1   1808 000     0.000     0 000     0.000  1808.000  1808.000  1808.000     0.000     3.600     0.000

X1   1873.000     0.000     0.000     0 000    65 000    65.000    65.000     0.000     0.150     0.000
X3      0.000     0.000     0.000   233 000     0.000   330.000     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
X1   1938.000    38.000   249.000   314.000    65.000    65.000    65.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   249.000     0.000   314 000     0.000     0.000     0.000     0.000
GR    710.800     0.000   710.000    25.000   709 400    50.000   708.900    75.000   708.500   100.000
GR    708.400   125 000   708.300   150.000   708.300   175.000   708.400   200.000   699.000   225.000
GR    689.900   247.000   689 500   248.990   689.500   249.000   689.400   254.000   689.300   259.000
GR    689.000   264 000   689 300   269.000   689.700   274.000   689 700   279 000   689.600   284.000
GR    689.300   289.000   688.900   294.000   688.400   299.000   688.000   304.000   688.600   309.000
GR    689.200   314.000   689 200   314.010   689.600   315 000   699.600   340.000   709.100   365.000
GR    709.300   390 000   709.700   415 000   710 300   440.000   710.900   465.000   711.700   490.000
GR    712 700   515.000   713.900   540 000   714.400   561.000     0.000     0.000     0.000     0.000
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NC      0.000      0.000      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
X1   1939.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000
BT    -25.000      0.000    710.800      0.000     25.000    710.000      0.000     50.000    709.400      0.000
BT      0.000     75.000    708.900      0.000    100.000    708.500      0.000    125.000    708.400      0.000
BT      0.000    150.000    708.300      0.000    175.000    708.300      0.000    200.000    708.400      0.000
BT      0.000    225.000    708.600      0.000    248.990    708.600    689.500    249.000    708.600    705.600
BT      0.000    314.000    708.700    705.800    314.010    708.700    689.200    315.000    708.700      0.000
BT      0.000    340.000    708.900      0.000    365.000    709.100      0.000    390.000    709.300      0.000
BT      0.000    415.000    709.700      0.000    440.000    710.300      0.000    465.000    710.900      0.000
BT      0.000    490.000    711.700      0.000    515.000    712.700      0.000    540.000    713.900      0.000
BT      0.000    561.000    714.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        UPSTREAM FACE OF BORDMAN RD BRIDGE
X1   1972.000      0.000      0.000     33.000     33.000     33.000      0.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000

NC      0.070      0.070      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
X1   1973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    249.000      0.000    314.000      0.000      0.000      0.000      0.000

X1   2007.000      0.000      0.000      0.000     34.000     34.000     34.000      0.000      0.300      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
X1   2072.000     27.000    175.000    274.000     65.000     65.000     65.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    101.000      0.000    348.000      0.000      0.000      0.000      0.000
GR    697.300      0.000    696.900     25.000    696.200     50.000    696.300     75.000    696.500    100.000
GR    696.400    125.000    696.100    150.000    696.200    175.000    692.200    200.000    692.800    203.000
GR    690.500    210.000    688.900    220.000    688.700    230.000    689.700    240.000    689.800    250.000
GR    689.100    260.000    691.200    270.000    692.800    274.000    697.400    290.000    697.600    315.000
GR    698.000    340.000    698.400    365.000    698.700    390.000    699.500    415.000    700.900    440.000
GR    703.100    455.000    713.100    540.000      0.000      0.000      0.000      0.000      0.000      0.000

        FIELD MEASURED CROSS SECTION
X1   2172.000     30.000    435.000    534.000    100.000    100.000    100.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    253.000      0.000    717.000      0.000      0.000      0.000      0.000
GR    710.000      0.000    705.000    180.000    700.000    250.000    697.300    260.000    696.900    285.000
GR    696.200    310.000    696.300    335.000    696.500    360.000    696.400    385.000    696.100    410.000
GR    696.200    435.000    692.200    460.000    692.800    463.000    690.500    470.000    688.900    480.000
GR    688.700    490.000    689.700    500.000    689.800    510.000    689.100    520.000    691.200    530.000
GR    692.800    534.000    697.400    550.000    697.600    575.000    698.000    600.000    698.400    625.000
GR    698.700    650.000    699.500    675.000    700.900    700.000    703.100    715.000    713.100    800.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
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        CROSS SECTION REPEATED UPSTREAM
X1   2591.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

        CROSS SECTION REPEATED UPSTREAM
X1   3010.000      0.000      0.000      0.000    419.000    419.000    419.000      0.000      0.950      0.000

        CROSS SECTION A MOVED DOWNSTREAM
X1   3429.000     30.000    113.000    200.000    419.000    419.000    419.000      0.000     -0.950      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

        CROSS SECTION A
X1   3850.000     30.000    113.000    200.000    421.000    421.000    421.000      0.000      0.000      0.000
X3      0.000      0.000      0.000      0.000      0.000    438.000      0.000      0.000      0.000      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    700.500    275.000    702.100    300.000    701.600    325.000    701.500    350.000
GR    701.000    375.000    700.500    400.000    700.300    425.000    700.200    450.000    699.900    475.000
GR    699.700    500.000    699.200    525.000    696.500    550.000    710.000    580.000    725.000    620.000

        CROSS SECTION A REPEATED UPSTREAM
X1   4237.000     19.000    113.000    200.000    387.000    387.000    387.000      0.000      1.540      0.000
GR    708.900      0.000    704.800     24.000    699.700     38.000    699.500     55.000    699.400     80.000
GR    700.200    105.000    696.000    108.000    694.900    113.000    692.500    115.000    692.800    120.000
GR    694.800    185.000    695.300    190.000    696.100    195.000    697.400    200.000    698.300    225.000
GR    701.800    250.000    702.000    500.000    710.000    580.000    725.000    620.000      0.000      0.000

        CROSS SECTION A REPEATED UPSTREAM
X1   4625.000      0.000      0.000      0.000    388.000    200.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5012.000      0.000      0.000      0.000    387.000    387.000    387.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED UPSTREAM
X1   5400.000      0.000      0.000      0.000    388.000    230.000    388.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED
X1   5787.000      0.000      0.000      0.000    387.000    200.000    387.000      0.000      1.540      0.000

        CROSS SECTION A REPEATED UPSTREAM
X1   6175.000      0.000      0.000      0.000    388.000    388.000    388.000      0.000      1.540      0.000

X1   6368.000      0.000      0.000      0.000    193.000    193.000    193.000      0.000      0.770      0.000
X3      0.000      0.000      0.000     60.000      0.000    253.000      0.000      0.000      0.000      0.000
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NC      0.080      0.035      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
X1   6468.000      0.000      0.000      0.000    100.000    100.000    100.000      0.000      0.600      0.000
X3      0.000      0.000      0.000     86.500      0.000    226.500      0.000      0.000      0.000      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6562.000     14.000    100.000    170.000     94.000     94.000     94.000      0.000     -1.550      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6850.000      0.000      0.000      0.000    288.000    288.000    288.000      0.000      1.150      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   6900.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.200      0.000

        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
X1   6950.000     14.000    100 000    170.000     50.000     50.000     50.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     87.000      0.000    183.000      0.000      0.000      0.000      0.000
GR    730.000      0.000    725.500     70.000    707.300    100.000    707.200    101.100    706.400    117.000
GR    704.800    135.000    706.100    152.000    706.300    170.000    706.400    170.100    716.000    190.000
GR    716.000    290.000    717.000    350.000    717.000    600.000    720.000    700.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.500      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
X1   7000.000      0.000      0.000      0.000     50.000     50.000     50.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000

NC      0.080      0.050      0.030      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF M-19 BRIDGE
X1   7001.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000
BT    -10.000      0.000    730.000      0.000     70.000    725.500      0.000    100.000    723.500    707.300
BT      0.000    101.100    724.000    718.500    170.000    721.500    716.000    170.100    721.000    706.400
BT      0.000    290.000    717.000      0.000    350.000    717.000      0.000    600.000    717.000      0.000
BT      0.000    700.000    720.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        UPSTREAM FACE OF M-19 BRIDGE
X1   7036.000      0.000      0.000      0.000     35.000     35.000     35.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
X1   7037.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    100.000      0.000    170.000      0.000      0.000      0.000      0.000
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NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
X1   7047.000      0.000      0.000      0.000     10.000     10.000     10.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     90.000      0.000    180.000      0.000      0.000      0.000      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7137.000      0.000      0.000      0.000     90.000     90.000     90.000      0.000      0.280      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7517.000      0.000      0.000      0.000    380.000    380.000    380.000      0.000      1.100      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   7997.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

        CROSS SECTION AT M-19 BRIDGE REPEATED
X1   8477.000      0.000      0.000      0.000    480.000    480.000    480.000      0.000      1.380      0.000

NC      0.080      0.080      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
X1   8960.000     29.000    282.000    327.000    483.000    483.000    483.000      0.000      0.000      0.000
GR    725.000      0.000    720.000     30.000    718.800     50.000    718.800     75.000    718.900    100.000
GR    718.500    125.000    718.400    150.000    718.600    175.000    718.700    200.000    719.200    225.000
GR    715.700    250.000    712.200    277.000    711.800    282.000    711.800    282.010    710.700    285.000
GR    710.300    290.000    710.500    295.000    710.700    300.000    710.600    305.000    710.300    310.000
GR    711.000    315.000    711.700    320.000    712.400    322.000    713.700    327.000    721.200    340.000
GR    721.800    365.000    724.100    390.000    726.500    415.000    728.100    430.000      0.000      0.000

        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8961.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

SB      0.000      1.640      3.000      0.000     42.000      0.000    460.000      0.000      0.000      0.000
        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
X1   8972.000      0.000      0.000      0.000     11.000     11.000     11.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    721.200    721.400      0.000      0.000      0.000      0.000      0.000
BT    -11.000    200.000    718.700      0.000    225.000    719.200      0.000    250.000    720.600      0.000
BT      0.000    277.000    721.400      0.000    282.000    721.400    711.800    282.010    721.400    720.000
BT      0.000    340.000    721.700    721.200    365.000    721.800      0.000    390.000    724.100      0.000
BT      0.000    415.000    726.500      0.000    430.000    728.100      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
X1   8973.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   9200.000      0.000      0.000      0.000    227.000    227.000    227.000      0.000      0.000      0.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000
        CROSS SECTION  MOVED TO DOWNSTREAM CORPORATE LIMITS
     0.00     11.53    695.63      0.00    695.00    696.51      0.87      0.00      0.00    685.60
    6280.      450.     5399.      431.      132.      677.      133.        0.        0.    685.30
     0.00      3.41      7.97      3.23     0.060     0.040     0.060     0.000    684.10    223.58
 0.002033        0.        0.        0.         0         0         3      0.00    116.25    339.83

*SECNO 1808.000
  1808.00     11.58    699.28      0.00      0.00    700.14      0.86      3.64      0.00    689.20
    6280.      453.     5393.      434.      133.      681.      135.       39.        5.    688.90
     0.07      3.40      7.92      3.21     0.060     0.040     0.060     0.000    687.70    223.42
 0.001991     1808.     1808.     1808.         1         0         0      0.00    116.56    339.98

*SECNO 1873.000

3470 ENCROACHMENT STATIONS=      233.0      330.0  TYPE=      1  TARGET=      97.000
  1873.00     11.53    699.38      0.00      0.00    700.29      0.91      0.13      0.01    689.35
    6280.      411.     5466.      402.      114.      677.      114.       41.        5.    689.05
     0.07      3.61      8.07      3.53     0.060     0.040     0.060     0.000    687.85    233.00
 0.002084       65.       65.       65.         2         0         0      0.00     97.00    330.00

CCHV=   0.300 CEHV=   0.500
*SECNO 1938.000

3470 ENCROACHMENT STATIONS=      249.0      314.0  TYPE=      1  TARGET=      65.000
        CROSS SECTION DOWNSTREAM OF BORDMAN RD BRIDGE
  1938.00     11.33    699.33      0.00      0.00    700.72      1.39      0.19      0.24    689.50
    6280.        0.     6280.        0.        0.      664.        0.       42.        5. 100000.00
     0.07      0.00      9.46      0.00     0.000     0.040     0.000     0.000    688.00    249.00
 0.004198       65.       65.       65.         2         0         0      0.00     65.00    314.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1939.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        DOWNSTREAM FACE OF BORDMAN RD BRIDGE
  1939.00    11.33   699.33     0.00      0.00   700.72     1.39      0.00      0.00   689.50
   6280.        0.    6280.       0.        0.     664.       0.       42.        5.  100000.00
    0.07     0.00     9.46     0.00     0.000    0.030    0.000     0.000    688.00   249.00
 0.002359       1.       1.       1.         0        0        0      0.00     65.00   314.00

*SECNO 1972.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  708.30 MAX ELLC=  705.80


3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        UPSTREAM FACE OF BORDMAN RD BRIDGE
  1972.00    11.44   699.44     0.00      0.00   700.80     1.36      0.08      0.00   689.50
   6280.        0.    6280.       0.        0.     671.       0.       42.        5.  100000.00
    0.07     0.00     9.36     0.00     0.000    0.030    0.000     0.000    688.00   249.00
 0.002285      33.      33.      33.         0        0        0      0.00     65.00   314.00

*SECNO 1973.000

3470 ENCROACHMENT STATIONS=     249.0     314.0  TYPE=     1  TARGET=      65.000
        CROSS SECTION UPSTREAM OF BORDMAN RD BRIDGE
  1973.00    11.44   699.44     0.00      0.00   700.80     1.36      0.00      0.00   689.50
   6280.        0.    6280.       0.        0.     671.       0.       42.        5.  100000.00
    0.07     0.00     9.36     0.00     0.000    0.040    0.000     0.000    688.00   249.00
 0.004059       1.       1.       1.         0        0        0      0.00     65.00   314.00


*SECNO 2007.000
  2007.00    11.78   700.08     0.00      0.00   700.95     0.86      0.09      0.05   689.80
   6280.      405.    5486.     389.       138.     693.     140.       43.        5.     689.50
    0.08     2.93     7.91     2.78     0.070    0.040    0.070     0.000    688.30   222.91
 0.001938      34.      34.      34.         2        0        0      0.00    117.58   340.49


CCHV=   0.300 CEHV=   0.500
*SECNO 2072.000

3470 ENCROACHMENT STATIONS=     101.0     348.0  TYPE=     1  TARGET=     247.000
```

```
        FIELD MEASURED CROSS SECTION MOVED TO 100' UPSTREAM OF BORDMAN RD BRIDGE
  2072.00     12.09    700.79      0.00      0.00    701.18      0.39      0.09      0.14    696.20
    6280.      605.     5226.      449.      334.      967.      271.       45.        6.    692.80
     0.08      1.81      5.41      1.66     0.070     0.040     0.070     0.000    688.70    101.00
 0.001035       65.       65.       65.         2         0         0      0.00    247.00    348.00

*SECNO 2172.000

3470 ENCROACHMENT STATIONS=      253.0      717.0  TYPE=      1  TARGET=      464.000
        FIELD MEASURED CROSS SECTION
  2172.00     12.38    701.08      0.00      0.00    701.31      0.23      0.08      0.05    696.20
    6280.     1265.     4429.      586.      831.      995.      475.       49.        6.    692.80
     0.09      1.52      4.45      1.23     0.070     0.040     0.070     0.000    688.70    253.00
 0.000676      100.      100.      100.         2         0         0      0.00    448.26    701.26

CCHV=   0.100 CEHV=   0.300
*SECNO 2591.000
        CROSS SECTION REPEATED UPSTREAM
  2591.00     11.71    701.36      0.00      0.00    701.66      0.30      0.33      0.02    697.15
    6280.     1150.     4653.      477.      713.      929.      366.       70.       11.    693.75
     0.12      1.61      5.01      1.30     0.070     0.040     0.070     0.000    689.65    244.19
 0.000938      419.      419.      419.         2         0         0      0.00    447.15    691.34

*SECNO 3010.000
        CROSS SECTION REPEATED UPSTREAM
  3010.00     11.16    701.76      0.00      0.00    702.14      0.38      0.45      0.03    698.10
    6280.     1032.     4864.      385.      609.      873.      281.       88.       15.    694.70
     0.14      1.69      5.57      1.37     0.070     0.040     0.070     0.000    690.60    250.52
 0.001257      419.      419.      419.         2         0         0      0.00    430.89    681.41

*SECNO 3429.000
        CROSS SECTION A MOVED DOWNSTREAM
  3429.00     10.79    702.34      0.00      0.00    702.62      0.27      0.46      0.01    693.95
    6280.      531.     4064.     1684.      319.      802.     1116.      107.       19.    696.45
     0.17      1.67      5.07      1.51     0.070     0.040     0.070     0.000    691.55     28.13
 0.000986      419.      419.      419.         2         0         0      0.00    536.97    565.10

*SECNO 3850.000

3470 ENCROACHMENT STATIONS=        0.0      438.0  TYPE=      1  TARGET=      437.999
        CROSS SECTION A
  3850.00     10.21    702.71      0.00      0.00    703.24      0.53      0.55      0.08    694.90
    6280.      554.     4917.      809.      270.      751.      488.      126.       24.    697.40
     0.19      2.06      6.55      1.66     0.070     0.040     0.070     0.000    692.50     29.74
 0.001795      421.      421.      421.         2         0         0      0.00    408.26    438.00
```

```
  SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 4237.000
        CROSS SECTION A REPEATED UPSTREAM
 4237.00      9.32     703.36       0.00       0.00     704.26       0.89       0.90       0.11     696.44
   6280.       458.      5448.       374.       197.       673.       144.       137.        27.     698.94
    0.21      2.33       8.09       2.60      0.070      0.040      0.070      0.000     694.04      32.18
0.003167      387.       387.       387.          2          0          0       0.00     244.18     276.36

*SECNO 4625.000
        CROSS SECTION A REPEATED UPSTREAM
 4625.00      8.99     704.57       0.00       0.00     705.59       1.02       1.30       0.04     697.98
   6280.       405.      5529.       346.       171.       645.       128.       145.        29.     700.48
    0.22      2.37       8.57       2.71      0.070      0.040      0.070      0.000     695.58      33.06
0.003759      388.       388.       200.          2          0          0       0.00     214.78     247.84

*SECNO 5012.000
        CROSS SECTION A REPEATED
 5012.00      8.92     706.04       0.00       0.00     707.09       1.05       1.49       0.01     699.52
   6280.       392.      5549.       339.       164.       638.       124.       153.        31.     702.02
    0.23      2.38       8.69       2.73      0.070      0.040      0.070      0.000     697.12      33.28
0.003926      387.       387.       387.          2          0          0       0.00     213.99     247.27

*SECNO 5400.000
        CROSS SECTION A REPEATED UPSTREAM
 5400.00      8.87     707.53       0.00       0.00     708.60       1.07       1.51       0.01     701.06
   6280.       385.      5561.       335.       161.       634.       122.       161.        32.     703.56
    0.25      2.39       8.77       2.75      0.070      0.040      0.070      0.000     698.66      33.41
0.004023      388.       388.       230.          2          0          0       0.00     213.55     246.95

*SECNO 5787.000
        CROSS SECTION A REPEATED
 5787.00      8.85     709.05       0.00       0.00     710.13       1.08       1.53       0.00     702.60
   6280.       381.      5566.       333.       159.       633.       121.       169.        34.     705.10
    0.26      2.39       8.80       2.75      0.070      0.040      0.070      0.000     700.20      33.46
0.004069      387.       387.       200.          2          0          0       0.00     213.35     246.81

*SECNO 6175.000
        CROSS SECTION A REPEATED UPSTREAM
 6175.00      8.89     710.63       0.00       0.00     711.70       1.06       1.56       0.00     704.14
   6280.       387.      5557.       336.       162.       636.       122.       177.        36.     706.64
    0.27      2.39       8.74       2.74      0.070      0.040      0.070      0.000     701.74      33.37
0.003993      388.       388.       388.          1          0          0       0.00     213.68     247.05
```

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         DLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 6368.000

3470 ENCROACHMENT STATIONS=      60.0      253.0  TYPE=      1  TARGET=      193.000
  6368.00      8.87    711.38      0.00       0.00    712.50      1.11       0.79       0.02    704.91
    6280.       301.     5640.      339.       117.      634.      122.       181.       37.     707.41
     0.28      2.56      8.89      2.79      0.070     0.040     0.070      0.000    702.51     60.00
 0.004144      193.      193.      193.          2         0         0       0.00    186.94    246.94

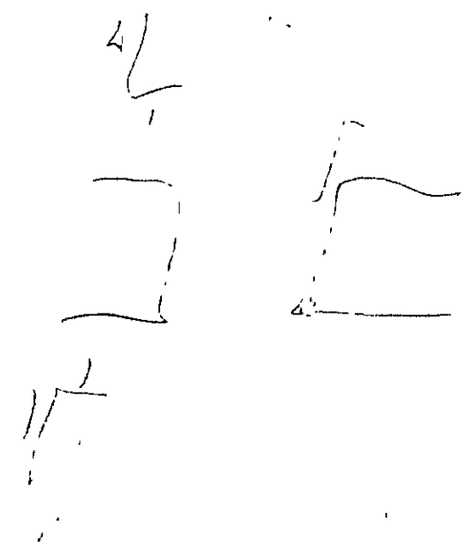

CCHV=   0.500 CEHV=   1.000
*SECNO 6468.000

3470 ENCROACHMENT STATIONS=      86.5      226.5  TYPE=      1  TARGET=      140.000
  6468.00      8.70    711.81      0.00       0.00    712.99      1.18       0.43       0.06    705.51
    6280.       161.     5581.      538.        62.      618.       88.       183.       37.     708.01
     0.28      2.62      9.03      6.13      0.080     0.040     0.035      0.000    703.11     86.50
 0.004414      100.      100.      100.          1         0         0       0.00    140.00    226.50


*SECNO 6562.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6562.00      9.01    712.26      0.00       0.00    713.92      1.66       0.45       0.48    705.75
    6280.        93.     5787.      400.        35.      546.       58.       184.       37.     704.75
     0.29      2.67     10.61      6.93      0.080     0.040     0.035      0.000    703.25     89.27
 0.005286       94.       94.       94.          2         0         0       0.00     96.20    185.46


CCHV=   0.100 CEHV=   0.300
*SECNO 6850.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6850.00      9.45    713.85      0.00       0.00    715.32      1.46       1.38       0.02    706.90
    6280.       101.     5756.      423.        40.      577.       65.       188.       38.     705.90
     0.29      2.53      9.98      6.53      0.080     0.040     0.035      0.000    704.40     88.54
 0.004351      288.      288.      288.          2         0         0       0.00     97.84    186.38


*SECNO 6900.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  6900.00      9.49    714.09      0.00       0.00    715.53      1.45       0.22       0.00    707.10
    6280.       102.     5754.      425.        40.      579.       65.       189.       38.     706.10
     0.30      2.52      9.93      6.50      0.080     0.040     0.035      0.000    704.60     88.47
 0.004278       50.       50.       50.          0         0         0       0.00     97.99    186.46
```



```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 6950.000

3470 ENCROACHMENT STATIONS=      87.0      183.0  TYPE=      1  TARGET=      96.000
        CROSS SECTION 50' DOWNSTREAM OF M-19 BRIDGE
  6950.00      9.50    714.30      0.00      0.00    715.75      1.45      0.21      0.00    707.30
    6280.      102.     5750.      428.       40.      580.       63.      190.       38.     706.30
     0.30      2.52      9.91      6.84     0.080     0.040     0.035     0.000    704.80     88.46
 0.004259       50.       50.       50.         0         0         0      0.00     94.54    183.00

CCHV=   0.100 CEHV=   0.500
*SECNO 7000.000

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        CROSS SECTION DOWN STREAM OF M-19 BRIDGE
  7000.00      9.59    714.39      0.00      0.00    716.17      1.78      0.26      0.17    707.30
    6280.        0.     6280.        0.        0.      566.        0.      191.       38.  100000.00
     0.30      0.00     10.71      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.006366       50.       50.       50.         2         0         0      0.00     70.00    170.00

CCHV=   0.100 CEHV=   0.300
*SECNO 7001.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        DOWNSTREAM FACE OF M-19 BRIDGE
  7001.00      9.59    714.39      0.00      0.00    716.18      1.79      0.00      0.00    707.30
    6280.        0.     6280.        0.        0.      584.        0.      191.       38.  100000.00
     0.30      0.00     10.75      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003627        1.        1.        1.         0         0         0     -2.47     70.00    170.00

*SECNO 7036.000

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  717.00 MAX ELLC=  718.50

3470 ENCROACHMENT STATIONS=     100.0      170.0  TYPE=      1  TARGET=      70.000
        UPSTREAM FACE OF M-19 BRIDGE
  7036.00      9.80    714.60      0.00      0.00    716.31      1.71      0.12      0.01    707.30
    6280.        0.     6280.        0.        0.      598.        0.      191.       39.  100000.00
     0.30      0.00     10.50      0.00     0.000     0.030     0.000     0.000    704.80    100.00
 0.003368       35.       35.       35.         2         0         0     -2.62     70.00    170.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7037.000

3470 ENCROACHMENT STATIONS=      100.0      170.0  TYPE=      1  TARGET=       70.000
        CROSS SECTION UPSTREAM OF M-19 BRIDGE
  7037.00      9.84    714.64      0.00      0.00    716.32      1.68      0.00      0.00    707.30
    6280.        0.     6280.        0.        0.      604.        0.      191.       39.  100000.00
     0.30      0.00     10.41      0.00     0.000     0.040     0.000     0.000    704.80    100.00
 0.005823        1.        1.        1.         2         0         0      0.00     70.00    170.00


CCHV=   0.300 CEHV=   0.500
*SECNO 7047.000

3470 ENCROACHMENT STATIONS=       90.0      180.0  TYPE=      1  TARGET=       90.000
  7047.00     10.50    715.30      0.00      0.00    716.50      1.20      0.04      0.14    707.30
    6280.      121.     5876.      283.       50.      650.       65.      191.       39.    706.30
     0.30      2.43      9.04      4.33     0.080     0.040     0.050     0.000    704.80     90.00
 0.003049       10.       10.       10.         3         0         0      0.00     90.00    180.00


*SECNO 7137.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7137.00     10.55    715.63      0.00      0.00    716.79      1.15      0.27      0.01    707.58
    6280.      122.     5814.      343.       53.      654.       84.      193.       39.    706.58
     0.30      2.29      8.90      4.09     0.080     0.040     0.050     0.000    705.08     86.72
 0.002923       90.       90.       90.         2         0         0      0.00    101.94    188.66


CCHV=   0.100 CEHV=   0.300
*SECNO 7517.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7517.00     10.57    716.75      0.00      0.00    717.90      1.15      1.11      0.00    708.68
    6280.      123.     5814.      344.       54.      654.       84.      200.       40.    707.68
     0.31      2.29      8.88      4.08     0.080     0.040     0.050     0.000    706.18     86.70
 0.002910      380.      380.      380.         2         0         0      0.00    101.98    188.69


*SECNO 7997.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
  7997.00     10.58    718.14      0.00      0.00    719.29      1.14      1.39      0.00    710.06
    6280.      123.     5813.      344.       54.      656.       85.      209.       41.    709.06
     0.33      2.28      8.86      4.07     0.080     0.040     0.050     0.000    707.56     86.67
 0.002889      480.      480.      480.         0         0         0      0.00    102.06    188.73
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


#SECNO 8477.000
        CROSS SECTION AT M-19 BRIDGE REPEATED
 8477.00    10.59    719.53      0.00      0.00    720.67      1.14      1.38      0.00    711.44
   6280.      123.     5812.      345.       54.      657.       85.      217.       42.    710.44
    0.39     2.28      8.85      4.07     0.080     0.040     0.050     0.000    708.94     86.66
0.002878     480.      480.      480.         0         0         0      0.00    102.09    188.75


#SECNO 8960.000
        CROSS SECTION DOWNSTREAM OF PRIVATELY OWNED BRIDGE
 8960.00    10.87    721.17      0.00      0.00    722.08      0.91      1.38      0.02    711.80
   6280.     1975.     4201.      105.      806.      457.       48.      229.       44.    713.70
    0.37     2.45      9.20      2.17     0.080     0.040     0.080     0.000    710.30     22.97
0.002842     483.      483.      483.         2         0         0      0.00    316.98    339.95


#SECNO 8961.000
        DOWNSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
 8961.00    10.87    721.17      0.00      0.00    722.08      0.91      0.00      0.00    711.80
   6280.     1974.     4201.      105.      806.      457.       48.      229.       44.    713.70
    0.37     2.45      9.20      2.17     0.080     0.040     0.080     0.000    710.30     22.98
0.002843        1.        1.        1.         0         0         0      0.00    316.97    339.95


SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.64      3.00      0.00     42.00      0.00    460.00      0.00    710.30    710.30

#SECNO 8972.000
PRESSURE AND WEIR FLOW


 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                             AREA
   725.92    722.08      0.00     2067.     4242.      460.      458.     721.20    721.40


        UPSTREAM FACE OF PRIVATELY OWNED BRIDGE (PERCHED BRIDGE)
 8972.00    12.61    722.91      0.00      0.00    723.34      0.43      1.26      0.00    711.80
   6280.     2510.     3607.      163.     1265.      535.      113.      230.       44.    713.70
    0.37     1.98      6.74      1.44     0.080     0.040     0.080     0.000    710.30     12.54
0.001237       11.       11.       11.         2         0         2      0.00    364.51    377.06
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 8973.000
        CROSS SECTION UPSTREAM OF PRIVATELY OWNED BRIDGE
  8973.00    12.61    722.91     0.00      0.00    723.34      0.43      0.00      0.00    711.80
    6280.    2510.     3608.     162.     1265.      535.      113.      230.       44.    713.70
     0.37     1.98      6.75     1.44    0.080     0.040     0.080     0.000    710.30     12.56
 0.001238       1.        1.       1.        0         0         0      0.00    364.48    377.04


*SECNO 9200.000
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
  9200.00    12.92    723.22     0.00      0.00    723.60      0.38      0.26      0.00    711.80
    6280.    2585.     3518.     177.     1350.      549.      129.      240.       46.    713.70
     0.38     1.91      6.41     1.37    0.080     0.040     0.080     0.000    710.30     10.66
 0.001079     227.      227.     227.        2         0         0      0.00    369.81    380.47
```

THIS RUN EXECUTED 28 AUG 86 8:32:13

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 684.10 | 6280.00 | 695.63 | 0.00 | 696.51 | 20.33 | 7.97 | 942.31 | 1392.73 |
| 1808.000 | 1808.00 | 0.00 | 0.00 | 687.70 | 6280.00 | 699.28 | 0.00 | 700.14 | 19.91 | 7.92 | 949.29 | 1407.50 |
| 1873.000 | 65.00 | 0.00 | 0.00 | 687.85 | 6280.00 | 699.38 | 0.00 | 700.29 | 20.84 | 8.07 | 905.20 | 1375.73 |
| 1938.000 | 65.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 41.98 | 9.46 | 663.60 | 969.27 |
| 1939.000 | 1.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.33 | 0.00 | 700.72 | 23.59 | 9.46 | 663.79 | 1292.89 |
| 1972.000 | 33.00 | 708.30 | 705.80 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 22.85 | 9.36 | 670.87 | 1313.73 |
| 1973.000 | 1.00 | 0.00 | 0.00 | 688.00 | 6280.00 | 699.44 | 0.00 | 700.80 | 40.59 | 9.36 | 671.05 | 985.71 |
| 2007.000 | 34.00 | 0.00 | 0.00 | 688.30 | 6280.00 | 700.08 | 0.00 | 700.95 | 19.38 | 7.91 | 971.93 | 1426.61 |
| 2072.000 | 65.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 700.79 | 0.00 | 701.18 | 10.35 | 5.41 | 1571.69 | 1952.17 |
| 2172.000 | 100.00 | 0.00 | 0.00 | 688.70 | 6280.00 | 701.08 | 0.00 | 701.31 | 6.76 | 4.45 | 2300.35 | 2416.03 |
| 2591.000 | 419.00 | 0.00 | 0.00 | 689.65 | 6280.00 | 701.36 | 0.00 | 701.66 | 9.38 | 5.01 | 2006.90 | 2050.51 |
| 3010.000 | 419.00 | 0.00 | 0.00 | 690.60 | 6280.00 | 701.76 | 0.00 | 702.14 | 12.57 | 5.57 | 1763.05 | 1771.52 |
| 3429.000 | 419.00 | 0.00 | 0.00 | 691.55 | 6280.00 | 702.34 | 0.00 | 702.62 | 9.86 | 5.07 | 2236.27 | 2000.42 |
| 3850.000 | 421.00 | 0.00 | 0.00 | 692.50 | 6280.00 | 702.71 | 0.00 | 703.24 | 17.95 | 6.55 | 1507.85 | 1482.15 |
| 4237.000 | 387.00 | 0.00 | 0.00 | 694.04 | 6280.00 | 703.36 | 0.00 | 704.26 | 31.67 | 8.09 | 1013.87 | 1116.00 |
| 4625.000 | 388.00 | 0.00 | 0.00 | 695.58 | 6280.00 | 704.57 | 0.00 | 705.59 | 37.59 | 8.57 | 943.74 | 1024.29 |
| 5012.000 | 387.00 | 0.00 | 0.00 | 697.12 | 6280.00 | 706.04 | 0.00 | 707.09 | 39.26 | 8.69 | 926.63 | 1002.30 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5400.000 | 388.00 | 0.00 | 0.00 | 698.66 | 6280.00 | 707.53 | 0.00 | 708.60 | 40.23 | 8.77 | 917.05 | 990.07 |
| 5787.000 | 387.00 | 0.00 | 0.00 | 700.20 | 6280.00 | 709.05 | 0.00 | 710.13 | 40.69 | 8.80 | 912.67 | 984.50 |
| 6175.000 | 388.00 | 0.00 | 0.00 | 701.74 | 6280.00 | 710.63 | 0.00 | 711.70 | 39.93 | 8.74 | 919.99 | 993.82 |
| 6368.000 | 193.00 | 0.00 | 0.00 | 702.51 | 6280.00 | 711.38 | 0.00 | 712.50 | 41.44 | 8.89 | 873.17 | 975.56 |
| 6468.000 | 100.00 | 0.00 | 0.00 | 703.11 | 6280.00 | 711.81 | 0.00 | 712.99 | 44.14 | 9.03 | 767.67 | 945.20 |
| 6562.000 | 94.00 | 0.00 | 0.00 | 703.25 | 6280.00 | 712.26 | 0.00 | 713.92 | 52.86 | 10.61 | 638.32 | 863.76 |
| 6850.000 | 288.00 | 0.00 | 0.00 | 704.40 | 6280.00 | 713.85 | 0.00 | 715.32 | 43.51 | 9.98 | 681.24 | 952.04 |
| 6900.000 | 50.00 | 0.00 | 0.00 | 704.60 | 6280.00 | 714.09 | 0.00 | 715.53 | 42.78 | 9.93 | 685.13 | 960.18 |
| 6950.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.30 | 0.00 | 715.75 | 42.59 | 9.91 | 682.99 | 962.34 |
| 7000.000 | 50.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.17 | 63.66 | 10.71 | 586.22 | 787.10 |
| 7001.000 | 1.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.39 | 0.00 | 716.18 | 36.27 | 10.75 | 584.10 | 1042.78 |
| 7036.000 | 35.00 | 717.00 | 718.50 | 704.80 | 6280.00 | 714.60 | 0.00 | 716.31 | 33.68 | 10.50 | 598.35 | 1082.04 |
| 7037.000 | 1.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 714.64 | 0.00 | 716.32 | 58.23 | 10.41 | 603.51 | 823.00 |
| 7047.000 | 10.00 | 0.00 | 0.00 | 704.80 | 6280.00 | 715.30 | 0.00 | 716.50 | 30.45 | 9.04 | 764.88 | 1138.15 |
| 7137.000 | 90.00 | 0.00 | 0.00 | 705.08 | 6280.00 | 715.63 | 0.00 | 716.79 | 29.23 | 8.90 | 791.11 | 1161.51 |
| 7517.000 | 380.00 | 0.00 | 0.00 | 706.18 | 6280.00 | 716.75 | 0.00 | 717.90 | 29.10 | 8.88 | 792.32 | 1164.10 |
| 7997.000 | 480.00 | 0.00 | 0.00 | 707.56 | 6280.00 | 718.14 | 0.00 | 719.29 | 28.89 | 8.86 | 794.35 | 1168.45 |
| 8477.000 | 480.00 | 0.00 | 0.00 | 708.94 | 6280.00 | 719.53 | 0.00 | 720.67 | 28.78 | 8.85 | 795.32 | 1170.53 |
| 8960.000 | 483.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.42 | 9.20 | 1310.86 | 1178.03 |
| 8961.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 721.17 | 0.00 | 722.08 | 28.43 | 9.20 | 1310.65 | 1177.83 |
| 8972.000 | 11.00 | 721.40 | 721.20 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.37 | 6.74 | 1912.86 | 1785.44 |
| 8973.000 | 1.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 722.91 | 0.00 | 723.34 | 12.38 | 6.75 | 1912.18 | 1784.71 |
| 9200.000 | 227.00 | 0.00 | 0.00 | 710.30 | 6280.00 | 723.22 | 0.00 | 723.60 | 10.79 | 6.41 | 2028.14 | 1912.06 |

BELLE RIVER

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 6280.00 | 695.63 | 0.00 | 0.00 | 0.63 | 116.25 | 0.00 |
| 1808.000 | 6280.00 | 699.28 | 0.00 | 3.65 | 0.00 | 116.56 | 1808.00 |
| 1873.000 | 6280.00 | 699.38 | 0.00 | 0.10 | 0.00 | 97.00 | 65.00 |
| 1938.000 | 6280.00 | 699.33 | 0.00 | -0.06 | 0.00 | 65.00 | 65.00 |
| 1939.000 | 6280.00 | 699.33 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 1972.000 | 6280.00 | 699.44 | 0.00 | 0.11 | 0.00 | 65.00 | 33.00 |
| 1973.000 | 6280.00 | 699.44 | 0.00 | 0.00 | 0.00 | 65.00 | 1.00 |
| 2007.000 | 6280.00 | 700.08 | 0.00 | 0.64 | 0.00 | 117.58 | 34.00 |
| 2072.000 | 6280.00 | 700.79 | 0.00 | 0.71 | 0.00 | 247.00 | 65.00 |
| 2172.000 | 6280.00 | 701.08 | 0.00 | 0.29 | 0.00 | 448.26 | 100.00 |
| 2591.000 | 6280.00 | 701.36 | 0.00 | 0.28 | 0.00 | 447.15 | 419.00 |
| 3010.000 | 6280.00 | 701.76 | 0.00 | 0.39 | 0.00 | 430.89 | 419.00 |
| 3429.000 | 6280.00 | 702.34 | 0.00 | 0.59 | 0.00 | 536.97 | 419.00 |
| 3850.000 | 6280.00 | 702.71 | 0.00 | 0.36 | 0.00 | 408.26 | 421.00 |
| 4237.000 | 6280.00 | 703.36 | 0.00 | 0.65 | 0.00 | 244.18 | 387.00 |
| 4625.000 | 6280.00 | 704.57 | 0.00 | 1.21 | 0.00 | 214.78 | 388.00 |
| 5012.000 | 6280.00 | 706.04 | 0.00 | 1.46 | 0.00 | 213.99 | 387.00 |
| 5400.000 | 6280.00 | 707.53 | 0.00 | 1.49 | 0.00 | 213.55 | 388.00 |
| 5787.000 | 6280.00 | 709.05 | 0.00 | 1.52 | 0.00 | 213.35 | 387.00 |
| 6175.000 | 6280.00 | 710.63 | 0.00 | 1.58 | 0.00 | 213.68 | 388.00 |
| 6368.000 | 6280.00 | 711.38 | 0.00 | 0.75 | 0.00 | 186.94 | 193.00 |
| 6468.000 | 6280.00 | 711.81 | 0.00 | 0.43 | 0.00 | 140.00 | 100.00 |
| 6562.000 | 6280 00 | 712.26 | 0.00 | 0.45 | 0.00 | 96.20 | 94.00 |
| 6850.000 | 6280.00 | 713.85 | 0.00 | 1.59 | 0.00 | 97.84 | 288.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 6900.000 | 6280.00 | 714.09 | 0.00 | 0.23 | 0.00 | 97.99 | 50.00 |
| 6950.000 | 6280.00 | 714.30 | 0.00 | 0.21 | 0.00 | 94.54 | 50.00 |
| 7000.000 | 6280.00 | 714.39 | 0.00 | 0.09 | 0.00 | 70.00 | 50.00 |
| 7001.000 | 6280.00 | 714.39 | 0.00 | 0.00 | 0.00 | 70.00 | 1.00 |
| 7036.000 | 6280.00 | 714.60 | 0.00 | 0.22 | 0.00 | 70.00 | 35.00 |
| 7037.000 | 6280.00 | 714.64 | 0.00 | 0.04 | 0.00 | 70.00 | 1.00 |
| 7047.000 | 6280.00 | 715.30 | 0.00 | 0.66 | 0.00 | 90.00 | 10.00 |
| 7137.000 | 6280.00 | 715.63 | 0.00 | 0.33 | 0.00 | 101.94 | 90.00 |
| 7517.000 | 6280.00 | 716.75 | 0.00 | 1.11 | 0.00 | 101.98 | 380.00 |
| 7997.000 | 6280.00 | 718.14 | 0.00 | 1.40 | 0.00 | 102.06 | 480.00 |
| 8477.000 | 6280.00 | 719.53 | 0.00 | 1.39 | 0.00 | 102.09 | 480.00 |
| 8960.000 | 6280.00 | 721.17 | 0.00 | 1.64 | 0.00 | 316.98 | 483.00 |
| 8961.000 | 6280.00 | 721.17 | 0.00 | 0.00 | 0.00 | 316.97 | 1.00 |
| 8972.000 | 6280.00 | 722.91 | 0.00 | 1.74 | 0.00 | 364.51 | 11.00 |
| 8973.000 | 6280.00 | 722.91 | 0.00 | 0.00 | 0.00 | 364.48 | 1.00 |
| 9200.000 | 6280.00 | 723.22 | 0.00 | 0.32 | 0.00 | 369.81 | 227.00 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Belle River

4) DOCUMENT TYPE: Hydraulic Analyses

00BREAK00

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
BOX 1027
DETROIT, MICHIGAN 48231-1027

September 2, 1986

IN REPLY REFER TO

Planning Division - SS

Mr. Lawrence N. Witte, Chief
Engineering - Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Dear Mr. Witte:

Submitted for your review and approval is a copy of the hydraulic calculations for the City of Memphis, Michigan Limited Detail Flood Insurance Study. Enclosed are the HEC-2 100-year unencroached and encroached runs, a map showing the location of the field surveyed cross sections and a brief write up dealing with items that will assist the review process.

If your have any questions regarding the enclosed data, please contact Mr. Bruce Holbrook at (313) 226-6772 or Mr. Joe Wanielista at (313) 226-6773.

Sincerely,

C. Argiroff

C. Argiroff, P.E.
Chief, Planning Division

Enclosures

RECEIVED
SEP 04 1986
ENGINEERING-WATER
MANAGEMENT

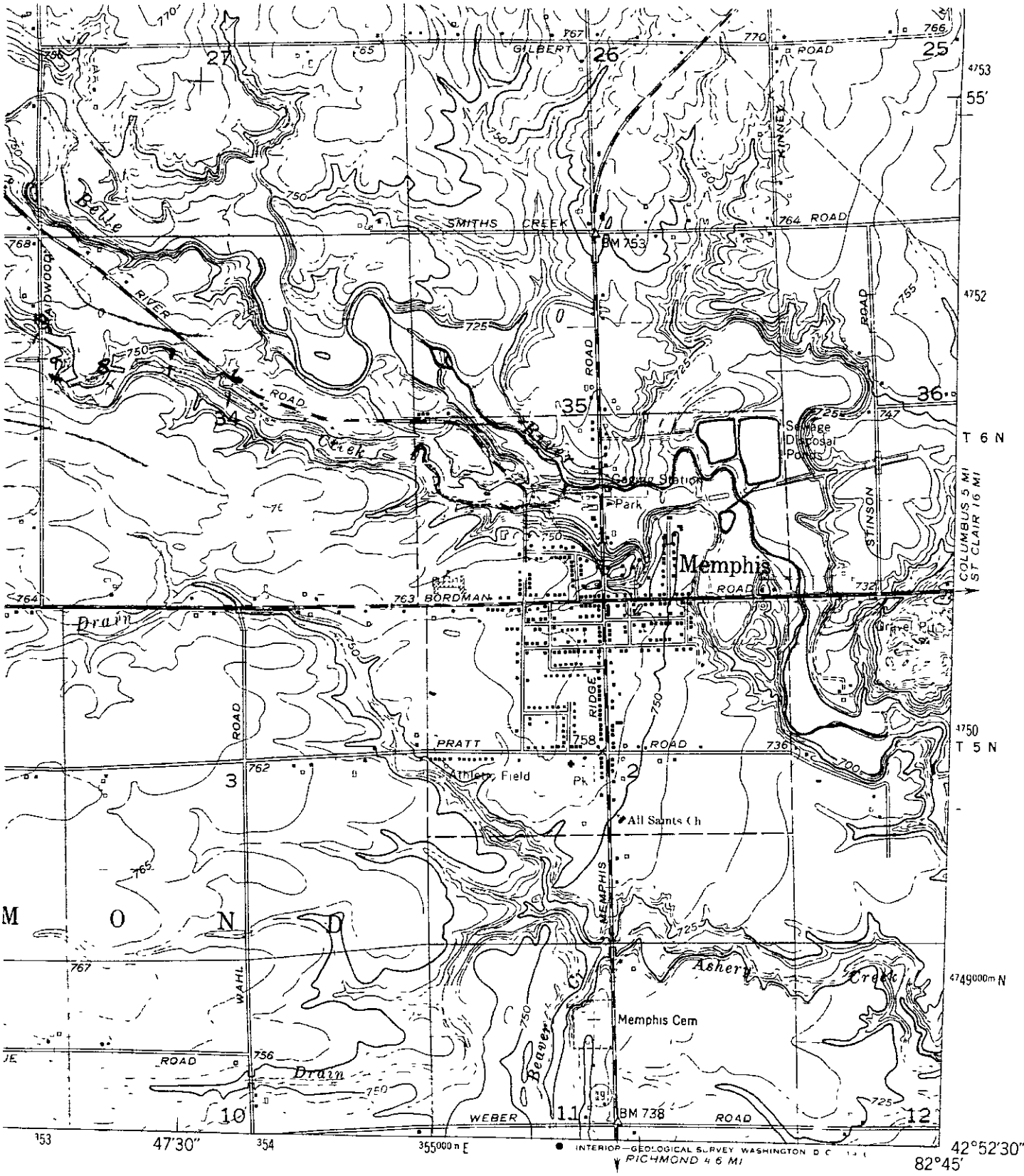
# City of Memphis, Michigan
# Limited Detail Flood Insurance Study
# Hydraulic Computation Background Information

Two streams were studied, the Belle River and Sage Creek. The Belle River was studied from the upstream corporate limit to the downstream corporate limit. Sage Creek was studied from the upstream corporate limit to the creek's confluence with the Belle River.

Manning's "n" values were obtained for the study during a site visit.

The starting water surface elevation at the downstream corporate limit for the Belle River was determined by beginning the computations at the downstream corporate limit using the slope area method. The starting water surface elevation for Sage Creek was also found by the slope-area method with the computations beginning at the stream's mouth. Each stream was treated as a separate run.

For the encroached runs on the Belle River and Sage Creek, the computations were begun using the starting water surface elevations found by the slope-area method from the unencroached runs.




DS
C 20242
ON REQUEST

MEMPHIS, MICH
N4252 5—W8245/7 5

1968

AMS 4469 IV NE—SERIES V862

Holbrook/DHB/66772

SEP 02 1986

RECEIVED

SEP 10 1986

ENGINEERING-WATER
MANAGEMENT

Planning Division - SS

Mr. Lawrence N. Witte, Chief
Engineering - Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

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C. Argiroff, P.E.
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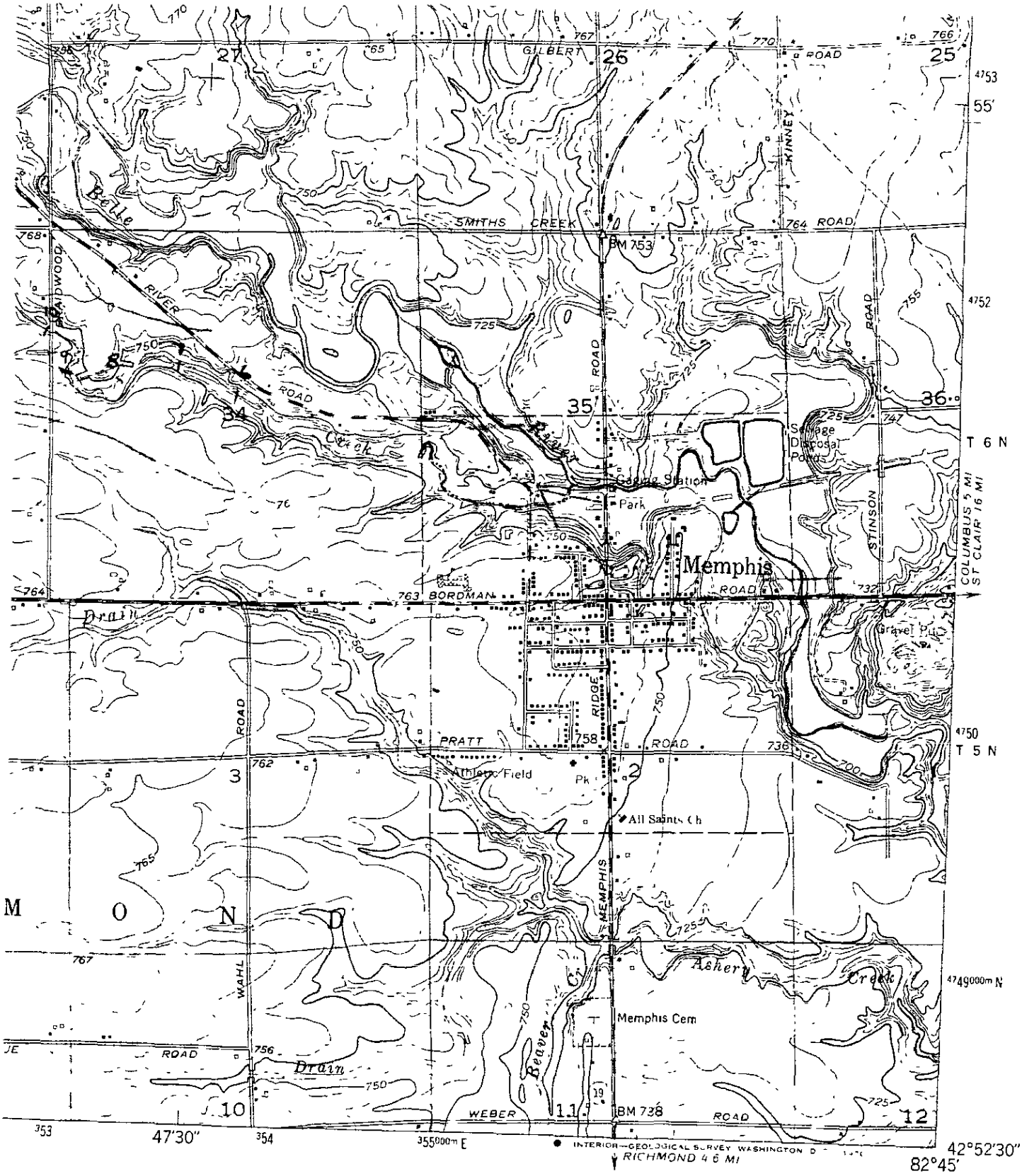


1 MILE

7000 FEET

1 KILOMETER

ROAD CLASSIFICATION

Primary highway, all weather, hard surface

Light duty road, all weather, improved surface

Secondary highway, all weather, hard surface

Unimproved road, fair or dry weather

State Route

QUADRANGLE LOCATION

DS
C 20242
ON REQUEST

# MEMPHIS, MICH.

N4252.5—W8245/7.5

1968

AMS 4469 IV NE—SERIES V862

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Sagg Creek

4) DOCUMENT TYPE: 100 year Natural

00BREAK00

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  22 AUG 86 TIME   14:29:14              *
*****************************************************
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```
*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 440-2105 (FTS) 448-2105    *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

MEMPHIS, MI - FIS
SAGE CREEK
100 YEAR FLOOD

THIS RUN EXECUTED 22 AUG 86 14:29:14

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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C
T1      MEMPHIS, MI. - FIS
T2      100 YEAR FLOOD
T3      SAGE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        0.        0.        0.   0.002000    0.00      0.0      820.    695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.030     0.030     0.035     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
X1      0.000    29.000   250.000   283.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   232.000     0.000   300.000     0.000     0.000     0.000     0.000
GR    717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR    714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR    716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR    708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR    714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR    715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
X1    169.000    29.000   250.000   283.000   169.000   169.000   169.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   253.500     0.000   279.500     0.000     0.000     0.000     0.000
GR    717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR    714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR    716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR    708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR    714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR    715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

NC      0.040     0.070     0.030     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
X1    170.000    38.000   250.000   285.000     1.000     1.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   254.000     0.000   280.000     0.000     0.000     0.000     0.000
BT    -38.000     0.000   715.600     0.000    25.000   715.300     0.000    50.000   715.100     0.000
BT      0.000    75.000   714.900     0.000   100.000   714.900     0.000   125.000   714.900     0.000
BT      0.000   150.000   714.900     0.000   175.000   714.800     0.000   200.000   714.900     0.000
BT      0.000   225.000   716.100     0.000   250.000   716.800     0.000   254.000   716.800   710.300
BT      0.000   254.500   716.800   712.800   256.000   716.800   714.800   258.000   716.800   715.900
BT      0.000   262.000   716.800   715.900   264.000   716.800   714.800   265.500   716.800   712.800
BT      0.000   266.000   716.800   710.300   268.000   716.800   710.400   268.500   716.800   712.900
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 0.000 | 270.000 | 716.800 | 714.900 | 272.000 | 716.800 | 716.100 | 276.000 | 716.800 | 716.100 |
| BT | 0.000 | 278.000 | 716.800 | 714.900 | 279.500 | 716.800 | 712.900 | 280.000 | 716.800 | 710.400 |
| BT | 0.000 | 285.000 | 716.900 | 0.000 | 310.000 | 715.900 | 0.000 | 335.000 | 714.900 | 0.000 |
| BT | 0.000 | 360.000 | 714.300 | 0.000 | 385.000 | 714.500 | 0.000 | 410.000 | 714.700 | 0.000 |
| BT | 0.000 | 435.000 | 714.500 | 0.000 | 460.000 | 714.800 | 0.000 | 485.000 | 714.900 | 0.000 |
| BT | 0.000 | 510.000 | 714.900 | 0.000 | 535.000 | 715.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 715.600 | 0.000 | 715.300 | 25.000 | 715.100 | 50.000 | 714.900 | 75.000 | 714.900 | 100.000 |
| GR | 714.900 | 125.000 | 714.900 | 150.000 | 714.800 | 175.000 | 714.900 | 200.000 | 715.700 | 225.000 |
| GR | 716.300 | 250.000 | 710.300 | 254.000 | 709.300 | 254.500 | 708.500 | 256.000 | 708.000 | 258.000 |
| GR | 708.000 | 262.000 | 708.500 | 264.000 | 709.300 | 265.500 | 710.300 | 266.000 | 710.400 | 268.000 |
| GR | 709.400 | 268.500 | 708.600 | 270.000 | 708.100 | 272.000 | 708.100 | 276.000 | 708.600 | 278.000 |
| GR | 709.400 | 279.500 | 710.400 | 280.000 | 716.100 | 285.000 | 715.900 | 310.000 | 714.900 | 335.000 |
| GR | 714.300 | 360.000 | 714.500 | 385.000 | 714.700 | 410.000 | 714.500 | 435.000 | 714.800 | 460.000 |
| GR | 714.900 | 485.000 | 714.900 | 510.000 | 715.100 | 535.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | UPSTREAM FACE OF SERVICE BRIDGE | | | | | | | | | |
| X1 | 194.000 | 0.000 | 0.000 | 0.000 | 24.000 | 24.000 | 24.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 254.000 | 0.000 | 280.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION UPSTREAM OF SERVICE BRIDGE | | | | | | | | | |
| X1 | 195.000 | 29.000 | 250.000 | 283.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 254.000 | 0.000 | 280.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.500 | 59.000 | 715.600 | 75.000 | 714.400 | 87.000 | 714.300 | 100.000 | 714.500 | 125.000 |
| GR | 714.600 | 150.000 | 714.900 | 175.000 | 715.000 | 200.000 | 715.700 | 225.000 | 716.400 | 240.000 |
| GR | 716.300 | 250.000 | 709.200 | 255.000 | 708.900 | 260.000 | 708.700 | 265.000 | 708.000 | 270.000 |
| GR | 708.700 | 275.000 | 709.400 | 279.000 | 716.100 | 283.000 | 716.400 | 290.000 | 716.300 | 300.000 |
| GR | 714.500 | 325.000 | 714.300 | 350.000 | 714.000 | 375.000 | 713.800 | 400.000 | 714.600 | 425.000 |
| GR | 715.000 | 450.000 | 715.400 | 475.000 | 715.100 | 500.000 | 715.300 | 525.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION A | | | | | | | | | |
| X1 | 255.000 | 23.000 | 250.000 | 267.000 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 186.000 | 0.000 | 332.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 714.900 | 0.000 | 714.900 | 25.000 | 714.900 | 50.000 | 714.500 | 75.000 | 714.200 | 100.000 |
| GR | 713.800 | 125.000 | 713.500 | 150.000 | 713.300 | 175.000 | 712.600 | 200.000 | 711.000 | 225.000 |
| GR | 710.900 | 240.000 | 710.600 | 250.000 | 709.100 | 251.000 | 708.100 | 255.000 | 708.000 | 260.000 |
| GR | 708.600 | 263.000 | 712.600 | 267.000 | 713.000 | 275.000 | 713.600 | 300.000 | 713.500 | 325.000 |
| GR | 713.500 | 350.000 | 713.800 | 375.000 | 714.200 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION B | | | | | | | | | |
| X1 | 500.000 | 31.000 | 200.000 | 230.000 | 245.000 | 245.000 | 245.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 128.000 | 0.000 | 303.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.600 | 0.000 | 714.200 | 10.000 | 714.600 | 25.000 | 714.200 | 50.000 | 713.400 | 59.000 |
| GR | 714.800 | 75.000 | 714.600 | 100.000 | 714.400 | 125.000 | 714.200 | 150.000 | 713.900 | 175.000 |
| GR | 714.200 | 190.000 | 713.800 | 200.000 | 710.600 | 203.000 | 711.700 | 205.000 | 709.600 | 210.000 |
| GR | 710.100 | 215.000 | 710.400 | 220.000 | 710.700 | 225.000 | 713.900 | 230.000 | 714.400 | 240.000 |
| GR | 714.600 | 250.000 | 714.500 | 275.000 | 714.200 | 300.000 | 714.500 | 325.000 | 715.100 | 350.000 |
| GR | 714.000 | 375.000 | 714.200 | 400.000 | 714.200 | 425.000 | 714.400 | 450.000 | 713.600 | 475.000 |
| GR | 715.600 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0.040 | 0.070 | 0.040 | 0.500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 565.000 | 10.000 | 63.000 | 77.000 | 65.000 | 65.000 | 65.000 | 0.000 | 0.000 | 0.000 |
| GR | 716.500 | 0.000 | 713.700 | 51.000 | 712.000 | 63.000 | 710.700 | 64.000 | 709.900 | 67.000 |
| GR | 709.900 | 74.000 | 710.700 | 76.000 | 711.900 | 77.000 | 716.200 | 120.000 | 728.700 | 150.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 630.000 | 0.000 | 0.000 | 0.000 | 65.000 | 65.000 | 65.000 | 0.000 | 0.330 | 0.000 |
| X1 | 695.000 | 0.000 | 0.000 | 0.000 | 65.000 | 65.000 | 65.000 | 0.000 | 0.330 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 32.000 | 0.000 | 109.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 728.000 | 0.000 | 0.000 | 0.000 | 33.000 | 33.000 | 33.000 | 0.000 | 0.170 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 40.000 | 0.000 | 100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 744.000 | 0.000 | 0.000 | 0.000 | 16.000 | 16.000 | 16.000 | 0.000 | 0.080 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 44.000 | 0.000 | 97.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD | | | | | | | | | |
| X1 | 759.000 | 9.000 | 64.000 | 77.000 | 15.000 | 15.000 | 15.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 49.000 | 0.000 | 93.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X4 | 2.000 | 715.000 | 56.000 | 714.000 | 96.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.800 | 0.000 | 717.800 | 40.000 | 713.000 | 64.000 | 711.000 | 68.000 | 710.900 | 70.000 |
| GR | 711.000 | 72.000 | 713.000 | 77.000 | 717.800 | 120.000 | 730.000 | 150.000 | 0.000 | 0.000 |
| X1 | 774.000 | 10.000 | 63.000 | 77.000 | 15.000 | 15.000 | 15.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 52.000 | 0.000 | 89.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.800 | 0.000 | 715.000 | 51.000 | 713.300 | 63.000 | 712.000 | 64.000 | 711.200 | 67.000 |
| GR | 711.200 | 74.000 | 712.000 | 76.000 | 713.200 | 77.000 | 715.000 | 120.000 | 730.000 | 150.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.100 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE | | | | | | | | | |
| X1 | 789.000 | 21.000 | 40.000 | 69.600 | 15.000 | 15.000 | 15.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 40.000 | 0.000 | 69.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.800 | 0.000 | 713.900 | 40.000 | 712.800 | 40.400 | 712.000 | 42.400 | 711.900 | 44.400 |
| GR | 711.900 | 46.400 | 711.900 | 48.400 | 712.000 | 50.400 | 712.800 | 52.400 | 713.900 | 52.800 |
| GR | 713.400 | 56.800 | 712.300 | 57.200 | 711.500 | 59.200 | 711.400 | 61.200 | 711.400 | 63.200 |
| GR | 711.400 | 65.200 | 711.500 | 67.200 | 712.300 | 69.200 | 713.400 | 69.600 | 717.800 | 120.000 |
| GR | 730.000 | 150.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE | | | | | | | | | |
| X1 | 790.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 40.000 | 0.000 | 69.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | -21.000 | 0.000 | 720.800 | 0.000 | 40.000 | 722.800 | 713.900 | 40.400 | 722.800 | 716.300 |
| BT | 0.000 | 42.400 | 722.900 | 718.900 | 44.400 | 722.900 | 719.800 | 46.400 | 723.000 | 720.100 |
| BT | 0.000 | 48.400 | 723.100 | 719.800 | 50.400 | 723.100 | 718.900 | 52.400 | 723.200 | 716.300 |
| BT | 0.000 | 52.800 | 723.200 | 713.900 | 56.800 | 723.400 | 713.400 | 57.200 | 723.400 | 715.800 |
| BT | 0.000 | 59.200 | 723.500 | 718.400 | 61.200 | 723.500 | 719.300 | 63.200 | 723.600 | 719.600 |
| BT | 0.000 | 65.200 | 723.700 | 719.300 | 67.200 | 723.800 | 718.400 | 69.200 | 723.900 | 715.800 |
| BT | 0.000 | 69.600 | 723.900 | 713.400 | 120.000 | 726.000 | 0.000 | 150.000 | 730.000 | 0.000 |

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        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
X1    822.000     0.000     0.000     0.000    32.000    32.000    32.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    40.000     0.000    69.600     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
X1    823.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    40.000     0.000    69.600     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
X1    882.000     0.000     0.000     0.000    59.000    59.000    59.000     0.000     0.120     0.000
X3      0.000     0.000     0.000     0.000     0.000   150.000     0.000     0.000     0.000     0.000

NC      0.070     0.070     0.040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        MANUFACTURED CROSS SECTION
X1   1397.000    14.000   200.000   230.000   515.000   515.000   515.000     0.000     0.000     0.000
GR    720.600     0.000   718.000    10.000   717.200   190.000   716.800   200.000   713.600   203.000
GR    714.700   205.000   712.600   210.000   713.100   215.000   713.400   220.000   713.700   225.000
GR    716.700   230.000   718.000   250.000   721.000   270.000   730.000   300.000     0.000     0.000

NC      0.000     0.000     0.000     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        MANUFACTURED CROSS SECTION
X1   1972.000     0.000     0.000     0.000   575.000   575.000   575.000     0.000     1.200     0.000

        MANUFACTURED CROSS SECTION
X1   2547.000     0.000     0.000     0.000   575.000   575.000   575.000     0.000     1.200     0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   3120.000     0.000     0.000     0.000   573.000   573.000   573.000     0.000     1.200     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000

3470 ENCROACHMENT STATIONS=     232.0     300.0  TYPE=     1  TARGET=      68.000
        CROSS SECTION  MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
     0.00      6.66   714.66      0.00   695.00   715.06      0.40      0.00      0.00   716.30
     820.        0.     820.        0.       0.     161.        0.        0.        0.   716.10
     0.00      0.00     5.08      0.00    0.000    0.035     0.000     0.000    708.00   251.16
 0.002002        0.       0.        0.        0        0         7      0.00     30.98   282.14

*SECNO 169.000

3470 ENCROACHMENT STATIONS=     253.5     279.5  TYPE=     1  TARGET=      26.000
        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
   169.00      6.99   714.99      0.00      0.00   715.39      0.40      0.34      0.00100000.00
     820.        0.     820.        0.       0.     161.        0.        1.        0.  100000.00
     0.01      0.00     5.11      0.00    0.000    0.035     0.000     0.000    708.00   253.50
 0.001983      169.     169.      169.        0        0         0      0.00     26.00   279.50

*SECNO 170.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
   170.00      6.90   714.90      0.00      0.00   715.43      0.53      0.00      0.04100000.00
     820.        0.     820.        0.       0.     141.        0.        1.        0.  100000.00
     0.01      0.00     5.83      0.00    0.000    0.030     0.000     0.000    708.00   254.00
 0.003327        1.       1.        1.        2        0         0    -22.06     26.00   280.00

*SECNO 194.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        UPSTREAM FACE OF SERVICE BRIDGE
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  SECND      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
  Q          QLOB       QCH        QROB       ALOB       ACH        ARDB       VOL        TWA    LEFT/RIGHT
  TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
  SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

  194.00      7.00    715.00       0.00       0.00    715.51       0.52       0.08       0.00100000.00
    820.        0.      820.         0.         0.      142.         0.         1.         0.  100000.00
    0.01      0.00      5.78       0.00      0.000      0.030      0.000      0.000     708.00     254.00
0.003285       24.       24.        24.          2          0          0     -23.03      26.00     280.00

*SECND 195.000

3470 ENCROACHMENT STATIONS=      254.0      280.0  TYPE=      1  TARGET=      26.000
        CROSS SECTION UPSTREAM OF SERVICE BRIDGE
  195.00      7.14    715.14       0.00       0.00    715.53       0.39       0.00       0.01100000.00
    820.        0.      820.         0.         0.      165.         0.         1.         0.  100000.00
    0.01      0.00      4.98       0.00      0.000      0.040      0.000      0.000     708.00     254.00
0.002406        1.        1.         1.          2          0          0       0.00      26.00     280.00

CCHV=   0.300 CEHV=   0.500
*SECND 255.000
3280 CROSS SECTION     255.00 EXTENDED       1.42 FEET

3470 ENCROACHMENT STATIONS=      186.0      332.0  TYPE=      1  TARGET=     146.000
        CROSS SECTION A
  255.00      7.62    715.62       0.00       0.00    715.69       0.06       0.06       0.10     710.60
    820.      364.      313.       143.       254.      114.       147.         1.         0.      712.60
    0.02      1.43      2.75       0.97      0.060      0.040      0.060      0.000     708.00     186.00
0.000526       60.       60.        60.          2          0          0       0.00     146.00     332.00

*SECND 500.000
3280 CROSS SECTION     500.00 EXTENDED       0.18 FEET

3470 ENCROACHMENT STATIONS=      128.0      303.0  TYPE=      1  TARGET=     175.000
        CROSS SECTION B
  500.00      6.18    715.78       0.00       0.00    715.93       0.16       0.20       0.05     713.80
    820.      155.      551.       114.       120.      146.       100.         4.         1.      713.90
    0.04      1.30      3.76       1.14      0.060      0.040      0.060      0.000     709.60     128.00
0.001412      245.      245.       245.          2          0          0       0.00     175.00     303.00

CCHV=   0.500 CEHV=   1.000
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 565.000
   565.00      6.00     715.90       0.00       0.00     716.21       0.32       0.12       0.16     712.00
     820.       235.       448.       138.        81.       79.        80.         4.         1.      711.90
     0.05      2.91       5.66       1.72      0.040     0.040      0.070      0.000     709.90      10.96
 0.002630       65.        65.        65.          2         0          0       0.00     106.02     116.98

CCHV=    0.100 CEHV=    0.300
*SECNO 630.000
   630.00      5.81     716.04       0.00       0.00     716.42       0.38       0.19       0.02     712.33
     820.       221.       466.       133.        71.       76.        72.         4.         2.      712.23
     0.05      3.12       6.10       1.84      0.040     0.040      0.070      0.000     710.23      14.46
 0.003196       65.        65.        65.          1         0          0       0.00     100.60     115.06

*SECNO 695.000

3470 ENCROACHMENT STATIONS=       32.0      109.0  TYPE=      1  TARGET=      77.000
   695.00      5.67     716.23       0.00       0.00     716.66       0.43       0.22       0.01     712.66
     820.       209.       475.       136.        58.       75.        66.         5.         2.      712.56
     0.05      3.59       6.37       2.05      0.040     0.040      0.070      0.000     710.56      32.00
 0.003607       65.        65.        65.          0         0          0       0.00      77.00     109.00

CCHV=    0.500 CEHV=    1.000
*SECNO 728.000

3470 ENCROACHMENT STATIONS=       40.0      100.0  TYPE=      1  TARGET=      60.000
   728.00      5.63     716.36       0.00       0.00     716.84       0.49       0.13       0.06     712.83
     820.       193.       493.       134.        49.       74.        57.         5.         2.      712.73
     0.06      3.95       6.68       2.36      0.040     0.040      0.070      0.000     710.73      40.00
 0.004024       33.        33.        33.          1         0          0       0.00      60.00     100.00

*SECNO 744.000

3470 ENCROACHMENT STATIONS=       44.0       97.0  TYPE=      1  TARGET=      53.000
   744.00      5.61     716.42       0.00       0.00     716.96       0.53       0.07       0.05     712.91
     820.       182.       508.       130.        43.       74.        52.         5.         2.      712.81
     0.06      4.21       6.90       2.50      0.040     0.040      0.070      0.000     710.81      44.00
 0.004306       16.        16.        16.          0         0          0       0.00      53.00      97.00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 759.000

3470 ENCROACHMENT STATIONS=      49.0      93.0  TYPE=     1  TARGET=      44.000
        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
   759.00     5.60    716.50     0.00      0.00    717.30     0.80      0.08      0.27    713.00
     820.     128.      527.     165.       26.      63.       49.        5.        2.    713.00
     0.06     4.89      8.42     3.36     0.040    0.040    0.070     0.000    710.90     49.00
 0.006881      15.       15.      15.         1        0        0      0.00     44.00     93.00

*SECNO 774.000

3470 ENCROACHMENT STATIONS=      52.0      89.0  TYPE=     1  TARGET=      37.000
   774.00     5.50    716.70     0.00      0.00    717.43     0.73      0.09      0.03    713.30
     820.     138.      564.     118.       29.      72.       39.        5.        2.    713.20
     0.06     4.78      7.83     3.03     0.040    0.040    0.070     0.000    711.20     52.00
 0.005691      15.       15.      15.         2        0        0      0.00     37.00     89.00

CCHV=   0.100 CEHV=   0.300
*SECNO 789.000

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
   789.00     5.63    717.03     0.00      0.00    717.53     0.50      0.07      0.02    713.90
     820.       0.      820.       0.        0.     145.       0.        5.        2.  100000.00
     0.06     0.00      5.67     0.00     0.000    0.040    0.000     0.000    711.40     40.00
 0.004222      15.       15.      15.         2        0        0      0.00     29.60     69.60

*SECNO 790.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   790.00     5.50    716.90     0.00      0.00    717.59     0.69      0.00      0.06    713.90
     820.       0.      820.       0.        0.     123.       0.        5.        2.  100000.00
     0.06     0.00      6.66     0.00     0.000    0.030    0.000     0.000    711.40     40.00
 0.004482       1.        1.       1.         2        0        0    -17.49     29.60     69.60
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 822.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10


3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   822.00      5.68    717.08      0.00      0.00    717.73      0.65      0.14      0.00    713.90
     820.        0.      820.        0.        0.      127.        0.        5.        2.  100000.00
     0.06      0.00      6.45      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004159       32.       32.       32.         2         0         0    -19.04     29.60     69.60


*SECNO 823.000

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
   823.00      5.91    717.31      0.00      0.00    717.75      0.45      0.00      0.02    713.90
     820.        0.      820.        0.        0.      153.        0.        5.        2.  100000.00
     0.06      0.00      5.37      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.003574        1.        1.        1.         2         0         0      0.00     29.60     69.60


CCHV=   0.300 CEHV=   0.500
*SECNO 882.000

3470 ENCROACHMENT STATIONS=       0.0     150.0  TYPE=     1  TARGET=     149.999
   882.00      6.29    717.81      0.00      0.00    717.95      0.14      0.10      0.09    714.02
     820.      134.      566.      119.       74.      164.      105.        6.        2.    713.52
     0.07      1.82      3.45      1.13     0.040     0.040     0.070     0.000    711.52      1.11
 0.001031       59.       59.       59.         2         0         0      0.00    117.65    118.76


*SECNO 1397.000
        MANUFACTURED CROSS SECTION
  1397.00      5.90    718.50      0.00      0.00    718.75      0.25      0.75      0.05    716.80
     820.      169.      626.       25.      177.      139.       24.       10.        4.    716.70
     0.11      0.95      4.52      1.06     0.070     0.040     0.070     0.000    712.60      8.08
 0.002180      515.      515.      515.         2         0         0      0.00    245.24    253.32


CCHV=   0.100 CEHV=   0.300
*SECNO 1972.000
        MANUFACTURED CROSS SECTION
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1972.00 | 5.94 | 719.74 | 0.00 | 0.00 | 719.97 | 0.23 | 1.22 | 0.00 | 718.00 |
| 820. | 175. | 619. | 26. | 184. | 140. | 25. | 14. | 7. | 717.90 |
| 0.15 | 0.95 | 4.43 | 1.05 | 0.070 | 0.040 | 0.070 | 0.000 | 713.80 | 7.95 |
| 0.002077 | 575. | 575. | 575. | 2 | 0 | 0 | 0.00 | 245.61 | 253.56 |

*SECNO 2547.000
MANUFACTURED CROSS SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2547.00 | 5.93 | 720.93 | 0.00 | 0.00 | 721.17 | 0.23 | 1.19 | 0.00 | 719.20 |
| 820. | 175. | 619. | 26. | 184. | 140. | 25. | 19. | 11. | 719.10 |
| 0.19 | 0.95 | 4.43 | 1.05 | 0.070 | 0.040 | 0.070 | 0.000 | 715.00 | 7.95 |
| 0.002079 | 575. | 575. | 575. | 2 | 0 | 0 | 0.00 | 245.60 | 253.55 |

*SECNO 3120.000
CROSS SECTION AT UPSTREAM CORPORATE LIMIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3120.00 | 5.93 | 722.13 | 0.00 | 0.00 | 722.37 | 0.24 | 1.20 | 0.00 | 720.40 |
| 820. | 173. | 621. | 26. | 182. | 139. | 24. | 23. | 14. | 720.30 |
| 0.24 | 0.95 | 4.46 | 1.06 | 0.070 | 0.040 | 0.070 | 0.000 | 716.20 | 7.99 |
| 0.002106 | 573. | 573. | 573. | 0 | 0 | 0 | 0.00 | 245.50 | 253.49 |

THIS RUN EXECUTED 22 AUG 86 14:29:19

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.66 | 0.00 | 715.06 | 20.02 | 5.08 | 161.50 | 183.26 |
| 169.000 | 169.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.99 | 0.00 | 715.39 | 19.83 | 5.11 | 160.57 | 184.15 |
| 170.000 | 1.00 | 714.30 | 716.10 | 708.00 | 820.00 | 714.90 | 0.00 | 715.43 | 33.27 | 5.83 | 140.56 | 142.17 |
| 194.000 | 24.00 | 714.30 | 716.10 | 708.00 | 820.00 | 715.00 | 0.00 | 715.51 | 32.85 | 5.78 | 141.94 | 143.08 |
| 195.000 | 1.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.14 | 0.00 | 715.53 | 24.06 | 4.98 | 164.67 | 167.18 |
| 255.000 | 60.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.62 | 0.00 | 715.69 | 5.26 | 2.75 | 515.38 | 357.44 |
| 500.000 | 245.00 | 0.00 | 0.00 | 709.60 | 820.00 | 715.78 | 0.00 | 715.93 | 14.12 | 3.76 | 365.99 | 218.20 |
| 565.000 | 65.00 | 0.00 | 0.00 | 709.90 | 820.00 | 715.90 | 0.00 | 716.21 | 26.30 | 5.66 | 239.62 | 159.90 |
| 630.000 | 65.00 | 0.00 | 0.00 | 710.23 | 820.00 | 716.04 | 0.00 | 716.42 | 31.96 | 6.10 | 219.80 | 145.04 |
| 695.000 | 65.00 | 0.00 | 0.00 | 710.56 | 820.00 | 716.23 | 0.00 | 716.66 | 36.07 | 6.37 | 199.28 | 136.54 |
| 728.000 | 33.00 | 0.00 | 0.00 | 710.73 | 820.00 | 716.36 | 0.00 | 716.84 | 40.24 | 6.68 | 179.30 | 129.26 |
| 744.000 | 16.00 | 0.00 | 0.00 | 710.81 | 820.00 | 716.42 | 0.00 | 716.96 | 43.06 | 6.90 | 168.94 | 124.96 |
| 759.000 | 15.00 | 0.00 | 0.00 | 710.90 | 820.00 | 716.50 | 0.00 | 717.30 | 68.81 | 8.42 | 137.89 | 98.85 |
| 774.000 | 15.00 | 0.00 | 0.00 | 711.20 | 820.00 | 716.70 | 0.00 | 717.43 | 56.91 | 7.83 | 139.92 | 108.70 |
| 789.000 | 15.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.03 | 0.00 | 717.53 | 42.22 | 5.67 | 144.51 | 126.21 |
| 790.000 | 1.00 | 720.80 | 720.10 | 711.40 | 820.00 | 716.90 | 0.00 | 717.59 | 44.82 | 6.66 | 123.20 | 122.48 |
| 822.000 | 32.00 | 720.80 | 720.10 | 711.40 | 820.00 | 717.08 | 0.00 | 717.73 | 41.59 | 6.45 | 127.06 | 127.15 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 823.000 | 1.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.31 | 0.00 | 717.75 | 35.74 | 5.37 | 152.76 | 137.16 |
| 882.000 | 59.00 | 0.00 | 0.00 | 711.52 | 820.00 | 717.81 | 0.00 | 717.95 | 10.31 | 3.45 | 343.34 | 255.43 |
| 1397.000 | 515.00 | 0.00 | 0.00 | 712.60 | 820.00 | 718.50 | 0.00 | 718.75 | 21.80 | 4.52 | 339.52 | 175.63 |
| 1972.000 | 575.00 | 0.00 | 0.00 | 713.80 | 820.00 | 719.74 | 0.00 | 719.97 | 20.77 | 4.43 | 348.22 | 179.94 |
| 2547.000 | 575.00 | 0.00 | 0.00 | 715.00 | 820.00 | 720.93 | 0.00 | 721.17 | 20.79 | 4.43 | 348.01 | 179.84 |
| 3120.000 | 573.00 | 0.00 | 0.00 | 716.20 | 820.00 | 722.13 | 0.00 | 722.37 | 21.06 | 4.46 | 345.70 | 178.69 |

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 820.00 | 714.66 | 0.00 | 0.00 | 19.66 | 30.98 | 0.00 |
| 169.000 | 820.00 | 714.99 | 0.00 | 0.33 | 0.00 | 26.00 | 169.00 |
| 170.000 | 820.00 | 714.90 | 0.00 | -0.08 | 0.00 | 26.00 | 1.00 |
| 194.000 | 820.00 | 715.00 | 0.00 | 0.09 | 0.00 | 26.00 | 24.00 |
| 195.000 | 820.00 | 715.14 | 0.00 | 0.15 | 0.00 | 26.00 | 1.00 |
| 255.000 | 820.00 | 715.62 | 0.00 | 0.48 | 0.00 | 146.00 | 60.00 |
| 500.000 | 820.00 | 715.78 | 0.00 | 0.15 | 0.00 | 175.00 | 245.00 |
| 565.000 | 820.00 | 715.90 | 0.00 | 0.12 | 0.00 | 106.02 | 65.00 |
| 630.000 | 820.00 | 716.04 | 0.00 | 0.15 | 0.00 | 100.60 | 65.00 |
| 695.000 | 820.00 | 716.23 | 0.00 | 0.19 | 0.00 | 77.00 | 65.00 |
| 728.000 | 820.00 | 716.36 | 0.00 | 0.13 | 0.00 | 60.00 | 33.00 |
| 744.000 | 820.00 | 716.42 | 0.00 | 0.07 | 0.00 | 53.00 | 16.00 |
| 759.000 | 820.00 | 716.50 | 0.00 | 0.08 | 0.00 | 44.00 | 15.00 |
| 774.000 | 820.00 | 716.70 | 0.00 | 0.19 | 0.00 | 37.00 | 15.00 |
| 789.000 | 820.00 | 717.03 | 0.00 | 0.33 | 0.00 | 29.60 | 15.00 |
| 790.000 | 820.00 | 716.90 | 0.00 | -0.13 | 0.00 | 29.60 | 1.00 |
| 822.000 | 820.00 | 717.08 | 0.00 | 0.18 | 0.00 | 29.60 | 32.00 |
| 823.000 | 820.00 | 717.31 | 0.00 | 0.22 | 0.00 | 29.60 | 1.00 |
| 882.000 | 820.00 | 717.81 | 0.00 | 0.50 | 0.00 | 117.65 | 59.00 |
| 1397.000 | 820.00 | 718.50 | 0.00 | 0.69 | 0.00 | 245.24 | 515.00 |
| 1972.000 | 820.00 | 719.74 | 0.00 | 1.24 | 0.00 | 245.61 | 575.00 |
| 2547.000 | 820.00 | 720.93 | 0.00 | 1.19 | 0.00 | 245.60 | 575.00 |
| 3120.000 | 820.00 | 722.13 | 0.00 | 1.20 | 0.00 | 245.50 | 573.00 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Sagi Creek

4) DOCUMENT TYPE: 100 year Natural

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  22 AUG 86 TIME   14:29:14              *
*****************************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 440-2105 (FTS) 448-2105    *
*************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

MEMPHIS, MI - EIS
SAGE CREEK
100 YEAR FLOOD

THIS RUN EXECUTED 22 AUG 86 14:29:14

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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C
T1      MEMPHIS, MI. - FIS
T2      100 YEAR FLOOD
T3      SAGE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        0.        0.        0.   0.002000     0.00      0.0      820.    695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    -1.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.030     0.030     0.035     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        CROSS SECTION  MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
X1      0.000    29.000   250.000   283.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   232.000     0.000   300.000     0.000     0.000     0.000     0.000
GR    717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR    714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR    716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR    708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR    714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR    715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
X1    169.000    29.000   250.000   283.000   169.000   169.000   169.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   253.500     0.000   279.500     0.000     0.000     0.000     0.000
GR    717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR    714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR    716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR    708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR    714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR    715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

NC      0.040     0.070     0.030     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
X1    170.000    38.000   250.000   285.000     1.000     1.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   254.000     0.000   280.000     0.000     0.000     0.000     0.000
BT    -38.000     0.000   715.600     0.000    25.000   715.300     0.000    50.000   715.100     0.000
BT      0.000    75.000   714.900     0.000   100.000   714.900     0.000   125.000   714.900     0.000
BT      0.000   150.000   714.900     0.000   175.000   714.800     0.000   200.000   714.900     0.000
BT      0.000   225.000   716.100     0.000   250.000   716.800     0.000   254.000   716.800   710.300
BT      0.000   254.500   716.800   712.800   256.000   716.800   714.800   258.000   716.800   715.900
BT      0.000   262.000   716.800   715.900   264.000   716.800   714.800   265.500   716.800   712.800
BT      0.000   266.000   716.800   710.300   268.000   716.800   710.400   268.500   716.800   712.900
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 0.000 | 270.000 | 716.800 | 714.900 | 272.000 | 716.800 | 716.100 | 276.000 | 716.800 | 716.100 |
| BT | 0.000 | 278.000 | 716.800 | 714.900 | 279.500 | 716.800 | 712.900 | 280.000 | 716.800 | 710.400 |
| BT | 0.000 | 285.000 | 716.900 | 0.000 | 310.000 | 715.900 | 0.000 | 335.000 | 714.900 | 0.000 |
| BT | 0.000 | 360 000 | 714.300 | 0.000 | 385.000 | 714.500 | 0.000 | 410.000 | 714.700 | 0.000 |
| BT | 0.000 | 435.000 | 714.500 | 0.000 | 460.000 | 714.800 | 0.000 | 485.000 | 714.900 | 0.000 |
| BT | 0.000 | 510.000 | 714.900 | 0.000 | 535.000 | 715.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 715.600 | 0.000 | 715.300 | 25.000 | 715.100 | 50.000 | 714.900 | 75.000 | 714.900 | 100.000 |
| GR | 714.900 | 125.000 | 714.900 | 150.000 | 714.800 | 175.000 | 714.900 | 200.000 | 715.700 | 225.000 |
| GR | 716.300 | 250.000 | 710.300 | 254.000 | 709.300 | 254.500 | 708.500 | 256.000 | 708.000 | 258.000 |
| GR | 708.000 | 262.000 | 708.500 | 264.000 | 709.300 | 265.500 | 710.300 | 266.000 | 710.400 | 268.000 |
| GR | 709.400 | 268.500 | 708.600 | 270.000 | 708.100 | 272.000 | 708.100 | 276.000 | 708.600 | 278.000 |
| GR | 709.400 | 279.500 | 710.400 | 280.000 | 716.100 | 285.000 | 715.900 | 310.000 | 714.900 | 335.000 |
| GR | 714.300 | 360.000 | 714.500 | 385.000 | 714.700 | 410.000 | 714.500 | 435.000 | 714.800 | 460.000 |
| GR | 714.900 | 485.000 | 714.900 | 510.000 | 715.100 | 535.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | UPSTREAM FACE OF SERVICE BRIDGE | | | | | | | | | |
| X1 | 194.000 | 0.000 | 0.000 | 0.000 | 24.000 | 24.000 | 24.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 254.000 | 0.000 | 280.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.060 | 0.060 | 0.040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION UPSTREAM OF SERVICE BRIDGE | | | | | | | | | |
| X1 | 195.000 | 29.000 | 250.000 | 283.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 254.000 | 0.000 | 280.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.500 | 59.000 | 715.600 | 75.000 | 714.400 | 87.000 | 714.300 | 100.000 | 714.500 | 125.000 |
| GR | 714.600 | 150.000 | 714.900 | 175.000 | 715.000 | 200.000 | 715.700 | 225.000 | 716.400 | 240.000 |
| GR | 716.300 | 250.000 | 709.200 | 255.000 | 708.900 | 260.000 | 708.700 | 265.000 | 708.000 | 270.000 |
| GR | 708.700 | 275.000 | 709.400 | 279.000 | 716.100 | 283.000 | 716.400 | 290.000 | 716.300 | 300.000 |
| GR | 714.500 | 325.000 | 714.300 | 350.000 | 714.000 | 375.000 | 713.800 | 400.000 | 714.600 | 425.000 |
| GR | 715.000 | 450.000 | 715.400 | 475.000 | 715.100 | 500.000 | 715.300 | 525.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | 0.300 | 0.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION A | | | | | | | | | |
| X1 | 255.000 | 23.000 | 250.000 | 267.000 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 186.000 | 0.000 | 332.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 714.900 | 0.000 | 714.900 | 25.000 | 714.900 | 50.000 | 714.500 | 75.000 | 714.200 | 100.000 |
| GR | 713.800 | 125.000 | 713.500 | 150.000 | 713.300 | 175.000 | 712.600 | 200.000 | 711.000 | 225.000 |
| GR | 710.900 | 240.000 | 710.600 | 250.000 | 709.100 | 251.000 | 708.100 | 255.000 | 708.000 | 260.000 |
| GR | 708.600 | 263.000 | 712.600 | 267.000 | 713.000 | 275.000 | 713.600 | 300.000 | 713.500 | 325.000 |
| GR | 713.500 | 350.000 | 713.800 | 375.000 | 714.200 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | CROSS SECTION B | | | | | | | | | |
| X1 | 500.000 | 31.000 | 200.000 | 230.000 | 245.000 | 245.000 | 245.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 128.000 | 0.000 | 303.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.600 | 0.000 | 714.200 | 10.000 | 714.600 | 25.000 | 714.200 | 50.000 | 713.400 | 59.000 |
| GR | 714.800 | 75.000 | 714.600 | 100.000 | 714.400 | 125.000 | 714.200 | 150.000 | 713.900 | 175.000 |
| GR | 714.200 | 190.000 | 713.800 | 200.000 | 710.600 | 203.000 | 711.700 | 205.000 | 709.600 | 210.000 |
| GR | 710.100 | 215.000 | 710.400 | 220.000 | 710.700 | 225.000 | 713.900 | 230.000 | 714.400 | 240.000 |
| GR | 714.600 | 250 000 | 714.500 | 275.000 | 714.200 | 300.000 | 714.500 | 325.000 | 715.100 | 350.000 |
| GR | 714.000 | 375.000 | 714.200 | 400.000 | 714.200 | 425.000 | 714.400 | 450.000 | 713.600 | 475.000 |
| GR | 715.600 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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NC      0.040      0.070      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
X1    565.000     10.000     63.000     77.000     65.000     65.000     65.000      0.000      0.000      0.000
GR    716.500      0.000    713.700     51.000    712.000     63.000    710.700     64.000    709.900     67.000
GR    709.900     74.000    710.700     76.000    711.900     77.000    716.200    120.000    728.700    150.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
X1    630.000      0.000      0.000      0.000     65.000     65.000     65.000      0.000      0.330      0.000

X1    695.000      0.000      0.000      0.000     65.000     65.000     65.000      0.000      0.330      0.000
X3      0.000      0.000      0.000     32.000      0.000    109.000      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.500      1.000      0.000      0.000      0.000      0.000      0.000
X1    728.000      0.000      0.000      0.000     33.000     33.000     33.000      0.000      0.170      0.000
X3      0.000      0.000      0.000     40.000      0.000    100.000      0.000      0.000      0.000      0.000

X1    744.000      0.000      0.000      0.000     16.000     16.000     16.000      0.000      0.080      0.000
X3      0.000      0.000      0.000     44.000      0.000     97.000      0.000      0.000      0.000      0.000

        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
X1    759.000      9.000     64.000     77.000     15.000     15.000     15.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     49.000      0.000     93.000      0.000      0.000      0.000      0.000
X4      2.000    715.000     56.000    714.000     96.000      0.000      0.000      0.000      0.000      0.000
GR    717.800      0.000    717.800     40.000    713.000     64.000    711.000     68.000    710.900     70.000
GR    711.000     72.000    713.000     77.000    717.800    120.000    730.000    150.000      0.000      0.000

X1    774.000     10.000     63.000     77.000     15.000     15.000     15.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     52.000      0.000     89.000      0.000      0.000      0.000      0.000
GR    717.800      0.000    715.000     51.000    713.300     63.000    712.000     64.000    711.200     67.000
GR    711.200     74.000    712.000     76.000    713.200     77.000    715.000    120.000    730.000    150.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
X1    789.000     21.000     40.000     69.600     15.000     15.000     15.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     40.000      0.000     69.600      0.000      0.000      0.000      0.000
GR    717.800      0.000    713.900     40.000    712.800     40.400    712.000     42.400    711.900     44.400
GR    711.900     46.400    711.900     48.400    712.000     50.400    712.800     52.400    713.900     52.800
GR    713.400     56.800    712.300     57.200    711.500     59.200    711.400     61.200    711.400     63.200
GR    711.400     65.200    711.500     67.200    712.300     69.200    713.400     69.600    717.800    120.000
GR    730.000    150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.030      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
X1    790.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     40.000      0.000     69.600      0.000      0.000      0.000      0.000
BT    -21.000      0.000    720.800      0.000     40.000    722.800    713.900     40.400    722.800    716.300
BT      0.000     42.400    722.900    718.900     44.400    722.900    719.800     46.400    723.000    720.100
BT      0.000     48.400    723.100    719.800     50.400    723.100    718.900     52.400    723.200    716.300
BT      0.000     52.800    723.200    713.900     56.800    723.400    713.400     57.200    723.400    715.800
BT      0.000     59.200    723.500    718.400     61.200    723.500    719.300     63.200    723.600    719.600
BT      0.000     65.200    723.700    719.300     67.200    723.800    718.400     69.200    723.900    715.800
BT      0.000     69.600    723.900    713.400    120.000    726.000      0.000    150.000    730.000      0.000
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        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
X1    822.000     0.000     0.000     0.000    32.000    32.000    32.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    40.000     0.000    69.600     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
X1    823.000     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    40.000     0.000    69.600     0.000     0.000     0.000     0.000

NC      0.000     0.000     0.000     0.300     0.500     0.000     0.000     0.000     0.000     0.000
X1    882.000     0.000     0.000     0.000    59.000    59.000    59.000     0.000     0.120     0.000
X3      0.000     0.000     0.000     0.000     0.000   150.000     0.000     0.000     0.000     0.000

NC      0.070     0.070     0.040     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        MANUFACTURED CROSS SECTION
X1   1397.000    14.000   200.000   230.000   515.000   515.000   515.000     0.000     0.000     0.000
GR    720.600     0.000   718.000    10.000   717.200   190.000   716.800   200.000   713.600   203.000
GR    714.700   205.000   712.600   210.000   713.100   215.000   713.400   220.000   713.700   225.000
GR    716.700   230.000   718.000   250.000   721.000   270.000   730.000   300.000     0.000     0.000

NC      0.000     0.000     0.000     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        MANUFACTURED CROSS SECTION
X1   1972.000     0.000     0.000     0.000   575.000   575.000   575.000     0.000     1.200     0.000

        MANUFACTURED CROSS SECTION
X1   2547.000     0.000     0.000     0.000   575.000   575.000   575.000     0.000     1.200     0.000

        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   3120.000     0.000     0.000     0.000   573.000   573.000   573.000     0.000     1.200     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000

3470 ENCROACHMENT STATIONS=     232.0     300.0  TYPE=     1  TARGET=      68.000
        CROSS SECTION  MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
     0 00      6.66   714.66      0.00   695.00   715.06     0.40      0.00      0.00   716.30
     820.        0.     820.        0.       0.     161.       0.        0.        0.    716.10
     0.00      0.00     5.08      0.00    0.000    0.035    0.000     0.000    708.00   251.16
 0.002002        0.       0.        0.        0        0        7      0.00     30.98   282.14

*SECNO 169.000

3470 ENCROACHMENT STATIONS=     253.5     279.5  TYPE=     1  TARGET=      26.000
        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
   169.00      6.99   714.99      0.00     0.00   715.39     0.40      0.34      0.00100000.00
     820.        0.     820.        0.       0.     161.       0.        1.        0.  100000.00
     0.01      0.00     5.11      0.00    0.000    0.035    0.000     0.000    708.00   253.50
 0.001983      169.      169.      169.        0        0        0      0.00     26.00   279.50

*SECNO 170.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
   170.00      6 90   714.90      0.00     0.00   715.43     0.53      0.00      0.04100000.00
     820.        0.     820.        0.       0.     141.       0.        1.        0.  100000.00
     0.01      0.00     5.83      0.00    0.000    0.030    0.000     0.000    708.00   254.00
 0.003327        1.       1.        1.        2        0        0    -22.06     26.00   280.00

*SECNO 194.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        UPSTREAM FACE OF SERVICE BRIDGE
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  SECND     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       ARDB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  194.00      7.00    715.00      0.00      0.00    715.51      0.52      0.08      0.00100000.00
    820.        0.      820.        0.        0.      142.        0.        1.        0.  100000.00
    0.01      0.00      5.78      0.00     0.000     0.030     0.000     0.000    708.00    254.00
0.003285       24.       24.       24.         2         0         0    -23.03     26.00    280.00

*SECND 195.000

3470 ENCROACHMENT STATIONS=      254.0      280.0  TYPE=      1  TARGET=      26.000
        CROSS SECTION UPSTREAM OF SERVICE BRIDGE
  195.00      7.14    715.14      0.00      0.00    715.53      0.39      0.00      0.01100000.00
    820.        0.      820.        0.        0.      165.        0.        1.        0.  100000.00
    0.01      0.00      4.98      0.00     0.000     0.040     0.000     0.000    708.00    254.00
0.002406         1        1.        1.         2         0         0      0.00     26.00    280.00

CCHV=   0.300 CEHV=   0.500
*SECND 255.000
3280 CROSS SECTION    255.00 EXTENDED      1.42 FEET

3470 ENCROACHMENT STATIONS=      186.0      332.0  TYPE=      1  TARGET=     146.000
        CROSS SECTION A
  255.00      7.62    715.62      0.00      0.00    715.69      0.06      0.06      0.10    710.60
    820.      364.      313.      143.      254.      114.      147.        1.        0.    712.60
    0.02      1.43      2.75      0.97     0.060     0.040     0.060     0.000    708.00    186.00
0.000526       60.       60.       60.         2         0         0      0.00    146.00    332.00

*SECND 500.000
3280 CROSS SECTION    500.00 EXTENDED      0.18 FEET

3470 ENCROACHMENT STATIONS=      128.0      303.0  TYPE=      1  TARGET=     175.000
        CROSS SECTION B
  500.00      6.18    715.78      0.00      0.00    715.93      0.16      0.20      0.05    713.80
    820.      155.      551.      114.      120.      146.      100.        4.        1.    713.90
    0.04      1.30      3.76      1.14     0.060     0.040     0.060     0.000    709.60    128.00
0.001412      245.      245.      245.         2         0         0      0.00    175.00    303.00

CCHV=   0.500 CEHV=   1.000
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 565.000
   565.00      6.00     715.90      0.00       0.00     716.21      0.32       0.12       0.16     712.00
     820.      235.       448.      138.       81.        79.       80.         4.         1.      711.90
     0.05      2.91       5.66      1.72      0.040      0.040     0.070      0.000     709.90     10.96
 0.002630       65.        65.       65.         2          0         0       0.00     106.02    116.98

CCHV=    0.100 CEHV=    0.300
*SECNO 630.000
   630.00      5.81     716.04      0.00       0.00     716.42      0.38       0.19       0.02     712.33
     820.      221.       466.      133.       71.        76.       72.         4.         2.      712.23
     0.05      3.12       6.10      1.84      0.040      0.040     0.070      0.000     710.23     14.46
 0.003196       65.        65.       65.         1          0         0       0.00     100.60    115.06

*SECNO 695.000

3470 ENCROACHMENT STATIONS=        32.0       109.0  TYPE=      1  TARGET=        77.000
   695.00      5.67     716.23      0.00       0.00     716.66      0.43       0.22       0.01     712.66
     820.      209.       475.      136.       58.        75.       66.         5.         2.      712.56
     0.05      3.59       6.37      2.05      0.040      0.040     0.070      0.000     710.56     32.00
 0.003607       65.        65.       65.         0          0         0       0.00      77.00    109.00

CCHV=    0.500 CEHV=    1.000
*SECNO 728.000

3470 ENCROACHMENT STATIONS=        40.0       100.0  TYPE=      1  TARGET=        60.000
   728.00      5.63     716.36      0.00       0.00     716.84      0.49       0.13       0.06     712.83
     820.      193.       493.      134.       49.        74.       57.         5.         2.      712.73
     0.06      3.95       6.68      2.36      0.040      0.040     0.070      0.000     710.73     40.00
 0.004024       33.        33.       33.         1          0         0       0.00      60.00    100.00

*SECNO 744.000

3470 ENCROACHMENT STATIONS=        44.0        97.0  TYPE=      1  TARGET=        53.000
   744.00      5.61     716.42      0.00       0.00     716.96      0.53       0.07       0.05     712.91
     820.      182.       508.      130.       43.        74.       52.         5.         2.      712.81
     0.06      4.21       6.90      2.50      0.040      0.040     0.070      0.000     710.81     44.00
 0.004306       16.        16.       16.         0          0         0       0.00      53.00     97.00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 759.000

3470 ENCROACHMENT STATIONS=      49.0      93.0  TYPE=      1  TARGET=      44.000
        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
   759.00      5.60    716.50      0.00      0.00    717.30      0.80      0.08      0.27    713.00
     820.      128.      527.      165.       26.       63.       49.        5.        2.    713.00
     0.06      4.89      8.42      3.36     0.040     0.040     0.070     0.000    710.90     49.00
 0.006881       15.       15.       15.         1         0         0      0.00     44.00     93.00

*SECNO 774.000

3470 ENCROACHMENT STATIONS=      52.0      89.0  TYPE=      1  TARGET=      37.000
   774.00      5.50    716.70      0.00      0.00    717.43      0.73      0.09      0.03    713.30
     820.      138.      564.      118.       29.       72.       39.        5.        2.    713.20
     0.06      4.78      7.83      3.03     0.040     0.040     0.070     0.000    711.20     52.00
 0.005691       15.       15.       15.         2         0         0      0.00     37.00     89.00

CCHV=   0.100 CEHV=   0.300
*SECNO 789.000

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=      1  TARGET=      29.600
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
   789.00      5.63    717.03      0.00      0.00    717.53      0.50      0.07      0.02    713.90
     820.        0.      820.        0.        0.      145.        0.        5.        2. 100000.00
     0.06      0.00      5.67      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.004222       15.       15.       15.         2         0         0      0.00     29.60     69.60

*SECNO 790.000

3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=      1  TARGET=      29.600
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   790.00      5.50    716.90      0.00      0.00    717.59      0.69      0.00      0.06    713.90
     820.        0.      820.        0.        0.      123.        0.        5.        2. 100000.00
     0.06      0.00      6.66      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004482        1.        1.        1.         2         0         0    -17.49     29.60     69.60
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 822.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10


3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      1  TARGET=       29.600
        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   822.00      5.68    717.08      0.00      0.00    717.73      0.65      0.14      0.00    713.90
     820.        0.      820.        0.        0.      127.        0.        5.        2.  100000.00
     0.06      0.00      6.45      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004159       32.       32.       32.         2         0         0    -19.04     29.60     69.60


*SECNO 823.000

3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      1  TARGET=       29.600
   823.00      5.91    717.31      0.00      0.00    717.75      0.45      0.00      0.02    713.90
     820.        0.      820.        0.        0.      153.        0.        5.        2.  100000.00
     0.06      0.00      5.37      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.003574        1.        1.        1.         2         0         0      0.00     29.60     69.60


CCHV=   0.300 CEHV=   0.500
*SECNO 882.000

3470 ENCROACHMENT STATIONS=        0.0      150.0  TYPE=      1  TARGET=      149.999
   882.00      6.29    717.81      0.00      0.00    717.95      0.14      0.10      0.09    714.02
     820.       134.      566.      119.       74.      164.      105.        6.        2.    713.52
     0.07      1.82      3.45      1.13     0.040     0.040     0.070     0.000    711.52      1.11
 0.001031       59.       59.       59.         2         0         0      0.00    117.65    118.76


*SECNO 1397.000
        MANUFACTURED CROSS SECTION
  1397.00      5.90    718.50      0.00      0.00    718.75      0.25      0.75      0.05    716.80
     820.       169.      626.       25.      177.      139.       24.       10.        4.    716.70
     0.11      0.95      4.52      1.06     0.070     0.040     0.070     0.000    712.60      8.08
 0.002180       515.      515.      515.         2         0         0      0.00    245.24    253.32


CCHV=   0.100 CEHV=   0.300
*SECNO 1972.000
        MANUFACTURED CROSS SECTION
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| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1972.00 | 5.94 | 719.74 | 0.00 | 0.00 | 719.97 | 0.23 | 1.22 | 0.00 | 718.00 |
| 820. | 175. | 619. | 26. | 184. | 140. | 25. | 14. | 7. | 717.90 |
| 0.15 | 0.95 | 4.43 | 1.05 | 0.070 | 0.040 | 0.070 | 0.000 | 713.80 | 7.95 |
| 0.002077 | 575. | 575. | 575. | 2 | 0 | 0 | 0.00 | 245.61 | 253.56 |

*SECNO 2547.000
MANUFACTURED CROSS SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2547.00 | 5.93 | 720.93 | 0.00 | 0.00 | 721.17 | 0.23 | 1.19 | 0.00 | 719.20 |
| 820. | 175. | 619. | 26. | 184. | 140. | 25. | 19. | 11. | 719.10 |
| 0.19 | 0.95 | 4.43 | 1.05 | 0.070 | 0.040 | 0.070 | 0.000 | 715.00 | 7.95 |
| 0.002079 | 575. | 575. | 575. | 2 | 0 | 0 | 0.00 | 245.60 | 253.55 |

*SECNO 3120.000
CROSS SECTION AT UPSTREAM CORPORATE LIMIT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3120.00 | 5.93 | 722.13 | 0.00 | 0.00 | 722.37 | 0.24 | 1.20 | 0.00 | 720.40 |
| 820. | 173. | 621. | 26. | 182. | 139. | 24. | 23. | 14. | 720.30 |
| 0.24 | 0.95 | 4.46 | 1.06 | 0.070 | 0.040 | 0.070 | 0.000 | 716.20 | 7.99 |
| 0.002106 | 573. | 573. | 573. | 0 | 0 | 0 | 0.00 | 245.50 | 253.49 |

THIS RUN EXECUTED 22 AUG 86 14:29:19

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.66 | 0.00 | 715.06 | 20.02 | 5.08 | 161.50 | 183.26 |
| 169.000 | 169.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.99 | 0.00 | 715.39 | 19.83 | 5.11 | 160.57 | 184.15 |
| 170.000 | 1.00 | 714.30 | 716.10 | 708.00 | 820.00 | 714.90 | 0.00 | 715.43 | 33.27 | 5.83 | 140.56 | 142.17 |
| 194.000 | 24.00 | 714.30 | 716.10 | 708.00 | 820.00 | 715.00 | 0.00 | 715.51 | 32.85 | 5.78 | 141.94 | 143.08 |
| 195.000 | 1.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.14 | 0.00 | 715.53 | 24.06 | 4.98 | 164.67 | 167.18 |
| 255.000 | 60.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.62 | 0.00 | 715.69 | 5.26 | 2.75 | 515.38 | 357.44 |
| 500.000 | 245.00 | 0.00 | 0.00 | 709.60 | 820.00 | 715.78 | 0.00 | 715.93 | 14.12 | 3.76 | 365.99 | 218.20 |
| 565.000 | 65.00 | 0.00 | 0.00 | 709.90 | 820.00 | 715.90 | 0.00 | 716.21 | 26.30 | 5.66 | 239.62 | 159.90 |
| 630.000 | 65.00 | 0.00 | 0.00 | 710.23 | 820.00 | 716.04 | 0.00 | 716.42 | 31.96 | 6.10 | 219.80 | 145.04 |
| 695.000 | 65.00 | 0.00 | 0.00 | 710.56 | 820.00 | 716.23 | 0.00 | 716.66 | 36.07 | 6.37 | 199.28 | 136.54 |
| 728.000 | 33.00 | 0.00 | 0.00 | 710.73 | 820.00 | 716.36 | 0.00 | 716.84 | 40.24 | 6.68 | 179.30 | 129.26 |
| 744.000 | 16.00 | 0.00 | 0.00 | 710.81 | 820.00 | 716.42 | 0.00 | 716.96 | 43.06 | 6.90 | 168.94 | 124.96 |
| 759.000 | 15.00 | 0.00 | 0.00 | 710.90 | 820.00 | 716.50 | 0.00 | 717.30 | 68.81 | 8.42 | 137.89 | 98.85 |
| 774.000 | 15.00 | 0.00 | 0.00 | 711.20 | 820.00 | 716.70 | 0.00 | 717.43 | 56.91 | 7.83 | 139.92 | 108.70 |
| 789.000 | 15.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.03 | 0.00 | 717.53 | 42.22 | 5.67 | 144.51 | 126.21 |
| 790.000 | 1.00 | 720.80 | 720.10 | 711.40 | 820.00 | 716.90 | 0.00 | 717.59 | 44.82 | 6.66 | 123.20 | 122.48 |
| 822.000 | 32.00 | 720.80 | 720.10 | 711.40 | 820.00 | 717.08 | 0.00 | 717.73 | 41.59 | 6.45 | 127.06 | 127.15 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 823.000 | 1.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.31 | 0.00 | 717.75 | 35.74 | 5.37 | 152.76 | 137.16 |
| 882.000 | 59.00 | 0.00 | 0.00 | 711.52 | 820.00 | 717.81 | 0.00 | 717.95 | 10.31 | 3.45 | 343.34 | 255.43 |
| 1397.000 | 515.00 | 0.00 | 0.00 | 712.60 | 820.00 | 718.50 | 0.00 | 718.75 | 21.80 | 4.52 | 339.52 | 175.63 |
| 1972.000 | 575.00 | 0.00 | 0.00 | 713.80 | 820.00 | 719.74 | 0.00 | 719.97 | 20.77 | 4.43 | 348.22 | 179.94 |
| 2547.000 | 575.00 | 0.00 | 0.00 | 715.00 | 820.00 | 720.93 | 0.00 | 721.17 | 20.79 | 4.43 | 348.01 | 179.84 |
| 3120.000 | 573.00 | 0.00 | 0.00 | 716.20 | 820.00 | 722.13 | 0.00 | 722.37 | 21.06 | 4.46 | 345.70 | 178.69 |

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 820.00 | 714.66 | 0.00 | 0.00 | 19.66 | 30.98 | 0.00 |
| 169.000 | 820.00 | 714.99 | 0.00 | 0.33 | 0.00 | 26.00 | 169.00 |
| 170.000 | 820.00 | 714.90 | 0.00 | -0.08 | 0.00 | 26.00 | 1.00 |
| 194.000 | 820.00 | 715.00 | 0.00 | 0.09 | 0.00 | 26.00 | 24.00 |
| 195.000 | 820.00 | 715.14 | 0.00 | 0.15 | 0.00 | 26.00 | 1.00 |
| 255.000 | 820.00 | 715.62 | 0.00 | 0.48 | 0.00 | 146.00 | 60.00 |
| 500.000 | 820.00 | 715.78 | 0.00 | 0.15 | 0.00 | 175.00 | 245.00 |
| 565.000 | 820.00 | 715.90 | 0.00 | 0.12 | 0.00 | 106.02 | 65.00 |
| 630.000 | 820.00 | 716.04 | 0.00 | 0.15 | 0.00 | 100.60 | 65.00 |
| 695.000 | 820.00 | 716.23 | 0.00 | 0.19 | 0.00 | 77.00 | 65.00 |
| 728.000 | 820.00 | 716.36 | 0.00 | 0.13 | 0.00 | 60.00 | 33.00 |
| 744.000 | 820.00 | 716.42 | 0.00 | 0.07 | 0.00 | 53.00 | 16.00 |
| 759.000 | 820.00 | 716.50 | 0.00 | 0.08 | 0.00 | 44.00 | 15.00 |
| 774.000 | 820.00 | 716.70 | 0.00 | 0.19 | 0.00 | 37.00 | 15.00 |
| 789.000 | 820.00 | 717.03 | 0.00 | 0.33 | 0.00 | 29.60 | 15.00 |
| 790.000 | 820.00 | 716.90 | 0.00 | -0.13 | 0.00 | 29.60 | 1.00 |
| 822.000 | 820.00 | 717.08 | 0.00 | 0.18 | 0.00 | 29.60 | 32.00 |
| 823.000 | 820.00 | 717.31 | 0.00 | 0.22 | 0.00 | 29.60 | 1.00 |
| 882.000 | 820.00 | 717.81 | 0.00 | 0.50 | 0.00 | 117.65 | 59.00 |
| 1397.000 | 820.00 | 718.50 | 0.00 | 0.69 | 0.00 | 245.24 | 515.00 |
| 1972.000 | 820.00 | 719.74 | 0.00 | 1.24 | 0.00 | 245.61 | 575.00 |
| 2547.000 | 820.00 | 720.93 | 0.00 | 1.19 | 0.00 | 245.60 | 575.00 |
| 3120.000 | 820.00 | 722.13 | 0.00 | 1.20 | 0.00 | 245.50 | 573.00 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Memphis

3) WATERCOURSE: Sagg Creek

4) DOCUMENT TYPE: Encroached Run

00BREAK00

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*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE  23 AUG 86 TIME    10:41:26             *
*****************************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
*  (916) 440-2105 (FTS) 448-2105    *
*************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X         X     X            X     X
X     X  X         X                        X
XXXXXXX  XXXX      X          XXXXX    XXXXX
X     X  X         X                  X
X     X  X         X     X            X
X     X  XXXXXXX   XXXXX              XXXXXXX
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MEMPHIS, MI
SAGE CREEK
100-YEAR FLOOD
ENCROACHED RUN

THIS RUN EXECUTED 23 AUG 86 10:41:26

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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C
T1      MEMPHIS, MI. - FIS
T2      100 YEAR FLOOD
T3      SAGE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.  0.002000     0.00      0.0       0.     695.000    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   150.000   110.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC     0.030     0.030     0.035     0.100     0.300     0.000     0.000     0.000     0.000     0.000
QT     2.000   820.000   820.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET     0.000     4.100     4.100   251.160   282.140     0.000     0.000     0.000     0.000     0.000
       CROSS SECTION MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
X1     0.000    29.000   250.000   283.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR   714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR   716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR   708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR   714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR   715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

ET     0.000     4.100     4.100   253.500   279.500     0.000     0.000     0.000     0.000     0.000
       CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
X1   169.000    29.000   250.000   283.000   169.000   169.000   169.000     0.000     0.000     0.000
GR   717.500    59.000   715.600    75.000   714.400    87.000   714.300   100.000   714.500   125.000
GR   714.600   150.000   714.900   175.000   715.000   200.000   715.700   225.000   716.400   240.000
GR   716.300   250.000   709.200   255.000   708.900   260.000   708.700   265.000   708.000   270.000
GR   708.700   275.000   709.400   279.000   716.100   283.000   716.400   290.000   716.300   300.000
GR   714.500   325.000   714.300   350.000   714.000   375.000   713.800   400.000   714.600   425.000
GR   715.000   450.000   715.400   475.000   715.100   500.000   715.300   525.000     0.000     0.000

NC     0.040     0.070     0.030     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET     0.000     4.100     4.100   254.000   280.000     0.000     0.000     0.000     0.000     0.000
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        DOWNSTREAM FACE OF SERVICE BRIDGE
X1    170.000     38.000    250.000    285.000      1.000      1.000      1.000      0.000      0.000      0.000
BT    -38.000      0.000    715.600      0.000     25.000    715.300      0.000     50.000    715.100      0.000
BT      0.000     75.000    714.900      0.000    100.000    714.900      0.000    125.000    714.900      0.000
BT      0.000    150.000    714.900      0.000    175.000    714.800      0.000    200.000    714.900      0.000
BT      0.000    225.000    716.100      0.000    250.000    716.800      0.000    254.000    716.800    710.300
BT      0.000    254.500    716.800    712.800    256.000    716.800    714.800    258.000    716.800    715.900
BT      0.000    262.000    716.800    715.900    264.000    716.800    714.800    265.500    716.800    712.800
BT      0.000    266.000    716.800    710.300    268.000    716.800    710.400    268.500    716.800    712.900
BT      0.000    270.000    716.800    714.900    272.000    716.800    716.100    276.000    716.800    716.100
BT      0.000    278.000    716.800    714.900    279.500    716.800    712.900    280.000    716.800    710.400
BT      0.000    285.000    716.900      0.000    310.000    715.900      0.000    335.000    714.900      0.000
BT      0.000    360.000    714.300      0.000    385.000    714.500      0.000    410.000    714.700      0.000
BT      0.000    435.000    714.500      0.000    460.000    714.800      0.000    485.000    714.900      0.000
BT      0.000    510.000    714.900      0.000    535.000    715.100      0.000      0.000      0.000      0.000
GR    715.600      0.000    715.300     25.000    715.100     50.000    714.900     75.000    714.900    100.000
GR    714.900    125.000    714.900    150.000    714.800    175.000    714.900    200.000    715.700    225.000
GR    716.300    250.000    710.300    254.000    709.300    254.500    708.500    256.000    708.000    258.000
GR    708.000    262.000    708.500    264.000    709.300    265.500    710.300    266.000    710.400    268.000
GR    709.400    268.500    708.600    270.000    708.100    272.000    708.100    276.000    708.600    278.000
GR    709.400    279.500    710.400    280.000    716.100    285.000    715.900    310.000    714.900    335.000
GR    714.300    360.000    714.500    385.000    714.700    410.000    714.500    435.000    714.800    460.000
GR    714.900    485.000    714.900    510.000    715.100    535.000      0.000      0.000      0.000      0.000

ET      0.000      4.100      4.100    254.000    280.000      0.000      0.000      0.000      0.000      0.000
        UPSTREAM FACE OF SERVICE BRIDGE
X1    194.000      0.000      0.000      0.000     24.000     24.000     24.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000

NC      0.060      0.060      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    254.000    280.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION UPSTREAM OF SERVICE BRIDGE
X1    195.000     29.000    250.000    283.000      1.000      1.000      1.000      0.000      0.000      0.000
GR    717.500     59.000    715.600     75.000    714.400     87.000    714.300    100.000    714.500    125.000
GR    714.600    150.000    714.900    175.000    715.000    200.000    715.700    225.000    716.400    240.000
GR    716.300    250.000    709.200    255.000    708.900    260.000    708.700    265.000    708.000    270.000
GR    708.700    275.000    709.400    279.000    716.100    283.000    716.400    290.000    716.300    300.000
GR    714.500    325.000    714.300    350.000    714.000    375.000    713.800    400.000    714.600    425.000
GR    715.000    450.000    715.400    475.000    715.100    500.000    715.300    525.000      0.000      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      6.100    186.000    332.000    197.000    324.000      0.000      0.000      0.000
        CROSS SECTION A
X1    255.000     23.000    250.000    267.000     60.000     60.000     60.000      0.000      0.000      0.000
GR    714.900      0.000    714.900     25.000    714.900     50.000    714.500     75.000    714.200    100.000
GR    713.800    125.000    713.500    150.000    713.300    175.000    712.600    200.000    711.000    225.000
GR    710.900    240.000    710.600    250.000    709.100    251.000    708.100    255.000    708.000    260.000
GR    708.600    263.000    712.600    267.000    713.000    275.000    713.600    300.000    713.500    325.000
GR    713.500    350.000    713.800    375.000    714.200    400.000      0.000      0.000      0.000      0.000
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ET      0.000      4.100      6.100    128.000    303.000    136.000    295.000      0.000      0.000      0.000
        CROSS SECTION B
X1    500.000     31.000    200.000    230.000    245.000    245.000    245.000      0.000      0.000      0.000
GR    717.600      0.000    714.200     10.000    714.600     25.000    714.200     50.000    713.400     59.000
GR    714.800     75.000    714.600    100.000    714.400    125.000    714.200    150.000    713.900    175.000
GR    714.200    190.000    713.800    200.000    710.600    203.000    711.700    205.000    709.600    210.000
GR    710.100    215.000    710.400    220.000    710.700    225.000    713.900    230.000    714.400    240.000
GR    714.600    250.000    714.500    275.000    714.200    300.000    714.500    325.000    715.100    350.000
GR    714.000    375.000    714.200    400.000    714.200    425.000    714.400    450.000    713.600    475.000
GR    715.600    500.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      0.040      0.070      0.040      0.500      1.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
X1    565.000     10.000     63.000     77.000     65.000     65.000     65.000      0.000      0.000      0.000
GR    716.500      0.000    713.700     51.000    712.000     63.000    710.700     64.000    709.900     67.000
GR    709.900     74.000    710.700     76.000    711.900     77.000    716.200    120.000    728.700    150.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
X1    630.000      0.000      0.000      0.000     65.000     65.000     65.000      0.000      0.330      0.000

ET      0.000      4.100      6.100     32.000    109.000     35.000    101.000      0.000      0.000      0.000
X1    695.000      0.000      0.000      0.000     65.000     65.000     65.000      0.000      0.330      0.000

NC      0.000      0.000      0.000      0.500      1.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      6.100     40.000    100.000     41.000     96.000      0.000      0.000      0.000
X1    728.000      0.000      0.000      0.000     33.000     33.000     33.000      0.000      0.170      0.000

ET      0.000      4.100      6.100     44.000     97.000     44.000     93.000      0.000      0.000      0.000
X1    744.000      0.000      0.000      0.000     16.000     16.000     16.000      0.000      0.080      0.000

ET      0.000      4.100      6.100     49.000     93.000     49.000     92.000      0.000      0.000      0.000
        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
X1    759.000      9.000     64.000     77.000     15.000     15.000     15.000      0.000      0.000      0.000
X4      2.000    715.000     56.000    714.000     96.000      0.000      0.000      0.000      0.000      0.000
GR    717.800      0.000    717.800     40.000    713.000     64.000    711.000     68.000    710.900     70.000
GR    711.000     72.000    713.000     77.000    717.800    120.000    730.000    150.000      0.000      0.000

ET      0.000      4.100      6.100     52.000     89.000     52.000     89.000      0.000      0.000      0.000
X1    774.000     10.000     63.000     77.000     15.000     15.000     15.000      0.000      0.000      0.000
GR    717.800      0.000    715.000     51.000    713.300     63.000    712.000     64.000    711.200     67.000
GR    711.200     74.000    712.000     76.000    713.200     77.000    715.000    120.000    730.000    150.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100     40.000     69.600      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
X1    789.000     21.000     40.000     69.600     15.000     15.000     15.000      0.000      0.000      0.000
GR    717.800      0.000    713.900     40.000    712.800     40.400    712.000     42.400    711.900     44.400
GR    711.900     46.400    711.900     48.400    712.000     50.400    712.800     52.400    713.900     52.800
GR    713.400     56.800    712.300     57.200    711.500     59.200    711.400     61.200    711.400     63.200
GR    711.400     65.200    711.500     67.200    712.300     69.200    713.400     69.600    717.800    120.000
GR    730.000    150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

```
NC      0.000      0.000      0.030      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100     40.000     69.600      0.000      0.000      0.000      0.000      0.000
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
X1    790.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT    -21.000      0.000    720.800      0.000     40.000    722.800    713.900     40.400    722.800    716.300
BT      0.000     42.400    722.900    718.900     44.400    722.900    719.800     46.400    723.000    720.100
BT      0.000     48.400    723.100    719.800     50.400    723.100    718.900     52.400    723.200    716.300
BT      0.000     52.800    723.200    713.900     56.800    723.400    713.400     57.200    723.400    715.800
BT      0.000     59.200    723.500    718.400     61.200    723.500    719.300     63.200    723.600    719.600
BT      0.000     65.200    723.700    719.300     67.200    723.800    718.400     69.200    723.900    715.800
BT      0.000     69.600    723.900    713.400    120.000    726.000      0.000    150.000    730.000      0.000

ET      0.000      4.100      4.100     40.000     69.600      0.000      0.000      0.000      0.000      0.000
        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
X1    822.000      0.000      0.000      0.000     32.000     32.000     32.000      0.000      0.000      0.000
X2      0.000      0.000      0.000      0.000      0.000      0.000      1.000      0.000      0.000      0.000

NC      0.000      0.000      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400     40.000     69.600      0.000      0.000      0.000      0.000      0.000
X1    823.000      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

NC      0.000      0.000      0.000      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      6.100      1.110    118.760     18.000     96.000      0.000      0.000      0.000
X1    882.000      0.000      0.000      0.000     59.000     59.000     59.000      0.000      0.120      0.000

NC      0.070      0.070      0.040      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        MANUFACTURED CROSS SECTION
X1   1397.000     14.000    200.000    230.000    515.000    515.000    515.000      0.000      0.000      0.000
GR    720.600      0.000    718.000     10.000    717.200    190.000    716.800    200.000    713.600    203.000
GR    714.700    205.000    712.600    210.000    713.100    215.000    713.400    220.000    713.700    225.000
GR    716.700    230.000    718.000    250.000    721.000    270.000    730.000    300.000      0.000      0.000

NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      1.400      0.000    300.000      0.000      0.000      0.000      0.000      0.000
        MANUFACTURED CROSS SECTION
X1   1972.000      0.000      0.000      0.000    575.000    575.000    575.000      0.000      1.200      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        MANUFACTURED CROSS SECTION
X1   2547.000      0.000      0.000      0.000    575.000    575.000    575.000      0.000      1.200      0.000

ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
X1   3120.000      0.000      0.000      0.000    573.000    573.000    573.000      0.000      1.200      0.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000

3470 ENCROACHMENT STATIONS=     251.2     282.1  TYPE=     1  TARGET=      30.980
        CROSS SECTION MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
     0.00      6.66    714.66      0.00      0.00    715.06      0.40      0.00      0.00100000.00
     820.        0.      820.        0.        0.      162.        0.        0.        0.  100000.00
     0.00      0.00      5.07      0.00     0.000     0.035     0.000     0.000    708.00    251.16
 0.001995        0.        0.        0.         0         0         6      0.00     30.98    282.14

*SECNO 169.000

3470 ENCROACHMENT STATIONS=     253.5     279.5  TYPE=     1  TARGET=      26.000
        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
   169.00      6.99    714.99      0.00      0.00    715.40      0.40      0.34      0.00100000.00
     820.        0.      820.        0.        0.      161.        0.        1.        0.  100000.00
     0.01      0.00      5.10      0.00     0.000     0.035     0.000     0.000    708.00    253.50
 0.001978      169.      169.      169.         0         0         0      0.00     26.00    279.50

*SECNO 170.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
   170.00      6.91    714.91      0.00      0.00    715.44      0.53      0.00      0.04100000.00
     820.        0.      820.        0.        0.      141.        0.        1.        0.  100000.00
     0 01      0.00      5.83      0.00     0.000     0.030     0.000     0.000    708.00    254.00
 0.003324        1.        1.        1.         2         0         0    -22.12     26.00    280.00

*SECNO 194.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        UPSTREAM FACE OF SERVICE BRIDGE
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100yr = 716.8 Bell R.

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  194.00     7.00    715.00      0.00      0.00    715.52      0.52      0.08      0.00100000.00
    820.       0.      820.        0.        0.      142.        0.        1.        0.  100000.00
    0.01    0.00      5.77      0.00     0.000     0.030     0.000     0.000    708.00    254.00
0.003282     24.       24.       24.         2         0         0    -23.09     26.00    280.00

*SECNO 195.000

3470 ENCROACHMENT STATIONS=      254.0      280.0  TYPE=      1  TARGET=      26.000
        CROSS SECTION UPSTREAM OF SERVICE BRIDGE
  195.00     7.15    715.15      0.00      0.00    715.53      0.38      0.00      0.01100000.00
    820.       0.      820.        0.        0.      165.        0.        1.        0.  100000.00
    0.01    0.00      4.98      0.00     0.000     0.040     0.000     0.000    708.00    254.00
0.002400      1.        1.        1.         2         0         0      0.00     26.00    280.00

CCHV=   0.300 CEHV=   0.500
*SECNO 255.000
3280 CROSS SECTION     255.00 EXTENDED      1.43 FEET

3470 ENCROACHMENT STATIONS=      186.0      332.0  TYPE=      1  TARGET=     146.000
        CROSS SECTION A
  255.00     7.63    715.63      0.00      0.00    715.69      0.06      0.06      0.10    710.60
    820.     364.      313.      143.      254.      114.      148.        1.        0.    712.60
    0.02     1.43      2.75      0.97     0.060     0.040     0.060     0.000    708.00    186.00
0.000524     60.       60.       60.         2         0         0      0.00    146.00    332.00

*SECNO 500.000
3280 CROSS SECTION     500.00 EXTENDED      0.18 FEET

3470 ENCROACHMENT STATIONS=      128.0      303.0  TYPE=      1  TARGET=     175.000
        CROSS SECTION B
  500.00     6.18    715.78      0.00      0.00    715.93      0.15      0.20      0.05    713.80
    820.     155.      550.      114.      120.      147.      100.        4.        1.    713.90
    0.04     1.29      3.76      1.14     0.060     0.040     0.060     0.000    709.60    128.00
0.001406    245.      245.      245.         2         0         0      0.00    175.00    303.00

CCHV=   0.500 CEHV=   1.000
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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

*SECNO 565.000
   565.00      6.00     715.90      0.00       0.00     716.22      0.32       0.12       0.16     712.00
     820.      235.       447.      138.        81.       79.       80.         4.         1.      711.90
     0.05      2.91       5.65      1.72      0.040     0.040     0.070      0.000     709.90      10.90
 0.002621       65.        65.       65.          2         0         0       0.00     106.12     117.02

CCHV=    0.100 CEHV=    0.300
*SECNO 630.000
   630.00      5.82     716.05      0.00       0.00     716.42      0.38       0.19       0.02     712.33
     820.      221.       466.      133.        71.       76.       73.         4.         2.      712.23
     0.05      3.11       6.09      1.84      0.040     0.040     0.070      0.000     710.23      14.40
 0.003186       65.        65.       65.          1         0         0       0.00     100.69     115.09

*SECNO 695.000

3470 ENCROACHMENT STATIONS=        32.0       109.0  TYPE=       1  TARGET=        77.000
   695.00      5.67     716.23      0.00       0.00     716.66      0.43       0.22       0.01     712.66
     820.      209.       475.      136.        58.       75.       66.         5.         2.      712.56
     0.05      3.58       6.36      2.04      0.040     0.040     0.070      0.000     710.56      32.00
 0.003598       65.        65.       65.          0         0         0       0.00      77.00     109.00

CCHV=    0.500 CEHV=    1.000
*SECNO 728.000

3470 ENCROACHMENT STATIONS=        40.0       100.0  TYPE=       1  TARGET=        60.000
   728.00      5.63     716.36      0.00       0.00     716.84      0.49       0.13       0.06     712.83
     820.      193.       493.      134.        49.       74.       57.         5.         2.      712.73
     0.06      3.95       6.68      2.36      0.040     0.040     0.070      0.000     710.73      40.00
 0.004017       33.        33.       33.          1         0         0       0.00      60.00     100.00

*SECNO 744.000

3470 ENCROACHMENT STATIONS=        44.0        97.0  TYPE=       1  TARGET=        53.000
   744.00      5.61     716.42      0.00       0.00     716.96      0.53       0.07       0.05     712.91
     820.      182.       508.      130.        43.       74.       52.         5.         2.      712.81
     0.06      4.20       6.90      2.50      0.040     0.040     0.070      0.000     710.81      44.00
 0.004299       16.        16.       16.          0         0         0       0.00      53.00      97.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 759.000

3470 ENCROACHMENT STATIONS=      49.0      93.0  TYPE=     1  TARGET=      44.000
        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
   759.00      5.60    716.50      0.00      0.00    717.30      0.80      0.08      0.27    713.00
     820.      128.      527.      165.      26.       63.       49.       5.        2.      713.00
     0.06      4.89      8.42      3.36      0.040     0.040     0.070     0.000   710.90    49.00
 0.006870      15.       15.       15.        1         0         0       0.00    44.00     93.00

*SECNO 774.000

3470 ENCROACHMENT STATIONS=      52.0      89.0  TYPE=     1  TARGET=      37.000
   774.00      5.50    716.70      0.00      0.00    717.43      0.73      0.09      0.03    713.30
     820.      138.      564.      118.      29.       72.       39.       5.        2.      713.20
     0.06      4.78      7.82      3.03      0.040     0.040     0.070     0.000   711.20    52.00
 0.005689      15.       15.       15.        2         0         0       0.00    37.00     89.00

CCHV=   0.100 CEHV=   0.300
*SECNO 789.000

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
   789.00      5.63    717.03      0.00      0.00    717.53      0.50      0.07      0.02    713.90
     820.        0.      820.        0.        0.      145.        0.        5.        2.  100000.00
     0.06      0.00      5.67      0.00      0.000     0.040     0.000     0.000   711.40    40.00
 0.004221      15.       15.       15.        2         0         0       0.00    29.60     69.60

*SECNO 790.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   790.00      5.50    716.90      0.00      0.00    717.59      0.69      0.00      0.06    713.90
     820.        0.      820.        0.        0.      123.        0.        5.        2.  100000.00
     0.06      0.00      6.66      0.00      0.000     0.030     0.000     0.000   711.40    40.00
 0.004481       1.        1.        1.        2         0         0     -17.49    29.60     69.60
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 822.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10


3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   822.00      5.68    717.08      0.00      0.00    717.73      0.65      0.14      0.00    713.90
     820.        0.      820.        0.        0.      127.        0.        5.        2.  100000.00
     0.06      0.00      6.45      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004159       32.       32.       32.         2         0         0    -19.05     29.60     69.60


*SECNO 823.000

3470 ENCROACHMENT STATIONS=      40.0      69.6  TYPE=     1  TARGET=      29.600
   823.00      5.91    717.31      0.00      0.00    717.75      0.45      0.00      0.02    713.90
     820.        0.      820.        0.        0.      153.        0.        5.        2.  100000.00
     0.06      0.00      5.37      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.003573        1.        1.        1.         2         0         0      0.00     29.60     69.60


CCHV=   0.300 CEHV=   0.500
*SECNO 882.000

3470 ENCROACHMENT STATIONS=       1.1     118.8  TYPE=     1  TARGET=     117.650
   882.00      6.29    717.81      0.00      0.00    717.95      0.14      0.10      0.09    714.02
     820.       134.      566.      119.       74.      164.      106.        6.        2.    713.52
     0 07      1.82      3.45      1.13     0.040     0.040     0.070     0.000    711.52      1.11
 0.001030       59.       59.       59.         2         0         0      0.00    117.65    118.76


*SECNO 1397.000
        MANUFACTURED CROSS SECTION
  1397.00      5.90    718.50      0.00      0.00    718.75      0.25      0.75      0.05    716.80
     820.       169.      626.       25.      177.      139.       24.       10.        4.    716.70
     0.11      0.95      4.52      1.06     0.070     0.040     0.070     0.000    712.60      8.08
 0.002179       515.      515.      515.         2         0         0      0.00    245.24    253.32


CCHV=   0.100 CEHV=   0.300
*SECNO 1972.000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=        0.0      300.0  TYPE=      1  TARGET=      300.000
        MANUFACTURED CROSS SECTION
  1972.00      5.94    719.74      0.00      0.00    719.97      0.23      1.22      0.00    718.00
     820.      175.      619.       26.      184.      140.       25.       14.        7.    717.90
     0.15      0.95      4.43      1.05     0.070     0.040     0.070     0.000    713.80      7.95
 0.002077      575.      575.      575.         2         0         0      0.00    245.61    253.56

*SECND 2547.000
        MANUFACTURED CROSS SECTION
  2547.00      5.93    720.93      0.00      0.00    721.17      0.23      1.19      0.00    719.20
     820.      175.      619.       26.      184.      140.       25.       19.       11.    719.10
     0.19      0.95      4.43      1.05     0.070     0.040     0.070     0.000    715.00      7.95
 0.002079      575.      575.      575.         2         0         0      0.00    245.60    253.55

*SECND 3120.000
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
  3120.00      5.93    722.13      0.00      0.00    722.37      0.24      1.20      0.00    720.40
     820       173.      621.       26.      182.      139.       24.       23.       14.    720.30
     0.24      0.95      4.46      1.06     0.070     0.040     0.070     0.000    716.20      7.99
 0.002106      573.      573.      573.         0         0         0      0.00    245.50    253.49
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THIS RUN EXECUTED 23 AUG 86 10:41:31

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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T1 MEMPHIS, MI
T2 SAGE CREEK
T3 100-YEAR FLOOD, ENCROACHED RUN

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 3. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 714.760 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 0.000

3470 ENCROACHMENT STATIONS=     251.2     282.1  TYPE=     1  TARGET=      30.980
        CROSS SECTION MOVED DOWNSTREAM TO  MOUTH OF SAGE CREEK
     0.00      6.76    714.76     0.00   714.66   715.14     0.38      0.00      0.00100000.00
     820.        0.      820.       0.       0.     165.       0.        0.        0.  100000.00
     0.00     0.00      4.98     0.00    0.000    0.035    0.000     0.000    708.00    251.16
 0.001888        0.        0.       0.        0        0        0      0.00     30.98    282.14

*SECNO 169.000

3470 ENCROACHMENT STATIONS=     253.5     279.5  TYPE=     1  TARGET=      26.000
        CROSS SECTION DOWNSTREAM OF SERVICE BRIDGE
   169.00      7.07    715.07     0.00   714.99   715.47     0.39      0.32      0.00100000.00
     820.        0.      820.       0.       0.     163.       0.        1.        0.  100000.00
     0.01     0.00      5.04     0.00    0.000    0.035    0.000     0.000    708.00    253.50
 0.001906      169.      169.     169.        0        0        0      0.00     26.00    279.50

*SECNO 170.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        DOWNSTREAM FACE OF SERVICE BRIDGE
   170.00      6.99    714.99     0.00   714.91   715.51     0.52      0.00      0.04100000.00
     820.        0.      820.       0.       0.     142.       0.        1.        0.  100000.00
     0.01     0.00      5.78     0.00    0.000    0.030    0.000     0.000    708.00    254.00
 0.003287        1.        1.       1.        2        0        0    -22.97     26.00    280.00

*SECNO 194.000

3370 NORMAL BRIDGE,NRD= 38 MIN ELTRD=  714.30 MAX ELLC=  716.10

3470 ENCROACHMENT STATIONS=     254.0     280.0  TYPE=     1  TARGET=      26.000
        UPSTREAM FACE OF SERVICE BRIDGE
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EQ        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

  194.00     7.08    715.08      0.00    715.00    715.59      0.51      0.08      0.00100000.00
    820.       0.      820.        0.        0.      143.        0.        1.        0.  100000.00
    0.01      0.00     5.73      0.00     0.000     0.030     0.000     0.000    708.00    254.00
0.003251       24.       24.       24.         2         0         0    -23.97     26.00    280.00

*SECND 195.000

3470 ENCROACHMENT STATIONS=      254.0      280.0  TYPE=      1  TARGET=      26.000
        CROSS SECTION UPSTREAM OF SERVICE BRIDGE
  195.00     7.23    715.23      0.00    715.15    715.60      0.38      0.00      0.01100000.00
    820.       0.      820.        0.        0.      167.        0.        1.        0.  100000.00
    0.01      0.00     4.91      0.00     0.000     0.040     0.000     0.000    708.00    254.00
0.002317       1.        1.        1.         2         0         0      0.00     26.00    280.00

CCHV=   0.300 CEHV=   0.500
*SECND 255.000
3280 CROSS SECTION     255.00 EXTENDED       1.49 FEET

3470 ENCROACHMENT STATIONS=      197.0      324.0  TYPE=      1  TARGET=     127.000
        CROSS SECTION A
  255.00     7.69    715.69      0.00    715.63    715.76      0.07      0.06      0.09    710.60
    820.      352.      330.      138.      227.      115.      134.        1.        0.    712.60
    0.02      1.55     2.88      1.03     0.060     0.040     0.060     0.000    708.00    197.00
0.000569       60.       60.       60.         2         0         0      0.00    127.00    324.00

*SECND 500.000
3280 CROSS SECTION     500.00 EXTENDED       0.25 FEET

3470 ENCROACHMENT STATIONS=      136.0      295.0  TYPE=      1  TARGET=     159.000
        CROSS SECTION B
  500.00     6.25    715.85      0.00    715.78    716.01      0.16      0.21      0.04    713.80
    820.      151.      562.      107.      113.      149.       92.        3.        1.    713.90
    0.04      1.34     3.78      1.16     0.060     0.040     0.060     0.000    709.60    136.00
0.001400      245.      245.      245.         2         0         0      0.00    159.00    295.00

CCHV=   0.500 CEHV=   1.000
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 565.000
 2800 NAT Q1=     160.18  WSEL=     715.90  ENC Q1=     160.18  WSEL=     716.00  RATIO=  0.0000
 NAT Q1=     168.  RATIOS LOB,CH,ROB=  0.2950  0.5344  0.1706  WSEL=     716.00

3470 ENCROACHMENT STATIONS=       35.4       95.1  TYPE=      4  TARGET=        0.049
   565.00      6.07    715.97      0.00    715.90    716.33      0.36      0.12      0.20    712.00
     820.      232.      463.      125.      66.       80.       57.       4.        1.      711.90
     0.05      3.50      5.77      2.19     0.040     0.040     0.070     0.000    709.90    35.38
 0.002693       65.       65.       65.       0         0         0       0.00     59.70     95.08


CCHV=   0.100 CEHV=   0.300
*SECNO 630.000
 2800 NAT Q1=     145.26  WSEL=     716.05  ENC Q1=     145.26  WSEL=     716.15  RATIO=  0.0000
 NAT Q1=     153.  RATIOS LOB,CH,ROB=  0.2793  0.5552  0.1655  WSEL=     716.15

3470 ENCROACHMENT STATIONS=       38.0       93.7  TYPE=      4  TARGET=        0.054
   630.00      5.89    716.12      0.00    716.05    716.54      0.43      0.19      0.02    712.33
     820.      217.      484.      119.      58.       78.       51.       4.        1.      712.23
     0.05      3.76      6.24      2.35     0.040     0.040     0.070     0.000    710.23    37.98
 0.003281       65.       65.       65.       2         0         0       0.00     55.67     93.65


*SECNO 695.000

3470 ENCROACHMENT STATIONS=       35.0      101.0  TYPE=      1  TARGET=       66.000
   695.00      5.79    716.35      0.00    716.23    716.76      0.40      0.21      0.00    712.66
     820.      213.      470.      137.      59.       76.       62.       4.        1.      712.56
     0.05      3.60      6.16      2.20     0.040     0.040     0.070     0.000    710.56    35.00
 0.003277       65.       65.       65.       2         0         0       0.00     66.00    101.00


CCHV=   0.500 CEHV=   1.000
*SECNO 728.000

3470 ENCROACHMENT STATIONS=       41.0       96.0  TYPE=      1  TARGET=       55.000
   728.00      5.74    716.47      0.00    716.36    716.95      0.48      0.12      0.07    712.83
     820.      198.      494.      128.      50.       75.       53.       5.        1.      712.73
     0.05      3.96      6.55      2.42     0.040     0.040     0.070     0.000    710.73    41.00
 0.003762       33.       33.       33.       0         0         0       0.00     55.00     96.00
```

```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 744.000

3470 ENCROACHMENT STATIONS=       44.0       93.0  TYPE=      1  TARGET=       49.000
   744.00      5.72    716.53      0.00    716.42    717.06      0.53      0.06      0.05    712.91
     820.      190.      511.      118.       45.       75.       47.        5.        1.    712.81
     0.06      4.20      6.80      2.54     0.040     0.040     0.070     0.000    710.81     44.00
 0.004070       16.       16.       16.         0         0         0      0.00     49.00     93.00

*SECNO 759.000

3470 ENCROACHMENT STATIONS=       49.0       92.0  TYPE=      1  TARGET=       43.000
        CROSS SECTION 30' DOWNSTREAM OF BELLE RIVER ROAD
   759.00      5.71    716.61      0.00    716.50    717.38      0.77      0.08      0.24    713.00
     820.      134.      528.      158.       28.       64.       48.        5.        1.    713.00
     0.06      4.84      8.24      3.29     0.040     0.040     0.070     0.000    710.90     49.00
 0.006404       15.       15.       15.         1         0         0      0.00     43.00     92.00

*SECNO 774.000

3470 ENCROACHMENT STATIONS=       52.0       89.0  TYPE=      1  TARGET=       37.000
   774.00      5.62    716.82      0.00    716.70    717.51      0.69      0.09      0.04    713.30
     820.      141.      560.      119.       30.       74.       40.        5.        1.    713.20
     0.06      4.67      7.58      2.94     0.040     0.040     0.070     0.000    711.20     52.00
 0.005170       15.       15.       15.         2         0         0      0.00     37.00     89.00

CCHV=   0.100 CEHV=   0.300
*SECNO 789.000

3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      1  TARGET=       29.600
        CROSS SECTION IMMEDIATELY DOWNSTREAM OF BELLE RIVER ROAD BRIDGE
   789.00      5.71    717.11      0.00    717.03    717.60      0.48      0.07      0.02    713.90
     820.        0.      820.        0.        0.      147.        0.        5.        1. 100000.00
     0.06      0.00      5.58      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.004008       15.       15.       15.         2         0         0      0.00     29.60     69.60

*SECNO 790.000

3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      1  TARGET=       29.600
        DOWNSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   790.00      5.59    716.99      0.00    716.90    717.66      0.67      0.00      0.06    713.90
     820.        0.      820.        0.        0.      125.        0.        5.        1.  100000.00
     0.06      0.00      6.56      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004321        1.        1.        1.         2         0         0    -18.22     29.60     69.60

*SECNO 822.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  720.80 MAX ELLC=  720.10


3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      1  TARGET=       29.600
        UPSTREAM FACE OF BELLE RIVER ROAD BRIDGE
   822.00      5.76    717.16      0.00    717.08    717.79      0.63      0.13      0.00    713.90
     820.        0.      820.        0.        0.      129.        0.        5.        2.  100000.00
     0.06      0.00      6.37      0.00     0.000     0.030     0.000     0.000    711.40     40.00
 0.004034       32.       32.       32.         2         0         0    -19.75     29.60     69.60

*SECNO 823.000
 2800 NAT Q1=     137.18  WSEL=     717.31  ENC Q1=     161.58  WSEL=     717.41  RATIO= -0.1779
 NAT Q1=     226.   RATIOS LOB,CH,ROB=  0.1499  0.7134  0.1366  WSEL=     717.41

3470 ENCROACHMENT STATIONS=       40.0       69.6  TYPE=      4  TARGET=        0.287
   823.00      5.98    717.38      0.00    717.31    717.82      0.43      0.00      0.02    713.90
     820.        0.      820.        0.        0.      155.        0.        5.        2.    713.40
     0.06      0.00      5.29      0.00     0.000     0.040     0.000     0.000    711.40     40.00
 0.003423        1.        1.        1.         2         0         0      0.00     29.60     69.60


CCHV=   0 300 CEHV=   0.500
*SECNO 882.000

3470 ENCROACHMENT STATIONS=       18.0       96.0  TYPE=      1  TARGET=       78.000
   882.00      6.34    717.86      0.00    717.81    718.00      0.14      0.10      0.09    714.02
     820.      134.      569.      117.       61.      166.       84.        5.        2.    713.52
     0.06      2.21      3.44      1.39     0.040     0.040     0.070     0.000    711.52     18.00
 0.001009       59.       59.       59.         2         0         0      0.00     78.00     96.00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 1397.000
 2800 NAT Q1=     175.65  WSEL=     718.50  ENC Q1=     175.65  WSEL=     718.60  RATIO=  0.0000
 NAT Q1=     189.  RATIOS LOB,CH,ROB=  0.2286  0.7380  0.0333  WSEL=     718.60

3470 ENCROACHMENT STATIONS=      67.4      230.0  TYPE=      4  TARGET=        0.068
        MANUFACTURED CROSS SECTION
  1397.00      5.96    718.56      0.00    718.50    718.83      0.27      0.77      0.06    716.80
     820.      169.      651.        0.      150.      141.        0.        9.        3.    716.70
     0.10      1.13      4.63      0.00     0.070     0.040     0.000     0.000    712.60     67.44
 0.002416      515.      515.      515.         2         0         0      0.00    162.56    230.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1972.000
 2800 NAT Q1=     179.94  WSEL=     719.74  ENC Q1=     179.94  WSEL=     719.84  RATIO=  0.0000
 NAT Q1=     193.  RATIOS LOB,CH,ROB=  0.2361  0.7297  0.0342  WSEL=     719.84

3470 ENCROACHMENT STATIONS=      63.6      230.0  TYPE=      4  TARGET=        0.068
        MANUFACTURED CROSS SECTION
  1972.00      6.06    719.86      0.00    719.74    720.11      0.24      1.27      0.00    718.00
     820.      181.      639.        0.      166.      143.        0.        13.       5.    717.90
     0.14      1.09      4.46      0.01     0.070     0.040     0.070     0.000    713.80     63.57
 0.002027      575.      575.      575.         2         0         0      0.00    166.46    230.03

*SECNO 2547.000
 2800 NAT Q1=     179.84  WSEL=     720.93  ENC Q1=     179.84  WSEL=     721.03  RATIO=  0.0000
 NAT Q1=     192.  RATIOS LOB,CH,ROB=  0.2350  0.7309  0.0341  WSEL=     721.03

3470 ENCROACHMENT STATIONS=      62.3      230.5  TYPE=      4  TARGET=        0.065
        MANUFACTURED CROSS SECTION
  2547.00      6.04    721.04      0.00    720.93    721.29      0.25      1.18      0.00    719.20
     820.      178.      642.        0.      164.      143.        1.        17.       7.    719.10
     0.19      1.09      4.50      0.52     0.070     0.040     0.070     0.000    715.00     62.29
 0.002076      575.      575.      575.         2         0         0      0.00    168.20    230.49

*SECNO 3120.000
 2800 NAT Q1=     178.69  WSEL=     722.13  ENC Q1=     178.69  WSEL=     722.23  RATIO=  0.0000
 NAT Q1=     192.  RATIOS LOB,CH,ROB=  0.2344  0.7317  0.0340  WSEL=     722.23

3470 ENCROACHMENT STATIONS=      65.7      230.0  TYPE=      4  TARGET=        0.069
        CROSS SECTION AT UPSTREAM CORPORATE LIMIT
```

| SECNO<br>Q<br>TIME<br>SLOPE | DEPTH<br>QLOB<br>VLOB<br>XLOBL | CWSEL<br>QCH<br>VCH<br>XLCH | CRIWS<br>QROB<br>VROB<br>XLOBR | WSELK<br>ALOB<br>XNL<br>ITRIAL | EG<br>ACH<br>XNCH<br>IDC | HV<br>AROB<br>XNR<br>ICONT | HL<br>VOL<br>WTN<br>CORAR | OLOSS<br>TWA<br>ELMIN<br>TOPWID | BANK ELEV<br>LEFT/RIGHT<br>SSTA<br>ENDST |
|---|---|---|---|---|---|---|---|---|---|
| 3120.00 | 6.06 | 722.26 | 0.00 | 722.13 | 722.50 | 0.24 | 1.21 | 0.00 | 720.40 |
| 820. | 185. | 635. | 0. | 164. | 143. | 0. | 21. | 10. | 720.30 |
| 0.23 | 1.13 | 4.43 | 0.00 | 0.070 | 0.040 | 0.000 | 0.000 | 716.20 | 65.72 |
| 0.002166 | 573. | 573. | 573. | 2 | 0 | 0 | 0.00 | 164.28 | 230.00 |

THIS RUN EXECUTED 23 AUG 86 10:41:34

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SAGE CREEK

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 714.66 | 0.00 | 715.06 | 30.98 | 0.00 | 820.00 | 0.00 | 30.98 | 251.16 | 250.00 | 283.00 | 282.14 |
| 0.000 | 714.76 | 0.10 | 715.14 | 30.98 | 0.00 | 820.00 | 0.00 | 30.98 | 251.16 | 250.00 | 283.00 | 282.14 |
| 169.000 | 714.99 | 0.00 | 715.40 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 253.50 | 250.00 | 283.00 | 279.50 |
| 169.000 | 715.07 | 0.08 | 715.47 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 253.50 | 250.00 | 283.00 | 279.50 |
| 170.000 | 714.91 | 0.00 | 715.44 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 285.00 | 280.00 |
| 170.000 | 714.99 | 0.08 | 715.51 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 285.00 | 280.00 |
| 194.000 | 715.00 | 0.00 | 715.52 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 285.00 | 280.00 |
| 194.000 | 715.08 | 0.08 | 715.59 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 285.00 | 280.00 |
| 195.000 | 715.15 | 0.00 | 715.53 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 283.00 | 280.00 |
| 195.000 | 715.23 | 0.08 | 715.60 | 26.00 | 0.00 | 820.00 | 0.00 | 26.00 | 254.00 | 250.00 | 283.00 | 280.00 |
| 255.000 | 715.63 | 0.00 | 715.69 | 146.00 | 363.82 | 312.74 | 143.44 | 146.00 | 186.00 | 250.00 | 267.00 | 332.00 |
| 255.000 | 715.69 | 0.06 | 715.76 | 127.00 | 351.71 | 330.40 | 137.88 | 127.00 | 197.00 | 250.00 | 267.00 | 324.00 |
| 500.000 | 715.78 | 0.00 | 715.93 | 175.00 | 155.12 | 550.50 | 114.38 | 175.00 | 128.00 | 200.00 | 230.00 | 303.00 |
| 500.000 | 715.85 | 0.07 | 716.01 | 159.00 | 150.74 | 562.33 | 106.93 | 159.00 | 136.00 | 200.00 | 230.00 | 295.00 |
| 565.000 | 715.90 | 0.00 | 716.22 | 106.12 | 234.96 | 447.35 | 137.70 | 0.00 | 0.00 | 63.00 | 77.00 | 0.00 |
| 565.000 | 715.97 | 0.07 | 716.33 | 59.70 | 231.80 | 462.81 | 125.39 | 0.05 | 35.38 | 63.00 | 77.00 | 95.08 |
| 630.000 | 716.05 | 0.00 | 716.42 | 100.69 | 221.24 | 465.62 | 133.14 | 0.00 | 0.00 | 63.00 | 77.00 | 0.00 |
| 630.000 | 716.12 | 0.07 | 716.54 | 55.67 | 217.12 | 483.54 | 119.34 | 0.05 | 37.98 | 63.00 | 77.00 | 93.65 |
| 695.000 | 716.23 | 0.00 | 716.66 | 77.00 | 209.40 | 474.78 | 135.82 | 77.00 | 32.00 | 63.00 | 77.00 | 109 00 |
| 695.000 | 716.35 | 0.12 | 716.76 | 66.00 | 212.68 | 470.13 | 137.19 | 66.00 | 35.00 | 63.00 | 77.00 | 101.00 |
| 728.000 | 716.36 | 0.00 | 716.84 | 60.00 | 192.72 | 493.08 | 134.20 | 60.00 | 40.00 | 63.00 | 77.00 | 100.00 |
| 728.000 | 716.47 | 0.11 | 716.95 | 55.00 | 198.07 | 494.22 | 127.71 | 55.00 | 41.00 | 63.00 | 77.00 | 96.00 |

| SECND | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 744.000 | 716.42 | 0.00 | 716.96 | 53.00 | 181.63 | 508.11 | 130.26 | 53.00 | 44.00 | 63.00 | 77.00 | 97.00 |
| 744.000 | 716.53 | 0.11 | 717.06 | 49.00 | 190.09 | 511.49 | 118.42 | 49.00 | 44.00 | 63.00 | 77.00 | 93.00 |
| 759.000 | 716.50 | 0.00 | 717.30 | 44.00 | 127.73 | 527.21 | 165.06 | 44.00 | 49.00 | 64.00 | 77.00 | 93.00 |
| 759.000 | 716.61 | 0.10 | 717.38 | 43.00 | 134.11 | 527.64 | 158.25 | 43.00 | 49.00 | 64.00 | 77.00 | 92.00 |
| 774.000 | 716.70 | 0.00 | 717.43 | 37.00 | 137.65 | 564.44 | 117.91 | 37.00 | 52.00 | 63.00 | 77.00 | 89.00 |
| 774.000 | 716.82 | 0.12 | 717.51 | 37.00 | 140.92 | 560.03 | 119.05 | 37.00 | 52.00 | 63.00 | 77.00 | 89.00 |
| 789.000 | 717.03 | 0.00 | 717.53 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 789.000 | 717.11 | 0.09 | 717.60 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 790.000 | 716.90 | 0.00 | 717.59 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69 60 |
| 790.000 | 716.99 | 0.09 | 717.66 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 822.000 | 717.08 | 0.00 | 717.73 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 822.000 | 717.16 | 0.08 | 717.79 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 823.000 | 717.31 | 0.00 | 717.75 | 29.60 | 0.00 | 820.00 | 0.00 | 29.60 | 40.00 | 40.00 | 69.60 | 69.60 |
| 823.000 | 717.38 | 0.07 | 717.82 | 29.60 | 0.00 | 820.00 | 0.00 | 0.29 | 40.00 | 40.00 | 69.60 | 69.60 |
| 882.000 | 717.81 | 0.00 | 717.95 | 117.65 | 134.29 | 566.40 | 119.31 | 117.65 | 1.11 | 40.00 | 69.60 | 118.76 |
| 882.000 | 717.86 | 0.05 | 718.00 | 78.00 | 134.47 | 568.78 | 116.75 | 78.00 | 18.00 | 40.00 | 69.60 | 96.00 |
| 1397.000 | 718.50 | 0.00 | 718.75 | 245.24 | 168.87 | 625.87 | 25.25 | 0.00 | 0.00 | 200.00 | 230.00 | 0.00 |
| 1397.000 | 718.56 | 0.06 | 718.83 | 162.56 | 169.50 | 650.50 | 0.00 | 0.07 | 67.44 | 200.00 | 230.00 | 230.00 |
| 1972.000 | 719.74 | 0.00 | 719.97 | 245.61 | 175.29 | 618.74 | 25.97 | 300.00 | 0.00 | 200.00 | 230.00 | 300.00 |
| 1972.000 | 719.86 | 0.12 | 720.11 | 166.46 | 180.64 | 639.36 | 0.00 | 0.07 | 63.57 | 200.00 | 230.00 | 230.03 |
| 2547.000 | 720.93 | 0.00 | 721.17 | 245.60 | 175.14 | 618.90 | 25.96 | 0.00 | 0.00 | 200.00 | 230.00 | 0.00 |
| 2547.000 | 721.04 | 0.10 | 721.29 | 168.20 | 177.87 | 641.64 | 0.49 | 0.07 | 62.29 | 200.00 | 230.00 | 230.49 |
| 3120.000 | 722.13 | 0.00 | 722.37 | 245.50 | 173.44 | 620.79 | 25.77 | 0.00 | 0.00 | 200.00 | 230.00 | 0.00 |
| 3120.000 | 722.26 | 0.13 | 722.50 | 164.28 | 184.52 | 635.48 | 0.00 | 0.07 | 65.72 | 200.00 | 230.00 | 230.00 |

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.000 | 0.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.66 | 0.00 | 715.06 | 19.95 | 5.07 | 161.71 | 183.61 |
| 0.000 | 0.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.76 | 0.00 | 715.14 | 18.88 | 4.98 | 164.74 | 188.72 |
| 169.000 | 169.00 | 0.00 | 0.00 | 708.00 | 820.00 | 714.99 | 0.00 | 715.40 | 19.78 | 5.10 | 160.71 | 184.39 |
| 169.000 | 169.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.07 | 0.00 | 715.47 | 19.06 | 5.04 | 162.79 | 187.83 |
| 170.000 | 1.00 | 714.30 | 716.10 | 708.00 | 820.00 | 714.91 | 0.00 | 715.44 | 33.24 | 5.83 | 140.64 | 142.23 |
| 170.000 | 1.00 | 714.30 | 716.10 | 708.00 | 820.00 | 714.99 | 0.00 | 715.51 | 32.87 | 5.78 | 141.85 | 143.02 |
| 194.000 | 24.00 | 714.30 | 716.10 | 708.00 | 820.00 | 715.00 | 0.00 | 715.52 | 32.82 | 5.77 | 142.02 | 143.13 |
| 194.000 | 24.00 | 714.30 | 716.10 | 708.00 | 820.00 | 715.08 | 0.00 | 715.59 | 32.51 | 5.73 | 143.15 | 143.82 |
| 195.000 | 1.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.15 | 0.00 | 715.53 | 24.00 | 4.98 | 164.81 | 167.38 |
| 195.000 | 1.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.23 | 0.00 | 715.60 | 23.17 | 4.91 | 166.85 | 170.36 |
| 255.000 | 60.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.63 | 0.00 | 715.69 | 5.24 | 2.75 | 516.05 | 358.11 |
| 255.000 | 60.00 | 0.00 | 0.00 | 708.00 | 820.00 | 715.69 | 0.00 | 715.76 | 5.69 | 2.88 | 475.53 | 343.77 |
| 500.000 | 245.00 | 0.00 | 0.00 | 709.60 | 820.00 | 715.78 | 0.00 | 715.93 | 14.06 | 3.76 | 366.70 | 218.71 |
| 500.000 | 245.00 | 0.00 | 0.00 | 709.60 | 820.00 | 715.85 | 0.00 | 716.01 | 14.00 | 3.78 | 353.65 | 219.14 |
| 565.000 | 65.00 | 0.00 | 0.00 | 709.90 | 820.00 | 715.90 | 0.00 | 716.22 | 26.21 | 5.65 | 239.99 | 160.18 |
| 565.000 | 65.00 | 0.00 | 0.00 | 709.90 | 820.00 | 715.97 | 0.00 | 716.33 | 26.93 | 5.77 | 203.63 | 158.01 |
| 630.000 | 65.00 | 0.00 | 0.00 | 710.23 | 820.00 | 716.05 | 0.00 | 716.42 | 31.86 | 6.09 | 220.10 | 145.26 |
| 630.000 | 65.00 | 0.00 | 0.00 | 710.23 | 820.00 | 716.12 | 0.00 | 716.54 | 32.81 | 6.24 | 186.12 | 143.17 |
| 695.000 | 65.00 | 0.00 | 0.00 | 710.56 | 820.00 | 716.23 | 0.00 | 716.66 | 35.98 | 6.36 | 199.46 | 136.71 |
| 695.000 | 65.00 | 0.00 | 0.00 | 710.56 | 820.00 | 716.35 | 0.00 | 716.76 | 32.77 | 6.16 | 197.58 | 143.25 |
| 728.000 | 33.00 | 0.00 | 0.00 | 710.73 | 820.00 | 716.36 | 0.00 | 716.84 | 40.17 | 6.68 | 179.42 | 129.38 |
| 728.000 | 33.00 | 0.00 | 0.00 | 710.73 | 820.00 | 716.47 | 0.00 | 716.95 | 37.62 | 6.55 | 178.26 | 133.69 |
| 744.000 | 16.00 | 0.00 | 0.00 | 710.81 | 820.00 | 716.42 | 0.00 | 716.96 | 42.99 | 6.90 | 169.03 | 125.06 |
| 744.000 | 16.00 | 0.00 | 0.00 | 710.81 | 820.00 | 716.53 | 0.00 | 717.06 | 40.70 | 6.80 | 167.12 | 128.53 |
| 759.000 | 15.00 | 0.00 | 0.00 | 710.90 | 820.00 | 716.50 | 0.00 | 717.30 | 68.70 | 8.42 | 137.96 | 98.93 |
| 759.000 | 15.00 | 0.00 | 0.00 | 710.90 | 820.00 | 716.61 | 0.00 | 717.38 | 64.04 | 8.24 | 139.80 | 102.46 |
| 774.000 | 15.00 | 0.00 | 0.00 | 711.20 | 820.00 | 716.70 | 0.00 | 717.43 | 56.89 | 7.82 | 139.93 | 108.72 |
| 774.000 | 15.00 | 0.00 | 0.00 | 711.20 | 820.00 | 716.82 | 0.00 | 717.51 | 51.70 | 7.58 | 144.56 | 114.04 |
| 789.000 | 15.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.03 | 0.00 | 717.53 | 42.21 | 5.67 | 144.53 | 126.22 |
| 789.000 | 15.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.11 | 0.00 | 717.60 | 40.08 | 5.58 | 147.04 | 129.53 |
| 790.000 | 1.00 | 720.80 | 720.10 | 711.40 | 820.00 | 716.90 | 0.00 | 717.59 | 44.81 | 6.66 | 123.21 | 122.49 |
| 790.000 | 1.00 | 720.80 | 720.10 | 711.40 | 820.00 | 716.99 | 0.00 | 717.66 | 43.21 | 6.56 | 125.07 | 124.75 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 822.000 | 32.00 | 720.80 | 720.10 | 711.40 | 820.00 | 717.08 | 0.00 | 717.73 | 41.59 | 6.45 | 127.07 | 127.15 |
| 822.000 | 32.00 | 720.80 | 720.10 | 711.40 | 820.00 | 717.16 | 0.00 | 717.79 | 40.34 | 6.37 | 128.70 | 129.11 |
| 823.000 | 1.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.31 | 0.00 | 717.75 | 35.73 | 5.37 | 152.77 | 137.18 |
| 823.000 | 1.00 | 0.00 | 0.00 | 711.40 | 820.00 | 717.38 | 0.00 | 717.82 | 34.23 | 5.29 | 154.99 | 140.16 |
| 882.000 | 59.00 | 0.00 | 0.00 | 711.52 | 820.00 | 717.81 | 0.00 | 717.95 | 10.30 | 3.45 | 343.37 | 255.46 |
| 882.000 | 59.00 | 0.00 | 0.00 | 711.52 | 820.00 | 717.86 | 0.00 | 718.00 | 10.09 | 3.44 | 310.64 | 258.12 |
| 1397.000 | 515.00 | 0.00 | 0.00 | 712.60 | 820.00 | 718.50 | 0.00 | 718.75 | 21.79 | 4.52 | 339.55 | 175.65 |
| 1397.000 | 515.00 | 0.00 | 0.00 | 712.60 | 820.00 | 718.56 | 0.00 | 718.83 | 24.16 | 4.63 | 290.05 | 166.81 |
| 1972.000 | 575.00 | 0.00 | 0.00 | 713.80 | 820.00 | 719.74 | 0.00 | 719.97 | 20.77 | 4.43 | 348.21 | 179.94 |
| 1972.000 | 575.00 | 0.00 | 0.00 | 713.80 | 820.00 | 719.86 | 0.00 | 720.11 | 20.27 | 4.46 | 309.22 | 182.11 |
| 2547.000 | 575.00 | 0.00 | 0.00 | 715.00 | 820.00 | 720.93 | 0.00 | 721.17 | 20.79 | 4.43 | 348.01 | 179.84 |
| 2547.000 | 575.00 | 0.00 | 0.00 | 715.00 | 820.00 | 721.04 | 0.00 | 721.29 | 20.76 | 4.50 | 307.25 | 179.96 |
| 3120.000 | 573.00 | 0.00 | 0.00 | 716.20 | 820.00 | 722.13 | 0.00 | 722.37 | 21.06 | 4.46 | 345.70 | 178.69 |
| 3120.000 | 573.00 | 0.00 | 0.00 | 716.20 | 820.00 | 722.26 | 0.00 | 722.50 | 21.66 | 4.43 | 306.91 | 176.19 |

SAGE CREEK

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 0.000 | 820.00 | 714.66 | 0.00 | 0.00 | 0.00 | 30.98 | 0.00 |
| 0.000 | 820.00 | 714.76 | 0.10 | 0.00 | 0.10 | 30.98 | 0.00 |
| 169.000 | 820.00 | 714.99 | 0.00 | 0.33 | 0.00 | 26.00 | 169.00 |
| 169.000 | 820.00 | 715.07 | 0.08 | 0.31 | 0.08 | 26.00 | 169.00 |
| 170.000 | 820.00 | 714.91 | 0.00 | -0.08 | 0.00 | 26.00 | 1.00 |
| 170.000 | 820.00 | 714.99 | 0.08 | -0.08 | 0.08 | 26.00 | 1.00 |
| 194.000 | 820.00 | 715.00 | 0.00 | 0.09 | 0.00 | 26.00 | 24.00 |
| 194.000 | 820.00 | 715.08 | 0.08 | 0.09 | 0.08 | 26.00 | 24.00 |
| 195.000 | 820.00 | 715.15 | 0.00 | 0.15 | 0.00 | 26.00 | 1.00 |
| 195.000 | 820.00 | 715.23 | 0.08 | 0.15 | 0.08 | 26.00 | 1.00 |
| 255.000 | 820.00 | 715.63 | 0.00 | 0.48 | 0.00 | 146.00 | 60.00 |
| 255.000 | 820.00 | 715.69 | 0.06 | 0.46 | 0.06 | 127.00 | 60.00 |
| 500.000 | 820.00 | 715.78 | 0.00 | 0.15 | 0.00 | 175.00 | 245.00 |
| 500.000 | 820.00 | 715.85 | 0.07 | 0.16 | 0.07 | 159.00 | 245.00 |
| 565.000 | 820.00 | 715.90 | 0.00 | 0.12 | 0.00 | 106.12 | 65.00 |
| 565.000 | 820.00 | 715.97 | 0.07 | 0.12 | 0.07 | 59.70 | 65.00 |
| 630.000 | 820.00 | 716.05 | 0.00 | 0.15 | 0.00 | 100.69 | 65.00 |
| 630.000 | 820.00 | 716.12 | 0.07 | 0.14 | 0.07 | 55.67 | 65.00 |
| 695.000 | 820.00 | 716.23 | 0.00 | 0.18 | 0.00 | 77.00 | 65.00 |
| 695.000 | 820.00 | 716.35 | 0.12 | 0.24 | 0.12 | 66.00 | 65.00 |
| 728.000 | 820.00 | 716.36 | 0.00 | 0.13 | 0.00 | 60.00 | 33.00 |
| 728.000 | 820.00 | 716.47 | 0.11 | 0.12 | 0.11 | 55.00 | 33.00 |
| 744.000 | 820.00 | 716.42 | 0.00 | 0.07 | 0.00 | 53.00 | 16.00 |
| 744.000 | 820.00 | 716.53 | 0.11 | 0.06 | 0.11 | 49.00 | 16.00 |
| 759.000 | 820.00 | 716.50 | 0.00 | 0.08 | 0.00 | 44.00 | 15.00 |
| 759.000 | 820.00 | 716.61 | 0.10 | 0.08 | 0.10 | 43.00 | 15.00 |
| 774.000 | 820.00 | 716.70 | 0.00 | 0.19 | 0.00 | 37.00 | 15.00 |
| 774.000 | 820.00 | 716.82 | 0.12 | 0.21 | 0.12 | 37.00 | 15.00 |
| 789.000 | 820.00 | 717.03 | 0.00 | 0.33 | 0.00 | 29.60 | 15.00 |
| 789.000 | 820.00 | 717.11 | 0.09 | 0.29 | 0.09 | 29.60 | 15.00 |
| 790.000 | 820.00 | 716.90 | 0.00 | -0.13 | 0.00 | 29.60 | 1.00 |
| 790.000 | 820.00 | 716.99 | 0.09 | -0.12 | 0.09 | 29.60 | 1.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 822.000 | 820.00 | 717.08 | 0.00 | 0.18 | 0.00 | 29.60 | 32.00 |
| 822.000 | 820.00 | 717.16 | 0.08 | 0.17 | 0.08 | 29.60 | 32.00 |
| 823.000 | 820.00 | 717.31 | 0.00 | 0.22 | 0.00 | 29.60 | 1.00 |
| 823.000 | 820.00 | 717.38 | 0.07 | 0.22 | 0.07 | 29.60 | 1.00 |
| 882.000 | 820.00 | 717.81 | 0.00 | 0.50 | 0.00 | 117.65 | 59.00 |
| 882.000 | 820.00 | 717.86 | 0.05 | 0.48 | 0.05 | 78.00 | 59.00 |
| 1397.000 | 820.00 | 718.50 | 0.00 | 0.69 | 0.00 | 245.24 | 515.00 |
| 1397.000 | 820.00 | 718.56 | 0.06 | 0.70 | 0.06 | 162.56 | 515.00 |
| 1972.000 | 820.00 | 719.74 | 0.00 | 1.24 | 0.00 | 245.61 | 575.00 |
| 1972.000 | 820.00 | 719.86 | 0.12 | 1.30 | 0.12 | 166.46 | 575.00 |
| 2547.000 | 820.00 | 720.93 | 0.00 | 1.19 | 0.00 | 245.60 | 575.00 |
| 2547.000 | 820.00 | 721.04 | 0.10 | 1.18 | 0.10 | 168.20 | 575.00 |
| 3120.000 | 820.00 | 722.13 | 0.00 | 1.20 | 0.00 | 245.50 | 573.00 |
| 3120.000 | 820.00 | 722.26 | 0.13 | 1.22 | 0.13 | 164.28 | 573.00 |

FLOODWAY DATA, SAGE CREEK
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 0.000 | 31. | 165. | 5.0 | 714.8 | 714.7 | 0.1 |
| 169.000 | 26. | 163. | 5.0 | 715.1 | 715.0 | 0.1 |
| 170.000 | 26. | 142. | 5.8 | 715.0 | 714.9 | 0.1 |
| 194.000 | 26. | 143. | 5.7 | 715.1 | 715.0 | 0.1 |
| 195.000 | 26. | 167. | 4.9 | 715.3 | 715.2 | 0.1 |
| 255.000 | 127. | 476. | 1.7 | 715.7 | 715.6 | 0.1 |
| 500.000 | 159. | 354. | 2.3 | 715.9 | 715.8 | 0.1 |
| 565.000 | 60. | 204. | 4.0 | 716.0 | 715.9 | 0.1 |
| 630.000 | 56. | 186. | 4.4 | 716.1 | 716.0 | 0.1 |
| 695.000 | 66. | 198. | 4.2 | 716.3 | 716.2 | 0.1 |
| 728.000 | 55. | 178. | 4.6 | 716.5 | 716.4 | 0.1 |
| 744.000 | 49. | 167. | 4.9 | 716.5 | 716.4 | 0.1 |
| 759.000 | 43. | 140. | 5.9 | 716.6 | 716.5 | 0.1 |
| 774.000 | 37. | 145. | 5.7 | 716.8 | 716.7 | 0.1 |
| 789.000 | 30. | 147. | 5.6 | 717.1 | 717.0 | 0.1 |
| 790.000 | 30. | 125. | 6.6 | 717.0 | 716.9 | 0.1 |
| 822.000 | 30. | 129. | 6.4 | 717.2 | 717.1 | 0.1 |
| 823.000 | 30. | 155. | 5.3 | 717.4 | 717.3 | 0.1 |
| 882.000 | 78. | 311. | 2.6 | 717.8 | 717.8 | 0.0 |
| 1397.000 | 163. | 290. | 2.8 | 718.6 | 718.5 | 0.1 |
| 1972.000 | 166. | 309. | 2.7 | 719.8 | 719.7 | 0.1 |
| 2547.000 | 168. | 307. | 2.7 | 721.0 | 720.9 | 0.1 |
| 3120.000 | 164. | 307. | 2.7 | 722.2 | 722.1 | 0.1 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME:

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Analysis

00BREAK00

to: Files
from Bruce Merrey
date: 10/5/93

Re: FIS for Sterling Heights
Red Run Drain
Macomb County

Problem: Estimation of the frequency of the 1981 Flood on the Red Run Drain Basin.

Conclusion: Rain gages in the SEMCOG network indicate that the Bear Creek basin experienced a rainfall event which exceeded a 100 year storm. The rainfall on the Red Run basin upstream of Bear Creek had a frequency of about 70 year.

Since these two basin are the major contributors to the peak discharges, it does appear that the 1981 Flood on the Red Run Drain was close to a 100 year event. Even though Plum Brook has a significant drainage area (27.7 mi$^2$) the time to peak, and low runoff does not have a substantial impact upon the Red Run peak flows. Thus even though the rainfall on the Plum Brook basin

was only a 100-year frequency storm, a more intense storm would not significantly increase the peak flows on the Red Run Drain.

The discharges developed by the COE appear to provide a reasonable estimate of the 100 year flood discharges. It would be advisable to use these discharges to revise the FIS for Sterling Heights and Warren

1981 Rainfall Sept. 30 - Oct 1, 1981

The Red Run Basin is composed of several subbasins. The two major subbasins contributing to the peak flow on the Red Run Drain is the Twelve Towns basin, and Bear Creek Plum Brook and the Henry Gramm Drain have significant drainage area however they have minimal impact upon peak flows on the Red Run Drain.

The Plumbrook Drain basin has not been urbanized and thus has a low runoff potential and a long time to peak In addition, the drain enters the Red Run at the confluence with the Clinton River. These factors result in the Plum Brook Drain, under current conditions, having minimal impact on the peak flows on the Red Run. Thus, even though this basin received a rainfall with an intensity of about a 25 year frequency, a heavier rainfall would not have changed the peak significantly.

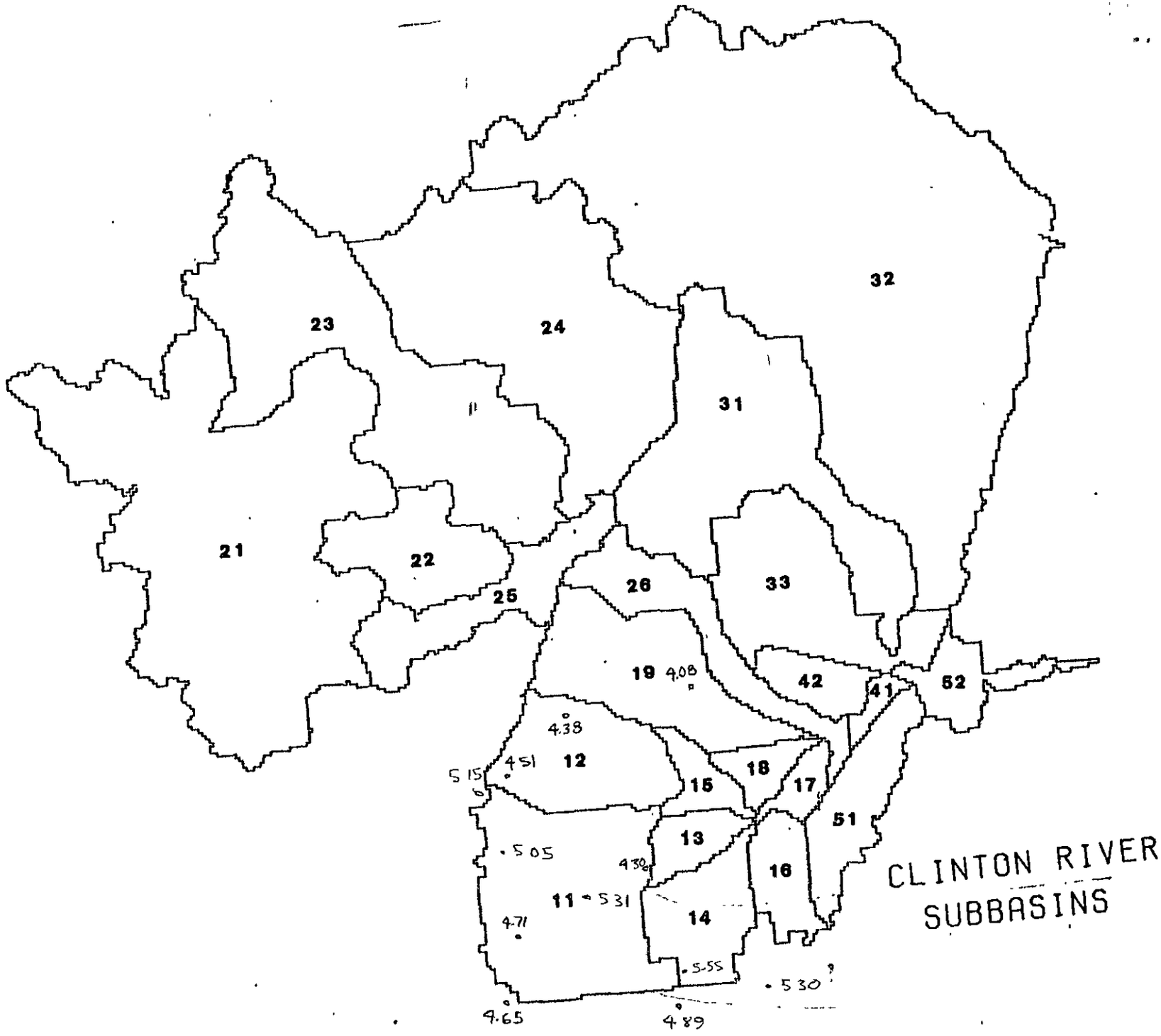
The Henry Gramm drainage basin is regulated to a maximum outflow of about 800 cfs into the Red Run This basin received a rainfall with a frequency of about 40 year. A heavier rainfall would not

have significantly increased the Red Run peak flow

The Twelve Towns basins received a 100 year storm over a portion of the basin. Over the entire basin, rainfall appeared to be about a 70-80 year frequency

The upper portion of the Bear Creek basin received rainfall exceeding the 100 year frequency. This portion of the basin is also the most heavily urbanized.

Thus it appears that the 1981 Flood discharges would approximate the 100 year flood.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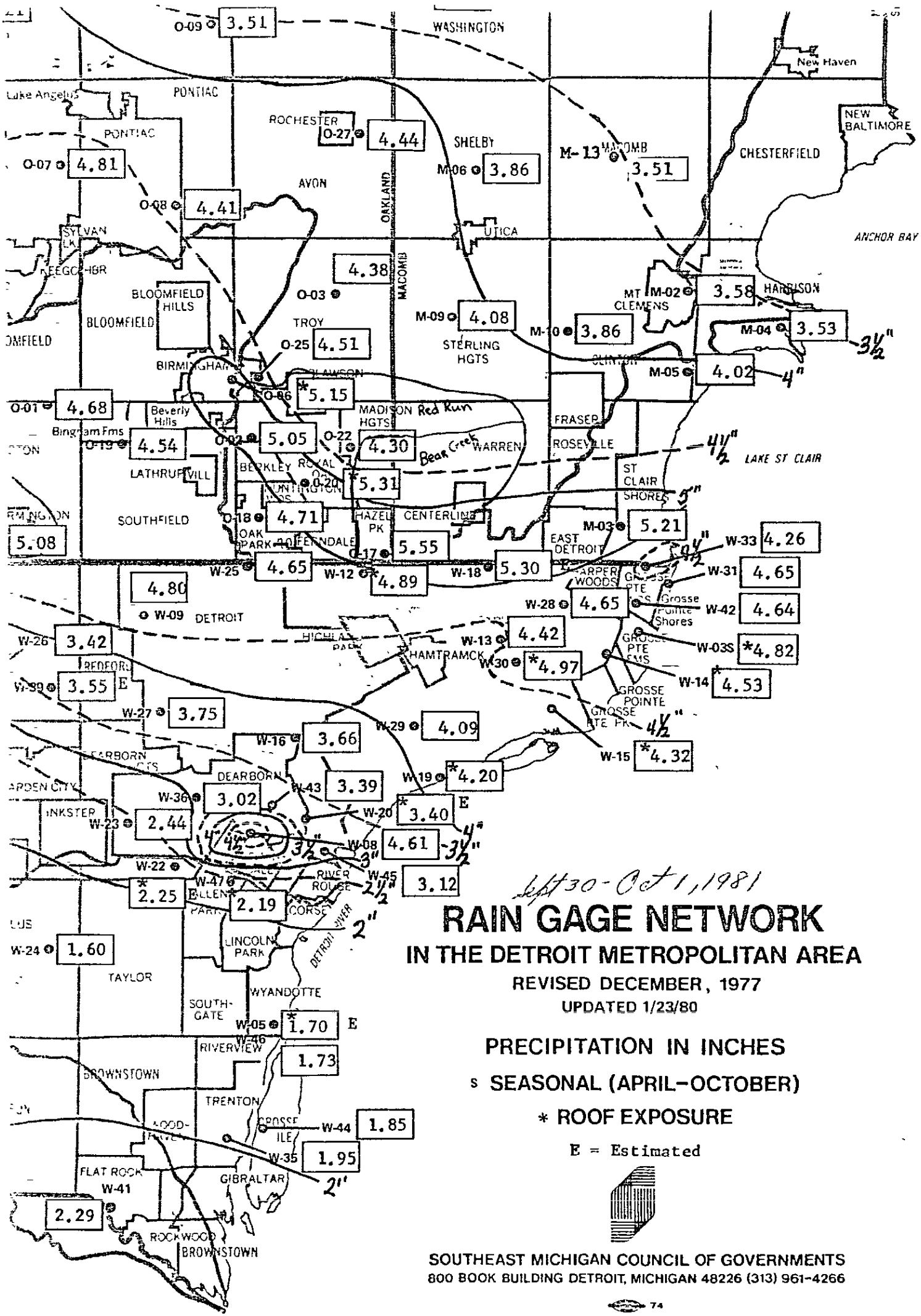
4.51
5.15
13
16
14
11
5.05
5.31
4.30
4.71
5.55
5.30
4.65
4.89
CLINTON RIVER
SUBBASINS

FIGURE 3

TABLE 1
HYDROLOGY SUBBASINS

| Number | Drainage Area (Sq. Miles) | Location |
|---|---|---|
| 11 | 40.63 | Twelve-Towns |
| 12 | 20.78 | Henry Gramm |
| 13 | 6.00 | Local along Red Run at Bear Creek |
| 14 | 14.41 | Bear Creek |
| 15 | 5.3 | Big Beaver |
| 16 | 8.45 | Schoenherr Drain |
| 17 | 3.73 | Sterling Relief Drain Local Inflow |
| 18 | 4.72 | Sterling Relief Drain |
| 19 | 27.67 | Plum Brook |
| 21 | 118.53 | Clinton River at Auburn |
| 22 | 18.50 | Galloway Creek |
| 23 | 71.48 | Paint Creek |
| 24 | 73.34 | Stony Creek |
| 25 | 18.36 | Clinton River Local Inflow at Stony Creek |
| 26 | 17.16 | Clinton River Local Inflow at Red Run |
| 31 | 53.69 | Middle Branch Clinton River at Gloede Ditch |
| 32 | 201.06 | North Branch Clinton River at Hall Road |
| 33 | 29.75 | North and Middle Branches Local Inflow at Forks Area |
| 41 | 2.10 | Clinton River Local Inflow at Fraser |
| 42 | 6.95 | Clinton River Local Inflow at Forks |
| 51 | 14.27 | Harrington Drain |


Sept 30 - Oct 1, 1981
RAIN GAGE NETWORK
IN THE DETROIT METROPOLITAN AREA
REVISED DECEMBER, 1977
UPDATED 1/23/80
PRECIPITATION IN INCHES
s SEASONAL (APRIL-OCTOBER)
* ROOF EXPOSURE
E = Estimated
SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS
800 BOOK BUILDING DETROIT, MICHIGAN 48226 (313) 961-4266
WASHINGTON
New Haven
Lake Angelus
PONTIAC
ROCHESTER
SHELBY
MACOMB
CHESTERFIELD
NEW BALTIMORE
AVON
OAKLAND
UTICA
ANCHOR BAY
BLOOMFIELD HILLS
BLOOMFIELD
TROY
STERLING HGTS
MT CLEMENS
HARRISON
BIRMINGHAM
MADISON HGTS
Red Run
Beaver Creek
WARREN
FRASER
ROSEVILLE
LAKE ST CLAIR
ST CLAIR SHORES
LATHRUP VILL
BERKLEY
SOUTHFIELD
OAK PARK
FERNDALE
HAZEL PK
CENTERLINE
EAST DETROIT
HARPER WOODS
Grosse Pointe Shores
DETROIT
HAMTRAMCK
GROSSE POINTE
DEARBORN
INKSTER
RIVER ROUGE
LINCOLN PARK
TAYLOR
WYANDOTTE
SOUTH-GATE
RIVERVIEW
BROWNSTOWN
TRENTON
GROSSE ILE
FLAT ROCK
GIBRALTAR
ROCKWOOD
O-09 3.51
O-27 4.44
O-07 4.81
O-08 4.41
M-06 3.86
M-13 3.51
O-03 4.38
M-09 4.08
M-10 3.86
M-02 3.58
M-04 3.53
M-05 4.02
O-25 4.51
O-06 *5.15
O-01 4.68
O-19 4.54
O-02 5.05
O-22 4.30
O-20 *5.31
O-18 4.71
O-17 5.55
M-03 5.21
W-33 4.26
W-31 4.65
W-42 4.64
W-03S *4.82
W-14 4.53
W-15 *4.32
W-25 4.65
W-12 *4.89
W-18 5.30
W-28 4.65
W-13 4.42
W-30 *4.97
W-09 4.80
W-26 3.42
W-39 3.55 E
W-27 3.75
W-16 3.66
W-29 4.09
W-19 *4.20
W-43 3.39
W-36 3.02
W-20 *3.40 E
W-23 2.44
W-08 4.61
W-22 *2.25
W-47 2.19
W-45 3.12
W-24 1.60
W-05 *1.70 E
W-46 1.73
W-44 1.85
W-35 1.95
W-41 2.29
5.08
4½"
4"
3½"
5"
4½"
4½"
4"
3½"
3"
3½"
2½"
2"
2"

## Introduction

The Red Run Drain was studied by Johnson & Anderson in 1977 for a Flood Insurance Study for the communities of Warren and Sterling Heights. Since the completion of the Flood Insurance Study, the U. S. Army Corps of Engineers have become involved in developing a HEC-SAM model for the Clinton River Watershed (which includes the Red Run Drain). Among other things, the HEC-SAM model has produced 100 year flood flows which are about 20-25% less than the flows used in the FIS.

The purpose of this analysis was to use the discharges developed by the Corps of Engineers to revise the 100 year flood profile used in the FIS for Warren and Sterling Heights.

## 1981 Flood

On September 30 and October 1, in 1981, a substantial rainfall occurred in southeast Michigan which resulted in significant flood flows on the Red Run Drain. Our estimates indicate that the 1981 flood on the Red Run Drain approximated the 100 year event.

Using the Corps of Engineers discharges, the hydraulic model provides a reasonable match to 1981 high water marks.

| Location | 1981 Flood | | Current 100 Yr. | | 100 Yr w/revised Q | |
|---|---|---|---|---|---|---|
| | Stage | Q* | Stage | Q | Stage | Q |
| upstream Utica Rd. | 601.7 | 16000 | 602.7 | 19100 | 601.4 | 15050 |
| upstream Ryan Rd. | 617.2 | 8600 | 619.2 | 11700 | 616.7 | 8300 |

* Discharge is estimated.

1981 Rainfall

The SEMOG rain-gage network indicated that the Bear Creek basin and the upper portions of the Red Run Drain basin received a 100 year intensity rainfall. The Plum Brook basin received a 25 year frequency rainfall, and the Henry Gramm drainage basin received a 40 year rainfall.

The Plum Brook basin has not been urbanized, which results in a low runoff potential and a long time to peak. Under current conditions, it appears that a more intense rainfall would not have significantly changed the peak flow on the Red Run Drain.

The Henry Gramm drainage basin is regulated to a maximum outflow of about 800 c.f.s. into the Red Run Drain. Thus a more intense rainfall would not have changed the peak flows on the Red Run Drain.

Considering the available information, the 1981 flood appears to approximate the 100 year flood, on the Red Run Drain.

Problem Areas

1. U.S.G.S. Gaging Station on the Clinton River, near Fraser (04164000)
The gaging station is located about 1 mile downstream of the confluence of the Red Run Drain and the Clinton River. The maximum 1981 stage recorded at the gage corresponded to a peak flow of about 8800 cfs.

The highwater mark at Utica Road (on the Red Run Drain just upstream of the confluence with the Clinton River) indicated a peak flow on the Red Run to be about 15000 to 16000 cfs. Since the peak discharge at the downstream gage was estimated to be about 8800 cfs, there appeared to be an inconsistency in the discharge estimates.

To resolve this apparent inconsistency, the NWS DAMBRK unsteady state flood forecasting model was used to route the peak flow from the Red Run Drain to downstream of the gage near Fraser on the Clinton River. The model is able to consider negative flow (flow upstream) should such a condition arise.

For the 1981 flood, the timing of the hydrographs on the Clinton River and the Red Run Drain were significantly different. It was apparent that the peak stage and discharge were a result of the Red Run Drain hydrograph. To try and produce the 1981 stage and discharge at Fraser, various hydrographs from the Red Run Drain were input into the DAMBRK model.

It was found that negative flow and storage had significant impact upon flood peaks from the Red Run Drain at the confluence with the Clinton River. To produce a discharge of about 8800 cfs on the Clinton River, and to match the recorded highwater marks, the 1981 flood discharge on the Red Run Drain was estimated to be about 16000 cfs.

2. U.S.G.S. Gaging Station on the Red Run Drain, near Warren (04162010)

U.S.G.S. estimated the 1981 peak to be 2940 cfs at the gage upstream of Ryan Road. The hydraulic analysis indicated a flow of 8000 to 9000 cfs would be necessary to match the highwater mark. The difference in discharges for the same highwater mark presented a question which had to be resolved.

It was noted that the U.S.G.S. estimate was based upon an extreme extrapolation of a rating curve of stream flow measurements. The 1981 highwater mark had a gage height of 30.2 feet, which was 12.6 feet higher than the maximum gage height for which a discharge measurement had been made. (Q=1450 cfs at a gage height of 17.6 feet). There was a question if such an extrapolation was appropriate.

Hydraulic computations using the cross section at the gage indicate that the flow carrying characteristics of the channel increase with depth, and that extrapolation appears to underestimate such increases.

It also appears that the maximum discharge measurement of 1450 cfs during the 1981 flood was taken on the receding limb of the flood hydrograph. Due to the sharp peaking shape of the hydrograph, downstream restrictions, and the relative flatness of the watercourse, the stages at the gage at Ryan Road are affected by backwater. Discharge measurements taken on the receding limb of the hydrograph will be in a "backwater" condition and would be less, for the same stage, than if they were taken on the rising limb of the hydrograph. Thus, extrapolation using values in "backwater" would underestimate flood flows for a given stage.

The hydraulic results appear to provide a better representation of the discharge at a given stage, than the extrapolation of the rating curve.

Hydraulics

The Red Run Drain profile was developed using the data obtained from the Warren and Sterling Heights FIS. The Corps of Engineers discharges were run using HEC-2 and the FIS input data.

The bridge area at Utica Road was adjusted to account for ineffective flow, due to high stream inverts upstream and downstream of the bridge. Due to the amount of weir flow, such an adjustment has minimal impact upon the profile. The remainder of the hydraulic model was considered to be appropriate.

Starting Water Surface Elevation

The starting water surface elevation represents the stage on the Clinton River at the time the 100 year flow is occurring on the Red Run Drain. The stage of 599.4 was obtained from the DAMBRK model of the Clinton River.

Hydrology

The 100 year flood flows used in the analysis were obtained from the Corps of Engineers HEC-SAM model.

| Location | 100 Year Flood Flows, cfs | |
|---|---|---|
| | Revised Flows | Current FIS Flows |
| At the mouth | 15050 | 19100 |
| Upstream of Plum Brook | 13500 | 17800 |
| Upstream of Bear Creek | 8300 | 11700 |

## Conclusion

The HEC-2 profile for the Red Run Drain, using the Corps of Engineer's discharges, approximates the 1981 flood. Based upon rainfall information for the Red Run Drain basin, it is estimated that the two major contributing sub-basins (Bear Creek and the Twelve Towns area) experienced a 100 year rainfall. Thus, the profile resulting from the revised discharges provides a reasonable estimate of the 100 year flood profile.

The Corps of Engineer's revised discharges would lower the Flood Insurance Study 100 year flood profile from 1.3 feet at Utica Road (XSEL 194) to 2.0 feet at the Sterling Heights upstream corporate limits. Within Warren, the profile would be lowered 2.0 feet at the downstream corporate limit to 2.7 feet at the upstream corporate limit.

## Results

Proposed Revisions to the Red Run Drain
100 Year Flood Elevations

| Location | Cross Section | Base Flood Elevation (Original) | Revised Elevations |
|---|---|---|---|
| Utica Road | 194 | 602.7 | 601.2 |
| 16 Mile Road | 1223 | 604.8 | 602.4 |
| 15 Mile Road | 8394 | 607.2 | 605.0 |
| Maple Lane Road | 16418 | 609.0 | 606.9 |
| 14 Mile Road (Corp. Limit) | 17368 | 609.7 | 607.7 |
| Confluence of Bear Cr. | 23319 | 611.0 | 609.0 |
| Van Dyke Road | 26025 | 612.4 | 610.4 |
| Denton Construction | 28031 | 614.2 | 611.6 |
| Mound Road | 31350 | 616.4 | 614.0 |
| Mound Road | 31483 | 617.4 | 615.3 |
| Gage at Ryan Road | 37221 | 619.4 | 616.9 |
| u/s Corp. Limit | 42521 | 620.8 | 618.1 |

## Background

The Red Run Drain was studied by J&A in 1977 for a FIS in Warren and Sterling Heights. Since the completion of this study, the COE have been involved in developing a SAM model for the Clinton River Basin (including the Red Run Drain). Among other things, this model has produced 100year flood flows which are about 20-25% less than the flows used in the FIS.

Initially our office input these revised flood flows into J&A's hydraulic model, which resulted in lower flood stages. However, it was noted that the resulting stages on the Red Run Drain were matching the high-water marks obtained during the 1981 flood. Since gaging information indicated that the 1981 flood did not produce the SAM model discharges, it was felt additional work was necessary to resolve this problem.

## Highwater Marks

In our initial run of the COE discharges, it appeared that the resulting stages were close to (and possibly less than) the stage obtained in the 1981 flood.

To verify this supposition, it was necessary to tie the high-water marks into NGVD. The FIS's in the two communities had established reference marks close to the high-water marks, thus surveying required was not extensive.

| Gage | datum | gage height | stage | SAM Q's revised stage |
|---|---|---|---|---|
| 1639 | 578.31 | 23.34 | 601.65 | 601.4 |
| 1620.1 | 586.96 | 30.2 | 617.16 | 616.7 |

In addition, several stream-flow measurements had been made at Ryan Road (Gage 1620.1) which correspond to a gage height.

| date | Gage height | stage | discharge |
|---|---|---|---|
| 10/1 | 17.59 | 604.55 | 1450 |
| | 13.3 | 600.26 | 790 |
| | 9.76 | 596.72 | 115 |

Procedure

Since our main concern involved the 100year stages computed as compared to the observed 1981 high water marks, it was attempted to obtain an estimate of the 1981 Flood.

The NWS DAMBRK model was used from the confluence of the Clinton and Red Run to downstream of the Fraser

Gage (1610) to estimate the amount of attenuation. The DAMBRK model was set up using cross section on the Clinton River obtained from the Clinton Township, Sterling Heights FIS.

The flood flows from the Red Run Drain were input as a lateral inflow in the model. This input would allow the model to consider negative flow (flow upstream) on the Clinton upstream of the Red Run Drain. The storage area on the Red Run Drain was input as dead storage area in the Clinton cross section.

The hydrographs used for the Clinton River and the Red Run Drain were obtained from the Sterling Heights FIS using gages upstream and downstream of the confluence of the Red Run Drain. It was apparent that the peak discharge on the Clinton River @ Frazer Rd was a result of the Red Run Drain flood flows. Thus, the 1981 flows on the Clinton River are not critical to the peak at Frazer (U/S side of the confluence, the Clinton peaked about 3 hrs after the peak at Frazer, downstream of the confluence).

Various peak discharges were input on the Red Run Drain to try to match the 1981 stage and

discharge at the Frank gage on the Clinton. It was assumed that the Clinton River hydrograph upstream of the Red Run matched the 50year hydrograph in the FIS. Once the stage and discharge at the Frank gage was matched, the peak on the Red Run Drain corresponding the stage was used to simulate the 1981 flood on the Red Run.

The HEC-2 model was taken from the DEN FIS and was used to model the Red Run Drain. Using the hydrographs in the FIS, and the estimated peak on the Red Run Drain it was possible to estimate the peak at Ryan Road.

The peaks of the hydrographs in the FIS were adjusted using a ratio of $\frac{16000}{17600}\left(\frac{1981}{50yr}\right) = .909$. This resulted in the following peaks

At Confluence 16000
u/s Plumbrook 14840
u/s Shorther 13210
u/s Big Beaver 13350

The peak upstream Bear Creek was estimated by running a range of discharges to match the 1981 highwater mark. The profiles were begun upstream of Bear Creek at the WSEL computed from HEC-2 using the above peaks.

It was noted that the SAM model resulted in the largest

changes in peak discharge upstream of Bear Creek. (The drainage area coming out of the 12-towns area). Thus it was felt that the peak discharge upstream of Bear Creek in the FIS would not be appropriate to simply adjust the peak.

Conclusions

(1) Based upon the DAMBRK analysis on the Clinton River and the highwater-mark at Utica Road, the 1981 discharge on the Red Run Drain at Utica Road was estimated to be about 16,000 cfs. This was attenuated down to about 8800 cfs at Fraser, but revised flow upstream on the Clinton, and Storage by USGS.

(2) The discharge estimate on the Red Run Drain at Ryan road of 7940 cfs appears to be significantly below what actually occurred.

It appears that the 1981 Flood produced a discharge of about 8600 cfs.

(3) The 1981 discharges at the gages on Plumbrook and Big Beaver Creek did not exceed the discharges recorded in 1968. In addition, the 1981 discharges was not the flood of record on the majority of streams in the area. (On the Clinton River at Auburn Heights the 1981 flood was the flood of Record).

I would question calling the 1981 flood a 100year event. It is apparent that it was a significant event.

(4) The profile resulting from the COE discharges,

approximates the 1981 flood.

5. It appears that the FIS profile is high, however I would be hesitant to recommend revision to the FIS without additional review of the SAM model used to develop the discharges.

6. The SAM model did not use any new hydraulic methods, the rating curves were produced by HEC-2 runs, and not an unsteady state model.

If the SAM model is brought on line for our use, it may be advisable to route the SAM hydrographs using DAMBRK.

7. If hydrologic studies unit is comfortable with the discharges developed by the COE, I would recommend using the resulting profile.

Results

(1) Estimation of peak on the Red Run at Utica Road.
The NWS DMBRK model was used to model the Clinton River upstream of the confluence with the Red Run Drain to downstream of the gage at Garfield Road.

It was found that a peak of about 16000 cfs on the Red Run Drain would match the stage/discharge at the gage at Garfield Road. In addition, a discharge of 16000 cfs matches the highwater mark obtained upstream of Utica Road at stage gage 1639.

(2) Peak at Ryan Road on Red Run Drain
The 1981 peak at Ryan Road was estimated to be 8600 cfs. USGS had taken a discharge measurement at Ryan Road in 1981 the Q = 1450 cfs To match the measured stage and discharge of 1450 cfs it was necessary to increase channel "n" values by about 50%. It was felt that such an increase in n would not be appropriate for a stage 13 feet higher.

It was also noted that the discharge measurement was made on the receding limb of the hydrograph.

Thus, the downstream water slope would be less (due to backwater) than if the measurement were made on the rising limb. As a result, stages would be higher on the falling limb than on the rising limb of the hydrograph, for the same discharge.

USGS had estimated the peak flow at Ryan Road to be 2940 cfs during the 1981 flood. This estimate was based upon extrapolation of gage data. Two possible problems could result from such an extrapolation

(a) As noted above, the rating curve at Ryan Road is looped. Extrapolation based upon a stage/discharge in a "backwater" condition would underestimate peak discharges.

(b) The 1981 peak was 14 feet above the highest stage/discharge measurement. It is likely that such an extreme extrapolation would under-estimate channel capacities.

Special Problems

1. Utica Road Bridge

It was noted that the stream invert upstream and downstream of the bridge was about 4 feet higher than the invert at the bridge. It was felt that the bridge area should be adjusted to account for this ineffective flow area. Thus, the bridge area was adjusted to 1389 $ft^2$.

2. Matching USGS's measured stage/discharge.

On October 1 1981 USGS measured a discharge of 1450 cfs at Ryan Road for a stage of 604.55. This measurement was made on the receding limb of the hydrograph.

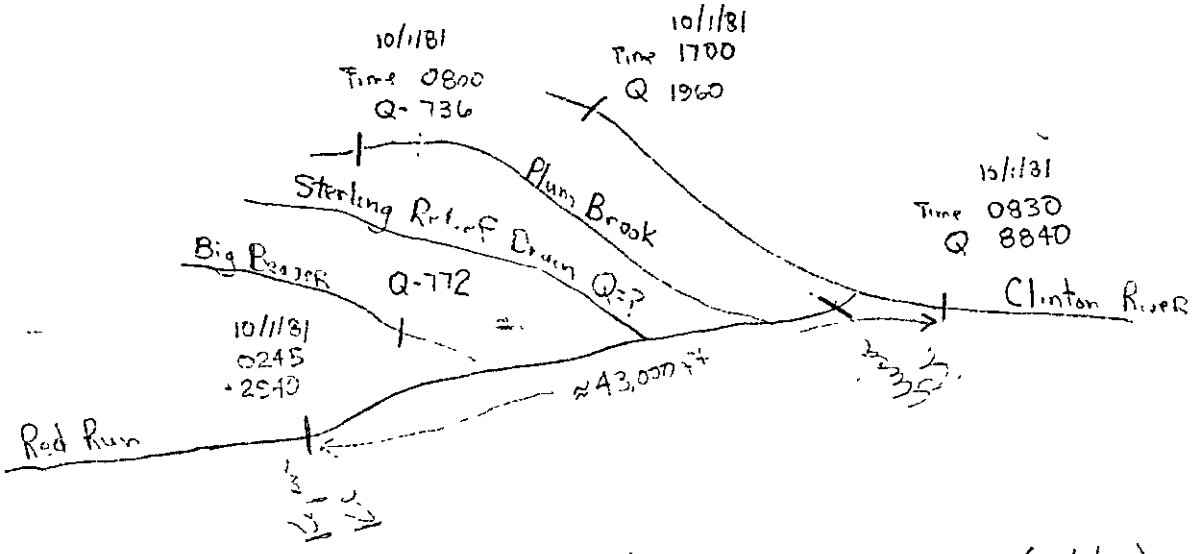
Initially it was attempted to match the highwater mark using the existing hydraulic model (no adjustments to "n" values). It was found that the profile was about 2 feet below the measured highwater mark.

To match the highwater mark it was necessary to raise "n" values about 60%. (.025 to .040). It was felt that the stage at Ryan Road may have been influenced by downstream backwater (ie., the flood peak not being entirely out of the system at the time of measurement.). Next it was attempted to estimate the discharges along the system at the time the discharge measurement was made. This estimation was made

using the FIS hydrographs. It was felt that DAMBRK would provide a better estimation of the travel of hydrographs

A minimal number of cross sections were input on the Red Run Drain, and FIS hydrographs were used. The DAMBRK model indicated some "looping" at the Ryan Road gage, however, the major difference appeared to be 'n' values. A channel "n" of .025 may be appropriate for 22 foot depths of flow, but for 9 foot depth, it appears the vegetation along the stream bank would increase the 'n' values.

a rating curve. The DNR estimate is based upon a difference in elevation between u/s & d/s highwater marks obtained by a hand level. There is a possibility for error in each estimate. It is interesting to note that the gage on the Clinton River just d/s of the confluence of the Red Run indicated a peak of 8840 cfs.




| watercourse | measured | gage ht. | $Q_{max}$ (10/1/81) | |
|---|---|---|---|---|
| Clinton | 6680 (10/1/81) | 13.4 | 8840 - | 19.56 |
| Clinton | 1130 (12/23/81) | 12.19 | 1960 | 14.9 |
| Plum Brook | 612 (10/1/81) | 3.98 | 736 | 3.29 |
| Big Beaver | 825 [illegible] | 12.2 | 772 | 12.05 |
| Red Run | 1450 [illegible] | 17.59 | 2940 | 30.2 |

Of the [illegible] gages in this area, it appears that the extrapolation for the Red Run [illegible] is the most severe. The possibility for [illegible] discharge estimate would be the greatest for the Red Run. The times of

04162010 RED RUN NEAR WARREN, MI

LOCATION --Lat 42°31'46", long 83°04'07", in SE¼ NE¼ sec. 6, T.1 N., R.12 E., Macomb County, Hydrologic Unit 04090003, on left bank at upstream side bridge on Ryan Road, and 1.0 mi (1.6 km) northwest of Warren.

DRAINAGE AREA --Indeterminate

PERIOD OF RECORD.--October 1979 to current year.

GAGE --Water-stage recorder. Altitude of gage is 620 ft (189 m), from topographic map

REMARKS --Records good except those for the winter period, which are poor. Diversion from Big Beaver Creek basin via Henry-Graham Drain started in 1976, is ongoing and increasing with further development of new drains. Several observations of water temperature were made during the year. Gage-height telemark at station

EXTREMES FOR PERIOD OF RECORD --Maximum discharge, 2,940 ft³/s (83.3 m³/s) Oct. 1, 1981, gage height, 30.2 ft (9.205 m), from floodmark; minimum daily discharge, 1.1 ft³/s (0.031 m³/s) Feb. 4-20, 1980

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,100 ft³/s (31.2 m³/s) and maximum (*)

| Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) | Date | Time | Discharge (ft³/s) | Discharge (m³/s) | Gage height (ft) | Gage height (m) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Oct. 1 | 0245 | *2,940 | 83.3 | *a30.2 | 9.205 | June 28 | 2000 | 1,170 | 33.1 | 15.51 | 4.727 |
| Oct. 27 | 1945 | 1,470 | 41.6 | 17.33 | 5.282 | July 28 | 0500 | 1,980 | 56.1 | 21.52 | 6.559 |
| Mar. 13 | 0445 | 1,760 | 49.8 | 19.77 | 6.026 | | | | | | |

a From floodmark.

Minimum daily discharge, 1.9 ft³/s (0.054 m³/s) May 26, June 12, minimum gage height, 8.69 ft (2.649 m) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1540 | 11 | 38 | 29 | 2.6 | 11 | 46 | 4.5 | 26 | 3.8 | 5.2 | 5.2 |
| 2 | 128 | 9.6 | 33 | 10 | 2.6 | 11 | 28 | 4.1 | 4.8 | 3.0 | 5.3 | 5.4 |
| 3 | 32 | 7.8 | 15 | 12 | 2.6 | 10 | 191 | 3.9 | 2.5 | 100 | 5.8 | 3.1 |
| 4 | 18 | 7.2 | 11 | 265 | 2.6 | 11 | 38 | 3.8 | 2.1 | 10 | 4.2 | 2.3 |
| 5 | 15 | 13 | 8.9 | 56 | 2.6 | 11 | 22 | 3.8 | 2.4 | 5.1 | 3.9 | 2.1 |
| 6 | 13 | 19 | 7.4 | 44 | 2.6 | 11 | 21 | 4.0 | 2.2 | 4.6 | 3.6 | 2.4 |
| 7 | 7.8 | 8.1 | 7.8 | 24 | 2.6 | 10 | 26 | 39 | 2.0 | 4.0 | 4.9 | 2.9 |
| 8 | 7.3 | 6.3 | 7.4 | 16 | 2.6 | 9.5 | 31 | 9.5 | 2.2 | 3.6 | 56 | 2.7 |
| 9 | 6.7 | 5.7 | 5.7 | 8.0 | 2.6 | 10 | 50 | 4.4 | 3.6 | 3.6 | 8.7 | 2.7 |
| 10 | 6.0 | 5.7 | 5.0 | 6.5 | 2.6 | 10 | 51 | 3.9 | 4.8 | 12 | 4.3 | 2.2 |
| 11 | 5.0 | 6.5 | 4.7 | 6.0 | 2.6 | 340 | 53 | 3.5 | 2.2 | 24 | 2.8 | 2.3 |
| 12 | 4.5 | 6.3 | 4.4 | 5.0 | 2.6 | 191 | 42 | 3.2 | 1.9 | 12 | 3.2 | 2.3 |
| 13 | 4.0 | 6.3 | 4.4 | 4.5 | 2.6 | 1180 | 39 | 3.1 | 2.0 | 3.8 | 3.0 | 2.8 |
| 14 | 3.6 | 5.5 | 4.4 | 4.0 | 2.8 | 536 | 21 | 3.2 | 3.3 | 3.6 | 2.6 | 27 |
| 15 | 3.9 | 5.6 | 4.4 | 3.5 | 3.0 | 235 | 17 | 3.0 | 15 | 3.4 | 2.2 | 17 |
| 16 | 3.7 | 5.4 | 4.4 | 3.2 | 12 | 396 | 24 | 2.7 | 11 | 2.9 | 2.8 | 4.5 |
| 17 | 4.3 | 4.9 | 4.1 | 3.0 | 11 | 295 | 56 | 2.9 | 3.2 | 4.8 | 2.3 | 3.7 |
| 18 | 30 | 4.7 | 3.8 | 2.7 | 10 | 157 | 19 | 3.5 | 2.2 | 2.8 | 2.2 | 33 |
| 19 | 7.7 | 7.4 | 3.4 | 2.5 | 9.5 | 104 | 16 | 4.3 | 105 | 20 | 2.2 | 4.4 |
| 20 | 4.3 | 94 | 3.1 | 2.4 | 9.5 | 80 | 19 | 3.7 | 71 | 5.4 | 14 | 3.7 |
| 21 | 41 | 28 | 2.9 | 2.8 | 10 | 72 | 12 | 2.9 | 47 | 3.4 | 2.7 | 2.6 |
| 22 | 69 | 13 | 6.5 | 3.5 | 11 | 54 | 11 | 24 | 5.7 | 4.3 | 2.1 | 12 |
| 23 | 36 | 10 | 8.9 | 27 | 11 | 46 | 8.7 | 4.5 | 4.0 | 2.5 | 2.2 | 8.1 |
| 24 | 13 | 11 | 6.1 | 13 | 11 | 39 | 7.2 | 3.3 | 3.1 | 2.3 | 2.3 | 8.6 |
| 25 | 9.7 | 8.4 | 4.7 | 4.5 | 10 | 37 | 6.6 | 3.0 | 2.9 | 2.3 | 27 | 6.0 |
| 26 | 9.3 | 19 | 4.1 | 3.5 | 9.0 | 29 | 7.9 | 1.9 | 4.1 | 125 | 4.0 | 5.7 |
| 27 | 360 | 23 | 6.1 | 2.7 | 9.0 | 18 | 7.4 | 29 | 2.6 | 76 | 2.5 | 84 |
| 28 | 153 | 9.0 | 6.5 | 2.7 | 10 | 15 | 5.4 | 76 | 227 | 538 | 2.7 | 13 |
| 29 | 31 | 7.2 | 6.5 | 2.7 | --- | 16 | 4.6 | 9.7 | 24 | 28 | 3.2 | 6.3 |
| 30 | 20 | 6.5 | 5.0 | 2.7 | --- | 120 | [illegible] | 3.6 | 5.5 | 12 | 5.8 | 3.0 |
| 31 | 14 | --- | 6.9 | 2.7 | --- | 344 | --- | 2.6 | --- | 7.6 | 2.6 | --- |
| TOTAL | 2600.8 | 375.1 | 244.5 | 565.1 | 172.6 | 4407.5 | 885.2 | 274.5 | 595.3 | 1033.8 | 196.3 | 281.0 |
| MEAN | 83.9 | 12.5 | 7.89 | 18.2 | 6.16 | 142 | 29.5 | 8.85 | 19.8 | 33.3 | 6.33 | 9.37 |
| MAX | 1540 | 94 | 38 | 265 | 12 | 1180 | 191 | 76 | 227 | 538 | 56 | 84 |
| MIN | 3.6 | 4.7 | 2.9 | 2.4 | 2.6 | 9.5 | 4.4 | 1.9 | 1.9 | 2.3 | 2.1 | 2.1 |

CAL YR 1981 TOTAL 9543.4 MEAN 26.1 MAX 1540 MIN 1.7
WTR YR 1982 TOTAL 11631.7 MEAN 31.9 MAX 1540 MIN 1.9

Ref #2 = 618.60

Datum = 586.96
HWM = 617.16

04163900 RED RUN NEAR CADY, MI

LOCATION.--Lat 42°34'08", long 82°58'1-", in SW¼ SW¼ sec.19, T 2 N , R 13 E., Macomb County, Hydrologic Unit 04090003, ft (15 m) upstream from bridge on Brian Road, 200 ft (61 m) upstream from mouth, 550 ft (168 m) downstream from [illegible] mi (1.1 km) northwest of Cady.

PERIOD OF RECORD.--October 1979 to September 1982 (gage heights only) (discontinued)

GAGE.--Water-stage recorder. Altitude of gage is 585 ft (178 m) from topographic map (nearest 5 ft).

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 23.34 ft (7.114 m) Oct. 1, 1981, from floodmark, minimum, 6.65 ft [illegible] 24, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 23.34 ft (7.114 m) Oct 1, from floodmark, minimum gage height recorded, [illegible] (2.030 m) Aug. 19.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1981 TO SEPTEMBER 1982
MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | --- | 9.56 | 8.84 | 8.61 | 7.91 | 8.29 | 14.20 | 8.20 | 9.21 | 7.80 | --- |
| 2 | --- | 9.28 | 9.70 | 8.34 | 7.86 | 8.35 | 12.25 | 8.50 | 9.20 | 8.00 | --- |
| 3 | --- | 9.00 | 8.78 | 8.14 | 7.91 | 8.04 | 12.52 | 8.50 | 8.70 | 9.40 | --- |
| 4 | --- | 8.78 | 8.68 | 10.79 | 7.90 | 7.84 | 12.01 | 8.00 | 8.50 | 9.00 | --- |
| 5 | --- | 9.00 | 8.55 | 10.27 | 7.93 | 8.08 | 10.92 | 7.80 | 8.40 | 8.10 | --- |
| 6 | --- | 9.30 | 8.43 | 9.22 | 7.95 | 8.17 | 10.72 | 7.80 | 8.80 | 7.90 | --- |
| 7 | --- | 9.06 | 8.37 | 9.01 | 7.88 | 8.00 | 10.78 | 8.32 | 8.60 | 7.70 | --- |
| 8 | --- | 8.98 | 8.36 | 8.65 | 8.07 | 7.88 | 10.82 | 8.66 | 8.20 | 7.70 | --- |
| 9 | --- | 8.51 | 8.34 | 8.34 | 7.95 | 7.95 | 11.26 | 7.88 | 8.10 | 7.50 | --- |
| 10 | 9.81 | 8.53 | 8.15 | 8.36 | 7.92 | 8.00 | 11.37 | 7.85 | 8.10 | 7.40 | --- |
| 11 | 9.74 | 8.54 | 8.02 | 9.46 | 7.87 | 11.29 | 11.27 | 7.85 | 7.90 | 7.90 | --- |
| 12 | 9.57 | 8.44 | 7.97 | 9.28 | 7.88 | 11.83 | 11.17 | 7.82 | 8.00 | 7.60 | --- |
| 13 | 9.45 | 8.35 | 7.89 | 8.63 | 7.93 | 17.13 | 11.15 | 7.84 | 8.20 | 7.30 | --- |
| 14 | 9.26 | 8.09 | 7.85 | 8.32 | 7.88 | 16.05 | 10.54 | 7.80 | 8.00 | 7.10 | --- |
| 15 | 9.12 | 7.71 | 7.93 | 8.20 | 7.91 | 14.62 | 10.50 | 7.70 | 7.70 | 7.10 | --- |
| 16 | 9.03 | 7.75 | 7.99 | 8.15 | 8.65 | 14.53 | 10.40 | 7.60 | 8.70 | 7.10 | --- |
| 17 | 8.90 | 7.81 | 8.02 | 8.13 | 8.38 | 14.24 | 11.70 | 7.60 | 7.90 | 7.40 | --- |
| 18 | 9.60 | 7.78 | 7.95 | 8.45 | 7.93 | 13.87 | 11.50 | 7.60 | 7.60 | 7.10 | --- |
| 19 | 8.99 | 7.96 | 7.74 | 8.46 | 7.90 | 13.42 | 10.60 | 7.62 | 9.50 | 7.60 | 6.70 |
| 20 | 8.64 | 10.45 | 7.83 | 8.15 | 8.33 | 13.06 | 10.30 | 7.68 | 9.10 | 7.40 | 7.11 |
| 21 | 9.06 | 9.80 | 7.77 | 8.07 | 8.26 | 12.80 | 9.60 | 7.54 | 9.90 | 7.10 | 6.94 |
| 22 | 10.20 | 8.94 | 8.01 | 8.02 | 8.34 | 12.43 | 9.30 | 8.25 | 8.10 | 7.00 | 6.74 |
| 23 | 9.86 | 8.68 | 8.28 | 8.67 | 8.60 | 12.16 | 9.20 | 7.93 | 7.90 | 7.00 | 6.73 |
| 24 | 8.93 | 8.37 | 8.24 | 8.30 | 8.60 | 12.02 | 9.10 | 7.73 | 8.30 | 6.90 | 6.79 |
| 25 | 8.54 | 8.07 | 7.87 | 7.95 | 7.93 | 11.87 | 9.30 | 7.54 | 8.30 | --- | 6.72 |
| 26 | 8.51 | 8.21 | 7.86 | 7.88 | 7.82 | 11.46 | 9.20 | 7.51 | 8.20 | --- | 7.54 |
| 27 | 11.10 | 9.05 | 7.96 | 7.83 | 8.01 | 10.87 | 8.90 | 8.51 | 7.90 | --- | 7.13 |
| 28 | 13.63 | 8.19 | 7.98 | 7.86 | 8.13 | 10.35 | 8.60 | 10.69 | 9.10 | --- | 7.05 |
| 29 | 10.76 | 8.08 | 7.93 | 7.89 | --- | 10.25 | 8.40 | 9.54 | 10.30 | --- | 6.97 |
| 30 | 10.04 | 8.05 | 7.85 | 7.80 | --- | 11.45 | 8.40 | 8.80 | 8.10 | --- | 7.11 |
| 31 | 9.81 | --- | 7.68 | 7.85 | --- | 14.50 | --- | 8.70 | --- | --- | 7.03 |
| MEAN | --- | 8.61 | 8.16 | 8.49 | 8.06 | 11.32 | 10.53 | 8.11 | 8.48 | --- | --- |
| MAX | --- | 10.45 | 9.70 | 10.79 | 8.65 | 17.13 | 14.20 | 10.69 | 10.30 | --- | --- |
| MIN | --- | 7.71 | 7.68 | 7.80 | 7.82 | 7.84 | 8.40 | 7.51 | 7.60 | --- | --- |

Ref. M. #1 = 596.30

Datum = 578.31

HWM = 601.65

# Hydraulic Analysis For Proposed Revision to Red Run Drain FIS

Cities of Sterling Heights and Warren

Macomb County

Prepared by
Michigan Department of Natural Resources

July 1984

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Exhibit 2 Revised Flood Boundary and Floodway Map

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Floodway Run
Summary Output

## Introduction

The hydrologic portion of the Flood Insurance Study (FIS) for the Red Run Drain was completed in 1977. Since that time, additional information and analysis has resulted in the estimated peak flows being reduced by about 10 to 25%. The reduction in the discharges will result in the 100-year flood stages being reduced by 1 to 2 feet. The purpose of this analysis is to provide the documentation necessary to revise the Flood Insurance Studies for the Cities of Warren and Sterling Heights.

## Background

In October 1983, a request was made by our office to the Federal Emergency Management Agency (FEMA) to revise the Flood Insurance Studies for the Cities of Sterling Heights and Warren, for the Red Run Drain. This request for revision was based upon the Corps of Engineers' (COE) 100-year flood discharges developed for their Clinton River Basin Study. The flood discharges were developed using the HEC-SAM computer model, and considered storage in the Twelve Towns System as well as head loss in the pollution control structure. Such factors had not been considered in previous studies and resulted in 100-year flood flows being reduced about 20 to 25%. Such a reduction in flood flows would reduce the 100-year profile about 2 feet.

In February 1984, a request for more information was received from FEMA. The additional information which was requested included the 10, 50, and 500-year flood profiles, a floodway analysis, and a map delineating the revised floodway and floodplain. Since the COE had not developed the 10, 50, or 500-year flood discharges, it was necessary for our office to compute these flows. The HEC-SAM computer model was obtained from the COE, and was used to generate the required discharges.

A review of the input data for the HEC-SAM model indicated changes would be required to obtain a reasonable model of the Red Run Basin. These changes resulted in the computed 100-year flood flows being higher than what had been developed by the COE. Thus, there is some difference between the 100-year profile submitted in October 1983 and the profile

computed using the discharges developed by the Michigan Department of Natural Resources. However, the resulting 100-year profile is still significantly lower than the original FIS profile.

## Hydrology

The flood discharges used in the analysis were developed by the Michigan Department of Natural Resources using the U. S. Army Corps of Engineers HEC-SAM model.

The peak discharges for the 10, 50, 100, and 500-year floods are shown in table 1.

## Hydraulics

The hydraulic model for the Red Run Drain was obtained from the original FIS, prepared by Johnson and Anderson, Inc.

TABLE 1
Revised Red Run Drain Discharges

Summary of Discharges

| Location | Drainage Area Sq. Miles | Peak Discharges (CFS) 10-Year Rev. | 10-Year Orig. | 50-Year Rev. | 50-Year Orig. | 100-Year Rev. | 100-Year Orig. | 500-Year Rev. | 500-Year Orig. |
|---|---|---|---|---|---|---|---|---|---|
| At mouth | 140.2 | 10780 | 11200 | 15910 | 17200 | 17390 | 19100 | 23340 | 25700 |
| Upstream Plum Brook | 113.2 | 10060 | 10600 | 14560 | 16200 | 16040 | 17800 | 21540 | 23800 |
| At 15 Mile | 105.0 | 9360 | 10100 | 13680 | 15400 | 14820 | 17000 | 19310 | 22800 |
| At Schoenherr Relief Drain | 105.0 | 10440 | 10700 | 15320 | 16300 | 16560 | 18700 | 21140 | 26200 |
| At Big Beaver Creek | 90.6 | 9210 | 9700 | 13320 | 14900 | 14260 | 17100 | 17650 | 24000 |
| At Bear Creek | 86.0 | 8580 | 9680 | 12280 | 14700 | 13000 | 16900 | 15610 | 23600 |
| Upstream Bear Creek | 63.6 | 6510 | 6680 | 8680 | 10100 | 8680 | 11700 | 8680 | 16400 |
| At Dequindre | 60.0 | 6510 | 6860 | 8680 | 10300 | 8680 | 11900 | 8680 | 16600 |

Starting Water Surface Elevation (WSEL)

The starting WSEL for the analysis was obtained from a DAMBRK analysis which modeled the confluence of the Red Run Drain and the Clinton River. Due to the weir flow at Utica Road, the starting WSEL does not have a major impact on the stages within Sterling Heights.

High Water Marks

Two high water marks resulting from the 1981 flood were obtained from USGS stream gages on the Red Run Drain. The following compares the 1981 flood stages to the 50-year and 100-year stages computed at the locations.

| Location | XSEC | 1981 HWM | 50-Year | 100-Year |
|---|---|---|---|---|
| Upstream Utica Road | 194 | 601.7 | 601.5 | 602.0 |
| Upstream Ryan Road | 37221 | 617.2 | 617.1 | 617.3 |

On September 30, 1981, a large portion of the Red Run Basin received a rainfall which equaled, or exceeded, a 100-year intensity event. Thus, the computed 50-year and 100-year stages provide a reasonable comparison to the resulting high water marks.

Problem Area

The bridge routine at Ryan Road (XSED 37088-37121), for the floodway run, was not functioning properly. It was apparent that pressure flow would be controlling, however the program reverted to computing the losses using the normal bridge routine. As a result, the bridge loss was being underestimated by about .5 feet. Thus, to obtain a reasonable upstream

stage, the loss was input using the X5 card. The WSEL input on the X5 card results in the upstream energy which would be obtained by special bridge computations.

Upstream Stage = Tailwater + $(h_V)$ x XKOR

$$= 616.54 + \left(\frac{8680}{1410}\right)^2 / 2g \times 1.66 \text{ (Encroached run)}$$

= 617.52 (Energy resulting from WSEL=617.12 at XSEC 37121)

## Results

In Table 2, the 100-year flood profile computed using the revised discharges is compared to the profile developed in the original FIS.

TABLE 2
Proposed Revisions to the Red Run Drain
Base Flood Elevations

City of Sterling Heights

| FIS Cross Section | Distance | Base Flood Water Surface Elevation Revised | Original |
|---|---|---|---|
| A | 1039 | 601.9 | 602.7 |
| B | 1143 | 602.7 | 603.8 |
| C | 1223 | 603.5 | 604.8 |
| D | 3180 | 603.9 | 605.6 |
| E | 5720 | 604.5 | 606.4 |
| F | 8270 | 605.1 | 606.9 |
| G | 8394 | 605.5 | 607.2 |
| H | 9594 | 605.7 | 607.3 |
| I | 9676 | 605.7 | 607.3 |
| J | 11596 | 605.9 | 607.4 |
| K | 13196 | 606.4 | 607.8 |
| L | 14796 | 606.7 | 608.0 |
| M | 16096 | 607.4 | 608.7 |
| N | 16418 | 607.7 | 609.0 |
| O | 16768 | 608.2 | 609.4 |
| P | 17168 | 608.3 | 609.6 |

City of Warren

| FIS Cross Section | Distance | Base Flood Water Surface Elevation Revised | Original |
|---|---|---|---|
| A | 17368 | 608.5 | 609.7 |
| B | 19119 | 608.7 | 609.9 |
| C | 20219 | 609.1 | 610.3 |
| D | 21119 | 609.1 | 610.3 |
| E | 22069 | 609.2 | 610.4 |
| F | 23319 | 609.6 | 611.0 |
| G | 23569 | 609.8 | 611.3 |
| H | 24369 | 609.9 | 611.3 |
| I | 25819 | 610.1 | 611.6 |
| J | 26025 | 610.8 | 612.4 |
| K | 26900 | 611.1 | 612.7 |
| L | 27150 | 611.2 | 612.7 |
| M | 27900 | 611.3 | 612.9 |
| N | 28031 | 612.0 | 614.2 |
| O | 28331 | 612.2 | 614.3 |
| P | 28449 | 612.7 | 615.0 |
| Q | 29749 | 613.1 | 615.3 |
| R | 31199 | 613.2 | 615.3 |
| S | 31350 | 614.5 | 616.4 |
| T | 31483 | 615.6 | 617.4 |
| U | 33333 | 616.0 | 617.8 |
| V | 33438 | 616.1 | 617.8 |
| W | 34888 | 616.3 | 618.0 |
| X | 37038 | 616.6 | 618.4 |
| Y | 37121 | 617.1 | 619.2 |
| Z | 39121 | 617.6 | 619.6 |
| AA | 41121 | 618.0 | 620.0 |
| AB | 42521 | 618.5 | 620.8 |

EXHIBIT 1

FLOOD PROFILES

EXHIBIT 2

Revised Flood Boundary and Floodway Maps

| | Community | Cross Sections |
|---|---|---|
| Panel 01 | Sterling Heights | A to G |
| Panel 02 | Sterling Heights | H to P |
| Panel 03 | Warren | A to H |
| Panel 04 | Warren | I to V |
| Panel 05 | Warren | X to AB |

Key

Floodway
100-Year Flood Boundary

# Appendix 1

# Floodway Run

# Appendix 2

## Summary Run

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************

T1    REVISED PROFILES FOR RED RUN DRAIN BY MDNR
T2    DISCHARGES COMPUTED BY MDNR USING SAM MODEL
T3          RED RUN DRAIN    100-YEAR NATURAL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         0   0 000000      0 00      0 0       0    616 220    0 000

J2  NPRDF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    0 000     0 000    -1 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150 000   200 000   0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

J5  LPRNT     NUMSEC                      ********REQUESTED SECTION NUMBERS********

    0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

QT      5 000   8680 000   8680 000   8680 000   8680 000      0 000   8680 000      0 000      0 000      0 000
NC      0 025      0 035      0 025      0 100      0 300      0 000      0 000      0 000      0 000      0 000
ET      0 000      0 000      0 000      0 000      0 000      0 000      1 400      0 000      0 000      0 000
X1  34888 000     15 000    114 000    265 000   1400 000   1300 000   1350 000      0 000      0 000      0 000
GR    614 700      0 000    614 800     65 000    614 000    114 000    593 800    153 000    593 500    155 000
GR    593 800    165 000    594 000    175 000    594 300    185 000    594 500    195 000    601 400    208 000
GR    616 000    265 000    617 300    365 000    621 300    465 000    620 600    490 000    621 200    515 000

NC      0 025      0 035      0 025      0 000      0 000      0 000      0 000      0 000      0 000      0 000
X1  37038 000     16 000    135 000    285 000   2100 000   2200 000   2150 000      0 000      0 000      0 000
X3      0 000      0 000      0 000    135 000      0 000    285 000      0 000      0 000      0 000      0 000
GR    616 900      0 000    616 400     35 000    617 500    135 000    594 700    190 000    594 400    195 000
GR    594 300    205 000    594 200    215 000    594 600    225 000    594 900    228 000    597 100    235 000
GR    617 800    285 000    618 400    335 000    618 700    435 000    619 800    535 000    621 000    635 000
GR    621 500    735 000      0 000      0 000      0 000      0 000      0 000      0 000      0 000      0 000

NC      0 000      0 000      0 000      0 300      0 500      0 000      0 000      0 000      0 000      0 000
X1  37088 000     36 000    200 000    307 100     50 000     50 000     50 000      0 000      0 000      0 000
X3      0 000      0 000      0 000     50 000      0 000    450 000      0 000      0 000      0 000      0 000
GR    617 500      0 000    616 900     44 000    616 800     50 000    616 400     79 000    616 600    100 000
GR    617 500    179 000    608 800    200 000    615 300    200 000    611 500    200 000    611 300    204 000
GR    599 000    230 000    615 300    230 000    615 300    233 000    597 500    233 000    595 500    240 000
GR    595 500    245 000    595 400    250 000    595 100    255 000    595 400    260 000    595 100    265 000
GR    595 600    270 000    596 200    274 100    615 300    274 100    615 300    277 100    595 800    277 100
GR    610 700    302 000    611 200    307 100    615 300    307 100    608 700    307 100    617 800    329 000
GR    618 400    379 000    618 600    450 000    618 700    479 000    619 300    532 000    619 800    579 000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0 100 CEHV=   0 300
*SECNO 34888 000
3280 CROSS SECTION  34888 00 EXTENDED      1 52 FEET

 34888 00    22 72   616 22     0 00   616 22   616 47     0 25     0 00     0 00   614 00
    8680      188     8492        0      185     2080        2        0        0    616 00
     0 00     1 02     4 08     0 12    0 025    0 025    0 035    0 000   593 50     0 00
 0 000154    1400     1350     1300        0        0        0     0 00   281 92   281 92

*SECNO 37038 000

3470 ENCROACHMENT STATIONS=     135 0     285 0  TYPE=     1  TARGET=     150 000
 37038 00    22 34   616 54     0 00     0 00   616 83     0 29     0 35     0 01   617 50
    8680        0     8680        0        0     2019        0      106       10  100000 00
     0 14     0 00     4 30     0 00    0 000    0 025    0 000    0 000   594 20   137 29
 0 000168    2100     2150     2200        0        0        0     0 00   144 69   281 98

CCHV=   0 300 CEHV=   0 500
*SECNO 37088 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      50 0     450 0  TYPE=     1  TARGET=     400 000
 37088 00    21 38   616 48     0 00     0 00   616 92     0 44     0 01     0 08   608 80
    8680      196     8323      161       72     1538       73      108       11    608 70
     0 14     2 73     5 41     2 21    0 025    0 025    0 035    0 000   595 10    73 21
 0 000576      50       50       50        2        0        0     0 00   158 54   325 82

SPECIAL BRIDGE

SB  XK        XKDR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00     1 66      2 80      0 00    107 00     0 00    1410 00     0 00    595 10    595 10

*SECNO 37121 000

3265 DIVIDED FLOW
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
```

T1
T2
T3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | 0 | 7 | 0 | 0 | 0 000000 | 0 00 | 0 0 | 0 | 616 280 | 0 000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 15 000 | 0 000 | -1 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
*****************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************

C
T1    REVISED PROFILES FOR RED RUN DRAIN BY MDNR
T2    DISCHARGES COMPUTED BY MDNR USING SAM MODEL
T3       RED RUN DRAIN  100-YEAR NATURAL

J1  ICHECK    INQ       NINV      IDIR      SIRT      METRIC    HVINS     Q         WSEL      FQ

      0         4         0         0   0 000000      0 00      0 0       0     599 700     0 000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    0 000     0 000    -1 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150 000   200 000   0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

    0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

QT      5 000  10780 000  15910 000  17390 000  23340 000      0 000  17390 000      0 000      0 000      0 000
NC      0 040      0 040      0 030      0 300      0 500      0 000      0 000      0.000      0 000      0 000
X1    165 000     53 000    800 000    985 800      0 000      0 000      0 000      0 920      0 000      0 000
X3      0 000      0 000      0 000    300 000      0 000   1100 000      0 000      0 000      0 000      0.000
GR    602 900      0 000    601 800    100 000    602 800    200 000    603 100    300 000    601 600    350 000
GR    601 600    380 000    600 300    100 000    598 000    500 000    597 600    565 000    597 300    600 000
GR    596 400    700 000    596 100    710 000    593 200    797 000    593 100    797 100    593 000    800 000
GR    592 200    800 000    591 000    806 000    590 300    810 000    585 300    816 000    582 700    820 000
GR    577 800    830 000    578 400    810 000    580 100    850 000    577 300    860 000    576 900    870 000
GR    577 100    875 000    577 500    877 200    595 900    877 200    592 400    897 000    591 700    900 800
GR    581 600    900.800    582 300    913 000    583 100    925 000    584 600    936 000    589 700    948 000
GR    590 900    953 000    591 300    973 000    591 500    985 800    591 700    985 800    592 100    988 000
GR    592 100    988 100    591 300   1000 000    595 000   1045 000    600 700   1080 000    604 100   1088 000
GR    605 300   1100 000    605 100   1200 000    605 700   1300 000    605 600   1400 000    603 300   1500 000
GR    603 100   1600 000    605 400   1700 000    603 700   1800 000      0 000      0 000      0 000      0 000

SB      0 000      1 540      2 800      0 000    170 000      0 000   1389.000      0 000    576 900    576 900
            UTICA ROAD US FACE    USGS STAGE GAGE    1981 HWM IS 601 7
X1    194 000     53 000    800 000    985 800     29 000     29 000     29 000      0 920      0 000      0 000
X2      0 000      0 000      1 000    596 300    599 600      0 000      0 000      0 000      0 920      0 000
X3      0 000      0 000      0 000    300 000      0 000   1100 000      0 000      0.000      0 000      0 000
GT     32 000    300 000    603 100      0 000    350 000    601 200      0 000    380 000    601 200      0 000
DT    400 000    601 400      0 000    500 000    601 000      0 000    600 000    600 700      0 000    700 000
BT    600 100      0 000    797 000    599 700      0 000    797 100    603 300      0 000    800 000    603 300
PT    593 000    800 000    603 300    595 900    820 000    603 300    595 900    830 000    603 400    595 900
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VDL       TWA    LEFT/RIGHT
   TIME      VLDB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 66      2 80      0 00    107 00      0 00   1410 00      0 00    595 10    595 10

*SECNO 37121 000
 WATER EL=X5 CARD=   617 130

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      120 0      450 0  TYPE=      1  TARGET=      330 000
 37121 00     22 03    617 13     0 00    617 06    617 53     0 40      0 02      0 01    608 80
    8680       229      8266      185        88      1608       86       107         9     608 70
     0 14      2 61      5 14     2 16     0 025     0 025    0 035     0 000    595 10    120 00
 0 000490        33        33       33         0         0        0      0 00    174 02    327 39


*SECNO 37221 000

3470 ENCROACHMENT STATIONS=       50 0      450 0  TYPE=      1  TARGET=      400 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617 50 ELREA=      617 80

 37221 00     22 22    617 32     0 00    617 25    617 59     0 27      0 03      0 04    617 50
    8680         0      8680        0         0      2093        0       111         9     617 80
     0 15      0 00      4 15     0 00     0 000     0 025    0 000     0 000    595 10    135 44
 0 000154       100       100      100         2         0        0      0 00    148 41    283 85
```

RED RUN DRAIN  100

SUMMARY PRINTOUT TABLE  150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 34888 000 | 8680 00 | 616 22 | 0 00 | 0 00 | 0 00 | 281 92 | 0 00 |
| 34888 000 | 8680 00 | 616 28 | 0 06 | 0 00 | 0 06 | 187 99 | 0 00 |
| 37038 000 | 8680 00 | 616 54 | 0 00 | 0 32 | 0 00 | 144 69 | 2150 00 |
| 37038 000 | 8680 00 | 616 61 | 0 07 | 0 33 | 0 07 | 145 00 | 2150 00 |
| 37088 000 | 8680 00 | 616 48 | 0 00 | -0 06 | 0 00 | 158 54 | 50 00 |
| 37088 000 | 8680.00 | 616 55 | 0 07 | -0 06 | 0 07 | 170 93 | 50 00 |
| 37121 000 | 8680 00 | 617 06 | 0 00 | 0 58 | 0 00 | 167 22 | 33 00 |
| + 37121 000 | 8680 00 | 617 13 | 0 07 | 0 58 | 0 07 | 174 02 | 33 00 |
| 37221 000 | 8680 00 | 617 25 | 0 00 | 0 20 | 0 00 | 148 07 | 100 00 |
| 37221 000 | 8680 00 | 617 32 | 0 07 | 0 19 | 0 07 | 148 41 | 100 00 |

FLOODWAY DATA,  RED RUN DRAIN  100
PROFILE NO  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 34888 000 | 188 | 2162 | 4 0 | 616 3 | 616 2 | 0 1 |
| 37038 000 | 145 | 2028 | 4 3 | 616 6 | 616 5 | 0 1 |
| 37088 000 | 258 | 1694 | 5 1 | 616 6 | 616 5 | 0 1 |
| 37121 000 | 207 | 1781 | 4 9 | 617 2 | 617 1 | 0 1 |
| 37221 000 | 148 | 2093 | 4 1 | 617 4 | 617 3 | 0 1 |

```
*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF NOVEMBER 1976                         *
*  UPDATED MAY 1984                                 *
*                                                   *
*  RUN DATE     ??????? TIME     ??????             *
*****************************************************
```

```
*****************************************
*  U S  ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (916) 440-2105 (FTS) 448-2105        *
*****************************************
```

```
X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 588 800 | 941 000 | 596 100 | 960 000 | 597 600 | 968 000 | 601 000 | 969 000 | 593 300 | 970 000 |
| GR | 594 300 | 1000 000 | 595 000 | 1045 000 | 600 100 | 1069 000 | 604 000 | 1089 000 | 605 300 | 1100 000 |
| GR | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1100 000 | 603 300 | 1500 000 | 603 100 | 1600 000 |
| GP | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 |
| | | | | | | | | | | |
| SB | 0 000 | 1 555 | 3 020 | 0 000 | 174 400 | 0 000 | 2318 400 | 0 000 | 581 700 | 581 700 |
| X1 | 1143 000 | 67 000 | 781 500 | 969 000 | 43 000 | 43 000 | 43 000 | 0 930 | 0 000 | 0.000 |
| X2 | 0 000 | 0 000 | 1 000 | 601 700 | 603 100 | 0 000 | 0.000 | 0 000 | 0 930 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 970 000 | 603 100 | 603 100 | 0 000 | 0 000 |
| BT | 17 000 | 450 000 | 604 600 | 0 000 | 469 000 | 604.600 | 0 000 | 569 000 | 604 700 | 0 000 |
| BT | 669 000 | 604 600 | 0 000 | 769 000 | 604 300 | 0 000 | 780 000 | 604 300 | 0 000 | 780 000 |
| BT | 608 100 | 0 000 | 781 500 | 608 100 | 601 700 | 825 200 | 608 000 | 601.600 | 875 200 | 607 800 |
| BT | 601 400 | 925 200 | 607 500 | 601 100 | 969 000 | 607 400 | 601 000 | 970 000 | 607 400 | 0 000 |
| BT | 970 000 | 604 300 | 0 000 | 1069 000 | 603 100 | 0 000 | 1089 000 | 604 100 | 0 000 | 1100 000 |
| BT | 605 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 602 100 | 69 000 | 601 800 | 100 000 | 602 500 | 169 000 | 602 800 | 200 000 |
| GR | 603 000 | 269 000 | 603 100 | 300 000 | 601 200 | 369 000 | 600 300 | 400 000 | 599 100 | 450 000 |
| GR | 598 700 | 469 000 | 598 000 | 500 000 | 597 600 | 565 000 | 597 600 | 569 000 | 596 700 | 669 000 |
| GR | 596 100 | 740 000 | 594 600 | 769 000 | 593 800 | 780 000 | 601 700 | 781 500 | 598 600 | 782 500 |
| GR | 597 900 | 788 000 | 592 900 | 800 000 | 591 200 | 805 000 | 586 400 | 808 000 | 586 400 | 819.000 |
| GR | 585 800 | 823 900 | 601 600 | 823 900 | 601 600 | 825 200 | 601 600 | 826 500 | 584 800 | 826 500 |
| GR | 584 700 | 829 000 | 584 700 | 839 000 | 584 200 | 849 000 | 584 400 | 859 000 | 584 600 | 869 000 |
| GR | 584 800 | 873 900 | 601 400 | 873 900 | 601 400 | 875 200 | 601 400 | 876 500 | 582 800 | 876 500 |
| GR | 582 600 | 879 000 | 581 700 | 889 000 | 582 100 | 899 000 | 583 500 | 909.000 | 584 600 | 919 000 |
| GR | 585 400 | 923 900 | 601 100 | 923 900 | 601 100 | 925 200 | 601 100 | 926 500 | 586 900 | 926 500 |
| GR | 586 600 | 930 000 | 588 800 | 941 000 | 596 100 | 960 000 | 597 600 | 968 000 | 601 000 | 969.000 |
| GR | 593 300 | 970 000 | 594 300 | 1000 000 | 595 000 | 1045 000 | 600 100 | 1069 000 | 604 000 | 1089 000 |
| GR | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600 000 | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| X1 | 1150 000 | 31 000 | 800 000 | 944 000 | 7 000 | 7 000 | 7 000 | 0 930 | -1 320 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 780 000 | 0 000 | 980 000 | 0 000 | 603 400 | 603 400 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603 100 | 300 000 | 600 300 | 400 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 584 400 | 830 000 | 583 900 | 840 000 | 583 700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 |
| GR | 583 700 | 910 000 | 586 500 | 921 000 | 588 800 | 926 000 | 589 300 | 938.000 | 592 500 | 944 000 |
| GR | 594 300 | 1000 000 | 595 000 | 1045 000 | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 |
| GR | 605 700 | 1300 000 | 605 600 | 1100 000 | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700.000 |
| GR | 603 700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| NC | 0 150 | 0 150 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1180 000 | 62 000 | 782 000 | 967 000 | 30 000 | 30 000 | 30 000 | 0 940 | 0 000 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 1100 000 | 0 000 | 603.400 | 603 400 | 0 000 |
| GR | 602 900 | 0 000 | 602 000 | 82 000 | 601 800 | 100 000 | 602 600 | 182 000 | 602 800 | 200 000 |
| GR | 603 000 | 282 000 | 603 100 | 300 000 | 600 800 | 382 000 | 600 300 | 400 000 | 598 400 | 482 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 597 400 | 582 000 | 596 600 | 682 000 | 596 100 | 740 000 |
| GR | 594 000 | 780 000 | 601 000 | 782 000 | 597 100 | 783 000 | 596 400 | 789 000 | 591 700 | 809 000 |
| GR | 590 900 | 819 000 | 588 400 | 823 400 | 600 900 | 823 400 | 600 900 | 824 700 | 600 900 | 826 000 |
| GR | 587 500 | 826 000 | 587 200 | 832 000 | 584 300 | 842 000 | 584 100 | 852 000 | 583 800 | 862 000 |
| GR | 583 600 | 873 400 | 600 900 | 873 100 | 600 900 | 874 700 | 600 900 | 876 000 | 583 900 | 876 000 |
| GR | 582 900 | 882 000 | 582 700 | 892 000 | 582 700 | 902 000 | 582 100 | 912.000 | 583 400 | 923 200 |
| GR | 600 900 | 923 200 | 600 900 | 921 500 | 600 900 | 925 800 | 587 300 | 925 800 | 588 900 | 930 000 |
| GR | 591 300 | 939 000 | 596 700 | 961 000 | 598 100 | 966 000 | 600 900 | 967 000 | 593 300 | 970 000 |
| GR | 593 700 | 982 000 | 594 300 | 1000 000 | 595 000 | 1045 000 | 602 800 | 1082 000 | 604 100 | 1088 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600 000 | 605 100 | 1700 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| SB | 0 000 | 1 561 | 3 040 | 0 000 | 173 900 | 0 000 | 2121 100 | 0.000 | 582 100 | 582 100 |
| | | 16 MILE RD US | | | | | | | | |
| X1 | 1223 000 | 63 000 | 782 000 | 967 000 | 43 000 | 43 000 | 43 000 | 0 940 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 601 000 | 603 400 | 0 000 | 0 000 | 0 000 | 0 940 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 1100 000 | 0 000 | 603 400 | 603 400 | 0 000 |
| BT | 17 000 | 0 000 | 603 300 | 0 000 | 482 000 | 603 400 | 0 000 | 582 000 | 603 600 | 0 000 |
| BT | 682 000 | 603 500 | 0 000 | 780 000 | 603 500 | 0 000 | 780 000 | 607 700 | 0 000 | 782 000 |
| BT | 607 700 | 601 000 | 824 700 | 607 600 | 600 900 | 847 700 | 607 600 | 600 900 | 924 500 | 607 600 |
| BT | 600 900 | 967 000 | 607 600 | 600 900 | 970 000 | 607 600 | 0 000 | 970 000 | 603 400 | 0 000 |
| BT | 982 000 | 603 500 | 0 000 | 1082 000 | 603 300 | 0 000 | 1088 000 | 604 100 | 0 000 | 1100.000 |
| BT | 605 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 602 000 | 82 000 | 601 800 | 100 000 | 602 600 | 182 000 | 602 800 | 200 000 |
| GR | 603 000 | 282 000 | 603 100 | 300 000 | 600 800 | 382 000 | 600 300 | 400 000 | 599 100 | 450 000 |
| GR | 598 400 | 482 000 | 598 000 | 500 000 | 597 600 | 565 000 | 597 400 | 582 000 | 596 600 | 682 000 |
| GR | 596 100 | 740 000 | 594 000 | 780 000 | 601 000 | 782 000 | 597 100 | 783 000 | 596 400 | 789 000 |
| GR | 591 700 | 809 000 | 590 900 | 819 000 | 588 400 | 823 400 | 600 900 | 823 400 | 600 900 | 824 700 |
| GR | 600 900 | 826 000 | 587 500 | 826 000 | 587 200 | 832 000 | 584 300 | 842 000 | 584 100 | 852 000 |
| GR | 583 800 | 862 000 | 583 600 | 873 400 | 600 900 | 873 400 | 600 900 | 874 700 | 600 900 | 876 000 |
| GR | 583 900 | 876 000 | 582 900 | 882 000 | 582 700 | 892 000 | 582 700 | 902 000 | 582 100 | 912 000 |
| GR | 583 400 | 923 200 | 600 900 | 923 200 | 600 900 | 924 500 | 600 900 | 925 800 | 587 300 | 925.800 |
| GR | 588 900 | 931 000 | 591 300 | 939 000 | 596 700 | 961 000 | 598 100 | 966 000 | 600 900 | 967.000 |
| GR | 593 300 | 970.000 | 593 700 | 982 000 | 594 300 | 1000 000 | 595 000 | 1045 000 | 602 800 | 1082 000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 |
| GR | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 040 | 0 040 | 0 025 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1323 000 | 31 000 | 800 000 | 944 000 | 100 000 | 100 000 | 100 000 | 0 940 | -0 950 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 350 000 | 0 000 | 1000 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603 100 | 300 000 | 600 300 | 400.000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 581 100 | 830 000 | 583 900 | 810 000 | 583 700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 |
| GR | 583 700 | 910 000 | 586 500 | 921 000 | 588 800 | 926 000 | 589 300 | 938 000 | 592 500 | 944 000 |
| GR | 591 100 | 1000 000 | 595 000 | 1045 000 | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 |
| GR | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 |
| GR | 603 700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 110 | 0 060 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0.000 | 600 000 | 0 000 |
| X1 | 2223 000 | 23 000 | 300 000 | 446 000 | 870 000 | 940 000 | 900 000 | 0 000 | -0 440 | 0 000 |
| GR | 615 500 | 0 000 | 615 300 | 100 000 | 613 000 | 200 000 | 611 500 | 222 000 | 601 200 | 252 000 |
| GR | 592 900 | 300 000 | 586 000 | 323 000 | 585 200 | 330 000 | 584 600 | 340 000 | 584 800 | 360 000 |
| GR | 581 200 | 380 000 | 583 000 | 400.000 | 583 600 | 420 000 | 583 900 | 430 000 | 586 600 | 437 000 |
| GR | 593 700 | 446 000 | 594 600 | 463 000 | 607 000 | 503 000 | 607 700 | 600 000 | 608 200 | 700.000 |
| GR | 608 200 | 800 000 | 607 500 | 900 000 | 606 400 | 1000 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 040 | 0 010 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 8 100 | 1 400 | 0 000 | 600 000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3180 000 | 0 000 | 0 000 | 0 000 | 925 000 | 995 000 | 957 000 | 0 000 | 0 440 | 0 000 |
| QT | 5 000 | 9360 000 | 13680 000 | 14820 000 | 19310 000 | 0 000 | 14820 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 800 000 | 0 000 |
| X1 | 5720 000 | 22 000 | 400 000 | 556 000 | 2600 000 | 2500 000 | 2540 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 700 | 0 000 | 604 500 | 100 000 | 604 500 | 200.000 | 602 000 | 300 000 | 599 300 | 400 000 |
| GR | 586 500 | 422 000 | 585 000 | 430 000 | 584 900 | 440 000 | 584 900 | 460 000 | 585.000 | 480 000 |
| GR | 584 200 | 500 000 | 585 500 | 520 000 | 586 400 | 530 000 | 600 900 | 556 000 | 601 700 | 570 000 |
| GR | 604 300 | 575 000 | 604 100 | 600 000 | 604 300 | 700 000 | 606 700 | 700 000 | 608 100 | 800 000 |
| GR | 606 800 | 900 000 | 606 300 | 920 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| NC | 0 035 | 0 030 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 420 000 | 0 000 | 0 000 |
| X1 | 7470 000 | 28 000 | 900 000 | 1059 000 | 1830 000 | 1750 000 | 1710 000 | 0 000 | 0 000 | 0 000 |
| GR | 601 300 | 0 000 | 601 400 | 100 000 | 603 600 | 200 000 | 603 600 | 300 000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935 000 | 584 600 | 945.000 | 584.600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 581 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606.400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0.000 | 0 000 |
| X1 | 8270 000 | 28 000 | 900 000 | 1059 000 | 800 000 | 840 000 | 760 000 | 0 870 | 0 300 | 0 000 |
| GR | 604 300 | 0 000 | 604 400 | 100 000 | 603 600 | 200 000 | 603 600 | 300 000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935 000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 581 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 581 500 | 1015 000 | 585 800 | 1025 000 | 602.000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0 000 | 0 000 |
| X1 | 8340 000 | 59 000 | 825 000 | 1010 000 | 70 000 | 70 000 | 70 000 | 0 870 | 0 000 | 0 000 |
| GR | 604 600 | 0 000 | 604 700 | 25 000 | 604 700 | 48 000 | 604 100 | 125 000 | 603 900 | 148 000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601 900 | 448 000 | 600 200 | 173 000 | 599 600 | 525 000 | 598 900 | 548 000 | 597 100 | 625.000 |
| GR | 596 600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 607 300 | 825 000 |
| GR | 598 100 | 825 000 | 598 100 | 830 700 | 587 700 | 856 000 | 585 400 | 857 500 | 584 400 | 864 300 |
| GR | 600 400 | 864 300 | 600 200 | 871 300 | 586 200 | 871 300 | 585 900 | 875 000 | 584 900 | 885 000 |
| GR | 585 000 | 895 000 | 585 200 | 905 000 | 584 900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585 100 | 919 800 | 585 700 | 925 000 | 585 500 | 935 000 | 585 700 | 945 000 | 585 900 | 955 000 |
| GR | 586 300 | 964 800 | 600 200 | 964 800 | 600 400 | 971 400 | 588 100 | 971 400 | 588 100 | 978 600 |
| GR | 597 800 | 1003 200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025 000 | 604 000 | 1036 000 |
| GR | 601 600 | 1048 000 | 606 200 | 1125 000 | 606 700 | 1148 000 | 607 700 | 1225 000 | 608 000 | 1248 000 |
| GR | 608 600 | 1325 000 | 608 800 | 1318 000 | 609 200 | 1425 000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 790 | 2 800 | 0 000 | 161 000 | 0 000 | 1680 000 | 0.000 | 584 400 | 584 400 |
| | | 15 MILE RD US | | | | | | | | |
| X1 | 8394 000 | 59 000 | 825 000 | 1010 000 | 54 000 | 54 000 | 54 000 | 0 870 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 600 400 | 600 900 | 0 000 | 0 000 | 0.000 | 0 870 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 140 000 | 0 000 | 980 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 27 000 | 0 000 | 604 600 | 0 000 | 48 000 | 604 700 | 0 000 | 148 000 | 603 900 | 0 000 |
| BT | 248 000 | 603 900 | 0 000 | 348 000 | 603 900 | 0 000 | 448 000 | 601 900 | 0 000 | 473 000 |
| BT | 601 200 | 0 000 | 525 000 | 600 900 | 0 000 | 625 000 | 601 100 | 0 000 | 725 000 | 602 300 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 0 000 | 825 000 | 603 700 | 0 000 | 825 000 | 607 300 | 600 400 | 864 300 | 607 300 | 600 400 |
| BT | 871 300 | 607 300 | 600 200 | 915 000 | 607 300 | 600 200 | 919 800 | 607 300 | 600 200 | 964 800 |
| BT | 607 300 | 600 200 | 971 400 | 607 300 | 600 400 | 1010 000 | 607 300 | 600 500 | 1010 000 | 603 700 |
| BT | 0 000 | 1025 000 | 603 900 | 0 000 | 1036 000 | 604 000 | 0 000 | 1048.000 | 604 600 | 0 000 |
| BT | 1148 000 | 606 700 | 0 000 | 1248 000 | 608 000 | 0 000 | 1348 000 | 608 800 | 0 000 | 1440 000 |
| BT | 609 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 600 | 0 000 | 604 700 | 25 000 | 604 700 | 48 000 | 604 100 | 125 000 | 603 900 | 148 000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601 900 | 448 000 | 600 200 | 473 000 | 599 600 | 525 000 | 598 900 | 548 000 | 597 100 | 625 000 |
| GR | 596.600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 600 400 | 825 000 |
| GR | 598 100 | 825 000 | 598 100 | 830 700 | 587 700 | 856 000 | 585 400 | 857 500 | 584 400 | 864 300 |
| GR | 600 400 | 864 300 | 600 200 | 871 300 | 586 200 | 871 300 | 585 900 | 875 000 | 584 900 | 885 000 |
| GR | 585 000 | 895 000 | 585 200 | 905 000 | 584.900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585 100 | 919 800 | 585 700 | 925 000 | 585.500 | 935 000 | 585 700 | 945 000 | 585 900 | 955 000 |
| GR | 586 300 | 964 800 | 600 200 | 964 800 | 600 400 | 971 400 | 588 100 | 971 400 | 588 100 | 978 600 |
| GR | 597 800 | 1003 200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025.000 | 604 000 | 1036 000 |
| GR | 604 600 | 1048 000 | 606 200 | 1125 000 | 606 700 | 1148 000 | 607 700 | 1225 000 | 608 000 | 1248 000 |
| GR | 608 600 | 1325 000 | 608 800 | 1348 000 | 609 200 | 1425 000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 030 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 10440 000 | 15320 000 | 16560 000 | 21140 000 | 0 000 | 16560 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 8 100 | 1 400 | 160 000 | 0 000 | 0 000 |
| X1 | 8494 000 | 28 000 | 900 000 | 1059 000 | 100 000 | 100 000 | 100 000 | 0 870 | 0 400 | 0 000 |
| GR | 604 300 | 0 000 | 604 400 | 100 000 | 603 600 | 200 000 | 603 600 | 300 000 / | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935 000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995.000 | 584 500 | 1005 000 |
| GR | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1100 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 260 000 | 0 000 | 0 000 |
| X1 | 9594 000 | 28 000 | 860 000 | 1030 000 | 630 000 | 1520 000 | 1100 000 | 0 000 | 0 300 | 0 000 |
| GR | 604 500 | 0 000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260 000 | 601 300 | 360 000 |
| GR | 599 200 | 460 000 | 598 000 | 560 000 | 598 800 | 660 000 | 598 900 | 760.000 | 597 800 | 860 000 |
| GR | 594 000 | 871 000 | 590 300 | 878 000 | 588 900 | 889 000 | 586 900 | 893 000 | 586 400 | 900 000 |
| GR | 585 800 | 910 000 | 585 400 | 920 000 | 585 500 | 930 000 | 585 400 | 940.000 | 585 400 | 950 000 |
| GR | 585 800 | 960 000 | 586 000 | 970 000 | 585 500 | 980 000 | 587 600 | 990.000 | 602 200 | 1030 000 |
| GR | 603 400 | 1060 000 | 606 600 | 1160 000 | 608 200 | 1260 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9653 000 | 0 000 | 0 000 | 0 000 | 59 000 | 59 000 | 59 000 | 0 000 | -0 300 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0 000 | 1210 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 025 | 0 025 | 0 020 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0.000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 410 | 200 000 | 0 000 | 0 000 |
| X1 | 9654 000 | 42 000 | 802 000 | 959 500 | 1 000 | 1 000 | 1 000 | 0 000 | 0 000 | 0 000 |
| BT | 21 000 | 0 000 | 604 200 | 0 000 | 33 000 | 604 100 | 0 000 | 100 000 | 604.000 | 0 000 |
| BT | 200 000 | 603 600 | 0 000 | 219 000 | 603 200 | 0 000 | 300 000 | 602 900 | 0 000 | 400 000 |
| BT | 601 800 | 0 000 | 500 000 | 601 400 | 0 000 | 600 000 | 601 500 | 0 000 | 700.000 | 603 000 |
| BT | 0 000 | 800 000 | 604 900 | 0 000 | 800 000 | 605 600 | 0 000 | 802 000 | 605 600 | 603 300 |
| BT | 880 700 | 605 700 | 603 400 | 959 500 | 605 700 | 603 400 | 961 500 | 605 700 | 0 000 | 961 500 |
| BT | 605 200 | 0 000 | 1000 000 | 601 900 | 0 000 | 1038 000 | 604 900 | 0 000 | 1100 000 | 606 900 |
| BT | 0 000 | 1150 000 | 607 700 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 200 | 0 000 | 604 100 | 33.000 | 604 000 | 100.000 | 603 600 | 200 000 | 603 200 | 219 000 |
| GR | 601 600 | 300 000 | 599 500 | 400 000 | 598 300 | 500 000 | 599 100 | 600 000 | 599 200 | 700 000 |

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| GR | 598 100 | 800 000 | 603 300 | 802 000 | 598 800 | 802 000 | 598 800 | 808 000 | 597 900 | 810 000 |
| GR | 593 400 | 820 000 | 589 500 | 828 000 | 589 300 | 830 000 | 587 200 | 840 000 | 586 800 | 850 000 |
| GR | 586 200 | 860 000 | 585 900 | 870 000 | 585 600 | 878 900 | 603 400 | 878 900 | 603 400 | 880 700 |
| GR | 603 400 | 882 500 | 585 600 | 882 500 | 585.400 | 890 000 | 586 200 | 900 000 | 586 200 | 910 000 |
| GR | 586 300 | 920 000 | 587 100 | 930 000 | 591 700 | 940 000 | 597 700 | 950 000 | 599 700 | 959 500 |
| GR | 603 400 | 959 500 | 599 600 | 961.500 | 602 500 | 970 000 | 603 700 | 1000.000 | 604 900 | 1038 000 |
| GR | 606 900 | 1100 000 | 607 700 | 1150 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 200 000 | 0 000 | 0 000 |
| X1 | 9676 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22 000 | 22 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9677 000 | 28 000 | 860 000 | 1030 000 | 1 000 | 1 000 | 1 000 | 0 000 | 0 000 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 280 000 | 0 000 | 1210 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604.500 | 0 000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260.000 | 601 300 | 360 000 |
| GR | 599 200 | 460 000 | 598 000 | 560 000 | 598 800 | 660 000 | 598 900 | 760 000 | 597 800 | 860 000 |
| GR | 594 000 | 871 000 | 590 300 | 878 000 | 588 900 | 889 000 | 586 900 | 893 000 | 586 400 | 900 000 |
| GR | 585 800 | 910 000 | 585 400 | 920 000 | 585 500 | 930 000 | 585 400 | 940 000 | 585 400 | 950 000 |
| GR | 585 800 | 960 000 | 586 000 | 970 000 | 585 800 | 980 000 | 587 600 | 990 000 | 602 200 | 1030 000 |
| GR | 603 400 | 1060 000 | 606 600 | 1160 000 | 608 200 | 1260 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 250 000 | 0 000 | 0 000 |
| X1 | 9777 000 | 0 000 | 0 000 | 0 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 050 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0.300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 11596 000 | 34 000 | 812 000 | 1000 000 | 1975 000 | 1660 000 | 1819 000 | 0 000 | 0 300 | 0 000 |
| GR | 612 500 | 0 000 | 612 100 | 100 000 | 611 600 | 200 000 | 611 000 | 300 000 | 609 900 | 400 000 |
| GR | 609 600 | 500 000 | 609 800 | 600 000 | 608 300 | 700 000 | 607 700 | 800 000 | 607 300 | 812 000 |
| GR | 593 300 | 844 000 | 587 200 | 852 000 | 586 900 | 860 000 | 587 100 | 870 000 | 587 100 | 880 000 |
| GR | 587 000 | 890 000 | 587 000 | 900 000 | 586 900 | 910 000 | 586 800 | 920 000 | 586 800 | 930 000 |
| GR | 586 100 | 940 000 | 586 400 | 950 000 | 586 700 | 957.000 | 589 400 | 960 000 | 597 000 | 975 000 |
| GR | 600 400 | 1000 000 | 603 600 | 1050 000 | 602 600 | 1100 000 | 602 300 | 1200 000 | 603 100 | 1300 000 |
| GR | 603 500 | 1400 000 | 604 500 | 1128 000 | 606 900 | 1441 000 | 607 900 | 1500 000 | 0 000 | 0 000 |
| NC | 0 045 | 0 045 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 538 000 | 0 000 |
| X1 | 13196 000 | 27 000 | 0 000 | 238 000 | 1320 000 | 1760 000 | 1600 000 | 0 000 | 0 300 | 0 000 |
| GR | 610 600 | 0 000 | 604 300 | 23 000 | 602 500 | 67 000 | 596 300 | 78 000 | 595 400 | 108 000 |
| GR | 590 500 | 123 000 | 589 700 | 133 000 | 587 500 | 138 000 | 587 000 | 148 000 | 586 500 | 158 000 |
| GR | 586 700 | 168 000 | 585 900 | 178 000 | 585 900 | 188 000 | 585 400 | 198 000 | 585 200 | 208 000 |
| GR | 587 000 | 219 000 | 593 100 | 229 000 | 595 600 | 238 000 | 598 000 | 263 000 | 604 400 | 329 000 |
| GR | 604 500 | 338 000 | 604 100 | 438 000 | 605 200 | 538 000 | 605 500 | 638 000 | 605 900 | 738 000 |
| GR | 606 700 | 838 000 | 607 500 | 938 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 040 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0.000 | 0 000 | 0 000 |
| X1 | 14796 000 | 33 000 | 0 000 | 300 000 | 1600 000 | 1600 000 | 1600 000 | 0 000 | 0.300 | 0 000 |
| GR | 621 100 | 0 000 | 619 400 | 20 000 | 618 800 | 26 000 | 611 900 | 76 000 | 610 100 | 96 000 |
| GR | 600 100 | 114 000 | 598 600 | 125 000 | 591 300 | 142 000 | 587 700 | 146 000 | 587.400 | 150 000 |
| GR | 587 000 | 160 000 | 587 000 | 170 000 | 587 100 | 180 000 | 587 000 | 190 000 | 587 300 | 200.000 |
| GR | 587 300 | 210 000 | 587 400 | 220 000 | 587 600 | 230 000 | 587 900 | 236 000 | 589 800 | 240 000 |
| GR | 590 800 | 245 000 | 595 000 | 258 000 | 598 200 | 263 000 | 603 900 | 272 000 | 612 800 | 300 000 |

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| GR | 616 300 | 380 000 | 615 200 | 400 000 | 614 400 | 500 000 | 613 300 | 600 000 | 613 300 | 700 000 |
| GR | 610 800 | 800 000 | 611 200 | 900 000 | 608 700 | 960 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 9210 000 | 13320 000 | 14260 000 | 17650 000 | 0 000 | 14260 000 | 0 000 | 0 000 | 0 000 |
| X1 | 16096 000 | 22 000 | 100 000 | 311 000 | 1200 000 | 1600 000 | 1300 000 | 0 000 | 0 300 | 0 000 |
| GR | 615 800 | 0 000 | 613 100 | 100 000 | 599 300 | 133 000 | 598 000 | 160 000 | 594 000 | 188 000 |
| GR | 588 200 | 195 000 | 587 500 | 200 000 | 586 800 | 210 000 | 586 500 | 220 000 | 586 700 | 230 000 |
| GR | 587 200 | 240 000 | 587 200 | 250 000 | 587 400 | 260 000 | 588 400 | 270 000 | 594 400 | 285 000 |
| GR | 596 700 | 295 000 | 604 300 | 311 000 | 606 200 | 400 000 | 605 800 | 500 000 | 606 900 | 600 000 |
| GR | 605 900 | 660 000 | 630 000 | 660 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 16396 000 | 35 000 | 177 000 | 323 800 | 300 000 | 300 000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 100 | 0 000 | 613 400 | 100 000 | 607 900 | 124 000 | 606 700 | 177 000 | 605 100 | 177 000 |
| GR | 589 200 | 178 500 | 588 500 | 182 000 | 587 800 | 187 000 | 587 500 | 192 000 | 587 700 | 197 000 |
| GR | 588 000 | 202 000 | 587 800 | 207 000 | 587 600 | 217 000 | 587 600 | 227 000 | 588 000 | 237 000 |
| GR | 588 800 | 247 000 | 588 000 | 256 250 | 605 300 | 256 250 | 605 300 | 259 750 | 587 600 | 259.750 |
| GR | 588 400 | 262 000 | 589 600 | 267 000 | 592 400 | 277 000 | 593 200 | 287 000 | 592 100 | 291 000 |
| GR | 593 800 | 297 000 | 600 900 | 317 000 | 602 500 | 321 000 | 605 100 | 323 800 | 604 900 | 327 000 |
| GR | 606 000 | 377.000 | 606 300 | 392 000 | 606 500 | 400 000 | 606 100 | 500 000 | 607 200 | 600 000 |
| SB | 0 000 | 1 620 | 3 070 | 0 000 | 290 000 | 0 000 | 2030 000 | 0 000 | 587 500 | 587.500 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 16418 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22 000 | 22 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 605 300 | 606 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 16 000 | 0 000 | 616 100 | 0 000 | 100 000 | 613 400 | 0 000 | 124.000 | 607 900 | 0 000 |
| BT | 177 000 | 606 700 | 0 000 | 177 000 | 607 500 | 605 100 | 256 200 | 607 600 | 605 300 | 259.700 |
| BT | 607 500 | 605 200 | 323 800 | 607 600 | 605 100 | 323 800 | 606 800 | 0 000 | 327 000 | 606 800 |
| BT | 0 000 | 377 000 | 606 400 | 0 000 | 392 000 | 606 300 | 0 000 | 400 000 | 606 500 | 0 000 |
| BT | 500 000 | 606 100 | 0 000 | 600 000 | 607 200 | 0 000 | 750 000 | 607 200 | 0 000 | 0 000 |
| NC | 0 028 | 0 030 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 16768 000 | 23 000 | 201 000 | 332 000 | 400 000 | 300 000 | 350 000 | 0.000 | 0 300 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| GR | 609 600 | 0 000 | 607 400 | 55 000 | 601 300 | 155 000 | 597 400 | 204 000 | 588 800 | 227 000 |
| GR | 587 700 | 235 000 | 587 900 | 215 000 | 588 000 | 255 000 | 588 100 | 265 000 | 588 200 | 275 000 |
| GR | 588 300 | 285 000 | 588 400 | 295 000 | 588 500 | 305 000 | 588 600 | 315 000 | 588 300 | 325 000 |
| GR | 589 800 | 328 000 | 590 800 | 332 000 | 599 600 | 355 000 | 602 000 | 455 000 | 604 900 | 552 000 |
| GR | 607 700 | 560 000 | 607 400 | 573 000 | 630 000 | 573 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 17168 000 | 41 000 | 375 000 | 171 400 | 600 000 | 100.000 | 400 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 400 | 0 000 | 608 600 | 25 000 | 607 000 | 50 000 | 598 100 | 75 000 | 596.600 | 100 000 |
| GR | 596 500 | 125 000 | 595 300 | 150 000 | 596 600 | 175 000 | 597 000 | 200 000 | 597 900 | 225 000 |
| GR | 596 300 | 236 500 | 601 800 | 216 000 | 601 800 | 250 000 | 602 000 | 275 000 | 601 400 | 300 000 |
| GR | 600 900 | 325 000 | 599 200 | 350 000 | 598 200 | 375 000 | 592 700 | 382 000 | 590 700 | 383 400 |
| GR | 589 100 | 385.500 | 588 900 | 389 000 | 588 800 | 396 000 | 588 600 | 403 000 | 589.200 | 410 000 |
| GR | 588 700 | 417 000 | 588 800 | 124 000 | 588 700 | 431 000 | 588 500 | 438 000 | 588 000 | 445 000 |
| GR | 588 600 | 452 000 | 588 800 | 458 300 | 590 100 | 459 700 | 591 000 | 460 400 | 593 500 | 464 600 |

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| GR | 597 100 | 468 100 | 599 100 | 474 400 | 600 900 | 488 900 | 602 400 | 513 900 | 604 000 | 533 500 |
| GR | 606 000 | 588 900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 17268 000 | 61 000 | 400 000 | 591 800 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 300 | 0 000 | 607 900 | 90 000 | 606 400 | 275 000 | 607 100 | 300 000 | 607 600 | 325.000 |
| GR | 608 200 | 350 000 | 608 800 | 375 000 | 608 800 | 100 000 | 596 800 | 400 000 | 589 200 | 414 000 |
| GR | 589 200 | 421 000 | 587 900 | 428 000 | 587 900 | 435 000 | 588 000 | 437 000 | 606 400 | 437 000 |
| GR | 606 400 | 438 500 | 606 400 | 440 000 | 588 100 | 440 000 | 588 000 | 441 900 | 588 100 | 449 000 |
| GR | 588 300 | 456 000 | 588 300 | 463 000 | 588 200 | 470 000 | 588 300 | 476 900 | 606 800 | 476 900 |
| GR | 606 800 | 478 400 | 606 800 | 479 900 | 588 000 | 479 900 | 588 200 | 491.000 | 587 600 | 498.000 |
| GR | 587 000 | 505 000 | 586 500 | 509 900 | 586 500 | 511 900 | 607 000 | 511.900 | 607 000 | 513 400 |
| GR | 607 000 | 514 900 | 586 600 | 514 900 | 586 700 | 519 000 | 587 700 | 526 000 | 587.700 | 533 000 |
| GR | 588 000 | 540 000 | 588 000 | 544 000 | 586 500 | 549 000 | 606 900 | 549 000 | 606 900 | 550 500 |
| GR | 606 900 | 550 500 | 606 900 | 552 000 | 586 700 | 552 000 | 586 800 | 553 300 | 588 000 | 561 000 |
| GR | 587 400 | 568 000 | 588 100 | 575 000 | 591 900 | 582 000 | 596 600 | 591 800 | 609.200 | 591 800 |
| GR | 609 300 | 600 800 | 608 600 | 623 300 | 608 200 | 618 300 | 607 600 | 673 000 | 607 200 | 698 300 |
| GR | 606 400 | 723 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 600 | 3 040 | 0 000 | 191 800 | 0 000 | 3230 000 | 0 000 | 586 500 | 586 500 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 17368 000 | 0 000 | 0 000 | 0 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 607 000 | 607 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 21 000 | 0 000 | 613 300 | 0 000 | 90 000 | 607 900 | 0 000 | 275 000 | 606 400 | 0 000 |
| BT | 300 000 | 607 100 | 0 000 | 325 000 | 607 600 | 0 000 | 350 000 | 608 200 | 0 000 | 375 000 |
| BT | 608 800 | 0 000 | 400 000 | 608 800 | 0 000 | 400 000 | 611 800 | 606 100 | 438 500 | 612.100 |
| BT | 606 400 | 478 400 | 612 400 | 606 800 | 513 400 | 612 700 | 607 000 | 550 500 | 612 500 | 606 900 |
| BT | 591 800 | 612 200 | 606 500 | 591 800 | 609 200 | 0 000 | 600 800 | 609 300 | 0 000 | 623 000 |
| BT | 608 600 | 0 000 | 648 300 | 608 200 | 0 000 | 673 300 | 607 600 | 0 000 | 698 300 | 607 200 |
| BT | 0 000 | 723 300 | 606 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 18244 000 | 90 000 | 249 000 | 387 200 | 150 000 | 1400 000 | 876 000 | 0 000 | -0.900 | 0 000 |
| GR | 612 300 | 0 000 | 612 000 | 8 500 | 611 600 | 17 100 | 610 900 | 25 700 | 609 900 | 34 300 |
| GR | 607 500 | 42 900 | 605 500 | 51 500 | 605 100 | 60 100 | 604 700 | 68 600 | 604 600 | 77 200 |
| GR | 604 400 | 85 800 | 604 000 | 94 400 | 603 800 | 103 000 | 604 100 | 111 600 | 604.200 | 120 200 |
| GR | 604 300 | 128 700 | 604 100 | 137 300 | 604 500 | 145 900 | 604 000 | 154 500 | 606 300 | 163 100 |
| GR | 606 300 | 171 700 | 606 300 | 180 300 | 606 100 | 188 800 | 605 900 | 197 400 | 605 700 | 206 000 |
| GR | 605 400 | 214 600 | 604 900 | 223 200 | 604 400 | 231 800 | 604 000 | 240.400 | 603 700 | 249 000 |
| GR | 601 500 | 253 600 | 599 300 | 258 200 | 596 900 | 262 800 | 595 600 | 267 400 | 594 700 | 272 000 |
| GR | 593 800 | 276 600 | 593 000 | 281 200 | 592 200 | 285 800 | 591 800 | 290 400 | 591 500 | 295 000 |
| GR | 591 000 | 299 600 | 589 400 | 304 200 | 588 100 | 308 800 | 588 500 | 313 400 | 588 500 | 318 000 |
| GR | 588 500 | 322 700 | 588 500 | 327 300 | 588 400 | 331 900 | 588 400 | 336 500 | 588.200 | 341 100 |
| GR | 588 200 | 345 700 | 588 300 | 350 300 | 588 400 | 354 900 | 588 500 | 359 500 | 588 500 | 364 100 |
| GR | 590 200 | 368 700 | 592 400 | 373 300 | 595 900 | 377 900 | 597 800 | 382 500 | 599 300 | 387 200 |
| GR | 600 300 | 399 100 | 601 200 | 411 000 | 602 200 | 422 900 | 602 700 | 434 800 | 603 000 | 446 700 |
| GR | 603 300 | 458 600 | 603 700 | 470 500 | 604 000 | 482 400 | 604 300 | 494 300 | 604 700 | 506 200 |
| GR | 605 100 | 518 100 | 605 600 | 530 000 | 606 100 | 542 000 | 606 500 | 553 900 | 607 000 | 565 800 |
| GR | 607 400 | 577 700 | 607 700 | 589 600 | 608 100 | 601 500 | 608 400 | 613 400 | 608 800 | 625 300 |
| GR | 608 800 | 637 200 | 608 900 | 649 100 | 608 900 | 661 000 | 609 000 | 672 900 | 609 000 | 684 900 |
| GR | 609 100 | 696 800 | 609 100 | 708 700 | 609 200 | 720 600 | 609 200 | 732 500 | 609 300 | 744 400 |

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| NC | 0 030 | 0 045 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 19119 000 | 24 000 | 123 000 | 400 000 | 850 000 | 800 000 | 875 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 200 | 0 000 | 610 300 | 100 000 | 609 200 | 123 000 | 596 200 | 168 000 | 592 400 | 192 000 |
| GR | 588 600 | 195 000 | 588 100 | 200 000 | 588 400 | 210 000 | 588 400 | 220 000 | 588 400 | 230 000 |
| GR | 588 300 | 240 000 | 588 500 | 250 000 | 588 400 | 260 000 | 588 300 | 270 000 | 589 300 | 279 000 |
| GR | 596 300 | 290 000 | 599 600 | 300 000 | 604 300 | 364 000 | 604 900 | 400 000 | 607 100 | 500 000 |
| GR | 610 300 | 600 000 | 613 000 | 700 000 | 612 800 | 800 000 | 612 700 | 900 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 010 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 20219 000 | 32 000 | 0 000 | 328 000 | 1100 000 | 1000 000 | 1100 000 | 0 000 | 0 000 | 0.000 |
| GR | 620 700 | 0 000 | 605 600 | 41 000 | 600.700 | 128 000 | 593 300 | 166 000 | 592 400 | 184 000 |
| GR | 589 900 | 188 000 | 588 300 | 194 000 | 588 500 | 198 000 | 588 100 | 208 000 | 588 200 | 218 000 |
| GR | 587 800 | 228 000 | 588 000 | 238 000 | 587 700 | 248 000 | 588 800 | 258 000 | 589 600 | 268 000 |
| GR | 590 100 | 271 000 | 590 800 | 288 000 | 606 900 | 328 000 | 609 500 | 428 000 | 608 600 | 462 000 |
| GR | 598 700 | 488 000 | 607 200 | 528 000 | 603 500 | 589 000 | 600 600 | 593.000 | 605 800 | 628 000 |
| GR | 609 200 | 728 000 | 607 200 | 828 000 | 609 400 | 928 000 | 610 400 | 1028 000 | 611 700 | 1078 000 |
| GR | 612 600 | 1128 000 | 6130 000 | 1228 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 21119 000 | 25 000 | 526 000 | 700 000 | 800 000 | 900 000 | 900 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 400 | 0 000 | 608 100 | 100 000 | 607 100 | 200 000 | 603 300 | 300 000 | 600 800 | 360 000 |
| GR | 605 200 | 398 000 | 609 600 | 412 000 | 609 500 | 500 000 | 607 300 | 526 000 | 589 500 | 582 000 |
| GR | 589 100 | 590 000 | 589 200 | 600 000 | 588 800 | 610 000 | 588 900 | 620 000 | 588 700 | 630 000 |
| GR | 588 700 | 640 000 | 589 100 | 650 000 | 589 200 | 660 000 | 589 500 | 663 000 | 599 000 | 679 000 |
| GR | 600 300 | 680 000 | 609 300 | 700 000 | 611 800 | 800 000 | 613 300 | 900 000 | 615 800 | 975 000 |
| NC | 0 028 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 22069 000 | 22 000 | 99 000 | 300 000 | 800 000 | 900 000 | 950 000 | 0 000 | 0 000 | 0 000 |
| GR | 630 300 | 0 000 | 607 400 | 0 000 | 609 500 | 99 000 | 604 600 | 120 000 | 602 800 | 144 000 |
| GR | 599 600 | 149 000 | 599 400 | 156 000 | 592 300 | 175 000 | 590 000 | 176 000 | 589 200 | 180 000 |
| GR | 588 800 | 190 000 | 588 200 | 200 000 | 588 400 | 210 000 | 588 600 | 220 000 | 589 500 | 230 000 |
| GR | 590 200 | 239 000 | 591 400 | 215 000 | 594 000 | 249 000 | 596 000 | 268 000 | 608 300 | 300 000 |
| GR | 611 600 | 400 000 | 612 900 | 170 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| QT | 5 000 | 8580 000 | 12280 000 | 13000 000 | 15610 000 | 0 000 | 13000 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 22419 000 | 21 000 | 374 000 | 500 000 | 400 000 | 250 000 | 350 000 | 0 000 | 0 000 | 0 000 |
| GR | 599 900 | 0 000 | 599 300 | 100 000 | 599 200 | 180 000 | 601 300 | 200 000 | 604 500 | 300 000 |
| GR | 601 800 | 374 000 | 589 700 | 391 000 | 588 200 | 400 000 | 588 200 | 410 000 | 588 500 | 420 000 |
| GR | 588 700 | 430 000 | 589 200 | 440 000 | 589 700 | 450 000 | 590 000 | 460 000 | 589 800 | 464 000 |
| GR | 591 700 | 467 000 | 603 800 | 500 000 | 604 300 | 521 000 | 608 900 | 541 000 | 611.500 | 600 000 |
| GR | 613 900 | 700 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 028 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0.000 | 0 000 | 0 000 |
| X1 | 11319 000 | 24 000 | 567 000 | 700 000 | 800 000 | 875 000 | 900 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 200 | 0 000 | 610 400 | 100 000 | 607 200 | 200 000 | 606 500 | 300 000 | 609 800 | 400 000 |
| GR | 612 300 | 488 000 | 611 800 | 500 000 | 607 500 | 541 000 | 606 600 | 567 000 | 602 200 | 587 000 |
| GR | 589 900 | 601 000 | 588 900 | 610 000 | 588 500 | 620 000 | 588 900 | 630 000 | 588 800 | 640.000 |
| GR | 589 100 | 650 000 | 589 300 | 660 000 | 588 900 | 670 000 | 591 800 | 678 000 | 602 200 | 700 000 |
| GR | 602 400 | 726 000 | 606 600 | 750 000 | 608 900 | 800 000 | 610 500 | 900 000 | 0 000 | 0 000 |
| DT | 5 000 | 6510 000 | 8680 000 | 8680 000 | 8680 000 | 0 000 | 8680 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 750 000 | 0 000 |
| X1 | 23569 000 | 22 000 | 526 000 | 700 000 | 150 000 | 300 000 | 250 000 | 0 000 | 0 000 | 0 000 |
| GR | 609 600 | 0 000 | 609 900 | 100 000 | 608 300 | 200 000 | 607 100 | 300 000 | 608 800 | 400 000 |
| GR | 610 000 | 500 000 | 610 000 | 526 000 | 589 800 | 580 000 | 588 400 | 590 000 | 588 400 | 600 000 |
| GR | 588 600 | 610 000 | 588 700 | 520 000 | 589 100 | 630 000 | 589 400 | 640 000 | 589 600 | 645 000 |
| GR | 590 300 | 647 000 | 600 800 | 669 000 | 602 300 | 681 000 | 610 400 | 700 000 | 613 800 | 750 000 |
| GR | 609 700 | 800 000 | 613 600 | 875 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 025 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 500 000 | 0 000 |
| X1 | 24369 000 | 18 000 | 341 000 | 172 000 | 850 000 | 900 000 | 800 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 900 | 0 000 | 610 600 | 72 000 | 610 000 | 172 000 | 609 100 | 272 000 | 605 500 | 344 000 |
| GR | 594 000 | 366 000 | 590 400 | 371 000 | 589 400 | 381 000 | 588 900 | 391.000 | 588 900 | 401 000 |
| GR | 589 000 | 411 000 | 589 600 | 421 000 | 589 800 | 431 000 | 590 400 | 435 000 | 593 600 | 438 000 |
| GR | 609 500 | 472 000 | 613 700 | 572 000 | 614 900 | 646 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 25819 000 | 17 000 | 500 000 | 627 000 | 1350 000 | 1500 000 | 1450 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0 000 | 775 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 630 300 | 0 000 | 610 700 | 0 000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610 700 | 400 000 | 609 200 | 500 000 | 598 200 | 539 000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589 000 | 570 000 | 588 800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612 100 | 850 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 25919 000 | 38 000 | 500 000 | 601 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 700 | 0 000 | 610 400 | 87 000 | 610 100 | 187 000 | 610 000 | 287 000 | 610 700 | 387 000 |
| GR | 610 400 | 404 000 | 609 200 | 487 000 | 604 900 | 500 000 | 607 800 | 500 000 | 605 500 | 500 000 |
| GR | 604 600 | 507 000 | 593 300 | 527 000 | 590 700 | 535 000 | 590 800 | 537.400 | 607 900 | 537 400 |
| GR | 607 900 | 538 800 | 607 900 | 540 200 | 590 400 | 540 200 | 589 500 | 545 000 | 589 800 | 550 000 |
| GR | 589 000 | 555 000 | 590 000 | 560 000 | 590 200 | 563 800 | 607 900 | 563 800 | 607 900 | 565 200 |
| GR | 607 900 | 566 600 | 590 100 | 565 600 | 590 300 | 570 000 | 591 200 | 575 000 | 605 100 | 604 000 |
| GR | 607 800 | 604 000 | 601 000 | 601 000 | 609 300 | 614 000 | 610 700 | 675 000 | 611 000 | 687.000 |
| GR | 610 100 | 723 000 | 609 200 | 787 000 | 609 600 | 800 000 | 0 000 | 0 000 | 0 000 | 0 000 |

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| SB | 0 000 | 1 680 | 3 040 | 0 000 | 104 000 | 0 000 | 1220 000 | 0 000 | 589 500 | 589 500 |
| X1 | 26025 000 | 0.000 | 0 000 | 0 000 | 106 000 | 106 000 | 106 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 607 900 | 610 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 14 000 | 287 000 | 610 000 | 0 000 | 387 000 | 610 700 | 0 000 | 404 000 | 610 400 | 0 000 |
| BT | 500 000 | 611 500 | 0 000 | 500 000 | 614 700 | 607 800 | 538 800 | 614 800 | 607 900 | 565 200 |
| BT | 611 800 | 607 900 | 604 000 | 614 700 | 607 800 | 604 000 | 611 700 | 0 000 | 675 000 | 610 700 |
| BT | 0 000 | 687 000 | 611 000 | 0 000 | 723 000 | 610 400 | 0 000 | 750 000 | 610 300 | 0 000 |
| BT | 800 000 | 610 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 26125 000 | 17 000 | 500 000 | 527 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 690 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GP | 630 300 | 0 000 | 610 700 | 0 000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610 700 | 400 000 | 609 200 | 500 000 | 598 200 | 539 000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589 000 | 570 000 | 588 800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612 100 | 850 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 028 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 26900 000 | 17 000 | 178 000 | 292 000 | 800 000 | 725 000 | 775 000 | 0 000 | 0 000 | 0.000 |
| GR | 615 100 | 0 000 | 614 000 | 92 000 | 613 000 | 138 000 | 610 000 | 178.000 | 590 900 | 217 000 |
| GR | 590 500 | 222 000 | 589 900 | 232 000 | 589 600 | 242 000 | 589 400 | 252 000 | 589 900 | 257 000 |
| GR | 590 500 | 262 000 | 590 800 | 263 000 | 608 800 | 292 000 | 609 700 | 392 000 | 610 700 | 492 000 |
| GR | 610 900 | 552 000 | 630 300 | 552 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 27150 000 | 22 000 | 149 000 | 243 000 | 200 000 | 300 000 | 250 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 375 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GP | 615 200 | 0 000 | 614 500 | 43 000 | 610 500 | 121 000 | 605 900 | 129 000 | 604 700 | 149 000 |
| GR | 596 900 | 163 000 | 590 900 | 174 000 | 590 600 | 178 000 | 590 500 | 183 000 | 590 500 | 193 000 |
| GR | 590 600 | 203 000 | 590 500 | 213 000 | 590 800 | 216 000 | 604 600 | 243 000 | 608 900 | 294 000 |
| GR | 610 700 | 304 000 | 605 100 | 325 000 | 604 500 | 333 000 | 605 300 | 337 000 | 611 500 | 352 000 |
| GR | 611 200 | 410 000 | 630 300 | 410 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 27900 000 | 17 000 | 181 000 | 300 000 | 800 000 | 700 000 | 750 000 | 0 000 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 600 | 100 000 | 612 000 | 112 000 | 605 900 | 157 000 | 605 700 | 181 000 |
| GP | 597 600 | 203 000 | 594 300 | 204 000 | 590 700 | 212 000 | 589 900 | 220 000 | 590 300 | 230 000 |
| GP | 590 500 | 240 000 | 591 000 | 250 000 | 591 200 | 255 000 | 595 800 | 262 000 | 609 800 | 300 000 |
| GR | 614 700 | 400 000 | 615 500 | 461 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28000 000 | 30 000 | 179 000 | 291 000 | 100 000 | 100 000 | 100 000 | 0 950 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 800 | 79 000 | 611 900 | 100 000 | 612 000 | 112 000 | 605 000 | 157 000 |
| GP | 605 600 | 179 000 | 608 700 | 179 000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216 000 |
| GP | 590 600 | 219 000 | 590 100 | 224 000 | 590 200 | 229 000 | 590 400 | 234.000 | 591 100 | 241 500 |
| GR | 608 600 | 241 500 | 608 600 | 243 000 | 608 600 | 244 500 | 590 100 | 244 500 | 590 400 | 249 000 |
| GP | 590 800 | 254 000 | 591 500 | 259 000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606 500 | 291 000 | 609 800 | 300 000 | 613 400 | 373 000 | 61407 000 | 400 000 | 615 500 | 464 000 |

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| SB | 0 000 | 1 510 | 3 010 | 0 000 | 116 000 | 0 000 | 1320 000 | 0 000 | 590 100 | 590 100 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1.410 | 0 000 | 0 000 | 0 000 |
| X1 | 28031 000 | 30 000 | 179 000 | 291 000 | 31 000 | 31 000 | 31 000 | 0 950 | 0 000 | 0.000 |
| X2 | 0 000 | 0 000 | 1 000 | 608 700 | 613 200 | 0 000 | 0 000 | 0 000 | 0 950 | 0 000 |
| BT | 10 000 | 0 000 | 614 000 | 0 000 | 79 000 | 613 600 | 0 000 | 179.000 | 613 200 | 0 000 |
| BT | 179 000 | 614 100 | 608 700 | 243 000 | 614 100 | 608 600 | 291 000 | 614 000 | 608 600 | 291 000 |
| BT | 613 300 | 0 000 | 373 000 | 613 400 | 0 000 | 400 000 | 614 700 | 0 000 | 464 000 | 615 500 |
| BT | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 800 | 79 000 | 611 900 | 100 000 | 612 000 | 112 000 | 605 000 | 157 000 |
| GR | 605 600 | 179 000 | 608 700 | 179 000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216.000 |
| GR | 590 600 | 219 000 | 590 100 | 224 000 | 590 200 | 229 000 | 590 400 | 234 000 | 590 100 | 241 500 |
| GR | 608 600 | 241 500 | 608.600 | 213 000 | 608 600 | 244 500 | 590 100 | 244 500 | 590 400 | 249 000 |
| GR | 590 800 | 251 000 | 591 500 | 259 000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606 500 | 291 000 | 609 800 | 300 000 | 613 400 | 373 000 | 614 700 | 400 000 | 615 500 | 464 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28331 000 | 19 000 | 266 000 | 400 000 | 300 000 | 300 000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 100 | 0 000 | 612 800 | 100 000 | 611 900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592 900 | 305 000 | 590 700 | 308 000 | 590 700 | 310 000 | 590 900 | 320 000 | 591 000 | 330 000 |
| GR | 591 000 | 340 000 | 591 000 | 350 000 | 591 100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611 100 | 400 000 | 611 600 | 149 000 | 610 700 | 500 000 | 607 600 | 600 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0.000 | 0 000 | 0.000 |
| X1 | 28431 000 | 57 000 | 300 000 | 117 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 500 | 0 000 | 614 100 | 28 000 | 613 200 | 100 000 | 612 800 | 128 000 | 612 200 | 200 000 |
| GR | 611 900 | 228 000 | 610 100 | 291 000 | 607 600 | 300 000 | 610 800 | 300 000 | 609 200 | 300 000 |
| GR | 602 200 | 314 000 | 610 800 | 314 000 | 610 800 | 315 000 | 601,700 | 315 000 | 594 700 | 329 000 |
| GR | 610 700 | 329 000 | 610 700 | 330 000 | 593 900 | 330 000 | 593 100 | 334 000 | 593 100 | 337 000 |
| GR | 593 000 | 340 000 | 592 400 | 343 000 | 610 700 | 343 000 | 610 700 | 344 000 | 592 500 | 344 000 |
| GR | 592 800 | 350 000 | 592 600 | 358 000 | 610 700 | 358 000 | 610 700 | 359 000 | 592 500 | 359 000 |
| GR | 592 500 | 360 000 | 592 100 | 370 000 | 592 200 | 373 000 | 610 700 | 373 000 | 610 700 | 374 000 |
| GR | 592 300 | 374 000 | 592 600 | 380 000 | 592 300 | 385 000 | 593 800 | 387 000 | 610 600 | 387 000 |
| GR | 610 600 | 388 000 | 594 600 | 388 000 | 597 600 | 392 000 | 602 800 | 402 000 | 610 600 | 402 000 |
| GR | 610 600 | 403 000 | 603 300 | 403 000 | 607 500 | 411 000 | 608 900 | 417 000 | 610 600 | 417 000 |
| GR | 606 800 | 417 000 | 611 100 | 428 000 | 611 600 | 477 000 | 611 200 | 500 000 | 610.700 | 528 000 |
| GR | 610 700 | 528 000 | 608 500 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 540 | 3 040 | 0 000 | 117 000 | 0 000 | 1440 000 | 0 000 | 592 100 | 592 100 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 28449 000 | 0 000 | 0 000 | 0 000 | 18 000 | 18 000 | 18 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 610 800 | 613 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 8 000 | 0 000 | 615 000 | 0 000 | 100 000 | 614 400 | 0 000 | 200 000 | 613.900 | 0 000 |
| BT | 300 000 | 613 400 | 610 800 | 313 000 | 613 400 | 610 700 | 417 000 | 613 200 | 610 600 | 500 000 |
| BT | 613 100 | 0 000 | 600 000 | 613 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28549 000 | 19 000 | 266 000 | 400 000 | 100 000 | 100 000 | 100 000 | 0 000 | 1 340 | 0 000 |
| GR | 614 100 | 0 000 | 612 800 | 100 000 | 611 900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592 900 | 305 000 | 590 700 | 308 000 | 590 700 | 310 000 | 590 900 | 320 000 | 591 000 | 330 000 |
| GR | 591 000 | 340 000 | 591 000 | 350 000 | 591 100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611 100 | 400 000 | 611 600 | 149 000 | 610.700 | 500 000 | 607 600 | 600 000 | 0.000 | 0 000 |

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| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 29749 000 | 20 000 | 494 000 | 700 000 | 1100 000 | 1150 000 | 1200 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| GR | 619 000 | 0 000 | 618 400 | 100 000 | 618 100 | 200 000 | 616 500 | 300 000 | 614 600 | 400 000 |
| GR | 612 400 | 494 000 | 599 200 | 580 000 | 593 400 | 588 000 | 592 800 | 590 000 | 592 400 | 600.000 |
| GR | 591 400 | 610 000 | 591 600 | 620 000 | 591 300 | 630 000 | 592 100 | 640 000 | 592 800 | 645 000 |
| GR | 596 300 | 650 000 | 600 200 | 663 000 | 609 700 | 700 000 | 612 400 | 800 000 | 612 700 | 900 000 |
| | | | | | | | | | | |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 70171 000 | 90 000 | 397 000 | 567 500 | 700 000 | 700 000 | 725 000 | 0 000 | -0 150 | 0 000 |
| GR | 617 900 | 0 000 | 617 800 | 13 600 | 617 800 | 27 300 | 617 700 | 41 000 | 617 600 | 54 700 |
| GR | 617 600 | 68 400 | 617 500 | 82 100 | 617 500 | 95 800 | 617 400 | 109 500 | 617 400 | 123 200 |
| GR | 617 300 | 136 800 | 617 300 | 150 500 | 617 300 | 164 200 | 617 100 | 177 900 | 617 000 | 191.600 |
| GR | 616 800 | 205 300 | 616 700 | 219 000 | 616 500 | 232 700 | 616 400 | 246 000 | 616 200 | 260 100 |
| GR | 616 000 | 273 700 | 615 800 | 287 400 | 615 500 | 301 100 | 615 300 | 314 800 | 615 000 | 328 500 |
| GR | 614 800 | 342 200 | 611 500 | 355 900 | 614 200 | 369 600 | 613 900 | 383.300 | 613 700 | 397 000 |
| GR | 612 100 | 407.600 | 610 600 | 408 300 | 609 100 | 414 000 | 607 600 | 419 700 | 606 100 | 425 400 |
| GR | 601 600 | 431 000 | 603 100 | 436 700 | 601 600 | 442 400 | 600 100 | 448 100 | 598 600 | 453 000 |
| GR | 597 100 | 459 500 | 596 200 | 465 100 | 594 600 | 470 800 | 592 600 | 476 500 | 592 300 | 482 200 |
| GR | 592 100 | 487 900 | 591 900 | 493 600 | 592 000 | 499 200 | 592 100 | 504 900 | 592 300 | 510 600 |
| GR | 593 000 | 516 300 | 594 500 | 522 000 | 597 600 | 527 700 | 599 700 | 533 300 | 601 700 | 539 000 |
| GR | 603 700 | 541 700 | 605 600 | 550 400 | 607 600 | 556 100 | 609 500 | 561 800 | 611 500 | 567 500 |
| GR | 611 600 | 573 500 | 611 700 | 579 600 | 611 800 | 585 700 | 611 900 | 591 800 | 612 100 | 597 900 |
| GR | 612 200 | 604 000 | 612 300 | 610 000 | 612 400 | 616 100 | 612 600 | 622 200 | 612 700 | 628.300 |
| GR | 612 800 | 634 400 | 612 900 | 640 100 | 613 000 | 646 500 | 613 100 | 652 600 | 613 200 | 658 700 |
| GR | 613 200 | 661 800 | 613 200 | 670 900 | 613 200 | 676 900 | 613 300 | 683 000 | 613 300 | 689 100 |
| GR | 613 300 | 695 200 | 613 300 | 701 300 | 613 300 | 707 400 | 613 300 | 713 400 | 613 300 | 719 500 |
| GR | 613 300 | 725 600 | 613 400 | 731 700 | 613 400 | 737 800 | 613 400 | 743 900 | 613 400 | 750 000 |
| | | | | | | | | | | |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 31192 000 | 14 000 | 300 000 | 435 000 | 700 000 | 700 000 | 725 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 480 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100 000 | 616 500 | 200 000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592 500 | 355 000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393.000 | 613 300 | 435 000 | 614 100 | 500 000 | 614 200 | 600 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0.500 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 31299 000 | 31 000 | 300 000 | 161 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 800 | 0 000 | 616 600 | 50 000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 613 700 | 266 000 | 598 900 | 300 000 | 609 600 | 300 000 | 597 500 | 300 000 | 594 000 | 310 000 |
| GR | 592 600 | 313 000 | 592 600 | 315 000 | 592 600 | 320 000 | 592 400 | 325 000 | 592 400 | 330 000 |
| GR | 592 400 | 335 000 | 592 600 | 340 000 | 592 900 | 345 000 | 593 900 | 347 000 | 595 400 | 350.000 |
| GR | 598 300 | 361 000 | 609 700 | 361 000 | 595 900 | 361 000 | 613 300 | 398.000 | 613 300 | 400 000 |
| GR | 613 800 | 440 000 | 614 100 | 463 000 | 614 200 | 500 000 | 614 200 | 523 000 | 614 200 | 533.000 |
| GR | 614 200 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |

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| SB | 0 000 | 1 550 | 3 040 | 0 000 | 61 000 | 0 000 | 954 000 | 0 000 | 592 400 | 592 400 |
| X1 | 31350 000 | 0 000 | 0 000 | 0 000 | 51 000 | 51 000 | 51 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 609 600 | 613.700 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BI | 13 000 | 50 000 | 616 600 | 0 000 | 63 000 | 616 600 | 0 000 | 163 000 | 616 500 | 0 000 |
| BI | 263 000 | 615 000 | 0 000 | 266 000 | 613 700 | 0 000 | 300 000 | 613 600 | 0 000 | 300.000 |
| BI | 614 100 | 609 600 | 361 000 | 614 100 | 609 700 | 361 000 | 613 700 | 0 000 | 400 000 | 613 700 |
| BI | 0 000 | 440 000 | 613.800 | 0 000 | 463 000 | 614 100 | 0 000 | 500 000 | 614.200 | 0 000 |
| X1 | 31130 000 | 32 000 | 300 000 | 360 500 | 80 000 | 80 000 | 80 000 | 0 000 | 0 000 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| GR | 616 800 | 0 000 | 616 600 | 50 000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 598 900 | 300 000 | 610 900 | 300 000 | 599 400 | 300 000 | 599 300 | 305 000 | 596 900 | 308 800 |
| GR | 591 300 | 308 800 | 593 000 | 313 000 | 592 600 | 315 000 | 592 600 | 320 000 | 592 500 | 325 000 |
| GR | 592 800 | 330 000 | 592 800 | 335 000 | 593 000 | 340 000 | 593 200 | 345 000 | 593 300 | 349 000 |
| GR | 591.200 | 351.600 | 596 800 | 351 600 | 599 200 | 355 400 | 599 200 | 360 500 | 610 700 | 360 500 |
| GR | 595 600 | 360 500 | 613 300 | 398 000 | 613 300 | 400 000 | 614 100 | 463 000 | 614 100 | 500 000 |
| GR | 611 200 | 563 000 | 614 200 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 550 | 3 040 | 0 000 | 61.000 | 0 000 | 977 000 | 0 000 | 592 500 | 592 500 |
| X1 | 31483 000 | 0 000 | 0 000 | 0 000 | 53 000 | 53 000 | 53 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 610 900 | 614 900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BI | 11 000 | 50 000 | 616 600 | 0 000 | 63 000 | 616 600 | 0 000 | 163 000 | 616 500 | 0 000 |
| BI | 263 000 | 615 000 | 0 000 | 300 000 | 615 000 | 0 000 | 300 000 | 615 300 | 610 900 | 360 500 |
| BI | 615 300 | 610 700 | 360 500 | 615 000 | 0 000 | 400 000 | 614 900 | 0 000 | 500 000 | 614 900 |
| BI | 0 000 | 700 000 | 615 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 31583 000 | 14 000 | 300 000 | 435 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 350 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100 000 | 616 500 | 200 000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592 500 | 355 000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393 000 | 613 300 | 435 000 | 614 100 | 500 000 | 614 200 | 600 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 37333 000 | 15 000 | 355 000 | 491 000 | 1700 000 | 1800 000 | 1750 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 415 000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 447 000 | 610 800 | 491 000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33433 000 | 31 000 | 372 000 | 471 700 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 400 | 220 000 | 616 000 | 255 000 |
| GR | 615 900 | 273 000 | 614 700 | 308 000 | 613 500 | 355 000 | 613 000 | 356 000 | 606 700 | 372 000 |
| GR | 612 500 | 372 000 | 610 300 | 372 000 | 607 600 | 378 000 | 600 000 | 378 500 | 593 900 | 402 000 |
| GR | 593 600 | 412.000 | 593 700 | 422 000 | 593 700 | 124 000 | 593 900 | 432 000 | 593 900 | 442 000 |
| GR | 594 000 | 443 000 | 595 300 | 445 000 | 596.800 | 449 000 | 598 700 | 450 000 | 608 100 | 474 400 |
| GR | 612 400 | 474 700 | 604 600 | 474 700 | 610 800 | 491 000 | 612 800 | 572 000 | 613 900 | 583 000 |
| GR | 616 800 | 655 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0 000 | 1 500 | 3.090 | 0 000 | 103 000 | 0 000 | 1520 000 | 0 000 | 593 600 | 593 600 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 33438 000 | 0 000 | 0 000 | 0 000 | 5 000 | 5 000 | 5 000 | 0 000 | 0.000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 612 900 | 613 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BI | 11 000 | 0 000 | 618 900 | 0 000 | 55 000 | 618 600 | 0 000 | 155 000 | 617 200 | 0 000 |
| BI | 220 000 | 616 100 | 0 000 | 273 000 | 615 900 | 0 000 | 372 000 | 613 100 | 612 500 | 424 000 |
| BI | 613 500 | 612 900 | 474 700 | 613 000 | 612 400 | 572 000 | 613 800 | 0 000 | 583 000 | 613.900 |
| BI | 0 000 | 655 000 | 616 800 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33538 000 | 15 000 | 355 000 | 191 000 | 100.000 | 100 000 | 100 000 | 0 000 | 0 190 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 115 000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 147 000 | 610 800 | 491 000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33988 000 | 15 000 | 114 000 | 265 000 | 1400 000 | 1300 000 | 1350 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 700 | 0 000 | 614 800 | 65 000 | 614 000 | 114 000 | 593 800 | 153 000 | 593 500 | 155 000 |
| GR | 593 800 | 165 000 | 594 000 | 175 000 | 594 300 | 185 000 | 594 500 | 195 000 | 601 400 | 208 000 |
| GR | 616 000 | 265 000 | 617 300 | 365 000 | 621 300 | 465 000 | 620 600 | 490 000 | 621 200 | 515.000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37038 000 | 16 000 | 135 000 | 285 000 | 2100 000 | 2200 000 | 2150 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 135 000 | 0.000 | 285 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190 000 | 594 400 | 195 000 |
| GR | 594 300 | 205 000 | 594 200 | 215 000 | 594 600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617 800 | 285 000 | 618 400 | 335 000 | 618 700 | 435 000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621 500 | 735 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37088 000 | 36 000 | 200 000 | 307 100 | 50 000 | 50 000 | 50 000 | 0 000 | 0.000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| GR | 617 500 | 0 000 | 616 900 | 44 000 | 616 800 | 50 000 | 616 400 | 79 000 | 616.600 | 100.000 |
| GR | 617 500 | 179 000 | 608 800 | 200 000 | 615 300 | 200 000 | 611 500 | 200 000 | 611 300 | 204.000 |
| GR | 599 000 | 230 000 | 615 300 | 230 000 | 615 300 | 233 000 | 597 500 | 233.000 | 595 500 | 240 000 |
| GR | 595.500 | 245 000 | 595 400 | 250 000 | 595 100 | 255 000 | 595 400 | 260 000 | 595 100 | 265.000 |
| GR | 595 600 | 270 000 | 596 200 | 274 100 | 615 300 | 274 100 | 615 300 | 277 100 | 595 800 | 277 100 |
| GR | 610 700 | 307 000 | 611 200 | 307 100 | 615 300 | 307 100 | 608 700 | 307 100 | 617 800 | 329 000 |
| GR | 618 400 | 379 000 | 618 600 | 450 000 | 618 700 | 479 000 | 619 300 | 532 000 | 619 800 | 579.000 |
| GR | 620 000 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 660 | 2 800 | 0 000 | 107 000 | 0 000 | 1410 000 | 0 000 | 594 800 | 595 400 |
| X1 | 37121 000 | 0 000 | 0 000 | 0.000 | 33 000 | 33 000 | 33 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 615 300 | 617 900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 120 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X5 | 2 000 | 0 000 | 0 000 | 617 050 | 0 000 | 0 000 | 617 120 | 0 000 | 0 000 | 0 000 |
| BT | 10 000 | 50 000 | 618 300 | 0 000 | 100 000 | 617 900 | 0 000 | 200 000 | 618 000 | 0 000 |
| BT | 200 000 | 618 700 | 615 300 | 233 000 | 618 700 | 615 300 | 277.100 | 618 700 | 615 300 | 307.100 |
| BT | 618 700 | 615 300 | 307 100 | 618 000 | 0 000 | 379 000 | 618 400 | 0.000 | 450 000 | 618 600 |
| BT | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 37221 000 | 16 000 | 135 000 | 285 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 10 000 | 595 100 | 0 000 | 50 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616.900 | 0 000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190 000 | 594.400 | 195 000 |
| GR | 594 300 | 205 000 | 594 200 | 215 000 | 594 600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617 800 | 285 000 | 618 400 | 335 000 | 618 700 | 435 000 | 619.800 | 535.000 | 621 000 | 635.000 |
| GR | 621 500 | 735 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 39121 000 | 14 000 | 150 000 | 300 000 | 1900 000 | 1900 000 | 1900 000 | 0 000 | 0 000 | 0 000 |
| GR | 625 500 | 0 000 | 623 600 | 100 000 | 620 400 | 150 000 | 595 700 | 216 000 | 595 200 | 230 000 |
| GR | 595 500 | 240 000 | 596 000 | 250 000 | 599 000 | 253 000 | 616 100 | 300 000 | 617 400 | 325 000 |
| GR | 623 700 | 340 000 | 625 000 | 100 000 | 625 200 | 500 000 | 626 400 | 600 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 025 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 11121 000 | 17 000 | 245 000 | 475 000 | 2000 000 | 2000 000 | 2000 000 | 0.850 | 0 000 | 0 000 |
| GR | 640 300 | 0 000 | 638 600 | 75 000 | 638 200 | 175 000 | 638 000 | 245 000 | 599 300 | 323 000 |
| GR | 596 000 | 339 000 | 595 600 | 349 000 | 595 800 | 359 000 | 595 900 | 369 000 | 632 300 | 437 000 |
| GR | 636 200 | 475 000 | 630 100 | 515 000 | 630 100 | 575 000 | 629 200 | 675.000 | 628 500 | 775 000 |
| GR | 626 600 | 875 000 | 626 900 | 910 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 025 | 0 025 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 11521 000 | 26 000 | 360 000 | 600 000 | 1300 000 | 1550 000 | 1400 000 | 0 800 | 0 000 | 0.000 |
| GR | 620 800 | 0 000 | 631 600 | 100 000 | 633 700 | 200 000 | 628 000 | 300 000 | 625 900 | 360 000 |
| GR | 613 100 | 400 000 | 597 700 | 136 000 | 597 400 | 442 000 | 595 400 | 450 000 | 595 700 | 455 000 |
| GR | 595 500 | 460 000 | 595 700 | 465 000 | 596 100 | 470 000 | 596 300 | 475 000 | 596 300 | 480 000 |
| GR | 596 700 | 485 000 | 596 800 | 492 000 | 622 300 | 600 000 | 623 800 | 653.000 | 635 900 | 700 000 |
| GR | 641 000 | 750 000 | 640 100 | 781 000 | 628 700 | 819 000 | 628 300 | 900 000 | 628 600 | 1000.000 |
| GR | 629 800 | 1058 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| EU | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     IFRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0 300 CEHV=   0 500
*SECNO 165 000

3470 ENCROACHMENT STATIONS=      276 0     1012 0  TYPE=      1  TARGET=      800 000
   165 00     22 80    599 70     0 00    599 70    600 19     0 49      0 00      0 00    593 00
   17390      1767     14715      908       916      2431      359         0         0     591 70
     0 00     1 93      6 05     2 53     0 040     0 030    0 040     0 000    576 90    392 00
 0 000560       0         0        0         0         0        0      0 00    595 95    987 95


SPECIAL BRIDGE

SB  SK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00     1 54      2 80      0 00    170 00     0 00    1389 00    0 00    576 90    576 90

 SECNO 194 000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID    ELLC      ELTRD
                                                                AREA
    603 45    600 19     0 00      3015     14333      1389      3298      596 30    599 60


3470 ENCROACHMENT STATIONS=      276.0     1012 0  TYPE=      1  TARGET=      800 000
              UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194 00     25 08    601 98     0 00      0 00    602 25     0 26      2 05      0 00    593 00
   17390      3199     12976     1215      1782      2807      556         3         0     591 70
     0 00     1 80      4 62     2 19     0 040     0 030    0 040     0 000    576 90    310 21
 0 000270     29.        29       29         2         0        2      0 00    686 17    996 38

*SECNO 594 000
3280 CROSS SECTION    594 00 EXTENDED      1 27 FEET

3470 ENCROACHMENT STATIONS=      325 5     1023 0  TYPE=      1  TARGET=      750 000
   591 00     21 87    602 04     0 00      0 00    602 39     0 35      0 10      0 04    590 07
   17390      2762     13765      863      3872      2598     1255       63.         7     589 57
     0 03     0 71      5 30     0 69     0.150     0 030    0 150     0 000    580 17    325 50
 0 000226     420       400      385         2         0        0      0 00    694 44   1019 94
```

```
*** **** ****************************************
  HEC 2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04 05,06
  MODIFICATION -  50,51,52,53,54 55,56
******************************************* ***********
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED RUN DRAIN 100-YEAR

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLOB | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | 01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 000 | 0 00 | 0 00 | 0 00 | 576 90 | 17390 00 | 599 70 | 0 00 | 600 19 | 5 60 | 6 05 | 3706 39 | 7351 12 |
| 165 000 | 0 00 | 0 00 | 0 00 | 576 90 | 17390 00 | 599 70 | 0 00 | 600 19 | 5 60 | 6 05 | 3706 39 | 7351.12 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576 90 | 17390 00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144 80 | 10574 75 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576 90 | 17390 00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144 80 | 10574 75 |
| 594 000 | 400 00 | 0 00 | 0 00 | 580 17 | 17390 00 | 602 04 | 0 00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 51 |
| 594 000 | 400 00 | 0 00 | 0 00 | 580 17 | 17390 00 | 602 04 | 0 00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 51 |
| 1039 000 | 445 00 | 0 00 | 0 00 | 583 10 | 16040 00 | 601 94 | 0 00 | 602 74 | 3 67 | 7 23 | 2930 77 | 8372 00 |
| 1039 000 | 445 00 | 0 00 | 0 00 | 583 10 | 16040 00 | 601 94 | 0 00 | 602 74 | 3 67 | 7.23 | 2930 77 | 8372 00 |
| 1100 000 | 61 00 | 0 00 | 0 00 | 581 70 | 16040 00 | 602 15 | 0 00 | 602 81 | 6 78 | 6 53 | 2455 77 | 6159 20 |
| 1100 000 | 61 00 | 0 00 | 0 00 | 581 70 | 16040 00 | 602 15 | 0 00 | 602 81 | 6.78 | 6 53 | 2455 77 | 6159 20 |
| 1143 000 | 43 00 | 603 10 | 601 70 | 581 70 | 16040 00 | 602 71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570.74 |
| 1143 000 | 43 00 | 603 10 | 601 70 | 581 70 | 16040 00 | 602 71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 74 |
| 1150 000 | 7 00 | 0 00 | 0 00 | 581 78 | 16040 00 | 602 70 | 0 00 | 603 34 | 2 48 | 6 44 | 3033 16 | 10182 45 |
| 1150 000 | 7 00 | 0 00 | 0 00 | 581 78 | 16040 00 | 602 70 | 0 00 | 603 34 | 2 48 | 6 44 | 3033 16 | 10182 45 |
| 1180 000 | 30 00 | 0 00 | 0 00 | 582 10 | 16040 00 | 602 69 | 0 00 | 603 37 | 6 72 | 6 60 | 2428 63 | 6185 81 |
| 1180 000 | 30 00 | 0 00 | 0 00 | 582 10 | 16040 00 | 602 69 | 0.00 | 603 37 | 6 72 | 6 60 | 2428 63 | 6185 81 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582 10 | 16040 00 | 603 52 | 0 00 | 603 92 | 4 18 | 5 42 | 5417 17 | 7844 07 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582 10 | 16040 00 | 603 52 | 0 00 | 603 92 | 4 18 | 5 42 | 5417 17 | 7844 07 |
| 1323 000 | 100 00 | 0 00 | 0 00 | 582 15 | 16040.00 | 603 80 | 0 00 | 604 00 | 0 99 | 4 17 | 6197 82 | 16152 42 |
| 1323 000 | 100 00 | 0 00 | 0 00 | 582 15 | 16040 00 | 603 80 | 0 00 | 604 00 | 0 99 | 4 17 | 6197 82 | 16152 42 |
| 2223 000 | 900 00 | 0 00 | 0 00 | 582 56 | 16040 00 | 603 71 | 0 00 | 604 22 | 2 12 | 5 82 | 3189 49 | 11024 13 |
| 2223 000 | 900 00 | 0 00 | 0 00 | 582 56 | 16040 00 | 603 70 | 0 00 | 604 22 | 2 16 | 5 89 | 2950 74 | 10901.51 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3180 000 | 957 00 | 0 00 | 0 00 | 583 00 | 16040 00 | 603 93 | 0 00 | 604 42 | 2 11 | 5 76 | 3135 33 | 11047 32 |
| 3180 000 | 957 00 | 0 00 | 0 00 | 583 00 | 16040 00 | 603.92 | 0 00 | 604 43 | 2 15 | 5.83 | 3008 89 | 10927 63 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584 20 | 14820 00 | 604 52 | 0 00 | 604 95 | 1 99 | 5.36 | 3254 10 | 10517 95 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584 20 | 14820 00 | 604 54 | 0 00 | 604 98 | 2 08 | 5 41 | 3028 19 | 10276 41 |
| 7470 000 | 1710 00 | 0 00 | 0 00 | 584 10 | 14820 00 | 605 05 | 0 00 | 605 18 | 0 77 | 3 45 | 6310 65 | 16881.93 |
| 7470 000 | 1710 00 | 0 00 | 0 00 | 584 10 | 14820 00 | 605 08 | 0 00 | 605 22 | 0 80 | 3 47 | 6042 56 | 16599 04 |
| 8270 000 | 760 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 09 | 0 00 | 605 26 | 1 09 | 4 02 | 5601 88 | 14220 82 |
| 8270 000 | 760 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 12 | 0 00 | 605 30 | 1 12 | 4 05 | 5247 08 | 13977 11 |
| 8340 000 | 70 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 15 | 0 00 | 605 29 | 1 85 | 3 48 | 5487 30 | 10904.25 |
| 8340 000 | 70 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 18 | 0 00 | 605 33 | 1 90 | 3 51 | 5200 79 | 10755 03 |
| 8394 000 | 54 00 | 600 90 | 600 10 | 584 40 | 14820 00 | 605 53 | 0 00 | 605 66 | 1 90 | 3 52 | 5431 03 | 10760 38 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 14820 00 | 605 55 | 0 00 | 605 69 | 1 88 | 3 51 | 5451 57 | 10810 45 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584 50 | 16560 00 | 605 51 | 0 00 | 605 71 | 1 22 | 4 32 | 5982 80 | 14972 58 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584 50 | 16560 00 | 605 53 | 0 00 | 605 74 | 1 27 | 4 35 | 5605 96 | 14679.98 |
| 9594 000 | 1100 00 | 0 00 | 0 00 | 585 70 | 16560 00 | 605 65 | 0 00 | 605 83 | 1 15 | 4 01 | 6423 55 | 15427 24 |
| 9594 000 | 1100 00 | 0 00 | 0 00 | 585 70 | 16560 00 | 605 68 | 0 00 | 605 86 | 1 20 | 4 04 | 6142 46 | 15139 53 |
| 9653 000 | 59 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 68 | 0 00 | 605 84 | 1 04 | 3 86 | 6697 41 | 16234 62 |
| 9653 000 | 59 00 | 0 00 | 0 00 | 585 40 | 16560.00 | 605 72 | 0 00 | 605 88 | 1 02 | 3 83 | 6741 26 | 16365 29 |
| 9654 000 | 1 00 | 601 40 | 603 10 | 585 40 | 16560 00 | 605 60 | 0 00 | 605 92 | 4 52 | 5 22 | 4083 56 | 7787 15 |
| 9654 000 | 1 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 67 | 0 00 | 605 93 | 4 48 | 4 73 | 4535 11 | 7820 22 |
| 9676 000 | 22 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 61 | 0 00 | 605 93 | 4 53 | 5 21 | 4087 46 | 7779 31 |
| 9676 000 | 22 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 71 | 0 00 | 605 94 | 5 24 | 4 41 | 4572 51 | 7233 19 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 82 | 0 00 | 605 98 | 1 00 | 3 81 | 6776 49 | 16546 21 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 81 | 0 00 | 605 97 | 1 01 | 3 81 | 6762 99 | 16505 63 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 83 | 0 00 | 605 99 | 1 00 | 3 80 | 6828 78 | 16532 49 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 82 | 0 00 | 605 98 | 1 06 | 3 85 | 6494 04 | 16102.63 |
| 11596 000 | 1819 00 | 0 00 | 0 00 | 586 40 | 16560 00 | 605 91 | 0 00 | 606 36 | 2 67 | 5 63 | 3873 70 | 10132 62 |
| 11596 000 | 1819 00 | 0 00 | 0 00 | 586 40 | 16560 00 | 605 90 | 0 00 | 606 37 | 2 76 | 5 72 | 3639 01 | 9970 54 |
| 11796 000 | 1600 00 | 0 00 | 0 00 | 585 50 | 16560 00 | 606 39 | 0 00 | 606 81 | 2 87 | 5 40 | 3582 01 | 9782 09 |
| 11796 000 | 1600 00 | 0 00 | 0 00 | 585 50 | 16560 00 | 606 39 | 0 00 | 606 83 | 2 94 | 5 47 | 3341 70 | 9663 48 |
| 11796 000 | 1600 00 | 0 00 | 0 00 | 587 30 | 16560 00 | 606 74 | 0 00 | 607 40 | 3 69 | 6 52 | 2539 51 | 8615 92 |
| 11796 000 | 1600 00 | 0 00 | 0 00 | 587 30 | 16560 00 | 606 76 | 0 00 | 607 42 | 3 68 | 6.51 | 2543 06 | 8632 70 |
| 16696 000 | 1300 00 | 0 00 | 0 00 | 586 80 | 14260 00 | 607 41 | 0 00 | 607 82 | 2 47 | 5 18 | 3089 53 | 9065 94 |
| 16696 000 | 1300 00 | 0 00 | 0 00 | 586 80 | 14260 00 | 607 42 | 0 00 | 607 84 | 2.53 | 5 24 | 2800 45 | 8964.76 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16396 000 | 300 00 | 0 00 | 0 00 | 587 50 | 14260 00 | 607 44 | 0 00 | 607 97 | 3 71 | 5 91 | 2706 21 | 7406 33 |
| 16396 000 | 300 00 | 0 00 | 0 00 | 587 50 | 14260 00 | 607 45 | 0 00 | 608 00 | 3 80 | 5.97 | 2485 79 | 7312 23 |
| 16418 000 | 22 00 | 606 10 | 605 30 | 587 50 | 14260 00 | 607 74 | 0 00 | 608 24 | 3 43 | 5.75 | 2845 66 | 7699 92 |
| 16418 000 | 22 00 | 999999 00 | 0 00 | 587 50 | 14260 00 | 607.75 | 0 00 | 608 27 | 3 53 | 5 82 | 2639 01 | 7591 57 |
| 16768 000 | 350 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 17 | 0 00 | 608 39 | 1 05 | 4 25 | 4610 19 | 13886.01 |
| 16768 000 | 350 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 19 | 0 00 | 608 42 | 1 08 | 4 30 | 4413 33 | 13745 86 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 33 | 0 00 | 608 45 | 0 75 | 3 39 | 5471 02 | 16485 85 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 36 | 0 00 | 608 48 | 0 76 | 3 43 | 5314 69 | 16306 56 |
| 17268 000 | 100 00 | 0 00 | 0 00 | 586 50 | 14260 00 | 608 29 | 0 00 | 608 52 | 2 19 | 3.93 | 3896 45 | 9634 78 |
| 17268 000 | 100 00 | 0 00 | 0 00 | 586 50 | 14260 00 | 608 31 | 0 00 | 608 55 | 2 22 | 3 97 | 3718.88 | 9561 02 |
| 17368 000 | 100 00 | 607 10 | 607 00 | 586 50 | 14260 00 | 608 44 | 0 00 | 608 67 | 2 11 | 3 88 | 3981 13 | 9813 98 |
| 17368 000 | 100 00 | 607 10 | 607 00 | 586 50 | 14260 00 | 608 51 | 0 00 | 608 74 | 2 14 | 3 91 | 3785 25 | 9753 09 |
| 18244 000 | 876 00 | 0 00 | 0 00 | 587 30 | 14260 00 | 608 58 | 0 00 | 608 81 | 1 20 | 4 29 | 4546 59 | 13016.61 |
| 18244 000 | 876 00 | 0 00 | 0 00 | 587 30 | 14260 00 | 608 65 | 0 00 | 608 88 | 1 21 | 4 32 | 4364 00 | 12951 23 |
| 19119 000 | 875 00 | 0 00 | 0 00 | 588 10 | 14260 00 | 608 62 | 0 00 | 608 98 | 1 97 | 4 97 | 3512 54 | 10160 31 |
| 19119 000 | 875 00 | 0 00 | 0 00 | 588 10 | 14260 00 | 608 69 | 0 00 | 609 05 | 1 98 | 5 00 | 3322 54 | 10122 70 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 14260 00 | 608 98 | 0 00 | 609 16 | 1 18 | 3.47 | 4991 98 | 13146 65 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 14260 00 | 609 06 | 0 00 | 609 24 | 1 18 | 3 50 | 4694 17 | 13101.67 |
| 21119 000 | 900 00 | 0 00 | 0 00 | 588 70 | 14260 00 | 609 03 | 0 00 | 609 32 | 1 80 | 4 64 | 3757 61 | 10633 32 |
| 21119 000 | 900 00 | 0 00 | 0 00 | 588 70 | 14260 00 | 609 10 | 0 00 | 609 40 | 1 81 | 4 67 | 3583 45 | 10593 52 |
| 22069 000 | 950 00 | 0 00 | 0 00 | 588 20 | 14260 00 | 609 11 | 0 00 | 609 61 | 3 34 | 5 70 | 2567 61 | 7798 76 |
| 22069 000 | 950 00 | 0 00 | 0 00 | 588 20 | 14260 00 | 609 18 | 0 00 | 609 69 | 3 33 | 5 69 | 2504 66 | 7814 23 |
| 22419 000 | 350 00 | 0 00 | 0 00 | 588 20 | 13000 00 | 609 59 | 0 00 | 609 70 | 0 69 | 3 20 | 5527 79 | 15653 45 |
| 22419 000 | 350 00 | 0 00 | 0 00 | 588 20 | 13000 00 | 609 66 | 0 00 | 609 78 | 0 69 | 3 22 | 5451 20 | 15608.80 |
| 23319 000 | 900 00 | 0 00 | 0 00 | 588 50 | 13000 00 | 609 49 | 0 00 | 609 88 | 2 15 | 5 34 | 3100 97 | 8860 21 |
| 23319 000 | 900 00 | 0 00 | 0 00 | 588 50 | 13000 00 | 609 56 | 0 00 | 609 96 | 2 17 | 5 37 | 2945 27 | 8820 43 |
| 23569 000 | 250 00 | 0 00 | 0 00 | 588 40 | 8680 00 | 609 76 | 0 00 | 609 94 | 1 06 | 3 46 | 2905 50 | 8413 18 |
| 23569 000 | 250 00 | 0 00 | 0 00 | 588 40 | 8680 00 | 609 84 | 0 00 | 610 02 | 1 07 | 3 48 | 2764 75 | 8391 96 |
| 24369 000 | 800 00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 79 | 0 00 | 610 08 | 1 58 | 4 36 | 2143 86 | 6909 36 |
| 24369 000 | 800 00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 87 | 0 00 | 610 16 | 1 54 | 4 33 | 2168 26 | 6984 61 |
| 25819 000 | 1450 00 | 0 00 | 0 00 | 588 80 | 8680 00 | 609 99 | 0 00 | 610 42 | 2 87 | 5 29 | 1671 49 | 5119 39 |
| 25819 000 | 1450 00 | 0 00 | 0.00 | 588 80 | 8680 00 | 610 07 | 0 00 | 610 50 | 2 81 | 5 26 | 1691 40 | 5173 56 |
| 25919 000 | 100 00 | 0 00 | 0 00 | 589 50 | 8680 00 | 609 98 | 0 00 | 610 51 | 6 72 | 5 89 | 1541 05 | 3347 50 |
| 25919 000 | 100 00 | 0 00 | 0 00 | 589 50 | 8680 00 | 610 06 | 0 00 | 610 58 | 6 58 | 5 85 | 1558 98 | 3384 77 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26025 000 | 106 00 | 610 00 | 607 90 | 589 50 | 8680 00 | 610 72 | 0 00 | 611 16 | 5 38 | 5 45 | 1781 46 | 3740 66 |
| 26025 000 | 106 00 | 610 00 | 607 90 | 589 50 | 8680 00 | 610 79 | 0 00 | 611 22 | 5 26 | 5 41 | 1812 04 | 3786 14 |
| 26125 000 | 100 00 | 0 00 | 0 00 | 589 49 | 8680 00 | 610 78 | 0 00 | 611 20 | 2 79 | 5 24 | 1694 73 | 5193 66 |
| 26125 000 | 100 00 | 0 00 | 0 00 | 589 49 | 8680 00 | 610 84 | 0 00 | 611 26 | 2.74 | 5 21 | 1714 01 | 5242 44 |
| 26900 000 | 775 00 | 0 00 | 0 00 | 589 40 | 8680 00 | 611 05 | 0 00 | 611 42 | 2 62 | 4 95 | 1996 41 | 5357 82 |
| 26900 000 | 775 00 | 0 00 | 0 00 | 589 40 | 8680 00 | 611 09 | 0 00 | 611 48 | 2 69 | 4 99 | 1835 44 | 5292.93 |
| 27150 000 | 250.00 | 0 00 | 0 00 | 590 50 | 8680 00 | 611 12 | 0 00 | 611 48 | 1 86 | 5 03 | 2122 02 | 6361 77 |
| 27150 000 | 250 00 | 0 00 | 0 00 | 590 50 | 8680 00 | 611 18 | 0 00 | 611 53 | 1 84 | 5 01 | 2135 37 | 6406.16 |
| 27900 000 | 750 00 | 0 00 | 0.00 | 589 90 | 8680 00 | 611 28 | 0 00 | 611 62 | 2 03 | 4 79 | 1980 42 | 6098 84 |
| 27900 000 | 750 00 | 0 00 | 0 00 | 589 90 | 8680 00 | 611 33 | 0 00 | 611 68 | 2 09 | 4 84 | 1886 21 | 6001 03 |
| 28000 000 | 100 00 | 0 00 | 0 00 | 590 10 | 8680 00 | 611 29 | 0 00 | 611 66 | 3 37 | 5 04 | 1894 21 | 4725 86 |
| 28000 000 | 100 00 | 0 00 | 0 00 | 590 10 | 8680 00 | 611 34 | 0 00 | 611 72 | 3 41 | 5 08 | 1813 10 | 4698.04 |
| 28031 000 | 31 00 | 613 20 | 608 70 | 590 10 | 8680 00 | 612 00 | 0 00 | 612 33 | 2 82 | 4 73 | 2053 23 | 5170 03 |
| 28031 000 | 31 00 | 613 20 | 608 70 | 590 10 | 8680 00 | 612 00 | 0 00 | 612 37 | 3 21 | 5 06 | 1835 96 | 4841 89 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590 70 | 8680 00 | 612 12 | 0 00 | 612 40 | 1 67 | 4 34 | 2375 83 | 6714 78 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590 70 | 8680 00 | 612 18 | 0 00 | 612 47 | 1 72 | 4.37 | 2261 91 | 6612 68 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680 00 | 612 12 | 0 00 | 612 48 | 8 91 | 4 97 | 2005.48 | 2908.33 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680 00 | 612 18 | 0 00 | 612 54 | 9 04 | 5 02 | 1939 52 | 2886 17 |
| 28449 000 | 18 00 | 613 10 | 610 80 | 592 10 | 8680 00 | 612 70 | 0 00 | 612 99 | 7 12 | 4 57 | 2251 23 | 3251.85 |
| 28449 000 | 18 00 | 613 10 | 610 80 | 592 10 | 8680 00 | 612 73 | 0 00 | 613 04 | 7 50 | 4 69 | 2111 51 | 3169 18 |
| 28549 000 | 100 00 | 0 00 | 0 00 | 592 04 | 8680 00 | 612 71 | 0 00 | 613 04 | 2 08 | 4 67 | 2081 16 | 6017.52 |
| 28549 000 | 100 00 | 0 00 | 0 00 | 592 04 | 8680 00 | 612 75 | 0 00 | 613 09 | 2 14 | 4 72 | 1966 28 | 5931 81 |
| 29749 000 | 1200 00 | 0 00 | 0 00 | 591 30 | 8680 00 | 613 07 | 0 00 | 613.24 | 1 16 | 3 36 | 2693 50 | 8051.49 |
| 29749 000 | 1200 00 | 0 00 | 0 00 | 591 30 | 8680 00 | 613 12 | 0 00 | 613 29 | 1 14 | 3 35 | 2709 19 | 8114 13 |
| 30174 000 | 725 00 | 0 00 | 0 00 | 591 75 | 8680 00 | 613 12 | 0 00 | 613 36 | 1 51 | 3 94 | 2278.03 | 7070 95 |
| 30174 000 | 725 00 | 0 00 | 0 00 | 591 75 | 8680 00 | 613 17 | 0 00 | 613 41 | 1 52 | 3 94 | 2203 27 | 7030 85 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 8680 00 | 613 15 | 0 00 | 613 53 | 2 39 | 4 97 | 1746 51 | 5609 68 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 8680 00 | 613 21 | 0 00 | 613 59 | 2 37 | 4 95 | 1753 80 | 5641 43 |
| 31299 000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 613.14 | 0 00 | 613 61 | 4 40 | 5 99 | 1715 48 | 4137.10 |
| 31299 000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 613 19 | 0 00 | 613 67 | 4 35 | 5 97 | 1722.78 | 4161 26 |
| 31350 000 | 51 00 | 613 70 | 609 60 | 592 40 | 8680 00 | 614 46 | 0 00 | 614 84 | 3 30 | 5 42 | 1952 19 | 4778 76 |
| 31350 000 | 51 00 | 613 70 | 609 60 | 592 40 | 8680 00 | 614 50 | 0 00 | 614 88 | 3 27 | 5 40 | 1962 19 | 4801.75 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592 50 | 8680 00 | 614 48 | 0 00 | 614 87 | 3 87 | 5 50 | 1922 29 | 4411 72 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592 50 | 8680 00 | 614 53 | 0 00 | 614 91 | 3 83 | 5 48 | 1932 22 | 4433.16 |

| | SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 31483 000 | 53 00 | 614 90 | 610 90 | 592 50 | 8680 00 | 615 57 | 0 00 | 615 88 | 3 00 | 5 02 | 2188 99 | 5011 41 |
| | 31483 000 | 53 00 | 614 90 | 610 90 | 592 50 | 8680 00 | 615 60 | 0 00 | 615.91 | 2 98 | 5 01 | 2196 11 | 5027.05 |
| | 31583 000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615 64 | 0 00 | 615 92 | 1 49 | 4 24 | 2137.29 | 7106 85 |
| | 31583.000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615 66 | 0.00 | 615 94 | 1 48 | 4 23 | 2142 76 | 7127.91 |
| | 33333 000 | 1750 00 | 0 00 | 0 00 | 593 40 | 8680 00 | 615 93 | 0 00 | 616.15 | 1 10 | 3 81 | 2663 08 | 8273.27 |
| | 33333 000 | 1750 00 | 0 00 | 0 00 | 593 40 | 8680 00 | 615 95 | 0 00 | 616 17 | 1 12 | 3 85 | 2485 53 | 8190 23 |
| | 33433 000 | 100 00 | 0 00 | 0 00 | 593 60 | 8680 00 | 615 93 | 0 00 | 616 17 | 1 47 | 4 13 | 2609 38 | 7166 59 |
| | 33433 000 | 100 00 | 0 00 | 0 00 | 593 60 | 8680 00 | 615 95 | 0 00 | 616 19 | 1 49 | 4 17 | 2481 40 | 7100 06 |
| | 33438 000 | 5 00 | 613 00 | 612 00 | 593 60 | 8680 00 | 616 03 | 0 00 | 616.26 | 1 43 | 4 10 | 2645 05 | 7257 71 |
| | 33438 000 | 5 00 | 613 00 | 612 90 | 593 60 | 8680 00 | 616 09 | 0 00 | 616 33 | 1 45 | 4.13 | 2514 16 | 7215 77 |
| | 33538 000 | 100 00 | 0 00 | 0 00 | 593 59 | 8680 00 | 616 07 | 0 00 | 616 28 | 1 12 | 3 83 | 2638 79 | 8202 88 |
| | 33538 000 | 100 00 | 0 00 | 0 00 | 593 59 | 8680 00 | 616 12 | 0 00 | 616.35 | 1 13 | 3 86 | 2464 37 | 8159 45 |
| | 34888 000 | 1350 00 | 0 00 | 0 00 | 593 50 | 8680 00 | 616 22 | 0 00 | 616 47 | 1 54 | 4 09 | 2264 90 | 6994 70 |
| | 34888 000 | 1350 00 | 0 00 | 0 00 | 593 50 | 8680 00 | 616 28 | 0 00 | 616 54 | 1 56 | 4 12 | 2160 41 | 6951 37 |
| | 37038 000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 54 | 0 00 | 616 83 | 1 69 | 4 30 | 2016.75 | 6683 53 |
| | 37038 000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 60 | 0 00 | 616 89 | 1 67 | 4 28 | 2026 40 | 6726.73 |
| | 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 48 | 0 00 | 616 92 | 5 76 | 5 41 | 1681 95 | 3615 96 |
| | 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 54 | 0 00 | 616 98 | 5 66 | 5 38 | 1693.04 | 3647 03 |
| * | 37121 000 | 33 00 | 100000 00 | 100000 00 | 595 10 | 8680 00 | 617 05 | 0 00 | 617 45 | 5 00 | 5 17 | 1767 25 | 3883 21 |
| * | 37121 000 | 33 00 | 100000 00 | 100000 00 | 595 10 | 8680 00 | 617 12 | 0 00 | 617 52 | 4 91 | 5 15 | 1779 14 | 3916 79 |
| | 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 25 | 0 00 | 617 52 | 1 56 | 4 17 | 2081 80 | 6942 97 |
| | 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 31 | 0 00 | 617 58 | 1 54 | 4 15 | 2091 71 | 6987 67 |
| | 39121 000 | 1900 00 | 0 00 | 0 00 | 595 20 | 8680 00 | 617 54 | 0 00 | 617 86 | 1 95 | 4.52 | 1936.27 | 6216 55 |
| | 39121 000 | 1900 00 | 0 00 | 0 00 | 595 20 | 8680 00 | 617 61 | 0 00 | 617 92 | 1 95 | 4 51 | 1925 59 | 6212 47 |
| | 41121 000 | 2000 00 | 0 00 | 0 00 | 595 60 | 8680 00 | 617 89 | 0 00 | 618 40 | 3 05 | 5 71 | 1519 39 | 4971 22 |
| | 41121 000 | 2000 00 | 0 00 | 0 00 | 595 60 | 8680 00 | 617 96 | 0 00 | 618 46 | 3 01 | 5 69 | 1525 93 | 5000 23 |
| | 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 47 | 0 00 | 618 71 | 1 43 | 3 94 | 2203 21 | 7259 46 |
| | 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 52 | 0 00 | 618 76 | 1 41 | 3 92 | 2212 56 | 7300 44 |

RED RUN DRAIN 100-YEAR

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 165 000 | 17390 00 | 599 70 | 0 00 | 0 00 | 0.00 | 595 95 | 0 00 |
| 165 000 | 17390 00 | 599 70 | 0 00 | 0 00 | 0 00 | 595 95 | 0 00 |
| 194 000 | 17390 00 | 601 98 | 0 00 | 2 28 | 0 00 | 686 17 | 29 00 |
| 194 000 | 17390 00 | 601 98 | 0 00 | 2 28 | 0 00 | 686 17 | 29 00 |
| 594 000 | 17390.00 | 602 04 | 0 00 | 0 06 | 0 00 | 694 44 | 400 00 |
| 594 000 | 17390 00 | 602 04 | 0 00 | 0 06 | 0 00 | 694 44 | 400 00 |
| 1039 000 | 16040.00 | 601 94 | 0 00 | -0 10 | 0 00 | 223 20 | 445 00 |
| 1039 000 | 16040 00 | 601 94 | 0 00 | -0 10 | 0 00 | 223 20 | 445 00 |
| 1100 000 | 16040 00 | 602 15 | 0 00 | 0 21 | 0 00 | 174 38 | 61 00 |
| 1100 000 | 16040 00 | 602 15 | 0 00 | 0 21 | 0 00 | 171 38 | 61 00 |
| 1143 000 | 16040 00 | 602 71 | 0 00 | 0 56 | 0 00 | 175 30 | 43 00 |
| 1143 000 | 16040 00 | 602 71 | 0 00 | 0 56 | 0 00 | 175 30 | 43 00 |
| 1150 000 | 16040 00 | 602 70 | 0 00 | -0 01 | 0 00 | 186 00 | 7 00 |
| 1150 000 | 16040 00 | 602 70 | 0 00 | -0 01 | 0 00 | 186 00 | 7 00 |
| 1180 000 | 16040 00 | 602 69 | 0 00 | -0 01 | 0 00 | 173 90 | 30 00 |
| 1180 000 | 16040 00 | 602 69 | 0 00 | -0 01 | 0 00 | 173 90 | 30 00 |
| 1223 000 | 16040 00 | 603 52 | 0 00 | 0 83 | 0 00 | 597 21 | 43 00 |
| 1223 000 | 16040 00 | 603 52 | 0 00 | 0 83 | 0 00 | 597 21 | 43 00 |
| 1323 000 | 16040 00 | 603 80 | 0 00 | 0 28 | 0 00 | 611 00 | 100 00 |
| 1323 000 | 16040 00 | 603 80 | 0 00 | 0 28 | 0 00 | 611 00 | 100 00 |
| 2223 000 | 16040 00 | 603 71 | 0 00 | -0 10 | 0 00 | 250 38 | 900 00 |
| 2223 000 | 16040 00 | 603 70 | -0 01 | -0 11 | -0 01 | 181 84 | 900 00 |
| 3180 000 | 16040.00 | 603 93 | 0 00 | 0 22 | 0 00 | 249 05 | 957 00 |
| 3180 000 | 16040 00 | 603 92 | -0 01 | 0 23 | -0 01 | 204 52 | 957 00 |
| 5720 000 | 14820 00 | 604 52 | 0 00 | 0 59 | 0 00 | 609 92 | 2540 00 |
| 5720 000 | 14820 00 | 604 54 | 0 02 | 0 61 | 0 02 | 252 75 | 2540 00 |
| 7470 000 | 14820 00 | 605 05 | 0 00 | 0 53 | 0 00 | 715 58 | 1710 00 |
| 7470 000 | 14820 00 | 605 08 | 0 03 | 0 54 | 0 03 | 563 57 | 1710 00 |
| 8270 000 | 14820 00 | 605 09 | 0 00 | 0 04 | 0 00 | 846 61 | 760 00 |
| 8270 000 | 14820 00 | 605 12 | 0 03 | 0 04 | 0 03 | 535 58 | 760 00 |
| 8340 000 | 14820 00 | 605 15 | 0 00 | 0.06 | 0 00 | 804 23 | 70 00 |
| 8340 000 | 14820 00 | 605 18 | 0 03 | 0 06 | 0 03 | 555 04 | 70 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 8394 000 | 14820 00 | 605 53 | 0 00 | 0 38 | 0 00 | 730 80 | 54 00 |
| 8394 000 | 14820 00 | 605 55 | 0 03 | 0 37 | 0 03 | 730 80 | 54 00 |
| 8494 000 | 16560 00 | 605 51 | 0 00 | -0 02 | 0 00 | 990 48 | 100 00 |
| 8494 000 | 16560 00 | 605 53 | 0 02 | -0 02 | 0 02 | 649 87 | 100 00 |
| 9594 000 | 16560 00 | 605 65 | 0 00 | 0 14 | 0 00 | 860 97 | 1100 00 |
| 9594 000 | 16560 00 | 605 68 | 0 03 | 0 15 | 0 03 | 707 67 | 1100 00 |
| 9653 000 | 16560 00 | 605 68 | 0 00 | 0 03 | 0 00 | 870 85 | 59 00 |
| 9653 000 | 16560 00 | 605 72 | 0 04 | 0 04 | 0 04 | 872 42 | 59 00 |
| 9654 000 | 16560 00 | 605 60 | 0 00 | -0 08 | 0 00 | 859 59 | 1 00 |
| 9654 000 | 16560 00 | 605 67 | 0 07 | -0 05 | 0 07 | 1061 86 | 1 00 |
| 9676 000 | 16560 00 | 605 61 | 0 00 | 0 01 | 0 00 | 859 76 | 22 00 |
| 9676 000 | 16560 00 | 605 71 | 0 11 | 0 04 | 0 11 | 1063 03 | 22 00 |
| 9677 000 | 16560 00 | 605 82 | 0 00 | 0 22 | 0 00 | 855 74 | 1 00 |
| 9677 000 | 16560 00 | 605 81 | -0 02 | 0 09 | -0 02 | 855 24 | 1 00 |
| 9777 000 | 16560 00 | 605 83 | 0 00 | 0 01 | 0 00 | 884 78 | 100 00 |
| 9777 000 | 16560 00 | 605 82 | -0 02 | 0 01 | -0 02 | 731 07 | 100 00 |
| 11596 000 | 16560 00 | 605 91 | 0 00 | 0 08 | 0 00 | 618 17 | 1819 00 |
| 11596 000 | 16560 00 | 605 90 | -0 02 | 0 08 | -0 02 | 505 48 | 1819 00 |
| 13196 000 | 16560 00 | 606 39 | 0 00 | 0 48 | 0 00 | 422 25 | 1600 00 |
| 13196 000 | 16560 00 | 606 39 | 0 00 | 0 49 | 0 00 | 295 06 | 1600 00 |
| 14796 000 | 16560 00 | 606 74 | 0 00 | 0 35 | 0 00 | 177 41 | 1600 00 |
| 14796 000 | 16560 00 | 606 76 | 0 02 | 0 37 | 0 02 | 177 51 | 1600 00 |
| 16096 000 | 14260 00 | 607 41 | 0 00 | 0 67 | 0 00 | 545 69 | 1300 00 |
| 16096 000 | 14260 00 | 607 42 | 0 01 | 0 66 | 0 01 | 242 67 | 1300 00 |
| 16396 000 | 14260 00 | 607 44 | 0 00 | 0 03 | 0 00 | 455 82 | 300 00 |
| 16396 000 | 14260 00 | 607 45 | 0 01 | 0 03 | 0 01 | 208 74 | 300 00 |
| 16118 000 | 14260 00 | 607 74 | 0 00 | 0 30 | 0 00 | 469 14 | 22 00 |
| 16118 000 | 14260 00 | 607 75 | 0 01 | 0 30 | 0 01 | 274.85 | 22 00 |
| 16768 000 | 14260 00 | 608 17 | 0 00 | 0 43 | 0 00 | 529 86 | 350 00 |
| 16768 000 | 14260 00 | 608 19 | 0 02 | 0 44 | 0 02 | 421 74 | 350 00 |
| 17168 000 | 14260 00 | 608 33 | 0 00 | 0 16 | 0 00 | 551 71 | 400 00 |
| 17168 000 | 14260 00 | 608 36 | 0 02 | 0 16 | 0 02 | 489 73 | 400 00 |
| 17368 000 | 14260 00 | 608 29 | 0 00 | -0 04 | 0 00 | 542 40 | 100 00 |
| 17368 000 | 14260 00 | 608 31 | 0 02 | -0 04 | 0 02 | 329 48 | 100 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 17368 000 | 14260 00 | 608 44 | 0 00 | 0 15 | 0 00 | 560 95 | 100 00 |
| 17368 000 | 14260 00 | 608 51 | 0 07 | 0 20 | 0 07 | 348.33 | 100 00 |
| 18244.000 | 14260 00 | 608 58 | 0 00 | 0 14 | 0 00 | 708 60 | 876 00 |
| 18244.000 | 14260 00 | 608 65 | 0 07 | 0 14 | 0 07 | 507 17 | 876 00 |
| 19119 000 | 14260 00 | 608 62 | 0 00 | 0 04 | 0 00 | 422 49 | 875 00 |
| 19119.000 | 14260 00 | 608 69 | 0 07 | 0 04 | 0 07 | 300 72 | 875 00 |
| 20219 000 | 14260 00 | 608 98 | 0 00 | 0 36 | 0 00 | 820 96 | 1100 00 |
| 20219 000 | 14260 00 | 609 06 | 0 07 | 0 37 | 0 07 | 553 22 | 1100 00 |
| 21119 000 | 14260 00 | 609 03 | 0 00 | 0 05 | 0 00 | 535 71 | 900 00 |
| 21119 000 | 14260 00 | 609 10 | 0 07 | 0 05 | 0 07 | 379 38 | 900 00 |
| 22069 000 | 14260 00 | 609 11 | 0 00 | 0 07 | 0 00 | 301 20 | 950 00 |
| 22069 000 | 14260 00 | 609 18 | 0 08 | 0.08 | 0 08 | 199 65 | 950 00 |
| 22419 000 | 13000 00 | 609 59 | 0 00 | 0.48 | 0 00 | 556 63 | 350 00 |
| 22419 000 | 13000 00 | 609 66 | 0 08 | 0 48 | 0 08 | 515 15 | 350 00 |
| 23319 000 | 13000 00 | 609 49 | 0 00 | -0 10 | 0 00 | 576 69 | 900 00 |
| 23319 000 | 13000 00 | 609 56 | 0 07 | -0 11 | 0 07 | 418 38 | 900 00 |
| 23569 000 | 8680 00 | 609 76 | 0 00 | 0 28 | 0 00 | 597 88 | 250 00 |
| 23569 000 | 8680 00 | 609 84 | 0 08 | 0 29 | 0 08 | 403 25 | 250 00 |
| 24369 000 | 8680 00 | 609 79 | 0 00 | 0 03 | 0 00 | 283 46 | 800 00 |
| 24369 000 | 8680 00 | 609 87 | 0 08 | 0 03 | 0 08 | 294 84 | 800 00 |
| 25819 000 | 8680 00 | 609 99 | 0 00 | 0 20 | 0.00 | 227 15 | 1450 00 |
| 25819 000 | 8680 00 | 610 07 | 0 08 | 0 19 | 0 08 | 288 58 | 1450 00 |
| 25919 000 | 8680 00 | 609 98 | 0 00 | -0 00 | 0 00 | 215 94 | 100 00 |
| 25919 000 | 8680 00 | 610 06 | 0 08 | -0 00 | 0 08 | 238 23 | 100 00 |
| 26025 000 | 8680 00 | 610 72 | 0 00 | 0 74 | 0 00 | 435 00 | 106 00 |
| 26025 000 | 8680 00 | 610 79 | 0 07 | 0 73 | 0 07 | 441 97 | 106 00 |
| 26125 000 | 8680 00 | 610 78 | 0 00 | 0 06 | 0 00 | 273 27 | 100.00 |
| 26125 000 | 8680 00 | 610 84 | 0 06 | 0 05 | 0 06 | 293 72 | 100 00 |
| 26900 000 | 8680 00 | 611 05 | 0 00 | 0 27 | 0 00 | 387 97 | 775 00 |
| 26900 000 | 8680 00 | 611 09 | 0 05 | 0.25 | 0.05 | 173 40 | 775 00 |
| 27150 000 | 8680 00 | 611 12 | 0 00 | 0 07 | 0 00 | 242 06 | 250 00 |
| 27150 000 | 8680 00 | 611 18 | 0 06 | 0 09 | 0 06 | 243 27 | 250 00 |
| 27900 000 | 8680 00 | 611 28 | 0 00 | 0 17 | 0 00 | 213 03 | 750 00 |
| 27900 000 | 8680 00 | 611 33 | 0 05 | 0 15 | 0 05 | 148 96 | 750 00 |

| SEGNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 28000 000 | 8680 00 | 611 29 | 0 00 | 0 01 | 0 00 | 203 27 | 100 00 |
| 28000 000 | 8680 00 | 611 34 | 0 05 | 0 01 | 0 05 | 143 78 | 100 00 |
| 28031 000 | 8680 00 | 612 00 | 0 00 | 0 71 | 0.00 | 282 81 | 31 00 |
| 28031 000 | 8680 00 | 612 00 | -0 00 | 0 66 | -0 00 | 136 59 | 31 00 |
| 28331 000 | 8680 00 | 612 12 | 0 00 | 0 12 | 0 00 | 424 95 | 300 00 |
| 28331 000 | 8680 00 | 612 18 | 0 06 | 0 18 | 0 06 | 321 18 | 300 00 |
| 28131 000 | 8680 00 | 612 12 | 0 00 | -0 01 | 0 00 | 392 42 | 100 00 |
| 28431 000 | 8680 00 | 612 18 | 0 06 | -0 01 | 0 06 | 310 82 | 100 00 |
| 28449 000 | 8680 00 | 612 70 | 0 00 | 0 58 | 0 00 | 459.63 | 18 00 |
| 28449 000 | 8680 00 | 612 73 | 0 03 | 0 55 | 0 03 | 310 82 | 18 00 |
| 28549 000 | 8680 00 | 612 71 | 0 00 | 0 02 | 0 00 | 345 39 | 100 00 |
| 28549 000 | 8680 00 | 612 75 | 0 04 | 0 02 | 0 04 | 276 02 | 100 00 |
| 29749 000 | 8680.00 | 613 07 | 0 00 | 0 35 | 0 00 | 284 48 | 1200 00 |
| 29749 000 | 8680 00 | 613 12 | 0 05 | 0 37 | 0 05 | 286 83 | 1200 00 |
| 30474 000 | 8680 00 | 613 12 | 0 00 | 0 05 | 0 00 | 282 41 | 725 00 |
| 30474 000 | 8680 00 | 613 17 | 0 05 | 0 05 | 0.05 | 169 17 | 725 00 |
| 31199 000 | 8680 00 | 613 15 | 0 00 | 0 04 | 0 00 | 130 42 | 725 00 |
| 31199 000 | 8680 00 | 613 21 | 0 06 | 0 04 | 0 06 | 130 67 | 725 00 |
| 31299 000 | 8680 00 | 613 14 | 0 00 | -0 02 | 0 00 | 130 36 | 100 00 |
| 31299 000 | 8680 00 | 613 19 | 0 06 | -0 02 | 0 06 | 130 60 | 100 00 |
| 31350 000 | 8680 00 | 614 46 | 0 00 | 1 32 | 0 00 | 235 75 | 51 00 |
| 31350 000 | 8680 00 | 614 50 | 0 04 | 1 31 | 0 04 | 235 85 | 51 00 |
| 31430 000 | 8680 00 | 614 48 | 0 00 | 0 02 | 0 00 | 235 83 | 80 00 |
| 31430 000 | 8680 00 | 614 53 | 0 04 | 0 02 | 0 04 | 235 92 | 80 00 |
| 31483 000 | 8680 00 | 615 57 | 0 00 | 1 09 | 0 00 | 275 01 | 53 00 |
| 31483 000 | 8680.00 | 615 60 | 0 03 | 1 07 | 0 03 | 276 73 | 53 00 |
| 31583 000 | 8680 00 | 615 64 | 0 00 | 0 07 | 0 00 | 219 28 | 100 00 |
| 31583 000 | 8680 00 | 615 66 | 0 02 | 0 07 | 0 02 | 220 94 | 100 00 |
| 33333 000 | 8680 00 | 615 93 | 0 00 | 0 29 | 0 00 | 375 52 | 1750 00 |
| 33333 000 | 8680 00 | 615 95 | 0 02 | 0 28 | 0 02 | 223 74 | 1750 00 |
| 33433 000 | 8680 00 | 615 93 | 0 00 | 0 00 | 0 00 | 367 48 | 100 00 |
| 33433 000 | 8680 00 | 615 95 | 0 02 | 0 00 | 0 02 | 242 76 | 100 00 |
| 33138 000 | 8680 00 | 616 03 | 0 00 | 0 10 | 0 00 | 383 84 | 5 00 |
| 33138 000 | 8680 00 | 616 09 | 0 06 | 0 14 | 0 06 | 242 76 | 5 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 33538 000 | 8680 00 | 616 07 | 0 00 | 0 03 | 0 00 | 371 29 | 100 00 |
| 33538 000 | 8680 00 | 616 12 | 0 06 | 0.03 | 0 06 | 216 37 | 100 00 |
| 34888 000 | 8680.00 | 616 22 | 0 00 | 0 15 | 0 00 | 281.58 | 1350 00 |
| 34888 000 | 8680 00 | 616 28 | 0 06 | 0 15 | 0 06 | 187 70 | 1350 00 |
| 37038 000 | 8680 00 | 616 54 | 0 00 | 0 32 | 0 00 | 144 63 | 2150 00 |
| 37038 000 | 8680 00 | 616 60 | 0 07 | 0 33 | 0 07 | 144 95 | 2150 00 |
| 37088 000 | 8680 00 | 616 48 | 0 00 | -0 06 | 0 00 | 157 83 | 50 00 |
| 37088 000 | 8680 00 | 616 51 | 0 07 | -0 06 | 0 07 | 170 15 | 50 00 |
| 37121 000 | 8680 00 | 617 05 | 0 00 | 0 57 | 0 00 | 166 61 | 33 00 |
| 37121 000 | 8680 00 | 617 12 | 0 07 | 0 58 | 0 07 | 173 09 | 33 00 |
| 37221 000 | 8680 00 | 617 25 | 0 00 | 0 20 | 0 00 | 148 04 | 100 00 |
| 37221 000 | 8680 00 | 617 31 | 0 07 | 0 19 | 0 07 | 148 36 | 100 00 |
| 39121 000 | 8680 00 | 617 54 | 0 00 | 0 30 | 0 00 | 167 71 | 1900 00 |
| 39121 000 | 8680 00 | 617 61 | 0 06 | 0 29 | 0 06 | 142 54 | 1900 00 |
| 41121 000 | 8680 00 | 617 89 | 0 00 | 0 35 | 0 00 | 105 88 | 2000 00 |
| 41121 000 | 8680 00 | 617 96 | 0 06 | 0 35 | 0 06 | 106 08 | 2000 00 |
| 42521 000 | 8680 00 | 618 47 | 0 00 | 0 57 | 0 00 | 160 43 | 1400 00 |
| 42521 000 | 8680 00 | 618 52 | 0 06 | 0 57 | 0 06 | 160 77 | 1400 00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
NOTE      SECNO= 37121 000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE      SECNO= 37121 000  PROFILE= 2  WSEL BASED ON X5 CARD
```

FLOODWAY DATA,  RED RUN DRAIN  100-YEAR
PROFILE NO  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 165 000 | 596 | 3706 | 4 7 | 599 7 | 599 7 | 0 0 |
| 194 000 | 686 | 5145 | 3 4 | 602 0 | 602 0 | 0 0 |
| 594 000 | 694 | 7725 | 2 3 | 602 0 | 602 0 | 0 0 |
| 1039 000 | 223 | 2931 | 5 5 | 601 9 | 601 9 | 0 0 |
| 1100 000 | 174 | 2456 | 6 5 | 602 1 | 602 1 | 0 0 |
| 1143 000 | 175 | 2558 | 6 3 | 602 7 | 602 7 | 0 0 |
| 1150 000 | 186 | 3033 | 5 3 | 602 7 | 602 7 | 0 0 |
| 1180 000 | 174 | 2429 | 6 6 | 602 7 | 602 7 | 0 0 |
| 1223 000 | 597. | 5417 | 3 0 | 603 5 | 603 5 | 0 0 |
| 1323 000 | 611 | 6198 | 2 6 | 603 8 | 603 8 | 0 0 |
| 2223 000 | 182 | 2951 | 5 4 | 603 7 | 603 7 | 0 0 |
| 3180 000 | 205 | 3009 | 5 3 | 603 9 | 603 9 | 0 0 |
| 5720 000 | 253 | 3026 | 4 9 | 604 5 | 604 5 | 0 0 |
| 7470 000 | 564 | 6043 | 2 5 | 605 0 | 605 0 | 0 0 |
| 8270 000 | 536 | 5247 | 2 8 | 605 1 | 605 1 | 0 0 |
| 8340 000 | 555 | 5701 | 2 8 | 605 1 | 605 1 | 0 0 |
| 8394 000 | 731 | 5452 | 2 7 | 605 5 | 605 5 | 0 0 |
| 8494 000 | 650 | 5606 | 3 0 | 605 5 | 605 5 | 0 0 |
| 9594 000 | 708 | 6142 | 2 7 | 605 7 | 605 7 | 0 0 |
| 9653 000 | 872 | 6741 | 2 5 | 605 7 | 605 7 | 0 0 |
| 9654 000 | 1062 | 4535 | 3 7 | 605 7 | 605 6 | 0 1 |
| 9676 000 | 1063 | 4573 | 3 6 | 605 7 | 605 6 | 0 1 |
| 9677 000 | 855 | 6763 | 2 4 | 605 8 | 605 8 | 0 0 |
| 9777 000 | 731 | 6494 | 2 6 | 605 8 | 605 8 | 0 0 |
| 11596 000 | 505 | 3639 | 4 6 | 605 9 | 605 9 | 0 0 |
| 13196 000 | 295 | 3342 | 5 0 | 606 4 | 606 4 | 0 0 |
| 14796 000 | 178 | 2543 | 6 5 | 606 7 | 606 7 | 0 0 |
| 16096 000 | 243 | 2800 | 5 1 | 607 4 | 607 4 | 0 0 |
| 16396 000 | 209 | 2486 | 5 7 | 607 4 | 607 4 | 0 0 |
| 16418 000 | 275 | 2639 | 5 4 | 607 7 | 607 7 | 0 0 |
| 16768 000 | 422 | 4413 | 3 2 | 608 2 | 608 2 | 0 0 |
| 17168 000 | 490 | 5315 | 2 7 | 608 3 | 608 3 | 0 0 |
| 17268 000 | 375 | 3719 | 3 8 | 608 3 | 608 3 | 0 0 |
| 17368 000 | 423 | 3785 | 3 8 | 608 5 | 608 4 | 0 1 |
| 18244 000 | 507 | 1364 | 3 3 | 608 7 | 608 6 | 0 1 |
| 19119 000 | 301. | 3323. | 4 3 | 608 7 | 608 6 | 0 1 |
| 20219 000 | 587 | 4694 | 3 0 | 609 1 | 609 0 | 0 1 |
| 21119 000 | 474. | 3583 | 1 0 | 609 1 | 609 0 | 0 1 |
| 22069 000 | 200. | 2505 | 5.7 | 609 2 | 609 1 | 0 1 |
| 22419 000 | 515 | 5451 | 2.4 | 609 7 | 609 6 | 0 1 |
| 23319 000 | 547 | 2945. | 4 4 | 609 6 | 609 5 | 0 1 |
| 23569 000 | 542 | 2765 | 3 1 | 609 9 | 609 8 | 0 1 |

FLOODWAY DATA.  RED RUN DRAIN  100 YEAR
PROFILE NO.  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 24369 000 | 295 | 2168 | 4 0 | 609 9 | 609 8 | 0 1 |
| 25819 000 | 515 | 1691 | 5 1 | 610 1 | 610 0 | 0 1 |
| 25919 000 | 463 | 1559 | 5 6 | 610 1 | 610 0 | 0 1 |
| 26025 000 | 463 | 1812 | 4 8 | 610 8 | 610 7 | 0 1 |
| 26125 000 | 490 | 1714 | 5 1 | 610 9 | 610 8 | 0 1 |
| 26900 000 | 173 | 1835 | 4 7 | 611 0 | 611 0 | 0 0 |
| 27150 000 | 243 | 2135 | 1 1 | 611 2 | 611 1 | 0 1 |
| 27900 000 | 149 | 1886 | 1 6 | 611 3 | 611 3 | 0 0 |
| 28000 000 | 144 | 1813 | 4 8 | 611 3 | 611 3 | 0 0 |
| 28031 000 | 137 | 1836 | 1 7 | 612 0 | 612 0 | 0 0 |
| 28331 000 | 321 | 2262 | 3 8 | 612 2 | 612 1 | 0 1 |
| 28131 000 | 311 | 1940 | 1.5 | 612 2 | 612 1 | 0 1 |
| 28149 000 | 311 | 2112 | 4 1 | 612 7 | 612 7 | 0 0 |
| 28549 000 | 305 | 1966 | 4 1 | 612 7 | 612 7 | 0 0 |
| 29749 000 | 287 | 2709 | 3 2 | 613 2 | 613 1 | 0 1 |
| 30474 000 | 169 | 2203 | 3 9 | 613 2 | 613 1 | 0 1 |
| 31199 000 | 131 | 1751 | 4 9 | 613 3 | 613 2 | 0 1 |
| 31299 000 | 131 | 1723 | 5 0 | 613 2 | 613 1 | 0 1 |
| 31350 000 | 236 | 1962 | 4 4 | 614 5 | 614 5 | 0 0 |
| 31430 000 | 236 | 1932 | 4 5 | 614 5 | 614 5 | 0 0 |
| 31483 000 | 277 | 2196 | 4 0 | 615 6 | 615 6 | 0 0 |
| 31583 000 | 221 | 2143 | 4 1 | 615 6 | 615 6 | 0 0 |
| 33333 000 | 224 | 2486 | 3 5 | 615 9 | 615 9 | 0 0 |
| 33133 000 | 243 | 2481 | 3 5 | 615 9 | 615 9 | 0 0 |
| 33438 000 | 243 | 2514 | 3 5 | 616 1 | 616 0 | 0 1 |
| 33538 000 | 216 | 2464 | 3 5 | 616 2 | 616 1 | 0 1 |
| 34888 000 | 188 | 2160 | 4 0 | 616 3 | 616 2 | 0 1 |
| 37038 000 | 145 | 2026 | 4 3 | 616 6 | 616 5 | 0 1 |
| 37038 000 | 257 | 1693 | 5 1 | 616 6 | 616 5 | 0 1 |
| 37121 000 | 207 | 1779 | 4 9 | 617 2 | 617 1 | 0 1 |
| 37221 000 | 148 | 2092 | 4 1 | 617 3 | 617 2 | 0 1 |
| 39121 000 | 143 | 1926 | 4 5 | 617 6 | 617 5 | 0 1 |
| 41121 000 | 106 | 1526 | 5 7 | 618 0 | 617 9 | 0 1 |
| 42521 000 | 161 | 2213 | 3 9 | 618 6 | 618 5 | 0 1 |

```
*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
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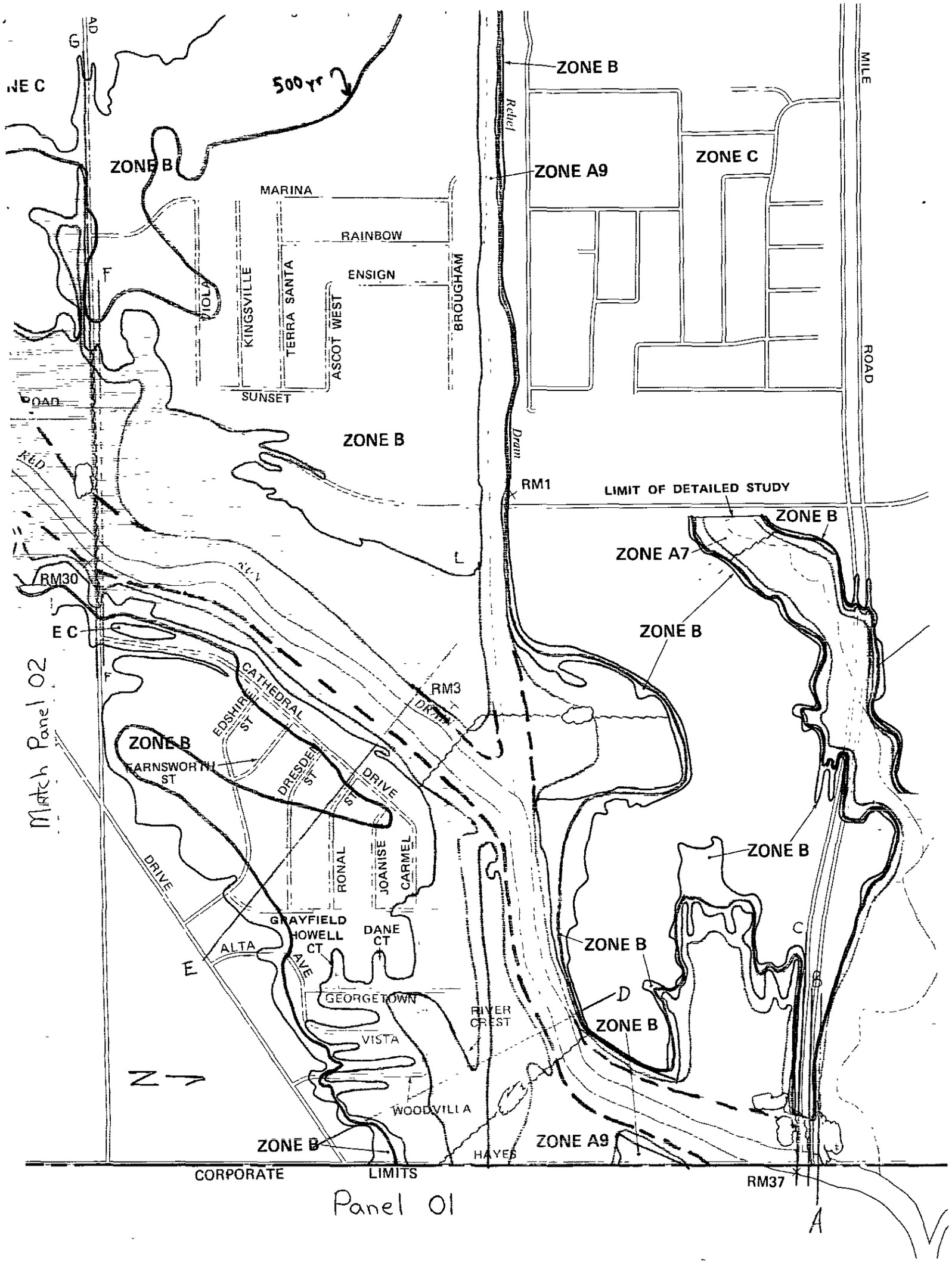
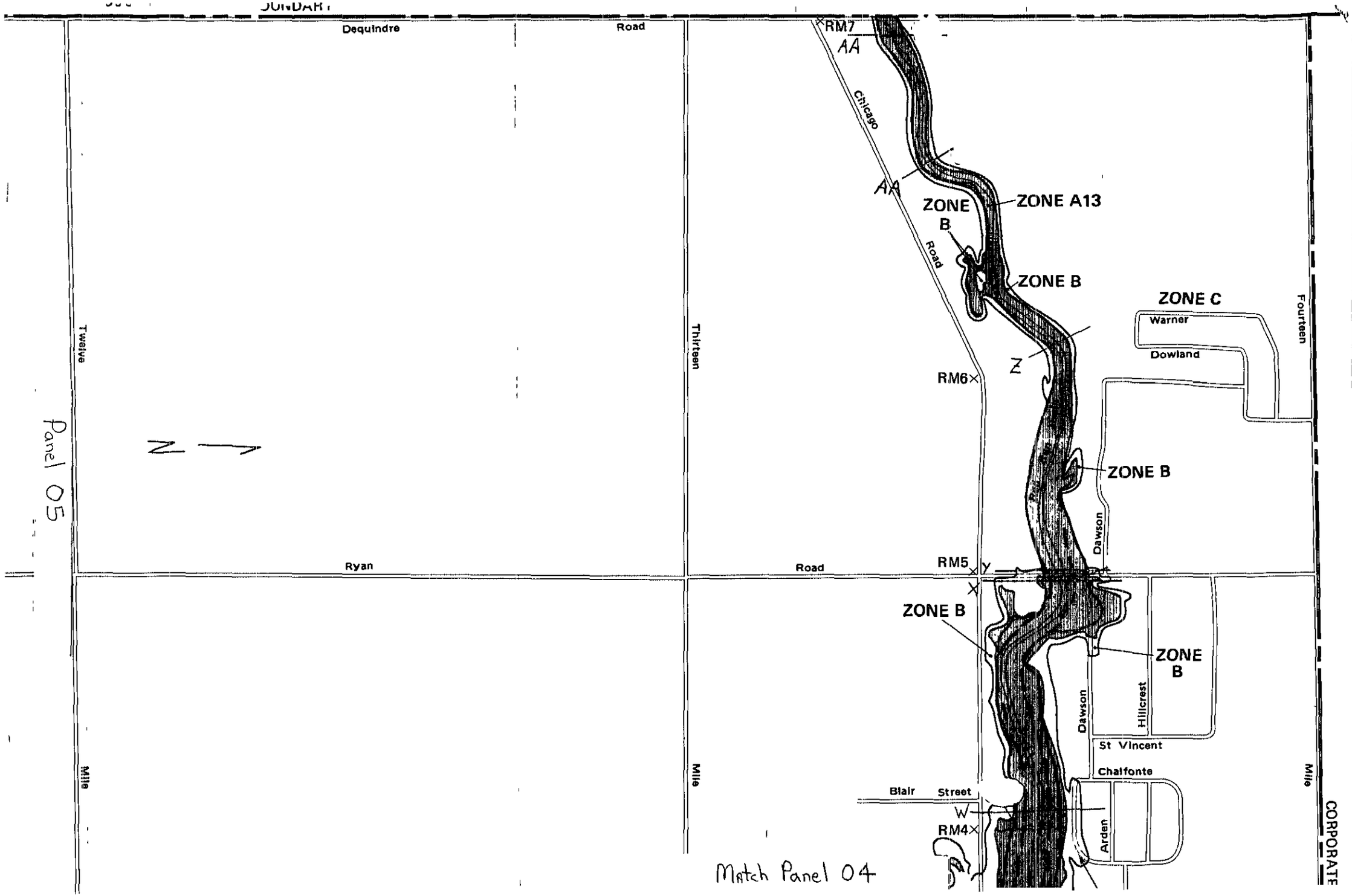
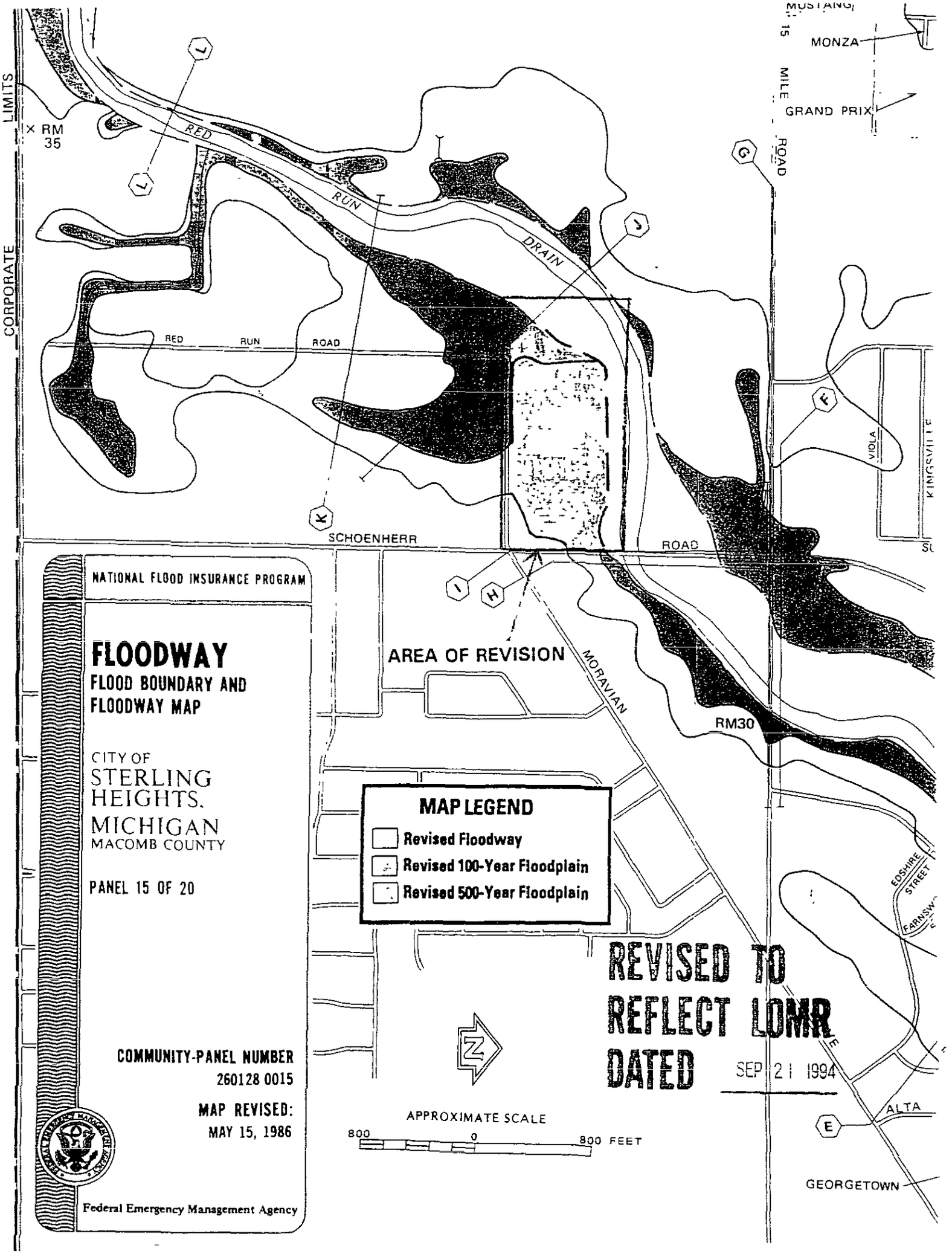

ZONE B
ZONE A9
ZONE C
MILE
ROAD
Relief
Drain
500 yr
MARINA
RAINBOW
ENSIGN
VIOLA
KINGSVILLE
TERRA SANTA
ASCOT WEST
BROUGHAM
SUNSET
ZONE B
RM1
LIMIT OF DETAILED STUDY
ZONE B
ZONE A7
ZONE B
RM30
E C
CATHEDRAL
EDSHIRE ST
RM3
DRAIN
ZONE B
FARNSWORTH ST
DRESDEN ST
DRIVE
RONAL
JOANISE
CARMEL
ZONE B
DRIVE
GRAYFIELD
HOWELL CT
DANE CT
ALTA
AVE
ZONE B
GEORGETOWN
RIVER CREST
ZONE B
VISTA
WOODVILLA
ZONE B
ZONE A9
HAYES
CORPORATE
LIMITS
RM37
Match Panel 02
Panel 01
A
B
C
D
E
F
G


Dequindre
Road
Twelve
Mile
Ryan
Thirteen
Mile
Fourteen
Mile
Chicago
Road
RM7
AA
AA
ZONE A13
ZONE B
ZONE B
ZONE C
Warner
Dowland
Z
RM6
ZONE B
Dawson
RM5
Y
X
Road
ZONE B
ZONE B
Dawson
Hillcrest
St Vincent
Chalfonte
Blair
Street
W
RM4
Arden
CORPORATE
N
Panel 05
Match Panel 04


NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
CITY OF STERLING HEIGHTS, MICHIGAN
MACOMB COUNTY
PANEL 15 OF 20
COMMUNITY-PANEL NUMBER
260128 0015
MAP REVISED:
MAY 15, 1986
Federal Emergency Management Agency
MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain
REVISED TO REFLECT LOMR DATED SEP 21 1994
AREA OF REVISION
APPROXIMATE SCALE
800 0 800 FEET
CORPORATE LIMITS
× RM 35
RED RUN DRAIN
RED RUN ROAD
SCHOENHERR ROAD
MORAVIAN
RM30
15 MILE ROAD
MONZA
GRAND PRIX
VIOLA
EOSHIRE STREET
ALTA
GEORGETOWN
L
L
J
G
F
K
I
H
E

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ. FEET) | MEAN VELOCITY (FEET/SEC.) | REGULATORY (FEET NGVD) | WITHOUT FLOODWAY (FEET NGVD) | WITH FLOODWAY (FEET NGVD) | INCREASE (FEET) |
| RED RUN DRAIN | | | | | | | | |
| A | 1039 | 223[2] | 2931 | 5 5 | 601.9 | 601.9 | 601.9 | 0.0 |
| B | 1143 | 175[2] | 2558 | 6 3 | 602 7 | 602.7 | 602.7 | 0.0 |
| C | 1223 | 344[2] | 3955 | 4 1 | 603 5 | 603.5 | 603.5 | 0.0 |
| D | 3180 | 205 | 3019 | 5.3 | 604.0 | 604.0 | 604.0 | 0.0 |
| E | 5720 | 256 | 3047 | 4.9 | 604.6 | 604.6 | 604.6 | 0.0 |
| F | 8270 | 542 | 5278 | 2 8 | 605.1 | 605.1 | 605.1 | 0.0 |
| G | 8394 | 731 | 5471 | 2.7 | 605.6 | 605.6 | 605.6 | 0.0 |
| H | 9594 | 709 | 6168 | 2.7 | 605.7 | 605.7 | 605.7 | 0.0 |
| I | 9676 | 804 | 4045 | 4.1 | 605.7 | 605.7 | 605.8 | 0.1 |
| J | 11,596 | 509 | 3730 | 4.4 | 606.0 | 606.0 | 606.0 | 0.0 |
| K | 13,196 | 298 | 3375 | 4 9 | 606.4 | 606.4 | 606.4 | 0.0 |
| L | 14,796 | 178 | 2556 | 6.5 | 606.8 | 606.8 | 606.8 | 0.0 |
| M | 16,096 | 250 | 2830 | 5.0 | 607.5 | 607.5 | 607.5 | 0.0 |
| N | 16,418 | 280 | 2662 | 5.4 | 607.8 | 607.8 | 607.8 | 0.0 |
| O | 16,768 | 423 | 4439 | 3.2 | 608.2 | 608.2 | 608.2 | 0.0 |
| P | 17,168 | 490 | 5342 | 2.7 | 608.4 | 608.4 | 608.4 | 0.0 |

AREA OF REVISION

REVISED TO REFLECT LOMR

[1]FEET ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND CORPORATE LIMITS

SEP 21 1994

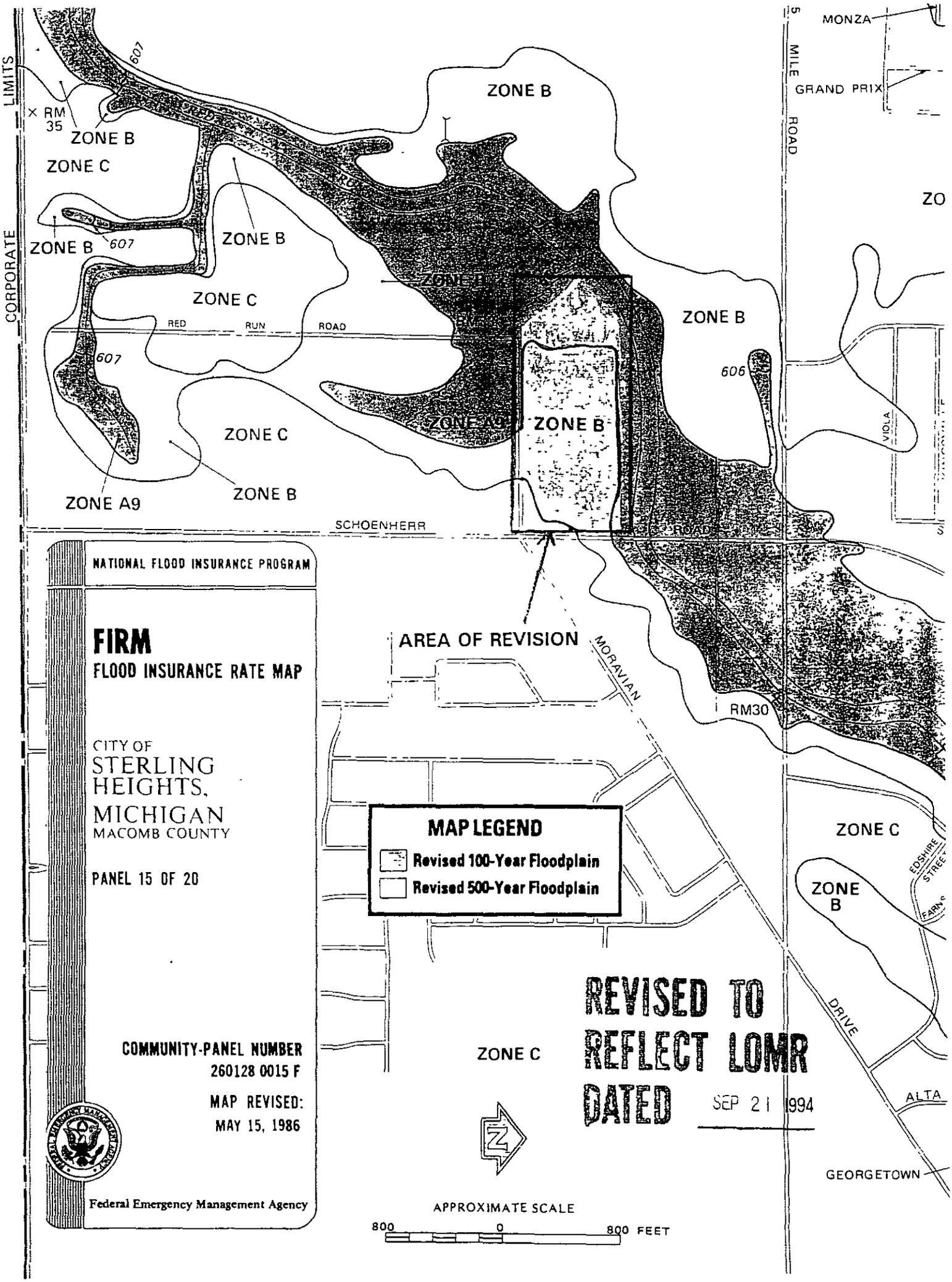
TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF STERLING HEIGHTS, MI
(MACOMB CO.)

FLOODWAY DATA

RED RUN DRAIN


NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
STERLING
HEIGHTS,
MICHIGAN
MACOMB COUNTY
PANEL 15 OF 20
COMMUNITY-PANEL NUMBER
260128 0015 F
MAP REVISED:
MAY 15, 1986
Federal Emergency Management Agency
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain
REVISED TO
REFLECT LOMR
DATED SEP 21 1994
APPROXIMATE SCALE
800 0 800 FEET
AREA OF REVISION
ZONE B
ZONE C
ZONE A9
RED RUN ROAD
SCHOENHERR ROAD
CORPORATE LIMITS
5 MILE ROAD
MONZA
GRAND PRIX
MORAVIAN
DRIVE
ALTA
GEORGETOWN
VIOLA
EDSHIRE STREET
RM 35
RM30
607
606

# Federal Emergency Management Agency

Washington, D.C. 20472

SEP 21 1994

RECEIVED

SEP 23 1994

NATURAL RESOURCES ENVIRONMENTAL MANAGEMENT

BEM

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

The Honorable Richard Notte
Mayor of the City of Sterling Heights
40555 Utica Road
P.O. Box 8009
Sterling Heights, Michigan 48311-8009

IN REPLY REFER TO:
Case Number: 94-05-524P
Community Name: City of Sterling Heights, Macomb County, Michigan
Community Number: 260128
Map Panel Number: 260128 0015
Effective Date of this Revision:

102-D

Dear Mayor Notte:

The Flood Insurance Study (FIS), Flood Insurance Rate Map (FIRM) and the Flood Boundary and Floodway Map (FBFM) for the City of Sterling Heights have been revised by this Letter of Map Revision (LOMR) to reflect the channelization of Red Run Drain and the placement of fill just upstream of Schoenherr Road. The subject area is located in the vicinity of the proposed site of the Red Run Condominiums. This revision was initiated by a December 20, 1993, letter submitted to the Federal Emergency Management Agency (FEMA) by Mr. Thomas R. DeHondt, P.E., City of Sterling Heights Engineer.

The following technical data, prepared by Mr. Thomas Sovel, P.E., of Spalding, DeDecker & Associates, Inc., were submitted in support of this request:

- a 3.5-inch diskette containing HEC-2 hydraulic backwater models of the 10-, 50-, 100-, and 500-year floods and floodway, dated July 5, 1994, duplicating the models used to prepare the May 15, 1986, FIS for the City of Sterling Heights, and reflecting previously existing conditions and the new "as-built" conditions;

- an "as-built" topographic map entitled Red Run Condominiums, dated December 12, 1992, and revised July 19, 1994, at a scale of 1"=60', with a contour interval of 1', delineating the revised 100- and 500-year floodplains and floodway;

- a portion of the May 15, 1986, City of Sterling Heights FIRM number 260128, panel 0015 F, annotated to show the revised 100- and 500-year floodplains;

- a portion of the May 15, 1986, City of Sterling Heights FBFM number 260128, panel 0015, annotated to show the revised 100- and 500-year floodplains and floodway;

- plots of cross sections 9777, 10123, 10623, and 10918, from the as-built conditions HEC-2 hydraulic backwater model; and

- completed application/certification forms.

All data necessary to process this request were received by August 8, 1994. All fees necessary to process this LOMR (a total of $2,086.00) have been received.

Based on our review of the submitted data, we are issuing this LOMR to reflect decreases in the 100-year floodplain and FEMA-designated floodway and increases in the 500-year floodplain along Red Run Drain. In addition, the 100-year water-surface elevations both increase and decrease due to this revision.

The sole increase in the 100-year water-surface elevation is 0.03 foot at a point approximately 350 feet upstream of Schoenherr Road, where only excavation in the FEMA-designated floodway has occurred. Despite the increase in the 100-year water-surface elevation, the energy grade line has remained unchanged. The increase in the 100-year water-surface elevation has been caused solely by a reduction in velocities due to the excavation in the channel, and is, therefore, acceptable to us in this instance.

This LOMR revises the City of Sterling Heights FIS, FIRM number 260128, panel 0015 F, and FBFM number 260128, panel 0015, all dated May 15, 1986. Revisions are shown on the enclosed annotated portions of FIRM panel 0015 F, FBFM panel 0015, and FIS report Table 3, "Floodway Data." The FIS flood profile for Red Run Drain has not been revised due to scale limitations.

Due to present funding constraints, FEMA must limit the number of physical map revisions processed. Consequently, we will not republish the FIS, FIRM, and FBFM for the City of Sterling Heights to reflect the determination of this LOMR. However, when the FIS, FIRM panel 0015 F, and FBFM panel 0015 for your community warrant a physical revision and republication, the determination in this LOMR will be incorporated at that time.

This LOMR will not be printed and distributed to primary users, such as local insurance agents and mortgage lenders. The community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR throughout the community, so that interested persons, such as property owners, insurance agents, and mortgage lenders, may benefit from it. For instance, publish an article in your community's local newspaper, describing the changes and the assistance your community will give in providing the data and interpreting the National Flood Insurance Program (NFIP) maps.

To aid your community in maintaining all information to be used for floodplain management and insurance purposes, we have enclosed a document entitled "List of Current FIS Data," which includes this letter. If any of the items listed in this document are not currently on file in your community's map repository, please contact our regional office at the number listed below for information on how to obtain those items.

The floodway is provided to your community as a tool to regulate floodplain development. Therefore, the floodway modifications described in this letter, while acceptable to FEMA, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

Although this request has met the criteria for removing an area from a Special Flood Hazard Area to reflect the effects of fill, we encourage you to require that the lowest adjacent grade and lowest floor (including basement) of any structure placed within the subject area be elevated to a level at or above the Base (100-year) Flood Elevation.

NFIP regulations Subparagraph 60.3(b)(7) requires communities to "assure that the flood carrying capacity within the altered or relocated portion of any watercourse is maintained." This provision is incorporated into your community's existing floodplain management regulations; responsibility for maintenance of the modified channel rests with your community. FEMA may request that your community submit a description and schedule of channel maintenance activities.

The map panels listed above and revised by this letter will be used for all flood insurance policies and renewals issued in your community.

This determination has been made pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and is in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria are the minimum requirements and do not supersede more stringent State or local requirements, including adoption of the effective FIS, FIRM, and FBFM, to which the regulations apply, and the modifications made by this LOMR.

Should you have any questions regarding this matter, please do not hesitate to contact the Director, Mitigation Division of FEMA in Chicago, Illinois, at (312) 408-5552, or Philip Myers of our Headquarters staff in Washington, D.C., at (202) 646-2755, or by facsimile at (202) 646-4596.

Sincerely,

Matthew B. Miller for

Michael K. Buckley, P.E., Chief
Hazard Identification Branch
Mitigation Directorate

Enclosures

cc: Mr. Thomas R. DeHondt, P.E.
Mr. Salvador Cottone, Red Run Development Corporation
Mr. Thomas Sovel, P.E.
State Coordinator

# LIST OF CURRENT FLOOD INSURANCE STUDY (FIS) DATA

This list is provided to document all information currently effective for your community for insurance and floodplain management purposes.

Date Prepared: September 21, 1994

Community: Sterling Heights, Michigan

Community Number: 260128

**CURRENT EFFECTIVE FIS DATE:** May 15, 1986

**FLOOD INSURANCE RATE MAP (FIRM)**

Index Date: May 15, 1986

| Panel Numbers | Effective Date |
|---|---|
| 0005 F and 0015 F | May 15, 1986 |
| 0010 E and 0020 E | August 3, 1981 |

**FLOOD BOUNDARY AND FLOODWAY MAP (FBFM)**

Index Date: May 15, 1986

| Panel Numbers | Effective Date |
|---|---|
| 0005 and 0015 | May 15, 1986 |
| 0010 and 0020 | August 3, 1981 |

**LETTER(S) OF MAP REVISION**

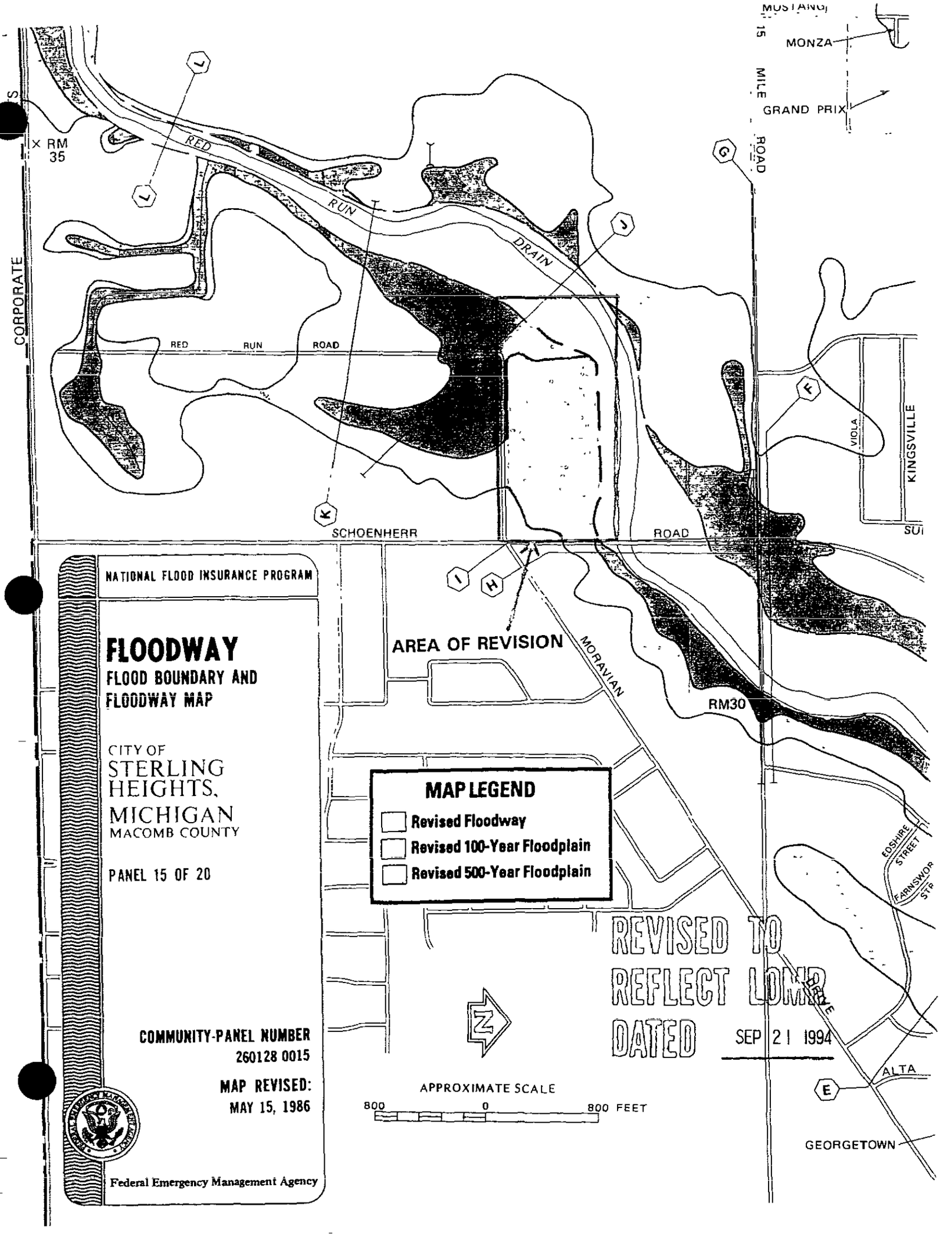
| Panel Number | Effective Date |
|---|---|
| 0015 F | September 21, 1994 |

**LETTER(S) OF MAP AMENDMENT AND MAP REVISION BASED ON FILL**

| Panel Number | Effective Date |
|---|---|
| 0020 E | November 16, 1988 |

**BEST AVAILABLE DATA LETTERS**

None


NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND FLOODWAY MAP
CITY OF STERLING HEIGHTS, MICHIGAN
MACOMB COUNTY
PANEL 15 OF 20
COMMUNITY-PANEL NUMBER
260128 0015
MAP REVISED:
MAY 15, 1986
Federal Emergency Management Agency
MAP LEGEND
Revised Floodway
Revised 100-Year Floodplain
Revised 500-Year Floodplain
AREA OF REVISION
REVISED TO REFLECT LOMR DATED SEP 21 1994
APPROXIMATE SCALE
800 0 800 FEET
RED RUN DRAIN
RED RUN ROAD
SCHOENHERR ROAD
CORPORATE
× RM 35
MONZA
15 MILE ROAD
GRAND PRIX
MORAVIAN
RM30
VIOLA
KINGSVILLE
EDSHIRE STREET
FARNSWORTH STREET
ALTA
GEORGETOWN
L
J
G
F
K
I
H
E

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION | | | |
|---|---|---|---|---|---|---|---|---|
| CROSS SECTION | DISTANCE[1] | WIDTH (FEET) | SECTION AREA (SQ. FEET) | MEAN VELOCITY (FEET/SEC.) | REGULATORY (FEET NGVD) | WITHOUT FLOODWAY (FEET NGVD) | WITH FLOODWAY (FEET NGVD) | INCREASE (FEET) |
| RED RUN DRAIN | | | | | | | | |
| A | 1039 | 223[2] | 2931 | 5.5 | 601.9 | 601.9 | 601.9 | 0.0 |
| B | 1143 | 175[2] | 2558 | 6.3 | 602.7 | 602.7 | 602.7 | 0.0 |
| C | 1223 | 344[2] | 3955 | 4.1 | 603.5 | 603.5 | 603.5 | 0.0 |
| D | 3180 | 205 | 3019 | 5.3 | 604.0 | 604.0 | 604.0 | 0.0 |
| E | 5720 | 256 | 3047 | 4.9 | 604.6 | 604.6 | 604.6 | 0.0 |
| F | 8270 | 542 | 5278 | 2.8 | 605.1 | 605.1 | 605.1 | 0.0 |
| G | 8394 | 731 | 5471 | 2.7 | 605.6 | 605.6 | 605.6 | 0.0 |
| H | 9594 | 709 | 6168 | 2.7 | 605.7 | 605.7 | 605.7 | 0.0 |
| I | 9676 | 804 | 4045 | 4.1 | 605.7 | 605.7 | 605.8 | 0.1 |
| J | 11,596 | 509 | 3730 | 4.4 | 606.0 | 606.0 | 606.0 | 0.0 |
| K | 13,196 | 298 | 3375 | 4.9 | 606.4 | 606.4 | 606.4 | 0.0 |
| L | 14,796 | 178 | 2556 | 6.5 | 606.8 | 606.8 | 606.8 | 0.0 |
| M | 16,096 | 250 | 2830 | 5.0 | 607.5 | 607.5 | 607.5 | 0.0 |
| N | 16,418 | 280 | 2662 | 5.4 | 607.8 | 607.8 | 607.8 | 0.0 |
| O | 16,768 | 423 | 4439 | 3.2 | 608.2 | 608.2 | 608.2 | 0.0 |
| P | 17,168 | 490 | 5342 | 2.7 | 608.4 | 608.4 | 608.4 | 0.0 |

AREA OF REVISION

REVISED TO REFLECT LOMR

[1]FEET ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND CORPORATE LIMITS

DATED SEP 21 1994

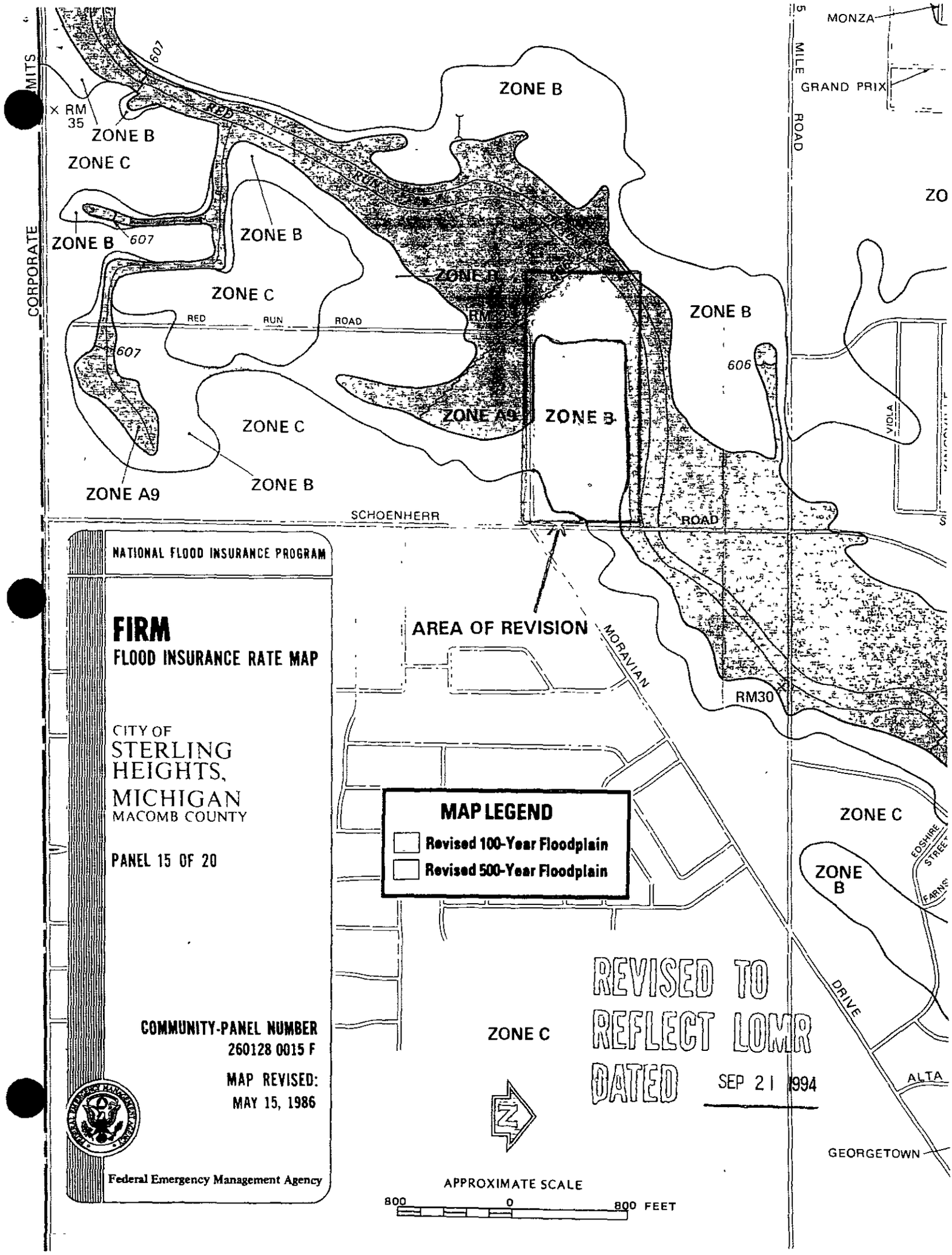
TABLE 3

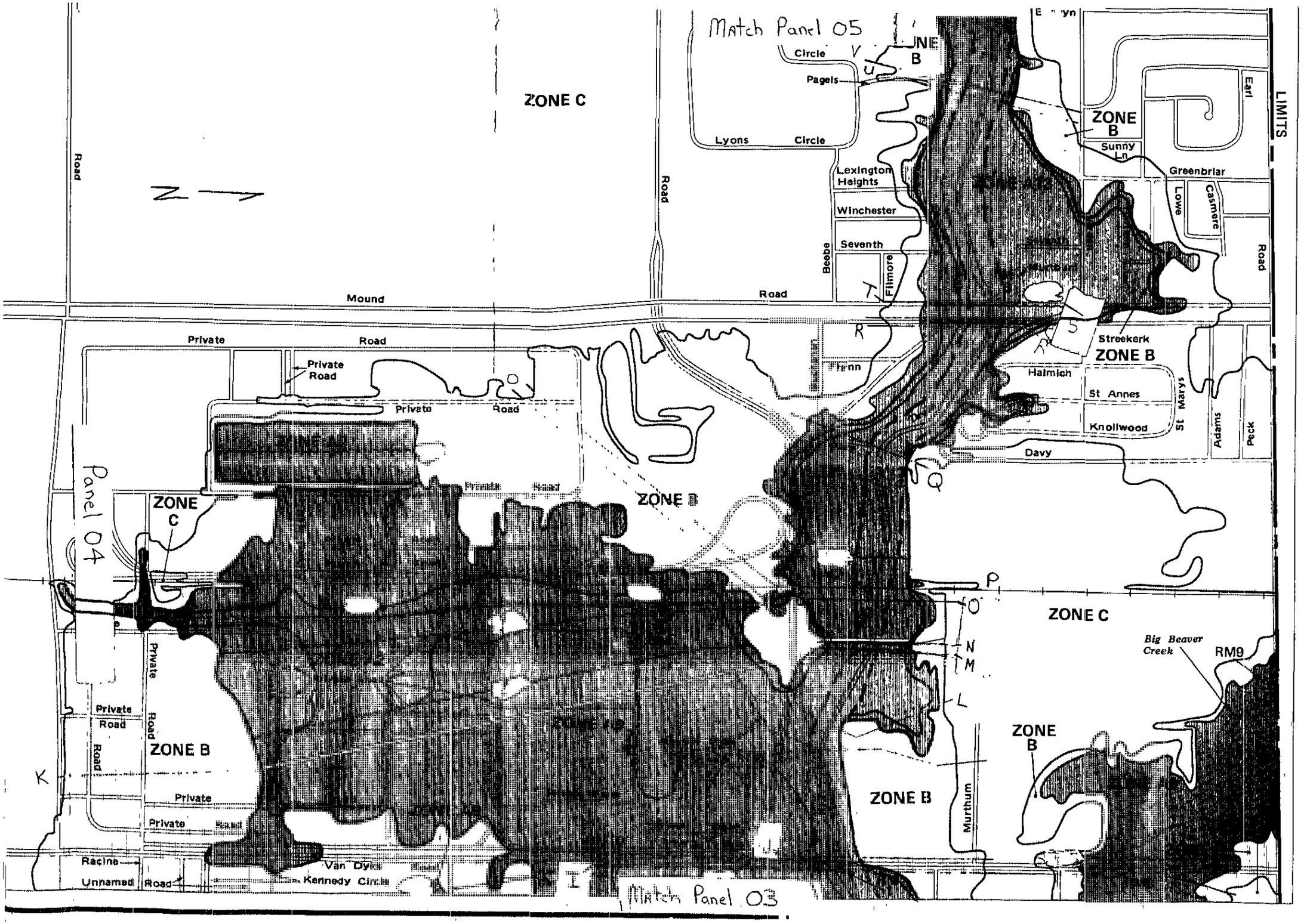
FEDERAL EMERGENCY MANAGEMENT AGENCY

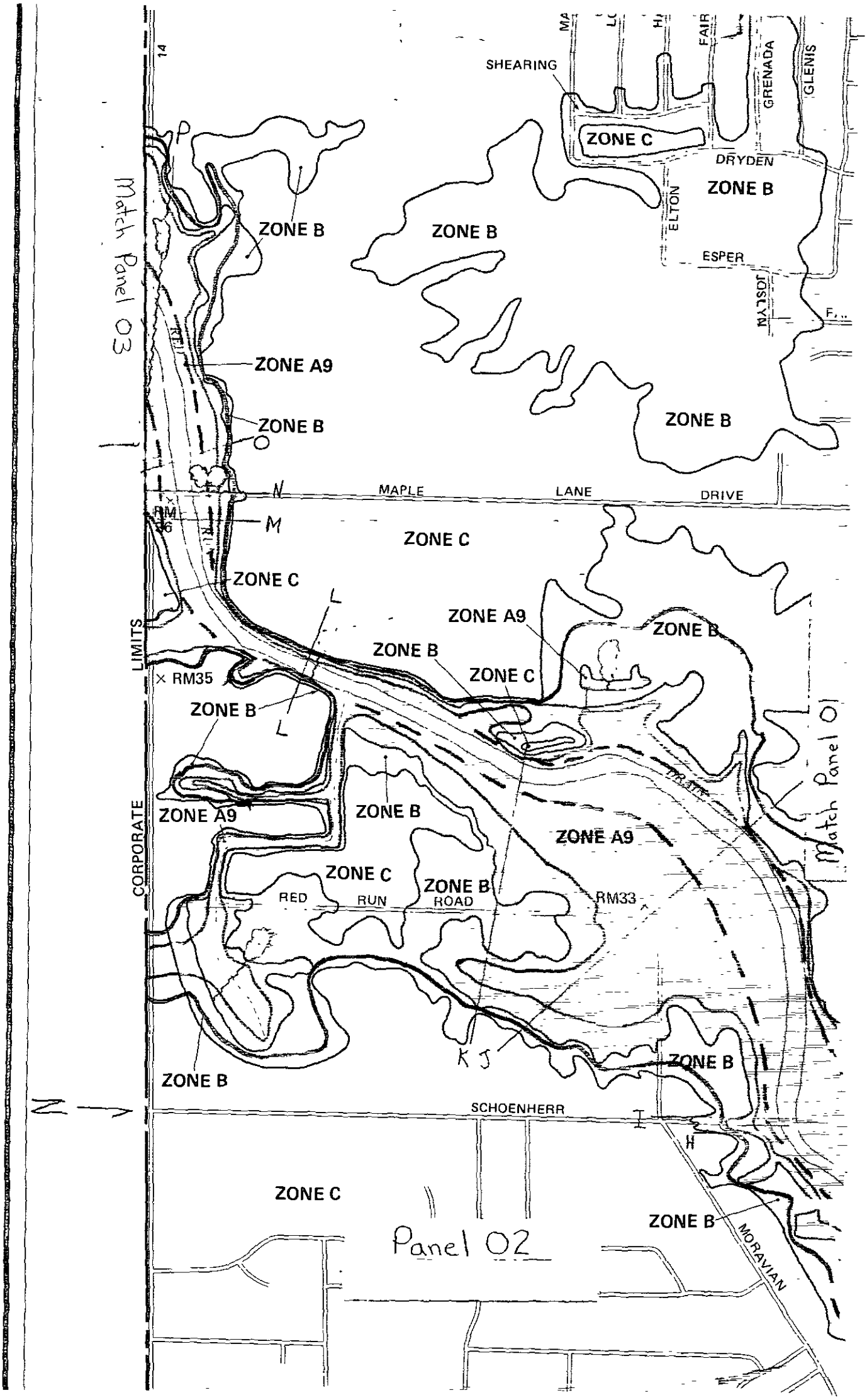
CITY OF STERLING HEIGHTS, MI
(MACOMB CO.)

FLOODWAY DATA

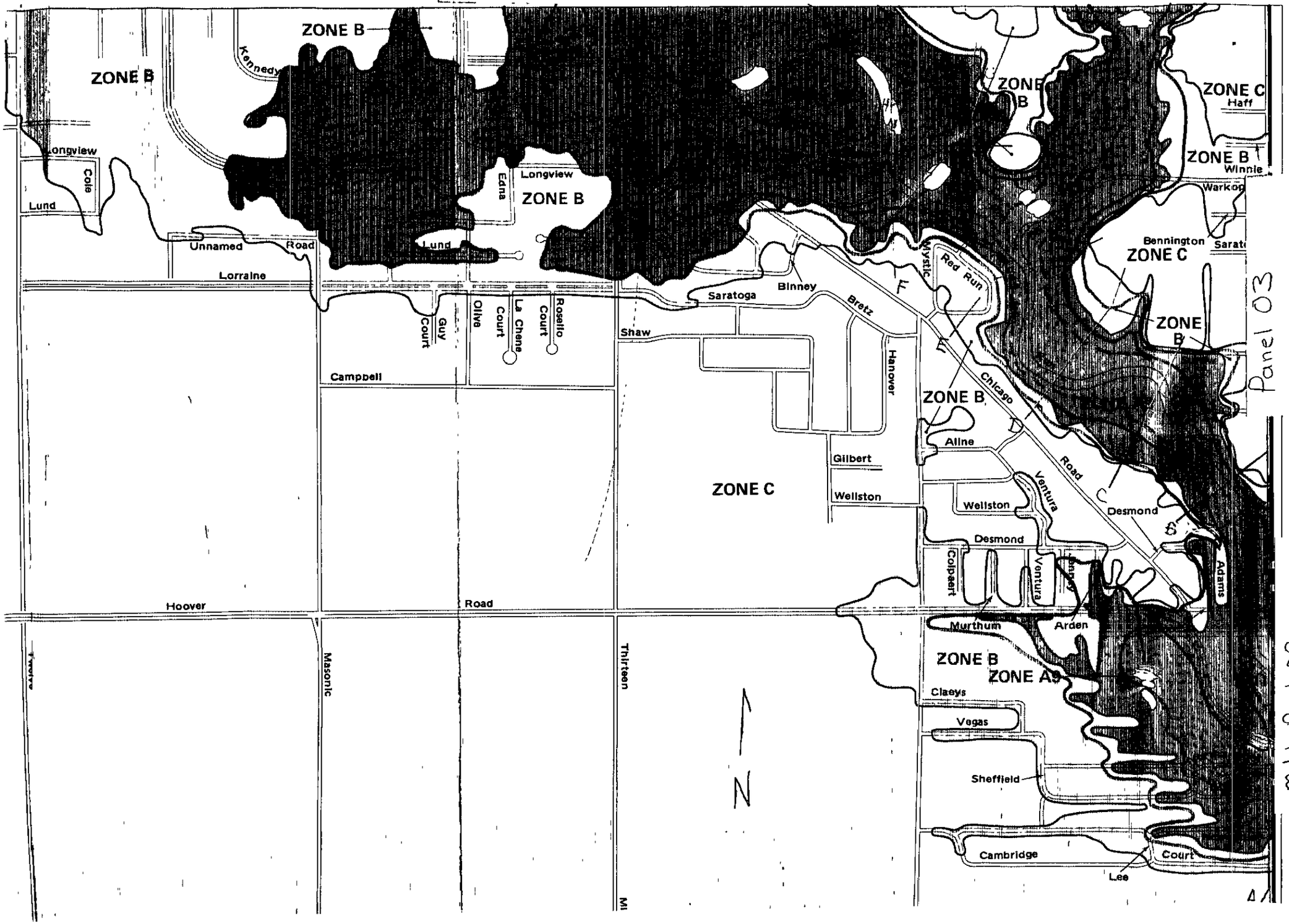
RED RUN DRAIN


NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
STERLING
HEIGHTS,
MICHIGAN
MACOMB COUNTY
PANEL 15 OF 20
COMMUNITY-PANEL NUMBER
260128 0015 F
MAP REVISED:
MAY 15, 1986
Federal Emergency Management Agency
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain
AREA OF REVISION
REVISED TO
REFLECT LOMR
DATED SEP 21 1994
APPROXIMATE SCALE
800 0 800 FEET
ZONE A9
ZONE B
ZONE C
RED RUN ROAD
SCHOENHERR ROAD
MORAVIAN DRIVE
5 MILE ROAD
CORPORATE LIMITS
MONZA
GRAND PRIX
VIOLA
EDSHIRE STREET
FARNS
ALTA
GEORGETOWN
RM30
RM35
607
606


Match Panel 05
ZONE C
Circle
Pagels
Lyons
Circle
ZONE B
Lexington Heights
Winchester
Seventh
Beebe
Filmore
Road
Mound
Road
Road
Earl
Sunny Ln
Greenbriar
Lowe
Casmere
Road
LIMITS
Streekerk
ZONE B
Halmich
St Annes
Knollwood
St Marys
Adams
Peck
Davy
Private
Road
Private Road
Private
Road
Private
Road
Private
Road
Private
Road
Private
Private
Private
Road
Road
Road
Panel 04
ZONE C
ZONE B
ZONE B
ZONE C
Big Beaver Creek
RM9
ZONE B
ZONE B
Murthum
Racine
Unnamed Road
Van Dyke
Kennedy Circle
Match Panel 03
N
Z
K
L
M
N
O
P
Q
R
S
T
U
V


SHEARING
GRENADA
GLENIS
ZONE C
DRYDEN
ZONE B
ELTON
ESPER
ZONE B
ZONE B
ZONE B
ZONE A9
ZONE B
Match Panel 03
MAPLE
LANE
DRIVE
ZONE C
ZONE C
ZONE A9
ZONE B
ZONE B
ZONE C
RM35
ZONE B
LIMITS
CORPORATE
ZONE A9
ZONE B
ZONE A9
ZONE C
ZONE B
RED
RUN
ROAD
RM33
Match Panel 01
ZONE B
ZONE B
SCHOENHERR
ZONE C
ZONE B
MORAVIAN
Panel 02

Match Panel 04



to: files
from: Bruce Menerey
date: 9/16/83

Re: FIS for Sterling Heights
Red Run Drain
Macomb County

Problem: Revision of the FIS based upon discharges developed by the COEs SAM model.

Conclusion: The profile resulting from the COE's discharges approximates the 1981 flood. It is apparent that the 1981 was a significant event However, the 1981 storm was not the flood of record for neither the Plum Brook nor Big Beaver, both tributaries to the Red Run Drain. The Clinton River at Auburn Heights was the only watercourse in the area which recorded the 1981 flood as the flood of record. I would question calling the 1981 flood the 100 year event.

The SAM model was used to develop the revised discharges. This model has used HEC-2-developed rating curves, and HEC1 routing. The 1981 flood was not simulated using the SAM model.

If we get the SAM model on line, it may be appropriate to incorporate DAMBRK into the model. This would allow unsteady-state routing of the flood wave(s), not only on the Red Run, but also on the Clinton River

The following discharges were used in the analysis

| XSEC | FLS Q | SAM Q | Est 1981 Q |
|---|---|---|---|
| 197 | 19100 | 15050 | 16000 |
| 1035 | 17800 | 13500 | 14840 |
| 26025 | 11700 | 8300 | 8600 |

The revised discharges would lower the 100 year flood profile from 1.3 feet at Utica Rd (xsec 194) to 2.0 feet at the Sterling Height u/s corporate limit. Within Warren the profile would be lowered 2.0 feet at the d/s corporate limit to 2.7 feet at the u/s corporate limit

The revised profile would have 100 year flood elevations which were exceeded by the 1981 Flood.

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLOOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH D , RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

```
*******************************
*******************************
***                         ***
***  SUMMARY OF INPUT DATA  ***
***                         ***
*******************************
*******************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KOMP | 3 |
| NO OF RESERVOIR INFLOW HYDROGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH ORDINATES) = 1 00 HRS

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 24 0000 HRS

INFLOW HYDROGRAPH TO RED RUN DRAIN AT C

Clinton Hydrograph

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300 00 | 333 00 | 365 00 | 396 00 | 427.00 | 459 00 | 490 00 | 521 00 |
| 552 00 | 609 00 | 663 00 | 717 00 | 771 00 | 881 00 | 992 00 | 1102 00 |
| 1214.00 | 1350 00 | 1516 00 | 1641 00 | 1817 00 | 1925 00 | 2208.00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1.0000 | 2 0000 | 3 0000 | 4 0000 | 5 0000 | 6 0000 | 7 0000 |
| 8 0000 | 9.0000 | 10 0000 | 11 0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17 0000 | 18.0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO OF LATERAL INFLOW HYOROGRAPHS | LQ | 1 |
| NO. OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599 00 X1L(I) = 0 000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 585 0 | 588 0 | 592 0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC | 10 0 | 67 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 |
| XCL | 0 0 | 0 0 | 0 0 | 330 0 | 440 0 | 550 0 | 550 0 | 550 0 |
| XCR | 0 0 | 0 0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 400 0 | 500 0 | 500.0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0 523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 24 0 | 55 0 | 66 0 | 68 0 | 68 0 | 68 0 | 68 0 | 68 0 |
| XCL | 0 0 | 0 0 | 0.0 | 180 0 | 240 0 | 240 0 | 300 0 | 300 0 |
| XCR | 0 0 | 0 0 | 0 0 | 470 0 | 480 0 | 480 0 | 500 0 | 500 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 200 0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0 682 FSTG(I) = 598 00 X1L(I) = 0 565 X1R(I) = 0 519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 5 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 8 0 | 57 0 | 80 0 | 104 0 | 104 0 | 104 0 | 104 0 | 104 0 |
| XCL | 0 0 | 0 0 | 0 0 | 440 0 | 1033 0 | 1230 0 | 1500 0 | 1500 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 200 0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597.00 X1L(I) = 0 579 X1R(I) = 0 533

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XE | 583 | 0 | 587 | 0 | 591 | 0 | 595 | 0 | 599 | 0 | 601 | 0 | 603 | 0 | 605 | 0 |
| XC | 20 | 0 | 59 | 0 | 78 | 0 | 88 | 0 | 88 | 0 | 88 | 0 | 88 | 0 | 88 | 0 |
| XCL | 0 | 0 | 0 | 0 | 0 | 0 | 450 | 0 | 1033 | 0 | 1180 | 0 | 1310 | 0 | 1310 | 0 |
| XCR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 200 | 0 | 230 | 0 | 230 | 0 |
| XS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 800 | 0 | 1600 | 0 | 1600 | 0 | 1600 | 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599 00 X1L(I) = 0 787 X1R(I) = 0 741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 582 2 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 45 0 | 66 0 | 72 0 | 83 0 | 88 0 | 88 0 | 88 0 | 88.0 |
| XCL | 0 0 | 0 0 | 0 0 | 570 0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 53 0 | 101 0 | 281 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 581 8 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 20 0 | 74 0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 |
| XCL | 0 0 | 0 0 | 94 0 | 465 0 | 470 0 | 494 0 | 560 0 | 600 0 |
| XCR | 0 0 | 0 0 | 0 0 | 45 0 | 120 0 | 360 0 | 400 0 | 400 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1 722 FSTG(I) = 600.00 X1L(I) = 1 555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 38 0 | 86 0 | 98 0 | 100 0 | 108 0 | 144 0 | 200 0 | 200 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 325 0 | 325 0 |
| XCR | 0 0 | 0 0 | 110 0 | 222 0 | 263 0 | 338 0 | 500 0 | 600 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2.040 FSTG(I) = 0 00 X1L(I) = 2 863 X1R(I) = 1 826

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

Fraser

CROSS-SECTION NUMBER 9
**********

X1(I) = 2 051 FSTG(I) = 600 00 X1L(I) = 1 874 X1R(I) = 1 837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 4 | 586 0 | 590 0 | 594 0 | 595 9 | 598 0 | 600 0 | 602 0 |
| XC | 43 0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0.0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 100 0 | 850 0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2 062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2 727 FSTG(I) = 599 00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 0 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 8 0 | 65 0 | 78 0 | 80 0 | 80 0 | 80 0 | 80 0 | 80 0 |
| XCL | 0 0 | 0 0 | 100 0 0 | 210 0 | 240 0 | 400 0 | 600 0 | 600 0 |
| XCR | 0 0 | 0 0 | 200 0 | 690 0 | 700 0 | 760 0 | 820 0 | 820 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3 261 FSTG(I) = 588 00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 577 8 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 44 0 | 80 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL | 0 0 | 0 0 | 200 0 | 600 0 | 800 0 | 910 0 | 990 0 | 990 0 |
| XCR | 0 0 | 0 0 | 160 0 | 180 0 | 180 0 | 190 0 | 190 0 | 190 0 |
| XS | 0 0 | 0 0 | 200 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7).
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,10) IS GREATER THAN HS(1, 9)
THIS AOVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REACH | 1 | 0 050 | 0 050 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH | 1 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 |
| REACH | 1 | 0 100 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 2 | 0 050 | 0 050 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH | 2 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH | 2 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH | 3 | 0 050 | 0 050 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH | 3 | 0 100 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 3 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 4 | 0 050 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH | 4 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH | 4 | 0 100 | 0 100 | 0 100 | 0 100 | 0 080 | 0 060 | 0 050 | 0 040 |
| REACH | 5 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH | 5 | 0 150 | 0 150 | 0 150 | 0 150 | 0 120 | 0 100 | 0 100 | 0 080 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 5 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0.080 | 0 060 | 0 060 |
| REACH 6 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 6 | 0 080 | 0.080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 |
| REACH 7 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 7 | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0.060 | 0 060 |
| REACH 7 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 9 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 9 | 0 090 | 0.090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 10 | 0 045 | 0 042 | 0 040 | 0 040 | 0 040 | 0 040 | 0.040 | 0 040 |
| REACH 10 | 0 100 | 0 080 | 0 050 | 0 045 | 0 030 | 0 030 | 0 030 | 0 030 |
| REACH 10 | 0 150 | 0 150 | 0 150 | 0 120 | 0.110 | 0 100 | 0 100 | 0 100 |
| REACH 11 | 0 035 | 0 035 | 0.035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 11 | 0 050 | 0.050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0.600 | 0 000 |
| 2 | 0.500 | 0 000 |
| 3 | 0.500 | 0 000 |
| 4 | 0 500 | 0.000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 300 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0 500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0.000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

LQX(I)

4

(QL(L, 1),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 20 | 23 | 34 | 100 | 582. | 2349 | 5964 |
| 9821 | 13042 | 15512 | 16020 | 14686 | 12588 | 10322 | 7823 |
| 5970 | 4934 | 4227 | 3707 | 3310 | 2969 | 2659 | 2372. |
| 2080 | | | | | | | |

Red Run Inflow

```
*********************************
*********************************
***                           ***
***  SUMMARY OF OUTPUT DATA   ***
***                           ***
*********************************
*********************************
```

SLOPE PROFILE

MILES

0 0 0 3 0 7 1 0 1 3 1.6 2 0 2 3 2 6 2 9 3 3

ELEVATION FEET

585.00 584 00 583 50 583 00 582 20 581 80 578 50 578 00

ELEV FEET MILE

585 0 0 0
584 0 0 5
583 5 0 7
583.0 0 7
582 2 0 9
581 8 1 4
578 5 1 7
578.0 2 7

```
577 80I        I        I        I        I        I        I        I        I        I        * 577 8   3 3
    0 0        0 3      0 7      1 0      1 3      1 6      2 0      2 3      2 6      2 9      3.3
                                   MILES
```

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI | MESAGE |
|---|---|---|---|---|---|---|
| 1 | 0 000 | 585 00 | | | | |
| 2 | 0 523 | 584 00 | 1 | 0.523 | 1 91 | |
| 3 | 0 682 | 583 50 | 2 | 0 159 | 3 14 | |
| 4 | 0 696 | 583.00 | 3 | 0 014 | 35 71 | |
| 5 | 0 919 | 582 20 | 4 | 0 223 | 3 59 | |
| 6 | 1 389 | 581 80 | 5 | 0 470 | 0 85 | |
| 7 | 1 722 | 578 50 | 6 | 0 333 | 9 91 | |
| 8 | 2 040 | 578 50 | 7 | 0 318 | 0 00 | |
| 9 | 2 051 | 578 40 | 8 | 0 011 | 9.09 | |
| 10 | 2 062 | 578 50 | 9 | 0 011 | -9 09 | |
| 11 | 2 727 | 578 00 | 10 | 0 665 | 0 75 | |
| 12 | 3 261 | 577 80 | 11 | 0 534 | 0 37 | |

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 16 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 591 | 591 | 590 | 586 | 586 | 586 |
| 600 | 600 | 600 | 600 | 590 | 590 | 586 | 586 |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 595 | 595 | 594 | 590 | 586 | 586 |
| 586 | 594 | 598 | 594 | 586 | 586 | 586 | 586 |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 16 | 3 | 3 261 | 583 48 | 320 00 | 0 08 | 0 375 |
| 16 | 0 | 3 261 | 583 48 | 320 00 | | |
| 15 | 1 | 2 994 | 583 61 | 320 00 | 0 12 | |
| 15 | 2 | 2 994 | 583 61 | 320 00 | 0 11 | |
| 14 | 1 | 2 727 | 583 91 | 320 00 | 0 19 | |
| 14 | 2 | 2 727 | 583 90 | 320 00 | 0 18 | |
| 14 | 3 | 2 727 | 583 90 | 320 00 | 0 18 | |
| 13 | 1 | 2 395 | 584 44 | 320 00 | 0 13 | |
| 13 | 2 | 2 395 | 584 42 | 320 00 | 0 12 | |
| 13 | 3 | 2 395 | 584 42 | 320 00 | 0 12 | |
| 12 | 1 | 2 062 | 584 73 | 320 00 | 0 09 | |
| 12 | 2 | 2 062 | 584 73 | 320 00 | 0 09 | |
| 12 | 3 | 2 062 | 584 73 | 320 00 | 0 09 | |
| 11 | 1 | 2 051 | 584 74 | 320 00 | 0 07 | |
| 11 | 2 | 2 051 | 584 74 | 320 00 | 0 07 | |
| 10 | 1 | 2 040 | 584 74 | 320 00 | 0 09 | |
| 10 | 2 | 2 040 | 584 74 | 320 00 | 0 09 | |
| 9 | 1 | 1.722 | 584 93 | 320 00 | 0 07 | |
| 9 | 2 | 1 722 | 584 93 | 320 00 | 0 07 | |
| 9 | 3 | 1 722 | 584 93 | 320 00 | 0 07 | |
| 8 | 1 | 1 611 | 585 08 | 320.00 | 0 07 | |
| 8 | 2 | 1 611 | 584 99 | 320 00 | 0 10 | |
| 8 | 3 | 1 611 | 584 99 | 320 00 | 0 10 | |
| 7 | 1 | 1 500 | 585 43 | 320 00 | 0 09 | |
| 7 | 2 | 1 500 | 585 15 | 320 00 | 0 14 | |
| 7 | 3 | 1 500 | 585 14 | 320 00 | 0 15 | |
| 7 | 4 | 1 500 | 585 14 | 320 00 | 0 15 | |
| 6 | 1 | 1 389 | 585 76 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585 53 | 320 00 | 0 20 | |
| 6 | 3 | 1 389 | 585 53 | 320 00 | 0 22 | |
| 6 | 4 | 1 389 | 585 53 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586 71 | 320 00 | 0.13 | |
| 5 | 2 | 0 919 | 586.71 | 320 00 | 0.11 | |
| 5 | 3 | 0 919 | 586 71 | 320.00 | 0 11 | |
| 4 | 1 | 0 696 | 587 14 | 300 00 | 0 19 | |
| 4 | 2 | 0 696 | 587 14 | 300 00 | 0 19 | |
| 3 | 1 | 0 682 | 587 27 | 300 00 | 0.20 | |
| 3 | 2 | 0 682 | 587 20 | 300.00 | 0 27 | |
| 3 | 3 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 2 | 1 | 0 523 | 588 17 | 300 00 | 0 18 | |
| 2 | 2 | 0 523 | 588 17 | 300 00 | 0 16 | |
| 1 | 1 | 0.000 | 589.52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589 54 | 300 00 | 0 14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0 00 | 589 54 | 589 54 |
| 2 | 0.52 | 588.17 | 588.17 |
| 3 | 0 68 | 587 20 | 587 20 |
| 4 | 0 70 | 587 14 | 587.14 |
| 5 | 0 92 | 586 71 | 586.71 |
| 6 | 1.39 | 585 53 | 585 53 |
| 7 | 1 50 | 585 14 | 585 14 |

| | | | |
|---|---|---|---|
| 8 | 1 61 | 584 99 | 584 99 |
| 9 | 1 72 | 584 93 | 584 93 |
| 10 | 2.04 | 584 74 | 584 74 |
| 11 | 2 05 | 584 74 | 584.74 |
| 12 | 2 06 | 584 73 | 584 73 |
| 13 | 2 39 | 584 42 | 584 42 |
| 14 | 2 73 | 583 90 | 583 90 |
| 15 | 2 99 | 583 61 | 583 61 |
| 16 | 3.26 | 583 48 | 583 48 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 300 00 | 300 00 | 300 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | 320 00 | 320.00 | 320 00 | 320 00 | 320.00 | 320.00 | 320 00 |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 589 54 | 588 17 | 587 20 | 587 14 | 586 71 | 585 53 | 585 14 | 584 99 |
| 584 93 | 584 74 | 584 74 | 584 73 | 584 42 | 583 90 | 583 61 | 583 48 |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYDROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 48 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 48 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 54 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 17 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587 20 | 0 30 | 300 0 | 0 0 | 0 0 | 58.2 | 0 0 | 0 0 | 58 2 | 0 0 | 125 4 | 0 0 | 0 0 |
| 0 70 | 587 14 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 6 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0 32 | 320 0 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 257 9 | 0 0 | 0 0 |
| 1 39 | 585 53 | 0 32 | 320 0 | 0 0 | 0 0 | 67 9 | 0.0 | 0 0 | 67 9 | 0 0 | 163 8 | 0.0 | 0 0 |
| 1 50 | 585 14 | 0 32 | 320.0 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 0 0 | 212 4 | 0 0 | 0 0 |
| 1 61 | 584 99 | 0 32 | 320 0 | 0 0 | 0 0 | 74 1 | 0.0 | 0 0 | 74 1 | 0 0 | 286 0 | 0 0 | 0 0 |
| 1 72 | 584 93 | 0 32 | 320 0 | 0 0 | 0 0 | 79 1 | 0.0 | 0 0 | 79 1 | 0 0 | 376 4 | 0 0 | 0 0 |
| 2 04 | 584 74 | 0 32 | 320 0 | 0 0 | 0 0 | 74 9 | 0 0 | 0 0 | 74 9 | 0 0 | 311 8 | 0 0 | 0 0 |
| 2 05 | 584 74 | 0 32 | 320 0 | 0 0 | 0 0 | 75 5 | 0 0 | 0 0 | 75 5 | 0 0 | 375 7 | 0 0 | 0 0 |
| 2 06 | 584 73 | 0 32 | 320 0 | 0 0 | 0 0 | 74 8 | 0 0 | 0 0 | 74.8 | 0 0 | 310 9 | 0 0 | 0 0 |
| 2 39 | 584 42 | 0 32 | 320 0 | 0 0 | 0 0 | 63 1 | 0 0 | 0 0 | 63 1 | 0 0 | 245 7 | 0 0 | 0 0 |
| 2 73 | 583 90 | 0.32 | 320 0 | 0 0 | 0 0 | 50 0 | 0 0 | 0 0 | 50 0 | 0.0 | 171 3 | 0 0 | 0 0 |
| 2 99 | 583 61 | 0 32 | 320 0 | 0 0 | 0 0 | 58 8 | 0 0 | 0.0 | 58.8 | 0 0 | 242 1 | 0 0 | 0 0 |
| 3 26 | 583 48 | 0 32 | 320 0 | 0 0 | 0 0 | 69 0 | 0 0 | 0.0 | 69 0 | 0 0 | 321.0 | 0 0 | 0 0 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 334 41 YU(N) = 583.23 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 334 41 YU(N) = 583 23 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 56 | 0 30 | 300 0 | 0.0 | 0 0 | 70 1 | 0.0 | 0 0 | 70 1 | 0.0 | 222 1 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 299 3 | 0.0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0 68 | 587 22 | 0 30 | 299 1 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 126 2 | 0 0 | 0 0 |
| 0 70 | 587 14 | 0 30 | 299 1 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 4 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 92 | 586 70 | 0 32 | 319.2 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0.0 | 257 8 | 0.0 | 0 0 |
| 1 39 | 585 53 | 0 32 | 319 0 | 0 0 | 0 0 | 68 0 | 0 0 | 0.0 | 68 0 | 0.0 | 164 2 | 0 0 | 0 0 |
| 1 50 | 585 15 | 0 32 | 318 8 | 0 0 | 0 0 | 69 7 | 0 0 | 0 0 | 69 7 | 0 0 | 213 2 | 0 0 | 0 0 |
| 1 61 | 585 00 | 0 32 | 318 6 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | 0 0 | 287 0 | 0 0 | 0 0 |
| 1 72 | 584 94 | 0 32 | 318 3 | 0 0 | 0 0 | 79.2 | 0 0 | 0 0 | 79 2 | 0 0 | 377 6 | 0 0 | 0 0 |
| 2 04 | 584 76 | 0 32 | 317 2 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313.3 | 0 0 | 0 0 |
| 2 05 | 584 76 | 0 32 | 317 2 | 0 0 | 0 0 | 75 6 | 0 0 | 0 0 | 75 6 | 0.0 | 377 3 | 0 0 | 0.0 |
| 2 06 | 584 75 | 0.32 | 317 1 | 0 0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0.0 | 312 4 | 0 0 | 0 0 |
| 2 39 | 584 46 | 0 32 | 315 7 | 0 0 | 0 0 | 63 3 | 0 0 | 0 0 | 63 3 | 0 0 | 247 7 | 0 0 | 0 0 |
| 2 73 | 583 74 | 0 32 | 318 1 | 0 0 | 0 0 | 48 9 | 0.0 | 0 0 | 48 9 | -0 2 | 163 3 | 0 0 | 0 0 |
| 2 99 | 583 40 | 0 32 | 324 8 | 0 0 | 0 0 | 57 6 | 0 0 | 0 0 | 57 6 | -0 2 | 229 7 | 0 0 | 0 0 |
| 3 26 | 583 23 | 0 33 | 334 4 | 0 0 | 0 0 | 67 9 | 0 0 | 0 0 | 67 9 | -0 2 | 304.0 | 0 0 | 0 0 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 343 32 YU(N) = 582 95 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300.00 YU(1) = 589 55 QU(N) = 343 32 YU(N) = 582 95 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.55 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 6 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 3 | 0 0 | 0 0 |
| 0 68 | 587.21 | 0 30 | 300 7 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0 0 | 125 9 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 8 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 8 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0 32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 0 | 0 0 | 0.0 |
| 1 39 | 585 52 | 0 32 | 321 1 | 0 0 | 0 0 | 67 8 | 0 0 | 0 0 | 67 8 | =0 0 | 163 1 | 0 0 | 0 0 |
| 1 50 | 585 12 | 0 32 | 321 7 | 0 0 | 0 0 | 69 4 | 0 0 | 0 0 | 69 4 | -0 0 | 211 0 | 0 0 | 0 0 |
| 1 61 | 584 97 | 0 32 | 322 5 | 0 0 | 0.0 | 73 9 | 0 0 | 0 0 | 73 9 | -0 0 | 284 1 | 0 0 | 0 0 |
| 1 72 | 584 90 | 0 32 | 323 5 | 0 0 | 0 0 | 79 0 | 0 0 | 0 0 | 79 0 | -0 1 | 374 2 | 0 0 | 0 0 |
| 2 04 | 584 70 | 0 33 | 327 3 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 05 | 584 70 | 0 33 | 327 4 | 0 0 | 0 0 | 75 3 | 0 0 | 0 0 | 75 3 | -0 1 | 372 8 | 0 0 | 0 0 |
| 2 06 | 584 69 | 0 33 | 327 6 | 0 0 | 0 0 | 74 5 | 0 0 | 0 0 | 74 5 | -0 1 | 307 9 | 0 0 | 0 0 |
| 2 39 | 584 35 | 0 33 | 333 1 | 0 0 | 0 0 | 62 5 | 0 0 | 0 0 | 62 5 | -0 1 | 240 8 | 0 0 | 0 0 |
| 2 73 | 583 60 | 0 34 | 337 0 | 0 0 | 0 0 | 47 9 | 0 0 | 0 0 | 47 9 | -0 1 | 156.6 | 0 0 | 0 0 |
| 2 99 | 583 16 | 0 34 | 339 2 | 0 0 | 0 0 | 56 2 | 0 0 | 0 0 | 56 2 | -0 1 | 216 3 | 0 0 | 0 0 |
| 3 26 | 582 95 | 0 34 | 343 3 | 0 0 | 0 0 | 66 6 | 0 0 | 0 0 | 66 6 | -0 2 | 285 1 | 0 0 | 0 0 |

**********

TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589.71 QU(N) = 347 04 YU(N) = 582 65 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 04 YU(N) = 582 65 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 71 | 0 33 | 333 0 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0 52 | 588 28 | 0 32 | 321 4 | 0 0 | 0 0 | 58 5 | 0 0 | 0 0 | 58 5 | 0.1 | 191 4 | 0 0 | 0.0 |
| 0 68 | 587 30 | 0 32 | 319 1 | 0 0 | 0 0 | 58 7 | 0 0 | 0 0 | 58 7 | 0 1 | 131 3 | 0 0 | 0 0 |
| 0 70 | 587 23 | 0 32 | 319 0 | 0 0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 1 | 171 9 | 0 0 | 0 0 |
| 0 92 | 586 78 | 0 34 | 336 4 | 0 0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 7 | 0 0 | 0 0 |
| 1.39 | 585 53 | 0 33 | 332 8 | 0 0 | 0 0 | 68 0 | 0 0 | 0 0 | 68 0 | -0 0 | 164 2 | 0.0 | 0 0 |
| 1 50 | 585 11 | 0 33 | 332 4 | 0 0 | 0 0 | 69 3 | 0 0 | 0 0 | 69 3 | -0 0 | 210 2 | 0 0 | 0 0 |
| 1 61 | 584 94 | 0.33 | 332.2 | 0 0 | 0 0 | 73 7 | 0 0 | 0 0 | 73 7 | -0 1 | 282 3 | 0 0 | 0 0 |
| 1.72 | 584 87 | 0 33 | 332 0 | 0 0 | 0 0 | 78 8 | 0 0 | 0.0 | 78 8 | -0 1 | 371 9 | 0 0 | 0 0 |
| 2 04 | 584 66 | 0 33 | 331 6 | 0 0 | 0.0 | 74 3 | 0 0 | 0 0 | 74 3 | -0 1 | 305 8 | 0 0 | 0 0 |
| 2 05 | 584 66 | 0 33 | 331 6 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | -0 1 | 369.7 | 0 0 | 0 0 |
| 2 06 | 584 65 | 0 33 | 331 6 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0 1 | 304 8 | 0 0 | 0 0 |
| 2 39 | 584 30 | 0 33 | 330 4 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | -0 2 | 237 7 | 0 0 | 0 0 |
| 2.73 | 583 42 | 0 33 | 332 5 | 0 0 | 0 0 | 46 6 | 0 0 | 0 0 | 46 6 | -0 2 | 148 1 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 99 | 582 91 | 0 34 | 338 5 | 0.0 | 0 0 | 54 7 | 0 0 | 0 0 | 54 7 | -0 4 | 202 1 | 0 0 | . | 0 0 |
| 3 26 | 582 65 | 0 35 | 347 0 | 0 0 | 0 0 | 65 3 | 0 0 | 0 0 | 65 3 | -0 5 | 264 7 | 0 0 | | 0 0 |

**********

TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589.90 QU(N) = 354 56 YU(N) = 582 40 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589 90 QU(N) = 354.56 YU(N) = 582 40 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 90 | 0 37 | 365 0 | 0 0 | 0 0 | 70 8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 5 | 0 0 | 0.0 |
| 0 52 | 588 47 | 0 36 | 357 0 | 0 0 | 0 0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 3 | 0 0 | 0 0 |
| 0 68 | 587 50 | 0 35 | 354 2 | 0 0 | 0 0 | 59 8 | 0 0 | 0 0 | 59 8 | 0 3 | 142 7 | 0 0 | 0 0 |
| 0 70 | 587 43 | 0 35 | 354 0 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61.1 | 0 3 | 184 0 | 0 0 | 0 0 |
| 0 92 | 586 96 | 0 37 | 372 0 | 0 0 | 0 0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 275 0 | 0 0 | 0 0 |
| 1 39 | 585.66 | 0 36 | 362 5 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 0 1 | 172 8 | 0 0 | 0 0 |
| 1 50 | 585 21 | 0 36 | 360 6 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 1 | 217 2 | 0 0 | 0 0 |
| 1 61 | 585 03 | 0 36 | 358 9 | 0 0 | 0 0 | 74.4 | 0 0 | 0 0 | 74 4 | 0.0 | 288 6 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0.36 | 357 3 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 0 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0 35 | 353 6 | 0 0 | 0 0 | 74 7 | 0 0 | 0 0 | 74 7 | -0 1 | 309 9 | 0 0 | 0 0 |
| 2 05 | 584 71 | 0 35 | 353 5 | 0 0 | 0 0 | 75.4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 35 | 353 4 | 0.0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 8 | 0 0 | 0 0 |
| 2.39 | 584 31 | 0 35 | 352 3 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62 2 | -0 2 | 238 4 | 0 0 | 0 0 |
| 2 73 | 583 36 | 0 35 | 351 8 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 145 3 | 0 0 | 0 0 |
| 2 99 | 582 73 | 0 35 | 351 9 | 0 0 | 0.0 | 53 7 | 0 0 | 0 0 | 53.7 | -0 6 | 192 4 | 0 0 | 0 0 |
| 3 26 | 582 40 | 0 35 | 354.6 | 0 0 | 0 0 | 64.2 | 0 0 | 0 0 | 64.2 | -0 7 | 248 8 | 0 0 | 0 0 |

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 376 75 YU(N) = 582 27 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 376 75 YU(N) = 582 27 FRDM=0.14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590.08 | 0 40 | 396 0 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 258 9 | 0 0 | 0 0 |
| 0 52 | 588 64 | 0 39 | 386 9 | 0 0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 5 | 0 0 | 0 0 |
| 0 68 | 587 72 | 0 38 | 384 2 | 0 0 | 0 0 | 61.1 | 0 0 | 0 0 | 61 1 | 0.5 | 156 0 | 0 0 | 0.0 |
| 0 70 | 587.66 | 0 38 | 383 9 | 0 0 | 0 0 | 62.1 | 0 0 | 0 0 | 62 1 | 0 5 | 197 7 | 0 0 | 0 0 |
| 0 92 | 587 18 | 0 41 | 411 4 | 0.0 | 0 0 | 67 8 | 0 0 | 0 0 | 67.8 | 0 5 | 290.0 | 0.0 | 0 0 |
| 1 39 | 585 86 | 0 40 | 401 0 | 0 0 | 0 0 | 72 1 | 0 0 | 0 0 | 72 1 | 0 3 | 186 8 | 0.0 | 0 0 |
| 1 50 | 585 40 | 0.40 | 398 5 | 0 0 | 0 0 | 72 1 | 0 0 | 0 0 | 72 1 | 0 2 | 230 7 | 0.0 | 0 0 |
| 1 61 | 585 20 | 0 40 | 396 0 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 2 | 302 1 | 0 0 | 0 0 |
| 1.72 | 585 12 | 0 39 | 393 3 | 0 0 | 0 0 | 80 4 | 0 0 | 0 0 | 80 4 | 0 2 | 391 8 | 0 0 | 0.0 |
| 2 04 | 584 87 | 0 39 | 385 9 | 0 0 | 0 0 | 76 0 | 0 0 | 0 0 | 76 0 | 0 1 | 321 6 | 0 0 | 0 0 |
| 2 05 | 584 87 | 0 39 | 385 7 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 76 2 | 0 1 | 385.5 | 0 0 | 0 0 |
| 2 06 | 584 85 | 0 39 | 385 4 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 1 | 320 3 | 0 0 | 0 0 |
| 2 39 | 584 44 | 0 38 | 378 1 | 0 0 | 0 0 | 63 2 | 0 0 | 0 0 | 63 2 | -0 0 | 246 7 | 0.0 | 0 0 |
| 2 73 | 583 40 | 0 37 | 374 3 | 0 0 | 0.0 | 46 5 | 0 0 | 0 0 | 46 5 | -0 3 | 147 0 | 0.0 | 0 0 |
| 2 99 | 582 67 | 0 37 | 374 7 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 189 2 | 0.0 | 0 0 |
| 3 26 | 582 27 | 0.38 | 376 7 | 0 0 | 0 0 | 63 6 | 0.0 | 0 0 | 63.6 | -0.8 | 240 3 | 0.0 | 0 0 |

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TT = 4 0000 DTH = 1 0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590 25 QU(N) = 415 68 YU(N) = 582 25 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427 00 YU(1) = 590 25 QU(N) = 415 68 YU(N) = 582 25 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 25 | 0.43 | 427 0 | 0 0 | 0 0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 271 5 | 0 0 | 0 0 |
| 0 52 | 588 86 | 0 42 | 416 5 | 0.0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 7 | 225 8 | 0 0 | 0 0 |
| 0 68 | 588 08 | 0 41 | 411 3 | 0 0 | 0.0 | 63 2 | 0 0 | 0 0 | 63 2 | 0 9 | 178 4 | 0.0 | 0 0 |
| 0 70 | 588 03 | 0 41 | 410 7 | 0 0 | 0 0 | 63.9 | 0 0 | 0 0 | 63.9 | 0 9 | 221 5 | 0 0 | 0 0 |
| 0 92 | 587 56 | 0 49 | 492 3 | 0 0 | 0 0 | 68 3 | 0 0 | 0 0 | 68 3 | 0 9 | 315 6 | 0 0 | 0 0 |
| 1 39 | 586 19 | 0 47 | 470.2 | 0 0 | 0 0 | 74 3 | 4 4 | 0 0 | 78 7 | 0 7 | 211 3 | 0 4 | 0 0 |
| 1 50 | 585.74 | 0.47 | 465 1 | 0 0 | 0 0 | 75.4 | 0 0 | 0 0 | 75 4 | 0 6 | 255 6 | 0 0 | 0 0 |
| 1 61 | 585 53 | 0 46 | 460.0 | 0 0 | 0 0 | 78 3 | 0 0 | 0 0 | 78 3 | 0 5 | 327 1 | 0 0 | 0 0 |
| 1 72 | 585 44 | 0 45 | 454 9 | 0 0 | 0 0 | 82 4 | 0 0 | 0 0 | 82 4 | 0 5 | 417 5 | 0 0 | 0 0 |
| 2 04 | 585 16 | 0 44 | 441 2 | 0 0 | 0 0 | 78 3 | 0 0 | 0 0 | 78 3 | 0 4 | 343 9 | 0 0 | 0 0 |
| 2 05 | 585 16 | 0 44 | 440 8 | 0 0 | 0 0 | 77 7 | 0 0 | 0 0 | 77 7 | 0 4 | 407 8 | 0 0 | 0 0 |
| 2.06 | 585 14 | 0 44 | 440 4 | 0 0 | 0 0 | 78 1 | 0 0 | 0 0 | 78 1 | 0 4 | 342 4 | 0 0 | 0 0 |
| 2 39 | 584 69 | 0.43 | 429 7 | 0 0 | 0 0 | 65 1 | 0 0 | 0 0 | 65 1 | 0.2 | 262 8 | 0 0 | 0 0 |
| 2 73 | 583 58 | 0 42 | 422 3 | 0 0 | 0 0 | 47 7 | 0 0 | 0 0 | 47 7 | -0 1 | 155 5 | 0 0 | 0 0 |
| 2 99 | 582 74 | 0 42 | 418 0 | 0 0 | 0 0 | 53 8 | 0 0 | 0 0 | 53 8 | -0.6 | 193 1 | 0 0 | 0 0 |
| 3 26 | 582 25 | 0 42 | 415 7 | 0 0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | -0 9 | 239 4 | 0 0 | 0 0 |

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TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 61 QU(N) = 541 76 YU(N) = 582 70 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 61 QU(N) = 541 76 YU(N) = 582 70 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 61 | 0 46 | 459 0 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 1 0 | 297 1 | 0.0 | 0 0 |
| 0 52 | 589 70 | 0 42 | 417 0 | 0 0 | 0 0 | 62 4 | 0 0 | 0 0 | 62 4 | 1 5 | 276 9 | 0 0 | 0 0 |
| 0 68 | 589 42 | 0 39 | 393 0 | 0 0 | 0 0 | 70 9 | 0 0 | 0.0 | 70 9 | 2 2 | 268 8 | 0 0 | 0 0 |
| 0.70 | 589 41 | 0 39 | 390 2 | 0 0 | 0 0 | 70 5 | 0 0 | 0 0 | 70 5 | 2 3 | 314.2 | 0 0 | 0 0 |
| 0 92 | 588 91 | 0 88 | 880 4 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70.4 | 2.2 | 409 3 | 0 0 | 0 0 |
| 1 39 | 587 29 | 0 78 | 765 9 | 16 5 | 0 0 | 76 3 | 30 4 | 0 0 | 106 7 | 1 8 | 294 7 | 19 7 | 0 0 |
| 1 50 | 586 85 | 0 76 | 754 5 | 2 8 | 2 2 | 79 8 | 13 3 | 7 8 | 100 9 | 1 7 | 342 4 | 5 6 | 3.3 |
| 1 61 | 586 60 | 0 74 | 736 1 | 0 4 | 1 3 | 83 5 | 4 7 | 11 0 | 99 2 | 1 6 | 414 3 | 1 4 | 3 3 |
| 1 72 | 586 47 | 0 72 | 716 2 | 0 0 | 0 3 | 87 4 | 0 0 | 13 0 | 100 4 | 1 5 | 505 9 | 0 0 | 3 1 |
| 2 04 | 586 10 | 0 66 | 660 2 | 0 0 | 0 0 | 85 2 | 0 0 | 0 0 | 85 2 | 1 3 | 420 8 | 0 0 | 0.0 |
| 2 05 | 586 09 | 0 66 | 658 5 | 0 0 | 0 0 | 82 5 | 0 0 | 0 0 | 84 9 | 1 3 | 482.8 | 0 0 | 0 0 |
| 2 06 | 586 07 | 0 66 | 656 7 | 0 0 | 0 0 | 85.2 | 0 0 | 0 0 | 85 2 | 1 3 | 418 7 | 0 0 | 0 0 |
| 2 39 | 585 53 | 0 61 | 609 6 | 0 0 | 0 0 | 71 4 | 0 0 | 0 0 | 71 4 | 1 1 | 320 0 | 0 0 | 0 0 |
| 2 73 | 584.25 | 0 58 | 577 5 | 0 0 | 0 0 | 52 6 | 0 0 | 0 0 | 52 6 | 0 6 | 189 4 | 0 0 | 0 0 |
| 2 99 | 583 28 | 0 56 | 559 5 | 0 0 | 0 0 | 56 9 | 0 0 | 0 0 | 56 9 | -0 0 | 223 2 | 0 0 | 0 0 |
| 3 26 | 582 70 | 0 54 | 541 8 | 0 0 | 0 0 | 65 5 | 0 0 | 0 0 | 65 5 | -0 4 | 268 2 | 0 0 | 0 0 |

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TT = 6 0000 DTH = 1 0000 ITERR = 5
QU(1) = 490 00 YU(1) = 592 28 QU(N) = 1006 83 YU(N) = 584 37 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 6 0000 DTH = 1 0000 ITERR = 5
QU(1) = 490 00 YU(1) = 592 28 QU(N) = 1006 83 YU(N) = 584 37 FRDM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 592 28 | 0 49 | 489 8 | 0 2 | 0 0 | 75 0 | 23 1 | 0 7 | 98 8 | 2 7 | 420 5 | 3 2 | 0 1 |
| 0 52 | 592 13 | 0 27 | 262 5 | 2 0 | 4 2 | 66 6 | 51 1 | 133 3 | 250 9 | 4 0 | 435 7 | 29 0 | 75 6 |
| 0 68 | 592 13 | 0 18 | 176 8 | 2 4 | 0 0 | 86 8 | 124 0 | 0 0 | 210 8 | 4 9 | 481 8 | 69 9 | 0 0 |
| 0 70 | 592 13 | 0 17 | 169 4 | 2 1 | 0 0 | 80 8 | 126 9 | 0 0 | 207 7 | 5 0 | 521 6 | 71 5 | 0 0 |
| 0 92 | 591 56 | 2 03 | 1998 0 | 30 3 | 0 0 | 76 3 | 222 4 | 0 0 | 298 7 | 4 9 | 602 6 | 173 6 | 0 0 |
| 1 39 | 589.66 | 1 70 | 1464 1 | 231 1 | 0.0 | 80.4 | 86 0 | 0 0 | 166 4 | 4 1 | 479 9 | 157 4 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 50 | 589 25 | 1 64 | 1465.4 | 95 8 | 76 9 | 85 0 | 51 0 | 29 8 | 165 8 | 4 1 | 540 8 | 82 9 | 48 5 |
| 1.61 | 589 00 | 1 59 | 1453 7 | 31 5 | 101 1 | 89 8 | 23 5 | 55 1 | 168.4 | 4 0 | 622 8 | 35 4 | 82 7 |
| 1 72 | 588 84 | 1 53 | 1486 3 | 0 0 | 46 5 | 94.5 | 0 0 | 78 2 | 172 8 | 3.9 | 721 8 | 0 0 | 111 3 |
| 2 04 | 588 31 | 1 37 | 1368 5 | 0 0 | 0 0 | 90 8 | 0 0 | 0 0 | 90 8 | 3 5 | 615 7 | 0 0 | 0 0 |
| 2 05 | 588.31 | 1 36 | 1363 5 | 0 0 | 0 0 | 95 3 | 0 0 | 0 0 | 153 0 | 3 5 | 679.6 | 0 0 | 0.0 |
| 2 06 | 588 28 | 1 36 | 1358 6 | 0 0 | 0 0 | 90 7 | 0 0 | 0 0 | 90 7 | 3 5 | 612 7 | 0 0 | 0 0 |
| 2 39 | 587 61 | 1.23 | 1226 5 | 0 0 | 6 9 | 79 6 | 0 0 | 40 3 | 119 9 | 3 1 | 479 1 | 0 0 | 32 4 |
| 2 73 | 586 17 | 1 13 | 1130 3 | 0.0 | 0 0 | 65 6 | 0 0 | 8 5 | 74 1 | 2 5 | 303.2 | 0 0 | 0 7 |
| 2 99 | 585 07 | 1 07 | 1068 9 | 0.0 | 0 0 | 67 2 | 0 0 | 0.0 | 67 2 | 1 8 | 333 9 | 0.0 | 0 0 |
| 3 26 | 584 37 | 1 01 | 1006 8 | 0 0 | 0 0 | 72 9 | 0 0 | 0 0 | 72 9 | 1 3 | 384 1 | 0 0 | 0.0 |

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TT = 7 0000 DTH = 1 0000 ITERR = 4
QU(1) = 521 00 YU(1) = 594 30 QU(N) = 1936 95 YU(N) = 586 72 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 7 0000 DTH = 1 0000 ITERR = 4
QU(1) = 521.00 YU(1) = 594 30 QU(N) = 1936 95 YU(N) = 586 72 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 594 30 | 0 52 | 493 3 | 26 8 | 0 9 | 75 0 | 189 6 | 5 7 | 270 4 | 4 7 | 571 9 | 217 9 | 6 6 |
| 0 52 | 594.31 | -0 13 | -106.1 | -8 9 | -18 5 | 67 7 | 148 9 | 388 8 | 605 4 | 6 1 | 581 7 | 246 4 | 643 4 |
| 0 68 | 594 32 | -0 38 | -333 5 | -46 6 | 0 0 | 99 9 | 364 7 | 0 0 | 464 6 | 7 1 | 686.0 | 604 7 | 0 0 |
| 0 70 | 594.32 | -0 40 | -354 9 | -45 2 | 0 0 | 86.3 | 373 1 | 0 0 | 459 4 | 7.2 | 704 5 | 618 8 | 0 0 |
| 0 92 | 593 87 | 3 80 | 3430 6 | 370.8 | 0 0 | 82 6 | 551 9 | 0 0 | 634 5 | 7 2 | 786 4 | 1068 6 | 0 0 |
| 1 39 | 592 06 | 3 01 | 2236 2 | 750 4 | 27 1 | 81 0 | 285 4 | 23 2 | 389 6 | 6 5 | 674 5 | 579 5 | 24 0 |
| 1 50 | 591 86 | 2 94 | 2262 2 | 381 4 | 301 2 | 87 0 | 177 9 | 68.0 | 332 9 | 6 7 | 766 7 | 349 4 | 170 9 |
| 1 61 | 591.70 | 2 89 | 2261 9 | 145 9 | 479 0 | 92 9 | 83 7 | 111 3 | 288 0 | 6 7 | 870 5 | 160 2 | 303 2 |
| 1 72 | 591 57 | 2 83 | 2538 5 | 0 0 | 295 0 | 98 8 | 0 0 | 154 1 | 252 9 | 6 6 | 987 9 | 0 0 | 427 9 |
| 2 04 | 590 94 | 2 62 | 2616 4 | 0 0 | 0 0 | 96 2 | 0 0 | 0 0 | 119 6 | 6 2 | 862 2 | 0.0 | 0 0 |
| 2 05 | 590 94 | 2 61 | 2608 4 | 0 0 | 0 0 | 108 1 | 0 0 | 0 0 | 384 6 | 6 2 | 949 3 | 0 0 | 0 0 |
| 2 06 | 590 90 | 2 60 | 2600 5 | 0 0 | 0 0 | 96 1 | 0 0 | 0 0 | 118 6 | 6 1 | 858 2 | 0 0 | 0 0 |
| 2.39 | 590 05 | 2 43 | 2341 4 | 0 0 | 86 3 | 86 5 | 1.3 | 102 9 | 191 3 | 5 6 | 681 7 | 0 0 | 204 9 |
| 2 73 | 588 54 | 2 21 | 2039 7 | 0 0 | 174 5 | 73 2 | 0 0 | 126 9 | 200.1 | 4 9 | 467 4 | 0 0 | 161 0 |
| 2 99 | 587 48 | 2 06 | 2002 4 | 22 9 | 33 0 | 77 7 | 37 0 | 66 7 | 218 4 | 4 2 | 510 2 | 27 4 | 49 4 |
| 3 26 | 586 72 | 1 94 | 1927 8 | 5 6 | 3 6 | 82 7 | 35 9 | 28 7 | 183.1 | 3 6 | 566 8 | 12 9 | 10 3 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16
TT= 7 000 DTH= 0 500 ITERR= 9

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TT = 7 5000 DTH = 0 5000 ITERR = 3
QU(1) = 536 50 YU(1) = 595 11 QU(N) = 2476 60 YU(N) = 587.56 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 7 5000 DTH = 0.5000 ITERR = 3
QU(1) = 536 50 YU(1) = 595 11 QU(N) = 2476 60 YU(N) = 587 56 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 595 11 | 0 54 | 485 1 | 49 7 | 1 6 | 75.0 | 256 3 | 7 8 | 339.1 | 5 5 | 632 5 | 398 3 | 12 1 |
| 0 52 | 595 10 | 0 04 | 27 1 | 3.5 | 7 4 | 68 0 | 181 5 | 470 2 | 724 6 | 6 9 | 635 2 | 377 8 | 986 2 |
| 0 68 | 595 09 | -0 13 | -106 2 | -21 7 | 0 0 | 104 0 | 453 9 | 0 5 | 563 0 | 7 9 | 765 5 | 921 8 | 0 0 |
| 0 70 | 595 09 | -0 14 | -118 9 | -22 7 | 0 0 | 88 0 | 463 5 | 0 7 | 570 8 | B.0 | 772 2 | 942 5 | 0 0 |
| 0 92 | 594.69 | 4 35 | 3757 6 | 594 8 | 0 6 | 83.9 | 627 1 | 9 2 | 720 1 | 8 0 | 854 6 | 1554.0 | 3 2 |
| 1 39 | 593 09 | 3.68 | 2439 4 | 1168 5 | 69.2 | 81 0 | 380 6 | 34 8 | 496 3 | 7 6 | 757 7 | 921 1 | 53 7 |
| 1 50 | 592 92 | 3 60 | 2528 3 | 632.0 | 443 1 | 87 2 | 243 3 | 85 8 | 416 3 | 7 8 | 858 9 | 572 3 | 252.3 |
| 1 61 | 592.78 | 3 55 | 2579 2 | 255 6 | 713 0 | 93 3 | 117 4 | 135 7 | 346 4 | 7 8 | 971 8 | 269 7 | 437 7 |
| 1 72 | 592 68 | 3 50 | 3037 5 | 0 0 | 467 2 | 99 3 | 0 0 | 185 1 | 284 4 | 7 7 | 1097 6 | 0 0 | 615 6 |
| 2 04 | 592 02 | 3 31 | 3305 6 | 0.0 | 0 0 | 97 5 | 0 0 | 0 0 | 148 1 | 7 3 | 967 2 | 0.0 | 0 0 |
| 2 05 | 592 03 | 3 29 | 3292 6 | 0 0 | 0 0 | 111 6 | 0 0 | 0 0 | 592 8 | 7 3 | 1069.2 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 06 | 591 98 | 3 28 | 3279 7 | 0 0 | 0 0 | 97 5 | 0 0 | 0 0 | 147.0 | 7 2 | 963.0 | 0 0 | 0 0 |
| 2 39 | 591 04 | 3 08 | 2923 5 | 8 6 | 150 5 | 87 4 | 27 4 | 163.9 | 291 8 | 6 6 | 768 3 | 14 3 | 337 7 |
| 2 73 | 589 47 | 2 86 | 2467 8 | 0 0 | 396 3 | 76.3 | 0 0 | 173 5 | 249 8 | 5 8 | 537 1 | 0 0 | 301 0 |
| 2 99 | 588 37 | 2 68 | 2480 2 | 82 3 | 118 5 | 80 8 | 59.3 | 106 7 | 306.0 | 5 1 | 580.6 | 70 2 | 126 4 |
| 3 26 | 587 56 | 2 48 | 2400 4 | 46 5 | 29 7 | 85 9 | 78.0 | 62 4 | 304 3 | 4 4 | 637 8 | 60 9 | 48 7 |

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TT = 8 5000 DTH = 1 0000 ITERR = 3
QU(1) = 580 50 YU(1) = 596 91 QU(N) = 3817 95 YU(N) = 589 16 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 8 5000 DTH = 1 0000 ITERR = 3
QU(1) = 580 50 YU(1) = 596 91 QU(N) = 3817 95 YU(N) = 589 16 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 91 | 0 58 | 456 5 | 120 6 | 3 4 | 75 0 | 355.0 | 76 0 | 597.2 | 7 3 | 767 8 | 972 0 | 59 2 |
| 0 52 | 596 92 | -0 38 | -207 6 | -55 1 | -118 5 | 68 0 | 208 8 | 474 8 | 847 6 | 8 7 | 759 0 | 733 1 | 1846 7 |
| 0 68 | 596 91 | -0 75 | -545 2 | -204 1 | -0 5 | 104 0 | 723 8 | 9 6 | 933 0 | 9 7 | 954 8 | 1993 8 | 9 2 |
| 0 70 | 596 91 | -0 79 | -577 5 | -213 4 | -0 8 | 88 0 | 729 1 | 14 4 | 1214 5 | 9 8 | 932 5 | 2029 0 | 13 8 |
| 0 92 | 596 59 | 6 58 | 4962 9 | 1598 9 | 20 1 | 86 2 | 783 8 | 34 3 | 904 4 | 9.9 | 1016 2 | 2894 5 | 44 5 |
| 1 39 | 595 07 | 5 39 | 2727 1 | 2466 8 | 196 8 | 81 0 | 466 3 | 65 2 | 612 5 | 9 5 | 918 5 | 1806 5 | 149 2 |
| 1 50 | 594 95 | 5 31 | 3007 5 | 1485 4 | 821 4 | 88 0 | 310 8 | 119 2 | 517 9 | 9 8 | 1036 4 | 1166 3 | 460 9 |
| 1 61 | 594 85 | 5 25 | 3228 5 | 657 4 | 1368 7 | 94 8 | 155 4 | 174 1 | 424 2 | 9.8 | 1165 2 | 566 7 | 762 0 |
| 1 72 | 594 76 | 5 21 | 4204 5 | 0 0 | 1003 6 | 101 5 | 0 0 | 229 8 | 331.3 | 9 8 | 1305 9 | 0 0 | 1056 4 |
| 2 04 | 594 00 | 4 95 | 4954 6 | 0 0 | 0 0 | 100 0 | 0 0 | 0 0 | 200 6 | 9 2 | 1162 6 | 0 0 | 0 0 |
| 2 05 | 594 03 | 4 94 | 4937 6 | 0 0 | 0 0 | 117 9 | 0 0 | 0 0 | 969 2 | 9 3 | 1298 9 | 0 0 | 0 0 |
| 2 06 | 593 95 | 4 92 | 4920 5 | 0 0 | 0 0 | 99 9 | 0 0 | 0 0 | 198 7 | 9 2 | 1157 6 | 0 0 | 0 0 |
| 2 39 | 592 74 | 4 65 | 4106 2 | 124 0 | 424 0 | 88 9 | 71 8 | 267 5 | 462 4 | 8 3 | 917 4 | 98 2 | 702 6 |
| 2 73 | 591 02 | 4 35 | 3352 0 | 19 9 | 973 9 | 78 5 | 53 8 | 325 5 | 457 9 | 7 4 | 658 2 | 27 6 | 669 3 |
| 2 99 | 589 99 | 4 10 | 3307 3 | 324 9 | 467.9 | 86 5 | 99 8 | 179 7 | 465 8 | 6 7 | 716 4 | 199 3 | 358 8 |
| 3 26 | 589 16 | 3 82 | 3303 4 | 313 7 | 200 8 | 91 8 | 157 9 | 126 3 | 534 0 | 6 0 | 779 7 | 249 3 | 199 5 |

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TT = 9 5000 DTH = 1 0000 ITERR = 3
QU(1) = 636 00 YU(1) = 598 33 QU(N) = 5419 25 YU(N) = 590 42 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 9 5000 DTH = 1 0000 ITERR = 3
QU(1) = 636 00 YU(1) = 598 33 QU(N) = 5419 25 YU(N) = 590 42 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 33 | 0 64 | 440 0 | 180 5 | 15 5 | 75 0 | 393 9 | 178 6 | 880 1 | 8 8 | 873 9 | 1501 7 | 239 3 |
| 0 52 | 598 32 | -0 03 | -14 3 | -5 2 | -11 1 | 68 0 | 229 8 | 478.3 | 942 1 | 10 1 | 854 2 | 1040 2 | 2514 1 |
| 0 68 | 598 32 | -0 25 | -161 7 | -86 7 | -0 5 | 104 0 | 931 8 | 16 6 | 1218 2 | 11 1 | 1100 7 | 3155 2 | 27 5 |
| 0 70 | 598 32 | -0 28 | -182 0 | -98 8 | -1 0 | 88 0 | 933 4 | 24 9 | 1709 7 | 11 2 | 1055 9 | 3194 3 | 41 3 |
| 0 92 | 598 06 | 7 80 | 5228 7 | 2516 4 | 57 6 | 88 0 | 911 2 | 54 3 | 1053 5 | 11 4 | 1143 8 | 4130 5 | 109 0 |
| 1 39 | 596 83 | 7 01 | 2854 6 | 3778 6 | 378 5 | 81 0 | 468 5 | 98 0 | 647 6 | 11 3 | 1060 5 | 2626 0 | 292 2 |
| 1 50 | 596 73 | 6 96 | 3269 1 | 2453 6 | 1233 6 | 89 2 | 312 3 | 147 5 | 549 0 | 11 6 | 1194 2 | 1721 4 | 698 5 |
| 1 61 | 596 65 | 6 91 | 3643 7 | 1167 0 | 2102 6 | 97 2 | 156 1 | 197 6 | 450 9 | 11 6 | 1338 1 | 847 1 | 1096 6 |
| 1 72 | 596 58 | 6 88 | 5128 4 | 0.0 | 1752 4 | 105 2 | 0 0 | 248 4 | 353 6 | 11 6 | 1493 7 | 0 0 | 1490 9 |
| 2 04 | 595 20 | 6 61 | 6598 2 | 0 0 | 9 0 | 106 0 | 0 0 | 36 1 | 663 8 | 10 4 | 1286 6 | 0 0 | 21 8 |
| 2 05 | 595 26 | 6 60 | 6595 3 | 0 0 | 0 0 | 116 0 | 0 0 | 0 0 | 1012 3 | 10 5 | 1441 9 | 0 0 | 0 0 |
| 2 06 | 595 13 | 6 58 | 6578 8 | 0 0 | 5 0 | 105 7 | 0 0 | 34 0 | 636 9 | 10 4 | 1279 2 | 0 0 | 19.3 |
| 2 39 | 594 01 | 6 30 | 5104 2 | 366 4 | 827 6 | 90 0 | 105 1 | 345 1 | 591 5 | 9 5 | 1031 2 | 210 8 | 1092 6 |
| 2 73 | 592 26 | 5 98 | 4009 2 | 156 1 | 1815 6 | 79 1 | 118 6 | 476 7 | 674 3 | 8 6 | 755 4 | 133 9 | 1164 1 |
| 2 99 | 591 27 | 5.70 | 4136 2 | 620 5 | 945 2 | 86 8 | 196 9 | 261 0 | 613 0 | 8 0 | 827 1 | 388 7 | 640 3 |
| 3 26 | 590 42 | 5 42 | 4151 1 | 745 8 | 522 3 | 95 0 | 242 0 | 162.1 | 678 1 | 7 3 | 898 3 | 492 7 | 387 6 |

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TT = 10 5000 DTH = 1 0000 ITERR = 2
QU(1) = 690 00 YU(1) = 599 24 QU(N) = 7024 84 YU(N) = 591 34 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 10 5000 DTH = 1 0000 ITERR = 2
QU(1) = 690 00 YU(1) = 599 24 QU(N) = 7024 84 YU(N) = 591 34 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 24 | 0 69 | 439 8 | 220 6 | 29 6 | 75.0 | 419 0 | 244 6 | 1062 3 | 9 7 | 942 2 | 1872 1 | 432 1 |
| 0 52 | 599 24 | 0 14 | 59 1 | 25 6 | 53 5 | 68.0 | 240 0 | 480 0 | 1017 4 | 11 1 | 916 5 | 1256 4 | 2952 9 |
| 0 68 | 599 24 | -0.06 | -36 3 | -23 9 | -0 1 | 104 0 | 1056.3 | 40 1 | 1429 8 | 12 0 | 1196 3 | 4072 6 | 47 1 |
| 0 70 | 599 24 | -0 09 | -52 0 | -36 3 | -0 4 | 88 0 | 1050 4 | 50 1 | 2082 9 | 12 1 | 1136 8 | 4112 0 | 69 5 |
| 0 92 | 598 99 | 9 09 | 5734 4 | 3260 5 | 94 1 | 88 0 | 1098 6 | 76 8 | 1263 4 | 12 3 | 1226 3 | 5072 2 | 170 5 |
| 1 39 | 597 74 | 8 54 | 3174 6 | 4820.8 | 545 1 | 81 0 | 469 7 | 115 1 | 665 7 | 12 2 | 1134 1 | 3052 5 | 389 1 |
| 1 50 | 597 64 | 8 52 | 3702 5 | 3218 9 | 1602 9 | 89 8 | 313 0 | 161 9 | 564 7 | 12 5 | 1275 1 | 2003 9 | 838 3 |
| 1 61 | 597 54 | 8 51 | 4203 8 | 1573 0 | 2735 4 | 98 4 | 156 5 | 209 3 | 464 2 | 12 5 | 1425 5 | 986 9 | 1278 6 |
| 1 72 | 597.47 | 8 50 | 6095 7 | 0 0 | 2407 8 | 106 9 | 0 0 | 257 5 | 364 5 | 12 5 | 1587 8 | 0 0 | 1715 5 |
| 2 04 | 596.35 | 8 18 | 8112 7 | 0 0 | 65 7 | 111 1 | 0 0 | 60 0 | 971 1 | 11 6 | 1411 7 | 0 0 | 81 3 |
| 2 05 | 596 42 | 8 16 | 8156 7 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1079 7 | 11 7 | 1576 3 | 0 0 | 0 0 |
| 2 06 | 596 28 | 8 14 | 8096 0 | 0 0 | 39 0 | 110 8 | 0 0 | 60 0 | 970 8 | 11 5 | 1403 1 | 0 0 | 76 6 |
| 2 39 | 594 87 | 7 71 | 5743 9 | 673 8 | 1292 9 | 92 2 | 111 5 | 360 3 | 766 7 | 10 4 | 1110 1 | 304 5 | 1397 8 |
| 2 73 | 593 14 | 7 46 | 4433 7 | 359 9 | 2664 5 | 79 6 | 164 8 | 584 6 | 829 1 | 9 5 | 825 4 | 258 8 | 1631 9 |
| 2 99 | 592 20 | 7 24 | 4743 5 | 1037 4 | 1457 2 | 87 0 | 267 6 | 320 1 | 719.8 | 8 9 | 907 7 | 604 0 | 909 6 |
| 3 26 | 591 34 | 7 02 | 4889 1 | 1241 3 | 894 4 | 95 0 | 333 5 | 166 7 | 728 4 | 8 2 | 985 2 | 756 1 | 538 1 |

**********

TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744 00 YU(1) = 599 61 QU(N) = 8236 34 YU(N) = 591 91 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744 00 YU(1) = 599 61 QU(N) = 8236 34 YU(N) = 591 91 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 61 | 0 74 | 458 9 | 246 8 | 38 3 | 75 0 | 429 2 | 271 6 | 1136 6 | 10 0 | 970 1 | 2029 7 | 528 0 |
| 0 52 | 599 59 | 0 68 | 279 7 | 129 7 | 266 2 | 68 0 | 240 0 | 480 0 | 1062.3 | 11 4 | 940.9 | 1342 7 | 3125 4 |
| 0 68 | 599 59 | 0 66 | 386 2 | 274 0 | 1 6 | 104 0 | 1091 1 | 70 2 | 1539 1 | 12 4 | 1233 1 | 4452 8 | 66 6 |
| 0 70 | 599 59 | 0 66 | 369 4 | 285 7 | 3 4 | 88 0 | 1076 3 | 80 1 | 2280 4 | 12 4 | 1167 9 | 4488 0 | 92 5 |
| 0 92 | 599.37 | 9 09 | 5547 0 | 3434 1 | 106 4 | 88 0 | 1173 3 | 85 8 | 1347 1 | 12 7 | 1259 2 | 5496 7 | 200 8 |
| 1 39 | 598 26 | 8.91 | 3191 7 | 5161 2 | 558 4 | 81 0 | 473 1 | 150 8 | 704 9 | 12 7 | 1176 2 | 3296 9 | 454 7 |
| 1 50 | 598 16 | 8 89 | 3725 9 | 3496 4 | 1669.3 | 91 0 | 314 6 | 182 7 | 588 3 | 13.0 | 1322 3 | 2168 5 | 926 5 |
| 1 61 | 598 07 | 8 88 | 4235 2 | 1721 1 | 2919.8 | 99 9 | 157 0 | 220 0 | 476 9 | 13 1 | 1478 0 | 1070 0 | 1391 8 |
| 1 72 | 598 01 | 8 86 | 6198 2 | 0 0 | 2665 8 | 108 1 | 0 0 | 263 3 | 371 4 | 13 1 | 1645 8 | 0.0 | 1855 9 |
| 2 04 | 596 96 | 8 78 | 8653 0 | 0 0 | 124 0 | 112 9 | 0 0 | 60 0 | 972 9 | 12 2 | 1479 4 | 0 0 | 117 6 |
| 2 05 | 597 02 | 8 77 | 8774 7 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1131 3 | 12 3 | 1645 6 | 0 0 | 0 0 |
| 2 06 | 596 87 | 8 77 | 8696 4 | 0 0 | 76 0 | 112 6 | 0 0 | 60 0 | 972 6 | 12 1 | 1469 5 | 0 0 | 112 3 |
| 2 39 | 595 38 | 8 66 | 6101.7 | 963 2 | 1599 5 | 93 4 | 115 3 | 369 1 | 868 9 | 10 9 | 1156 9 | 361 8 | 1581 8 |
| 2 73 | 593 69 | 8 51 | 4679 6 | 536.2 | 3293 4 | 79 8 | 193 6 | 651 6 | 925 0 | 10 0 | 869 0 | 356 8 | 1969 8 |
| 2 99 | 592 78 | 8 37 | 5122 4 | 1392 0 | 1852 6 | 87 2 | 311.7 | 357 0 | 786 4 | 9 5 | 958 0 | 771 4 | 1105 3 |
| 3 26 | 591.91 | 8 24 | 5382 3 | 1683 3 | 1170 8 | 95 0 | 390 7 | 169 5 | 759 9 | 8 8 | 1039 6 | 963 2 | 634 2 |

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TT = 12 5000 DTH = 1 0000 ITERR = 2
QU(1) = 826 00 YU(1) = 599 57 QU(N) = 8723 02 YU(N) = 592 11 FRDM=0 00 IFR= 12 FRM=7 00 IFM= 0

**********

TT = 12 5000 DTH = 1 0000 ITERR = 2
QU(1) = 826.00 YU(1) = 599 57 QU(N) = 8723 02 YU(N) = 592.11 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 57 | 0 83 | 511 2 | 273 1 | 41 8 | 75 0 | 428 2 | 268 8 | 1129 0 | 10.0 | 967 2 | 2013 2 | 517 6 |
| 0 52 | 599 55 | 0 92 | 382 2 | 175.9 | 361 7 | 68.0 | 240 0 | 480 0 | 1057 2 | 11.4 | 938 2 | 1332 9 | 3105 8 |
| 0 68 | 599 55 | 0.95 | 554.3 | 389 8 | 2.2 | 104 0 | 1087 1 | 66 6 | 1526 3 | 12 3 | 1228 8 | 4407.7 | 63 8 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 599 55 | 0 95 | 536 3 | 410 1 | 4 8 | 88 0 | 1073 3 | 76 6 | 2257 3 | 12 4 | 1164 3 | 4443 5 | 89 2 |
| 0 92 | 599 34 | 8 58 | 5240 6 | 3236 9 | 99 4 | 88 0 | 1168 0 | 85 2 | 1341 2 | 12 6 | 1256 8 | 5465 8 | 198 6 |
| 1 39 | 598 30 | 8 70 | 3105 7 | 5048 2 | 541 3 | 81 0 | 473 7 | 156 6 | 711 3 | 12 8 | 1180 1 | 3319.9 | 462 2 |
| 1 50 | 598 22 | 8 71 | 3639 0 | 3442 6 | 1624 2 | 91 3 | 315 1 | 187 6 | 593 9 | 13 1 | 1327 1 | 2185 0 | 936 3 |
| 1 61 | 598 13 | 8 71 | 4146 7 | 1703 4 | 2864 5 | 100 5 | 157 2 | 223 7 | 481 4 | 13 1 | 1483 6 | 1078 8 | 1404 1 |
| 1 72 | 598 06 | 8.72 | 6079 0 | 0 0 | 2642 9 | 109 2 | 0 0 | 265 4 | 374 5 | 13 1 | 1651 9 | 0 0 | 1870.9 |
| 2 04 | 597 04 | 8 74 | 8609 7 | 0 0 | 131 3 | 113 1 | 0 0 | 60 0 | 973 1 | 12 3 | 1488.6 | 0 0 | 122 4 |
| 2 05 | 597 10 | 8 74 | 8740 3 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1138 1 | 12 3 | 1654 7 | 0 0 | 0 0 |
| 2 06 | 596 95 | 8 74 | 8658 5 | 0.0 | 81 0 | 112 9 | 0 0 | 60 0 | 972 9 | 12 2 | 1478 9 | 0 0 | 117 3 |
| 2 39 | 595 49 | 8 74 | 6070 3 | 1025 8 | 1644 6 | 93 7 | 116 2 | 371 1 | 891 8 | 11 0 | 1167 5 | 374 8 | 1623 6 |
| 2 73 | 593 87 | 8 75 | 4688 7 | 593.8 | 3465.6 | 79 9 | 203 0 | 673 6 | 956 5 | 10 2 | 883 3 | 392 3 | 2088 7 |
| 2.99 | 592 98 | 8 74 | 5218 5 | 1525 8 | 1993 4 | 87 2 | 327.4 | 370 1 | 810 2 | 9 7 | 976 0 | 837 3 | 1180 3 |
| 3 26 | 592 11 | 8 72 | 5571 5 | 1871 9 | 1279 7 | 95 0 | 411 3 | 170 6 | 771 2 | 9 0 | 1059 1 | 1045 7 | 669 2 |

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TT = 13 5000 DTH = 1 0000 ITERR = 3
QU(1) = 936 50 YU(1) = 599 25 QU(N) = 8533 66 YU(N) = 592.03 FRDM=0.00 IFR= 12 FRM=7 00 IFM= 0

**********

TT = 13 5000 DTH = 1 0000 ITERR = 3
QU(1) = 936 50 YU(1) = 599 25 QU(N) = 8533 66 YU(N) = 592 03 FRDM=0.03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 25 | 0 94 | 596 0 | 300 0 | 40 5 | 75 0 | 419 5 | 245 9 | 1065 8 | 9 7 | 943 6 | 1879 5 | 436 4 |
| 0 52 | 599 22 | 1 26 | 539 6 | 233 4 | 487 1 | 68 0 | 240 0 | 480 0 | 1015 5 | 11 0 | 915 5 | 1252 8 | 2945.6 |
| 0 68 | 599 20 | 1 38 | 834 4 | 544 2 | 2 9 | 104 0 | 1053 0 | 37 3 | 1419 7 | 12 0 | 1192 9 | 4037 9 | 45 8 |
| 0 70 | 599 20 | 1 40 | 824 2 | 569 2 | 6 4 | 88.0 | 1047 8 | 47 1 | 2063 7 | 12 1 | 1133 8 | 4075 9 | 67 8 |
| 0 92 | 598 99 | 7 74 | 4865 2 | 2797 4 | 79 8 | 88 0 | 1098 1 | 76 8 | 1262 9 | 12 3 | 1226 1 | 5069 5 | 170.3 |
| 1 39 | 598 01 | 8 09 | 2935 3 | 4617 3 | 538 7 | 81 0 | 470 1 | 120 7 | 671 7 | 12 5 | 1155 9 | 3178 6 | 420 7 |
| 1 50 | 597 93 | 8 10 | 3438 2 | 3113 4 | 1550 3 | 90 0 | 313 3 | 166 5 | 569 7 | 12 8 | 1300 9 | 2094 0 | 885 5 |
| 1 61 | 597 85 | 8 11 | 3922 2 | 1537 1 | 2649 5 | 98 8 | 156 6 | 213 3 | 468 7 | 12 8 | 1455 7 | 1034 7 | 1343 2 |
| 1 72 | 597 79 | 8 11 | 5727 7 | 0 0 | 2385 5 | 107 6 | 0 0 | 260 8 | 368 4 | 12 8 | 1622 2 | 0 0 | 1798 6 |
| 2 04 | 596 83 | 8 22 | 8112 2 | 0 0 | 105 1 | 112 5 | 0 0 | 60 0 | 972 5 | 12 1 | 1465 4 | 0 0 | 110 1 |
| 2 05 | 596 89 | 8 22 | 8223 7 | 0 0 | 0.0 | 115 0 | 0 0 | 0 0 | 1119 9 | 12 1 | 1630 3 | 0 0 | 0 0 |
| 2 06 | 596 75 | 8 23 | 8165 5 | 0 0 | 64 6 | 112 3 | 0 0 | 60 0 | 972 3 | 12 0 | 1456 2 | 0 0 | 105 2 |
| 2 39 | 595 36 | 8 35 | 5886 4 | 927 9 | 1538 0 | 93 4 | 115 2 | 368 8 | 865 1 | 10 9 | 1155 1 | 359 6 | 1574 8 |
| 2 73 | 593 77 | 8 42 | 4578 4 | 549 2 | 3294 6 | 79 9 | 197 8 | 661 5 | 939 2 | 10 1 | 875 4 | 372 6 | 2022 9 |
| 2 99 | 592 89 | 8 48 | 5118 7 | 1451.2 | 1910 8 | 87 2 | 320 7 | 364 5 | 800 1 | 9 6 | 968 4 | 808 9 | 1148 1 |
| 3 26 | 592 03 | 8 53 | 5502 5 | 1795 0 | 1236 2 | 95 0 | 402 7 | 170 1 | 766 5 | 8 9 | 1051 0 | 1011.0 | 654 7 |

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TT = 14 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1047 00 YU(1) = 598 70 QU(N) = 7929 18 YU(N) = 591 75 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 14 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1047 00 YU(1) = 598 70 QU(N) = 7929 18 YU(N) = 591 75 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 70 | 1 05 | 700 0 | 314 0 | 33 0 | 75 0 | 404 4 | 206 0 | 955 8 | 9 1 | 902 3 | 1652 8 | 312 1 |
| 0 52 | 598 65 | 1 46 | 657 6 | 256 2 | 543 2 | 68 0 | 234 8 | 479 1 | 964.5 | 10 5 | 876 8 | 1117 3 | 2673 0 |
| 0 68 | 598 62 | 1 60 | 1011 5 | 580.8 | 3 5 | 104 0 | 977 0 | 18 1 | 1280 3 | 11 4 | 1132 5 | 3446 5 | 32 8 |
| 0 70 | 598 62 | 1 62 | 1016 1 | 593 4 | 6 7 | 88 0 | 977 7 | 27 2 | 1816 9 | 11 5 | 1082 6 | 3484 3 | 49 1 |
| 0 92 | 598 41 | 6 69 | 4379 5 | 2250 6 | 55 9 | 88 0 | 981 4 | 62 8 | 1132 1 | 11 7 | 1174 7 | 4462 7 | 129 6 |
| 1 39 | 597 47 | 7 13 | 2716 9 | 3977 0 | 434.5 | 81 0 | 469 3 | 110 1 | 660 5 | 11 9 | 1112 8 | 2929.1 | 359 5 |
| 1 50 | 597 40 | 7 15 | 3169 3 | 2657 9 | 1324 9 | 89 6 | 312 8 | 158 1 | 560 5 | 12 2 | 1253 6 | 1928 9 | 800 0 |
| 1 61 | 597 32 | 7 17 | 3595 6 | 1299 5 | 2276 0 | 98 1 | 156 4 | 206 5 | 461 0 | 12.3 | 1404 3 | 953 0 | 1233 6 |
| 1 72 | 597 27 | 7 19 | 5190 8 | 0 0 | 1995.0 | 106 5 | 0 0 | 255 5 | 362.0 | 12 3 | 1566 5 | 0 0 | 1664 4 |
| 2 04 | 596 38 | 7 36 | 7300 1 | 0 0 | 60 8 | 111 1 | 0 0 | 60 0 | 971 1 | 11 6 | 1414 4 | 0 0 | 82 8 |
| 2 05 | 596 43 | 7 37 | 7369 4 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1080 2 | 11 7 | 1577 0 | 0.0 | 0 0 |
| 2 06 | 596 31 | 7 38 | 7341 1 | 0 0 | 36 7 | 110 9 | 0 0 | 60 0 | 970 9 | 11 5 | 1406 3 | 0 0 | 78 3 |
| 2.39 | 595 04 | 7 57 | 5531 2 | 727 1 | 1315 2 | 92 6 | 112 8 | 363 1 | 799 9 | 10 6 | 1125 2 | 322 9 | 1457.0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 73 | 593 48 | 7 72 | 4370 2 | 443 6 | 2904.1 | 79 7 | 182 8 | 626 6 | 889 2 | 9 8 | 852 7 | 318 4 | 1839 5 |
| 2 99 | 592 62 | 7 83 | 4885.5 | 1252 5 | 1691 6 | 87 2 | 299 5 | 346 8 | 768 0 | 9 3 | 944 1 | 722 6 | 1049 2 |
| 3 26 | 591.75 | 7.93 | 5270 4 | 1560 7 | 1098 1 | 95 0 | 375 4 | 168.8 | 751 5 | 8 6 | 1025 0 | 904 5 | 608 3 |

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TT = 15 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1158 00 YU(1) = 598 04 QU(N) = 7074 99 YU(N) = 591 34 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 15 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1158 00 YU(1) = 598 04 QU(N) = 7074 99 YU(N) = 591 34 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 04 | 1 16 | 821 8 | 313 6 | 22 6 | 75 0 | 386 2 | 158 2 | 823 9 | 8 5 | 852 8 | 1392 1 | 192 0 |
| 0 52 | 597 96 | 1 58 | 765 9 | 261 1 | 557 6 | 68 0 | 224 4 | 477 4 | 917 7 | 9 8 | 829 7 | 958 1 | 2341 3 |
| 0 68 | 597 90 | 1 74 | 1172 2 | 570 0 | 2 5 | 104 0 | 870 2 | 14 5 | 1133 9 | 10.7 | 1057 6 | 2781 3 | 21 1 |
| 0 70 | 597 90 | 1 77 | 1184 0 | 578 4 | 4.5 | 88 0 | 872 5 | 21 7 | 1561 9 | 10 8 | 1019 1 | 2816 6 | 31 5 |
| 0 92 | 597 68 | 5 63 | 3875 7 | 1724.3 | 34 8 | 87 6 | 873 7 | 48 8 | 1010 1 | 11 0 | 1110 9 | 3797 4 | 89 8 |
| 1 39 | 596 80 | 6 11 | 2493.5 | 3286 0 | 328 0 | 81 0 | 468.5 | 97 5 | 647 0 | 11 3 | 1058 3 | 2613 7 | 289 7 |
| 1 50 | 596 73 | 6 13 | 2882 7 | 2161 4 | 1086 8 | 89 2 | 312 3 | 147 4 | 548 9 | 11 6 | 1193 7 | 1719 7 | 697 7 |
| 1 61 | 596 66 | 6 15 | 3237 2 | 1039 5 | 1871 6 | 97 2 | 156 1 | 197 8 | 451 1 | 11 6 | 1339.4 | 849 2 | 1099 3 |
| 1 72 | 596 61 | 6 16 | 4579 1 | 0 0 | 1581 9 | 105 2 | 0 0 | 248 7 | 353 9 | 11 7 | 1496 5 | 0 0 | 1497 6 |
| 2 04 | 595 74 | 6 37 | 6349 1 | 0 0 | 22 3 | 108 7 | 0 0 | 52 1 | 869 1 | 11 0 | 1343 8 | 0 0 | 45 3 |
| 2.05 | 595 78 | 6 38 | 6383 1 | 0 0 | 0 0 | 115 2 | 0 0 | 0 0 | 1030 7 | 11 0 | 1502 2 | 0 0 | 0 0 |
| 2 06 | 595 67 | 6 39 | 6381.3 | 0 0 | 13.3 | 108 4 | 0 0 | 50.2 | 844 1 | 10 9 | 1336.8 | 0 0 | 42 0 |
| 2 39 | 594 57 | 6 64 | 5088 4 | 513 6 | 1036 3 | 91 4 | 109 3 | 355 0 | 705 2 | 10 1 | 1082 2 | 270 9 | 1289 1 |
| 2 73 | 593 06 | 6 80 | 4092 8 | 313 3 | 2398 1 | 79 5 | 160 5 | 574 4 | 814 4 | 9 4 | 818 7 | 245 2 | 1583 4 |
| 2 99 | 592 19 | 6 94 | 4553 0 | 994 0 | 1396 8 | 87 0 | 267 3 | 319 8 | 719 3 | 8 9 | 907 3 | 602 8 | 908 2 |
| 3 26 | 591 34 | 7 07 | 4922 8 | 1250.9 | 901 2 | 95 0 | 333 7 | 166 7 | 728 6 | 8.2 | 985 5 | 756 9 | 538 5 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE DCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16
TT= 15 500 DTH= 0 500 ITERR= 9

**********

TT = 16 0000 DTH = 0 5000 ITERR = 2
QU(1) = 1214 00 YU(1) = 597 74 QU(N) = 6602 98 YU(N) = 591 10 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 16.0000 DTH = 0 5000 ITERR = 2
QU(1) = 1214 00 YU(1) = 597 74 QU(N) = 6602 98 YU(N) = 591 10 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 74 | 1 21 | 885 7 | 310 2 | 18 0 | 75 0 | 377 8 | 136 1 | 762 8 | 8 2 | 829 9 | 1275 4 | 147 0 |
| 0 52 | 597 64 | 1 53 | 764 1 | 243 2 | 520 9 | 68 0 | 219 7 | 476 6 | 896 5 | 9 5 | 808 3 | 888 4 | 2191 5 |
| 0 68 | 597 58 | 1 63 | 1126 1 | 505 8 | 1 9 | 104 0 | 823 2 | 12 9 | 1069 4 | 10 4 | 1024 6 | 2512.5 | 16 7 |
| 0 70 | 597.58 | 1 65 | 1134 8 | 509.2 | 3 3 | 88 0 | 826 2 | 19 4 | 1449 9 | 10 4 | 991 2 | 2547 2 | 25 0 |
| 0 92 | 597 36 | 5 32 | 3758 8 | 1536 2 | 27 5 | 87 2 | 847 1 | 44 5 | 978 9 | 10 7 | 1082 8 | 3520 3 | 74 8 |
| 1 39 | 596 48 | 5 67 | 2396.7 | 2986 5 | 285 5 | 81 0 | 468 1 | 91 6 | 640 7 | 11 0 | 1032 7 | 2465 2 | 259 7 |
| 1 50 | 596 41 | 5 69 | 2756 5 | 1947 1 | 986 8 | 88 9 | 312 0 | 142 4 | 543 4 | 11 3 | 1165 6 | 1621.1 | 652 0 |
| 1 61 | 596 35 | 5 71 | 3079.3 | 928 4 | 1699 5 | 96 8 | 156.0 | 193 7 | 446 5 | 11 3 | 1308 9 | 800 2 | 1037 8 |
| 1 72 | 596 29 | 5 72 | 4311 2 | 0 0 | 1408 9 | 104 6 | 0 0 | 245.5 | 350 1 | 11 3 | 1463 7 | 0 0 | 1420 3 |
| 2 04 | 595 34 | 5.91 | 5895 9 | 0 0 | 10 7 | 106 7 | 0 0 | 40 3 | 717 7 | 10.6 | 1301.5 | 0 0 | 27 1 |
| 2 05 | 595 38 | 5 92 | 5918 1 | 0 0 | 0 0 | 115 8 | 0 0 | 0.0 | 1016.7 | 10 6 | 1456 3 | 0 0 | 0 0 |
| 2 06 | 595 28 | 5 93 | 5923 2 | 0 0 | 6 2 | 106 4 | 0 0 | 38 5 | 694 0 | 10 5 | 1294.9 | 0 0 | 24 7 |
| 2 39 | 594 29 | 6.15 | 4843 6 | 419 1 | 889 8 | 90 7 | 107 2 | 350 2 | 649 6 | 9 8 | 1057 2 | 241 2 | 1192 3 |
| 2 73 | 592 81 | 6 33 | 3939 7 | 250.1 | 2136 5 | 79 4 | 147 4 | 543 9 | 770 6 | 9 1 | 798 9 | 206 8 | 1444 0 |
| 2 99 | 591 95 | 6 47 | 4363 2 | 863 5 | 1242 1 | 87 0 | 248.4 | 304 0 | 690 8 | 8 7 | 885 7 | 538 9 | 830 9 |
| 3.26 | 591 10 | 6 60 | 4715 7 | 1094 1 | 793.2 | 95 0 | 309 6 | 165 5 | 715 3 | 8 0 | 962 6 | 679 4 | 498.4 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 11 12 13 14 15 16

```
                                                    TT=    16.000     DTH=     0 500     ITERR= 9

                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      3   4   5   6   7   8   9  10  11  12
                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     13  12  13  14
                                                    TT=    16 000     DTH=     0 250     ITERR= 9

*****************************************************************************************************************
TT =  16 2500          DTH =  0 2500          ITERR =   2
QU(1) =    1248 00     YU(1) =     597 61  QU(N) =    6361 98  YU(N) =     590 97  FRDM=0.00 IFR= 14 FRM=7 00 IFM=  0


*****************************************************************************************************************
TT =  16 2500          DTH =  0 2500          ITERR =   2
QU(1) =    1248 00     YU(1) =     597 61  QU(N) =    6361 98  YU(N) =     590 97  FRDM=0 06 IFR=  1 FRM=

   X(I)       Y       QQ       QQC       QQL       QQR        B        BL        BR        BT   WAVEHT        A        AL        AR

   0 00  597 61    1 25    920 9    310 7     16.4     75.0    374.4    127 1    738 0      8 1    820 6   1228 7    130.7
   0.52  597 51    1 52    772 6    238 5    511 3     68 0    217 7    476 3    887 5      9 3    799 2    859 2   2127 8
   0 68  597 44    1 63   1138 2    492 7      1 7    104 0    802 2     12 2   1040 6     10 2   1009 8   2397 5     14 9
   0 70  597 44    1 65   1149 1    495 6      2 9     88 0    805 5     18.3   1399.7     10 3    978 7   2431.4     22 3
   0 92  597 22    5 14   3674 0   1444 7     24 4     87 0    835 3     42 6    964 9     10 5   1070 3   3399 7     68 5
   1 39  596 36    5 46   2341 7   2851 3    268 0     81 0    468 0     89 3    638 2     10 8   1022 6   2407 4    248 5
   1 50  596 29    5 48   2683 9   1850 2    941 3     88 9    311 9    140 5    541 2     11 1   1154 8   1583 2    634 7
   1 61  596 23    5 49   2988 3    878 4   1619 3     96 6    155 9    192 1    444 7     11 2   1297 4    781 6   1014 8
   1 72  596 18    5 49   4163 3      0 0   1330 3    104.4      0 0    244.3    348.7     11 2   1451 4      0 0   1391 6
   2 04  595 12    5 67   5660 6      0 0      6 4    105 6      0 0     33 6    631 2     10 3   1277 6      0 0     18 8
   2 05  595 15    5 68   5679 9      0 0      0 0    116 2      0 0      0 0   1008 7     10 4   1430 0      0 0      0 0
   2 06  595 06    5 69   5688 9      0 0      3 7    105 3      0 0     31 8    608 0     10 3   1271.3      0 0     16 8
   2 39  594 15    5 92   4724 9    374 4    820 1     90 4    106 1    347 6    620 7      9 7   1044 2    226 0   1142 4
   2 73  592 68    6 09   3859 1    220 4   2007 3     79 3    140 5    527 9    747 7      9 0    788 5    188 0   1374 0
   2 99  591 82    6 23   4262 3    800 8   1165 8     87 0    238 6    295 9    675 9      8 5    874 5    507 6    792 4
   3 26  590 97    6 36   4603 2   1019 5    739 3     95 0    297 4    164 9    708 6      7 9    950 9    642 3    478.2
                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16
                                                    TT=    16 250     DTH=     0 500     ITERR= 9

                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16
                                                    TT=    16 250     DTH=     0 250     ITERR= 9

                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      2   3   4   5   6   7   8   9  10  11
                NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     12  13  14  15  16
                                                    TT=    16 250     DTH=     0 125     ITERR= 9

*****************************************************************************************************************
TT =  16 3750          DTH =  0 1250          ITERR =   2
QU(1) =    1265 00     YU(1) =     597.56  QU(N) =    6237 07  YU(N) =     590 92  FRDM=0 00 IFR= 14 FRM=7 00 IFM=  0


*****************************************************************************************************************
TT =  16 3750          DTH =  0 1250          ITERR =   2
QU(1) =    1265 00     YU(1) =     597 56  QU(N) =    6237 07  YU(N) =     590 92  FRDM=0 06 IFR=  1 FRM=

   X(I)       Y       QQ       QQC       QQL       QQR        B        BL        BR        BT   WAVEHT        A        AL        AR

   0 00  597 56    1 27    938 4    310 9     15 7     75 0    372 8    122 8    726 2      8 0    816 2   1206 7    123 3
   0 52  597 45    1 53    782 2    237 9    510 3     68 0    216 7    476 1    883 3      9 3    795 0    845 6   2098 1
   0 68  597 38    1 62   1135 0    483 2      1 6    104 0    792 8     11 9   1027 7     10 2   1003 2   2346 9     14 2
```

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 597 38 | 1 63 | 1143 6 | 484 5 | 2 7 | 88 0 | 796 3 | 17 8 | 1377 4 | 10 2 | 973 1 | 2380 7 | 21 2 |
| 0 92 | 597 15 | 5 08 | 3643 8 | 1408 8 | 23 1 | 86 9 | 830 1 | 41 8 | 958 8 | 10 4 | 1064 8 | 3346 7 | 65 8 |
| 1 39 | 596 32 | 5 30 | 2281 9 | 2757 6 | 257 8 | 81 0 | 467 9 | 88 5 | 637 4 | 10.8 | 1019 4 | 2388 9 | 245 0 |
| 1 50 | 596 26 | 5 31 | 2609 8 | 1786 0 | 909.7 | 88 8 | 311 9 | 139 9 | 540 6 | 11 1 | 1151 6 | 1572 0 | 629 7 |
| 1 61 | 596 19 | 5 31 | 2900 3 | 846 6 | 1563 8 | 96 6 | 155 9 | 191 7 | 444 2 | 11 2 | 1294 3 | 776 5 | 1008 6 |
| 1 72 | 596 15 | 5 31 | 4033 8 | 0 0 | 1280 3 | 104 3 | 0 0 | 244 0 | 348 3 | 11 2 | 1448 4 | 0 0 | 1384 5 |
| 2 04 | 594.97 | 5 50 | 5497.2 | 0 0 | 4 3 | 104 9 | 0 0 | 29 2 | 575 1 | 10 2 | 1262 3 | 0 0 | 14 2 |
| 2 05 | 595 01 | 5 52 | 5518 5 | 0 0 | 0.0 | 116 4 | 0 0 | 0 0 | 1003 5 | 10.2 | 1412 8 | 0 0 | 0 0 |
| 2 06 | 594 91 | 5 54 | 5532 7 | 0 0 | 2 4 | 104 6 | 0 0 | 27 4 | 551 8 | 10 2 | 1256 0 | 0 0 | 12 5 |
| 2 39 | 594 08 | 5 80 | 4660 5 | 352 0 | 784 8 | 90 2 | 105 6 | 346.4 | 605 7 | 9 6 | 1037 5 | 218 2 | 1116 8 |
| 2 73 | 592 61 | 5 97 | 3818 4 | 206 2 | 1944 0 | 79.3 | 137 0 | 519 7 | 736 1 | 9 0 | 783 3 | 178 8 | 1339 3 |
| 2 99 | 591 75 | 6 11 | 4210 2 | 770 5 | 1128 2 | 86 9 | 233.6 | 291 7 | 668 5 | 8 5 | 868 9 | 492 4 | 773 4 |
| 3 26 | 590 92 | 6 24 | 4541 1 | 983 4 | 712 6 | 95 0 | 291 5 | 164 6 | 705 3 | 7 8 | 945 3 | 624 9 | 468 5 |

```
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16
                                          TT=    16 375     DTH=     0 500     ITERR= 9

NONCONVERGENCE DCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16
                                          TT=    16.375     DTH=     0 250     ITERR= 9
```

"RED RUN81"

Comparison

| FLS_XSEC | Q | Original FLS | Q w/ Rev & Q. | | Q | 1981 (Estimated) | Hum |
|---|---|---|---|---|---|---|---|
| 194 | 19150 | 602.7 | 19[illegible] | 601.4 | 16000 | 601.6 | 601.65 |
| 594 | 19100 | 602.7 | | [illegible] | | 601.7 | |
| 1039 | 17800 | 602.7 | 17[illegible] | 601.5 | 14840 | 601.6 | |
| 1100 | | 602.9 | | 601.6 | | 601.8 | |
| 1143 | | 603.8 | | 602.0 | | 602.2 | |
| 1223 | | 604.3 | 17[illegible]0 | 603.1 | | 602.8 | |
| 2723 | 17840 | 605.4 | | 603.1 | | 603.6 | |
| 5720 | 17000 | 606.4 | | [illegible] | 13500 | 604.6 | |
| 8210 | 17000 | 606.9 | | 604.5 | | 605.1 | |
| 8394 | 17000 | 607.2 | | 605.0 | | 605.5 | |
| 9771 | 17100 | 607.4 | | [illegible] | | 605.7 | |
| 13194 | 17000 | 607.8 | | 607.7 | 13210 | 606.1 | |
| 16096 | 17100 | 608.4 | | 606.4 | | 606.7 | |
| 16413 | | 609.0 | | 606.9 | | 607.1 | |
| 17368 | | 609.7 | | 607.7 | | 607.8 | |
| 21119 | 17100 | 610.3 | | 608.3 | | 608.4 | |
| 25319 | 16920 | 611.0 | 15[illegible]0 | 609.0 | 13250 | 609.0 | |
| 26075 | 17100 | 612.4 | [illegible] | 610.4 | 8600 | 610.4 | |
| 28000 | | 612.9 | | 611.0 | | 611.1 | |
| 28031 | | 614.2 | | 611.6 | | 611.7 | |
| 28119 | | 615.0 | | 612.2 | | 612.4 | |
| 31299 | | 615.3 | | 612.6 | | 612.9 | |
| [illegible] | | 616.9 | | 614.0 | | 614.2 | |
| [illegible] | 17100 | 617.4 | 8300 | 615.3 | | 615.6 | |

| FLS XSEC | Q | Original FLS | Revised Q | | 1981 Estimated | HWM |
|---|---|---|---|---|---|---|
| 33438 | 11700 | 617.5 | 8300 615.7 | 8600 | 616.0 | |
| 34888 | 11700 | 618.0 | 615.9 | | 616.2 | |
| 37871 | 11700 | 619.2 | 616.7 | | 617.0 | 617.15 |
| 39171 | 11900 | 619.6 | 617.2 | | 617.2 @ L.gr | |
| 41131 | 11900 | 620.0 | 617.5 | | 617.5 | |
| 42521 | 11900 | 620.3 | 8200 618.1 | | 617.9 | |
| | | | | | 618.4 | |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME:

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Hydrology

00BREAK00

Red Run

```
XX  XX   X    X      X     X        X   X             X    X   X    X   X    X      X
X    X   X    X      X     XXXXXX   X    X            X    X    XXXX    X    X      X

XXXXX
```

```
                                                DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                INITIAL PBITS. 220, OTHER PBITS  34

08 50 13    BOT  0887  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                       TASK TYPE· DEPENDENT TASK(PROCESS)
                       PRIORITY  80
                       USERCODE  HYDRO
                       CHARGECODE  551/13
                       ACCESSCODE  MENEREY
08 54 06       ->0887  OPERATOR ENTERED  DS
03 54 07         0887  OPERATOR DSED @ (06078000)'
08 54 14         0887  HISTORY   069 0028 1 (06078000), 063 004E 0 (05756000), 066 0028 4 (06182000), 05B 0011 2 (068
                       44000), 050 0057 4 (04460000), 075 001C 1 (06923300), 058 0038·1 (06968000)
08 54 14    D-DS 0887  (HYDRO)"BACKUP PROCESSOR" ON CANDE                          ******** D-DSED ********
                       PROCESSOR TIME  00 00 02 809  CHARGECODE  551/13
                       I/O       TIME  00 00.02 365  DATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                       READYQ    TIME· 00·00 01 964  AVERAGE MEMORY USAGE  CODE=29638, DATA=3729
                       INITPBIT  TIME  00 00 00 302  MEMORY INTEGRAL  CODE=153 380, DATA=19 295
                       OTHERPBIT TIME  00 00 00 096  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                       ELAPSED   TIME· 00 04 01 086  INITIAL PBITS  108, OTHER PBITS  12

09 05 04    BOT  1049  (ONROBJ)P/G/551/01 ON DNROBJECTS
                       TASK TYPE  DEPENDENT TASK(PROCESS)
                       PRIORITY  48
                       USERCODE  HYDRO
                       CHARGECODE  551/13
                       ACCESSCODE  MENEREY
09 05·04         1049  WARNING  THIS 30 CODE FILE CAN NOT BE RUN ON THE NEXT RELEASE (34)
09 05 57    EOT  1049  (DNROBJ)P/G/551/01 ON DNROBJECTS
                       PROCESSOR TIME  00 00 08 693  USERCODE  HYDRO
                       I/O       TIME  00·00 33 198  CHARGECODE  551/13
                       READYQ    TIME  00 00 14 117  ACCESSCODE  MENEREY
                       INITPBIT  TIME  00 00 01 110  LINES PRINTED  648
                       OTHERPBIT TIME  00 00 00 736  DATA AND CODE IN SUBSPACE USED 24750 WORDS (25 SLOTS)
                       ELAPSED   TIME  00 00 53 579  AVERAGE MEMORY USAGE  CDDE=11567, DATA=8620
                                                     MEMORY INTEGRAL  CODE=484 584, DATA=361 129
                                                     DATA & CODE ALLOWED IN & DCCUPIED  GLDBAL
                                                     INITIAL PBITS  389, OTHER PBITS  50

09 06 10    BOT  1063  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                       TASK TYPE  DEPENDENT TASK(PROCESS)
                       PRIORITY  80
                       USERCODE  HYDRO
                       CHARGECODE  551/13
                       ACCESSCODE  MENEREY
09 06 32       ->1063  OPERATOR ENTERED  DS
09 06 33         1063  OPERATOR DSED @ (06078000)*
09 06 40         1063  HISTORY   069 0028 1 (06078000), 063 004E 0 (05756000), 066 0028 4 (06182000), 05B 0011 2 (068
                       44000), 050 0057 4 (04460000), 075 001C 1 (06923300), 058·0038 1 (06968000)
09 06 40    D-DS 1063  (HYDRO)"BACKUP PROCESSOR" ON CANDE                          ******** D-DSED ********
                       PROCESSOR TIME  00 00 01 723  CHARGECODE  551/13
                       I/O       TIME  00 00.01 100  DATA IN SUBSPACE USED 5940 WORDS (6 SLDTS)
                       READYQ    TIME  00 00:00 642  AVERAGE MEMORY USAGE  CODE=29680, DATA=3278
                       INITPBIT  TIME  00 00 00 305  MEMORY INTEGRAL  CODE=83 801, DATA=9 254
                       OTHERPBIT TIME  00 00 00 068  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                       ELAPSED   TIME  00 00 30 886  INITIAL PBITS  102, OTHER PBITS  2

09 06 56    BOT  1073  (HYDRO)"BACKUP PROCESSOR" ON CANDE
```

```
                        TASK TYPE  DEPENDENT TASK(PROCESS)
                        PRIORITY  80
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
09 09 50    EOT   1073  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                        PROCESSOR TIME  00 00 06 383  CHARGECODE  551/13
                        I/O       TIME  00 00 02 224  DATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                        READYQ    TIME  00 00 00 859  AVERAGE MEMORY USAGE  CODE=29686, DATA=3752
                        INITPBIT  TIME  00 00 00 408  MEMORY INTEGRAL  CODE=255 529, DATA=32 300
                        ELAPSED   TIME  00 02 53 405  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  158


09 12 52    BOT   1132  (DNROBJ)P/G/551/01 ON DNROBJECTS
                        TASK TYPE  DEPENDENT TASK(PROCESS)
                        PRIORITY  48
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
09 12 52          1132  WARNING  THIS 30 CODE FILE CAN NOT BE RUN ON THE NEXT RELEASE (34)
09 13 12    EOT   1132  (DNROBJ)P/G/551/01 ON DNROBJECTS
                        PROCESSOR TIME  00 00 04 058  USERCODE  HYDRO
                        I/O       TIME  00 00 10 193  CHARGECODE  551/13
                        READYQ    TIME  00 00 02 376  ACCESSCODE  MENEREY
                        INITPBIT  TIME  00 00 01 052  LINES PRINTED  275
                        OTHERPBIT TIME  00 00 00 179  DATA AND CODE IN SUBSPACE USED 24750 WORDS (25 SLOTS)
                        ELAPSED   TIME  00 00 20 321  AVERAGE MEMORY USAGE  CODE=7400, DATA=7781
                                                      MEMORY INTEGRAL  CODE=105 467, DATA=110 893
                                                      DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  385, OTHER PBITS  24


09 13 19    BOT   1141  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                        TASK TYPE  DEPENDENT TASK(PROCESS)
                        PRIORITY  80
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
09 13 36          1141  REMLP14/0000844/0001049/000G55101R2 REMOVED ON PACK PK65
09 15 47          1141  REMLP14/0000844/0001132/000G55101R2 REMOVED ON PACK PK65
09 15 49    EOT   1141  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                        PROCESSOR TIME  00 00 03 186  CHARGECODE  551/13
                        I/O       TIME  00 00 02 015  DATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                        READYQ    TIME  00 00 00 392  AVERAGE MEMORY USAGE  CODE=29628, DATA=3464
                        INITPBIT  TIME  00 00 00 464  MEMORY INTEGRAL  CODE=154 131, DATA=18 018
                        ELAPSED   TIME  00 02 29 787  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  196

09 16 17   LGOFF 0844   USERCODE  HYDRO
                        ROUTING  MENEREY/DNR/"WATER MGMT"
                        ACCESSCODE  MENEREY
                        SIGN OFF BY NORMAL LOG-OFF
                        PROCESSOR TIME  00 00 10 485
                        I/O       TIME  00 01 16 799
                        ELAPSED   TIME  00 31 42 634
```

PRDGRAM DAMBRK---VERSION-A-01/30/82

# ANALYSIS OF UNSTEADY FLOW

# DOWNSTREAM OF

# RED RUN DRAIN

# ON

ANALYSIS BY

BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P D BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH D , RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABDRATDRY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

```
*****************************
*****************************
***                       ***
***  SUMMARY OF INPUT DATA  ***
***                       ***
*****************************
*****************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| NO OF RESERVOIR INFLOW HYDROGRAPH POINTS | ITEH | 21 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH ORDINATES) = 1 00 HRS

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 20 0000 HRS

INFLOW HYDROGRAPH TO RED RUN DRAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100 00 | 100 00 | 101 00 | 105 00 | 119 00 | 160 00 | 650 00 | 1800 00 |
| 4910 00 | 8300 00 | 8150 00 | 6775 00 | 5165 00 | 3950 00 | 2465 00 | 1990 00 |
| 1770 00 | 1580 00 | 1420 00 | 1285 00 | 1170 00 | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1 0000 | 2 0000 | 3 0000 | 4 0000 | 5 0000 | 6 0000 | 7 0000 |

8 0000 9 0000 10 0000 11 0000 12 0000 13 0000 14 0000 15 00
16 0000 17 0000 18 0000 19 0000 20 0000

CROSS-SECTIONAL PARAMETERS FOR
BELOW RED RUN DRAIN

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 15 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 4 |
| NUMBER OF CROSS-SECTIONAL HYOROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO OF LATERAL INFLOW HYDROGRAPHS | LQ | 3 |
| NO OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR
BELOW RED RUN DRAIN

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIOTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 5 000 FSTG(I) = 0 00 X1L(I) = 5 000 X1R(I) = 5 000

| | | | | |
|---|---|---|---|---|
| XE | 594 5 | 616 0 | 617 0 | 618 0 |
| XC | 38 0 | 130 0 | 140 0 | 150 0 |
| XCL | 0 0 | 0 0 | 0 0 | 100 0 |
| XCR | 0 0 | 0 0 | 0 0 | 10 0 |
| XS | 0 0 | 0 0 | 100 0 | 0 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 5 440 FSTG(I) = 0 00 X1L(I) = 5 440 X1R(I) = 5.440

| | | | | |
|---|---|---|---|---|
| XE | 594 0 | 614 0 | 615 0 | 616 0 |
| XC | 40 0 | 140 0 | 150 0 | 150 0 |
| XCL | 0 0 | 0 0 | 100 0 | 100 0 |
| XCR | 0 0 | 0 0 | 0.0 | 0 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 5 740 FSTG(I) = 0 00 X1L(I) = 5 740 X1R(I) = 5 740

| | | | | |
|---|---|---|---|---|
| XE | 594 0 | 613 5 | 615 0 | 616 0 |
| XC | 40 0 | 136 0 | 136 0 | 136 0 |
| XCL | 0 0 | 0 0 | 50 0 | 100 0 |
| XCR | 0 0 | 0 0 | 200 0 | 200 0 |
| XS | 0 0 | 200 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 6 140 FSTG(I) = 0 00 X1L(I) = 6 140 X1R(I) = 6 140

| | | | | |
|---|---|---|---|---|
| XE | 593 0 | 614 0 | 615 0 | 616 0 |
| XC | 40 0 | 135 0 | 135 0 | 135 0 |
| XCL | 0 0 | 0 0 | 0 0 | 50 0 |
| XCR | 0 0 | 0 0 | 200 0 | 200 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 6 910 FSTG(I) = 0 00 X1L(I) = 6 910 X1R(I) = 6 910

| | | | | |
|---|---|---|---|---|
| XE | 590 7 | 605 0 | 609 0 | 613 0 |
| XC | 45 0 | 100 0 | 100 0 | 100 0 |
| XCL | 0 0 | 0 0 | 20 0 | 100 0 |
| XCR | 0 0 | 0 0 | 50 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 7 140 FSTG(I) = 0 00 X1L(I) = 7 140 X1R(I) = 7 140

| | | | | |
|---|---|---|---|---|
| XE | 590 5 | 605 0 | 609 0 | 613 0 |
| XC | 40 0 | 100 0 | 100 0 | 100 0 |
| XCL | 0 0 | 0 0 | 0 0 | 200 0 |
| XCR | 0 0 | 0 0 | 0 0 | 200 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 7 590 FSTG(I) = 0 00 X1L(I) = 7 590 X1R(I) = 7 590

| | | | | |
|---|---|---|---|---|
| XE | 588 8 | 606 0 | 609 0 | 612 0 |
| XC | 35 0 | 130 0 | 155 0 | 174 0 |
| XCL | 0 0 | 0 0 | 0 0 | 300 0 |
| XCR | 0 0 | 0 0 | 0 0 | 120 0 |
| XS | 0 0 | 0 0 | 300 0 | 200 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 7 630 FSTG(I) = 0 00 X1L(I) = 7 630 X1R(I) = 7 630

| | | | | |
|---|---|---|---|---|
| XE | 588 8 | 606 0 | 609 0 | 612 0 |
| XC | 65 0 | 133 0 | 133 0 | 133 0 |
| XCL | 0 0 | 0 0 | 50 0 | 300 0 |
| XCR | 0 0 | 0 0 | 50 0 | 200 0 |
| XS | 0 0 | 50 0 | 100 0 | 200 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 7 800 FSTG(I) = 0 00 X1L(I) = 7 800 X1R(I) = 7 800

| | | | | |
|---|---|---|---|---|
| XE | 588 5 | 602 0 | 606 0 | 612 0 |
| XC | 35 0 | 120 0 | 130 0 | 130 0 |
| XCL | 0 0 | 0 0 | 50 0 | 300 0 |
| XCR | 0 0 | 0 0 | 10 0 | 200 0 |
| XS | 0 0 | 300 0 | 300 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 8 800 FSTG(I) = 0 00 X1L(I) = 8 800 X1R(I) = 8 800

| | | | | |
|---|---|---|---|---|
| XE | 588 7 | 600 0 | 604 0 | 609 0 |
| XC | 70.0 | 100 0 | 100.0 | 100 0 |
| XCL | 0 0 | 0 0 | 100 0 | 350 0 |
| XCR | 0 0 | 0 0 | 60 0 | 200 0 |
| XS | 0 0 | 250 0 | 200 0 | 0 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 9 550 FSTG(I) = 0.00 X1L(I) = 9 550 X1R(I) = 9 550

| | | | | |
|---|---|---|---|---|
| XE | 586 5 | 598 0 | 602 0 | 608 0 |
| XC | 50 0 | 170 0 | 180 0 | 230 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 |
| XCR | 0 0 | 0 0 | 70 0 | 400 0 |
| XS | 0 0 | 0 0 | 0 0 | 200 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 10 440 FSTG(I) = 0 00 X1L(I) = 10 440 X1R(I) = 10 440

| | | | | |
|---|---|---|---|---|
| XE | 584 5 | 596 0 | 600 0 | 606 0 |
| XC | 80 0 | 140 0 | 150 0 | 160 0 |
| XCL | 0 0 | 0 0 | 100 0 | 300 0 |
| XCR | 0 0 | 0 0 | 0 0 | 150 0 |
| XS | 0 0 | 0 0 | 250 0 | 300 0 |

MC
DX
EC
J3

CROSS-SECTION NUMBER 13
**********

X1(I) = 10 970 FSTG(I) = 0 00 X1L(I) = 10 970 X1R(I) = 10 970

| | | | | |
|---|---|---|---|---|
| XE | 585 0 | 596 0 | 600 0 | 606 0 |
| XC | 80 0 | 130 0 | 160 0 | 160 0 |
| XCL | 0 0 | 0 0 | 50 0 | 300 0 |
| XCR | 0 0 | 0 0 | 0 0 | 150 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 14
**********

X1(I) = 11 850 FSTG(I) = 0 00 X1L(I) = 11 850 X1R(I) = 11 850

| | | | | |
|---|---|---|---|---|
| XE | 583 8 | 595 0 | 599 0 | 605 0 |
| XC | 80 0 | 144 0 | 144 0 | 144 0 |
| XCL | 0 0 | 0 0 | 250 0 | 250 0 |
| XCR | 0 0 | 0 0 | 100 0 | 150 0 |
| XS | 0 0 | 300 0 | 300 0 | 400 0 |

CROSS-SECTION NUMBER 15
**********

X1(I) = 11 940 FSTG(I) = 0 00 X1L(I) = 11 940 X1R(I) = 11 940

| | | | | |
|---|---|---|---|---|
| XE | 583 7 | 595 0 | 599 0 | 605 0 |
| XC | 80 0 | 144 0 | 144 0 | 144 0 |
| XCL | 0 0 | 0 0 | 300 0 | 300 0 |
| XCR | 0 0 | 0 0 | 100 0 | 150 0 |
| XS | 0 0 | 0 0 | 200 0 | 200 0 |

HS(1, 3) IS GREATER THAN HS(1, 2)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,10) IS GREATER THAN HS(1, 9)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,13) IS GREATER THAN HS(1,12)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER

| | | | | | |
|---|---|---|---|---|---|
| REACH | 1 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 1 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 1 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 2 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 2 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 2 | 0 035 | 0 035 | 0.035 | 0 035 |
| REACH | 3 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 3 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 3 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 4 | 0 035 | 0 035 | 0.035 | 0 035 |
| REACH | 4 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 4 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 5 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 5 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 5 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 6 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 6 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 6 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 7 | 0 035 | 0 035 | 0 035 | 0.035 |
| REACH | 7 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 7 | 0 035 | 0 035 | 0.035 | 0 035 |
| REACH | 8 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 8 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 8 | 0 035 | 0 035 | 0 035 | 0.035 |
| REACH | 9 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 9 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 9 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH | 10 | 0 035 | 0 035 | 0 035 | 0 035 |

| | | | | |
|---|---|---|---|---|
| REACH 10 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 10 | 0 035 | 0 035 | 0.035 | 0 035 |
| REACH 11 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 11 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 11 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 12 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 12 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 12 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 13 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 13 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 13 | 0 035 | 0 035 | 0 035 | 0 035 |
| REACH 14 | 0.035 | 0 035 | 0 035 | 0 035 |
| REACH 14 | 0 035 | 0 035 | 0.035 | 0 035 |
| REACH 14 | 0 035 | 0 035 | 0 035 | 0 035 |

CROSS-SECTIONAL VARIABLES FOR
BELOW RED RUN ORAIN

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL OISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0 500 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 500 | 0 000 |
| 6 | 0 500 | 0 000 |
| 7 | 0 500 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0 500 | 0 000 |
| 10 | 0 300 | 0 000 |
| 11 | 0 500 | 0 000 |
| 12 | 0 500 | 0 000 |
| 13 | 0 300 | 0 000 |
| 14 | 0 050 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR
BELOW RED RUN DRAIN

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DDWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0 000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 0 8000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CDNSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

| LQX(I) |
|---|
| 7 |
| 10 |
| 14 |

(QL(L, 1),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 40 | 40 | 41 | 48 | 62 | 97 | 790 | 2613 |
| 5853 | 8825 | 8925 | 8242 | 7611 | 6337 | 4256 | 2747 |
| 1765 | 1168 | 836 | 637 | 517 | | | |

(QL(L, 2),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 10 | 11. | 14 | 23 | 40 | 422 | 1557 |
| 3113 | 3306 | 2567 | 1676 | 1074 | 989 | 879 | 879 |
| 495 | 323 | 206 | 148 | 99 | | | |

(QL(L, 3),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 10 | 10. | 10 | 10. | 10 | 10 | 57 |
| 137 | 424 | 964 | 1327 | 1265 | 1054 | 879 | 726 |
| 583 | 365 | 395 | 337 | 259 | | | |

# SUMMARY OF OUTPUT DATA

SLOPE PROFILE

MILES

5 0 5 7 6 4 7 1 7 8 8 5 9 2 9 9 10 6 11 2 11 9

ELEVATION FEET

| ELEV FEET | MILE |
|---|---|
| 594 5 | 5 0 |
| 594 0 | 5 4 |
| 593 0 | 6 1 |
| 590 7 | 6 9 |
| 590 5 | 7 1 |
| 588 8 | 7 6 |
| 588 5 | 7 8 |
| 586 5 | 9 6 |
| 585 0 | 11 0 |
| 584 5 | 10.4 |

594 50

590 50

586 50

I I I I I I I I I I I 583 8 11 9
5 0 5 7 6 4 7 1 7 8 8 5 9 2 9 9 10 6 11 2 11 9

MILES

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI | MESAGE |
|---|---|---|---|---|---|---|
| 1 | 5 000 | 594 50 | | | | |
| 2 | 5 440 | 594 00 | 1 | 0.440 | 1 14 | |
| 3 | 5 740 | 594 00 | 2 | 0 300 | 0 00 | |
| 4 | 6 140 | 593 00 | 3 | 0 400 | 2 50 | |
| 5 | 6 910 | 590 70 | 4 | 0 770 | 2 99 | |
| 6 | 7 140 | 590 50 | 5 | 0 230 | 0 87 | |
| 7 | 7 590 | 588 80 | 6 | 0 450 | 3 78 | |
| 8 | 7 630 | 588 80 | 7 | 0 040 | 0 00 | |
| 9 | 7 800 | 588 50 | 8 | 0 170 | 1 76 | |
| 10 | 8 800 | 588 70 | 9 | 1 000 | -0 20 | |
| 11 | 9 550 | 586 50 | 10 | 0 750 | 2 93 | |
| 12 | 10 440 | 584 50 | 11 | 0 890 | 2 25 | |
| 13 | 10 970 | 585 00 | 12 | 0 530 | -0 94 | |
| 14 | 11 850 | 583 80 | 13 | 0 880 | 1 36 | |
| 15 | 11 940 | 583 70 | 14 | 0 090 | 1 11 | |

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 18 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 617 | 614 | 614. | 615 | 605 | 609 | 609 | 606 |
| 602 | 601 | 600 | 599 | 608 | 596 | 596 | 596 |
| 595 | 595 | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 617 | 616 | 614 | 614 | 605 | 609 | 609 | 606 |
| 602 | 601 | 600 | 599 | 598 | 600 | 600 | 596 |
| 595 | 595 | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 18 | 3 | 11 940 | 585 60 | 160 00 | 0 13 | 1 321 |
| 18 | 0 | 11 940 | 585 60 | 160 00 | | |
| 17 | 1 | 11 850 | 585 71 | 150 00 | 0 12 | |
| 17 | 2 | 11 850 | 585 71 | 150 00 | 0 12 | |
| 16 | 1 | 11 410 | 586 24 | 150 00 | 0 12 | |
| 16 | 2 | 11 410 | 586 24 | 150 00 | 0 13 | |
| 15 | 1 | 10 970 | 586 82 | 150 00 | 0 13 | |
| 15 | 2 | 10 970 | 586 82 | 150 00 | 0 13 | |
| 14 | 1 | 10 440 | 587 19 | 150 00 | 0 09 | |
| 14 | 2 | 10 440 | 587 17 | 150 00 | 0 07 | |
| 14 | 3 | 10 440 | 587 17 | 150 00 | 0 07 | |
| 13 | 1 | 9 550 | 588 09 | 150 00 | 0 14 | |
| 13 | 2 | 9 550 | 588 04 | 150 00 | 0 24 | |
| 13 | 3 | 9 550 | 588 04 | 150 00 | 0 26 | |
| 12 | 1 | 9 175 | 589 39 | 150 00 | 0 14 | |
| 12 | 2 | 9 175 | 589 39 | 150 00 | 0 17 | |
| 11 | 1 | 8 800 | 590 30 | 140 00 | 0 16 | |
| 11 | 2 | 8 800 | 590 30 | 140 00 | 0 17 | |
| 10 | 1 | 8 300 | 591 06 | 140 00 | 0 20 | |
| 10 | 2 | 8 300 | 591 06 | 140 00 | 0 11 | |
| 10 | 3 | 8 300 | 591 06 | 140 00 | 0 12 | |
| 9 | 1 | 7 800 | 591 56 | 140 00 | 0 15 | |
| 9 | 2 | 7 800 | 591 53 | 140 00 | 0 11 | |
| 9 | 3 | 7 800 | 591 53 | 140 00 | 0 12 | |
| 8 | 1 | 7 630 | 591 64 | 140 00 | 0 08 | |
| 8 | 2 | 7 630 | 591 64 | 140 00 | 0 08 | |
| 8 | 3 | 7 630 | 591 64 | 140 00 | 0 08 | |
| 7 | 1 | 7 590 | 591 66 | 100 00 | 0 09 | |
| 7 | 2 | 7 590 | 591 66 | 100 00 | 0 09 | |
| 6 | 1 | 7 140 | 592 35 | 100 00 | 0 08 | |
| 6 | 2 | 7 140 | 592 19 | 100 00 | 0 17 | |
| 6 | 3 | 7 140 | 592 18 | 100 00 | 0 19 | |
| 6 | 4 | 7 140 | 592 18 | 100 00 | 0 19 | |
| 5 | 1 | 6 910 | 592 68 | 100 00 | 0 11 | |
| 5 | 2 | 6 910 | 592 66 | 100 00 | 0 14 | |
| 5 | 3 | 6 910 | 592 66 | 100 00 | 0 14 | |
| 4 | 1 | 6 140 | 594 49 | 100 00 | 0 17 | |
| 4 | 2 | 6 140 | 594 49 | 100 00 | 0 23 | |
| 4 | 3 | 6 140 | 594 49 | 100 00 | 0 23 | |
| 3 | 1 | 5 740 | 595 80 | 100 00 | 0 18 | |
| 3 | 2 | 5 740 | 595 80 | 100 00 | 0 17 | |
| 2 | 1 | 5 440 | 596 30 | 100 00 | 0 17 | |
| 2 | 2 | 5 440 | 596 27 | 100 00 | 0 12 | |
| 2 | 3 | 5 440 | 596 27 | 100 00 | 0 12 | |
| 1 | 1 | 5 000 | 596 77 | 100 00 | 0 15 | |
| 1 | 2 | 5 000 | 596 77 | 100 00 | 0 13 | |
| 1 | 3 | 5 000 | 596 77 | 100 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 5 00 | 596 77 | 596 77 |
| 2 | 5 44 | 596 27 | 596 27 |
| 3 | 5 74 | 595 80 | 595 80 |
| 4 | 6 14 | 594 49 | 594 49 |
| 5 | 6 91 | 592 66 | 592 66 |

| | | | |
|---|---|---|---|
| 6 | 7 14 | 592 18 | 592 18 |
| 7 | 7 59 | 591 66 | 591 66 |
| 8 | 7 63 | 591 64 | 591 64 |
| 9 | 7 80 | 591 53 | 591 53 |
| 10 | 8 30 | 591 06 | 591 06 |
| 11 | 8 80 | 590.30 | 590 30 |
| 12 | 9 18 | 589 39 | 589 39 |
| 13 | 9 55 | 588 04 | 588 04 |
| 14 | 10 44 | 587 17 | 587 17 |
| 15 | 10 97 | 586 82 | 586 82 |
| 16 | 11 41 | 586 24 | 586 24 |
| 17 | 11.85 | 585 71 | 585 71 |
| 18 | 11 94 | 585 60 | 585 60 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 100 00 | 100 00 | 100 00 | 100 00 | 100 00 | 100 00 | 100 00 | 140 00 |
| 140 00 | 140 00 | 140 00 | 150 00 | 150 00 | 150 00 | 150 00 | 150 00 |
| 150 00 | 160 00 | | | | | | |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 596 77 | 596 27 | 595 80 | 594 49 | 592 66 | 592 18 | 591 66 | 591 64 |
| 591 53 | 591 06 | 590 30 | 589 39 | 588 04 | 587 17 | 586 82 | 586 24 |
| 585 71 | 585 60 | | | | | | |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 9 000 |
| TIME TO START OF RISING LIMB OF HYDROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 9 000 |
| TIME STEP SIZE | HR | DTHI | 0 800 |

TT = 0 0000 DTH = 0 8000 ITERR = 0
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 160 00 YU(N) = 585 60 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

TT = 0 0000 DTH = 0 8000 ITERR = 0
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 160 00 YU(N) = 585 60 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 77 | 0 10 | 100 0 | 0 0 | 0 0 | 47 7 | 0 0 | 0 0 | 47 7 | 0 0 | 97 1 | 0 0 | 0 0 |
| 5 44 | 596 27 | 0 10 | 100 0 | 0 0 | 0 0 | 51 4 | 0.0 | 0 0 | 51 4 | 0 0 | 103 8 | 0 0 | 0 0 |
| 5 74 | 595 80 | 0 10 | 100 0 | 0 0 | 0 0 | 48 8 | 0 0 | 0 0 | 67 3 | 0 0 | 79 8 | 0 0 | 0 0 |
| 6 14 | 594 49 | 0 10 | 100 0 | 0 0 | 0 0 | 46 7 | 0 0 | 0 0 | 46 7 | 0 0 | 64 7 | 0 0 | 0 0 |
| 6 91 | 592 66 | 0 10 | 100 0 | 0 0 | 0 0 | 52 5 | 0 0 | 0 0 | 52 5 | 0 0 | 95 7 | 0 0 | 0 0 |
| 7 14 | 592 18 | 0 10 | 100 0 | 0 0 | 0 0 | 47 0 | 0 0 | 0 0 | 47 0 | 0 0 | 73 2 | 0 0 | 0 0 |
| 7 59 | 591 66 | 0 10 | 100 0 | 0 0 | 0 0 | 50 8 | 0 0 | 0 0 | 50 8 | 0 0 | 122 6 | 0 0 | 0 0 |
| 7 63 | 591 64 | 0 14 | 140 0 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 84 5 | 0 0 | 200 2 | 0 0 | 0 0 |
| 7 80 | 591 53 | 0 14 | 140 0 | 0 0 | 0 0 | 54 1 | 0 0 | 0 0 | 121 4 | 0 0 | 134 9 | 0 0 | 0 0 |
| 8 30 | 591 06 | 0 14 | 140 0 | 0 0 | 0 0 | 63 9 | 0 0 | 0 0 | 118 3 | 0 0 | 142 9 | 0 0 | 0 0 |
| 8 80 | 590 30 | 0 14 | 140 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 109 7 | 0 0 | 115 5 | 0 0 | 0 0 |
| 9 18 | 589 39 | 0 15 | 150 0 | 0 0 | 0 0 | 71 8 | 0 0 | 0 0 | 91 4 | 0 0 | 118 0 | 0 0 | 0 0 |
| 9 55 | 588 04 | 0 15 | 150 0 | 0 0 | 0 0 | 66 0 | 0 0 | 0 0 | 66 0 | 0 0 | 89 1 | 0 0 | 0 0 |
| 10 44 | 587 17 | 0 15 | 150 0 | 0 0 | 0 0 | 93 9 | 0 0 | 0 0 | 93 9 | 0 0 | 232 5 | 0 0 | 0 0 |
| 10 97 | 586 82 | 0 15 | 150 0 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0 0 | 153 1 | 0 0 | 0 0 |
| 11 41 | 586 24 | 0 15 | 150 0 | 0 0 | 0 0 | 89 5 | 0 0 | 0 0 | 114 3 | 0 0 | 156 0 | 0 0 | 0 0 |
| 11 85 | 585 71 | 0 15 | 150 0 | 0 0 | 0 0 | 90 9 | 0 0 | 0 0 | 142 1 | 0 0 | 163 3 | 0 0 | 0 0 |
| 11 94 | 585 60 | 0 16 | 160 0 | 0 0 | 0 0 | 90 7 | 0 0 | 0 0 | 90 7 | 0 0 | 161 9 | 0 0 | 0 0 |

TT = 0 0000 DTH = 0 8000 ITERR = 1
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 55 YU(N) = 585 61 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

TT = 0 0000 DTH = 0 8000 ITERR = 1
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 55 YU(N) = 585 61 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 77 | 0 10 | 100 0 | 0 0 | 0 0 | 47.7 | 0 0 | 0 0 | 47 7 | 0 0 | 97 2 | 0 0 | 0 0 |
| 5 44 | 596 27 | 0 10 | 100 0 | 0 0 | 0 0 | 51 4 | 0 0 | 0 0 | 51 4 | 0 0 | 103 8 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 74 | 595 80 | 0 10 | 100 0 | 0 0 | 0 0 | 48 8 | 0.0 | 0 0 | 67 3 | 0 0 | 79 8 | 0 0 | 0 0 |
| 6 14 | 594 49 | 0 10 | 99 9 | 0.0 | 0 0 | 46 7 | 0 0 | 0 0 | 46 7 | 0 0 | 64 7 | 0 0 | 0 0 |
| 6.91 | 592 66 | 0 10 | 99 9 | 0 0 | 0 0 | 52 5 | 0 0 | 0 0 | 52 5 | 0 0 | 95 7 | 0 0 | 0 0 |
| 7 14 | 592 18 | 0 10 | 99 9 | 0 0 | 0 0 | 47 0 | 0 0 | 0 0 | 47 0 | 0 0 | 73 2 | 0 0 | 0 0 |
| 7 59 | 591 66 | 0 10 | 99 9 | 0 0 | 0 0 | 50 8 | 0 0 | 0 0 | 50 8 | 0 0 | 122 6 | 0 0 | 0 0 |
| 7 63 | 591 64 | 0 14 | 139 9 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 84 5 | 0 0 | 200 2 | 0 0 | 0 0 |
| 7 80 | 591 53 | 0 14 | 139 9 | 0 0 | 0 0 | 54 1 | 0 0 | 0 0 | 121 4 | 0 0 | 134 9 | 0 0 | 0 0 |
| 8 30 | 591 06 | 0 14 | 139 9 | 0 0 | 0 0 | 63 9 | 0 0 | 0 0 | 118 3 | 0 0 | 142 9 | 0 0 | 0 0 |
| 8 80 | 590 30 | 0 14 | 139 9 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 109 7 | 0 0 | 115 5 | 0 0 | 0.0 |
| 9 18 | 589 39 | 0 15 | 149 9 | 0 0 | 0 0 | 71 8 | 0 0 | 0 0 | 91 4 | 0 0 | 118 0 | 0 0 | 0.0 |
| 9 55 | 588 04 | 0 15 | 149 9 | 0 0 | 0 0 | 66 0 | 0 0 | 0 0 | 66 0 | 0 0 | 89 1 | 0 0 | 0 0 |
| 10 44 | 587 17 | 0 15 | 149 9 | 0 0 | 0 0 | 93 9 | 0 0 | 0 0 | 93 9 | -0 0 | 232 5 | 0 0 | 0 0 |
| 10 97 | 586 82 | 0 15 | 149 9 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0 0 | 153 1 | 0 0 | 0 0 |
| 11 41 | 586 24 | 0 15 | 149 8 | 0 0 | 0 0 | 89 5 | 0 0 | 0 0 | 114 3 | 0 0 | 156 0 | 0 0 | 0 0 |
| 11 85 | 585 72 | 0 15 | 148 9 | 0 0 | 0 0 | 91 0 | 0 0 | 0 0 | 142 4 | 0 0 | 164 2 | 0 0 | 0 0 |
| 11 94 | 585 61 | 0 16 | 158 6 | 0 0 | 0 0 | 90.8 | 0 0 | 0 0 | 90 8 | 0 0 | 163 2 | 0 0 | 0 0 |

TT = 0 0000 DTH = 0 8000 ITERR = 1
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 24 YU(N) = 585 63 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

TT = 0 0000 DTH = 0 8000 ITERR = 1
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 24 YU(N) = 585 63 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 77 | 0 10 | 100 0 | 0 0 | 0 0 | 47 7 | 0 0 | 0 0 | 47 7 | -0 0 | 97 1 | 0 0 | 0 0 |
| 5 44 | 596 27 | 0 10 | 100 0 | 0 0 | 0 0 | 51 4 | 0 0 | 0 0 | 51 4 | -0 0 | 103 8 | 0 0 | 0 0 |
| 5 74 | 595 80 | 0 10 | 100 0 | 0 0 | 0 0 | 48 8 | 0 0 | 0 0 | 67 3 | 0 0 | 79 8 | 0 0 | 0 0 |
| 6 14 | 594 49 | 0 10 | 100 0 | 0 0 | 0 0 | 46 7 | 0 0 | 0 0 | 46 7 | 0 0 | 64 7 | 0 0 | 0 0 |
| 6 91 | 592 66 | 0 10 | 100 0 | 0 0 | 0 0 | 52 5 | 0 0 | 0 0 | 52 5 | 0 0 | 95 7 | 0 0 | 0 0 |
| 7 14 | 592 18 | 0 10 | 100 0 | 0 0 | 0 0 | 47 0 | 0 0 | 0 0 | 47 0 | 0 0 | 73 2 | 0 0 | 0 0 |
| 7 59 | 591 66 | 0 10 | 100 0 | 0 0 | 0 0 | 50 8 | 0 0 | 0 0 | 50 8 | 0 0 | 122 6 | 0 0 | 0 0 |
| 7 63 | 591 64 | 0 14 | 140 0 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 84 5 | 0 0 | 200 2 | 0 0 | 0 0 |
| 7 80 | 591 53 | 0 14 | 140 0 | 0 0 | 0 0 | 54 1 | 0 0 | 0 0 | 121 4 | 0 0 | 134 9 | 0 0 | 0 0 |
| 8 30 | 591 06 | 0 14 | 140 0 | 0 0 | 0 0 | 63 9 | 0 0 | 0 0 | 118 3 | 0 0 | 142 9 | 0 0 | 0 0 |
| 8 80 | 590 30 | 0 14 | 140 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 109 7 | 0 0 | 115 5 | 0 0 | 0 0 |
| 9 18 | 589 39 | 0 15 | 150 0 | 0 0 | 0 0 | 71 8 | 0 0 | 0 0 | 91 4 | 0 0 | 118 0 | 0 0 | 0 0 |
| 9 55 | 588 04 | 0 15 | 150.0 | 0 0 | 0 0 | 66 0 | 0 0 | 0 0 | 66 0 | 0 0 | 89 1 | 0 0 | 0 0 |
| 10 44 | 587 17 | 0 15 | 150 0 | 0 0 | 0 0 | 93 9 | 0 0 | 0 0 | 93.9 | 0 0 | 232 5 | 0 0 | 0 0 |
| 10 97 | 586 82 | 0 15 | 149 9 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0 0 | 153 2 | 0 0 | 0 0 |
| 11 41 | 586 24 | 0 15 | 149 6 | 0 0 | 0 0 | 89 5 | 0.0 | 0 0 | 114.4 | 0 0 | 156 3 | 0 0 | 0 0 |
| 11 85 | 585 74 | 0 15 | 148 5 | 0 0 | 0.0 | 91 1 | 0 0 | 0 0 | 142 9 | 0 0 | 165 5 | 0 0 | 0 0 |
| 11 94 | 585 63 | 0 16 | 158 2 | 0 0 | 0 0 | 90 9 | 0 0 | 0 0 | 90 9 | 0 0 | 164 9 | 0 0 | 0 0 |

TT = 0 8000 DTH = 0 8000 ITERR = 0
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 07 YU(N) = 585 65 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

TT = 0 8000 DTH = 0 8000 ITERR = 0
QU(1) = 100 00 YU(1) = 596 77 QU(N) = 158 07 YU(N) = 585 65 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 77 | 0 10 | 100 0 | 0.0 | 0 0 | 47 7 | 0 0 | 0 0 | 47 7 | -0 0 | 97 2 | 0 0 | 0 0 |
| 5 44 | 596 27 | 0 10 | 100 0 | 0.0 | 0 0 | 51 4 | 0 0 | 0 0 | 51 4 | -0 0 | 103 8 | 0 0 | 0 0 |
| 5 74 | 595 80 | 0 10 | 100 0 | 0 0 | 0 0 | 48 8 | 0 0 | 0 0 | 67 3 | 0 0 | 79 8 | 0 0 | 0 0 |
| 6 14 | 594 49 | 0 10 | 100 0 | 0 0 | 0 0 | 46 7 | 0 0 | 0 0 | 46 7 | 0 0 | 64 7 | 0 0 | 0 0 |
| 6 91 | 592 66 | 0 10 | 100 0 | 0 0 | 0 0 | 52 5 | 0 0 | 0 0 | 52 5 | 0 0 | 95 7 | 0 0 | 0 0 |
| 7 14 | 592 18 | 0 10 | 100.0 | 0 0 | 0 0 | 47 0 | 0 0 | 0 0 | 47 0 | 0 0 | 73 3 | 0 0 | 0 0 |
| 7 59 | 591 66 | 0 10 | 100 0 | 0 0 | 0 0 | 50 8 | 0 0 | 0 0 | 50 8 | 0 0 | 122 6 | 0 0 | 0 0 |
| 7 63 | 591 64 | 0 14 | 140 0 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 84 5 | 0 0 | 200 2 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 80 | 591 53 | 0 14 | 140 0 | 0 0 | 0 0 | 54 1 | 0 0 | 0 0 | 121 4 | 0 0 | 134 9 | 0 0 | 0 0 |
| 8 30 | 591 06 | 0 14 | 140 0 | 0 0 | 0 0 | 63 9 | 0 0 | 0 0 | 118 3 | 0 0 | 142 9 | 0 0 | 0 0 |
| 8 80 | 590 30 | 0 14 | 139 9 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 109 7 | 0 0 | 115 5 | 0 0 | 0 0 |
| 9 18 | 589 39 | 0 15 | 149 9 | 0 0 | 0 0 | 71 8 | 0 0 | 0 0 | 91 4 | 0 0 | 118 0 | 0 0 | 0 0 |
| 9 55 | 588 04 | 0 15 | 149 9 | 0 0 | 0 0 | 66 0 | 0 0 | 0 0 | 66 0 | -0 0 | 89 1 | 0 0 | 0 0 |
| 10 44 | 587 17 | 0 15 | 149 9 | 0 0 | 0 0 | 94 0 | 0 0 | 0 0 | 94 0 | 0 0 | 232 6 | 0 0 | 0 0 |
| 10 97 | 586 82 | 0 15 | 149 8 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0 0 | 153 3 | 0 0 | 0 0 |
| 11 41 | 586 25 | 0 15 | 149 5 | 0 0 | 0 0 | 89 5 | 0 0 | 0 0 | 114 5 | 0 0 | 156 8 | 0 0 | 0 0 |
| 11 85 | 585 75 | 0 15 | 148 4 | 0 0 | 0 0 | 91 1 | 0 0 | 0 0 | 143 4 | 0 0 | 166 9 | 0 0 | 0 0 |
| 11 94 | 585 65 | 0 16 | 158 1 | 0 0 | 0 0 | 91 0 | 0 0 | 0 0 | 91 0 | 0 0 | 166 6 | 0 0 | 0 0 |

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| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 97 | 586 83 | 0 15 | 150 0 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0.0 | 153 7 | 0 0 | 0 0 |
| 11 41 | 586 26 | 0 15 | 149 6 | 0 0 | 0 0 | 89 6 | 0 0 | 0 0 | 114 7 | 0 0 | 157 9 | 0 0 | 0 0 |
| 11 85 | 585 78 | 0.15 | 148 4 | 0 0 | 0 0 | 91 3 | 0 0 | 0 0 | 144 4 | 0 1 | 169 7 | 0 0 | 0 0 |
| 11 94 | 585 68 | 0 16 | 158 1 | 0 0 | 0 0 | 91 2 | 0 0 | 0 0 | 91 2 | 0 1 | 169 8 | 0 0 | 0 0 |

TT = 3 2000 DTH = 0 8000 ITERR = 1
QU(1) = 107 80 YU(1) = 596 84 QU(N) = 158.44 YU(N) = 585 70 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

TT = 3 2000 DTH = 0 8000 ITERR = 1
QU(1) = 107 80 YU(1) = 596 84 QU(N) = 158 44 YU(N) = 585 70 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 84 | 0 11 | 107 8 | 0 0 | 0 0 | 48 0 | 0 0 | 0 0 | 48 0 | 0 1 | 100 5 | 0 0 | 0 0 |
| 5 44 | 596 32 | 0 11 | 105 6 | 0 0 | 0 0 | 51 6 | 0 0 | 0 0 | 51 6 | 0 0 | 106 3 | 0 0 | 0 0 |
| 5 74 | 595 83 | 0 10 | 104 3 | 0 0 | 0 0 | 49 0 | 0 0 | 0 0 | 67 8 | 0 0 | 81 6 | 0 0 | 0 0 |
| 6 14 | 594 52 | 0 10 | 103 0 | 0 0 | 0 0 | 46 9 | 0 0 | 0 0 | 46 9 | 0 0 | 65 9 | 0 0 | 0 0 |
| 6 91 | 592 68 | 0 10 | 101 5 | 0 0 | 0 0 | 52 6 | 0 0 | 0 0 | 52 6 | 0 0 | 96 6 | 0 0 | 0 0 |
| 7 14 | 592 21 | 0 10 | 101 1 | 0 0 | 0 0 | 47 1 | 0 0 | 0 0 | 47 1 | 0 0 | 74 3 | 0 0 | 0 0 |
| 7 59 | 591 71 | 0 10 | 99 8 | 0 0 | 0 0 | 51 0 | 0 0 | 0 0 | 51 0 | 0 0 | 125 0 | 0 0 | 0 0 |
| 7 63 | 591 68 | 0 15 | 148 1 | 0 0 | 0 0 | 76 4 | 0 0 | 0 0 | 84 8 | 0 0 | 203 7 | 0 0 | 0 0 |
| 7 80 | 591 57 | 0 15 | 146 9 | 0 0 | 0 0 | 54 3 | 0 0 | 0 0 | 122 5 | 0 0 | 137 0 | 0 0 | 0 0 |
| 8 30 | 591 08 | 0 14 | 143 8 | 0 0 | 0 0 | 64 0 | 0 0 | 0 0 | 118 9 | 0 0 | 144 3 | 0 0 | 0 0 |
| 8 80 | 590 32 | 0 14 | 141 6 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 110 3 | 0 0 | 117 2 | 0 0 | 0 0 |
| 9 18 | 589 42 | 0 15 | 154 6 | 0 0 | 0 0 | 72 0 | 0 0 | 0 0 | 91 9 | 0 0 | 120 0 | 0 0 | 0 0 |
| 9 55 | 588 06 | 0 15 | 153 4 | 0 0 | 0 0 | 66 3 | 0 0 | 0 0 | 66 3 | 0 0 | 90 5 | 0 0 | 0 0 |
| 10 44 | 587 19 | 0 15 | 151 6 | 0 0 | 0 0 | 94 0 | 0 0 | 0 0 | 94 0 | 0 0 | 233 6 | 0 0 | 0 0 |
| 10 97 | 586 83 | 0 15 | 150 9 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 0 0 | 154 2 | 0 0 | 0 0 |
| 11 41 | 586 27 | 0 15 | 150 2 | 0 0 | 0 0 | 89 6 | 0 0 | 0 0 | 114 9 | 0 0 | 158 6 | 0 0 | 0 0 |
| 11 85 | 585 80 | 0 15 | 148 8 | 0 0 | 0 0 | 91 4 | 0 0 | 0 0 | 144 9 | 0 1 | 171 1 | 0 0 | 0 0 |
| 11 94 | 585 70 | 0 16 | 158 4 | 0 0 | 0 0 | 91 3 | 0 0 | 0 0 | 91 3 | 0 1 | 171 5 | 0 0 | 0 0 |

TT = 4 0000 DTH = 0 8000 ITERR = 1
QU(1) = 119 00 YU(1) = 596.94 QU(N) = 159 29 YU(N) = 585 72 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

TT = 4 0000 DTH = 0 8000 ITERR = 1
QU(1) = 119 00 YU(1) = 596 94 QU(N) = 159 29 YU(N) = 585 72 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 596 94 | 0 12 | 119 0 | 0 0 | 0 0 | 48 4 | 0 0 | 0 0 | 48 4 | 0 2 | 105 5 | 0 0 | 0 0 |
| 5.44 | 596 40 | 0 11 | 114 4 | 0 0 | 0 0 | 52 0 | 0 0 | 0 0 | 52 0 | 0 1 | 110 3 | 0 0 | 0 0 |
| 5 74 | 595 89 | 0 11 | 111 5 | 0 0 | 0 0 | 49 3 | 0 0 | 0 0 | 68 8 | 0 1 | 84 6 | 0 0 | 0 0 |
| 6 14 | 594 56 | 0 11 | 108 5 | 0 0 | 0 0 | 47 1 | 0 0 | 0 0 | 47 1 | 0 1 | 68 1 | 0 0 | 0 0 |
| 6 91 | 592 72 | 0 10 | 104 8 | 0 0 | 0 0 | 52 8 | 0 0 | 0 0 | 52 8 | 0 1 | 98 5 | 0 0 | 0 0 |
| 7 14 | 592 25 | 0 10 | 103 7 | 0 0 | 0 0 | 47 2 | 0 0 | 0 0 | 47 2 | 0 1 | 76 3 | 0 0 | 0 0 |
| 7 59 | 591 77 | 0 10 | 101 2 | 0 0 | 0 0 | 51 4 | 0 0 | 0 0 | 51 4 | 0 1 | 128 1 | 0 0 | 0 0 |
| 7 63 | 591 74 | 0 16 | 157 1 | 0 0 | 0 0 | 76 6 | 0 0 | 0 0 | 85 2 | 0 1 | 208 1 | 0 0 | 0 0 |
| 7 80 | 591 62 | 0 15 | 155 0 | 0 0 | 0 0 | 54 6 | 0 0 | 0 0 | 124 0 | 0 1 | 139 8 | 0 0 | 0 0 |
| 8 30 | 591 11 | 0 15 | 149 1 | 0 0 | 0 0 | 64 1 | 0 0 | 0 0 | 119 8 | 0 1 | 146 5 | 0 0 | 0 0 |
| 8 80 | 590 36 | 0.14 | 144 6 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 111 1 | 0 1 | 119 8 | 0 0 | 0 0 |
| 9 18 | 589 46 | 0 16 | 161 3 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 92 6 | 0 1 | 122 8 | 0 0 | 0 0 |
| 9 55 | 588 09 | 0 16 | 158 7 | 0 0 | 0 0 | 66 6 | 0 0 | 0 0 | 66 6 | 0 1 | 92 8 | 0 0 | 0 0 |
| 10 44 | 587 20 | 0 15 | 154 7 | 0 0 | 0 0 | 94 1 | 0 0 | 0 0 | 94 1 | 0 0 | 235 3 | 0 0 | 0 0 |
| 10 97 | 586 85 | 0 15 | 153 0 | 0 0 | 0 0 | 88 4 | 0 0 | 0 0 | 88 4 | 0 0 | 155 3 | 0 0 | 0 0 |
| 11 41 | 586 28 | 0 15 | 151 6 | 0 0 | 0 0 | 89 7 | 0 0 | 0 0 | 115 1 | 0 0 | 159 8 | 0 0 | 0 0 |
| 11 85 | 585 82 | 0 15 | 149 7 | 0 0 | 0 0 | 91 5 | 0 0 | 0 0 | 145 5 | 0 1 | 172 8 | 0 0 | 0 0 |
| 11 94 | 585 72 | 0 16 | 159 3 | 0 0 | 0 0 | 91 5 | 0 0 | 0 0 | 91 5 | 0 1 | 173 4 | 0 0 | 0 0 |

TT = 4 8000 DTH = 0 8000 ITERR = 1

QU(1) = 151 80 YU(1) = 597 21 QU(N) = 161 32 YU(N) = 585 75 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

++++++

QU(1) = 1110 00 YU(1) = 601 44 QU(N) = 227 59 YU(N) = 586 23 FRDM=0 23 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 601 44 | 1 11 | 1110 0 | 0 0 | 0 0 | 67 7 | 0 0 | 0 0 | 67 7 | 4 7 | 366 8 | 0 0 | 0 0 |
| 5 44 | 600 20 | 0 96 | 964 6 | 0 0 | 0 0 | 71 0 | 0.0 | 0 0 | 71 0 | 3 9 | 344 1 | 0 0 | 0 0 |
| 5 74 | 599 17 | 0 84 | 835 0 | 0 0 | 0 0 | 65 5 | 0 0 | 0 0 | 118 5 | 3 4 | 272 7 | 0 0 | 0 0 |
| 6 14 | 597 43 | 0 67 | 669 7 | 0 0 | 0 0 | 60 0 | 0 0 | 0 0 | 60 0 | 2 9 | 221 7 | 0 0 | 0 0 |
| 6 91 | 596 07 | 0 40 | 402 2 | 0.0 | 0 0 | 65 7 | 0 0 | 0 0 | 65 7 | 3 4 | 297 2 | 0 0 | 0 0 |
| 7 14 | 595 94 | 0 32 | 315 5 | 0 0 | 0 0 | 62 5 | 0 0 | 0 0 | 62 5 | 3 8 | 278 6 | 0 0 | 0 0 |
| 7 59 | 595 86 | 0 15 | 149 5 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | 4 2 | 385 1 | 0 0 | 0 0 |
| 7 63 | 595 60 | 1 35 | 1352 4 | 0 0 | 0 0 | 91 9 | 0 0 | 0 0 | 111 7 | 4 0 | 533 6 | 0 0 | 0 0 |
| 7 80 | 595 11 | 1 22 | 1219 3 | 0 0 | 0 0 | 76.6 | 0 0 | 0 0 | 223 4 | 3 6 | 368 6 | 0 0 | 0 0 |
| 8 30 | 593 61 | 0 77 | 770 2 | 0 0 | 0 0 | 75 7 | 0 0 | 0 0 | 186 8 | 2 6 | 321 1 | 0 0 | 0 0 |
| 8 80 | 592 95 | 0 40 | 402 3 | 0 0 | 0 0 | 81 3 | 0 0 | 0 0 | 175 3 | 2 6 | 321 3 | 0 0 | 0 0 |
| 9 18 | 591 99 | 0 89 | 890 9 | 0 0 | 0.0 | 88 9 | 0 0 | 0 0 | 137 1 | 2 6 | 327 1 | 0 0 | 0 0 |
| 9 55 | 590 36 | 0 73 | 734 9 | 0 0 | 0 0 | 90 3 | 0 0 | 0 0 | 90 3 | 2 3 | 271 1 | 0 0 | 0 0 |
| 10 44 | 588 43 | 0 47 | 471 0 | 0 0 | 0 0 | 100 5 | 0 0 | 0 0 | 100 5 | 1 3 | 354 4 | 0 0 | 0 0 |
| 10 97 | 587 70 | 0 36 | 358 0 | 0 0 | 0 0 | 92 3 | 0 0 | 0 0 | 92 3 | 0 9 | 232 6 | 0 0 | 0 0 |
| 11 41 | 586 87 | 0 29 | 285 7 | 0 0 | 0 0 | 92 7 | 0 0 | 0 0 | 126 0 | 0 6 | 213 0 | 0 0 | 0 0 |
| 11 85 | 586 32 | 0 21 | 211 6 | 0 0 | 0 0 | 94 4 | 0 0 | 0 0 | 162 0 | 0 6 | 220 1 | 0 0 | 0 0 |
| 11 94 | 586 23 | 0 23 | 227 6 | 0 0 | 0 0 | 94 3 | 0 0 | 0 0 | 94 3 | 0 6 | 220 8 | 0 0 | 0 0 |

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TT = 7 2000 DTH = 0 8000 ITERR = 3
QU(1) = 2422 00 YU(1) = 604 73 QU(N) = 518 84 YU(N) = 587 79 FRDM=0 00 IFR= 4 FRM=7 00 IFM= 0

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TT = 7 2000 DTH = 0 8000 ITERR = 3
QU(1) = 2422 00 YU(1) = 604 73 QU(N) = 518 84 YU(N) = 587 79 FRDM=0 25 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 604 73 | 2 42 | 2422 0 | 0 0 | 0 0 | 81 8 | 0 0 | 0 0 | 81 8 | 8 0 | 612 9 | 0 0 | 0 0 |
| 5 44 | 603 40 | 2 18 | 2183 7 | 0 0 | 0 0 | 87 0 | 0 0 | 0 0 | 87 0 | 7 1 | 596 5 | 0 0 | 0 0 |
| 5 74 | 602 39 | 1 94 | 1943 8 | 0 0 | 0 0 | 81 3 | 0 0 | 0 0 | 167 3 | 6 6 | 508 6 | 0 0 | 0 0 |
| 6 14 | 601 09 | 1 62 | 1620 6 | 0 0 | 0 0 | 76 6 | 0 0 | 0 0 | 76 6 | 6 6 | 471 4 | 0 0 | 0 0 |
| 6 91 | 599 91 | 1 18 | 1175 7 | 0 0 | 0 0 | 80 4 | 0 0 | 0 0 | 80 4 | 7 2 | 577 3 | 0 0 | 0 0 |
| 7 14 | 599 71 | 1 04 | 1041 8 | 0 0 | 0 0 | 78 1 | 0 0 | 0 0 | 78 1 | 7 5 | 544 0 | 0 0 | 0 0 |
| 7 59 | 599 53 | 0 76 | 758 0 | 0 0 | 0 0 | 94 3 | 0 0 | 0 0 | 94 3 | 7 9 | 693 5 | 0 0 | 0 0 |
| 7 63 | 599 05 | 3 20 | 3198 9 | 0 0 | 0 0 | 105 5 | 0 0 | 0 0 | 135 3 | 7 4 | 873 5 | 0 0 | 0 0 |
| 7 80 | 598 41 | 2 94 | 2944 9 | 0 0 | 0 0 | 97 4 | 0 0 | 0 0 | 317 7 | 6 9 | 656 2 | 0 0 | 0 0 |
| 8 30 | 596 72 | 2 02 | 2018 8 | 0 0 | 0 0 | 90 1 | 0 0 | 0 0 | 270 2 | 5 7 | 578 9 | 0 0 | 0 0 |
| 8 80 | 595 90 | 1 24 | 1244 4 | 0 0 | 0 0 | 89 1 | 0 0 | 0 0 | 248 3 | 5.6 | 572 5 | 0 0 | 0 0 |
| 9 18 | 594 65 | 2 19 | 2191 6 | 0 0 | 0 0 | 106 4 | 0 0 | 0 0 | 183 7 | 5 3 | 586 6 | 0 0 | 0 0 |
| 9 55 | 593 07 | 1 89 | 1889 4 | 0 0 | 0 0 | 118 6 | 0 0 | 0 0 | 118 6 | 5 0 | 553 8 | 0 0 | 0 0 |
| 10 44 | 590 77 | 1 34 | 1341 6 | 0 0 | 0 0 | 112 7 | 0 0 | 0 0 | 112 7 | 3 6 | 603 9 | 0 0 | 0 0 |
| 10 97 | 589 68 | 1 06 | 1060 0 | 0 0 | 0 0 | 101 3 | 0 0 | 0 0 | 101 3 | 2 9 | 423 9 | 0 0 | 0 0 |
| 11 41 | 588 55 | 0 82 | 819 1 | 0 0 | 0 0 | 101 3 | 0 0 | 0 0 | 157 4 | 2 3 | 376 4 | 0 0 | 0 0 |
| 11 85 | 587 89 | 0 51 | 511 2 | 0 0 | 0 0 | 103 3 | 0 0 | 0 0 | 212 8 | 2 2 | 374 6 | 0 0 | 0 0 |
| 11 94 | 587 79 | 0 52 | 518 8 | 0 0 | 0 0 | 103 2 | 0 0 | 0 0 | 103 2 | 2 2 | 374 4 | 0 0 | 0 0 |

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TT = 8 0000 DTH = 0 8000 ITERR = 3
QU(1) = 4910 00 YU(1) = 609 01 QU(N) = 1510 62 YU(N) = 591 08 FRDM=0 00 IFR= 9 FRM=7 00 IFM= 0

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TT = 8 0000 DTH = 0 8000 ITERR = 3
QU(1) = 4910 00 YU(1) = 609 01 QU(N) = 1510 62 YU(N) = 591.08 FRDM=0 27 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QOR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 609 01 | 4 91 | 4910 0 | 0 0 | 0 0 | 100 1 | 0 0 | 0 0 | 100 1 | 12 2 | 1001 6 | 0 0 | 0 0 |
| 5 44 | 607 69 | 4 53 | 4525 8 | 0 0 | 0 0 | 108 4 | 0 0 | 0 0 | 108 4 | 11 4 | 1015 7 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 74 | 606 78 | 4 09 | 4089 9 | 0 0 | 0 0 | 102 9 | 0 0 | 0 0 | 233 9 | 11 0 | 912 9 | 0 0 | 0 0 |
| 6 14 | 605 70 | 3 52 | 3521 5 | 0 0 | 0 0 | 97 5 | 0 0 | 0 0 | 97 5 | 11 2 | 873 3 | 0 0 | 0 0 |
| 6 91 | 604 47 | 2 87 | 2866 8 | 0 0 | 0 0 | 98 0 | 0 0 | 0 0 | 98 0 | 11 8 | 984 1 | 0 0 | 0 0 |
| 7 14 | 604 20 | 2 68 | 2675 4 | 0 0 | 0 0 | 96 7 | 0 0 | 0 0 | 96 7 | 12 0 | 936 1 | 0 0 | 0 0 |
| 7 59 | 603 89 | 2 28 | 2276 6 | 0 0 | 0 0 | 118 3 | 0 0 | 0 0 | 118 3 | 12 2 | 1156 7 | 0 0 | 0 0 |
| 7 63 | 603 15 | 6 46 | 6463 2 | 0 0 | 0 0 | 121 8 | 0 0 | 0 0 | 163 5 | 11 5 | 1340 4 | 0 0 | 0 0 |
| 7 80 | 602 46 | 6 08 | 6078 1 | 0 6 | 0 1 | 121 1 | 5 7 | 1 1 | 428 0 | 10 9 | 1101 6 | 1 3 | 0 3 |
| 8 30 | 600 68 | 4 56 | 4557 5 | 0 0 | 0 0 | 108 5 | 0 0 | 0 0 | 376 5 | 9 6 | 972 7 | 0 0 | 0 0 |
| 8 80 | 599 61 | 3 26 | 3259 1 | 0 0 | 0 0 | 99 0 | 0 0 | 0 0 | 340 4 | 9 3 | 921 9 | 0 0 | 0 0 |
| 9 18 | 598 08 | 4 70 | 4700 5 | 0 0 | 0 0 | 129 0 | 0 0 | 0 0 | 243 9 | 8 7 | 990 4 | 0 0 | 0 0 |
| 9 55 | 596 67 | 4 20 | 4198 8 | 0 0 | 0 0 | 156 1 | 0 0 | 0 0 | 156 1 | 8 6 | 1047 6 | 0 0 | 0 0 |
| 10 44 | 594 32 | 3 30 | 3303 0 | 0 0 | 0 0 | 131 3 | 0 0 | 0 0 | 131 3 | 7 1 | 1037 6 | 0 0 | 0 0 |
| 10 97 | 593 03 | 2 84 | 2844 4 | 0 0 | 0 0 | 116 5 | 0 0 | 0 0 | 116 5 | 6 2 | 788 5 | 0 0 | 0 0 |
| 11 41 | 591 84 | 2 34 | 2343 9 | 0 0 | 0 0 | 118 2 | 0 0 | 0 0 | 218 8 | 5 6 | 737 5 | 0 0 | 0 0 |
| 11 85 | 591 18 | 1 54 | 1543 5 | 0 0 | 0 0 | 122 2 | 0 0 | 0 0 | 319 8 | 5 5 | 746 0 | 0 0 | 0 0 |
| 11 94 | 591 08 | 1 51 | 1510 6 | 0 0 | 0 0 | 121 8 | 0 0 | 0 0 | 121 8 | 5 5 | 744 2 | 0 0 | 0 0 |

TT = 8 8000 DTH = 0 8000 ITERR = 3
QU(1) = 7622 00 YU(1) = 612 92 QU(N) = 3588 59 YU(N) = 595 33 FRDM=0 00 IFR= 9 FRM=7 00 IFM= 0

TT = 8 8000 DTH = 0 8000 ITERR = 3
QU(1) = 7622 00 YU(1) = 612 92 QU(N) = 3588 59 YU(N) = 595 33 FRDM=0 27 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 612 92 | 7 62 | 7622 0 | 0 0 | 0 0 | 116 8 | 0 0 | 0 0 | 116 8 | 16 2 | 1425 9 | 0 0 | 0 0 |
| 5 44 | 611 77 | 7 27 | 7267 5 | 0 0 | 0 0 | 128 8 | 0 0 | 0 0 | 128 8 | 15 5 | 1499 7 | 0 0 | 0 0 |
| 5 74 | 610 95 | 6 83 | 6827 7 | 0 0 | 0 0 | 123 5 | 0 0 | 0 0 | 297 4 | 15 2 | 1385 7 | 0 0 | 0 0 |
| 6 14 | 609 92 | 6 25 | 6252 5 | 0 0 | 0 0 | 116 6 | 0 0 | 0 0 | 116 6 | 15 4 | 1324 7 | 0 0 | 0 0 |
| 6 91 | 608 53 | 5 55 | 5445 0 | 30 8 | 77 0 | 100 0 | 17 6 | 44 1 | 161 7 | 15 9 | 1389 6 | 31 1 | 77 8 |
| 7 14 | 608 18 | 5 36 | 5360 2 | 0 0 | 0 0 | 100 0 | 0 0 | 0 0 | 100 0 | 16 0 | 1333 0 | 0 0 | 0 0 |
| 7 59 | 607 72 | 4 91 | 4909 1 | 0 0 | 0 0 | 144 3 | 0 0 | 0 0 | 316 3 | 16 1 | 1654 8 | 0 0 | 0 0 |
| 7 63 | 606 85 | 10 30 | 10288 2 | 3 4 | 3 4 | 133 0 | 14 2 | 14 2 | 225 7 | 15 2 | 1816 4 | 6 1 | 6 1 |
| 7 80 | 606 20 | 9 93 | 9697 5 | 199 3 | 32 9 | 130 0 | 58 5 | 16 5 | 494 8 | 14 7 | 1572 8 | 111 1 | 22 7 |
| 8 30 | 604 45 | 8 41 | 8154 1 | 177 6 | 82 9 | 114 3 | 64 8 | 30 2 | 462 7 | 13 4 | 1394 9 | 111 8 | 52 2 |
| 8 80 | 602 93 | 7 09 | 6869 8 | 140 3 | 84 2 | 100 0 | 73 2 | 43 9 | 430 5 | 12 6 | 1253 2 | 107 1 | 64 3 |
| 9 18 | 601 43 | 8 14 | 8029 9 | 48 8 | 63 4 | 138 0 | 30 3 | 39 4 | 317 6 | 12 0 | 1442 9 | 36 8 | 47 9 |
| 9 55 | 600 29 | 7 56 | 7513 3 | 0 0 | 51 0 | 175 7 | 0 0 | 40 1 | 215 9 | 12 3 | 1661 5 | 0 0 | 46 0 |
| 10 44 | 598 20 | 6 24 | 6186 6 | 51 7 | 0 0 | 145 5 | 55 1 | 0 0 | 338 3 | 11 0 | 1579 6 | 60 7 | 0 0 |
| 10 97 | 596 97 | 5 53 | 5522 7 | 3 5 | 0 0 | 137 3 | 12 2 | 0 0 | 149 5 | 10 2 | 1285 0 | 5 9 | 0 0 |
| 11 41 | 595 97 | 4 81 | 4803 2 | 1 4 | 0 5 | 138 8 | 17 7 | 5 9 | 312 4 | 9 7 | 1269 5 | 4 2 | 1 4 |
| 11 85 | 595 45 | 3 50 | 3499 8 | 1 4 | 0 6 | 144 0 | 27 9 | 11 2 | 483 1 | 9 7 | 1318 7 | 6 2 | 2 5 |
| 11 94 | 595 33 | 3 59 | 3587 6 | 0 7 | 0 2 | 144 0 | 24 4 | 8 1 | 192 8 | 9 7 | 1312 5 | 4 0 | 1 3 |

TT = 9 6000 DTH = 0 8000 ITERR = 2
QU(1) = 8210 00 YU(1) = 614 64 QU(N) = 6591 43 YU(N) = 598 19 FRDM=0 00 IFR= 9 FRM=7 00 IFM= 0

TT = 9 6000 DTH = 0 8000 ITERR = 2
QU(1) = 8210 00 YU(1) = 614 64 QU(N) = 6591 43 YU(N) = 598 19 FRDM=0 24 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 614 64 | 8 21 | 8210 0 | 0 0 | 0 0 | 124 2 | 0 0 | 0 0 | 124 2 | 17 9 | 1632 9 | 0 0 | 0 0 |
| 5 44 | 613 73 | 8 13 | 8130 7 | 0 0 | 0 0 | 138 6 | 0 0 | 0 0 | 138 6 | 17 5 | 1762 3 | 0 0 | 0 0 |
| 5 74 | 613 03 | 8 00 | 8005 0 | 0 0 | 0 0 | 133 7 | 0 0 | 0 0 | 328 9 | 17 2 | 1653 2 | 0 0 | 0 0 |
| 6 14 | 612 06 | 7 83 | 7831 9 | 0 0 | 0 0 | 126 2 | 0 0 | 0 0 | 126 2 | 17 6 | 1583 9 | 0 0 | 0 0 |
| 6 91 | 610 56 | 7 47 | 7111 6 | 102 1 | 257 5 | 100 0 | 51 2 | 147 5 | 298 7 | 17 9 | 1592 8 | 95 5 | 254 1 |
| 7 14 | 610 17 | 7 35 | 7312 5 | 18 5 | 18 5 | 100 0 | 58 5 | 58 5 | 217 1 | 18 0 | 1532 1 | 34 3 | 34 3 |
| 7 59 | 609 65 | 6 91 | 6897 9 | 6 6 | 2 7 | 159 1 | 65 0 | 26 0 | 528 4 | 18 0 | 1948 5 | 21 1 | 8 4 |
| 7 63 | 608 90 | 12 14 | 11979 6 | 82 1 | 82 1 | 133 0 | 48 3 | 48 3 | 328 0 | 17 3 | 2088 5 | 70 1 | 70 1 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 80 | 608 37 | 11 95 | 11175 2 | 590 6 | 182 4 | 130 0 | 148 6 | 85 0 | 545 2 | 16 8 | 1854 0 | 335 1 | 132 4 |
| 8 30 | 606 83 | 11 20 | 10243 7 | 652 3 | 306 6 | 115 0 | 158 0 | 89 8 | 529 8 | 15.8 | 1667 6 | 362 8 | 184 0 |
| 8 80 | 605 28 | 10 35 | 9296 2 | 655 0 | 395.0 | 100 0 | 164 2 | 96 0 | 508 8 | 15 0 | 1488 9 | 369 6 | 220 1 |
| 9 18 | 603 98 | 11 37 | 10690 4 | 299 6 | 375 7 | 144 4 | 72 2 | 106 8 | 423 5 | 14 6 | 1800 6 | 159 8 | 214 0 |
| 9 55 | 602 97 | 10 84 | 10490 1 | 0 0 | 346.4 | 188 1 | 0 0 | 123 5 | 344 0 | 14 9 | 2144 0 | 0 0 | 234 1 |
| 10 44 | 601 00 | 9 03 | 8591 7 | 436 1 | 6 1 | 151 7 | 133 5 | 25 1 | 568 6 | 13 8 | 1996.4 | 317 2 | 12 6 |
| 10 97 | 599 89 | 8 04 | 7904 4 | 138 7 | 0 0 | 159 2 | 48 6 | 0 0 | 207 7 | 13 1 | 1717 0 | 94 4 | 0 0 |
| 11 41 | 598 93 | 7 39 | 7046 9 | 260 7 | 86 9 | 149 9 | 128 7 | 42 9 | 471 4 | 12 7 | 1696 5 | 220 8 | 73 6 |
| 11 85 | 598 34 | 6 30 | 5856 6 | 315 1 | 126 1 | 144 0 | 208 8 | 83 5 | 736 3 | 12 6 | 1735 4 | 348 7 | 139 5 |
| 11 94 | 598 19 | 6 59 | 6120 7 | 353 0 | 117 7 | 144 0 | 239 2 | 79 7 | 622 5 | 12 6 | 1724 9 | 381 6 | 127 2 |

TT = 10 4000 DTH = 0 8000 ITERR = 2
QU(1) = 7600 00 YU(1) = 614.73 QU(N) = 9926 17 YU(N) =. 599 72 FRDM=0 00 IFR= 12 FRM=7 00 IFM= 0

TT = 10 4000 DTH = 0 8000 ITERR = 2
QU(1) = 7600 00 YU(1) = 614 73 QU(N) = 9926 17 YU(N) = 599 72 FRDM=0 22 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 614 73 | 7 60 | 7600 0 | 0 0 | 0 0 | 124 6 | 0 0 | 0 0 | 124 6 | 18 0 | 1644 7 | 0 0 | 0 0 |
| 5.44 | 613 97 | 7 62 | 7622 7 | 0 0 | 0 0 | 139 8 | 0 0 | 0 0 | 139 8 | 17 7 | 1795 3 | 0 0 | 0 0 |
| 5 74 | 613 37 | 7 64 | 7640.3 | 0 0 | 0 0 | 135 4 | 0 0 | 0 0 | 334 0 | 17 6 | 1698 5 | 0 0 | 0 0 |
| 6 14 | 612 53 | 7 65 | 7651 0 | 0 0 | 0 0 | 128 3 | 0 0 | 0 0 | 128 3 | 18 0 | 1643 6 | 0 0 | 0 0 |
| 6 91 | 611 20 | 7 58 | 7068 6 | 141 1 | 367.1 | 100 0 | 64 0 | 187 5 | 351 4 | 18 5 | 1656 7 | 132 4 | 361 1 |
| 7 14 | 610 86 | 7.52 | 7403 0 | 60 3 | 60.3 | 100 0 | 93 2 | 93 2 | 286 4 | 18 7 | 1601 4 | 86 8 | 86 8 |
| 7 59 | 610 36 | 7 42 | 7355 6 | 47 0 | 18 8 | 163 6 | 135 9 | 54 4 | 608 6 | 18 7 | 2063 0 | 92 3 | 36 9 |
| 7 63 | 609 70 | 12 57 | 12303 2 | 127 5 | 134 6 | 133 0 | 108 2 | 84 9 | 449 5 | 18 1 | 2194 8 | 130 3 | 122 2 |
| 7 80 | 609 22 | 12.49 | 11325 6 | 849 7 | 317 3 | 130 0 | 184 3 | 112 1 | 565 2 | 17 7 | 1965 4 | 477 8 | 216 8 |
| 8 30 | 607 87 | 12 19 | 10661 6 | 1022 4 | 508 2 | 115 0 | 205 4 | 121 1 | 561 1 | 16 8 | 1787 4 | 552 1 | 293 8 |
| 8 80 | 606 45 | 11 86 | 10057 4 | 1126 8 | 673 8 | 100 0 | 222 3 | 128 5 | 552 9 | 16 1 | 1605 1 | 594 1 | 350 5 |
| 9 18 | 605 40 | 12 66 | 11354 1 | 559 6 | 744 2 | 150 9 | 104 5 | 167 4 | 522 8 | 16 0 | 2010 1 | 285 1 | 408 5 |
| 9 55 | 604 57 | 12 24 | 11452 2 | 0 0 | 787 3 | 201 5 | 0 0 | 211 6 | 498 9 | 16 5 | 2456 0 | 0 0 | 502 5 |
| 10 44 | 602 73 | 11 05 | 10016 6 | 946 6 | 85 1 | 154 6 | 191 1 | 68 3 | 686 7 | 15 6 | 2261 1 | 597 6 | 93 3 |
| 10 97 | 601 61 | 10 47 | 10088 7 | 351 7 | 26 6 | 160 0 | 117 2 | 40 3 | 317 6 | 14 8 | 1993 2 | 234 9 | 32 5 |
| 11 41 | 600 62 | 10 01 | 8964.5 | 796 4 | 251 8 | 152 0 | 173 4 | 68 7 | 553 5 | 14 4 | 1953 2 | 481 7 | 166 7 |
| 11 85 | 599 91 | 9 33 | 7875 7 | 1044 7 | 405.9 | 144 0 | 250 0 | 107 6 | 816 8 | 14 2 | 1961 7 | 727 9 | 294 6 |
| 11 94 | 599 72 | 9 93 | 8336 0 | 1200 2 | 390 0 | 144 0 | 300 0 | 106 0 | 750 0 | 14 1 | 1945 0 | 815 5 | 274 0 |

TT = 11 2000 DTH = 0 8000 ITERR = 2
QU(1) = 6453 00 YU(1) = 614 04 QU(N) = 12352 81 YU(N) = 600 19 FRDM=0 00 IFR= 11 FRM=7 00 IFM= 0

TT = 11 2000 DTH = 0 8000 ITERR = 2
QU(1) = 6453 00 YU(1) = 614 04 QU(N) = 12352 81 YU(N) = 600 19 FRDM=0 20 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 614 04 | 6 45 | 6453 0 | 0 0 | 0 0 | 121 6 | 0 0 | 0 0 | 121 6 | 17 3 | 1559 4 | 0 0 | 0 0 |
| 5 44 | 613 41 | 6 55 | 6547 1 | 0 0 | 0 0 | 137 0 | 0 0 | 0 0 | 137 0 | 17 1 | 1718 1 | 0 0 | 0 0 |
| 5 74 | 612 91 | 6 64 | 6640 2 | 0 0 | 0 0 | 133 1 | 0 0 | 0 0 | 327 1 | 17.1 | 1637 0 | 0 0 | 0 0 |
| 6 14 | 612 21 | 6 75 | 6750 6 | 0 0 | 0 0 | 126 9 | 0 0 | 0 0 | 126 9 | 17 7 | 1602 7 | 0 0 | 0 0 |
| 6 91 | 611 07 | 6 90 | 6465 2 | 121 1 | 313 3 | 100 0 | 61 5 | 179 6 | 341 0 | 18 4 | 1644 0 | 124 4 | 337 9 |
| 7 14 | 610.77 | 6 96 | 6861 4 | 49 2 | 49 2 | 100 0 | 88 5 | 88 5 | 277 0 | 18 6 | 1592 0 | 78 3 | 78 3 |
| 7 59 | 610 30 | 7 07 | 7016 3 | 39 8 | 15 9 | 163 2 | 129 7 | 51 9 | 601 5 | 18 6 | 2052 8 | 84 0 | 33 6 |
| 7 63 | 609 73 | 11 79 | 11535.9 | 122 2 | 128 6 | 133 0 | 110 6 | 86 4 | 454 2 | 18 1 | 2198 5 | 133 4 | 124 6 |
| 7 80 | 609 31 | 11.82 | 10677 6 | 827 7 | 313 8 | 130 0 | 187 9 | 114 8 | 567 2 | 17 8 | 1976 6 | 493 8 | 226 6 |
| 8 30 | 608 10 | 11 88 | 10270 4 | 1071 6 | 538 7 | 115 0 | 216 1 | 128 1 | 568 1 | 17 0 | 1814 4 | 601 7 | 323 1 |
| 8 80 | 606 84 | 11 83 | 9809 3 | 1267 3 | 755 5 | 100 0 | 242 1 | 139 6 | 568 0 | 16 5 | 1644 7 | 686 2 | 403 6 |
| 9 18 | 605 97 | 12 55 | 10989 6 | 661 3 | 903.1 | 153 5 | 117 6 | 192 1 | 563 2 | 16 6 | 2098 1 | 349 3 | 512 4 |
| 9 55 | 605 26 | 12 45 | 11415 9 | 0 0 | 1029 3 | 207 1 | 0 0 | 249 1 | 564 8 | 17 2 | 2595 4 | 0 0 | 659 6 |
| 10 44 | 603.48 | 12 02 | 10615 6 | 1247 8 | 158.9 | 155 8 | 216 0 | 87 0 | 737 8 | 16 3 | 2377 0 | 749 7 | 151 3 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 97 | 602 36 | 11 77 | 11154 3 | 543 1 | 73 7 | 160 0 | 148 5 | 59 1 | 367 5 | 15 5 | 2113 1 | 334 5 | 69 8 |
| 11 41 | 601 31 | 11 64 | 10123 8 | 1146.4 | 367 7 | 152 0 | 187 8 | 80 2 | 585 1 | 15 1 | 2057 8 | 606 0 | 218 0 |
| 11 85 | 600 44 | 11 54 | 9398 3 | 1544 6 | 597 1 | 144 0 | 250 0 | 112 0 | 830 0 | 14 7 | 2037 7 | 859 9 | 352 6 |
| 11 94 | 600 19 | 12 35 | 10003 7 | 1776 1 | 573 1 | 144 0 | 300 0 | 109 9 | 753 9 | 14 6 | 2013 0 | 957 0 | 324 9 |

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QU(1) = 3059 00 YU(1) = 610 08 QU(N) = 11878 79 YU(N) = 598 29 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

**********

TT = 13 6000 DTH = 0 8000 ITERR = 2
QU(1) = 3059 00 YU(1) = 610 08 QU(N) = 11878 79 YU(N) = 598 29 FRDM=0.15 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 610 08 | 3 06 | 3059 0 | 0 0 | 0 0 | 104 7 | 0 0 | 0 0 | 104 7 | 13 3 | 1111 1 | 0 0 | 0 0 |
| 5 44 | 609 71 | 3 23 | 3226 3 | 0 0 | 0 0 | 118 6 | 0 0 | 0 0 | 118 6 | 13 4 | 1245 5 | 0 0 | 0 0 |
| 5 74 | 609 41 | 3 42 | 3417 3 | 0 0 | 0 0 | 115 9 | 0 0 | 0 0 | 273 9 | 13 6 | 1200 7 | 0 0 | 0 0 |
| 6 14 | 608 96 | 3 66 | 3662 1 | 0 0 | 0 0 | 112 2 | 0 0 | 0 0 | 112 2 | 14 5 | 1214 8 | 0 0 | 0 0 |
| 6 91 | 608 28 | 3 96 | 3893.0 | 18 7 | 46 8 | 100 0 | 16 4 | 41 0 | 157 4 | 15 6 | 1365 0 | 26 9 | 67 3 |
| 7 14 | 608 09 | 4 03 | 4028 9 | 0 0 | 0 0 | 100 0 | 0 0 | 0 0 | 100 0 | 15.9 | 1323 9 | 0 0 | 0 0 |
| 7 59 | 607 77 | 4.26 | 4262 3 | 0 0 | 0 0 | 144 8 | 0 0 | 0 0 | 322 3 | 16 1 | 1662 8 | 0 0 | 0 0 |
| 7 63 | 607 48 | 6.99 | 6975 5 | 9 3 | 9 3 | 133 0 | 24 7 | 24 7 | 257 0 | 15 8 | 1899 5 | 18 2 | 18 2 |
| 7 80 | 607 21 | 7 14 | 6883 3 | 212 7 | 43 8 | 130 0 | 100 2 | 48 2 | 518 1 | 15 7 | 1702 9 | 190 5 | 55 0 |
| 8 30 | 606 32 | 7 67 | 7139 9 | 366 5 | 167 6 | 115 0 | 135 2 | 74 7 | 514 7 | 15 3 | 1609 7 | 289 1 | 142 6 |
| 8 80 | 605 34 | 8 19 | 7341 0 | 528 9 | 318 9 | 100 0 | 166 8 | 97 4 | 510 8 | 15 0 | 1494 2 | 378 3 | 225 2 |
| 9 18 | 604 65 | 9 04 | 8335 4 | 309 4 | 397 4 | 147 5 | 87 6 | 135 6 | 470 7 | 15 3 | 1899 0 | 213 7 | 295 7 |
| 9 55 | 604 09 | 9.36 | 8862 5 | 0 0 | 493 2 | 197 4 | 0 0 | 184 8 | 451 8 | 16 1 | 2359 0 | 0 0 | 406 0 |
| 10 44 | 602 57 | 10 14 | 9237 6 | 830 0 | 67 9 | 154 3 | 185 7 | 64 3 | 675 7 | 15 4 | 2236 2 | 567 3 | 82 6 |
| 10 97 | 601 42 | 10 50 | 10160 5 | 324 5 | 19 7 | 160 0 | 109 4 | 35 6 | 305 0 | 14 6 | 1962 9 | 213 5 | 25 4 |
| 11 41 | 600 16 | 10.76 | 9815 4 | 717 6 | 228 0 | 152 0 | 163 8 | 61 0 | 532 3 | 13 9 | 1883 0 | 403 8 | 136 7 |
| 11 85 | 598 75 | 11 22 | 10227 6 | 708 1 | 283 3 | 144 0 | 234 3 | 93 7 | 772 0 | 13 0 | 1794 2 | 439 2 | 175 7 |
| 11 94 | 598 29 | 11 88 | 10975 8 | 677 3 | 225 8 | 144 0 | 246 6 | 82 2 | 637 3 | 12 7 | 1739 1 | 405 5 | 135 2 |

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TT = 14 4000 DTH = 0 8000 ITERR = 2
QU(1) = 2275 00 YU(1) = 608 36 QU(N) = 10507 12 YU(N) = 597 11 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

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TT = 14 4000 DTH = 0 8000 ITERR = 2
QU(1) = 2275 00 YU(1) = 608 36 QU(N) = 10507 12 YU(N) = 597 11 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 608 36 | 2 28 | 2275 0 | 0 0 | 0 0 | 97 3 | 0 0 | 0 0 | 97 3 | 11 6 | 937 2 | 0 0 | 0 0 |
| 5 44 | 608 02 | 2 41 | 2410 6 | 0 0 | 0 0 | 110 1 | 0 0 | 0 0 | 110 1 | 11 7 | 1051 8 | 0 0 | 0 0 |
| 5 74 | 607 74 | 2 57 | 2571 6 | 0 0 | 0 0 | 107 7 | 0 0 | 0 0 | 248 6 | 11 9 | 1014 5 | 0 0 | 0 0 |
| 6 14 | 607 34 | 2 78 | 2781 9 | 0 0 | 0 0 | 104 9 | 0 0 | 0 0 | 104 9 | 12 9 | 1039 0 | 0 0 | 0 0 |
| 6 91 | 606 75 | 3 05 | 3039 7 | 3 3 | 8 3 | 100 0 | 8 7 | 21 8 | 130 6 | 14 1 | 1211 4 | 7 6 | 19 1 |
| 7 14 | 606 57 | 3 14 | 3135 4 | 0 0 | 0 0 | 100 0 | 0 0 | 0 0 | 100 0 | 14 4 | 1172 0 | 0 0 | 0 0 |
| 7 59 | 606 29 | 3 33 | 3331 2 | 0 0 | 0 0 | 132 4 | 0 0 | 0 0 | 161 3 | 14 6 | 1456 9 | 0 0 | 0 0 |
| 7 63 | 606 10 | 5 23 | 5229 8 | 0 0 | 0 0 | 133 0 | 1 6 | 1 6 | 187 8 | 14 5 | 1715 6 | 0 1 | 0 1 |
| 7 80 | 605 86 | 5 39 | 5272 3 | 96 3 | 19 3 | 129 7 | 48 3 | 9 7 | 487 6 | 14 3 | 1528 3 | 93 2 | 18 6 |
| 8 30 | 605 09 | 6 01 | 5754 2 | 178 0 | 81 9 | 115 0 | 79 2 | 37 8 | 477 8 | 14 0 | 1468 1 | 157 1 | 73 3 |
| 8 80 | 604 20 | 6 56 | 6126 4 | 271 6 | 163 6 | 100 0 | 110 1 | 65 7 | 467 7 | 13 9 | 1380 8 | 221 3 | 132 7 |
| 9 18 | 603 55 | 7 47 | 7097 8 | 165 0 | 206 6 | 142 5 | 62 5 | 88 5 | 393 4 | 14 2 | 1739 0 | 130 9 | 172 1 |
| 9 55 | 603 03 | 7 78 | 7522 5 | 0 0 | 254 7 | 188 6 | 0 0 | 126 4 | 349 2 | 15 0 | 2154 1 | 0 0 | 240 8 |
| 10 44 | 601 64 | 8 65 | 8099 8 | 528 6 | 20 0 | 152 7 | 154 8 | 41 1 | 612 3 | 14 5 | 2093 7 | 409 3 | 33 7 |
| 10 97 | 600 53 | 9 09 | 8892 9 | 191 7 | 1 4 | 160 0 | 72 0 | 13 2 | 245 3 | 13 7 | 1819 6 | 132 3 | 3 5 |
| 11 41 | 599 25 | 9 39 | 8860 5 | 399 4 | 133 1 | 151 1 | 140 7 | 46 9 | 488 7 | 13 0 | 1745 0 | 264 1 | 88 0 |
| 11 85 | 597 67 | 9 93 | 9493 6 | 308 9 | 123 6 | 144 0 | 166 8 | 66 7 | 677 5 | 11 9 | 1638 7 | 222 6 | 89 0 |
| 11 94 | 597 11 | 10 51 | 10201 1 | 229 5 | 76 5 | 144 0 | 158 5 | 52 8 | 460 9 | 11 5 | 1569 8 | 167 4 | 55 8 |

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TT = 15 2000 DTH = 0 8000 ITERR = 2
QU(1) = 1946 00 YU(1) = 607 00 QU(N) = 8934 90 YU(N) = 595 71 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

**********

TT = 15 2000 DTH = 0 8000 ITERR = 2

QU(1) = 1946 00 YU(1) = 607 00 QU(N) = 8934 90 YU(N) = 595 71 FRDM=O 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 607 00 | 1 95 | 1946 0 | 0 0 | 0 0 | 91 5 | 0 0 | 0 0 | 91 5 | 10 2 | 809 0 | 0 0 | 0 0 |
| 5 44 | 606 62 | 2 04 | 2041 7 | 0 0 | 0 0 | 103 1 | 0 0 | 0 0 | 103 1 | 10 3 | 903 1 | 0 0 | 0 0 |
| 5 74 | 606 32 | 2.16 | 2157 1 | 0 0 | 0 0 | 100 7 | 0 0 | 0 0 | 227 1 | 10 5 | 866 8 | 0 0 | 0 0 |
| 6 14 | 605 89 | 2 31 | 2313 0 | 0 0 | 0 0 | 98 3 | 0 0 | 0 0 | 98 3 | 11 4 | 891 8 | 0 0 | 0 0 |
| 6 91 | 605 26 | 2 51 | 2512 4 | 0 0 | 0 1 | 100 0 | 1 3 | 3 2 | 104 5 | 12 6 | 1062 5 | 0 2 | 0 4 |
| 7 14 | 605 07 | 2 57 | 2570 6 | 0 0 | 0 0 | 100 0 | 0 0 | 0 0 | 100 0 | 12 9 | 1022 1 | 0 0 | 0 0 |
| 7 59 | 604 79 | 2 68 | 2677 2 | 0 0 | 0 0 | 123 3 | 0 0 | 0 0 | 123 3 | 13 1 | 1266 1 | 0 0 | 0 0 |
| 7.63 | 604 66 | 4 02 | 4016 3 | 0 0 | 0 0 | 127 7 | 0 0 | 0 0 | 173 8 | 13 0 | 1527 9 | 0 0 | 0 0 |
| 7 80 | 604 46 | 4 15 | 4118 3 | 27 3 | 5 5 | 126 1 | 30 7 | 6 1 | 463 0 | 12 9 | 1348 8 | 37 8 | 7 6 |
| 8 30 | 603 75 | 4 72 | 4626 5 | 60 5 | 28 2 | 113 4 | 51 6 | 24 1 | 447 0 | 12 7 | 1315 2 | 71 1 | 33 2 |
| 8 80 | 602 90 | 5 27 | 5104 3 | 102 1 | 61 3 | 100 0 | 72 5 | 43 5 | 429 8 | 12 6 | 1250 6 | 105 2 | 63 1 |
| 9 18 | 602 26 | 6 07 | 5911 1 | 69 5 | 90 3 | 139 1 | 40 7 | 52 9 | 337 3 | 12 9 | 1557 5 | 66 2 | 86 1 |
| 9 55 | 601 76 | 6 34 | 6215 8 | 0 0 | 125 4 | 179 4 | 0 0 | 65 8 | 245 2 | 13 7 | 1921 9 | 0 0 | 123 7 |
| 10 44 | 600 48 | 7 16 | 6881 6 | 278 8 | 0 8 | 150 8 | 116 2 | 12 1 | 533 1 | 13 3 | 1917 9 | 252 4 | 2 9 |
| 10 97 | 599 41 | 7 60 | 7502 2 | 98 8 | 0 0 | 155 6 | 42 7 | 0 0 | 198 3 | 12 6 | 1642 5 | 72 8 | 0 0 |
| 11 41 | 598 12 | 7 91 | 7700 0 | 154 8 | 51 6 | 146 8 | 98 3 | 32 8 | 427 9 | 11 9 | 1576 3 | 128 8 | 42 9 |
| 11 85 | 596 38 | 8 44 | 8359 7 | 56 9 | 22 8 | 144 0 | 86 0 | 34 4 | 564 5 | 10 7 | 1452 6 | 59 2 | 23 7 |
| 11 94 | 595 71 | 8 93 | 8916 3 | 14 0 | .4 7 | 144 0 | 53 5 | 17 8 | 251 1 | 10 1 | 1368 4 | 19 1 | 6 4 |

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| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 74 | 604 25 | 1 74 | 1743 0 | 0 0 | 0 0 | 90 5 | 0 0 | 0.0 | 195 7 | 8 5 | 669 0 | 0 0 | 0 0 |
| 6 14 | 603 69 | 1 84 | 1835 9 | 0 0 | 0 0 | 88 4 | 0 0 | 0 0 | 88 4 | 9 2 | 686 5 | 0 0 | 0 0 |
| 6 91 | 602 90 | 1 96 | 1964 6 | 0 0 | 0 0 | 91 9 | 0 0 | 0 0 | 91 9 | 10 2 | 835 0 | 0 0 | 0 0 |
| 7 14 | 602 67 | 2 00 | 2004 4 | 0 0 | 0 0 | 90 3 | 0 0 | 0 0 | 90.3 | 10 5 | 793 0 | 0 0 | 0 0 |
| 7 59 | 602 32 | 2 08 | 2081 4 | 0 0 | 0 0 | 109 7 | 0 0 | 0 0 | 109 7 | 10 7 | 977 5 | 0 0 | 0 0 |
| 7 63 | 602 23 | 2 80 | 2799 8 | 0 0 | 0 0 | 118 1 | 0 0 | 0 0 | 157 2 | 10 6 | 1230 0 | 0 0 | 0 0 |
| 7.80 | 602 04 | 2 89 | 2894 7 | 0 0 | 0 0 | 120.1 | 0 5 | 0 1 | 420 7 | 10 5 | 1051 2 | 0 0 | 0 0 |
| 8 30 | 601 31 | 3 29 | 3293 2 | 0 2 | 0 1 | 110 4 | 5 7 | 2 7 | 391 9 | 10 3 | 1041 3 | 0 9 | 0 4 |
| 8 80 | 600 41 | 3 67 | 3667 3 | 0 6 | 0 4 | 100 0 | 10 3 | 6 2 | 361 4 | 10 1 | 1001 9 | 2 1 | 1 3 |
| 9 18 | 599 72 | 4 14 | 4135 0 | 1.3 | 1 7 | 135 9 | 8 9 | 11 6 | 277 0 | 10 3 | 1208 4 | 3 2 | 4 2 |
| 9 55 | 599 14 | 4.33 | 4324 8 | 0.0 | 5 5 | 172 8 | 0 0 | 19 9 | 192 7 | 11 1 | 1459 9 | 0 0 | 11 3 |
| 10 44 | 597 87 | 4 86 | 4834 6 | 27 5 | 0 0 | 144 7 | 46 8 | 0 0 | 308 5 | 10 7 | 1531 6 | 43 8 | 0 0 |
| 10 97 | 596 85 | 5 15 | 5151 9 | 2 4 | 0 0 | 136 4 | 10 6 | 0 0 | 147 0 | 10 0 | 1268 4 | 4 5 | 0 0 |
| 11 41 | 595 57 | 5 39 | 5389 6 | 0 0 | 0 0 | 137 3 | 2 6 | 0 9 | 290 7 | 9 3 | 1213 9 | 0 1 | 0 0 |
| 11 85 | 593 50 | 5 77 | 5768 3 | 0 0 | 0 0 | 135 4 | 0 0 | 0 0 | 395 3 | 7 8 | 1044 9 | 0 0 | 0 0 |
| 11 94 | 592 67 | 6 03 | 6030 5 | 0 0 | 0 0 | 130 8 | 0 0 | 0 0 | 130 8 | 7 0 | 944 8 | 0 0 | 0 0 |

TT = 17 6000 DTH = 0 8000 ITERR = 2
QU(1) = 1484 00 YU(1) = 604 44 QU(N) = 4912 68 YU(N) = 591 52 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

TT = 17 6000 DTH = 0 8000 ITERR = 2
QU(1) = 1484 00 YU(1) = 604 44 QU(N) = 4912 68 YU(N) = 591 52 FRDM=0 16 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 604 44 | 1 48 | 1484 0 | 0 0 | 0 0 | 80 5 | 0 0 | 0 0 | 80 5 | 7 7 | 589 1 | 0.0 | 0 0 |
| 5 44 | 603 90 | 1 53 | 1530 2 | 0 0 | 0 0 | 89 5 | 0 0 | 0 0 | 89 5 | 7 6 | 640 7 | 0 0 | 0 0 |
| 5 74 | 603 46 | 1 59 | 1585 4 | 0 0 | 0 0 | 86 6 | 0 0 | 0 0 | 183 6 | 7 7 | 598 8 | 0 0 | 0 0 |
| 6 14 | 602 83 | 1 66 | 1661 1 | 0 0 | 0 0 | 84 5 | 0 0 | 0 0 | 84 5 | 8 3 | 611 8 | 0 0 | 0 0 |
| 6 91 | 601 95 | 1 76 | 1763 5 | 0 0 | 0 0 | 88 3 | 0 0 | 0 0 | 88 3 | 9 3 | 749 7 | 0 0 | 0 0 |
| 7 14 | 601 70 | 1 80 | 1797 1 | 0 0 | 0 0 | 86 3 | 0 0 | 0 0 | 86 3 | 9 5 | 707 4 | 0 0 | 0 0 |
| 7 59 | 601 29 | 1 88 | 1879 7 | 0 0 | 0 0 | 104 0 | 0 0 | 0 0 | 104 0 | 9 6 | 868 3 | 0 0 | 0 0 |
| 7 63 | 601 23 | 2 41 | 2412 3 | 0 0 | 0 0 | 114 1 | 0 0 | 0 0 | 150 3 | 9 6 | 1113 2 | 0 0 | 0 0 |
| 7 80 | 601 04 | 2 50 | 2495 5 | 0 0 | 0 0 | 113 9 | 0 0 | 0 0 | 392 5 | 9 5 | 933 4 | 0 0 | 0 0 |
| 8 30 | 600 28 | 2.84 | 2839 3 | 0 0 | 0 0 | 106 7 | 0 0 | 0 0 | 365 7 | 9 2 | 929 7 | 0 0 | 0 0 |
| 8 80 | 599 35 | 3 17 | 3169 2 | 0 0 | 0 0 | 98 3 | 0 0 | 0 0 | 333 8 | 9 0 | 895 8 | 0 0 | 0 0 |
| 9 18 | 598 61 | 3 49 | 3494 9 | 0 0 | 0 0 | 132 4 | 0 0 | 0 0 | 253 2 | 9 2 | 1059 5 | 0 0 | 0 0 |
| 9 55 | 597 96 | 3 66 | 3656 4 | 0.0 | 0 0 | 169 5 | 0 0 | 0 0 | 169 5 | 9 9 | 1257 5 | 0 0 | 0 0 |
| 10 44 | 596 63 | 4 02 | 4016 5 | 1 5 | 0 0 | 141 6 | 15 9 | 0 0 | 197 1 | 9 5 | 1354 4 | 5 0 | 0 0 |
| 10 97 | 595 65 | 4 21 | 4209 3 | 0 0 | 0 0 | 128 4 | 0 0 | 0 0 | 128 4 | 8 8 | 1109 2 | 0 0 | 0 0 |
| 11 41 | 594 41 | 4 38 | 4379 1 | 0 0 | 0 0 | 131 4 | 0 0 | 0 0 | 266 6 | 8 2 | 1057 8 | 0 0 | 0 0 |
| 11 85 | 592 41 | 4 62 | 4620 9 | 0 0 | 0 0 | 129 2 | 0 0 | 0 0 | 359 7 | 6 7 | 900 2 | 0 0 | 0 0 |
| 11 94 | 591 52 | 4 91 | 4912 7 | 0 0 | 0 0 | 124 3 | 0 0 | 0 0 | 124 3 | 5 9 | 798 5 | 0 0 | 0 0 |

TT = 18 4000 DTH = 0 8000 ITERR = 2
QU(1) = 1366 00 YU(1) = 603 85 QU(N) = 4044 74 YU(N) = 590 59 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

TT = 18 4000 DTH = 0 8000 ITERR = 2
QU(1) = 1366 00 YU(1) = 603 85 QU(N) = 4044 74 YU(N) = 590 59 FRDM=0 17 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 603 85 | 1 37 | 1366 0 | 0 0 | 0 0 | 78 0 | 0 0 | 0 0 | 78 0 | 7 1 | 542 3 | 0 0 | 0 0 |
| 5 44 | 603 26 | 1 40 | 1404 1 | 0 0 | 0 0 | 86 3 | 0 0 | 0 0 | 86 3 | 7 0 | 584 9 | 0 0 | 0 0 |
| 5 74 | 602 79 | 1 45 | 1448 0 | 0 0 | 0 0 | 83 3 | 0 0 | 0 0 | 173 4 | 7 0 | 541 5 | 0 0 | 0 0 |
| 6 14 | 602 09 | 1 51 | 1508 6 | 0 0 | 0 0 | 81 1 | 0 0 | 0.0 | 81 1 | 7 6 | 550 5 | 0 0 | 0 0 |
| 6 91 | 601 11 | 1 60 | 1597 8 | 0 0 | 0 0 | 85 1 | 0 0 | 0 0 | 85.1 | 8 5 | 677 2 | 0 0 | 0 0 |
| 7 14 | 600 84 | 1 63 | 1626.5 | 0 0 | 0 0 | 82 8 | 0 0 | 0 0 | 82 8 | 8 7 | 634 4 | 0 0 | 0 0 |
| 7 59 | 600 39 | 1 68 | 1684 4 | 0 0 | 0 0 | 99 0 | 0 0 | 0 0 | 99 0 | 8 7 | 777 0 | 0 0 | 0 0 |
| 7 63 | 600 34 | 2 13 | 2126 0 | 0 0 | 0 0 | 110 6 | 0 0 | 0 0 | 144 1 | 8 7 | 1012 9 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 80 | 600 14 | 2 19 | 2193 3 | 0 0 | 0 0 | 108 3 | 0 0 | 0 0 | 366 8 | 8 6 | 833 5 | 0 0 | 0 0 |
| 8 30 | 599 36 | 2 47 | 2473 8 | 0 0 | 0 0 | 102 4 | 0 0 | 0 0 | 341 0 | 8 3 | 833 3 | 0 0 | 0 0 |
| 8 80 | 598 42 | 2 73 | 2731 8 | 0 0 | 0 0 | 95 8 | 0 0 | 0 0 | 310 8 | 8 1 | 805 6 | 0 0 | 0 0 |
| 9 18 | 597 64 | 3.01 | 3011 4 | 0 0 | 0 0 | 126 1 | 0 0 | 0 0 | 236 2 | 8 3 | 934 5 | 0 0 | 0 0 |
| 9 55 | 596 93 | 3 14 | 3135 8 | 0 0 | 0 0 | 158 8 | 0 0 | 0 0 | 158 8 | 8 9 | 1089 1 | 0 0 | 0 0 |
| 10 44 | 595 59 | 3 35 | 3346 5 | 0 0 | 0 0 | 137 9 | 0 0 | 0 0 | 137 9 | 8 4 | 1208 1 | 0 0 | 0 0 |
| 10 97 | 594 65 | 3 45 | 3453 6 | 0 0 | 0 0 | 123 9 | 0 0 | 0 0 | 123 9 | 7 8 | 983 3 | 0 0 | 0 0 |
| 11 41 | 593 46 | 3 59 | 3588 4 | 0 0 | 0 0 | 126 5 | 0 0 | 0 0 | 249 0 | 7 2 | 936 2 | 0 0 | 0 0 |
| 11 85 | 591 50 | 3 80 | 3802 0 | 0 0 | 0 0 | 124 0 | 0 0 | 0 0 | 330 1 | 5 8 | 784 8 | 0 0 | 0 0 |
| 11 94 | 590 59 | 4 04 | 4044 7 | 0 0 | 0 0 | 119 0 | 0 0 | 0 0 | 119 0 | 5 0 | 685 6 | 0 0 | 0 0 |

TT = 19 2000 DTH = 0 8000 ITERR = 1
QU(1) = 1262 00 YU(1) = 603 35 QU(N) = 3389 68 YU(N) = 589 90 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

TT = 19 2000 DTH = 0 8000 ITERR = 1
QU(1) = 1262 00 YU(1) = 603 35 QU(N) = 3389 68 YU(N) = 589 90 FRDM=0 17 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 603 35 | 1 26 | 1262 0 | 0 0 | 0 0 | 75 9 | 0 0 | 0 0 | 75 9 | 6 6 | 503 8 | 0 0 | 0 0 |
| 5 44 | 602 72 | 1 29 | 1293 2 | 0 0 | 0 0 | 83 6 | 0 0 | 0 0 | 83 6 | 6 5 | 539 3 | 0 0 | 0 0 |
| 5 74 | 602 21 | 1 33 | 1329 2 | 0 0 | 0 0 | 80 4 | 0 0 | 0 0 | 164 7 | 6 4 | 494 7 | 0 0 | 0 0 |
| 6 14 | 601 45 | 1 38 | 1379 0 | 0 0 | 0 0 | 78 2 | 0 0 | 0 0 | 78 2 | 7 0 | 499 7 | 0 0 | 0 0 |
| 6 91 | 600 40 | 1 45 | 1449 8 | 0 0 | 0 0 | 82 3 | 0 0 | 0 0 | 82 3 | 7 7 | 617 2 | 0 0 | 0 0 |
| 7 14 | 600 10 | 1 47 | 1472 7 | 0 0 | 0 0 | 79 7 | 0 0 | 0 0 | 79 7 | 7 9 | 574 5 | 0 0 | 0 0 |
| 7 59 | 599 61 | 1 53 | 1527 5 | 0 0 | 0 0 | 94 7 | 0 0 | 0 0 | 94 7 | 8 0 | 701 1 | 0 0 | 0 0 |
| 7 63 | 599 56 | 1 88 | 1884 2 | 0 0 | 0 0 | 107 5 | 0 0 | 0 0 | 138 8 | 7 9 | 928 3 | 0 0 | 0 0 |
| 7 80 | 599 36 | 1 94 | 1939 8 | 0 0 | 0 0 | 103 4 | 0 0 | 0 0 | 344 6 | 7 8 | 751 1 | 0 0 | 0 0 |
| 8 30 | 598 57 | 2 16 | 2164 3 | 0 0 | 0 0 | 98 7 | 0 0 | 0 0 | 319 8 | 7 5 | 753 7 | 0 0 | 0 0 |
| 8 80 | 597 61 | 2 38 | 2377 3 | 0 0 | 0 0 | 93 7 | 0 0 | 0 0 | 290 8 | 7 3 | 729 3 | 0 0 | 0 0 |
| 9 18 | 596 83 | 2 58 | 2581 2 | 0 0 | 0 0 | 120 7 | 0 0 | 0 0 | 222 0 | 7 4 | 834 2 | 0 0 | 0 0 |
| 9 55 | 596 10 | 2.68 | 2678 1 | 0 0 | 0 0 | 150 2 | 0 0 | 0 0 | 150 2 | 8 1 | 961 5 | 0 0 | 0 0 |
| 10 44 | 594 79 | 2 86 | 2859 4 | 0 0 | 0 0 | 133 7 | 0 0 | 0 0 | 133 7 | 7 6 | 1099 1 | 0 0 | 0 0 |
| 10 97 | 593 87 | 2 95 | 2952 9 | 0 0 | 0 0 | 120 3 | 0 0 | 0 0 | 120 3 | 7 1 | 888 6 | 0 0 | 0 0 |
| 11 41 | 592 71 | 3 05 | 3050 1 | 0 0 | 0 0 | 122 7 | 0 0 | 0 0 | 234 9 | 6 5 | 841 7 | 0 0 | 0 0 |
| 11 85 | 590 79 | 3 18 | 3181 6 | 0 0 | 0 0 | 120 0 | 0 0 | 0 0 | 307 3 | 5 1 | 699 2 | 0 0 | 0 0 |
| 11 94 | 589 90 | 3 39 | 3389 7 | 0 0 | 0 0 | 115 1 | 0 0 | 0 0 | 115 1 | 4 3 | 605 0 | 0 0 | 0 0 |

TT = 20 0000 DTH = 0 8000 ITERR = 1
QU(1) = 1170 00 YU(1) = 602 92 QU(N) = 2893 19 YU(N) = 589 39 FRDM=0 00 IFR= 18 FRM=7 00 IFM= 0

TT = 20 0000 DTH = 0 8000 ITERR = 1
QU(1) = 1170 00 YU(1) = 602 92 QU(N) = 2893 19 YU(N) = 589 39 FRDM=0 17 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 00 | 602 92 | 1 17 | 1170 0 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | 6 2 | 471 7 | 0 0 | 0 0 |
| 5 44 | 602 27 | 1 20 | 1196 0 | 0 0 | 0 0 | 81 3 | 0 0 | 0 0 | 81 3 | 6 0 | 501 7 | 0 0 | 0 0 |
| 5 74 | 601 73 | 1 22 | 1224 9 | 0 0 | 0 0 | 78 1 | 0 0 | 0 0 | 157 4 | 5 9 | 456 4 | 0 0 | 0 0 |
| 6 14 | 600 92 | 1 26 | 1264 5 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 6 4 | 458 5 | 0 0 | 0 0 |
| 6 91 | 599 79 | 1 32 | 1323 9 | 0 0 | 0 0 | 80 0 | 0 0 | 0 0 | 80 0 | 7 1 | 567 9 | 0 0 | 0 0 |
| 7 14 | 599 47 | 1 34 | 1343 2 | 0 0 | 0 0 | 77 1 | 0 0 | 0 0 | 77 1 | 7 3 | 525 3 | 0 0 | 0 0 |
| 7 59 | 598 95 | 1 38 | 1382 4 | 0 0 | 0 0 | 91 1 | 0 0 | 0 0 | 91 1 | 7 3 | 640 2 | 0 0 | 0 0 |
| 7 63 | 598 91 | 1 70 | 1697 5 | 0 0 | 0 0 | 105 0 | 0 0 | 0 0 | 134 3 | 7 3 | 858 9 | 0 0 | 0 0 |
| 7 80 | 598 70 | 1 74 | 1740 8 | 0 0 | 0 0 | 99 2 | 0 0 | 0 0 | 325 9 | 7 2 | 684 4 | 0 0 | 0 0 |
| 8 30 | 597 89 | 1 92 | 1919 5 | 0 0 | 0 0 | 95 6 | 0 0 | 0 0 | 301 7 | 6 8 | 688 2 | 0 0 | 0 0 |
| 8 80 | 596 94 | 2 08 | 2082 8 | 0 0 | 0 0 | 91 9 | 0 0 | 0 0 | 274 1 | 6 6 | 666 8 | 0 0 | 0 0 |
| 9 18 | 596 15 | 2 25 | 2246 0 | 0 0 | 0 0 | 116 2 | 0 0 | 0 0 | 210 0 | 6 8 | 753 4 | 0 0 | 0 0 |
| 9 55 | 595 40 | 2 33 | 2325 1 | 0 0 | 0 0 | 142 9 | 0 0 | 0 0 | 142 9 | 7 4 | 858 1 | 0 0 | 0 0 |
| 10 44 | 594 10 | 2 47 | 2468 2 | 0 0 | 0 0 | 130 1 | 0 0 | 0 0 | 130 1 | 6 9 | 1008 4 | 0 0 | 0 0 |

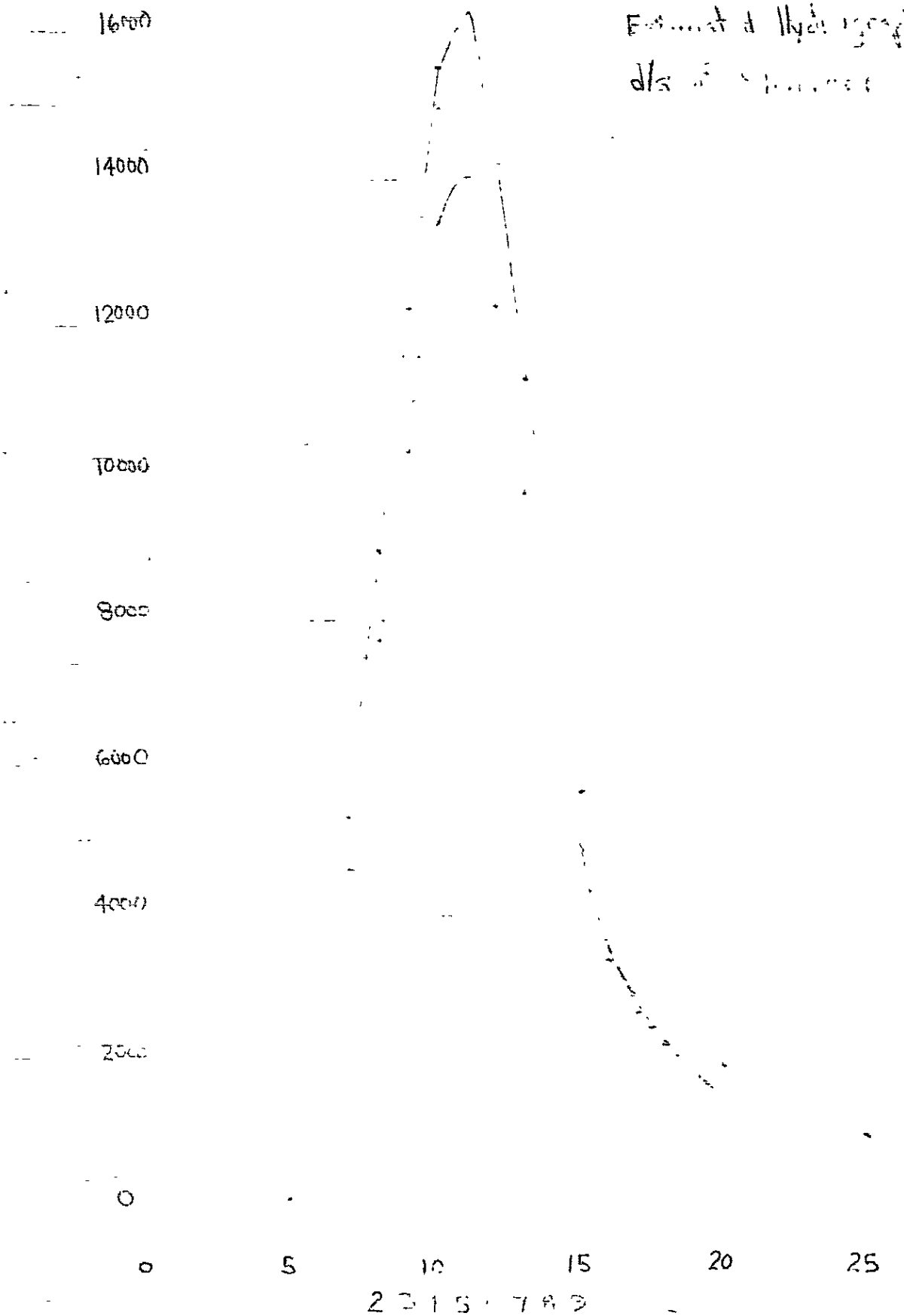
| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 97 | 593 23 | 2 54 | 2541 4 | 0 0 | 0 0 | 117 4 | 0 0 | 0 0 | 117 4 | 6 4 | 811 8 | 0 0 | 0 0 |
| 11 41 | 592 11 | 2 62 | 2620 8 | 0 0 | 0 0 | 119 6 | 0 0 | 0 0 | 223 7 | 5.9 | 768 9 | 0 0 | 0 0 |
| 11 85 | 590 24 | 2 74 | 2735 8 | 0 0 | 0 0 | 116 8 | 0 0 | 0 0 | 289 4 | 4.5 | 634 2 | 0 0 | 0.0 |
| 11 94 | 589 39 | 2 89 | 2893 2 | 0 0 | 0 0 | 112 2 | 0 0 | 0 0 | 112 2 | 3 8 | 547 1 | 0 0 | 0 0 |

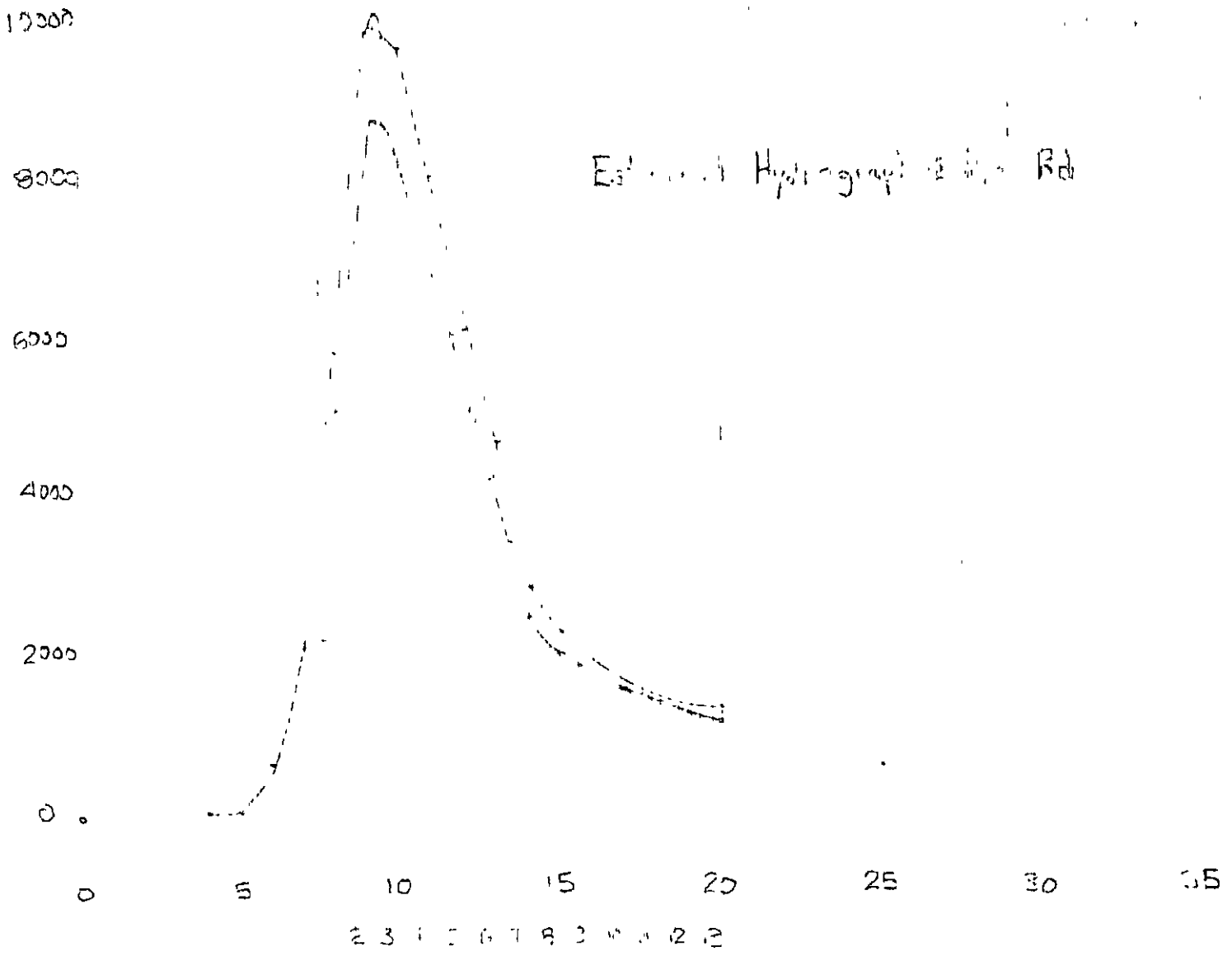
ROUTING COMPLETED

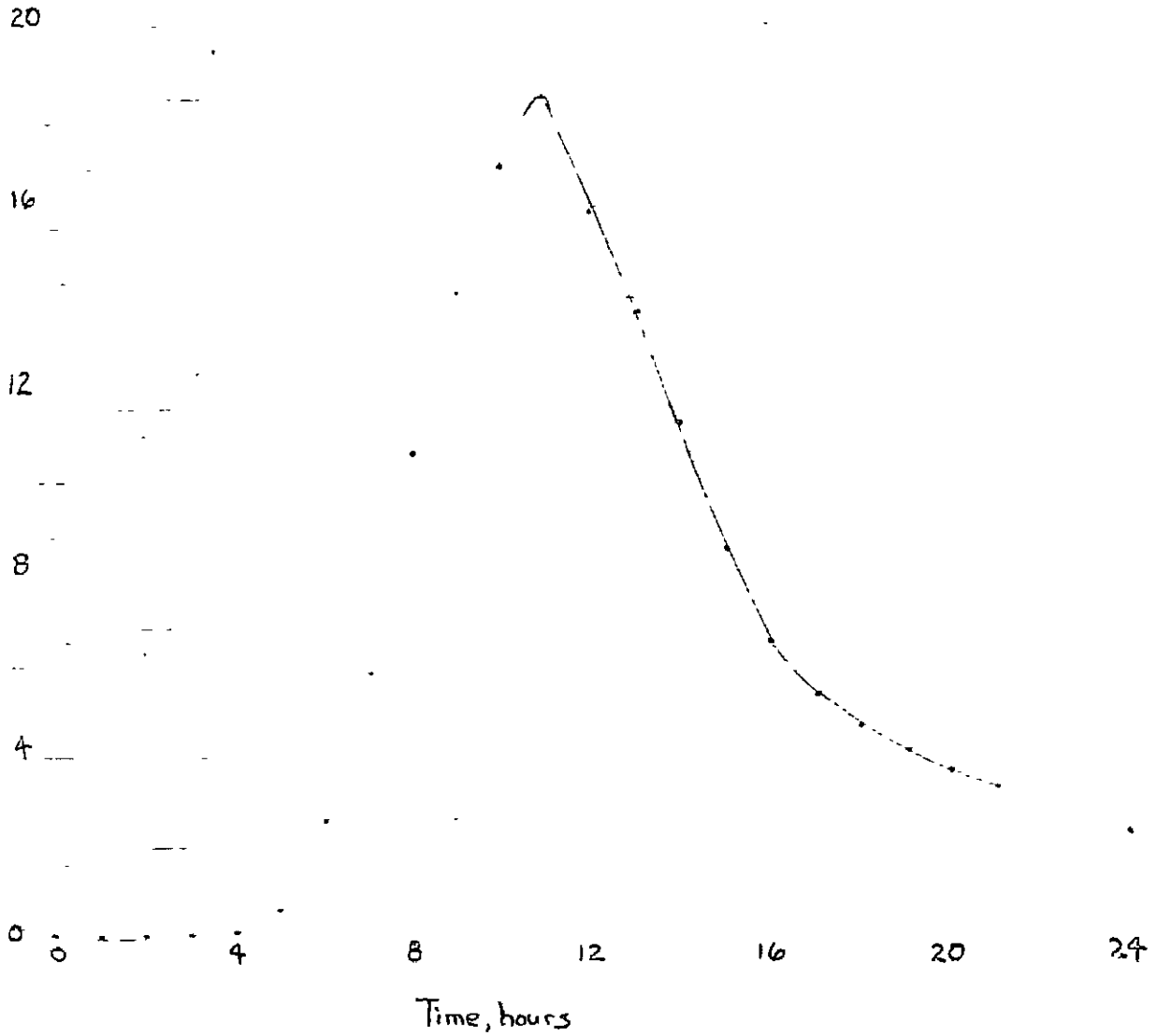
KTIME= 28 ALLOWABLE KTIME= 698 TT= 20 8

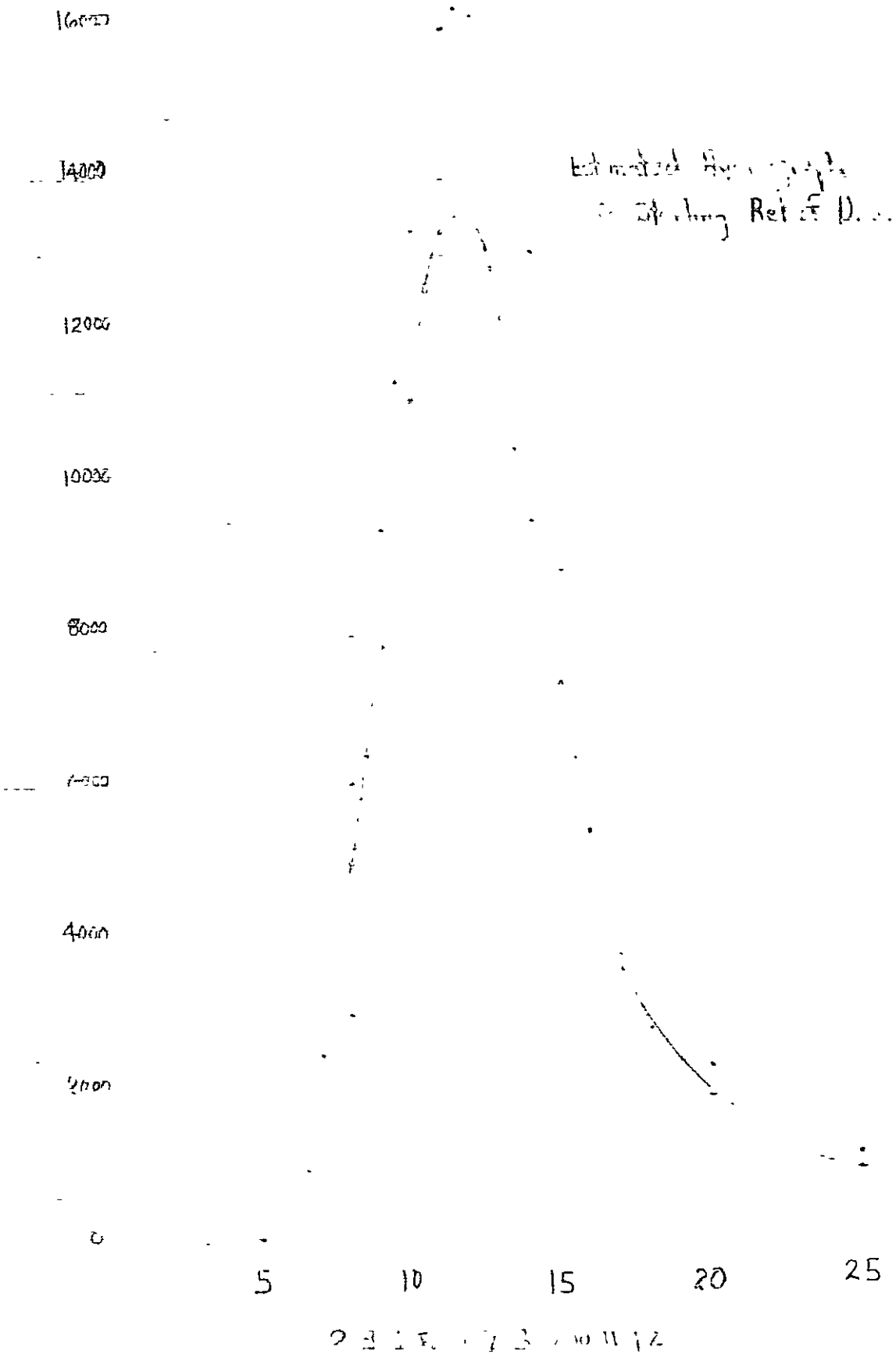
PROFILE OF CRESTS AND TIMES FOR
BELOW RED RUN DRAIN

| RVR MILE FROM DAM | MAX ELEV (FT) | MAX FLOW (CFS) | TIME MAX ELEV(HR) | MAX VEL (FT/SEC) | MAX VEL (MI/HR) | FLOOD ELEV (FT) | TIME FLOOD ELEV (HR) |
|---|---|---|---|---|---|---|---|
| 5 000 | 614 73 | 8210 | 10 400 | 5 03 | 3 43 | 0 00 | 0 00 |
| 5 440 | 613 97 | 8130 | 10 400 | 4 61 | 3 15 | 0 00 | 0 00 |
| 5 740 | 613 37 | 8004 | 10 400 | 4 84 | 3 30 | 0 00 | 0 00 |
| 6 140 | 612 53 | 7831 | 10 400 | 4 94 | 3 37 | 0 00 | 0 00 |
| 6 910 | 611 20 | 7576 | 10 400 | 3 52 | 2 40 | 0 00 | 0 00 |
| 7 140 | 610 86 | 7523 | 10 400 | 4 24 | 2 89 | 0 00 | 0 00 |
| 7 590 | 610 36 | 7421 | 10 400 | 3 39 | 2 31 | 0 00 | 0 00 |
| 7 630 | 609 73 | 12565 | 11 200 | 5 13 | 3 50 | 0 00 | 0 00 |
| 7 800 | 609 31 | 12492 | 11 200 | 4 70 | 3 20 | 0 00 | 0 00 |
| 8 300 | 608 10 | 12192 | 11 200 | 4 63 | 3 16 | 0 00 | 0 00 |
| 8 800 | 606 84 | 11858 | 11 200 | 4 65 | 3 17 | 0 00 | 0 00 |
| 9 175 | 605 97 | 12657 | 11 200 | 4 68 | 3 19 | 0 00 | 0 00 |
| 9 550 | 605 27 | 12445 | 12 000 | 3 82 | 2 61 | 0 00 | 0 00 |
| 10 440 | 603 57 | 12022 | 12 000 | 3 67 | 2 50 | 0 00 | 0 00 |
| 10 970 | 602 42 | 12097 | 12.000 | 4 76 | 3 25 | 0 00 | 0 00 |
| 11 410 | 601 31 | 12189 | 11 200 | 4 26 | 2 90 | 0 00 | 0 00 |
| 11 850 | 600 44 | 12410 | 11 200 | 3 97 | 2 71 | 0 00 | 0 00 |
| 11 940 | 600 19 | 13200 | 11 200 | 4 22 | 2 88 | 0 00 | 0 00 |


16000
14000
12000
10000
8000
6000
4000
2000
0
0
5
10
15
20
25

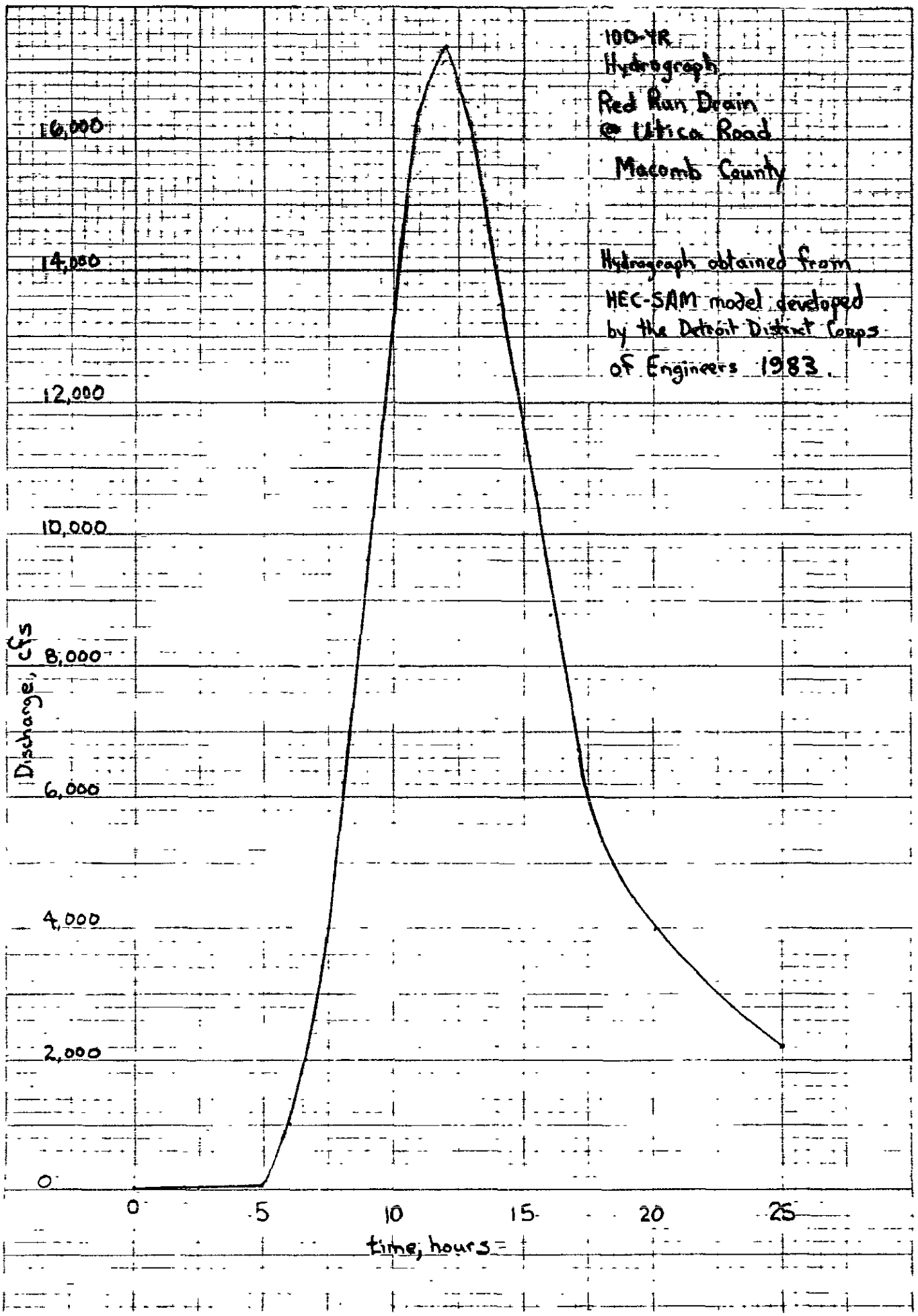

10000
8000
6000
4000
2000
0
0
5
10
15
20
25
30
35


20
16
12
8
4
0
0
4
8
12
16
20
24
Time, hours

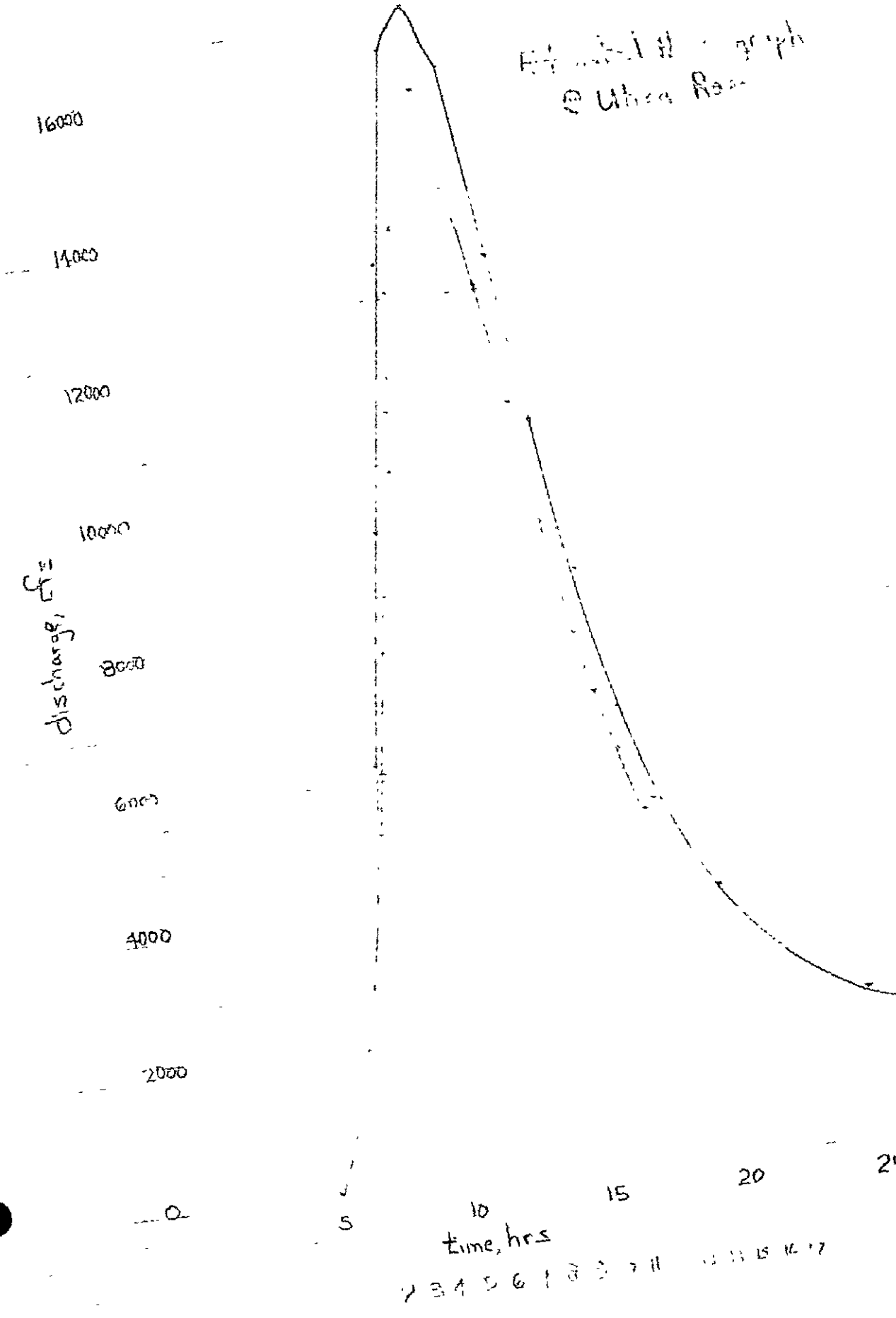

16000
14000
12000
10000
8000
6000
4000
2000
0
5
10
15
20
25

BY BCM DATE 4/8/92 SUBJECT _____ SHEET NO. ___ OF ___

CHKD. _____ DATE _____ FILE NO. _____




1510-2


16000
14000
12000
10000
8000
6000
4000
2000
0
discharge, cfs
5
10
15
20
time, hrs

```
                XX  XX   X    X      X     X        X   X            X    X   X  '  X   X    X      X
                X    X   X    X      X     XXXXXX   X    X           X    X    XXXX    X    X      X

XXXXX
```

```
                        PRIORITY  80
                        USERCODE  HYDRO
                        CHARGECODE  551/13.
                        ACCESSCODE  MENEREY
11 08.40        ->6041  OPERATOR ENTERED  DS
11·08 40          6041  OPERATOR DSED @ (06078000)*
11:08 42          6041  HISTORY:  069 0028·1 (06078000), 063 004E 0 (05756000), 066 0028 4 (06182000), 05B 0011 2 (068
                        44000), 050 0057 4 (04460000), 075·001C·1 (06923300), 058 0038 1 (06968000)
11·08 42     O-DS 6041  (HYDRO)"BACKUP PROCESSOR" ON CANDE                                  ******** O-DSED ********
                        PROCESSOR TIME  00 00 03 712  CHARGECODE  551/13
                        I/O       TIME· 00 00 03 096  DATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                        READYQ    TIME  00 00 01 138  AVERAGE MEMORY USAGE  CODE=29167, DATA=3784
                        INITPBIT  TIME  00 00 00 287  MEMORY INTEGRAL  CODE=198 600, DATA=25 768
                        OTHERPBIT TIME· 00 00 00 333  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                        ELAPSED   TIME  00 03·06 069  INITIAL PBITS  112, OTHER PBITS  5


11 12:14     BOT  6138  (DNROBJ)P/G/551/03 ON DNROBJECTS.
                        CODE COMPILED  JUN 23, 1983 12.59 09 BY FORTRAN 33 320
                        TASK TYPE  DEPENDENT TASK(PROCESS)
                        PRIORITY  48
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
11 12.55        ->6138  OPERATOR ENTERED  DS
11·12·59          6138  OPERATOR DSED @ (29016000)*
11.13 00          6138  HISTORY   07D 0052 3 (29016000), 01B·0104 5 (00475000), 002 1841 4 (00216000), 025 0000 4
11:13:00     O-DS 6138  (DNROBJ)P/G/551/03 ON DNROBJECTS                                    ******** O-DSED ********
                        PROCESSOR TIME  00·00 31 408  USERCODE  HYDRO
                        I/O       TIME  00 00 09 949  CHARGECODE  551/13
                        READYQ    TIME  00 00 01 676  ACCESSCODE· MENEREY
                        INITPBIT  TIME  00 00 01 209  LINES PRINTED  1509
                        OTHERPBIT TIME  00 00·00 326  DATA AND CODE IN SUBSPACE USED 36630 WORDS (37 SLOTS)
                        ELAPSED   TIME  00 00 46 305  AVERAGE MEMORY USAGE  CODE=12747, DATA=18895
                                                      MEMORY INTEGRAL  CODE=527 186, DATA=781 470
                                                      DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  217, OTHER PBITS  29


11 16 19     BOT  6190  (DNROBJ)P/G/551/03 ON DNROBJECTS
                        CODE COMPILED  JUN 23, 1983 12 59 09 BY FORTRAN 33 320
                        TASK TYPE  DEPENDENT TASK(PROCESS)
                        PRIORITY  48
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
11 17 27        ->6190  OPERATOR ENTERED  DS
11 17 31          6190  OPERATOR DSED @ (29004000)*
11·17 32          6190  HISTORY   07D.000A.2 (29004000), 01B.00F0.0 (00473800), 002 1841 4 (00216000), 025 0000 4
11·17 32     O-DS 6190  (DNROBJ)P/G/551/03 ON DNROBJECTS                                    ******** O-DSED ********
                        PROCESSOR TIME· 00 00 25 273  USERCODE  HYDRO
                        I/O       TIME  00 00.09 903  CHARGECODE. 551/13
                        READYQ    TIME  00 00 10 275  ACCESSCODE  MENEREY.
                        INITPBIT  TIME· 00·00·01 222  LINES PRINTED  1479
                        OTHERPBIT TIME. 00 00 00 418  DATA AND CODE IN SUBSPACE USED 37620 WORDS (38 SLOTS)
                        ELAPSED   TIME· 00 01.13 684  AVERAGE MEMORY USAGE  CODE=12646, DATA=18239
                                                      MEMORY INTEGRAL  CODE=444 862, DATA=641 613
                                                      DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  216, OTHER PBITS  32


11.20·40     BOT  6250  (DNROBJ)P/G/551/03 ON DNROBJECTS.
```

```
                        CODE COMPILED  JUN 23, 1983 12 59 09 BY FORTRAN 33 320
                        TASK TYPE· DEPENDENT TASK(PROCESS)
                        PRIORITY  48
                        USERCODE  HYDRO
                        CHARGECODE  551/13
                        ACCESSCODE  MENEREY
11 21.29          ->6250 OPERATOR ENTERED  DS
11 21 30            6250 OPERATOR OSED @ (00312300)*
11 21·32            6250 HISTORY   OOF 0035 0 (00312300), 01B 0034 3 (00463600), 002 1841 4 (00216000), 025 0000 4
11 21 32       D-DS 6250 (DNROBJ)P/G/551/03 ON DNROBJECTS                                  ******** D-DSED ********
                        PROCESSOR TIME  00·00 27 445  USERCODE  HYDRO
                        I/O       TIME· 00 00·10 423  CHARGECODE  551/13
                        READYQ    TIME  00·00 08 130  ACCESSCODE  MENEREY
                        INITPBIT  TIME· 00 00 01 271  LINES PRINTED. 1566
                        OTHERPBIT TIME  00 00 00 543  DATA AND CODE IN SUBSPACE USED 35640 WORDS (36 SLOTS)
                        ELAPSED   TIME  00 00 51 755  AVERAGE MEMORY USAGE  CODE=12542, DATA=17913
                                                      MEMORY INTEGRAL  CODE=474 972, DATA=678 358
                                                      DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                      INITIAL PBITS  216, OTHER PBITS  32

11·21 43     LGOFF 6001 USERCODE· HYDRO
                        ROUTING  MENEREY/DNR/"WATER MGMT"
                        ACCESSCODE  MENEREY
                        SIGN OFF BY NORMAL LOG-OFF
                        PROCESSOR TIME  00 00 11 761
                        I/O       TIME  00·01 39 795
                        ELAPSED   TIME  00 20 59 452
```

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLOOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH D., RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

```
*******************************
*******************************
***                         ***
***  SUMMARY OF INPUT DATA  ***
***                         ***
*******************************
*******************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| NO OF RESERVOIR INFLOW HYDROGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH ORDINATES) = 1.00 HRS

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 24.0000 HRS

INFLOW HYDROGRAPH TO RED RUN DRAIN AT C

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300 00 | 333 00 | 365.00 | 396 00 | 427 00 | 459 00 | 490 00 | 521 00 |
| 552 00 | 609 00 | 663 00 | 717 00 | 771 00 | 881 00 | 992 00 | 1102 00 |
| 1214 00 | 1350 00 | 1516 00 | 1641 00 | 1817 00 | 1925 00 | 2208 00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1 0000 | 2 0000 | 3 0000 | 4.0000 | 5.0000 | 6 0000 | 7 0000 |
| 8 0000 | 9 0000 | 10 0000 | 11.0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17.0000 | 18 0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO OF LATERAL INFLOW HYDROGRAPHS | LQ | 1 |
| NO. OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599 00 X1L(I) = 0 000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 585.0 | 588 0 | 592.0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC . | 10 0 | 67.0 | 75 0 | 75 0 | 75 0 | 75.0 | 75 0 | 75 0 |
| XCL . | 0 0 | 0.0 | 0.0 | 330 0 | 440 0 | 550 0 | 550 0 | 550 0 |
| XCR . | 0 0 | 0.0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 400 0 | 500 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0 523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 24.0 | 55 0 | 66 0 | 68.0 | 68 0 | 68 0 | 68 0 | 68 0 |
| XCL | 0.0 | 0 0 | 0.0 | 180 0 | 240 0 | 240.0 | 300 0 | 300 0 |
| XCR | 0 0 | 0 0 | 0 0 | 100 0 | 100 0 | 250.0 | 500 0 | 500 0 |
| XS | 0 0 | 0 0 | 0 0 | 370 0 | 580.0 | 680 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0.682 FSTG(I) = 598 00 X1L(I) = 0 565 X1R(I) = 0.519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 5 | 587 0 | 591 0 | 595 0 | 599.0 | 601 0 | 603 0 | 605 0 |
| XC | 8 0 | 57 0 | 80.0 | 104 0 | 104 0 | 104 0 | 104 0 | 104 0 |
| XCL | 0 0 | 0 0 | 0 0 | 440 0 | 1033 0 | 1230 0 | 1500 0 | 1500 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 200 0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597 00 X1L(I) = 0.579 X1R(I) = 0 533

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 20 0 | 59 0 | 78 0 | 88 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL . . | 0 0 | 0 0 | 0 0 | 450 0 | 1033 0 | 1180 0 | 1310 0 | 1310 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 30 0 | 200 0 | 230 0 | 230 0 |
| XS . | 0 0 | 0 0 | 0 0 | 0 0 | 800 0 | 1600 0 | 1600 0 | 1600 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599 00 X1L(I) = 0 787 X1R(I) = 0 741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 582 2 | 586 0 | 590 0 | 594 0 | 598 0 | 600.0 | 602.0 | 604 0 |
| XC | 45 0 | 66 0 | 72 0 | 83 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL | 0.0 | 0 0 | 0 0 | 570 0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR | 0.0 | 0 0 | 0 0 | 0 0 | 53 0 | 101 0 | 281 0 | 300.0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 581 8 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 20 0 | 74.0 | 81 0 | 81.0 | 81 0 | 81 0 | 81 0 | 81 0 |
| XCL | 0 0 | 0 0 | 94 0 | 465 0 | 470 0 | 494 0 | 560 0 | 600 0 |
| XCR | 0 0 | 0 0 | 0 0 | 45 0 | 120 0 | 360 0 | 400 0 | 400 0 |
| XS | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1 722 FSTG(I) = 600 00 X1L(I) = 1 555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586.0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 38 0 | 86 0 | 98 0 | 100 0 | 108 0 | 144 0 | 200 0 | 200 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 325 0 | 325 0 |
| XCR | 0 0 | 0 0 | 50.0 | 100 0 | 150 0 | 200 0 | 500.0 | 600 0 |
| XS | 0 0 | 0 0 | 60 0 | 120 0 | 110 0 | 130 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2 040 FSTG(I) = 0.00 X1L(I) = 2 863 X1R(I) = 1 826

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590.0 | 594 0 | 596 0 | 598 0 | 600.0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0.0 | 0 0 | 0.0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 2.051 FSTG(I) = 600 00 X1L(I) = 1 874 X1R(I) = 1 837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 578.4 | 586 0 | 590 0 | 594 0 | 595 9 | 598 0 | 600 0 | 602 0 |
| XC . | 43.0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 1000 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 | 1000 0 |
| XS . | 0.0 | 0 0 | 100.0 | 850.0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2 062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0.0 | 0.0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2 727 FSTG(I) = 599 00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 578 0 | 584 0 | 588 0 | 592.0 | 594 0 | 596 0 | 598.0 | 600 0 |
| XC | 8 0 | 50 0 | 72 0 | 80 0 | 80 0 | 80 0 | 80 0 | 80 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 105 0 | 210 0 | 240 0 | 400 0 | 600 0 |
| XCR .. | 0 0 | 0 0 | 100 0 | 445 0 | 690 0 | 700 0 | 760 0 | 820 0 |
| XS . | 0.0 | 0.0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3 261 FSTG(I) = 588.00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 577 8 | 583 0 | 587 0 | 591 0 | 593 0 | 595.0 | 597 0 | 599 0 |
| XC | 44 0 | 65 0 | 88 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL | 0.0 | 0.0 | 50.0 | 300.0 | 500 0 | 700.0 | 750 0 | 990 0 |
| XCR | 0 0 | 0 0 | 40 0 | 160 0 | 180 0 | 190 0 | 190 0 | 190 0 |
| XS . | 0 0 | 0 0 | 50 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMAL

HS(1,10) IS GREATER THAN HS(1, 9).
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMAL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 1 | 0 050 | 0.050 | 0 045 | 0 045 | 0.045 | 0 045 | 0 045 | 0 045 |
| REACH 1 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH 1 | 0 100 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 2 | 0 050 | 0 050 | 0.045 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH 2 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 |
| REACH 2 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 | 0.095 |
| REACH 3 | 0 050 | 0 050 | 0 045 | 0 040 | 0 040 | 0.040 | 0 040 | 0 040 |
| REACH 3 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 3 | 0 100 | 0 100 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 4 | 0 050 | 0 045 | 0.045 | 0.040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH 4 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH 4 | 0 100 | 0.100 | 0 100 | 0 100 | 0.080 | 0 060 | 0 050 | 0 040 |
| REACH 5 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 5 | 0 150 | 0 150 | 0 150 | 0.150 | 0 120 | 0.100 | 0 100 | 0 080 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 5 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 045 | 0 045 | 0.045 | 0.040 | 0.040 | 0 040 | 0 040 | 0 040 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0.060 | 0 060 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 |
| REACH 7 . | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 7 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 7 . | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 8 . | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 9 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 9 .. | 0.090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 10 . | 0 045 | 0 042 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 10 | 0 100 | 0.080 | 0 050 | 0 045 | 0 030 | 0 030 | 0 030 | 0 030 |
| REACH 10 . | 0 150 | 0 150 | 0 150 | 0 120 | 0 110 | 0 100 | 0 100 | 0 100 |
| REACH 11 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 . | 0.040 | 0 040 | 0.040 | 0.040 | 0.040 | 0 040 | 0 040 | 0.040 |
| REACH 11 .. | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0.050 | 0 050 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0.600 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 150 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0 500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0.000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

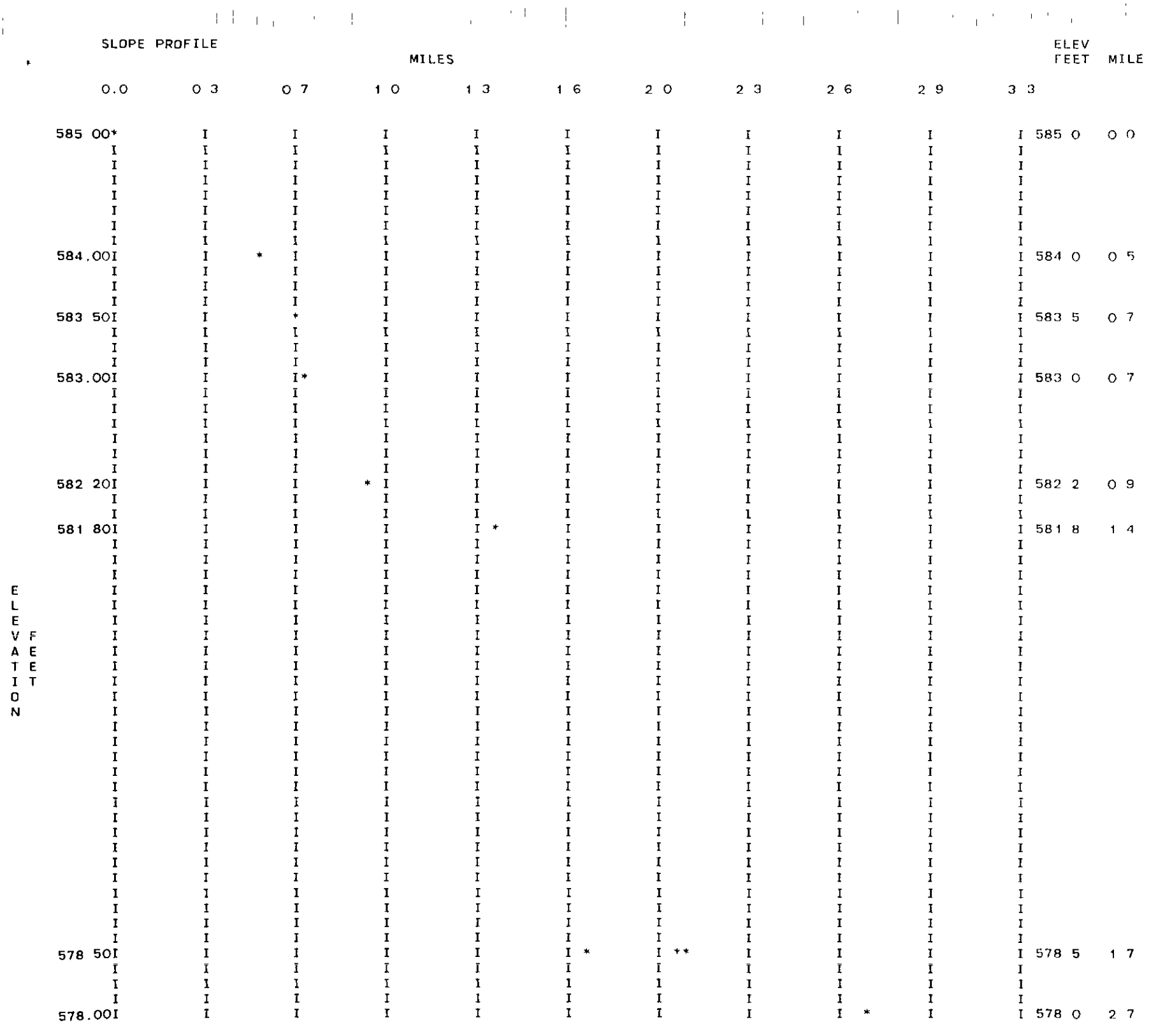
LQX(I)

4

(QL(L, 1),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20. | 20 | 22 | 29 | 74 | 399 | 1590 | 3616 |
| 6621. | 8792 | 10458 | 10800 | 9901 | 8486 | 6959 | 5274 |
| 4025 | 3324 | 2850 | 2499 | 2231 | 2002. | 1793 | 1599 |
| 1402 | | | | | | | |

# SUMMARY OF OUTPUT DATA


SLOPE PROFILE
MILES
0.0 0 3 0 7 1 0 1 3 1 6 2 0 2 3 2 6 2 9 3 3
ELEV FEET MILE
585 00 585 0 0 0
584.00 584 0 0 5
583 50 583 5 0 7
583.00 583 0 0 7
582 20 582 2 0 9
581 80 581 8 1 4
578 50 578 5 1 7
578.00 578 0 2 7
ELEVATION FEET

```
577 80I          I          I          I          I          I          I          I          I          * 577 8
    0.0         0 3        0 7        1 0        1 3        1 6        2 0        2 3        2 6        2 9        3 3
                                                MILES
```

| CROSS-SECTION ND. | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI |
|---|---|---|---|---|---|
| 1 | 0 000 | 585.00 | | | |
| 2 | 0 523 | 584 00 | 1 | 0.523 | 1 91 |
| 3 | 0 682 | 583 50 | 2 | 0 159 | 3 14 |
| 4 | 0 696 | 583 00 | 3 | 0 014 | 35 71 |
| 5 | 0.919 | 582 20 | 4 | 0 223 | 3 59 |
| 6 | 1 389 | 581 80 | 5 | 0 470 | 0 85 |
| 7 | 1.722 | 578.50 | 6 | 0.333 | 9 91 |
| 8 | 2.040 | 578.50 | 7 | 0 318 | 0 00 |
| 9 | 2 051 | 578.40 | 8 | 0 011 | 9 09 |
| 10 | 2 062 | 578.50 | 9 | 0 011 | -9 09 |
| 11 | 2 727 | 578.00 | 10 | 0 665 | 0 75 |
| 12 | 3 261 | 577 80 | 11 | 0 534 | 0 37 |

MESA

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 17 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 591 | 591 | 590 | 586 | 586 | 586 |
| 600 | 599. | 600 | 600 | 600 | 589 | 588 | 584 |
| 583 | | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592. | 591 | 595 | 595 | 594 | 590 | 586 | 586 |
| 586 | 586 | 594. | 598 | 594 | 585 | 584 | 584 |
| 583 | | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YO(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 17 | 7 | 3 261 | 583 54 | 320 00 | 0 09 | 0 375 |
| 17 | 0 | 3 261 | 583 54 | 320 00 | | |
| 16 | 1 | 2 994 | 583.66 | 320 00 | 0 12 | |
| 16 | 2 | 2 994 | 583 67 | 320 00 | 0 12 | |
| 15 | 1 | 2.727 | 583 94 | 320.00 | 0 19 | |
| 15 | 2 | 2.727 | 583 95 | 320 00 | 0 18 | |
| 15 | 3 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 14 | 1 | 2.395 | 584 47 | 320 00 | 0 13 | |
| 14 | 2 | 2.395 | 584 45 | 320 00 | 0 11 | |
| 14 | 3 | 2.395 | 584 45 | 320 00 | 0 12 | |
| 13 | 1 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 2 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 3 | 2 062 | 584 75 | 320 00 | 0.09 | |
| 12 | 1 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 12 | 2 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 11 | 1 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 11 | 2 | 2 040 | 584.76 | 320 00 | 0 09 | |
| 10 | 1 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 10 | 2 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 9 | 1 | 1 722 | 584 95 | 320 00 | 0 07 | |
| 9 | 2 | 1 722 | 584 95 | 320 00 | 0 07 | |
| 8 | 1 | 1 611 | 585 11 | 320 00 | 0 07 | |
| 8 | 2 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 3 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 4 | 1 611 | 585.01 | 320 00 | 0 10 | |
| 7 | 1 | 1 500 | 585 43 | 320 00 | 0 09 | |
| 7 | 2 | 1 500 | 585 17 | 320 00 | 0.14 | |
| 7 | 3 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 7 | 4 | 1 500 | 585.16 | 320 00 | 0 15 | |
| 6 | 1 | 1 389 | 585 78 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585.55 | 320.00 | 0 20 | |
| 6 | 3 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 6 | 4 | 1.389 | 585.54 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586 71 | 320.00 | 0 13 | |
| 5 | 2 | 0 919 | 586 71 | 320 00 | 0 11 | |
| 5 | 3 | 0 919 | 586.71 | 320 00 | 0 11 | |
| 4 | 1 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 4 | 2 | 0.696 | 587 15 | 300 00 | 0 19 | |
| 3 | 1 | 0 682 | 587.27 | 300 00 | 0 20 | |
| 3 | 2 | 0 682 | 587.20 | 300.00 | 0 27 | |
| 3 | 3 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 2 | 1 | 0 523 | 588 17 | 300.00 | 0 18 | |
| 2 | 2 | 0 523 | 588.18 | 300 00 | 0 16 | |
| 1 | 1 | 0 000 | 589.52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589.54 | 300 00 | 0 14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0 00 | 589 54 | 589 54 |
| 2 | 0 52 | 588 18 | 588 18 |
| 3 | 0 68 | 587 20 | 587 20 |
| 4 | 0.70 | 587 15 | 587 15 |
| 5 | 0 92 | 586 71 | 586 71 |

| | | | |
|---|---|---|---|
| 6 | 1 39 | 585 54 | 585.54 |
| 7 | 1 50 | 585 16 | 585.16 |
| 8 | 1 61 | 585 01 | 585 01 |
| 9 | 1.72 | 584 95 | 584 95 |
| 10 | 1.88 | 584 87 | 584 87 |
| 11 | 2 04 | 584.76 | 584 76 |
| 12 | 2.05 | 584 76 | 584.76 |
| 13 | 2 06 | 584 75 | 584 75 |
| 14 | 2 39 | 584 45 | 584 45 |
| 15 | 2 73 | 583 95 | 583 95 |
| 16 | 2.99 | 583 67 | 583 67 |
| 17 | 3 26 | 583 54 | 583 54 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 300 00 | 300.00 | 300 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | 320.00 | 320.00 | 320 00 | 320.00 | 320 00 | 320 00 | 320 00 |
| 320 00 | | | | | | | |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 589 54 | 588 18 | 587 20 | 587.15 | 586 71 | 585 54 | 585 16 | 585 01 |
| 584 95 | 584 87 | 584 76 | 584 76 | 584 75 | 584 45 | 583 95 | 583 67 |
| 583 54 | | | | | | | |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYDROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 54 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587.20 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 125 5 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 7 | 0 0 | 0 0 |
| 0 92 | 586.71 | 0 32 | 320 0 | 0.0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 1 | 0 0 | 0 0 |
| 1 39 | 585.54 | 0 32 | 320 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 5 | 0 0 | 0 0 |
| 1 50 | 585.16 | 0 32 | 320 0 | 0 0 | 0 0 | 69 8 | 0 0 | 0 0 | 69 8 | 0 0 | 213.6 | 0 0 | 0 0 |
| 1 61 | 585 01 | 0.32 | 320 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 74 3 | 0 0 | 287 4 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 32 | 320 0 | 0 0 | 0.0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 378 0 | 0 0 | 0 0 |
| 1 88 | 584 87 | 0 32 | 320 0 | 0 0 | 0 0 | 77 3 | 0 0 | 0 0 | 77 3 | 0 0 | 346 5 | 0 0 | 0 0 |
| 2 04 | 584.76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 4 | 0 0 | 0 0 |
| 2 05 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 6 | 0 0 | 0 0 | 75 6 | 0 0 | 377 3 | 0 0 | 0 0 |
| 2 06 | 584 75 | 0 32 | 320 0 | 0 0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0 0 | 312 5 | 0 0 | 0 0 |
| 2 39 | 584 45 | 0 32 | 320 0 | 0 0 | 0 0 | 63 4 | 0 0 | 0 0 | 63 4 | 0 0 | 247 8 | 0 0 | 0 0 |
| 2 73 | 583 95 | 0 32 | 320 0 | 0 0 | 0 0 | 49 6 | 0 0 | 0 0 | 49 6 | 0 0 | 171 5 | 0 0 | 0 0 |
| 2 99 | 583 67 | 0 32 | 320 0 | 0 0 | 0 0 | 58 4 | 1 0 | 2 9 | 63 4 | 0 0 | 243 4 | 0 1 | 0 2 |
| 3 26 | 583 54 | 0 32 | 319 6 | 0 2 | 0 2 | 68 1 | 6 7 | 5 4 | 86 9 | 0 0 | 319 2 | 1 8 | 1 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335.83 YU(N) = 583 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 56 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 222 1 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 299 3 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0 68 | 587 22 | 0 30 | 299 1 | 0 0 | 0 0 | 58 3 | 0 0 | 0 0 | 58 3 | 0 0 | 126 3 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 587 14 | 0 30 | 299 1 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 6 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0.32 | 319 2 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0 0 | 258 0 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 32 | 319 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 9 | 0 0 | 0 0 |
| 1 50 | 585 17 | 0 32 | 318 9 | 0 0 | 0 0 | 69 9 | 0 0 | 0 0 | 69 9 | 0.0 | 214 3 | 0 0 | 0 0 |
| 1 61 | 585 02 | 0 32 | 318 7 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 3 | 0 0 | 0 0 |
| 1 72 | 584 96 | 0 32 | 318 4 | 0 0 | 0 0 | 79.3 | 0 0 | 0 0 | 79 3 | 0 0 | 379 0 | 0 0 | 0 0 |
| 1.88 | 584 88 | 0.32 | 318 0 | 0 0 | 0 0 | 77 4 | 0 0 | 0.0 | 77 4 | 0 0 | 347 7 | 0 0 | 0 0 |
| 2 04 | 584 78 | 0 32 | 317 5 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | 0 0 | 314 7 | 0 0 | 0 0 |
| 2 05 | 584 78 | 0 32 | 317 5 | 0 0 | 0 0 | 75 7 | 0 0 | 0 0 | 75 7 | 0 0 | 378 6 | 0 0 | 0 0 |
| 2 06 | 584 77 | 0 32 | 317 4 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 8 | 0 0 | 0 0 |
| 2 39 | 584.48 | 0 32 | 316 3 | 0 0 | 0.0 | 63 5 | 0 0 | 0 0 | 63 5 | 0 0 | 249 2 | 0 0 | 0.0 |
| 2 73 | 583 79 | 0 32 | 318.9 | 0 0 | 0.0 | 48 5 | 0 0 | 0 0 | 48 5 | -0 2 | 163 8 | 0 0 | 0 0 |
| 2.99 | 583 46 | 0 33 | 325.4 | 0 0 | 0 0 | 57.3 | 0 0 | 0 0 | 57 3 | -0 2 | 231 5 | 0 0 | 0 0 |
| 3 26 | 583.30 | 0 34 | 335.7 | 0.1 | 0 0 | 66 7 | 3 7 | 3 0 | 77 2 | -0 2 | 303 0 | 0 6 | 0 4 |

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TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QO | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 55 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0.0 |
| 0 52 | 588 18 | 0 30 | 300 6 | 0 0 | 0 0 | 58.2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 4 | 0 0 | 0 0 |
| 0 68 | 587 21 | 0.30 | 300 8 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0 0 | 126 0 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 8 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 9 | 0 0 | 0 0 |
| 0 92 | 586.71 | 0 32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 2 | 0 0 | 0 0 |
| 1 39 | 585 52 | 0.32 | 321 2 | 0 0 | 0 0 | 67 9 | 0 0 | 0 0 | 67 9 | -0 0 | 163 7 | 0 0 | 0 0 |
| 1 50 | 585 14 | 0 32 | 321 8 | 0 0 | 0 0 | 69 5 | 0 0 | 0 0 | 69 5 | -0 0 | 211 9 | 0 0 | 0 0 |
| 1 61 | 584 98 | 0 32 | 322.7 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | -0 0 | 285 1 | 0 0 | 0 0 |
| 1 72 | 584.91 | 0 32 | 323 8 | 0 0 | 0 0 | 79 0 | 0.0 | 0.0 | 79 0 | -0.1 | 375 3 | 0 0 | 0 0 |
| 1 88 | 584.83 | 0 33 | 325 6 | 0 0 | 0 0 | 77 1 | 0 0 | 0 0 | 77 1 | -0 1 | 343 5 | 0 0 | 0 0 |
| 2 04 | 584.71 | 0.33 | 327 7 | 0 0 | 0 0 | 74 7 | 0.0 | 0 0 | 74 7 | -0 1 | 309 9 | 0 0 | 0 0 |
| 2 05 | 584 71 | 0 33 | 327 8 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 33 | 328.0 | 0 0 | 0 0 | 74 6 | 0 0 | 0.0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 39 | 584.37 | 0 33 | 333.5 | 0 0 | 0 0 | 62 7 | 0 0 | 0 0 | 62 7 | -0 1 | 242 2 | 0 0 | 0 0 |
| 2 73 | 583 64 | 0 34 | 337 5 | 0.0 | 0 0 | 47 5 | 0 0 | 0 0 | 47 5 | -0 1 | 156 7 | 0 0 | 0 0 |
| 2 99 | 583 21 | 0 34 | 340 1 | 0 0 | 0 0 | 55 9 | 0 0 | 0 0 | 55 9 | -0 1 | 217 5 | 0 0 | 0 0 |
| 3 26 | 583 01 | 0 34 | 344 4 | 0 0 | 0 0 | 65 0 | 0 1 | 0 1 | 65 3 | -0 2 | 283 9 | 0 0 | 0 0 |

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TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333.00 YU(1) = 589 71 QU(N) = 347.86 YU(N) = 582 69 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QO | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 71 | 0 33 | 333 0 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0.52 | 588 28 | 0.32 | 321 5 | 0 0 | 0.0 | 58 5 | 0 0 | 0 0 | 58 5 | 0 1 | 191 4 | 0 0 | 0 0 |
| 0 68 | 587 30 | 0.32 | 319 1 | 0 0 | 0 0 | 58 8 | 0 0 | 0 0 | 58 8 | 0 1 | 131 4 | 0 0 | 0 0 |
| 0 70 | 587 23 | 0.32 | 319 0 | 0.0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0.1 | 172 0 | 0 0 | 0 0 |
| 0.92 | 586 78 | 0.34 | 336 5 | 0 0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 8 | 0 0 | 0 0 |
| 1.39 | 585 54 | 0 33 | 332 9 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | -0 0 | 164 6 | 0 0 | 0 0 |
| 1.50 | 585 12 | 0 33 | 332.5 | 0 0 | 0 0 | 69 4 | 0 0 | 0 0 | 69 4 | -0 1 | 210 8 | 0 0 | 0 0 |
| 1.61 | 584.95 | 0 33 | 332 3 | 0 0 | 0 0 | 73 8 | 0 0 | 0.0 | 73 8 | -0 1 | 283 0 | 0 0 | 0 0 |
| 1 72 | 584.88 | 0 33 | 332 2 | 0 0 | 0 0 | 78 8 | 0 0 | 0 0 | 78 8 | -0 1 | 372 7 | 0 0 | 0 0 |
| 1.88 | 584 79 | 0 33 | 332 1 | 0 0 | 0 0 | 76.8 | 0.0 | 0 0 | 76 8 | -0 1 | 340 5 | 0 0 | 0 0 |
| 2 04 | 584 67 | 0 33 | 332 0 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | -0 1 | 306 5 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 05 | 584 67 | 0 33 | 332 0 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | -0 1 | 370 3 | 0 0 | 0 0 |
| 2 06 | 584 66 | 0 33 | 332 0 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0 1 | 305 4 | 0 0 | 0 0 |
| 2 39 | 584 31 | 0 33 | 331 2 | 0.0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 238 6 | 0 0 | 0 0 |
| 2 73 | 583 46 | 0 33 | 333 6 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 148 0 | 0 0 | 0 0 |
| 2 99 | 582 95 | 0 34 | 339.4 | 0 0 | 0 0 | 54 4 | 0 0 | 0 0 | 54 4 | -0 4 | 203 0 | 0 0 | 0 0 |
| 3 26 | 582 69 | 0 35 | 347 9 | 0 0 | 0 0 | 63 8 | 0 0 | 0 0 | 63 8 | -0 5 | 263 6 | 0 0 | 0 0 |

**********

TT = 2.0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589 90 QU(N) = 355 10 YU(N) = 582 44 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589 90 QU(N) = 355 10 YU(N) = 582 44 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.90 | 0.37 | 365 0 | 0 0 | 0 0 | 70.8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 5 | 0 0 | 0 0 |
| 0 52 | 588 47 | 0.36 | 357 1 | 0 0 | 0 0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 3 | 0 0 | 0 0 |
| 0 68 | 587 49 | 0 35 | 354 3 | 0 0 | 0 0 | 59 8 | 0 0 | 0 0 | 59 8 | 0 3 | 142 6 | 0 0 | 0 0 |
| 0 70 | 587 43 | 0 35 | 354 1 | 0 0 | 0 0 | 61 0 | 0 0 | 0 0 | 61 0 | 0 3 | 183 8 | 0 0 | 0 0 |
| 0 92 | 586 96 | 0 37 | 371 2 | 0 0 | 0 0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 274 8 | 0 0 | 0 0 |
| 1.39 | 585 66 | 0 36 | 362 0 | 0 0 | 0 0 | 69 6 | 0.0 | 0 0 | 69 6 | 0 1 | 172 9 | 0 0 | 0 0 |
| 1 50 | 585 21 | 0 36 | 360 2 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 0 | 217 4 | 0 0 | 0 0 |
| 1 61 | 585 03 | 0.36 | 358 6 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 8 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 36 | 357 1 | 0.0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 3 | 0 0 | 0 0 |
| 1.88 | 584 85 | 0 36 | 355 2 | 0 0 | 0 0 | 77 2 | 0 0 | 0 0 | 77 2 | -0 0 | 345 2 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0 35 | 353 7 | 0.0 | 0 0 | 74 7 | 0.0 | 0 0 | 74 7 | -0 1 | 310 1 | 0 0 | 0 0 |
| 2 05 | 584 72 | 0 35 | 353 6 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 374 0 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 35 | 353 5 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 309 0 | 0 0 | 0 0 |
| 2.39 | 584 31 | 0 35 | 352 4 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 239 0 | 0 0 | 0 0 |
| 2 73 | 583 39 | 0 35 | 352 0 | 0 0 | 0 0 | 45 7 | 0 0 | 0 0 | 45 7 | -0 3 | 144 9 | 0 0 | 0 0 |
| 2 99 | 582.77 | 0 35 | 352 3 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 193 1 | 0 0 | 0 0 |
| 3.26 | 582 44 | 0 36 | 355 1 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | -0 7 | 247 9 | 0 0 | 0 0 |

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TT = 3 0000 DTH = 1.0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 376 36 YU(N) = 582 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 376.36 YU(N) = 582 30 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 08 | 0 40 | 396 0 | 0.0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 258 9 | 0 0 | 0 0 |
| 0 52 | 588.64 | 0.39 | 387 0 | 0 0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 3 | 0 0 | 0 0 |
| 0.68 | 587 70 | 0 38 | 384.5 | 0 0 | 0 0 | 61 0 | 0 0 | 0 0 | 61 0 | 0 5 | 155 1 | 0 0 | 0 0 |
| 0 70 | 587 64 | 0 38 | 384 2 | 0 0 | 0 0 | 62.0 | 0 0 | 0 0 | 62 0 | 0 5 | 196 7 | 0 0 | 0 0 |
| 0 92 | 587.17 | 0.41 | 407 7 | 0.0 | 0 0 | 67 7 | 0.0 | 0 0 | 67 7 | 0 5 | 288 9 | 0 0 | 0 0 |
| 1 39 | 585 84 | 0 40 | 398 3 | 0 0 | 0 0 | 72.0 | 0 0 | 0 0 | 72 0 | 0 3 | 186 0 | 0 0 | 0 0 |
| 1.50 | 585 39 | 0 40 | 395 9 | 0 0 | 0 0 | 72 0 | 0 0 | 0 0 | 72 0 | 0 2 | 230 0 | 0 0 | 0 0 |
| 1 61 | 585 20 | 0 39 | 393 6 | 0 0 | 0 0 | 75 7 | 0 0 | 0 0 | 75 7 | 0 2 | 301 4 | 0 0 | 0 0 |
| 1 72 | 585 11 | 0 39 | 391 1 | 0 0 | 0 0 | 80 3 | 0 0 | 0 0 | 80 3 | 0 1 | 391 2 | 0 0 | 0 0 |
| 1 88 | 585 00 | 0.39 | 387.6 | 0 0 | 0 0 | 78 3 | 0 0 | 0 0 | 78 3 | 0 1 | 357 2 | 0 0 | 0 0 |
| 2 04 | 584 86 | 0 38 | 384 2 | 0 0 | 0 0 | 75 9 | 0 0 | 0 0 | 75 9 | 0 1 | 320 9 | 0 0 | 0 0 |
| 2.05 | 584 86 | 0.38 | 384.0 | 0 0 | 0 0 | 76 1 | 0 0 | 0 0 | 76 1 | 0 1 | 384 8 | 0 0 | 0 0 |
| 2 06 | 584 84 | 0.38 | 383 7 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 1 | 319 6 | 0 0 | 0 0 |
| 2 39 | 584 44 | 0.38 | 377.0 | 0 0 | 0 0 | 63 2 | 0 0 | 0 0 | 63 2 | -0 1 | 246 6 | 0 0 | 0 0 |
| 2 73 | 583 42 | 0.37 | 373 7 | 0 0 | 0 0 | 45 9 | 0 0 | 0 0 | 45 9 | -0 3 | 146 2 | 0 0 | 0 0 |
| 2.99 | 582.70 | 0 37 | 374 2 | 0 0 | 0 0 | 53 0 | 0 0 | 0 0 | 53 0 | -0 7 | 189 5 | 0 0 | 0 0 |
| 3.26 | 582 30 | 0 38 | 376 4 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62 2 | -0 9 | 239 0 | 0 0 | 0 0 |

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TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427 00 YU(1) = 590 25 QU(N) = 410 90 YU(N) = 582 26 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 4.0000 DTH = 1.0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590 25 QU(N) = 410 90 YU(N) = 582 26 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 25 | 0 43 | 427 0 | 0 0 | 0 0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 271 2 | 0 0 | 0 0 |
| 0.52 | 588 84 | 0 42 | 417 4 | 0 0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 7 | 224 3 | 0 0 | 0 0 |
| 0 68 | 588.00 | 0.41 | 413 1 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | 0 8 | 173 9 | 0 0 | 0 0 |
| 0 70 | 587 96 | 0 41 | 412 6 | 0 0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | 0 8 | 216 6 | 0 0 | 0 0 |
| 0 92 | 587 48 | 0 47 | 473 0 | 0.0 | 0 0 | 68.2 | 0 0 | 0 0 | 68 2 | 0.8 | 310 3 | 0 0 | 0 0 |
| 1 39 | 586.13 | 0 46 | 455 1 | 0 0 | 0 0 | 74 2 | 3 0 | 0 0 | 77 2 | 0.6 | 206 7 | 0 2 | 0 0 |
| 1 50 | 585 68 | 0 45 | 450 9 | 0 0 | 0 0 | 74 9 | 0 0 | 0 0 | 74 9 | 0.5 | 251 1 | 0 0 | 0 0 |
| 1 61 | 585 47 | 0 45 | 446 8 | 0 0 | 0 0 | 77 9 | 0 0 | 0 0 | 77 9 | 0 4 | 322 7 | 0 0 | 0 0 |
| 1 72 | 585 38 | 0 44 | 442 6 | 0 0 | 0 0 | 82 0 | 0 0 | 0 0 | 82 0 | 0 4 | 413 1 | 0 0 | 0 0 |
| 1 88 | 585 26 | 0 44 | 436 7 | 0.0 | 0 0 | 80 2 | 0 0 | 0 0 | 80 2 | 0 4 | 377 7 | 0 0 | 0 0 |
| 2 04 | 585 11 | 0 43 | 431 2 | 0 0 | 0.0 | 77 9 | 0 0 | 0 0 | 77 9 | 0 3 | 339 9 | 0 0 | 0 0 |
| 2 05 | 585 11 | 0 43 | 430 9 | 0 0 | 0 0 | 77 4 | 0 0 | 0 0 | 77 4 | 0 3 | 403 8 | 0 0 | 0 0 |
| 2.06 | 585.09 | 0 43 | 430 5 | 0 0 | 0 0 | 77 7 | 0 0 | 0 0 | 77 7 | 0 3 | 338 5 | 0 0 | 0 0 |
| 2 39 | 584 65 | 0 42 | 421.8 | 0 0 | 0 0 | 64 8 | 0 0 | 0 0 | 64 8 | 0 2 | 260 3 | 0 0 | 0 0 |
| 2 73 | 583 57 | 0 42 | 415.6 | 0 0 | 0 0 | 47 0 | 0 0 | 0 0 | 47 0 | -0 1 | 153 1 | 0 0 | 0 0 |
| 2 99 | 582 74 | 0 41 | 412 3 | 0 0 | 0.0 | 53 2 | 0 0 | 0 0 | 53 2 | -0 6 | 191 8 | 0 0 | 0 0 |
| 3 26 | 582 26 | 0 41 | 410 9 | 0 0 | 0 0 | 62 0 | 0 0 | 0 0 | 62 0 | -0 9 | 236 5 | 0 0 | 0 0 |

**********

TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 51 QU(N) = 505 67 YU(N) = 582 56 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 51 QU(N) = 505 67 YU(N) = 582 56 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 51 | 0 46 | 459 0 | 0 0 | 0 0 | 72.0 | 0 0 | 0 0 | 72 0 | 0 9 | 290 1 | 0 0 | 0 0 |
| 0.52 | 589 41 | 0 43 | 431 1 | 0 0 | 0 0 | 61 6 | 0 0 | 0 0 | 61 6 | 1.2 | 259 1 | 0 0 | 0 0 |
| 0 68 | 589 00 | 0 41 | 414 5 | 0 0 | 0 0 | 68 5 | 0 0 | 0 0 | 68 5 | 1 8 | 239 5 | 0 0 | 0 0 |
| 0 70 | 588 99 | 0 41 | 412 5 | 0 0 | 0 0 | 68 4 | 0 0 | 0 0 | 68 4 | 1 8 | 284 5 | 0 0 | 0 0 |
| 0.92 | 588 49 | 0 75 | 747.0 | 0 0 | 0 0 | 69 7 | 0 0 | 0 0 | 69 7 | 1 8 | 380 2 | 0.0 | 0 0 |
| 1 39 | 586 96 | 0 68 | 669 4 | 7 5 | 0 0 | 75 7 | 22 5 | 0 0 | 98 2 | 1 4 | 269 2 | 10 8 | 0 0 |
| 1 50 | 586 51 | 0 66 | 659 8 | 0 7 | 0 3 | 79 1 | 8 0 | 2 1 | 91 8 | 1 3 | 315 8 | 2 0 | 0 5 |
| 1.61 | 586 28 | 0 65 | 645 3 | 0 1 | 0 1 | 82 7 | 2 2 | 2 3 | 90 0 | 1 3 | 387 7 | 0 3 | 0 3 |
| 1 72 | 586.16 | 0 63 | 630 3 | 0.0 | 0 0 | 86 5 | 0 0 | 2 0 | 90 9 | 1.2 | 478 9 | 0 0 | 0 2 |
| 1 88 | 586 00 | 0 61 | 609.4 | 0.0 | 0 0 | 85 5 | 0 0 | 0 0 | 85 6 | 1 1 | 439 2 | 0 0 | 0 0 |
| 2.04 | 585 81 | 0 59 | 590 1 | 0 0 | 0 0 | 83 5 | 0 0 | 0 0 | 83 5 | 1 0 | 396 5 | 0 0 | 0 0 |
| 2 05 | 585 81 | 0 59 | 588 8 | 0 0 | 0 0 | 81 0 | 0 0 | 0 0 | 81 0 | 1 0 | 459 3 | 0 0 | 0 0 |
| 2.06 | 585 79 | 0 59 | 587 6 | 0 0 | 0 0 | 83 3 | 0 0 | 0 0 | 83 3 | 1 0 | 394 6 | 0 0 | 0 0 |
| 2 39 | 585 27 | 0 55 | 553 4 | 0 0 | 0 0 | 68 6 | 0 0 | 3 4 | 72 0 | 0 8 | 302 1 | 0 0 | 0 5 |
| 2 73 | 584 07 | 0 53 | 530 3 | 0 0 | 0 0 | 50 4 | 0 0 | 1 8 | 52 2 | 0 4 | 177 7 | 0 0 | 0 1 |
| 2 99 | 583 13 | 0 52 | 517 6 | 0 0 | 0 0 | 55.4 | 0 0 | 0 0 | 55 4 | -0 2 | 212 9 | 0 0 | 0 0 |
| 3 26 | 582 56 | 0 51 | 505 7 | 0 0 | 0 0 | 63 2 | 0 0 | 0 0 | 63 2 | -0 6 | 254 9 | 0 0 | 0 0 |

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TT = 6.0000 DTH = 1.0000 ITERR = 3
QU(1) = 490 00 YU(1) = 591 69 QU(N) = 823 41 YU(N) = 583 77 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 6.0000 DTH = 1 0000 ITERR = 3
QU(1) = 490.00 YU(1) = 591 69 QU(N) = 823.41 YU(N) = 583 77 FRDM=0 10 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 591.69 | 0 49 | 490 0 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 2 1 | 376 4 | 0 0 | 0 0 |
| 0 52 | 591.38 | 0 36 | 364.4 | 0.2 | 0 1 | 66 2 | 17 3 | 9 6 | 128 6 | 3 2 | 385 9 | 3 3 | 1 8 |
| 0.68 | 591.34 | 0 31 | 313 2 | 0 2 | 0 0 | 82 0 | 37 2 | 0 0 | 119 2 | 4 1 | 415 1 | 6 3 | 0 0 |
| 0 70 | 591.34 | 0 31 | 308 3 | 0 2 | 0 0 | 78 8 | 37 9 | 0 0 | 116 7 | 4 2 | 458 4 | 6 4 | 0 0 |
| 0 92 | 590 76 | 1 58 | 1579 5 | 4.2 | 0 0 | 74 1 | 109 0 | 0 0 | 183 1 | 4 1 | 542 8 | 41 7 | 0 0 |
| 1 39 | 588 91 | 1 37 | 1242 8 | 131.8 | 0 0 | 79 1 | 68 5 | 0 0 | 147 6 | 3 4 | 420 5 | 99 8 | 0 0 |
| 1 50 | 588 49 | 1 33 | 1261 5 | 49 3 | 18 0 | 83 4 | 39.0 | 10 4 | 145 2 | 3 3 | 476 5 | 48 5 | 12 9 |
| 1 61 | 588 22 | 1 28 | 1247 2 | 14 5 | 21 1 | 87 7 | 17 4 | 18 5 | 145 8 | 3 2 | 553 1 | 19 3 | 20 5 |
| 1 72 | 588 06 | 1 24 | 1226 8 | 0 0 | 8 5 | 92 2 | 0 0 | 25 7 | 148 8 | 3 1 | 648 3 | 0 0 | 26 5 |
| 1.88 | 587 83 | 1 17 | 1166 0 | 0 0 | 3 3 | 90 5 | 0 0 | 11 5 | 115 8 | 2 9 | 600 2 | 0 0 | 10 5 |
| 2 04 | 587 57 | 1 12 | 1116 7 | 0 0 | 0 0 | 88 9 | 0 0 | 0.0 | 88.9 | 2 8 | 548 9 | 0 0 | 0 0 |
| 2 05 | 587 56 | 1 11 | 1113 1 | 0 0 | 0 0 | 91 0 | 0.0 | 0 0 | 130 1 | 2 8 | 610 3 | 0 0 | 0 0 |
| 2 06 | 587.54 | 1 11 | 1109 5 | 0 0 | 0 0 | 88 8 | 0 0 | 0 0 | 88 8 | 2 8 | 546 1 | 0 0 | 0 0 |
| 2 39 | 586 89 | 1 01 | 1009.6 | 0 0 | 5 1 | 75 0 | 0 0 | 23 6 | 98 6 | 2 4 | 418 0 | 0 0 | 22 2 |
| 2.73 | 585 51 | 0 93 | 908 3 | 0 0 | 22 8 | 58 3 | 0 0 | 37 7 | 96 0 | 1 8 | 255 7 | 0 0 | 28 5 |
| 2 99 | 584 45 | 0 87 | 869 5 | 1 7 | 3 8 | 62 8 | 5 9 | 16 6 | 91 3 | 1 1 | 290 9 | 2 8 | 7 9 |
| 3 26 | 583.77 | 0 82 | 820 9 | 1 5 | 1 0 | 69 4 | 9 7 | 7 7 | 96 5 | 0 6 | 335 4 | 3 7 | 3 0 |

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TT = 7 0000 DTH = 1 0000 ITERR = 3
QU(1) = 521 00 YU(1) = 593 15 QU(N) = 1448 24 YU(N) = 585 46 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 7 0000 DTH = 1 0000 ITERR = 3
QU(1) = 521.00 YU(1) = 593 15 QU(N) = 1448 24 YU(N) = 585 46 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 593.15 | 0 52 | 515 1 | 5 7 | 0 2 | 75 0 | 94 5 | 2 9 | 172 4 | 3 6 | 485 4 | 54 1 | 1 6 |
| 0 52 | 593.07 | 0 21 | 205 5 | 6 3 | 2 8 | 67 0 | 93.1 | 51 7 | 403 3 | 4 9 | 498.2 | 96 4 | 53 5 |
| 0 68 | 593 07 | 0 09 | 86 7 | 4 7 | 0 0 | 92 4 | 227 7 | 0 0 | 320 1 | 5 8 | 566 2 | 235 6 | 0 0 |
| 0 70 | 593 07 | 0 08 | 77 9 | 3 8 | 0 0 | 83 2 | 232 9 | 0 0 | 316 0 | 5 9 | 598 8 | 241 0 | 0 0 |
| 0 92 | 592 57 | 2 59 | 2476 8 | 115 1 | 0 0 | 79 1 | 366 6 | 0 0 | 445 7 | 5 9 | 681 2 | 471 6 | 0 0 |
| 1 39 | 590 87 | 2 19 | 1800 5 | 385 2 | 2 9 | 81 0 | 174 5 | 9 8 | 265 3 | 5 3 | 577 7 | 304 5 | 4 2 |
| 1 50 | 590 58 | 2.14 | 1875 3 | 194 1 | 74 0 | 86 8 | 98 7 | 23 5 | 231 9 | 5 4 | 655 5 | 172 4 | 45 0 |
| 1 61 | 590 36 | 2 10 | 1902 9 | 74.4 | 119 0 | 92 5 | 42 4 | 37 7 | 216 1 | 5 3 | 746 6 | 75 9 | 79 4 |
| 1 72 | 590 20 | 2.05 | 1980 3 | 0 0 | 64 8 | 98 1 | 0 0 | 52 5 | 213 7 | 5 2 | 852 8 | 0 0 | 110 4 |
| 1 88 | 589 95 | 1 96 | 1929 4 | 0 0 | 29 4 | 96 4 | 0 0 | 24 7 | 150 7 | 5 1 | 797 9 | 0 0 | 48 7 |
| 2 04 | 589 64 | 1 90 | 1902 3 | 0 0 | 0 0 | 94 1 | 0 0 | 0 0 | 94 1 | 4 8 | 738 2 | 0 0 | 0 0 |
| 2 05 | 589 64 | 1 90 | 1897 6 | 0 0 | 0 0 | 102 9 | 0 0 | 0 0 | 193 8 | 4 8 | 811 1 | 0 0 | 0 0 |
| 2 06 | 589 60 | 1 89 | 1893 0 | 0 0 | 0 0 | 94 0 | 0 0 | 0 0 | 94 0 | 4 8 | 734 7 | 0 0 | 0 0 |
| 2 39 | 588 84 | 1 79 | 1751 6 | 0 0 | 36 8 | 82 9 | 0 0 | 48 0 | 130 9 | 4 4 | 572 3 | 0 0 | 92 2 |
| 2 73 | 587.32 | 1 66 | 1480 3 | 0 0 | 182 8 | 68 3 | 0 0 | 83 1 | 151 4 | 3 6 | 370 6 | 0 0 | 138 1 |
| 2 99 | 586.22 | 1 56 | 1462 4 | 29 1 | 65 2 | 72 8 | 17 0 | 47 7 | 154 5 | 2 9 | 411 3 | 23 2 | 64 9 |
| 3 26 | 585.46 | 1 45 | 1387 7 | 36 9 | 23 6 | 79 2 | 30 8 | 24 6 | 165 4 | 2 3 | 460 9 | 37 9 | 30 3 |

**********

TT = 8 0000 DTH = 1 0000 ITERR = 3
QU(1) = 552 00 YU(1) = 594 78 QU(N) = 2360 49 YU(N) = 587 11 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 8 0000 DTH = 1 0000 ITERR = 3
QU(1) = 552 00 YU(1) = 594 78 QU(N) = 2360 49 YU(N) = 587 11 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 594 78 | 0 55 | 509.2 | 41 5 | 1 4 | 75 0 | 229 4 | 7 0 | 311 4 | 5 2 | 608 1 | 319 1 | 9 7 |
| 0 52 | 594 78 | -0 07 | -64 5 | -7 1 | -3 1 | 67 9 | 170 1 | 94 5 | 682 0 | 6 6 | 613 5 | 321 4 | 178 5 |
| 0 68 | 594 78 | -0 29 | -246 4 | -43 9 | 0 0 | 102.7 | 416 0 | 0 0 | 518 7 | 7 6 | 733 2 | 786 7 | 0 0 |
| 0 70 | 594.78 | -0 31 | -264 9 | -43 5 | 0 0 | 87 5 | 425 5 | 0 0 | 513.0 | 7 6 | 744 9 | 804 8 | 0 0 |
| 0 92 | 594 38 | 4 11 | 3612 3 | 500 1 | 0 1 | 83 5 | 601 1 | 5 0 | 689 6 | 7 7 | 828 3 | 1360 7 | 0 9 |
| 1 39 | 592 76 | 3 36 | 2315 6 | 995 2 | 52 0 | 81 0 | 349 6 | 31 0 | 461 6 | 7 2 | 730 6 | 799 2 | 42 7 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 50 | 592.53 | 3 29 | 2544 2 | 554 2 | 190 9 | 87 1 | 219.1 | 46 2 | 385.0 | 7 4 | 824 7 | 481 8 | 112 8 |
| 1.61 | 592.34 | 3 23 | 2694 1 | 226 2 | 305 9 | 93 1 | 103 7 | 61 6 | 321 9 | 7 3 | 930 6 | 220 8 | 177 9 |
| 1 72 | 592 20 | 3.17 | 2984 8 | 0 0 | 185 4 | 99 1 | 0 0 | 77 5 | 269 6 | 7 2 | 1049 9 | 0 0 | 240 3 |
| 1 88 | 591 93 | 3 07 | 2975 0 | 0 0 | 90 7 | 98 2 | 0 0 | 37 1 | 204 0 | 7 0 | 991 0 | 0 0 | 110 0 |
| 2 04 | 591 59 | 2 99 | 2992 8 | 0 0 | 0 0 | 97 0 | 0 0 | 0 0 | 136 6 | 6 8 | 924 8 | 0 0 | 0 0 |
| 2 05 | 591 59 | 2.98 | 2984.3 | 0 0 | 0 0 | 110 2 | 0 0 | 0 0 | 508 9 | 6 8 | 1020 4 | 0 0 | 0 0 |
| 2.06 | 591 54 | 2 98 | 2975 9 | 0 0 | 0.0 | 96 9 | 0 0 | 0 0 | 135 5 | 6 8 | 920 6 | 0 0 | 0 0 |
| 2.39 | 590 62 | 2.82 | 2699.4 | 14 4 | 110.3 | 86 1 | 21 2 | 119 8 | 247.4 | 6 1 | 722 8 | 17 2 | 237 5 |
| 2.73 | 588 99 | 2.64 | 2163.8 | 9 3 | 468 4 | 74 0 | 26 1 | 185 8 | 285 8 | 5 3 | 490 6 | 13 0 | 342 1 |
| 2.99 | 587 94 | 2.50 | 2193 8 | 86 8 | 218 7 | 80 8 | 44 4 | 95 4 | 242 9 | 4 6 | 543 9 | 65 2 | 176 1 |
| 3 26 | 587 11 | 2.36 | 2121 1 | 144 1 | 95 2 | 88 2 | 57 2 | 43 4 | 237 4 | 3 9 | 599 5 | 106 1 | 84 8 |

**********

TT = 9 0000 DTH = 1 0000 ITERR = 2
QU(1) = 609 00 YU(1) = 596 09 QU(N) = 3432 12 YU(N) = 588 43 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 9.0000 DTH = 1.0000 ITERR = 2
QU(1) = 609 00 YU(1) = 596 09 QU(N) = 3432 12 YU(N) = 588 43 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 09 | 0.61 | 514 5 | 92 3 | 2.2 | 75 0 | 332 5 | 16.7 | 433 4 | 6 5 | 706 4 | 690 5 | 21 2 |
| 0 52 | 596.07 | 0 13 | 100 6 | 20 4 | 9.3 | 68 0 | 196 1 | 100 0 | 790 4 | 7.9 | 701 5 | 561 8 | 307 3 |
| 0 68 | 596 07 | -0 04 | -28 0 | -8 1 | -0 0 | 104 0 | 598 8 | 5 4 | 761 7 | 8 8 | 867 1 | 1436 3 | 2 9 |
| 0 70 | 596 07 | -0 05 | -41 7 | -11 6 | -0 0 | 88 0 | 606 1 | 8 0 | 916 3 | 8 9 | 858 2 | 1465 5 | 4 3 |
| 0 92 | 595 73 | 5 15 | 4134 1 | 1004 9 | 6 4 | 85 2 | 713 1 | 23 0 | 821 2 | 9 0 | 942 7 | 2252 7 | 19 9 |
| 1.39 | 594 31 | 4 52 | 2572.5 | 1814 6 | 136 7 | 81 0 | 465 4 | 50 8 | 597 2 | 8 8 | 856 4 | 1449 8 | 104 8 |
| 1.50 | 594 14 | 4.47 | 3006 0 | 1112 0 | 347 5 | 87 4 | 310 1 | 65 7 | 503 1 | 9 0 | 965 4 | 914 8 | 202 5 |
| 1.61 | 593 98 | 4.41 | 3371 4 | 493 5 | 548 2 | 93 7 | 154.5 | 81 5 | 409 5 | 9 0 | 1084 0 | 433 0 | 295 4 |
| 1 72 | 593.86 | 4 37 | 4014 9 | 0 0 | 351 7 | 99 9 | 0 0 | 98 2 | 316 0 | 8 9 | 1214 6 | 0 0 | 385 7 |
| 1 88 | 593 58 | 4 27 | 4091 4 | 0 0 | 178 8 | 99 6 | 0 0 | 47 4 | 248 5 | 8 7 | 1153 4 | 0 0 | 179 4 |
| 2.04 | 593.20 | 4 20 | 4197 3 | 0 0 | 0 0 | 99 0 | 0 0 | 0 0 | 178 9 | 8 4 | 1082 5 | 0 0 | 0 0 |
| 2 05 | 593 22 | 4 19 | 4185.0 | 0 0 | 0 0 | 115 5 | 0 0 | 0 0 | 818 7 | 8 4 | 1203 7 | 0 0 | 0 0 |
| 2 06 | 593 15 | 4 17 | 4172 8 | 0 0 | 0.0 | 98 9 | 0 0 | 0 0 | 177 7 | 8.4 | 1077 9 | 0 0 | 0 0 |
| 2 39 | 592 00 | 4 01 | 3648 0 | 82 7 | 274 4 | 88 4 | 39 4 | 179 6 | 344 9 | 7 5 | 843 7 | 59 2 | 444 9 |
| 2 73 | 590 29 | 3 78 | 2736 7 | 81 8 | 965 3 | 76 6 | 60 0 | 297 2 | 433 7 | 6 6 | 587 8 | 68 6 | 654 0 |
| 2.99 | 589 28 | 3 60 | 2895 8 | 229.0 | 471 6 | 83 3 | 104 0 | 173 5 | 374 8 | 5 9 | 654 3 | 164 9 | 356 9 |
| 3 26 | 588 43 | 3 43 | 2920 2 | 311 4 | 200 6 | 90 5 | 139 2 | 82 8 | 344 6 | 5 2 | 716 7 | 235 0 | 167 6 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 000 DTH= 0 500 ITERR= 9

**********

TT = 9 5000 DTH = 0 5000 ITERR = 2
QU(1) = 636 00 YU(1) = 596 57 QU(N) = 4022 07 YU(N) = 588 95 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 9 5000 DTH = 0 5000 ITERR = 2
QU(1) = 636 00 YU(1) = 596 57 QU(N) = 4022.07 YU(N) = 588 95 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 57 | 0.64 | 515 7 | 117.8 | 2 5 | 75 0 | 345 6 | 51 1 | 528 3 | 7 0 | 742 0 | 851 4 | 37 3 |
| 0 52 | 596.55 | 0 20 | 149.2 | 35 6 | 16 3 | 68 0 | 203 3 | 100 0 | 822 7 | 8 4 | 734 0 | 657 2 | 355 1 |
| 0.68 | 596 55 | 0.05 | 36 6 | 12 3 | 0 0 | 104 0 | 670 0 | 7 8 | 859 3 | 9 3 | 917 1 | 1740 8 | 6 0 |
| 0 70 | 596 55 | 0 03 | 23 0 | 7.6 | 0 0 | 88 0 | 676 1 | 11 6 | 1085 9 | 9 4 | 900 5 | 1773 4 | 9 0 |
| 0 92 | 596 24 | 5 52 | 4271.2 | 1239 7 | 12 3 | 85 8 | 755 1 | 29 7 | 870 6 | 9 5 | 986 3 | 2626 5 | 33 3 |
| 1 39 | 594 92 | 4 96 | 2567 3 | 2219 8 | 174 2 | 81 0 | 466 1 | 62 2 | 609 4 | 9 4 | 905 8 | 1733 7 | 139 3 |
| 1.50 | 594.77 | 4 92 | 3071 6 | 1433 6 | 410.2 | 87 8 | 310 6 | 76 2 | 514 1 | 9 6 | 1020 7 | 1110 6 | 247 3 |
| 1.61 | 594 63 | 4.87 | 3549 5 | 670 1 | 655 0 | 94.5 | 155 3 | 90 8 | 419 5 | 9 6 | 1144 3 | 532 3 | 350 6 |
| 1 72 | 594 50 | 4.84 | 4400 1 | 0 0 | 438 5 | 101 0 | 0 0 | 106 2 | 326 0 | 9 5 | 1279 0 | 0 0 | 451 3 |

| | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 88 | 594 21 | 4 76 | 4542 6 | 0 0 | 215 7 | 100 6 | 0 0 | 53 9 | 288 8 | 9 3 | 1217 0 | 0 0 | 211 0 |
| 2 04 | 593 83 | 4.70 | 4696 8 | 0 0 | 0.0 | 99 8 | 0 0 | 0 0 | 195 4 | 9 0 | 1145 0 | 0 0 | 0.0 |
| 2 05 | 593.85 | 4 69 | 4686 8 | 0.0 | 0 0 | 117 5 | 0 0 | 0 0 | 939 9 | 9 1 | 1277 6 | 0 0 | 0 0 |
| 2 06 | 593.78 | 4.68 | 4676 8 | 0 0 | 0 0 | 99 7 | 0 0 | -0 0 | 194 1 | 9 0 | 1140 1 | 0 0 | 0 0 |
| 2 39 | 592.54 | 4 54 | 4030 2 | 131.7 | 374 0 | 89 3 | 46 4 | 202 6 | 382 6 | 8 1 | 891 2 | 82 2 | 547 0 |
| 2.73 | 590 81 | 4 35 | 2955 7 | 138 2 | 1252 7 | 77 6 | 73 7 | 342 2 | 493 6 | 7 1 | 628 1 | 103 5 | 821 0 |
| 2 99 | 589 83 | 4.18 | 3196 0 | 340 5 | 640 4 | 84 4 | 128 2 | 205 2 | 428 3 | 6 5 | 700 0 | 228 3 | 460 2 |
| 3 26 | 588.95 | 4.02 | 3292.4 | 453 4 | 276 2 | 91.4 | 172 1 | 98 6 | 387 6 | 5 8 | 764 6 | 316 8 | 215 3 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 500 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 500 DTH= 0 250 ITERR= 9

**********

TT = 9 7500 DTH = 0 2500 ITERR = 2
QU(1) = 649 50 YU(1) = 596 79 QU(N) = 4308 61 YU(N) = 589 17 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 9 7500 DTH = 0 2500 ITERR = 2
QU(1) = 649 50 YU(1) = 596 79 QU(N) = 4308 61 YU(N) = 589 17 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596.79 | 0 65 | 516 4 | 129 8 | 3 3 | 75 0 | 351 6 | 67 1 | 572 5 | 7 2 | 758 5 | 928 3 | 50 3 |
| 0 52 | 596.77 | 0 19 | 140 5 | 35 8 | 16 4 | 68 0 | 206 6 | 100 0 | 837 6 | 8 6 | 749 0 | 702 4 | 377 1 |
| 0.68 | 596 77 | 0 04 | 29 5 | 10 6 | 0 0 | 104 0 | 702 6 | 8 9 | 904 0 | 9 5 | 940 0 | 1891 9 | 7 8 |
| 0 70 | 596 77 | 0 02 | 16 3 | 5 8 | 0 0 | 88 0 | 708 2 | 13 3 | 1163 7 | 9 6 | 919 9 | 1925 7 | 11 8 |
| 0 92 | 596 48 | 5 72 | 4342 2 | 1358 6 | 15 8 | 86 1 | 774 3 | 32 8 | 893 2 | 9 8 | 1006 3 | 2804 5 | 40 6 |
| 1.39 | 595 19 | 5.18 | 2578 0 | 2406 3 | 194 4 | 81 0 | 466 5 | 67 3 | 614 8 | 9 6 | 927 7 | 1859 5 | 156 7 |
| 1 50 | 595.05 | 5 14 | 3111 4 | 1582 6 | 442 7 | 88 0 | 310 9 | 80 8 | 518 9 | 9 9 | 1045 0 | 1196 6 | 269 0 |
| 1 61 | 594.90 | 5 10 | 3636 3 | 754 7 | 708 4 | 94 9 | 155 4 | 94 9 | 423 6 | 9 9 | 1170 8 | 575 8 | 376 5 |
| 1 72 | 594.78 | 5 07 | 4581 7 | 0.0 | 484 4 | 101 6 | 0 0 | 109 7 | 329 3 | 9 8 | 1307 3 | 0 0 | 481 5 |
| 1 88 | 594 48 | 4 98 | 4750 3 | 0 0 | 233 4 | 101 5 | 0 0 | 58 9 | 326 0 | 9 6 | 1244 5 | 0 0 | 226 3 |
| 2 04 | 594 09 | 4 92 | 4918 1 | 0 0 | 0 0 | 100 4 | 0 0 | 2 6 | 233 6 | 9 3 | 1171 3 | 0 0 | 0 1 |
| 2 05 | 594 12 | 4 91 | 4908 2 | 0 0 | 0 0 | 117 8 | 0 0 | 0 0 | 972 1 | 9 3 | 1308 8 | 0 0 | 0 0 |
| 2.06 | 594 04 | 4 90 | 4898 3 | 0 0 | 0 0 | 100 2 | 0 0 | 1 1 | 214 1 | 9 3 | 1166 2 | 0 0 | 0 0 |
| 2.39 | 592 76 | 4.77 | 4191 1 | 156 3 | 422 1 | 89 6 | 49 3 | 212 0 | 397 9 | 8 3 | 910 7 | 92 6 | 592 3 |
| 2 73 | 591 03 | 4 60 | 3044 5 | 166 6 | 1386 6 | 78 1 | 79 4 | 360 9 | 518 4 | 7 3 | 645 0 | 120 1 | 897 2 |
| 2 99 | 590.05 | 4.44 | 3322 9 | 397 4 | 723 2 | 84 8 | 138 4 | 218 5 | 450 7 | 6 7 | 719 3 | 258 6 | 508 5 |
| 3 26 | 589 17 | 4 31 | 3465 4 | 528 3 | 314 9 | 91 8 | 185 6 | 105 1 | 405 3 | 6 0 | 784 4 | 355 5 | 237 3 |

NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 750 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 750 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 9.750 DTH= 0 125 ITERR= 9

**********

TT= 9 8750 DTH = 0 1250 ITERR = 1
QU(1) = 656 25 YU(1) = 596 90 QU(N) = 4445 50 YU(N) = 589 26 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

```
*****************************************************************************************************************************
TT =   9 8750          DTH =  0.1250          ITERR =   1
QU(1) =     656.25     YU(1) =     596 90  QU(N) =    4445 50  YU(N) =     589 26  FRDM=0 04 IFR=  1 FRM=

   X(I)       Y       QQ       QQC       QQL       QQR        B        BL        BR        BT   WAVEHT        A        AL        AR

   0 00   596.90    0 66     516.7     135 7       3 8     75 0    354.6      74 9     594 1      7 3    766 7    966.5      58 0
   0 52   596 88    0 21     153.6      40 3      18 5     68 0    208.2     100 0     844 8      8 7    756 2    724 5     387 8
   0 68   596 88    0 06      46 4      17 2       0 0    104 0    718.3       9 4     925 6      9 7    951 0   1967 4       8 8
   0 70   596 88    0 05      33 1      12 1       0 0     88 0    723 6      14 1    1201 2      9 7    929 2   2001 7      13 2
   0 92   596 59    5 81    4372 2    1416 1      17 6     86 2    783 4      34 3     904 0      9 9   1015 8   2890 8      44 3
   1 39   595 32    5 29    2584 9    2495 7     204 6     81 0    466 6      69 7     617 3      9 8    938 0   1918 9     165 4
   1 50   595.18    5.25    3132 1    1654.3     459 1     88 1    311 0      83 0     521 1     10 0   1056 5   1237 1     279 7
   1 61   595 04    5 21    3679 2     795 9     735 0     95 0    155 4      96 8     425 5     10 0   1183 3    596.2     389 2
   1.72   594.91    5 18    4671 5       0 0     507 4    101.8      0 0     111 4     330 9      9 9   1320 6      0 0     496 0
   1 88   594 61    5 10    4857 5       0 0     243 0    101 8      0 0      61 2     343 3      9 7   1257 4      0 0     234 0
   2 04   594 21    5 03    5029 8       0 0       0.0    101.0      0 0       6 2     280 2      9 4   1183 4      0 0       0 7
   2 05   594 24    5.02    5020 2       0 0       0 0    117.6      0 0       0 0     976 4      9 5   1323 2      0 0       0 0
   2 06   594 16    5.01    5010 9       0 0       0 0    100 8      0 0       4 7     260 3      9 4   1178 2      0 0       0 4
   2 39   592 86    4 88    4263 4     168 2     445 0     89 8     50 6     216 3     404 8      8 4    919 5     97 5     613 2
   2 73   591.12    4 72    3084 7     180 5    1450 2     78 2     82.0     369 4     529 6      7 4    652 6    128 0     932 9
   2.99   590 16    4 57    3382 4     425 1     763 0     85 0    142.8     224 4     460 6      6 8    727 9    272 8     530.8
   3.26   589 26    4 45    3547 7     564.4     333 4     92 0    191 3     107 8     412 9      6 1    792 9    372 9     247 2
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16  17
                                                          TT=     9 875     DTH=     0 500     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16  17
                                                          TT=     9 875     DTH=     0 250     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      6   7   8   9  10  11  12  13  14  15
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     16  17
                                                          TT=     9 875     DTH=     0 125     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      6   7   8   9  10  11  12  13  14  15
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     16  17
                                                          TT=     9 875     DTH=     0 063     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16  17
                                                          TT=     9.875     DTH=     0 250     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO.     1   2   3   4   5   6   7   8   9  10
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16  17
                                                          TT=     9 875     DTH=     0 250     ITERR= 9


                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      6   7   8   9  10  11  12  13  14  15
                  NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     16  17
                                                          TT=     9 875     DTH=     0 250     ITERR= 9


*****************************************************************************************************************************
TT =  10 3750          DTH =  0 5000          ITERR =   3
QU(1) =     683.25     YU(1) =     598 05  QU(N) =    5249 25  YU(N) =     589 87  FRDM=0 00 IFR= 15 FRM=7 00 IFM=  0
```

TT = 10 3750 DTH = 0 5000 ITERR = 3
QU(1) = 683 25 YU(1) = 598 05 QU(N) = 5249 25 YU(N) = 589 87 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 05 | 0 68 | 484 4 | 185.4 | 13 4 | 75 0 | 386.5 | 159 0 | 825 9 | 8 5 | 853 6 | 1396 0 | 193 6 |
| 0 52 | 598 06 | -0.67 | -447 5 | -155 8 | -70 9 | 68 0 | 225 9 | 100 0 | 924 7 | 9 9 | 836 7 | 981 5 | 506 2 |
| 0.68 | 598 07 | -1 12 | -743 5 | -376 8 | -1 8 | 104 0 | 895 6 | 15 4 | 1168 7 | 10 8 | 1075 4 | 2932 5 | 23 6 |
| 0 70 | 598 07 | -1 18 | -780 3 | -398 8 | -3 4 | 88 0 | 898 1 | 23 1 | 1624 0 | 10 9 | 1034 5 | 2972 2 | 35 4 |
| 0 92 | 597.79 | 8 21 | 5630 4 | 2529 8 | 53 8 | 87 7 | 882.5 | 50 2 | 1020 4 | 11 1 | 1120 3 | 3890 9 | 95 1 |
| 1.39 | 596.32 | 6 86 | 2954 8 | 3571 7 | 334 0 | 81 0 | 467 9 | 88 6 | 637 5 | 10 8 | 1019 6 | 2389 5 | 245 1 |
| 1 50 | 596.18 | 6 79 | 3656 0 | 2462.5 | 667 6 | 88 8 | 311 8 | 99 6 | 538 4 | 11 0 | 1144 8 | 1548 1 | 370 9 |
| 1 61 | 596 01 | 6 72 | 4426 3 | 1240 4 | 1055 3 | 96 3 | 155 8 | 111 0 | 439 8 | 11 0 | 1276 6 | 748 0 | 490 5 |
| 1.72 | 595 85 | 6 67 | 5898 5 | 0 0 | 768 1 | 103 7 | 0 0 | 123 1 | 342 2 | 10 9 | 1417 6 | 0 0 | 606 6 |
| 1 88 | 595 46 | 6 51 | 6156 3 | 0 0 | 357 2 | 104 4 | 0 0 | 76 8 | 459 2 | 10 6 | 1345 1 | 0 0 | 292 6 |
| 2.04 | 594 89 | 6 37 | 6364 7 | 0 0 | 4 0 | 104 4 | 0 0 | 26 7 | 542 5 | 10 1 | 1253 4 | 0 0 | 11 9 |
| 2 05 | 594 94 | 6.35 | 6353 0 | 0 0 | 0 0 | 116 5 | 0 0 | 0 0 | 1001 1 | 10 2 | 1405 0 | 0 0 | 0 0 |
| 2 06 | 594.82 | 6 34 | 6335.6 | 0 0 | 2 1 | 104 1 | 0 0 | 24 6 | 515 8 | 10 0 | 1246 2 | 0 0 | 10 1 |
| 2 39 | 593.61 | 6 04 | 5087 8 | 288 4 | 661 8 | 91.5 | 68 6 | 269 3 | 586 7 | 9 1 | 988 2 | 142 1 | 795 8 |
| 2 73 | 591.75 | 5 72 | 3456 2 | 294 1 | 1965 3 | 79 5 | 98 3 | 423 1 | 600 9 | 8 0 | 701 7 | 184 2 | 1179 7 |
| 2 99 | 590.77 | 5 47 | 3787 1 | 629 6 | 1050 3 | 86 1 | 170.1 | 260 1 | 521 0 | 7 4 | 780 5 | 369 2 | 679 9 |
| 3 26 | 589.87 | 5 25 | 3966 4 | 822 3 | 460 5 | 93 0 | 229 5 | 126 1 | 462 7 | 6 7 | 849 3 | 501 2 | 318 5 |

TT = 11 3750 DTH = 1 0000 ITERR = 2
QU(1) = 737 25 YU(1) = 598 17 QU(N) = 6332 24 YU(N) = 590 58 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

TT = 11.3750 DTH = 1 0000 ITERR = 2
QU(1) = 737 25 YU(1) = 598 17 QU(N) = 6332 24 YU(N) = 590 58 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 17 | 0.74 | 517 1 | 204 2 | 16 0 | 75 0 | 389 8 | 167 7 | 850 0 | 8 6 | 862 6 | 1442 8 | 213 2 |
| 0 52 | 598 05 | 1.59 | 1053 3 | 366 1 | 166 7 | 68 0 | 225 8 | 100 0 | 924 0 | 9 9 | 836 1 | 979 3 | 505 3 |
| 0 68 | 598 00 | 1 90 | 1266 4 | 630 8 | 3 0 | 104 0 | 885 0 | 15 0 | 1154 1 | 10 8 | 1067 9 | 2868 5 | 22 5 |
| 0 70 | 598 00 | 1 94 | 1291 6 | 647 1 | 5.4 | 88 0 | 886.7 | 22 5 | 1596 4 | 10 9 | 1027 7 | 2902 4 | 33 7 |
| → 0.92 | 597.76 | 5 92 | 4045 8 | 1832 0 | 38 1 | 87 7 | 880 4 | 49 9 | 1018 0 | 11 1 | 1118 1 | 3868 7 | 93 8 |
| 1 39 | 596.77 | 6.65 | 2724 3 | 3573 8 | 355 4 | 81 0 | 468 5 | 97 0 | 646 5 | 11 2 | 1056 2 | 2601 1 | 287 0 |
| 1 50 | 596.66 | 6 67 | 3435 0 | 2544 5 | 693 5 | 89 1 | 312 2 | 107 7 | 546 8 | 11 5 | 1187 8 | 1699 0 | 421 0 |
| 1 61 | 596.53 | 6 69 | 4252 1 | 1329 9 | 1105 7 | 97 0 | 156 1 | 118 5 | 447 4 | 11 5 | 1326 3 | 828 2 | 549 5 |
| 1 72 | 596 39 | 6 70 | 5858 7 | 0 0 | 839.6 | 104 8 | 0 0 | 129 9 | 348 7 | 11 4 | 1473 7 | 0 0 | 674 7 |
| 1 88 | 596 03 | 6.71 | 6297 6 | 0.0 | 411 5 | 106 1 | 0 0 | 87 3 | 537 4 | 11 1 | 1405 4 | 0 0 | 339 7 |
| 2 04 | 595 53 | 6 67 | 6650 9 | 0 0 | 16 8 | 107 6 | 0 0 | 45 8 | 788 1 | 10 7 | 1321 1 | 0 0 | 35 0 |
| 2 05 | 595 58 | 6 66 | 6663 7 | 0 0 | 0 0 | 115 5 | 0 0 | 0 0 | 1023 6 | 10 8 | 1479 0 | 0 0 | 0 0 |
| 2 06 | 595 46 | 6 66 | 6649 8 | 0 0 | 9 9 | 107 3 | 0 0 | 43 8 | 762 2 | 10 7 | 1313 9 | 0 0 | 32 0 |
| 2 39 | 594 12 | 6 56 | 5342 6 | 414 0 | 806 0 | 92 8 | 81 9 | 307 9 | 728 7 | 9 6 | 1034 9 | 180 3 | 942 2 |
| 2 73 | 592.37 | 6 50 | 3671 5 | 404 9 | 2427.1 | 80 0 | 124 5 | 490 6 | 695 1 | 8 7 | 751 8 | 252 7 | 1464 0 |
| 2 99 | 591.46 | 6 42 | 4114 2 | 899 3 | 1406 5 | 87 4 | 200 9 | 300 4 | 589 0 | 8 1 | 840 7 | 497 8 | 874 3 |
| 3 26 | 590.58 | 6 33 | 4468 7 | 1216 0 | 647 5 | 94 3 | 273 6 | 147 3 | 520 4 | 7 4 | 915 4 | 678 7 | 415 0 |

TT = 12 3750 DTH = 1 0000 ITERR = 2
QU(1) = 812 25 YU(1) = 597 95 QU(N) = 6529 51 YU(N) = 590 72 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

TT = 12 3750 DTH = 1 0000 ITERR = 2
QU(1) = 812 25 YU(1) = 597 95 QU(N) = 6529 51 YU(N) = 590 72 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597.95 | 0 81 | 581 4 | 216 2 | 14 6 | 75 0 | 383 6 | 151 3 | 804 8 | 8 4 | 845 7 | 1355 4 | 177 2 |
| 0 52 | 597.95 | 0 42 | 277 8 | 94 5 | 43 1 | 68 0 | 224 3 | 100 0 | 917 2 | 9 8 | 829 1 | 956 4 | 495 1 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 68 | 597.96 | 0 23 | 153.0 | 75.4 | 0 3 | 104 0 | 878.9 | 14 8 | 1145 7 | 10 7 | 1063 6 | 2832 3 | 21 9 |
| 0 70 | 597.96 | 0.20 | 134 1 | 66 6 | 0 5 | 88.0 | 881 7 | 22 2 | 1584 2 | 10 8 | 1024 6 | 2872 0 | 32 9 |
| 0 92 | 597 73 | 6 71 | 4608 4 | 2061 4 | 42.5 | 87 7 | 877 4 | 49 4 | 1014 4 | 11 0 | 1114.8 | 3836 5 | 92 0 |
| 1 39 | 596 64 | 6 30 | 2616 2 | 3354 5 | 327 7 | 81 0 | 468 3 | 94 6 | 643 9 | 11 1 | 1045 5 | 2539 5 | 274 5 |
| 1 50 | 596 54 | 6.29 | 3277 3 | 2371 1 | 644 9 | 89 0 | 312 1 | 105 6 | 544 6 | 11 4 | 1176 6 | 1659 8 | 407 6 |
| 1 61 | 596 41 | 6 29 | 4030 6 | 1231.3 | 1028 1 | 96 9 | 156 0 | 116 8 | 445 7 | 11 4 | 1315 1 | 810 1 | 535 8 |
| 1 72 | 596 28 | 6.29 | 5512 3 | 0 0 | 775 9 | 104 6 | 0 0 | 128 6 | 347 4 | 11 3 | 1462 7 | 0 0 | 661.0 |
| 1 88 | 595.96 | 6.30 | 5915 6 | 0 0 | 380 5 | 105 9 | 0.0 | 85 9 | 526 9 | 11 1 | 1397 3 | 0 0 | 333 0 |
| 2 04 | 595 48 | 6 34 | 6324.7 | 0.0 | 14 6 | 107 4 | 0 0 | 44 3 | 768 6 | 10 7 | 1315 6 | 0 0 | 32 7 |
| 2 05 | 595 52 | 6 34 | 6343 2 | 0 0 | 0 0 | 115 6 | 0 0 | 0 0 | 1021 5 | 10 7 | 1472 3 | 0 0 | 0 0 |
| 2.06 | 595 41 | 6.35 | 6338 5 | 0 0 | 8.7 | 107.1 | 0 0 | 42 3 | 743 1 | 10 6 | 1308 5 | 0 0 | 29 9 |
| 2 39 | 594 12 | 6 43 | 5228 0 | 408 5 | 790 2 | 92 8 | 81 9 | 307 9 | 728 8 | 9 6 | 1034 9 | 180 3 | 942 2 |
| 2 73 | 592 46 | 6 44 | 3605 5 | 410 4 | 2428 1 | 80 0 | 129 1 | 501 1 | 710 2 | 8 7 | 758 7 | 263 6 | 1506 7 |
| 2.99 | 591 59 | 6.49 | 4106 1 | 930 5 | 1451 2 | 87 5 | 209 6 | 308 6 | 605 7 | 8 2 | 851 9 | 524 1 | 913 3 |
| 3 26 | 590 72 | 6 53 | 4541.5 | 1301 3 | 686 6 | 94 5 | 282 6 | 151 7 | 532 3 | 7 5 | 929 1 | 719 1 | 436 7 |

**********

TT = 13 3750 DTH = 1 0000 ITERR = 2
QU(1) = 922.63 YU(1) = 597 77 QU(N) = 6227 41 YU(N) = 590 58 FRDM=0 00 IFR= 17 FRM=7 00 IFM= 0

**********

TT = 13 3750 DTH = 1.0000 ITERR = 2
QU(1) = 922 63 YU(1) = 597 77 QU(N) = 6227 41 YU(N) = 590 58 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 77 | 0 92 | 671 1 | 237.4 | 14.2 | 75.0 | 378 8 | 138 5 | 769 6 | 8 2 | 832 5 | 1288 3 | 151 7 |
| 0 52 | 597 63 | 1 45 | 990 9 | 314.4 | 143 6 | 68.0 | 219 4 | 100 0 | 895 5 | 9 5 | 807 3 | 885 1 | 462 9 |
| 0 68 | 597 58 | 1 69 | 1167 2 | 523 1 | 2 0 | 104 0 | 821 9 | 12 9 | 1067 6 | 10 4 | 1023 7 | 2505 6 | 16 6 |
| 0 70 | 597 57 | 1 73 | 1191 4 | 533 1 | 3 4 | 88 0 | 824 7 | 19 3 | 1446 2 | 10 4 | 990 2 | 2538 5 | 24 8 |
| 0 92 | 597 34 | 5 37 | 3800 3 | 1541 0 | 27 4 | 87 2 | 845 4 | 44 2 | 976 8 | 10 6 | 1081 0 | 3502 6 | 73 8 |
| 1 39 | 596.39 | 5 99 | 2559 3 | 3132 9 | 295 6 | 81 0 | 468 0 | 89 8 | 638 8 | 10 8 | 1024 9 | 2420 6 | 251 0 |
| 1.50 | 596.28 | 6 01 | 3204 4 | 2204 9 | 598 0 | 88 9 | 311 9 | 101 4 | 540 2 | 11 1 | 1154 0 | 1580 3 | 381 3 |
| 1.61 | 596.16 | 6 02 | 3927.3 | 1136 5 | 959 7 | 96 5 | 155 9 | 113 1 | 441 9 | 11 1 | 1290 5 | 770 4 | 506 6 |
| 1 72 | 596 03 | 6 04 | 5320 8 | 0 0 | 716 3 | 104 1 | 0 0 | 125 4 | 344 4 | 11 1 | 1436 3 | 0 0 | 628 9 |
| 1 88 | 595 71 | 6.07 | 5723 4 | 0 0 | 349 8 | 105 1 | 0 0 | 81 4 | 493 3 | 10 8 | 1371 3 | 0 0 | 312 4 |
| 2 04 | 595 24 | 6 10 | 6092 9 | 0 0 | 9 0 | 106 2 | 0.0 | 37 2 | 677 8 | 10 5 | 1290 4 | 0.0 | 23 1 |
| 2 05 | 595.28 | 6 10 | 6104 8 | 0 0 | 0 0 | 116 0 | 0 0 | 0 0 | 1013 2 | 10 5 | 1444 9 | 0 0 | 0 0 |
| 2.06 | 595.18 | 6 11 | 6102 4 | 0.0 | 5 2 | 105 9 | 0 0 | 35 3 | 653 3 | 10 4 | 1283 7 | 0 0 | 20 8 |
| 2 39 | 593 97 | 6 16 | 5067.3 | 361 6 | 733 2 | 92 4 | 78 0 | 296 5 | 686 8 | 9 5 | 1021 0 | 168 3 | 896 9 |
| 2 73 | 592 30 | 6 23 | 3541 2 | 381 1 | 2307 1 | 80 0 | 120 9 | 482 2 | 683 2 | 8 6 | 746 3 | 244 3 | 1430 8 |
| 2.99 | 591 43 | 6 23 | 4008 3 | 866 1 | 1358 1 | 87 4 | 199 5 | 298 6 | 585 9 | 8.1 | 837 9 | 491 5 | 864 9 |
| 3 26 | 590 58 | 6 23 | 4395 0 | 1195 7 | 636 7 | 94 3 | 273 5 | 147 3 | 520 4 | 7 4 | 915 3 | 678 5 | 414 9 |

NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 3 4 5 6 7 8 9 10 11 12
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 13 14 15 16 17
TT= 13 375 DTH= 0 500 ITERR= 9

**********

TT = 13 8750 DTH = 0 5000 ITERR = 2
QU(1) = 978 13 YU(1) = 597.51 QU(N) = 6103 49 YU(N) = 590 53 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 13 8750 DTH = 0.5000 ITERR = 2
QU(1) = 978.13 YU(1) = 597 51 QU(N) = 6103 49 YU(N) = 590 53 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597.51 | 0 98 | 728 6 | 238 0 | 11 6 | 75 0 | 371 5 | 119 5 | 717 1 | 7.9 | 812 8 | 1189 8 | 117 8 |
| 0 52 | 597 44 | 1 06 | 737 2 | 224 0 | 102 5 | 68 0 | 216 7 | 100 0 | 883 0 | 9.3 | 794 7 | 844 8 | 444 4 |
| 0.68 | 597.44 | 1 00 | 699.2 | 302 4 | 1 0 | 104 0 | 801.7 | 12 2 | 1039 8 | 10 2 | 1009 5 | 2394 5 | 14 9 |
| 0.70 | 597 44 | 0 99 | 690.5 | 297 9 | 1 7 | 88 0 | 805.6 | 18 3 | 1399 8 | 10 3 | 978 7 | 2431 6 | 22 3 |
| 0.92 | 597 19 | 5 72 | 4101 4 | 1594 6 | 26 8 | 87 0 | 833.5 | 42 3 | 962 8 | 10 5 | 1068 4 | 3381 2 | 67 6 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 39 | 596 16 | 5 67 | 2489 8 | 2914 3 | 266 5 | 81 0 | 467 7 | 85 5 | 634 2 | 10 6 | 1006 3 | 2312 9 | 230 9 |
| 1 50 | 596 05 | 5 69 | 3101 7 | 2033 6 | 551 3 | 88 7 | 311 7 | 97 5 | 536 2 | 10 9 | 1133 6 | 1508 7 | 358 4 |
| 1 61 | 595 93 | 5.70 | 3775 5 | 1038 0 | 887 3 | 96 2 | 155 8 | 109 8 | 438 6 | 10 9 | 1268 7 | 735 2 | 481 4 |
| 1.72 | 595 81 | 5 71 | 5059 2 | 0 0 | 654 4 | 103 6 | 0 0 | 122 6 | 341 7 | 10 8 | 1413 3 | 0 0 | 601 5 |
| 1 88 | 595.51 | 5 76 | 5438 0 | 0 0 | 318 9 | 104.5 | 0 0 | 77 6 | 465 4 | 10 6 | 1349 8 | 0 0 | 296 1 |
| 2 04 | 595 05 | 5 82 | 5818.2 | 0 0 | 5 5 | 105 2 | 0 0 | 31 4 | 603 6 | 10 3 | 1270 1 | 0 0 | 16 5 |
| 2 05 | 595 08 | 5 83 | 5830 5 | 0 0 | 0 0 | 116.3 | 0 0 | 0 0 | 1006 3 | 10 3 | 1422 1 | 0 0 | 0 0 |
| 2 06 | 594 99 | 5.84 | 5834 0 | 0 0 | 3 2 | 104 9 | 0 0 | 29 6 | 579 5 | 10 2 | 1263 5 | 0 0 | 14 6 |
| 2.39 | 593 85 | 5 96 | 4937 1 | 329 6 | 691 2 | 92 1 | 74 9 | 287 6 | 654 0 | 9 4 | 1010 2 | 159 4 | 862 7 |
| 2 73 | 592 23 | 6 01 | 3443 2 | 360 5 | 2206 2 | 80 0 | 116 8 | 472 6 | 669 5 | 8 5 | 740 1 | 235 0 | 1393 5 |
| 2 99 | 591 37 | 6.06 | 3925 3 | 829 9 | 1307 7 | 87 3 | 196 9 | 295 2 | 580 2 | 8 0 | 832 8 | 479 9 | 847 4 |
| 3.26 | 590.53 | 6 10 | 4327 8 | 1157 5 | 618 2 | 94 2 | 270 6 | 145 9 | 516 5 | 7 4 | 910 9 | 665 7 | 408 0 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 13 875 DTH= 0 500 ITERR= 9

**********

TT = 14.3750 DTH = 0 5000 ITERR = 2
QU(1) = 1033 25 YU(1) = 597 37 OU(N) = 5921 62 YU(N) = 590 44 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 14 3750 DTH = 0 5000 ITERR = 2
QU(1) = 1033 25 YU(1) = 597 37 QU(N) = 5921 62 YU(N) = 590 44 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 37 | 1 03 | 779 6 | 243 2 | 10 5 | 75 0 | 367 7 | 109 3 | 688 8 | 7 8 | 802 2 | 1137 6 | 101 6 |
| 0 52 | 597 21 | 1 35 | 950 8 | 272 7 | 124 9 | 68 0 | 213 1 | 100 0 | 867 1 | 9 0 | 778 7 | 794 2 | 420 9 |
| 0 68 | 597 15 | 1 55 | 1108 5 | 443 9 | 1 2 | 104 0 | 759 3 | 10 8 | 981 8 | 9 9 | 979 8 | 2171 8 | 11 6 |
| 0 70 | 597.15 | 1.59 | 1133 6 | 449 6 | 2 1 | 88 0 | 763 1 | 16 1 | 1297 0 | 10 0 | 953 1 | 2203 2 | 17 3 |
| 0 92 | 596 91 | 4 97 | 3643 9 | 1309 0 | 19 2 | 86 6 | 809 9 | 38 5 | 935 0 | 10 2 | 1043 5 | 3145 9 | 56 0 |
| 1.39 | 595 94 | 5 52 | 2490 6 | 2783 5 | 247 0 | 81 0 | 467 4 | 81 3 | 629 7 | 10 4 | 988 2 | 2208 7 | 212 3 |
| 1 50 | 595 82 | 5.54 | 3090 8 | 1925 3 | 522.9 | 88 5 | 311 5 | 93 7 | 532 3 | 10 6 | 1113 4 | 1437 6 | 336 6 |
| 1 61 | 595 70 | 5 56 | 3739 6 | 971 8 | 843 6 | 95 9 | 155 7 | 106.4 | 435 2 | 10 7 | 1246 3 | 699 0 | 456 3 |
| 1.72 | 595 58 | 5 57 | 4956 0 | 0 0 | 613 6 | 103 2 | 0 0 | 119 7 | 338 9 | 10 6 | 1389 0 | 0 0 | 573 0 |
| 1 88 | 595 27 | 5 61 | 5316 2 | 0 0 | 297 4 | 103.8 | 0 0 | 73 2 | 432 6 | 10 4 | 1324 8 | 0 0 | 278 0 |
| 2.04 | 594 79 | 5.67 | 5664 7 | 0 0 | 2 6 | 103 9 | 0 0 | 23 6 | 502 7 | 10 0 | 1242 7 | 0 0 | 9 3 |
| 2 05 | 594 82 | 5 67 | 5673 8 | 0 0 | 0 0 | 116 7 | 0 0 | 0 0 | 997 0 | 10 0 | 1391 4 | 0 0 | 0 0 |
| 2 06 | 594.72 | 5 68 | 5678 8 | 0.0 | 1 4 | 103 6 | 0 0 | 21 7 | 478 3 | 9 9 | 1236 1 | 0 0 | 7 8 |
| 2.39 | 593 74 | 5 77 | 4815.6 | 300 6 | 652 7 | 91 8 | 71 9 | 278 9 | 622 1 | 9 3 | 999 8 | 151 0 | 830 4 |
| 2 73 | 592.12 | 5 84 | 3378 9 | 341 4 | 2118 3 | 80 0 | 111.4 | 460 0 | 651 4 | 8 4 | 731 8 | 223 3 | 1345 4 |
| 2 99 | 591.27 | 5.88 | 3852 2 | 784 2 | 1246 4 | 87 1 | 192 5 | 289 4 | 570 3 | 7 9 | 824 1 | 460 4 | 818 1 |
| 3 26 | 590.44 | 5 92 | 4236 4 | 1096 3 | 589 0 | 94 0 | 264 9 | 143 2 | 509.2 | 7 3 | 902 4 | 641 6 | 395 0 |

```
B7700 PROGRAMDUMP FOR STACK 238 (MIX 6001/6033) BOSR=4A880                    WEDNESDAY, APRIL 11,1984  11 05 24
NAME:  (DNROBJ)P/G/551/03 ON DNROBJECTS

MCP 33 320 2327   *SYSTEM/MCP33PATCH1970      INTRINSICS   SYSTEM/INTRINSICS  (LOADED)
SYSTEM SERIAL  #112    HOSTNAME: (NOT SPECIFIED)    GROUP ID  DEFAULT

CAUSE OF DUMP:  FAULT TERMINATION @  01B 01B1 5 (00484300), 002 1841 4 (00216000), 025 0000 4

PIB HISTORY WORD AT ENTRY TO PROGRAM DUMP: 0 000000 020404

PROGRAMDUMP OPTIONS    ARRAY(S), BASE, CODE, FILE(S)


086C = LOSR  (4B0EC)

067B (01,0006)  0 000000 000000
067A (01,0005)  0 000000 049E98  OP.   OCT 00000000 01117230 , EBC ??? ±q, DEC 302744
0679 (01,0004)  0 000000 000000
0678 (01,0003)  0 FFFFFF FFFFFF  OP:   OCT 77777777 77777777 , EBC.       , DEC -7 0064923216E-46
0677 (01,0002)  0 000000 0007F2  OP    OCT 00000000 00003762 , EBC:???? 2, DEC 2034
0676            3 01861D 58476E  RCW   LL=01, CNTRL STATE                 [MCP SEGMENT       @ 076E 01D5 3]
                                 SEG DESC   3 800026 8009B6
                                 CODE.  3 ADABB2 3595B8  3 40CBA5 B252A6  3 B7BD9E 27B8AE >3 403AAB B5A3A3< 3 FFFFB0 B0B420
0675 ----D[01]=>3 C08000 804007 *MSCW  PREVIOUS MSCW @ 066E, D[00]=0008 IN STACK 008

0674 (01,0006)  7 23821B 70876E  PCW   LL=02, D[0] SEGMENT @ 076E 01B7 1, NORML STATE
0673 (01,0005)  0 000000 000006  OP    OCT 00000000 00000006 , EBC ????? , DEC 6
0672 (01,0004)  0 000000 000002  OP    OCT.00000000 00000002 , EBC:????? , DEC 2
0671 (01,0003)  0 000000 000000
0670 (01,0002)  0 000001 000008  *************** EXPONENT OVERFLOW  ***********************************************
066F            3 008A1B 10E01B  RCW   LL=03, NORML STATE                 [USER SEGMENT      @ 001B 01B1 5 (00484300)]
                                 SEG DESC   3 800032 A4D1A8
                                 CODE:  3 8214AD 82BEFF  3 262353 F7CED9  3 149682 149682 >3 149D82 149D82< 3 8354B5 B8B202
066E ----D[01]=>3 C08000 804000 *MSCW  PREVIOUS MSCW @ 0661, D[00]=0008 IN STACK 008

066D (03,000C)  0 0077EF A0BB2D  OP    OCT 00073757 50135455 , EBC ?  Z_, DEC 515121396525
066C (03,000B)  0 0BE1E8 2CFE00  OP    OCT 02760750 13177000 , EBC   Y  ?, DEC 2 48223573708E+32
066B (03,000A)  6 800000 000000  SCW
066A (03,0009)  0 000000 000008  OP    OCT 00000000 00000010 , EBC ????? , DEC 8
0669 (03,0008)  0 000000 000001  OP    OCT:00000000 00000001 , EBC:????? , DEC 1
0668 (03,0007)  0 26CCCC CCCCCD  OP    OCT 11546314 63146315 , EBC       , DEC 0 6
0667 (03,0006)  5 E00004 0408E6  DESC [PRESENT-COPY]  DATA, INDEX=64  (MOM NOT IN THIS STACK OR SEGDICT)
0666 (03,0005)  0 000000 000000
0665 (03,0004)  5 400015 44A89A  DESC [ABSENT-COPY]  DATA, LENGTH=340  (MOM @ OFFSET=001A IN THIS STACK)
0664 (03,0003)  1 638001 400151  SIRW  OFFSET=0165 (0014+0151) IN THIS STACK
0663 (03,0002)  1 638001 400142  SIRW  OFFSET=0156 (0014+0142) IN THIS STACK
0662            3 038984 10E002  RCW   LL=03, NORML STATE                 [USER SEGMENT      @ 0002 1841 4 (00216000)]
                                 SEG DESC   3 8801F1 34FD6C
                                 CODE:  3 9841AE 516451  3 42AF51 51AF50  3 06BDB0 B31F40 >3 5010A6 ABB309< 3 635014 ADB18C
0661 ----D[03]=>3 638001 40C0B7 *MSCW  PREVIOUS MSCW @ 05AA; D[02]=0014

0660 (03,00B6)  6 800000 000000  SCW
065F (03,00B5)  7 2387D3 C12002  PCW   LL=04, D[1] SEGMENT @ 0002:1D3C 3, NORML STATE
065E (03,00B4)  7 2387D1 A12002  PCW   LL=04, D[1] SEGMENT @ 0002:1D1A 3, NORML STATE
065D (03,00B3)  7 238BCB 812002  PCW   LL=04, D[1] SEGMENT @ 0002 1CB8 5, NORML STATE
065C (03,00B2)  7 2381C9 D12002  PCW:  LL=04, D[1] SEGMENT @ 0002 1C9D 0, NORML STATE
065B (03,00B1)  7 238BC8 112002  PCW:  LL=04, D[1] SEGMENT @ 0002 1C81 5, NORML STATE
065A (03,00B0)  7 238BC5 912002  PCW:  LL=04, D[1] SEGMENT @ 0002 1C59.5, NORML STATE
0659 (03,00AF)  7 238BC4 A12002  PCW   LL=04, D[1] SEGMENT @ 0002 1C4A 5, NORML STATE
0658 (03,00AE)  7 2389BE 812002  PCW.  LL=04, D[1] SEGMENT @ 0002 1BE8 4, NORML STATE
0657 (03,00AD)  7 238BBA 212002  PCW   LL=04, D[1] SEGMENT @ 0002 1BA2 5, NORML STATE
0656 (03,00AC)  7 2383B2 512002  PCW   LL=04, D[1] SEGMENT @ 0002:1B25 1, NORML STATE
0655 (03,00AB)  7 238BAE 312002  PCW:  LL=04, D[1] SEGMENT @ 0002:1AE3 5, NORML STATE
0654 (03,00AA)  7 238BAC 112002  PCW   LL=04, D[1] SEGMENT @ 0002:1AC1 5, NORML STATE
0653 (03,00A9)  7 238BA3 112002  PCW:  LL=04, D[1] SEGMENT @ 0002.1A31 5, NORML STATE
```

```
0652 (03,00A8)  7 2383A1 512002  PCW   LL=04, D[1] SEGMENT @ 0002 1A15 1, NORML STATE
0651 (03,00A7)  7 238990 C12002  PCW   LL=04, D[1] SEGMENT @ 0002 19DC 4, NORML STATE
0650 (03,00A6)  7 238598 F12002  PCW   LL=04, D[1] SEGMENT @ 0002 198F 2, NORML STATE
064F (03,00A5)  7 238396 D12002  PCW.  LL=04, D[1] SEGMENT @ 0002 1960 1, NORML STATE
064E (03,00A4)  7 238B8A A12002  PCW   LL=04, D[1] SEGMENT @ 0002 18AA 5, NORML STATE
064D (03,00A3)  7 238B89 D12002  PCW   LL=04, D[1] SEGMENT @ 0002 1890 5, NORML STATE
064C (03,00A2)  7 23896A 412002  PCW   LL=04, D[1] SEGMENT @ 0002 16A4 4, NORML STATE
064B (03,00A1)  7 238B5B 512002  PCW:  LL=04, D[1] SEGMENT @ 0002 15B5 5, NORML STATE
064A (03,00A0)  7 238B57 012002  PCW   LL=04, D[1] SEGMENT @ 0002 1570 5, NORML STATE
0649 (03,009F)  7 238B55 E12002  PCW   LL=04, D[1] SEGMENT @ 0002 155E 5, NORML STATE
0648 (03,009E)  7 238754 112002  PCW·  LL=04, D[1] SEGMENT @ 0002 1541 3, NORML STATE
0647 (03,009D)  7 238551 F12002  PCW.  LL=04, D[1] SEGMENT @ 0002 151F 2, NORML STATE
0646 (03,009C)  7 238950 612002  PCW.  LL=04, D[1] SEGMENT @ 0002 1506 4, NORML STATE
0645 (03,009B)  7 238140 012002  PCW·  LL=04, D[1] SEGMENT @ 0002 1400 0, NORML STATE
0644 (03,009A)  7 23893C A12002  PCW   LL=04, D[1] SEGMENT @ 0002 13CA 4, NORML STATE
0643 (03,0099)  7 23813B 912002  PCW   LL=04, D[1] SEGMENT @ 0002 13B9 0, NORML STATE
0642 (03,0098)  7 238739 F12002  PCW   LL=04, D[1] SEGMENT @ 0002 139F 3, NORML STATE
0641 (03,0097)  7 238129 612002  PCW   LL=04, D[1] SEGMENT @ 0002 1296 0, NORML STATE
0640 (03,0096)  7 238728 212002  PCW   LL=04, D[1] SEGMENT @ 0002 1282 3, NORML STATE
063F (03,0095)  7 23831D A12002  PCW   LL=04, D[1] SEGMENT @ 0002 11DA 1, NORML STATE
063E (03,0094)  7 238B16 412002  PCW   LL=04, D[1] SEGMENT @ 0002 1164 5, NORML STATE
063D (03,0093)  7 238714 D12002  PCW   LL=04, D[1] SEGMENT @ 0002 114D 3, NORML STATE
063C (03,0092)  7 238713 112002  PCW   LL=04, D[1] SEGMENT @ 0002 1131 3, NORML STATE
063B (03,0091)  7 238B11 E12002  PCW   LL=04, D[1] SEGMENT @ 0002 111E 5, NORML STATE
063A (03,0090)  7 238B11 112002  PCW   LL=04, D[1] SEGMENT @ 0002 1111.5, NORML STATE
0639 (03,008F)  7 23890E E12002  PCW·  LL=04, D[1] SEGMENT @ 0002 10EE 4, NORML STATE
0638 (03,008E)  7 238B0D D12002  PCW   LL=04, D[1] SEGMENT @ 0002 10DD 5, NORML STATE
0637 (03,008D)  7 238B0B 312002  PCW   LL=04, D[1] SEGMENT @ 0002 10B3.5, NORML STATE
0636 (03,008C)  7 23850A 212002  PCW   LL=04, D[1] SEGMENT @ 0002 10A2 2, NORML STATE
0635 (03,008B)  7 238704 312002  PCW   LL=04, D[1] SEGMENT @ 0002 1043 3, NORML STATE
0634 (03,008A)  7 2386FB 412002  PCW   LL=04, D[1] SEGMENT @ 0002 0FB4 3, NORML STATE
0633 (03,0089)  7 2384F9 212002  PCW·  LL=04, D[1] SEGMENT @ 0002 0F92 2, NORML STATE
0632 (03,0088)  7 2386F7 712002  PCW   LL=04, D[1] SEGMENT @ 0002 0F77 3, NORML STATE
0631 (03,0087)  7 2386F5 212002  PCW·  LL=04, D[1] SEGMENT @ 0002 0F52 3, NORML STATE
0630 (03,0086)  7 2386F2 F12002  PCW   LL=04, D[1] SEGMENT @ 0002 0F2F 3, NORML STATE
062F (03,0085)  7 2384F1 112002  PCW   LL=04, D[1] SEGMENT @ 0002 0F11 2, NORML STATE
062E (03,0084)  7 2384EF 312002  PCW.  LL=04, D[1] SEGMENT @ 0002 0EF3 2, NORML STATE
062D (03,0083)  7 2386ED 512002  PCW·  LL=04, D[1] SEGMENT @ 0002 0ED5 3, NORML STATE
062C (03,0082)  7 2386EB 712002  PCW.  LL=04, D[1] SEGMENT @ 0002 0EB7 3, NORML STATE
062B (03,0081)  7 2386E9 912002  PCW   LL=04, D[1] SEGMENT @ 0002 0E99 3, NORML STATE
062A (03,0080)  7 2386E7 B12002  PCW   LL=04, D[1] SEGMENT @ 0002 0E7B 3, NORML STATE
0629 (03,007F)  7 2386E5 B12002  PCW   LL=04, D[1] SEGMENT @ 0002 0E5B 3, NORML STATE
0628 (03,007E)  7 2386E3 912002  PCW   LL=04, D[1] SEGMENT @ 0002 0E39.3, NORML STATE
0627 (03,007D)  7 238AE2 012002  PCW·  LL=04, D[1] SEGMENT @ 0002 0E20 5, NORML STATE
0626 (03,007C)  7 238AE0 B12002  PCW   LL=04, D[1] SEGMENT @ 0002 0E0B 5, NORML STATE
0625 (03,007B)  7 2386C1 012002  PCW.  LL=04, D[1] SEGMENT @ 0002 0C10 3, NORML STATE
0624 (03,007A)  7 2388BD B12002  PCW   LL=04, D[1] SEGMENT @ 0002 0BDB 4, NORML STATE
0623 (03,0079)  7 238ABC C12002  PCW   LL=04, D[1] SEGMENT @ 0002 0BCC 5, NORML STATE
0622 (03,0078)  7 2384BB A12002  PCW   LL=04, D[1] SEGMENT @ 0002 0BBA 2, NORML STATE
0621 (03,0077)  7 2380BA A12002  PCW   LL=04, D[1] SEGMENT @ 0002 0BAA 0, NORML STATE
0620 (03,0076)  7 2386B9 812002  PCW   LL=04, D[1] SEGMENT @ 0002 0B98 3, NORML STATE
061F (03,0075)  7 2382B8 412002  PCW   LL=04, D[1] SEGMENT @ 0002 0B84 1, NORML STATE
061E (03,0074)  7 238AA6 E12002  PCW   LL=04, D[1] SEGMENT @ 0002 0A6E 5, NORML STATE
061D (03,0073)  7 2380A5 112002  PCW   LL=04, D[1] SEGMENT @ 0002 0A51 0, NORML STATE
061C (03,0072)  7 238AA4 712002  PCW   LL=04, D[1] SEGMENT @ 0002 0A47 5, NORML STATE
061B (03,0071)  7 2386A3 F12002  PCW   LL=04, D[1] SEGMENT @ 0002 0A3F 3, NORML STATE
061A (03,0070)  7 2384A3 112002  PCW·  LL=04, D[1] SEGMENT @ 0002 0A31 2, NORML STATE
0619 (03,006F)  7 2386A0 812002  PCW   LL=04, D[1] SEGMENT @ 0002 0A08 3, NORML STATE
0618 (03,006E)  7 238A9F F12002  PCW   LL=04, D[1] SEGMENT @ 0002 09FF 5, NORML STATE
0617 (03,006D)  7 238A9E C12002  PCW   LL=04, D[1] SEGMENT @ 0002 09EC 5, NORML STATE
0616 (03,006C)  7 238A9D D12002  PCW   LL=04, D[1] SEGMENT @ 0002 09DD 5, NORML STATE
0615 (03,006B)  7 23889C E12002  PCW·  LL=04, D[1] SEGMENT @ 0002 09CE 4, NORML STATE
0614 (03,006A)  7 238A9A 612002  PCW:  LL=04, D[1] SEGMENT @ 0002 09A6 5, NORML STATE
0613 (03,0069)  7 238499 812002  PCW.  LL=04, D[1] SEGMENT @ 0002 0998 2, NORML STATE
0612 (03,0068)  7 238A98 412002  PCW·  LL=04, D[1] SEGMENT @ 0002 0984 5, NORML STATE
0611 (03,0067)  7 238A97 312002  PCW·  LL=04, D[1] SEGMENT @ 0002 0973 5, NORML STATE
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0610 | (03,0066) | 7 | 238A96 | 112002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 0961 | 5, | NORML STATE |
| 060F | (03,0065) | 7 | 238295 | 412002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 0954 | 1, | NORML STATE |
| 060E | (03,0064) | 7 | 238694 | 212002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0942 | 3, | NORML STATE |
| 060D | (03,0063) | 7 | 238A92 | F12002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 092F | 5, | NORML STATE |
| 060C | (03,0062) | 7 | 238292 | 212002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0922 | 1, | NORML STATE |
| 060B | (03,0061) | 7 | 238A90 | 912002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 0909 | 5, | NORML STATE |
| 060A | (03,0060) | 7 | 23828F | 812002 | PCW. | LL=04, | D[1] | SEGMENT | @ | 0002 | 08F8 | 1, | NORML STATE |
| 0609 | (03,005F) | 7 | 238A8E | 212002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 08E2 | 5, | NORML STATE |
| 0608 | (03,005E) | 7 | 238A8D | B12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 08DB | 5, | NORML STATE |
| 0607 | (03,005D) | 7 | 23868C | D12002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 08CD | 3, | NORML STATE |
| 0606 | (03,005C) | 7 | 238A8B | E12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 08BE | 5, | NORML STATE |
| 0605 | (03,005B) | 7 | 23888A | C12002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 08AC | 4, | NORML STATE |
| 0604 | (03,005A) | 7 | 238A88 | F12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 088F | 5, | NORML STATE |
| 0603 | (03,0059) | 7 | 238285 | B12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 085B | 1, | NORML STATE |
| 0602 | (03,0058) | 7 | 238481 | 612002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0816 | 2, | NORML STATE |
| 0601 | (03,0057) | 7 | 238880 | 912002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0809 | 4, | NORML STATE |
| 0600 | (03,0056) | 7 | 238A7E | F12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 07EF | 5, | NORML STATE |
| 05FF | (03,0055) | 7 | 23867E | 212002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 07E2 | 3, | NORML STATE |
| 05FE | (03,0054) | 7 | 23807D | 012002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 07D0 | 0, | NORML STATE |
| 05FD | (03,0053) | 7 | 23807B | D12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 07BD | 0, | NORML STATE |
| 05FC | (03,0052) | 7 | 23887A | 912002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 07A9 | 4, | NORML STATE |
| 05FB | (03,0051) | 7 | 238879 | 512002 | PCW. | LL=04, | D[1] | SEGMENT | @ | 0002 | 0795 | 4, | NORML STATE |
| 05FA | (03,0050) | 7 | 238878 | 412002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0784 | 4, | NORML STATE |
| 05F9 | (03,004F) | 7 | 238A77 | 312002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 0773 | 5, | NORML STATE |
| 05F8 | (03,004E) | 7 | 238672 | A12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 072A | 3, | NORML STATE |
| 05F7 | (03,004D) | 7 | 238670 | C12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 070C | 3, | NORML STATE |
| 05F6 | (03,004C) | 7 | 23806F | C12002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 06FC | 0, | NORML STATE |
| 05F5 | (03,004B) | 7 | 23806E | A12002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 06EA | 0, | NORML STATE |
| 05F4 | (03,004A) | 7 | 23846D | 812002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 06D8 | 2, | NORML STATE |
| 05F3 | (03,0049) | 7 | 238668 | 412002 | PCW. | LL=04, | D[1] | SEGMENT | @ | 0002 | 0684 | 3, | NORML STATE |
| 05F2 | (03,0048) | 7 | 238A67 | 312002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0673 | 5, | NORML STATE |
| 05F1 | (03,D047) | 7 | 238A66 | 012002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 0660 | 5, | NORML STATE |
| 05F0 | (03,0046) | 7 | 238465 | 112002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0651 | 2, | NORML STATE |
| 05EF | (03,0045) | 7 | 238264 | A12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 064A | 1, | NORML STATE |
| 05EE | (03,0044) | 7 | 238A62 | D12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 062D | 5, | NORML STATE |
| 05ED | (03,0043) | 7 | 238861 | E12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 061E | 4, | NORML STATE |
| 05EC | (03,0042) | 7 | 238860 | D12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 060D | 4, | NORML STATE |
| 05EB | (03,0041) | 7 | 238A5F | C12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 05FC | 5, | NORML STATE |
| 05EA | (03,0040) | 7 | 238A5E | 912002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 05E9 | 5, | NORML STATE |
| 05E9 | (03,003F) | 7 | 238A5D | 612002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 05D6 | 5, | NORML STATE |
| 05E8 | (03,003E) | 7 | 23845C | 612002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 05C6 | 2, | NORML STATE |
| 05E7 | (03,003D) | 7 | 23885A | 512002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 05A5 | 4, | NORML STATE |
| 05E6 | (03,003C) | 7 | 238A58 | E12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 058E | 5, | NORML STATE |
| 05E5 | (03,003B) | 7 | 238A57 | D12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 057D | 5, | NORML STATE |
| 05E4 | (03,003A) | 7 | 238056 | 812002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0568 | 0, | NORML STATE |
| 05E3 | (03,0039) | 7 | 238A54 | 912002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 0549 | 5, | NORML STATE |
| 05E2 | (03,0038) | 7 | 238051 | 812002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 0518 | 0, | NORML STATE |
| 05E1 | (03,0037) | 7 | 238A4E | 012002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 04E0 | 5, | NORML STATE |
| 05E0 | (03,0036) | 7 | 238A4C | 612002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 04C6 | 5, | NORML STATE |
| 05DF | (03,0035) | 7 | 238A4B | 112002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 04B1 | 5, | NORML STATE |
| 05DE | (03,0034) | 7 | 23824A | 912002 | PCW: | LL=04, | D[1] | SEGMENT | @ | 0002 | 04A9 | 1, | NORML STATE |
| 05DD | (03,0033) | 7 | 238249 | 512002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0495 | 1, | NORML STATE |
| 05DC | (03,0032) | 7 | 238448 | 512002 | PCW. | LL=04, | D[1] | SEGMENT | @ | 0002 | 0485 | 2, | NORML STATE |
| 05DB | (03,0031) | 7 | 238847 | A12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 047A | 4, | NORML STATE |
| 05DA | (03,0030) | 7 | 238A46 | 912002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0469 | 5, | NORML STATE |
| 05D9 | (03,002F) | 7 | 238640 | 812002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0408 | 3, | NORML STATE |
| 05D8 | (03,002E) | 7 | 238A3F | F12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 03FF | 5, | NORML STATE |
| 05D7 | (03,002D) | 7 | 238A3F | 012002 | PCW· | LL=04, | D[1] | SEGMENT | @ | 0002 | 03F0 | 5, | NORML STATE |
| 05D6 | (03,002C) | 7 | 238A3E | 112002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 03E1 | 5, | NORML STATE |
| 05D5 | (03,002B) | 7 | 23883B | 012002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 03B0 | 4, | NORML STATE |
| 05D4 | (03,002A) | 7 | 238A39 | 112002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0391 | 5, | NORML STATE |
| 05D3 | (03,0029) | 7 | 238A37 | C12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 037C | 5, | NORML STATE |
| 05D2 | (03,0028) | 7 | 238437 | 612002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0376 | 2, | NORML STATE |
| 05D1 | (03,0027) | 7 | 238A35 | 612002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 0356 | 5, | NORML STATE |
| 05D0 | (03,0026) | 7 | 238A33 | B12002 | PCW | LL=04, | D[1] | SEGMENT | @ | 0002 | 033B | 5, | NORML STATE |
| 05CF | (03,0025) | 7 | 238632 | B12002 | PCW. | LL=04, | D[1] | SEGMENT | @ | 0002 | 032B | 3, | NORML STATE |

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05CE (03,0024)  7 238A31 212002  PCW   LL=04, D[1] SEGMENT @ 0002 0312 5, NORML STATE
05CD (03,0023)  7 238230 A12002  PCW   LL=04, D[1] SEGMENT @ 0002 030A 1, NORML STATE
05CC (03,0022)  7 23842E 512002  PCW   LL=04, D[1] SEGMENT @ 0002·02E5 2, NORML STATE
05CB (03,0021)  7 23862D 212002  PCW   LL=04, D[1] SEGMENT @ 0002 02D2 3, NORML STATE
05CA (03,0020)  7 238A2B F12002  PCW.  LL=04, D[1] SEGMENT @ 0002 02BF·5, NORML STATE
05C9 (03,001F)  7 238A2B 212002  PCW   LL=04, D[1] SEGMENT @ 0002 02B2 5, NORML STATE
05C8 (03,001E)  7 238828 812002  PCW   LL=04, D[1] SEGMENT @ 0002 0288 4, NORML STATE
05C7 (03,001D)  7 238827 012002  PCW   LL=04, D[1] SEGMENT @ 0002 0270 4, NORML STATE
05C6 (03,001C)  7 23801F 812002  PCW   LL=04, D[1] SEGMENT @ 0002.01F8 0, NORML STATE
05C5 (03,001B)  7 23821E 312002  PCW   LL=04, D[1] SEGMENT @ 0002 01E3 1, NORML STATE
05C4 (03,001A)  7 23801D 812002  PCW·  LL=04, D[1] SEGMENT @ 0002 01D8·0, NORML STATE
05C3 (03,0019)  7 238A1C 212002  PCW   LL=04, D[1] SEGMENT @ 0002 01C2.5, NORML STATE
05C2 (03,0018)  7 23821B A12002  PCW   LL=04, D[1] SEGMENT @ 0002 01BA 1, NORML STATE
05C1 (03,0017)  7 23801A F12002  PCW   LL=04, D[1] SEGMENT @ 0002 01AF 0, NORML STATE
05C0 (03,0016)  7 238418 A12002  PCW:  LL=04, D[1] SEGMENT @ 0002·018A 2, NORML STATE
05BF (03,0015)  7 238217 C12002  PCW   LL=04, D[1] SEGMENT @ 0002 017C 1, NORML STATE
05BE (03,0014)  7 23B215 312002  PCW·  LL=04, D[1] SEGMENT @ 0002 0153 1, NORML STATE
058D (03,0013)  7 238012 A12002  PCW   LL=04, D[1] SEGMENT @ 0002 012A 0, NORML STATE
05BC (03,0012)  7 238611 812002  PCW   LL=04, D[1] SEGMENT @ 0002 0118 3, NORML STATE
05BB (03,0011)  7 238A10 C12002  PCW   LL=04, D[1] SEGMENT @ 0002 010C 5, NORML STATE
05BA (03,0010)  7 238210 612002  PCW   LL=04, D[1] SEGMENT @ 0002 0106 1, NORML STATE
05B9 (03,000F)  7 23800F 812002  PCW   LL=04, D[1] SEGMENT @ 0002 00F8:0, NORML STATE
05B8 (03,000E)  7 23820E 912002  PCW   LL=04, D[1] SEGMENT @ 0002 00E9 1, NORML STATE
05B7 (03,000D)  7 23880C B12002  PCW   LL=04, D[1] SEGMENT @ 0002 00CB·4, NORML STATE
05B6 (03,000C)  7 238A0A A12002  PCW·  LL=04, D[1] SEGMENT @ 0002 00AA 5, NORML STATE
05B5 (03,000B)  7 238A08 C12002  PCW   LL=04, D[1] SEGMENT @ 0002 008C 5, NORML STATE
05B4 (03,000A)  7 238808 512002  PCW·  LL=04, D[1] SEGMENT @ 0002 0085 4, NORML STATE
05B3 (03,0009)  7 238A07 412002  PCW·  LL=04, D[1] SEGMENT @ 0002 0074 5, NORML STATE
05B2 (03,0008)  7 238A05 E12002  PCW   LL=04, D[1] SEGMENT @ 0002 005E·5, NORML STATE
05B1 (03,0007)  7 238605 612002  PCW   LL=04, D[1] SEGMENT @ 0002 0056 3, NDRML STATE
05B0 (03,0006)  7 238004 512002  PCW   LL=04, D[1] SEGMENT @ 0002 0045 0, NORML STATE
05AF (03,0005)  7 238003 112002  PCW·  LL=04, D[1] SEGMENT @ 0002 0031 0, NORML STATE
05AE (03,0004)  0 000000 000000
05AD (03,0003)  7 23850A 80E002  PCW   LL=03, D[1] SEGMENT @ 0002 1DA8 2, NORML STATE
05AC (03,0002)  1 638001 400002  SIRW  OFFSET=0016 (0014+0002) IN THIS STACK
05AB            3 018800 00A025  RCW   LL=02, NORML STATE                    [USER SEGMENT      @ 0025 0
                                 SEG DESC   3 080021 F40614
                                 CODE  >3 AE51AD ABAE60< 3 0AABA3 BEFFFF
05AA ----D[03]=>3 638001 40C596 *MSCW  PREVIOUS MSCW @ 0014, D[02]=0014

05A9 (02,0595)  6 800000 003000  SCW  (BLOCK BELOW DECLARED FILES, MULT-DIM ARRAYS)
05A8 (02,0594)  6 800000 003000  SCW  (BLOCK BELOW DECLARED FILES, MULT-DIM ARRAYS)
05A7 (02,0593)  0 000000 000000
05A6 (02,0592)  0 000000 000000
05A5 (02,0591)  0 000000 000000
05A4 (02,0590)  0 000000 000000
05A3 (02,058F)  0 000000 000000
05A2 (02,058E)  0 000000 000000
05A1 (02,058D)  0 000000 000000
05A0 (02,058C)  0 000000 000000
059F (02,058B)  0 000000 000000
059E (02,058A)  0 000000 000000
059D (02,0589)  0 000000 000000
059C (02,0588)  0 000000 000000
059B (02,0587)  0 000000 000000
059A (02,0586)  0 000000 000000
0599 (02,0585)  0 000000 000000
0598 (02,0584)  0 000000 000000
0597 (02,0583)  0 000000 000000
0596 (02,0582)  0 000000 000000
0595 (02,0581)  0 000000 000000
0594 (02,0580)  0 000000 000000
0593 (02,057F)  0 000000 000000
0592 (02,057E)  0 000000 000000
0591 (02,057D)  0 000000 000000
0590 (02,057C)  0 000000 000000
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058F (02,057B)  0 000000 000000
058E (02,057A)  0 000000 000000
058D (02,0579)  0 000000 000001  OP    OCT 00000000 00000001 , EBC·????? , DEC 1
058C (02,0578)  0 000000 000065  OP·   OCT.00000000 00000145 , EBC ????? , DEC 101
058B (02,0577)  0 000000 00005B  OP·   DCT 00000000 00000133 , EBC ?????$, DEC 91
058A (02,0576)  0 000000 000065  OP    DCT.00000000 00000145 , EBC ????? , DEC 101
0589 (02,0575)  0 262EF5 59B3D1  OP;   OCT·11427365 26331721 , EBC   5 ³U, DEC 2 9349
0588 (02,0574)  0 26342D 0E5604  OP.   OCT·11432055 03453004 , EBC·       , DEC 3 261
0587 (02,0573)  0 000000 00000B  OP.   OCT·00000000 00000013 , EBC ????? , DEC 11
0586 (02,0572)  0 000000 000000
0585 (02,0571)  0 248000 F5C290  OP    OCT·11100000 75341220 , EBC   ?5B , DEC 0 120000004768
0584 (02,0570)  0 248002 E147AE  DP.   DCT 11100002 70243656 , EBC      ≥, DEC 0 359999999404
0583 (02,056F)  0 000000 00000A  OP    DCT:00000000 00000012 , EBC·????? , DEC 10
0582 (02,056E)  5 800006 54B974  DESC [PRESENT-MOM]  DATA, LENGTH=101
       0(0000) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
       6(0006) 0 404040 404040 THRU 9(0009)
      10(000A) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      16(0010) 0 404040 404040 THRU 19(0013)
      20(0014) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      26(001A) 0 404040 404040 THRU 29(001D)
      30(001E) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      36(D024) 0 404040 404040 THRU 39(0027)
      40(0028) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      46(002E) 0 404040 404040 THRU 49(0031)
      50(0032) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      56(0038) 0 404040 404040 THRU 59(003B)
      60(003C) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      66(0042) 0 404040 404040 THRU 69(0045)
      70(0046) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      76(004C) 0 404040 404040 THRU 79(004F)
      80(0050) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      86(0056) 0 404040 404040 THRU 89(0059)
      90(005A) 0 C94040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040 0 404040 404040
      96(0060) 0 404040 404040 THRU 99(0063)
     100(0064) 0 5C4040 404040
0581 (02,056D)  0 000000 00006F  DP·   OCT 00000000 00000157 , EBC.??????, DEC 111
0580 (02,056C)  5 800000 24B9DD  DESC [PRESENT-MDM]  DATA, LENGTH=2
       0(0000) 0 404040 404040 THRU 1(0001)
057F (02,056B)  0 000000 000000
057E (02,056A)  0 000000 000000
057D (02,0569)  0 000000 000000
057C (02,0568)  0 000000 000001  OP·   OCT 00000000 00000001 , EBC:????? , DEC 1
057B (02,0567)  0 000000 00001E  OP·   OCT 00000000 00000036 , EBC ????? , DEC 30
057A (02,0566)  0 000000 00003C  OP·   OCT 00000000 00000074 , EBC ????? , DEC 60
0579 (02,0565)  0 000000 00000D  OP    OCT 00000000 00000015 , EBC ????? , DEC 13
0578 (02,0564)  0 000000 000027  DP·   OCT 00000000 00000047 , EBC ????? , DEC 39
0577 (02,0563)  0 000000 00003D  OP    OCT 00000000 00000075 , EBC ????? , DEC 61
0576 (02,0562)  0 000000 000023  OP    DCT 00000000 00000043 , EBC ????? , DEC 35
0575 (02,0561)  0 000000 000005  OP    OCT 00000000 00000005 , EBC ????? , OEC 5
0574 (02,0560)  5 80000C 84B9E3  DESC [PRESENT-MOM]· DATA, LENGTH=200
       0(0000) 0 000000 000249 0 249247 0A3D71 0 249246 147AE1 0 249245 1EB852 0 249244 28F5C3 0 249243 333333
       6(0006) 0 249242 3D70A4 0 249241 47AE14 0 249240 51EB85 0 24923F 5C28F6 0 24923E 666666 0 24923D 70A3D7
      12(000C) 0 24923C 7AE147 0 24923B 851EB8 0 24923A 8F5C29 0 249239 99999A 0 249238 A3D70B 0 249237 AE147B
      18(0012) 0 249236 B851EC 0 249235 C28F5D 0 249234 CCCCCD 0 249233 D70A3E 0 249232 E147AE 0 249231 EB851F
      24(0018) 0 249230 F5C290 0 249230 000000 0 24922F 0A3D71 0 24922E 147AE1 0 24922D 1EB852 0 24922C 28F5C3
      30(001E) 0 24922B 333333 0 24922A 3D70A4 0 249229 47AE14 0 249228 51EB85 0 249227 5C28F6 0 249226 666666
      36(0024) 0 249225 70A3D7 0 249224 7AE147 0 249223 851EB8 0 249222 8F5C29 0 249221 999999 0 249220 A3D70A
      42(002A) 0 24921F AE147A 0 24921E B851EB 0 24921D C28F5C 0 24921C CCCCCD 0 24921B D70A3E 0 24921A E147AE
      48(0030) 0 249219 EB851F 0 249218 F5C290 0 249218 000000 0 249217 0A3D71 0 249216 147AE1 0 249215 1EB852
      54(0036) 0 249214 28F5C3 0 249213 333333 0 249212 3D70A4 0 249211 47AE14 0 249210 51EB85 0 24920F 5C28F6
      60(003C) 0 24920E 666666 0 24920D 70A3D7 0 24920C 7AE147 0 24920B 851EB8 0 24920A 8F5C29 0 249209 999999
      66(0042) 0 249208 A3D70A 0 249207 AE147A 0 249206 B851EB 0 249205 C28F5C 0 249204 CCCCCC 0 000000 000000
      72(0048) 0 000000 000000 THRU 199(00C7)
0573 (02,055F)  0 000000 00004C  DP    OCT 00000000 00000114 , EBC·?????<, DEC 76
0572 (02,055E)  0 000000 000004  OP    OCT.00000000 00000004 , EBC·????? , DEC 4
0571 (02,055D)  0 000000 000005  OP·   OCT·00000000 00000005 , EBC·????? , DEC 5
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0570 (02,055C)  0 000000 000047  OP     OCT 00000000 00000107 , EBC ????? , DEC 71
056F (02,055B)  0 000000 00000F  OP     OCT 00000000 00000017 , EBC ????? , DEC 15
056E (02,055A)  0 277AE1 47AEEE  OP·    OCT 11675341 21727356 , EBC· ·  ≥ , DEC 0 120000000049
056D (02,0559)  5 800001 44BAAF  DESC [PRESENT-MOM]· DATA, LENGTH=20
        0(0000) 0 000000 000249 0 249243 333333 0 24923E 666666 0 249239 99999A 0 249234 CCCCCD 0 249230 000000
        6(0006) 0 24922B 333333 0 249226 666666 0 249221 999999 0 24921C CCCCCD 0 249218 000000 0 249213 333333
       12(000C) 0 24920E 666666 0 249209 999999 0 249204 CCCCCC 0 000000 000000 0 000000 000000 0 000000 000000
       18(0012) 0 000000 000000 THRU 19(0013)
056C (02,0558)  5 800000 B4BB9C  DESC [PRESENT-MOM]  DATA, LENGTH=11
        0(0000) 0 000000 000000 0 26A9BD A5119D 0 26D37B 4A233A 0 26FD38 EF34D7 0 2614DE D288CF 0 261A16 872B02
        6(0006) 0 261F4E 3BCD36 0 262485 F06F69 0 2629BD A5119D 0 262EF5 59B3D1 0 26342D 0E5604
056B (02,0557)  0 000000 000010  OP     OCT 00000000 00000020 , EBC ????? , DEC·16
056A (02,0556)  0 248001 99999A  OP     OCT.11100001 46314632 , EBC·   rrt, DEC 0 20000000298
0569 (02,0555)  0 000000 000001  OP     OCT 00000000 00000001 , EBC ????? , DEC 1
0568 (02,0554)  0 000000 000000
0567 (02,0553)  0 000000 000000
0566 (02,0552)  0 2620FD F3B646  OP     OCT 11420375 74733106 , EBC    3* , DEC·2 062
0565 (02,0551)  0 249214 000000  OP     OCT 11111024 00000000 , EBC  k ???, DEC 578 5
0564 (02,0550)  0 000000 00000D  DP     OCT 00000000 00000015 , EBC.????? , DEC 13
0563 (02,054F)  5 00000C 800000  DESC [ABSENT-MOM]: DATA, LENGTH=200  (UNREFERENCED OLAY SPACE)
0562 (02,054E)  5 80000C 848BAB  DESC [PRESENT-MOM]  DATA, LENGTH=200
        0(0000) 0 000000 000000 0 26C2F1 A9FBE7 0 26D74B C6A7F0 0 26D916 872B02 0 26F5A1 CAC083 0 261639 581062
        6(0006) 0 261B8D 4FDF3B 0 2620A3 D70A3D 0 2620FD F3B646 0 2620D0 E56042 0 262BA1 CAC083 0 26342D 0E5604
       12(000C) 0 000000 000000 THRU 199(00C7)
0561 (02,054D)  5 80000C 84BC77  DESC [PRESENT-MOM]  DATA, LENGTH=200
        0(0000) 0 000000 000249 0 000000 000248 0 24923C 000000 0 000000 000247 0 249231 99999A 0 24922E 666666
        6(0006) 0 249214 000000 THRU 8(0008)
        9(0009) 0 249213 333333 0 000000 000242 0 24920E 666666 0 000000 000000 0 000000 000000 0 000000 000000
       15(000F) 0 000000 000000 THRU 199(00C7)
0560 (02,054C)  0 000000 000000
055F (02,054B)  0 26CCCC CCCD55  OP     OCT 11546314 63146525 , EBC        , DEC 0 60000000024
055E (02,054A)  0 26A9BD A5119D  OP     OCT 11524675 51210635 , EBC  z]v ', DEC 0 3261
0550 (02,0549)  0 248039 99999A  OP     OCT·11100071 46314632 , EBC    rrt, DEC 7 2000000029
055C (02,0548)  0 26342D 0E5604  OP     OCT 11432055 03453004 , EBC        , DEC 3 261
055B (02,0547)  0 000000 000008  OP     OCT·00000000 00000010 , EBC ????? , DEC 8
055A (02,0546)  0 000000 000241  OP     OCT 00000000 00001101 , EBC ????  , DEC 577
0559 (02,0545)  0 24920E 666666  OP     OCT 11111016 31463146 , EBC  k     , DEC 577 8
0558 (02,0544)  0 000000 000000
0557 (02,0543)  0 000000 000249  OP     OCT 00000000 00001111 , EBC ????  , DEC 585
0556 (02,0542)  0 000000 00000D  OP     OCT 00000000 00000015 , EBC·????? , DEC 13
0555 (02,0541)  0 000000 000249  OP     OCT 00000000 00001111 , EBC·????  , DEC 585
0554 (02,0540)  0 26342D 0E5604  OP     OCT 11432055 03453004 , EBC        , DEC 3 261
0553 (02,053F)  5 000000 940592  DESC [ABSENT-MOM]  DATA, LENGTH=9  (CODEFILE ADRS=1426)
        0(0000) 0 404040 404040 THRU 2(0002)
        3(0003) 0 C34040 404040 0 C64040 404040 0 404040 404040 0 404040 404040 0 404040 404040
0552 (02,053E)  5 800000 94B95A  DESC [PRESENT-MOM]  DATA, LENGTH=9
        0(0000) 0 404040 404040 THRU 2(0002)
        3(0003) 0 C64040 404040 0 C54040 404040 0 C54040 404040 0 E34040 404040 0 404040 404040 0 404040 404040
0551 (02,0530)  5 000000 940590  DESC [ABSENT-MOM]  DATA, LENGTH=9  (CODEFILE ADRS=1424)
```

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLDOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH.D , RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

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*****************************
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***                       ***
***  SUMMARY OF INPUT DATA  ***
***                       ***
*****************************
*****************************
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INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| ND DF RESERVOIR INFLDW HYDROGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED DUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH DRDINATES) = 1 00 HRS.

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 24 0000 HRS

INFLOW HYDROGRAPH TD RED RUN DRAIN AT C

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300 00 | 333.00 | 365 00 | 396 00 | 427 00 | 459 00 | 490 00 | 521 00 |
| 552.00 | 609 00 | 663 00 | 717 00 | 771 00 | 881 00 | 992 00 | 1102 00 |
| 1214.00 | 1350 00 | 1516 00 | 1641 00 | 1817 00 | 1925 00 | 2208 00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH DRDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1 0000 | 2.0000 | 3.0000 | 4 0000 | 5 0000 | 6 0000 | 7 0000 |
| 8 0000 | 9 0000 | 10 0000 | 11 0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17 0000 | 18 0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIOTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYOROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO OF LATERAL INFLOW HYOROGRAPHS | LQ | 1 |
| NO OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW REO RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIOTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599.00 X1L(I) = 0 000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 585 0 | 588 0 | 592.0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC | 10 0 | 67 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 |
| XCL | 0 0 | 0 0 | 0 0 | 330 0 | 440 0 | 550 0 | 550 0 | 550 0 |
| XCR | 0 0 | 0 0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS . | 0 0 | 0 0 | 0 0 | 0 0 | 400 0 | 500 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0 523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE .. | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC ... | 24 0 | 55 0 | 66 0 | 68 0 | 68 0 | 68.0 | 68 0 | 68 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 180 0 | 240 0 | 240 0 | 300 0 | 300 0 |
| XCR ... | 0 0 | 0 0 | 0 0 | 100 0 | 100 0 | 250 0 | 500.0 | 500 0 |
| XS | 0 0 | 0 0 | 0 0 | 370 0 | 580 0 | 680 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0 682 FSTG(I) = 598 00 X1L(I) = 0 565 X1R(I) = 0 519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 583 5 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 8.0 | 57 0 | 80 0 | 104 0 | 104 0 | 104 0 | 104 0 | 104.0 |
| XCL . | 0 0 | 0 0 | 0 0 | 440 0 | 1033 0 | 1230 0 | 1500 0 | 1500 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 200.0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597.00 X1L(I) = 0 579 X1R(I) = 0.533

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . . | 583 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC . . | 20 0 | 59 0 | 78 0 | 88 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL | 0 0 | 0 0 | 0 0 | 450 0 | 1033 0 | 1180 0 | 1310 0 | 1310 0 |
| XCR . | 0.0 | 0 0 | 0 0 | 0 0 | 30 0 | 200 0 | 230 0 | 230 0 |
| XS . . | 0 0 | 0 0 | 0 0 | 0 0 | 800 0 | 1600 0 | 1600 0 | 1600 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599 00 X1L(I) = 0 787 X1R(I) = 0.741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 582 2 | 586 0 | 590.0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC . | 45 0 | 66.0 | 72 0 | 83 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL | 0.0 | 0 0 | 0 0 | 570 0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR | 0 0 | 0 0 | 0.0 | 0 0 | 53 0 | 101 0 | 281 0 | 300 0 |
| XS | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 581 8 | 586 0 | 590.0 | 594.0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 20.0 | 74.0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 |
| XCL | 0 0 | 0 0 | 94 0 | 465 0 | 470 0 | 494 0 | 560 0 | 600 0 |
| XCR | 0 0 | 0 0 | 0.0 | 45 0 | 120 0 | 360 0 | 400 0 | 400 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1 722 FSTG(I) = 600 00 X1L(I) = 1 555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE .. | 578 5 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC . | 38.0 | 86.0 | 98 0 | 100 0 | 108 0 | 144 0 | 200 0 | 200 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 325 0 | 325 0 |
| XCR . | 0 0 | 0 0 | 50.0 | 100 0 | 150.0 | 200 0 | 500 0 | 600 0 |
| XS .. | 0 0 | 0 0 | 60.0 | 120 0 | 110 0 | 130 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2 040 FSTG(I) = 0 00 X1L(I) = 2 863 X1R(I) = 1 826

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 578 5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85.0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0.0 | 0 0 | 1000 0 |
| XCR . | 0.0 | 0.0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100.0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 2.051 FSTG(I) = 600.00 X1L(I) = 1.874 X1R(I) = 1 837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578.4 | 586 0 | 590.0 | 594 0 | 595 9 | 598 0 | 600 0 | 602.0 |
| XC | 43 0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 | 1000 0 |
| XS ... | 0 0 | 0 0 | 100 0 | 850 0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2 062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578.5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25.0 | 85 0 | 95 0 | 100.0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL . | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60.0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800.0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2 727 FSTG(I) = 599 00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE ... | 578 0 | 584 0 | 588 0 | 592 0 | 594 0 | 596 0 | 598 0 | 600 0 |
| XC | 8 0 | 50 0 | 72 0 | 80 0 | 80 0 | 80 0 | 80 0 | 80 0 |
| XCL | 0 0 | 0 0 | 0 0 | 105 0 | 210 0 | 240 0 | 400 0 | 600 0 |
| XCR | 0.0 | 0 0 | 100 0 | 445 0 | 690 0 | 700 0 | 760 0 | 820 0 |
| XS | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3.261 FSTG(I) = 588 00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . . | 577 8 | 583 0 | 587 0 | 591 0 | 593 0 | 595 0 | 597 0 | 599 0 |
| XC | 44 0 | 65.0 | 88 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL | 0.0 | 0 0 | 50 0 | 300 0 | 500.0 | 700.0 | 750 0 | 990 0 |
| XCR . | 0.0 | 0 0 | 40 0 | 160 0 | 180 0 | 190 0 | 190 0 | 190 0 |
| XS . | 0.0 | 0 0 | 50 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,10) IS GREATER THAN HS(1, 9)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 1 . | 0 050 | 0 050 | 0 045 | 0.045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH 1 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 |
| REACH 1 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0.100 |
| REACH 2 | 0 050 | 0 050 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH 2 . | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH 2 . | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH 3 | 0 050 | 0 050 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 3 . | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 3 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 4 . | 0.050 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH 4 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH 4 | 0 100 | 0 100 | 0 100 | 0 100 | 0.080 | 0 060 | 0 050 | 0 040 |
| REACH 5 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 5 | 0 150 | 0 150 | 0 150 | 0 150 | 0 120 | 0 100 | 0 100 | 0 080 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 5 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 045 | 0 045 | 0 045 | 0.040 | 0.040 | 0 040 | 0 040 | 0 040 |
| REACH 6 . | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 |
| REACH 7 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 7 | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 7 . . | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 045 | 0 045 | 0 045 | 0 040 | 0.040 | 0 040 | 0 040 | 0 040 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 9 . | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 . | 0 090 | 0 090 | 0 090 | 0.090 | 0.080 | 0 070 | 0 070 | 0 070 |
| REACH 9 . | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 10 . | 0 045 | 0 042 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 10 . | 0 100 | 0 080 | 0 050 | 0 045 | 0 030 | 0 030 | 0 030 | 0 030 |
| REACH 10 . | 0 150 | 0 150 | 0 150 | 0 120 | 0 110 | 0 100 | 0 100 | 0 100 |
| REACH 11 . | 0 035 | 0.035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 | 0.040 | 0 040 | 0.040 | 0 040 | 0 040 | 0.040 | 0 040 | 0 040 |
| REACH 11 | .. 0.050 | 0 050 | 0.050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW REO RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0 600 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 150 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0 500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0 000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLDPE OF CHANNEL DDWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

LQX(I)

4

(QL(L, 1),L=1,ITEH) 33 99 578 2333 5327

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 20 | 22 | 31 | 85 | 478. | 1917 | 4373 |
| 9753 ~~8000~~ | 12952 ~~10624~~ | 15405 ~~12636~~ | 15910 ~~13050~~ | 11963 | 10254 | 8408. | 6373 |
| 4863. | 4016 | 3443 | 3020 | 2696 | 2419 | 2166 | 1932 |
| 1694 | | | | | | | |

20 20 22 33 99 578 2333 5327
9753 12952 15405 15910 14585 12501 10251 7770
5929 4896 4198 3682 3287 2949 2641 2355
2065

10.5 11.5 12.5
599.29 599.32
598 86
2. 597.8

```
*******************************
*******************************
***                         ***
***  SUMMARY OF OUTPUT DATA  ***
***                         ***
*******************************
*******************************
```

SLOPE PROFILE

MILES

0 0 0.3 0 7 1 0 1 3 1 6 2 0 2 3 2.6 2.9 3 3

ELEVATION FEET

| | ELEV FEET | MILE |
|---|---|---|
| 585 00 | 585 0 | 0 0 |
| 584.00 | 584 0 | 0 5 |
| 583 50 | 583 5 | 0 7 |
| 583.00 | 583 0 | 0 7 |
| 582 20 | 582 2 | 0 9 |
| 581 80 | 581 8 | 1 4 |
| 578.50 | 578 5 | 1 7 |
| 578.00 | 578 0 | 2 7 |

577 80I I I I I I I I I I * 577 8
0 0 0 3 0 7 1 0 1 3 1 6 2 0 2 3 2 6 2 9 3 3

MILES

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI |
|---|---|---|---|---|---|
| 1 | 0 000 | 585.00 | | | |
| 2 | 0 523 | 584 00 | 1 | 0 523 | 1 91 |
| 3 | 0 682 | 583 50 | 2 | 0.159 | 3 14 |
| 4 | 0 696 | 583 00 | 3 | 0.014 | 35 71 |
| 5 | 0 919 | 582 20 | 4 | 0 223 | 3 59 |
| 6 | 1 389 | 581 80 | 5 | 0 470 | 0 85 |
| 7 | 1.722 | 578 50 | 6 | 0 333 | 9 91 |
| 8 | 2 040 | 578.50 | 7 | 0 318 | 0 00 |
| 9 | 2 051 | 578 40 | 8 | 0 011 | 9 09 |
| 10 | 2.062 | 578 50 | 9 | 0 011 | -9 09 |
| 11 | 2 727 | 578 00 | 10 | 0 665 | 0 75 |
| 12 | 3 261 | 577.80 | 11 | 0 534 | 0 37 |

MESAGE

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 17 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591. | 591 | 591 | 590 | 586 | 586 | 586 |
| 600 | 599 | 600 | 600 | 600 | 589 | 588 | 584 |
| 583 | | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 595 | 595 | 594 | 590 | 586 | 586 |
| 586 | 586. | 594 | 598 | 594 | 585 | 584 | 584 |
| 583. | | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 17 | 7 | 3 261 | 583 54 | 320 00 | 0.09 | 0 375 |
| 17 | 0 | 3 261 | 583 54 | 320 00 | | |
| 16 | 1 | 2 994 | 583 66 | 320 00 | 0 12 | |
| 16 | 2 | 2 994 | 583.67 | 320 00 | 0 12 | |
| 15 | 1 | 2 727 | 583 94 | 320 00 | 0 19 | |
| 15 | 2 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 15 | 3 | 2.727 | 583 95 | 320 00 | 0 18 | |
| 14 | 1 | 2.395 | 584 47 | 320 00 | 0 13 | |
| 14 | 2 | 2 395 | 584 45 | 320 00 | 0 11 | |
| 14 | 3 | 2 395 | 584 45 | 320 00 | 0 12 | |
| 13 | 1 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 2 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 3 | 2.062 | 584 75 | 320 00 | 0 09 | |
| 12 | 1 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 12 | 2 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 11 | 1 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 11 | 2 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 10 | 1 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 10 | 2 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 9 | 1 | 1 722 | 584 95 | 320.00 | 0 07 | |
| 9 | 2 | 1.722 | 584 95 | 320.00 | 0 07 | |
| 8 | 1 | 1 611 | 585 11 | 320.00 | 0 07 | |
| 8 | 2 | 1.611 | 585 01 | 320 00 | 0.10 | |
| 8 | 3 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 4 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 7 | 1 | 1 500 | 585 43 | 320 00 | 0 09 | |
| 7 | 2 | 1 500 | 585 17 | 320 00 | 0 14 | |
| 7 | 3 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 7 | 4 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 6 | 1 | 1 389 | 585 78 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585 55 | 320 00 | 0 20 | |
| 6 | 3 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 6 | 4 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586 71 | 320 00 | 0 13 | |
| 5 | 2 | 0 919 | 586 71 | 320 00 | 0.11 | |
| 5 | 3 | 0 919 | 586 71 | 320 00 | 0 11 | |
| 4 | 1 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 4 | 2 | 0 696 | 587 15 | 300.00 | 0 19 | |
| 3 | 1 | 0 682 | 587 27 | 300.00 | 0 20 | |
| 3 | 2 | 0 682 | 587 20 | 300 00 | 0 27 | |
| 3 | 3 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587 20 | 300 00 | 0.29 | |
| 2 | 1 | 0 523 | 588 17 | 300 00 | 0.18 | |
| 2 | 2 | 0 523 | 588 18 | 300 00 | 0 16 | |
| 1 | 1 | 0 000 | 589 52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589 54 | 300 00 | 0 14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0 00 | 589 54 | 589 54 |
| 2 | 0 52 | 588 18 | 588 18 |
| 3 | 0 68 | 587 20 | 587 20 |
| 4 | 0.70 | 587.15 | 587 15 |
| 5 | 0.92 | 586.71 | 586 71 |

| | | | |
|---|---|---|---|
| 6 | 1.39 | 585 54 | 585 54 |
| 7 | 1 50 | 585 16 | 585.16 |
| 8 | 1.61 | 585 01 | 585 01 |
| 9 | 1 72 | 584.95 | 584 95 |
| 10 | 1 88 | 584.87 | 584 87 |
| 11 | 2 04 | 584 76 | 584 76 |
| 12 | 2.05 | 584.76 | 584.76 |
| 13 | 2.06 | 584 75 | 584 75 |
| 14 | 2.39 | 584 45 | 584 45 |
| 15 | 2.73 | 583 95 | 583.95 |
| 16 | 2 99 | 583.67 | 583 67 |
| 17 | 3 26 | 583 54 | 583.54 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300 00 | 300 00 | 300 00 | 300 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | | | | | | | |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 589.54 | 588.18 | 587 20 | 587 15 | 586 71 | 585 54 | 585 16 | 585 01 |
| 584.95 | 584 87 | 584 76 | 584 76 | 584 75 | 584 45 | 583.95 | 583 67 |
| 583.54 | | | | | | | |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYDROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300.00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 54 | 0 30 | 300 0 | 0 0 | 0 0 | 70.1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587 20 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0.0 | 58 2 | 0 0 | 125 5 | 0 0 | 0 0 |
| 0.70 | 587 15 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 7 | 0 0 | 0 0 |
| 0.92 | 586 71 | 0 32 | 320 0 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 1 | 0 0 | 0 0 |
| 1.39 | 585 54 | 0 32 | 320 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164.5 | 0 0 | 0 0 |
| 1.50 | 585 16 | 0 32 | 320 0 | 0 0 | 0 0 | 69 8 | 0 0 | 0 0 | 69 8 | 0 0 | 213 6 | 0 0 | 0 0 |
| 1.61 | 585 01 | 0 32 | 320 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 74 3 | 0 0 | 287 4 | 0 0 | 0 0 |
| 1 72 | 584.95 | 0 32 | 320 0 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 378 0 | 0 0 | 0 0 |
| 1 88 | 584 87 | 0 32 | 320 0 | 0 0 | 0 0 | 77.3 | 0 0 | 0 0 | 77 3 | 0 0 | 346 5 | 0 0 | 0 0 |
| 2.04 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 4 | 0 0 | 0 0 |
| 2 05 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 6 | 0 0 | 0 0 | 75 6 | 0 0 | 377 3 | 0 0 | 0 0 |
| 2 06 | 584 75 | 0 32 | 320 0 | 0.0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0 0 | 312 5 | 0 0 | 0 0 |
| 2.39 | 584 45 | 0 32 | 320 0 | 0 0 | 0 0 | 63 4 | 0 0 | 0 0 | 63 4 | 0 0 | 247 8 | 0 0 | 0 0 |
| 2.73 | 583 95 | 0 32 | 320 0 | 0 0 | 0 0 | 49 6 | 0 0 | 0 0 | 49 6 | 0 0 | 171 5 | 0 0 | 0 0 |
| 2.99 | 583 67 | 0 32 | 320 0 | 0 0 | 0 0 | 58 4 | 1 0 | 2 9 | 63 4 | 0 0 | 243.4 | 0 1 | 0 2 |
| 3 26 | 583 54 | 0 32 | 319 6 | 0 2 | 0 2 | 68.1 | 6 7 | 5 4 | 86 9 | 0 0 | 319.2 | 1 8 | 1 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 589 56 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 222 1 | 0 0 | 0 0 |
| 0.52 | 588 18 | 0 30 | 299 3 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0 68 | 587 22 | 0 30 | 299 1 | 0 0 | 0 0 | 58 3 | 0 0 | 0 0 | 58 3 | 0 0 | 126 3 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 587.14 | 0 30 | 299 1 | 0.0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 6 | 0 0 | 0 0 |
| 0.92 | 586 71 | 0.32 | 319 2 | 0.0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0 0 | 258 0 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0.32 | 319.0 | 0 0 | 0 0 | 68 1 | 0.0 | 0 0 | 68 1 | 0 0 | 164 9 | 0 0 | 0 0 |
| 1.50 | 585 17 | 0 32 | 318 9 | 0.0 | 0 0 | 69 9 | 0 0 | 0 0 | 69 9 | 0 0 | 214 3 | 0 0 | 0 0 |
| 1 61 | 585.02 | 0 32 | 318 7 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 3 | 0 0 | 0 0 |
| 1.72 | 584 96 | 0 32 | 318 4 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0.0 | 379 0 | 0 0 | 0 0 |
| 1.88 | 584 88 | 0.32 | 318 0 | 0 0 | 0.0 | 77 4 | 0 0 | 0 0 | 77 4 | 0 0 | 347 7 | 0 0 | 0 0 |
| 2.04 | 584 78 | 0 32 | 317 5 | 0.0 | 0.0 | 75 2 | 0 0 | 0 0 | 75 2 | 0 0 | 314.7 | 0 0 | 0 0 |
| 2 05 | 584 78 | 0.32 | 317 5 | 0 0 | 0.0 | 75 7 | 0 0 | 0 0 | 75 7 | 0 0 | 378 6 | 0 0 | 0 0 |
| 2 06 | 584 77 | 0.32 | 317 4 | 0.0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 8 | 0 0 | 0 0 |
| 2 39 | 584 48 | 0.32 | 316.3 | 0.0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | 0 0 | 249 2 | 0 0 | 0 0 |
| 2.73 | 583.79 | 0 32 | 318.9 | 0.0 | 0 0 | 48 5 | 0 0 | 0 0 | 48 5 | -0 2 | 163 8 | 0 0 | 0 0 |
| 2.99 | 583.46 | 0 33 | 325 4 | 0.0 | 0 0 | 57 3 | 0 0 | 0 0 | 57 3 | -0 2 | 231 5 | 0 0 | 0 0 |
| 3.26 | 583 30 | 0 34 | 335 7 | 0.1 | 0 0 | 66 7 | 3 7 | 3 0 | 77 2 | -0 2 | 303 0 | 0 6 | 0 4 |

**********

TT = 0 0000 DTH = 1.0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1.0000 ITERR = 1
QU(1) = 300.00 YU(1) = 589.55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 55 | 0 30 | 300 0 | 0.0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0 0 |
| 0 52 | 588.18 | 0 30 | 300 6 | 0.0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 4 | 0 0 | 0 0 |
| 0 68 | 587 21 | 0.30 | 300 8 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0 0 | 126 0 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 8 | 0.0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 9 | 0 0 | 0 0 |
| 0.92 | 586 71 | 0 32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 2 | 0 0 | 0 0 |
| 1 39 | 585 52 | 0 32 | 321 2 | 0 0 | 0 0 | 67 9 | 0 0 | 0.0 | 67 9 | -0 0 | 163 7 | 0 0 | 0 0 |
| 1.50 | 585 14 | 0 32 | 321 8 | 0 0 | 0 0 | 69 5 | 0 0 | 0 0 | 69 5 | -0 0 | 211 9 | 0 0 | 0 0 |
| 1 61 | 584 98 | 0 32 | 322.7 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | -0 0 | 285 1 | 0 0 | 0 0 |
| 1.72 | 584 91 | 0 32 | 323 8 | 0 0 | 0.0 | 79 0 | 0 0 | 0 0 | 79 0 | -0 1 | 375 3 | 0 0 | 0 0 |
| 1 88 | 584 83 | 0 33 | 325 6 | 0 0 | 0 0 | 77 1 | 0 0 | 0 0 | 77 1 | -0 1 | 343 5 | 0 0 | 0 0 |
| 2 04 | 584 71 | 0.33 | 327 7 | 0 0 | 0 0 | 74 7 | 0 0 | 0 0 | 74 7 | -0.1 | 309 9 | 0 0 | 0 0 |
| 2.05 | 584 71 | 0 33 | 327.8 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2.06 | 584 70 | 0 33 | 328 0 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 39 | 584 37 | 0 33 | 333 5 | 0 0 | 0 0 | 62 7 | 0 0 | 0 0 | 62 7 | -0 1 | 242 2 | 0 0 | 0 0 |
| 2 73 | 583 64 | 0 34 | 337 5 | 0 0 | 0 0 | 47 5 | 0 0 | 0 0 | 47 5 | -0 1 | 156 7 | 0 0 | 0 0 |
| 2.99 | 583 21 | 0 34 | 340 1 | 0 0 | 0 0 | 55 9 | 0.0 | 0 0 | 55 9 | -0 1 | 217 5 | 0 0 | 0 0 |
| 3.26 | 583 01 | 0 34 | 344 4 | 0 0 | 0 0 | 65 0 | 0 1 | 0 1 | 65 3 | -0 2 | 283 9 | 0 0 | 0 0 |

**********

TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347.86 YU(N) = 582 69 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 1 0000 DTH = 1.0000 ITERR = 1
QU(1) = 333.00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 589 71 | 0 33 | 333 0 | 0.0 | 0 0 | 70 4 | 0.0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0 52 | 588 28 | 0 32 | 321 5 | 0 0 | 0 0 | 58 5 | 0 0 | 0 0 | 58 5 | 0 1 | 191 4 | 0 0 | 0.0 |
| 0 68 | 587 30 | 0.32 | 319 1 | 0 0 | 0 0 | 58 8 | 0 0 | 0 0 | 58 8 | 0 1 | 131 4 | 0 0 | 0 0 |
| 0 70 | 587 23 | 0 32 | 319 0 | 0 0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0.1 | 172 0 | 0 0 | 0 0 |
| 0 92 | 586 78 | 0 34 | 336 5 | 0.0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 8 | 0 0 | 0 0 |
| 1.39 | 585.54 | 0 33 | 332 9 | 0 0 | 0 0 | 68.1 | 0 0 | 0 0 | 68 1 | -0 0 | 164 6 | 0 0 | 0 0 |
| 1 50 | 585 12 | 0 33 | 332 5 | 0 0 | 0 0 | 69 4 | 0 0 | 0 0 | 69 4 | -0 1 | 210 8 | 0 0 | 0 0 |
| 1 61 | 584 95 | 0 33 | 332.3 | 0 0 | 0 0 | 73 8 | 0 0 | 0 0 | 73 8 | -0 1 | 283 0 | 0 0 | 0 0 |
| 1 72 | 584 88 | 0 33 | 332.2 | 0 0 | 0 0 | 78 8 | 0 0 | 0 0 | 78 8 | -0 1 | 372 7 | 0 0 | 0 0 |
| 1.88 | 584 79 | 0 33 | 332 1 | 0.0 | 0.0 | 76 8 | 0 0 | 0 0 | 76 8 | -0 1 | 340 5 | 0 0 | 0 0 |
| 2.04 | 584.67 | 0.33 | 332 0 | 0.0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | -0 1 | 306 5 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 05 | 584 67 | 0 33 | 332 0 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | -0 1 | 370 3 | 0 0 | 0 0 |
| 2 06 | 584 66 | 0 33 | 332 0 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0 1 | 305 4 | 0 0 | 0 0 |
| 2.39 | 584.31 | 0 33 | 331 2 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 238 6 | 0 0 | 0 0 |
| 2.73 | 583 46 | 0 33 | 333 6 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 148 0 | 0 0 | 0 0 |
| 2.99 | 582.95 | 0 34 | 339 4 | 0 0 | 0 0 | 54 4 | 0 0 | 0 0 | 54 4 | -0 4 | 203 0 | 0 0 | 0 0 |
| 3 26 | 582.69 | 0 35 | 347 9 | 0.0 | 0 0 | 63 8 | 0.0 | 0 0 | 63 8 | -0 5 | 263 6 | 0 0 | 0 0 |

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TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589 90 QU(N) = 355 10 YU(N) = 582 44 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589 90 QU(N) = 355 10 YU(N) = 582 44 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.90 | 0.37 | 365 0 | 0 0 | 0 0 | 70 8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 5 | 0 0 | 0 0 |
| 0 52 | 588 47 | 0 36 | 357 1 | 0 0 | 0 0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 3 | 0 0 | 0 0 |
| 0 68 | 587 49 | 0 35 | 354 3 | 0.0 | 0 0 | 59 8 | 0 0 | 0 0 | 59 8 | 0 3 | 142 6 | 0 0 | 0 0 |
| 0 70 | 587 43 | 0 35 | 354 1 | 0 0 | 0 0 | 61 0 | 0 0 | 0 0 | 61 0 | 0 3 | 183 8 | 0 0 | 0 0 |
| 0 92 | 586 96 | 0 37 | 371 2 | 0 0 | 0 0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 274 8 | 0 0 | 0 0 |
| 1 39 | 585 66 | 0 36 | 362 0 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 0 1 | 172 9 | 0 0 | 0 0 |
| 1 50 | 585 21 | 0 36 | 360 2 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 0 | 217 4 | 0 0 | 0 0 |
| 1 61 | 585 03 | 0 36 | 358 6 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 8 | 0 0 | 0 0 |
| 1 72 | 584.95 | 0 36 | 357 1 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 3 | 0 0 | 0 0 |
| 1 88 | 584 85 | 0 36 | 355 2 | 0.0 | 0 0 | 77 2 | 0 0 | 0 0 | 77 2 | -0 0 | 345 2 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0 35 | 353 7 | 0 0 | 0 0 | 74 7 | 0 0 | 0 0 | 74 7 | -0 1 | 310 1 | 0 0 | 0 0 |
| 2 05 | 584 72 | 0 35 | 353 6 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 374 0 | 0 0 | 0 0 |
| 2 06 | 584.70 | 0 35 | 353 5 | 0.0 | 0.0 | 74.6 | 0.0 | 0 0 | 74 6 | -0 1 | 309 0 | 0 0 | 0 0 |
| 2 39 | 584.31 | 0 35 | 352 4 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 239 0 | 0 0 | 0 0 |
| 2 73 | 583 39 | 0 35 | 352 0 | 0 0 | 0 0 | 45 7 | 0.0 | 0 0 | 45 7 | -0 3 | 144 9 | 0 0 | 0 0 |
| 2 99 | 582 77 | 0 35 | 352 3 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 193 1 | 0 0 | 0 0 |
| 3 26 | 582 44 | 0 36 | 355 1 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | -0 7 | 247 9 | 0 0 | 0 0 |

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TT = 3 0000 DTH = 1.0000 ITERR = 1
QU(1) = 396.00 YU(1) = 590 08 QU(N) = 376 62 YU(N) = 582 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396.00 YU(1) = 590 08 QU(N) = 376 62 YU(N) = 582 30 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 08 | 0 40 | 396 0 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 258 9 | 0 0 | 0 0 |
| 0 52 | 588 64 | 0 39 | 387 0 | 0 0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 3 | 0 0 | 0 0 |
| 0 68 | 587.71 | 0 38 | 384 3 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61.1 | 0 5 | 155 5 | 0 0 | 0 0 |
| 0 70 | 587.65 | 0.38 | 384.1 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | 0 5 | 197 1 | 0 0 | 0 0 |
| 0 92 | 587.17 | 0 41 | 409.3 | 0 0 | 0.0 | 67 8 | 0 0 | 0 0 | 67 8 | 0 5 | 289 4 | 0 0 | 0 0 |
| 1 39 | 585.85 | 0 40 | 399 4 | 0 0 | 0 0 | 72 1 | 0 0 | 0 0 | 72 1 | 0 3 | 186 4 | 0 0 | 0 0 |
| 1 50 | 585.40 | 0 40 | 397 0 | 0 0 | 0 0 | 72 1 | 0 0 | 0 0 | 72 1 | 0 2 | 230 3 | 0 0 | 0 0 |
| 1 61 | 585.20 | 0 39 | 394 5 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 2 | 301 7 | 0 0 | 0 0 |
| 1 72 | 585.12 | 0.39 | 392 0 | 0 0 | 0 0 | 80 3 | 0 0 | 0 0 | 80 3 | 0 1 | 391 5 | 0 0 | 0 0 |
| 1 88 | 585 01 | 0 39 | 388 3 | 0 0 | 0 0 | 78 4 | 0 0 | 0 0 | 78 4 | 0 1 | 357 4 | 0 0 | 0 0 |
| 2 04 | 584 86 | 0 38 | 384 8 | 0 0 | 0 0 | 75 9 | 0 0 | 0 0 | 75 9 | 0 1 | 321 1 | 0 0 | 0 0 |
| 2 05 | 584 86 | 0 38 | 384 6 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 76 2 | 0 1 | 385 1 | 0 0 | 0 0 |
| 2 06 | 584 85 | 0 38 | 384 4 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 1 | 319 9 | 0 0 | 0 0 |
| 2.39 | 584 44 | 0 38 | 377 5 | 0 0 | 0 0 | 63 3 | 0 0 | 0 0 | 63 3 | -0 1 | 246 7 | 0 0 | 0 0 |
| 2.73 | 583 42 | 0 37 | 374 0 | 0 0 | 0 0 | 46 0 | 0 0 | 0 0 | 46 0 | -0 3 | 146 3 | 0 0 | 0 0 |
| 2 99 | 582 70 | 0 37 | 374 5 | 0 0 | 0 0 | 53 0 | 0 0 | 0 0 | 53 0 | -0 7 | 189 6 | 0 0 | 0 0 |
| 3 26 | 582 30 | 0 38 | 376 6 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62 2 | -0 9 | 239 1 | 0 0 | 0 0 |

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TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427.00 YU(1) = 590 25 QU(N) = 413 01 YU(N) = 582 27 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 4.0000 DTH = 1 0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590 25 QU(N) = 413 01 YU(N) = 582 27 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590.25 | 0.43 | 427 0 | 0 0 | 0.0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 271 3 | 0 0 | 0 0 |
| 0 52 | 588 85 | 0 42 | 417.0 | 0.0 | 0.0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 7 | 224 9 | 0 0 | 0 0 |
| 0.68 | 588 03 | 0 41 | 412.4 | 0.0 | 0.0 | 62 9 | 0 0 | 0 0 | 62 9 | 0 8 | 175 8 | 0 0 | 0 0 |
| 0 70 | 587.99 | 0 41 | 411 9 | 0 0 | 0.0 | 63 7 | 0 0 | 0 0 | 63 7 | 0 8 | 218 7 | 0 0 | 0 0 |
| 0 92 | 587 51 | 0 48 | 481.2 | 0 0 | 0 0 | 68 3 | 0 0 | 0 0 | 68 3 | 0 8 | 312 5 | 0 0 | 0 0 |
| 1 39 | 586 15 | 0 46 | 461 5 | 0 0 | 0 0 | 74.3 | 3 6 | 0 0 | 77 8 | 0 6 | 208 7 | 0 3 | 0 0 |
| 1 50 | 585 70 | 0 46 | 457 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0.5 | 253 0 | 0 0 | 0 0 |
| 1 61 | 585.50 | 0 45 | 452 4 | 0 0 | 0 0 | 78 1 | 0 0 | 0 0 | 78 1 | 0 5 | 324 5 | 0 0 | 0 0 |
| 1 72 | 585.40 | 0.45 | 447 9 | 0 0 | 0 0 | 82 2 | 0.0 | 0 0 | 82 2 | 0 4 | 414 9 | 0 0 | 0 0 |
| 1 88 | 585.28 | 0 44 | 441 4 | 0.0 | 0 0 | 80 4 | 0 0 | 0 0 | 80 4 | 0 4 | 379 4 | 0 0 | 0 0 |
| 2 04 | 585 13 | 0 44 | 435 5 | 0.0 | 0.0 | 78 0 | 0 0 | 0 0 | 78 0 | 0 3 | 341 5 | 0 0 | 0 0 |
| 2 05 | 585 13 | 0 44 | 435.1 | 0 0 | 0 0 | 77 5 | 0 0 | 0 0 | 77 5 | 0 3 | 405 4 | 0 0 | 0 0 |
| 2 06 | 585 11 | 0 43 | 434 8 | 0.0 | 0 0 | 77 9 | 0 0 | 0 0 | 77 9 | 0 3 | 340 1 | 0 0 | 0 0 |
| 2.39 | 584 67 | 0 43 | 425 2 | 0 0 | 0 0 | 65 0 | 0 0 | 0 0 | 65 0 | 0 2 | 261 4 | 0 0 | 0 0 |
| 2.73 | 583 58 | 0 42 | 418.5 | 0 0 | 0 0 | 47 1 | 0 0 | 0 0 | 47 1 | -0 1 | 153 8 | 0 0 | 0 0 |
| 2.99 | 582 75 | 0 41 | 414 8 | 0 0 | 0 0 | 53 3 | 0.0 | 0 0 | 53 3 | -0 6 | 192 5 | 0 0 | 0 0 |
| 3 26 | 582 27 | 0 41 | 413 0 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | -0 9 | 237 3 | 0 0 | 0 0 |

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TT = 5.0000 DTH = 1 0000 ITERR = 2
QU(1) = 459.00 YU(1) = 590 55 QU(N) = 521 86 YU(N) = 582 64 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 55 QU(N) = 521 86 YU(N) = 582 64 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 55 | 0 46 | 459 0 | 0 0 | 0 0 | 72 1 | 0 0 | 0 0 | 72 1 | 1 0 | 292 8 | 0 0 | 0 0 |
| 0 52 | 589 53 | 0 43 | 425 3 | 0 0 | 0 0 | 62.0 | 0 0 | 0 0 | 62 0 | 1 4 | 266 5 | 0 0 | 0 0 |
| 0 68 | 589 19 | 0 41 | 405 5 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 2 0 | 252 3 | 0 0 | 0 0 |
| 0 70 | 589.17 | 0 40 | 403 2 | 0 0 | 0 0 | 69 3 | 0 0 | 0 0 | 69 3 | 2 0 | 297 5 | 0 0 | 0 0 |
| 0 92 | 588 68 | 0 80 | 804 9 | 0.0 | 0 0 | 70 0 | 0 0 | 0 0 | 70 0 | 2 0 | 393 0 | 0 0 | 0 0 |
| 1.39 | 587 10 | 0 72 | 712 0 | 10 8 | 0 0 | 75 9 | 25 9 | 0 0 | 101 8 | 1 6 | 280 0 | 14 3 | 0 0 |
| 1.50 | 586.65 | 0 70 | 702.1 | 1 4 | 0 5 | 79 4 | 10 2 | 2 7 | 95 5 | 1.5 | 326 8 | 3 3 | 0 9 |
| 1 61 | 586 41 | 0 69 | 685.5 | 0.2 | 0.2 | 83 1 | 3 2 | 3 5 | 93 9 | 1 4 | 399 0 | 0 7 | 0 7 |
| 1.72 | 586 29 | 0 67 | 668 2 | 0 0 | 0 0 | 86 9 | 0 0 | 3 7 | 95 0 | 1 3 | 490 4 | 0.0 | 0 5 |
| 1.88 | 586 13 | 0 64 | 643 8 | 0 0 | 0 0 | 85 9 | 0 0 | 0 8 | 87 7 | 1 2 | 450 0 | 0 0 | 0 1 |
| 2 04 | 585 93 | 0 62 | 621 4 | 0 0 | 0 0 | 84 4 | 0 0 | 0 0 | 84 4 | 1 1 | 406 6 | 0 0 | 0 0 |
| 2 05 | 585 93 | 0 62 | 619 9 | 0 0 | 0 0 | 81 6 | 0 0 | 0 0 | 81 6 | 1 1 | 469 0 | 0 0 | 0 0 |
| 2 06 | 585 91 | 0 62 | 618 5 | 0 0 | 0 0 | 84 3 | 0 0 | 0 0 | 84 3 | 1 1 | 404 6 | 0 0 | 0 0 |
| 2 39 | 585 38 | 0.58 | 578 7 | 0 0 | 0 1 | 69 0 | 0 0 | 4 7 | 73 8 | 0 9 | 309 4 | 0 0 | 0 9 |
| 2.73 | 584.17 | 0.55 | 551 6 | 0.0 | 0 0 | 50 9 | 0 0 | 4 2 | 55 1 | 0 5 | 182 4 | 0 0 | 0 3 |
| 2.99 | 583 22 | 0.54 | 536.4 | 0 0 | 0 0 | 55 9 | 0 0 | 0 0 | 55 9 | -0 1 | 217 7 | 0 0 | 0 0 |
| 3 26 | 582 64 | 0 52 | 521.9 | 0 0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | -0 5 | 260 3 | 0 0 | 0 0 |

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TT = 6 0000 DTH = 1 0000 ITERR = 3
QU(1) = 490 00 YU(1) = 591 96 QU(N) = 887 33 YU(N) = 584 02 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 6.0000 DTH = 1 0000 ITERR = 3
QU(1) = 490.00 YU(1) = 591 96 QU(N) = 887 33 YU(N) = 584 02 FRDM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 591 96 | 0 49 | 490 0 | 0 0 | 0 0 | 74 9 | 0 0 | 0 0 | 74 9 | 2 4 | 396 8 | 0 0 | 0 0 |
| 0 52 | 591 74 | 0 33 | 324 7 | 0 9 | 0 4 | 66 4 | 33 3 | 18 5 | 186 8 | 3 6 | 409 5 | 12 4 | 6 9 |
| 0 68 | 591 72 | 0 26 | 258 5 | 1 2 | 0 0 | 84 3 | 78 8 | 0 0 | 163 1 | 4 5 | 446 6 | 28 2 | 0 0 |
| 0 70 | 591 72 | 0 25 | 252 6 | 1 0 | 0 0 | 79 8 | 80 5 | 0 0 | 160 3 | 4 6 | 488 5 | 28 8 | 0 0 |
| 0.92 | 591.14 | 1.78 | 1768 7 | 12 8 | 0 0 | 75 1 | 162 7 | 0 0 | 237 9 | 4 4 | 570 9 | 92 9 | 0 0 |
| 1 39 | 589 25 | 1 52 | 1347 4 | 173 1 | 0 0 | 79 7 | 76 3 | 0 0 | 156 0 | 3 7 | 447 0 | 124 0 | 0 0 |
| 1 50 | 588 83 | 1 47 | 1375 3 | 68 9 | 25 1 | 84 1 | 44 3 | 11 8 | 154 3 | 3 7 | 504 7 | 62 6 | 16 6 |
| 1 61 | 588 55 | 1 42 | 1365 6 | 21 3 | 31 0 | 88.6 | 20 0 | 21 3 | 155 4 | 3 5 | 582 6 | 25 5 | 27 2 |
| 1 72 | 588.39 | 1 36 | 1351 2 | 0 0 | 13 1 | 93 2 | 0 0 | 29 8 | 158 8 | 3 4 | 678 8 | 0 0 | 35 6 |
| 1 88 | 588 15 | 1.29 | 1282 7 | 0 0 | 5 2 | 91 4 | 0 0 | 13 5 | 121 0 | 3 3 | 629 1 | 0 0 | 14 5 |
| 2 04 | 587 87 | 1 23 | 1228 9 | 0 0 | 0 0 | 89 7 | 0 0 | 0 0 | 89 7 | 3 1 | 576 2 | 0 0 | 0 0 |
| 2 05 | 587 87 | 1 22 | 1224 8 | 0 0 | 0 0 | 92 8 | 0 0 | 0 0 | 139 5 | 3 1 | 638 4 | 0 0 | 0 0 |
| 2.06 | 587.84 | 1 22 | 1220 6 | 0 0 | 0 0 | 89 6 | 0 0 | 0 0 | 89 6 | 3 1 | 573 2 | 0 0 | 0 0 |
| 2 39 | 587.17 | 1 11 | 1106 7 | 0 0 | 7 6 | 76 2 | 0 0 | 27 1 | 103 3 | 2 7 | 439 2 | 0 0 | 29 3 |
| 2 73 | 585 76 | 1 02 | 982.4 | 0 0 | 34 4 | 59 7 | 0 0 | 44 0 | 103 7 | 2 0 | 270 6 | 0 0 | 38 8 |
| 2 99 | 584 70 | 0.95 | 939 6 | 3 1 | 7 0 | 64 2 | 7 5 | 21 0 | 100 1 | 1 3 | 306 7 | 4 5 | 12 5 |
| 3 26 | 584 02 | 0.89 | 882 0 | 3 2 | 2 1 | 70 9 | 12 7 | 10 2 | 106 5 | 0 8 | 352 6 | 6 5 | 5 2 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 6 000 DTH= 0 500 ITERR= 9

**********

TT = 6 5000 DTH = 0 5000 ITERR = 9
QU(1) = 505 50 YU(1) = 592 61 QU(N) = 1205 31 YU(N) = 584 80 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 6.5000 DTH = 0 5000 ITERR = 9
QU(1) = 505.50 YU(1) = 592 61 QU(N) = 1205 31 YU(N) = 584 80 FRDM=0 08 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 592 61 | 0 51 | 504.2 | 1 2 | 0 0 | 75 0 | 50 4 | 1 5 | 126 9 | 3 0 | 445 3 | 15 4 | 0 5 |
| 0 52 | 592.46 | 0 31 | 300.9 | 4 2 | 1 9 | 66 7 | 65 8 | 36 5 | 304 2 | 4 3 | 457 5 | 48 1 | 26 7 |
| 0 68 | 592.45 | 0 23 | 220 0 | 5 4 | 0 0 | 88 7 | 159.1 | 0 0 | 247 8 | 5 2 | 509 8 | 115 1 | 0 0 |
| 0 70 | 592.45 | 0 22 | 214.6 | 4.6 | 0 0 | 81 6 | 162 7 | 0 0 | 244 3 | 5 3 | 547 4 | 117 6 | 0 0 |
| 0 92 | 591.92 | 2 15 | 2096 7 | 51 2 | 0 0 | 77 3 | 273 9 | 0 0 | 351 2 | 5 2 | 630 4 | 263 2 | 0 0 |
| 1 39 | 590 22 | 1 86 | 1574.5 | 289 2 | 0 0 | 81 0 | 114 7 | 2 5 | 198 2 | 4 7 | 525 5 | 211 3 | 0 3 |
| 1 50 | 589.87 | 1 82 | 1625.1 | 145 8 | 53 2 | 86 4 | 60 6 | 16 1 | 182 4 | 4 7 | 593 4 | 117 1 | 31 1 |
| 1 61 | 589.63 | 1 78 | 1654 4 | 51 9 | 75 7 | 91 4 | 28 4 | 30 2 | 186 3 | 4 6 | 679 2 | 51 5 | 54 8 |
| 1 72 | 589.47 | 1 73 | 1696 5 | 0 0 | 37 2 | 96 4 | 0 0 | 43 3 | 191 7 | 4 5 | 781 2 | 0 0 | 75 1 |
| 1 88 | 589 23 | 1 66 | 1640 6 | 0 0 | 16 3 | 94 4 | 0 0 | 20 2 | 138 7 | 4 3 | 728 9 | 0 0 | 32 5 |
| 2.04 | 588.93 | 1 60 | 1604 6 | 0 0 | 0 0 | 92 3 | 0 0 | 0 0 | 92 3 | 4 1 | 672 5 | 0 0 | 0 0 |
| 2 05 | 588 93 | 1 60 | 1600 4 | 0 0 | 0 0 | 98 8 | 0 0 | 0 0 | 172 1 | 4 1 | 739 8 | 0 0 | 0 0 |
| 2 06 | 588 90 | 1 60 | 1596 1 | 0 0 | 0 0 | 92 2 | 0 0 | 0 0 | 92 2 | 4 1 | 669 2 | 0 0 | 0 0 |
| 2 39 | 588 18 | 1 50 | 1475 9 | 0 0 | 21 7 | 80 2 | 0 0 | 39 7 | 119 9 | 3 7 | 518 0 | 0 0 | 63 0 |
| 2 73 | 586 69 | 1 38 | 1277.5 | 0 0 | 105 8 | 64 8 | 0 0 | 67 2 | 132 0 | 3 0 | 328 2 | 0 0 | 90 3 |
| 2 99 | 585.57 | 1 29 | 1246 0 | 14 1 | 31 5 | 69.1 | 12 9 | 36 2 | 131 2 | 2 2 | 364 8 | 13 4 | 37 4 |
| 3 26 | 584 80 | 1 21 | 1179 1 | 16 0 | 10 2 | 75 3 | 22 5 | 18 0 | 138 3 | 1 6 | 409 5 | 20 2 | 16 2 |

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TT = 7.5000 DTH = 1 0000 ITERR = 3
QU(1) = 536 50 YU(1) = 594 46 QU(N) = 2087 88 YU(N) = 586 60 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 7 5000 DTH = 1 0000 ITERR = 3
QU(1) = 536 50 YU(1) = 594.46 QU(N) = 2087 88 YU(N) = 586 60 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 594 46 | 0 54 | 503 7 | 31.7 | 1 0 | 75 0 | 203 2 | 6 2 | 284 3 | 4 9 | 584 2 | 250 2 | 7 6 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 52 | 594 47 | -0 16 | -143 6 | -13 3 | -5 9 | 67 7 | 155 2 | 86 8 | 631 9 | 6 3 | 592 7 | 271 2 | 150 7 |
| 0 68 | 594 48 | -0 42 | -360 1 | -55.1 | 0 0 | 100.9 | 382 9 | 0 0 | 483 8 | 7 3 | 702 6 | 666 5 | 0 0 |
| 0.70 | 594 48 | -0 44 | -382 8 | -53.6 | 0 0 | 86 7 | 391 8 | 0.0 | 478 5 | 7 3 | 718 8 | 682 1 | 0 0 |
| 0 92 | 594 05 | 3 93 | 3515 2 | 416 2 | 0 0 | 83.1 | 574 5 | 0 7 | 658 3 | 7 3 | 801 4 | 1171 2 | 0 0 |
| 1 39 | 592.32 | 3 11 | 2244 7 | 827 2 | 34 9 | 81 0 | 308 8 | 26 1 | 415 8 | 6 8 | 695 0 | 654 3 | 30 2 |
| 1 50 | 592 06 | 3 03 | 2429 1 | 443.5 | 157 1 | 87 0 | 190 3 | 40 7 | 348 3 | 6 9 | 784 1 | 386 3 | 92 6 |
| 1 61 | 591 86 | 2 96 | 2533 1 | 175 1 | 253 3 | 93 0 | 88 8 | 55 8 | 296 2 | 6 8 | 885 8 | 174 5 | 149 6 |
| 1 72 | 591.71 | 2 90 | 2747 2 | 0 0 | 150 2 | 98 9 | 0 0 | 71 4 | 255 9 | 6 7 | 1001 5 | 0 0 | 203 9 |
| 1 88 | 591 44 | 2 78 | 2709.0 | 0 0 | 72 1 | 97 8 | 0 0 | 34 0 | 190 7 | 6 6 | 943 0 | 0 0 | 92.6 |
| 2 04 | 591.10 | 2 70 | 2703 3 | 0 0 | 0 0 | 96 4 | 0 0 | 0 0 | 123.9 | 6 3 | 877 7 | 0 0 | 0 0 |
| 2 05 | 591.10 | 2 70 | 2695.8 | 0.0 | 0 0 | 108 6 | 0 0 | 0 0 | 415 5 | 6 3 | 966 8 | 0 0 | 0 0 |
| 2 06 | 591 06 | 2 69 | 2688 4 | 0 0 | 0 0 | 96 3 | 0 0 | 0 0 | 122 8 | 6 3 | 873 7 | 0 0 | 0 0 |
| 2.39 | 590 17 | 2 54 | 2452 6 | 5 9 | 81 2 | 85 4 | 15 4 | 100 5 | 215 9 | 5 7 | 684 3 | 9 0 | 188 1 |
| 2.73 | 588 53 | 2 37 | 1995.4 | 1 8 | 371 5 | 73 1 | 14 0 | 145 9 | 232 9 | 4 8 | 456 6 | 3 7 | 265 4 |
| 2 99 | 587 43 | 2.23 | 1974 7 | 79 3 | 177 6 | 79 6 | 24 6 | 68 8 | 197 6 | 4 1 | 503 4 | 48 3 | 135 3 |
| 3 26 | 586 60 | 2 09 | 1910 6 | 108 1 | 69 2 | 85 7 | 44 9 | 36 0 | 211 5 | 3 4 | 554 3 | 80 8 | 64 6 |

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TT = 8.5000 DTH = 1 0000 ITERR = 2
QU(1) = 580.50 YU(1) = 596 10 QU(N) = 3255 95 YU(N) = 588 20 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 8 5000 DTH = 1 0000 ITERR = 2
QU(1) = 580 50 YU(1) = 596 10 QU(N) = 3255 95 YU(N) = 588 20 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 596.10 | 0 58 | 489 9 | 88 5 | 2 1 | 75 0 | 332 9 | 17 5 | 435 8 | 6 5 | 707 3 | 694 4 | 21 4 |
| 0 52 | 596 09 | -0 05 | -37 0 | -7 6 | -3 5 | 68 0 | 196 4 | 100 0 | 791 8 | 7 9 | 702 9 | 565 9 | 309 4 |
| 0 68 | 596 09 | -0 26 | -200.2 | -58 2 | -0 0 | 104 0 | 601 8 | 5 5 | 765 8 | 8 9 | 869 3 | 1448 5 | 3 0 |
| 0.70 | 596 09 | -0 28 | -217.9 | -61 3 | -0.1 | 88 0 | 609 0 | 8 2 | 923 5 | 8 9 | 860 0 | 1477 8 | 4 5 |
| 0.92 | 595 74 | 5 36 | 4309.7 | 1048 0 | 6 8 | 85 2 | 713 7 | 23 1 | 822 0 | 9 0 | 943 4 | 2258 3 | 20 1 |
| 1 39 | 594 22 | 4 57 | 2638 2 | 1801 3 | 135 4 | 81 0 | 465 3 | 49 2 | 595 5 | 8 7 | 849 5 | 1410 1 | 100 5 |
| 1 50 | 594 05 | 4.50 | 3063 2 | 1088 6 | 346 9 | 87 4 | 310 0 | 64 1 | 501 5 | 8 9 | 956 9 | 884 8 | 196 2 |
| 1 61 | 593 88 | 4.43 | 3405 7 | 483 4 | 542 8 | 93 6 | 151 3 | 80 2 | 403 9 | 8 9 | 1074 1 | 416 8 | 286 9 |
| 1 72 | 593 74 | 4 37 | 4027 5 | 0 0 | 345 9 | 99 9 | 0 0 | 96 8 | 312 8 | 8 8 | 1203 3 | 0 0 | 374 7 |
| 1 88 | 593 45 | 4 25 | 4079 6 | 0 0 | 174 3 | 99 5 | 0 0 | 46 6 | 245 2 | 8 6 | 1141 3 | 0 0 | 173 6 |
| 2.04 | 593 06 | 4 16 | 4163 6 | 0 0 | 0.0 | 98 8 | 0 0 | 0 0 | 175 4 | 8 3 | 1069 4 | 0 0 | 0 0 |
| 2.05 | 593 08 | 4 15 | 4148 5 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 793.2 | 8 3 | 1188 3 | 0 0 | 0 0 |
| 2.06 | 593 02 | 4 13 | 4133 5 | 0 0 | 0 0 | 98 8 | 0 0 | 0 0 | 174 2 | 8 2 | 1064 6 | 0 0 | 0 0 |
| 2 39 | 591 86 | 3.92 | 3597 0 | 73 0 | 255 0 | 88 2 | 37 6 | 173 5 | 335 0 | 7 4 | 831 2 | 53 8 | 419 9 |
| 2 73 | 590 11 | 3 66 | 2697 4 | 67 3 | 891 0 | 76 2 | 55 3 | 281 8 | 413 3 | 6 4 | 574 2 | 58 3 | 602 4 |
| 2 99 | 589.07 | 3 44 | 2820.2 | 197 2 | 422 5 | 82 9 | 94 6 | 161 1 | 353 8 | 5 7 | 636 5 | 143 7 | 321 2 |
| 3 26 | 588 20 | 3 26 | 2811 4 | 267 9 | 176.7 | 90 1 | 124 7 | 75 9 | 325 7 | 5 0 | 695 8 | 204 4 | 149 2 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 8.500 DTH= 0 500 ITERR= 9

**********

TT = 9 0000 DTH = 0 5000 ITERR = 2
QU(1) = 609.00 YU(1) = 596 71 QU(N) = 3958 27 YU(N) = 588 85 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 9 0000 DTH = 0.5000 ITERR = 2
QU(1) = 609 00 YU(1) = 596 71 QU(N) = 3958 27 YU(N) = 588 85 FRDM=0.04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 596 71 | 0.61 | 487 7 | 118 5 | 2.8 | 75 0 | 349 4 | 61 2 | 556 2 | 7 1 | 752 5 | 899 8 | 45 1 |
| 0.52 | 596 70 | 0.06 | 42 7 | 10 6 | 4.9 | 68 0 | 205 5 | 100 0 | 832 6 | 8 5 | 744 0 | 687 4 | 369 8 |
| 0.68 | 596 70 | -0.14 | -102 2 | -35.9 | -0 1 | 104 0 | 691 9 | 8 5 | 889 3 | 9 5 | 932 4 | 1841 5 | 7 2 |
| 0.70 | 596 70 | -0 16 | -121 1 | -41 8 | -0 1 | 88 0 | 697 6 | 12 7 | 1138 1 | 9 6 | 913 5 | 1874 9 | 10 8 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 92 | 596 39 | 5 87 | 4490 5 | 1361 8 | 15 0 | 86 0 | 766 8 | 31 6 | 884 4 | 9 7 | 998 5 | 2734 5 | 37 7 |
| 1 39 | 595 00 | 5.15 | 2633 5 | 2331.4 | 184 5 | 81 0 | 466 2 | 63 7 | 611 0 | 9 5 | 912 3 | 1771 2 | 144 3 |
| 1 50 | 594 85 | 5 09 | 3154 7 | 1508 7 | 428 7 | 87 9 | 310 7 | 77 5 | 515 4 | 9 7 | 1027 3 | 1134 1 | 253 1 |
| 1.61 | 594 70 | 5 04 | 3650 8 | 706 4 | 683 0 | 94 6 | 155 3 | 91 8 | 420 5 | 9 7 | 1150 9 | 543 2 | 357 0 |
| 1.72 | 594 56 | 4.99 | 4535 7 | 0.0 | 458 2 | 101 1 | 0 0 | 107 0 | 326 7 | 9 6 | 1285 6 | 0 0 | 458 2 |
| 1.88 | 594 27 | 4.89 | 4666.5 | 0 0 | 222 9 | 100.8 | 0 0 | 54 9 | 296 1 | 9 4 | 1222 4 | 0 0 | 213 9 |
| 2 04 | 593 87 | 4 81 | 4809 4 | 0 0 | 0 0 | 99 8 | 0 0 | 0 0 | 196 5 | 9 1 | 1149 0 | 0 0 | 0 0 |
| 2.05 | 593 89 | 4 80 | 4796 5 | 0 0 | 0.0 | 117 7 | 0 0 | 0 0 | 947 9 | 9 1 | 1282 6 | 0 0 | 0 0 |
| 2 06 | 593 81 | 4 78 | 4783.6 | 0 0 | 0 0 | 99 8 | 0 0 | 0 0 | 195 1 | 9 0 | 1144 0 | 0 0 | 0 0 |
| 2.39 | 592 54 | 4 60 | 4090 3 | 134 0 | 379 7 | 89 3 | 46 5 | 202 8 | 382 9 | 8 1 | 891 6 | 82 4 | 548 0 |
| 2 73 | 590.76 | 4.37 | 2985 9 | 134 7 | 1245 9 | 77 5 | 72 5 | 338 3 | 488 3 | 7 0 | 624 5 | 100 2 | 805 4 |
| 2 99 | 589 75 | 4 15 | 3203 0 | 327 3 | 623 2 | 84 2 | 124 7 | 200 6 | 420 5 | 6 4 | 693 3 | 218 2 | 444 1 |
| 3.26 | 588 85 | 3 96 | 3265 7 | 428.7 | 263 9 | 91 2 | 165 8 | 95 6 | 379 5 | 5 7 | 755 4 | 299 9 | 205 6 |

NONCONVERGENCE OCCURRED AT CRDSS-SECTIDN NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 000 DTH= 0 500 ITERR= 9

NONCONVERGENCE DCCURRED AT CRDSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 9 000 DTH= 0 250 ITERR= 9

**********

TT = 9 2500 DTH = 0 2500 ITERR = 2
QU(1) = 622 50 YU(1) = 596.98 QU(N) = 4316 59 YU(N) = 589 13 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 9.2500 DTH = 0.2500 ITERR = 2
QU(1) = 622 50 YU(1) = 596 98 QU(N) = 4316 59 YU(N) = 589 13 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596.98 | 0 62 | 486 6 | 131 9 | 4 0 | 75 0 | 356 8 | 80 8 | 610 2 | 7 4 | 772 7 | 995 2 | 64 3 |
| 0 52 | 596 97 | 0 05 | 34 4 | 9 3 | 4 2 | 68 0 | 209 5 | 100 0 | 850 9 | 8 8 | 762 4 | 743 4 | 396 9 |
| 0.68 | 596 97 | -0 14 | -100 5 | -38 2 | -0 1 | 104 0 | 731 8 | 9 8 | 944 1 | 9 7 | 960 5 | 2033 2 | 9 7 |
| 0 70 | 596 97 | -0 16 | -116.9 | -43 9 | -0 2 | 88 0 | 736 9 | 14 8 | 1233 3 | 9 8 | 937 2 | 2068 0 | 14 5 |
| 0 92 | 596 67 | 6 10 | 4564 5 | 1514 0 | 19 8 | 86.3 | 790 4 | 35 4 | 912 1 | 10 0 | 1023 1 | 2957 1 | 47 3 |
| 1 39 | 595 34 | 5 43 | 2645 9 | 2569 8 | 211 2 | 81 0 | 466 7 | 70 1 | 617 8 | 9 8 | 939 9 | 1929 7 | 167 1 |
| 1 50 | 595 20 | 5 37 | 3202 8 | 1700 1 | 471 3 | 88 1 | 311 0 | 83 3 | 521 4 | 10 0 | 1058 0 | 1242 6 | 281 2 |
| 1 61 | 595 05 | 5.33 | 3759 2 | 816 1 | 752 6 | 95 1 | 155 4 | 97 0 | 425 7 | 10 0 | 1184 4 | 598 0 | 390 3 |
| 1 72 | 594.91 | 5 29 | 4768 2 | 0 0 | 518 6 | 101 8 | 0 0 | 111 4 | 331 0 | 9 9 | 1321 3 | 0 0 | 496 7 |
| 1.88 | 594.61 | 5.18 | 4934.5 | 0 0 | 246 8 | 101 8 | 0 0 | 61 2 | 343 0 | 9 7 | 1257 2 | 0 0 | 233 9 |
| 2 04 | 594 20 | 5 09 | 5092.3 | 0 0 | 0 0 | 101 0 | 0 0 | 5 9 | 275 4 | 9 4 | 1182 2 | 0 0 | 0 6 |
| 2 05 | 594 23 | 5 08 | 5079 6 | 0.0 | 0.0 | 117 6 | 0 0 | 0 0 | 976 1 | 9 4 | 1321 9 | 0 0 | 0 0 |
| 2.06 | 594 14 | 5 07 | 5067 1 | 0 0 | 0 0 | 100 7 | 0 0 | 4 3 | 255 4 | 9 4 | 1176 9 | 0 0 | 0 3 |
| 2.39 | 592 82 | 4.90 | 4293 1 | 165 6 | 441 2 | 89 7 | 50 1 | 214 6 | 402 1 | 8 3 | 916 0 | 95 6 | 604 9 |
| 2 73 | 591 04 | 4 68 | 3097 2 | 170 8 | 1415 6 | 78 1 | 79.7 | 361 9 | 519 6 | 7 3 | 645 8 | 121 0 | 901 1 |
| 2 99 | 590 04 | 4 49 | 3362 1 | 398 9 | 727 6 | 84 8 | 137 6 | 217 5 | 449 1 | 6 7 | 717 9 | 256 4 | 505 0 |
| 3 26 | 589 13 | 4.32 | 3482 5 | 521 8 | 312 2 | 91 7 | 183 2 | 104 0 | 402 3 | 6 0 | 781 0 | 348 6 | 233 4 |

**********

TT = 10.2500 DTH = 1 0000 ITERR = 4
QU(1) = 676.50 YU(1) = 597 99 QU(N) = 5822 84 YU(N) = 590 24 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 10 2500 DTH = 1 0000 ITERR = 4
QU(1) = 676 50 YU(1) = 597 99 QU(N) = 5822 84 YU(N) = 590 24 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 99 | 0 68 | 482 5 | 181 4 | 12 6 | 75 0 | 384 7 | 154 2 | 812 8 | 8.4 | 848 7 | 1370 8 | 183 3 |
| 0 52 | 597 98 | 0.08 | 50 9 | 17 4 | 7 9 | 68 0 | 224 7 | 100 0 | 919 3 | 9 8 | 831 3 | 963 6 | 498 3 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 68 | 597 98 | -0 12 | -80 9 | -40 1 | -0 2 | 104 0 | 382 2 | 14 9 | 1150 2 | 10 8 | 1065 9 | 2851 8 | 22 2 |
| 0 70 | 597 98 | -0 15 | -99 2 | -49 5 | -0 4 | 88 0 | 884.7 | 22 4 | 1591 6 | 10 8 | 1026 5 | 2890 5 | 33 4 |
| 0 92 | 597 70 | 7 47 | 5151 8 | 2268 2 | 46 8 | 87 6 | 875 3 | 49 0 | 1012 0 | 11 0 | 1112 6 | 3814 4 | 90 7 |
| 1 39 | 596 30 | 6 92 | 2987 7 | 3595.5 | 335 1 | 81 0 | 467 9 | 88 1 | 637 0 | 10 8 | 1017 7 | 2378 7 | 243 1 |
| 1.50 | 596 15 | 6 89 | 3723.5 | 2492 6 | 675 7 | 88.8 | 311 8 | 99 2 | 537 9 | 11 0 | 1142 2 | 1539 0 | 368 0 |
| 1 61 | 595 97 | 6 87 | 4535 7 | 1259 8 | 1074.1 | 96 3 | 155 8 | 110 4 | 439 3 | 10 9 | 1272 9 | 742 0 | 486 2 |
| 1.72 | 595 80 | 6 85 | 6069 0 | 0 0 | 782 4 | 103.6 | 0 0 | 122 5 | 341 6 | 10 8 | 1412 3 | 0 0 | 600 3 |
| 1 88 | 595 36 | 6.81 | 6441 6 | 0.0 | 365 2 | 104 1 | 0 0 | 74 9 | 445 3 | 10 5 | 1334.4 | 0 0 | 284 9 |
| 2.04 | 594 57 | 6 78 | 6782 4 | 0 0 | 1 3 | 102 8 | 0.0 | 17 0 | 418 3 | 9 8 | 1220 0 | 0 0 | 4 8 |
| 2 05 | 594.62 | 6 79 | 6785 2 | 0 0 | 0.0 | 117.0 | 0 0 | 0 0 | 989 9 | 9 8 | 1367 9 | 0 0 | 0 0 |
| 2 06 | 594 47 | 6 79 | 6786 5 | 0 0 | 0 5 | 102 3 | 0 0 | 14.1 | 380 8 | 9 7 | 1210 0 | 0 0 | 3 3 |
| 2 39 | 593 99 | 6 61 | 5437.3 | 383 9 | 786 5 | 92 5 | 78 4 | 297 6 | 690 8 | 9 5 | 1022 4 | 169 5 | 901 2 |
| 2.73 | 592 11 | 6 29 | 3643 6 | 366 5 | 2277 9 | 80 0 | 110 7 | 458 4 | 649 1 | 8 4 | 730 7 | 221 8 | 1339 3 |
| 2.99 | 591 15 | 6 04 | 4015 7 | 777 7 | 1250 5 | 86 8 | 186.8 | 281 9 | 557 7 | 7 8 | 812 9 | 435 9 | 781 3 |
| 3 26 | 590 24 | 5 82 | 4247 9 | 1019 6 | 555 4 | 93 7 | 252 5 | 137 2 | 492 8 | 7 1 | 883 7 | 590 0 | 367 0 |

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TT = 11 2500 DTH = 1 0000 ITERR = 4
QU(1) = 730 50 YU(1) = 598 42 QU(N) = 7191 32 YU(N) = 591 06 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 11 2500 DTH = 1 0000 ITERR = 4
QU(1) = 730 50 YU(1) = 598 42 QU(N) = 7191.32 YU(N) = 591 06 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 598.42 | 0.73 | 501.3 | 210 3 | 18 9 | 75 0 | 396 4 | 185 1 | 898 0 | 8 9 | 880 6 | 1537.2 | 255 6 |
| 0.52 | 598.38 | 0 68 | 444.6 | 164 9 | 74 8 | 68 0 | 230 7 | 100 0 | 946 3 | 10 2 | 858 5 | 1054 8 | 538 3 |
| 0 68 | 598 38 | 0 68 | 439 0 | 238 7 | 1 3 | 104.0 | 940 6 | 16 9 | 1230 3 | 11 2 | 1106 9 | 3210 7 | 28 5 |
| 0 70 | 598 38 | 0 68 | 435 9 | 240 1 | 2.4 | 88 0 | 942 0 | 25 3 | 1730 5 | 11 2 | 1061 1 | 3249 6 | 42 7 |
| → 0 92 | 598 09 | 7 76 | 5202 9 | 2503 1 | 58 2 | 88 0 | 918 2 | 55 2 | 1061 3 | 11.4 | 1146 9 | 4162.6 | 110 9 |
| 1.39 | 596 67 | 7 73 | 3198.3 | 4122 4 | 404 3 | 81 0 | 468 3 | 95 1 | 644 5 | 11 1 | 1047 9 | 2553 4 | 277 3 |
| 1.50 | 596 51 | 7 72 | 4029 1 | 2901 6 | 788 8 | 89 0 | 312 1 | 105 2 | 544 2 | 11 3 | 1174 5 | 1652 2 | 405 1 |
| 1 61 | 596 32 | 7 71 | 4975 2 | 1490 5 | 1249 3 | 96.8 | 156 0 | 115 4 | 444 3 | 11 3 | 1306 0 | 795 5 | 524 9 |
| 1 72 | 596 12 | 7 71 | 6785 2 | 0 0 | 925 5 | 104 2 | 0 0 | 126 5 | 345 4 | 11 2 | 1445 2 | 0 0 | 639 7 |
| 1.88 | 595 59 | 7 70 | 7268 5 | 0 0 | 430 1 | 104 8 | 0 0 | 79 2 | 476 9 | 10 7 | 1358 7 | 0 0 | 302 8 |
| 2.04 | 594 60 | 7 69 | 7689.3 | 0 0 | 1 7 | 103 0 | 0 0 | 17 9 | 429 1 | 9 8 | 1222 9 | 0 0 | 5 3 |
| 2 05 | 594.67 | 7 69 | 7689 2 | 0 0 | 0 0 | 116 9 | 0 0 | 0 0 | 991 5 | 9 9 | 1373 4 | 0 0 | 0 0 |
| 2 06 | 594.47 | 7 69 | 7686.7 | 0 0 | 0 6 | 102 4 | 0 0 | 14 2 | 382 0 | 9 7 | 1210 3 | 0.0 | 3 4 |
| 2 39 | 594 64 | 7 60 | 5934 8 | 626 9 | 1040 8 | 94 1 | 95 5 | 347 5 | 873 8 | 10 2 | 1083 3 | 226 3 | 1112 0 |
| 2.73 | 592 86 | 7 43 | 3981 1 | 527 1 | 2924 6 | 80 0 | 150 1 | 550 3 | 780 4 | 9 1 | 790 8 | 319 6 | 1717 7 |
| 2 99 | 591 95 | 7.30 | 4466 3 | 1113 5 | 1724 3 | 87 5 | 237 1 | 332 5 | 657 1 | 8 6 | 883 5 | 604 7 | 1029 0 |
| 3.26 | 591 06 | 7 19 | 4837 4 | 1546 1 | 807 8 | 95 0 | 306 0 | 160 6 | 561 6 | 7 9 | 961 1 | 818 2 | 489 6 |

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TT = 12.2500 DTH = 1 0000 ITERR = 2
QU(1) = 798 50 YU(1) = 598 35 QU(N) = 7620 50 YU(N) = 591 31 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

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TT = 12.2500 DTH = 1 0000 ITERR = 2
QU(1) = 798 50 YU(1) = 598 35 QU(N) = 7620 50 YU(N) = 591 31 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 598 35 | 0 80 | 551 1 | 227 6 | 19 8 | 75 0 | 394 7 | 180 5 | 885 3 | 8 8 | 875 9 | 1512 0 | 244 0 |
| 0 52 | 598 31 | 0 91 | 591 3 | 216 2 | 98 2 | 68 0 | 229 6 | 100 0 | 941 3 | 10 1 | 853 5 | 1037 7 | 530 9 |
| 0 68 | 598 30 | 0 94 | 608.5 | 325 1 | 1.7 | 104 0 | 929 3 | 16 5 | 1214 8 | 11.1 | 1099 0 | 3139 7 | 27 2 |
| 0 70 | 598 30 | 0 94 | 607 8 | 328 6 | 3 2 | 88 0 | 930 9 | 24 7 | 1703 7 | 11 2 | 1054 4 | 3178 4 | 40 8 |
| 0.92 | 598.02 | 7 50 | 5043 5 | 2401 9 | 54 7 | 88 0 | 903 5 | 53 4 | 1044 9 | 11 3 | 1140 4 | 4095 7 | 106 9 |
| 1.39 | 596 64 | 7 59 | 3155 5 | 4040.7 | 394 3 | 81.0 | 468 3 | 94 4 | 643 7 | 11 1 | 1044 9 | 2535.9 | 273 7 |
| 1.50 | 596 48 | 7 60 | 3977 6 | 2845 6 | 773.2 | 89 0 | 312 1 | 104 6 | 543 6 | 11 3 | 1171 4 | 1641 5 | 401 5 |
| 1.61 | 596 29 | 7 60 | 4912 1 | 1462 1 | 1227 1 | 96 7 | 156 0 | 115 0 | 443 9 | 11.3 | 1303 0 | 790 7 | 521 4 |
| 1 72 | 596 09 | 7 61 | 6696 4 | 0 0 | 909 1 | 104 2 | 0 0 | 126 1 | 345 1 | 11 1 | 1442 4 | 0 0 | 636 4 |
| 1 88 | 595.57 | 7 62 | 7192 8 | 0 0 | 424 2 | 104 7 | 0 0 | 78 8 | 474 5 | 10 7 | 1356 8 | 0 0 | 301 3 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 04 | 594 60 | 7 62 | 7622 1 | 0 0 | 1 7 | 103 0 | 0 0 | 17 9 | 429 1 | 9 8 | 1222 9 | 0 0 | 5 3 |
| 2.05 | 594 67 | 7 63 | 7625 0 | 0 0 | 0 0 | 116 9 | 0 0 | 0 0 | 991 5 | 9 9 | 1373 1 | 0 0 | 0 0 |
| 2 06 | 594 47 | 7 63 | 7625 6 | 0 0 | 0 6 | 102 4 | 0 0 | 14 2 | 382 2 | 9 7 | 1210 4 | 0 0 | 3 4 |
| 2.39 | 594 76 | 7 64 | 5894.1 | 674 9 | 1071 9 | 94 4 | 98 6 | 356 5 | 906 9 | 10.3 | 1094 5 | 237 8 | 1153 6 |
| 2 73 | 593.06 | 7.66 | 4008 0 | 573 3 | 3076 4 | 80 0 | 160 8 | 575 1 | 815 9 | 9 3 | 807 0 | 351 1 | 1831 7 |
| 2 99 | 592 19 | 7 64 | 4563 2 | 1215.1 | 1864 0 | 87 5 | 255 1 | 348 2 | 690 9 | 8 8 | 904 2 | 663 0 | 1109 6 |
| 3 26 | 591 31 | 7 62 | 5007 8 | 1704 3 | 908 4 | 95 0 | 331 5 | 163 1 | 589 6 | 8 1 | 985 3 | 899 3 | 530 8 |

**********

TT = 13 2500 DTH = 1.0000 ITERR = 2
QU(1) = 908 75 YU(1) = 598 05 QU(N) = 7346 70 YU(N) = 591 21 FRDM=0 00 IFR= 13 FRM=7 00 IFM= 0

**********

TT = 13 2500 DTH = 1 0000 ITERR = 2
QU(1) = 908 75 YU(1) = 598 05 QU(N) = 7346 70 YU(N) = 591 21 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 05 | 0 91 | 644 5 | 246 4 | 17 8 | 75 0 | 386 4 | 158 7 | 825 2 | 8 5 | 853 3 | 1394 7 | 193 0 |
| 0 52 | 597 97 | 1 18 | 790 2 | 270 0 | 123 0 | 68 0 | 224.6 | 100 0 | 918 5 | 9 8 | 830 5 | 960 8 | 497 0 |
| 0 68 | 597 95 | 1 28 | 858 0 | 422 0 | 1 9 | 104 0 | 877 2 | 14 7 | 1143 4 | 10 7 | 1062 4 | 2822 1 | 21 7 |
| 0 70 | 597 95 | 1 30 | 864 8 | 427 8 | 3 4 | 88 0 | 879 5 | 22 1 | 1579 0 | 10 8 | 1023 3 | 2859 0 | 32 6 |
| 0 92 | 597 67 | 6.71 | 4639 8 | 2031 9 | 41 3 | 87 6 | 872 6 | 48 6 | 1008 8 | 11 0 | 1109 7 | 3785 5 | 89 1 |
| 1 39 | 596 38 | 6 98 | 2990 0 | 3650 7 | 343 8 | 81 0 | 468 0 | 89 5 | 638 5 | 10 8 | 1023 8 | 2414 1 | 249 8 |
| 1 50 | 596 23 | 7 00 | 3752 0 | 2552 6 | 692.1 | 88 8 | 311 9 | 100 4 | 539 3 | 11 1 | 1149 1 | 1563 1 | 375 7 |
| 1 61 | 596 05 | 7.01 | 4602 1 | 1300 6 | 1104 2 | 96 4 | 155 9 | 111 6 | 440 4 | 11 0 | 1280 2 | 753 8 | 494 6 |
| 1 72 | 595 87 | 7 02 | 6204 6 | 0 0 | 810 4 | 103 7 | 0 0 | 123 4 | 342 5 | 10 9 | 1419 8 | 0 0 | 609 2 |
| 1.88 | 595 41 | 7 04 | 6655 4 | 0 0 | 380 9 | 104 2 | 0 0 | 75 9 | 452 6 | 10 5 | 1340 1 | 0 0 | 289 0 |
| 2 04 | 594 56 | 7 05 | 7047 7 | 0 0 | 1 3 | 102 8 | 0 0 | 16 8 | 415 9 | 9 8 | 1219 4 | 0 0 | 4 7 |
| 2 05 | 594 62 | 7 05 | 7049 0 | 0 0 | 0 0 | 117 0 | 0 0 | 0 0 | 989 9 | 9 8 | 1367 9 | 0 0 | 0 0 |
| 2.06 | 594 46 | 7 05 | 7048 3 | 0 0 | 0 5 | 102 3 | 0 0 | 13 8 | 376 6 | 9 7 | 1208 9 | 0 0 | 3 2 |
| 2.39 | 594 55 | 7 11 | 5588 7 | 567 6 | 957 8 | 93 9 | 93 2 | 340 6 | 848 7 | 10 1 | 1074 9 | 217 8 | 1081 0 |
| 2 73 | 592 91 | 7 21 | 3839 4 | 518 9 | 2853 6 | 80 0 | 152 9 | 556 9 | 789 8 | 9 2 | 795 0 | 327 8 | 1747 4 |
| 2 99 | 592 07 | 7 29 | 4405 1 | 1133 3 | 1747 8 | 87 5 | 245 8 | 340 1 | 673 4 | 8 7 | 893 5 | 632 2 | 1067 3 |
| 3 26 | 591 21 | 7 35 | 4875 3 | 1616.0 | 855 3 | 95 0 | 320 9 | 162 1 | 578 0 | 8 0 | 975 3 | 864 9 | 513 7 |

**********

TT = 14 2500 DTH = 1.0000 ITERR = 2
QU(1) = 1019.50 YU(1) = 597 60 QU(N) = 6648 64 YU(N) = 590 86 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 14.2500 DTH = 1.0000 ITERR = 2
QU(1) = 1019 50 YU(1) = 597 60 QU(N) = 6648 64 YU(N) = 590 86 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 60 | 1 02 | 753 0 | 253 2 | 13 3 | 75.0 | 374 1 | 126 3 | 735 8 | 8 0 | 819 8 | 1224 7 | 129 3 |
| 0.52 | 597 49 | 1 31 | 907 1 | 278 5 | 127 4 | 68 0 | 217 3 | 100 0 | 885 9 | 9 3 | 797 6 | 854 0 | 448 7 |
| 0 68 | 597 46 | 1 41 | 979 7 | 425 6 | 1 5 | 104 0 | 804 2 | 12 3 | 1043 3 | 10 2 | 1011 2 | 2408 1 | 15 1 |
| 0.70 | 597 45 | 1 42 | 988 5 | 428 1 | 2 5 | 88 0 | 807 6 | 18 4 | 1404 8 | 10 3 | 979 9 | 2443 0 | 22 6 |
| 0 92 | 597 18 | 5 84 | 4196 4 | 1619 1 | 27 1 | 87 0 | 832 4 | 42 1 | 961 5 | 10 5 | 1067 2 | 3370 3 | 67 0 |
| 1 39 | 596.01 | 6 11 | 2732 2 | 3099 7 | 277 7 | 81 0 | 467 5 | 82 6 | 631 1 | 10 5 | 994 0 | 2241 8 | 218 1 |
| 1 50 | 595 87 | 6 12 | 3400 4 | 2142 5 | 581 5 | 88 6 | 311 6 | 94 6 | 533 1 | 10 7 | 1117 8 | 1453 1 | 341 3 |
| 1 61 | 595 72 | 6.14 | 4124 2 | 1078 1 | 934 2 | 96 0 | 155 7 | 106 8 | 435 6 | 10 7 | 1248 6 | 702 6 | 458 8 |
| 1.72 | 595.57 | 6.15 | 5470 1 | 0 0 | 676 5 | 103 1 | 0 0 | 119 7 | 338 9 | 10 6 | 1388 8 | 0 0 | 572 7 |
| 1 88 | 595 20 | 6 17 | 5848 1 | 0 0 | 322 2 | 103 6 | 0 0 | 72 0 | 423 5 | 10 3 | 1317 9 | 0 0 | 273 2 |
| 2.04 | 594 54 | 6 18 | 6180 6 | 0 0 | 1 0 | 102 7 | 0 0 | 16 2 | 408 1 | 9 8 | 1217 3 | 0 0 | 4 4 |
| 2.05 | 594 59 | 6 18 | 6182 2 | 0 0 | 0 0 | 117 1 | 0 0 | 0 0 | 988 7 | 9 8 | 1363 8 | 0 0 | 0 0 |
| 2 06 | 594 46 | 6 18 | 6182 3 | 0 0 | 0 5 | 102 3 | 0 0 | 13 9 | 378 3 | 9 7 | 1209 3 | 0 0 | 3 2 |
| 2 39 | 594 12 | 6 27 | 5098 0 | 401 9 | 772 4 | 92 8 | 82 0 | 308 2 | 729 7 | 9 6 | 1035 2 | 180 6 | 943 2 |
| 2 73 | 592 53 | 6 43 | 3572 3 | 417 9 | 2444 3 | 80 0 | 132 9 | 510.1 | 723 1 | 8 8 | 764 5 | 273 3 | 1543 9 |
| 2 99 | 591.70 | 6 55 | 4105 4 | 956 0 | 1489 6 | 87 5 | 217 7 | 315 7 | 620 8 | 8 3 | 861 2 | 546 8 | 946 4 |
| 3 26 | 590 86 | 6 65 | 4561.9 | 1369 7 | 717.0 | 94 8 | 291 1 | 155 7 | 543 3 | 7 7 | 941 9 | 757 9 | 457 5 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11

```
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      12  13  14  15  16  17
                                              TT=    14.250     DTH=     0 500     ITERR= 9

*****************************************************************************************************************
TT =  14 7500          DTH =  0 5000          ITERR =   2
QU(1) =    1074 50     YU(1) =     597 39  QU(N) =    6130 69  YU(N) =     590 58  FRDM=0 00 IFR= 17 FRM=7 00 IFM=  0


*****************************************************************************************************************
TT =  14 7500          DTH =  0 5000          ITERR =   2
QU(1) =    1074.50     YU(1) =     597.39  QU(N) =    6130 69  YU(N) =     590.58  FRDM=0 05 IFR=  1 FRM=

   X(I)       Y       QQ      QQC      QQL      QQR        B       BL       BR       BT   WAVEHT       A       AL       AR

   0 00  597 39    1 07    808 9    254 4     11 2     75 0    368 3    111 0    693 7      7 8    804 0   1146 5    104 3
   0.52  597 26    1 31    917.4    266 4    122 0     68 0    213 9    100 0    870 5      9.1    782 1    804 9    425 9
   0.68  597 22    1.39    984.6    402 0      1 2    104 0    769 7     11 1    996 1     10 0    987 1   2225 3     12 4
   0 70  597 22    1 40    993 8    402 6      2 0     88 0    773 7     16 7   1322 6     10 1    959 5   2259 1     18 5
   0 92  596 95    5 46   3992 9   1448.1     21 8     86 7    813 6     39 1    939 4     10 2   1047 4   3182 9     57 8
   1 39  595 86    5 67   2585 7   2839 4    249 2     81 0    467 3     79 8    628 1     10 3    981 7   2170 9    205 8
   1.50  595.73    5 68   3200 7   1951 5    530 8     88 5    311 4     92 2    530 7     10 6   1105 3   1409 2    328 1
   1.61  595 59    5 69   3858.3    977 0    854 6     95 8    155 7    104 9    433 7     10 6   1236 6    683 1    445 5
   1 72  595 46    5 70   5079.3      0.0    615 7    102 9      0 0    118 3    337 6     10 5   1377 6      0 0    559 8
   1 88  595 14    5 70   5407 4      0 0    295 4    103 4      0 0     70 9    415.6     10 3   1311 9      0 0    269 0
   2 04  594.63    5 69   5689 3      0 0      1 4    103 1      0 0     18 8    440 7      9 8   1226 0      0 0      5 9
   2.05  594.66    5.69   5687 3      0 0      0 0    117 0      0 0      0 0    991 4      9 9   1373 0      0 0      0 0
   2.06  594 56    5 68   5683 0      0 0      0 7    102 8      0 0     16 9    417 1      9 8   1219 7      0 0      4 8
   2 39  593 82    5 76   4783 3    313.8    663 3     92 0     73 9    284 8    643.7      9 3   1006 8    156 6    852 2
   2.73  592 24    5 96   3408 3    358 6   2190 6     80 0    117 6    474 4    672 0      8 5    741 2    236 7   1400 4
   2 99  591 41    6.06   3905 3    836 1   1313 8     87 3    198 4    297 2    583 5      8 1    835 8    486 6    857 5
   3 26  590.58    6 13   4324 6   1178 7    627 4     94 3    273 8    147 4    520 8      7 4    915 8    679 9    415 6
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       1   2   3   4   5   6   7   8   9  10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      11  12  13  14  15  16  17
                                              TT=    14 750     DTH=     0 500     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       2   3   4   5   6   7   8   9  10  11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO.     12  13  14  15  16  17
                                              TT=    14 750     DTH=     0 250     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       2   3   4   5   6   7   8   9  10  11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      12  13  14  15  16  17
                                              TT=    14 750     DTH=     0 125     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       6   7   8   9  10  11  12  13  14  15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO.     16  17
                                              TT=    14 750     DTH=     0 063     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       2   3   4   5   6   7   8   9  10  11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      12  13  14  15  16  17
                                              TT=    14 750     DTH=     0 250     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION NO       1   2   5   6   7   8   9  10  11  12
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      13  14  15  16  17
                                              TT=    14 750     DTH=     0 250     ITERR= 9


*****************************************************************************************************************
TT =  15 2500          DTH =  0 5000          ITERR =   3
QU(1) =    1130 00     YU(1) =     597.50  QU(N) =    5951 17  YU(N) =     590 50  FRDM=0 00 IFR= 17 FRM=7 00 IFM=  0
```

**********

TT = 15 2500 DTH = 0 5000 ITERR = 3
QU(1) = 1130 00 YU(1) = 597 50 QU(N) = 5951 17 YU(N) = 590 50 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 597.50 | 1 13 | 842 6 | 274 2 | 13.2 | 75.0 | 371 2 | 118 7 | 714 9 | 7 9 | 811 9 | 1185 7 | 116 5 |
| 0 52 | 597 42 | 0.93 | 647 0 | 195 3 | 89 4 | 68 0 | 216 3 | 100 0 | 881 1 | 9 2 | 792 8 | 838 8 | 441 7 |
| 0 68 | 597 41 | 0 85 | 595 4 | 255 3 | 0 9 | 104 0 | 796 8 | 12 0 | 1033 1 | 10 2 | 1006 0 | 2368 2 | 14 5 |
| 0.70 | 597 41 | 0.84 | 587.8 | 251 1 | 1 4 | 88 0 | 800 7 | 18 0 | 1387 9 | 10 3 | 975 7 | 2404 5 | 21 7 |
| 0.92 | 597.13 | 6 09 | 4397 0 | 1669 7 | 27 3 | 86 9 | 827.8 | 41 4 | 956 2 | 10 4 | 1062 4 | 3324 4 | 64 7 |
| 1 39 | 595.93 | 5 89 | 2660 9 | 2970 4 | 263 4 | 81 0 | 467 4 | 81 2 | 629 6 | 10 4 | 987 8 | 2206 3 | 211 9 |
| 1.50 | 595.80 | 5.89 | 3292 3 | 2040 8 | 554 5 | 88 5 | 311 5 | 93 4 | 531 9 | 10 6 | 1111 5 | 1431 1 | 334 6 |
| 1 61 | 595.66 | 5 88 | 3970 5 | 1021 8 | 889 5 | 95 9 | 155 7 | 105 9 | 434 7 | 10 6 | 1242 6 | 693 0 | 452 2 |
| 1.72 | 595.52 | 5 88 | 5235 9 | 0.0 | 641.3 | 103.0 | 0 0 | 119 0 | 338 2 | 10 6 | 1383 4 | 0 0 | 566 5 |
| 1 88 | 595 18 | 5 87 | 5561 9 | 0 0 | 305 6 | 103 5 | 0 0 | 71 6 | 420 6 | 10 3 | 1315 6 | 0 0 | 271 6 |
| 2 04 | 594.62 | 5 87 | 5864 7 | 0 0 | 1.4 | 103 1 | 0 0 | 18 5 | 436 9 | 9 8 | 1225 0 | 0 0 | 5 7 |
| 2 05 | 594 65 | 5 87 | 5866 7 | 0 0 | 0 0 | 117 0 | 0 0 | 0 0 | 991 1 | 9 9 | 1371 9 | 0 0 | 0 0 |
| 2.06 | 594 55 | 5 87 | 5866 7 | 0 0 | 0 7 | 102 7 | 0 0 | 16 4 | 410 3 | 9 8 | 1217 9 | 0 0 | 4 5 |
| 2 39 | 593 78 | 5 87 | 4889 1 | 313 4 | 671 2 | 92 0 | 73.1 | 282 4 | 634 8 | 9 3 | 1003 9 | 154 3 | 843 1 |
| 2.73 | 592.16 | 5 89 | 3394 6 | 347 5 | 2145 6 | 80 0 | 113 5 | 464 7 | 658 2 | 8 4 | 734 9 | 227 6 | 1363 3 |
| 2.99 | 591.32 | 5 92 | 3856 4 | 799 1 | 1264 9 | 87 2 | 194 5 | 292 1 | 574 9 | 8 0 | 828 1 | 469 4 | 831 7 |
| 3 26 | 590.50 | 5 95 | 4231 9 | 1120 0 | 599 3 | 94 1 | 268 8 | 145 0 | 514 2 | 7 3 | 908 1 | 657 9 | 403 8 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 15 250 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 15 250 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 5 6 7 8 9 10 11 12 13 14
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 15 16 17
TT= 15 250 DTH= 0 125 ITERR= 9

**********

TT = 15 3750 DTH = 0 1250 ITERR = 2
QU(1) = 1144 00 YU(1) = 597 54 QU(N) = 5915 71 YU(N) = 590 49 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 15 3750 DTH = 0.1250 ITERR = 2
QU(1) = 1144 00 YU(1) = 597 54 QU(N) = 5915 71 YU(N) = 590 49 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597.54 | 1.14 | 850 2 | 279 9 | 13 9 | 75 0 | 372 2 | 121 3 | 722 1 | 8 0 | 814 7 | 1199 1 | 120 8 |
| 0.52 | 597.32 | 1 55 | 1087 0 | 320 7 | 146 8 | 68 0 | 214 8 | 100 0 | 874 7 | 9 1 | 786 4 | 818 4 | 432 2 |
| 0 68 | 597 23 | 1 95 | 1383.6 | 566 3 | 1 7 | 104.0 | 771 1 | 11 2 | 997 9 | 10 0 | 988 0 | 2232 3 | 12 5 |
| 0.70 | 597 22 | 2 02 | 1433 2 | 580 9 | 2 9 | 88 0 | 774 0 | 16 7 | 1323 3 | 10 1 | 959 6 | 2260 5 | 18 5 |
| 0.92 | 596 97 | 5 04 | 3678 2 | 1342 1 | 20 3 | 86 7 | 814 8 | 39 3 | 940 9 | 10 3 | 1048 7 | 3194 9 | 58 3 |
| 1.39 | 595 94 | 5 90 | 2660 1 | 2974.0 | 264 0 | 81 0 | 467 4 | 81 3 | 629 8 | 10 4 | 988 4 | 2209 5 | 212 4 |
| 1 50 | 595.81 | 5.90 | 3296 4 | 2046 8 | 556 0 | 88 5 | 311 5 | 93 5 | 532 1 | 10 6 | 1112 2 | 1433 3 | 335 3 |
| 1.61 | 595.67 | 5.90 | 3980 7 | 1026 3 | 892 9 | 95 9 | 155 7 | 106 0 | 434 8 | 10 6 | 1243 3 | 694 1 | 452 9 |
| 1.72 | 595.53 | 5 90 | 5255 6 | 0 0 | 644 6 | 103 1 | 0 0 | 119 1 | 338 3 | 10 6 | 1384 1 | 0 0 | 567 3 |
| 1 88 | 595 18 | 5 90 | 5592 8 | 0 0 | 307 6 | 103 5 | 0 0 | 71 7 | 421 2 | 10 3 | 1316 0 | 0 0 | 271 9 |
| 2.04 | 594 62 | 5 90 | 5897 2 | 0 0 | 1 4 | 103 1 | 0 0 | 18 5 | 436 8 | 9 8 | 1225 0 | 0 0 | 5 7 |
| 2 05 | 594.66 | 5 90 | 5898 1 | 0 0 | 0 0 | 117 0 | 0 0 | 0 0 | 991 1 | 9 9 | 1372 0 | 0 0 | 0 0 |
| 2.06 | 594.55 | 5.90 | 5896.8 | 0 0 | 0 7 | 102.7 | 0.0 | 16 4 | 410.3 | 9 8 | 1217 9 | 0 0 | 4 5 |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.39 | 593 79 | 5 89 | 4903.6 | 314.2 | 673.2 | 92 0 | 73 1 | 282 4 | 635 1 | 9 3 | 1004 0 | 154 4 | 843 4 |
| 2.73 | 592 15 | 5.90 | 3402 9 | 347 3 | 2146 8 | 80 0 | 113 0 | 463 7 | 656 6 | 8 4 | 734 2 | 226 6 | 1359 2 |
| 2 99 | 591 31 | 5 91 | 3853.8 | 794 8 | 1259 5 | 87 1 | 194 0 | 291 4 | 573 7 | 8.0 | 827 1 | 467 0 | 828 1 |
| 3 26 | 590 49 | 5 92 | 4209 9 | 1111 0 | 594 8 | 94 1 | 268 3 | 144 8 | 513.5 | 7 3 | 907 4 | 655 8 | 402.7 |

```
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO      1   2   3   4   5   6   7   8   9  10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO     11  12  13  14  15  16  17
                                          TT=   15 375     DTH=     0 500     ITERR= 9


NONCONVERGENCE OCCURRED AT CROSS-SECTION ND      3   4   5   6   7   8   9  10  11  12
NONCONVERGENCE OCCURRED AT CROSS-SECTION ND     13  14  15  16  17
                                          TT=   15 375     DTH=     0 250     ITERR= 9
```

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLOOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH.D., RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

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*******************************
*******************************
***                         ***
***  SUMMARY OF INPUT DATA  ***
***                         ***
*******************************
*******************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| ND OF RESERVOIR INFLOW HYDRDGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH DRDINATES) = 1 00 HRS

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 24 0000 HRS

INFLDW HYDROGRAPH TD RED RUN DRAIN AT C

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 333 00 | 365 00 | 396 00 | 427 00 | 459 00 | 490 00 | 521 00 |
| 552 00 | 609 00 | 663 00 | 717 00 | 771 00 | 881 00 | 992 00 | 1102 00 |
| 1214 00 | 1350.00 | 1516 00 | 1641 00 | 1817.00 | 1925 00 | 2208 00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1 0000 | 2 0000 | 3 0000 | 4 0000 | 5.0000 | 6 0000 | 7 0000 |
| 8 0000 | 9 0000 | 10 0000 | 11.0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17 0000 | 18.0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO. OF LATERAL INFLOW HYDROGRAPHS | LQ | 1 |
| NO OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599 00 X1L(I) = 0.000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 585.0 | 588.0 | 592 0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC . | 10 0 | 67 0 | 75 0 | 75 0 | 75.0 | 75.0 | 75 0 | 75 0 |
| XCL | 0.0 | 0 0 | 0 0 | 330 0 | 440.0 | 550 0 | 550 0 | 550 0 |
| XCR | 0 0 | 0 0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 400 0 | 500 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0.523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 24 0 | 55 0 | 66 0 | 68 0 | 68 0 | 68 0 | 68 0 | 68 0 |
| XCL | 0.0 | 0 0 | 0 0 | 180 0 | 240 0 | 240 0 | 300 0 | 300 0 |
| XCR .. | 0 0 | 0 0 | 0 0 | 100 0 | 100 0 | 250 0 | 500 0 | 500 0 |
| XS | 0 0 | 0 0 | 0 0 | 370 0 | 580 0 | 680 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0 682 FSTG(I) = 598 00 X1L(I) = 0 565 X1R(I) = 0 519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 5 | 587.0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC . | 8 0 | 57 0 | 80 0 | 104.0 | 104 0 | 104 0 | 104 0 | 104 0 |
| XCL ... | 0 0 | 0 0 | 0 0 | 440 0 | 1033 0 | 1230 0 | 1500 0 | 1500.0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS .. | 0 0 | 0 0 | 0 0 | 0 0 | 200.0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597 00 X1L(I) = 0 579 X1R(I) = 0 533

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC . | 20 0 | 59 0 | 78 0 | 88 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL .. | 0 0 | 0 0 | 0 0 | 450 0 | 1033 0 | 1180 0 | 1310 0 | 1310 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 30 0 | 200 0 | 230 0 | 230 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 800 0 | 1600 0 | 1600 0 | 1600 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599 00 X1L(I) = 0 787 X1R(I) = 0 741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 582 2 | 586 0 | 590 0 | 594.0 | 598 0 | 600 0 | 602.0 | 604 0 |
| XC | 45 0 | 66 0 | 72 0 | 83 0 | 88 0 | 88.0 | 88 0 | 88 0 |
| XCL .. | 0 0 | 0 0 | 0 0 | 570.0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR | 0.0 | 0 0 | 0.0 | 0.0 | 53 0 | 101 0 | 281 0 | 300 0 |
| XS | 0 0 | 0 0 | 0.0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE .. | 581.8 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 20 0 | 74 0 | 81.0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 |
| XCL | 0 0 | 0 0 | 94 0 | 465 0 | 470 0 | 494 0 | 560 0 | 600 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 45 0 | 120 0 | 360.0 | 400 0 | 400 0 |
| XS | 0.0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1.722 FSTG(I) = 600 00 X1L(I) = 1 555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578.5 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 38 0 | 86 0 | 98 0 | 100 0 | 108 0 | 144 0 | 200.0 | 200 0 |
| XCL . | 0.0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 325 0 | 325 0 |
| XCR . | 0 0 | 0 0 | 50 0 | 100 0 | 150 0 | 200 0 | 500 0 | 600 0 |
| XS .. | 0 0 | 0 0 | 60 0 | 120 0 | 110.0 | 130 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2 040 FSTG(I) = 0 00 X1L(I) = 2 863 X1R(I) = 1 826

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590.0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC .. | 25 0 | 85 0 | 95.0 | 100.0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL | 0.0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0.0 | 0 0 | 0 0 | 60.0 | 60 0 | 1000 0 | 1000 0 |
| XS . | 0.0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 2.051 FSTG(I) = 600 00 X1L(I) = 1 874 X1R(I) = 1.837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 578.4 | 586.0 | 590 0 | 594.0 | 595 9 | 598 0 | 600 0 | 602 0 |
| XC | 43.0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL | 0.0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR . . | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 1000 0 | 1000 0 |
| XS . | 0 0 | 0 0 | 100 0 | 850 0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2.062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586.0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC . | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116.0 | 121 0 | 121 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0.0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS .. | 0 0 | 0.0 | 0 0 | 100.0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2 727 FSTG(I) = 599 00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 0 | 584.0 | 588 0 | 592.0 | 594.0 | 596 0 | 598 0 | 600 0 |
| XC .. | 8 0 | 50.0 | 72 0 | 80 0 | 80 0 | 80 0 | 80 0 | 80 0 |
| XCL | 0 0 | 0 0 | 0 0 | 105 0 | 210 0 | 240 0 | 400 0 | 600 0 |
| XCR | 0 0 | 0 0 | 100 0 | 445 0 | 690 0 | 700 0 | 760 0 | 820 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3.261 FSTG(I) = 588 00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 577 8 | 583 0 | 587 0 | 591 0 | 593 0 | 595 0 | 597 0 | 599 0 |
| XC . | 44 0 | 65 0 | 88 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL | 0 0 | 0 0 | 50 0 | 300 0 | 500.0 | 700 0 | 750 0 | 990 0 |
| XCR . . | 0 0 | 0 0 | 40 0 | 160 0 | 180 0 | 190 0 | 190 0 | 190 0 |
| XS . | 0 0 | 0 0 | 50 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,10) IS GREATER THAN HS(1, 9)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REACH | 1 . | 0 050 | 0.050 | 0.045 | 0 045 | 0 045 | 0 045 | 0 045 | 0.045 |
| REACH | 1 .. | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 |
| REACH | 1 . | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 2 . | 0 050 | 0.050 | 0.045 | 0.045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH | 2 . | 0 095 | 0.095 | 0.095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 |
| REACH | 2 . | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH | 3 .. | 0.050 | 0 050 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH | 3 .. | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 3 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH | 4 . | 0 050 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH | 4 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH | 4 ... | 0 100 | 0 100 | 0 100 | 0 100 | 0 080 | 0 060 | 0 050 | 0 040 |
| REACH | 5 | 0 045 | 0.045 | 0 045 | 0 040 | 0 040 | 0.040 | 0 040 | 0 040 |
| REACH | 5 . | 0.150 | 0 150 | 0 150 | 0 150 | 0 120 | 0 100 | 0 100 | 0 080 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REACH 5 . | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 .. | 0.045 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0.040 | 0 040 |
| REACH 6 . | 0.080 | 0.080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 |
| REACH 7 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0.040 | 0.040 | 0 040 |
| REACH 7 . . | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0.060 | 0 060 |
| REACH 7 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 . | 0 045 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 8 . | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0.060 | 0 060 | 0 060 |
| REACH 9 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 9 .. | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 10 . | 0 045 | 0.042 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 10 . . | 0.100 | 0 080 | 0.050 | 0 045 | 0 030 | 0 030 | 0 030 | 0 030 |
| REACH 10 | 0 150 | 0 150 | 0 150 | 0.120 | 0 110 | 0 100 | 0 100 | 0 100 |
| REACH 11 | 0 035 | 0.035 | 0.035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 . | 0 040 | 0.040 | 0 040 | 0 040 | 0 040 | 0.040 | 0 040 | 0 04 |
| REACH 11 | 0 050 | 0 050 | 0.050 | 0.050 | 0 050 | 0.050 | 0.050 | 0 05 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0 600 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 150 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0.500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0 000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0.000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

LQX(I)

4

(QL(L, 1),L=1,ITEH)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 20 | 20 | 23 | 35 | 107 | 630 | 2550 | 5824 | |
| 10665 | 14165 | 16848 | 17400 | 15951 | 13672 | 11211. | 8497 | |
| 6484 | 5355 | 4591 | 4026 | 3595 | 3225 | 2888 | 2576 | |
| 2259. | | | | | | | | |

```
*****************************************
*****************************************
***                                   ***
***   SUMMARY OF OUTPUT DATA          ***
***                                   ***
*****************************************
*****************************************
```

SLOPE PROFILE

MILES

0.0 0 3 0 7 1 0 1 3 1 6 2 0 2 3 2 6 2 9 3.3

ELEVATION FEET

| ELEV FEET | MILE |
|---|---|
| 585 0 | 0 0 |
| 584 0 | 0 5 |
| 583 5 | 0 7 |
| 583 0 | 0 7 |
| 582 2 | 0 9 |
| 581 8 | 1 4 |
| 578 5 | 1 7 |
| 578 0 | 2 7 |

585 00*
584 00*
583.50*
583 00*
582 20*
581 80*
578 50**
578 00*

```
577 801          I          I          I          I          I          I          I          I          I          * 577 8   3 3
     0 0        0.3        0 7        1 0        1 3        1 6        2 0        2 3        2 6        2 9        3 3
                                                  MILES
```

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO. | REACH LENGTH MILES | SLOPE FT/MI | MESAGE |
|---|---|---|---|---|---|---|
| 1 | 0 000 | 585 00 | | | | |
| 2 | 0.523 | 584 00 | 1 | 0 523 | 1 91 | |
| 3 | 0 682 | 583 50 | 2 | 0 159 | 3 14 | |
| 4 | 0 696 | 583 00 | 3 | 0 014 | 35 71 | |
| 5 | 0 919 | 582 20 | 4 | 0 223 | 3 59 | |
| 6 | 1 389 | 581 80 | 5 | 0 470 | 0 85 | |
| 7 | 1.722 | 578 50 | 6 | 0 333 | 9 91 | |
| 8 | 2 040 | 578.50 | 7 | 0 318 | 0 00 | |
| 9 | 2 051 | 578.40 | 8 | 0.011 | 9 09 | |
| 10 | 2 062 | 578.50 | 9 | 0 011 | -9 09 | |
| 11 | 2 727 | 578 00 | 10 | 0 665 | 0 75 | |
| 12 | 3 261 | 577 80 | 11 | 0 534 | 0 37 | |

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 17 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 591 | 591 | 590 | 586 | 586 | 586 |
| 600. | 599 | 600. | 600 | 600 | 589 | 588 | 584 |
| 583 | | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 595 | 595 | 594 | 590 | 586. | 586 |
| 586. | 586 | 594 | 598. | 594. | 585 | 584 | 584 |
| 583 | | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 17 | 7 | 3 261 | 583 54 | 320 00 | 0.09 | 0 375 |
| 17 | 0 | 3.261 | 583 54 | 320 00 | | |
| 16 | 1 | 2 994 | 583 66 | 320 00 | 0.12 | |
| 16 | 2 | 2 994 | 583 67 | 320 00 | 0 12 | |
| 15 | 1 | 2 727 | 583 94 | 320 00 | 0 19 | |
| 15 | 2 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 15 | 3 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 14 | 1 | 2 395 | 584 47 | 320 00 | 0 13 | |
| 14 | 2 | 2 395 | 584 45 | 320 00 | 0 11 | |
| 14 | 3 | 2 395 | 584 45 | 320 00 | 0 12 | |
| 13 | 1 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 2 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 3 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 12 | 1 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 12 | 2 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 11 | 1 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 11 | 2 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 10 | 1 | 1 881 | 584 87 | 320.00 | 0 08 | |
| 10 | 2 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 9 | 1 | 1.722 | 584 95 | 320.00 | 0 07 | |
| 9 | 2 | 1.722 | 584.95 | 320 00 | 0 07 | |
| 8 | 1 | 1 611 | 585 11 | 320 00 | 0 07 | |
| 8 | 2 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 3 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 4 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 7 | 1 | 1 500 | 585 43 | 320 00 | 0 09 | |
| 7 | 2 | 1 500 | 585 17 | 320 00 | 0.14 | |
| 7 | 3 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 7 | 4 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 6 | 1 | 1 389 | 585 78 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585 55 | 320 00 | 0 20 | |
| 6 | 3 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 6 | 4 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586 71 | 320 00 | 0 13 | |
| 5 | 2 | 0 919 | 586 71 | 320 00 | 0 11 | |
| 5 | 3 | 0 919 | 586 71 | 320 00 | 0 11 | |
| 4 | 1 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 4 | 2 | 0.696 | 587 15 | 300 00 | 0 19 | |
| 3 | 1 | 0 682 | 587.27 | 300 00 | 0 20 | |
| 3 | 2 | 0 682 | 587 20 | 300 00 | 0 27 | |
| 3 | 3 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 2 | 1 | 0 523 | 588 17 | 300 00 | 0 18 | |
| 2 | 2 | 0 523 | 588 18 | 300 00 | 0 16 | |
| 1 | 1 | 0 000 | 589 52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589 54 | 300 00 | 0.14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0.00 | 589 54 | 589 54 |
| 2 | 0 52 | 588 18 | 588 18 |
| 3 | 0.68 | 587 20 | 587 20 |
| 4 | 0.70 | 587.15 | 587 15 |
| 5 | 0.92 | 586 71 | 586 71 |

| | | | |
|---|---|---|---|
| 6 | 1 39 | 585 54 | 585 54 |
| 7 | 1 50 | 585 16 | 585 16 |
| 8 | 1 61 | 585.01 | 585.01 |
| 9 | 1 72 | 584 95 | 584 95 |
| 10 | 1 88 | 584 87 | 584 87 |
| 11 | 2 04 | 584 76 | 584 76 |
| 12 | 2 05 | 584 76 | 584 76 |
| 13 | 2 06 | 584.75 | 584 75 |
| 14 | 2 39 | 584 45 | 584 45 |
| 15 | 2 73 | 583.95 | 583 95 |
| 16 | 2 99 | 583 67 | 583 67 |
| 17 | 3.26 | 583 54 | 583 54 |

(QDI(I),I=1,N)
**********

300 00 300 00 300 00 300 00 320 00 320 00 320 00 320 00

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYOROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.54 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587 20 | 0.30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 125 5 | 0 0 | 0 0 |
| 0 70 | 587.15 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0.0 | 0 0 | 59 7 | 0 0 | 166 7 | 0 0 | 0 0 |
| 0 92 | 586.71 | 0 32 | 320.0 | 0 0 | 0 0 | 67.1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 1 | 0 0 | 0 0 |
| 1 39 | 585.54 | 0 32 | 320 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 5 | 0 0 | 0 0 |
| 1 50 | 585 16 | 0 32 | 320.0 | 0 0 | 0 0 | 69 8 | 0 0 | 0 0 | 69 8 | 0 0 | 213 6 | 0 0 | 0 0 |
| 1 61 | 585 01 | 0 32 | 320 0 | 0.0 | 0 0 | 74 3 | 0 0 | 0 0 | 74 3 | 0 0 | 287 4 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 32 | 320 0 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 378 0 | 0 0 | 0 0 |
| 1 88 | 584 87 | 0 32 | 320 0 | 0 0 | 0 0 | 77 3 | 0 0 | 0 0 | 77 3 | 0 0 | 346 5 | 0 0 | 0 0 |
| 2 04 | 584.76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 4 | 0 0 | 0 0 |
| 2 05 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 6 | 0.0 | 0 0 | 75 6 | 0 0 | 377 3 | 0 0 | 0 0 |
| 2 06 | 584.75 | 0 32 | 320 0 | 0 0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0 0 | 312 5 | 0 0 | 0 0 |
| 2 39 | 584 45 | 0 32 | 320 0 | 0 0 | 0 0 | 63 4 | 0.0 | 0 0 | 63 4 | 0 0 | 247 8 | 0 0 | 0 0 |
| 2 73 | 583.95 | 0 32 | 320 0 | 0 0 | 0 0 | 49 6 | 0 0 | 0 0 | 49 6 | 0 0 | 171 5 | 0 0 | 0 0 |
| 2 99 | 583 67 | 0 32 | 320 0 | 0 0 | 0 0 | 58 4 | 1 0 | 2 9 | 63 4 | 0 0 | 243 4 | 0 1 | 0 2 |
| 3 26 | 583 54 | 0 32 | 319 6 | 0 2 | 0 2 | 68 1 | 6 7 | 5 4 | 86 9 | 0 0 | 319 2 | 1 8 | 1 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300.00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 56 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 222 1 | 0 0 | 0 0 |
| 0 52 | 588.18 | 0 30 | 299 3 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0.68 | 587 22 | 0 30 | 299 1 | 0 0 | 0 0 | 58.3 | 0 0 | 0 0 | 58 3 | 0 0 | 126 3 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 587 14 | 0 30 | 299 1 | 0.0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 6 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0 32 | 319 2 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0 0 | 258 0 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 32 | 319 0 | 0.0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 9 | 0 0 | 0 0 |
| 1.50 | 585 17 | 0 32 | 318.9 | 0 0 | 0 0 | 69 9 | 0 0 | 0 0 | 69 9 | 0 0 | 214 3 | 0 0 | 0 0 |
| 1 61 | 585 02 | 0 32 | 318.7 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 3 | 0 0 | 0 0 |
| 1 72 | 584 96 | 0.32 | 318 4 | 0.0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 379 0 | 0 0 | 0 0 |
| 1 88 | 584.88 | 0 32 | 318 0 | 0.0 | 0 0 | 77 4 | 0 0 | 0 0 | 77 4 | 0 0 | 347 7 | 0 0 | 0.0 |
| 2 04 | 584 78 | 0 32 | 317 5 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | 0 0 | 314 7 | 0 0 | 0.0 |
| 2.05 | 584 78 | 0 32 | 317.5 | 0 0 | 0 0 | 75 7 | 0 0 | 0 0 | 75 7 | 0 0 | 378 6 | 0 0 | 0 0 |
| 2 06 | 584 77 | 0 32 | 317 4 | 0 0 | 0 0 | 75 1 | 0.0 | 0 0 | 75 1 | 0 0 | 313 8 | 0 0 | 0 0 |
| 2.39 | 584 48 | 0 32 | 316 3 | 0 0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | 0 0 | 249 2 | 0 0 | 0 0 |
| 2 73 | 583 79 | 0.32 | 318 9 | 0 0 | 0 0 | 48 5 | 0 0 | 0 0 | 48 5 | -0 2 | 163 8 | 0 0 | 0 0 |
| 2.99 | 583 46 | 0 33 | 325 4 | 0 0 | 0 0 | 57 3 | 0 0 | 0 0 | 57 3 | -0 2 | 231 5 | 0 0 | 0 0 |
| 3 26 | 583 30 | 0 34 | 335 7 | 0 1 | 0 0 | 66 7 | 3 7 | 3 0 | 77 2 | -0 2 | 303 0 | 0 6 | 0 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0.00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589.55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 55 | 0.30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0 0 |
| 0 52 | 588.18 | 0.30 | 300 6 | 0 0 | 0 0 | 58 2 | 0 0 | 0.0 | 58 2 | 0 0 | 185 4 | 0 0 | 0 0 |
| 0.68 | 587.21 | 0 30 | 300 8 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0 0 | 126 0 | 0 0 | 0 0 |
| 0.70 | 587 15 | 0.30 | 300 8 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 9 | 0 0 | 0 0 |
| 0.92 | 586.71 | 0.32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 2 | 0 0 | 0 0 |
| 1 39 | 585 52 | 0 32 | 321.2 | 0 0 | 0.0 | 67 9 | 0 0 | 0 0 | 67 9 | -0 0 | 163 7 | 0 0 | 0 0 |
| 1 50 | 585 14 | 0 32 | 321.8 | 0 0 | 0 0 | 69 5 | 0 0 | 0 0 | 69 5 | -0 0 | 211 9 | 0 0 | 0 0 |
| 1 61 | 584.98 | 0 32 | 322.7 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | -0 0 | 285 1 | 0 0 | 0 0 |
| 1.72 | 584 91 | 0 32 | 323 8 | 0 0 | 0 0 | 79 0 | 0 0 | 0 0 | 79 0 | -0 1 | 375 3 | 0 0 | 0 0 |
| 1.88 | 584 83 | 0 33 | 325 6 | 0.0 | 0 0 | 77 1 | 0 0 | 0 0 | 77 1 | -0 1 | 343.5 | 0 0 | 0 0 |
| 2 04 | 584.71 | 0.33 | 327 7 | 0.0 | 0 0 | 74 7 | 0 0 | 0 0 | 74 7 | -0 1 | 309.9 | 0 0 | 0 0 |
| 2 05 | 584 71 | 0 33 | 327.8 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 33 | 328.0 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 39 | 584.37 | 0 33 | 333 5 | 0 0 | 0 0 | 62 7 | 0 0 | 0 0 | 62 7 | -0 1 | 242 2 | 0 0 | 0 0 |
| 2.73 | 583 64 | 0.34 | 337 5 | 0 0 | 0 0 | 47 5 | 0 0 | 0 0 | 47 5 | -0 1 | 156 7 | 0 0 | 0 0 |
| 2.99 | 583 21 | 0.34 | 340 1 | 0 0 | 0 0 | 55 9 | 0 0 | 0 0 | 55 9 | -0 1 | 217.5 | 0 0 | 0 0 |
| 3 26 | 583.01 | 0 34 | 344 4 | 0.0 | 0 0 | 65 0 | 0 1 | 0 1 | 65 3 | -0 2 | 283 9 | 0 0 | 0 0 |

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TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333.00 YU(1) = 589.71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 589 71 | 0 33 | 333 0 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0 52 | 588 28 | 0 32 | 321.5 | 0 0 | 0 0 | 58 5 | 0 0 | 0 0 | 58 5 | 0 1 | 191 4 | 0 0 | 0 0 |
| 0 68 | 587 30 | 0.32 | 319 1 | 0 0 | 0 0 | 58 8 | 0 0 | 0 0 | 58 8 | 0 1 | 131 4 | 0 0 | 0 0 |
| 0.70 | 587 23 | 0 32 | 319 0 | 0.0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 1 | 172 0 | 0 0 | 0 0 |
| 0 92 | 586 78 | 0 34 | 336 5 | 0 0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 8 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 33 | 332 9 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | -0 0 | 164 6 | 0 0 | 0 0 |
| 1 50 | 585 12 | 0 33 | 332 5 | 0 0 | 0 0 | 69 4 | 0 0 | 0 0 | 69 4 | -0 1 | 210.8 | 0 0 | 0 0 |
| 1 61 | 584 95 | 0 33 | 332 3 | 0 0 | 0 0 | 73 8 | 0 0 | 0 0 | 73 8 | -0 1 | 283 0 | 0 0 | 0 0 |
| 1 72 | 584.88 | 0 33 | 332 2 | 0.0 | 0 0 | 78.8 | 0 0 | 0 0 | 78 8 | -0 1 | 372 7 | 0 0 | 0 0 |
| 1 88 | 584 79 | 0 33 | 332 1 | 0 0 | 0 0 | 76 8 | 0 0 | 0 0 | 76 8 | -0 1 | 340 5 | 0 0 | 0 0 |
| 2 04 | 584.67 | 0 33 | 332 0 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | -0 1 | 306 5 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 05 | 584 67 | 0 33 | 332 0 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | -0 1 | 370 3 | 0 0 | 0 0 |
| 2.06 | 584 66 | 0 33 | 332 0 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0 1 | 305 4 | 0 0 | 0 0 |
| 2 39 | 584 31 | 0 33 | 331 2 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 238 6 | 0 0 | 0 0 |
| 2 73 | 583 46 | 0 33 | 333 6 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 148 0 | 0 0 | 0 0 |
| 2 99 | 582.95 | 0 34 | 339.4 | 0 0 | 0 0 | 54 4 | 0 0 | 0 0 | 54 4 | -0 4 | 203 0 | 0 0 | 0 0 |
| 3 26 | 582 69 | 0 35 | 347 9 | 0 0 | 0 0 | 63 8 | 0 0 | 0 0 | 63 8 | -0 5 | 263 6 | 0 0 | 0 0 |

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TT = 2.0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589 90 QU(N) = 355 23 YU(N) = 582 44 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 2.0000 DTH = 1 0000 ITERR = 1
QU(1) = 365 00 YU(1) = 589 90 QU(N) = 355 23 YU(N) = 582 44 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 589 90 | 0 37 | 365 0 | 0 0 | 0 0 | 70 8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 6 | 0 0 | 0 0 |
| 0 52 | 588 47 | 0 36 | 357 0 | 0 0 | 0 0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 4 | 0 0 | 0 0 |
| 0 68 | 587 50 | 0 35 | 354 3 | 0 0 | 0 0 | 59 9 | 0 0 | 0 0 | 59 9 | 0 3 | 142 7 | 0 0 | 0 0 |
| 0.70 | 587 43 | 0 35 | 354 0 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61 1 | 0 3 | 184 0 | 0 0 | 0 0 |
| 0 92 | 586.96 | 0 37 | 372 0 | 0 0 | 0 0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 275 0 | 0 0 | 0 0 |
| 1 39 | 585.66 | 0 36 | 362 5 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 0 1 | 173 1 | 0 0 | 0 0 |
| 1 50 | 585.22 | 0.36 | 360 7 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 0 | 217 5 | 0 0 | 0 0 |
| 1 61 | 585.03 | 0 36 | 359 1 | 0.0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 289 0 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 36 | 357 6 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 4 | 0 0 | 0 0 |
| 1 88 | 584 85 | 0 36 | 355 6 | 0 0 | 0 0 | 77 2 | 0 0 | 0 0 | 77 2 | -0 0 | 345 4 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0 35 | 354 0 | 0 0 | 0 0 | 74 8 | 0 0 | 0 0 | 74 8 | -0 1 | 310 2 | 0 0 | 0 0 |
| 2 05 | 584 72 | 0 35 | 353 9 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 374 1 | 0 0 | 0 0 |
| 2 06 | 584.70 | 0 35 | 353 8 | 0.0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 309 1 | 0 0 | 0 0 |
| 2 39 | 584.31 | 0 35 | 352 7 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 239 0 | 0 0 | 0 0 |
| 2 73 | 583.39 | 0 35 | 352 2 | 0 0 | 0 0 | 45 7 | 0 0 | 0 0 | 45 7 | -0 3 | 144 9 | 0 0 | 0 0 |
| 2 99 | 582.77 | 0 35 | 352 5 | 0 0 | 0 0 | 53 4 | 0.0 | 0 0 | 53 4 | -0 6 | 193 1 | 0 0 | 0 0 |
| 3 26 | 582 44 | 0 36 | 355 2 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | -0 7 | 247 9 | 0 0 | 0 0 |

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TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 377 40 YU(N) = 582 31 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 377 40 YU(N) = 582 31 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 08 | 0 40 | 396 0 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 259 0 | 0 0 | 0 0 |
| 0 52 | 588 64 | 0 39 | 386 9 | 0 0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 5 | 0 0 | 0 0 |
| 0 68 | 587 72 | 0.38 | 384 1 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61 1 | 0 5 | 156 2 | 0 0 | 0 0 |
| 0 70 | 587 66 | 0 38 | 383 8 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | 0 5 | 197.9 | 0 0 | 0 0 |
| 0 92 | 587 19 | 0 41 | 412 2 | 0 0 | 0 0 | 67 8 | 0 0 | 0 0 | 67 8 | 0 5 | 290 3 | 0 0 | 0 0 |
| 1 39 | 585 86 | 0 40 | 401 7 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 0 3 | 187 1 | 0 0 | 0 0 |
| 1 50 | 585 41 | 0 40 | 399.1 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 0 2 | 231 1 | 0 0 | 0 0 |
| 1 61 | 585 21 | 0 40 | 396 5 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 2 | 302 4 | 0 0 | 0 0 |
| 1 72 | 585 12 | 0 39 | 393 9 | 0 0 | 0 0 | 80 4 | 0 0 | 0 0 | 80 4 | 0 2 | 392 2 | 0 0 | 0 0 |
| 1 88 | 585 02 | 0 39 | 390 1 | 0 0 | 0 0 | 78 4 | 0 0 | 0 0 | 78 4 | 0 1 | 358 1 | 0 0 | 0 0 |
| 2 04 | 584 87 | 0 39 | 386 4 | 0 0 | 0 0 | 76 0 | 0 0 | 0 0 | 76 0 | 0 1 | 321 7 | 0 0 | 0 0 |
| 2.05 | 584.87 | 0.39 | 386 2 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 76 2 | 0 1 | 385 7 | 0 0 | 0 0 |
| 2 06 | 584 86 | 0 39 | 385 9 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 1 | 320 5 | 0 0 | 0 0 |
| 2 39 | 584 44 | 0 38 | 378 7 | 0 0 | 0 0 | 63 3 | 0 0 | 0 0 | 63 3 | -0 0 | 247 2 | 0 0 | 0 0 |
| 2 73 | 583.43 | 0 38 | 375.1 | 0 0 | 0 0 | 46 0 | 0 0 | 0 0 | 46 0 | -0 3 | 146 5 | 0 0 | 0 0 |
| 2 99 | 582 71 | 0 38 | 375 4 | 0 0 | 0 0 | 53 0 | 0 0 | 0 0 | 53 0 | -0 7 | 189 9 | 0 0 | 0 0 |
| 3.26 | 582.31 | 0 38 | 377 4 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62 2 | -0 9 | 239 5 | 0 0 | 0 0 |

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TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427.00 YU(1) = 590.25 QU(N) = 417.40 YU(N) = 582 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 4 0000 DTH = 1 0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590.25 QU(N) = 417 40 YU(N) = 582 30 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 25 | 0 43 | 427 0 | 0 0 | 0 0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 271 6 | 0 0 | 0 0 |
| 0 52 | 588 87 | 0 42 | 416 2 | 0 0 | 0.0 | 60 1 | 0 0 | 0.0 | 60 1 | 0 7 | 226 3 | 0 0 | 0 0 |
| 0 68 | 588.10 | 0 41 | 410 8 | 0 0 | 0 0 | 63 3 | 0 0 | 0 0 | 63 3 | 0 9 | 179 7 | 0 0 | 0 0 |
| 0 70 | 588 05 | 0 41 | 410 2 | 0 0 | 0 0 | 64 0 | 0 0 | 0 0 | 64 0 | 0 9 | 222 8 | 0 0 | 0 0 |
| 0.92 | 587 58 | 0.50 | 497 6 | 0 0 | 0 0 | 68 4 | 0 0 | 0 0 | 68 4 | 0 9 | 317 0 | 0 0 | 0.0 |
| 1.39 | 586.20 | 0 47 | 474 3 | 0.0 | 0 0 | 74 4 | 4 8 | 0 0 | 79 2 | 0 7 | 212 6 | 0 5 | 0 0 |
| 1 50 | 585 76 | 0 47 | 469 0 | 0 0 | 0 0 | 75 6 | 0 0 | 0 0 | 75 6 | 0 6 | 256 8 | 0.0 | 0 0 |
| 1 61 | 585 54 | 0 46 | 463.7 | 0 0 | 0 0 | 78 4 | 0 0 | 0 0 | 78 4 | 0 5 | 328 2 | 0 0 | 0 0 |
| 1 72 | 585 45 | 0 46 | 458 4 | 0 0 | 0 0 | 82.5 | 0 0 | 0 0 | 82 5 | 0 5 | 418 7 | 0 0 | 0 0 |
| 1 88 | 585.33 | 0 45 | 451 0 | 0 0 | 0.0 | 80 7 | 0 0 | 0 0 | 80 7 | 0 4 | 382 9 | 0 0 | 0 0 |
| 2 04 | 585 17 | 0 44 | 444 1 | 0 0 | 0 0 | 78 4 | 0 0 | 0 0 | 78 4 | 0 4 | 344 6 | 0 0 | 0 0 |
| 2 05 | 585.17 | 0.44 | 443 7 | 0 0 | 0 0 | 77 7 | 0 0 | 0 0 | 77 7 | 0 4 | 408 5 | 0 0 | 0 0 |
| 2 06 | 585 15 | 0 44 | 443 2 | 0 0 | 0 0 | 78 2 | 0.0 | 0 0 | 78 2 | 0 4 | 343 2 | 0 0 | 0 0 |
| 2 39 | 584 70 | 0.43 | 432 1 | 0 0 | 0 0 | 65 2 | 0 0 | 0 0 | 65 2 | 0 2 | 263 7 | 0 0 | 0 0 |
| 2 73 | 583 61 | 0 42 | 424.2 | 0 0 | 0 0 | 47 3 | 0 0 | 0 0 | 47 3 | -0 1 | 155 2 | 0 0 | 0 0 |
| 2 99 | 582 78 | 0 42 | 419 9 | 0 0 | 0 0 | 53 5 | 0 0 | 0 0 | 53 5 | -0 6 | 193 9 | 0 0 | 0 0 |
| 3 26 | 582 30 | 0 42 | 417 4 | 0.0 | 0 0 | 62 2 | 0 0 | 0 0 | 62.2 | -0 9 | 239.0 | 0 0 | 0 0 |

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TT = 5.0000 DTH = 1 0000 ITERR = 3
QU(1) = 459 00 YU(1) = 590 64 QU(N) = 553 66 YU(N) = 582 80 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 5 0000 DTH = 1 0000 ITERR = 3
QU(1) = 459.00 YU(1) = 590 64 QU(N) = 553 66 YU(N) = 582 80 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 590 64 | 0 46 | 459 0 | 0 0 | 0 0 | 72 3 | 0 0 | 0 0 | 72 3 | 1 1 | 299 3 | 0.0 | 0 0 |
| 0 52 | 589.78 | 0 41 | 413 0 | 0 0 | 0 0 | 62 6 | 0 0 | 0 0 | 62 6 | 1 6 | 281 8 | 0 0 | 0 0 |
| 0 68 | 589 53 | 0 39 | 387 0 | 0 0 | 0 0 | 71 5 | 0 0 | 0 0 | 71 5 | 2 3 | 276.3 | 0 0 | 0 0 |
| 0 70 | 589 52 | 0 38 | 384 1 | 0 0 | 0.0 | 71 0 | 0 0 | 0 0 | 71 0 | 2 4 | 321 7 | 0 0 | 0 0 |
| 0 92 | 589 01 | 0.92 | 915 1 | 0.0 | 0.0 | 70 5 | 0 0 | 0 0 | 70 5 | 2 3 | 416 5 | 0 0 | 0 0 |
| 1 39 | 587 37 | 0 81 | 791 6 | 19 2 | 0 0 | 76 4 | 32 2 | 0 0 | 108 6 | 1 8 | 300 3 | 22 0 | 0 0 |
| 1 50 | 586 91 | 0 79 | 781 7 | 3 5 | 1 3 | 80 0 | 14 3 | 3 8 | 102 7 | 1 7 | 347 9 | 6 6 | 1 7 |
| 1.61 | 586 66 | 0 76 | 762 0 | 0.5 | 0 8 | 83 7 | 5 2 | 5 5 | 101 0 | 1 6 | 419 6 | 1 7 | 1 8 |
| 1.72 | 586 53 | 0 74 | 740 5 | 0 0 | 0 2 | 87 6 | 0 0 | 6 7 | 102 3 | 1 6 | 511.3 | 0 0 | 1 8 |
| 1 88 | 586 36 | 0 71 | 709 8 | 0 0 | 0 0 | 86 5 | 0 0 | 2 3 | 91 5 | 1 5 | 469 8 | 0 0 | 0 4 |
| 2 04 | 586 15 | 0 68 | 681 7 | 0 0 | 0 0 | 85 4 | 0 0 | 0 0 | 85 4 | 1 4 | 425 0 | 0 0 | 0 0 |
| 2.05 | 586 14 | 0.68 | 679 9 | 0 0 | 0 0 | 82 8 | 0.0 | 0 0 | 86 4 | 1 4 | 486 9 | 0 0 | 0 0 |
| 2 06 | 586 12 | 0 68 | 678 1 | 0 0 | 0 0 | 85 3 | 0 0 | 0 0 | 85.3 | 1 3 | 422 9 | 0 0 | 0 0 |
| 2 39 | 585 57 | 0 63 | 628 1 | 0 0 | 0 2 | 69 8 | 0 0 | 7 1 | 76 9 | 1 1 | 322 7 | 0 0 | 2 0 |
| 2 73 | 584 34 | 0 59 | 593 0 | 0 0 | 0.4 | 51 9 | 0.0 | 8 6 | 60 5 | 0 6 | 191 5 | 0 0 | 1 5 |
| 2 99 | 583 38 | 0 57 | 573 2 | 0 0 | 0 0 | 56 8 | 0 0 | 0 0 | 56 8 | 0 0 | 227 1 | 0 0 | 0 0 |
| 3 26 | 582 80 | 0 55 | 553 7 | 0 0 | 0 0 | 64 2 | 0 0 | 0 0 | 64 2 | -0.4 | 270 7 | 0 0 | 0.0 |

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TT = 6 0000 DTH = 1 0000 ITERR = 4
QU(1) = 490.00 YU(1) = 592 41 QU(N) = 1003 81 YU(N) = 584 43 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 6.0000 DTH = 1.0000 ITERR = 4
QU(1) = 490 00 YU(1) = 592 41 QU(N) = 1003 81 YU(N) = 584 43 FRDM=0 08 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 592.41 | 0 49 | 489 5 | 0 4 | 0.0 | 75 0 | 34 0 | 1 0 | 110 1 | 2 8 | 430 4 | 7 0 | 0 2 |
| 0.52 | 592.29 | 0 24 | 236 8 | 2 5 | 1 1 | 66 6 | 58 3 | 32 4 | 277 0 | 4 1 | 446 4 | 37 7 | 21 0 |
| 0.68 | 592.29 | 0 14 | 137 1 | 2 6 | 0.0 | 87.8 | 142.2 | 0 0 | 230 0 | 5 1 | 496 2 | 91 9 | 0 0 |
| 0 70 | 592.29 | 0 13 | 128.9 | 2 2 | 0 0 | 81 2 | 145 5 | 0 0 | 226 7 | 5 2 | 535 0 | 94 1 | 0 0 |
| 0 92 | 591 73 | 2 14 | 2100 1 | 40 4 | 0 0 | 76 8 | 246 5 | 0 0 | 323 2 | 5 0 | 615 5 | 213 1 | 0 0 |
| 1 39 | 589 80 | 1 78 | 1520 6 | 255 7 | 0 0 | 80 6 | 89 3 | 0 0 | 169 9 | 4 3 | 491 2 | 169 6 | 0 0 |
| 1 50 | 589 39 | 1.72 | 1566 4 | 110 3 | 40 2 | 85 3 | 53 0 | 14 1 | 169 4 | 4 2 | 552 1 | 89 8 | 23 9 |
| 1 61 | 589 11 | 1 66 | 1567 9 | 36 4 | 53 1 | 90 0 | 24 4 | 25 9 | 171 4 | 4 1 | 632 4 | 37 9 | 40 3 |
| 1 72 | 588 94 | 1 59 | 1570 1 | 0 0 | 24 0 | 94 8 | 0 0 | 36 7 | 175 6 | 4 0 | 730 4 | 0 0 | 53 9 |
| 1.88 | 588 68 | 1 50 | 1490 0 | 0 0 | 9 9 | 92 9 | 0 0 | 16 8 | 129 8 | 3 8 | 678 2 | 0 0 | 22 5 |
| 2 04 | 588 39 | 1 43 | 1430 4 | 0 0 | 0 0 | 91 0 | 0 0 | 0 0 | 91 0 | 3 6 | 622 5 | 0 0 | 0 0 |
| 2 05 | 588 38 | 1.43 | 1425 3 | 0 0 | 0 0 | 95 7 | 0 0 | 0 0 | 155 3 | 3 6 | 686 7 | 0 0 | 0 0 |
| 2 06 | 588 35 | 1 42 | 1420 3 | 0 0 | 0 0 | 90 9 | 0 0 | 0 0 | 90 9 | 3 6 | 619 3 | 0 0 | 0 0 |
| 2 39 | 587.64 | 1.29 | 1281 6 | 0 0 | 13 1 | 78 0 | 0 0 | 33 0 | 111 0 | 3 1 | 475 4 | 0 0 | 43 4 |
| 2 73 | 586 18 | 1 17 | 1112 5 | 0 0 | 61 0 | 62 0 | 0 0 | 54 6 | 116 6 | 2 5 | 296 3 | 0 0 | 59 6 |
| 2 99 | 585.11 | 1 09 | 1063 8 | 7 0 | 15 6 | 66 6 | 10 1 | 28 2 | 115 0 | 1 8 | 333 9 | 8 1 | 22 8 |
| 3 26 | 584 43 | 1 00 | 990 6 | 8 1 | 5 2 | 73 2 | 17 9 | 14 3 | 123 4 | 1 3 | 382 4 | 12 8 | 10 3 |

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TT = 7 0000 DTH = 1 0000 ITERR = 3
QU(1) = 521 00 YU(1) = 594 27 QU(N) = 1921 75 YU(N) = 586 52 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 7 0000 DTH = 1 0000 ITERR = 3
QU(1) = 521.00 YU(1) = 594 27 QU(N) = 1921 75 YU(N) = 586 52 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 594 27 | 0.52 | 494 1 | 26 0 | 0 9 | 75 0 | 187.0 | 5 7 | 267 7 | 4 7 | 569 5 | 212 0 | 6 4 |
| 0 52 | 594 27 | -0 08 | -69 5 | -5 7 | -2 5 | 67 6 | 146 9 | 81 6 | 598 3 | 6 1 | 578 7 | 239 9 | 133 3 |
| 0.68 | 594 27 | -0 29 | -259 2 | -35 2 | 0 0 | 99 6 | 359 6 | 0 0 | 459 2 | 7 0 | 681 3 | 587 8 | 0 0 |
| 0 70 | 594.27 | -0 31 | -277 5 | -34 4 | 0 0 | 86 2 | 367 8 | 0 0 | 454 0 | 7 1 | 700 4 | 601 3 | 0.0 |
| 0 92 | 593.83 | 3 69 | 3334 3 | 352 7 | 0 0 | 82 5 | 546 1 | 0 0 | 628 7 | 7 1 | 783 0 | 1046 5 | 0 0 |
| 1 39 | 592 10 | 2 97 | 2196 4 | 747 7 | 27 7 | 81 0 | 288 7 | 23 6 | 393 4 | 6 6 | 677 5 | 589 8 | 24 8 |
| 1 50 | 591 84 | 2 90 | 2365 4 | 394 8 | 141 8 | 87 0 | 176 2 | 38 1 | 330 5 | 6 7 | 764 4 | 344 7 | 83 6 |
| 1 61 | 591.63 | 2 84 | 2453 5 | 153 8 | 229 8 | 92 9 | 81 6 | 53 0 | 283 8 | 6 6 | 864 1 | 154 6 | 136 9 |
| 1 72 | 591 48 | 2 77 | 2638 1 | 0 0 | 134 8 | 98 7 | 0 0 | 68 4 | 249 3 | 6 5 | 978 2 | 0 0 | 187 4 |
| 1 88 | 591.21 | 2 66 | 2591 0 | 0 0 | 64 2 | 97 6 | 0 0 | 32 6 | 184 3 | 6 3 | 920 0 | 0 0 | 84 8 |
| 2 04 | 590 87 | 2 58 | 2579 2 | 0 0 | 0 0 | 96 1 | 0 0 | 0 0 | 117 7 | 6 1 | 855 2 | 0 0 | 0 0 |
| 2 05 | 590.87 | 2 57 | 2572 1 | 0 0 | 0 0 | 107 8 | 0 0 | 0 0 | 370 5 | 6 1 | 941 3 | 0 0 | 0 0 |
| 2 06 | 590.82 | 2 56 | 2565 0 | 0 0 | 0 0 | 96 0 | 0 0 | 0 0 | 116 6 | 6 0 | 851 2 | 0 0 | 0 0 |
| 2 39 | 589 95 | 2 42 | 2345 4 | 3 4 | 70 2 | 85 0 | 12 4 | 90 8 | 200 2 | 5 5 | 665 3 | 5 9 | 166 7 |
| 2 73 | 588 32 | 2 24 | 1902 5 | 0 5 | 336 8 | 72 6 | 8 3 | 127 4 | 208 4 | 4 6 | 441 0 | 1 3 | 236 1 |
| 2.99 | 587 27 | 2 09 | 1861 5 | 69 3 | 155 3 | 78 7 | 23 6 | 66 0 | 191 9 | 3 9 | 490 8 | 44 5 | 124 6 |
| 3 26 | 586.52 | 1.92 | 1764 8 | 95 7 | 61 2 | 85 2 | 44 0 | 35 2 | 208 3 | 3 3 | 547 5 | 77 3 | 61 8 |

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TT = 8 0000 DTH = 1 0000 ITERR = 3
QU(1) = 552.00 YU(1) = 596.39 QU(N) = 3251 10 YU(N) = 588 38 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 8 0000 DTH = 1 0000 ITERR = 3
QU(1) = 552.00 YU(1) = 596.39 QU(N) = 3251 10 YU(N) = 588 38 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 39 | 0.55 | 454 6 | 95 6 | 1.8 | 75 0 | 340 8 | 38 4 | 493 3 | 6 8 | 728 8 | 791 2 | 29 5 |
| 0 52 | 596 40 | -0.48 | -363 4 | -82 4 | -37 7 | 68 0 | 200 9 | 100 0 | 812 2 | 8 2 | 723 4 | 625 8 | 339 5 |
| 0 68 | 596 41 | -0 84 | -633 5 | -203 6 | -0 3 | 104 0 | 648 3 | 7 0 | 829 6 | 9 2 | 901 9 | 1644 6 | 4 9 |
| 0 70 | 596 41 | -0 87 | -664 7 | -208 5 | -0 4 | 88 0 | 654 9 | 10 5 | 1034 7 | 9 3 | 887 7 | 1676 9 | 7 4 |
| 0 92 | 596 05 | 6 12 | 4807 8 | 1298 9 | 11 2 | 85 6 | 739 4 | 27 2 | 852 2 | 9 3 | 970 0 | 2484 6 | 27 9 |
| 1 39 | 594 40 | 4.89 | 2736 3 | 1998.0 | 151 0 | 81 0 | 465 5 | 52 6 | 599 1 | 8 9 | 864 0 | 1493 4 | 109 7 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.50 | 594 22 | 4 78 | 3190 0 | 1217.7 | 375 3 | 87 5 | 310 2 | 67 0 | 504 5 | 9 0 | 972 1 | 938 5 | 207 6 |
| 1 61 | 594 04 | 4 69 | 3571 8 | 535 2 | 587 1 | 93.7 | 155 0 | 82 3 | 411 0 | 9 0 | 1089 6 | 442 2 | 300 3 |
| 1 72 | 593 90 | 4 62 | 4243 2 | 0.0 | 374.9 | 100 0 | 0.0 | 98 8 | 317 3 | 8 9 | 1219 3 | 0 0 | 390 3 |
| 1 88 | 593.60 | 4 46 | 4274 9 | 0.0 | 187 7 | 99 6 | 0 0 | 47 5 | 249 1 | 8 7 | 1155 8 | 0.0 | 180 5 |
| 2 04 | 593.19 | 4 35 | 4345 5 | 0.0 | 0.0 | 99 0 | 0 0 | 0 0 | 178 8 | 8 4 | 1082 2 | 0 0 | 0 0 |
| 2 05 | 593.22 | 4 33 | 4326 8 | 0.0 | 0 0 | 115 5 | 0 0 | 0 0 | 818 4 | 8 4 | 1203 5 | 0.0 | 0 0 |
| 2.06 | 593.14 | 4 31 | 4308 2 | 0.0 | 0 0 | 98 9 | 0.0 | 0 0 | 177 5 | 8 4 | 1077 3 | 0 0 | 0 0 |
| 2 39 | 591.95 | 4 05 | 3695 0 | 80 3 | 271 4 | 88 3 | 38 7 | 177 2 | 341 1 | 7 5 | 838 9 | 57 1 | 435 1 |
| 2 73 | 590 18 | 3.72 | 2723.3 | 73 6 | 925 6 | 76 4 | 57 4 | 288.4 | 422 2 | 6 5 | 580 1 | 62 6 | 624 3 |
| 2 99 | 589 18 | 3.47 | 2817.6 | 210 4 | 441 3 | 83 2 | 99 6 | 167 7 | 365 0 | 5 8 | 645 9 | 154 7 | 339 8 |
| 3 26 | 588 38 | 3.25 | 2775 1 | 288 9 | 187 1 | 90 4 | 136 1 | 81 3 | 340 7 | 5 2 | 712 3 | 228 3 | 163 6 |

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TT = 9 0000 DTH = 1 0000 ITERR = 4
QU(1) = 609 00 YU(1) = 597.99 QU(N) = 5217.74 YU(N) = 590 05 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 9.0000 DTH = 1 0000 ITERR = 4
QU(1) = 609 00 YU(1) = 597 99 QU(N) = 5217 74 YU(N) = 590 05 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 99 | 0 61 | 434 3 | 163 3 | 11 3 | 75 0 | 384 7 | 154 3 | 813.0 | 8 4 | 848 7 | 1371 1 | 183 4 |
| 0 52 | 597 99 | -0 18 | -117 3 | -40 2 | -18.3 | 68 0 | 224 8 | 100 0 | 919 5 | 9 8 | 831 5 | 964 2 | 498 5 |
| 0 68 | 597 98 | -0 43 | -285 5 | -141 6 | -0 7 | 104 0 | 882 4 | 14 9 | 1150 6 | 10 8 | 1066 1 | 2853 3 | 22 3 |
| 0 70 | 597 98 | -0.47 | -309 8 | -154 7 | -1 3 | 88 0 | 884 9 | 22 4 | 1592 2 | 10 8 | 1026 6 | 2891 8 | 33 4 |
| 0 92 | 597 69 | 7 75 | 5354.5 | 2348 5 | 48 4 | 87 6 | 874 6 | 48 9 | 1011 2 | 11 0 | 1111 9 | 3807 1 | 90 3 |
| 1 39 | 596.23 | 6 93 | 3013.4 | 3580.8 | 330 8 | 81 0 | 467 8 | 86 9 | 635 7 | 10 7 | 1012 4 | 2348 4 | 237 4 |
| 1 50 | 596 08 | 6 87 | 3736 6 | 2465 3 | 668 3 | 88 7 | 311 7 | 98 0 | 536 7 | 10 9 | 1136 2 | 1517.8 | 361 3 |
| 1.61 | 595 90 | 6.82 | 4525 7 | 1236 7 | 1058 8 | 96 2 | 155 8 | 109 4 | 438 3 | 10 9 | 1266 2 | 731 1 | 478 5 |
| 1.72 | 595 73 | 6.78 | 6011 8 | 0.0 | 765 5 | 103 5 | 0 0 | 121 6 | 340 8 | 10 8 | 1405 2 | 0 0 | 591 9 |
| 1.88 | 595 31 | 6.66 | 6301 4 | 0 0 | 354 2 | 103 9 | 0 0 | 74 0 | 438 5 | 10 4 | 1329 3 | 0 0 | 281 2 |
| 2.04 | 594 60 | 6.56 | 6557 5 | 0 0 | 1 4 | 103 0 | 0 0 | 17 9 | 429 3 | 9 8 | 1223 0 | 0 0 | 5 3 |
| 2 05 | 594 65 | 6 55 | 6548 8 | 0 0 | 0 0 | 117 0 | 0 0 | 0 0 | 990 9 | 9 9 | 1371 1 | 0 0 | 0 0 |
| 2.06 | 594 51 | 6 54 | 6538 4 | 0 0 | 0 6 | 102 6 | 0 0 | 15 4 | 397 3 | 9 7 | 1214 4 | 0 0 | 3 9 |
| 2 39 | 593 73 | 6 28 | 5252 7 | 317 7 | 705 3 | 91 8 | 71 6 | 278 0 | 618 7 | 9 2 | 998 6 | 150 1 | 827 1 |
| 2 73 | 591 83 | 5 88 | 3515.6 | 313 1 | 2048 8 | 79 7 | 100 6 | 430 5 | 610 7 | 8 1 | 708 5 | 192 7 | 1216.2 |
| 2 99 | 590 88 | 5 53 | 3788.2 | 659 0 | 1087 1 | 86 3 | 174 9 | 266 4 | 531 5 | 7 5 | 789 8 | 387 8 | 708.3 |
| 3 26 | 590 05 | 5 22 | 3875.8 | 864.6 | 477 4 | 93 3 | 240.8 | 131 6 | 477 5 | 6 9 | 866 1 | 543 7 | 341 8 |

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TT = 10.0000 DTH = 1 0000 ITERR = 2
QU(1) = 663 00 YU(1) = 599.20 QU(N) = 6914 81 YU(N) = 591 08 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 10.0000 DTH = 1 0000 ITERR = 2
QU(1) = 663 00 YU(1) = 599 20 QU(N) = 6914 81 YU(N) = 591 08 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599.20 | 0 66 | 423 9 | 211 2 | 27 9 | 75 0 | 418 1 | 242 2 | 1055 5 | 9 6 | 939 7 | 1857 9 | 423 8 |
| 0 52 | 599.20 | -0 20 | -123 8 | -53 4 | -21 7 | 68 0 | 240 0 | 115 3 | 1013 5 | 11 0 | 914 4 | 1249 0 | 622 0 |
| 0 68 | 599 21 | -0 47 | -282 1 | -184.1 | -1 0 | 104 0 | 1053 3 | 37 5 | 1420 4 | 12 0 | 1193 1 | 4040 5 | 45 9 |
| 0 70 | 599.21 | -0 51 | -298 1 | -205 9 | -2 3 | 88 0 | 1048 1 | 47 5 | 2065 9 | 12 1 | 1134 1 | 4080 1 | 68 0 |
| 0 92 | 598 95 | 9 43 | 5972 0 | 3358 3 | 96 3 | 88 0 | 1090 3 | 75 8 | 1254 1 | 12 2 | 1222 6 | 5026 7 | 167 3 |
| 1 39 | 597 64 | 8.50 | 3188 6 | 4776.2 | 533 0 | 81 0 | 469.5 | 113 2 | 663 7 | 12 1 | 1126 0 | 3005 7 | 377 7 |
| 1 50 | 597 51 | 8 45 | 4040 2 | 3445 3 | 961 9 | 89 7 | 312 9 | 121 8 | 561 5 | 12 3 | 1263 4 | 1963 2 | 518 0 |
| 1 61 | 597 34 | 8.40 | 5067 4 | 1836 7 | 1499 3 | 98 1 | 156 4 | 130 4 | 459 4 | 12 3 | 1406 0 | 955 7 | 651 1 |
| 1.72 | 597 17 | 8 36 | 7192 4 | 0 0 | 1171 9 | 106 3 | 0 0 | 139 6 | 358 1 | 12 2 | 1556 2 | 0 0 | 779 9 |
| 1 88 | 596 73 | 8 20 | 7624 1 | 0 0 | 577 2 | 108.2 | 0.0 | 100 0 | 631 6 | 11 8 | 1479 5 | 0 0 | 404 4 |
| 2.04 | 596.13 | 7 90 | 7854.6 | 0 0 | 48 1 | 110 4 | 0 0 | 60 0 | 970 4 | 11 3 | 1387 3 | 0 0 | 68 0 |
| 2.05 | 596.20 | 7.87 | 7873.2 | 0 0 | 0 0 | 115.0 | 0 0 | 0 0 | 1060 8 | 11 4 | 1551 0 | 0 0 | 0 0 |
| 2.06 | 596.06 | 7 84 | 7815 2 | 0 0 | 28 7 | 110 2 | 0 0 | 60 0 | 970 2 | 11 3 | 1379 4 | 0 0 | 63 8 |
| 2.39 | 594.52 | 7.36 | 5800.4 | 573 6 | 984 4 | 93.8 | 92 5 | 338 7 | 841 5 | 10 0 | 1072 5 | 215 4 | 1072 4 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 73 | 592 78 | 7.17 | 3875 3 | 497 7 | 2797.8 | 80 0 | 145 9 | 540 5 | 766 4 | 9 1 | 784 3 | 307 8 | 1673 9 |
| 2 99 | 591.91 | 7 04 | 4319 3 | 1064 7 | 1651 0 | 87 5 | 233 9 | 329 8 | 651 2 | 8 6 | 879 8 | 594 9 | 1015 2 |
| 3 26 | 591.08 | 6 91 | 4641 1 | 1492 2 | 781 6 | 95 0 | 308 5 | 160 8 | 564 3 | 7 9 | 963 5 | 825 8 | 493 6 |

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TT = 11 0000 DTH = 1 0000 ITERR = 2
QU(1) = 717 00 YU(1) = 599 92 QU(N) = 8135 24 YU(N) = 591 72 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 11 0000 DTH = 1 0000 ITERR = 2
QU(1) = 717 00 YU(1) = 599 92 QU(N) = 8135 24 YU(N) = 591 72 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 92 | 0 72 | 430 1 | 244 5 | 42 4 | 75 0 | 437 9 | 294 5 | 1199 8 | 10 4 | 993 8 | 2166 6 | 617 4 |
| 0 52 | 599 91 | 0 36 | 217 8 | 106.6 | 34 9 | 68 0 | 240 0 | 168 4 | 1102 0 | 11 7 | 962 5 | 1418 9 | 722 4 |
| 0 68 | 599 91 | 0 25 | 142.8 | 108 0 | 0 8 | 104 0 | 1122 6 | 97 4 | 1637 8 | 12 7 | 1266 4 | 4807 0 | 93 4 |
| 0 70 | 599 91 | 0 23 | 125 0 | 105 5 | 1 5 | 88 0 | 1099 9 | 107 3 | 2459 2 | 12 8 | 1196 1 | 4836 4 | 122 5 |
| → 0 92 | 599 70 | 9.78 | 5792 5 | 3857 2 | 126 9 | 88 0 | 1239 4 | 93 7 | 1421 1 | 13 0 | 1288 2 | 5895 1 | 230 5 |
| 1 39 | 598 60 | 9 32 | 3266 3 | 5476 8 | 573 3 | 81 0 | 477 3 | 192 6 | 750 8 | 13 1 | 1204 4 | 3462 4 | 514 5 |
| 1 50 | 598 49 | 9 29 | 4148.7 | 4086 7 | 1053 6 | 92 9 | 317 2 | 173 1 | 621 5 | 13 3 | 1352 2 | 2271 1 | 653 9 |
| 1.61 | 598 33 | 9.27 | 5274 3 | 2250 2 | 1741 1 | 103 0 | 158 0 | 158 7 | 495 1 | 13 3 | 1504 0 | 1110 5 | 789 2 |
| 1 72 | 598 16 | 9 24 | 7756 1 | 0 0 | 1488 7 | 110 9 | 0 0 | 154 0 | 376 4 | 13 2 | 1662 3 | 0 0 | 924 1 |
| 1.88 | 597 70 | 9 16 | 8336.0 | 0 0 | 821 5 | 116.3 | 0 0 | 113 7 | 688 6 | 12 8 | 1587 9 | 0 0 | 508 9 |
| 2 04 | 597.03 | 9 06 | 8925 0 | 0 0 | 135 3 | 113 1 | 0 0 | 60 0 | 973 1 | 12 2 | 1487 7 | 0 0 | 122 0 |
| 2 05 | 597 10 | 9 05 | 9055 0 | 0 0 | 0 0 | 115 0 | 0.0 | 0 0 | 1138 0 | 12 3 | 1654 5 | 0 0 | 0 0 |
| 2 06 | 596 94 | 9 05 | 8965 5 | 0 0 | 84 2 | 112 8 | 0 0 | 60 0 | 972 8 | 12 2 | 1477 4 | 0 0 | 116 5 |
| 2 39 | 595.16 | 8.80 | 6495 0 | 957 7 | 1348 5 | 95 2 | 106 2 | 375 4 | 976 8 | 10 7 | 1132 5 | 279 1 | 1301 5 |
| 2 73 | 593 42 | 8.53 | 4283 5 | 700 2 | 3547 8 | 80 0 | 179 4 | 618 5 | 877 9 | 9 7 | 835 3 | 411 4 | 2013 3 |
| 2 99 | 592.55 | 8.32 | 4783 0 | 1410 8 | 2123 4 | 87 5 | 282 7 | 372 2 | 742 4 | 9 2 | 935 8 | 760 2 | 1239 8 |
| 3 26 | 591 72 | 8 14 | 5140 4 | 1944 5 | 1050 3 | 95 0 | 372 5 | 167 2 | 634 7 | 8 5 | 1024 2 | 1043 7 | 598 6 |

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TT = 12 0000 DTH = 1 0000 ITERR = 2
QU(1) = 771 00 YU(1) = 600 13 QU(N) = 9113 80 YU(N) = 592 18 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 12.0000 DTH = 1 0000 ITERR = 2
QU(1) = 771.00 YU(1) = 600 13 QU(N) = 9113 80 YU(N) = 592 18 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 600 13 | 0 77 | 456 3 | 267 1 | 47 6 | 75 0 | 447 3 | 333 0 | 1261 9 | 10 6 | 1009 4 | 2258 6 | 681 8 |
| 0 52 | 600.12 | 0 72 | 433 2 | 219.1 | 69 4 | 68 0 | 240 0 | 183 8 | 1127 6 | 11 9 | 976 5 | 1468 1 | 758 5 |
| 0 68 | 600 12 | 0 71 | 393 2 | 309 2 | 2 6 | 104 0 | 1142.8 | 114 8 | 1701 0 | 12 9 | 1287 7 | 5039 3 | 115 2 |
| 0 70 | 600 12 | 0 70 | 369 0 | 328 9 | 5 5 | 88 0 | 1115 0 | 124 8 | 2573 8 | 13 0 | 1214 1 | 5063 6 | 146 3 |
| 0 92 | 599 92 | 9 54 | 5522 4 | 3885 6 | 132 0 | 88 0 | 1284 5 | 99 1 | 1471 7 | 13 2 | 1308 1 | 6179 9 | 252 2 |
| 1 39 | 598 93 | 9.47 | 3247 1 | 5622.1 | 599 8 | 81 0 | 481 2 | 231 8 | 794 0 | 13 4 | 1230 9 | 3619 1 | 583 9 |
| 1.50 | 598.82 | 9.46 | 4129 2 | 4261.7 | 1073 8 | 94 9 | 319 9 | 202 5 | 656 8 | 13 6 | 1383 5 | 2377 4 | 716 6 |
| 1 61 | 598 67 | 9.46 | 5280 1 | 2390 9 | 1790 3 | 107 0 | 159 3 | 177 7 | 521 8 | 13 6 | 1539 4 | 1163 9 | 845 8 |
| 1 72 | 598.49 | 9.46 | 7848 3 | 0 0 | 1610 9 | 116 8 | 0 0 | 162 2 | 393 9 | 13 5 | 1699 9 | 0 0 | 976 2 |
| 1 88 | 598 02 | 9.45 | 8533 8 | 0 0 | 916 4 | 119 7 | 0 0 | 117 7 | 697 5 | 13 1 | 1625 4 | 0 0 | 545 7 |
| 2 04 | 597.34 | 9.41 | 9240 9 | 0 0 | 173 4 | 114 0 | 0 0 | 60 0 | 974 0 | 12 6 | 1522 5 | 0 0 | 140 4 |
| 2 05 | 597 41 | 9 41 | 9409 1 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1164 4 | 12 6 | 1689 9 | 0 0 | 0 0 |
| 2 06 | 597 25 | 9 40 | 9294 4 | 0 0 | 109 4 | 113 7 | 0 0 | 60 0 | 973 7 | 12 5 | 1512 2 | 0 0 | 134 9 |
| 2 39 | 595 46 | 9 34 | 6624 0 | 1170 1 | 1541 7 | 95 7 | 108 4 | 376 1 | 980 2 | 11 0 | 1160 9 | 311 1 | 1413 6 |
| 2 73 | 593 83 | 9 28 | 4433 5 | 842 3 | 4004 9 | 80 0 | 201 0 | 669 1 | 950 1 | 10 1 | 868 3 | 489 9 | 2308 9 |
| 2 99 | 593.00 | 9 20 | 5039 6 | 1687.4 | 2469 3 | 87 5 | 316 9 | 401 9 | 806 3 | 9 6 | 975 1 | 894 6 | 1413 3 |
| 3 26 | 592 18 | 9.11 | 5506 1 | 2345 7 | 1262.0 | 95 0 | 417 8 | 171 8 | 684 6 | 9 0 | 1067 3 | 1222 9 | 675 5 |

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TT = 13.0000 DTH = 1 0000 ITERR = 2
QU(1) = 881.00 YU(1) = 599 97 QU(N) = 9273 41 YU(N) = 592 26 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 13 0000 DTH = 1 0000 ITERR = 2
QU(1) = 881 00 YU(1) = 599 97 QU(N) = 9273 41 YU(N) = 592 26 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 97 | 0 88 | 526.1 | 301 7 | 53.2 | 75 0 | 439 3 | 298 2 | 1210 0 | 10 4 | 997 6 | 2188 9 | 632 4 |
| 0 52 | 599.94 | 1 15 | 694 9 | 341 6 | 111 4 | 68 0 | 240.0 | 170 4 | 1105 3 | 11.8 | 964.3 | 1425 2 | 726 8 |
| 0 68 | 599.93 | 1 24 | 701 6 | 532 7 | 3.9 | 104 0 | 1124.6 | 99 1 | 1643.9 | 12 7 | 1268 5 | 4829 4 | 95 4 |
| 0 70 | 599 93 | 1 25 | 672.9 | 571.4 | 8 3 | 88 0 | 1101 3 | 109 0 | 2470 0 | 12 8 | 1197 8 | 4857 6 | 124.6 |
| 0 92 | 599 74 | 8.77 | 5162.5 | 3497 4 | 115 0 | 88 0 | 1248 2 | 94 8 | 1431 0 | 13 0 | 1292 1 | 5950 2 | 234 7 |
| 1.39 | 598 81 | 9.06 | 3132 4 | 5359 5 | 565 2 | 81 0 | 479 7 | 217 0 | 777 7 | 13 3 | 1220 9 | 3560 0 | 556 3 |
| 1.50 | 598 70 | 9.07 | 3990.0 | 4052 3 | 1025 9 | 94 2 | 319 0 | 192 2 | 644 4 | 13 5 | 1372 4 | 2339 8 | 693 4 |
| 1.61 | 598 56 | 9 08 | 5099 0 | 2266 3 | 1711 9 | 105 7 | 158.9 | 171 6 | 513 3 | 13 5 | 1527 9 | 1146 7 | 826 9 |
| 1.72 | 598 39 | 9 08 | 7560 7 | 0 0 | 1523 3 | 115 1 | 0 0 | 159 9 | 388 9 | 13 4 | 1689 0 | 0 0 | 961 0 |
| 1.88 | 597 95 | 9 11 | 8236 1 | 0 0 | 869 8 | 119 0 | 0 0 | 116 9 | 695 6 | 13 1 | 1617 7 | 0 0 | 538.1 |
| 2 04 | 597 30 | 9 15 | 8981 4 | 0 0 | 164 4 | 113 9 | 0 0 | 60 0 | 973 9 | 12 5 | 1518 2 | 0 0 | 138.1 |
| 2.05 | 597.37 | 9.15 | 9150 5 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1160 6 | 12 6 | 1684 8 | 0 0 | 0 0 |
| 2 06 | 597.21 | 9 16 | 9051 3 | 0 0 | 103 9 | 113 6 | 0 0 | 60 0 | 973 6 | 12 4 | 1507 7 | 0 0 | 132 6 |
| 2 39 | 595.46 | 9 21 | 6535 3 | 1155 5 | 1524.0 | 95 7 | 108.4 | 376 1 | 980 3 | 11 0 | 1161 2 | 311 4 | 1414 5 |
| 2 73 | 593 88 | 9 23 | 4383 0 | 848 3 | 4002 3 | 80 0 | 203 8 | 675 5 | 959 3 | 10 2 | 872 5 | 500 5 | 2344 1 |
| 2 99 | 593.07 | 9.26 | 5031 1 | 1719 8 | 2504 4 | 87 5 | 322 5 | 406 8 | 816 8 | 9 7 | 981 5 | 918 2 | 1443 2 |
| 3 26 | 592 26 | 9 27 | 5556 2 | 2418 8 | 1298 4 | 95 0 | 426 1 | 172 6 | 693 7 | 9 1 | 1075 2 | 1257 9 | 689 7 |

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TT = 14 0000 DTH = 1 0000 ITERR = 2
QU(1) = 992.00 YU(1) = 599 54 QU(N) = 8892 16 YU(N) = 592 11 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 14 0000 DTH = 1 0000 ITERR = 2
QU(1) = 992 00 YU(1) = 599.54 QU(N) = 8892 16 YU(N) = 592 11 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 54 | 0 99 | 615 4 | 327 1 | 49 5 | 75 0 | 427 4 | 266 8 | 1123 4 | 10 0 | 965 2 | 2001 4 | 510 2 |
| 0.52 | 599 49 | 1.41 | 866 9 | 394 2 | 143 9 | 68 0 | 240 0 | 136 5 | 1048 8 | 11 3 | 933 6 | 1316 7 | 657 5 |
| 0 68 | 599.47 | 1 53 | 904 3 | 625 8 | 3 3 | 104 0 | 1079 6 | 60 2 | 1502 9 | 12 2 | 1220 9 | 4325 7 | 59 0 |
| 0.70 | 599 47 | 1 55 | 884.8 | 662 2 | 7 5 | 88 0 | 1067 7 | 70 1 | 2214 4 | 12.3 | 1157 5 | 4361 4 | 83 6 |
| 0 92 | 599 28 | 7 85 | 4811 3 | 2948 2 | 89 0 | 88 0 | 1155 6 | 83 7 | 1327 3 | 12 6 | 1251 4 | 5393 6 | 193 3 |
| 1 39 | 598 36 | 8 29 | 2951 5 | 4827 1 | 513 2 | 81 0 | 474 4 | 163 5 | 718 9 | 12 8 | 1184 8 | 3347 3 | 471 4 |
| 1 50 | 598 26 | 8 31 | 3766 8 | 3589 5 | 957 6 | 91 6 | 315 4 | 153 3 | 597 8 | 13 1 | 1331 5 | 2200 2 | 617 3 |
| 1 61 | 598 13 | 8 33 | 4794 1 | 1970 6 | 1567 7 | 100 6 | 157 2 | 147 5 | 479 4 | 13 1 | 1483 9 | 1079 3 | 758 9 |
| 1 72 | 597.99 | 8 35 | 7040 8 | 0 0 | 1307 9 | 108 0 | 0 0 | 149 9 | 367 9 | 13 0 | 1644 2 | 0 0 | 898 8 |
| 1 88 | 597 60 | 8 41 | 7675 3 | 0 0 | 735 9 | 115 2 | 0 0 | 112 4 | 685 7 | 12 7 | 1576 0 | 0 0 | 497 2 |
| 2 04 | 597 00 | 8 49 | 8366 3 | 0 0 | 123 5 | 113 0 | 0 0 | 60 0 | 973 0 | 12 2 | 1483 7 | 0 0 | 119 8 |
| 2 05 | 597 06 | 8 50 | 8495 4 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1134 0 | 12 3 | 1649 2 | 0 0 | 0 0 |
| 2.06 | 596 91 | 8 50 | 8423 3 | 0 0 | 77 6 | 112 7 | 0 0 | 60 0 | 972 7 | 12 1 | 1474 2 | 0 0 | 114 8 |
| 2.39 | 595.26 | 8.65 | 6269 1 | 1018 8 | 1362.3 | 95 4 | 107 0 | 375 7 | 978 0 | 10 8 | 1142 7 | 290 5 | 1341 8 |
| 2.73 | 593 72 | 8 76 | 4242 6 | 773 7 | 3742 4 | 80.0 | 195 0 | 655 1 | 930 2 | 10 0 | 859 2 | 467 3 | 2233 4 |
| 2.99 | 592 92 | 8.83 | 4883.8 | 1598 0 | 2351 0 | 87.5 | 310 6 | 396 4 | 794 6 | 9 6 | 967 9 | 868 8 | 1380 6 |
| 3.26 | 592 11 | 8 89 | 5406 8 | 2265 0 | 1220 4 | 95.0 | 411 4 | 171 1 | 677 5 | 8 9 | 1061 2 | 1196 2 | 664 4 |

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TT = 15 0000 DTH = 1 0000 ITERR = 2
QU(1) = 1102.00 YU(1) = 598 88 QU(N) = 8130 72 YU(N) = 591 78 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 15 0000 DTH = 1 0000 ITERR = 2
QU(1) = 1102.00 YU(1) = 598 88 QU(N) = 8130 72 YU(N) = 591 78 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 598.88 | 1 10 | 725 3 | 338 0 | 38 7 | 75 0 | 409 1 | 218 7 | 990 6 | 9 3 | 915 4 | 1723 7 | 349.1 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.52 | 598 78 | 1 68 | 1061 6 | 422 8 | 190 8 | 68 0 | 236 6 | 100 0 | 972 8 | 10 6 | 885 2 | 1146 5 | 577 5 |
| 0.68 | 598 75 | 1.86 | 1169 9 | 690 0 | 4.4 | 104 0 | 995 4 | 18 7 | 1305 5 | 11 5 | 1145 4 | 3569 0 | 35 1 |
| 0 70 | 598 74 | 1 89 | 1174 3 | 710 1 | 8 4 | 88 0 | 995 6 | 28 1 | 1860 4 | 11 6 | 1093 4 | 3605 9 | 52 6 |
| 0 92 | 598 54 | 6 58 | 4268 8 | 2253 4 | 57 7 | 88 0 | 1008 2 | 66 0 | 1162 2 | 11 8 | 1186 5 | 4596 0 | 138 2 |
| 1 39 | 597 67 | 7 18 | 2686 4 | 4040.6 | 452 7 | 81.0 | 469 6 | 113 8 | 664 3 | 12 1 | 1128 5 | 3019 7 | 381 1 |
| 1 50 | 597.58 | 7 21 | 3428 1 | 2953.0 | 826 6 | 89 7 | 313 0 | 122 9 | 562 6 | 12 4 | 1269 4 | 1984 3 | 526 3 |
| 1 61 | 597 46 | 7 23 | 4329 4 | 1598 6 | 1303 4 | 98 3 | 156 4 | 132 1 | 461 0 | 12 4 | 1417 3 | 973 7 | 666 2 |
| 1 72 | 597 33 | 7.25 | 6212 0 | 0 0 | 1039 7 | 106 7 | 0 0 | 141 7 | 360 0 | 12 4 | 1573 5 | 0 0 | 802 9 |
| 1.88 | 596 99 | 7 34 | 6789 5 | 0 0 | 546 1 | 109 0 | 0 0 | 104 8 | 667 8 | 12 1 | 1508 3 | 0 0 | 431 6 |
| 2 04 | 596 47 | 7 46 | 7393 4 | 0 0 | 68 2 | 111 4 | 0 0 | 60 0 | 971 4 | 11 7 | 1424 9 | 0 0 | 88 4 |
| 2.05 | 596 52 | 7.47 | 7472 6 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1088 2 | 11 7 | 1587 8 | 0 0 | 0 0 |
| 2 06 | 596 40 | 7 48 | 7441 5 | 0 0 | 42 2 | 111 2 | 0 0 | 60 0 | 971 2 | 11 6 | 1416 5 | 0 0 | 83 9 |
| 2 39 | 594 91 | 7 72 | 5855 6 | 747 6 | 1116 6 | 94 8 | 102 6 | 368 1 | 949 6 | 10 4 | 1108 9 | 253 1 | 1208 9 |
| 2 73 | 593 36 | 7 88 | 3984 2 | 637.7 | 3260 4 | 80 0 | 176 4 | 611 6 | 868 0 | 9 6 | 830 8 | 401 4 | 2008 5 |
| 2 99 | 592.57 | 8.02 | 4600 0 | 1364 9 | 2051.7 | 87 5 | 284 3 | 373 6 | 745 3 | 9 2 | 937 6 | 766 0 | 1247 5 |
| 3 26 | 591 78 | 8 13 | 5110 7 | 1960 6 | 1059 4 | 95.0 | 377 8 | 167 8 | 640 6 | 8 6 | 1029 3 | 1063 8 | 607 6 |

**********

TT = 16.0000 DTH = 1 0000 ITERR = 2
QU(1) = 1214 00 YU(1) = 598 14 QU(N) = 7173 60 YU(N) = 591 31 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 16 0000 DTH = 1 0000 ITERR = 2
QU(1) = 1214 00 YU(1) = 598 14 QU(N) = 7173 60 YU(N) = 591 31 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 14 | 1.21 | 854 2 | 334 3 | 25 6 | 75 0 | 388 8 | 165 1 | 842 9 | 8 6 | 860 0 | 1428 9 | 207 3 |
| 0 52 | 597 99 | 1 69 | 1124 1 | 386 0 | 175 8 | 68 0 | 224 9 | 100 0 | 920 1 | 9 8 | 832 1 | 966 0 | 499 3 |
| 0 68 | 597.95 | 1 84 | 1228 4 | 604 9 | 2 8 | 104 0 | 877 9 | 14 8 | 1144 3 | 10 7 | 1062 9 | 2826 3 | 21 8 |
| 0 70 | 597.95 | 1 86 | 1238 8 | 613 3 | 5 0 | 88 0 | 880 0 | 22 1 | 1580 1 | 10 8 | 1023 6 | 2861 6 | 32 6 |
| 0.92 | 597 74 | 5 64 | 3862 9 | 1743 2 | 35 8 | 87 7 | 878 1 | 49 5 | 1015 3 | 11 0 | 1115 6 | 3844 5 | 92 4 |
| 1 39 | 596 87 | 6 13 | 2484 2 | 3310.8 | 333 5 | 81 0 | 468 6 | 98 8 | 648 4 | 11 3 | 1063 8 | 2645 0 | 296 2 |
| 1 50 | 596 78 | 6.16 | 3137 8 | 2373 0 | 648 2 | 89 2 | 312 3 | 109 6 | 548 8 | 11 6 | 1198 0 | 1734 6 | 433 4 |
| 1 61 | 596 66 | 6 19 | 3897 0 | 1252 3 | 1036 5 | 97 2 | 156 1 | 120 5 | 449 4 | 11 6 | 1339 8 | 849 8 | 566 0 |
| 1 72 | 596 55 | 6 21 | 5412 0 | 0 0 | 797 8 | 105 1 | 0 0 | 131 9 | 350 6 | 11 6 | 1490 7 | 0 0 | 695 8 |
| 1 88 | 596 25 | 6 30 | 5893 5 | 0 0 | 403 2 | 106 7 | 0 0 | 91 2 | 566 3 | 11 4 | 1428 0 | 0 0 | 358 6 |
| 2 04 | 595 79 | 6 43 | 6405 3 | 0 0 | 24 1 | 108 9 | 0.0 | 53 6 | 888 0 | 11 0 | 1349 2 | 0 0 | 47 9 |
| 2 05 | 595.83 | 6 44 | 6440 7 | 0 0 | 0 0 | 115 1 | 0 0 | 0 0 | 1032 4 | 11 0 | 1507 9 | 0 0 | 0 0 |
| 2 06 | 595 72 | 6 45 | 6437 2 | 0 0 | 14 7 | 108 6 | 0 0 | 51 6 | 862 8 | 10 9 | 1342 1 | 0 0 | 44 5 |
| 2.39 | 594 42 | 6 72 | 5331 4 | 506 5 | 882 5 | 93 6 | 89 9 | 331 0 | 813 4 | 9 9 | 1063 1 | 206 3 | 1038 8 |
| 2 73 | 592 88 | 6.91 | 3691.5 | 492.7 | 2724 2 | 80 0 | 151 2 | 552 8 | 784 1 | 9 2 | 792 4 | 322 8 | 1729 2 |
| 2 99 | 592 09 | 7 05 | 4251 5 | 1101 8 | 1697 3 | 87 5 | 247 8 | 341 8 | 677 1 | 8 7 | 895 7 | 638 6 | 1076 2 |
| 3 26 | 591 31 | 7 17 | 4717 1 | 1602 7 | 853 9 | 95 0 | 330 8 | 163 1 | 588 9 | 8 1 | 984 6 | 897 1 | 529 7 |

**********

TT = 17.0000 DTH = 1.0000 ITERR = 2
QU(1) = 1350 00 YU(1) = 597 53 QU(N) = 6267 66 YU(N) = 590 80 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 17 0000 DTH = 1.0000 ITERR = 2
QU(1) = 1350 00 YU(1) = 597.53 QU(N) = 6267 66 YU(N) = 590 80 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 597 53 | 1 35 | 1003 9 | 329 8 | 16 3 | 75 0 | 372 1 | 120 9 | 720 9 | 8 0 | 814 2 | 1196 9 | 120 1 |
| 0 52 | 597 32 | 1 69 | 1184 2 | 349 0 | 159 8 | 68 0 | 214 8 | 100 0 | 874 4 | 9 1 | 786 1 | 817 4 | 431 7 |
| 0.68 | 597 26 | 1 81 | 1284 1 | 529 3 | 1 6 | 104 0 | 775 0 | 11 3 | 1003 2 | 10 0 | 990.7 | 2252 6 | 12 8 |
| 0 70 | 597 25 | 1 83 | 1297 5 | 530 8 | 2 7 | 88 0 | 778 6 | 16 9 | 1334 3 | 10 1 | 962 4 | 2284 8 | 19 1 |
| 0 92 | 597.02 | 5 00 | 3630.3 | 1347 4 | 20 8 | 86 8 | 818 8 | 40 0 | 945 6 | 10 3 | 1052 9 | 3234 4 | 60 3 |
| 1 39 | 596.10 | 5 43 | 2399 8 | 2775 2 | 251 7 | 81 0 | 467 6 | 84 4 | 633 0 | 10 6 | 1001 5 | 2285 0 | 225 8 |
| 1 50 | 596 00 | 5 45 | 2991 0 | 1938 3 | 525 6 | 88 7 | 311 7 | 96 7 | 535 3 | 10 8 | 1128 9 | 1492 1 | 353 3 |
| 1 61 | 595 88 | 5 48 | 3640.7 | 990 1 | 848 8 | 96 2 | 155 8 | 109 1 | 438 0 | 10 9 | 1264 2 | 728 0 | 476 3 |
| 1.72 | 595 77 | 5 50 | 4875 3 | 0 0 | 626 3 | 103 5 | 0 0 | 122 1 | 341 3 | 10 8 | 1409 3 | 0 0 | 596 8 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.88 | 595.48 | 5 57 | 5264 6 | 0.0 | 307 4 | 104 4 | 0 0 | 77 2 | 462 2 | 10 6 | 1347 4 | 0 0 | 294 3 |
| 2.04 | 595.05 | 5 67 | 5661 7 | 0 0 | 5 4 | 105 2 | 0 0 | 31 4 | 602 8 | 10 3 | 1269 9 | 0 0 | 16 4 |
| 2.05 | 595.08 | 5 68 | 5677 1 | 0 0 | 0 0 | 116 3 | 0 0 | 0 0 | 1006 1 | 10 3 | 1421 5 | 0 0 | 0 0 |
| 2 06 | 594 99 | 5 69 | 5684 0 | 0 0 | 3 1 | 104 9 | 0 0 | 29 6 | 579 5 | 10 2 | 1263 5 | 0 0 | 14 6 |
| 2 39 | 593.90 | 5 87 | 4847.2 | 336 4 | 689 8 | 92 3 | 76 2 | 291 4 | 668 0 | 9 4 | 1014 9 | 163 2 | 877 2 |
| 2 73 | 592 37 | 6 03 | 3403 2 | 374 9 | 2248 4 | 80 0 | 124 4 | 490 2 | 694.6 | 8 7 | 751 5 | 252 3 | 1462 6 |
| 2 99 | 591 58 | 6 15 | 3900 3 | 880 7 | 1373 7 | 87 5 | 208 5 | 307 7 | 603 7 | 8 2 | 850 7 | 521 2 | 909 0 |
| 3.26 | 590 80 | 6 27 | 4325 5 | 1273 3 | 668 8 | 94 6 | 287 5 | 154 0 | 538 6 | 7 6 | 936 4 | 741 2 | 448 6 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION ND 11 12 13 14 15 16 17
TT= 17 000 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 000 DTH= 0 250 ITERR= 9

**********

TT = 17.2500 DTH = 0 2500 ITERR = 2
QU(1) = 1391 50 YU(1) = 597 41 QU(N) = 5979 44 YU(N) = 590 63 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 17 2500 DTH = 0 2500 ITERR = 2
QU(1) = 1391 50 YU(1) = 597 41 QU(N) = 5979 44 YU(N) = 590 63 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 41 | 1 39 | 1046.4 | 330 4 | 14 7 | 75 0 | 368 7 | 111 9 | 696 1 | 7 8 | 804 9 | 1151 0 | 105 7 |
| 0.52 | 597 19 | 1.65 | 1166 8 | 332 8 | 152 5 | 68 0 | 212 8 | 100 0 | 865 7 | 9 0 | 777 3 | 789 6 | 418 8 |
| 0.68 | 597 13 | 1 73 | 1235 8 | 492 0 | 1 3 | 104 0 | 756 1 | 10 7 | 977 4 | 9 9 | 977 5 | 2155 4 | 11 4 |
| 0.70 | 597 13 | 1 74 | 1245 3 | 490 8 | 2 2 | 88 0 | 760 1 | 16 0 | 1289 7 | 10 0 | 951 3 | 2187 5 | 17 0 |
| 0.92 | 596 88 | 5 00 | 3670 2 | 1307 7 | 18 9 | 86 6 | 807 4 | 38 1 | 932 2 | 10 2 | 1040 9 | 3122 1 | 54 9 |
| 1.39 | 595 92 | 5 31 | 2401 4 | 2675 8 | 237.0 | 81 0 | 467 4 | 81 0 | 629 4 | 10 4 | 987 1 | 2202 2 | 211 2 |
| 1 50 | 595 82 | 5 34 | 2982 1 | 1854 9 | 503 8 | 88 5 | 311 5 | 93 6 | 532 2 | 10 6 | 1112 8 | 1435 6 | 336 0 |
| 1 61 | 595 70 | 5 36 | 3611 0 | 938 9 | 814 9 | 95 9 | 155 7 | 106 4 | 435 3 | 10 7 | 1246 6 | 699 3 | 456 5 |
| 1 72 | 595 59 | 5 39 | 4792 1 | 0 0 | 594 6 | 103 2 | 0 0 | 119 8 | 339 0 | 10 6 | 1390 1 | 0 0 | 574 3 |
| 1 88 | 595 30 | 5 45 | 5163 6 | 0 0 | 290 6 | 103 9 | 0 0 | 73 7 | 436 6 | 10 4 | 1327 8 | 0 0 | 280 2 |
| 2 04 | 594 85 | 5.54 | 5541 7 | 0 0 | 3 0 | 104 2 | 0 0 | 25 4 | 525 3 | 10 1 | 1248 8 | 0 0 | 10 7 |
| 2 05 | 594 88 | 5.55 | 5554 9 | 0 0 | 0 0 | 116 6 | 0 0 | 0 0 | 999 0 | 10 1 | 1398 0 | 0 0 | 0 0 |
| 2 06 | 594 78 | 5.57 | 5563 4 | 0 0 | 1.7 | 103 9 | 0 0 | 23 5 | 501 7 | 10 0 | 1242 4 | 0 0 | 9 2 |
| 2.39 | 593 79 | 5 73 | 4770 2 | 308.0 | 656 4 | 92 0 | 73 2 | 282 7 | 636 0 | 9 3 | 1004 3 | 154 6 | 844 4 |
| 2.73 | 592 22 | 5 90 | 3380.2 | 352.9 | 2162 1 | 80 0 | 116 4 | 471 6 | 668 1 | 8 5 | 739 4 | 234 1 | 1389 7 |
| 2 99 | 591 41 | 5 94 | 3832.0 | 820 4 | 1289 1 | 87 3 | 198 4 | 297 2 | 583 5 | 8 1 | 835 8 | 486 6 | 857 4 |
| 3.26 | 590 63 | 5 98 | 4195 8 | 1165 4 | 618 3 | 94 4 | 277 1 | 149 0 | 525 1 | 7 5 | 920 8 | 694 4 | 423 5 |

NDNCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 250 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION ND 5 6 7 8 9 10 11 12 13 14
NONCONVERGENCE OCCURRED AT CROSS-SECTION ND 15 16 17
TT= 17 250 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16 17
TT= 17 250 DTH= 0.125 ITERR= 9

**********

TT = 17 3750 DTH = 0.1250 ITERR = 2
QU(1) = 1412 25 YU(1) = 597.36 QU(N) = 5916 87 YU(N) = 590.61 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 17 3750 DTH = 0 1250 ITERR = 2

QU(1) = 1412.25 YU(1) = 597 36 QU(N) = 5916 87 YU(N) = 590 61 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 597 36 | 1 41 | 1066 6 | 331 5 | 14 2 | 75 0 | 367 3 | 108 4 | 686 5 | 7 8 | 801 3 | 1133 4 | 100 4 |
| 0.52 | 597.13 | 1.66 | 1178 4 | 330 8 | 151 6 | 68 0 | 211 9 | 100 0 | 861 5 | 8 9 | 773 0 | 776 5 | 412 6 |
| 0.68 | 597 06 | 1 77 | 1272 0 | 496 7 | 1 3 | 104 0 | 745 9 | 10 3 | 963 3 | 9 8 | 970 3 | 2103 3 | 10 6 |
| 0.70 | 597 06 | 1 79 | 1286 6 | 496 6 | 2 1 | 88 0 | 749 9 | 15 4 | 1264 9 | 9 9 | 945 1 | 2134 5 | 15 9 |
| 0 92 | 596 81 | 4 91 | 3629 0 | 1265.5 | 17.6 | 86 5 | 801 4 | 37 2 | 925 1 | 10 1 | 1034 6 | 3063 5 | 52 1 |
| 1.39 | 595 84 | 5.29 | 2416 2 | 2644.9 | 231 7 | 81 0 | 467 3 | 79 5 | 627 8 | 10 3 | 980 5 | 2164 1 | 204 6 |
| 1 50 | 595 73 | 5.32 | 2994 8 | 1826 0 | 496 7 | 88 5 | 311 4 | 92 2 | 530 7 | 10 6 | 1105 3 | 1409 2 | 328 1 |
| 1 61 | 595 61 | 5.34 | 3616 8 | 919.7 | 803 4 | 95 8 | 155 7 | 105 2 | 434 0 | 10 6 | 1238 1 | 685 6 | 447 2 |
| 1 72 | 595 50 | 5 36 | 4777 9 | 0 0 | 582 7 | 103 0 | 0 0 | 118 7 | 337 9 | 10 5 | 1380 8 | 0 0 | 563 5 |
| 1 88 | 595 20 | 5 43 | 5142 2 | 0.0 | 284 1 | 103 6 | 0 0 | 72 0 | 423 6 | 10 3 | 1317 9 | 0 0 | 273 2 |
| 2 04 | 594 73 | 5.52 | 5519 6 | 0.0 | 2 0 | 103 6 | 0 0 | 21 8 | 479 9 | 9 9 | 1236 5 | 0 0 | 7 9 |
| 2 05 | 594 76 | 5 53 | 5533 9 | 0.0 | 0 0 | 116 8 | 0 0 | 0 0 | 994 8 | 10 0 | 1384 2 | 0 0 | 0 0 |
| 2 06 | 594 66 | 5 55 | 5544.9 | 0 0 | 1 1 | 103 3 | 0 0 | 19 9 | 455 3 | 9 9 | 1229 9 | 0 0 | 6 6 |
| 2 39 | 593 74 | 5 72 | 4772 4 | 299 3 | 647 5 | 91 8 | 71 9 | 278 8 | 621 9 | 9 3 | 999 7 | 150 9 | 830 2 |
| 2 73 | 592 18 | 5 78 | 3329 0 | 342.8 | 2111 7 | 80 0 | 114 4 | 466 8 | 661 2 | 8 5 | 736 3 | 229 5 | 1371 3 |
| 2 99 | 591 38 | 5 86 | 3792 6 | 803 3 | 1265 3 | 87 3 | 197 1 | 295 5 | 580 6 | 8 0 | 833 2 | 480 9 | 848 9 |
| 3 26 | 590 61 | 5 92 | 4163 8 | 1144 7 | 608 4 | 94 3 | 275 3 | 148 2 | 522 7 | 7 4 | 918 1 | 686 5 | 419 2 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 375 DTH= 0 500 ITERR= 9

NONCONVERGENCE DCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURREO AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 17 375 OTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURREO AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16 17
TT= 17 375 DTH= 0 125 ITERR= 9

NDNCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTIDN NO 16 17
TT= 17 375 DTH= 0 063 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 3 4 5 6 7 8 9 10 11 12
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 13 14 15 16 17
TT= 17 375 DTH= 0 250 ITERR= 9

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLOOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH D , RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

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*******************************
*******************************
***                         ***
***  SUMMARY OF INPUT DATA  ***
***                         ***
*******************************
*******************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR ROUTING | KUI | 0 |
| MULTIPLE DAM INDICATOR | MULDAM | 0 |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| ND OF RESERVOIR INFLOW HYDROGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | 0 |
| FLOOD-PLAIN MODEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | 0 |
| CONTOUR PLOTTING PARAMETER | ICONT | 0 |

OHF(INTERVAL BETWEEN INPUT HYDRDGRAPH ORDINATES) = 1 00 HRS

TEH(TIME AT WHICH COMPUTATIDNS TERMINATE) = 24 0000 HRS

INFLOW HYDROGRAPH TO RED RUN DRAIN AT C

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 333 00 | 365 00 | 396 00 | 427 00 | 459 00 | 490 00 | 521 00 |
| 552 00 | 609 00 | 663 00 | 717 00 | 771.00 | 881 00 | 992 00 | 1102 00 |
| 1214.00 | 1350 00 | 1516 00 | 1641 00 | 1817 00 | 1925 00 | 2208 00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0 0000 | 1 0000 | 2 0000 | 3.0000 | 4.0000 | 5 0000 | 6 0000 | 7 0000 |
| 8 0000 | 9 0000 | 10 0000 | 11 0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17 0000 | 18.0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO OF LATERAL INFLOW HYDROGRAPHS | LQ | 1 |
| NO. OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW REO RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599 00 X1L(I) = 0 000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 585 0 | 588.0 | 592 0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC . | 10 0 | 67 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 | 75 0 |
| XCL | 0 0 | 0.0 | 0 0 | 330 0 | 440 0 | 550 0 | 550 0 | 550 0 |
| XCR | 0 0 | 0.0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 400 0 | 500 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0 523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC . | 24 0 | 55 0 | 66 0 | 68 0 | 68 0 | 68 0 | 68 0 | 68 0 |
| XCL | 0 0 | 0 0 | 0 0 | 180 0 | 240 0 | 240 0 | 300 0 | 300 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 100.0 | 100 0 | 250 0 | 500 0 | 500 0 |
| XS | 0 0 | 0 0 | 0 0 | 370 0 | 580 0 | 680 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0.682 FSTG(I) = 598.00 X1L(I) = 0 565 X1R(I) = 0 519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 583 5 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603.0 | 605 0 |
| XC | 8 0 | 57 0 | 80 0 | 104 0 | 104 0 | 104 0 | 104 0 | 104 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 440 0 | 1033.0 | 1230 0 | 1500 0 | 1500 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS | 0 0 | 0 0 | 0 0 | 0 0 | 200 0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597 00 X1L(I) = 0 579 X1R(I) = 0 533

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 583 0 | 587.0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 20 0 | 59 0 | 78 0 | 88 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL | 0.0 | 0 0 | 0.0 | 450 0 | 1033 0 | 1180 0 | 1310 0 | 1310 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 30 0 | 200 0 | 230 0 | 230 0 |
| XS | 0.0 | 0 0 | 0 0 | 0 0 | 800 0 | 1600 0 | 1600 0 | 1600 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599.00 X1L(I) = 0.787 X1R(I) = 0 741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 582.2 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC . | 45 0 | 66 0 | 72 0 | 83 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL | 0 0 | 0 0 | 0 0 | 570 0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR . | 0 0 | 0.0 | 0 0 | 0 0 | 53 0 | 101 0 | 281 0 | 300.0 |
| XS . | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 581.8 | 586 0 | 590 0 | 594 0 | 598.0 | 600 0 | 602 0 | 604 0 |
| XC . | 20 0 | 74 0 | 81 0 | 81 0 | 81 0 | 81.0 | 81 0 | 81 0 |
| XCL | 0.0 | 0 0 | 94.0 | 465 0 | 470 0 | 494 0 | 560 0 | 600 0 |
| XCR | 0.0 | 0 0 | 0 0 | 45 0 | 120 0 | 360.0 | 400 0 | 400 0 |
| XS | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1 722 FSTG(I) = 600 00 X1L(I) = 1.555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC | 38.0 | 86 0 | 98 0 | 100 0 | 108 0 | 144 0 | 200 0 | 200 0 |
| XCL | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 325 0 | 325 0 |
| XCR .. | 0 0 | 0 0 | 50 0 | 100 0 | 150 0 | 200 0 | 500 0 | 600 0 |
| XS | 0 0 | 0 0 | 60 0 | 120 0 | 110 0 | 130 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2 040 FSTG(I) = 0 00 X1L(I) = 2 863 X1R(I) = 1 826

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0.0 | 1000 0 |
| XCR ... | 0.0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS . | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 2 051 FSTG(1) = 600.00 X1L(I) = 1 874 X1R(I) = 1 837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 4 | 586 0 | 590 0 | 594 0 | 595 9 | 598 0 | 600 0 | 602 0 |
| XC | 43 0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 100 0 | 850.0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2 062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594.0 | 596 0 | 598 0 | 600 0 | 602 0 |
| XC | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0.0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2 727 FSTG(I) = 599.00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 0 | 584 0 | 588.0 | 592 0 | 594 0 | 596.0 | 598 0 | 600 0 |
| XC . . | 8 0 | 50 0 | 72 0 | 80 0 | 80 0 | 80 0 | 80 0 | 80 0 |
| XCL ... | 0 0 | 0 0 | 0 0 | 105.0 | 210 0 | 240 0 | 400 0 | 600 0 |
| XCR .. | 0 0 | 0 0 | 100 0 | 445 0 | 690 0 | 700 0 | 760 0 | 820 0 |
| XS .. | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3 261 FSTG(I) = 588 00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 577 8 | 583 0 | 587 0 | 591.0 | 593 0 | 595 0 | 597 0 | 599 0 |
| XC . | 44 0 | 65.0 | 88 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL . | 0 0 | 0.0 | 50.0 | 300 0 | 500 0 | 700 0 | 750 0 | 990 0 |
| XCR | 0 0 | 0 0 | 40 0 | 160 0 | 180 0 | 190 0 | 190 0 | 190 0 |
| XS .. | 0.0 | 0 0 | 50 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SM

HS(1,10) IS GREATER THAN HS(1, 9)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SM

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 1 . | 0.050 | 0 050 | 0 045 | 0 045 | 0.045 | 0 045 | 0 045 | 0 045 |
| REACH 1 . | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH 1 . | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 2 | 0.050 | 0.050 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 | 0 045 |
| REACH 2 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0.095 | 0 095 |
| REACH 2 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 |
| REACH 3 . | 0.050 | 0 050 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 3 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 3 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 4 | 0 050 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH 4 . | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH 4 . | 0 100 | 0 100 | 0 100 | 0 100 | 0 080 | 0 060 | 0 050 | 0.040 |
| REACH 5 .. | 0 045 | 0 045 | 0 045 | 0 040 | 0.040 | 0 040 | 0 040 | 0.040 |
| REACH 5 . | 0 150 | 0 150 | 0 150 | 0 150 | 0 120 | 0 100 | 0 100 | 0 080 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 5 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0.040 | 0 040 | 0 040 |
| REACH 6 | 0.080 | 0.080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0.080 | 0 080 | 0 060 |
| REACH 7 | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 7 | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 7 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 045 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 9 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 | 0 090 | 0 090 | 0 090 | 0.090 | 0 080 | 0.070 | 0 070 | 0 070 |
| REACH 9 | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0.070 | 0 070 | 0.070 |
| REACH 10 | 0.045 | 0 042 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 10 | 0 100 | 0 080 | 0 050 | 0 045 | 0 030 | 0 030 | 0 030 | 0.030 |
| REACH 10 | 0.150 | 0 150 | 0 150 | 0 120 | 0 110 | 0 100 | 0 100 | 0 100 |
| REACH 11 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 | . 0 040 | 0 040 | 0.040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 04 |
| REACH 11 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0.050 | 0 050 | 0 05 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTIDN - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0 600 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 150 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0 500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0 0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0 000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SOM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

LQX(I)

4

(QL(L, 1),L=1,ITEH)

| | | | | | | |
|---|---|---|---|---|---|---|
| 20. | 20 | 24 | 40 | 137 | 839 | 3413 | 7815 |
| 14309. | 19001 | 22600 | 23340. | 21396 | 18340 | 15038 | 11398 |
| 8698 | 7183 | 6158 | 5401 | 4822 | 4326 | 3874 | 3427 |
| 3030 | | | | | | | |

```
*****************************************
*****************************************
***                                   ***
***   SUMMARY OF OUTPUT DATA          ***
***                                   ***
*****************************************
*****************************************
```

SLOPE PROFILE

MILES

0 0 0.3 0 7 1 0 1 3 1 6 2 0 2 3 2 6 2 9 3 3

ELEVATION FEET

| ELEV FEET | MILE |
|---|---|
| 585 0 | 0 0 |
| 584 0 | 0 5 |
| 583 5 | 0 7 |
| 583 0 | 0 7 |
| 582 2 | 0 9 |
| 581 8 | 1 4 |
| 578 5 | 1 7 |
| 578 0 | 2 7 |

```
577 80I          I          I          I          I          I          I          I          I          + 577 8   3 3
     0 0        0 3        0 7        1 0        1 3        1 6        2 0        2 3        2 6        2 9        3 3
```

MILES

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI |
|---|---|---|---|---|---|
| 1 | 0 000 | 585 00 | | | |
| 2 | 0.523 | 584 00 | 1 | 0 523 | 1.91 |
| 3 | 0 682 | 583.50 | 2 | 0 159 | 3.14 |
| 4 | 0 696 | 583 00 | 3 | 0 014 | 35 71 |
| 5 | 0 919 | 582.20 | 4 | 0.223 | 3 59 |
| 6 | 1.389 | 581 80 | 5 | 0 470 | 0 85 |
| 7 | 1.722 | 578 50 | 6 | 0 333 | 9 91 |
| 8 | 2.040 | 578 50 | 7 | 0 318 | 0 00 |
| 9 | 2.051 | 578 40 | 8 | 0 011 | 9 09 |
| 10 | 2 062 | 578 50 | 9 | 0 011 | -9 09 |
| 11 | 2 727 | 578 00 | 10 | 0 665 | 0 75 |
| 12 | 3 261 | 577 80 | 11 | 0 534 | 0.37 |

MESAGE

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 17 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592. | 591 | 591. | 591 | 590 | 586 | 586 | 586 |
| 600 | 599 | 600 | 600 | 600 | 589 | 588 | 584 |
| 583 | | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 595 | 595. | 594 | 590 | 586 | 586 |
| 586. | 586 | 594 | 598. | 594 | 585 | 584 | 584 |
| 583 | | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 17 | 7 | 3.261 | 583 54 | 320 00 | 0.09 | 0 375 |
| 17 | 0 | 3 261 | 583 54 | 320 00 | | |
| 16 | 1 | 2 994 | 583.66 | 320 00 | 0 12 | |
| 16 | 2 | 2 994 | 583 67 | 320 00 | 0 12 | |
| 15 | 1 | 2 727 | 583 94 | 320 00 | 0 19 | |
| 15 | 2 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 15 | 3 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 14 | 1 | 2 395 | 584 47 | 320 00 | 0 13 | |
| 14 | 2 | 2 395 | 584 45 | 320 00 | 0 11 | |
| 14 | 3 | 2 395 | 584 45 | 320 00 | 0 12 | |
| 13 | 1 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 2 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 3 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 12 | 1 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 12 | 2 | 2.051 | 584 76 | 320 00 | 0 07 | |
| 11 | 1 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 11 | 2 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 10 | 1 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 10 | 2 | 1.881 | 584 87 | 320 00 | 0 08 | |
| 9 | 1 | 1 722 | 584 95 | 320 00 | 0 07 | |
| 9 | 2 | 1.722 | 584 95 | 320 00 | 0 07 | |
| 8 | 1 | 1 611 | 585 11 | 320 00 | 0 07 | |
| 8 | 2 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 3 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 4 | 1 611 | 585.01 | 320 00 | 0.10 | |
| 7 | 1 | 1 500 | 585.43 | 320 00 | 0 09 | |
| 7 | 2 | 1.500 | 585 17 | 320 00 | 0 14 | |
| 7 | 3 | 1 500 | 585.16 | 320 00 | 0 15 | |
| 7 | 4 | 1.500 | 585 16 | 320 00 | 0 15 | |
| 6 | 1 | 1 389 | 585 78 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585 55 | 320 00 | 0 20 | |
| 6 | 3 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 6 | 4 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586.71 | 320 00 | 0 13 | |
| 5 | 2 | 0.919 | 586 71 | 320 00 | 0 11 | |
| 5 | 3 | 0 919 | 586.71 | 320 00 | 0 11 | |
| 4 | 1 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 4 | 2 | 0 696 | 587.15 | 300 00 | 0 19 | |
| 3 | 1 | 0 682 | 587.27 | 300 00 | 0 20 | |
| 3 | 2 | 0 682 | 587.20 | 300 00 | 0 27 | |
| 3 | 3 | 0.682 | 587.20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587.20 | 300.00 | 0 29 | |
| 2 | 1 | 0 523 | 588 17 | 300 00 | 0 18 | |
| 2 | 2 | 0 523 | 588.18 | 300 00 | 0 16 | |
| 1 | 1 | 0 000 | 589 52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589 54 | 300 00 | 0 14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0 00 | 589 54 | 589 54 |
| 2 | 0 52 | 588 18 | 588 18 |
| 3 | 0 68 | 587 20 | 587 20 |
| 4 | 0 70 | 587.15 | 587 15 |
| 5 | 0 92 | 586 71 | 586 71 |

| | | | |
|---|---|---|---|
| 6 | 1 39 | 585 54 | 585 54 |
| 7 | 1 50 | 585 16 | 585 16 |
| 8 | 1 61 | 585 01 | 585 01 |
| 9 | 1 72 | 584 95 | 584 95 |
| 10 | 1 88 | 584.87 | 584 87 |
| 11 | 2 04 | 584 76 | 584 76 |
| 12 | 2.05 | 584 76 | 584 76 |
| 13 | 2 06 | 584 75 | 584 75 |
| 14 | 2 39 | 584 45 | 584 45 |
| 15 | 2 73 | 583 95 | 583 95 |
| 16 | 2 99 | 583 67 | 583 67 |
| 17 | 3.26 | 583 54 | 583 54 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300 00 | 300 00 | 300.00 | 300 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | | | | | | | |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 589 54 | 588 18 | 587 20 | 587 15 | 586 71 | 585 54 | 585 16 | 585 01 |
| 584 95 | 584 87 | 584 76 | 584 76 | 584 75 | 584 45 | 583 95 | 583 67 |
| 583 54 | | | | | | | |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYDRDGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 54 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587 20 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 125 5 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 7 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0 32 | 320 0 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 1 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 32 | 320 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 5 | 0 0 | 0 0 |
| 1 50 | 585 16 | 0 32 | 320 0 | 0 0 | 0 0 | 69 8 | 0 0 | 0 0 | 69 8 | 0 0 | 213 6 | 0 0 | 0 0 |
| 1 61 | 585 01 | 0 32 | 320 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 74 3 | 0 0 | 287 4 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 32 | 320 0 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 378 0 | 0 0 | 0 0 |
| 1 88 | 584 87 | 0 32 | 320 0 | 0 0 | 0 0 | 77 3 | 0 0 | 0 0 | 77 3 | 0 0 | 346 5 | 0 0 | 0 0 |
| 2 04 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 4 | 0 0 | 0 0 |
| 2.05 | 584 76 | 0.32 | 320 0 | 0 0 | 0.0 | 75 6 | 0 0 | 0 0 | 75 6 | 0 0 | 377 3 | 0 0 | 0 0 |
| 2 06 | 584 75 | 0 32 | 320 0 | 0 0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0 0 | 312 5 | 0 0 | 0 0 |
| 2 39 | 584 45 | 0 32 | 320 0 | 0 0 | 0 0 | 63 4 | 0 0 | 0 0 | 63 4 | 0 0 | 247 8 | 0 0 | 0 0 |
| 2 73 | 583 95 | 0 32 | 320 0 | 0 0 | 0 0 | 49 6 | 0 0 | 0 0 | 49 6 | 0 0 | 171 5 | 0 0 | 0 0 |
| 2 99 | 583 67 | 0.32 | 320 0 | 0 0 | 0 0 | 58 4 | 1 0 | 2 9 | 63 4 | 0 0 | 243 4 | 0 1 | 0 2 |
| 3 26 | 583 54 | 0.32 | 319.6 | 0 2 | 0 2 | 68 1 | 6.7 | 5 4 | 86 9 | 0 0 | 319 2 | 1 8 | 1 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 589 56 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 222 1 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 299 3 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0 68 | 587 22 | 0 30 | 299 1 | 0 0 | 0 0 | 58 3 | 0 0 | 0 0 | 58 3 | 0 0 | 126 3 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 70 | 587 14 | 0.30 | 299 1 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 6 | 0 0 | 0 0 |
| 0 92 | 586.71 | 0 32 | 319 2 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0 0 | 258 0 | 0 0 | 0 0 |
| 1.39 | 585 54 | 0 32 | 319 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 9 | 0 0 | 0 0 |
| 1.50 | 585 17 | 0.32 | 318 9 | 0 0 | 0.0 | 69 9 | 0 0 | 0 0 | 69 9 | 0 0 | 214 3 | 0 0 | 0 0 |
| 1.61 | 585 02 | 0 32 | 318 7 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288 3 | 0 0 | 0 0 |
| 1 72 | 584 96 | 0 32 | 318 4 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 379 0 | 0 0 | 0 0 |
| 1 88 | 584 88 | 0 32 | 318 0 | 0 0 | 0 0 | 77 4 | 0 0 | 0 0 | 77 4 | 0 0 | 347 7 | 0 0 | 0 0 |
| 2.04 | 584 78 | 0.32 | 317 5 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | 0 0 | 314 7 | 0 0 | 0 0 |
| 2 05 | 584 78 | 0.32 | 317 5 | 0 0 | 0 0 | 75.7 | 0 0 | 0 0 | 75 7 | 0 0 | 378 6 | 0 0 | 0 0 |
| 2 06 | 584 77 | 0.32 | 317.4 | 0.0 | 0.0 | 75.1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 8 | 0 0 | 0 0 |
| 2.39 | 584.48 | 0 32 | 316 3 | 0 0 | 0.0 | 63 5 | 0.0 | 0 0 | 63 5 | 0 0 | 249 2 | 0 0 | 0 0 |
| 2 73 | 583.79 | 0 32 | 318 9 | 0 0 | 0 0 | 48 5 | 0 0 | 0 0 | 48 5 | -0 2 | 163 8 | 0 0 | 0 0 |
| 2 99 | 583 46 | 0 33 | 325 4 | 0 0 | 0 0 | 57 3 | 0 0 | 0 0 | 57 3 | -0 2 | 231 5 | 0 0 | 0.0 |
| 3.26 | 583 30 | 0 34 | 335 7 | 0 1 | 0 0 | 66.7 | 3 7 | 3 0 | 77 2 | -0 2 | 303 0 | 0 6 | 0 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589.55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589 55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 55 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0 0 |
| 0.52 | 588 18 | 0 30 | 300 6 | 0 0 | 0.0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 4 | 0 0 | 0 0 |
| 0.68 | 587 21 | 0 30 | 300 8 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0 0 | 126 0 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 8 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 9 | 0 0 | 0 0 |
| 0.92 | 586 71 | 0 32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 2 | 0 0 | 0 0 |
| 1 39 | 585.52 | 0 32 | 321 2 | 0 0 | 0 0 | 67 9 | 0 0 | 0 0 | 67 9 | -0 0 | 163 7 | 0 0 | 0 0 |
| 1.50 | 585 14 | 0 32 | 321 8 | 0 0 | 0 0 | 69 5 | 0 0 | 0 0 | 69 5 | -0 0 | 211 9 | 0 0 | 0 0 |
| 1.61 | 584.98 | 0 32 | 322.7 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | -0 0 | 285 1 | 0 0 | 0 0 |
| 1.72 | 584 91 | 0 32 | 323 8 | 0 0 | 0 0 | 79 0 | 0 0 | 0 0 | 79 0 | -0 1 | 375 3 | 0 0 | 0 0 |
| 1.88 | 584 83 | 0.33 | 325.6 | 0.0 | 0 0 | 77.1 | 0 0 | 0 0 | 77 1 | -0 1 | 343 5 | 0 0 | 0 0 |
| 2 04 | 584 71 | 0 33 | 327.7 | 0 0 | 0 0 | 74 7 | 0 0 | 0 0 | 74 7 | -0 1 | 309 9 | 0 0 | 0 0 |
| 2 05 | 584 71 | 0 33 | 327 8 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 33 | 328 0 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 39 | 584.37 | 0 33 | 333 5 | 0 0 | 0 0 | 62 7 | 0 0 | 0 0 | 62 7 | -0 1 | 242 2 | 0 0 | 0 0 |
| 2 73 | 583 64 | 0 34 | 337 5 | 0 0 | 0 0 | 47 5 | 0 0 | 0 0 | 47 5 | -0 1 | 156 7 | 0 0 | 0 0 |
| 2.99 | 583 21 | 0.34 | 340.1 | 0 0 | 0 0 | 55 9 | 0 0 | 0 0 | 55 9 | -0 1 | 217 5 | 0 0 | 0 0 |
| 3.26 | 583.01 | 0 34 | 344 4 | 0 0 | 0.0 | 65 0 | 0 1 | 0 1 | 65 3 | -0 2 | 283 9 | 0 0 | 0 0 |

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TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 71 | 0.33 | 333 0 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0 52 | 588.28 | 0 32 | 321 5 | 0 0 | 0 0 | 58 5 | 0 0 | 0 0 | 58 5 | 0 1 | 191 4 | 0 0 | 0 0 |
| 0 68 | 587 30 | 0 32 | 319 1 | 0 0 | 0 0 | 58 8 | 0 0 | 0 0 | 58 8 | 0 1 | 131 4 | 0 0 | 0 0 |
| 0.70 | 587 23 | 0.32 | 319 0 | 0 0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 1 | 172 0 | 0 0 | 0 0 |
| 0.92 | 586 78 | 0 34 | 336 5 | 0 0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 8 | 0 0 | 0 0 |
| 1.39 | 585 54 | 0 33 | 332 9 | 0.0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | -0 0 | 164 6 | 0 0 | 0 0 |
| 1.50 | 585 12 | 0 33 | 332 5 | 0 0 | 0 0 | 69 4 | 0 0 | 0 0 | 69 4 | -0 1 | 210 8 | 0 0 | 0 0 |
| 1.61 | 584 95 | 0 33 | 332 3 | 0 0 | 0 0 | 73 8 | 0 0 | 0 0 | 73 8 | -0 1 | 283 0 | 0 0 | 0 0 |
| 1 72 | 584 88 | 0 33 | 332 2 | 0 0 | 0 0 | 78 8 | 0 0 | 0 0 | 78 8 | -0 1 | 372 7 | 0 0 | 0 0 |
| 1.88 | 584 79 | 0 33 | 332 1 | 0 0 | 0 0 | 76 8 | 0 0 | 0 0 | 76 8 | -0 1 | 340 5 | 0 0 | 0 0 |
| 2.04 | 584.67 | 0.33 | 332 0 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | -0 1 | 306 5 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.05 | 584 67 | 0 33 | 332 0 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | -0 1 | 370 3 | 0 0 | 0 0 |
| 2 06 | 584 66 | 0 33 | 332 0 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0 1 | 305 4 | 0 0 | 0 0 |
| 2 39 | 584 31 | 0 33 | 331 2 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 238 6 | 0 0 | 0 0 |
| 2 73 | 583 46 | 0 33 | 333.6 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 148 0 | 0 0 | 0 0 |
| 2 99 | 582 95 | 0 34 | 339 4 | 0 0 | 0 0 | 54 4 | 0 0 | 0 0 | 54.4 | -0 4 | 203 0 | 0 0 | 0 0 |
| 3 26 | 582 69 | 0 35 | 347 9 | 0 0 | 0 0 | 63 8 | 0 0 | 0 0 | 63 8 | -0 5 | 263 6 | 0 0 | 0 0 |

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TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589.90 QU(N) = 355 35 YU(N) = 582 45 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

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TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589 90 QU(N) = 355 35 YU(N) = 582 45 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 90 | 0 37 | 365 0 | 0 0 | 0.0 | 70 8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 6 | 0 0 | 0 0 |
| 0 52 | 588 47 | 0 36 | 357 0 | 0 0 | 0.0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 4 | 0 0 | 0 0 |
| 0 68 | 587 50 | 0 35 | 354 2 | 0.0 | 0 0 | 59 9 | 0 0 | 0 0 | 59 9 | 0 3 | 142 9 | 0 0 | 0 0 |
| 0 70 | 587 44 | 0 35 | 353 9 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61 1 | 0 3 | 184 2 | 0 0 | 0 0 |
| 0 92 | 586 96 | 0 37 | 372 8 | 0 0 | 0 0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 275 3 | 0 0 | 0 0 |
| 1 39 | 585 66 | 0 36 | 363 1 | 0 0 | 0 0 | 69 7 | 0 0 | 0 0 | 69 7 | 0 1 | 173 2 | 0 0 | 0 0 |
| 1 50 | 585 22 | 0 36 | 361 2 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 0 | 217 7 | 0 0 | 0 0 |
| 1 61 | 585 03 | 0 36 | 359 6 | 0 0 | 0 0 | 74.4 | 0 0 | 0 0 | 74 4 | 0 0 | 289 1 | 0 0 | 0 0 |
| 1.72 | 584 95 | 0.36 | 358 0 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 6 | 0 0 | 0 0 |
| 1 88 | 584 85 | 0 36 | 356 0 | 0 0 | 0 0 | 77 2 | 0 0 | 0 0 | 77 2 | -0 0 | 345 5 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0.35 | 354.3 | 0.0 | 0 0 | 74.8 | 0 0 | 0 0 | 74 8 | -0 1 | 310 3 | 0 0 | 0 0 |
| 2 05 | 584 72 | 0 35 | 354 2 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 374 2 | 0 0 | 0 0 |
| 2 06 | 584 71 | 0 35 | 354 1 | 0 0 | 0 0 | 74.6 | 0 0 | 0 0 | 74 6 | -0 1 | 309 2 | 0 0 | 0 0 |
| 2 39 | 584 32 | 0.35 | 352 9 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 239 1 | 0 0 | 0 0 |
| 2 73 | 583 39 | 0.35 | 352 4 | 0 0 | 0 0 | 45.8 | 0 0 | 0 0 | 45 8 | -0 3 | 145 0 | 0 0 | 0 0 |
| 2 99 | 582 77 | 0 35 | 352 6 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 193 2 | 0 0 | 0 0 |
| 3 26 | 582.45 | 0.36 | 355 3 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | -0 7 | 248 0 | 0 0 | 0 0 |

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TT = 3.0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 378.31 YU(N) = 582 32 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 378.31 YU(N) = 582 32 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 08 | 0 40 | 396.0 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 259 0 | 0 0 | 0 0 |
| 0 52 | 588 65 | 0 39 | 386 7 | 0.0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 8 | 0 0 | 0 0 |
| 0 68 | 587 73 | 0 38 | 383 8 | 0 0 | 0 0 | 61 2 | 0 0 | 0 0 | 61 2 | 0 5 | 157 1 | 0 0 | 0 0 |
| 0 70 | 587 68 | 0 38 | 383 5 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62 2 | 0 5 | 198 9 | 0 0 | 0 0 |
| 0 92 | 587.20 | 0 42 | 415 8 | 0 0 | 0 0 | 67 8 | 0.0 | 0 0 | 67 8 | 0 5 | 291 5 | 0 0 | 0 0 |
| 1 39 | 585 87 | 0 40 | 404 5 | 0 0 | 0 0 | 72 4 | 0 0 | 0 0 | 72 4 | 0 3 | 188 1 | 0 0 | 0 0 |
| 1 50 | 585.42 | 0 40 | 401 8 | 0 0 | 0 0 | 72 3 | 0 0 | 0 0 | 72 3 | 0 2 | 231 9 | 0 0 | 0 0 |
| 1 61 | 585.22 | 0.40 | 399 0 | 0 0 | 0 0 | 75 9 | 0 0 | 0 0 | 75 9 | 0 2 | 303 3 | 0 0 | 0 0 |
| 1 72 | 585 14 | 0.40 | 396 2 | 0 0 | 0 0 | 80 5 | 0 0 | 0 0 | 80 5 | 0 2 | 393 0 | 0 0 | 0 0 |
| 1 88 | 585 03 | 0.39 | 392 2 | 0 0 | 0 0 | 78 5 | 0 0 | 0 0 | 78 5 | 0 1 | 358 9 | 0 0 | 0 0 |
| 2 04 | 584 88 | 0.39 | 388 3 | 0 0 | 0 0 | 76 1 | 0 0 | 0 0 | 76 1 | 0 1 | 322 5 | 0 0 | 0 0 |
| 2 05 | 584 88 | 0 39 | 388 0 | 0 0 | 0 0 | 76 3 | 0 0 | 0 0 | 76 3 | 0 1 | 386 4 | 0 0 | 0 0 |
| 2.06 | 584 87 | 0 39 | 387 8 | 0 0 | 0 0 | 75 9 | 0 0 | 0 0 | 75 9 | 0 1 | 321 2 | 0 0 | 0 0 |
| 2 39 | 584 45 | 0 38 | 380 2 | 0 0 | 0 0 | 63 4 | 0 0 | 0 0 | 63 4 | -0 0 | 247 7 | 0 0 | 0 0 |
| 2.73 | 583.43 | 0.38 | 376 3 | 0 0 | 0 0 | 46 0 | 0 0 | 0 0 | 46 0 | -0 3 | 146 9 | 0 0 | 0 0 |
| 2 99 | 582 71 | 0 38 | 376.5 | 0 0 | 0 0 | 53 1 | 0 0 | 0 0 | 53 1 | -0 6 | 190 2 | 0 0 | 0 0 |
| 3 26 | 582 32 | 0 38 | 378 3 | 0.0 | 0 0 | 62 2 | 0.0 | 0 0 | 62 2 | -0 9 | 239 8 | 0 0 | 0 0 |

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TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427 00 YU(1) = 590 26 QU(N) = 423 23 YU(N) = 582 34 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 4 0000 DTH = 1 0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590.26 QU(N) = 423 23 YU(N) = 5B2 34 FROM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 590 26 | 0 43 | 427 0 | 0 0 | 0 0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 272 0 | 0 0 | 0 0 |
| 0 52 | 588 90 | 0 42 | 415 0 | 0 0 | 0 0 | 60 2 | 0 0 | 0 0 | 60 2 | 0.7 | 228 2 | 0 0 | 0 0 |
| 0 68 | 588.18 | 0.41 | 408 5 | 0 0 | 0 0 | 63 8 | 0 0 | 0 0 | 63 8 | 1 0 | 185 0 | 0 0 | 0 0 |
| 0 70 | 588 14 | 0 41 | 407 8 | 0 0 | 0 0 | 64 4 | 0 0 | 0 0 | 64 4 | 1 0 | 228 4 | 0 0 | 0 0 |
| 0 92 | 587 67 | 0 52 | 519.9 | 0.0 | 0 0 | 68 5 | 0 0 | 0 0 | 68 5 | 1 0 | 323 0 | 0.0 | 0 0 |
| 1 39 | 586 27 | 0 49 | 491.5 | 0.3 | 0 0 | 74 5 | 6 4 | 0 0 | 80 9 | 0 7 | 217 7 | 0 9 | 0 0 |
| 1 50 | 585 82 | 0 49 | 485 4 | 0 0 | 0 0 | 76 3 | 0 0 | 0 0 | 76 3 | 0 6 | 261 9 | 0 0 | 0 0 |
| 1.61 | 585 61 | 0 48 | 479 1 | 0 0 | 0.0 | 78 9 | 0 0 | 0 0 | 78 9 | 0 6 | 333 2 | 0 0 | 0 0 |
| 1 72 | 585.51 | 0 47 | 472.7 | 0 0 | 0 0 | 82.9 | 0 0 | 0 0 | 82 9 | 0 5 | 423 7 | 0 0 | 0 0 |
| 1 88 | 585 38 | 0 46 | 463 9 | 0 0 | 0 0 | 81 1 | 0 0 | 0 0 | 81 1 | 0 5 | 387 5 | 0 0 | 0 0 |
| 2 04 | 585 22 | 0 46 | 455 8 | 0 0 | 0 0 | 78 8 | 0 0 | 0 0 | 78 8 | 0 4 | 348 9 | 0 0 | 0 0 |
| 2 05 | 585.22 | 0 46 | 455 2 | 0 0 | 0 0 | 78 0 | 0 0 | 0 0 | 78 0 | 0 4 | 412 7 | 0 0 | 0 0 |
| 2 06 | 585 20 | 0.45 | 454 7 | 0 0 | 0 0 | 78 6 | 0 0 | 0 0 | 78 6 | 0 4 | 347 4 | 0 0 | 0 0 |
| 2.39 | 584 75 | 0 44 | 441 3 | 0 0 | 0 0 | 65 6 | 0 0 | 0 0 | 65 6 | 0 3 | 266 8 | 0 0 | 0 0 |
| 2.73 | 583.65 | 0 43 | 432 0 | 0.0 | 0 0 | 47 6 | 0 0 | 0 0 | 47 6 | -0 1 | 157 1 | 0 0 | 0 0 |
| 2 99 | 582 82 | 0 43 | 426 7 | 0 0 | 0 0 | 53 7 | 0 0 | 0 0 | 53 7 | -0 5 | 195 9 | 0 0 | 0 0 |
| 3.26 | 582 34 | 0 42 | 423 2 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 8 | 241 2 | 0 0 | 0 0 |

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TT = 5.0000 DTH = 1 0000 ITERR = 3
QU(1) = 459.00 YU(1) = 590 80 QU(N) = 597 39 YU(N) = 583 02 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 5 0000 DTH = 1 0000 ITERR = 3
QU(1) = 459 00 YU(1) = 590 80 QU(N) = 597 39 YU(N) = 583 02 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 80 | 0 46 | 459 0 | 0 0 | 0 0 | 72 6 | 0 0 | 0 0 | 72 6 | 1 2 | 310 9 | 0 0 | 0 0 |
| 0 52 | 590 13 | 0 39 | 393 8 | 0 0 | 0 0 | 63 6 | 0 0 | 0 0 | 63 6 | 1 9 | 303 8 | 0 0 | 0 0 |
| 0 68 | 589.97 | 0.36 | 359 4 | 0 0 | 0 0 | 74 1 | 0 0 | 0 0 | 74 1 | 2 7 | 308 3 | 0 0 | 0 0 |
| 0.70 | 589.96 | 0 36 | 355 7 | 0.0 | 0 0 | 73 1 | 0 0 | 0 0 | 73 1 | 2 8 | 353 6 | 0 0 | 0 0 |
| 0 92 | 589 44 | 1 07 | 1065 5 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 2 7 | 446 6 | 0 0 | 0 0 |
| 1 39 | 587 71 | 0.93 | 897 2 | 34.4 | 0 0 | 77 0 | 40 2 | 0 0 | 117 2 | 2 2 | 326 5 | 34 3 | 0 0 |
| 1.50 | 587 25 | 0 90 | 889 2 | 8 1 | 3 0 | 80 7 | 19 6 | 5 2 | 111 8 | 2 1 | 374 9 | 12 3 | 3 3 |
| 1 61 | 586 99 | 0 87 | 866 3 | 1 6 | 2 3 | 84 5 | 7 7 | 8 2 | 110 4 | 2 0 | 446 9 | 3 8 | 4 1 |
| 1.72 | 586.85 | 0 84 | 840.0 | 0.0 | 0 7 | 88 5 | 0 0 | 10 6 | 111 8 | 1 9 | 538 7 | 0 0 | 4 5 |
| 1 88 | 586 66 | 0 80 | 800 6 | 0 0 | 0 2 | 87 3 | 0 0 | 4 1 | 96 3 | 1 8 | 495 6 | 0 0 | 1 4 |
| 2 04 | 586.43 | 0 77 | 765.1 | 0 0 | 0 0 | 86 1 | 0 0 | 0 0 | 86 1 | 1 6 | 449 2 | 0 0 | 0 0 |
| 2 05 | 586.43 | 0 76 | 762 8 | 0 0 | 0.0 | 84 4 | 0 0 | 0 0 | 95 1 | 1 6 | 510 4 | 0 0 | 0 0 |
| 2.06 | 586 40 | 0.76 | 760 4 | 0 0 | 0 0 | 86 0 | 0.0 | 0 0 | 86 0 | 1.6 | 446 9 | 0 0 | 0 0 |
| 2 39 | 585 82 | 0 70 | 696.7 | 0 0 | 0 5 | 70 8 | 0 0 | 10 3 | 81 1 | 1 3 | 340 5 | 0 0 | 4 3 |
| 2.73 | 584 58 | 0 65 | 649 4 | 0 0 | 1 7 | 53 2 | 0 0 | 14 4 | 67 6 | 0 9 | 203 8 | 0 0 | 4 2 |
| 2.99 | 583 60 | 0 62 | 623 7 | 0.0 | 0 0 | 58 1 | 0 6 | 1 8 | 61 2 | 0 2 | 239 8 | 0 0 | 0 1 |
| 3 26 | 583.02 | 0 60 | 597 4 | 0 0 | 0 0 | 65 1 | 0 3 | 0 2 | 65 8 | -0 2 | 284 7 | 0 0 | 0 0 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 5 000 DTH= 0 500 ITERR= 9

**********

TT = 5.5000 DTH = 0.5000 ITERR = 3
QU(1) = 474 50 YU(1) = 591 73 QU(N) = 797 79 YU(N) = 583 64 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 5 5000 DTH = 0.5000 ITERR = 3
QU(1) = 474.50 YU(1) = 591 73 QU(N) = 797 79 YU(N) = 583 64 FRDM=0 10 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 591 73 | 0 47 | 474 5 | 0 0 | 0 0 | 74 5 | 0 0 | 0 0 | 74 5 | 2 2 | 379 2 | 0 0 | 0 0 |
| 0 52 | 591 52 | 0 29 | 286 6 | 0 3 | 0 1 | 66 3 | 23 2 | 12 9 | 150 0 | 3 3 | 394 6 | 6 0 | 3 3 |
| 0.68 | 591 50 | 0 21 | 213 9 | 0 4 | 0 0 | 83 0 | 55 0 | 0 0 | 138 0 | 4 3 | 428 5 | 13 7 | 0 0 |
| 0 70 | 591 50 | 0 21 | 207 4 | 0 3 | 0 0 | 79 3 | 56 3 | 0 0 | 135 5 | 4 4 | 471 3 | 14 1 | 0 0 |
| 0 92 | 590 91 | 1 71 | 1703 6 | 7 1 | 0 0 | 74 5 | 130 1 | 0 0 | 204 6 | 4 2 | 553 8 | 59 4 | 0 0 |
| 1 39 | 588 93 | 1 42 | 1285 0 | 137 4 | 0 0 | 79.1 | 68.8 | 0 0 | 147 9 | 3 4 | 421 6 | 100 7 | 0 0 |
| 1 50 | 588 47 | 1 37 | 1298 8 | 50 1 | 18 3 | 83 4 | 38 8 | 10 3 | 144 8 | 3 3 | 475 2 | 47 9 | 12 8 |
| 1.61 | 588 19 | 1 31 | 1276 4 | 14 3 | 20 9 | 87 6 | 17 1 | 18 2 | 144 8 | 3 2 | 550 2 | 18 7 | 19 9 |
| 1.72 | 588.02 | 1 25 | 1245 8 | 0 0 | 8 2 | 92 0 | 0 0 | 25 2 | 147 5 | 3 0 | 644 4 | 0 0 | 25 4 |
| 1 88 | 587.78 | 1 18 | 1172 3 | 0 0 | 3 1 | 90 4 | 0 0 | 11 1 | 114 9 | 2 9 | 595 6 | 0 0 | 9 9 |
| 2 04 | 587.51 | 1 12 | 1116 3 | 0 0 | 0 0 | 88 8 | 0 0 | 0 0 | 88 8 | 2 7 | 543 6 | 0 0 | 0 0 |
| 2.05 | 587.50 | 1 11 | 1112 1 | 0 0 | 0 0 | 90 6 | 0 0 | 0 0 | 128 3 | 2 7 | 604 8 | 0 0 | 0 0 |
| 2 06 | 587.48 | 1 11 | 1107 9 | 0 0 | 0.0 | 88 7 | 0 0 | 0 0 | 88 7 | 2 7 | 540 7 | 0 0 | 0 0 |
| 2 39 | 586 81 | 1 00 | 997 8 | 0 0 | 4 6 | 74 7 | 0 0 | 22 6 | 97 3 | 2 3 | 412 1 | 0 0 | 20 4 |
| 2.73 | 585.41 | 0 91 | 888 6 | 0 0 | 19 2 | 57 7 | 0 0 | 35 2 | 93 0 | 1 7 | 249 9 | 0 0 | 24 8 |
| 2 99 | 584 33 | 0 85 | 843 5 | 1 2 | 2 7 | 62 2 | 5 2 | 14 6 | 87 1 | 1 0 | 283 6 | 2 2 | 6 1 |
| 3 26 | 583 64 | 0 80 | 796 2 | 1 0 | 0 6 | 68 7 | 8 0 | 6 4 | 91 2 | 0 5 | 326 3 | 2 6 | 2 1 |

**********

TT = 6 5000 DTH = 1 0000 ITERR = 3
QU(1) = 505 50 YU(1) = 594 06 QU(N) = 1653 94 YU(N) = 585 92 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 6 5000 DTH = 1 0000 ITERR = 3
QU(1) = 505 50 YU(1) = 594 06 QU(N) = 1653 94 YU(N) = 585 92 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 594 06 | 0 51 | 484 1 | 20 7 | 0 7 | 75 0 | 169 9 | 5 1 | 250 1 | 4 5 | 554 0 | 175 0 | 5 3 |
| 0 52 | 594 07 | -0 17 | -154 9 | -11 1 | -4 9 | 67 5 | 138 1 | 76 7 | 566 0 | 5 9 | 565 3 | 211 8 | 117 6 |
| 0.68 | 594 08 | -0 43 | -381 5 | -46 2 | 0 0 | 98 5 | 338 5 | 0 0 | 437 0 | 6 9 | 662 3 | 520 8 | 0 0 |
| 0.70 | 594 08 | -0 45 | -404 0 | -44 4 | 0 0 | 85 7 | 346 3 | 0 0 | 432 0 | 6 9 | 684 0 | 533 1 | 0 0 |
| 0 92 | 593 61 | 3 64 | 3330 2 | 314 5 | 0 0 | 81 9 | 515 1 | 0 0 | 597 1 | 6 9 | 765 1 | 931 1 | 0 0 |
| 1 39 | 591 73 | 2 83 | 2173.3 | 642 3 | 17 7 | 81 0 | 254 1 | 19 4 | 354 5 | 6 2 | 647 2 | 488 4 | 16 8 |
| 1 50 | 591 42 | 2 75 | 2308 3 | 326 2 | 120 2 | 86 9 | 150 8 | 33 3 | 298 1 | 6 2 | 728 6 | 277 4 | 68 9 |
| 1 61 | 591 19 | 2.68 | 2361.1 | 123 1 | 194 1 | 92 7 | 68 1 | 47 7 | 260 4 | 6 2 | 823 5 | 121 8 | 114 9 |
| 1 72 | 591 02 | 2 60 | 2489 2 | 0 0 | 110 6 | 98 5 | 0 0 | 62 8 | 236 6 | 6 1 | 933 5 | 0 0 | 157 7 |
| 1 88 | 590 74 | 2 46 | 2407 7 | 0.0 | 51.1 | 97 2 | 0 0 | 29 6 | 171 7 | 5 9 | 874 7 | 0 0 | 70 3 |
| 2 04 | 590 39 | 2 37 | 2365 4 | 0.0 | 0 0 | 95 5 | 0 0 | 0 0 | 105 3 | 5 6 | 809 7 | 0 0 | 0 0 |
| 2.05 | 590 39 | 2 36 | 2357 7 | 0 0 | 0 0 | 106.3 | 0 0 | 0 0 | 279 5 | 5 6 | 890 3 | 0 0 | 0 0 |
| 2 06 | 590 35 | 2 35 | 2350 1 | 0 0 | 0 0 | 95 4 | 0 0 | 0 0 | 104 1 | 5 6 | 805 7 | 0 0 | 0 0 |
| 2 39 | 589 49 | 2 18 | 2126 2 | 0 6 | 52 8 | 84 3 | 6 4 | 70 9 | 167 7 | 5 0 | 626 2 | 1 5 | 129 4 |
| 2 73 | 587 85 | 1 98 | 1709 6 | 0 0 | 274 0 | 71 2 | 0.0 | 96 2 | 167 3 | 4 1 | 407 0 | 0 0 | 185 0 |
| 2 99 | 586 70 | 1 82 | 1674 0 | 45 7 | 102 3 | 75 5 | 20 0 | 56 0 | 171 4 | 3 3 | 446 4 | 31 9 | 89 4 |
| 3.26 | 585 92 | 1 65 | 1557.7 | 58 7 | 37 6 | 81 8 | 36.5 | 29 2 | 184 0 | 2 7 | 497 7 | 53 3 | 42 6 |

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TT = 7 5000 DTH = 1 0000 ITERR = 3
QU(1) = 536.50 YU(1) = 596 42 QU(N) = 3137 60 YU(N) = 588 19 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 7 5000 DTH = 1 0000 ITERR = 3
QU(1) = 536 50 YU(1) = 596 42 QU(N) = 3137 60 YU(N) = 588 19 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 42 | 0 54 | 440.7 | 93.9 | 1 8 | 75 0 | 341 5 | 40 4 | 498 9 | 6 9 | 731 0 | 800 8 | 30 6 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.52 | 596 42 | -0 57 | -430 6 | -98 4 | -45.1 | 68 0 | 201 3 | 100.0 | 813 9 | 8 2 | 725 1 | 630 9 | 342.1 |
| 0 68 | 596 43 | -0 95 | -713 7 | -231 4 | -0 3 | 104 0 | 652 5 | 7 2 | 835 3 | 9 2 | 904 8 | 1662 9 | 5 1 |
| 0 70 | 596 43 | -0 98 | -746 5 | -236 3 | -0 5 | 88 0 | 659 1 | 10 8 | 1044 7 | 9 3 | 890 2 | 1695 5 | 7 7 |
| *0.92 | 596.08 | 6 27 | 4917 8 | 1336 2 | 11.8 | 85 6 | 741 2 | 27 5 | 854 3 | 9 4 | 971 8 | 2500 5 | 28 5 |
| 1 39 | 594 37 | 4 94 | 2780.7 | 2004 4 | 151 3 | 81 0 | 465 5 | 51 9 | 598 4 | 8 8 | 861 2 | 1477 0 | 107 8 |
| 1 50 | 594.18 | 4.82 | 3232.5 | 1212.8 | 376.6 | 87 5 | 310 1 | 66 3 | 503 7 | 9 0 | 968 4 | 925 4 | 204 8 |
| 1 61 | 594.00 | 4 72 | 3605 6 | 529 7 | 587.7 | 93 7 | 154 9 | 81.6 | 410 2 | 9 0 | 1085 2 | 434 8 | 296 4 |
| 1.72 | 593 85 | 4.64 | 4265 3 | 0 0 | 373 5 | 99 9 | 0 0 | 98 1 | 315 8 | 8 9 | 1214 1 | 0 0 | 385 2 |
| 1 88 | 593 54 | 4.47 | 4281.1 | 0 0 | 186 0 | 99 6 | 0 0 | 47 1 | 247.6 | 8 7 | 1150 1 | 0 0 | 177 8 |
| 2.04 | 593 13 | 4 34 | 4340 6 | 0 0 | 0 0 | 98 9 | 0 0 | 0 0 | 177 1 | 8 3 | 1075 7 | 0 0 | 0 0 |
| 2 05 | 593.15 | 4 32 | 4320.3 | 0 0 | 0 0 | 115 2 | 0 0 | 0 0 | 805 9 | 8 4 | 1195 9 | 0 0 | 0 0 |
| 2.06 | 593 08 | 4.30 | 4300 2 | 0 0 | 0 0 | 98 8 | 0 0 | 0 0 | 175 8 | 8 3 | 1070 8 | 0 0 | 0 0 |
| 2.39 | 591.87 | 4 01 | 3677 8 | 75 2 | 261 4 | 88 2 | 37 7 | 173 9 | 335 7 | 7 4 | 832 1 | 54 2 | 421 6 |
| 2 73 | 590.07 | 3 66 | 2714 5 | 64 8 | 883 2 | 76 1 | 54 3 | 278 3 | 408 7 | 6 4 | 571 1 | 56 1 | 591 0 |
| 2.99 | 589.02 | 3 39 | 2787.3 | 189.7 | 409 9 | 82 9 | 92 5 | 158 4 | 349 3 | 5 7 | 632 7 | 139 4 | 313 7 |
| 3 26 | 588 19 | 3 14 | 2709 6 | 257.9 | 170 2 | 90 1 | 124 6 | 75 8 | 325 5 | 5 0 | 695 6 | 204 1 | 149 1 |

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TT = 8 5000 DTH = 1 0000 ITERR = 4
QU(1) = 580 50 YU(1) = 598.51 QU(N) = 5289 28 YU(N) = 590 05 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 8 5000 DTH = 1 0000 ITERR = 4
QU(1) = 580.50 YU(1) = 598 51 QU(N) = 5289 28 YU(N) = 590 05 FRDM=0.02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 51 | 0 58 | 394 9 | 169 5 | 16.1 | 75 0 | 399 1 | 192 1 | 917 5 | 8 9 | 887 9 | 1575 8 | 273 9 |
| 0 52 | 598.51 | -0.70 | -450.3 | -171 1 | -77 5 | 68 0 | 232 7 | 100 0 | 955 0 | 10 3 | 867 3 | 1084 5 | 551 1 |
| 0 68 | 598 52 | -1 11 | -710.7 | -398 8 | -2 3 | 104 0 | 961 5 | 17 6 | 1259 0 | 11 3 | 1121 6 | 3345 4 | 30 9 |
| 0 70 | 598 52 | -1 17 | -745.2 | -424 6 | -4 6 | 88 0 | 962 8 | 26 4 | 1780 9 | 11 4 | 1073 6 | 3385 4 | 46 4 |
| 0 92 | 598.24 | 8 90 | 5920.8 | 2910 0 | 70 3 | 88 0 | 947 1 | 58 7 | 1093 7 | 11 5 | 1159 6 | 4297 4 | 119 1 |
| 1 39 | 596 77 | 7 56 | 3095 5 | 4056 6 | 403.1 | 81 0 | 468 5 | 96 9 | 646 4 | 11 2 | 1055 7 | 2598 3 | 286 5 |
| 1 50 | 596 62 | 7 47 | 3860 3 | 2839 5 | 773.3 | 89 1 | 312 2 | 107 1 | 546 2 | 11 4 | 1184 4 | 1687 2 | 417 0 |
| 1 61 | 596 45 | 7 40 | 4728 4 | 1456 9 | 1214.5 | 96 9 | 156 0 | 117 4 | 446 3 | 11 4 | 1319 1 | 816 6 | 540 7 |
| 1 72 | 596.28 | 7 33 | 6429 8 | 0 0 | 903 8 | 104 6 | 0 0 | 128 5 | 347 4 | 11 3 | 1462 4 | 0 0 | 660 7 |
| 1 88 | 595 86 | 7 13 | 6706 5 | 0 0 | 422 3 | 105 6 | 0 0 | 84 2 | 514 1 | 11 0 | 1387 3 | 0 0 | 325 0 |
| 2 04 | 595 28 | 6 91 | 6896 3 | 0 0 | 11 1 | 106 4 | 0 0 | 38 5 | 693 7 | 10 5 | 1294 8 | 0 0 | 24 7 |
| 2 05 | 595 34 | 6 88 | 6882 9 | 0 0 | 0 0 | 115 9 | 0 0 | 0 0 | 1015 2 | 10 6 | 1451 6 | 0 0 | 0 0 |
| 2 06 | 595 21 | 6 86 | 6852 7 | 0 0 | 6 3 | 106 1 | 0 0 | 36 4 | 666 9 | 10 4 | 1287 4 | 0 0 | 22 1 |
| 2 39 | 593 80 | 6 43 | 5359 1 | 336 9 | 733 7 | 92 0 | 73 5 | 283 4 | 638 5 | 9 3 | 1005 1 | 155 3 | 846 9 |
| 2 73 | 591 87 | 6 00 | 3570 7 | 324 0 | 2102 2 | 79 7 | 101 5 | 433 5 | 614 8 | 8 2 | 711 4 | 196 3 | 1231 6 |
| 2.99 | 590 89 | 5 63 | 3843 4 | 673 1 | 1108 5 | 86 4 | 175 7 | 267 3 | 533 1 | 7 5 | 791 2 | 390 6 | 712 6 |
| 3 26 | 590 05 | 5 29 | 3931 3 | 874 7 | 483 2 | 93 3 | 240 4 | 131 4 | 477 0 | 6 9 | 865 5 | 542 2 | 341 0 |

**********

TT = 9 5000 DTH = 1 0000 ITERR = 2
QU(1) = 636 00 YU(1) = 600.08 QU(N) = 7622.73 YU(N) = 591 42 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 9.5000 DTH = 1 0000 ITERR = 2
QU(1) = 636 00 YU(1) = 600 08 QU(N) = 7622 73 YU(N) = 591 42 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 600 08 | 0 64 | 377 4 | 219 5 | 39 1 | 75 0 | 444.5 | 320 2 | 1243 7 | 10 5 | 1005.6 | 2235 8 | 665 1 |
| 0 52 | 600 08 | -0 48 | -290.4 | -146.1 | -46 5 | 68 0 | 240 0 | 181 0 | 1123 0 | 11 9 | 973 9 | 1459 2 | 751 8 |
| 0 68 | 600.08 | -0 82 | -458 8 | -358 6 | -3 0 | 104 0 | 1139 5 | 111 9 | 1690 6 | 12 9 | 1284 2 | 5000 8 | 111 3 |
| 0 70 | 600 08 | -0.87 | -461 1 | -407.0 | -6 6 | 88 0 | 1112 5 | 121 9 | 2555 0 | 12 9 | 1211 2 | 5026 2 | 142 2 |
| 0 92 | 599 85 | 11 13 | 6524.9 | 4456 6 | 151 6 | 88 0 | 1269 8 | 97 4 | 1455 2 | 13 1 | 1301 6 | 6086 1 | 245 0 |
| 1 39 | 598.58 | 9.92 | 3483 4 | 5823 6 | 609 8 | 81.0 | 476 9 | 189 0 | 747 0 | 13 0 | 1202 0 | 3448 4 | 508 9 |
| 1 50 | 598 44 | 9 86 | 4416 6 | 4321.7 | 1120 4 | 92 7 | 316 9 | 169 0 | 616 7 | 13 3 | 1347 9 | 2256 5 | 646 1 |
| 1 61 | 598 26 | 9 81 | 5605 6 | 2361.7 | 1843 5 | 102.1 | 157 7 | 154 8 | 489 8 | 13 2 | 1497 1 | 1099 8 | 778 6 |
| 1 72 | 598 07 | 9.77 | 8223 0 | 0 0 | 1548 1 | 109 2 | 0 0 | 151 7 | 371 7 | 13 1 | 1652 5 | 0 0 | 910 5 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.88 | 597 56 | 9 58 | 8751 3 | 0 0 | 829 0 | 114 9 | 0 0 | 112 0 | 684 7 | 12 7 | 1571.8 | 0 0 | 493 2 |
| 2.04 | 596.87 | 9 25 | 9123 7 | 0 0 | 121.3 | 112 6 | 0 0 | 60 0 | 972 6 | 12 1 | 1468 8 | 0 0 | 111 9 |
| 2 05 | 596 94 | 9 22 | 9219 1 | 0 0 | 0 0 | 115.0 | 0 0 | 0 0 | 1124 5 | 12 2 | 1636 4 | 0 0 | 0 0 |
| 2 06 | 596 78 | 9.19 | 9118 7 | 0 0 | 74 7 | 112 3 | 0 0 | 60 0 | 972 3 | 12 0 | 1458 9 | 0 0 | 106 6 |
| 2 39 | 594 99 | 8 54 | 6453 2 | 837 7 | 1251 2 | 95 0 | 104 7 | 374 1 | 971 7 | 10 5 | 1116 4 | 261 3 | 1238 1 |
| 2 73 | 593 16 | 8.14 | 4212 2 | 626 4 | 3305 6 | 80 0 | 166 2 | 587 7 | 833 8 | 9.5 | 815 2 | 367 9 | 1891 5 |
| 2 99 | 592 27 | 7 86 | 4659 8 | 1267 6 | 1937 5 | 87 5 | 260 9 | 353 3 | 701 7 | 8 9 | 910 9 | 682 6 | 1136 3 |
| 3 26 | 591 42 | 7 62 | 4962 1 | 1732.5 | 928.2 | 95 0 | 341 5 | 164 2 | 600 7 | 8 2 | 994 8 | 933 1 | 547 3 |

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TT = 10 5000 DTH = 1 0000 ITERR = 2
QU(1) = 690 00 YU(1) = 601 12 QU(N) = 9726 98 YU(N) = 592 38 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 10 5000 DTH = 1 0000 ITERR = 2
QU(1) = 690 00 YU(1) = 601 12 QU(N) = 9726 98 YU(N) = 592 38 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 601 12 | 0 69 | 381 5 | 251 6 | 56 9 | 75 0 | 501 5 | 579 3 | 1611 7 | 11 6 | 1083 3 | 2726 0 | 1131 3 |
| 0 52 | 601 12 | -0 17 | -95 4 | -55 0 | -16 4 | 68 0 | 243 5 | 264 5 | 1245 5 | 12 9 | 1044 4 | 1708 1 | 979 9 |
| 0 68 | 601 12 | -0 42 | -217 8 | -202 5 | -3 8 | 104 0 | 1245 7 | 196 4 | 1999 0 | 13 9 | 1391 8 | 6232 7 | 272 4 |
| 0 70 | 601 12 | -0 47 | -213 5 | -249 1 | -8 2 | 88 0 | 1187 5 | 201 7 | 3077 3 | 14 0 | 1302 2 | 6216 4 | 313 3 |
| 0 92 | 600 94 | 12.44 | 6510 1 | 5724 7 | 203 7 | 88 0 | 1393 5 | 185 2 | 1666 7 | 14 2 | 1397 2 | 7539 6 | 393 8 |
| 1 39 | 599 89 | 11 40 | 3645 3 | 6869 2 | 889 1 | 81 0 | 492 7 | 347 1 | 920 8 | 14 3 | 1308 7 | 4087 1 | 862 1 |
| 1 50 | 599.77 | 11 35 | 4596 1 | 5337 5 | 1413 9 | 100 6 | 327 5 | 286 7 | 757 5 | 14 6 | 1476 7 | 2685 8 | 949 6 |
| 1 61 | 599.59 | 11 30 | 5933 0 | 3098 4 | 2268 9 | 118 1 | 163 0 | 230 3 | 595 4 | 14 6 | 1643 7 | 1313 3 | 1034 9 |
| 1 72 | 599.36 | 11 26 | 9060 9 | 0 0 | 2200 9 | 132 4 | 0 0 | 183 9 | 439 9 | 14 4 | 1808 0 | 0 0 | 1126 4 |
| 1.88 | 598 78 | 11 12 | 9846 3 | 0 0 | 1276 6 | 127.6 | 0 0 | 127 2 | 718 7 | 13 9 | 1719 4 | 0 0 | 638 7 |
| 2 04 | 597 97 | 10.97 | 10685 2 | 0 0 | 286 5 | 115 9 | 0 0 | 60 0 | 975 9 | 13 2 | 1595 2 | 0 0 | 178 3 |
| 2 05 | 598.06 | 10 96 | 10957 0 | 0 0 | 0 0 | 115 0 | 0 0 | 28 8 | 1223 6 | 13 3 | 1764 5 | 0 0 | 0 8 |
| 2 06 | 597 87 | 10 94 | 10760 3 | 0 0 | 182 0 | 115 6 | 0 0 | 60 0 | 975 6 | 13 1 | 1582 9 | 0 0 | 171 9 |
| 2 39 | 595 82 | 10 63 | 7250 5 | 1474 6 | 1908 6 | 96 2 | 111 2 | 377 1 | 984 5 | 11 3 | 1196 3 | 351 6 | 1552 5 |
| 2 73 | 594 10 | 10 31 | 4739 2 | 1000 8 | 4574 4 | 80 0 | 211 5 | 690 5 | 982 0 | 10 4 | 890 0 | 546 0 | 2493 7 |
| 2 99 | 593 23 | 10 00 | 5342 3 | 1908 1 | -2749 1 | 87 5 | 334 6 | 417 2 | 839 3 | 9 9 | 995 3 | 970 1 | 1508 2 |
| 3 26 | 592 38 | 9.73 | 5756 8 | 2587 0 | 1383 1 | 95 0 | 438 3 | 173 8 | 707 1 | 9 2 | 1086 8 | 1310 6 | 710 9 |

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TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744 00 YU(1) = 601 66 QU(N) = 11248 66 YU(N) = 592 99 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744 00 YU(1) = 601 66 QU(N) = 11248 66 YU(N) = 592 99 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 601 66 | 0 74 | 393 0 | 276 0 | 75 0 | 75 0 | 531 0 | 713 8 | 1802 6 | 12 1 | 1123 6 | 3003 6 | 1479 0 |
| 0 52 | 601 65 | 0 38 | 214 2 | 126 8 | 38 5 | 68 0 | 259 5 | 331 1 | 1280 2 | 13 5 | 1080 6 | 1842 1 | 1138 6 |
| 0 68 | 601 65 | 0 28 | 139.8 | 139 4 | 3 7 | 104 0 | 1317 5 | 225 6 | 2113 3 | 14 4 | 1447 2 | 6914 5 | 384 7 |
| 0 70 | 601.65 | 0 27 | 110 3 | 150 0 | 6 8 | 88 0 | 1222 1 | 209 7 | 3119 8 | 14 5 | 1349 0 | 6857 3 | 422 8 |
| 0 92 | 601.50 | 12 45 | 6227 7 | 5958 5 | 265 4 | 88 0 | 1450 3 | 236 3 | 1774 6 | 14 8 | 1447 2 | 8347 0 | 513 5 |
| 1.39 | 600 60 | 12 04 | 3499 6 | 7367 2 | 1173 7 | 81 0 | 513 8 | 372 0 | 966 9 | 15 1 | 1366 1 | 4442 9 | 1120 0 |
| 1.50 | 600 50 | 12.02 | 4562 0 | 5737 6 | 1721 5 | 106 6 | 367 3 | 338 2 | 844 7 | 15 3 | 1551 6 | 2933 5 | 1177 3 |
| 1.61 | 600 33 | 12 00 | 6174 6 | 3227 1 | 2602 1 | 129 1 | 203 5 | 288 0 | 693 1 | 15 3 | 1733 8 | 1439 8 | 1221 3 |
| 1 72 | 600 07 | 11 99 | 9458 8 | 0 0 | 2531 1 | 145 9 | 11 1 | 210 2 | 492 8 | 15 1 | 1906 9 | 0 4 | 1264 0 |
| 1 88 | 599 43 | 11 92 | 10820 7 | 1 0 | 1098 6 | 136 6 | 35 1 | 264 0 | 897 5 | 14 5 | 1805 9 | 7 6 | 752 6 |
| 2 04 | 598 58 | 11.79 | 11576 5 | 0.0 | 213 4 | 117.4 | 0 0 | 331 4 | 1277 8 | 13 8 | 1665 9 | 0 0 | 293 0 |
| 2 05 | 598.65 | 11.78 | 11752 1 | 0 0 | 28 5 | 115 0 | 0 0 | 323 2 | 1312 0 | 13 9 | 1832 2 | 0 0 | 104 4 |
| 2 06 | 598 47 | 11 77 | 11637 0 | 0 0 | 134 6 | 117 2 | 0 0 | 279 5 | 1220 0 | 13 7 | 1652 9 | 0 0 | 259 3 |
| 2 39 | 596.21 | 11 57 | 7568.2 | 1753 6 | 2251 4 | 96 8 | 114 1 | 378 0 | 988 9 | 11 7 | 1233 7 | 395 2 | 1698 7 |
| 2.73 | 594 62 | 11.48 | 4828 0 | 1259 0 | 5392 9 | 80 0 | 219 3 | 693 1 | 992 4 | 10 9 | 931 6 | 658 1 | 2853 7 |
| 2.99 | 593 82 | 11 37 | 5636 1 | 2380 7 | 3351 9 | 87 5 | 373 4 | 436 6 | 897 5 | 10 5 | 1046 7 | 1178 8 | 1761 7 |
| 3.26 | 592 99 | 11 25 | 6262 3 | 3282 1 | 1704.3 | 95 0 | 498 6 | 179 9 | 773 5 | 9 8 | 1144 1 | 1593 1 | 817 5 |

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TT = 12 5000 DTH = 1.0000 ITERR = 5
QU(1) = 826 00 YU(1) = 601.73 QU(N) = 11773 75 YU(N) = 593 21 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 12 5000 DTH = 1.0000 ITERR = 5
QU(1) = 826.00 YU(1) = 601 73 QU(N) = 11773.75 YU(N) = 593 21 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 601 73 | 0 83 | 433 4 | 307 0 | 85 6 | 75 0 | 535 2 | 732 5 | 1829 2 | 12 2 | 1129 3 | 3043 6 | 1533 2 |
| 0 52 | 601 72 | 0 94 | 528.9 | 314 2 | 96 0 | 68 0 | 261 5 | 339 4 | 1284 5 | 13 5 | 1085 2 | 1859 4 | 1160 9 |
| 0 68 | 601 71 | 0 97 | 476 9 | 479 8 | 13 1 | 104 0 | 1326 3 | 229 2 | 2127 3 | 14 5 | 1453 9 | 7000 6 | 399 5 |
| 0.70 | 601.71 | 0 97 | 397 8 | 551 0 | 25 7 | 88 0 | 1226 3 | 210 7 | 3125 0 | 14 6 | 1354 7 | 6936 8 | 436 4 |
| 0 92 | 601 58 | 11 82 | 5872 6 | 5680 5 | 262.7 | 88 0 | 1458 0 | 243 2 | 1789 3 | 14 9 | 1454.0 | 8459 3 | 532 0 |
| 1.39 | 600 76 | 11.90 | 3374 6 | 7316 5 | 1205 6 | 81 0 | 518 9 | 375 1 | 975 1 | 15 2 | 1378 6 | 4522 8 | 1177 8 |
| 1 50 | 600 66 | 11 90 | 4429 6 | 5713 3 | 1753 9 | 108 2 | 379 7 | 348 5 | 865 4 | 15 5 | 1569 1 | 2994 4 | 1233 3 |
| 1 61 | 600.50 | 11 90 | 6097.5 | 3171 7 | 2627 4 | 132 3 | 224 1 | 306 5 | 728 0 | 15 5 | 1756 4 | 1476 8 | 1272 8 |
| 1 72 | 600 24 | 11.90 | 9440.0 | 0 0 | 2455 8 | 150 8 | 39 5 | 236.5 | 541 1 | 15 3 | 1932 9 | 4 8 | 1303.1 |
| 1 88 | 599 61 | 11 89 | 10818.3 | 2.4 | 1071 3 | 139 4 | 49 8 | 320 1 | 969 7 | 14 7 | 1830 8 | 15 3 | 805.5 |
| 2.04 | 598 76 | 11 90 | 11642 4 | 0 0 | 256 5 | 117 9 | 0 0 | 417 7 | 1373 7 | 14 0 | 1687 5 | 0 0 | 361 8 |
| 2 05 | 598.82 | 11.90 | 11845.2 | 0 0 | 53.5 | 115 0 | 0 0 | 411 1 | 1338 3 | 14 0 | 1852 4 | 0 0 | 169 0 |
| 2.06 | 598.65 | 11 90 | 11740 4 | 0 0 | 157 9 | 117 6 | 0 0 | 365 1 | 1315 2 | 13 9 | 1674 3 | 0 0 | 318 0 |
| 2.39 | 596.34 | 11 89 | 7668 2 | 1849 8 | 2370 9 | 97 0 | 115 1 | 378 4 | 990 4 | 11 9 | 1246 3 | 410 1 | 1747 7 |
| 2.73 | 594 80 | 11 85 | 4844 8 | 1345.8 | 5657 6 | 80 0 | 222 0 | 694 0 | 996 0 | 11 1 | 945 8 | 697 4 | 2977 2 |
| 2.99 | 594 03 | 11 81 | 5690.7 | 2547 6 | 3570 3 | 87 5 | 385 3 | 437 6 | 910 4 | 10 7 | 1064 9 | 1257 6 | 1852 5 |
| 3.26 | 593 21 | 11 77 | 6400 8 | 3548 8 | 1824 1 | 95 0 | 521 4 | 181 1 | 797.5 | 10 0 | 1165 7 | 1709 2 | 858 6 |

**********

TT = 13 5000 DTH = 1 0000 ITERR = 7
QU(1) = 936.50 YU(1) = 601 44 QU(N) = 11676 66 YU(N) = 593 23 FRDM=0 00 IFR= 14 FRM=7.00 IFM= 0

**********

TT = 13 5000 DTH = 1 0000 ITERR = 7
QU(1) = 936 50 YU(1) = 601 44 QU(N) = 11676 66 YU(N) = 593 23 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 601 44 | 0 94 | 504 2 | 345 3 | 87 1 | 75 0 | 519 0 | 659 3 | 1725 1 | 11 9 | 1107 3 | 2889 1 | 1329 2 |
| 0 52 | 601 41 | 1 40 | 793 7 | 464 1 | 139 1 | 68 0 | 252 2 | 301 0 | 1264 5 | 13 2 | 1064 3 | 1780 5 | 1062 5 |
| 0 68 | 601.40 | 1 53 | 771 9 | 745 7 | 16 9 | 104 0 | 1284 3 | 212 1 | 2060 5 | 14 2 | 1421 6 | 6594 6 | 330 9 |
| 0 70 | 601.40 | 1.56 | 672 2 | 853 1 | 33 9 | 88 0 | 1206 1 | 206 0 | 3100 1 | 14 3 | 1327 3 | 6558 0 | 371 5 |
| 0.92 | 601 27 | 10.75 | 5477.2 | 5063 6 | 206 6 | 88 0 | 1426 6 | 214 9 | 1729 5 | 14 6 | 1426 3 | 8005 9 | 460 0 |
| 1.39 | 600 47 | 11.25 | 3334 2 | 6856 8 | 1057 7 | 81 0 | 509 5 | 369 4 | 960 0 | 14 9 | 1355 6 | 4376 4 | 1071 8 |
| 1.50 | 600.38 | 11 27 | 4333 2 | 5361 7 | 1576 5 | 105 5 | 358 0 | 330 5 | 829.2 | 15 2 | 1538 6 | 2889 3 | 1136 6 |
| 1.61 | 600 22 | 11 29 | 5807 8 | 3064 8 | 2418 8 | 127 1 | 190 8 | 276 7 | 671 8 | 15 2 | 1720 2 | 1419 0 | 1191 5 |
| 1.72 | 599 99 | 11 31 | 8894 9 | 0 0 | 2412 8 | 143 9 | 0 0 | 199 8 | 473 6 | 15 0 | 1896 0 | 0 0 | 1248 6 |
| 1 88 | 599.41 | 11.37 | 10317 2 | 0 8 | 1052 8 | 136 3 | 33 6 | 258 0 | 889 8 | 14 5 | 1803 2 | 6 9 | 747 6 |
| 2 04 | 598 60 | 11 45 | 11234 7 | 0 0 | 210 3 | 117 5 | 0 0 | 340 0 | 1287 2 | 13 8 | 1668 0 | 0 0 | 299 1 |
| 2 05 | 598 66 | 11 45 | 11422 2 | 0 0 | 28 8 | 115 0 | 0 0 | 328 3 | 1313 5 | 13 9 | 1833 4 | 0 0 | 107 8 |
| 2 06 | 598 49 | 11.46 | 11324 2 | 0 0 | 132 8 | 117 2 | 0 0 | 288 3 | 1229 8 | 13 7 | 1655 1 | 0 0 | 264 6 |
| 2 39 | 596 28 | 11 57 | 7507 4 | 1777.7 | 2283 5 | 96 9 | 114 6 | 378 2 | 989 7 | 11 8 | 1240 4 | 403 1 | 1724 9 |
| 2 73 | 594 78 | 11 62 | 4768 3 | 1314 9 | 5539 7 | 80 0 | 221 7 | 693 9 | 995 5 | 11 1 | 944 1 | 692 7 | 2962 5 |
| 2 99 | 594 02 | 11 66 | 5619 4 | 2513 9 | 3523.3 | 87 5 | 385 2 | 437 6 | 910 3 | 10 7 | 1064 7 | 1256 6 | 1851 3 |
| 3 26 | 593 23 | 11 68 | 6337 6 | 3527.4 | 1811 7 | 95 0 | 523.0 | 181 1 | 799 1 | 10 1 | 1167 2 | 1717 5 | 861 5 |

**********

TT = 14.5000 DTH = 1 0000 ITERR = 3
QU(1) = 1047 00 YU(1) = 600 83 QU(N) = 11076 41 YU(N) = 593 06 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 14.5000 DTH = 1 0000 ITERR = 3

QU(1) = 1047 00 YU(1) = 600 83 QU(N) = 11076 41 YU(N) = 593 06 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 600 83 | 1 05 | 591 7 | 377 3 | 78 0 | 75 0 | 485 8 | 508 3 | 1510 8 | 11 3 | 1062 0 | 2585 7 | 976 8 |
| 0.52 | 600 78 | 1 78 | 1029 7 | 573 6 | 172 5 | 68 0 | 240 0 | 233 6 | 1210 6 | 12 6 | 1021 6 | 1627 5 | 897 1 |
| 0 68 | 600 77 | 1 99 | 1053 2 | 928 4 | 13 4 | 104 0 | 1207 2 | 170 3 | 1902 6 | 13 5 | 1355 7 | 5807 0 | 208 3 |
| 0 70 | 600 77 | 2 03 | 975 1 | 1030 8 | 27 4 | 88 0 | 1162 9 | 180 2 | 2937 9 | 13 6 | 1271 5 | 5806 2 | 245 7 |
| 0 92 | 600 61 | 9 42 | 5056 7 | 4224 6 | 139 1 | 88 0 | 1361 4 | 156 2 | 1605 6 | 13 9 | 1368 9 | 7096 8 | 338 9 |
| 1 39 | 599 81 | 10 22 | 3287 4 | 6154 1 | 780 5 | 81 0 | 491 7 | 337 5 | 910 2 | 14 3 | 1302 2 | 4047 5 | 834 6 |
| 1.50 | 599 71 | 10.26 | 4175 8 | 4816 0 | 1267 4 | 100 3 | 327 0 | 281 3 | 751 0 | 14 5 | 1470 6 | 2665 9 | 932 4 |
| 1 61 | 599 56 | 10 29 | 5414 0 | 2815.2 | 2060 5 | 117 7 | 162 9 | 228 5 | 592 9 | 14 5 | 1640 1 | 1308 2 | 1027 8 |
| 1 72 | 599 36 | 10 31 | 8293 3 | 0 0 | 2020 4 | 132 5 | 0 0 | 184 1 | 440 3 | 14 4 | 1809 0 | 0 0 | 1127 8 |
| 1 88 | 598 86 | 10.41 | 9195 6 | 0 0 | 1216 4 | 128 5 | 0 0 | 128 2 | 721 0 | 14 0 | 1729 6 | 0 0 | 648 9 |
| 2 04 | 598 11 | 10 56 | 10355 6 | 0 0 | 202 0 | 116 3 | 0.0 | 109 4 | 1030 9 | 13 3 | 1610 7 | 0 0 | 188 9 |
| 2 05 | 598 18 | 10 57 | 10569 5 | 0 0 | 0 0 | 115 0 | 0 0 | 88 3 | 1241 5 | 13 4 | 1778 2 | 0 0 | 7 8 |
| 2 06 | 598 00 | 10 58 | 10392 4 | 0 0 | 188 6 | 116 0 | 0 0 | 60 0 | 976 0 | 13 2 | 1598 2 | 0 0 | 179 9 |
| 2 39 | 596.06 | 10 80 | 7171 5 | 1584 0 | 2046 6 | 96 6 | 113 0 | 377 7 | 987 2 | 11 6 | 1219 4 | 378 5 | 1642 9 |
| 2 73 | 594 58 | 10 90 | 4614 1 | 1186 4 | 5103 5 | 80 0 | 218.7 | 692 9 | 991 6 | 10 9 | 928 5 | 649 7 | 2827 3 |
| 2 99 | 593 84 | 10 99 | 5436 4 | 2308 7 | 3249 4 | 87 5 | 374 4 | 436 7 | 898 6 | 10 5 | 1048 4 | 1185 8 | 1769 9 |
| 3 26 | 593 06 | 11.08 | 6120 3 | 3265 8 | 1690 4 | 95 0 | 505 8 | 180 3 | 781 1 | 9 9 | 1151 0 | 1629 4 | 830 5 |

**********

TT = 15 5000 DTH = 1.0000 ITERR = 2
QU(1) = 1158 00 YU(1) = 600 01 QU(N) = 9973 67 YU(N) = 592 66 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 15 5000 DTH = 1.0000 ITERR = 2
QU(1) = 1158 00 YU(1) = 600.01 QU(N) = 9973 67 YU(N) = 592 66 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 600 01 | 1 16 | 689 7 | 397.6 | 70 7 | 75 0 | 440 5 | 302 5 | 1218 5 | 10 4 | 1000 2 | 2204 3 | 643 0 |
| 0 52 | 599 93 | 1 92 | 1164 9 | 571 8 | 186 8 | 68.0 | 240 0 | 169 7 | 1104 1 | 11 8 | 963 7 | 1422 9 | 725 2 |
| 0 68 | 599 91 | 2.17 | 1229 2 | 929 2 | 6 6 | 104 0 | 1122 4 | 97 1 | 1636 9 | 12 7 | 1266 1 | 4803 8 | 93 1 |
| 0 70 | 599 90 | 2 21 | 1188 1 | 1002 8 | 14 4 | 88 0 | 1099 5 | 106 9 | 2456 4 | 12 8 | 1195 6 | 4830 8 | 121 9 |
| 0 92 | 599.73 | 7 95 | 4672.6 | 3174 7 | 103 8 | 88 0 | 1246 4 | 94 6 | 1429 0 | 13 0 | 1291 3 | 5939 0 | 233 8 |
| 1 39 | 598 90 | 8 80 | 3025 1 | 5224 0 | 555 7 | 81.0 | 480 9 | 228 5 | 790 4 | 13 4 | 1228 7 | 3606 0 | 577 6 |
| 1 50 | 598 81 | 8.85 | 3863 5 | 3980 1 | 1003 2 | 94 8 | 319 8 | 201 3 | 655 3 | 13 6 | 1382 2 | 2373 0 | 713 8 |
| 1 61 | 598 67 | 8 88 | 4955 1 | 2245 7 | 1680 9 | 107 1 | 159 4 | 178 0 | 522 2 | 13 6 | 1539 9 | 1164 7 | 846 7 |
| 1 72 | 598 51 | 8 91 | 7385 7 | 0 0 | 1525.1 | 117.3 | 0 0 | 162 9 | 395 2 | 13 5 | 1702 9 | 0 0 | 980 4 |
| 1 88 | 598 09 | 9 02 | 8129 8 | 0 0 | 889 9 | 120 4 | 0 0 | 118 6 | 699 4 | 13 2 | 1633 8 | 0 0 | 553 9 |
| 2 04 | 597 45 | 9 15 | 8972 8 | 0 0 | 180 4 | 114 3 | 0.0 | 60 0 | 974 3 | 12 7 | 1535 1 | 0 0 | 147 0 |
| 2 05 | 597 51 | 9 16 | 9164 7 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1173 0 | 12 7 | 1701 5 | 0 0 | 0 0 |
| 2 06 | 597 36 | 9 18 | 9061 3 | 0 0 | 114 9 | 114.1 | 0 0 | 60 0 | 974 1 | 12 6 | 1524 6 | 0 0 | 141 5 |
| 2 39 | 595 64 | 9 44 | 6557.0 | 1246 4 | 1634 7 | 96 0 | 109 8 | 376 6 | 982 4 | 11 2 | 1178 8 | 331 4 | 1483 6 |
| 2 73 | 594 18 | 9.65 | 4368 2 | 956 8 | 4323 1 | 80 0 | 212 7 | 690 9 | 983 6 | 10 5 | 896 6 | 563 5 | 2550 9 |
| 2.99 | 593 44 | 9 82 | 5130 8 | 1937 9 | 2753 7 | 87 5 | 350 1 | 430 7 | 868 3 | 10 1 | 1013 2 | 1039 8 | 1594 7 |
| 3 26 | 592 66 | 9 97 | 5737 2 | 2772.0 | 1464 4 | 95 0 | 466 4 | 176 6 | 738 1 | 9 5 | 1113 5 | 1437 8 | 760 1 |

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TT = 16 5000 DTH = 1 0000 ITERR = 3
QU(1) = 1282 00 YU(1) = 599 17 QU(N) = 8693 41 YU(N) = 592 13 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 16 5000 DTH = 1 0000 ITERR = 3
QU(1) = 1282 00 YU(1) = 599 17 QU(N) = 8693 41 YU(N) = 592 13 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 17 | 1 28 | 822 4 | 406.7 | 52 9 | 75 0 | 417 0 | 239 5 | 1048 0 | 9 6 | 936 9 | 1842 2 | 414 8 |
| 0 52 | 599 05 | 1 89 | 1182 3 | 494 1 | 216 6 | 68 0 | 240 0 | 103 6 | 994 1 | 10 9 | 903 8 | 1211 7 | 604 9 |
| 0 68 | 599.02 | 2.09 | 1281.1 | 800 4 | 5 3 | 104 0 | 1034 8 | 21 5 | 1362 5 | 11 8 | 1173 6 | 3844 6 | 40 4 |
| 0 70 | 599 01 | 2.12 | 1274 6 | 831 1 | 10 7 | 88 0 | 1034 1 | 31 3 | 1959 3 | 11 9 | 1117 3 | 3881 3 | 60 5 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 92 | 598 82 | 6 83 | 4338 7 | 2422 1 | 66 1 | 88 0 | 1063.6 | 72 6 | 1224 3 | 12 1 | 1210 9 | 4883 2 | 157 4 |
| 1 39 | 597.97 | 7 49 | 2724 8 | 4265 1 | 496.6 | 81 0 | 470 0 | 119 4 | 670 3 | 12 4 | 1152 7 | 3160 2 | 416 0 |
| 1 50 | 597 88 | 7 52 | 3490 4 | 3139 4 | 889 4 | 89 9 | 313 2 | 127 9 | 567.9 | 12 7 | 1296 5 | 2078 7 | 564 1 |
| 1.61 | 597 76 | 7 55 | 4434 6 | 1715 6 | 1396 2 | 98 7 | 156 6 | 136 5 | 465 5 | 12 7 | 1447 0 | 1021 0 | 706 8 |
| 1.72 | 597 64 | 7.57 | 6440 1 | 0 0 | 1129 2 | 107 3 | 0 0 | 145 5 | 363 6 | 12 7 | 1605 8 | 0 0 | 846 2 |
| 1 88 | 597.28 | 7 67 | 7049 2 | 0 0 | 618.3 | 112 0 | 0 0 | 108 5 | 676 9 | 12 4 | 1540 4 | 0 0 | 462 6 |
| 2 04 | 596 74 | 7.82 | 7726 9 | 0 0 | 92 4 | 112 2 | 0 0 | 60 0 | 972 2 | 12 0 | 1454 9 | 0 0 | 104 5 |
| 2 05 | 596 79 | 7 83 | 7832 0 | 0 0 | 0 0 | 115 0 | 0.0 | 0 0 | 1111 5 | 12 0 | 1618 9 | 0 0 | 0 0 |
| 2 06 | 596.66 | 7.84 | 7786 5 | 0 0 | 57 9 | 112 0 | 0 0 | 60 0 | 972 0 | 11 9 | 1446 2 | 0 0 | 99 8 |
| 2 39 | 595.13 | 8 14 | 6000 2 | 895 4 | 1239 7 | 95 2 | 106 0 | 375 3 | 976 5 | 10 6 | 1129 9 | 276 2 | 1291 3 |
| 2 73 | 593 65 | 8 35 | 4076.2 | 725 6 | 3545 8 | 80 0 | 191 5 | 646 9 | 918 5 | 9 9 | 853 9 | 454 4 | 2190 1 |
| 2 99 | 592 89 | 8.53 | 4730.9 | 1537 1 | 2265 0 | 87 5 | 308 7 | 394 8 | 791 0 | 9 5 | 965 7 | 861 0 | 1370 6 |
| 3.26 | 592 13 | 8 69 | 5278 2 | 2219.6 | 1195 6 | 95 0 | 412 9 | 171 3 | 679 1 | 8 9 | 1062 6 | 1202 3 | 666 9 |

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TT = 17.5000 DTH = 1 0000 ITERR = 2
QU(1) = 1433 00 YU(1) = 598 46 QU(N) = 7541 59 YU(N) = 591 58 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 17.5000 DTH = 1 0000 ITERR = 2
QU(1) = 1433 00 YU(1) = 598 46 QU(N) = 7541 59 YU(N) = 591 58 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 46 | 1 43 | 979 5 | 415 1 | 38 3 | 75 0 | 397 6 | 188 2 | 906 7 | 8 9 | 883 9 | 1554 4 | 263 7 |
| 0 52 | 598 29 | 1 88 | 1228 6 | 447 8 | 203 3 | 68 0 | 229 4 | 100 0 | 940 2 | 10 1 | 852 3 | 1033 7 | 529 1 |
| 0.68 | 598 25 | 2 03 | 1323 4 | 698.7 | 3 7 | 104 0 | 921 6 | 16 2 | 1204 3 | 11 0 | 1093 6 | 3091 8 | 26 4 |
| 0 70 | 598 24 | 2 05 | 1330 6 | 709 7 | 6 7 | 88 0 | 922.9 | 24 3 | 1684 2 | 11 1 | 1049 5 | 3127 4 | 39 5 |
| 0 92 | 598 03 | 6 01 | 4017 5 | 1946 4 | 43 8 | 88 0 | 905 6 | 53 7 | 1047 3 | 11 3 | 1141 4 | 4105 2 | 107 5 |
| 1 39 | 597 16 | 6 48 | 2549 6 | 3561 1 | 373 1 | 81 0 | 469 0 | 104 3 | 654 2 | 11 6 | 1087 4 | 2781 8 | 325 9 |
| 1 50 | 597 07 | 6.51 | 3232 4 | 2571 4 | 707 6 | 89 4 | 312 6 | 114 5 | 553 9 | 11 9 | 1224 1 | 1826 0 | 466 2 |
| 1 61 | 596.96 | 6 54 | 4039 9 | 1370 4 | 1125 7 | 97 6 | 156 2 | 124 8 | 453 7 | 11 9 | 1368 1 | 895 2 | 601 7 |
| 1 72 | 596 84 | 6 56 | 5680 0 | 0 0 | 878 4 | 105 7 | 0 0 | 135 5 | 354 1 | 11 9 | 1521 0 | 0 0 | 734 3 |
| 1 88 | 596 52 | 6 64 | 6194 3 | 0 0 | 449 6 | 107 6 | 0 0 | 96 2 | 603 9 | 11 6 | 1457 6 | 0 0 | 384 5 |
| 2 04 | 596.05 | 6 77 | 6733 4 | 0 0 | 36 2 | 110 1 | 0 0 | 60 0 | 970 1 | 11 3 | 1377 5 | 0 0 | 62 7 |
| 2 05 | 596 09 | 6 78 | 6780 6 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1051 1 | 11 3 | 1538 0 | 0 0 | 0 0 |
| 2 06 | 595 98 | 6 79 | 6769 4 | 0 0 | 22 0 | 109 9 | 0 0 | 59 3 | 961 4 | 11 2 | 1370 1 | 0 0 | 58 7 |
| 2 39 | 594 62 | 7 05 | 5498.1 | 590 0 | 964 1 | 94 0 | 95 0 | 345 9 | 868 1 | 10 1 | 1081 4 | 224 3 | 1104 9 |
| 2 73 | 593 10 | 7 25 | 3776 1 | 548 7 | 2924 5 | 80 0 | 162 9 | 580 2 | 823 1 | 9 4 | 810 3 | 357 8 | 1855 6 |
| 2.99 | 592 34 | 7 41 | 4354 2 | 1209.4 | 1841 6 | 87 5 | 266 5 | 358 1 | 712 2 | 9 0 | 917 3 | 702 0 | 1162 5 |
| 3 26 | 591 58 | 7 54 | 4832 1 | 1760 7 | 948 7 | 95 0 | 358 1 | 165 8 | 618 9 | 8 4 | 1010 6 | 991 1 | 574 6 |

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TT = 18 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1578 50 YU(1) = 597 92 QU(N) = 6623.39 YU(N) = 591 08 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 18 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1578 50 YU(1) = 597 92 QU(N) = 6623 39 YU(N) = 591 08 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 92 | 1 58 | 1132.9 | 417 9 | 27 7 | 75 0 | 382 8 | 149 2 | 799 1 | 8 4 | 843 5 | 1344 4 | 172 9 |
| 0 52 | 597 69 | 1 89 | 1288 1 | 414 5 | 189 3 | 68 0 | 220 4 | 100 0 | 899 7 | 9 5 | 811 5 | 898 8 | 469 2 |
| 0 68 | 597 63 | 2 00 | 1372 0 | 624 1 | 2 4 | 104 0 | 830 6 | 13 2 | 1079 5 | 10 4 | 1029 7 | 2553 6 | 17 4 |
| 0.70 | 597 63 | 2 01 | 1380 9 | 627 8 | 4.2 | 88 0 | 833 2 | 19 7 | 1466 8 | 10 5 | 995 4 | 2587 0 | 25 9 |
| 0 92 | 597 39 | 5 44 | 3834 8 | 1578 5 | 28 6 | 87 2 | 849 7 | 44 9 | 981 8 | 10 7 | 1085 5 | 3546 5 | 76 1 |
| 1 39 | 596 48 | 5 81 | 2460 3 | 3060 8 | 292 2 | 81 0 | 468 1 | 91 4 | 640 5 | 10 9 | 1031 9 | 2461 1 | 258 9 |
| 1 50 | 596 38 | 5 84 | 3085 6 | 2164 6 | 587 5 | 88 9 | 312 0 | 103 0 | 541 9 | 11 2 | 1162.5 | 1610 3 | 391 1 |
| 1.61 | 596 26 | 5 86 | 3791 9 | 1123.1 | 943 6 | 96 7 | 155 9 | 114 7 | 443 5 | 11 2 | 1300 8 | 787 1 | 518 8 |
| 1 72 | 596 15 | 5 88 | 5166 6 | 0.0 | 710 4 | 104.3 | 0.0 | 126 9 | 345 8 | 11.2 | 1448 5 | 0 0 | 643 7 |
| 1.88 | 595.85 | 5 94 | 5587.9 | 0 0 | 351 6 | 105 6 | 0 0 | 83 9 | 512 3 | 11.0 | 1385 9 | 0 0 | 323 9 |
| 2 04 | 595 40 | 6 04 | 6023 9 | 0 0 | 12 2 | 107 0 | 0 0 | 42 1 | 740 4 | 10 6 | 1307 8 | 0 0 | 29 6 |
| 2 05 | 595 44 | 6.05 | 6045 2 | 0.0 | 0.0 | 115 7 | 0 0 | 0 0 | 1018 8 | 10 7 | 1463 4 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 06 | 595.34 | 6 05 | 6046 9 | 0 0 | 7 3 | 106 7 | 0 0 | 40 2 | 716 4 | 10 6 | 1301 1 | 0 0 | 27 0 |
| 2 39 | 594 14 | 6 25 | 5066 3 | 406 3 | 772 7 | 92 9 | 82 5 | 309 6 | 734 7 | 9 7 | 1036 9 | 182 1 | 948 8 |
| 2 73 | 592 61 | 6 39 | 3517 4 | 424 1 | 2449.3 | 80 0 | 137 2 | 520 1 | 737 2 | 8 9 | 771 0 | 284 2 | 1585 7 |
| 2.99 | 591 84 | 6 51 | 4027 8 | 973 5 | 1512 7 | 87.5 | 228 4 | 325 0 | 640 8 | 8 5 | 873 5 | 578 1 | 991 4 |
| 3 26 | 591.08 | 6 62 | 4446 1 | 1428 9 | 748 3 | 95 0 | 308 3 | 160 8 | 564 2 | 7 9 | 963 3 | 825 3 | 493 3 |

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TT = 19.5000 DTH = 1.0000 ITERR = 2
QU(1) = 1729 00 YU(1) = 597 53 QU(N) = 5926 96 YU(N) = 590 66 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 19.5000 DTH = 1 0000 ITERR = 2
QU(1) = 1729 00 YU(1) = 597 53 QU(N) = 5926 96 YU(N) = 590 66 FRDM=0 08 IFR= '1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 53 | 1 73 | 1285 8 | 422 3 | 20 9 | 75 0 | 372 0 | 120 8 | 720 6 | 8 0 | 814 1 | 1196 4 | 119 9 |
| 0 52 | 597 22 | 1 95 | 1377 3 | 396 1 | 181 4 | 68 0 | 213 3 | 100 0 | 867 8 | 9 0 | 779 4 | 796 5 | 422 0 |
| 0.68 | 597.14 | 2 04 | 1454 3 | 580 4 | 1 6 | 104 0 | 757 5 | 10 7 | 979 3 | 9 9 | 978 5 | 2162 4 | 11 5 |
| 0 70 | 597 14 | 2 05 | 1465 5 | 578 9 | 2 7 | 88 0 | 761 2 | 16 0 | 1292 3 | 10 0 | 951 9 | 2193 1 | 17 1 |
| 0 92 | 596 87 | 5 08 | 3733 2 | 1324 4 | 19 0 | 86 6 | 806 5 | 38 0 | 931 0 | 10 2 | 1039 9 | 3112 8 | 54 4 |
| 1 39 | 595 88 | 5 38 | 2445 3 | 2697 6 | 237 5 | 81 0 | 467 3 | 80 2 | 628 5 | 10 3 | 983 4 | 2180 6 | 207 4 |
| 1.50 | 595.77 | 5 40 | 3032 2 | 1863 6 | 506 6 | 88 5 | 311 5 | 92 8 | 531 3 | 10 6 | 1108 3 | 1419 7 | 331 3 |
| 1 61 | 595 64 | 5 42 | 3664 3 | 939.4 | 818 7 | 95 9 | 155 7 | 105 6 | 434 4 | 10 6 | 1241 2 | 690 6 | 450 5 |
| 1 72 | 595 53 | 5 44 | 4846 6 | 0 0 | 594 4 | 103 1 | 0 0 | 119 1 | 338 3 | 10 6 | 1383 9 | 0 0 | 567 1 |
| 1 88 | 595 23 | 5 50 | 5208 3 | 0 0 | 289 2 | 103 7 | 0 0 | 72 5 | 427 1 | 10 3 | 1320 6 | 0 0 | 275 1 |
| 2 04 | 594.76 | 5 57 | 5565 2 | 0 0 | 2 3 | 103 8 | 0 0 | 22 7 | 491 0 | 10 0 | 1239 5 | 0 0 | 8 6 |
| 2 05 | 594 79 | 5 58 | 5575 5 | 0 0 | 0 0 | 116 8 | 0 0 | 0 0 | 995 8 | 10 0 | 1387 7 | 0 0 | 0 0 |
| 2 06 | 594 69 | 5 58 | 5582 3 | 0 0 | 1 2 | 103 5 | 0 0 | 20 8 | 467 0 | 9 9 | 1233 0 | 0 0 | 7 2 |
| 2.39 | 593 76 | 5 71 | 4761 1 | 302 5 | 649 8 | 91 9 | 72 4 | 280 4 | 627 6 | 9 3 | 1001 6 | 152 4 | 835 9 |
| 2.73 | 592 21 | 5 82 | 3339 4 | 347 1 | 2130 6 | 80 0 | 115 8 | 470 2 | 666 0 | 8 5 | 738 4 | 232 7 | 1384 1 |
| 2 99 | 591 41 | 5 88 | 3787 1 | 812 5 | 1276 0 | 87 3 | 198 7 | 297 5 | 584 0 | 8 1 | 836 3 | 487 7 | 859 1 |
| 3 26 | 590 66 | 5 93 | 4149.3 | 1162 1 | 615 6 | 94 4 | 278 6 | 149 7 | 527 0 | 7 5 | 923 0 | 700 9 | 427 0 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16 17
TT= 19 500 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 19 500 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 3 4 5 6 7 8 9 10 11 12
NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 13 14 15 16 17
TT= 19 500 DTH= 0 125 ITERR= 9

NONCONVERGENCE OCCURRED AT CRDSS-SECTION ND 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16 17
TT= 19 500 DTH= 0 063 ITERR= 9

NONCDNVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 19 500 DTH= 0 250 ITERR= 9

NONCDNVERGENCE OCCURRED AT CROSS-SECTIDN NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 19 500 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 12 13 14 15 16 17

TT= 19 500 DTH= 0 250 ITERR= 9

**********

TT = 20 0000 DTH = 0 5000 ITERR = 2
QU(1) = 1817.00 YU(1) = 597 68 QU(N) = 5832 64 YU(N) = 590 59 FROM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 20 0000 DTH = 0 5000 ITERR = 2
QU(1) = 1817.00 YU(1) = 597 68 QU(N) = 5832 64 YU(N) = 590 59 FROM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 68 | 1 82 | 1333 4 | 458 2 | 25 4 | 75 0 | 376 1 | 131 5 | 750 0 | 8 1 | 825 1 | 1251 4 | 138 5 |
| 0.52 | 597.45 | 1 59 | 1102 1 | 335 4 | 153 4 | 68 0 | 216 8 | 100 0 | 883 4 | 9 3 | 795.1 | 846 0 | 445 0 |
| 0 68 | 597 41 | 1 50 | 1045 8 | 449 3 | 1 5 | 104 0 | 797 9 | 12 1 | 1034 7 | 10 2 | 1006 8 | 2374 4 | 14 6 |
| 0 70 | 597 41 | 1 48 | 1037 0 | 443 8 | 2.5 | 88 0 | 801 5 | 18 1 | 1390 0 | 10 3 | 976 2 | 2409 2 | 21 8 |
| 0 92 | 597 11 | 6.00 | 4328 3 | 1640 4 | 26 7 | 86 9 | 826 9 | 41 3 | 955 0 | 10 4 | 1061 4 | 3314 6 | 61 2 |
| 1.39 | 595 97 | 5.78 | 2596 8 | 2920 9 | 260 2 | 81.0 | 467 5 | 81 9 | 630 3 | 10 4 | 990 7 | 2222 8 | 214 7 |
| 1.50 | 595 85 | 5 77 | 3213.5 | 2011 7 | 546 2 | 88 6 | 311 5 | 94 1 | 532 7 | 10 7 | 1115 3 | 1444 3 | 338 6 |
| 1 61 | 595 71 | 5 77 | 3878 8 | 1011.0 | 876 8 | 95 9 | 155 7 | 106 6 | 435 4 | 10 7 | 1247 5 | 700 8 | 457 5 |
| 1 72 | 595 58 | 5.76 | 5127 9 | 0 0 | 635 2 | 103 2 | 0 0 | 119 7 | 338 9 | 10 6 | 1389 4 | 0 0 | 573 4 |
| 1 88 | 595 25 | 5 76 | 5451 8 | 0 0 | 304 2 | 103 8 | 0 0 | 73 0 | 431 0 | 10 4 | 1323 5 | 0 0 | 277 1 |
| 2.04 | 594 76 | 5 75 | 5750.9 | 0 0 | 2 3 | 103 8 | 0 0 | 22 7 | 490 9 | 10 0 | 1239 5 | 0 0 | 8 6 |
| 2.05 | 594.79 | 5 75 | 5753 2 | 0.0 | 0.0 | 116 7 | 0 0 | 0 0 | 996 0 | 10 0 | 1388.1 | 0 0 | 0 0 |
| 2 06 | 594.69 | 5 75 | 5751 9 | 0 0 | 1 2 | 103 5 | 0.0 | 20 8 | 466 5 | 9 9 | 1232 9 | 0 0 | 7 2 |
| 2 39 | 593.74 | 5 76 | 4808 1 | 300 6 | 651 6 | 91 8 | 71 8 | 278 7 | 621 2 | 9 2 | 999 5 | 150 8 | 829 6 |
| 2.73 | 592 16 | 5 78 | 3335.1 | 340 8 | 2105.4 | 80 0 | 113 2 | 464 0 | 657 2 | 8 4 | 734 4 | 226 9 | 1360 6 |
| 2.99 | 591 35 | 5 81 | 3768.2 | 790.7 | 1248 1 | 87 2 | 196 0 | 294 0 | 578 2 | 8 0 | 831 1 | 476 0 | 841 5 |
| 3 26 | 590 59 | 5.83 | 4108 8 | 1125 3 | 598 5 | 94 3 | 274 7 | 147 8 | 521 9 | 7 4 | 917 1 | 683 6 | 417 6 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 20 000 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 20 000 DTH= 0 250 ITERR= 9

**********

TT = 20 2500 DTH = 0 2500 ITERR = 2
QU(1) = 1844 00 YU(1) = 597 70 QU(N) = 5806 99 YU(N) = 590 57 FROM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 20.2500 DTH = 0 2500 ITERR = 2
QU(1) = 1844 00 YU(1) = 597 70 QU(N) = 5806 99 YU(N) = 590 57 FROM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597.70 | 1 84 | 1350 7 | 467 0 | 26 3 | 75 0 | 376 6 | 132.9 | 754 1 | 8 1 | 826 7 | 1259 1 | 141 2 |
| 0 52 | 597.30 | 2 28 | 1597 8 | 468 7 | 214.6 | 68 0 | 214 5 | 100 0 | 873 2 | 9 1 | 784 8 | 813 4 | 429 9 |
| 0 68 | 597 16 | 2 60 | 1853.8 | 744 5 | 2 1 | 104 0 | 760 8 | 10 8 | 983 8 | 9 9 | 980 8 | 2179 3 | 11 7 |
| 0 70 | 597 15 | 2 65 | 1895 0 | 752 0 | 3 5 | 88 0 | 763 4 | 16 1 | 1297 7 | 10 0 | 953 2 | 2204 8 | 17 3 |
| 0 92 | 596.88 | 4 85 | 3557 6 | 1269 2 | 18 4 | 86 6 | 807 9 | 38 2 | 932.8 | 10 2 | 1041 5 | 3127 0 | 55 1 |
| 1 39 | 595.91 | 5.62 | 2544 5 | 2826 6 | 249.9 | 81 0 | 467 4 | 80 8 | 629 2 | 10 4 | 986 0 | 2195 6 | 210 0 |
| 1 50 | 595.79 | 5.64 | 3157 6 | 1951 8 | 530 4 | 88 5 | 311 5 | 93 2 | 531 7 | 10 6 | 1110 4 | 1427 3 | 333 5 |
| 1.61 | 595.66 | 5 65 | 3817 4 | 982 3 | 855 1 | 95 9 | 155.7 | 105 8 | 434 7 | 10 6 | 1242 6 | 692 9 | 452 1 |
| 1.72 | 595.53 | 5 67 | 5047 4 | 0 0 | 619 7 | 103 1 | 0 0 | 119 1 | 338 4 | 10 6 | 1384 5 | 0 0 | 567 8 |
| 1.88 | 595.21 | 5 70 | 5398 9 | 0 0 | 298.9 | 103 6 | 0 0 | 72 2 | 425 4 | 10 3 | 1319 3 | 0.0 | 274 2 |
| 2 04 | 594 71 | 5.73 | 5729.3 | 0.0 | 2 0 | 103 5 | 0.0 | 21 2 | 472 3 | 9 9 | 1234 5 | 0 0 | 7 5 |
| 2 05 | 594 74 | 5 74 | 5735 2 | 0 0 | 0 0 | 116 8 | 0 0 | 0 0 | 994 3 | 10 0 | 1382 4 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 06 | 594 64 | 5 74 | 5738 0 | 0 0 | 1 0 | 103 2 | 0 0 | 19 3 | 447 3 | 9 9 | 1227 8 | 0 0 | 6 2 |
| 2.39 | 593.73 | 5 78 | 4822 3 | 300 4 | 652 5 | 91 8 | 71 7 | 278 3 | 620 0 | 9 2 | 999 1 | 150.5 | 828 3 |
| 2 73 | 592 14 | 5 78 | 3339 8 | 339 4 | 2101 4 | 80 0 | 112 3 | 462 1 | 654 4 | 8 4 | 733 2 | 225 2 | 1353 3 |
| 2 99 | 591 33 | 5 79 | 3767.5 | 784.3 | 1240 2 | 87.2 | 195 1 | 292 8 | 576 1 | 8 0 | 829 2 | 471 8 | 835 3 |
| 3.26 | 590 57 | 5 81 | 4100 9 | 1113 1 | 592 9 | 94.2 | 273 1 | 147 1 | 519.8 | 7 4 | 914 7 | 676 7 | 414 0 |

```
XX  XX   X    X      X     X        X   X             X    X   X    X   X    X      X
X    X   X    X      X     XXXXXX   X    X            X    X    XXXX    X    X      X

XXXXX
```

```
                    I/O        TIME. 00·00 10 119  CHARGECODE. 551/13
                    READYQ     TIME  00 00 02 902  ACCESSCODE  MENEREY.
                    INITPBIT   TIME  00 00·01 166  LINES PRINTED. 1800
                    OTHERPBIT  TIME· 00 00 00.317  DATA AND CODE IN SUBSPACE USED 36630 WORDS (37 SLOTS)
                    ELAPSED    TIME· 00 00·56 045  AVERAGE MEMORY USAGE· CODE=12947, DATA=19469
                                                   MEMORY INTEGRAL  CODE=654 768, DATA=984 606
                                                   DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                                                   INITIAL PBITS· 219, OTHER PBITS  35

07 47:35    BOT   3904  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                    TASK TYPE  DEPENDENT TASK(PROCESS)
                    PRIORITY  80
                    USERCODE  HYDRO
                    CHARGECODE  551/13
                    ACCESSCODE  MENEREY
07 54 57    EOT   3904  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                    PROCESSOR TIME  00 00 10.088  CHARGECODE  551/13.
                    I/O        TIME  00 00 04 410  DATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                    READYQ     TIME. 00 00 02 675  AVERAGE MEMORY USAGE  CDDE=29120, DATA=3959
                    INITPBIT   TIME· 00 00 00.310  MEMORY INTEGRAL  CODE=422 185, DATA=57 403
                    OTHERPBIT  TIME  00 00 00 080  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                    ELAPSED    TIME  00 07 22.140  INITIAL PBITS  132, OTHER PBITS  5

07.56 21    BOT   4003  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                    TASK TYPE  DEPENDENT TASK(PROCESS)
                    PRIORITY: 80
                    USERCODE  HYDRO
                    CHARGECODE  551/13
                    ACCESSCODE. MENEREY
08:01 14    EOT   4003  (HYDRO)"BACKUP PROCESSOR" ON CANDE
                    PROCESSOR TIME. 00.00 02 936  CHARGECODE  551/13
                    I/O        TIME  00 00 01 921  OATA IN SUBSPACE USED 5940 WORDS (6 SLOTS)
                    READYQ     TIME  00 00 01 996  AVERAGE MEMDRY USAGE  CODE=29126, DATA=3504
                    INITPBIT   TIME  00 00 00 354  MEMORY INTEGRAL  CODE=141 515, DATA=17 023
                    OTHERPBIT  TIME  00 00 00 029  DATA & CODE ALLOWED IN & OCCUPIED  GLOBAL
                    ELAPSED    TIME  00 04·56 841  INITIAL PBITS  131, OTHER PBITS  5

08 01 18   LGOFF 3854  USERCDDE· HYDRO
                    ROUTING  MENEREY/DNR/"WATER MGMT"
                    ACCESSCODE  MENEREY
                    SIGN OFF BY NORMAL LOG-OFF
                    PROCESSOR TIME. 00·00 07 461
                    I/O        TIME  00 00.30 277
                    ELAPSED    TIME  00 20 11 138
```

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF UNSTEADY FLOW

DOWNSTREAM OF

RED RUN DRAIN AT C

ON

LINTON RIVER 1981

ANALYSIS BY

FLOOD BRUCE MENEREY
MICHIGAN DNR, WATER MGMNT DIV
P O BOX 30028, LANSING MI 48909

BASED ON PROCEDURE DEVELOPED BY

DANNY L FREAD, PH D , RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

```
*****************************
*****************************
***                       ***
***  SUMMARY OF INPUT DATA  ***
***                       ***
*****************************
*****************************
```

INPUT CONTROL PARAMETERS FOR RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF DYNAMIC ROUTING REACHES | KKN | 9 |
| TYPE OF RESERVOIR RDUTING | KUI | O |
| MULTIPLE DAM INDICATOR | MULDAM | O |
| PRINTING INSTRUCTIONS FOR INPUT SUMMARY | KDMP | 3 |
| NO OF RESERVOIR INFLOW HYDROGRAPH POINTS | ITEH | 25 |
| INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9 | NPRT | O |
| FLOOD-PLAIN MDDEL PARAMETER | KFLP | 1 |
| LANDSLIDE PARAMETER | KSL | O |
| CONTOUR PLOTTING PARAMETER | ICONT | O |

DHF(INTERVAL BETWEEN INPUT HYDRDGRAPH ORDINATES) = 1 00 HRS

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 24 0000 HRS

INFLOW HYDROGRAPH TO REO RUN DRAIN AT C

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 333 00 | 365 00 | 396.00 | 427 00 | 459 00 | 490 00 | 521 00 |
| 552 00 | 609 00 | 663 00 | 717 00 | 771 00 | 881 00 | 992 00 | 1102 00 |
| 1214 00 | 1350 00 | 1516 00 | 1641 00 | 1817 00 | 1925 00 | 2208 00 | 2402 00 |
| 2597 00 | | | | | | | |

TIME OF INFLOW HYDROGRAPH ORDINATES

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 0.0000 | 1.0000 | 2 0000 | 3 0000 | 4.0000 | 5 0000 | 6 0000 | 7 0000 |
| 8 0000 | 9 0000 | 10 0000 | 11 0000 | 12 0000 | 13 0000 | 14 0000 | 15 0000 |
| 16 0000 | 17 0000 | 18 0000 | 19 0000 | 20 0000 | 21 0000 | 22 0000 | 23 0000 |
| 24 0000 | | | | | | | |

CROSS-SECTIONAL PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | VARIABLE | VALUE |
|---|---|---|
| NUMBER OF CROSS-SECTIONS | NS | 12 |
| MAXIMUM NUMBER OF TOP WIDTHS | NCS | 8 |
| NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT | NTT | 0 |
| TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS | JNK | 9 |
| CROSS-SECTIONAL SMOOTHING PARAMETER | KSA | 0 |
| DOWNSTREAM SUPERCRITICAL OR NOT | KSUPC | 0 |
| NO. OF LATERAL INFLOW HYDROGRAPHS | LQ | 1 |
| NO. OF POINTS IN GATE CONTROL CURVE | KCG | 0 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| LOCATION OF CROSS-SECTION | MI | X1(I) |
| ELEVATION (MSL) OF FLOODING AT CROSS-SECTION | FT | FSTG(I) |
| ELEV CORRESPONDING TO EACH TOP WIDTH | FT | XE(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | FT | XC(K,I) |
| TOP WIDTH CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | FT | XS(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (ACTIVE FLOW PORTION) | ACRES | DSA(K,I) |
| SURFACE AREA CORRESPONDING TO EACH ELEV (OFF-CHANNEL PORTION) | ACRES | SSA(K,I) |
| NUMBER OF CROSS-SECTION | | I |
| NUMBER OF ELEVATION LEVEL | | K |

CROSS-SECTION NUMBER 1
**********

X1(I) = 0 000 FSTG(I) = 599 00 X1L(I) = 0 000 X1R(I) = 0 000

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 585 0 | 588 0 | 592.0 | 596 0 | 600 0 | 602 0 | 604 0 | 605 0 |
| XC | 10.0 | 67 0 | 75 0 | 75.0 | 75 0 | 75 0 | 75 0 | 75 0 |
| XCL . | 0 0 | 0 0 | 0 0 | 330 0 | 440.0 | 550 0 | 550 0 | 550 0 |
| XCR | 0 0 | 0 0 | 0 0 | 10 0 | 300 0 | 800 0 | 800 0 | 800 0 |
| XS .. | 0 0 | 0 0 | 0.0 | 0 0 | 400 0 | 500 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 2
**********

X1(I) = 0.523 FSTG(I) = 599 00 X1L(I) = 0 464 X1R(I) = 0 360

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 584 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 24.0 | 55 0 | 66 0 | 68 0 | 68 0 | 68 0 | 68 0 | 68 0 |
| XCL | 0 0 | 0.0 | 0 0 | 180 0 | 240 0 | 240 0 | 300 0 | 300 0 |
| XCR .. | 0 0 | 0 0 | 0.0 | 100 0 | 100 0 | 250.0 | 500 0 | 500 0 |
| XS . | 0 0 | 0 0 | 0 0 | 370 0 | 580 0 | 680 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 3
**********

X1(I) = 0 682 FSTG(I) = 598 00 X1L(I) = 0 565 X1R(I) = 0 519

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 583 5 | 587.0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC | 8 0 | 57 0 | 80 0 | 104 0 | 104 0 | 104 0 | 104 0 | 104 0 |
| XCL | 0 0 | 0 0 | 0 0 | 440 0 | 1033 0 | 1230 0 | 1500 0 | 1500 0 |
| XCR | 0 0 | 0.0 | 0 0 | 0 0 | 20 0 | 190 0 | 300 0 | 300 0 |
| XS | 0 0 | 0.0 | 0 0 | 0 0 | 200 0 | 450 0 | 500 0 | 500 0 |

CROSS-SECTION NUMBER 4
**********

X1(I) = 0 696 FSTG(I) = 597 00 X1L(I) = 0 579 X1R(I) = 0 533

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 583 0 | 587 0 | 591 0 | 595 0 | 599 0 | 601 0 | 603 0 | 605 0 |
| XC . | 20 0 | 59 0 | 78 0 | 88 0 | 88 0 | 88 0 | 88 0 | 88 0 |
| XCL . | 0 0 | 0.0 | 0 0 | 450.0 | 1033 0 | 1180.0 | 1310 0 | 1310 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 0 0 | 30 0 | 200 0 | 230 0 | 230 0 |
| XS . | 0 0 | 0 0 | 0 0 | 0 0 | 800 0 | 1600 0 | 1600 0 | 1600 0 |

CROSS-SECTION NUMBER 5
**********

X1(I) = 0 919 FSTG(I) = 599.00 X1L(I) = 0 787 X1R(I) = 0 741

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE .. | 582 2 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC . . | 45 0 | 66 0 | 72 0 | 83 0 | 88 0 | 88.0 | 88 0 | 88 0 |
| XCL .. | 0 0 | 0 0 | 0 0 | 570.0 | 900 0 | 1300 0 | 1500 0 | 1700 0 |
| XCR ... | 0 0 | 0 0 | 0 0 | 0 0 | 53.0 | 101 0 | 281 0 | 300 0 |
| XS . . | 0 0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 6
**********

X1(I) = 1 389 FSTG(I) = 600 00 X1L(I) = 1 461 X1R(I) = 1 468

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 581 8 | 586 0 | 590 0 | 594 0 | 598 0 | 600 0 | 602 0 | 604 0 |
| XC . . | 20 0 | 74 0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 | 81 0 |
| XCL . | 0 0 | 0 0 | 94 0 | 465 0 | 470 0 | 494.0 | 560 0 | 600 0 |
| XCR . | 0 0 | 0 0 | 0 0 | 45 0 | 120 0 | 360 0 | 400 0 | 400 0 |
| XS | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 7
**********

X1(I) = 1.722 FSTG(I) = 600.00 X1L(I) = 1 555 X1R(I) = 1 518

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE .. | 578 5 | 586 0 | 590 0 | 594 0 | 598 0 | 600.0 | 602 0 | 604 0 |
| XC . | 38 0 | 86 0 | 98 0 | 100 0 | 108 0 | 144 0 | 200 0 | 200 0 |
| XCL . | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 325.0 | 325 0 |
| XCR .. | 0 0 | 0 0 | 50 0 | 100 0 | 150 0 | 200 0 | 500 0 | 600 0 |
| XS .. | 0 0 | 0.0 | 60 0 | 120 0 | 110 0 | 130.0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 8
**********

X1(I) = 2 040 FSTG(I) = 0 00 X1L(I) = 2 863 X1R(I) = 1.826

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586 0 | 590 0 | 594 0 | 596.0 | 598 0 | 600 0 | 602 0 |
| XC . | 25 0 | 85 0 | 95 0 | 100 0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL .. | 0.0 | 0 0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS . | 0 0 | 0 0 | 0.0 | 100 0 | 800 0 | 800 0 | 900.0 | 400 0 |

CROSS-SECTION NUMBER 9
**********

X1(I) = 2 051 FSTG(I) = 600 00 X1L(I) = 1 874 X1R(I) = 1 837

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 4 | 586.0 | 590 0 | 594 0 | 595 9 | 598 0 | 600 0 | 602 0 |
| XC | 43 0 | 82 0 | 105 0 | 118 0 | 115 0 | 115 0 | 115 0 | 115 0 |
| XCL | 0 0 | 0 0 | 0.0 | 0 0 | 0.0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0.0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 | 1000.0 | 1000 0 |
| XS . | 0 0 | 0 0 | 100.0 | 850 0 | 920 0 | 1100 0 | 400 0 | 0 0 |

CROSS-SECTION NUMBER 10
**********

X1(I) = 2 062 FSTG(I) = 0 00 X1L(I) = 1 885 X1R(I) = 1 848

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE | 578 5 | 586.0 | 590 0 | 594 0 | 596 0 | 598 0 | 600.0 | 602 0 |
| XC . | 25 0 | 85 0 | 95 0 | 100.0 | 110 0 | 116 0 | 121 0 | 121 0 |
| XCL .. | 0.0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 | 1000 0 |
| XCR | 0 0 | 0 0 | 0 0 | 0 0 | 60 0 | 60 0 | 1000 0 | 1000 0 |
| XS | 0 0 | 0 0 | 0 0 | 100 0 | 800 0 | 800 0 | 900 0 | 400 0 |

CROSS-SECTION NUMBER 11
**********

X1(I) = 2.727 FSTG(I) = 599.00 X1L(I) = 2 283 X1R(I) = 2 359

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XE . | 578 0 | 584.0 | 588 0 | 592 0 | 594 0 | 596 0 | 598.0 | 600 0 |
| XC | 8 0 | 50 0 | 72 0 | 80.0 | 80.0 | 80 0 | 80 0 | 80 0 |
| XCL .. | 0.0 | 0 0 | 0 0 | 105.0 | 210 0 | 240 0 | 400 0 | 600 0 |
| XCR | 0 0 | 0.0 | 100 0 | 445 0 | 690 0 | 700 0 | 760 0 | 820 0 |
| XS | 0 0 | 0 0 | 0.0 | 0 0 | 0.0 | 0 0 | 0 0 | 0 0 |

CROSS-SECTION NUMBER 12
**********

X1(I) = 3 261 FSTG(I) = 588 00 X1L(I) = 2 775 X1R(I) = 2 851

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| XE | . | 577.8 | 583 0 | 587 0 | 591 0 | 593 0 | 595 0 | 597 0 | 599 0 |
| XC | . | 44 0 | 65 0 | 88 0 | 95 0 | 95 0 | 95 0 | 95 0 | 95 0 |
| XCL | | 0 0 | 0 0 | 50.0 | 300 0 | 500 0 | 700 0 | 750 0 | 990 0 |
| XCR | | 0 0 | 0 0 | 40 0 | 160 0 | 180 0 | 190.0 | 190 0 | 190 0 |
| XS | | 0 0 | 0 0 | 50 0 | 0 0 | 0 0 | 0 0 | 0 0 | 0 0 |

HS(1, 8) IS GREATER THAN HS(1, 7)
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

HS(1,10) IS GREATER THAN HS(1, 9).
THIS ADVERSE SLOPE MAY CAUSE PROBLEMS LATER IN THE ROUTING COMPUTATIONS,PARTICULARLY IF THE BASE FLOW IS SMALL

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(MC(K,I),K=1,NCS) WHERE I = REACH NUMBER
**********

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 1 . | 0 050 | 0 050 | 0 045 | 0 045 | 0 045 | 0.045 | 0 045 | 0 045 |
| REACH 1 . | 0.095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 |
| REACH 1 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 2 . | 0 050 | 0 050 | 0 045 | 0 045 | 0 045 | 0.045 | 0 045 | 0 045 |
| REACH 2 | 0 095 | 0.095 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 |
| REACH 2 .. | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0 095 | 0.095 | 0 095 |
| REACH 3 | 0.050 | 0.050 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 3 .. | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 3 ... | 0 100 | 0 100 | 0 100 | 0.100 | 0 100 | 0 100 | 0 100 | 0 100 |
| REACH 4 | 0.050 | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 035 |
| REACH 4 . | 0 100 | 0 100 | 0 100 | 0 100 | 0 100 | 0 090 | 0 070 | 0 050 |
| REACH 4 . | 0 100 | 0 100 | 0 100 | 0.100 | 0 080 | 0 060 | 0 050 | 0 040 |
| REACH 5 .. | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 5 ... | 0 150 | 0 150 | 0.150 | 0.150 | 0.120 | 0 100 | 0 100 | 0 080 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| REACH 5 | . | 0 080 | 0.080 | 0.080 | 0 080 | 0 080 | 0 080 | 0.060 | 0 060 |
| REACH 6 | | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 6 | | 0 080 | 0 080 | 0 080 | 0 080 | 0.080 | 0 080 | 0 060 | 0 060 |
| REACH 6 | .. | 0.080 | 0.080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 080 | 0 060 |
| REACH 7 | . | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 7 | ... | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 7 | .. | 0.080 | 0.080 | 0 070 | 0 070 | 0.065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | . . | 0 045 | 0 045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 8 | . | 0 080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 8 | . | 0.080 | 0 080 | 0 070 | 0 070 | 0 065 | 0 060 | 0 060 | 0 060 |
| REACH 9 | | 0.045 | 0 045 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 9 | | 0 090 | 0.090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 9 | . | 0 090 | 0 090 | 0 090 | 0 090 | 0 080 | 0 070 | 0 070 | 0 070 |
| REACH 10 | . | 0 045 | 0 042 | 0 040 | 0.040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 10 | | 0 100 | 0 080 | 0 050 | 0 045 | 0 030 | 0 030 | 0 030 | 0 030 |
| REACH 10 | | 0.150 | 0 150 | 0 150 | 0 120 | 0 110 | 0 100 | 0 100 | 0 100 |
| REACH 11 | .. | 0 035 | 0.035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 035 | 0 030 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| REACH 11 . | 0 040 | 0 040 | 0.040 | 0 040 | 0 040 | 0 040 | 0 040 | 0 040 |
| REACH 11 . . | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 | 0 050 |

CROSS-SECTIONAL VARIABLES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE |
|---|---|---|
| MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS | MI | DX(I) |
| CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS | | EC(I) |

| REACH NUMBER | DX(I) | EC(I) |
|---|---|---|
| 1 | 0 600 | 0 000 |
| 2 | 0 500 | 0 000 |
| 3 | 0 500 | 0 000 |
| 4 | 0 500 | 0 000 |
| 5 | 0 250 | 0 000 |
| 6 | 0 100 | 0 000 |
| 7 | 0 150 | 0 000 |
| 8 | 0 500 | 0 000 |
| 9 | 0.500 | 0 000 |
| 10 | 0 250 | 0 000 |
| 11 | 0 250 | 0 000 |

DOWNSTREAM FLOW PARAMETERS FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| MAX DISCHARGE AT DOWNSTREAM EXTREMITY | CFS | QMAXD | 0.0 |
| MAX LATERAL OUTFLOW PRODUCING LOSSES | CFS/FT | QLL | 0 000 |
| INITIAL SIZE OF TIME STEP | HR | DTHM | 1 0000 |
| INITIAL WATER SURFACE ELEVATION DOWNSTREAM | FT | YDN | 0 00 |
| SLOPE OF CHANNEL DOWNSTREAM OF DAM | FT/MI | SDM | 2 00 |
| THETA WEIGHTING FACTOR | | THETA | 0 60 |
| CONVERGENCE CRITERION FOR STAGE | FT | EPSY | 0 000 |
| TIME AT WHICH DAM STARTS TO FAIL | HR | TFI | 0 00 |
| INDICATOR FOR CONSTANT TIME STEP | | KTIMST | 0 |

LATERAL INFLOW REACH NUMBER

LQX(I)

4

(QL(L, 1),L=1,ITEH)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 20 | 20. | 23. | 34 | 100. | 582 | 2349 | 5964 |
| 9821 | 13042 | 15512 | 16020 | 14686 | 12588 | 10322 | 7823 |
| 5970 | 4934. | 4227 | 3707 | 3310 | 2969 | 2659 | 2372 |
| 2080. | | | | | | | |

# SUMMARY OF OUTPUT DATA

SLOPE PROFILE

MILES

0 0 0.3 0 7 1 0 1 3 1 6 2 0 2 3 2 6 2 9 3 3

ELEV FEET MILE

ELEVATION FEET

585 00 585 0 0.0

584 00 584 0 0 5

583 50 583 5 0 7

583 00 583 0 0 7

582 20 582 2 0 9

581 80 581 8 1 4

578 50 578 5 1 7

578 00 578 0 2 7

```
577.80I          I         I         I         I         I         I         I         I         I         * 577 8   3 3
     0.0         0 3       0 7       1 0       1 3       1 6       2 0       2 3       2 6       2 9       3 3
                                                MILES
```

| CROSS-SECTION NO | MILE | BOTTOM ELEVATION FEET | REACH NO | REACH LENGTH MILES | SLOPE FT/MI |
|---|---|---|---|---|---|
| 1 | 0 000 | 585.00 | | | |
| 2 | 0 523 | 584 00 | 1 | 0 523 | 1 91 |
| 3 | 0 682 | 583 50 | 2 | 0.159 | 3 14 |
| 4 | 0.696 | 583.00 | 3 | 0 014 | 35 71 |
| 5 | 0 919 | 582 20 | 4 | 0.223 | 3 59 |
| 6 | 1 389 | 581 80 | 5 | 0 470 | 0 85 |
| 7 | 1 722 | 578.50 | 6 | 0 333 | 9 91 |
| 8 | 2 040 | 578 50 | 7 | 0 318 | 0.00 |
| 9 | 2.051 | 578.40 | 8 | 0 011 | 9 09 |
| 10 | 2 062 | 578 50 | 9 | 0 011 | -9 09 |
| 11 | 2.727 | 578 00 | 10 | 0 665 | 0 75 |
| 12 | 3.261 | 577 80 | 11 | 0 534 | 0 37 |

MESAGE

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 17 MAXIMUM ALLOWABLE = 200

STARTING ELEVATIONS OF LEFT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 591 | 591 | 590 | 586 | 586 | 586 |
| 600 | 599. | 600 | 600 | 600 | 589 | 588 | 584 |
| 583 | | | | | | | |

STARTING ELEVATIONS OF RIGHT FLOODPLAIN

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 592 | 591 | 595 | 595 | 594. | 590 | 586. | 586 |
| 586. | 586. | 594. | 598 | 594. | 585 | 584 | 584 |
| 583 | | | | | | | |

INITIAL CONDITIONS

| I | K | X(I) | YD(I) | QDI(I) | FRD | SOM |
|---|---|---|---|---|---|---|
| 17 | 7 | 3.261 | 583.54 | 320 00 | 0 09 | 0 375 |
| 17 | 0 | 3 261 | 583 54 | 320 00 | | |
| 16 | 1 | 2.994 | 583 66 | 320 00 | 0 12 | |
| 16 | 2 | 2 994 | 583 67 | 320 00 | 0 12 | |
| 15 | 1 | 2 727 | 583.94 | 320 00 | 0 19 | |
| 15 | 2 | 2.727 | 583 95 | 320 00 | 0 18 | |
| 15 | 3 | 2 727 | 583 95 | 320 00 | 0 18 | |
| 14 | 1 | 2 395 | 584 47 | 320 00 | 0 13 | |
| 14 | 2 | 2 395 | 584 45 | 320 00 | 0 11 | |
| 14 | 3 | 2 395 | 584 45 | 320 00 | 0 12 | |
| 13 | 1 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 2 | 2 062 | 584 75 | 320 00 | 0 09 | |
| 13 | 3 | 2.062 | 584 75 | 320 00 | 0.09 0 | |
| 12 | 1 | 2 051 | 584 76 | 320 00 | 0 07 | |
| 12 | 2 | 2.051 | 584 76 | 320 00 | 0 07 | |
| 11 | 1 | 2 040 | 584 76 | 320 00 | 0 09 | |
| 11 | 2 | 2 040 | 584.76 | 320 00 | 0 09 | |
| 10 | 1 | 1.881 | 584 87 | 320 00 | 0 08 | |
| 10 | 2 | 1 881 | 584 87 | 320 00 | 0 08 | |
| 9 | 1 | 1 722 | 584 95 | 320.00 | 0 07 | |
| 9 | 2 | 1 722 | 584 95 | 320 00 | 0 07 | |
| 8 | 1 | 1 611 | 585.11 | 320 00 | 0 07 | |
| 8 | 2 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 8 | 3 | 1.611 | 585 01 | 320 00 | 0 10 | |
| 8 | 4 | 1 611 | 585 01 | 320 00 | 0 10 | |
| 7 | 1 | 1 500 | 585 43 | 320 00 | 0 09 | |
| 7 | 2 | 1 500 | 585 17 | 320 00 | 0 14 | |
| 7 | 3 | 1 500 | 585 16 | 320 00 | 0 15 | |
| 7 | 4 | 1.500 | 585 16 | 320 00 | 0 15 | |
| 6 | 1 | 1.389 | 585 78 | 320 00 | 0 13 | |
| 6 | 2 | 1 389 | 585 55 | 320 00 | 0 20 | |
| 6 | 3 | 1.389 | 585 54 | 320 00 | 0 22 | |
| 6 | 4 | 1 389 | 585 54 | 320 00 | 0 22 | |
| 5 | 1 | 0 919 | 586 71 | 320 00 | 0 13 | |
| 5 | 2 | 0 919 | 586.71 | 320 00 | 0 11 | |
| 5 | 3 | 0.919 | 586.71 | 320 00 | 0 11 | |
| 4 | 1 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 4 | 2 | 0 696 | 587 15 | 300 00 | 0 19 | |
| 3 | 1 | 0 682 | 587 27 | 300 00 | 0 20 | |
| 3 | 2 | 0.682 | 587 20 | 300 00 | 0 27 | |
| 3 | 3 | 0.682 | 587 20 | 300 00 | 0 29 | |
| 3 | 4 | 0 682 | 587 20 | 300 00 | 0 29 | |
| 2 | 1 | 0.523 | 588 17 | 300 00 | 0 18 | |
| 2 | 2 | 0 523 | 588 18 | 300 00 | 0 16 | |
| 1 | 1 | 0.000 | 589 52 | 300 00 | 0 18 | |
| 1 | 2 | 0 000 | 589 54 | 300 00 | 0 14 | |
| 1 | 3 | 0 000 | 589 54 | 300 00 | 0 13 | |

| I | X(I) | YD(I) | YNORM(I) |
|---|---|---|---|
| 1 | 0 00 | 589.54 | 589 54 |
| 2 | 0 52 | 588 18 | 588.18 |
| 3 | 0 68 | 587.20 | 587.20 |
| 4 | 0 70 | 587 15 | 587 15 |
| 5 | 0 92 | 586 71 | 586.71 |

| | | | |
|---|---|---|---|
| 6 | 1 39 | 585 54 | 585.54 |
| 7 | 1 50 | 585.16 | 585 [illegible] |
| 8 | 1 61 | 585 01 | 585 01 |
| 9 | 1.72 | 584 95 | 584 95 |
| 10 | 1.88 | 584 87 | 584 87 |
| 11 | 2 04 | 584.76 | 584 76 |
| 12 | 2 05 | 584 76 | 584 76 |
| 13 | 2.06 | 584 75 | 584 75 |
| 14 | 2 39 | 584 45 | 584 45 |
| 15 | 2 73 | 583.95 | 583.95 |
| 16 | 2.99 | 583 67 | 583.67 |
| 17 | 3 26 | 583 54 | 583 54 |

(QDI(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 300.00 | 300 00 | 300 00 | 300 00 | 320 00 | 320 00 | 320 00 | 320 00 |
| 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320 00 | 320.00 |
| 320 00 | | | | | | | |

(YD(I),I=1,N)
**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 589 54 | 588 18 | 587 20 | 587.15 | 586 71 | 585 54 | 585 16 | 585 01 |
| 584 95 | 584 87 | 584 76 | 584 76 | 584 75 | 584 45 | 583 95 | 583 67 |
| 583.54 | | | | | | | |

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

| PARAMETER | UNITS | VARIABLE | VALUE |
|---|---|---|---|
| TIME TO FAILURE | HR | TFH | 24 000 |
| TIME TO START OF RISING LIMB OF HYDROGRAPH | HR | TFO | 0 000 |
| TIME TO PEAK | HR | TP | 24 000 |
| TIME STEP SIZE | HR | DTHI | 1 000 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320 00 YU(N) = 583 54 FRDM=0 00 IFR= 0 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 0
QU(1) = 300 00 YU(1) = 589 54 QU(N) = 320.00 YU(N) = 583 54 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.54 | 0 30 | 300 0 | 0 0 | 0.0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 221 0 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 0 | 0 0 | 0 0 |
| 0 68 | 587 20 | 0 30 | 300 0 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 125 5 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 0 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 7 | 0 0 | 0 0 |
| 0 92 | 586 71 | 0 32 | 320 0 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 1 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 32 | 320 0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 5 | 0 0 | 0 0 |
| 1 50 | 585 16 | 0 32 | 320 0 | 0 0 | 0 0 | 69 8 | 0 0 | 0 0 | 69 8 | 0 0 | 213 6 | 0 0 | 0 0 |
| 1 61 | 585 01 | 0 32 | 320 0 | 0 0 | 0 0 | 74 3 | 0 0 | 0 0 | 74 3 | 0 0 | 287 4 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 32 | 320 0 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | 0 0 | 378 0 | 0 0 | 0 0 |
| 1 88 | 584 87 | 0 32 | 320 0 | 0 0 | 0 0 | 77 3 | 0.0 | 0 0 | 77 3 | 0 0 | 346 5 | 0 0 | 0 0 |
| 2 04 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 4 | 0 0 | 0 0 |
| 2 05 | 584 76 | 0 32 | 320 0 | 0 0 | 0 0 | 75 6 | 0 0 | 0 0 | 75 6 | 0 0 | 377 3 | 0 0 | 0 0 |
| 2 06 | 584 75 | 0 32 | 320 0 | 0 0 | 0 0 | 75 0 | 0 0 | 0 0 | 75 0 | 0 0 | 312 5 | 0 0 | 0 0 |
| 2 39 | 584 45 | 0 32 | 320 0 | 0 0 | 0 0 | 63 4 | 0 0 | 0 0 | 63 4 | 0 0 | 247 8 | 0 0 | 0 0 |
| 2 73 | 583 95 | 0 32 | 320 0 | 0 0 | 0 0 | 49 6 | 0 0 | 0 0 | 49.6 | 0 0 | 171 5 | 0 0 | 0 0 |
| 2 99 | 583 67 | 0 32 | 320 0 | 0 0 | 0 0 | 58 4 | 1 0 | 2 9 | 63 4 | 0 0 | 243 4 | 0 1 | 0 2 |
| 3 26 | 583.54 | 0 32 | 319 6 | 0 2 | 0 2 | 68 1 | 6 7 | 5 4 | 86 9 | 0 0 | 319 2 | 1 8 | 1 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 2
QU(1) = 300 00 YU(1) = 589 56 QU(N) = 335 83 YU(N) = 583 30 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 56 | 0 30 | 300 0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | 0 0 | 222 1 | 0 0 | 0 0 |
| 0.52 | 588 18 | 0 30 | 299 3 | 0 0 | 0 0 | 58 2 | 0.0 | 0 0 | 58 2 | 0 0 | 185 1 | 0 0 | 0 0 |
| 0.68 | 587.22 | 0.30 | 299.1 | 0 0 | 0 0 | 58 3 | 0 0 | 0 0 | 58 3 | 0 0 | 126.3 | 0 0 | 0 0 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.70 | 587.14 | 0 30 | 299.1 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | -0 0 | 166 6 | 0 0 | 0 0 |
| 0.92 | 586.71 | 0 32 | 319.2 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | -0 0 | 258 0 | 0 0 | 0.0 |
| 1 39 | 585 54 | 0 32 | 319.0 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68 1 | 0 0 | 164 9 | 0 0 | 0 0 |
| 1 50 | 585.17 | 0 32 | 318 9 | 0.0 | 0 0 | 69 9 | 0 0 | 0 0 | 69 9 | 0 0 | 214 3 | 0 0 | 0 0 |
| 1.61 | 585.02 | 0 32 | 318 7 | 0 0 | 0.0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 288.3 | 0 0 | 0 0 |
| 1 72 | 584 96 | 0 32 | 318 4 | 0 0 | 0 0 | 79 3 | 0 0 | 0.0 | 79 3 | 0 0 | 379 0 | 0 0 | 0 0 |
| 1 88 | 584.88 | 0 32 | 318 0 | 0 0 | 0 0 | 77 4 | 0 0 | 0 0 | 77 4 | 0 0 | 347 7 | 0 0 | 0 0 |
| 2 04 | 584.78 | 0 32 | 317 5 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | 0 0 | 314 7 | 0 0 | 0 0 |
| 2.05 | 584.78 | 0 32 | 317.5 | 0.0 | 0.0 | 75 7 | 0 0 | 0 0 | 75 7 | 0.0 | 378 6 | 0 0 | 0 0 |
| 2.06 | 584 77 | 0 32 | 317 4 | 0 0 | 0.0 | 75 1 | 0 0 | 0 0 | 75 1 | 0 0 | 313 8 | 0 0 | 0 0 |
| 2 39 | 584 48 | 0.32 | 316 3 | 0 0 | 0 0 | 63 5 | 0 0 | 0 0 | 63 5 | 0 0 | 249 2 | 0 0 | 0 0 |
| 2 73 | 583 79 | 0.32 | 318 9 | 0 0 | 0 0 | 48 5 | 0 0 | 0 0 | 48 5 | -0 2 | 163 8 | 0 0 | 0 0 |
| 2.99 | 583.46 | 0.33 | 325 4 | 0.0 | 0 0 | 57 3 | 0 0 | 0 0 | 57 3 | -0 2 | 231 5 | 0 0 | 0 0 |
| 3.26 | 583 30 | 0 34 | 335 7 | 0 1 | 0 0 | 66 7 | 3 7 | 3 0 | 77 2 | -0 2 | 303 0 | 0 6 | 0 4 |

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589.55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 0 0000 DTH = 1 0000 ITERR = 1
QU(1) = 300 00 YU(1) = 589.55 QU(N) = 344 42 YU(N) = 583 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589.55 | 0 30 | 300.0 | 0 0 | 0 0 | 70 1 | 0 0 | 0 0 | 70 1 | -0 0 | 221 6 | 0 0 | 0 0 |
| 0 52 | 588 18 | 0 30 | 300.6 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | 0 0 | 185 4 | 0 0 | 0 0 |
| 0 68 | 587 21 | 0 30 | 300 8 | 0 0 | 0 0 | 58 2 | 0 0 | 0 0 | 58 2 | -0.0 | 126 0 | 0 0 | 0 0 |
| 0 70 | 587 15 | 0 30 | 300 8 | 0 0 | 0 0 | 59 7 | 0 0 | 0 0 | 59 7 | 0 0 | 166 9 | 0 0 | 0 0 |
| 0.92 | 586 71 | 0 32 | 320 6 | 0 0 | 0 0 | 67 1 | 0 0 | 0 0 | 67 1 | 0 0 | 258 2 | 0 0 | 0 0 |
| 1 39 | 585 52 | 0 32 | 321 2 | 0 0 | 0 0 | 67 9 | 0 0 | 0 0 | 67 9 | -0 0 | 163 7 | 0 0 | 0 0 |
| 1 50 | 585 14 | 0 32 | 321 8 | 0.0 | 0.0 | 69 5 | 0 0 | 0 0 | 69 5 | -0 0 | 211 9 | 0 0 | 0 0 |
| 1 61 | 584 98 | 0.32 | 322 7 | 0 0 | 0 0 | 74 0 | 0 0 | 0 0 | 74 0 | -0 0 | 285 1 | 0 0 | 0 0 |
| 1 72 | 584 91 | 0.32 | 323.8 | 0.0 | 0 0 | 79 0 | 0 0 | 0.0 | 79 0 | -0 1 | 375 3 | 0 0 | 0 0 |
| 1.88 | 584 83 | 0 33 | 325 6 | 0 0 | 0 0 | 77 1 | 0 0 | 0 0 | 77 1 | -0 1 | 343 5 | 0 0 | 0 0 |
| 2 04 | 584.71 | 0.33 | 327 7 | 0 0 | 0 0 | 74.7 | 0 0 | 0 0 | 74 7 | -0 1 | 309 9 | 0 0 | 0 0 |
| 2 05 | 584 71 | 0 33 | 327 8 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 373 8 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 33 | 328 0 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 308 9 | 0 0 | 0 0 |
| 2 39 | 584 37 | 0 33 | 333 5 | 0 0 | 0 0 | 62 7 | 0 0 | 0 0 | 62 7 | -0 1 | 242 2 | 0 0 | 0 0 |
| 2 73 | 583 64 | 0 34 | 337 5 | 0 0 | 0 0 | 47 5 | 0 0 | 0 0 | 47 5 | -0 1 | 156 7 | 0 0 | 0 0 |
| 2.99 | 583 21 | 0 34 | 340 1 | 0 0 | 0 0 | 55 9 | 0 0 | 0 0 | 55 9 | -0 1 | 217 5 | 0 0 | 0 0 |
| 3 26 | 583 01 | 0 34 | 344 4 | 0.0 | 0 0 | 65 0 | 0 1 | 0 1 | 65 3 | -0 2 | 283 9 | 0 0 | 0 0 |

**********

TT = 1.0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 1 0000 DTH = 1 0000 ITERR = 1
QU(1) = 333 00 YU(1) = 589 71 QU(N) = 347 86 YU(N) = 582 69 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 71 | 0 33 | 333 0 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 0 1 | 233 0 | 0 0 | 0 0 |
| 0 52 | 588 28 | 0 32 | 321 5 | 0 0 | 0 0 | 58 5 | 0 0 | 0 0 | 58 5 | 0 1 | 191 4 | 0 0 | 0 0 |
| 0.68 | 587 30 | 0.32 | 319 1 | 0 0 | 0 0 | 58 8 | 0 0 | 0 0 | 58 8 | 0 1 | 131 4 | 0 0 | 0 0 |
| 0 70 | 587 23 | 0 32 | 319 0 | 0.0 | 0 0 | 60.1 | 0 0 | 0 0 | 60 1 | 0 1 | 172 0 | 0 0 | 0 0 |
| 0.92 | 586 78 | 0 34 | 336 5 | 0 0 | 0 0 | 67 2 | 0 0 | 0 0 | 67 2 | 0 1 | 262 8 | 0 0 | 0 0 |
| 1 39 | 585 54 | 0 33 | 332 9 | 0 0 | 0 0 | 68 1 | 0 0 | 0 0 | 68.1 | -0 0 | 164 6 | 0 0 | 0 0 |
| 1.50 | 585 12 | 0.33 | 332 5 | 0 0 | 0.0 | 69.4 | 0 0 | 0 0 | 69 4 | -0 1 | 210 8 | 0 0 | 0 0 |
| 1.61 | 584 95 | 0 33 | 332 3 | 0 0 | 0.0 | 73 8 | 0 0 | 0 0 | 73 8 | -0 1 | 283.0 | 0 0 | 0 0 |
| 1 72 | 584 88 | 0 33 | 332 2 | 0 0 | 0 0 | 78 8 | 0 0 | 0 0 | 78 8 | -0 1 | 372 7 | 0 0 | 0 0 |
| 1 88 | 584 79 | 0.33 | 332.1 | 0 0 | 0 0 | 76 8 | 0 0 | 0 0 | 76 8 | -0 1 | 340.5 | 0 0 | 0 0 |
| 2 04 | 584.67 | 0 33 | 332 0 | 0.0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | -0 1 | 306 5 | 0 0 | 0 0 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 05 | 584 67 | 0.33 | 332 0 | 0 0 | 0 0 | 75 2 | 0 0 | 0 0 | 75 2 | -0 1 | 370 3 | 0 0 | 0 0 |
| 2 06 | 584 66 | 0 33 | 332 0 | 0 0 | 0 0 | 74 2 | 0 0 | 0 0 | 74 2 | -0.1 | 305 4 | 0 0 | 0 0 |
| 2 39 | 584 31 | 0 33 | 331 2 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62 3 | -0 2 | 238 6 | 0 0 | 0 0 |
| 2 73 | 583 46 | 0.33 | 333 6 | 0 0 | 0 0 | 46 2 | 0 0 | 0 0 | 46 2 | -0 3 | 148 0 | 0 0 | 0 0 |
| 2 99 | 582 95 | 0.34 | 339 4 | 0 0 | 0 0 | 54 4 | 0 0 | 0 0 | 54 4 | -0 4 | 203 0 | 0 0 | 0 0 |
| 3 26 | 582 69 | 0.35 | 347 9 | 0 0 | 0 0 | 63 8 | 0 0 | 0 0 | 63 8 | -0 5 | 263 6 | 0 0 | 0 0 |

**********

TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589 90 QU(N) = 355.23 YU(N) = 582 44 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 2 0000 DTH = 1 0000 ITERR = 1
QU(1) = 365.00 YU(1) = 589.90 QU(N) = 355 23 YU(N) = 582 44 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 589 90 | 0 37 | 365 0 | 0 0 | 0 0 | 70 8 | 0 0 | 0 0 | 70 8 | 0 3 | 246 6 | 0 0 | 0 0 |
| 0.52 | 588 47 | 0.36 | 357 0 | 0 0 | 0 0 | 59 0 | 0 0 | 0 0 | 59 0 | 0 3 | 202 4 | 0 0 | 0 0 |
| 0 68 | 587 50 | 0.35 | 354 3 | 0 0 | 0 0 | 59 9 | 0 0 | 0 0 | 59 9 | 0 3 | 142 7 | 0 0 | 0 0 |
| 0 70 | 587 43 | 0.35 | 354 0 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61 1 | 0 3 | 184 0 | 0 0 | 0 0 |
| 0 92 | 586 96 | 0 37 | 372 0 | 0 0 | 0.0 | 67 4 | 0 0 | 0 0 | 67 4 | 0 3 | 275 0 | 0 0 | 0 0 |
| 1 39 | 585 66 | 0 36 | 362 5 | 0 0 | 0 0 | 69 6 | 0 0 | 0 0 | 69 6 | 0 1 | 173 1 | 0 0 | 0 0 |
| 1 50 | 585 22 | 0 36 | 360 7 | 0 0 | 0 0 | 70 3 | 0 0 | 0 0 | 70 3 | 0 0 | 217 5 | 0 0 | 0 0 |
| 1 61 | 585 03 | 0 36 | 359 1 | 0 0 | 0 0 | 74 4 | 0 0 | 0 0 | 74 4 | 0 0 | 289 0 | 0 0 | 0 0 |
| 1 72 | 584 95 | 0 36 | 357 6 | 0 0 | 0 0 | 79 3 | 0 0 | 0 0 | 79 3 | -0 0 | 378 4 | 0 0 | 0 0 |
| 1 88 | 584.85 | 0.36 | 355 6 | 0 0 | 0 0 | 77 2 | 0 0 | 0 0 | 77 2 | -0 0 | 345 4 | 0 0 | 0 0 |
| 2 04 | 584 72 | 0 35 | 354 0 | 0 0 | 0 0 | 74 8 | 0 0 | 0 0 | 74 8 | -0 1 | 310 2 | 0 0 | 0 0 |
| 2 05 | 584 72 | 0 35 | 353 9 | 0.0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | -0 1 | 374 1 | 0 0 | 0 0 |
| 2 06 | 584 70 | 0 35 | 353 8 | 0 0 | 0 0 | 74 6 | 0 0 | 0 0 | 74 6 | -0 1 | 309 1 | 0 0 | 0 0 |
| 2 39 | 584 31 | 0 35 | 352.7 | 0 0 | 0 0 | 62 3 | 0 0 | 0 0 | 62.3 | -0 2 | 239 0 | 0 0 | 0 0 |
| 2 73 | 583 39 | 0 35 | 352 2 | 0 0 | 0 0 | 45 7 | 0 0 | 0 0 | 45 7 | -0 3 | 144 9 | 0 0 | 0 0 |
| 2 99 | 582 77 | 0 35 | 352 5 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 193 1 | 0 0 | 0 0 |
| 3 26 | 582 44 | 0 36 | 355 2 | 0 0 | 0 0 | 62 8 | 0 0 | 0 0 | 62 8 | -0 7 | 247 9 | 0 0 | 0 0 |

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 377 27 YU(N) = 582 31 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 3 0000 DTH = 1 0000 ITERR = 1
QU(1) = 396 00 YU(1) = 590 08 QU(N) = 377 27 YU(N) = 582 31 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590 08 | 0 40 | 396 0 | 0 0 | 0 0 | 71 2 | 0 0 | 0 0 | 71 2 | 0 5 | 258 9 | 0 0 | 0 0 |
| 0 52 | 588 64 | 0 39 | 386 9 | 0 0 | 0 0 | 59 5 | 0 0 | 0 0 | 59 5 | 0 5 | 212 5 | 0 0 | 0 0 |
| 0 68 | 587 72 | 0 38 | 384 2 | 0 0 | 0 0 | 61 1 | 0 0 | 0 0 | 61 1 | 0 5 | 156 0 | 0 0 | 0 0 |
| 0 70 | 587 66 | 0 38 | 383.9 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | 0 5 | 197 7 | 0 0 | 0 0 |
| 0 92 | 587 18 | 0 41 | 411 4 | 0 0 | 0 0 | 67 8 | 0 0 | 0 0 | 67 8 | 0 5 | 290 1 | 0 0 | 0 0 |
| 1.39 | 585 86 | 0 40 | 401 1 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 0 3 | 187 0 | 0 0 | 0 0 |
| 1.50 | 585 40 | 0 40 | 398 6 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 0 2 | 230 9 | 0 0 | 0 0 |
| 1 61 | 585 21 | 0 40 | 396 1 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 2 | 302 3 | 0 0 | 0 0 |
| 1 72 | 585 12 | 0 39 | 393 4 | 0.0 | 0 0 | 80 4 | 0 0 | 0 0 | 80 4 | 0 2 | 392 0 | 0 0 | 0 0 |
| 1 88 | 585 01 | 0.39 | 389 7 | 0 0 | 0 0 | 78 4 | 0 0 | 0 0 | 78 4 | 0 1 | 357 9 | 0 0 | 0 0 |
| 2 04 | 584 87 | 0 39 | 386 1 | 0 0 | 0 0 | 76 0 | 0 0 | 0 0 | 76 0 | 0 1 | 321 6 | 0 0 | 0 0 |
| 2 05 | 584 87 | 0.39 | 385 8 | 0 0 | 0 0 | 76 2 | 0 0 | 0 0 | 76 2 | 0 1 | 385 6 | 0 0 | 0 0 |
| 2.06 | 584 85 | 0.39 | 385 6 | 0 0 | 0 0 | 75 8 | 0 0 | 0 0 | 75 8 | 0 1 | 320 4 | 0 0 | 0 0 |
| 2 39 | 584 44 | 0.38 | 378 5 | 0 0 | 0 0 | 63 3 | 0 0 | 0 0 | 63 3 | -0 0 | 247 1 | 0 0 | 0 0 |
| 2 73 | 583 43 | 0 37 | 374 9 | 0 0 | 0 0 | 46 0 | 0 0 | 0 0 | 46 0 | -0 3 | 146 5 | 0 0 | 0 0 |
| 2 99 | 582.70 | 0.38 | 375 2 | 0 0 | 0 0 | 53 0 | 0 0 | 0 0 | 53 0 | -0 7 | 189 8 | 0 0 | 0 0 |
| 3 26 | 582 31 | 0 38 | 377 3 | 0 0 | 0 0 | 62 2 | 0 0 | 0 0 | 62.2 | -0 9 | 239 4 | 0 0 | 0 0 |

**********

TT = 4 0000 DTH = 1 0000 ITERR = 2

QU(1) = 427.00 YU(1) = 590.25 QU(N) = 416 12 YU(N) = 582.29 FRDM=0 00 IFR= 3 FRM=7 00 IFM= 0

**********

TT = 4 0000 DTH = 1 0000 ITERR = 2
QU(1) = 427 00 YU(1) = 590.25 QU(N) = 416.12 YU(N) = 582.29 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590.25 | 0 43 | 427 0 | 0 0 | 0.0 | 71 5 | 0 0 | 0 0 | 71 5 | 0 7 | 271 5 | 0 0 | 0 0 |
| 0 52 | 588.86 | 0.42 | 416 5 | 0 0 | 0 0 | 60 1 | 0 0 | 0 0 | 60 1 | 0 7 | 225 8 | 0 0 | 0 0 |
| 0.68 | 588 08 | 0 41 | 411 3 | 0 0 | 0 0 | 63.2 | 0 0 | 0 0 | 63 2 | 0.9 | 178 4 | 0 0 | 0 0 |
| 0.70 | 588 03 | 0 41 | 410 7 | 0 0 | 0 0 | 63 9 | 0 0 | 0 0 | 63 9 | 0 9 | 221 5 | 0 0 | 0 0 |
| 0 92 | 587 56 | 0 49 | 492 3 | 0 0 | 0 0 | 68.3 | 0 0 | 0 0 | 68 3 | 0 9 | 315 6 | 0 0 | 0 0 |
| 1 39 | 586 19 | 0 47 | 470 2 | 0 0 | 0 0 | 74 3 | 4 4 | 0 0 | 78 8 | 0 6 | 211 4 | 0 4 | 0 0 |
| 1.50 | 585 74 | 0.47 | 465 2 | 0 0 | 0 0 | 75 4 | 0 0 | 0 0 | 75 4 | 0 6 | 255 6 | 0 0 | 0 0 |
| 1 61 | 585 53 | 0.46 | 460 2 | 0 0 | 0 0 | 78 3 | 0 0 | 0 0 | 78 3 | 0 5 | 327 1 | 0 0 | 0 0 |
| 1 72 | 585 44 | 0 46 | 455.1 | 0 0 | 0 0 | 82 4 | 0 0 | 0 0 | 82.4 | 0 5 | 417 5 | 0 0 | 0 0 |
| 1 88 | 585 31 | 0 45 | 448.0 | 0 0 | 0 0 | 80 6 | 0 0 | 0 0 | 80 6 | 0 4 | 381 8 | 0 0 | 0 0 |
| 2 04 | 585 16 | 0 44 | 441 5 | 0.0 | 0 0 | 78 3 | 0 0 | 0 0 | 78 3 | 0 4 | 343 7 | 0 0 | 0 0 |
| 2.05 | 585 16 | 0 44 | 441 0 | 0 0 | 0 0 | 77 7 | 0 0 | 0 0 | 77 7 | 0 4 | 407 6 | 0 0 | 0 0 |
| 2.06 | 585.14 | 0 44 | 440 6 | 0 0 | 0 0 | 78 1 | 0 0 | 0 0 | 78 1 | 0 4 | 342 3 | 0 0 | 0 0 |
| 2 39 | 584.69 | 0 43 | 430 0 | 0 0 | 0 0 | 65 2 | 0 0 | 0 0 | 65 2 | 0.2 | 263 0 | 0 0 | 0 0 |
| 2 73 | 583.61 | 0 42 | 422 5 | 0 0 | 0 0 | 47 2 | 0 0 | 0 0 | 47 2 | -0 1 | 154 8 | 0 0 | 0 0 |
| 2 99 | 582 77 | 0 42 | 418 4 | 0 0 | 0 0 | 53 4 | 0 0 | 0 0 | 53 4 | -0 6 | 193 5 | 0 0 | 0 0 |
| 3 26 | 582 29 | 0 42 | 416 1 | 0 0 | 0 0 | 62 1 | 0 0 | 0 0 | 62 1 | -0 9 | 238 5 | 0 0 | 0 0 |

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TT = 5 0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 61 QU(N) = 543 72 YU(N) = 582 75 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 5.0000 DTH = 1 0000 ITERR = 2
QU(1) = 459 00 YU(1) = 590 61 QU(N) = 543 72 YU(N) = 582 75 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 590.61 | 0 46 | 459 0 | 0 0 | 0 0 | 72 2 | 0 0 | 0 0 | 72 2 | 1 0 | 297 1 | 0 0 | 0 0 |
| 0 52 | 589.70 | 0 42 | 417 1 | 0 0 | 0 0 | 62 4 | 0 0 | 0 0 | 62 4 | 1 5 | 276 8 | 0 0 | 0 0 |
| 0 68 | 589 42 | 0 39 | 393 0 | 0 0 | 0 0 | 70 9 | 0 0 | 0 0 | 70 9 | 2 2 | 268 8 | 0 0 | 0 0 |
| 0.70 | 589 41 | 0 39 | 390 3 | 0 0 | 0 0 | 70 5 | 0 0 | 0 0 | 70 5 | 2 3 | 314 2 | 0 0 | 0 0 |
| 0.92 | 588 91 | 0 88 | 880 5 | 0 0 | 0 0 | 70 4 | 0 0 | 0 0 | 70 4 | 2 2 | 409 2 | 0 0 | 0 0 |
| 1 39 | 587 28 | 0 78 | 766 9 | 16 2 | 0 0 | 76 2 | 30 2 | 0 0 | 106 4 | 1 7 | 293 9 | 19 4 | 0 0 |
| 1.50 | 586 83 | 0 76 | 757 0 | 2 7 | 1 0 | 79 8 | 13 0 | 3 5 | 100 4 | 1 7 | 341 1 | 5 4 | 1 4 |
| 1 61 | 586 59 | 0 74 | 738 2 | 0 4 | 0 6 | 83.5 | 4 6 | 4 9 | 98 8 | 1 6 | 413 3 | 1 3 | 1.4 |
| 1 72 | 586 46 | 0 72 | 717 9 | 0 0 | 0 1 | 87 4 | 0 0 | 5 8 | 100 0 | 1 5 | 504 9 | 0 0 | 1 3 |
| 1 88 | 586 29 | 0.69 | 689 1 | 0 0 | 0 0 | 86 3 | 0 0 | 1 8 | 90 3 | 1 4 | 463 7 | 0 0 | 0 3 |
| 2.04 | 586 08 | 0.66 | 662 8 | 0 0 | 0 0 | 85 2 | 0 0 | 0 0 | 85 2 | 1 3 | 419 3 | 0 0 | 0 0 |
| 2.05 | 586 08 | 0 66 | 661 1 | 0 0 | 0 0 | 82 4 | 0 0 | 0 0 | 84 4 | 1 3 | 481 4 | 0 0 | 0 0 |
| 2 06 | 586 06 | 0.66 | 659 4 | 0 0 | 0 0 | 85 1 | 0 0 | 0 0 | 85 1 | 1 3 | 417 2 | 0 0 | 0 0 |
| 2.39 | 585 51 | 0 61 | 612 6 | 0 0 | 0 1 | 69 5 | 0 0 | 6 4 | 75 9 | 1 0 | 318 6 | 0 0 | 1 6 |
| 2 73 | 584 29 | 0 58 | 580 0 | 0 0 | 0 3 | 51 6 | 0 0 | 7 2 | 58 8 | 0 6 | 188 7 | 0 0 | 1 0 |
| 2 99 | 583.33 | 0.56 | 561 7 | 0 0 | 0 0 | 56 5 | 0 0 | 0 0 | 56 5 | -0 0 | 224 1 | 0 0 | 0 0 |
| 3 26 | 582.75 | 0.54 | 543 7 | 0 0 | 0 0 | 64 0 | 0 0 | 0 0 | 64 0 | -0 4 | 267 4 | 0 0 | 0 0 |

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TT = 6.0000 DTH = 1 0000 ITERR = 4
QU(1) = 490.00 YU(1) = 592.28 QU(N) = 967 72 YU(N) = 584 31 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 6 0000 DTH = 1 0000 ITERR = 4
QU(1) = 490 00 YU(1) = 592 28 QU(N) = 967 72 YU(N) = 584 31 FRDM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 592 28 | 0 49 | 489 8 | 0 2 | 0 0 | 75.0 | 22 9 | 0 7 | 98 6 | 2 7 | 420 4 | 3 2 | 0 1 |
| 0 52 | 592.13 | 0 27 | 266.1 | 2 0 | 0 9 | 66 6 | 51 0 | 28 3 | 250 6 | 4 0 | 435 6 | 28 9 | 16 0 |
| 0.68 | 592 13 | 0.18 | 177 4 | 2 4 | 0 0 | 86 8 | 123 8 | 0 0 | 210 5 | 4 9 | 481 6 | 69 6 | 0 0 |
| 0 70 | 592 13 | 0 17 | 170 0 | 2.0 | 0 0 | 80 8 | 126 6 | 0 0 | 207 4 | 5 0 | 521 4 | 71 3 | 0 0 |
| 0 92 | 591 56 | 2 03 | 1999.1 | 30 1 | 0 0 | 76 3 | 221 9 | 0 0 | 298 1 | 4 8 | 602 3 | 172 7 | 0 0 |
| 1 39 | 589 64 | 1 70 | 1468 9 | 229 2 | 0 0 | 80 4 | 85 4 | 0 0 | 165 8 | 4 1 | 478 0 | 155 3 | 0 0 |
| 1 50 | 589 22 | 1 64 | 1509 2 | 96 8 | 35 3 | 85 0 | 50 4 | 13 4 | 164 9 | 4 0 | 537 9 | 81 2 | 21 6 |
| 1 61 | 588 94 | 1 58 | 1507 0 | 31 4 | 45 7 | 89 6 | 23 1 | 24 5 | 166 7 | 3 9 | 617 5 | 34 0 | 36 1 |
| 1 72 | 588 77 | 1 52 | 1503 2 | 0 0 | 20 3 | 94 3 | 0 0 | 34 6 | 170 5 | 3 8 | 714 9 | 0 0 | 48 0 |
| 1.88 | 588 53 | 1 43 | 1426 4 | 0 0 | 8 3 | 92 4 | 0 0 | 15 8 | 127 2 | 3 6 | 663 4 | 0 0 | 19 9 |
| 2.04 | 588 23 | 1 37 | 1368 3 | 0 0 | 0.0 | 90 6 | 0 0 | 0 0 | 90 6 | 3.4 | 608 6 | 0 0 | 0 0 |
| 2 05 | 588.23 | 1.36 | 1363.5 | 0 0 | 0 0 | 94 8 | 0 0 | 0 0 | 150 5 | 3 4 | 672 1 | 0 0 | 0 0 |
| 2 06 | 588.20 | 1 36 | 1358 7 | 0 0 | 0 0 | 90 5 | 0 0 | 0 0 | 90 5 | 3 4 | 605 4 | 0 0 | 0 0 |
| 2 39 | 587 50 | 1 24 | 1227 6 | 0 0 | 11 2 | 77 5 | 0 0 | 31 2 | 108 7 | 3 0 | 464 4 | 0 0 | 38 9 |
| 2 73 | 586 06 | 1.12 | 1072 8 | 0 0 | 52 1 | 61 3 | 0 0 | 51 4 | 112 8 | 2 3 | 288 5 | 0 0 | 52 9 |
| 2 99 | 584.99 | 1 04 | 1025 8 | 5 6 | 12 6 | 65 9 | 9 3 | 26 0 | 110 5 | 1 6 | 325 6 | 6 9 | 19 4 |
| 3 26 | 584 31 | 0 97 | 957 3 | 6 3 | 4 0 | 72 5 | 16 4 | 13 1 | 118 3 | 1 1 | 373 4 | 10 7 | 8 6 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 14 15 16 17
TT= 6 000 DTH= 0 500 ITERR= 9

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TT = 6.5000 DTH = 0 5000 ITERR = 3
QU(1) = 505 50 YU(1) = 593.07 QU(N) = 1349 88 YU(N) = 585 20 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 6.5000 DTH = 0 5000 ITERR = 3
QU(1) = 505.50 YU(1) = 593 07 QU(N) = 1349 88 YU(N) = 585 20 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 593 07 | 0 51 | 500 6 | 4 8 | 0 2 | 75 0 | 88 5 | 2 7 | 166 2 | 3 5 | 480 0 | 47 5 | 1 4 |
| 0.52 | 593.02 | 0 16 | 149 4 | 4 4 | 1 9 | 67 0 | 90 7 | 50 4 | 394 6 | 4 8 | 494 6 | 91 5 | 50 8 |
| 0.68 | 593.02 | 0 02 | 16 7 | 0 9 | 0 0 | 92 1 | 222 1 | 0 0 | 314 2 | 5 8 | 561 5 | 224 2 | 0 0 |
| 0.70 | 593 02 | 0.01 | 6 5 | 0 3 | 0 0 | 83 0 | 227 2 | 0 0 | 310 2 | 5 9 | 594 6 | 229 3 | 0 0 |
| 0 92 | 592.51 | 2.61 | 2497 2 | 110 4 | 0 0 | 78 9 | 358 0 | 0 0 | 436 9 | 5 8 | 676 5 | 449 8 | 0 0 |
| 1.39 | 590 72 | 2 17 | 1802 2 | 367 3 | 1.8 | 81 0 | 160 6 | 8 1 | 249 6 | 5 2 | 565 5 | 279 3 | 2 9 |
| 1.50 | 590 42 | 2 12 | 1864 9 | 185 3 | 70 5 | 86 7 | 88 9 | 21 6 | 219 4 | 5 2 | 641 7 | 157 5 | 41 5 |
| 1 61 | 590 18 | 2 07 | 1884 2 | 71 6 | 111 0 | 92 4 | 37 0 | 35 6 | 206 8 | 5 2 | 730 4 | 68 9 | 73 0 |
| 1.72 | 590 02 | 2 01 | 1949 3 | 0 0 | 58 5 | 98 0 | 0 0 | 50 2 | 208 5 | 5 1 | 834 8 | 0 0 | 100 9 |
| 1 88 | 589 76 | 1.91 | 1883 6 | 0 0 | 25 9 | 95 8 | 0 0 | 23 5 | 147 5 | 4 9 | 779 5 | 0 0 | 44 1 |
| 2 04 | 589 44 | 1.84 | 1844 8 | 0 0 | 0 0 | 93 6 | 0 0 | 0 0 | 93 6 | 4 7 | 719 8 | 0 0 | 0 0 |
| 2.05 | 589 44 | 1.84 | 1839 5 | 0 0 | 0 0 | 101 8 | 0 0 | 0 0 | 187 7 | 4 7 | 790 9 | 0 0 | 0 0 |
| 2.06 | 589 40 | 1.83 | 1834 2 | 0 0 | 0 0 | 93 5 | 0 0 | 0 0 | 93 5 | 4 6 | 716 2 | 0 0 | 0 0 |
| 2 39 | 588 63 | 1.71 | 1682 8 | 0 0 | 31 9 | 82 0 | 0 0 | 45 4 | 127 5 | 4 1 | 555 3 | 0 0 | 82 6 |
| 2 73 | 587 10 | 1 57 | 1420 5 | 0 0 | 153 9 | 67 0 | 0 0 | 77 4 | 144 4 | 3 4 | 355 2 | 0 0 | 119 8 |
| 2 99 | 585.97 | 1.46 | 1386 5 | 22 6 | 50 7 | 71 4 | 15 4 | 43 2 | 145 5 | 2 6 | 393 0 | 19 1 | 53 4 |
| 3 26 | 585 20 | 1 35 | 1305 0 | 27 4 | 17 5 | 77 6 | 27 5 | 22 0 | 154 6 | 2 0 | 440 2 | 30 2 | 24 2 |

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TT = 7 5000 DTH = 1 0000 ITERR = 3
QU(1) = 536 50 YU(1) = 595 18 QU(N) = 2433 35 YU(N) = 587 21 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 7 5000 DTH = 1 0000 ITERR = 3
QU(1) = 536.50 YU(1) = 595 18 QU(N) = 2433 35 YU(N) = 587 21 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 595 18 | 0 54 | 482 8 | 52 0 | 1 7 | 75 0 | 262 7 | 8 0 | 345 7 | 5 6 | 638 3 | 418 3 | 12 7 |
| 0.52 | 595 19 | -0 35 | -288 6 | -39 5 | -17 7 | 68 0 | 182 9 | 100 0 | 731 1 | 7 0 | 641 7 | 395 2 | 219 4 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 68 | 595.21 | -0 65 | -534 6 | -113 9 | 0 0 | 104 0 | 470.9 | 1 0 | 586 3 | 8 0 | 777 4 | 974 8 | 0 1 |
| 0 70 | 595.21 | -0 67 | -561.8 | -112 5 | 0 0 | 88 0 | 480 6 | 1 6 | 612.0 | 8 1 | 782 4 | 997 5 | 0 2 |
| 0 92 | 594.81 | 4 77 | 4094 8 | 678.9 | 0 9 | 84 0 | 636 4 | 10 7 | 731 1 | 8.1 | 864 1 | 1625 6 | 4 3 |
| 1 39 | 593.08 | 3 73 | 2475 8 | 1184 1 | 70 0 | 81 0 | 379 8 | 34 7 | 495 5 | 7 5 | 757 0 | 918 2 | 53 4 |
| 1.50 | 592 85 | 3 64 | 2739 4 | 669 4 | 226 6 | 87 1 | 239 1 | 50 0 | 410 5 | 7 7 | 852 9 | 555 8 | 128 4 |
| 1.61 | 592 66 | 3 55 | 2919.5 | 276 5 | 358 4 | 93 2 | 113 5 | 65 5 | 338 8 | 7 6 | 960 1 | 255 2 | 198 0 |
| 1.72 | 592 51 | 3 48 | 3263 6 | 0 0 | 218 3 | 99 3 | 0 0 | 81 4 | 278 3 | 7 5 | 1080 6 | 0 0 | 264 9 |
| 1 88 | 592.23 | 3 34 | 3237 8 | 0.0 | 106 4 | 98 4 | 0 0 | 38 9 | 211 9 | 7 3 | 1019.9 | 0 0 | 121 2 |
| 2 04 | 591 86 | 3.25 | 3248 2 | 0 0 | 0 0 | 97 3 | 0 0 | 0.0 | 143 8 | 7 1 | 951.2 | 0 0 | 0 0 |
| 2 05 | 591 87 | 3 24 | 3236 9 | 0 0 | 0.0 | 111 1 | 0 0 | 0 0 | 561 3 | 7 1 | 1050 8 | 0 0 | 0 0 |
| 2 06 | 591 81 | 3 23 | 3225.7 | 0 0 | 0 0 | 97 3 | 0.0 | 0 0 | 142 6 | 7 0 | 946 9 | 0 0 | 0 0 |
| 2 39 | 590 82 | 3.03 | 2879 1 | 20 5 | 129 2 | 86.5 | 24 0 | 128 7 | 261 9 | 6 3 | 740 6 | 21 9 | 263 1 |
| 2.73 | 589.13 | 2.80 | 2265 8 | 13.3 | 516 2 | 74 3 | 29 7 | 197 7 | 301 7 | 5 4 | 500 9 | 16 9 | 368 7 |
| 2 99 | 588.05 | 2 61 | 2285 2 | 93.4 | 235 0 | 81 0 | 49 3 | 101 8 | 253 7 | 4 7 | 552 9 | 70 3 | 187 0 |
| 3 26 | 587 21 | 2 43 | 2185.1 | 148 4 | 99 9 | 88.4 | 63.2 | 46 4 | 245 3 | 4 0 | 608 1 | 112 0 | 89 2 |

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TT = 8.5000 DTH = 1 0000 ITERR = 2
QU(1) = 580 50 YU(1) = 596 92 QU(N) = 3895 93 YU(N) = 588 88 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 8.5000 DTH = 1.0000 ITERR = 2
QU(1) = 580 50 YU(1) = 596 92 QU(N) = 3895 93 YU(N) = 588 88 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 92 | 0 58 | 456 1 | 121 0 | 3 5 | 75 0 | 355 3 | 76 8 | 599 1 | 7 4 | 768 6 | 975 5 | 59 9 |
| 0.52 | 596 91 | -0 15 | -106 2 | -28 2 | -12 9 | 68 0 | 208 7 | 100 0 | 847 3 | 8 7 | 758 7 | 732 2 | 391 5 |
| 0.68 | 596.91 | -0 40 | -289 8 | -108 5 | -0 2 | 104 0 | 723 7 | 9.6 | 932 9 | 9 7 | 954 8 | 1993 4 | 9 2 |
| 0 70 | 596 91 | -0 43 | -313 8 | -115 9 | -0 4 | 88 0 | 728 9 | 14 4 | 1213 9 | 9 8 | 932 4 | 2027 8 | 13 7 |
| 0 92 | 596 59 | 6.35 | 4786 1 | 1545 3 | 19 4 | 86 2 | 784 0 | 34 4 | 904 6 | 9 9 | 1016 4 | 2896 3 | 44 6 |
| 1 39 | 595.13 | 5 44 | 2728 8 | 2508 1 | 201 3 | 81 0 | 466 4 | 66 2 | 613 6 | 9 6 | 923 1 | 1833 2 | 152 9 |
| 1.50 | 594 98 | 5 36 | 3273 5 | 1628 4 | 458 0 | 88 0 | 310 8 | 79 6 | 517 6 | 9 8 | 1038 5 | 1173 5 | 263 1 |
| 1.61 | 594 81 | 5 29 | 3797 2 | 765 0 | 727 0 | 94 8 | 155 3 | 93 5 | 422 3 | 9 8 | 1162 2 | 561 7 | 368 0 |
| 1.72 | 594.67 | 5 23 | 4737 2 | 0 0 | 490.0 | 101 3 | 0.0 | 108 4 | 328 1 | 9 7 | 1296 9 | 0 0 | 470 2 |
| 1 88 | 594 36 | 5 09 | 4854 8 | 0 0 | 234 5 | 101.1 | 0 0 | 56.6 | 309 1 | 9 5 | 1231 9 | 0 0 | 219 2 |
| 2.04 | 593 94 | 4 98 | 4982 9 | 0 0 | 0 0 | 99 9 | 0 0 | 0 0 | 198 4 | 9 2 | 1156 4 | 0 0 | 0 0 |
| 2 05 | 593 97 | 4 96 | 4964 1 | 0.0 | 0 0 | 117 9 | 0 0 | 0 0 | 962 5 | 9 2 | 1291 6 | 0 0 | 0 0 |
| 2 06 | 593 89 | 4 95 | 4945 3 | 0 0 | 0 0 | 99 9 | 0 0 | 0 0 | 197 1 | 9 1 | 1151 3 | 0 0 | 0 0 |
| 2 39 | 592.57 | 4 70 | 4173 9 | 139 0 | 391 1 | 89 3 | 46 9 | 204 0 | 384 8 | 8 1 | 894 1 | 83 7 | 553 5 |
| 2 73 | 590 75 | 4 39 | 3007 0 | 134 7 | 1250.7 | 77 5 | 72 3 | 337 5 | 487 2 | 7 0 | 623 8 | 99.5 | 802 2 |
| 2 99 | 589.74 | 4 13 | 3184 6 | 324 2 | 618 0 | 84 2 | 124 4 | 200 2 | 419 8 | 6 4 | 692 7 | 217 3 | 442 6 |
| 3 26 | 588 88 | 3 90 | 3208 7 | 425 8 | 261 5 | 91 3 | 167 2 | 96 3 | 381 3 | 5 7 | 757 5 | 303 6 | 207 8 |

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TT = 9 5000 DTH = 1 0000 ITERR = 2
QU(1) = 636.00 YU(1) = 598 27 QU(N) = 5601 99 YU(N) = 590 18 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 9 5000 DTH = 1 0000 ITERR = 2
QU(1) = 636.00 YU(1) = 598 27 QU(N) = 5601 99 YU(N) = 590 18 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 27 | 0 64 | 442 1 | 179 0 | 14 9 | 75 0 | 392 5 | 174 8 | 869 5 | 8 7 | 869 9 | 1481 0 | 229 9 |
| 0.52 | 598 27 | -0.22 | -142 3 | -51.7 | -23.5 | 68 0 | 229 1 | 100 0 | 939 1 | 10 1 | 851 2 | 1029 9 | 527 5 |
| 0.68 | 598 28 | -0 49 | -317 9 | -169.0 | -0 9 | 104 0 | 925 8 | 16 4 | 1210 0 | 11 1 | 1096 6 | 3117 8 | 26 8 |
| 0.70 | 598 28 | -0 53 | -340 7 | -183 2 | -1 8 | 88 0 | 927 6 | 24 6 | 1695 6 | 11 1 | 1052 4 | 3157 4 | 40 3 |
| 0 92 | 598 01 | 7.98 | 5368 7 | 2557 2 | 58 0 | 88 0 | 901 6 | 53 2 | 1042 8 | 11 3 | 1139 6 | 4087 4 | 106 4 |
| 1.39 | 596 68 | 7 12 | 2946 1 | 3800 4 | 373 0 | 81 0 | 468 3 | 95 2 | 644 6 | 11 1 | 1048 3 | 2555 6 | 277 7 |
| 1 50 | 596 54 | 7 07 | 3680 2 | 2666 3 | 725 2 | 89 0 | 312 1 | 105 7 | 544 8 | 11 4 | 1177 3 | 1662 0 | 408.4 |
| 1.61 | 596 38 | 7 03 | 4513.1 | 1371 4 | 1146 2 | 96 8 | 156 0 | 116 4 | 445 3 | 11 4 | 1312 6 | 806 1 | 532 8 |
| 1.72 | 596 23 | 6 99 | 6139.2 | 0.0 | 854.9 | 104 5 | 0 0 | 127 8 | 346 7 | 11 3 | 1456 6 | 0 0 | 653 7 |
| 1 88 | 595.83 | 6.87 | 6463 1 | 0 0 | 404 5 | 105 5 | 0.0 | 83 6 | 509 9 | 10 9 | 1384 1 | 0 0 | 322 4 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.04 | 595.28 | 6 71 | 6697 0 | 0 0 | 10 8 | 106 4 | 0 0 | 38 5 | 693 7 | 10 5 | 1294 8 | 0 0 | 24 7 |
| 2.05 | 595 33 | 6.69 | 6694 2 | 0 0 | 0 0 | 115.9 | 0 0 | 0 0 | 1015 0 | 10 5 | 1451 0 | 0 0 | 0 0 |
| 2 06 | 595 21 | 6.68 | 6675 1 | 0 0 | 6 2 | 106.1 | 0 0 | 36 4 | 666 7 | 10 4 | 1287 4 | 0 0 | 22 0 |
| 2.39 | 593 85 | 6 37 | 5287 1 | 345 9 | 736 7 | 92.1 | 74 9 | 287 6 | 654 0 | 9 4 | 1010 2 | 159 4 | 862 7 |
| 2.73 | 592.00 | 6 08 | 3558.2 | 345 6 | 2175 2 | 80 0 | 105 1 | 445 2 | 630.3 | 8 3 | 722 1 | 210 2 | 1290 7 |
| 2.99 | 591.05 | 5.83 | 3915 2 | 731.4 | 1186 1 | 86 7 | 182 7 | 276 6 | 548 7 | 7 7 | 805 0 | 419 1 | 755 9 |
| 3.26 | 590 18 | 5 60 | 4109 6 | 964 8 | 527 6 | 93 6 | 248 9 | 135 5 | 488 1 | 7 0 | 878 3 | 575 5 | 359 2 |

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TT = 10.5000 DTH = 1.0000 ITERR = 2
QU(1) = 690.00 YU(1) = 599 20 QU(N) = 7074 81 YU(N) = 591 07 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

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TT = 10 5000 DTH = 1 0000 ITERR = 2
QU(1) = 690 00 YU(1) = 599 20 QU(N) = 7074 81 YU(N) = 591 07 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 599 20 | 0.69 | 441 2 | 219 8 | 29.0 | 75 0 | 418 0 | 242 1 | 1055 3 | 9 6 | 939 6 | 1857 5 | 423 6 |
| 0 52 | 599.19 | 0.19 | 116.1 | 49 9 | 20 4 | 68 0 | 240 0 | 114 4 | 1012 0 | 11 0 | 913 5 | 1246 0 | 620 6 |
| 0 68 | 599 19 | 0 03 | 20 4 | 13 2 | 0 1 | 104 0 | 1051 7 | 36 2 | 1415 7 | 12 0 | 1191 5 | 4024 3 | 45 3 |
| 0 70 | 599 19 | 0 01 | 5 6 | 3 8 | 0 0 | 88 0 | 1047 0 | 46 2 | 2057 1 | 12 0 | 1132 7 | 4063 6 | 67 2 |
| 0 92 | 598 95 | 8.92 | 5640.6 | 3184 6 | 90.9 | 88 0 | 1089 6 | 75 8 | 1253 4 | 12 2 | 1222 3 | 5023 3 | 167 0 |
| 1 39 | 597 74 | 8 36 | 3105 3 | 4718 5 | 533 8 | 81 0 | 469 7 | 115 2 | 665 8 | 12 2 | 1134 5 | 3054 7 | 389 6 |
| 1 50 | 597 62 | 8.32 | 3944 2 | 3420 5 | 959 1 | 89 7 | 313 0 | 123 7 | 563 4 | 12 4 | 1273 5 | 1998 6 | 531 9 |
| 1 61 | 597 47 | 8.29 | 4962 6 | 1835 0 | 1496 0 | 98 3 | 156 4 | 132 2 | 461 2 | 12 4 | 1418 1 | 975 1 | 667 3 |
| 1 72 | 597 30 | 8.27 | 7087.3 | 0 0 | 1179 6 | 106 6 | 0 0 | 141 3 | 359 7 | 12 3 | 1570 4 | 0 0 | 798 7 |
| 1 88 | 596 88 | 8.16 | 7567 8 | 0 0 | 592 3 | 108 6 | 0 0 | 102 7 | 652 1 | 12 0 | 1495 8 | 0 0 | 419 6 |
| 2 04 | 596 28 | 7.98 | 7921 5 | 0 0 | 58 7 | 110 8 | 0 0 | 60 0 | 970 8 | 11 5 | 1403 5 | 0 0 | 76 8 |
| 2.05 | 596 34 | 7.96 | 7963 5 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1073 1 | 11 6 | 1567 4 | 0 0 | 0 0 |
| 2 06 | 596 20 | 7 95 | 7911 4 | 0 0 | 35 3 | 110 6 | 0 0 | 60 0 | 970 6 | 11 4 | 1395 0 | 0 0 | 72 2 |
| 2 39 | 594 61 | 7 59 | 5938 0 | 617.2 | 1033 4 | 94 0 | 94 8 | 345 4 | 866 5 | 10 1 | 1080 9 | 223 8 | 1102 9 |
| 2 73 | 592 83 | 7.36 | 3954 1 | 517 9 | 2886 7 | 80 0 | 148 6 | 546 8 | 775 4 | 9 1 | 788 5 | 315 3 | 1702 0 |
| 2 99 | 591 94 | 7.20 | 4412 8 | 1095 0 | 1696 6 | 87 5 | 235 8 | 331 4 | 654 7 | 8 6 | 882 0 | 600 6 | 1023 2 |
| 3.26 | 591.07 | 7 07 | 4754 8 | 1523 3 | 796 7 | 95 0 | 307 0 | 160 7 | 562 7 | 7 9 | 962 1 | 821 3 | 491 2 |

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TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744.00 YU(1) = 599 62 QU(N) = 8062 31 YU(N) = 591 60 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 11 5000 DTH = 1 0000 ITERR = 2
QU(1) = 744.00 YU(1) = 599.62 QU(N) = 8062 31 YU(N) = 591 60 FRDM=0 02 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 599 62 | 0.74 | 458 4 | 247 1 | 38 5 | 75 0 | 429 5 | 272 4 | 1138 9 | 10 1 | 971 0 | 2034 6 | 531 1 |
| 0.52 | 599.61 | 0.55 | 337 1 | 156 6 | 55 1 | 68 0 | 240 0 | 145 5 | 1063 8 | 11 4 | 941 7 | 1345 5 | 674 4 |
| 0.68 | 599 61 | 0.49 | 283 5 | 201 7 | 1 2 | 104 0 | 1092 6 | 71 4 | 1543 7 | 12 4 | 1234 7 | 4469 1 | 67 7 |
| 0.70 | 599 60 | 0 48 | 266 8 | 207 3 | 2 5 | 88 0 | 1077 5 | 81 4 | 2288.9 | 12 5 | 1169 2 | 4504 4 | 93 7 |
| 0.92 | 599 39 | 9.03 | 5495 7 | 3426 4 | 106 5 | 88 0 | 1178 2 | 86 4 | 1352 6 | 12 7 | 1261 3 | 5525 5 | 203 0 |
| 1.39 | 598 32 | 8.77 | 3130 9 | 5097 6 | 545.3 | 81 0 | 473 8 | 158 5 | 713 3 | 12 8 | 1181 4 | 3327 2 | 464 6 |
| 1.50 | 598.21 | 8.76 | 3982 1 | 3763 1 | 1015 2 | 91 3 | 315 0 | 148 4 | 592 0 | 13 0 | 1326 5 | 2182 8 | 609 0 |
| 1.61 | 598 06 | 8.75 | 5051 9 | 2048 6 | 1648.7 | 99 7 | 156 9 | 143 5 | 473 9 | 13 0 | 1476 9 | 1068 3 | 748 7 |
| 1.72 | 597 91 | 8.74 | 7386 9 | 0 0 | 1352 2 | 107 8 | 0 0 | 148 8 | 366 9 | 12 9 | 1635 0 | 0 0 | 886 1 |
| 1.88 | 597.48 | 8.69 | 7952 6 | 0 0 | 737 0 | 114 0 | 0 0 | 111 0 | 682 4 | 12 6 | 1562 5 | 0 0 | 484 1 |
| 2 04 | 596 85 | 8 62 | 8511 3 | 0 0 | 111 9 | 112 6 | 0 0 | 60 0 | 972.6 | 12 1 | 1467 3 | 0 0 | 111 1 |
| 2.05 | 596.92 | 8.62 | 8618 5 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1122 1 | 12 1 | 1633 2 | 0 0 | 0 0 |
| 2.06 | 596 77 | 8 61 | 8544 4 | 0 0 | 69.5 | 112 3 | 0 0 | 60 0 | 972 3 | 12 0 | 1457 7 | 0 0 | 106 0 |
| 2 39 | 595.06 | 8 47 | 6329 8 | 873 9 | 1265.6 | 95 1 | 105 5 | 375 2 | 975 7 | 10 6 | 1123 4 | 269 0 | 1265 8 |
| 2 73 | 593 33 | 8 33 | 4223 8 | 668 6 | 3434 7 | 80 0 | 174 8 | 608 0 | 862 8 | 9 6 | 828 4 | 396 2 | 1990 5 |
| 2 99 | 592.46 | 8 19 | 4756 9 | 1365 3 | 2066 1 | 87 5 | 275 4 | 365 8 | 728 7 | 9 1 | 927 4 | 733 3 | 1204 3 |
| 3 26 | 591 60 | 8 06 | 5157 4 | 1887 5 | 1017 4 | 95 0 | 359 8 | 166 0 | 620 8 | 8 4 | 1012 2 | 997 2 | 577 4 |

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*TT = 12 5000 DTH = 1 0000 ITERR = 2
QU(1) = 826 00 YU(1) = 599 64 QU(N) = 8576 69 YU(N) = 591 86 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 12.5000 DTH = 1 0000 ITERR = 2
QU(1) = 826 00 YU(1) = 599 64 QU(N) = 8576 69 YU(N) = 591 86 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 599 64 | 0 83 | 508 2 | 274 7 | 43 0 | 75 0 | 430 0 | 273 6 | 1142 1 | 10 1 | 972 2 | 2041 4 | 535 4 |
| 0 52 | 599 60 | 0 95 | 581 3 | 270 0 | 95 1 | 68 0 | 240 0 | 145 3 | 1063 6 | 11 4 | 941 6 | 1345 1 | 674 1 |
| 0 68 | 599 60 | 0.99 | 577 4 | 410.3 | 2 3 | 104 0 | 1091 9 | 70 8 | 1541 5 | 12 4 | 1234 0 | 4461 5 | 67 2 |
| 0 70 | 599 60 | 1 00 | 558.6 | 433 2 | 5 2 | 88 0 | 1076 9 | 80 8 | 2284 7 | 12 5 | 1168 6 | 4496 4 | 93 1 |
| 0 92 | 599 40 | 8 51 | 5169.0 | 3238 2 | 100 3 | 88 0 | 1179 2 | 86 5 | 1353 7 | 12 7 | 1261 7 | 5531 2 | 203 4 |
| 1 39 | 598 41 | 8 63 | 3064.0 | 5035 4 | 532 5 | 81.0 | 474 9 | 169 1 | 725 0 | 12.9 | 1188 5 | 3369 2 | 479 1 |
| 1 50 | 598.30 | 8 64 | 3903 0 | 3741 3 | 990 8 | 91 8 | 315 8 | 156 7 | 602 0 | 13 1 | 1335 1 | 2212 6 | 623 4 |
| 1.61 | 598.16 | 8 64 | 4961 9 | 2051.3 | 1624 4 | 100 9 | 157 3 | 149 1 | 481 8 | 13.1 | 1486 9 | 1084 0 | 763 3 |
| 1 72 | 598 01 | 8 64 | 7282 8 | 0 0 | 1357 4 | 108 2 | 0 0 | 150 3 | 368 6 | 13 0 | 1646 3 | 0 0 | 901 8 |
| 1 88 | 597 59 | 8 65 | 7894 1 | 0 0 | 756.2 | 115 2 | 0 0 | 112 4 | 685 6 | 12 7 | 1575 8 | 0 0 | 497 1 |
| 2 04 | 596.97 | 8 66 | 8532.5 | 0 0 | 123 7 | 112 9 | 0 0 | 60 0 | 972 9 | 12 2 | 1481 1 | 0 0 | 118 4 |
| 2 05 | 597 04 | 8 66 | 8656 0 | 0.0 | 0 0 | 115 0 | 0 0 | 0 0 | 1132 4 | 12 2 | 1647 0 | 0 0 | 0 0 |
| 2.06 | 596 89 | 8 66 | 8578 2 | 0 0 | 77 4 | 112 7 | 0 0 | 60 0 | 972 7 | 12 1 | 1471 4 | 0 0 | 113 3 |
| 2.39 | 595 20 | 8 65 | 6342 4 | 971 5 | 1339.5 | 95 3 | 106 5 | 375 5 | 977 2 | 10 7 | 1136 1 | 283 2 | 1315 9 |
| 2 73 | 593 55 | 8 63 | 4265.4 | 732 8 | 3635.2 | 80 0 | 186 4 | 635 0 | 901 5 | 9 8 | 846 1 | 436 1 | 2127 8 |
| 2 99 | 592 71 | 8 61 | 4866 8 | 1500 9 | 2237.7 | 87 5 | 294 6 | 382 6 | 764 7 | 9 4 | 949 5 | 805 4 | 1299 0 |
| 3 26 | 591 86 | 8 58 | 5346 9 | 2096 7 | 1133 1 | 95 0 | 386 2 | 168 6 | 649 8 | 8 7 | 1037 3 | 1095 8 | 621 7 |

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TT = 13 5000 DTH = 1.0000 ITERR = 2
QU(1) = 936 50 YU(1) = 599 34 QU(N) = 8457 38 YU(N) = 591 83 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

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TT = 13 5000 DTH = 1 0000 ITERR = 2
QU(1) = 936 50 YU(1) = 599 34 QU(N) = 8457.38 YU(N) = 591 83 FRDM=0 03 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 599 34 | 0.94 | 591.3 | 302 8 | 42 4 | 75 0 | 421.9 | 252 4 | 1083 6 | 9 8 | 950 2 | 1916 8 | 458 5 |
| 0 52 | 599 29 | 1 24 | 773 0 | 339.1 | 132.7 | 68 0 | 240 0 | 122 0 | 1024 6 | 11 1 | 920 4 | 1270 3 | 632.5 |
| 0.68 | 599 28 | 1 34 | 804 4 | 534 0 | 2 8 | 104 0 | 1060 8 | 44 0 | 1444 0 | 12 1 | 1201 1 | 4121 1 | 49 0 |
| 0 70 | 599 28 | 1.36 | 790.8 | 559 5 | 6 2 | 88 0 | 1053 6 | 53 9 | 2107 8 | 12 1 | 1140 7 | 4158 9 | 71 8 |
| 0.92 | 599 08 | 7 75 | 4832 3 | 2834 6 | 82 2 | 88 0 | 1115 7 | 78 9 | 1282 5 | 12 4 | 1233 8 | 5166 7 | 177 1 |
| 1 39 | 598.13 | 8 06 | 2907 4 | 4638 4 | 517 5 | 81 0 | 471 6 | 135 9 | 688 5 | 12 6 | 1166 1 | 3238 3 | 436 9 |
| 1 50 | 598.03 | 8 08 | 3707 7 | 3409 5 | 961 4 | 90 2 | 313.6 | 132 9 | 573 5 | 12 9 | 1310 6 | 2127 7 | 584 4 |
| 1 61 | 597.90 | 8 09 | 4713.6 | 1862.6 | 1515 5 | 98 9 | 156 6 | 138 6 | 467 6 | 12 9 | 1461 3 | 1043 6 | 726 6 |
| 1 72 | 597 77 | 8 10 | 6871 6 | 0 0 | 1230 0 | 107 5 | 0 0 | 147 1 | 365.2 | 12 8 | 1619 9 | 0 0 | 865 5 |
| 1.88 | 597 38 | 8 14 | 7467 3 | 0 0 | 673 3 | 113 0 | 0 0 | 109 7 | 679 6 | 12 5 | 1551 3 | 0 0 | 473 2 |
| 2 04 | 596 80 | 8 20 | 8096 2 | 0 0 | 101 9 | 112 4 | 0 0 | 60 0 | 972 4 | 12 0 | 1461 4 | 0 0 | 108 0 |
| 2 05 | 596 86 | 8 20 | 8203 2 | 0 0 | 0 0 | 115 0 | 0 0 | 0 0 | 1116 9 | 12 1 | 1626 3 | 0 0 | 0 0 |
| 2 06 | 596.72 | 8 21 | 8144.8 | 0.0 | 63 6 | 112 2 | 0 0 | 60.0 | 972 2 | 11 9 | 1452 2 | 0 0 | 103 1 |
| 2 39 | 595 10 | 8 31 | 6167 4 | 888 3 | 1256 3 | 95 2 | 105 8 | 375 3 | 976 2 | 10 6 | 1127 2 | 273 2 | 1280 6 |
| 2 73 | 593 49 | 8 38 | 4168 2 | 700 6 | 3508 0 | 80 0 | 183 3 | 627 8 | 891 1 | 9 8 | 841 4 | 425 1 | 2090 2 |
| 2.99 | 592 67 | 8 42 | 4784 6 | 1458 1 | 2179 5 | 87.5 | 291 5 | 379 8 | 758 7 | 9 3 | 945 9 | 793 1 | 1283 0 |
| 3 26 | 591 83 | 8 46 | 5287 6 | 2057 7 | 1112 1 | 95 0 | 383 3 | 168 3 | 646 6 | 8 7 | 1034 5 | 1084 6 | 616 8 |

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TT = 14 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1047.00 YU(1) = 598.82 QU(N) = 7919 50 YU(N) = 591 60 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 14 5000 DTH = 1.0000 ITERR = 2
QU(1) = 1047 00 YU(1) = 598 82 QU(N) = 7919 50 YU(N) = 591 60 FRDM=0 04 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598.82 | 1 05 | 692 7 | 318 8 | 35 5 | 75.0 | 407 6 | 214 5 | 979 1 | 9 3 | 911 0 | 1700 1 | 336 5 |
| 0 52 | 598 73 | 1 50 | 951 6 | 376 2 | 169 9 | 68 0 | 236 0 | 100 0 | 970 0 | 10 6 | 882 4 | 1136 6 | 573 4 |
| 0 68 | 598 71 | 1 65 | 1036 0 | 606 3 | 3 8 | 104 0 | 990 1 | 18 6 | 1298 2 | 11 5 | 1141 6 | 3533 2 | 34 4 |
| 0 70 | 598 71 | 1 67 | 1039 1 | 622 1 | 7 3 | 88 0 | 990 5 | 27 8 | 1847 9 | 11 6 | 1090 3 | 3570 8 | 51 6 |
| 0 92 | 598 50 | 6 70 | 4363 5 | 2282 5 | 58 0 | 88 0 | 1000 1 | 65 0 | 1153 1 | 11 8 | 1182 9 | 4555 4 | 135 5 |
| 1 39 | 597 60 | 7 18 | 2703 6 | 4026 6 | 447 0 | 81 0 | 469 5 | 112 4 | 662 9 | 12 1 | 1122 7 | 2986 3 | 373 1 |
| 1 50 | 597.50 | 7 20 | 3445 1 | 2935 1 | 819 3 | 89 7 | 312 9 | 121 7 | 561 4 | 12 3 | 1262 8 | 1961 3 | 517 3 |
| 1 61 | 597.38 | 7 22 | 4342 4 | 1583 9 | 1292 4 | 98 2 | 156 4 | 131 0 | 459 9 | 12 4 | 1409 8 | 961 8 | 656 1 |
| 1 72 | 597.26 | 7 24 | 6209 7 | 0.0 | 1026 5 | 106 5 | 0 0 | 140 7 | 359 1 | 12 3 | 1565 2 | 0 0 | 791 8 |
| 1.88 | 596.91 | 7 31 | 6772 7 | 0.0 | 534 7 | 108 7 | 0.0 | 103 3 | 656 5 | 12 0 | 1499 3 | 0 0 | 422 9 |
| 2 04 | 596 39 | 7 41 | 7346 5 | 0 0 | 61.8 | 111 2 | 0 0 | 60 0 | 971 2 | 11 6 | 1415 4 | 0 0 | 83 3 |
| 2 05 | 596 44 | 7 42 | 7416 3 | 0.0 | 0 0 | 115 0 | 0 0 | 0 0 | 1081 0 | 11 6 | 1578 1 | 0 0 | 0 0 |
| 2 06 | 596.31 | 7 42 | 7386 4 | 0 0 | 38 0 | 110 9 | 0 0 | 60 0 | 970 9 | 11 5 | 1407 2 | 0 0 | 78 8 |
| 2 39 | 594.83 | 7 62 | 5826 2 | 704 7 | 1084 3 | 94 6 | 100 5 | 361 9 | 927 0 | 10 3 | 1101 3 | 244 9 | 1179 4 |
| 2.73 | 593.24 | 7.74 | 3971 6 | 606 9 | 3165 5 | 80 0 | 169 9 | 596 5 | 846 4 | 9 5 | 820 9 | 380 0 | 1934 1 |
| 2 99 | 592.42 | 7.84 | 4569.7 | 1299 7 | 1970 4 | 87 5 | 272 9 | 363 7 | 724 1 | 9 1 | 924 6 | 724 6 | 1192 7 |
| 3 26 | 591.60 | 7 92 | 5063.8 | 1855 5 | 1000 3 | 95 0 | 360 2 | 166 0 | 621 3 | 8 4 | 1012 6 | 998 9 | 578 2 |

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TT = 15 5000 DTH = 1.0000 ITERR = 2
QU(1) = 1158.00 YU(1) = 598 15 QU(N) = 7133 01 YU(N) = 591 22 FRDM=0 00 IFR= 14 FRM=7.00 IFM= 0

**********

TT = 15.5000 DTH = 1.0000 ITERR = 2
QU(1) = 1158 00 YU(1) = 598 15 QU(N) = 7133 01 YU(N) = 591 22 FRDM=0 05 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 598 15 | 1 16 | 813 6 | 319.7 | 24 7 | 75 0 | 389 2 | 166 2 | 845 9 | 8 6 | 861 1 | 1434 8 | 209 8 |
| 0 52 | 598.02 | 1.63 | 1085 8 | 374 8 | 170 7 | 68 0 | 225 3 | 100 0 | 921 8 | 9 8 | 833 8 | 971 8 | 501 9 |
| 0 68 | 597 98 | 1 79 | 1192 1 | 590 9 | 2 7 | 104 0 | 882 0 | 14 9 | 1150 0 | 10 8 | 1065 8 | 2850 7 | 22 2 |
| 0 70 | 597 98 | 1 81 | 1202 9 | 599 8 | 4 9 | 88 0 | 884 0 | 22 3 | 1589 9 | 10 8 | 1026 0 | 2886 2 | 33 3 |
| 0 92 | 597 76 | 5 71 | 3902 8 | 1772 8 | 36 7 | 87 7 | 880 4 | 49 8 | 1017 9 | 11 1 | 1118 0 | 3868 2 | 93 8 |
| 1 39 | 596.88 | 6 20 | 2509 0 | 3352 0 | 338 3 | 81 0 | 468 6 | 99 1 | 648 7 | 11 3 | 1065 0 | 2652 0 | 297 7 |
| 1.50 | 596.79 | 6 23 | 3169 3 | 2402 5 | 656 5 | 89 2 | 312 3 | 109 8 | 549 0 | 11 6 | 1199 2 | 1738 8 | 434 9 |
| 1 61 | 596 68 | 6 25 | 3936 7 | 1267 8 | 1049 0 | 97 2 | 156 1 | 120 7 | 449 6 | 11 6 | 1340 9 | 851 6 | 567 4 |
| 1 72 | 596.56 | 6 28 | 5467 9 | 0 0 | 807 3 | 105 1 | 0 0 | 132 0 | 350 7 | 11 6 | 1491 7 | 0 0 | 697 1 |
| 1 88 | 596.25 | 6 35 | 5946 0 | 0 0 | 407 2 | 106 8 | 0 0 | 91 3 | 567 0 | 11 4 | 1428 6 | 0 0 | 359 1 |
| 2 04 | 595 79 | 6 48 | 6451 2 | 0 0 | 24 3 | 108 9 | 0 0 | 53 6 | 887 9 | 11 0 | 1349 1 | 0 0 | 47 9 |
| 2.05 | 595 83 | 6 49 | 6486 4 | 0 0 | 0 0 | 115 1 | 0 0 | 0 0 | 1032 4 | 11 0 | 1508 0 | 0 0 | 0 0 |
| 2 06 | 595 72 | 6.50 | 6482 5 | 0 0 | 14 8 | 108 6 | 0 0 | 51 6 | 862 4 | 10 9 | 1342 0 | 0 0 | 44 4 |
| 2.39 | 594.41 | 6 74 | 5354.6 | 502 4 | 881 8 | 93.5 | 89 4 | 329 8 | 809 1 | 9 9 | 1061 6 | 204 9 | 1033 7 |
| 2 73 | 592 84 | 6 90 | 3706 5 | 486 4 | 2708 9 | 80 0 | 148 9 | 547 4 | 776 3 | 9 1 | 788 9 | 316 1 | 1704 7 |
| 2 99 | 592 03 | 7.03 | 4264.4 | 1085 6 | 1676 6 | 87 5 | 242 9 | 337 6 | 667 9 | 8 7 | 890 1 | 622 8 | 1054 4 |
| 3 26 | 591 22 | 7 13 | 4728 9 | 1571 6 | 832 5 | 95 0 | 322 0 | 162 2 | 579 2 | 8 0 | 976 3 | 868 3 | 515 4 |

**********

TT = 16.5000 DTH = 1.0000 ITERR = 2
QU(1) = 1282 00 YU(1) = 597 52 QU(N) = 6283 14 YU(N) = 590 75 FRDM=0 00 IFR= 14 FRM=7 00 IFM= 0

**********

TT = 16 5000 DTH = 1 0000 ITERR = 2
QU(1) = 1282 00 YU(1) = 597 52 QU(N) = 6283 14 YU(N) = 590 75 FRDM=0 06 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 52 | 1.28 | 954 3 | 312 4 | 15 3 | 75 0 | 371 7 | 120 0 | 718 5 | 8 0 | 813 3 | 1192 5 | 118 7 |
| 0 52 | 597 32 | 1.65 | 1153 8 | 340 2 | 155 8 | 68 0 | 214 8 | 100 0 | 874 6 | 9 1 | 786 3 | 818 0 | 432 0 |
| 0 68 | 597 27 | 1.78 | 1256 3 | 518 6 | 1 6 | 104 0 | 775 8 | 11 3 | 1004 4 | 10 0 | 991 3 | 2257 1 | 12 8 |
| 0 70 | 597 26 | 1 79 | 1270 0 | 520 4 | 2 7 | 88 0 | 779 5 | 17 0 | 1336 5 | 10 1 | 962 9 | 2289 5 | 19 2 |
| • 0 92 | 597 03 | 4.99 | 3620 7 | 1347 6 | 20 9 | 86 8 | 819.6 | 40 1 | 946 5 | 10 3 | 1053 7 | 3241 9 | 60 6 |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 39 | 596 11 | 5.43 | 2397.2 | 2780 0 | 252 6 | 81 0 | 467 6 | 84 6 | 633 3 | 10 6 | 1002 6 | 2291 5 | 227 0 |
| 1 50 | 596 01 | 5 46 | 2989 1 | 1943 1 | 526 8 | 88 7 | 311 7 | 96 9 | 535 6 | 10 8 | 1130 1 | 1496 5 | 354 6 |
| 1.61 | 595 90 | 5 48 | 3640 4 | 993 5 | 850 9 | 96 2 | 155 8 | 109 3 | 438.2 | 10 9 | 1265 7 | 730 3 | 477 9 |
| 1.72 | 595 79 | 5 51 | 4879.6 | 0.0 | 628.5 | 103 6 | 0 0 | 122 3 | 341.4 | 10 8 | 1410 8 | 0 0 | 598 6 |
| 1 88 | 595.50 | 5.58 | 5274 5 | 0 0 | 308 9 | 104 5 | 0 0 | 77 5 | 464 2 | 10 6 | 1348 9 | 0 0 | 295 5 |
| 2 04 | 595 06 | 5 68 | 5677 3 | 0 0 | 5 6 | 105 3 | 0 0 | 31 8 | 608 2 | 10 3 | 1271 3 | 0 0 | 16 9 |
| 2 05 | 595 09 | 5 69 | 5692 9 | 0 0 | 0 0 | 116 3 | 0 0 | 0 0 | 1006 6 | 10 3 | 1423 2 | 0 0 | 0 0 |
| 2 06 | 595 00 | 5 70 | 5699 5 | 0 0 | 3 2 | 105 0 | 0 0 | 30 0 | 584 9 | 10 2 | 1265 0 | 0 0 | 15 0 |
| 2 39 | 593.91 | 5 90 | 4866 1 | 338 0 | 693 1 | 92 3 | 76.3 | 291 7 | 669 2 | 9 4 | 1015 3 | 163 5 | 878 5 |
| 2 73 | 592.36 | 6 05 | 3422.2 | 375.3 | 2254 8 | 80 0 | 123 7 | 488 7 | 692 4 | 8 6 | 750 5 | 250.8 | 1456.4 |
| 2 99 | 591 55 | 6 18 | 3923 4 | 879.9 | 1372 3 | 87.5 | 206 4 | 305 9 | 599 8 | 8 2 | 848 3 | 515 4 | 900 5 |
| 3.26 | 590.75 | 6.28 | 4357.4 | 1261 4 | 664 4 | 94 6 | 284 5 | 152 5 | 534 7 | 7 6 | 931 8 | 727 4 | 441 2 |

NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 16.500 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CRDSS-SECTION NO. 2 3 4 5 6 7 8 9 10 11
NDNCONVERGENCE OCCURRED AT CROSS-SECTION ND 12 13 14 15 16 17
TT= 16 500 DTH= 0 250 ITERR= 9

**********

TT = 16 7500 DTH = 0 2500 ITERR = 2
QU(1) = 1316.00 YU(1) = 597 38 QU(N) = 5991 01 YU(N) = 590 59 FRDM=0 00 IFR= 17 FRM=7.00 IFM= 0

**********

TT = 16 7500 DTH = 0 2500 ITERR = 2
QU(1) = 1316 00 YU(1) = 597.38 QU(N) = 5991 01 YU(N) = 590 59 FROM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 38 | 1 32 | 991 6 | 310 8 | 13 6 | 75 0 | 368 0 | 110 3 | 691 7 | 7 8 | 803 3 | 1142 9 | 103 2 |
| 0 52 | 597 18 | 1 59 | 1126 3 | 320 8 | 147 0 | 68 0 | 212 7 | 100 0 | 865 3 | 9 0 | 776 9 | 788 5 | 418 2 |
| 0 68 | 597 13 | 1.68 | 1199 6 | 477.3 | 1 3 | 104 0 | 755 8 | 10 7 | 977 0 | 9 9 | 977 3 | 2153 6 | 11 3 |
| 0 70 | 597.13 | 1 69 | 1209 7 | 476 5 | 2 2 | 88 0 | 759 8 | 15 9 | 1289 0 | 10 0 | 951 1 | 2186 0 | 16 9 |
| 0 92 | 596 88 | 4.97 | 3653 5 | 1302 6 | 18 8 | 86 6 | 807 6 | 38 2 | 932 3 | 10 2 | 1041 1 | 3123 5 | 54 9 |
| 1 39 | 595 93 | 5.31 | 2398 6 | 2676 7 | 237 3 | 81 0 | 467 4 | 81 2 | 629 6 | 10 4 | 987 7 | 2205 5 | 211 7 |
| 1 50 | 595.83 | 5 34 | 2979 6 | 1856 5 | 504.2 | 88 6 | 311 5 | 93 8 | 532 3 | 10 7 | 1113 5 | 1437 9 | 336 7 |
| 1.61 | 595 71 | 5 37 | 3609 3 | 940 3 | 815 6 | 95 9 | 155 7 | 106 6 | 435 4 | 10 7 | 1247 3 | 700 5 | 457 3 |
| 1 72 | 595.59 | 5.39 | 4792 0 | 0 0 | 595 5 | 103.2 | 0 0 | 119 9 | 339 1 | 10 6 | 1390 9 | 0 0 | 575 2 |
| 1.88 | 595.30 | 5.46 | 5165.0 | 0 0 | 291 2 | 103 9 | 0 0 | 73 9 | 437 7 | 10 4 | 1328 7 | 0 0 | 280 8 |
| 2 04 | 594 85 | 5 55 | 5545 9 | 0 0 | 3.1 | 104 3 | 0 0 | 25 6 | 528 8 | 10 1 | 1249 7 | 0 0 | 10 9 |
| 2.05 | 594 89 | 5 56 | 5559 8 | 0 0 | 0.0 | 116 6 | 0 0 | 0 0 | 999 3 | 10 1 | 1399 0 | 0 0 | 0 0 |
| 2 06 | 594 79 | 5 57 | 5568 8 | 0 0 | 1 7 | 104.0 | 0 0 | 23 8 | 505 2 | 10 0 | 1243 3 | 0 0 | 9 4 |
| 2 39 | 593 79 | 5 75 | 4779 4 | 308 2 | 657 5 | 92.0 | 73 2 | 282 7 | 636 0 | 9 3 | 1004 3 | 154 6 | 844 4 |
| 2.73 | 592 20 | 5 91 | 3392 1 | 352 5 | 2163 8 | 80 0 | 115 7 | 470 1 | 665 8 | 8 5 | 738 4 | 232 6 | 1383.7 |
| 2 99 | 591 38 | 5 96 | 3852 3 | 817 0 | 1286 4 | 87 3 | 197 3 | 295 7 | 581 0 | 8 0 | 833 5 | 481 5 | 849 9 |
| 3 26 | 590 59 | 5 99 | 4222 2 | 1154.6 | 614.2 | 94.3 | 274 4 | 147 7 | 521 5 | 7 4 | 916 7 | 682 4 | 417.0 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 16.750 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 12 13 14 15 16 17
TT= 16 750 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 16 13
TT= 16.750 DTH= 0 125 ITERR= 9

**********

TT = 16 8750 DTH = 0 1250 ITERR = 2
QU(1) = 1333 00 YU(1) = 597 33 QU(N) = 5922 41 YU(N) = 590 56 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 16 8750 DTH = 0 1250 ITERR = 2
QU(1) = 1333 00 YU(1) = 597 33 QU(N) = 5922 41 YU(N) = 590 56 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 597 33 | 1 33 | 1009 2 | 310 8 | 13 0 | 75 0 | 366 6 | 106 5 | 681 1 | 7 8 | 799 3 | 1123 5 | 97 5 |
| 0.52 | 597 11 | 1 61 | 1142 4 | 319.7 | 146 5 | 68 0 | 211 7 | 100 0 | 860 7 | 8 9 | 772 3 | 774 2 | 411 5 |
| 0.68 | 597 05 | 1 73 | 1242 4 | 484 0 | 1 2 | 104 0 | 744 6 | 10 3 | 961 6 | 9 8 | 969 4 | 2096 9 | 10 6 |
| 0.70 | 597 05 | 1 74 | 1257 9 | 484 3 | 2.1 | 88 0 | 748 7 | 15 4 | 1261 9 | 9 9 | 944 3 | 2128 2 | 15 7 |
| 0 92 | 596 80 | 4 88 | 3603 5 | 1255 3 | 17 4 | 86 5 | 801 1 | 37 1 | 924 7 | 10 1 | 1034 3 | 3060 1 | 52 0 |
| 1 39 | 595 84 | 5 28 | 2411 1 | 2641.0 | 231 5 | 81 0 | 467 3 | 79 6 | 627 9 | 10 3 | 980 8 | 2165 5 | 204 8 |
| 1 50 | 595.74 | 5 31 | 2989 3 | 1824 2 | 496.1 | 88 5 | 311 4 | 92 3 | 530 8 | 10 6 | 1105 6 | 1410 3 | 328 5 |
| 1 61 | 595 62 | 5 33 | 3611 1 | 919 2 | 802 8 | 95 8 | 155 7 | 105 2 | 434 0 | 10 6 | 1238 5 | 686 3 | 447 6 |
| 1 72 | 595 50 | 5.35 | 4772 3 | 0 0 | 582 6 | 103 0 | 0 0 | 118 8 | 338 0 | 10 5 | 1381 3 | 0 0 | 564 1 |
| 1 88 | 595 21 | 5 42 | 5139 4 | 0 0 | 284 3 | 103 6 | 0 0 | 72 1 | 424 4 | 10 3 | 1318 5 | 0 0 | 273 6 |
| 2 04 | 594 73 | 5.52 | 5519 9 | 0 0 | 2 1 | 103 7 | 0.0 | 22 0 | 482 5 | 9 9 | 1237.2 | 0 0 | 8 1 |
| 2 05 | 594.77 | 5 53 | 5534 3 | 0 0 | 0 0 | 116 8 | 0 0 | 0 0 | 995 0 | 10 0 | 1384 9 | 0 0 | 0 0 |
| 2.06 | 594 67 | 5 55 | 5545 4 | 0.0 | 1 1 | 103 3 | 0 0 | 20 1 | 457 9 | 9 9 | 1230 6 | 0 0 | 6 7 |
| 2 39 | 593 74 | 5 73 | 4778.5 | 299 0 | 647 7 | 91 8 | 71 8 | 278 7 | 621 2 | 9 2 | 999 5 | 150 8 | 829 5 |
| 2 73 | 592 16 | 5 79 | 3338 9 | 342.2 | 2111 9 | 80 0 | 113 6 | 465 2 | 658 8 | 8 5 | 735 2 | 228 0 | 1364 9 |
| 2 99 | 591 35 | 5 87 | 3809 2 | 799 3 | 1261 6 | 87 2 | 196 0 | 294 0 | 578 2 | 8 0 | 831 1 | 475 9 | 841 5 |
| 3.26 | 590 56 | 5 92 | 4184 5 | 1133 7 | 604 1 | 94 2 | 272 8 | 146 9 | 519 4 | 7 4 | 914 2 | 675 4 | 413 2 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 16 875 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 16 875 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 16 875 DTH= 0 125 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURREO AT CROSS-SECTION NO 16 17
TT= 16 875 DTH= 0 063 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 11 12 13 14 15 16 17
TT= 16 875 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SEC TION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURREO AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 16 875 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 16 875 DTH= 0 250 ITERR= 9

**********

TT = 17.3750 DTH = 0.5000 ITERR = 9

QU(1) = 1341 50 YU(1) = 597.30 QU(N) = 5888 11 YU(N) = 590 55 FRDM=0.00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 17 3750 DTH = 0 5000 ITERR = 9
QU(1) = 1341 50 YU(1) = 597 30 QU(N) = 5888 11 YU(N) = 590.55 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597.30 | 1 34 | 1018 1 | 310.7 | 12 7 | 75.0 | 365 9 | 104 6 | 675 8 | 7 7 | 797 3 | 1113 8 | 94 7 |
| 0 52 | 597 08 | 1 62 | 1150 5 | 319 1 | 146 3 | 68 0 | 211 2 | 100 0 | 858 5 | 8 9 | 770 0 | 767 0 | 408 1 |
| 0 68 | 597 02 | 1 75 | 1263 9 | 487 2 | 1 2 | 104 0 | 739 0 | 10 1 | 953 9 | 9.8 | 965.5 | 2068 9 | 10 2 |
| 0 70 | 597 01 | 1 77 | 1282.2 | 488 0 | 2 0 | 88 0 | 743 1 | 15 1 | 1248 4 | 9 9 | 941 0 | 2099 7 | 15 2 |
| 0.92 | 596 76 | 4 83 | 3578 1 | 1231 9 | 16.7 | 86 5 | 797 8 | 36 6 | 920 9 | 10 1 | 1030 9 | 3028 6 | 50 5 |
| 1 39 | 595.80 | 5 27 | 2417 6 | 2623.1 | 228 6 | 81 0 | 467 3 | 78 8 | 627 0 | 10 3 | 977 3 | 2145 5 | 201 5 |
| 1 50 | 595 69 | 5.29 | 2994 3 | 1807.9 | 492 1 | 88 5 | 311 4 | 91 5 | 530 0 | 10 5 | 1101 7 | 1396 5 | 324 4 |
| 1.61 | 595 57 | 5 32 | 3612.0 | 908 7 | 796 4 | 95 8 | 155 7 | 104 6 | 433 4 | 10 5 | 1234 1 | 679 2 | 442 8 |
| 1 72 | 595 45 | 5 34 | 4762 4 | 0 0 | 576 2 | 102 9 | 0 0 | 118 2 | 337 4 | 10 5 | 1376 4 | 0.0 | 558 5 |
| 1.88 | 595.16 | 5 41 | 5126 5 | 0.0 | 280 9 | 103 5 | 0 0 | 71 2 | 417 7 | 10 3 | 1313 4 | 0 0 | 270 1 |
| 2.04 | 594 67 | 5 51 | 5506 9 | 0 0 | 1 7 | 103 4 | 0 0 | 20 2 | 459 3 | 9 9 | 1231 0 | 0 0 | 6 8 |
| 2 05 | 594 71 | 5.52 | 5521 6 | 0 0 | 0 0 | 116 9 | 0 0 | 0 0 | 992 9 | 9 9 | 1377 9 | 0 0 | 0 0 |
| 2 06 | 594 61 | 5 53 | 5533 7 | 0 0 | 0 9 | 103 0 | 0 0 | 18 3 | 434 3 | 9 8 | 1224 3 | 0 0 | 5 6 |
| 2 39 | 593 71 | 5 72 | 4777 9 | 294.5 | 642 9 | 91 8 | 71 1 | 276 6 | 613 8 | 9 2 | 997 0 | 148 9 | 822 2 |
| 2 73 | 592 14 | 5.74 | 3312 0 | 337 2 | 2086 1 | 80 0 | 112 6 | 462 7 | 655.3 | 8 4 | 733 6 | 225 7 | 1355 6 |
| 2.99 | 591 34 | 5 83 | 3787 5 | 790 5 | 1249 3 | 87 2 | 195 4 | 293 2 | 576 8 | 8 0 | 829 8 | 473 2 | 837 3 |
| 3.26 | 590 55 | 5 89 | 4165 6 | 1123 4 | 599 1 | 94 2 | 272 0 | 146 6 | 518 4 | 7 4 | 913 0 | 671 9 | 411 3 |

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 375 DTH= 0 500 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 375 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 12 13 14 15 16 17
TT= 17 375 DTH= 0 125 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 6 7 8 9 10 11 12 13 14 15
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 16 17
TT= 17 375 DTH= 0 063 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 375 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 2 3 4 5 6 7 8 9 10 11
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 12 13 14 15 16 17
TT= 17 375 DTH= 0 250 ITERR= 9

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 1 2 3 4 5 6 7 8 9 10
NONCONVERGENCE OCCURRED AT CROSS-SECTION NO 11 12 13 14 15 16 17
TT= 17 375 DTH= 0 250 ITERR= 9

**********

TT = 17 8750 DTH = 0 5000 ITERR = 9
QU(1) = 1345.75 YU(1) = 597 29 QU(N) = 5870 96 YU(N) = 590 55 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 17 8750 DTH = 0 5000 ITERR = 9
QU(1) = 1345.75 YU(1) = 597 29 QU(N) = 5870.96 YU(N) = 590.55 FRDM=0 07 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 597 29 | 1.35 | 1022 5 | 310 7 | 12 6 | 75 0 | 365 5 | 103 6 | 673 2 | 7 7 | 796 3 | 1109 0 | 93 3 |
| 0 52 | 597 06 | 1 62 | 1154 6 | 318 8 | 146 1 | 68 0 | 211 0 | 100 0 | 857 3 | 8 9 | 768 9 | 763 5 | 406 4 |
| 0 68 | 597 00 | 1 76 | 1274 8 | 488 7 | 1 2 | 104 0 | 736 2 | 10 0 | 950 1 | 9 8 | 963 5 | 2055 0 | 10 0 |
| 0.70 | 596 99 | 1 79 | 1294 4 | 489 7 | 2 0 | 88 0 | 740 3 | 14 9 | 1241 6 | 9 8 | 939 3 | 2085 5 | 14 9 |
| 0.92 | 596 74 | 4 80 | 3565.4 | 1220 3 | 16 4 | 86.4 | 796 2 | 36 3 | 918 9 | 10 0 | 1029 2 | 3012 9 | 49 8 |
| 1.39 | 595 78 | 5 26 | 2420 8 | 2614 0 | 227 2 | 81 0 | 467 2 | 78 4 | 626 6 | 10 2 | 975 5 | 2135 5 | 199 8 |
| 1 50 | 595 67 | 5 29 | 2996.8 | 1799.7 | 490 2 | 88 4 | 311 4 | 91 2 | 529 6 | 10 5 | 1099 7 | 1389 6 | 322 4 |
| 1.61 | 595.55 | 5.31 | 3612 5 | 903.4 | 793.2 | 95.7 | 155 6 | 104 2 | 433 0 | 10 5 | 1232 0 | 675.6 | 440 5 |
| 1 72 | 595 43 | 5 33 | 4757 4 | 0 0 | 573 0 | 102 9 | 0 0 | 117 9 | 337 2 | 10 5 | 1374 0 | 0 0 | 555 8 |
| 1.88 | 595 13 | 5 40 | 5120.0 | 0 0 | 279 3 | 103 4 | 0 0 | 70 8 | 414 3 | 10 2 | 1310 9 | 0 0 | 268 4 |
| 2 04 | 594 64 | 5 50 | 5500 3 | 0 0 | 1 5 | 103 2 | 0 0 | 19 3 | 447 7 | 9 9 | 1227 9 | 0 0 | 6 2 |
| 2 05 | 594.68 | 5.52 | 5515 2 | 0 0 | 0 0 | 116.9 | 0 0 | 0 0 | 991 8 | 9 9 | 1374 4 | 0 0 | 0 0 |
| 2 06 | 594 58 | 5 53 | 5527 8 | 0 0 | 0 7 | 102 9 | 0 0 | 17 3 | 422 5 | 9 8 | 1221 1 | 0 0 | 5 0 |
| 2 39 | 593 70 | 5 71 | 4777 6 | 292 2 | 640 4 | 91 7 | 70 8 | 275 6 | 610 1 | 9 2 | 995 8 | 148 0 | 818 6 |
| 2 73 | 592 13 | 5.71 | 3298 5 | 334 7 | 2073 2 | 80 0 | 112 1 | 461 5 | 653 6 | 8 4 | 732 8 | 224 6 | 1351 0 |
| 2.99 | 591 33 | 5.81 | 3776.6 | 786 2 | 1243 2 | 87 2 | 195 1 | 292 8 | 576 1 | 8 0 | 829 2 | 471 8 | 835 3 |
| 3 26 | 590 55 | 5.87 | 4156 2 | 1118 2 | 596 6 | 94 2 | 271 6 | 146 4 | 517 8 | 7 4 | 912 4 | 670 1 | 410 4 |

**********

TT = 18 8750 DTH = 1 0000 ITERR = 7
QU(1) = 1625 38 YU(1) = 596 84 QU(N) = 5145.68 YU(N) = 590 04 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 18 8750 DTH = 1 0000 ITERR = 7
QU(1) = 1625 38 YU(1) = 596 84 QU(N) = 5145 68 YU(N) = 590 04 FRDM=0 09 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 84 | 1 63 | 1285 7 | 330 8 | 8 8 | 75 0 | 353 2 | 71 2 | 583 9 | 7 3 | 762 8 | 948 5 | 54 3 |
| 0 52 | 596.44 | 1.94 | 1450 3 | 333 2 | 152.7 | 68.0 | 201 5 | 100 0 | 815 0 | 8 3 | 726.2 | 634 1 | 343 7 |
| 0.68 | 596.31 | 2.03 | 1546 0 | 482 7 | 0 5 | 104 0 | 634 6 | 6 6 | 810 8 | 9 1 | 892 3 | 1585 4 | 4 3 |
| 0 70 | 596 30 | 2 04 | 1563 9 | 473 6 | 0 8 | 88 0 | 640 0 | 9 8 | 998 5 | 9 2 | 878 7 | 1610 5 | 6 4 |
| 0 92 | 596.03 | 4 11 | 3220 4 | 878 9 | 7 3 | 85 5 | 737 2 | 26 9 | 849 6 | 9 3 | 967 7 | 2465 0 | 27 2 |
| 1 39 | 595.09 | 4.46 | 2250 5 | 2041 9 | 163 1 | 81 0 | 466 4 | 65 4 | 612 7 | 9 5 | 919 3 | 1811 5 | 149 9 |
| 1 50 | 594 98 | 4 48 | 2738 7 | 1362 7 | 383 2 | 88 0 | 310 8 | 79 6 | 517 6 | 9 8 | 1038 5 | 1173 8 | 263 1 |
| 1 61 | 594.86 | 4 51 | 3225 7 | 660 2 | 623 3 | 94 8 | 155 4 | 94 2 | 423 0 | 9 8 | 1166 7 | 569 1 | 372 5 |
| 1.72 | 594.76 | 4.53 | 4097 5 | 0 0 | 431 8 | 101.5 | 0 0 | 109 5 | 329 1 | 9 8 | 1305 5 | 0 0 | 479 5 |
| 1 88 | 594 52 | 4 57 | 4356 0 | 0 0 | 215 2 | 101.5 | 0.0 | 59 5 | 330.4 | 9 6 | 1247 8 | 0 0 | 228 3 |
| 2 04 | 594.18 | 4 58 | 4579.6 | 0 0 | 0 0 | 100 9 | 0 0 | 5 4 | 269 5 | 9 4 | 1180 6 | 0 0 | 0 5 |
| 2 05 | 594 21 | 4 58 | 4579.1 | 0 0 | 0 0 | 117 7 | 0 0 | 0 0 | 975 3 | 9 4 | 1319 2 | 0 0 | 0 0 |
| 2.06 | 594 14 | 4 58 | 4578 4 | 0 0 | 0 0 | 100 7 | 0 0 | 4 1 | 252 5 | 9 4 | 1176 2 | 0 0 | 0 3 |
| 2 39 | 593 07 | 4 65 | 4016.2 | 177 5 | 454 5 | 90 2 | 54 4 | 228 1 | 435 7 | 8 6 | 939 2 | 109 0 | 661 7 |
| 2 73 | 591 62 | 4 89 | 3007 6 | 238 5 | 1647 3 | 79 2 | 95 0 | 412 1 | 586 3 | 7 9 | 691 6 | 171 8 | 1126 3 |
| 2 99 | 590 82 | 5 02 | 3458 5 | 586 2 | 973 2 | 86 2 | 172 2 | 262 8 | 525 5 | 7 5 | 784 5 | 377 0 | 691 9 |
| 3 26 | 590 04 | 5 15 | 3827 9 | 848.7 | 469 2 | 93 3 | 239 8 | 131 1 | 476 3 | 6 9 | 864 7 | 540 0 | 339 8 |

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TT = 19 8750 DTH = 1 0000 ITERR = 2
QU(1) = 1795 00 YU(1) = 596.57 QU(N) = 4457.07 YU(N) = 589 51 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 19 8750 DTH = 1 0000 ITERR = 2
QU(1) = 1795 00 YU(1) = 596.57 QU(N) = 4457 07 YU(N) = 589 51 FRDM=0 11 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 57 | 1 80 | 1454 6 | 333 3 | 7 0 | 75 0 | 345 8 | 51.6 | 529 8 | 7 0 | 742 5 | 853.9 | 37 7 |
| 0.52 | 596 10 | 1 85 | 1423 2 | 291 1 | 133 0 | 68 0 | 196 5 | 100 0 | 792 2 | 7.9 | 703 2 | 566 8 | 309 9 |
| 0 68 | 595.96 | 1 88 | 1469 3 | 408.7 | 0 2 | 104 0 | 582 2 | 4 8 | 738.9 | 8 7 | 855 5 | 1370 1 | 2 3 |
| 0.70 | 595.95 | 1 88 | 1485 4 | 396 7 | 0 4 | 88.0 | 588 4 | 7 1 | 873 4 | 8 8 | 847 6 | 1392 9 | 3 4 |
| 0.92 | 595 64 | 3 99 | 3218.1 | 764 8 | 4.4 | 85 1 | 705 4 | 21 8 | 812 2 | 8 9 | 934 8 | 2186 8 | 17 9 |
| 1.39 | 594.65 | 4 11 | 2214.6 | 1762 2 | 135 2 | 81 0 | 465 8 | 57 2 | 604 1 | 9 1 | 884 3 | 1609 7 | 123.4 |
| 1 50 | 594 54 | 4 12 | 2647.0 | 1139 8 | 334 8 | 87.7 | 310 4 | 72 3 | 510 0 | 9 4 | 999 9 | 1037 2 | 229 7 |
| 1.61 | 594.42 | 4 13 | 3054.9 | 534 7 | 541 4 | 94 2 | 155 2 | 87 8 | 416 5 | 9 4 | 1125 0 | 500 6 | 332 3 |
| 1 72 | 594.32 | 4 14 | 3777 8 | 0 0 | 362.4 | 100 6 | 0 0 | 104 0 | 323 8 | 9 4 | 1261.2 | 0 0 | 432 7 |
| 1 88 | 594.09 | 4.17 | 3977 5 | 0 0 | 187 5 | 100 3 | 0 0 | 51 6 | 272 2 | 9 2 | 1204 7 | 0 0 | 204 5 |
| 2 04 | 593 77 | 4.20 | 4201 5 | 0 0 | 0 0 | 99 7 | 0 0 | 0 0 | 193 9 | 9 0 | 1139 4 | 0 0 | 0 0 |
| 2 05 | 593 79 | 4.21 | 4208 4 | 0 0 | 0 0 | 117 3 | 0 0 | 0 0 | 927 4 | 9 0 | 1270 0 | 0 0 | 0 0 |
| 2.06 | 593 72 | 4 22 | 4215 4 | 0 0 | 0 0 | 99 7 | 0 0 | 0 0 | 192 7 | 8 9 | 1134 8 | 0 0 | 0 0 |
| 2 39 | 592.60 | 4 28 | 3790 6 | 128 9 | 362.4 | 89 3 | 47 2 | 205 1 | 386 7 | 8 1 | 896 4 | 84 9 | 558 9 |
| 2.73 | 591.12 | 4 30 | 2810 8 | 164 3 | 1320 5 | 78 2 | 81 9 | 369 2 | 529 3 | 7 4 | 652 4 | 127 8 | 932 1 |
| 2 99 | 590 30 | 4.38 | 3195 6 | 429.9 | 757.5 | 85.2 | 149 2 | 232 6 | 474 5 | 6 9 | 740 0 | 293 6 | 563 4 |
| 3.26 | 589 51 | 4 46 | 3480 7 | 619 0 | 357 4 | 92 4 | 206 9 | 115 3 | 433 2 | 6 3 | 815 8 | 422 5 | 275 0 |

**********

TT = 20.8750 DTH = 1 0000 ITERR = 1
QU(1) = 1911 50 YU(1) = 596.49 QU(N) = 4146 99 YU(N) = 589 22 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 20.8750 DTH = 1 0000 ITERR = 1
QU(1) = 1911 50 YU(1) = 596 49 QU(N) = 4146 99 YU(N) = 589 22 FRDM=0 12 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 596 49 | 1 91 | 1560 8 | 343.9 | 6 9 | 75 0 | 343 4 | 45 4 | 512 8 | 6 9 | 736 2 | 824 6 | 33 5 |
| 0.52 | 595 89 | 2 00 | 1570 3 | 297 1 | 135 4 | 68.0 | 193.4 | 100 0 | 778 4 | 7 7 | 689 3 | 527 0 | 289 4 |
| 0.68 | 595 68 | 2 04 | 1631 0 | 412 8 | 0 1 | 104 0 | 541.3 | 3 4 | 682.9 | 8 5 | 826 8 | 1215 3 | 1 2 |
| 0.70 | 595 67 | 2 05 | 1650 9 | 397 3 | 0 2 | 88 0 | 547 8 | 5 0 | 775 0 | 8 5 | 823 0 | 1234 7 | 1 7 |
| 0 92 | 595.34 | 3 74 | 3086.5 | 653 3 | 2.6 | 84 7 | 680 8 | 17 8 | 783 2 | 8 6 | 909 5 | 1979 8 | 11 9 |
| 1 39 | 594.32 | 3 93 | 2228.8 | 1577 8 | 118 9 | 81.0 | 465 4 | 51.0 | 597 4 | 8 8 | 857 2 | 1454 3 | 105 3 |
| 1 50 | 594.19 | 3 94 | 2638 0 | 996 1 | 308 4 | 87 5 | 310 2 | 66 5 | 504 0 | 9 0 | 969 7 | 930 3 | 205 8 |
| 1.61 | 594.07 | 3.96 | 3006 0 | 455 1 | 496 2 | 93 8 | 155 0 | 82 7 | 411 4 | 9 0 | 1092 0 | 446 2 | 302 4 |
| 1 72 | 593.97 | 3.97 | 3644 7 | 0 0 | 325 2 | 100 0 | 0 0 | 99 6 | 319 1 | 9 0 | 1225 7 | 0 0 | 396 7 |
| 1 88 | 593.73 | 3 99 | 3821.6 | 0 0 | 171 7 | 99.8 | 0 0 | 48 3 | 252 8 | 8 8 | 1169 2 | 0 0 | 186 9 |
| 2.04 | 593.41 | 4.00 | 4000 0 | 0 0 | 0 0 | 99.3 | 0 0 | 0 0 | 184 6 | 8 6 | 1103 9 | 0 0 | 0 0 |
| 2.05 | 593.43 | 4 00 | 4000.5 | 0 0 | 0 0 | 116.1 | 0 0 | 0 0 | 859 3 | 8 6 | 1228 3 | 0 0 | 0 0 |
| 2.06 | 593.37 | 4.00 | 4001 1 | 0 0 | 0 0 | 99 2 | 0 0 | 0 0 | 183 4 | 8 6 | 1099 6 | 0 0 | 0 0 |
| 2 39 | 592 37 | 4 02 | 3598 7 | 105 6 | 314 8 | 89.0 | 44 2 | 195 2 | 370 5 | 7 9 | 875 9 | 74 4 | 512 8 |
| 2 73 | 590.87 | 4.09 | 2760 7 | 135 5 | 1196 1 | 77 7 | 75 4 | 347 9 | 501 1 | 7 2 | 633 2 | 108 4 | 843 6 |
| 2 99 | 590 02 | 4.12 | 3089 9 | 362 6 | 663 4 | 84 7 | 136 7 | 216 3 | 446 9 | 6 7 | 716 0 | 253 4 | 500 1 |
| 3 26 | 589 22 | 4.15 | 3320 8 | 518 6 | 307 6 | 91 9 | 188 8 | 106 6 | 409 6 | 6 0 | 789 2 | 365 2 | 242 8 |

**********

TT = 21 8750 DTH = 1 0000 ITERR = 1
QU(1) = 2172 63 YU(1) = 596 53 QU(N) = 3935 48 YU(N) = 589 01 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 21 8750 DTH = 1 0000 ITERR = 1
QU(1) = 2172.63 YU(1) = 596 53 QU(N) = 3935 48 YU(N) = 589 01 FRDM=0 13 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 53 | 2.17 | 1767.1 | 397.4 | 8 2 | 75 0 | 344 7 | 48 6 | 521 6 | 7 0 | 739 5 | 839 7 | 35 6 |
| 0 52 | 595 82 | 2 13 | 1683 6 | 309 1 | 140 7 | 68 0 | 192 3 | 100 0 | 773 3 | 7 6 | 684 2 | 512 5 | 281 9 |
| 0 68 | 595 54 | 2 13 | 1718 7 | 413 8 | 0 1 | 104 0 | 520 4 | 2 7 | 654 2 | 8 3 | 812 1 | 1140 3 | 0 7 |
| 0.70 | 595.53 | 2 13 | 1737 4 | 395 5 | 0 1 | 88 0 | 526 9 | 4 0 | 724 4 | 8 4 | 810 4 | 1157 8 | 1 0 |
| 0 92 | 595 17 | 3 74 | 3119 2 | 614 1 | 1 8 | 84 5 | 666 3 | 15.5 | 766 2 | 8 5 | 894 7 | 1861 7 | 9 0 |
| 1 39 | 594 11 | 3 77 | 2215 9 | 1445 8 | 108 7 | 81 0 | 465 1 | 47 1 | 593 2 | 8 6 | 840 3 | 1357 2 | 95 1 |
| 1 50 | 593.98 | 3 77 | 2588.0 | 897 0 | 288 9 | 87 3 | 308 7 | 63 1 | 499 1 | 8 8 | 951 2 | 864 3 | 192 0 |
| 1 61 | 593 86 | 3 78 | 2906 4 | 409 6 | 461 0 | 93 6 | 150 6 | 79 9 | 402 7 | 8 8 | 1072 1 | 413 5 | 285 1 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.72 | 593 76 | 3 78 | 3480 6 | 0 0 | 299 3 | 99 9 | 0 0 | 96 9 | 313 1 | 8 8 | 1204.5 | 0 0 | 375 9 |
| 1.88 | 593 53 | 3.79 | 3630 2 | 0 0 | 157 1 | 99 6 | 0 0 | 47 1 | 247 2 | 8 6 | 1148 8 | 0 0 | 177 1 |
| 2 04 | 593 22 | 3 80 | 3799 6 | 0 0 | 0 0 | 99 0 | 0 0 | 0 0 | 179 5 | 8 4 | 1084 6 | 0 0 | 0 0 |
| 2 05 | 593 23 | 3 80 | 3802.0 | 0 0 | 0 0 | 115 5 | 0 0 | 0 0 | 821 6 | 8 4 | 1205 4 | 0 0 | 0 0 |
| 2.06 | 593 17 | 3.80 | 3804.3 | 0 0 | 0 0 | 99 0 | 0 0 | 0 0 | 178 3 | 8 4 | 1080 4 | 0 0 | 0 0 |
| 2 39 | 592 16 | 3 84 | 3470.3 | 88.1 | 279 3 | 88 6 | 41 4 | 186 1 | 355 6 | 7 7 | 857 1 | 65 3 | 472 5 |
| 2 73 | 590 67 | 3 86 | 2664 9 | 112.2 | 1079 0 | 77 3 | 70 2 | 330 7 | 478 3 | 7 0 | 617 7 | 93 9 | 776 0 |
| 2 99 | 589 81 | 3 90 | 2988 5 | 315 9 | 595 6 | 84 3 | 127 6 | 204 4 | 426 9 | 6 5 | 698 8 | 226 4 | 457 2 |
| 3 26 | 589 01 | 3 94 | 3208 0 | 453 0 | 274 5 | 91 5 | 175 3 | 100 2 | 391 9 | 5 8 | 769 4 | 326 0 | 220 5 |

**********

TT = 22 8750 DTH = 1 0000 ITERR = 1
QU(1) = 2377.75 YU(1) = 596 68 QU(N) = 3805 69 YU(N) = 588 85 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 22 8750 DTH = 1 0000 ITERR = 1
QU(1) = 2377 75 YU(1) = 596 68 QU(N) = 3805 69 YU(N) = 588 85 FRDM=0 14 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 00 | 596 68 | 2.38 | 1909.3 | 457 9 | 10 5 | 75 0 | 348 6 | 59 0 | 550 3 | 7 1 | 750 2 | 889 5 | 43 4 |
| 0 52 | 595.86 | 2.34 | 1839 5 | 342 9 | 156 2 | 68 0 | 192 8 | 100 0 | 775 8 | 7 7 | 686 7 | 519 7 | 285 6 |
| 0 68 | 595 48 | 2.34 | 1895 0 | 446 3 | 0 1 | 104 0 | 511 3 | 2 4 | 641 7 | 8 3 | 805 8 | 1108 7 | 0 6 |
| 0.70 | 595 46 | 2 34 | 1917 1 | 425 3 | 0 1 | 88 0 | 517 5 | 3 5 | 701 5 | 8 3 | 804 7 | 1123 9 | 0 8 |
| 0 92 | 595 09 | 3.69 | 3096 1 | 588.4 | 1 5 | 84 4 | 659 5 | 14 4 | 758 3 | 8 4 | 887 7 | 1807 2 | 7 8 |
| 1.39 | 594 01 | 3 74 | 2233 8 | 1398 2 | 105 3 | 81 0 | 465 0 | 45 1 | 591 1 | 8 5 | 831 9 | 1308 9 | 90 3 |
| 1.50 | 593 87 | 3 74 | 2590 2 | 870 6 | 281 6 | 87 3 | 302 0 | 61 8 | 490 4 | 8 7 | 941 6 | 830 9 | 185 2 |
| 1.61 | 593.74 | 3 75 | 2901 5 | 395 2 | 450 2 | 93.6 | 147 0 | 78 6 | 396 6 | 8 7 | 1061 4 | 396 5 | 276 1 |
| 1.72 | 593 64 | 3 75 | 3460.0 | 0 0 | 291 3 | 99 8 | 0 0 | 95 5 | 309 8 | 8 7 | 1192 8 | 0 0 | 364 6 |
| 1 88 | 593 40 | 3 76 | 3607 0 | 0 0 | 152 5 | 99 5 | 0 0 | 46 3 | 243 9 | 8 5 | 1136 4 | 0 0 | 171 4 |
| 2 04 | 593.09 | 3 76 | 3761 7 | 0 0 | 0 0 | 98 9 | 0 0 | 0 0 | 176 0 | 8 3 | 1071 6 | 0 0 | 0 0 |
| 2 05 | 593 10 | 3 76 | 3761 9 | 0 0 | 0 0 | 115 1 | 0 0 | 0 0 | 796 4 | 8 3 | 1190 2 | 0 0 | 0 0 |
| 2.06 | 593 04 | 3 76 | 3762 1 | 0.0 | 0 0 | 98 8 | 0 0 | 0 0 | 174 9 | 8 3 | 1067 3 | 0 0 | 0 0 |
| 2.39 | 592 06 | 3 76 | 3416 9 | 81 0 | 264 7 | 88 5 | 40 2 | 182 0 | 349 0 | 7 6 | 848 8 | 61 5 | 455 2 |
| 2 73 | 590 56 | 3 78 | 2651 8 | 101 4 | 1031 2 | 77.1 | 67 2 | 320 7 | 465 0 | 6 8 | 608 8 | 85 9 | 738 2 |
| 2.99 | 589.67 | 3 79 | 2945 5 | 289 0 | 557 0 | 84.1 | 121 3 | 196 2 | 413 0 | 6 3 | 686 9 | 208 8 | 428 9 |
| 3 26 | 588 85 | 3 81 | 3139 7 | 412 2 | 253 7 | 91 2 | 165 8 | 95 6 | 379 5 | 5 7 | 755 5 | 300 0 | 205 6 |

**********

TT = 23.8750 DTH = 1 0000 ITERR = 1
QU(1) = 2572 63 YU(1) = 596 82 QU(N) = 3751 33 YU(N) = 588 77 FRDM=0 00 IFR= 15 FRM=7 00 IFM= 0

**********

TT = 23 8750 DTH = 1 0000 ITERR = 1
QU(1) = 2572 63 YU(1) = 596 82 QU(N) = 3751 33 YU(N) = 588 77 FRDM=0 15 IFR= 1 FRM=

| X(I) | Y | QQ | QQC | QQL | QQR | B | BL | BR | BT | WAVEHT | A | AL | AR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 596 82 | 2.57 | 2038 8 | 520 2 | 13 6 | 75 0 | 352 6 | 69 7 | 579 7 | 7 3 | 761 3 | 941 1 | 52 8 |
| 0.52 | 595 92 | 2 52 | 1970.3 | 376 3 | 171 5 | 68 0 | 193 8 | 100 0 | 779 9 | 7 7 | 690 9 | 531 5 | 291 8 |
| 0.68 | 595 47 | 2 51 | 2032 0 | 477 1 | 0.1 | 104 0 | 510 1 | 2 4 | 640 1 | 8 2 | 804 9 | 1104 5 | 0 6 |
| 0 70 | 595 45 | 2 51 | 2054 6 | 453 9 | 0 1 | 88 0 | 515 9 | 3 4 | 697 7 | 8 3 | 803 8 | 1118 3 | 0 8 |
| 0 92 | 595.06 | 3 72 | 3129.0 | 586 8 | 1 4 | 84 3 | 657 1 | 14 0 | 755 4 | 8 3 | 885 2 | 1787 5 | 7 4 |
| 1 39 | 593 96 | 3 71 | 2231 5 | 1378.6 | 103 0 | 81 0 | 461.3 | 44 6 | 586 9 | 8 4 | 828 2 | 1287 6 | 88 2 |
| 1 50 | 593 82 | 3.71 | 2580 2 | 855 5 | 277 2 | 87 3 | 299 0 | 61 3 | 486 7 | 8 6 | 937 4 | 816 6 | 182 3 |
| 1.61 | 593 69 | 3 71 | 2882 7 | 387 0 | 443 1 | 93 6 | 145 6 | 78 0 | 394 0 | 8 7 | 1056 9 | 389 4 | 272 3 |
| 1.72 | 593 59 | 3 71 | 3426 4 | 0 0 | 286.0 | 99.8 | 0 0 | 94 9 | 308 5 | 8 6 | 1188 0 | 0.0 | 360 0 |
| 1.88 | 593 36 | 3 71 | 3562.6 | 0 0 | 149 3 | 99 4 | 0 0 | 46 0 | 242 6 | 8 5 | 1131 9 | 0 0 | 169 3 |
| 2 04 | 593 04 | 3 71 | 3714 0 | 0 0 | 0 0 | 98 8 | 0 0 | 0 0 | 174 9 | 8 3 | 1067 6 | 0 0 | 0 0 |
| 2 05 | 593 06 | 3.71 | 3714 4 | 0 0 | 0 0 | 114 9 | 0 0 | 0 0 | 788 6 | 8 3 | 1185 4 | 0 0 | 0 0 |
| 2.06 | 593 00 | 3 71 | 3714 8 | 0 0 | 0 0 | 98 8 | 0 0 | 0 0 | 173 8 | 8 2 | 1063 4 | 0 0 | 0 0 |
| 2.39 | 592 01 | 3 73 | 3391 4 | 77 1 | 256 7 | 88 4 | 39 4 | 179 6 | 345 0 | 7 5 | 843 8 | 59 3 | 445 0 |
| 2 73 | 590 50 | 3 73 | 2631 6 | 95 6 | 1001 9 | 77 0 | 65 6 | 315 5 | 458 1 | 6 8 | 604 1 | 81 9 | 719 1 |
| 2 99 | 589.60 | 3 74 | 2926 1 | 276 7 | 539 3 | 83 9 | 118 3 | 192 2 | 406 3 | 6 2 | 681 1 | 200 6 | 415 6 |

3 26 588 77 3 75 3113 9 393 3 244 1 91 1 150 8 93 2 372 9 5 6 748 1 286 8

ROUTING COMPLETED

KTIME= 30 ALLOWABLE KTIME= 698 TT= 24 9

PROFILE OF CRESTS AND TIMES FOR LINTON RIVER 1981
BELOW RED RUN DRAIN AT C

| RVR MILE FROM DAM | MAX ELEV (FT) | MAX FLOW (CFS) | TIME MAX ELEV(HR) | MAX VEL (FT/SEC) | MAX VEL (MI/HR) | FLOOD ELEV (FT) | TIME FLOOD ELEV (HR) |
|---|---|---|---|---|---|---|---|
| 0.000 | 599.64 | 2572 | 12 500 | 1 47 | 1 00 | 599 00 | 10 50 |
| 0 523 | 599 61 | 2518 | 11 500 | 1 66 | 1 13 | 599 00 | 10 50 |
| 0 682 | 599 61 | 2509 | 11 500 | 1.31 | 0 90 | 598 00 | 9 50 |
| 0 696 | 599 60 | 2508 | 11 500 | 1 30 | 0 89 | 597 00 | 9 50 |
| 0 919 | 599.40 | 9028 | 12 500 | 1 29 | 0.88 | 599 00 | 11 50 |
| 1.389 | 598 41 | 8773 | 12 500 | 1 76 | 1 20 | 600 00 | 0 00 |
| 1 500 | 598 30 | 8760 | 12 500 | 2.13 | 1 45 | 600 00 | 0 00 |
| 1 611 | 598 16 | 8749 | 12 500 | 2 66 | 1 81 | 600 00 | 0 00 |
| 1 722 | 598 01 | 8739 | 12 500 | 3 47 | 2 36 | 600 00 | 0 00 |
| 1 881 | 597 59 | 8689 | 12 500 | 4 25 | 2 89 | 300 00 | 0 00 |
| 2 040 | 596 97 | 8656 | 12 500 | 5.41 | 3 69 | 0 00 | 0 00 |
| 2 051 | 597 04 | 8655 | 12 500 | 5 26 | 3 58 | 600 00 | 0 00 |
| 2 062 | 596 89 | 8655 | 12 500 | 5 46 | 3 72 | 0 00 | 0 00 |
| 2 395 | 595 20 | 8653 | 12 500 | 3 16 | 2 16 | 299 50 | 0 00 |
| 2 727 | 593 55 | 8633 | 12 500 | 2 53 | 1 73 | 599 00 | 0 00 |
| 2 994 | 592 71 | 8605 | 12 500 | 2 82 | 1 92 | 593 50 | 0 00 |
| 3 261 | 591 86 | 8576 | 12 500 | 3 11 | 2 12 | 588 00 | 8 50 |

00BREAK00

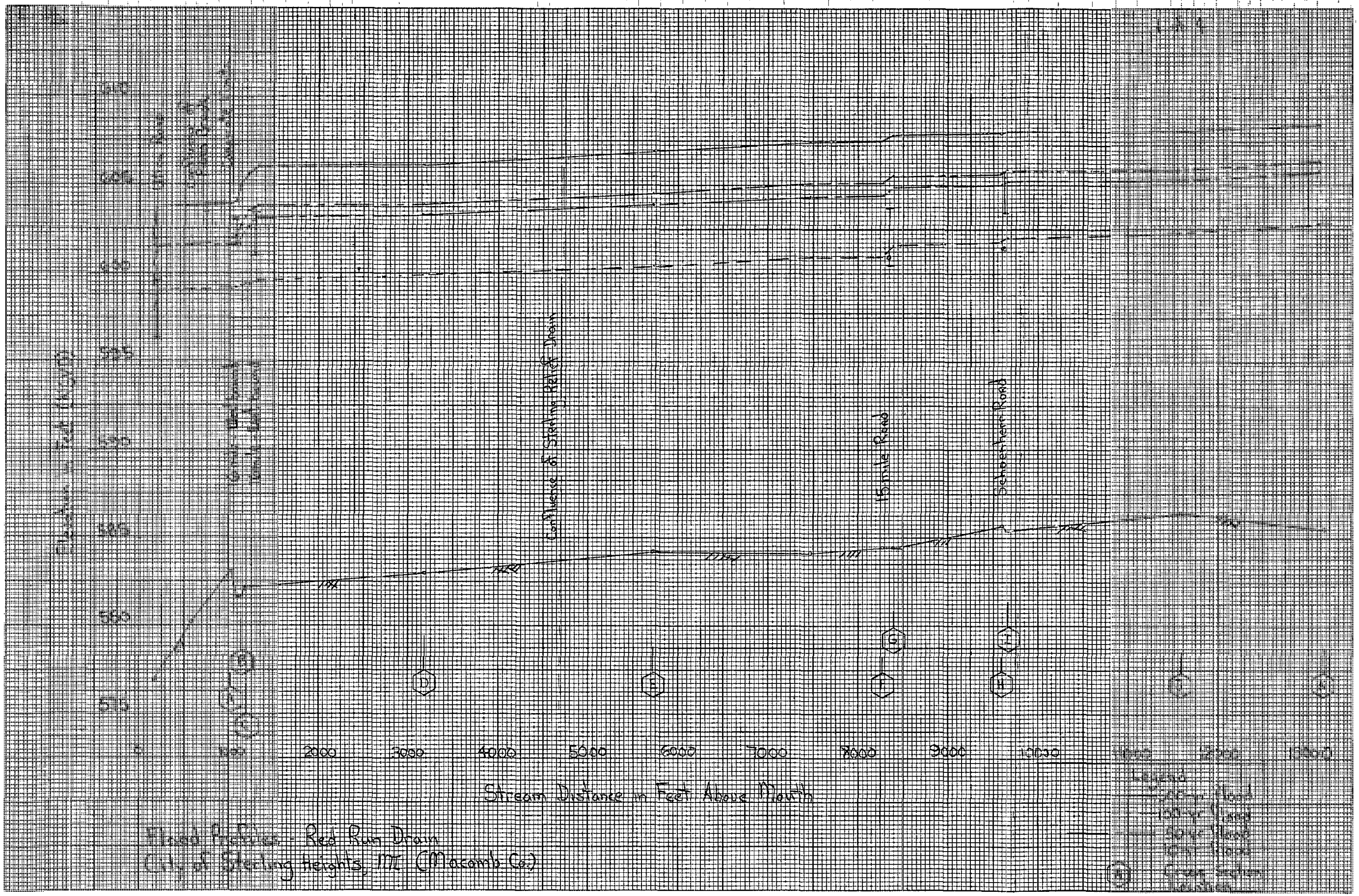
1) COUNTY: Macomb

2) STUDY NAME:

3) WATERCOURSE: Red Run Drain

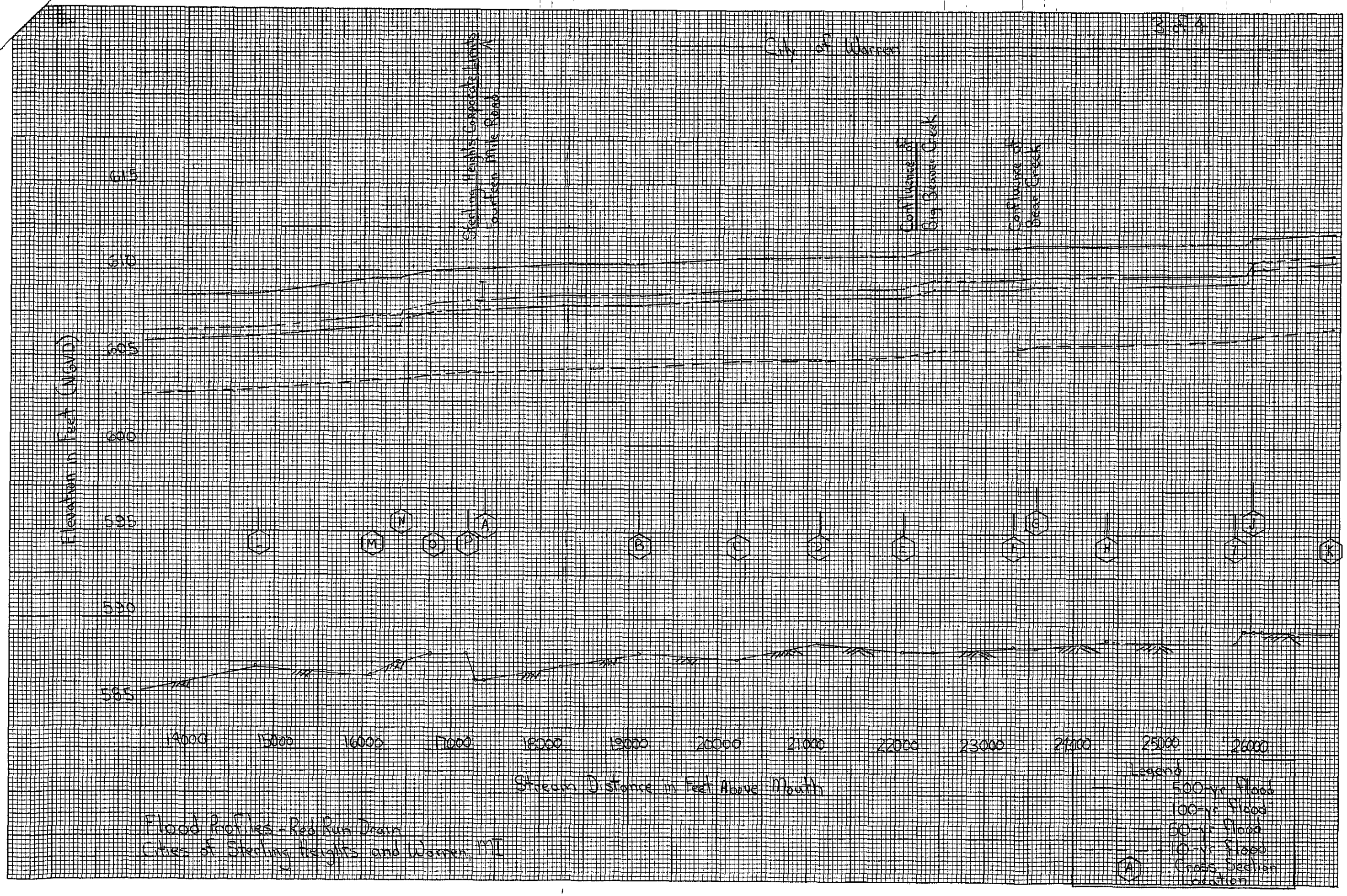
4) DOCUMENT TYPE: Profile

00BREAK00

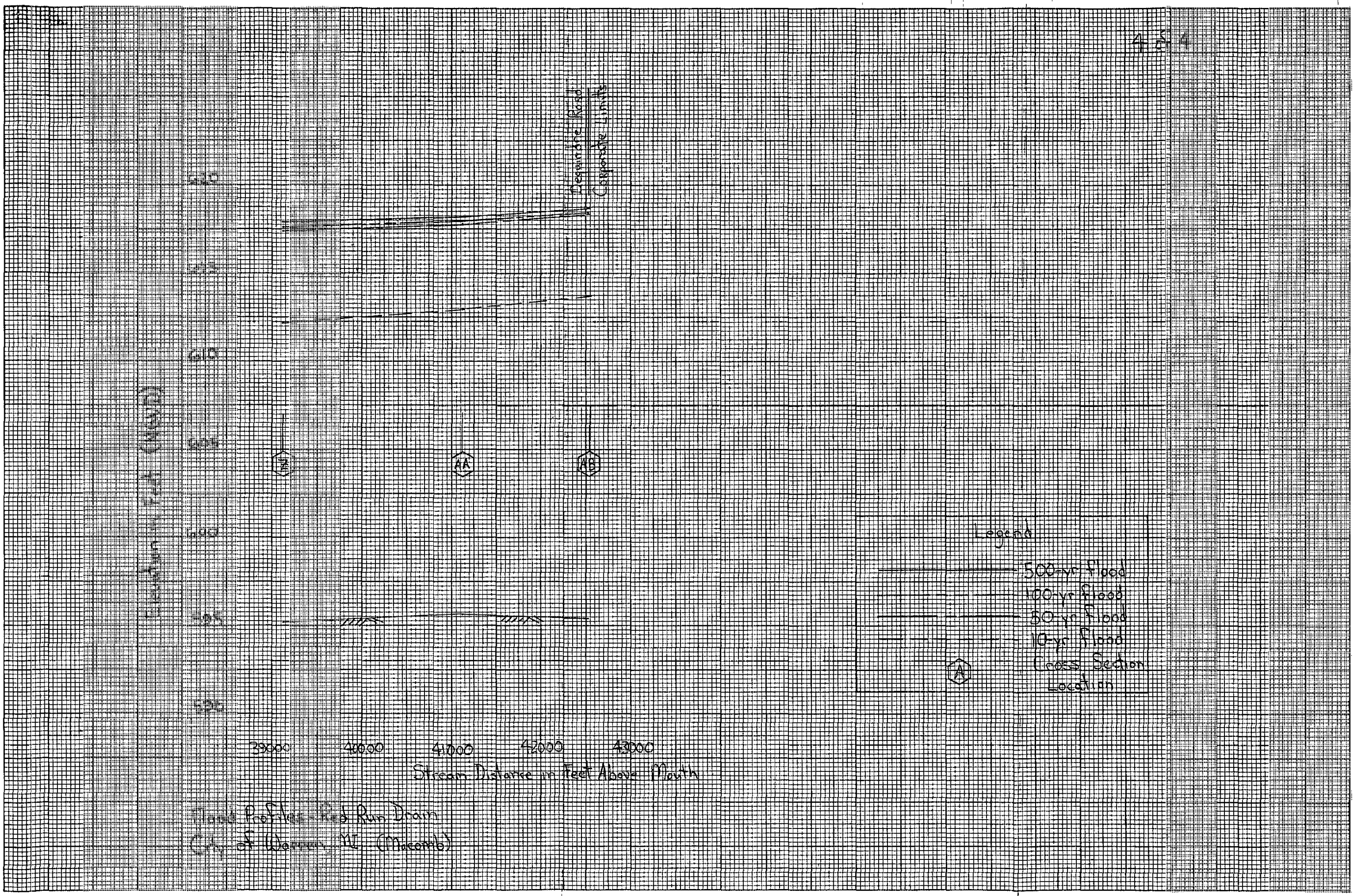



Flood Profiles - Red Run Drain
City of Sterling Heights, MI (Macomb Co.)

Mohawk Road
Footbridge
29000
30000
31000
32000
33000
34000
35000
36000
Stream Distance in Feet Above Mouth




Flood Profiles - Red Run Drain
Cities of Sterling Heights and Warren, MI


Elevation (MSL)
1040
1035
1030
1025
1020
AN
AA
AB
Pennsylvania Road
Corporate Limits
39000
40000
41000
42000
43000
Stream Distance in Feet Above Mouth
Legend
500-yr Flood
100-yr Flood
50-yr Flood
10-yr Flood
A
Cross Section Location
Town Point Run Drain
City of Warren, MI (Macomb)

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: New Haven

3) WATERCOURSE: Salt River

4) DOCUMENT TYPE: Encroached floodway

00BREAK00

```
$      $$  $$$$$$$$  $$     $$  $$$$$$$$   $$$$$ $  $$$$$$$$  $$
$$     $$  $$        $$     $$     $$     $$     $         $$  $$
$$$    $$  $$        $$     $$     $$     $$   $$$        $$   $$
$$$$   $$  $$$$$     $$$$$$$$     $$     $$  $ $$       $$    $$
$$ $$  $$  $$        $$     $$     $$     $$ $$ $$     $$     $$
$$   $$$$  $$        $$     $$     $$     $$ $  $$    $$      $$
$$    $$$  $$        $$     $$     $$     $$$    $$   $$      $$
$$     $$  $$        $$     $$  $$ $$     $     $$  $$        $$
$$     $$  $$$$$$$$  $$     $$   $$$     $ $$$$$   $$$$$$$$  $$$$$$$$
NEHJOZL  JANDA                 12/20/78  13.41.04  7600   JO
```

VILLAGE OF NEW HAVEN F.I.S.

JOB NO. 5850-09

SALT RIVER

MULTIPLE PROFILES FOR ENCROACHED FLOODWAY

SCHEDULE DATA [illegible]

PRINTED IN U.S.A.
FORM [illegible] PRINTED BY ROTARY MANIFOLD FORMS

```
*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*********************************************

C
T1      VILLAGE OF NEW HAVEN F.I.S.  JOB NO. 5850-05
T2      10-YEAR FLOW
T3      SALT RIVER - PROJECT MANAGER, OLE ANDERSON

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       1.        2.        0.        0.  0.000000     0.00       0.0       0.   601.100    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000    40.000    41.000    42.000    43.000     1.000     8.000    10.000    12.000     3.000

    33.000     4.000    25.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .030      .030      .030     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000   650.000  1050.000  1200.000  1500.000     0.000     0.000     0.000     0.000     0.000

          26-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION A

X1     7.640    40.000  1471.500  1517.000   110.000   110.000   100.000     0.000     0.000     0.000
GR   607.400     0.000   607.300   100.000   606.500   200.000   605.900   300.000   606.500   400.000
GR   606.600   500.000   605.800   600.000   605.100   700.000   605.100   800.000   604.900   900.000
GR   605.100  1000.000   604.400  1100.000   604.000  1200.000   603.500  1300.000   603.700  1400.000
GR   604.200  1469.000   604.200  1471.500   599.000  1471.500   595.600  1494.000   594.500  1500.000
GR   595.300  1508.000   596.800  1517.000   604.200  1517.000   604.200  1519.000   603.700  1600.000
GR   603.900  1700.000   604.800  1800.000   606.300  1900.000   608.500  2000.000   609.500  2100.000
GR   610.100  2200.000   610.700  2300.000   611.200  2360.000   611.300  2400.000   611.300  2500.000
GR   612.000  2600.000   612.500  2700.000   612.900  2800.000   613.200  2900.000   613.200  3000.000
SB     0.000     1.910     3.020     0.000    32.010     0.000   224.100     0.000   595.000   594.500

          26-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION A

X1     7.644    40.000  1471.500  1517.000    25.000    25.000    25.000     0.000     0.000     0.000
X2     0.000     0.000     1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
BT    40.000     0.000   607.400     0.000   100.000   607.300     0.000   200.000   606.500     0.000
BT   300.000   605.900     0.000   400.000   606.500     0.000   500.000   606.600     0.000   600.000
BT   605.800     0.000   700.000   605.100     0.000   800.000   605.100     0.000   900.000   604.900
BT     0.000  1000.000   605.100     0.000  1100.000   604.400     0.000  1200.000   604.000     0.000
BT  1300.000   603.500     0.000  1400.000   603.700     0.000  1469.000   604.200     0.000  1469.000
BT   607.900     0.000  1471.500   607.900   600.500  1479.000   607.900   602.000  1494.000   609.900
BT   602.000  1510.000   607.900   602.000  1517.000   607.900   600.500  1519.000   607.900     0.000
BT  1519.000   604.200     0.000  1600.000   603.700     0.000  1700.000   603.900     0.000  1800.000
BT   604.800     0.000  1900.000   606.300     0.000  2000.000   608.500     0.000  2100.000   609.500
BT     0.000  2200.000   610.100     0.000  2300.000   610.700     0.000  2360.000   611.200     0.000
BT  2400.000   611.300     0.000  2500.000   611.300     0.000  2600.000   612.000     0.000  2700.000
BT   612.500     0.000  2800.000   612.900     0.000  2900.000   613.200     0.000  3000.000   613.200
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 606.600 | 500.000 | 605.800 | 600.000 | 605.100 | 700.000 | 605.100 | 800.000 | 604.900 | 900.000 |
| GR | 605.100 | 1000.000 | 604.400 | 1100.000 | 604.000 | 1200.000 | 603.500 | 1300.000 | 603.700 | 1400.000 |
| GR | 604.200 | 1469.000 | 604.200 | 1471.500 | 599.500 | 1471.500 | 596.100 | 1494.000 | 595.000 | 1500.000 |
| GR | 595.800 | 1508.000 | 597.300 | 1517.000 | 604.200 | 1517.000 | 604.200 | 1519.000 | 603.700 | 1600.000 |
| GR | 603.900 | 1700.000 | 604.800 | 1800.000 | 606.300 | 1900.000 | 608.500 | 2000.000 | 609.500 | 2100.000 |
| GR | 610.100 | 2200.000 | 610.700 | 2300.000 | 611.200 | 2360.000 | 611.300 | 2400.000 | 611.300 | 2500.000 |
| GR | 612.000 | 2600.000 | 612.500 | 2700.000 | 612.900 | 2800.000 | 613.200 | 2900.000 | 613.200 | 3000.000 |
| NC | .080 | .080 | .045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

FIELD SECTION TAKEN DOWNSTREAM OF 26-MILE ROAD AND ADJUSTED FOR

CHANNEL INVERT IN OVERBANKS - CHANNEL PORTION REPLACED BY CHANNEL

GEOMETRY OF BRIDGE SECTION

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7.645 | 33.000 | 1481.000 | 1534.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1487.500 | 0.000 | 1535.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 607.900 | 0.000 | 610.900 | 100.000 | 608.400 | 200.000 | 606.700 | 250.000 | 603.300 | 300.000 |
| GR | 602.000 | 400.000 | 601.900 | 500.000 | 602.300 | 600.000 | 602.400 | 700.000 | 602.700 | 800.000 |
| GR | 602.000 | 900.000 | 602.800 | 1000.000 | 602.200 | 1050.000 | 606.200 | 1060.000 | 607.000 | 1100.000 |
| GR | 607.800 | 1200.000 | 608.600 | 1300.000 | 607.700 | 1400.000 | 607.900 | 1410.000 | 605.400 | 1420.000 |
| GR | 600.600 | 1481.000 | 596.100 | 1511.000 | 595.000 | 1517.000 | 595.800 | 1525.000 | 597.300 | 1534.000 |
| GR | 609.000 | 1600.000 | 609.600 | 1700.000 | 609.800 | 1800.000 | 610.500 | 1900.000 | 611.500 | 2000.000 |
| GR | 610.300 | 2100.000 | 609.900 | 2200.000 | 612.900 | 2278.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 7.650 | 21.000 | 323.000 | 360.000 | 25.000 | 25.000 | 25.000 | 0.000 | .500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 291.000 | 0.000 | 391.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.900 | 0.000 | 608.600 | 60.000 | 608.600 | 160.000 | 607.800 | 260.000 | 607.100 | 295.000 |
| GR | 603.500 | 305.000 | 604.300 | 323.000 | 600.100 | 333.000 | 596.300 | 339.000 | 594.600 | 342.000 |
| GR | 594.500 | 345.000 | 594.800 | 348.000 | 596.100 | 353.000 | 598.800 | 360.000 | 599.300 | 460.000 |
| GR | 599.400 | 560.000 | 600.100 | 660.000 | 600.400 | 745.000 | 604.600 | 770.000 | 605.900 | 860.000 |
| GR | 605.300 | 960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 323.000 | .045 | 360.000 | .080 | 460.000 | .060 | 960.000 | 0.000 |

VALLEY SECTION B

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.007 | 21.000 | 323.000 | 360.000 | 1180.000 | 1020.000 | 1684.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 670.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.600 | 0.000 | 610.300 | 60.000 | 610.300 | 160.000 | 609.500 | 260.000 | 608.800 | 295.000 |
| GR | 605.200 | 305.000 | 606.000 | 323.000 | 601.800 | 333.000 | 598.000 | 339.000 | 596.300 | 342.000 |
| GR | 596.200 | 345.000 | 596.500 | 348.000 | 597.800 | 353.000 | 600.500 | 360.000 | 601.000 | 460.000 |
| GR | 601.100 | 560.000 | 601.800 | 660.000 | 602.100 | 745.000 | 606.300 | 770.000 | 607.600 | 860.000 |
| GR | 607.000 | 960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

CONFLUENCE WITH SHOOK DRAIN - SECTION B REPEATED AND ADJUSTED FOR

CHANNEL INVERT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.035 | 0.000 | 0.000 | 0.000 | 120.000 | 160.000 | 150.000 | 0.000 | 1.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 630.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .060 | 230.000 | .080 | 685.000 | .050 | 728.000 | .080 | 789.000 | 0.000 |
| OT | 4.000 | 440.000 | 740.000 | 840.000 | 995.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION C

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.056 | 17.000 | 685.000 | 728.000 | 90.000 | 120.000 | 110.000 | 0.000 | 0.000 | 0.000 |
| GR | 609.600 | 0.000 | 609.500 | 100.000 | 609.600 | 200.000 | 609.000 | 300.000 | 610.200 | 400.000 |
| [illegible] | [illegible] | [illegible] | 608.500 | 525.000 | 603.200 | 554.000 | 603.400 | 600.000 | 602.900 | 685.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 607.900 | 784.000 | 608.100 | 789.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 1300.000 | .080 | 1500.000 | .045 | 1537.000 | .080 | 1650.000 | .070 |
| NH | 2300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION D

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.181 | 31.000 | 1500.000 | 1537.000 | 640.000 | 660.000 | 660.000 | 0.000 | 0.000 | 0.000 |
| GR | 611.400 | 0.000 | 611.300 | 100.000 | 611.900 | 200.000 | 612.000 | 300.000 | 612.000 | 400.000 |
| GR | 611.700 | 500.000 | 612.600 | 600.000 | 611.300 | 700.000 | 612.700 | 800.000 | 612.200 | 900.000 |
| GR | 611.900 | 1000.000 | 612.100 | 1100.000 | 611.700 | 1200.000 | 611.700 | 1215.000 | 603.800 | 1260.000 |
| GR | 603.300 | 1300.000 | 603.100 | 1400.000 | 601.500 | 1500.000 | 598.500 | 1505.000 | 597.900 | 1511.000 |
| GR | 598.800 | 1514.000 | 601.900 | 1537.000 | 603.200 | 1600.000 | 603.700 | 1675.000 | 608.500 | 1700.000 |
| GR | 609.400 | 1800.000 | 609.800 | 1900.000 | 608.100 | 2000.000 | 608.000 | 2100.000 | 612.500 | 2200.000 |
| GR | 613.000 | 2300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .070 | .070 | .050 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION E

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.503 | 15.000 | 400.000 | 450.000 | 1670.000 | 1600.000 | 1700.000 | 0.000 | 0.000 | 0.000 |
| GR | 611.600 | 0.000 | 612.000 | 100.000 | 606.000 | 175.000 | 604.100 | 200.000 | 604.800 | 300.000 |
| GR | 603.700 | 400.000 | 603.100 | 403.000 | 602.600 | 408.000 | 603.100 | 415.000 | 604.500 | 425.000 |
| GR | 607.900 | 450.000 | 612.700 | 500.000 | 615.300 | 600.000 | 612.500 | 700.000 | 616.700 | 800.000 |
| NC | .070 | .070 | .045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION F

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.774 | 17.000 | 503.000 | 534.000 | 1420.000 | 1390.000 | 1430.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 453.000 | 0.000 | 587.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 619.000 | 0.000 | 619.000 | 100.000 | 619.500 | 200.000 | 619.400 | 300.000 | 616.900 | 400.000 |
| GR | 608.200 | 500.000 | 608.200 | 503.000 | 603.700 | 515.000 | 604.200 | 530.000 | 608.200 | 534.000 |
| GR | 607.500 | 600.000 | 607.700 | 800.000 | 607.700 | 875.000 | 610.000 | 900.000 | 614.600 | 950.000 |
| GR | 617.000 | 1000.000 | 616.400 | 1108.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.807 | 0.000 | 0.000 | 0.000 | 190.000 | 150.000 | 179.000 | 0.000 | .200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 498.000 | 0.000 | 542.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .030 | .030 | .038 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

GRATIOT AVENUE BRIDGE - DOWNSTREAM FACE - SECTION G

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.808 | 27.000 | 978.000 | 1022.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 24.000 | 0.000 | 621.200 | 0.000 | 100.000 | 620.600 | 0.000 | 200.000 | 619.800 | 0.000 |
| BT | 300.000 | 619.100 | 0.000 | 400.000 | 618.100 | 0.000 | 500.000 | 616.900 | 0.000 | 600.000 |
| BT | 614.600 | 0.000 | 700.000 | 614.800 | 0.000 | 800.000 | 614.800 | 0.000 | 900.000 | 614.400 |
| BT | 0.000 | 978.000 | 614.400 | 0.000 | 978.000 | 617.600 | 612.400 | 1022.000 | 617.600 | 612.400 |
| BT | 1022.000 | 614.400 | 0.000 | 1100.000 | 614.400 | 0.000 | 1200.000 | 614.500 | 0.000 | 1300.000 |
| BT | 614.500 | 0.000 | 1400.000 | 615.500 | 0.000 | 1500.000 | 616.400 | 0.000 | 1600.000 | 617.600 |
| BT | 0.000 | 1700.000 | 618.800 | 0.000 | 1800.000 | 620.000 | 0.000 | 1900.000 | 620.900 | 0.000 |
| BT | 2000.000 | 621.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 621.200 | 0.000 | 620.600 | 100.000 | 619.800 | 200.000 | 619.100 | 300.000 | 618.100 | 400.000 |
| GR | 616.900 | 500.000 | 614.600 | 600.000 | 614.800 | 200.000 | 614.800 | 800.000 | 614.400 | 900.000 |
| GR | 614.400 | 978.000 | 608.300 | 978.000 | 605.000 | 984.000 | 603.900 | 1000.000 | 605.000 | 1016.000 |
| GR | 607.400 | 1022.000 | 614.400 | 1022.000 | 614.400 | 1100.000 | 614.500 | 1200.000 | 614.500 | 1300.000 |
| GR | 615.500 | 1400.000 | 616.400 | 1500.000 | 617.600 | 1600.000 | 618.800 | 1700.000 | 620.000 | 1800.000 |
| GR | 620.900 | 1900.000 | 621.500 | 2000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

GRATIOT AVENUE BRIDGE - UPSTREAM FACE - SECTION G

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NC | .080 | .080 | .045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.819 | 17.000 | 503.000 | 534.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 497.000 | 0.000 | 543.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 619.200 | 0.000 | 619.200 | 100.000 | 619.700 | 200.000 | 619.600 | 300.000 | 617.100 | 400.000 |
| GR | 608.400 | 500.000 | 608.400 | 503.000 | 603.900 | 515.000 | 604.400 | 530.000 | 608.400 | 534.000 |
| GR | 607.700 | 600.000 | 607.900 | 800.000 | 607.900 | 875.000 | 610.200 | 900.000 | 614.800 | 950.000 |
| GR | 617.200 | 1000.000 | 616.600 | 1108.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 168.000 | .080 | 200.000 | .045 | 214.000 | .080 | 300.000 | .040 |
| NH | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GT | 4.000 | 430.000 | 725.000 | 825.000 | 975.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION H

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 8.947 | 21.000 | 200.000 | 214.000 | 670.000 | 740.000 | 678.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.100 | 0.000 | 619.200 | 100.000 | 616.900 | 150.000 | 608.800 | 168.000 | 608.400 | 200.000 |
| GR | 607.000 | 202.000 | 605.700 | 205.000 | 606.700 | 210.000 | 608.200 | 214.000 | 609.000 | 300.000 |
| GR | 608.800 | 400.000 | 609.200 | 416.000 | 615.600 | 451.000 | 615.700 | 500.000 | 616.700 | 600.000 |
| GR | 618.100 | 700.000 | 618.800 | 800.000 | 619.000 | 900.000 | 619.400 | 1000.000 | 619.700 | 1100.000 |
| GR | 620.500 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 700.000 | .080 | 704.000 | .045 | 728.000 | .080 | 741.000 | .040 |
| NH | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION I

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.148 | 20.000 | 700.000 | 741.000 | 1100.000 | 990.000 | 1060.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 690.000 | 0.000 | 752.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 622.700 | 0.000 | 622.500 | 100.000 | 622.000 | 200.000 | 621.800 | 300.000 | 621.700 | 400.000 |
| GR | 621.400 | 500.000 | 618.700 | 590.000 | 609.100 | 649.000 | 608.600 | 700.000 | 607.400 | 704.000 |
| GR | 604.100 | 719.000 | 607.400 | 728.000 | 607.700 | 735.000 | 609.300 | 741.000 | 609.300 | 800.000 |
| GR | 609.000 | 818.000 | 616.100 | 906.000 | 618.200 | 1000.000 | 620.000 | 1100.000 | 622.000 | 1200.000 |

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.156 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 49.000 | 0.000 | 1.400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 700.000 | 0.000 | 737.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .030 | .030 | .040 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

CLARK STREET/27-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION J

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.157 | 39.000 | 1481.300 | 1518.300 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 33.000 | 0.000 | 622.300 | 0.000 | 100.000 | 622.500 | 0.000 | 200.000 | 622.400 | 0.000 |
| BT | 300.000 | 622.800 | 0.000 | 400.000 | 622.600 | 0.000 | 500.000 | 622.500 | 0.000 | 600.000 |
| BT | 622.700 | 0.000 | 700.000 | 622.500 | 0.000 | 800.000 | 624.100 | 0.000 | 900.000 | 623.900 |
| BT | 0.000 | 1000.000 | 624.000 | 0.000 | 1100.000 | 623.800 | 0.000 | 1200.000 | 622.300 | 0.000 |
| BT | 1300.000 | 619.700 | 0.000 | 1400.000 | 617.400 | 0.000 | 1481.300 | 616.100 | 613.900 | 1500.000 |
| BT | 615.800 | 613.600 | 1518.300 | 615.800 | 613.600 | 1600.000 | 615.800 | 0.000 | 1700.000 | 616.400 |
| BT | 0.000 | 1800.000 | 618.700 | 0.000 | 1900.000 | 621.600 | 0.000 | 2000.000 | 623.500 | 0.000 |
| BT | 2100.000 | 624.200 | 0.000 | 2200.000 | 624.600 | 0.000 | 2300.000 | 624.800 | 0.000 | 2400.000 |
| BT | 625.600 | 0.000 | 2500.000 | 626.100 | 0.000 | 2600.000 | 626.800 | 0.000 | 2700.000 | 627.600 |
| BT | 0.000 | 2800.000 | 628.100 | 0.000 | 2900.000 | 629.100 | 0.000 | 3000.000 | 629.800 | 0.000 |
| GR | 622.300 | 0.000 | 622.500 | 100.000 | 622.400 | 200.000 | 622.800 | 300.000 | 622.600 | 400.000 |
| GR | 622.500 | 500.000 | 622.700 | 600.000 | 622.500 | 700.000 | 624.100 | 800.000 | 623.900 | 900.000 |
| GR | 624.000 | 1000.000 | 623.800 | 1100.000 | 622.300 | 1200.000 | 619.700 | 1300.000 | 617.400 | 1400.000 |
| GR | 616.100 | 1481.300 | 607.800 | 1481.300 | 607.000 | 1488.100 | 606.600 | 1494.400 | 606.000 | 1500.000 |
| GR | 605.500 | 1505.600 | 606.200 | 1511.800 | 606.900 | 1518.300 | 615.800 | 1518.300 | 615.800 | 1600.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | 1800.000 | 621.600 | 1900.000 | 623.500 | 2000.000 | 624.200 | 2100.000 |

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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 627.600 | 2700.000 | 628.100 | 2800.000 | 629.100 | 2900.000 | 629.800 | 3000.000 | 0.000 | 0.000 |

CLARK STREET/27-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION J

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.162 | 39.000 | 1481.300 | 1518.300 | 29.000 | 29.000 | 29.000 | 0.000 | 0.000 | 0.000 |
| BT | 33.000 | 0.000 | 622.300 | 0.000 | 100.000 | 622.500 | 0.000 | 200.000 | 622.400 | 0.000 |
| BT | 300.000 | 622.800 | 0.000 | 400.000 | 622.600 | 0.000 | 500.000 | 622.500 | 0.000 | 600.000 |
| BT | 622.700 | 0.000 | 700.000 | 622.500 | 0.000 | 800.000 | 624.100 | 0.000 | 900.000 | 623.900 |
| BT | 0.000 | 1000.000 | 624.000 | 0.000 | 1100.000 | 623.800 | 0.000 | 1200.000 | 622.300 | 0.000 |
| BT | 1300.000 | 619.700 | 0.000 | 1400.000 | 617.400 | 0.000 | 1481.300 | 616.100 | 613.900 | 1500.000 |
| BT | 615.800 | 613.600 | 1518.300 | 615.800 | 613.600 | 1600.000 | 615.800 | 0.000 | 1700.000 | 616.400 |
| BT | 0.000 | 1800.000 | 618.700 | 0.000 | 1900.000 | 621.600 | 0.000 | 2000.000 | 623.500 | 0.000 |
| BT | 2100.000 | 624.200 | 0.000 | 2200.000 | 624.600 | 0.000 | 2300.000 | 624.800 | 0.000 | 2400.000 |
| BT | 625.600 | 0.000 | 2500.000 | 626.100 | 0.000 | 2600.000 | 626.800 | 0.000 | 2700.000 | 627.600 |
| BT | 0.000 | 2800.000 | 628.100 | 0.000 | 2900.000 | 629.100 | 0.000 | 3000.000 | 629.800 | 0.000 |
| GR | 622.300 | 0.000 | 622.500 | 100.000 | 622.400 | 200.000 | 622.800 | 300.000 | 622.600 | 400.000 |
| GR | 622.500 | 500.000 | 622.700 | 600.000 | 622.500 | 700.000 | 624.100 | 800.000 | 623.900 | 900.000 |
| GR | 624.000 | 1000.000 | 623.800 | 1100.000 | 622.300 | 1200.000 | 619.700 | 1300.000 | 617.400 | 1400.000 |
| GR | 616.100 | 1481.300 | 608.600 | 1481.300 | 607.800 | 1488.100 | 607.400 | 1494.400 | 606.800 | 1500.000 |
| GR | 606.300 | 1505.600 | 607.000 | 1511.800 | 607.700 | 1518.300 | 615.800 | 1518.300 | 615.800 | 1600.000 |
| GR | 616.400 | 1700.000 | 618.700 | 1800.000 | 621.600 | 1900.000 | 623.500 | 2000.000 | 624.200 | 2100.000 |
| GR | 624.600 | 2200.000 | 624.800 | 2300.000 | 625.600 | 2400.000 | 626.100 | 2500.000 | 626.800 | 2600.000 |
| GR | 627.600 | 2700.000 | 628.100 | 2800.000 | 629.100 | 2900.000 | 629.800 | 3000.000 | 0.000 | 0.000 |
| NC | .075 | .075 | .045 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.163 | 20.000 | 700.000 | 741.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 699.000 | 0.000 | 738.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 624.800 | 0.000 | 624.600 | 100.000 | 624.100 | 200.000 | 623.900 | 300.000 | 623.800 | 400.000 |
| GR | 623.500 | 500.000 | 620.800 | 590.000 | 611.200 | 649.000 | 610.700 | 700.000 | 609.500 | 704.000 |
| GR | 606.200 | 719.000 | 609.500 | 728.000 | 609.800 | 735.000 | 611.400 | 741.000 | 611.400 | 800.000 |
| GR | 611.100 | 818.000 | 618.200 | 906.000 | 620.300 | 1000.000 | 622.100 | 1100.000 | 624.100 | 1200.000 |

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.167 | 0.000 | 0.000 | 0.000 | 20.000 | 20.000 | 20.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 679.000 | 0.000 | 758.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .035 | 80.000 | .090 | 169.000 | .045 | 195.000 | .090 | 280.000 | 0.000 |
| QT | 4.000 | 425.000 | 715.000 | 815.000 | 965.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION K

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.331 | 10.000 | 169.000 | 195.000 | 860.000 | 900.000 | 870.000 | 0.000 | 0.000 | 0.000 |
| GR | 623.700 | 0.000 | 612.200 | 30.000 | 611.000 | 80.000 | 611.000 | 169.000 | 607.700 | 171.000 |
| GR | 604.500 | 162.000 | 608.200 | 192.000 | 611.700 | 195.000 | 621.200 | 230.000 | 621.900 | 260.000 |
| NH | 5.000 | .060 | 105.000 | .090 | 196.000 | .050 | 220.000 | .090 | 400.000 | .060 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

VALLEY SECTION L

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.475 | 12.000 | 196.000 | 220.000 | 810.000 | 750.000 | 760.000 | 0.000 | 0.000 | 0.000 |
| GR | 623.900 | 0.000 | 619.900 | 105.000 | 612.000 | 150.000 | 612.000 | 196.000 | 608.100 | 199.000 |
| GR | 607.900 | 208.000 | 608.200 | 216.000 | 611.600 | 220.000 | 613.400 | 300.000 | 613.100 | 400.000 |
| GR | 620.400 | 500.000 | 623.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .090 | 338.000 | .050 | 356.000 | .090 | 500.000 | .060 | 600.000 | 0.000 |

VALLEY SECTION M

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GR     628.700       0.000     621.900     100.000     615.900     200.000     615.600     300.000     615.100     338.000
GR     611.500     342.000     610.900     348.000     613.600     356.000     614.600     400.000     615.000     500.000
GR     620.200     600.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

               SECTION M REPEATED AND ADJUSTED FOR CHANNEL INVERT, LOCATED AT

               UPSTREAM VILLAGE OF NEW HAVEN CORPORATE LIMITS.

X1       9.807       0.000       0.000       0.000     630.000     630.000     630.000       0.000       1.700       0.000
EJ       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
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*PROF 1

*SECNO 7.640
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

            26-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION A

      7.64      6.60    601.10      0.00    601.10    601.24       .14      0.00      0.00    604.20
      650.        0.      650.        0.        0.      217.        0.        0.        0.    604.20
      0.00      0.00      3.00      0.00      .030      .030      .030     0.000    594.50   1471.50
   .000551      110.      100.      110.         0         0         0      0.00     45.50   1517.00

   SPECIAL BRIDGE

   SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       0.00      1.91      3.02      0.00      32.01     0.00      224.10    0.00      595.00    594.50

   *SECNO 7.644

   6070,LOW FLOW BY NORMAL BRIDGE

   EGPRS=     0.000  EGLWG=   601.740  ELLC=   602.000  PCWSE=   601.100  ELTRD=   603.500

   3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=  603.50 MAX ELLC=  602.00

            26-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION A

      7.64      6.06    601.06      0.00      0.00    601.26       .19       .02      0.00    604.20
      650.        0.      650.        0.        0.      184.        0.        0.        0.    604.20
       .00      0.00      3.54      0.00      .030      .030      .030      .029    595.00   1471.50
   .001158       25.       25.       25.         2         0         0     -8.92     45.50   1517.00

   *SECNO 7.645

   3470 ENCROACHMENT STATIONS=    1487.5    1535.0  TYPE=     1  TARGET=     47.500

            FIELD SECTION TAKEN DOWNSTREAM OF 26-MILE ROAD AND ADJUSTED FOR

            CHANNEL INVERT IN OVERBANKS - CHANNEL PORTION REPLACED BY CHANNEL

            GEOMETRY OF BRIDGE SECTION

      7.65      6.09    601.09      0.00      0.00    601.26       .17       .00      0.00100000.00
      650.        0.      648.        2.        0.      195.        4.        0.        0.    597.30
       .00      0.00      3.31       .63      .080      .045      .080      .028    595.00   1487.50
   .001569        1.        1.        1.         2         0         0      0.00     47.50   1535.00

   *SECNO 7.650

   3470 ENCROACHMENT STATIONS=     291.0     391.0  TYPE=     1  TARGET=    100.000

            SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT
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      7.65      5.95    600.95      0.00      0.00    601.32       .37       .06      0.00    604.80
      650.        0.      571.       79.        0.     110.       49.        0.        0.    599.30
       .00      0.00      5.20      1.62      .080      .045      .080      .036    595.00    332.17
  .004433       25.       25.       25.         2         0         0      0.00     58.83    391.00

1490 NH CARD USED
*SECNO 8.007
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     QLOSS   BANK ELEV
       Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA  LEFT/RIGHT
    TIME       VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID     ENDST

3470 ENCROACHMENT STATIONS=        .0     670.0  TYPE=     1  TARGET=     669.999

            VALLEY SECTION B

      8.01      6.73    602.93      0.00      0.00    602.96       .02      1.64      0.00    606.00
      650.        0.      241.      409.        0.     133.      569.       13.        5.    600.50
       .39      0.00      1.82       .72      .080      .045      .067      .054    596.20    330.28
  .000458     1180.     1884.     1020.         4         0         0      0.00    339.72    670.00

*SECNO 8.035

3470 ENCROACHMENT STATIONS=        .0     630.0  TYPE=     1  TARGET=     629.999

            CONFLUENCE WITH SHOOK DRAIN -- SECTION B REPEATED AND ADJUSTED FOR

            CHANNEL INVERT.

      8.04      5.76    602.96      0.00      0.00    603.09       .13       .14      0.00    607.00
      650.        0.      387.      263.        0.     105.      255.       15.        6.    601.50
       .40      0.00      3.70      1.03      .080      .045      .069      .053    597.20    332.62
  .002337       120.      150.      160.         3         0         0      0.00    297.38    630.00

1490 NH CARD USED
*SECNO 8.056

3265 DIVIDED FLOW

            VALLEY SECTION C

      8.06      5.32    603.22      0.00      0.00    603.33       .11       .23      0.00    602.90
      440.        2.      404.       34.        9.     146.       45.       15.        7.    601.80
       .42       .23      2.77       .76      .080      .050      .080      .052    597.90    553.91
  .001759       90.      110.      120.         2         0         0      0.00    147.78    774.99

1490 NH CARD USED
*SECNO 8.181

            VALLEY SECTION D

      8.18      5.96    603.86      0.00      0.00    603.89       .04       .57      0.00    601.50
      440.       111.      279.       49.       234.     150.      113.       21.       11.    601.90
       .55       .48      1.86       .44      .080      .045      .078      .050    597.90   1259.67
  .000508       640.      660.      660.         3         0         0      0.00    416.16   1675.82
```

VALLEY SECTION E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.50 | 2.92 | 605.52 | 0.00 | 0.00 | 605.56 | .04 | 1.67 | 0.00 | 603.70 |
| 440. | 302. | 138. | 0. | 247. | 59. | 0. | 36. | 24. | 607.90 |
| .85 | 1.22 | 2.32 | 0.00 | .070 | .050 | .070 | .050 | 602.60 | 181.30 |
| .002745 | 1670. | 1700. | 1600. | 2 | 0 | 0 | 0.00 | 251.20 | 432.51 |

*SECNO 8.774

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| 0 | OLOB | OCH | OROB | ALOB | AEH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 453.0 587.0 TYPE= 1 TARGET= 134.000

VALLEY SECTION F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.77 | 5.07 | 608.77 | 0.00 | 0.00 | 608.93 | .17 | 3.37 | 0.00 | 608.20 |
| 440. | 2. | 400. | 38. | 4. | 116. | 45. | 44. | 30. | 608.20 |
| .97 | .53 | 3.44 | .85 | .070 | .045 | .070 | .049 | 603.70 | 493.49 |
| .002061 | 1420. | 1430. | 1390. | 4 | 0 | 0 | 0.00 | 93.51 | 587.00 |

*SECNO 8.807

3470 ENCROACHMENT STATIONS= 498.0 542.0 TYPE= 1 TARGET= 44.000

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.81 | 5.21 | 609.11 | 0.00 | 0.00 | 609.31 | .20 | .37 | 0.00 | 608.40 |
| 440. | 2. | 433. | 5. | 3. | 121. | 6. | 44. | 30. | 608.40 |
| .99 | .72 | 3.59 | .76 | .070 | .045 | .070 | .049 | 603.90 | 498.00 |
| .002132 | 190. | 179. | 150. | 2 | 0 | 0 | 0.00 | 44.00 | 542.00 |

*SECNO 8.808

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 614.40 MAX ELLC= 612.40

GRATIOT AVENUE BRIDGE - DOWNSTREAM FACE - SECTION G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.81 | 5.32 | 609.22 | 0.00 | 0.00 | 609.31 | .09 | .00 | 0.00 | 614.40 |
| 440. | 0. | 440. | 0. | 0. | 186. | 0. | 44. | 30. | 614.40 |
| .99 | 0.00 | 2.36 | 0.00 | .030 | .038 | .030 | .049 | 603.90 | 978.00 |
| .000601 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 44.00 | 1022.00 |

*SECNO 8.818

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 614.40 MAX ELLC= 612.40

GRATIOT AVENUE BRIDGE - UPSTREAM FACE - SECTION G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.82 | 5.36 | 609.26 | 0.00 | 0.00 | 609.34 | .09 | .03 | 0.00 | 614.40 |
| 440. | 0. | 440. | 0. | 0. | 188. | 0. | 45. | 30. | 614.40 |
| 1.00 | 0.00 | 2.34 | 0.00 | .030 | .038 | .030 | .049 | 603.90 | 978.00 |
| .000586 | 56. | 56. | 56. | 2 | 0 | 0 | 0.00 | 44.00 | 1022.00 |

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3470 ENCROACHMENT STATIONS=     497.0     543.0  TYPE=     1  TARGET=      46.000

          SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

      8.82      5.25    609.15      0.00      0.00    609.34       .19       .00      0.00    608.40
      440.        3.      433.        5.        4.      122.        7.       45.       30.    608.40
      1.00       .63      3.55       .68      .080      .045      .080      .049    603.90    497.00
   .002056        1.        1.        1.         2         0         0      0.00     46.00    543.00

1490 NH CARD USED
*SECNO 8.947
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

          VALLEY SECTION H

      8.95      4.50    610.20      0.00      0.00    610.22       .03       .88      0.00    608.40
      430.       39.      98.       293.       53.       48.      289.       49.       32.    608.20
      1.15       .74      2.06      1.01      .078      .045      .054      .048    605.70    164.90
   .000844      670.      678.      740.         2         0         0      0.00    256.55    421.45

1490 NH CARD USED
*SECNO 9.148

3470 ENCROACHMENT STATIONS=     690.0     752.0  TYPE=     1  TARGET=      62.000

          VALLEY SECTION I

      9.15      6.86    610.96      0.00      0.00    611.02       .06       .80      0.00    608.60
      430.       35.      372.       23.       23.      175.       18.       56.       36.    609.30
      1.30      1.51      2.12      1.26      .040      .079      .040      .048    604.10    690.00
   .000708     1100.     1060.      990.         3         0         0      0.00     62.00    752.00

*SECNO 9.156

3470 ENCROACHMENT STATIONS=     700.0     737.0  TYPE=     1  TARGET=      37.000

          SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.16      5.36    610.86      0.00      0.00    611.09       .23       .07      0.00    610.00
      430.        0.      430.        0.        0.      111.        0.       56.       36. 100000.00
      1.30      0.00      3.87      0.00      .040      .079      .040      .048    605.50    700.00
   .003389       50.       49.       50.         2         0         0      0.00     37.00    737.00

*SECNO 9.157

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

          CLARK STREET/27-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION J

      9.16      5.49    610.99      0.00      0.00    611.09       .10       .00      0.00    616.10
      430.        0.      430.        0.        0.      167.        0.       56.       36.    615.80
      1.30      0.00      2.57      0.00      .030      .040      .030      .048    605.50   1481.30
   .000822        1.        1.        1.         2         0         0      0.00     37.00   1518.30
```

```
*SECNO 9.162

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

            CLARK STREET/27 MILE ROAD BRIDGE - UPSTREAM FACE - SECTION J

      9.16      4.67    610.97      0.00      0.00    611.12       .15       .03      0.00    616.10
      430.        0.      430.        0.        0.      137.        0.       56.       36.    615.80
      1.30      0.00      3.15      0.00      .030      .040      .030      .048    606.30   1481.30
   .001525       29.       29.       29.         2         0         0      0.00     37.00   1518.30

*SECNO 9.163
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      699.0      738.0  TYPE=      1  TARGET=      39.000

            SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.16      4.45    610.65      0.00      0.00    611.12       .47       .00      0.00    610.70
      430.        0.      430.        0.        0.       78.        0.       56.       36. 100000.00
      1.30      0.00      5.53      0.00      .075      .045      .075      .048    606.20    700.16
   .011206        1.        1.        1.         3         0         0      0.00     37.84    738.00

*SECNO 9.167

3470 ENCROACHMENT STATIONS=      679.0      758.0  TYPE=      1  TARGET=      79.000

            SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.17      4.75    610.95      0.00      0.00    611.30       .36       .18      0.00    610.70
      430.        1.      429.        0.        3.       89.        0.       56.       36.    611.40
      1.30       .47      4.79      0.00      .075      .045      .075      .048    606.20    679.00
   .007356       20.       20.       20.         2         0         0      0.00     60.31    739.31

1490 NH CARD USED
*SECNO 9.331

            VALLEY SECTION K

      9.33      7.96    612.46      0.00      0.00    612.52       .06      1.21      0.00    611.00
      425.       105.      320.        0.      173.      145.        1.       60.       38.    611.70
      1.44       .61      2.21       .20      .069      .045      .090      .048    604.50     29.33
   .000565       860.      870.      900.         6         0         0      0.00    168.46    197.79

1490 NH CARD USED
*SECNO 9.475

3265 DIVIDED FLOW

            VALLEY SECTION L

      9.48      5.21    613.11      0.00      0.00    613.25       .14       .73      0.00    612.00
      425.       41.      354.       30.       54.      108.       50.       65.       41.    611.60
      1.51       .25      3.27       .60      .090      .050      .090      .047    607.90    143.72
```

1490 NH CARD USED
*SECNO 9.688

VALLEY SECTION M

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.69 | 4.84 | 615.74 | 0.00 | 0.00 | 615.87 | .12 | 2.62 | 0.00 | 615.10 |
| 425. | 8. | 237. | 180. | 19. | 65. | 172. | 71. | 46. | 613.60 |
| 1.63 | .43 | 3.64 | 1.05 | .090 | .050 | .089 | .047 | 610.90 | 251.48 |
| .003091 | 1070. | 1120. | 1020. | 3 | 0 | 0 | 0.00 | 262.86 | 514.34 |

*SECNO 9.807

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECTION M REPEATED AND ADJUSTED FOR CHANNEL INVERT. LOCATED AT

UPSTREAM VILLAGE OF NEW HAVEN CORPORATE LIMITS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.81 | 4.94 | 617.54 | 0.00 | 0.00 | 617.64 | .10 | 1.77 | 0.00 | 616.80 |
| 425. | 12. | 226. | 187. | 28. | 67. | 188. | 75. | 50. | 615.30 |
| 1.71 | .41 | 3.38 | 1.00 | .090 | .050 | .089 | .047 | 612.60 | 219.48 |
| .002574 | 630. | 630. | 630. | 2 | 0 | 0 | 0.00 | 296.71 | 516.18 |

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************

T1      VILLAGE OF NEW HAVEN F.I.S. - JOB NO. 5850-05
T2      50-YEAR FLOW
T3      SALT RIVER - PROJECT MANAGER, OLE ANDERSON

J1  ICHECK    INO      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

     -10.      3.       0.       0.  0.000000     0.00     0.0      0.    601.900   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     2.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

*PROF 2

*SECNO 7.640
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN    SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID   ENDST

            26-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION A

     7.64      7.40    601.90      0.00    601.90    602.17       .27      0.00      0.00    604.20
    1050.       0.     1050.       0.        0.       253.        0.        0.        0.    604.20
     0.00      0.00      4.15      0.00      .030      .030      .030     0.000    594.50   1471.50
  .000893      110.      100.      110.         0         0         0      0.00     45.50   1517.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.91      3.02      0.00     32.01      0.00    224.10     0.00    595.00    594.50

*SECNO 7.644

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   602.551  EGLWC=   602.667  ELLC=   602.000  PCWSE=   601.900  ELTRD=   603.500

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=  603.50 MAX ELLC=  602.00

            26-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION A

     7.64      6.79    601.79      0.00      0.00    602.20       .41       .03      0.00    604.20
    1050.       0.     1050.       0.        0.       205.        0.        0.        0.    604.20
      .00      0.00      5.11      0.00      .030      .030      .030      .029    595.00   1471.50
  .002151       25.       25.       25.         3         0         0    -20.39     45.50   1517.00

*SECNO 7.645
```

FIELD SECTION TAKEN DOWNSTREAM OF 26-MILE ROAD AND ADJUSTED FOR

CHANNEL INVERT IN OVERBANKS - CHANNEL PORTION REPLACED BY CHANNEL

GEOMETRY OF BRIDGE SECTION

```
      7.65      6.89    601.89      0.00      0.00    602.20       .31       .00      0.00100000.00
     1050.        0.      1046.        4.        0.      233.        4.        0.        0.    597.30
       .00      0.00      4.50       .79      .080      .045      .080      .028    595.00   1487.50
   .002344        1.        1.        1.         2         0         0      0.00     47.50   1535.00
```

*SECNO 7.650

3470 ENCROACHMENT STATIONS= 291.0 391.0 TYPE= 1 TARGET= 100.000

SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

```
      7.65      6.71    601.71      0.00      0.00    602.29       .58       .09      0.00    604.80
     1050.        0.       873.      177.        0.      132.       72.        0.        0.    599.30
       .00      0.00      6.63      2.44      .080      .045      .080      .036    595.00    330.35
   .006140       25.       25.       25.         2         0         0      0.00     60.65    391.00
```

1490 NH CARD USED
*SECNO 8.007

3301 HV CHANGED MORE THAN HVINS

```
     SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
     Q         OLOB      OCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

3470 ENCROACHMENT STATIONS= .0 670.0 TYPE= 1 TARGET= 669.999

VALLEY SECTION B

```
      8.01      7.63    603.83      0.00      0.00    603.86       .02      1.57      0.00    606.00
     1050.        0.       299.      751.        0.      160.      844.       17.        5.    600.50
       .36      0.00      1.87       .89      .080      .045      .067      .056    596.20    328.17
   .000414      1180.     1884.     1020.         5         0         0      0.00    341.83    670.00
```

*SECNO 8.035

3470 ENCROACHMENT STATIONS= .0 630.0 TYPE= 1 TARGET= 629.999

CONFLUENCE WITH SHOOK DRAIN - SECTION B REPEATED AND ADJUSTED FOR

CHANNEL INVERT.

```
      8.04      6.69    603.89      0.00      0.00    603.97       .08       .11      0.00    607.00
     1050.        0.       413.      637.        0.      131.      507.       20.        7.    601.50
       .38      0.00      3.15      1.25      .080      .045      .068      .055    597.20    330.39
   .001393       120.      150.      160.         2         0         0      0.00    299.61    630.00
```

```
                VALLEY SECTION C

        8.06      6.11    604.01      0.00      0.00    604.14       .13       .17      0.00    602.90
        740.       73.     574.       93.      108.     180.       83.       22.        7.    601.80
         .39       .68      3.19      1.12      .080      .050      .080      .054    597.90    549.55
    .001757       90.     110.      120.         2         0         0      0.00    226.98    776.53

  1490 NH CARD USED
  *SECNO 8.181

                VALLEY SECTION D

        8.18      6.73    604.63      0.00      0.00    604.67       .03       .53      0.00    601.50
        740.      256.     354.      130.      420.     179.      221.       31.       12.    601.90
         .54       .61      1.98       .59      .079      .045      .077      .052    597.90   1255.30
    .000460      640.     660.      660.         2         0         0      0.00    424.52   1679.82

  *SECNO 8.503

                VALLEY SECTION E

        8.50      3.50    606.10      0.00      0.00    606.15       .05      1.48      0.00    603.70
        740.      550.     190.        0.      376.      79.        0.       55.       25.    607.90
         .81      1.46      2.39      0.00      .070      .050      .070      .051    602.60    173.79
    .002347     1670.    1700.     1600.         2         0         0      0.00    262.96    436.74

  *SECNO 8.774
     SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
     0         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

  3470 ENCROACHMENT STATIONS=     453.0     587.0  TYPE=     1  TARGET=     134.000

                VALLEY SECTION F

        8.77      5.77    609.47      0.00      0.00    609.73       .25      3.58      0.00    608.20
        740.       12.     609.      118.       13.     138.       82.       66.       31.    608.20
         .91       .95      4.41      1.44      .070      .045      .070      .050    603.70    485.45
    .002704     1420.    1430.     1390.         3         0         0      0.00    101.55    587.00

  *SECNO 8.807

  3470 ENCROACHMENT STATIONS=     498.0     542.0  TYPE=     1  TARGET=      44.000

                SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

        8.81      5.98    609.88      0.00      0.00    610.24       .36       .52      0.00    608.40
        740.       10.     713.       17.        7.     145.       12.       67.       31.    608.40
         .92      1.36      4.93      1.40      .070      .045      .070      .050    603.90    498.00
    .003171      190.     179.      150.         2         0         0      0.00     44.00    542.00

  *SECNO 8.808

  3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  614.40 MAX ELLC=  612.40
```

```
     8.81      6.18    610.08      0.00      0.00    610.25       .17       .00      0.00    614.40
     740.        0.      740.        0.        0.      224.        0.       67.       31.    614.40
      .92      0.00      3.31      0.00      .030      .038      .030      .050    603.90    978.00
 .000964        1.        1.        1.         2         0         0      0.00     44.00   1022.00

*SECNO 8.818

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  614.40 MAX ELLC=  612.40

            GRATIOT AVENUE BRIDGE - UPSTREAM FACE - SECTION G

     8.82      6.23    610.13      0.00      0.00    610.30       .17       .05      0.00    614.40
     740.        0.      740.        0.        0.      226.        0.       67.       31.    614.40
      .93      0.00      3.27      0.00      .030      .038      .030      .049    603.90    978.00
 .000932       56.       56.       56.         2         0         0      0.00     44.00   1022.00

*SECNO 8.819

3470 ENCROACHMENT STATIONS=     497.0     543.0  TYPE=     1  TARGET=     46.000

            SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

     8.82      6.05    609.95      0.00      0.00    610.30       .35       .00      0.00    608.40
     740.       11.      711.       18.        9.      147.       14.       67.       31.    608.40
      .93      1.19      4.85      1.24      .080      .045      .080      .049    603.90    497.00
 .003002        1.        1.        1.         2         0         0      0.00     46.00    543.00

1490 NH CARD USED
*SECNO 8.947
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST

            VALLEY SECTION H

     8.95      5.35    611.05      0.00      0.00    611.08       .03       .78      0.00    608.40
     725.       68.      117.      540.       84.       59.      468.       74.       34.    608.20
     1.08       .81      1.96      1.16      .077      .045      .053      .049    605.70    163.00
 .000567      670.      678.      740.         2         0         0      0.00    263.11    426.11

1490 NH CARD USED
*SECNO 9.148

3470 ENCROACHMENT STATIONS=     690.0     752.0  TYPE=     1  TARGET=     62.000

            VALLEY SECTION I

     9.15      7.66    611.76      0.00      0.00    611.88       .12       .80      0.00    608.60
     725.       68.      604.       53.       31.      208.       27.       84.       38.    609.30
     1.19      2.20      2.90      1.96      .040      .079      .040      .048    604.10    690.00
 .001104    1100.     1060.      990.         3         0         0      0.00     62.00    752.00

*SECNO 9.156

3470 ENCROACHMENT STATIONS=     700.0     737.0  TYPE=     1  TARGET=     37.000
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SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.16      6.04    611.54      0.00      0.00    611.98       .44       .10      0.00    610.00
      725.        0.      725.        0.        0.     137.        0.       84.       38. 100000.00
      1.19      0.00      5.31      0.00      .040      .079      .040      .048    605.50    700.00
   .005271       50.       49.       50.         2         0         0      0.00     37.00    737.00


*SECNO 9.157

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

          CLARK STREET/27-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION J

      9.16      6.27    611.77      0.00      0.00    611.98       .21       .00      0.00    616.10
      725.        0.      725.        0.        0.     196.        0.       84.       38.    615.80
      1.19      0.00      3.70      0.00      .030      .040      .030      .048    605.50   1481.30
   .001437        1.        1.        1.         2         0         0      0.00     37.00   1518.30


*SECNO 9.162

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

          CLARK STREET/27-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION J

      9.16      5.43    611.73      0.00      0.00    612.03       .30       .05      0.00    616.10
      725.        0.      725.        0.        0.     165.        0.       84.       38.    615.80
      1.19      0.00      4.39      0.00      .030      .040      .030      .048    606.30   1481.30
   .002421       29.       29.       29.         2         0         0      0.00     37.00   1518.30


*SECNO 9.163

3301 HV CHANGED MORE THAN HVINS

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     QLOSS   BANK ELEV
          Q      QLOB       QCH      QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
       TIME      VLOB       VCH      VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
      SLOPE     XLOBL      XLCH     XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      699.0      738.0  TYPE=      1  TARGET=      39.000

          SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.16      5.02    611.22      0.00      0.00    612.04       .82       .00      0.00    610.70
      725.        1.      724.        0.        1.     100.        0.       84.       38. 100000.00
      1.19      1.16      7.27      0.00      .075      .045      .075      .048    606.20    699.00
   .014285        1.        1.        1.         3         0         0      0.00     39.00    738.00


*SECNO 9.167

3470 ENCROACHMENT STATIONS=      679.0      758.0  TYPE=      1  TARGET=      79.000

          SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.17      5.57    611.77      0.00      0.00    612.23       .47       .19      0.00    610.70
      725.       32.      688.        5.       20.     122.        6.       84.       38.    611.40
      1.19      1.58      5.62       .84      .075      .045      .075      .048    606.20    679.00
   .007039       20.       20.       20.         3         0         0      0.00     79.00    758.00
```

1490 NH CARD USED
*SECNO 9.331

VALLEY SECTION K

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.33 | 8.90 | 613.40 | 0.00 | 0.00 | 613.46 | .06 | 1.23 | 0.00 | 611.00 |
| 715. | 291. | 422. | 2. | 306. | 169. | 5. | 91. | 40. | 611.70 |
| 1.32 | .95 | 2.50 | .35 | .064 | .045 | .090 | .048 | 604.50 | 26.87 |
| .000583 | 860. | 870. | 900. | 6 | 0 | 0 | 0.00 | 174.40 | 201.27 |

1490 NH CARD USED
*SECNO 9.475

VALLEY SECTION L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.48 | 6.15 | 614.05 | 0.00 | 0.00 | 614.17 | .12 | .70 | 0.00 | 612.00 |
| 715. | 109. | 447. | 159. | 106. | 131. | 210. | 99. | 44. | 611.60 |
| 1.41 | 1.03 | 3.41 | .76 | .090 | .050 | .089 | .048 | 607.90 | 138.33 |
| .001615 | 810. | 760. | 750. | 3 | 0 | 0 | 0.00 | 274.67 | 413.00 |

1490 NH CARD USED
*SECNO 9.688

VALLEY SECTION M

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.69 | 5.44 | 616.34 | 0.00 | 0.00 | 616.45 | .11 | 2.28 | 0.00 | 615.10 |
| 715. | 70. | 295. | 349. | 98. | 76. | 270. | 110. | 52. | 613.60 |
| 1.54 | .72 | 3.90 | 1.30 | .090 | .050 | .088 | .048 | 610.90 | 192.69 |
| .002894 | 1070. | 1120. | 1020. | 3 | 0 | 0 | 0.00 | 333.05 | 525.74 |

*SECNO 9.807

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECTION M REPEATED AND ADJUSTED FOR CHANNEL INVERT. LOCATED AT

UPSTREAM VILLAGE OF NEW HAVEN CORPORATE LIMITS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.81 | 5.49 | 618.09 | 0.00 | 0.00 | 618.19 | .10 | 1.74 | 0.00 | 616.80 |
| 715. | 76. | 288. | 351. | 106. | 77. | 279. | 116. | 57. | 615.30 |
| 1.62 | .72 | 3.75 | 1.26 | .090 | .050 | .088 | .047 | 612.60 | 191.77 |
| .002630 | 630. | 630. | 630. | 2 | 0 | 0 | 0.00 | 335.04 | 526.80 |

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
*************************************************

T1      VILLAGE OF NEW HAVEN F.I.S. - JOB NO. 5850-05
T2      100-YEAR FLOW
T3      SALT RIVER - PROJECT MANAGER, OLE ANDERSON

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     O         WSEL      FQ

     -10.       4.        0.        0.  0.000000      0.00      0.0       0.   602.400     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

*PROF 3

*SECNO 7.640
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

            26-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION A

     7.64      7.90    602.40      0.00    602.40    602.69       .29      0.00      0.00    604.20
    1200.        0.    1200.        0.        0.       276.        0.        0.        0.    604.20
     0.00      0.00      4.35      0.00      .030      .030      .030     0.000    594.50   1471.50
  .000897      110.      100.      110.         0         0         0      0.00     45.50   1517.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.91      3.02      0.00     32.01      0.00     224.10     0.00    595.00    594.50

*SECNO 7.644
PRESSURE-FLOW

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                             AREA
  603.25    603.19      0.00        0.     1200.      224.      224.      602.00    603.50

            26-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION A

     7.64      7.96    602.96      0.00      0.00    603.25       .29       .56      0.00    604.20
    1200.        0.    1200.        0.        0.       279.        0.        0.        0.    604.20
      .00      0.00      4.30      0.00      .030      .030      .030      .029    595.00   1471.50
  .000869       25.       25.       25.         2         0         0      0.00     45.50   1517.00

*SECNO 7.645
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3470 ENCROACHMENT STATIONS=     1487.5     1535.0  TYPE=      1  TARGET=      47.500

          FIELD SECTION TAKEN DOWNSTREAM OF 26-MILE ROAD AND ADJUSTED FOR

          CHANNEL INVERT IN OVERBANKS - CHANNEL PORTION REPLACED BY CHANNEL

          GEOMETRY OF BRIDGE SECTION

      7.65      7.97    602.97      0.00      0.00    603.25       .28       .00      0.00100000.00
     1200.        0.     1196.        4.        0.      283.        6.        0.        0.     597.30
       .00      0.00      4.23       .68      .080      .045      .080      .028    595.00   1487.50
   .001643        1.        1.        1.         1         0         0      0.00     47.50   1535.00

*SECNO 7.650

3470 ENCROACHMENT STATIONS=      291.0      391.0  TYPE=      1  TARGET=     100.000

          SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

      7.65      7.92    602.92      0.00      0.00    603.31       .39       .06      0.00    604.80
     1200.        0.      939.      261.        0.      169.      110.        0.        0.     599.30
       .00      0.00      5.56      2.38      .080      .045      .080      .036    595.00    327.49
   .003497       25.       25.       25.         2         0         0      0.00     63.51    391.00

1490 NH CARD USED
*SECNO 8.007
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL        XNCH     XNR        WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT      CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=        .0       670.0  TYPE=      1  TARGET=     669.999

          VALLEY SECTION B

      8.01      8.19    604.39      0.00      0.00    604.41       .02      1.10      0.00    606.00
     1200.        0.       304.      896.        0.      178.     1017.       21.        5.     600.50
       .38      0.00      1.71       .88      .080      .045      .066      .057    596.20    326.84
   .000316     1180.     1884.     1020.         4         0         0      0.00    343.16    670.00

*SECNO 8.035

3470 ENCROACHMENT STATIONS=        .0       630.0  TYPE=      1  TARGET=     629.999

          CONFLUENCE WITH SHOOK DRAIN - SECTION B REPEATED AND ADJUSTED FOR

          CHANNEL INVERT.

      8.04      7.23    604.43      0.00      0.00    604.49       .05       .08      0.00    607.00
     1200.        0.       402.      798.        0.      147.      653.       25.        7.     601.50
       .40      0.00      2.73      1.22      .080      .045      .067      .056    597.20    329.11
   .000944       120.      150.      160.         2         0         0      0.00    300.89    630.00

1490 NH CARD USED
*SECNO 8.056

          VALLEY SECTION C
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      8.06      6.61    604.51      0.00      0.00    604.61       .10       .12      0.00    602.90
      840.      136.      584.      119.      175.      201.      107.       26.        7.    601.80
       .42       .78      2.90      1.12      .080      .050      .080      .055    597.90    546.86
  .001257       90.      110.      120.         1         0         0      0.00    230.61    777.47

1490 NH CARD USED
*SECNO 8.181

            VALLEY SECTION D

      8.18      7.09    604.99      0.00      0.00    605.02       .03       .41      0.00    601.50
      840.      313.      362.      165.      509.      192.      273.       37.       12.    601.90
       .57       .62      1.88       .60      .079      .045      .076      .052    597.90   1253.23
  .000376      640.      660.      660.         2         0         0      0.00    428.47   1681.71

*SECNO 8.503

            VALLEY SECTION E

      8.50      3.65    606.25      0.00      0.00    606.30       .05      1.28      0.00    603.70
      840.      632.      208.        0.      410.       85.        0.       65.       25.    607.90
       .84      1.54      2.45      0.00      .070      .050      .070      .052    602.60    171.90
  .002330     1670.     1700.     1600.         2         0         0      0.00    265.95    437.85

*SECNO 8.774
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      453.0      587.0  TYPE=      1  TARGET=      134.000

            VALLEY SECTION F

      8.77      5.97    609.67      0.00      0.00    609.95       .28      3.65      0.00    608.20
      840.       18.      673.      149.       17.      144.       93.       77.       31.    608.20
       .93      1.06      4.67      1.60      .070      .045      .070      .050    603.70    483.11
  .002845     1420.     1430.     1390.         3         0         0      0.00    103.89    587.00

*SECNO 8.807

3470 ENCROACHMENT STATIONS=      498.0      542.0  TYPE=      1  TARGET=       44.000

            SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

      8.81      6.18    610.08      0.00      0.00    610.51       .43       .56      0.00    608.40
      840.       13.      805.       22.        8.      151.       14.       78.       32.    608.40
       .94      1.55      5.34      1.58      .070      .045      .070      .050    603.90    498.00
  .003508       190.      179.      150.         2         0         0      0.00     44.00    542.00

*SECNO 8.808

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  614.40 MAX ELLC=  612.40

            GRATIOT AVENUE BRIDGE - DOWNSTREAM FACE - SECTION G
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     840.       0.     840.       0.       0.     234.       0.      78.      32.    614.40
      .94      0.00     3.59     0.00     .030     .038     .030     .050   603.90    978.00
 .001082        1.       1.       1.        2        0        0     0.00    44.00   1022.00

*SECNO 8.818

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  614.40 MAX ELLC=  612.40

            GRATIOT AVENUE BRIDGE - UPSTREAM FACE - SECTION G

     8.82      6.47   610.37     0.00     0.00   610.57      .20      .06     0.00    614.40
     840.        0.     840.       0.       0.     237.       0.      79.      32.    614.40
      .95      0.00     3.54     0.00     .030     .038     .030     .050   603.90    978.00
 .001044       56.      56.      56.        2        0        0     0.00    44.00   1022.00

*SECNO 8.819

3470 ENCROACHMENT STATIONS=     497.0     543.0  TYPE=      1  TARGET=      46.000

            SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

     8.82      6.26   610.16     0.00     0.00   610.57      .41      .00     0.00    608.40
     840.       14.     803.      23.      10.     153.      16.      79.      32.    608.40
      .95      1.35     5.24     1.40     .080     .045     .080     .050   603.90    497.00
 .003302        1.       1.       1.        2        0        0     0.00    46.00    543.00

1490 NH CARD USED
*SECNO 8.947
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS   BANK ELEV
   0         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

            VALLEY SECTION H

     8.95      5.60   611.30     0.00     0.00   611.33      .03      .76     0.00    608.40
     825.       78.     124.     624.      93.      63.     522.      86.      34.    608.20
     1.10      .83     1.96     1.20     .077     .045     .052     .049   605.70    162.44
 .000524      670.     678.     740.        3        0        0     0.00   265.06    427.50

1490 NH CARD USED
*SECNO 9.148

3470 ENCROACHMENT STATIONS=     690.0     752.0  TYPE=      1  TARGET=      62.000

            VALLEY SECTION I

     9.15      7.88   611.98     0.00     0.00   612.12      .14      .79     0.00    608.60
     825.       80.     681.      64.      33.     217.      29.      97.      38.    609.30
     1.20      2.41     3.14     2.17     .040     .079     .040     .049   604.10    690.00
 .001234     1100.    1060.     990.        2        0        0     0.00    62.00    752.00

*SECNO 9.156

3470 ENCROACHMENT STATIONS=     700.0     737.0  TYPE=      1  TARGET=      37.000

            SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.
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      9.16      6.22    611.72      0.00      0.00    612.24       .51       .11      0.00    610.00
      825.        0.     825.        0.        0.     143.        0.       97.       38.  100000.00
      1.20      0.00      5.75      0.00      .040      .079      .040      .049    605.50    700.00
  .005904       50.       49.       50.         2         0         0      0.00     37.00    737.00

*SECNO 9.157

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

          CLARK STREET/27-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION J

      9.16      6.49    611.99      0.00      0.00    612.24       .25       .00      0.00    616.10
      825.        0.     825.        0.        0.     204.        0.       97.       38.    615.80
      1.20      0.00      4.04      0.00      .030      .040      .030      .049    605.50   1481.30
  .001646        1.        1.        1.         2         0         0      0.00     37.00   1518.30

*SECNO 9.162

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  615.80 MAX ELLC=  613.90

          CLARK STREET/27-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION J

      9.16      5.65    611.95      0.00      0.00    612.30       .35       .06      0.00    616.10
      825.        0.     825.        0.        0.     173.        0.       97.       38.    615.80
      1.20      0.00      4.77      0.00      .030      .040      .030      .049    606.30   1481.30
  .002717       29.       29.       29.         2         0         0      0.00     37.00   1518.30

*SECNO 9.163

3301 HV CHANGED MORE THAN HVINS

      SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
      D         QLOB      OCH       QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
      TIME      VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR    ITRIAL       IDC     ICONT     CORAR    TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      699.0      738.0  TYPE=      1  TARGET=      39.000

          SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.16      5.12    611.32      0.00      0.00    612.31       .99       .01      0.00    610.70
      825.        1.     824.        0.        1.     103.        0.       97.       38.  100000.00
      1.20      1.34      7.99      0.00      .075      .045      .075      .049    606.20    699.00
  .016509        1.        1.        1.         4         0         0      0.00     39.00    738.00

*SECNO 9.167

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      679.0      758.0  TYPE=      1  TARGET=      79.000

          SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

      9.17      5.82    612.02      0.00      0.00    612.51       .49       .20      0.00    610.70
      825.       45.     768.       12.       25.     133.       10.       97.       38.    611.40
      1.20      1.78      5.79      1.14      .075      .045      .075      .049    606.20    679.00
  .006705        20        20        20         3         0         0      0.0     79.00    758.00
```

1490 NH CARD USED
*SECNO 9.331

VALLEY SECTION K

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.33 | 9.17 | 613.67 | 0.00 | 0.00 | 613.73 | .06 | 1.23 | 0.00 | 611.00 |
| 815. | 358. | 454. | 3. | 344. | 176. | 7. | 104. | 41. | 611.70 |
| 1.33 | 1.04 | 2.58 | .39 | .063 | .045 | .090 | .048 | 604.50 | 26.17 |
| .000589 | 860. | 870. | 900. | 6 | 0 | 0 | 0.00 | 176.08 | 202.25 |

1490 NH CARD USED
*SECNO 9.475

VALLEY SECTION L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.48 | 6.41 | 614.31 | 0.00 | 0.00 | 614.42 | .11 | .69 | 0.00 | 612.00 |
| 815. | 130. | 468. | 217. | 122. | 137. | 262. | 114. | 45. | 611.60 |
| 1.42 | 1.07 | 3.40 | .83 | .090 | .050 | .089 | .048 | 607.90 | 136.82 |
| .001513 | 810. | 760. | 750. | 3 | 0 | 0 | 0.00 | 279.82 | 416.64 |

1490 NH CARD USED
*SECNO 9.688

VALLEY SECTION M

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.69 | 5.60 | 616.50 | 0.00 | 0.00 | 616.61 | .11 | 2.18 | 0.00 | 615.10 |
| 815. | 98. | 313. | 404. | 121. | 79. | 297. | 126. | 52. | 613.60 |
| 1.55 | .81 | 3.98 | 1.36 | .090 | .050 | .088 | .048 | 610.90 | 190.05 |
| .002870 | 1070. | 1120. | 1020. | 3 | 0 | 0 | 0.00 | 338.75 | 528.79 |

*SECNO 9.807

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECTION M REPEATED AND ADJUSTED FOR CHANNEL INVERT. LOCATED AT

UPSTREAM VILLAGE OF NEW HAVEN CORPORATE LIMITS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.81 | 5.64 | 618.24 | 0.00 | 0.00 | 618.34 | .10 | 1.73 | 0.00 | 616.80 |
| 815. | 103. | 306. | 406. | 129. | 79. | 306. | 133. | 57. | 615.30 |
| 1.63 | .80 | 3.85 | 1.33 | .090 | .050 | .088 | .048 | 612.60 | 189.20 |
| .002640 | 630. | 630. | 630. | 2 | 0 | 0 | 0.00 | 340.57 | 529.77 |

PRINTED IN U.S.A.
FORM 1411-GP PRINTED BY ROTARY MANIFOLD FORMS

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*********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR    01,02
  MODIFICATION -  50,51,52,53
*********************************************

T1      VILLAGE OF NEW HAVEN F.I.S. - JOB NO. 5850-05
T2      500-YEAR FLOW
T3      SALT RIVER - PROJECT MANAGER, OLE ANDERSON

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

    -10.       5.       0.       0.  0.000000    0.00     0.0      0.   603.000   0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

    15.000    0.000   -1.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

*PROF 4

*SECNO 7.640
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

            26-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION A

     7.64      8.50    603.00      0.00    603.00    603.38       .38      0.00      0.00    604.20
    1500.        0.    1500.        0.        0.       303.        0.        0.        0.    604.20
     0.00      0.00      4.95      0.00      .030      .030      .030     0.000    594.50   1471.50
  .001053      110.      100.      110.         0         0         0      0.00     45.50   1517.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.00      1.91      3.02      0.00      32.01     0.00      224.10    0.00      595.00    594.50

*SECNO 7.644

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                             AREA
  604.33    603.88     0.00      182.      1319.     224.      224.      602.00    603.50

            26-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION A

     7.64      8.67    603.67      0.00      0.00    604.03       .36       .65      0.00    604.20
    1500.        3.      1497.        0.       10.       311.        0.        0.        0.    604.20
      .00       .30      4.81      0.00      .030      .030      .030      .029    595.00   1266.04
  .000973       25.       25.       25.         3         0         4      0.00    164.36   1517.00
```

```
*SECNO 7.645

3470 ENCROACHMENT STATIONS=     1487.5     1535.0  TYPE=      1  TARGET=      47.500

            FIELD SECTION TAKEN DOWNSTREAM OF 26-MILE ROAD AND ADJUSTED FOR

            CHANNEL INVERT IN OVERBANKS - CHANNEL PORTION REPLACED BY CHANNEL

            GEOMETRY OF BRIDGE SECTION

      7.65      8.68    603.68      0.00      0.00    604.03       .35       .00      0.00100000.00
     1500.        0.     1495.        5.        0.      316.        6.        0.        0.     597.30
       .00      0.00      4.74       .72      .080      .045      .080      .028    595.00   1487.50
   .001814        1.        1.        1.         1         0         0      0.00     47.50   1535.00

*SECNO 7.650

3470 ENCROACHMENT STATIONS=      291.0      391.0  TYPE=      1  TARGET=     100.000

            SECTION B REPEATED AND ADJUSTED FOR CHANNEL INVERT

      7.65      8.65    603.65      0.00      0.00    604.09       .44       .06      0.00    604.80
     1500.        0.     1145.      355.        0.      194.      132.        0.        0.     599.30
       .00      0.00      5.92      2.68      .080      .045      .080      .036    595.00    325.74
   .003550       25.       25.       25.         2         0         0      0.00     65.26    391.00

1490 NH CARD USED
*SECNO 8.007
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
    Q         OLOB      OCH       OROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN   SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID  ENDST

3470 ENCROACHMENT STATIONS=         .0       670.0  TYPE=      1  TARGET=      669.999

            VALLEY SECTION B

      8.01      8.87    605.07      0.00      0.00    605.09       .02      1.00      0.00    606.00
     1500.        0.      341.     1159.        0.      201.     1227.       25.        6.     600.50
       .36      0.00      1.70       .94      .080      .045      .066      .058    596.20    325.22
   .000283     1180.     1884.     1020.         4         0         0      0.00    344.78    670.00

*SECNO 8.035

3470 ENCROACHMENT STATIONS=         .0       630.0  TYPE=      1  TARGET=      629.999

            CONFLUENCE WITH SHOOK DRAIN - SECTION B REPEATED AND ADJUSTED FOR

            CHANNEL INVERT.

      8.04      7.91    605.11      0.00      0.00    605.15       .05       .07      0.00    607.00
     1500.        0.      432.     1068.        0.      169.      835.       29.        7.     601.50
       .39      0.00      2.56      1.28      .080      .045      .067      .056    597.20    327.51
   .000744      120.      150.      160.         2         0         0      0.00    302.49    630.00
```

*SECNO 8.056

VALLEY SECTION C

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.06 | 7.27 | 605.17 | 0.00 | 0.00 | 605.24 | .07 | .09 | 0.00 | 602.90 |
| 995. | 229. | 612. | 155. | 267. | 230. | 140. | 31. | 7. | 601.80 |
| .41 | .86 | 2.67 | 1.11 | .080 | .050 | .080 | .055 | 597.90 | 543.26 |
| .000890 | 90. | 110. | 120. | 0 | 0 | 0 | 0.00 | 235.47 | 778.73 |

1490 NH CARD USED

*SECNO 8.181

VALLEY SECTION D

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.18 | 7.63 | 605.53 | 0.00 | 0.00 | 605.55 | .02 | .31 | 0.00 | 601.50 |
| 995. | 401. | 375. | 218. | 644. | 212. | 352. | 45. | 12. | 601.90 |
| .58 | .62 | 1.77 | .62 | .079 | .045 | .076 | .053 | 597.90 | 1250.15 |
| .000291 | 640. | 660. | 660. | 2 | 0 | 0 | 0.00 | 434.38 | 1684.53 |

*SECNO 8.503

VALLEY SECTION E

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.50 | 3.93 | 606.53 | 0.00 | 0.00 | 606.59 | .05 | 1.03 | 0.00 | 603.70 |
| 995. | 762. | 233. | 0. | 475. | 96. | 0. | 79. | 26. | 607.90 |
| .84 | 1.60 | 2.43 | 0.00 | .070 | .050 | .070 | .052 | 602.60 | 168.34 |
| .002092 | 1670. | 1700. | 1600. | 2 | 0 | 0 | 0.00 | 271.61 | 439.95 |

*SECNO 8.774

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 453.0 587.0 TYPE= 1 TARGET= 134.000

VALLEY SECTION F

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.77 | 6.20 | 609.90 | 0.00 | 0.00 | 610.23 | .33 | 3.64 | 0.00 | 608.20 |
| 995. | 27. | 775. | 194. | 22. | 151. | 105. | 93. | 32. | 608.20 |
| .93 | 1.23 | 5.11 | 1.84 | .070 | .045 | .070 | .050 | 603.70 | 480.45 |
| .003206 | 1420. | 1430. | 1390. | 2 | 0 | 0 | 0.00 | 106.55 | 587.00 |

*SECNO 8.807

3470 ENCROACHMENT STATIONS= 498.0 542.0 TYPE= 1 TARGET= 44.000

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.81 | 6.43 | 610.33 | 0.00 | 0.00 | 610.86 | .53 | .64 | 0.00 | 608.40 |
| 995. | 17. | 949. | 29. | 9. | 159. | 16. | 94. | 32. | 608.40 |
| .94 | 1.81 | 5.98 | 1.85 | .070 | .045 | .070 | .050 | 603.90 | 498.00 |
| .004121 | 190. | 179. | 150. | 2 | 0 | 0 | 0.00 | 44.00 | 542.00 |

*SECNO 8.808

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 614.40 MAX ELLC= 612.40

GRATIOT AVENUE BRIDGE - DOWNSTREAM FACE - SECTION G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.81 | 6.71 | 610.61 | 0.00 | 0.00 | 610.87 | .25 | .00 | 0.00 | 614.40 |
| 995. | 0. | 995. | 0. | 0. | 248. | 0. | 94. | 32. | 614.40 |
| .94 | 0.00 | 4.02 | 0.00 | .030 | .038 | .030 | .050 | 603.90 | 978.00 |
| .001282 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 44.00 | 1022.00 |

*SECNO 8.818

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 614.40 MAX ELLC= 612.40

GRATIOT AVENUE BRIDGE - UPSTREAM FACE - SECTION G

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.82 | 6.79 | 610.69 | 0.00 | 0.00 | 610.94 | .24 | .07 | 0.00 | 614.40 |
| 995. | 0. | 995. | 0. | 0. | 251. | 0. | 94. | 32. | 614.40 |
| .94 | 0.00 | 3.97 | 0.00 | .030 | .038 | .030 | .050 | 603.90 | 978.00 |
| .001231 | 56. | 56. | 56. | 2 | 0 | 0 | 0.00 | 44.00 | 1022.00 |

*SECNO 8.819

3470 ENCROACHMENT STATIONS= 497.0 543.0 TYPE= 1 TARGET= 46.000

SECTION F REPEATED AND ADJUSTED FOR CHANNEL INVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.82 | 6.53 | 610.43 | 0.00 | 0.00 | 610.94 | .51 | .00 | 0.00 | 608.40 |
| 995. | 19. | 946. | 30. | 12. | 162. | 19. | 94. | 32. | 608.40 |
| .94 | 1.58 | 5.85 | 1.63 | .080 | .045 | .080 | .050 | 603.90 | 497.00 |
| .003835 | 1. | 1. | 1. | 2 | 0 | 0 | 0.00 | 46.00 | 543.00 |

1490 NH CARD USED
*SECNO 8.947

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION H

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8.95 | 5.95 | 611.65 | 0.00 | 0.00 | 611.68 | .03 | .74 | 0.00 | 608.40 |
| 975. | 93. | 134. | 748. | 107. | 68. | 597. | 102. | 35. | 608.20 |
| 1.09 | .87 | 1.98 | 1.25 | .076 | .045 | .052 | .049 | 605.70 | 161.66 |
| .000481 | 670. | 678. | 740. | 3 | 0 | 0 | 0.00 | 267.77 | 429.42 |

1490 NH CARD USED
*SECNO 9.148

3470 ENCROACHMENT STATIONS= 690.0 752.0 TYPE= 1 TARGET= 62.000

VALLEY SECTION I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.15 | 8.20 | 612.30 | 0.00 | 0.00 | 612.47 | .17 | .79 | 0.00 | 608.60 |
| 975. | 98. | 796. | 81. | 36. | 230. | 33. | 115. | 39. | 609.30 |
| 1.17 | 2.69 | 3.45 | 2.46 | .040 | .079 | .040 | .049 | 604.10 | 690.00 |
| .001403 | 1100. | 1060. | 990. | 2 | 0 | 0 | 0.00 | 62.00 | 752.00 |

*SECNO 9.156

[illegible] TYPE 1 TARGET= 37.000

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

```
     9.16      6.47    611.97      0.00      0.00    612.60       .63       .13      0.00    610.00
     975.        0.      975.        0.        0.      153.        0.      115.       39. 100000.00
     1.18      0.00      6.39      0.00      .040      .079      .040      .049    605.50    700.00
 .006850       50.       49.       50.         2         0         0      0.00     37.00    737.00
```

*SECNO 9.157

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 615.80 MAX ELLC= 613.90

CLARK STREET/27-MILE ROAD BRIDGE - DOWNSTREAM FACE - SECTION J

```
     9.16      6.79    612.29      0.00      0.00    612.61       .32       .00      0.00    616.10
     975.        0.      975.        0.        0.      215.        0.      115.       39.    615.80
     1.18      0.00      4.53      0.00      .030      .040      .030      .049    605.50   1481.30
 .001957        1.        1.        1.         2         0         0      0.00     37.00   1518.30
```

*SECNO 9.162

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 615.80 MAX ELLC= 613.90

CLARK STREET/27-MILE ROAD BRIDGE - UPSTREAM FACE - SECTION J

```
     9.16      5.94    612.24      0.00      0.00    612.68       .44       .07      0.00    616.10
     975.        0.      975.        0.        0.      184.        0.      115.       39.    615.80
     1.18      0.00      5.30      0.00      .030      .040      .030      .049    606.30   1481.30
 .003151       29.       29.       29.         2         0         0      0.00     37.00   1518.30
```

*SECNO 9.163

3301 HV CHANGED MORE THAN HVINS

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST
```

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 699.0 738.0 TYPE= 1 TARGET= 39.000

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

```
     9.16      5.10    611.30    611.30      0.00    612.70      1.40       .01      0.00    610.70
     975.        1.      974.        0.        1.      103.        0.      115.       39. 100000.00
     1.18      1.58      9.50      0.00      .075      .045      .075      .049    606.20    699.00
 .023502        1.        1.        1.        20        15         0      0.00     39.00    738.00
```

*SECNO 9.167

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 679.0 758.0 TYPE= 1 TARGET= 79.000

SECTION I REPEATED AND ADJUSTED FOR CHANNEL INVERT.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.17 | 6.22 | 612.42 | 0.00 | 0.00 | 612.91 | .50 | .21 | 0.00 | 610.70 |
| 975. | 68. | 882. | 25. | 34. | 149. | 17. | 115. | 39. | 611.40 |
| 1.18 | 2.01 | 5.93 | 1.49 | .075 | .045 | .075 | .049 | 606.20 | 679.00 |
| .006027 | 20. | 20. | 20. | 3 | 0 | 0 | 0.00 | 79.00 | 758.00 |

1490 NH CARD USED
*SECNO 9.331

VALLEY SECTION K

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.33 | 9.55 | 614.05 | 0.00 | 0.00 | 614.12 | .07 | 1.20 | 0.00 | 611.00 |
| 965. | 462. | 499. | 4. | 397. | 186. | 10. | 123. | 41. | 611.70 |
| 1.30 | 1.16 | 2.68 | .44 | .062 | .045 | .090 | .048 | 604.50 | 25.20 |
| .000595 | 860. | 870. | 900. | 5 | 0 | 0 | 0.00 | 178.42 | 203.62 |

1490 NH CARD USED
*SECNO 9.475

VALLEY SECTION L

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.48 | 6.79 | 614.69 | 0.00 | 0.00 | 614.79 | .10 | .67 | 0.00 | 612.00 |
| 965. | 162. | 496. | 307. | 144. | 146. | 336. | 134. | 46. | 611.60 |
| 1.40 | 1.12 | 3.39 | .91 | .090 | .050 | .089 | .048 | 607.90 | 134.68 |
| .001377 | 810. | 760. | 750. | 3 | 0 | 0 | 0.00 | 287.09 | 421.77 |

1490 NH CARD USED
*SECNO 9.688

VALLEY SECTION M

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.69 | 5.82 | 616.72 | 0.00 | 0.00 | 616.83 | .11 | 2.04 | 0.00 | 615.10 |
| 965. | 143. | 336. | 486. | 156. | 83. | 337. | 148. | 53. | 613.60 |
| 1.53 | .92 | 4.07 | 1.44 | .090 | .050 | .088 | .048 | 610.90 | 186.24 |
| .002795 | 1070. | 1120. | 1020. | 1 | 0 | 0 | 0.00 | 346.94 | 533.18 |

*SECNO 9.807

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | FLMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SECTION M REPEATED AND ADJUSTED FOR CHANNEL INVERT. LOCATED AT

UPSTREAM VILLAGE OF NEW HAVEN CORPORATE LIMITS.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9.81 | 5.85 | 618.45 | 0.00 | 0.00 | 618.55 | .10 | 1.72 | 0.00 | 616.80 |
| 965. | 146. | 332. | 487. | 160. | 83. | 342. | 157. | 58. | 615.30 |
| 1.61 | .91 | 4.00 | 1.42 | .090 | .050 | .088 | .048 | 612.60 | 185.78 |
| .002680 | 630. | 630. | 630. | 2 | 0 | 0 | 0.00 | 347.93 | 533.71 |

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SALT RIVER - PROJECT MAN

SUMMARY PRINTOUT

| SECNO | ELTRD | ELLC | ELMIN | Q | CWSEL | DEPTH | HV | OLOSS | EG | K*CHSL | TOPWID | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.640 | 0.00 | 0.00 | 594.50 | 650.00 | 601.10 | 6.60 | .14 | 0.00 | 601.24 | 0.00 | 45.50 | 216.85 |
| 7.640 | 0.00 | 0.00 | 594.50 | 1050.00 | 601.90 | 7.40 | .27 | 0.00 | 602.17 | 0.00 | 45.50 | 253.25 |
| 7.640 | 0.00 | 0.00 | 594.50 | 1200.00 | 602.40 | 7.90 | .29 | 0.00 | 602.69 | 0.00 | 45.50 | 276.00 |
| 7.640 | 0.00 | 0.00 | 594.50 | 1500.00 | 603.00 | 8.50 | .38 | 0.00 | 603.38 | 0.00 | 45.50 | 303.30 |
| 7.644 | 603.50 | 602.00 | 595.00 | 650.00 | 601.06 | 6.06 | .19 | 0.00 | 601.26 | 20.00 | 45.50 | 183.64 |
| 7.644 | 603.50 | 602.00 | 595.00 | 1050.00 | 601.79 | 6.79 | .41 | 0.00 | 602.20 | 20.00 | 45.50 | 205.31 |
| 7.644 | 603.50 | 602.00 | 595.00 | 1200.00 | 602.96 | 7.96 | .29 | 0.00 | 603.25 | 20.00 | 45.50 | 278.91 |
| 7.644 | 603.50 | 602.00 | 595.00 | 1500.00 | 603.67 | 8.67 | .36 | 0.00 | 604.03 | 20.00 | 164.36 | 321.12 |
| 7.645 | 0.00 | 0.00 | 595.00 | 650.00 | 601.09 | 6.09 | .17 | 0.00 | 601.26 | 0.00 | 47.50 | 199.18 |
| 7.645 | 0.00 | 0.00 | 595.00 | 1050.00 | 601.89 | 6.89 | .31 | 0.00 | 602.20 | 0.00 | 47.50 | 237.13 |
| 7.645 | 0.00 | 0.00 | 595.00 | 1200.00 | 602.97 | 7.97 | .28 | 0.00 | 603.25 | 0.00 | 47.50 | 288.42 |
| 7.645 | 0.00 | 0.00 | 595.00 | 1500.00 | 603.68 | 8.68 | .35 | 0.00 | 604.03 | 0.00 | 47.50 | 321.98 |
| 7.650 | 0.00 | 0.00 | 595.00 | 650.00 | 600.95 | 5.95 | .37 | 0.00 | 601.32 | 0.00 | 58.83 | 158.47 |
| 7.650 | 0.00 | 0.00 | 595.00 | 1050.00 | 601.71 | 6.71 | .58 | 0.00 | 602.29 | 0.00 | 60.65 | 204.09 |
| 7.650 | 0.00 | 0.00 | 595.00 | 1200.00 | 602.92 | 7.92 | .39 | 0.00 | 603.31 | 0.00 | 63.51 | 278.71 |
| 7.650 | 0.00 | 0.00 | 595.00 | 1500.00 | 603.65 | 8.65 | .44 | 0.00 | 604.09 | 0.00 | 65.26 | 325.98 |
| 8.007 | 0.00 | 0.00 | 596.20 | 650.00 | 602.93 | 6.73 | .02 | 0.00 | 602.96 | .64 | 339.72 | 701.23 |
| 8.007 | 0.00 | 0.00 | 596.20 | 1050.00 | 603.83 | 7.63 | .02 | 0.00 | 603.86 | .64 | 341.83 | 1004.18 |
| 8.007 | 0.00 | 0.00 | 596.20 | 1200.00 | 604.39 | 8.19 | .02 | 0.00 | 604.41 | .64 | 343.16 | 1194.85 |
| 8.007 | 0.00 | 0.00 | 596.20 | 1500.00 | 605.07 | 8.87 | .02 | 0.00 | 605.09 | .64 | 344.78 | 1428.39 |
| 8.035 | 0.00 | 0.00 | 597.20 | 650.00 | 602.96 | 5.76 | .13 | 0.00 | 603.09 | 6.67 | 297.38 | 359.97 |
| 8.035 | 0.00 | 0.00 | 597.20 | 1050.00 | 603.89 | 6.69 | .08 | 0.00 | 603.97 | 6.67 | 299.61 | 638.62 |
| 8.035 | 0.00 | 0.00 | 597.20 | 1200.00 | 604.43 | 7.23 | .05 | 0.00 | 604.49 | 6.67 | 300.89 | 800.23 |
| 8.035 | 0.00 | 0.00 | 597.20 | 1500.00 | 605.11 | 7.91 | .05 | 0.00 | 605.15 | 6.67 | 302.49 | 1003.71 |
| 8.056 | 0.00 | 0.00 | 597.90 | 440.00 | 603.22 | 5.32 | .11 | 0.00 | 603.33 | 6.36 | 147.78 | 199.16 |
| 8.056 | 0.00 | 0.00 | 597.90 | 740.00 | 604.01 | 6.11 | .13 | 0.00 | 604.14 | 6.36 | 226.98 | 370.91 |
| 8.056 | 0.00 | 0.00 | 597.90 | 840.00 | 604.51 | 6.61 | .10 | 0.00 | 604.61 | 6.36 | 230.61 | 483.36 |
| 8.056 | 0.00 | 0.00 | 597.90 | 995.00 | 605.17 | 7.27 | .07 | 0.00 | 605.24 | 6.36 | 235.47 | 636.51 |
| 8.181 | 0.00 | 0.00 | 597.90 | 440.00 | 603.86 | 5.96 | .04 | 0.00 | 603.89 | 0.00 | 416.16 | 497.53 |
| 8.181 | 0.00 | 0.00 | 597.90 | 740.00 | 604.63 | 6.73 | .03 | 0.00 | 604.67 | 0.00 | 424.52 | 819.84 |
| 8.181 | 0.00 | 0.00 | 597.90 | 840.00 | 604.99 | 7.09 | .03 | 0.00 | 605.02 | 0.00 | 428.47 | 974.64 |
| 8.181 | 0.00 | 0.00 | 597.90 | 995.00 | 605.53 | 7.63 | .02 | 0.00 | 605.55 | 0.00 | 434.38 | 1208.22 |

| SECNO | ELTRD | ELLC | ELMIN | Q | CWSEL | DEPTH | HV | OLOSS | EG | K*CHSL | TOPWID | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.503 | 0.00 | 0.00 | 602.60 | 440.00 | 605.52 | 2.92 | .04 | 0.00 | 605.56 | 2.76 | 251.20 | 306.93 |
| 8.503 | 0.00 | 0.00 | 602.60 | 740.00 | 606.10 | 3.50 | .05 | 0.00 | 606.15 | 2.76 | 262.96 | 455.08 |
| 8.503 | 0.00 | 0.00 | 602.60 | 840.00 | 606.25 | 3.65 | .05 | 0.00 | 606.30 | 2.76 | 265.95 | 494.96 |
| 8.503 | 0.00 | 0.00 | 602.60 | 995.00 | 606.53 | 3.93 | .05 | 0.00 | 606.59 | 2.76 | 271.61 | 571.59 |
| 8.774 | 0.00 | 0.00 | 603.70 | 440.00 | 608.77 | 5.07 | .17 | 0.00 | 608.93 | .77 | 93.51 | 164.75 |
| 8.774 | 0.00 | 0.00 | 603.70 | 740.00 | 609.47 | 5.77 | .25 | 0.00 | 609.73 | .77 | 101.55 | 233.02 |
| 8.774 | 0.00 | 0.00 | 603.70 | 840.00 | 609.67 | 5.97 | .28 | 0.00 | 609.95 | .77 | 103.89 | 253.93 |
| 8.774 | 0.00 | 0.00 | 603.70 | 995.00 | 609.90 | 6.20 | .33 | 0.00 | 610.23 | .77 | 106.55 | 278.22 |
| 8.807 | 0.00 | 0.00 | 603.90 | 440.00 | 609.11 | 5.21 | .20 | 0.00 | 609.31 | 1.12 | 44.00 | 130.14 |
| 8.807 | 0.00 | 0.00 | 603.90 | 740.00 | 609.88 | 5.98 | .36 | 0.00 | 610.24 | 1.12 | 44.00 | 163.98 |
| 8.807 | 0.00 | 0.00 | 603.90 | 840.00 | 610.08 | 6.18 | .43 | 0.00 | 610.51 | 1.12 | 44.00 | 172.95 |
| 8.807 | 0.00 | 0.00 | 603.90 | 995.00 | 610.33 | 6.43 | .53 | 0.00 | 610.86 | 1.12 | 44.00 | 183.90 |
| 8.808 | 614.40 | 612.40 | 603.90 | 440.00 | 609.22 | 5.32 | .09 | 0.00 | 609.31 | .00 | 44.00 | 186.21 |
| 8.808 | 614.40 | 612.40 | 603.90 | 740.00 | 610.08 | 6.18 | .17 | 0.00 | 610.25 | .00 | 44.00 | 223.85 |
| 8.808 | 614.40 | 612.40 | 603.90 | 840.00 | 610.31 | 6.41 | .20 | 0.00 | 610.51 | .00 | 44.00 | 234.18 |
| 8.808 | 614.40 | 612.40 | 603.90 | 995.00 | 610.61 | 6.71 | .25 | 0.00 | 610.87 | .00 | 44.00 | 247.60 |
| 8.818 | 614.40 | 612.40 | 603.90 | 440.00 | 609.26 | 5.36 | .09 | 0.00 | 609.34 | 0.00 | 44.00 | 187.73 |
| 8.818 | 614.40 | 612.40 | 603.90 | 740.00 | 610.13 | 6.23 | .17 | 0.00 | 610.30 | 0.00 | 44.00 | 226.33 |
| 8.818 | 614.40 | 612.40 | 603.90 | 840.00 | 610.37 | 6.47 | .20 | 0.00 | 610.57 | 0.00 | 44.00 | 236.98 |
| 8.818 | 614.40 | 612.40 | 603.90 | 995.00 | 610.69 | 6.79 | .24 | 0.00 | 610.94 | 0.00 | 44.00 | 250.94 |
| 8.819 | 0.00 | 0.00 | 603.90 | 440.00 | 609.15 | 5.25 | .19 | 0.00 | 609.34 | 0.00 | 46.00 | 133.28 |
| 8.819 | 0.00 | 0.00 | 603.90 | 740.00 | 609.95 | 6.05 | .35 | 0.00 | 610.30 | 0.00 | 46.00 | 170.06 |
| 8.819 | 0.00 | 0.00 | 603.90 | 840.00 | 610.16 | 6.26 | .41 | 0.00 | 610.57 | 0.00 | 46.00 | 179.95 |
| 8.819 | 0.00 | 0.00 | 603.90 | 995.00 | 610.43 | 6.53 | .51 | 0.00 | 610.94 | 0.00 | 46.00 | 192.36 |
| 8.947 | 0.00 | 0.00 | 605.70 | 430.00 | 610.20 | 4.50 | .03 | 0.00 | 610.22 | 2.65 | 256.55 | 389.61 |
| 8.947 | 0.00 | 0.00 | 605.70 | 725.00 | 611.05 | 5.35 | .03 | 0.00 | 611.08 | 2.65 | 263.11 | 610.95 |
| 8.947 | 0.00 | 0.00 | 605.70 | 825.00 | 611.30 | 5.60 | .03 | 0.00 | 611.33 | 2.65 | 265.06 | 678.15 |
| 8.947 | 0.00 | 0.00 | 605.70 | 975.00 | 611.65 | 5.95 | .03 | 0.00 | 611.68 | 2.65 | 267.77 | 771.82 |
| 9.148 | 0.00 | 0.00 | 604.10 | 430.00 | 610.96 | 6.86 | .06 | 0.00 | 611.02 | -1.51 | 62.00 | 216.76 |
| 9.148 | 0.00 | 0.00 | 604.10 | 725.00 | 611.76 | 7.66 | .12 | 0.00 | 611.88 | -1.51 | 62.00 | 266.26 |
| 9.148 | 0.00 | 0.00 | 604.10 | 825.00 | 611.98 | 7.88 | .14 | 0.00 | 612.12 | -1.51 | 62.00 | 279.83 |
| 9.148 | 0.00 | 0.00 | 604.10 | 975.00 | 612.30 | 8.20 | .17 | 0.00 | 612.47 | -1.51 | 62.00 | 299.79 |
| 9.156 | 0.00 | 0.00 | 605.50 | 430.00 | 610.86 | 5.36 | .23 | 0.00 | 611.09 | 28.57 | 37.00 | 111.09 |
| 9.156 | 0.00 | 0.00 | 605.50 | 725.00 | 611.54 | 6.04 | .44 | 0.00 | 611.98 | 28.57 | 37.00 | 136.54 |
| 9.156 | 0.00 | 0.00 | 605.50 | 825.00 | 611.72 | 6.22 | .51 | 0.00 | 612.24 | 28.57 | 37.00 | 143.39 |
| 9.156 | 0.00 | 0.00 | 605.50 | 975.00 | 611.97 | 6.47 | .63 | 0.00 | 612.60 | 28.57 | 37.00 | 152.62 |
| 9.157 | 615.80 | 613.90 | 605.50 | 430.00 | 610.99 | 5.49 | .10 | 0.00 | 611.09 | .00 | 37.00 | 167.03 |
| 9.157 | 615.80 | 613.90 | 605.50 | 725.00 | 611.77 | 6.27 | .21 | 0.00 | 611.98 | .00 | 37.00 | 195.98 |
| 9.157 | 615.80 | 613.90 | 605.50 | 825.00 | 611.99 | 6.49 | .25 | 0.00 | 612.24 | .00 | 37.00 | 204.10 |
| 9.157 | 615.80 | 613.90 | 605.50 | 975.00 | 612.29 | 6.79 | .32 | 0.00 | 612.61 | .00 | 37.00 | 215.29 |
| 9.162 | 615.80 | 613.90 | 606.30 | 430.00 | 610.97 | 4.67 | .15 | 0.00 | 611.12 | 27.59 | 37.00 | 136.72 |
| 9.162 | 615.80 | 613.90 | 606.30 | 725.00 | 611.73 | 5.43 | .30 | 0.00 | 612.03 | 27.59 | 37.00 | 165.12 |
| 9.162 | 615.80 | 613.90 | 606.30 | 825.00 | 611.95 | 5.65 | .35 | 0.00 | 612.30 | 27.59 | 37.00 | 173.04 |
| 9.162 | 615.80 | 613.90 | 606.30 | 975.00 | 612.24 | 5.94 | .44 | 0.00 | 612.68 | 27.59 | 37.00 | 183.92 |

PRINTED IN U.S.A.
FORM 1411 GR PRINTED BY ROTARY MANIFOLD FORMS

| | SECNO | ELTRD | ELLC | ELMIN | Q | CWSEL | DEPTH | HV | OLOSS | EG | K*CHSL | TOPWID | AREA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9.163 | 0.00 | 0.00 | 606.20 | 430.00 | 610.65 | 4.45 | .47 | 0.00 | 611.12 | -100.00 | 37.84 | 77.82 |
| | 9.163 | 0.00 | 0.00 | 606.20 | 725.00 | 611.22 | 5.02 | .82 | 0.00 | 612.04 | -100.00 | 39.00 | 100.16 |
| | 9.163 | 0.00 | 0.00 | 606.20 | 825.00 | 611.32 | 5.12 | .99 | 0.00 | 612.31 | -100.00 | 39.00 | 103.80 |
| * | 9.163 | 0.00 | 0.00 | 606.20 | 975.00 | 611.30 | 5.10 | 1.40 | 0.00 | 612.70 | -100.00 | 39.00 | 103.18 |
| | 9.167 | 0.00 | 0.00 | 606.20 | 430.00 | 610.95 | 4.75 | .36 | 0.00 | 611.30 | 0.00 | 60.31 | 92.48 |
| | 9.167 | 0.00 | 0.00 | 606.20 | 725.00 | 611.77 | 5.57 | .47 | 0.00 | 612.23 | 0.00 | 79.00 | 148.75 |
| | 9.167 | 0.00 | 0.00 | 606.20 | 825.00 | 612.02 | 5.82 | .49 | 0.00 | 612.51 | 0.00 | 79.00 | 168.47 |
| | 9.167 | 0.00 | 0.00 | 606.20 | 975.00 | 612.42 | 6.22 | .50 | 0.00 | 612.91 | 0.00 | 79.00 | 199.62 |
| | 9.331 | 0.00 | 0.00 | 604.50 | 425.00 | 612.46 | 7.96 | .06 | 0.00 | 612.52 | -1.95 | 168.46 | 318.48 |
| | 9.331 | 0.00 | 0.00 | 604.50 | 715.00 | 613.40 | 8.90 | .06 | 0.00 | 613.46 | -1.95 | 174.40 | 480.23 |
| | 9.331 | 0.00 | 0.00 | 604.50 | 815.00 | 613.67 | 9.17 | .06 | 0.00 | 613.73 | -1.95 | 176.08 | 526.99 |
| | 9.331 | 0.00 | 0.00 | 604.50 | 965.00 | 614.05 | 9.55 | .07 | 0.00 | 614.12 | -1.95 | 178.42 | 592.91 |
| | 9.475 | 0.00 | 0.00 | 607.90 | 425.00 | 613.11 | 5.21 | .14 | 0.00 | 613.25 | 4.47 | 144.21 | 212.76 |
| | 9.475 | 0.00 | 0.00 | 607.90 | 715.00 | 614.05 | 6.15 | .12 | 0.00 | 614.17 | 4.47 | 274.67 | 447.21 |
| | 9.475 | 0.00 | 0.00 | 607.90 | 815.00 | 614.31 | 6.41 | .11 | 0.00 | 614.42 | 4.47 | 279.82 | 520.81 |
| | 9.475 | 0.00 | 0.00 | 607.90 | 965.00 | 614.69 | 6.79 | .10 | 0.00 | 614.79 | 4.47 | 287.09 | 627.11 |
| | 9.688 | 0.00 | 0.00 | 610.90 | 425.00 | 615.74 | 4.84 | .12 | 0.00 | 615.87 | 2.68 | 262.86 | 255.89 |
| | 9.688 | 0.00 | 0.00 | 610.90 | 715.00 | 616.34 | 5.44 | .11 | 0.00 | 616.45 | 2.68 | 333.05 | 443.29 |
| | 9.688 | 0.00 | 0.00 | 610.90 | 815.00 | 616.50 | 5.60 | .11 | 0.00 | 616.61 | 2.68 | 338.75 | 496.58 |
| | 9.688 | 0.00 | 0.00 | 610.90 | 965.00 | 616.72 | 5.82 | .11 | 0.00 | 616.83 | 2.68 | 346.94 | 574.87 |
| | 9.807 | 0.00 | 0.00 | 612.60 | 425.00 | 617.54 | 4.94 | .10 | 0.00 | 617.64 | 2.70 | 296.71 | 282.75 |
| | 9.807 | 0.00 | 0.00 | 612.60 | 715.00 | 618.09 | 5.49 | .10 | 0.00 | 618.19 | 2.70 | 335.04 | 461.77 |
| | 9.807 | 0.00 | 0.00 | 612.60 | 815.00 | 618.24 | 5.64 | .10 | 0.00 | 618.34 | 2.70 | 340.57 | 513.86 |
| | 9.807 | 0.00 | 0.00 | 612.60 | 965.00 | 618.45 | 5.85 | .10 | 0.00 | 618.55 | 2.70 | 347.93 | 584.40 |

SUMMARY OF ERRORS

```
CAUTION  SECNO=    9.163  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    9.163  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    9.163  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Clinton River Main Br.

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

RECEIVED
AUG 30 1977
WATER MANAGEMENT

# LETTER OF TRANSMITTAL

| DATE | JOB NO |
|---|---|
| August 26, 1977 | 5670-08 |

RE: Shelby Township Flood Insurance Study
Clinton River Main Branch
Hydraulic Computation

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Daniel H. Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
P. O. Box 30028
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO | DESCRIPTION |
|---|---|---|---|
| 1 | 8-26-77 | 1 | Revised Stream Profile for Clinton River Main Branch |
| 1 | 8-25-77 | 1 | Revised HEC-2 Input and Output |
| | | | |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

**REMARKS:**

Dan,

The starting water-surface elevations have been revised. They are now compatible with the adjacent study in Sterling Heights which was resubmitted to your office on August 17, 1977.

SIGNED:
William C. Rossow
William C. Rossow, P.E., Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72)

WCR/dp

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

# LETTER OF TRANSMITTAL

| DATE | JOB NO. |
|---|---|
| July 1, 1977 | 5670-08-1 |

RE: Shelby Township Flood Insurance Study
Clinton River Main Branch
Hydraulic Computations

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Dan Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
5th Floor, Mason Building
Lansing, Michigan 48909

RECEIVED
JUL 7 1977
WATER MANAGEMENT

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO | DESCRIPTION |
|---|---|---|---|
| 1 | 7-1-77 | | Plan & Profile |
| 1 | 7-1-77 | | HEC-2 Input, Output, and J&A IPLOT |
| 1 | 7-1-77 | | Hydraulic Analysis Book |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

REMARKS:

SIGNED:
William C. Rossow
William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) WCR/dp

# SHELBY TOWNSHIP

# FLOOD INSURANCE STUDY

# CLINTON RIVER

# HYDRAULIC ANALYSIS

J & A FILE NUMBER 5670-08-1

JOHNSON & ANDERSON, INC.

Consulting Engineers

2300 Dixie Highway, P. O. Box 1166

Pontiac, Michigan 48056

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# HYDRAULIC ANALYSIS

## Introduction

The stream being studied is the Clinton River in Shelby Township, Macomb County, Michigan. The study limits are from Hall Road near Utica to the Macomb - Oakland County line. The date of field survey was January, 1977.

The discharges were computed using a combination gage analysis and the Unit Hydrograph-Infiltration Capacity Method developed by Dr. Ernest F. Brater. The 10-, 50-, 100- and 500-year flood frequency flows used in this study have been accepted by the Michigan Department of Natural Resources (letter dated April 5, 1977).

The Project Manager for this analysis is William C. Rossow, P. E.

## Method of Analysis

Water-surface profiles were computed by the HEC-2 Standard Step-Backwater Computer Program developed by the U. S. Army Corps of Engineers.[1]

The hydraulic model was developed for the 100-year flow. The "Normal Bridge" routine was used for bridge constrictions under low flow conditions for the 100-year discharge. The "Special Bridge" routine was used for bridge constrictions that experienced pressure flow for the 100-year discharge. All constrictions were inspected for inlet control.

Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections were those outlined on pages 18-21 of the HEC Training Document No. 6 Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If the actual field-surveyed cross-section fell within this distance, this section was encroached as appropriate.

## Starting Point

Profile computations for the Clinton River were continued from the City of Sterling Heights, Hydraulic Analysis, as submitted to the Michigan Department of Natural Resources (May 17, 1977).

## Variables and Coefficients

The roughness factors (Manning's "n") for summer conditions were established by comparing the photographs and descriptions found on pages 101-123 in Open-Channel Hydraulics by Ven Te Chow, with photographs and field inspection trips taken at every cross-section. In general, the following range of values was used:

| | Description | Manning's "n" |
|---|---|---|
| 1. | Channel | |
| | a. Sand and gravel bottom, clean stream with some meandering | .035 |
| | b. Same as above but moderate meandering and or debris | .04 - .045 |
| | c. Same as above but heavy debris | .05 |
| 2. | Flood Plains | |
| | a. High grass | .04 - .05 |
| | b. Scattered brush, heavy weeds | .04 - .06 |
| | c. Light brush | .05 - .07 |
| | d Medium to dense brush | .07 - .15 |

The proposed flood season for this portion of the Clinton River is summer. The variation of roughness was taken into account by use of the NH card with due consideration made of conditions existing upstream and downstream of the given section.

The coefficient of contraction varied from 0.1 (reflecting a gradual change) to 0.5 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 1.0 for gradual to abrupt changes, respectively.

The total loss coefficient (XKOR) used in the HEC-2 "Special Bridge" routine was determined as outlined in Exhibit 2 of the HEC-2 Users Manual. The inlet coefficients were taken from tables published by the Bureau of Public Roads.[2]

For inlet control, nomographs from the Bureau of Public Roads[2] were used. The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

## Synthetic Cross-Sections

Synthetic cross-sections utilized in the Hydraulic Analysis were developed in three ways. The three methods used were blending of the two cross-sections, repetition of a field-surveyed cross-section with appropriate invert and area adjustment, or interpolating between two field-surveyed cross-sections using the Johnson & Anderson, Inc., AVSEC Computer Program. The AVSEC program develops an average cross-section by averaging the overbanks and channel of the two known cross-sections.

Since inverts are known only at field sections, a straight line is assumed between these known points.

# REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Users Manual, 1973.

2. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965)

3. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chapter A5, p. 23.

# APPENDIX A

## SECNO TABLE

SHELBY TOWNSHIP FLOOD INSURANCE STUDY
MAIN BRANCH OF THE CLINTON RIVER JOB NO. 5670-08
PROJECT MANAGER WILLIAM C. ROSSOW

| FIELD SECTION | SECNO | | DESCRIPTION |
|---|---|---|---|
| | 25.202 | | VALLEY SECTION A RELOCATED INVERT ADJUSTED<br>SECTIONS ADDED DUE TO RAPIDLY VARIED FLOW<br>10-YEAR FLOW ENCROACHED FOR EXPANSION OF FLOW. 50. 100-.<br>AND 500-YEAR FLOWS RIGHT ENCROACHMENT FOR CONTRACTION OF<br>FLOW |
| | 25.214 | | VALLEY SECTION A RELOCATED INVERT ADJUSTED<br>SECTIONS ADDED DUE TO RAPIDLY VARIED FLOW<br>10-YEAR FLOW ENCROACHED FOR EXPANSION OF FLOW. 50. 100-.<br>AND 500-YEAR FLOWS RIGHT ENCROACHMENT FOR CONTRACTION OF<br>FLOW |
| A A | 25.233 | A | VALLEY SECTION A<br>10-YEAR FLOW ENCROACHED FOR EXPANSION OF FLOW. 50. 100-.<br>AND 500-YEAR FLOWS RIGHT ENCROACHMENT FOR CONTRACTION OF<br>FLOW |
| | 25.243 | | BRIDGE SECTION B AUBURN ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>FLOW<br>10-YEAR FLOW ENCROACHED FOR PRESSURE FLOW. 50-. 100-.<br>AND 500-YEAR FLOWS RIGHT ENCROACHMENT FOR CONTRACTION OF<br>FLOW |
| B | 25.251 | B | BRIDGE SECTION B AUBURN ROAD UPSTREAM FACE<br>10-YEAR FLOW ENCROACHED FOR PRESSURE FLOW. 50-. 100-.<br>AND 500-YEAR FLOWS RIGHT ENCROACHMENT FOR WEIR FLOW |
| C | 25.394 | C | VALLEY SECTION C |
| D | 25.495 | D | VALLEY SECTION D<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 25.510 | | BRIDGE SECTION E CON RAIL RAILROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>ENCROACHMENTS DUE TO PRESSURE FLOW |
| E | 25.512 | | BRIDGE SECTION E CON RAIL RAILROAD UPSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW |
| | 25.571 | | VALLEY SECTION F RELOCATED INVERT ADJUSTED<br>SECTIONS ADDED DUE TO RAPIDLY VARIED FLOW<br>ENCROACHMENTS FOR CONTRACTION OF FLOW |
| | 25.630 | | VALLEY SECTION F RELOCATED INVERT ADJUSTED<br>SECTIONS ADDED DUE TO RAPIDLY VARIED FLOW<br>ENCROACHMENTS FOR CONTRACTION OF FLOW |
| | 25.706 | | VALLEY SECTION F RELOCATED INVERT ADJUSTED<br>SECTION AT POINT OF CONTRACTION FOR BRIDGE OPENING |
| F | 26.218 | | VALLEY SECTION F |

| | | |
|---|---|---|
| G | 26.788 | VALLEY SECTION G |
| H | 27.048 | VALLEY SECTION H |
| I | 27.559 | VALLEY SECTION I |
| J | 27.851 | VALLEY SECTION J<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| K | 28.150 | VALLEY SECTION K |
| L | 28.455 | VALLEY SECTION L |
| M | 29.032 | VALLEY SECTION M<br>RIGHT ENCROACHMENT DUE TO FLOW EXPANSION<br>OVERBANKS SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 29.089 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 29.175 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 29.261 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| N | 29.318 | VALLEY SECTION N<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 29.329 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 29.330 | BRIDGE SECTION O RYAN ROAD DOWNSTREAM FACE |
| O | 29.337 | BRIDGE SECTION O RYAN ROAD UPSTREAM FACE |
| | 29.338 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 29.357 | VALLEY SECTION N RELOCATED INVERT ADJUSTED<br>SECTION ADDED DUE TO LARGE VELOCITY CHANGE<br>ROAD EMBANKMENT HAS BEEN REMOVED FROM RELOCATED SECTION<br>RIGHT ENCROACHMENT DUE TO CONTRACTION OF FLOW<br>LEFT ENCROACHMENT DUE TO CONTRACTION OF FLOW |
| | 29.370 | VALLEY SECTION N RELOCATED INVERT ADJUSTED<br>SECTION ADDED DUE TO LARGE VELOCITY CHANGE<br>ROAD EMBANKMENT HAS BEEN REMOVED FROM RELOCATED SECTION<br>RIGHT ENCROACHMENT DUE TO CONTRACTION OF FLOW<br>LEFT ENCROACHMENT DUE TO CONTRACTION OF FLOW |

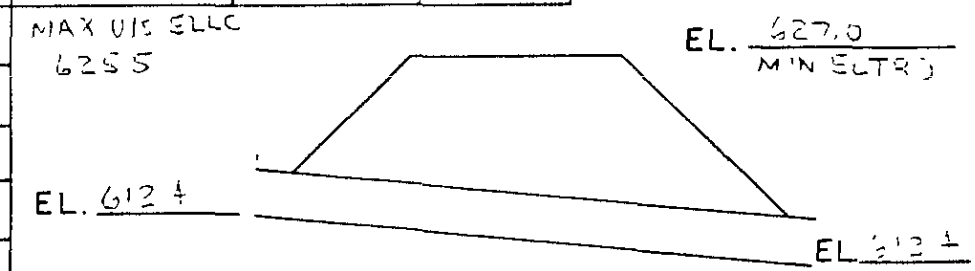
| | | |
|---|---|---|
| P | 29.824 | VALLEY SECTION P |
| | 30.038 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE |
| Q | 30.252 | VALLEY SECTION Q |
| | 30.492 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE |
| R | 30.731 | VALLEY SECTION R<br>OVERBANKS SKEWED FOR PERPENDICULARITY TO MASS OF FLOW<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 30.837 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| S | 30.943 | VALLEY SECTION S<br>RIGHT ENCROACHMENT DUE TO FLOW EXPANSION |
| | 31.083 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>LEFT ENCROACHMENT DUE TO HIGH GROUND<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 31.159 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.195 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.206 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.218 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.226 | VALLEY SECTION MANUFACTURED INVERT ADJUSTED<br>BLEND LEFT SIDE OF SECTION T AND RIGHT SIDE OF SECTION S<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |

| | | |
|---|---|---|
| T | 31.235 | VALLEY SECTION T<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.239 | VALLEY SECTION T RELOCATED INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.260 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.284 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.308 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>RIGHT ENCROACHMENT DUE TO FLOW CONTINUITY<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.332 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| | 31.428 | VALLEY SECTION INTERPOLATED DUE TO LARGE VELOCITY CHANGE<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |
| U | 31.557 | VALLEY SECTION T<br>LEFT ENCROACHMENT DUE TO HIGH GROUND |

# APPENDIX B

# XKOR DATA AND CALCULATIONS

| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 73 |
| WATERCOURSE: CLINTON RIVER | CULVERT LOCATION: AUBURN ROAD (OLD M-59) | | |
| CULVERT DESCRIPTION: CONCRETE BR... WITH NO WING WALLS | BY BEH | DATE 5/17/77 | |




WEIR DESCRIPTION: PAVED ROADWAY WITH 44 FOOT BREADTH

| | | | |
|---|---|---|---|
| A = 964.1 | D = 13.1 | So = 0.000 | |
| WP = 220.3 | Ke = 0.5 | L = 44.0' | |
| $\frac{29.1}{R^{4/3}}$ = 4.0889 | n = .0514 | Sta. 25.251 | Sta. 25.243 |

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left(\frac{.015^2 \times 31 - .035^2 \times 95.8 + .07^2 \times 94}{220.2}\right)^{1/2}$$

$n = .0514$

— COFO —

ASSUME H=1.0 FOR INITIAL RUN

$\frac{h}{L} = \frac{1}{44} = .0234 < .15$

∴ USE H=1.0

COFO = 3.04

— XKOR —

$XKOR = 1 + K_e + \frac{29.1\, n^2 L}{R^{4/3}}$

$XKOR = 1 + .5 + (-.0 = 4 \times .0514^2 \times 44)$ ✓ 0.475

$XKOR = 1.975$ ✓

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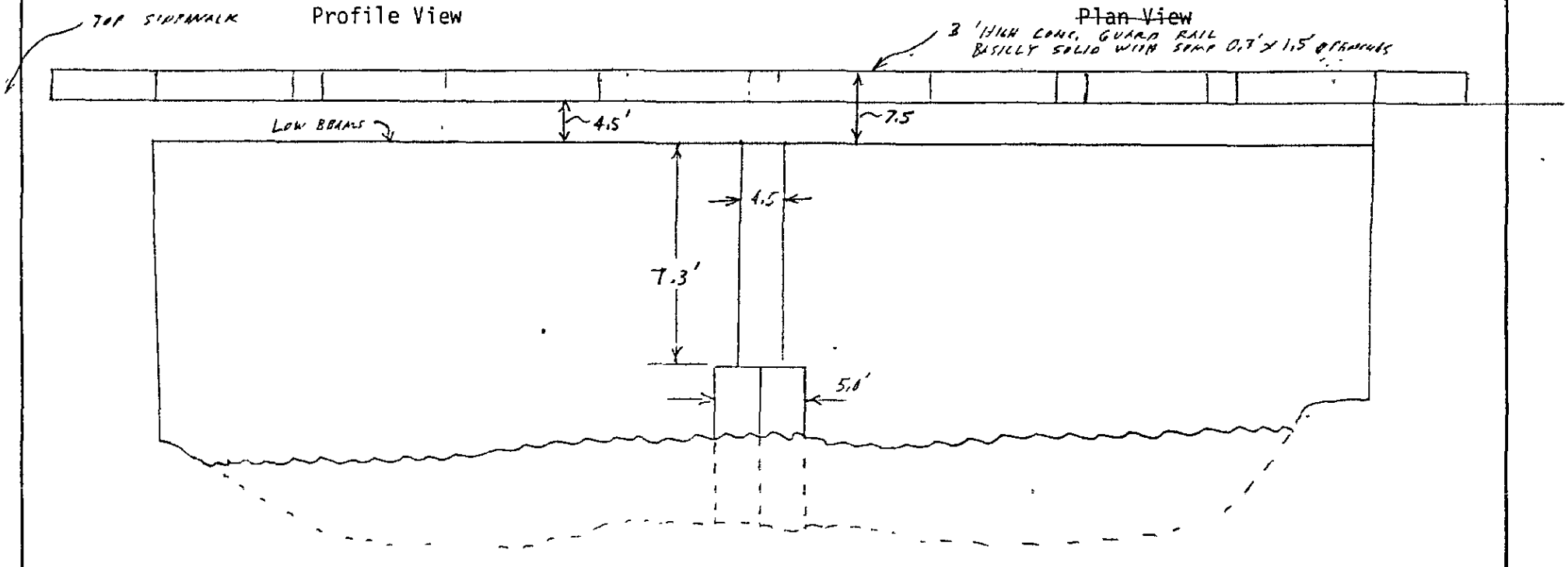
# HYDRAULIC STRUCTURAL DATA

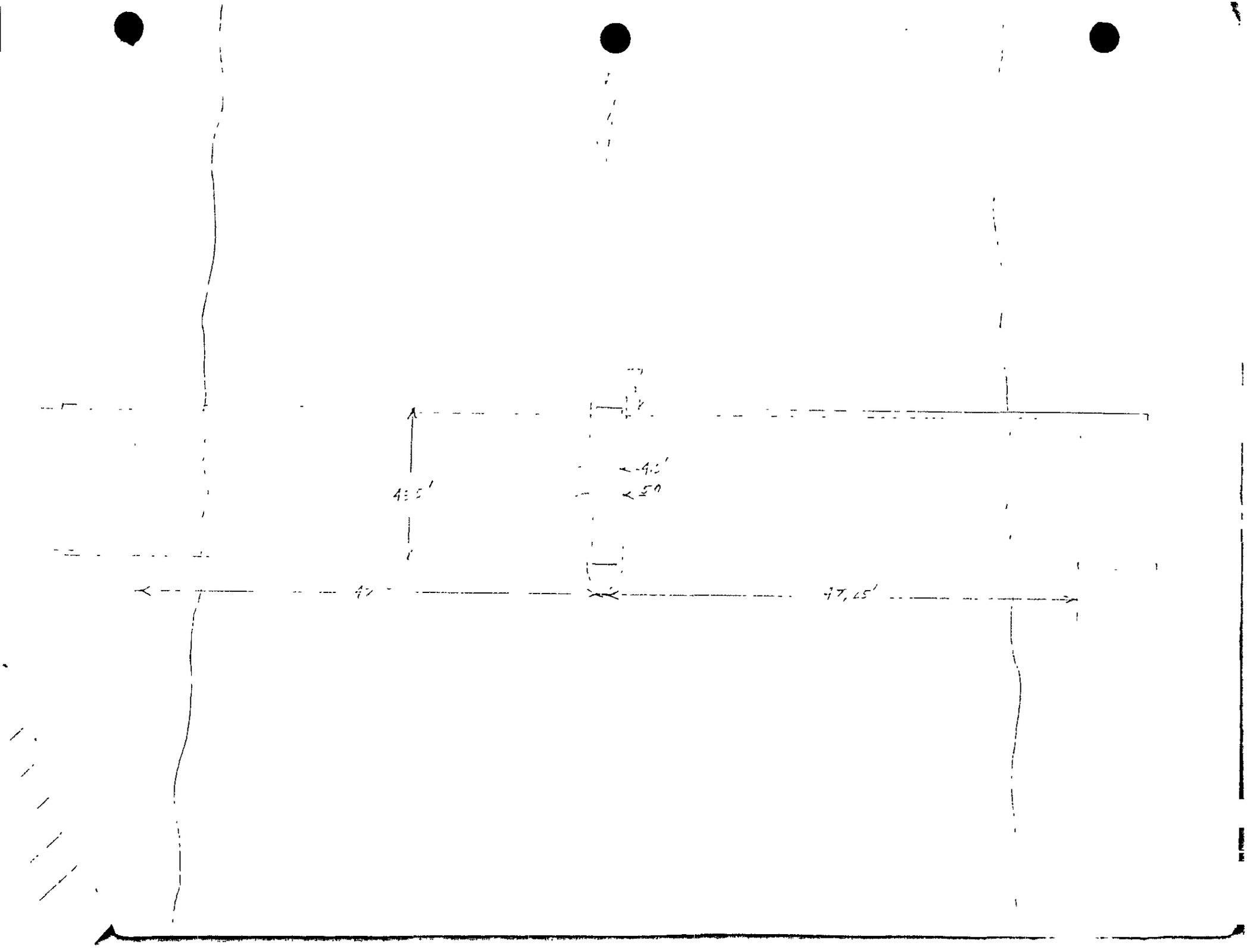
CODED 10/7/76
BEH

Code No. 08 - 73

| | | | |
|---|---|---|---|
| Job Name: SHELBY TOWNSHIP | | | By: P. SHINNERS |
| Date: 10 SEPTEMBER 1976 | Feature: AUBURN ROAD BRIDGE OVER M-59 | | Water Course: CLINTON RIVER |
| Remarks: A. BOTTOM: GRAVEL W/ SCATTERED SNAG | | | |
| B. PHOTOS: D-1 UPS FACE RIGHT; D-2 UPS FACE LEFT; D-3 UPS; D-4 RIGHT; D-5 LEFT; D-6 DOWNSTREAM; D-7 DOWNS FACE RIGHT; D-8 DOWNS FACE LEFT | | | |
| C. BRIDGE DEDICATION PLATE: "TRUNK LINE BRIDGE STATE HIGHWAY DEPT. No. B1 OF 50-12-2 · 1928" | | | |
| Width of Piers: UPPER = 4.5', BASE = 5.0' | Pier Shape: UPPER - FLAT, BASE - POINTED | No. of Piers: 1 | Area: |
| Water Elevation: 615.8 | Length: 94.5' | Width of Deck: 43.5' | Skew: 90° |

## FIELD SKETCH




47,25'

25.251

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 25.24 | | 34 | 318.00 | 412.00 | 51.0 | 51.00 | 51.00 | 1.000 | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 21.00 | 0.00 | 638.90 | 0.00 | 18.00 | 635.20 | 0.00 | 118.00 | 632.10 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 218.00 | 629.50 | 0.00 | 297.00 | 629.00 | 0.00 | 298.00 | 633.10 | 0.00 | 318.00 |
| BT | 633.00 | 621.40 | 318.00 | 633.00 | 625.50 | 362.75 | 633.00 | 625.50 | 367.25 | 633.00 |
| BT | 625.50 | 412.00 | 633.00 | 625.50 | 412.00 | 633.00 | 620.50 | 426.00 | 633.10 | 0.00 |
| BT | 427.00 | 629.60 | 0.00 | 500.00 | 628.90 | 0.00 | 600.00 | 628.20 | 0.00 | 700.00 |
| BT | 627.50 | 0.00 | 800.00 | 627.00 | 0.00 | 900.00 | 627.10 | 0.00 | 1000.00 | 627.10 |
| BT | 0.00 | 1100.00 | 628.70 | 0.00 | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 638.90 | 0.00 | 635.20 | 18.00 | 631.00 | 40.00 | 629.70 | 118.00 | 627.60 | 218.00 |
| GR | 626.20 | 297.00 | 626.20 | 298.00 | 621.40 | 318.00 | 617.10 | 318.00 | 615.80 | 331.00 |
| GR | 613.90 | 338.00 | 613.20 | 348.00 | 612.40 | 358.00 | 613.00 | 362.75 | 625.50 | 362.75 |
| GR | 625.50 | 367.25 | 613.70 | 367.25 | 612.70 | 378.00 | 613.60 | 388.00 | 617.60 | 393.00 |
| GR | 616.10 | 403.00 | 618.70 | 412.00 | 620.50 | 412.00 | 620.40 | 426.00 | 620.40 | 427.00 |
| GR | 620.10 | 500.00 | 619.40 | 600.00 | 619.50 | 640.00 | 625.20 | 648.00 | 625.90 | 700.00 |
| GR | 626.80 | 800.00 | 625.80 | 900.00 | 626.60 | 1000.00 | 628.70 | 1100.00 | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

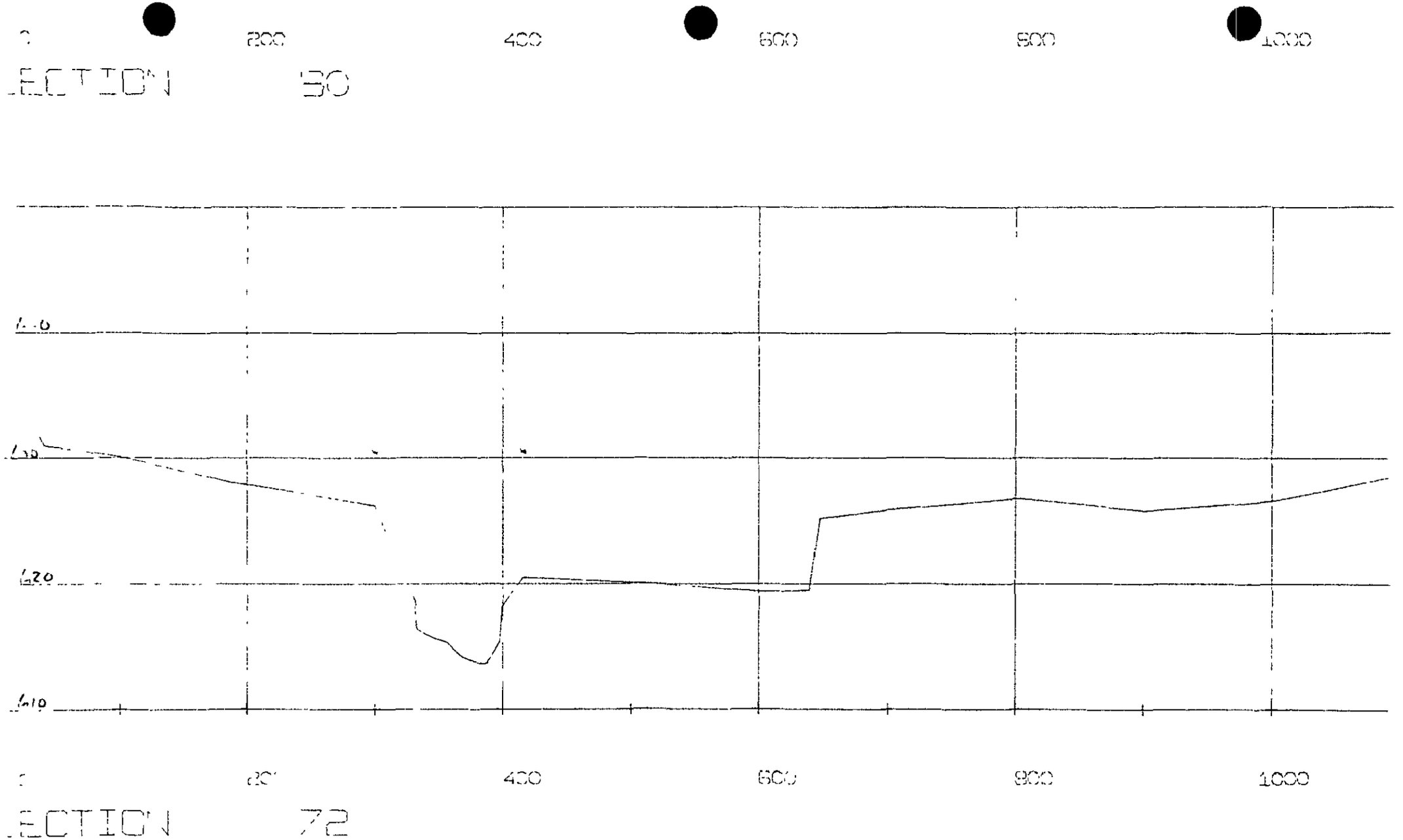
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 318.00 | 621.40 | 318.00 | 625.50 | 362.75 | 625.50 | 367.25 | 625.50 | 412.00 | 625.50 |
| 412.00 | 620.50 | | | | | | | | |

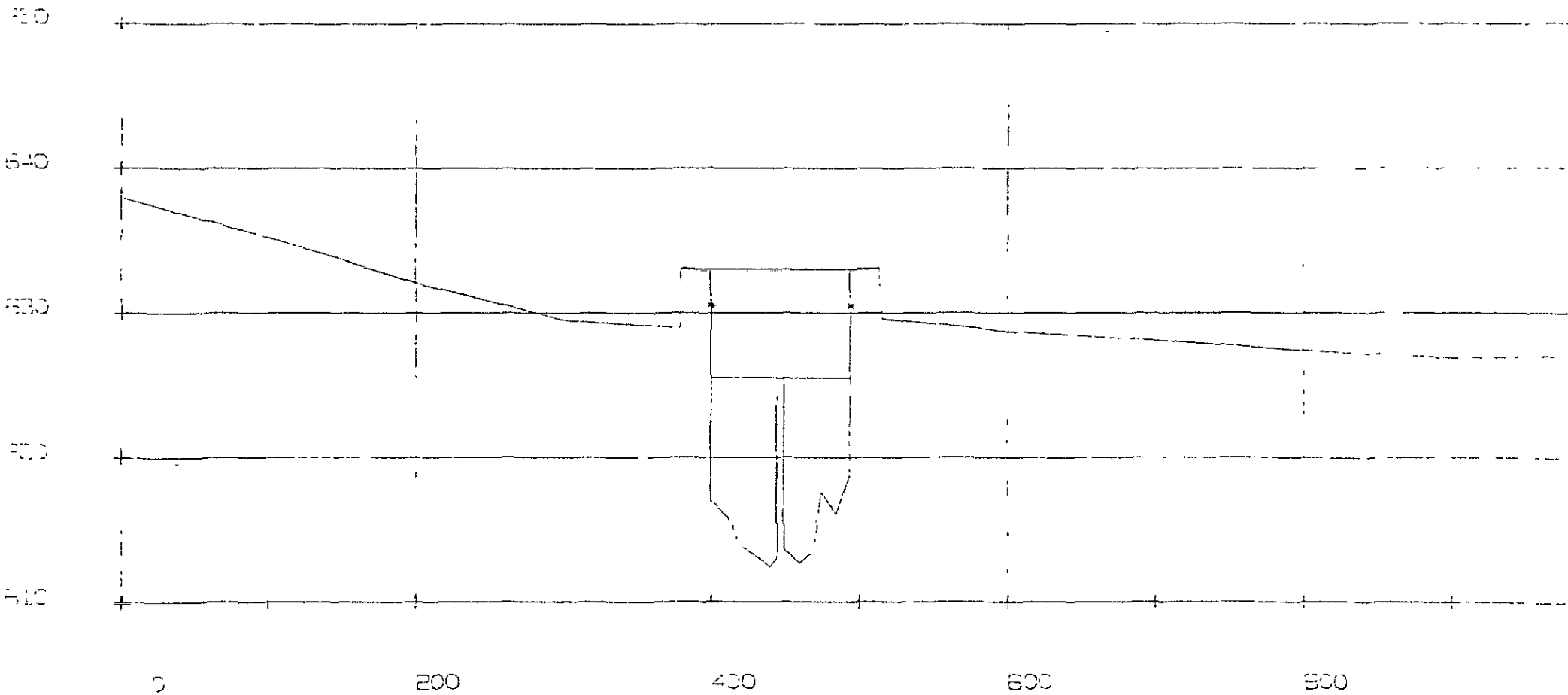
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 318.00 | 621.40 | 318.00 | 617.10 | 331.00 | 615.80 | 338.00 | 613.90 | 348.00 | 613.20 |
| 358.00 | 612.40 | 362.75 | 613.00 | 362.75 | 625.50 | 367.25 | 625.50 | 367.25 | 613.70 |
| 378.00 | 612.70 | 388.00 | 613.60 | 393.00 | 617.60 | 403.00 | 616.10 | 412.00 | 618.70 |
| 412.00 | 620.50 | | | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

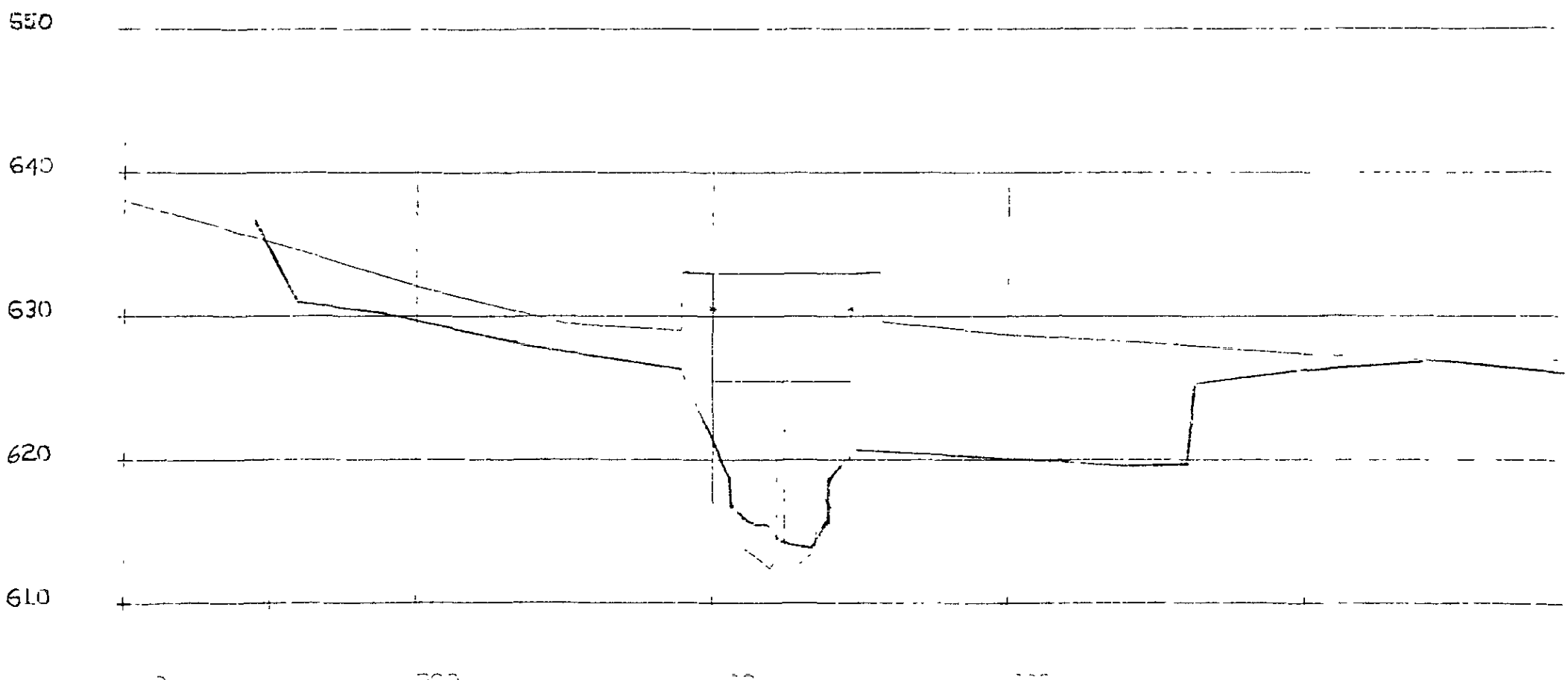
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 318.00 | 621.40 | 318.00 | 625.50 | 362.75 | 625.50 | 367.25 | 625.50 | 412.00 | 625.50 |
| 412.00 | 620.50 | 412.00 | 618.70 | 403.00 | 616.10 | 393.00 | 617.60 | 388.00 | 613.60 |
| 378.00 | 612.70 | 367.25 | 613.70 | 367.25 | 625.50 | 362.75 | 625.50 | 362.75 | 613.00 |
| 358.00 | 612.40 | 348.00 | 613.20 | 338.00 | 613.90 | 331.00 | 615.80 | 318.00 | 617.10 |
| 318.00 | 621.40 | | | | | | | | |

ORIFICE AREA 964.1 WETTED PERIMETER 220.8 29.1/R**1.333 4.0889

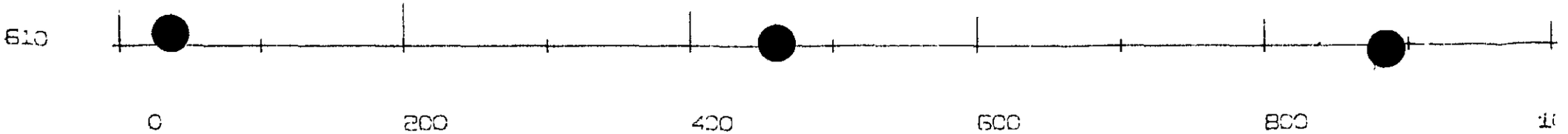

0
200
400
600
800
1000
ECTION 30
0
400
600
800
1000
ECTION 72



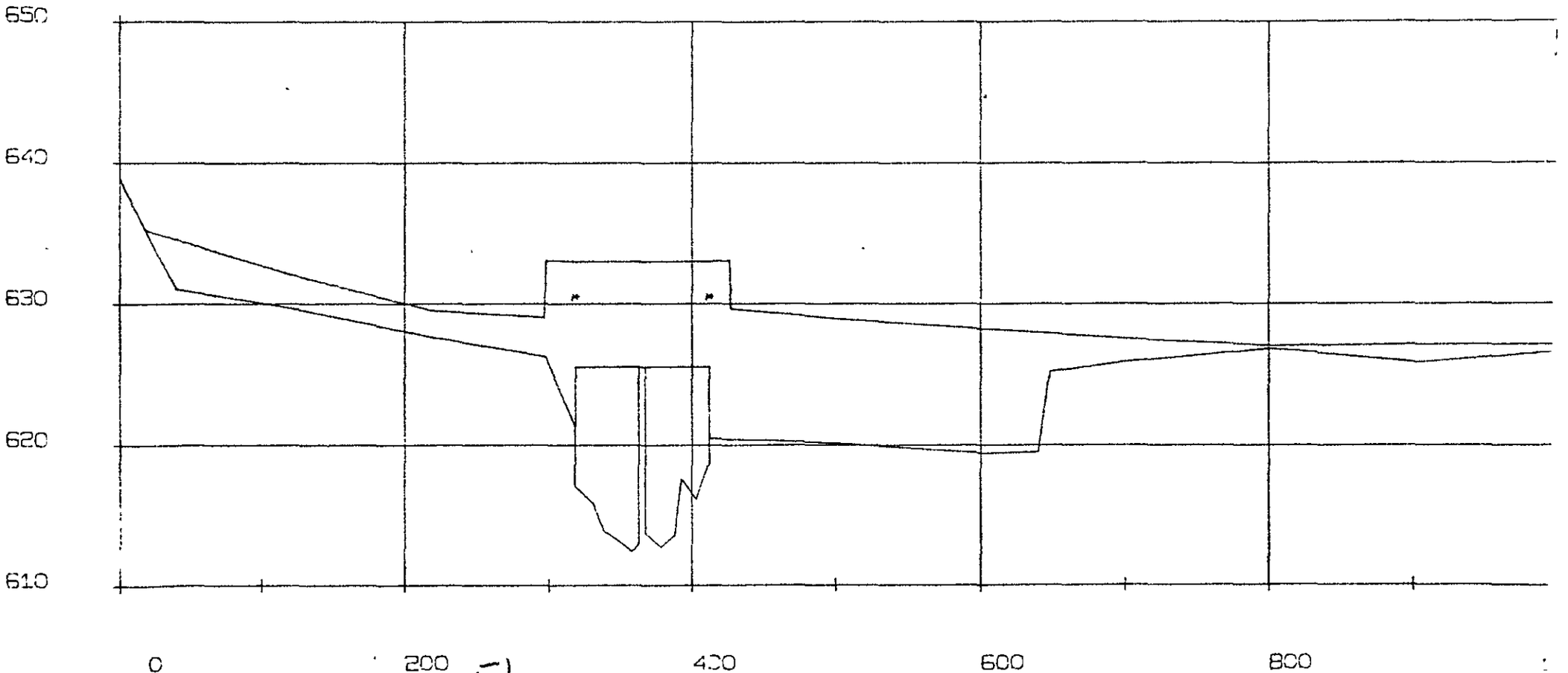

SECTION 73




SECTION 73




SECTION 25.512




SECTION 25.2~~43~~ 51

| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. | 5670 | 08 | 76 |
| WATERCOURSE: CLINTON RIVER | CULVERT LOCATION: PENN CENTRAL RAILROAD | | |

CULVERT DESCRIPTION: [illegible]

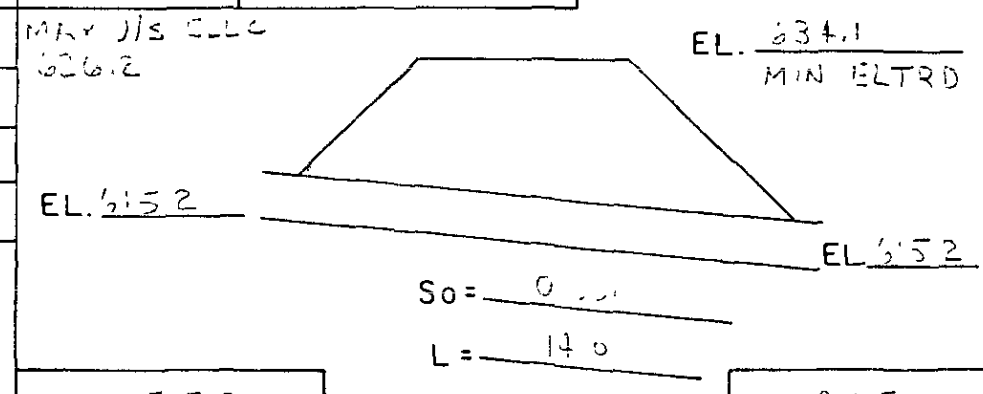
[illegible] CONCRETE PIPE [illegible]

EXTENDED FROM [illegible] STREAM

WEIR DESCRIPTION: [illegible]

14 [illegible]

BY BEH | DATE 5/17/77




A = 948.6 D = 11.0

WP = 263.4 Ke = .07

$\frac{291}{R^{4/3}}$ = 5.2842 n = .0520

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left( \frac{.015^2 \times 29 + .035^2 \times 1204 + .07^2 \times 114}{263.4} \right)^{1/2}$$

n = .0520

— COFO —

ASSUME H = 10

FOR INITIAL RUN

$\frac{H}{D} = \frac{1}{14} = .071 < .15$

USE K = 1.0

COFO = 3.04

— XKOR —

$$XKOR = 1 + K_e + \frac{291}{R^{4/3}}$$

XKOR = 1 + .07 + 5.2842 .0520² (14)

XKOR = 1.900

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# HYDRAULIC STRUCTURAL DATA

Code No. 08-76

| | | | |
|---|---|---|---|
| Job Name: SHELBY TOWNSHIP F.I.S. | | By: P. SHUNCK | |
| Date: 21 JANUARY 1977 | Feature: CONRAIL BRIDGE NEAR AUBURN ROAD | Water Course: CLINTON RIVER | |
| Remarks: A. BOTTOM: GRAVEL w/ SNAGS | | | |
| B. PHOTOS: CRA-13 DOWN/S FACE RIGHT CRA-15 UP/S FACE RIGHT CRA-17 UP/STREAM CRA-19 LEFT | | | |
| CRA-14 DOWN/S FACE LEFT CRA-16 UP/S FACE LEFT CRA-18 RIGHT CRA-20 DOWN/STREAM | | | |
| Width of Piers: 6' | Pier Shape: POINTED | No. of Piers: 1 | Area: |
| Water Elevation: 618.1 | Length: 114' | Width of Deck: 14' | Skew: 90° |

FIELD SKETCH

Profile View ~~Plan View~~

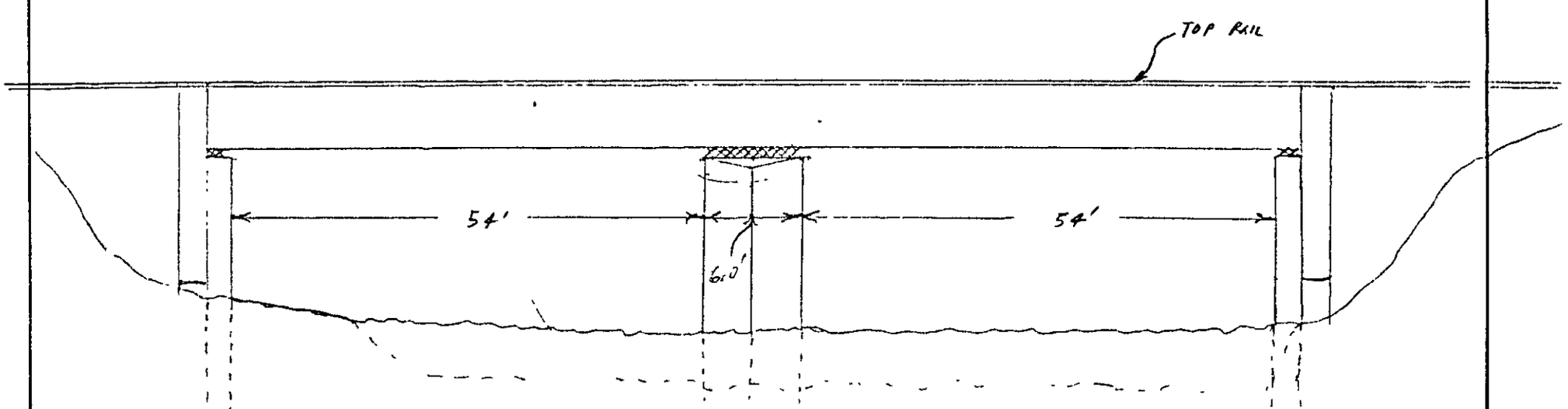
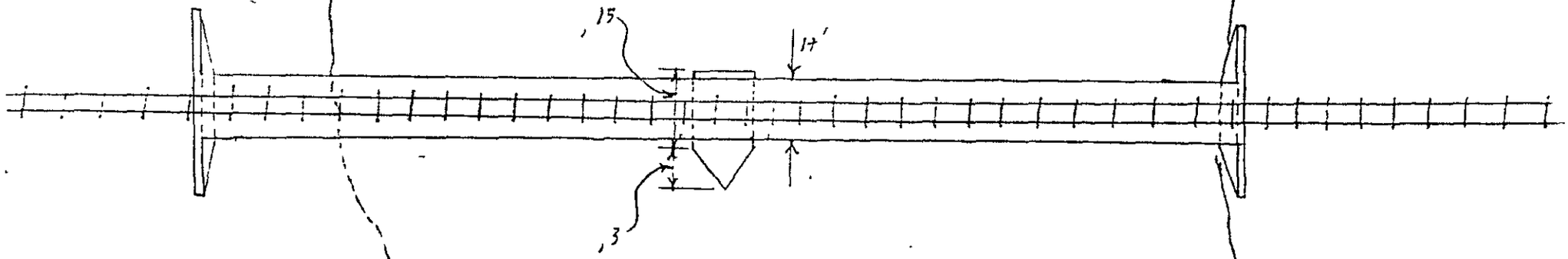


Fig. 4



```
X1      25.512        31     900.00    1014.00      14.00      14.00      14.00      1.000

BT      19.00       0.00     644.00       0.00     100.00     641.70       0.00     200.00     640.10       0.00

BT     300.00     637.40       0.00     400.00     635.50       0.00     600.00     634.20       0.00     700.00
BT     634.40       0.00     800.00     634.10       0.00     900.00     634.20     626.10     900.00     634.20
BT     626.10     954.00     634.20     626.10     954.00     634.20     626.10     960.00     634.10     626.20
BT     960.00     634.10     626.20    1014.00     634.10     626.20    1014.00     634.10     617.70    1185.00
BT     634.60       0.00    1200.00     635.70       0.00    1300.00     639.50       0.00

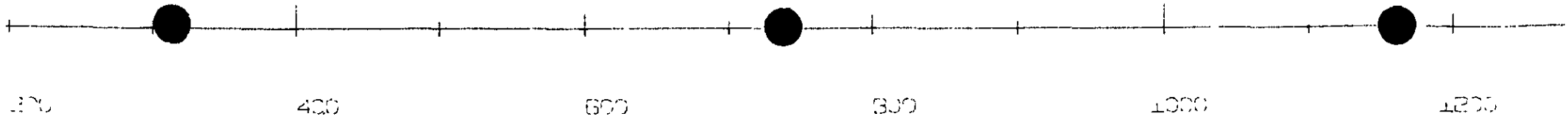
GR     644.00       0.00     641.70     100.00     640.10     200.00     637.40     300.00     635.50     400.00
GR     634.10     441.00     627.80     480.00     633.30     515.00     633.80     600.00     634.40     700.00
GR     633.60     800.00     631.50     900.00     620.70     900.00     620.70     927.00     618.50     928.00
GR     616.00     936.00     616.90     954.00     626.20     954.00     626.20     960.00     615.90     960.00
GR     615.90     976.00     615.60     986.00     615.20     995.00     616.30    1005.00     617.70    1014.00
GR     618.10    1019.00     622.00    1032.00     628.40    1100.00     634.60    1185.00     635.70    1200.00
GR     639.50    1300.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

 900.00  626.10  900.00  626.10  954.00  626.10  954.00  626.10  960.00  626.20
 960.00  626.20 1014.00  626.20 1014.00  617.70

 900.00  631.50  900.00  620.70  927.00  620.70  928.00  618.50  938.00  616.00
 954.00  616.90  954.00  626.20  960.00  626.20  960.00  615.90  976.00  615.90
 986.00  615.60  995.00  615.20 1005.00  616.30 1014.00  617.70
************* LISTING OF COORDINATES OF ORIFICE*********************

 900.00  626.10  900.00  626.10  954.00  626.10  954.00  626.10  960.00  626.20
 960.00  626.20 1014.00  626.20 1014.00  617.70 1005.00  616.30  995.00  615.20
 986.00  615.60  976.00  615.90  960.00  615.90  960.00  626.20  954.00  626.20
 954.00  616.90  938.00  616.00  928.00  618.50  927.00  620.70  900.00  620.70
 900.00  626.10

ORIFICE AREA      542.6  WETTED PERIMETER     263.4  29.1/D**1.333      5.2842
```

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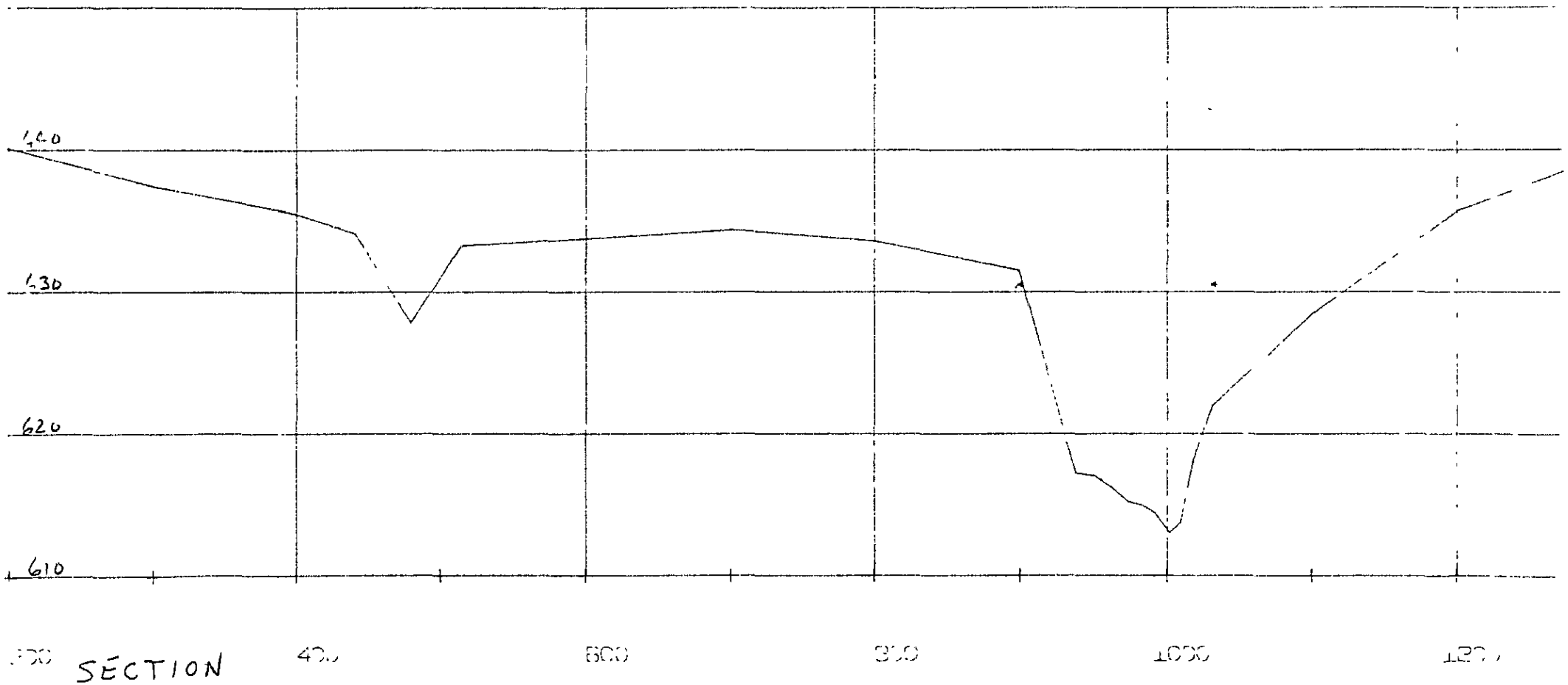


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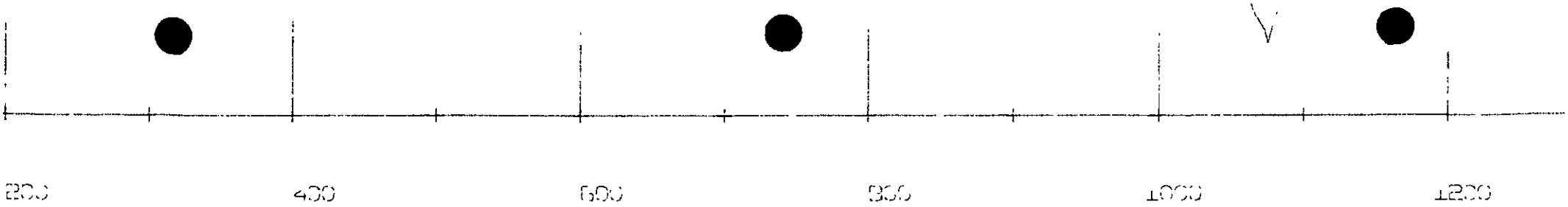


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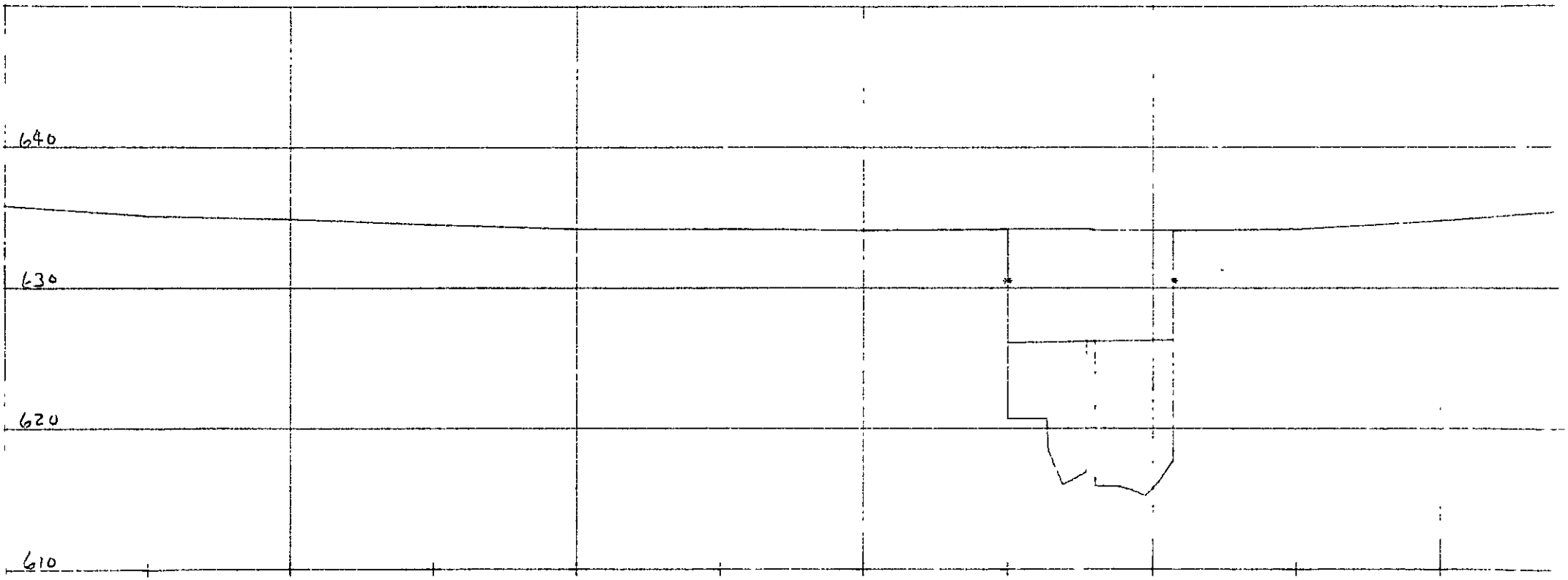


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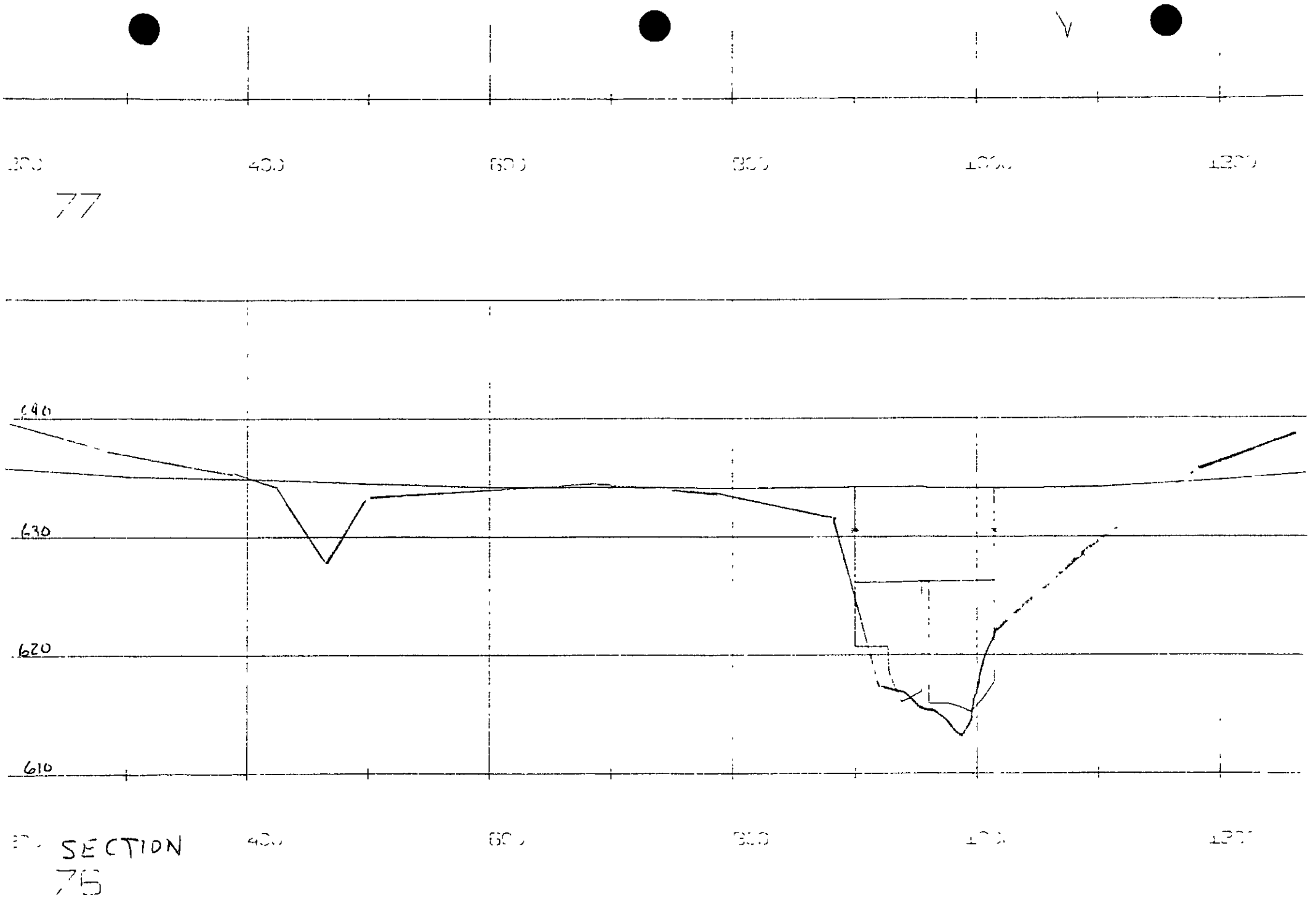
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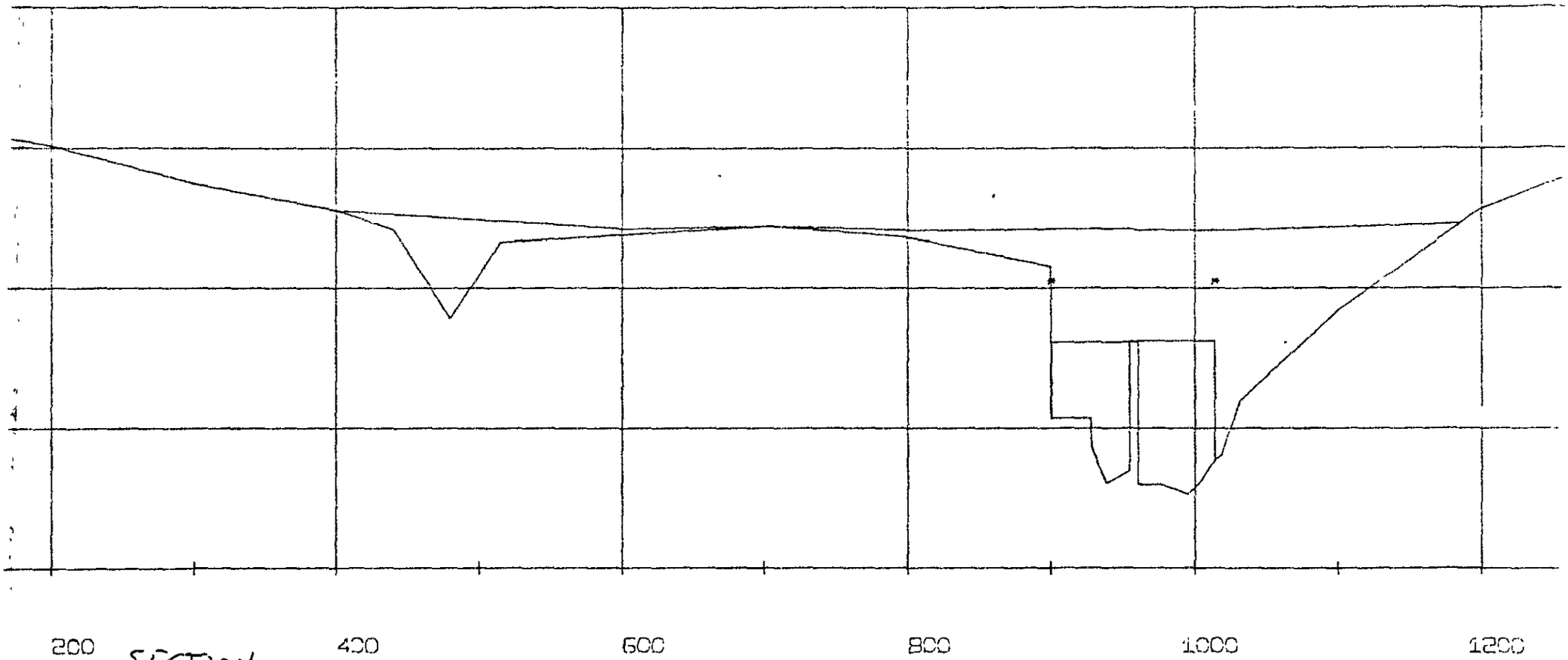
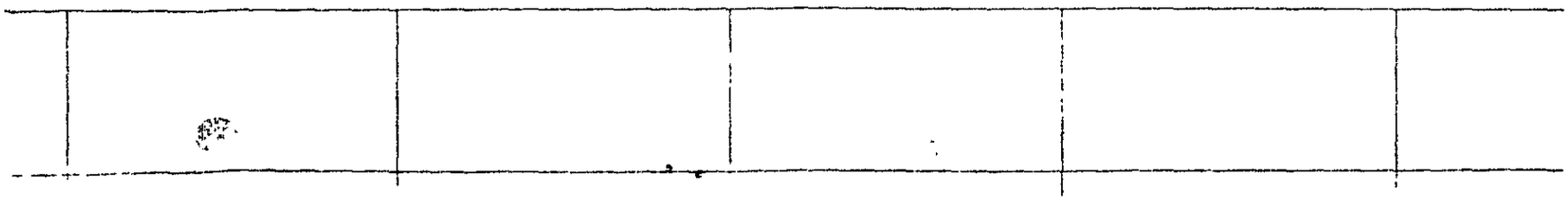
640
630
620
610
SECTION
76




SECTION
25.512



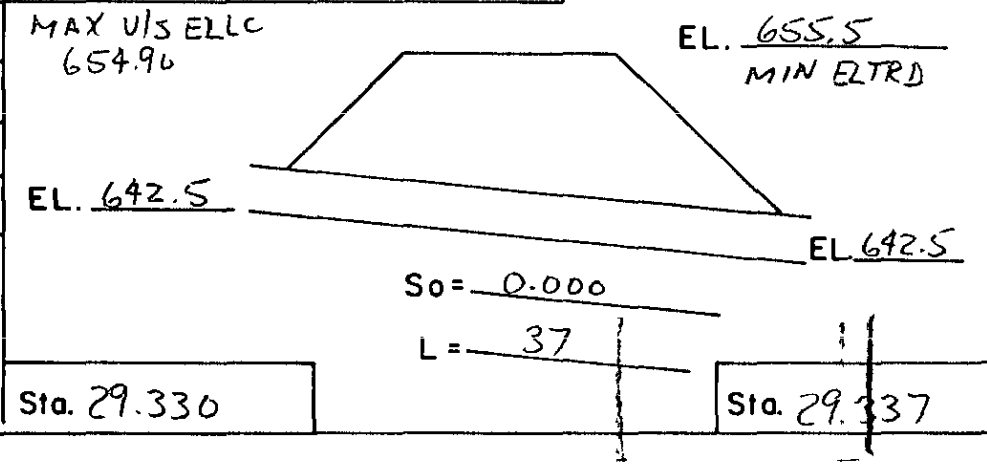
| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP F15 | | JOB NO. 5670 | 08 | 86 |
| WATERCOURSE: CLINTON RIVER | CULVERT LOCATION: RYAN ROAD | | |
| CULVERT DESCRIPTION: | BY BEH | DATE 6/22/77 | |

WEIR DESCRIPTION:

A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .032




CALCULATIONS AND COMMENTS:

– MANNING'S n –

$$n = \left[\frac{.015^2 \times 22 + .035^2 \times 80}{102}\right]^{1/2}$$

$n = .0318$

**Johnson & Anderson, Inc.**
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

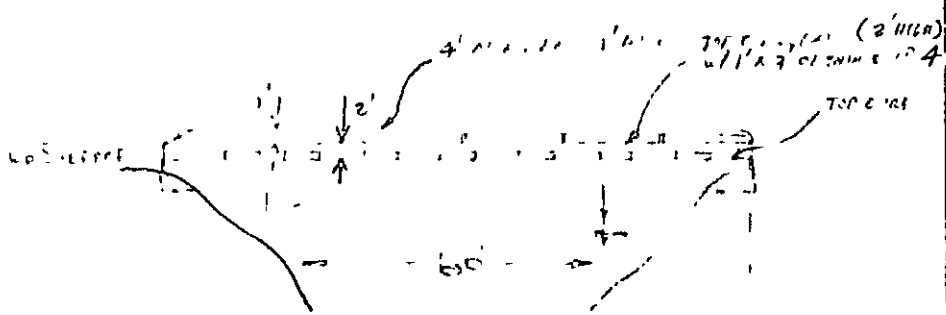
HYDRAULIC STRUCTURAL DATA CODED BEH

Code No. 08-86

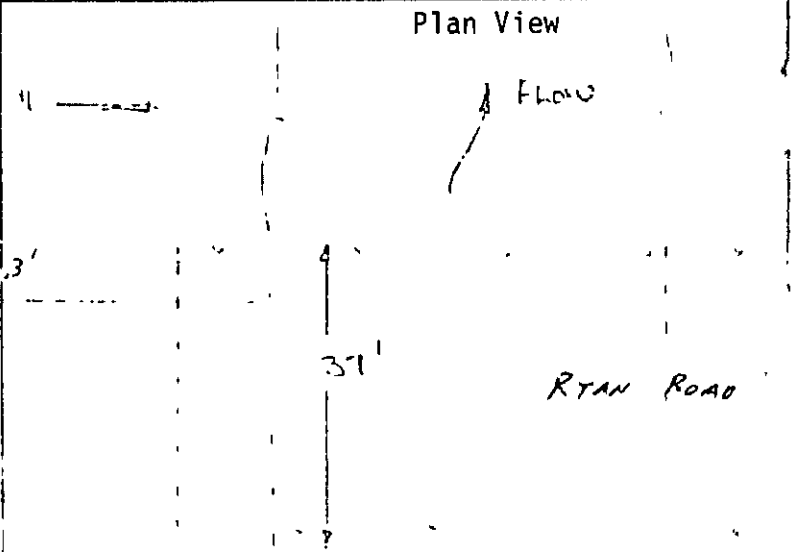
| | | | |
|---|---|---|---|
| Job Name: [illegible] | | By: P. Shuneck | |
| Date: 1-26-76 | Feature: Ryan Road Bridge | Water Course: Clinton River | |
| Remarks: [illegible] Large [illegible] along banks behind these is [illegible] | | | |
| [illegible] Bottom [illegible] | | | |
| CR 8-21 downstream face | CR 8-23 [illegible] | CR8-25 upstream | |
| [illegible] CR 8-22 downstream | CR 8-24 [illegible] | CR8-26 upstream face | |
| Width of Piers: — | Pier Shape: — | No. of Piers: None | Area: — |
| Water Elevation: 644.5 | Length: 620 | Width of Deck: 37 | Skew: 90° |

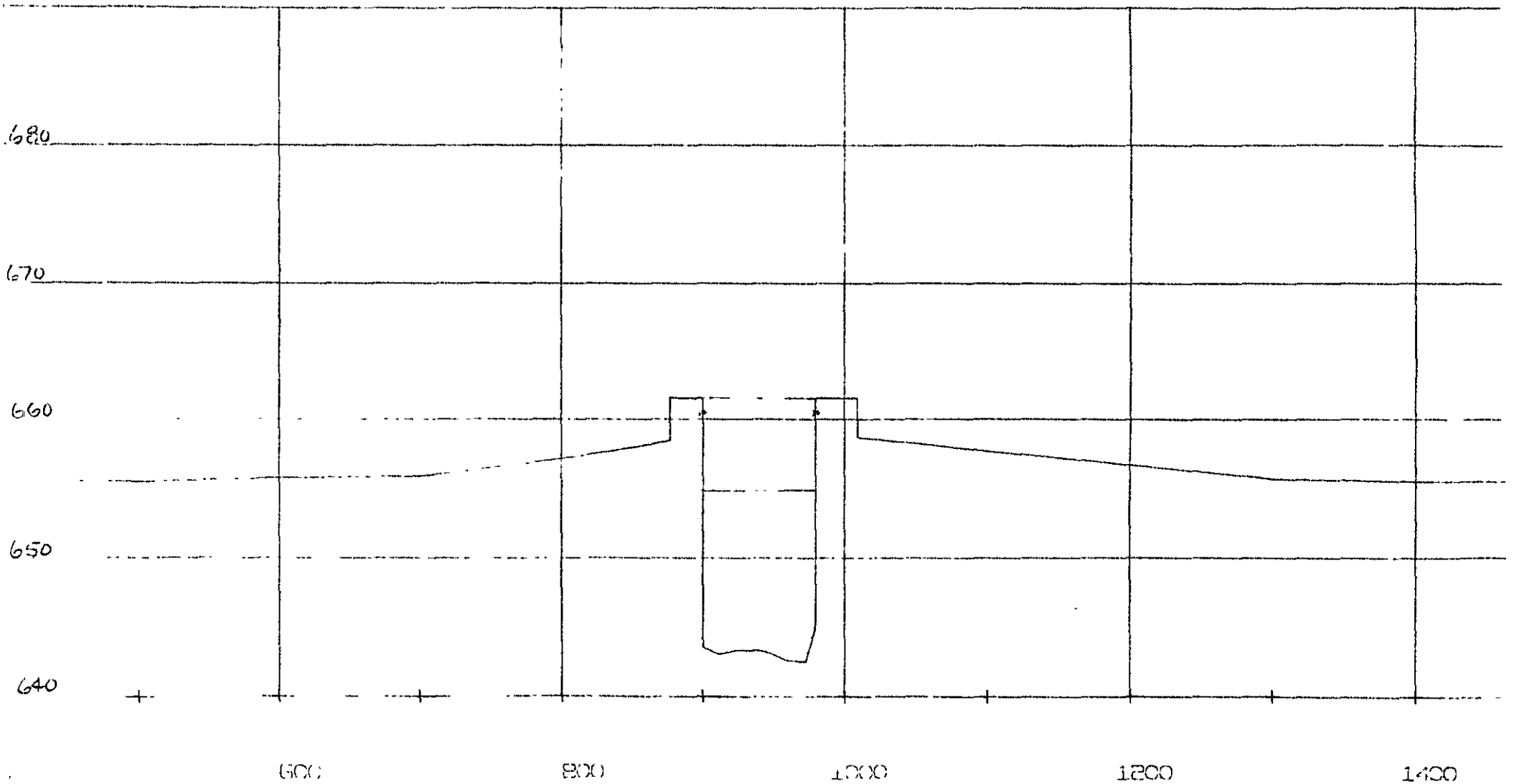
FIELD SKETCH

Profile View




Plan View






SECTION 86

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Clinton River
Main Branch

4) DOCUMENT TYPE: Multiple Run

00BREAK00

```
 $$$$$$   $$    $$  $$$$$$$$  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$$
$$    $$  $$    $$  $$            $$     $$    $   $$    $$  $$    $$
$$        $$    $$  $$            $$     $$   $$$  $$    $$  $$    $$
 $$$$$$   $$$$$$$$  $$$$$          $$     $$  $ $$   $$$$$$  $$    $$
      $$  $$    $$  $$            $$     $$ $$ $$  $$    $$  $$    $$
      $$  $$    $$  $$            $$     $$ $  $$  $$    $$  $$$$$$$
      $$  $$    $$  $$            $$     $$$   $$  $$    $$  $$
$$    $$  $$    $$  $$         $$ $$     $    $$  $$    $$  $$
 $$$$$$   $$    $$  $$$$$$$$   $$$      $ $$$$$   $$$$$$   $$
```

6.26

SHELBY TOWNSHIP

CLINTON RIVER MAIN BRANCH

MULTIPLE PROFILE RUN

8/25/77

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*******************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*******************************************
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```
C
1       SHELBY TOWNSHIP-JOB NO. 5670-08   PROJECT MANAGER  WILLIAM C. ROSSOW
T2       10 YEAR FLOOD = 4630 CFS
T3       CLINTON RIVER MAIN BRANCH

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.       2.        0.        0.  0.000000      0.00      0.0       0.   624.520    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000    0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .500      1.000      0.000      0.000      0.000      0.000      0.000
QT      4.000   4630.000   7140.000   8060.000  11100.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .090    651.000       .070    660.300       .035    725.400       .070    730.100       .050
NH   1210.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     25.191     28.000    700.000    785.000     63.000     63.000     63.000       .930      0.000      0.000
GR    641.500      0.000    638.000    100.000    635.900    200.000    634.100    300.000    633.100    400.000
GR    632.200    500.000    631.700    600.000    632.400    700.000    613.100    700.000    614.500    710.000
GR    615.000    720.000    615.900    730.000    616.300    741.000    628.500    741.000    628.500    743.500
GR    616.000    743.500    615.400    758.000    615.100    760.000    613.000    770.000    613.400    780.000
GR    613.700    785.000    632.200    785.000    631.800    800.000    631.300    900.000    631.200   1000.000
GR    630.800   1100.000    630.400   1200.000    629.000   1300.000      0.000      0.000      0.000      0.000
NH      5.000       .040    300.000       .060    333.000       .035    398.000       .040    700.000       .075
NH   1100.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    300.000    460.000    300.000    464.000      0.000

X1     25.202     27.000    300.000    416.000     60.000     60.000     60.000      0.000      -.440      0.000
GR    638.900      0.000    631.000     40.000    630.100    100.000    628.100    186.000    627.900    200.000
GR    626.200    300.000    618.500    332.000    616.400    333.000    616.000    339.000    615.700    345.000
GR    615.300    357.000    614.200    368.000    613.800    377.000    613.600    385.000    613.700    388.000
GR    615.400    398.000    618.200    400.000    620.500    416.000    620.100    500.000    619.400    600.000
GR    619.500    640.000    625.200    648.000    625.900    700.000    626.800    800.000    625.800    900.000
GR    626.600   1000.000    628.700   1100.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .040    300.000       .060    333.000       .035    398.000       .040    700.000       .075
NH   1100.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    300.000    445.000    300.000    524.000      0.000

X1     25.214      0.000      0.000      0.000     60.000     60.000     60.000      0.000       .160      0.000
NH      5.000       .040    300.000       .060    333.000       .035    398.000       .040    700.000       .075
NH   1100.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    300.000    420.000    300.000    626.000      0.000

X1     25.233      0.000      0.000      0.000    110.000     90.000    102.000      0.000       .280      0.000
NH      5.000       .040    318.000       .060    331.000       .035    403.000       .040    412.000       .075
NH   1100.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      6.100      8.100      8.100      8.100    318.000    412.000    318.000    695.000      0.000

X1     25.243     34.000    318.000    412.000     51.000     51.000     51.000      0.000      0.000      0.000
GR    638.900      0.000    635.200     18.000    631.000     40.000    629.700    118.000    627.600    218.000
                                                            [illegible] 617.100    318.000    615.800    331.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 613.900 | 338.000 | 613.200 | 348.000 | 612.400 | 358.000 | 613.000 | 362.750 | 625.500 | 362.750 |
| GR | 625.500 | 367.250 | 613.700 | 367.250 | 612.700 | 378.000 | 613.600 | 388.000 | 617.600 | 393.000 |
| GR | 616.100 | 403.000 | 618.700 | 412.000 | 620.500 | 412.000 | 620.400 | 426.000 | 620.400 | 427.000 |
| GR | 620.100 | 500.000 | 619.400 | 600.000 | 619.500 | 640.000 | 625.200 | 648.000 | 625.900 | 700.000 |
| GR | 626.800 | 800.000 | 625.800 | 900.000 | 626.600 | 1000.000 | 628.700 | 1100.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.980 | 3.040 | 0.000 | 94.000 | 0.000 | 964.100 | 0.000 | 612.400 | 612.400 |
| NH | 5.000 | .050 | 318.000 | .060 | 331.000 | .035 | 403.000 | .060 | 412.000 | .050 |
| NH | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 318.000 | 412.000 | 318.000 | 1100.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 25.251 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 625.500 | 627.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 21.000 | 0.000 | 638.900 | 0.000 | 18.000 | 635.200 | 0.000 | 118.000 | 632.100 | 0.000 |
| BT | 218.000 | 629.500 | 0.000 | 297.000 | 629.000 | 0.000 | 298.000 | 633.100 | 0.000 | 318.000 |
| BT | 633.000 | 621.400 | 318.000 | 633.000 | 625.500 | 362.750 | 633.000 | 625.500 | 367.250 | 633.000 |
| BT | 625.500 | 412.000 | 633.000 | 625.500 | 412.000 | 633.000 | 620.500 | 426.000 | 633.100 | 0.000 |
| BT | 427.000 | 629.600 | 0.000 | 500.000 | 628.900 | 0.000 | 600.000 | 628.200 | 0.000 | 700.000 |
| BT | 627.500 | 0.000 | 800.000 | 627.000 | 0.000 | 900.000 | 627.100 | 0.000 | 1000.000 | 627.100 |
| BT | 0.000 | 1100.000 | 628.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 567.000 | .060 | 600.000 | .035 | 685.000 | .060 | 700.000 | .050 |
| NH | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 25.394 | 20.000 | 567.000 | 700.000 | 806.000 | 636.000 | 755.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.100 | 0.000 | 638.900 | 100.000 | 638.300 | 200.000 | 636.900 | 300.000 | 635.300 | 400.000 |
| GR | 633.900 | 500.000 | 633.400 | 567.000 | 620.500 | 584.000 | 620.200 | 600.000 | 616.800 | 609.000 |
| GR | 615.500 | 622.000 | 613.700 | 633.000 | 612.400 | 644.000 | 610.600 | 660.000 | 613.700 | 674.000 |
| GR | 613.800 | 685.000 | 623.600 | 700.000 | 625.700 | 748.000 | 635.900 | 773.000 | 635.300 | 800.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 900.000 | .060 | 938.000 | .035 | 1019.000 | .060 | 1032.000 | .050 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 25.495 | 25.000 | 900.000 | 1032.000 | 600.000 | 460.000 | 530.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1040.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.000 | 0.000 | 641.700 | 100.000 | 640.100 | 200.000 | 637.400 | 300.000 | 635.500 | 400.000 |
| GR | 634.100 | 441.000 | 627.800 | 480.000 | 633.300 | 515.000 | 633.800 | 600.000 | 634.400 | 700.000 |
| GR | 633.600 | 800.000 | 631.500 | 900.000 | 617.200 | 938.000 | 617.000 | 951.000 | 616.200 | 963.000 |
| GR | 615.200 | 974.000 | 615.000 | 983.000 | 614.400 | 992.000 | 613.000 | 1002.000 | 613.800 | 1010.000 |
| GR | 618.100 | 1019.000 | 622.000 | 1032.000 | 628.400 | 1100.000 | 635.700 | 1200.000 | 639.500 | 1300.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 900.000 | .060 | 927.000 | .035 | 1005.000 | .060 | 1014.000 | .050 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 25.510 | 31.000 | 900.000 | 1014.000 | 76.000 | 76.000 | 76.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1014.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.000 | 0.000 | 641.700 | 100.000 | 640.100 | 200.000 | 637.400 | 300.000 | 635.500 | 400.000 |
| GR | 634.100 | 441.000 | 627.800 | 480.000 | 633.300 | 515.000 | 633.800 | 600.000 | 634.400 | 700.000 |
| GR | 633.600 | 800.000 | 631.500 | 900.000 | 620.700 | 900.000 | 620.700 | 927.000 | 618.500 | 928.000 |
| GR | 616.000 | 938.000 | 616.900 | 954.000 | 626.200 | 954.000 | 626.200 | 960.000 | 615.900 | 960.000 |
| GR | 615.900 | 976.000 | 615.600 | 986.000 | 615.200 | 995.000 | 616.300 | 1005.000 | 617.700 | 1014.000 |
| GR | 618.100 | 1019.000 | 622.000 | 1032.000 | 628.400 | 1100.000 | 634.600 | 1185.000 | 635.700 | 1200.000 |
| GR | 639.500 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.900 | 3.040 | 0.000 | 114.000 | 0.000 | 948.600 | 0.000 | 615.200 | 615.200 |
| NH | 5.000 | .090 | 900.000 | .060 | 927.000 | .045 | 1005.000 | .060 | 1014.000 | .090 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 25.512 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 626.200 | 634.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1014.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 19.000 | 0.000 | 644.000 | 0.000 | 100.000 | 641.700 | 0.000 | 200.000 | 640.100 | 0.000 |
| BT | 300.000 | 637.400 | 0.000 | 400.000 | 635.500 | 0.000 | 600.000 | 634.200 | 0.000 | 700.000 |
| BT | 634.400 | 0.000 | 800.000 | 634.100 | 0.000 | 900.000 | 634.200 | 626.100 | 900.000 | 634.200 |
| BT | 626.100 | 954.000 | 634.200 | 626.100 | 954.000 | 634.200 | 626.100 | 960.000 | 634.100 | 626.200 |
| BT | 960.000 | 634.100 | 626.200 | 1014.000 | 634.100 | 626.200 | 1014.000 | 634.100 | 617.700 | 1185.000 |
| BT | 634.600 | 0.000 | 1200.000 | 635.700 | 0.000 | 1300.000 | 639.500 | 0.000 | 0.000 | 0.000 |
| [illegible] | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.571 | 35.000 | 1053.000 | 1093.000 | 175.000 | 175.000 | 312.000 | 0.000 | .090 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1305.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.800 | 0.000 | 631.000 | 100.000 | 625.500 | 132.000 | 622.300 | 134.000 | 622.600 | 145.000 |
| GR | 624.400 | 148.000 | 624.300 | 200.000 | 624.100 | 300.000 | 623.400 | 400.000 | 624.800 | 500.000 |
| GR | 624.800 | 600.000 | 624.500 | 669.000 | 622.300 | 679.000 | 624.600 | 700.000 | 622.000 | 714.000 |
| GR | 624.800 | 720.000 | 624.900 | 800.000 | 624.800 | 900.000 | 625.000 | 1000.000 | 624.400 | 1053.000 |
| GR | 621.600 | 1056.000 | 618.800 | 1060.000 | 617.200 | 1066.000 | 616.000 | 1073.000 | 615.100 | 1075.000 |
| GR | 618.000 | 1084.000 | 621.900 | 1090.000 | 624.900 | 1093.000 | 625.400 | 1100.000 | 624.900 | 1200.000 |
| GR | 625.600 | 1300.000 | 626.200 | 1317.000 | 629.500 | 1328.000 | 635.900 | 1375.000 | 649.700 | 1400.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.630 | 0.000 | 0.000 | 0.000 | 175.000 | 175.000 | 312.000 | 0.000 | -.010 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 533.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.706 | 0.000 | 0.000 | 0.000 | 225.000 | 225.000 | 401.000 | 0.000 | -.010 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26.218 | 0.000 | 0.000 | 0.000 | 1516.000 | 1516.000 | 2705.000 | 0.000 | -.070 | 0.000 |
| NH | 7.000 | .080 | 88.000 | .060 | 268.000 | .080 | 918.000 | .060 | 922.000 | .040 |
| NH | 958.000 | .060 | 973.000 | .090 | 1358.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26.788 | 32.000 | 918.000 | 973.000 | 2000.000 | 1800.000 | 3010.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.500 | 0.000 | 633.900 | 27.000 | 628.700 | 38.000 | 628.900 | 58.000 | 627.500 | 88.000 |
| GR | 627.500 | 158.000 | 627.500 | 258.000 | 627.500 | 268.000 | 629.100 | 308.000 | 629.300 | 358.000 |
| GR | 628.000 | 458.000 | 627.500 | 558.000 | 628.300 | 658.000 | 627.600 | 758.000 | 627.300 | 785.000 |
| GR | 626.300 | 789.000 | 624.800 | 792.000 | 626.400 | 798.000 | 628.000 | 802.000 | 628.100 | 858.000 |
| GR | 627.600 | 918.000 | 624.100 | 922.000 | 622.000 | 928.000 | 621.900 | 938.000 | 620.500 | 948.000 |
| GR | 622.400 | 958.000 | 624.000 | 968.000 | 630.100 | 973.000 | 630.000 | 1058.000 | 628.700 | 1158.000 |
| GR | 635.100 | 1258.000 | 658.300 | 1358.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 460.000 | .040 | 700.000 | .100 | 821.000 | .040 | 900.000 | .100 |
| NH | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.048 | 27.000 | 821.000 | 910.000 | 1100.000 | 1250.000 | 1370.000 | 0.000 | 0.000 | 0.000 |
| GR | 655.200 | 0.000 | 654.500 | 35.000 | 630.200 | 100.000 | 629.900 | 200.000 | 629.900 | 300.000 |
| GR | 629.300 | 400.000 | 628.000 | 460.000 | 628.000 | 500.000 | 629.000 | 600.000 | 628.700 | 700.000 |
| GR | 629.300 | 800.000 | 630.200 | 821.000 | 626.700 | 824.000 | 623.500 | 830.000 | 623.800 | 840.000 |
| GR | 624.400 | 850.000 | 625.800 | 860.000 | 623.900 | 870.000 | 626.000 | 880.000 | 625.000 | 890.000 |
| GR | 626.800 | 900.000 | 629.900 | 910.000 | 628.700 | 1000.000 | 630.500 | 1054.000 | 648.700 | 1100.000 |
| GR | 649.800 | 1150.000 | 647.800 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 180.000 | .080 | 380.000 | .100 | 744.000 | .045 | 828.000 | .100 |
| NH | 1180.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.559 | 26.000 | 734.000 | 834.000 | 2100.000 | 2250.000 | 2700.000 | 0.000 | 0.000 | 0.000 |
| GR | 653.100 | 0.000 | 642.500 | 80.000 | 632.200 | 116.000 | 633.500 | 180.000 | 633.000 | 280.000 |
| GR | 633.900 | 380.000 | 633.000 | 480.000 | 633.300 | 580.000 | 634.100 | 680.000 | 632.700 | 734.000 |
| GR | 631.700 | 744.000 | 629.700 | 756.000 | 629.700 | 766.000 | 628.800 | 775.000 | 627.700 | 785.000 |
| GR | 626.300 | 797.000 | 626.200 | 806.000 | 625.700 | 817.000 | 626.100 | 828.000 | 632.700 | 834.000 |
| GR | 632.900 | 880.000 | 635.800 | 970.000 | 663.300 | 1060.000 | 664.000 | 1080.000 | 666.200 | 1117.000 |
| GR | 684.300 | 1180.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .090 | 128.000 | .070 | 422.000 | .120 | 823.000 | .045 | 880.000 | .110 |
| NH | 1211.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.851 | 25.000 | 832.000 | 898.000 | 1350.000 | 1450.000 | 1540.000 | .984 | 0.000 | 0.000 |
| GR | 653.000 | 0.000 | 640.600 | 40.000 | 635.100 | 52.000 | 635.000 | 130.000 | 634.700 | 230.000 |
| GR | 635.300 | 330.000 | 633.300 | 430.000 | 633.700 | 530.000 | 634.100 | 630.000 | 634.700 | 730.000 |
| GR | 635.300 | 832.000 | 629.000 | 836.000 | 628.400 | 848.000 | 625.800 | 860.000 | 630.200 | 873.000 |
| GR | 631.000 | 884.000 | 630.800 | 894.000 | 635.400 | 898.000 | 635.100 | 930.000 | 634.500 | 1005.000 |
| GR | 633.100 | 1028.000 | 640.000 | 1046.000 | 645.300 | 1130.000 | 647.300 | 1148.000 | 666.000 | 1230.000 |
| NH | 4.000 | .040 | 700.000 | .080 | 795.000 | .040 | 856.000 | .090 | 964.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28.150 | 24.000 | 795.000 | 856.000 | 1700.000 | 1350.000 | 1580.000 | 0.000 | 0.000 | 0.000 |
| GR | 661.400 | 0.000 | 640.300 | 58.000 | 638.600 | 100.000 | 637.900 | 200.000 | 637.100 | 300.000 |
| GR | 637.600 | 400.000 | 637.600 | 500.000 | 637.800 | 600.000 | 638.800 | 636.000 | 635.600 | 644.000 |
| GR | 636.700 | 700.000 | 636.400 | 795.000 | 634.800 | 798.000 | 633.500 | 806.000 | 631.400 | 815.000 |
| GR | 629.900 | 823.000 | 629.900 | 830.000 | 630.200 | 838.000 | 632.500 | 853.000 | 640.500 | 856.000 |
| GR | 642.600 | 868.000 | 652.300 | 904.000 | 660.700 | 939.000 | 670.500 | 964.000 | 0.000 | 0.000 |
| NH | 6.000 | .150 | 500.000 | .060 | 1044.000 | .045 | 1113.000 | .120 | 1254.000 | .150 |
| NH | 1454.000 | .120 | 1654.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 28.455 | 27.000 | 1044.000 | 1113.000 | 1400.000 | 1150.000 | 1610.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.100 | 0.000 | 647.300 | 100.000 | 639.900 | 138.000 | 640.600 | 200.000 | 642.200 | 300.000 |
| GR | 641.100 | 400.000 | 639.400 | 500.000 | 640.000 | 600.000 | 639.500 | 700.000 | 640.700 | 800.000 |
| GR | 640.400 | 900.000 | 640.500 | 1000.000 | 640.900 | 1044.000 | 634.900 | 1051.000 | 633.300 | 1059.000 |
| GR | 633.400 | 1069.000 | 633.500 | 1079.000 | 634.500 | 1089.000 | 636.200 | 1099.000 | 638.000 | 1109.000 |
| GR | 639.600 | 1113.000 | 639.700 | 1154.000 | 639.700 | 1254.000 | 640.900 | 1354.000 | 641.400 | 1454.000 |
| GR | 642.700 | 1547.000 | 681.300 | 1654.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .070 | 98.200 | .080 | 352.600 | .040 | 445.600 | .100 | 905.200 | .150 |
| NH | 1895.000 | .120 | 2019.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29.032 | 36.000 | 359.000 | 453.700 | 2400.000 | 1900.000 | 3050.000 | .982 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 940.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 672.900 | 0.000 | 646.000 | 66.000 | 645.100 | 100.000 | 644.400 | 200.000 | 644.400 | 300.000 |
| GR | 644.600 | 359.000 | 643.500 | 360.000 | 640.200 | 371.200 | 640.000 | 382.400 | 640.500 | 392.600 |
| GR | 641.000 | 400.700 | 641.300 | 408.900 | 642.200 | 419.000 | 642.200 | 430.200 | 642.800 | 440.400 |
| GR | 645.400 | 453.700 | 645.500 | 501.700 | 646.000 | 601.700 | 645.600 | 701.700 | 644.400 | 801.700 |
| GR | 645.200 | 901.700 | 646.400 | 911.700 | 645.600 | 921.700 | 645.600 | 1001.700 | 645.300 | 1101.700 |
| GR | 645.100 | 1201.700 | 645.500 | 1301.700 | 645.300 | 1401.700 | 645.200 | 1501.700 | 645.600 | 1601.700 |
| GR | 645.800 | 1701.700 | 645.700 | 1801.700 | 646.100 | 1901.700 | 648.500 | 1929.700 | 658.200 | 1951.700 |
| GR | 703.800 | 2056.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .055 | 144.900 | .073 | 467.200 | .040 | 562.900 | .080 | 2145.300 | 0.000 |
| X1 | 29.089 | 90.000 | 467.200 | 562.900 | 210.000 | 220.000 | 302.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 210.000 | 0.000 | 925.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 672.100 | 0.000 | 667.800 | 16.100 | 663.500 | 32.200 | 659.100 | 48.300 | 654.800 | 64.400 |
| GR | 650.500 | 80.500 | 648.800 | 96.600 | 648.200 | 112.700 | 647.600 | 128.800 | 647.100 | 144.900 |
| GR | 646.700 | 161.100 | 646.400 | 177.200 | 646.100 | 193.300 | 645.800 | 209.400 | 645.500 | 225.500 |
| GR | 645.200 | 241.600 | 645.000 | 257.700 | 644.900 | 273.800 | 644.900 | 289.900 | 644.900 | 306.000 |
| GR | 644.900 | 322.200 | 644.900 | 338.300 | 644.900 | 354.400 | 644.900 | 370.500 | 644.900 | 386.600 |
| GR | 645.000 | 402.700 | 645.100 | 418.800 | 645.200 | 434.900 | 645.300 | 451.000 | 645.400 | 467.200 |
| GR | 643.800 | 470.300 | 642.800 | 473.500 | 641.800 | 476.700 | 640.900 | 479.900 | 640.700 | 483.100 |
| GR | 640.600 | 486.300 | 640.400 | 489.500 | 640.120 | 492.700 | 640.300 | 495.900 | 640.400 | 499.100 |
| GR | 640.600 | 502.300 | 640.900 | 505.500 | 641.100 | 508.600 | 641.400 | 511.800 | 641.500 | 515.000 |
| GR | 641.700 | 518.200 | 641.900 | 521.400 | 642.200 | 524.600 | 642.500 | 527.800 | 642.500 | 531.000 |
| GR | 642.500 | 534.200 | 642.500 | 537.400 | 642.600 | 540.600 | 642.800 | 543.800 | 643.000 | 546.900 |
| GR | 643.200 | 550.100 | 643.800 | 553.300 | 644.500 | 556.500 | 645.300 | 559.700 | 646.200 | 562.900 |
| GR | 646.200 | 615.700 | 646.400 | 668.400 | 646.500 | 721.100 | 646.300 | 773.900 | 645.900 | 826.600 |
| GR | 645.300 | 879.400 | 645.200 | 932.100 | 645.600 | 984.900 | 646.000 | 1037.600 | 646.000 | 1090.400 |
| GR | 646.000 | 1143.100 | 646.000 | 1195.900 | 645.800 | 1248.600 | 645.600 | 1301.400 | 645.700 | 1354.100 |
| GR | 645.900 | 1406.900 | 645.800 | 1459.600 | 645.800 | 1512.300 | 646.300 | 1565.100 | 646.800 | 1617.800 |
| GR | 647.300 | 1670.600 | 647.700 | 1723.300 | 648.100 | 1776.100 | 648.400 | 1828.800 | 648.400 | 1881.600 |
| GR | 648.500 | 1934.300 | 649.200 | 1987.100 | 658.700 | 2039.800 | 677.800 | 2092.600 | 696.800 | 2145.300 |
| NH | 4.000 | .060 | 238.700 | .075 | 629.500 | .040 | 726.800 | .090 | 2278.300 | 0.000 |
| X1 | 29.175 | 90.000 | 629.500 | 726.800 | 315.000 | 330.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 435.000 | 0.000 | 925.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 671.000 | 0.000 | 667.800 | 21.700 | 664.500 | 43.400 | 661.200 | 65.100 | 658.100 | 86.800 |
| GR | 654.900 | 108.500 | 653.300 | 130.200 | 652.400 | 151.900 | 651.300 | 173.600 | 650.400 | 195.300 |
| GR | 649.500 | 217.000 | 648.900 | 238.700 | 648.200 | 260.400 | 647.500 | 282.100 | 646.900 | 303.800 |
| GR | 646.400 | 325.600 | 645.900 | 347.300 | 645.800 | 369.000 | 645.800 | 390.700 | 645.800 | 412.400 |
| GR | 645.700 | 434.100 | 645.700 | 455.800 | 645.600 | 477.500 | 645.700 | 499.200 | 645.800 | 520.900 |
| GR | 646.000 | 542.600 | 646.200 | 564.300 | 646.400 | 586.000 | 646.500 | 607.700 | 646.700 | 629.500 |
| GR | 645.200 | 632.700 | 644.100 | 635.900 | 643.000 | 639.200 | 642.100 | 642.400 | 641.700 | 645.700 |
| GR | 641.300 | 648.900 | 640.900 | 652.200 | 640.500 | 655.400 | 640.300 | 658.700 | 640.500 | 661.900 |
| GR | 640.700 | 665.100 | 641.100 | 668.400 | 641.500 | 671.600 | 641.800 | 674.900 | 642.100 | 678.100 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 642.200 | 681.400 | 642.400 | 684.600 | 642.700 | 687.900 | 642.900 | 691.100 | 643.000 | 694.300 |
| GR | 643.100 | 697.600 | 643.100 | 700.800 | 643.200 | 704.100 | 643.300 | 707.300 | 643.500 | 710.600 |
| GR | 643.700 | 713.800 | 644.200 | 717.100 | 645.200 | 720.300 | 646.300 | 723.600 | 647.400 | 726.800 |
| GR | 647.400 | 778.500 | 647.400 | 830.200 | 647.500 | 882.000 | 647.300 | 933.700 | 646.800 | 985.400 |
| GR | 646.200 | 1037.100 | 646.200 | 1088.800 | 646.600 | 1140.500 | 646.800 | 1192.200 | 646.700 | 1244.000 |
| GR | 646.900 | 1295.700 | 647.100 | 1347.400 | 646.700 | 1399.100 | 646.400 | 1450.800 | 646.500 | 1502.500 |
| GR | 646.500 | 1554.300 | 646.600 | 1606.000 | 646.700 | 1657.700 | 647.900 | 1709.400 | 649.100 | 1761.100 |
| GR | 650.000 | 1812.800 | 650.800 | 1864.600 | 651.700 | 1916.300 | 652.500 | 1968.000 | 652.500 | 2019.700 |
| GR | 652.600 | 2071.400 | 653.900 | 2123.100 | 660.800 | 2174.900 | 673.600 | 2226.600 | 686.500 | 2278.300 |
| NH | 4.000 | .065 | 354.900 | .078 | 791.800 | .040 | 890.700 | .100 | 2411.300 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.261 | 90.000 | 791.800 | 890.700 | 315.000 | 330.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 710.000 | 0.000 | 975.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.000 | 0.000 | 667.800 | 27.300 | 665.600 | 54.600 | 663.400 | 81.900 | 661.300 | 109.200 |
| GR | 659.300 | 136.500 | 657.900 | 163.800 | 656.600 | 191.100 | 655.100 | 218.400 | 653.700 | 245.700 |
| GR | 652.300 | 273.000 | 651.300 | 300.300 | 650.200 | 327.600 | 649.200 | 354.900 | 648.400 | 382.200 |
| GR | 647.600 | 409.500 | 646.800 | 436.800 | 646.600 | 464.100 | 646.600 | 491.400 | 646.600 | 518.700 |
| GR | 646.500 | 546.000 | 646.500 | 573.300 | 646.400 | 600.600 | 646.500 | 627.900 | 646.700 | 655.200 |
| GR | 647.000 | 682.500 | 647.300 | 709.800 | 647.500 | 737.100 | 647.700 | 764.400 | 647.900 | 791.800 |
| GR | 646.600 | 795.000 | 645.400 | 798.300 | 644.300 | 801.600 | 643.300 | 804.900 | 642.700 | 808.200 |
| GR | 642.100 | 811.500 | 641.500 | 814.800 | 640.800 | 818.100 | 640.500 | 821.400 | 640.600 | 824.700 |
| GR | 640.800 | 828.000 | 641.300 | 831.300 | 641.800 | 834.600 | 642.300 | 837.900 | 642.600 | 841.200 |
| GR | 642.800 | 844.500 | 643.000 | 847.800 | 643.200 | 851.100 | 643.400 | 854.400 | 643.500 | 857.700 |
| GR | 643.600 | 861.000 | 643.700 | 864.300 | 643.800 | 867.600 | 643.900 | 870.900 | 644.000 | 874.200 |
| GR | 644.100 | 877.500 | 644.600 | 880.800 | 645.800 | 884.100 | 647.200 | 887.400 | 648.600 | 890.700 |
| GR | 648.500 | 941.400 | 648.500 | 992.100 | 648.400 | 1042.800 | 648.200 | 1093.400 | 647.700 | 1144.100 |
| GR | 647.100 | 1194.800 | 647.200 | 1245.500 | 647.500 | 1296.200 | 647.500 | 1346.900 | 647.300 | 1397.600 |
| GR | 647.700 | 1448.200 | 648.100 | 1498.900 | 647.700 | 1549.600 | 647.200 | 1600.300 | 647.200 | 1651.000 |
| GR | 647.100 | 1701.700 | 647.400 | 1752.400 | 647.600 | 1803.000 | 649.600 | 1853.700 | 651.500 | 1904.400 |
| GR | 652.700 | 1955.100 | 654.000 | 2005.800 | 655.300 | 2056.500 | 656.600 | 2107.200 | 656.700 | 2157.900 |
| GR | 656.700 | 2208.500 | 658.700 | 2259.200 | 662.900 | 2309.900 | 669.500 | 2360.600 | 676.100 | 2411.300 |
| NH | 4.000 | .050 | 400.000 | .070 | 900.000 | .040 | 1150.000 | .070 | 2500.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.318 | 39.000 | 900.000 | 1000.000 | 210.000 | 220.000 | 302.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 895.000 | 0.000 | 1005.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.300 | 0.000 | 664.500 | 100.000 | 660.400 | 200.000 | 654.700 | 300.000 | 650.500 | 400.000 |
| GR | 647.300 | 500.000 | 647.200 | 600.000 | 646.900 | 700.000 | 648.000 | 800.000 | 648.800 | 900.000 |
| GR | 644.400 | 912.000 | 642.300 | 922.000 | 640.600 | 928.000 | 640.700 | 935.000 | 642.900 | 948.000 |
| GR | 643.200 | 954.000 | 643.900 | 966.000 | 644.200 | 975.000 | 644.500 | 987.000 | 645.100 | 991.000 |
| GR | 649.500 | 1000.000 | 651.500 | 1078.000 | 656.400 | 1090.000 | 656.100 | 1112.000 | 650.400 | 1125.000 |
| GR | 648.900 | 1200.000 | 647.700 | 1300.000 | 648.200 | 1400.000 | 647.800 | 1500.000 | 648.900 | 1600.000 |
| GR | 647.800 | 1700.000 | 647.600 | 1800.000 | 648.300 | 1900.000 | 653.100 | 2000.000 | 656.100 | 2100.000 |
| GR | 659.400 | 2200.000 | 659.500 | 2300.000 | 664.300 | 2400.000 | 669.200 | 2500.000 | 0.000 | 0.000 |
| NH | 4.000 | .050 | 400.000 | .070 | 900.000 | .040 | 1200.000 | .090 | 2500.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.329 | 40.000 | 900.000 | 980.000 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.600 | 0.000 | 660.800 | 100.000 | 658.300 | 200.000 | 656.200 | 300.000 | 655.600 | 400.000 |
| GR | 655.500 | 500.000 | 655.800 | 600.000 | 655.900 | 700.000 | 657.200 | 800.000 | 658.000 | 850.000 |
| GR | 658.500 | 877.000 | 661.600 | 877.000 | 661.600 | 900.000 | 643.500 | 900.000 | 643.000 | 911.000 |
| GR | 643.300 | 924.000 | 643.300 | 940.000 | 643.200 | 945.000 | 642.600 | 959.000 | 642.500 | 969.000 |
| GR | 642.500 | 973.000 | 644.900 | 980.000 | 661.600 | 980.000 | 661.600 | 1009.000 | 658.700 | 1009.000 |
| GR | 657.700 | 1100.000 | 656.700 | 1200.000 | 655.700 | 1300.000 | 655.500 | 1400.000 | 655.500 | 1500.000 |
| GR | 655.600 | 1600.000 | 656.200 | 1700.000 | 657.300 | 1800.000 | 658.900 | 1900.000 | 660.600 | 2000.000 |
| GR | 662.900 | 2100.000 | 665.800 | 2200.000 | 669.700 | 2300.000 | 675.300 | 2400.000 | 681.100 | 2500.000 |
| NC | .032 | .032 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.330 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 877.000 | 661.600 | 0.000 | 900.000 | 661.600 | 654.800 | 980.000 | 661.600 | 654.900 |
| BT | 1009.000 | 661.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.337 | 0.000 | 0.000 | 0.000 | 37.000 | 37.000 | 37.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 900.000 | .045 | 980.000 | .070 | 2500.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.338 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

N I

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 29.357 | 39.000 | 900.000 | 1000.000 | 66.000 | 72.000 | 100.000 | 0.000 | 2.070 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 844.000 | 0.000 | 1062.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.300 | 0.000 | 664.500 | 100.000 | 660.400 | 200.000 | 654.700 | 300.000 | 650.500 | 400.000 |
| GR | 647.300 | 500.000 | 647.200 | 600.000 | 646.900 | 700.000 | 648.000 | 800.000 | 648.800 | 900.000 |
| GR | 644.400 | 912.000 | 642.300 | 922.000 | 640.600 | 928.000 | 640.700 | 935.000 | 642.900 | 948.000 |
| GR | 643.200 | 954.000 | 643.900 | 966.000 | 644.200 | 975.000 | 644.500 | 987.000 | 645.100 | 991.000 |
| GR | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 |
| GR | 648.900 | 1200.000 | 647.700 | 1300.000 | 648.200 | 1400.000 | 647.800 | 1500.000 | 648.900 | 1600.000 |
| GR | 647.800 | 1700.000 | 647.600 | 1800.000 | 648.300 | 1900.000 | 653.100 | 2000.000 | 656.100 | 2100.000 |
| GR | 659.400 | 2200.000 | 659.500 | 2300.000 | 664.300 | 2400.000 | 669.200 | 2500.000 | 0.000 | 0.000 |
| X1 | 29.370 | 0.000 | 0.000 | 0.000 | 44.000 | 48.000 | 67.000 | 0.000 | .070 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 800.000 | 0.000 | 1110.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .110 | 110.000 | .050 | 400.000 | .060 | 947.000 | .045 | 1000.000 | .070 |
| NH | 1425.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29.824 | 29.000 | 947.000 | 1000.000 | 1440.000 | 1630.000 | 2404.000 | 0.000 | 0.000 | 0.000 |
| GR | 681.000 | 0.000 | 651.700 | 92.000 | 651.100 | 110.000 | 652.600 | 200.000 | 651.700 | 300.000 |
| GR | 653.000 | 400.000 | 653.500 | 500.000 | 652.600 | 600.000 | 653.200 | 700.000 | 653.000 | 800.000 |
| GR | 653.300 | 900.000 | 653.200 | 947.000 | 649.100 | 955.000 | 645.100 | 966.000 | 646.400 | 975.000 |
| GR | 647.000 | 984.000 | 648.100 | 996.000 | 652.300 | 1000.000 | 652.800 | 1100.000 | 652.600 | 1144.000 |
| GR | 647.200 | 1153.000 | 647.700 | 1166.000 | 647.500 | 1177.000 | 647.800 | 1186.000 | 653.500 | 1188.000 |
| GR | 653.100 | 1200.000 | 654.600 | 1300.000 | 654.900 | 1345.000 | 685.000 | 1425.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 718.000 | .045 | 777.000 | .070 | 1645.000 | 0.000 | 0.000 | 0.000 |
| X1 | 30.038 | 90.000 | 718.000 | 777.000 | 750.000 | 900.000 | 1130.000 | 0.000 | 0.000 | 0.000 |
| GR | 679.800 | 0.000 | 674.100 | 24.700 | 668.500 | 49.500 | 663.700 | 74.200 | 663.200 | 99.000 |
| GR | 663.000 | 123.700 | 662.800 | 148.500 | 662.100 | 173.300 | 661.400 | 198.000 | 660.600 | 222.800 |
| GR | 660.200 | 247.500 | 659.800 | 272.300 | 659.400 | 297.100 | 658.900 | 321.800 | 658.300 | 346.600 |
| GR | 657.800 | 371.300 | 657.200 | 396.100 | 656.800 | 420.800 | 656.400 | 445.600 | 656.200 | 470.400 |
| GR | 656.000 | 495.100 | 655.900 | 519.900 | 655.700 | 544.600 | 655.600 | 569.400 | 655.500 | 594.200 |
| GR | 655.400 | 618.900 | 655.300 | 643.700 | 655.200 | 668.400 | 655.100 | 693.200 | 654.900 | 718.000 |
| GR | 653.900 | 719.900 | 652.800 | 721.900 | 651.800 | 723.800 | 650.900 | 725.800 | 650.100 | 727.800 |
| GR | 649.400 | 729.700 | 649.000 | 731.700 | 648.600 | 733.700 | 648.300 | 735.600 | 647.900 | 737.600 |
| GR | 647.700 | 739.600 | 647.900 | 741.500 | 648.100 | 743.500 | 648.200 | 745.500 | 648.400 | 747.400 |
| GR | 648.600 | 749.400 | 648.700 | 751.400 | 648.800 | 753.300 | 648.900 | 755.300 | 649.000 | 757.300 |
| GR | 649.100 | 759.200 | 649.400 | 761.200 | 649.600 | 763.200 | 649.800 | 765.100 | 650.000 | 767.100 |
| GR | 650.500 | 769.100 | 651.000 | 771.000 | 651.800 | 773.000 | 653.300 | 775.000 | 654.700 | 777.000 |
| GR | 654.800 | 805.900 | 654.800 | 834.800 | 654.800 | 863.700 | 654.600 | 892.700 | 654.500 | 921.600 |
| GR | 654.800 | 950.500 | 655.100 | 979.500 | 654.700 | 1008.400 | 654.300 | 1037.300 | 654.100 | 1066.300 |
| GR | 651.600 | 1095.200 | 651.900 | 1124.100 | 651.900 | 1153.100 | 654.500 | 1182.000 | 654.700 | 1210.900 |
| GR | 654.900 | 1239.900 | 655.000 | 1268.800 | 655.000 | 1297.700 | 655.200 | 1326.700 | 655.500 | 1355.600 |
| GR | 655.900 | 1384.500 | 656.100 | 1413.500 | 656.400 | 1442.400 | 657.100 | 1471.300 | 659.600 | 1500.300 |
| GR | 662.700 | 1529.200 | 665.700 | 1558.100 | 670.100 | 1587.100 | 678.400 | 1616.000 | 686.800 | 1645.000 |
| NH | 5.000 | .050 | 365.000 | .100 | 489.000 | .045 | 554.000 | .100 | 1465.000 | .040 |
| NH | 1865.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 30.252 | 28.000 | 489.000 | 554.000 | 750.000 | 900.000 | 1130.000 | 0.000 | 0.000 | 0.000 |
| GR | 678.700 | 0.000 | 673.400 | 98.000 | 668.700 | 165.000 | 661.300 | 265.000 | 658.500 | 365.000 |
| GR | 657.200 | 465.000 | 656.700 | 489.000 | 653.400 | 495.000 | 650.700 | 502.000 | 650.300 | 512.000 |
| GR | 650.800 | 523.000 | 651.300 | 534.000 | 652.600 | 544.000 | 657.200 | 554.000 | 657.200 | 565.000 |
| GR | 657.400 | 665.000 | 656.300 | 765.000 | 657.600 | 865.000 | 655.600 | 965.000 | 656.300 | 1065.000 |
| GR | 655.900 | 1165.000 | 656.400 | 1265.000 | 656.200 | 1365.000 | 657.200 | 1465.000 | 658.100 | 1565.000 |
| GR | 661.600 | 1665.000 | 662.800 | 1765.000 | 688.600 | 1865.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 577.000 | .047 | 659.400 | .100 | 2086.400 | 0.000 | 0.000 | 0.000 |
| X1 | 30.492 | 90.000 | 577.000 | 659.400 | 750.000 | 525.000 | 1265.000 | 0.000 | 0.000 | 0.000 |
| GR | 682.400 | 0.000 | 675.100 | 19.800 | 669.000 | 39.700 | 668.600 | 59.600 | 668.100 | 79.500 |
| GR | 667.700 | 99.400 | 667.200 | 119.300 | 666.600 | 139.200 | 666.000 | 159.100 | 665.400 | 179.000 |
| GR | 664.900 | 198.900 | 664.300 | 218.800 | 663.800 | 238.700 | 663.200 | 258.600 | 662.600 | 278.500 |
| GR | 661.900 | 298.400 | 661.300 | 318.300 | 661.000 | 338.200 | 660.700 | 358.100 | 660.500 | 378.000 |
| GR | 660.200 | 397.900 | 659.900 | 417.800 | 659.700 | 437.700 | 659.600 | 457.600 | 659.400 | 477.500 |
| GR | 659.300 | 497.400 | 659.200 | 517.300 | 659.100 | 537.200 | 659.100 | 557.100 | 659.000 | 577.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 654.200 | 593.400 | 653.500 | 596.200 | 653.200 | 598.900 | 652.900 | 601.700 | 652.700 | 604.400 |
| GR | 652.500 | 607.200 | 652.700 | 609.900 | 652.900 | 612.700 | 653.100 | 615.400 | 653.300 | 618.200 |
| GR | 653.500 | 620.900 | 653.800 | 623.700 | 654.000 | 626.400 | 654.100 | 629.200 | 654.300 | 631.900 |
| GR | 654.500 | 634.700 | 654.700 | 637.400 | 655.000 | 640.200 | 655.200 | 642.900 | 655.500 | 645.700 |
| GR | 656.000 | 648.400 | 656.600 | 651.200 | 657.200 | 653.900 | 658.000 | 656.700 | 659.100 | 659.400 |
| GR | 659.100 | 707.000 | 658.900 | 754.500 | 658.200 | 802.100 | 657.300 | 849.700 | 658.200 | 897.200 |
| GR | 658.200 | 944.800 | 658.400 | 992.400 | 658.400 | 1039.900 | 658.100 | 1087.500 | 657.800 | 1135.100 |
| GR | 657.800 | 1182.600 | 657.700 | 1230.200 | 657.500 | 1277.800 | 657.300 | 1325.300 | 657.400 | 1372.900 |
| GR | 657.500 | 1420.500 | 657.500 | 1468.000 | 657.400 | 1515.600 | 657.500 | 1563.200 | 657.900 | 1610.700 |
| GR | 657.900 | 1658.300 | 657.900 | 1705.900 | 658.000 | 1753.400 | 658.800 | 1801.000 | 660.000 | 1848.600 |
| GR | 661.000 | 1896.100 | 666.000 | 1943.700 | 668.100 | 1991.300 | 674.500 | 2038.800 | 689.700 | 2086.400 |
| QT | 4.000 | 4520.000 | 6970.000 | 7870.000 | 10800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 612.500 | .050 | 704.600 | .100 | 2125.600 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.731 | 40.000 | 665.000 | 764.900 | 750.000 | 525.000 | 1265.000 | .921 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1820.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.200 | 0.000 | 661.200 | 42.000 | 661.300 | 100.000 | 661.300 | 200.000 | 661.900 | 300.000 |
| GR | 661.400 | 400.000 | 661.100 | 500.000 | 660.900 | 600.000 | 661.300 | 665.000 | 660.100 | 679.200 |
| GR | 656.300 | 688.900 | 654.700 | 700.900 | 655.900 | 713.900 | 656.900 | 723.700 | 657.600 | 734.000 |
| GR | 659.500 | 760.600 | 661.000 | 764.900 | 661.100 | 807.900 | 660.300 | 907.900 | 658.400 | 930.900 |
| GR | 656.600 | 933.900 | 655.000 | 947.900 | 656.800 | 968.900 | 660.100 | 973.900 | 660.300 | 1007.900 |
| GR | 659.000 | 1107.900 | 660.600 | 1207.900 | 659.700 | 1307.900 | 659.000 | 1407.900 | 658.800 | 1507.900 |
| GR | 658.800 | 1607.900 | 658.500 | 1707.900 | 659.100 | 1807.900 | 658.100 | 1907.900 | 658.200 | 2007.900 |
| GR | 660.300 | 2107.900 | 670.600 | 2157.900 | 670.300 | 2207.900 | 671.800 | 2256.900 | 690.800 | 2307.900 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 573.500 | .045 | 662.400 | .100 | 1933.900 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.837 | 90.000 | 573.500 | 662.400 | 400.000 | 625.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 695.500 | 0.000 | 685.600 | 19.700 | 676.800 | 39.500 | 673.800 | 59.300 | 670.700 | 79.100 |
| GR | 667.600 | 98.800 | 664.600 | 118.600 | 662.600 | 138.400 | 662.500 | 158.200 | 662.400 | 177.900 |
| GR | 662.300 | 197.700 | 662.300 | 217.500 | 662.200 | 237.300 | 662.400 | 257.000 | 662.500 | 276.800 |
| GR | 662.500 | 296.600 | 662.600 | 316.400 | 662.600 | 336.100 | 662.700 | 355.900 | 662.600 | 375.700 |
| GR | 662.600 | 395.500 | 662.600 | 415.200 | 662.500 | 435.000 | 662.500 | 454.800 | 662.500 | 474.600 |
| GR | 662.400 | 494.300 | 662.400 | 514.100 | 662.400 | 533.900 | 662.100 | 553.700 | 661.700 | 573.500 |
| GR | 660.600 | 576.400 | 660.300 | 579.400 | 660.100 | 582.300 | 659.900 | 585.300 | 659.400 | 588.300 |
| GR | 658.700 | 591.200 | 658.000 | 594.200 | 657.600 | 597.200 | 657.300 | 600.100 | 657.100 | 603.100 |
| GR | 656.600 | 606.100 | 657.000 | 609.000 | 657.100 | 612.000 | 657.200 | 615.000 | 657.300 | 617.900 |
| GR | 657.400 | 620.900 | 657.600 | 623.900 | 657.700 | 626.800 | 657.800 | 629.800 | 657.900 | 632.700 |
| GR | 658.000 | 635.700 | 658.100 | 638.700 | 658.200 | 641.600 | 658.300 | 644.600 | 658.400 | 647.600 |
| GR | 658.600 | 650.500 | 658.700 | 653.500 | 658.900 | 656.500 | 660.200 | 659.400 | 662.400 | 662.400 |
| GR | 662.500 | 704.800 | 662.200 | 747.200 | 661.300 | 789.500 | 660.600 | 831.900 | 661.600 | 874.300 |
| GR | 661.300 | 916.700 | 661.500 | 959.100 | 662.100 | 1001.500 | 662.600 | 1043.800 | 662.300 | 1086.200 |
| GR | 662.000 | 1128.600 | 661.700 | 1171.000 | 661.600 | 1213.400 | 661.600 | 1255.800 | 661.500 | 1298.100 |
| GR | 661.500 | 1340.500 | 661.400 | 1382.900 | 661.300 | 1425.300 | 661.500 | 1467.700 | 661.800 | 1510.100 |
| GR | 662.500 | 1552.400 | 664.800 | 1594.800 | 665.600 | 1637.200 | 666.400 | 1679.600 | 667.100 | 1722.000 |
| GR | 667.900 | 1764.400 | 673.000 | 1806.700 | 673.400 | 1849.100 | 674.200 | 1891.500 | 683.800 | 1933.900 |
| NH | 5.000 | .030 | 110.000 | .110 | 482.000 | .040 | 560.000 | .110 | 1060.000 | .060 |
| NH | 1560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.943 | 28.000 | 482.000 | 560.000 | 400.000 | 625.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 960.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 704.900 | 0.000 | 664.100 | 110.000 | 662.800 | 200.000 | 664.100 | 300.000 | 664.100 | 400.000 |
| GR | 663.800 | 457.000 | 662.100 | 482.000 | 660.100 | 485.000 | 659.300 | 505.000 | 658.600 | 525.000 |
| GR | 658.400 | 535.000 | 658.400 | 545.000 | 658.300 | 554.000 | 658.900 | 556.000 | 663.900 | 560.000 |
| GR | 664.300 | 610.000 | 663.300 | 660.000 | 663.200 | 760.000 | 664.800 | 860.000 | 664.400 | 960.000 |
| GR | 664.400 | 1060.000 | 664.200 | 1160.000 | 664.800 | 1250.000 | 666.400 | 1260.000 | 671.200 | 1286.000 |
| GR | 674.800 | 1360.000 | 676.300 | 1460.000 | 676.900 | 1560.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.083 | 42.000 | 968.000 | 1040.000 | 770.000 | 530.000 | 740.000 | 0.000 | -.940 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.800 | 0.000 | 684.800 | 53.000 | 685.800 | 153.000 | 677.100 | 168.000 | 672.600 | 268.000 |
| GR | 671.000 | 368.000 | 667.800 | 468.000 | 668.600 | 568.000 | 668.900 | 611.000 | 664.200 | 622.000 |
| GR | 664.700 | 668.000 | 667.200 | 768.000 | [illegible] | [illegible] | 674.300 | 832.000 | 675.500 | 841.000 |
| | | | | | | | 665.500 | 968.000 | 663.100 | 972.000 |

R(n)

S(n)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 662.800 | 975.000 | 662.100 | 982.000 | 661.700 | 991.000 | 661.100 | 999.000 | 660.600 | 1009.000 |
| GR | 660.100 | 1017.000 | 660.400 | 1025.000 | 663.000 | 1036.000 | 665.700 | 1040.000 | 666.100 | 1090.000 |
| GR | 665.100 | 1140.000 | 665.000 | 1240.000 | 666.600 | 1340.000 | 667.400 | 1440.000 | 667.400 | 1540.000 |
| GR | 667.200 | 1640.000 | 667.800 | 1730.000 | 669.400 | 1740.000 | 674.200 | 1766.000 | 677.800 | 1840.000 |
| GR | 679.300 | 1940.000 | 679.900 | 2040.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.159 | 0.000 | 0.000 | 0.000 | 400.000 | 280.000 | 400.000 | 0.000 | .470 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.195 | 0.000 | 0.000 | 0.000 | 215.000 | 145.000 | 200.000 | 0.000 | .230 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1170.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.206 | 0.000 | 0.000 | 0.000 | 65.000 | 44.000 | 60.000 | 0.000 | .080 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1150.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.218 | 0.000 | 0.000 | 0.000 | 65.000 | 44.000 | 60.000 | 0.000 | .080 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1125.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.226 | 0.000 | 0.000 | 0.000 | 42.000 | 28.000 | 40.000 | 0.000 | .040 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1041.000 | .040 | 1459.000 | 0.000 |
| X1 | 31.235 | 35.000 | 968.000 | 1041.000 | 43.000 | 29.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.800 | 0.000 | 684.800 | 53.000 | 685.800 | 153.000 | 677.100 | 168.000 | 672.600 | 268.000 |
| GR | 671.000 | 368.000 | 667.800 | 468.000 | 668.600 | 568.000 | 668.900 | 611.000 | 664.200 | 622.000 |
| GR | 664.700 | 668.000 | 667.200 | 768.000 | 666.500 | 818.000 | 674.300 | 832.000 | 675.500 | 841.000 |
| GR | 674.400 | 851.000 | 668.100 | 868.000 | 669.400 | 941.000 | 665.500 | 968.000 | 663.100 | 972.000 |
| GR | 662.800 | 975.000 | 662.100 | 982.000 | 661.700 | 991.000 | 661.100 | 999.000 | 660.600 | 1009.000 |
| GR | 660.100 | 1017.000 | 660.400 | 1025.000 | 663.000 | 1036.000 | 666.700 | 1041.000 | 671.100 | 1068.000 |
| GR | 672.100 | 1108.000 | 669.000 | 1168.000 | 674.300 | 1268.000 | 675.000 | 1368.000 | 690.800 | 1459.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1041.000 | .040 | 1459.000 | 0.000 |
| X1 | 31.239 | 0.000 | 0.000 | 0.000 | 21.000 | 21.000 | 21.000 | 0.000 | .020 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .077 | 784.600 | .097 | 910.200 | .035 | 983.700 | .040 | 1406.500 | 0.000 |
| X1 | 31.260 | 90.000 | 910.200 | 983.700 | 106.400 | 106.400 | 106.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 784.600 | 0.000 | 1054.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.400 | 0.000 | 686.700 | 31.300 | 684.600 | 62.700 | 684.700 | 94.100 | 684.800 | 125.500 |
| GR | 677.400 | 156.900 | 675.200 | 188.300 | 673.800 | 219.700 | 672.400 | 251.100 | 671.900 | 282.400 |
| GR | 671.400 | 313.800 | 671.000 | 345.200 | 670.000 | 376.600 | 669.000 | 408.000 | 668.100 | 439.400 |
| GR | 668.400 | 470.800 | 668.700 | 502.200 | 668.900 | 533.500 | 669.100 | 564.900 | 665.000 | 596.300 |
| GR | 665.200 | 627.700 | 666.100 | 659.100 | 666.800 | 690.500 | 667.500 | 721.900 | 667.200 | 753.300 |
| GR | 674.700 | 784.600 | 668.800 | 816.000 | 669.400 | 847.400 | 669.900 | 878.800 | 666.400 | 910.200 |
| GR | 664.900 | 912.600 | 663.900 | 915.100 | 663.500 | 917.500 | 663.200 | 920.000 | 662.800 | 922.400 |
| GR | 662.500 | 924.900 | 662.300 | 927.300 | 662.100 | 929.800 | 661.900 | 932.200 | 661.600 | 934.700 |
| GR | 661.500 | 937.100 | 661.200 | 939.600 | 661.000 | 942.000 | 660.900 | 944.500 | 660.900 | 946.900 |
| GR | 660.800 | 949.400 | 660.600 | 951.800 | 660.500 | 954.300 | 660.400 | 956.700 | 660.220 | 959.200 |
| GR | 660.300 | 961.600 | 660.400 | 964.100 | 660.500 | 966.500 | 660.900 | 969.000 | 661.500 | 971.400 |
| GR | 662.100 | 973.900 | 662.700 | 976.300 | 663.500 | 978.800 | 665.200 | 981.200 | 667.000 | 983.700 |
| GR | 669.100 | 997.700 | 671.100 | 1011.800 | 671.400 | 1025.900 | 671.800 | 1040.000 | 671.900 | 1054.100 |
| GR | 671.300 | 1068.200 | 670.600 | 1082.300 | 670.000 | 1096.400 | 669.200 | 1110.500 | 669.800 | 1124.600 |
| GR | 670.400 | 1138.700 | 671.200 | 1152.800 | 671.800 | 1166.900 | 672.600 | 1181.000 | 673.300 | 1195.100 |
| GR | 673.900 | 1209.200 | 674.200 | 1223.300 | 674.300 | 1237.400 | 674.400 | 1251.500 | 674.500 | 1265.500 |
| GR | 674.600 | 1279.600 | 674.700 | 1293.700 | 674.700 | 1307.800 | 675.900 | 1321.900 | 678.300 | 1336.000 |
| GR | 680.500 | 1350.100 | 682.700 | 1364.200 | 685.100 | 1378.300 | 687.700 | 1392.400 | 690.300 | 1406.500 |
| NH | 4.000 | .075 | 750.000 | .095 | 852.500 | .035 | 926.400 | .040 | 1354.100 | 0.000 |
| X1 | 31.284 | 90.000 | 852.500 | 926.400 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | 734.900 | 0.000 | 997.600 | 0.000 | 0.000 | 0.000 | 0.000 |

+ (0)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 690.100 | 0.000 | 686.500 | 29.300 | 684.400 | 58.700 | 684.200 | 88.100 | 684.100 | 117.500 |
| GR | 677.100 | 146.900 | 674.900 | 176.300 | 673.500 | 205.700 | 672.300 | 235.100 | 671.800 | 264.500 |
| GR | 671.400 | 293.900 | 671.100 | 323.300 | 670.200 | 352.700 | 669.300 | 382.100 | 668.500 | 411.500 |
| GR | 668.800 | 440.900 | 669.100 | 470.300 | 669.300 | 499.700 | 669.500 | 529.100 | 665.700 | 558.500 |
| GR | 665.900 | 587.900 | 666.700 | 617.300 | 667.400 | 646.700 | 668.000 | 676.100 | 667.800 | 705.500 |
| GR | 674.800 | 734.900 | 669.500 | 764.300 | 670.200 | 793.700 | 670.700 | 823.100 | 667.400 | 852.500 |
| GR | 665.900 | 854.900 | 664.800 | 857.400 | 664.400 | 859.800 | 664.000 | 862.300 | 663.500 | 864.800 |
| GR | 663.100 | 867.200 | 662.800 | 869.700 | 662.400 | 872.200 | 662.100 | 874.600 | 661.800 | 877.100 |
| GR | 661.600 | 879.500 | 661.300 | 882.000 | 661.100 | 884.500 | 661.000 | 886.900 | 661.000 | 889.400 |
| GR | 660.900 | 891.900 | 660.800 | 894.300 | 660.700 | 896.800 | 660.600 | 899.300 | 660.350 | 901.700 |
| GR | 660.500 | 904.200 | 660.600 | 906.600 | 660.700 | 909.100 | 661.200 | 911.600 | 661.800 | 914.000 |
| GR | 662.400 | 916.500 | 663.100 | 919.000 | 663.900 | 921.400 | 665.600 | 923.900 | 667.400 | 926.400 |
| GR | 669.300 | 940.600 | 671.200 | 954.900 | 671.500 | 969.100 | 671.900 | 983.400 | 672.000 | 997.600 |
| GR | 671.400 | 1011.900 | 670.800 | 1026.200 | 670.200 | 1040.400 | 669.500 | 1054.700 | 670.000 | 1068.900 |
| GR | 670.600 | 1083.200 | 671.300 | 1097.400 | 671.900 | 1111.700 | 672.600 | 1126.000 | 673.300 | 1140.200 |
| GR | 673.900 | 1154.500 | 674.200 | 1168.700 | 674.300 | 1183.000 | 674.400 | 1197.300 | 674.400 | 1211.500 |
| GR | 674.500 | 1225.800 | 674.600 | 1240.000 | 674.600 | 1254.300 | 675.700 | 1268.500 | 677.900 | 1282.800 |
| GR | 680.000 | 1297.100 | 682.000 | 1311.300 | 684.300 | 1325.600 | 687.100 | 1339.800 | 689.900 | 1354.100 |
| NH | 4.000 | .073 | 685.100 | .093 | 794.700 | .035 | 869.000 | .042 | 1301.600 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.308 | 90.000 | 794.700 | 869.000 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 685.100 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 689.800 | 0.000 | 686.200 | 27.400 | 684.100 | 54.800 | 683.700 | 82.200 | 683.400 | 109.600 |
| GR | 676.700 | 137.000 | 674.500 | 164.400 | 673.200 | 191.800 | 672.100 | 219.200 | 671.600 | 246.600 |
| GR | 671.300 | 274.000 | 671.100 | 301.400 | 670.300 | 328.800 | 669.500 | 356.200 | 668.900 | 383.600 |
| GR | 669.200 | 411.000 | 669.500 | 438.400 | 669.700 | 465.800 | 669.800 | 493.200 | 666.400 | 520.600 |
| GR | 666.600 | 548.100 | 667.300 | 575.500 | 667.900 | 602.900 | 668.500 | 630.300 | 668.400 | 657.700 |
| GR | 674.900 | 685.100 | 670.200 | 712.500 | 671.000 | 739.900 | 671.400 | 767.300 | 668.400 | 794.700 |
| GR | 666.800 | 797.200 | 665.700 | 799.700 | 665.200 | 802.100 | 664.700 | 804.600 | 664.100 | 807.100 |
| GR | 663.600 | 809.600 | 663.200 | 812.000 | 662.700 | 814.500 | 662.300 | 817.000 | 661.900 | 819.500 |
| GR | 661.700 | 822.000 | 661.300 | 824.400 | 661.100 | 826.900 | 661.100 | 829.400 | 661.000 | 831.900 |
| GR | 661.000 | 834.400 | 660.900 | 836.800 | 660.800 | 839.300 | 660.700 | 841.800 | 660.480 | 844.300 |
| GR | 660.700 | 846.700 | 660.800 | 849.200 | 660.900 | 851.700 | 661.400 | 854.200 | 662.100 | 856.700 |
| GR | 662.700 | 859.100 | 663.500 | 861.600 | 664.300 | 864.100 | 666.000 | 866.600 | 667.700 | 869.000 |
| GR | 669.500 | 883.500 | 671.300 | 897.900 | 671.600 | 912.300 | 671.900 | 926.700 | 672.000 | 941.100 |
| GR | 671.500 | 955.600 | 670.900 | 970.000 | 670.300 | 984.400 | 669.800 | 998.800 | 670.200 | 1013.200 |
| GR | 670.800 | 1027.700 | 671.400 | 1042.100 | 672.000 | 1056.500 | 672.600 | 1070.900 | 673.300 | 1085.300 |
| GR | 673.900 | 1099.800 | 674.200 | 1114.200 | 674.300 | 1128.600 | 674.300 | 1143.000 | 674.300 | 1157.400 |
| GR | 674.400 | 1171.900 | 674.500 | 1186.300 | 674.500 | 1200.700 | 675.500 | 1215.100 | 677.500 | 1229.500 |
| GR | 679.400 | 1244.000 | 681.300 | 1258.400 | 683.500 | 1272.800 | 686.500 | 1287.200 | 689.400 | 1301.600 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .070 | 660.700 | .090 | 751.900 | .035 | 811.800 | .043 | 1249.300 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.332 | 90.000 | 737.000 | 811.800 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 635.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 689.500 | 0.000 | 686.100 | 25.400 | 683.900 | 50.800 | 683.300 | 76.200 | 682.800 | 101.600 |
| GR | 676.500 | 127.000 | 674.300 | 152.400 | 673.000 | 177.800 | 672.000 | 203.300 | 671.600 | 228.700 |
| GR | 671.400 | 254.100 | 671.200 | 279.500 | 670.600 | 304.900 | 669.900 | 330.300 | 669.300 | 355.700 |
| GR | 669.600 | 381.200 | 669.900 | 406.600 | 670.100 | 432.000 | 670.300 | 457.400 | 667.100 | 482.800 |
| GR | 667.300 | 508.200 | 667.900 | 533.600 | 668.500 | 559.100 | 669.000 | 584.500 | 669.000 | 609.900 |
| GR | 675.100 | 635.300 | 671.000 | 660.700 | 671.800 | 686.100 | 672.300 | 711.500 | 669.400 | 737.000 |
| GR | 667.900 | 739.400 | 666.700 | 741.900 | 666.100 | 744.400 | 665.500 | 746.900 | 664.800 | 749.400 |
| GR | 664.200 | 751.900 | 663.700 | 754.400 | 663.100 | 756.900 | 662.600 | 759.400 | 662.200 | 761.900 |
| GR | 661.900 | 764.400 | 661.500 | 766.900 | 661.200 | 769.400 | 661.200 | 771.900 | 661.200 | 774.300 |
| GR | 661.200 | 776.800 | 661.200 | 779.300 | 661.100 | 781.800 | 661.000 | 784.300 | 660.610 | 786.800 |
| GR | 661.000 | 789.300 | 661.000 | 791.800 | 661.200 | 794.300 | 661.700 | 796.800 | 662.400 | 799.300 |
| GR | 663.100 | 801.800 | 663.900 | 804.300 | 664.800 | 806.800 | 666.400 | 809.300 | 668.100 | 811.800 |
| GR | 669.800 | 826.300 | 671.400 | 840.900 | 671.700 | 855.500 | 672.000 | 870.100 | 672.200 | 884.700 |
| GR | 671.700 | 899.200 | 671.200 | 913.800 | 670.600 | 928.400 | 670.100 | 943.000 | 670.500 | 957.600 |
| GR | 671.000 | 972.200 | 671.500 | 986.700 | 672.100 | 1001.300 | 672.700 | 1015.900 | 673.300 | 1030.500 |
| GR | 673.900 | 1045.100 | 674.200 | 1059.700 | 674.300 | 1074.200 | 674.300 | 1088.800 | 674.300 | 1103.400 |
| GR | 674.300 | 1118.000 | 674.400 | 1132.600 | 674.400 | 1147.200 | 675.300 | 1161.700 | 677.100 | 1176.300 |
| GR | 678.900 | 1190.900 | 680.600 | 1205.500 | 682.800 | 1220.100 | 685.900 | 1234.700 | 689.000 | 1249.300 |
| NH | 4.000 | .060 | 453.600 | .080 | 528.900 | .035 | 582.600 | .046 | 1039.600 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 0.000 | 0.000 | 0.000 | 436.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 688.200 | 0.000 | 685.200 | 17.400 | 682.800 | 34.800 | 681.400 | 52.300 | 680.100 | 69.700 |
| GR | 675.400 | 87.200 | 673.000 | 104.600 | 672.000 | 122.100 | 671.400 | 139.500 | 671.300 | 157.000 |
| GR | 671.300 | 174.400 | 671.400 | 191.900 | 671.200 | 209.300 | 671.000 | 226.800 | 670.900 | 244.200 |
| GR | 671.200 | 261.700 | 671.600 | 279.100 | 671.700 | 296.600 | 671.800 | 314.000 | 669.900 | 331.500 |
| GR | 670.000 | 348.900 | 670.300 | 366.400 | 670.600 | 383.800 | 670.900 | 401.300 | 671.300 | 418.700 |
| GR | 675.500 | 436.200 | 674.000 | 453.600 | 674.900 | 471.100 | 675.300 | 488.500 | 673.300 | 506.000 |
| GR | 671.800 | 508.500 | 670.500 | 511.100 | 669.500 | 513.600 | 668.400 | 516.200 | 667.400 | 518.700 |
| GR | 666.400 | 521.300 | 665.400 | 523.800 | 664.500 | 526.400 | 663.500 | 528.900 | 662.900 | 531.500 |
| GR | 662.400 | 534.000 | 661.900 | 536.600 | 661.120 | 539.100 | 661.600 | 541.700 | 661.700 | 544.200 |
| GR | 661.800 | 546.800 | 661.900 | 549.400 | 661.900 | 551.900 | 661.900 | 554.500 | 661.900 | 557.000 |
| GR | 661.900 | 559.600 | 661.900 | 562.100 | 662.000 | 564.700 | 662.800 | 567.200 | 663.600 | 569.800 |
| GR | 664.400 | 572.300 | 665.400 | 574.900 | 666.500 | 577.400 | 668.000 | 580.000 | 669.500 | 582.600 |
| GR | 670.600 | 597.800 | 671.600 | 613.000 | 672.000 | 628.200 | 672.300 | 643.500 | 672.500 | 658.700 |
| GR | 672.200 | 673.900 | 671.900 | 689.200 | 671.500 | 704.400 | 671.200 | 719.600 | 671.400 | 734.900 |
| GR | 671.600 | 750.100 | 672.000 | 765.300 | 672.400 | 780.600 | 672.900 | 795.800 | 673.300 | 811.000 |
| GR | 673.800 | 826.300 | 674.000 | 841.500 | 674.100 | 856.700 | 674.100 | 872.000 | 674.000 | 887.200 |
| GR | 674.000 | 902.400 | 674.000 | 917.700 | 673.900 | 932.900 | 674.400 | 948.100 | 675.500 | 963.400 |
| GR | 676.700 | 978.600 | 677.800 | 993.800 | 679.700 | 1009.100 | 683.500 | 1024.300 | 687.300 | 1039.600 |
| NH | 4.000 | .050 | 198.000 | .070 | 222.000 | .035 | 277.000 | .050 | 760.000 | 0.000 |
| X1 | 31.557 | 22.000 | 198.000 | 277.000 | 680.100 | 680.100 | 680.100 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 189.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.600 | 0.000 | 670.600 | 43.000 | 670.700 | 60.000 | 673.900 | 110.000 | 673.500 | 160.000 |
| GR | 678.800 | 181.000 | 679.600 | 189.000 | 678.600 | 198.000 | 664.600 | 222.000 | 664.200 | 223.000 |
| GR | 661.800 | 232.000 | 662.900 | 243.000 | 663.100 | 251.000 | 663.000 | 258.000 | 666.400 | 267.000 |
| GR | 671.500 | 277.000 | 673.000 | 360.000 | 672.500 | 460.000 | 674.000 | 560.000 | 673.200 | 660.000 |
| GR | 674.200 | 723.000 | 685.000 | 760.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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T1      SHELBY TOWNSHIP-JOB NO. 5670-08   PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOOD = 8060 CFS
T3      CLINTON RIVER MAIN BRANCH
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 626.870 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
CCHV=    .500 CEHV=   1.000
1490 NH CARD USED

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

     25.19     13.87    626.87      0.00    626.87    628.03      1.16      0.00      0.00    632.40
     8060.        0.     8060.        0.        0.      931.        0.        0.        0.    632.20
      0.00      0.00      8.66      0.00     0.000      .037     0.000     0.000    613.00    651.00
   .002623       63.       63.       63.         0         0         1      0.00     76.72    730.05

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      300.0      464.0  TYPE=      1  TARGET=      164.000
     25.20     14.96    628.12      0.00      0.00    628.49       .38       .07       .39    625.76
     8060.        0.     6575.     1485.        0.     1274.      392.        2.        0.    620.06
       .00       .01      5.16      3.79      .040      .037      .040      .000    613.16    300.00
   .000631       60.       60.       60.         3         0         1      0.00    164.00    464.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      300.0      524.0  TYPE=      1  TARGET=      224.000
     25.21     15.06    628.38      0.00      0.00    628.60       .22       .03       .08    625.92
     8060.        0.     5278.     2782.        0.     1286.      910.        4.        0.    620.22
       .01       .01      4.10      3.06      .040      .037      .040      .000    613.32    300.00
   .000395       60.       60.       60.         2         0         1      0.00    224.00    524.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      300.0      626.0  TYPE=      1  TARGET=      326.000

                VALLEY SECTION A                                                   72

     25.23     14.97    628.57      0.00      0.00    628.68       .11       .03       .05    626.20
     8060.        0.     3869.     4191.        0.     1276.     1815.       10.        1.    620.50
       .02       .01      3.03      2.31      .040      .037      .040      .000    613.60    300.00
   .000217      110.      102.       90.         2         0         1      0.00    326.00    626.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      318.0      695.0  TYPE=      1  TARGET=      377.000
     25.24     16.19    628.59      0.00      0.00    628.73       .15       .01       .04    621.40
     8060.        0.     4761.     3299.        0.     1254.     2175.       14.        1.    620.50
       .02       .01      3.79      1.52      .040      .037      .075      .000    612.40    318.00
   .000356       51.       51.       51.         0         0         1      0.00    377.00    695.00

SPECIAL BRIDGE
```

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.98 | 3.04 | 0.00 | 94.00 | 0.00 | 964.10 | 0.00 | 612.40 | 612.40 |

1490 NH CARD USED
3280 CROSS SECTION 25.25 EXTENDED .46 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 630.74 | 628.73 | 0.00 | 3665. | 4396. | 964. | 625.50 | 627.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 318.0 1100.0 TYPE= 1 TARGET= 782.000

BRIDGE SECTION B AUBURN ROAD UPSTREAM FACE 73

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.25 | 16.76 | 629.16 | 0.00 | 0.00 | 629.23 | .06 | .49 | 0.00 | 621.40 |
| 8060. | 0. | 3450. | 4610. | 0. | 1308. | 3369. | 18. | 2. | 620.50 |
| .03 | .00 | 2.64 | 1.37 | .050 | .038 | .050 | .000 | 612.40 | 318.00 |
| .000170 | 44. | 44. | 44. | 2 | 0 | 3 | 0.00 | 782.00 | 1100.00 |

CCHV= .300 CEHV= .700
1490 NH CARD USED

VALLEY SECTION C 74

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.39 | 18.67 | 629.27 | 0.00 | 0.00 | 629.59 | .32 | .18 | .18 | 633.40 |
| 8060. | 0. | 7675. | 385. | 0. | 1654. | 237. | 70. | 9. | 623.60 |
| .07 | 0.00 | 4.64 | 1.62 | .050 | .037 | .050 | .000 | 610.60 | 572.45 |
| .000415 | 806. | 755. | 636. | 2 | 0 | 1 | 0.00 | 184.30 | 756.75 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 900.0 1040.0 TYPE= 1 TARGET= 140.000

VALLEY SECTION D 75

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.50 | 16.45 | 629.45 | 0.00 | 0.00 | 629.90 | .45 | .27 | .04 | 631.50 |
| 8060. | 0. | 7901. | 159. | 0. | 1457. | 57. | 91. | 11. | 622.00 |
| .10 | 0.00 | 5.42 | 2.80 | .050 | .037 | .050 | .000 | 613.00 | 905.45 |
| .000659 | 600. | 530. | 460. | 2 | 0 | 1 | 0.00 | 134.55 | 1040.00 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 900.0 1014.0 TYPE= 1 TARGET= 114.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.51 | 14.31 | 629.51 | 0.00 | 0.00 | 630.08 | .57 | .06 | .12 | 631.50 |
| 8060. | 0. | 8060. | 0. | 0. | 1332. | 0. | 93. | 11. | 100000.00 |
| .10 | 0.00 | 6.05 | 0.00 | .050 | .039 | .050 | .000 | 615.20 | 900.00 |
| .001143 | 76. | 76. | 76. | 2 | 0 | 1 | 0.00 | 114.00 | 1014.00 |

```
SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.90      3.04      0.00    114.00      0.00    948.60      0.00    615.20    615.20

1490 NH CARD USED
PRESSURE FLOW

  EGPRS     EGLWC      H3       QWEIR      QPR       BAREA     ELLC      ELTRD     CLASS

  631.64    630.08    0.00        0.      8060.      949.    626.20    634.10     10.00


3470 ENCROACHMENT STATIONS=     900.0    1014.0  TYPE=     1  TARGET=     114.000

              BRIDGE SECTION E  CON RAIL RAILROAD  UPSTREAM FACE            76

    25.51    16.01   631.21     0.00      0.00   631.64      .43      1.56      0.00   631.50
    8060.       0.    8060.       0.        0.    1526.       0.       94.       12. 100000.00
      .11     0.00     5.28     0.00      .090     .048     .050      .000    615.20   900.00
  .001138      14.      14.      14.         2        0        1      0.00    114.00  1014.00


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     841.0    1305.0  TYPE=     1  TARGET=     464.000
    25.57    16.68   631.87     0.00      0.00   632.05      .18       .28       .13   624.49
    8060.    2781.    2746.    2533.     1475.     528.    1394.      107.       13.   624.99
      .13     1.89     5.21     1.82      .090     .048     .090      .000    615.19   841.00
  .000982     175.     312.     175.         2        0        1      0.00    464.00  1305.00


1490 NH CARD USED
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     533.0    1400.0  TYPE=     1  TARGET=    -533.000
    25.63    17.01   632.19     0.00      0.00   632.23      .05       .12       .06   624.48
    8060.    4546.    1701.    1813.     3867.     540.    1607.      127.       16.   624.98
      .17     1.18     3.15     1.13      .090     .048     .087      .000    615.18   533.00
  .000349     175.     312.     175.         2        0        1      0.00    814.14  1347.14


1490 NH CARD USED
    25.71    17.12   632.29     0.00      0.00   632.31      .02       .05       .02   624.47
    8060.    5758.    1105.    1197.     7323.     545.    1636.      170.       21.   624.97
      .24      .79     2.03      .73      .089     .048     .087      .000    615.17    91.77
  .000144     225.     401.     225.         2        0        1      0.00   1256.20  1347.96


CCHV=    .100 CEHV=    .300
1490 NH CARD USED

              VALLEY SECTION F                                              77

    26.22    17.42   632.52     0.00      0.00   632.53      .02       .23       .00   624.40
    8060.    5771.    1076.    1213.     7609.     557.    1712.      522.       66.   624.90
      .76      .76     1.93      .71      .089     .048     .087      .000    615.10    89.75
```

1490 NH CARD USED

VALLEY SECTION G 78

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26.79 | 12.46 | 632.96 | 0.00 | 0.00 | 633.02 | .06 | .48 | .01 | 627.60 |
| 8060. | 5576. | 1919. | 566. | 4405. | 558. | 750. | 887. | 122. | 630.10 |
| 1.10 | 1.27 | 3.44 | .75 | .074 | .043 | .090 | .000 | 620.50 | 28.99 |
| .000466 | 2000. | 3010. | 1800. | 2 | 0 | 1 | 0.00 | 1195.56 | 1224.55 |

1490 NH CARD USED

VALLEY SECTION H 79

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.05 | 10.06 | 633.56 | 0.00 | 0.00 | 633.64 | .09 | .62 | .01 | 630.20 |
| 8060. | 4940. | 2562. | 559. | 3157. | 727. | 609. | 1022. | 151. | 629.90 |
| 1.25 | 1.56 | 3.52 | .92 | .062 | .041 | .100 | .000 | 623.50 | 91.02 |
| .000583 | 1100. | 1370. | 1250. | 2 | 0 | 1 | 0.00 | 970.71 | 1061.73 |

1490 NH CARD USED

VALLEY SECTION I 80

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.56 | 10.24 | 635.94 | 0.00 | 0.00 | 636.39 | .45 | 2.64 | .11 | 632.70 |
| 8060. | 2620. | 5043. | 397. | 1628. | 754. | 287. | 1207. | 197. | 632.70 |
| 1.39 | 1.61 | 6.69 | 1.38 | .093 | .047 | .100 | .000 | 625.70 | 102.94 |
| .002817 | 2100. | 2700. | 2250. | 3 | 0 | 1 | 0.00 | 867.51 | 970.45 |

1490 NH CARD USED

VALLEY SECTION J 81

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.85 | 12.99 | 638.79 | 0.00 | 0.00 | 638.94 | .15 | 2.53 | .03 | 635.30 |
| 8060. | 4435. | 2971. | 654. | 3319. | 610. | 561. | 1321. | 226. | 635.40 |
| 1.55 | 1.34 | 4.87 | 1.17 | .102 | .046 | .110 | .000 | 625.80 | 43.24 |
| .001181 | 1350. | 1540. | 1450. | 2 | 0 | 1 | 0.00 | 982.92 | 1026.16 |

1490 NH CARD USED

VALLEY SECTION K 82

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28.15 | 10.69 | 640.59 | 0.00 | 0.00 | 640.79 | .20 | 1.83 | .01 | 636.40 |
| 8060. | 5326. | 2734. | 0. | 2250. | 530. | 0. | 1459. | 260. | 640.50 |
| 1.68 | 2.37 | 5.16 | .01 | .044 | .040 | .090 | .000 | 629.90 | 57.19 |
| .001056 | 1700. | 1580. | 1350. | 3 | 0 | 1 | 0.00 | 799.36 | 856.55 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION L 83

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28.46 | 9.46 | 642.76 | 0.00 | 0.00 | 643.05 | .29 | 2.23 | .03 | 640.90 |
| 8060. | 3808. | 3337. | 915. | 2097. | 525. | 910. | 1561. | 295. | 639.60 |
| 1.80 | 1.82 | 6.35 | 1.01 | .072 | .045 | .131 | .000 | 633.30 | 123.27 |

```
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        .0      923.1  TYPE=      1  TARGET=      939.999

                VALLEY SECTION M                                                  84

    29.03      8.44    648.44      0.00      0.00    648.73       .29      5.68       .00    644.60
    8060.     2245.     3747.     2068.     1095.      623.     1467.     1741.      354.    645.40
     1.99      2.05      6.02      1.41      .079      .040      .101      .000    640.00     58.90
  .002021     2400.     3050.     1900.         4         0         1      0.00    864.18    923.08

CCHV=     .500 CEHV=   1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      210.0      925.0  TYPE=      1  TARGET=      715.000
    29.09      8.84    648.96      0.00      0.00    649.28       .32       .52       .03    645.40
    8060.     2268.     3992.     1800.     1002.      653.     1051.     1757.      358.    646.20
     2.01      2.26      6.11      1.71      .073      .040      .080      .000    640.12    210.00
  .002012      210.      302.      220.         2         0         1      0.00    715.00    925.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      435.0      925.0  TYPE=      1  TARGET=      490.000
    29.18      9.61    649.91      0.00      0.00    650.52       .61       .95       .29    646.70
    8060.     1998.     5260.      802.      757.      696.      493.     1776.      363.    647.40
     2.03      2.64      7.56      1.62      .075      .040      .090      .000    640.30    435.00
  .002870      315.      453.      330.         2         0         1      0.00    490.00    925.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      710.0      975.0  TYPE=      1  TARGET=      265.000
    29.26     10.73    651.23      0.00      0.00    652.29      1.05      1.33       .45    647.90
    8060.      790.     6883.      387.      297.      777.      228.     1790.      366.    648.60
     2.04      2.66      8.86      1.70      .078      .040      .100      .000    640.50    710.00
  .003486      315.      453.      330.         2         0         1      0.00    265.00    975.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      895.0     1005.0  TYPE=      1  TARGET=      110.000

                VALLEY SECTION N                                                  85

    29.32     11.68    652.28      0.00      0.00    653.64      1.36      1.05       .31    648.80
    8060.       51.     7950.       59.       17.      844.       14.     1797.      367.    649.50
     2.05      2.94      9.42      4.34      .070      .040      .040      .000    640.60    895.00
  .003608      210.      302.      220.         2         0         1      0.00    110.00   1005.00

1490 NH CARD USED
    29.33     10.03    652.53      0.00      0.00    654.30      1.77       .25       .41    661.60
    8060.        0.     8060.        0.        0.      754.        0.     1798.      367.    661.60
     2.05      0.00     10.68      0.00      .070      .040      .040      .000    642.50    900.00
  .004848       60.       60.       60.         2         0         1      0.00     80.00    980.00

NORMAL BRIDGE,NRD= 4 MIN ELTRD=  661.60 MAX ELLC=  654.90

    29.33     10.03    652.53      0.00      0.00    654.30      1.77       .00       .00    661.60
```

N (I)

```
  2.05      0.00     10.68      0.00      .032      .032      .032      .000    642.50    900.00
.003433      1.        1.        1.         0         0         1      0.00     80.00    980.00

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

NORMAL BRIDGE,NRD= 4 MIN ELTRD=  661.60 MAX ELLC=  654.90

                BRIDGE SECTION 0  RYAN ROAD  UPSTREAM FACE                    86

   29.34     10.30    652.80      0.00      0.00    654.48      1.67       .12       .05    661.60      0 (I)
   8060.        0.     8060.        0.        0.      776.        0.     1799.      367.    661.60
    2.05      0.00     10.38      0.00      .032      .032      .032      .000    642.50    900.00
 .003147       37.       37.       37.         2         0         1      0.00     80.00    980.00

1490 NH CARD USED
   29.34     10.31    652.81      0.00      0.00    654.48      1.67       .00       .00    661.60
   8060.        0.     8060.        0.        0.      777.        0.     1799.      367.    661.60
    2.05      0.00     10.38      0.00      .032      .045      .032      .000    642.50    900.00
 .005588       1.        1.        1.         0         0         1      0.00     80.00    980.00

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     844.0    1062.0  TYPE=      1  TARGET=     218.000
   29.36     11.77    654.44      0.00      0.00    655.31       .87       .43       .40    650.87
   8060.      754.     6833.      473.      212.      852.      183.     1801.      368.    651.57
    2.06      3.56      8.02      2.59      .060      .045      .070      .000    642.67    844.00
 .003500       66.      100.       72.         4         0         1      0.00    218.00   1062.00

3470 ENCROACHMENT STATIONS=     800.0    1110.0  TYPE=      1  TARGET=     310.000
   29.37     12.47    655.21      0.00      0.00    655.67       .46       .16       .20    650.94
   8060.     1405.     5742.      913.      467.      923.      410.     1803.      368.    651.64
    2.06      3.01      6.22      2.22      .060      .045      .070      .000    642.74    800.00
 .001897       44.       67.       48.         3         0         1      0.00    310.00   1110.00

1490 NH CARD USED

                VALLEY SECTION P                                              87

   29.82     12.02    657.12      0.00      0.00    657.16       .04      1.28       .21    653.20      P (IC)
   8060.     4968.     1338.     1754.     3791.      496.     1530.     1949.      397.    652.30
    2.41      1.31      2.69      1.15      .056      .045      .070      .006    645.10     74.99
 .000342     1440.     2404.     1630.         4         0         1      0.00   1275.90   1350.89

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
   30.04      9.91    657.61      0.00      0.00    657.83       .23       .62       .06    654.90
   8060.      894.     2703.     4463.      593.      456.     2076.     2036.      420.    654.70
    2.48      1.51      5.92      2.15      .070      .045      .070      .008    647.70    379.06
 .002038      750.     1130.      900.         2         0         1      0.00   1098.18   1477.24
```

1490 NH CARD USED

VALLEY SECTION Q 88

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.25 | 9.35 | 659.65 | 0.00 | 0.00 | 659.88 | .23 | 2.05 | .00 | 656.70 |
| 8060. | 294. | 2967. | 4799. | 268. | 491. | 3051. | 2109. | 444. | 657.20 |
| 2.57 | 1.10 | 6.04 | 1.57 | .096 | .045 | .093 | .010 | 650.30 | 324.10 |
| .002186 | 750. | 1130. | 900. | 2 | 0 | 1 | 0.00 | 1285.05 | 1609.15 |

Q(L)

1490 NH CARD USED

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 30.49 | 8.77 | 661.27 | 0.00 | 0.00 | 661.39 | .12 | 1.50 | .01 | 659.00 |
| 8060. | 325. | 2442. | 5293. | 370. | 526. | 3909. | 2171. | 463. | 659.10 |
| 2.66 | .88 | 4.64 | 1.35 | .100 | .047 | .100 | .012 | 652.50 | 320.53 |
| .001686 | 750. | 1265. | 525. | 2 | 0 | 1 | 0.00 | 1578.11 | 1898.64 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1676.2 TYPE= 1 TARGET= 1819.999

VALLEY SECTION R 89

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.73 | 8.01 | 662.71 | 0.00 | 0.00 | 662.81 | .10 | 1.42 | .00 | 661.30 |
| 7870. | 695. | 1956. | 5219. | 796. | 455. | 3233. | 2238. | 486. | 661.00 |
| 2.76 | .87 | 4.30 | 1.61 | .100 | .050 | .100 | .014 | 654.70 | 36.35 |
| .002178 | 750. | 1265. | 525. | 2 | 0 | 1 | 0.00 | 1639.87 | 1676.22 |

R (A)

CCHV= .300 CEHV= .800

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1400.0 TYPE= 1 TARGET= 1399.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.84 | 7.68 | 664.28 | 0.00 | 0.00 | 664.62 | .34 | 1.62 | .19 | 661.70 |
| 7870. | 1112. | 3524. | 3234. | 813. | 523. | 1870. | 2289. | 505. | 662.40 |
| 2.80 | 1.37 | 6.74 | 1.73 | .100 | .045 | .100 | .015 | 656.60 | 121.77 |
| .003784 | 400. | 560. | 625. | 2 | 0 | 1 | 0.00 | 1278.23 | 1400.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 960.0 TYPE= 1 TARGET= 959.999

VALLEY SECTION S 90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.94 | 8.02 | 666.32 | 0.00 | 0.00 | 667.03 | .71 | 2.11 | .30 | 662.10 |
| 7870. | 1624. | 4798. | 1448. | 993. | 560. | 947. | 2324. | 518. | 663.90 |
| 2.82 | 1.64 | 8.57 | 1.53 | .109 | .040 | .110 | .015 | 658.30 | 104.02 |
| .003874 | 400. | 560. | 625. | 2 | 0 | 1 | 0.00 | 855.98 | 960.00 |

S (N)

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1350.0 TYPE= 1 TARGET= 509.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.08 | 9.35 | 668.51 | 0.00 | 0.00 | 669.28 | .76 | 2.20 | .04 | 664.56 |
| 7870. | 99. | 4875. | 2896. | 108. | 560. | 1204. | 2357. | 527. | 664.76 |
| 2.85 | .92 | 8.71 | 2.40 | .100 | .035 | .080 | .016 | 659.16 | 864.35 |
| .002711 | 770. | 740. | 530. | 3 | 0 | 1 | 0.00 | 485.65 | 1350.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1230.0 TYPE= 1 TARGET= 389.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.16 | 9.84 | 669.47 | 0.00 | 0.00 | 670.38 | .92 | .98 | .12 | 665.03 |
| 7870. | 174. | 5409. | 2287. | 158. | 594. | 858. | 2370. | 531. | 665.23 |
| 2.87 | 1.10 | 9.10 | 2.67 | .100 | .035 | .080 | .017 | 659.63 | 863.05 |
| .002742 | 400. | 400. | 280. | 2 | 0 | 1 | 0.00 | 366.95 | 1230.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1170.0 TYPE= 1 TARGET= 329.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.20 | 10.10 | 669.96 | 0.00 | 0.00 | 671.09 | 1.13 | .53 | .17 | 665.26 |
| 7870. | 233. | 5949. | 1688. | 187. | 614. | 599. | 2376. | 532. | 665.46 |
| 2.87 | 1.25 | 9.69 | 2.82 | .100 | .035 | .080 | .017 | 659.86 | 862.32 |
| .002984 | 215. | 200. | 145. | 1 | 0 | 1 | 0.00 | 307.68 | 1170.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1150.0 TYPE= 1 TARGET= 309.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.21 | 10.17 | 670.11 | 0.00 | 0.00 | 671.34 | 1.23 | .17 | .08 | 665.34 |
| 7870. | 254. | 6168. | 1448. | 194. | 619. | 505. | 2377. | 532. | 665.54 |
| 2.87 | 1.31 | 9.96 | 2.87 | .100 | .035 | .080 | .017 | 659.94 | 862.12 |
| .003120 | 65. | 60. | 44. | 1 | 0 | 1 | 0.00 | 287.88 | 1150.00 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 841.0 1125.0 TYPE= 1 TARGET= 284.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.22 | 10.24 | 670.26 | 0.00 | 0.00 | 671.66 | 1.39 | .19 | .13 | 665.42 |
| 7870. | 278. | 6469. | 1123. | 201. | 624. | 383. | 2379. | 533. | 665.62 |
| 2.88 | 1.38 | 10.37 | 2.93 | .100 | .035 | .080 | .017 | 660.02 | 861.95 |
| .003348 | 65. | 60. | 44. | 2 | 0 | 1 | 0.00 | 263.05 | 1125.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1100.0 TYPE= 1 TARGET= 259.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.23 | 10.30 | 670.36 | 0.00 | 0.00 | 671.92 | 1.55 | .13 | .13 | 665.46 |
| 7870. | 303. | 6753. | 814. | 209. | 629. | 270. | 2380. | 533. | 665.66 |
| 2.88 | 1.45 | 10.74 | 3.02 | .100 | .035 | .080 | .017 | 660.06 | 861.76 |
| .003553 | 42. | 40. | 28. | 1 | 0 | 1 | 0.00 | 238.24 | 1100.00 |

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 841.0 1459.0 TYPE= 1 TARGET= -841.000

VALLEY SECTION T 91

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.24 | 10.34 | 670.44 | 669.40 | 0.00 | 672.36 | 1.92 | .15 | .29 | 665.50 |
| 7870. | 333. | 7307. | 230. | 212. | 635. | 83. | 2381. | 533. | 666.70 |
| 2.88 | 1.57 | 11.52 | 2.78 | .100 | .035 | .040 | .017 | 660.10 | 861.68 |
| .004103 | 43. | 40. | 29. | 4 | 11 | 1 | 0.00 | 257.41 | 1195.21 |

T (a)

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1490 NH CARD USED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      841.0     1459.0  TYPE=      1  TARGET=     -841.000
    31.24     10.80    670.92      0.00      0.00    672.53      1.61       .08       .09    665.52
    7870.      414.     7125.      330.      261.      668.      123.     2381.      533.    666.72
     2.88      1.59     10.67      2.68      .100      .035      .040      .017    660.12    860.44
  .003296       21.       21.       21.         4         0         1      0.00    279.02   1203.88


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      784.6     1054.1  TYPE=      1  TARGET=      269.500
    31.26     11.04    671.26      0.00      0.00    672.91      1.65       .35       .04    666.40
    7870.      357.     7269.      244.      232.      679.       62.     2384.      534.    667.00
     2.88      1.53     10.70      3.93      .097      .035      .040      .017    660.22    802.90
  .003242      106.      106.      106.         2         0         1      0.00    216.53   1019.43


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      734.9      997.6  TYPE=      1  TARGET=      262.700
    31.28     11.32    671.67      0.00      0.00    673.33      1.66       .41       .01    667.40
    7870.      249.     7343.      278.      180.      687.       73.     2387.      535.    667.40
     2.89      1.38     10.68      3.82      .095      .035      .040      .017    660.35    752.21
  .003182      127.      127.      127.         0         0         1      0.00    223.27    975.49


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      685.1     1000.0  TYPE=      1  TARGET=      314.900
    31.31     11.99    672.47      0.00      0.00    673.79      1.31       .35       .10    668.40
    7870.      210.     7041.      618.      172.      727.      212.     2390.      535.    667.70
     2.89      1.23      9.69      2.91      .093      .035      .042      .017    660.48    699.25
  .002436      127.      127.      127.         3         0         1      0.00    300.75   1000.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      635.3     1249.3  TYPE=      1  TARGET=     -635.300
    31.33     12.47    673.08      0.00      0.00    674.11      1.04       .30       .03    669.40
    7870.      158.     6604.     1108.      139.      747.      395.     2393.      536.    668.10
     2.89      1.13      8.84      2.81      .088      .037      .043      .018    660.61    647.79
  .002236      127.      127.      127.         2         0         1      0.00    377.46   1025.25


1490 NH CARD USED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      436.2     1039.6  TYPE=      1  TARGET=     -436.200
    31.43     13.22    674.34      0.00      0.00    675.21       .87      1.08       .02    673.30
    7870.        3.     6236.     1631.        6.      750.      622.     2409.      541.    669.50
     2.91       .47      8.31      2.62      .079      .038      .046      .018    661.12    449.69
  .002003      510.      510.      510.         2         0         1      0.00    459.72    946.19
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1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 189.0 760.0 TYPE= 1 TARGET= -189.000

VALLEY SECTION U 92

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.56 | 13.99 | 675.79 | 0.00 | 0.00 | 676.34 | .56 | 1.10 | .03 | 678.60 |
| 7870. | 0. | 5289. | 2581. | 0. | 741. | 1204. | 2435. | 549. | 671.50 |
| 2.95 | 0.00 | 7.14 | 2.14 | .079 | .037 | .050 | .019 | 661.80 | 202.83 |
| .001340 | 680. | 680. | 680. | 1 | 0 | 1 | 0.00 | 525.60 | 728.42 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER MAIN BRANC

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 4630.00 | 624.52 | .59 | 0.00 | 0.00 | 4630.00 | 11.52 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 7140.00 | 626.35 | 1.00 | 0.00 | 0.00 | 7140.00 | 13.35 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 8060.00 | 626.87 | 1.16 | 0.00 | 0.00 | 8060.00 | 13.87 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 11100.00 | 628.28 | 1.77 | 0.00 | 0.00 | 11100.00 | 15.28 | 76.72 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 4630.00 | 625.05 | .27 | .06 | .16 | 4022.05 | 11.89 | 157.07 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 7140.00 | 627.39 | .35 | .06 | .33 | 5881.14 | 14.23 | 164.00 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 8060.00 | 628.12 | .38 | .07 | .39 | 6575.23 | 14.96 | 164.00 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 11100.00 | 630.29 | .48 | .08 | .65 | 8847.00 | 17.13 | 164.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 4630.00 | 625.09 | .32 | .04 | .05 | 4222.38 | 11.77 | 141.56 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 7140.00 | 627.63 | .21 | .03 | .07 | 4757.28 | 14.31 | 224.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 8060.00 | 628.38 | .22 | .03 | .08 | 5277.66 | 15.06 | 224.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 11100.00 | 630.64 | .27 | .03 | .10 | 6975.09 | 17.32 | 224.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 4630.00 | 625.17 | .41 | .08 | .09 | 4572.45 | 11.57 | 115.70 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 7140.00 | 627.81 | .10 | .03 | .05 | 3511.40 | 14.21 | 326.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 8060.00 | 628.57 | .11 | .03 | .05 | 3868.94 | 14.97 | 326.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 11100.00 | 630.87 | .13 | .03 | .07 | 5036.80 | 17.27 | 326.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 4630.00 | 625.27 | .37 | .04 | .02 | 4630.00 | 12.87 | 89.50 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 7140.00 | 627.82 | .14 | .01 | .03 | 4336.24 | 15.42 | 377.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 8060.00 | 628.59 | .15 | .01 | .04 | 4760.64 | 16.19 | 377.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 11100.00 | 630.88 | .17 | .01 | .04 | 6119.20 | 18.48 | 377.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 4630.00 | 625.63 | .35 | .34 | 0.00 | 4630.00 | 13.23 | 94.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 7140.00 | 628.61 | .06 | .70 | 0.00 | 3208.10 | 16.21 | 777.57 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 8060.00 | 629.16 | .06 | .49 | 0.00 | 3449.82 | 16.76 | 782.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 11100.00 | 631.12 | .06 | .13 | 0.00 | 4074.89 | 18.72 | 782.00 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 4630.00 | 626.19 | .20 | .36 | .04 | 4577.53 | 15.59 | 172.68 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 7140.00 | 628.71 | .28 | .17 | .15 | 6845.89 | 18.11 | 182.22 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 8060.00 | 629.27 | .32 | .18 | .18 | 7674.78 | 18.67 | 184.30 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 11100.00 | 631.20 | .43 | .18 | .26 | 10326.87 | 20.60 | 191.56 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 4630.00 | 626.35 | .28 | .22 | .02 | 4575.53 | 13.35 | 126.31 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 7140.00 | 628.88 | .39 | .25 | .03 | 7008.36 | 15.88 | 133.05 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 8060.00 | 629.45 | .45 | .27 | .04 | 7901.41 | 16.45 | 134.55 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 11100.00 | 631.39 | .62 | .32 | .06 | 10840.86 | 18.39 | 139.71 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 4630.00 | 626.40 | .35 | .05 | .07 | 4630.00 | 11.20 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 7140.00 | 628.94 | .49 | .06 | .10 | 7140.00 | 13.74 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 8060.00 | 629.51 | .57 | .06 | .12 | 8060.00 | 14.31 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 11100.00 | 631.47 | .79 | .08 | .18 | 11100.00 | 16.27 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 4630.00 | 626.78 | .32 | .35 | 0.00 | 4630.00 | 11.58 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 7140.00 | 630.22 | .40 | 1.18 | 0.00 | 7140.00 | 15.02 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 8060.00 | 631.21 | .43 | 1.56 | 0.00 | 8060.00 | 16.01 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 11100.00 | 634.31 | .54 | 2.59 | 0.00 | 11100.00 | 19.11 | 114.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 4630.00 | 627.38 | .69 | .60 | .37 | 2888.09 | 12.19 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 7140.00 | 630.81 | .21 | .32 | .09 | 2681.86 | 15.62 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 8060.00 | 631.87 | .18 | .28 | .13 | 2746.47 | 16.68 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 11100.00 | 635.13 | .13 | .21 | .20 | 3067.31 | 19.94 | 464.00 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 4630.00 | 628.63 | .09 | .36 | .30 | 1566.85 | 13.45 | 791.85 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 7140.00 | 631.19 | .06 | .15 | .08 | 1664.83 | 16.01 | 806.83 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 8060.00 | 632.19 | .05 | .12 | .06 | 1700.86 | 17.01 | 814.14 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 11100.00 | 635.35 | .04 | .07 | .05 | 1863.50 | 20.17 | 837.34 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 4630.00 | 628.86 | .03 | .12 | .03 | 996.45 | 13.69 | 1212.73 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 7140.00 | 631.31 | .02 | .07 | .02 | 1079.67 | 16.14 | 1242.46 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 8060.00 | 632.29 | .02 | .05 | .02 | 1105.26 | 17.12 | 1256.20 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 11100.00 | 635.41 | .01 | .03 | .01 | 1213.43 | 20.24 | 1300.28 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 4630.00 | 629.29 | .02 | .43 | .00 | 910.89 | 14.19 | 1217.36 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 7140.00 | 631.59 | .02 | .27 | .00 | 1041.03 | 16.49 | 1247.29 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 8060.00 | 632.52 | .02 | .23 | .00 | 1076.19 | 17.42 | 1260.40 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 11100.00 | 635.56 | .01 | .14 | .00 | 1198.83 | 20.46 | 1303.29 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 4630.00 | 630.18 | .18 | 1.00 | .05 | 2005.99 | 9.68 | 1146.35 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 7140.00 | 632.13 | .08 | .59 | .02 | 1944.25 | 11.63 | 1180.87 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 8060.00 | 632.96 | .06 | .48 | .01 | 1918.50 | 12.46 | 1195.56 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 11100.00 | 635.81 | .04 | .27 | .01 | 1934.25 | 15.31 | 1238.51 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 4630.00 | 631.58 | .11 | 1.32 | .01 | 2012.98 | 8.08 | 960.42 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 7140.00 | 632.91 | .10 | .79 | .01 | 2464.70 | 9.41 | 967.33 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 8060.00 | 633.56 | .09 | .62 | .01 | 2561.58 | 10.06 | 970.71 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 11100.00 | 636.09 | .06 | .30 | .01 | 2838.81 | 12.59 | 983.89 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 4630.00 | 634.74 | .40 | 3.36 | .09 | 3608.41 | 9.04 | 830.15 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 7140.00 | 635.66 | .44 | 2.98 | .10 | 4687.97 | 9.96 | 861.57 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 8060.00 | 635.94 | .45 | 2.64 | .11 | 5042.63 | 10.24 | 867.51 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 11100.00 | 637.37 | .34 | 1.48 | .08 | 5660.96 | 11.67 | 877.20 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 4630.00 | 637.34 | .14 | 2.31 | .03 | 2193.43 | 11.54 | 976.07 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 7140.00 | 638.45 | .15 | 2.47 | .03 | 2770.16 | 12.65 | 981.29 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 8060.00 | 638.79 | .15 | 2.53 | .03 | 2970.98 | 12.99 | 982.92 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 11100.00 | 639.83 | .17 | 2.27 | .02 | 3595.32 | 14.03 | 987.76 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 4630.00 | 639.22 | .24 | 1.95 | .03 | 2320.27 | 9.32 | 770.84 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 7140.00 | 640.26 | .20 | 1.85 | .02 | 2626.13 | 10.36 | 797.02 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 8060.00 | 640.59 | .20 | 1.83 | .01 | 2733.61 | 10.69 | 799.36 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 11100.00 | 641.59 | .20 | 1.78 | .01 | 3079.99 | 11.69 | 807.75 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 4630.00 | 641.74 | .30 | 2.57 | .02 | 2621.25 | 8.44 | 1280.60 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 7140.00 | 642.51 | .29 | 2.31 | .03 | 3172.24 | 9.21 | 1409.03 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 8060.00 | 642.76 | .29 | 2.23 | .03 | 3337.08 | 9.46 | 1423.91 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 11100.00 | 643.56 | .27 | 2.02 | .02 | 3803.72 | 10.26 | 1430.19 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 4630.00 | 647.29 | .23 | 5.47 | .01 | 2589.30 | 7.29 | 861.37 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 7140.00 | 648.17 | .27 | 5.64 | .00 | 3444.37 | 8.17 | 863.52 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 8060.00 | 648.44 | .29 | 5.68 | .00 | 3746.74 | 8.44 | 864.18 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 11100.00 | 649.23 | .34 | 5.72 | .02 | 4714.76 | 9.23 | 866.05 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 4630.00 | 647.76 | .26 | .47 | .03 | 2758.96 | 7.64 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 7140.00 | 648.68 | .30 | .50 | .03 | 3672.39 | 8.56 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 8060.00 | 648.96 | .32 | .52 | .03 | 3991.95 | 8.84 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 11100.00 | 649.79 | .38 | .56 | .04 | 5009.56 | 9.67 | 715.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 4630.00 | 648.60 | .45 | .84 | .19 | 3486.66 | 8.30 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 7140.00 | 649.60 | .57 | .92 | .27 | 4802.96 | 9.30 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 8060.00 | 649.91 | .61 | .95 | .29 | 5259.95 | 9.61 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 11100.00 | 650.81 | .74 | 1.02 | .36 | 6709.74 | 10.51 | 490.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 4630.00 | 649.69 | .67 | 1.09 | .22 | 4269.88 | 9.19 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 7140.00 | 650.87 | .96 | 1.27 | .39 | 6201.06 | 10.37 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 8060.00 | 651.23 | 1.05 | 1.33 | .45 | 6883.19 | 10.73 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 11100.00 | 652.29 | 1.37 | 1.48 | .63 | 9076.10 | 11.79 | 265.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 4630.00 | 650.48 | .74 | .79 | .07 | 4608.73 | 9.88 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 7140.00 | 651.85 | 1.19 | .98 | .24 | 7057.40 | 11.25 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 8060.00 | 652.28 | 1.36 | 1.05 | .31 | 7949.72 | 11.68 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 11100.00 | 653.52 | 1.93 | 1.23 | .56 | 10885.41 | 12.92 | 110.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 4630.00 | 650.65 | .91 | .17 | .17 | 4630.00 | 8.15 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 7140.00 | 652.08 | 1.53 | .23 | .34 | 7140.00 | 9.58 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 8060.00 | 652.53 | 1.77 | .25 | .41 | 8060.00 | 10.03 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 11100.00 | 653.83 | 2.60 | .31 | .66 | 11100.00 | 11.33 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 4630.00 | 650.66 | .91 | .00 | .00 | 4630.00 | 8.16 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 7140.00 | 652.09 | 1.53 | .00 | .00 | 7140.00 | 9.59 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 8060.00 | 652.53 | 1.77 | .00 | .00 | 8060.00 | 10.03 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 11100.00 | 653.83 | 2.59 | .01 | .00 | 11100.00 | 11.33 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 4630.00 | 650.79 | .88 | .08 | .02 | 4630.00 | 8.29 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 7140.00 | 652.31 | 1.46 | .11 | .04 | 7140.00 | 9.81 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 8060.00 | 652.80 | 1.67 | .12 | .05 | 8060.00 | 10.30 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 11100.00 | 654.33 | 2.37 | .15 | .11 | 11100.00 | 11.83 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 4630.00 | 650.79 | .88 | .00 | .00 | 4630.00 | 8.29 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 7140.00 | 652.31 | 1.46 | .00 | .00 | 7140.00 | 9.81 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 8060.00 | 652.81 | 1.67 | .00 | .00 | 8060.00 | 10.31 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 11100.00 | 654.33 | 2.37 | .00 | .00 | 11100.00 | 11.83 | 80.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 4630.00 | 651.31 | 1.10 | .51 | .22 | 4571.47 | 8.64 | 155.46 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 7140.00 | 653.51 | .97 | .47 | .24 | 6325.42 | 10.84 | 218.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 8060.00 | 654.44 | .87 | .43 | .40 | 6832.69 | 11.77 | 218.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 11100.00 | 657.11 | .74 | .34 | .81 | 8541.66 | 14.44 | 218.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 4630.00 | 652.40 | .57 | .30 | .26 | 4115.16 | 9.66 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 7140.00 | 654.41 | .50 | .19 | .24 | 5359.73 | 11.67 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 8060.00 | 655.21 | .46 | .16 | .20 | 5742.41 | 12.47 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 11100.00 | 657.73 | .40 | .10 | .17 | 6992.26 | 14.99 | 310.00 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 4630.00 | 655.27 | .05 | 2.08 | .26 | 1141.54 | 10.17 | 1265.23 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 7140.00 | 656.58 | .04 | 1.49 | .23 | 1299.41 | 11.48 | 1272.83 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 8060.00 | 657.12 | .04 | 1.28 | .21 | 1337.83 | 12.02 | 1275.90 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 11100.00 | 659.06 | .03 | .79 | .18 | 1438.74 | 13.96 | 1287.19 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 4630.00 | 656.02 | .40 | .99 | .11 | 2434.70 | 8.32 | 910.04 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 7140.00 | 657.15 | .27 | .73 | .07 | 2693.83 | 9.45 | 1072.53 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 8060.00 | 657.61 | .23 | .62 | .06 | 2702.94 | 9.91 | 1098.18 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 11100.00 | 659.35 | .13 | .36 | .03 | 2653.09 | 11.65 | 1198.11 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 4630.00 | 658.72 | .21 | 2.48 | .02 | 2212.96 | 8.42 | 1225.07 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 7140.00 | 659.42 | .22 | 2.22 | .00 | 2774.87 | 9.12 | 1271.27 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 8060.00 | 659.65 | .23 | 2.05 | .00 | 2967.23 | 9.35 | 1285.05 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 11100.00 | 660.58 | .20 | 1.28 | .02 | 3330.91 | 10.28 | 1345.43 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 4630.00 | 660.25 | .11 | 1.43 | .01 | 1785.32 | 7.75 | 1466.46 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 7140.00 | 661.02 | .12 | 1.48 | .01 | 2279.44 | 8.52 | 1559.16 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 8060.00 | 661.27 | .12 | 1.50 | .01 | 2441.60 | 8.77 | 1578.11 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 11100.00 | 662.01 | .13 | 1.35 | .01 | 2941.36 | 9.51 | 1610.46 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 4520.00 | 661.71 | .09 | 1.44 | .00 | 1403.45 | 7.01 | 1572.22 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 6970.00 | 662.47 | .10 | 1.42 | .00 | 1815.60 | 7.77 | 1639.50 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 7870.00 | 662.71 | .10 | 1.42 | .00 | 1955.73 | 8.01 | 1639.87 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 10800.00 | 663.42 | .11 | 1.39 | .00 | 2383.77 | 8.72 | 1640.98 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 4520.00 | 663.32 | .35 | 1.67 | .21 | 2670.39 | 6.72 | 1268.75 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 6970.00 | 664.05 | .34 | 1.63 | .19 | 3308.29 | 7.45 | 1275.94 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 7870.00 | 664.28 | .34 | 1.62 | .19 | 3523.95 | 7.68 | 1278.23 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 10800.00 | 664.96 | .34 | 1.59 | .19 | 4183.34 | 8.36 | 1283.75 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 4520.00 | 665.25 | .59 | 1.97 | .19 | 3374.26 | 6.95 | 853.09 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 6970.00 | 666.07 | .68 | 2.08 | .27 | 4439.22 | 7.77 | 855.29 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 7870.00 | 666.32 | .71 | 2.11 | .30 | 4797.52 | 8.02 | 855.98 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 10800.00 | 667.05 | .80 | 2.19 | .36 | 5890.89 | 8.75 | 857.96 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 4520.00 | 667.16 | .55 | 1.86 | .01 | 3215.18 | 8.00 | 399.98 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 6970.00 | 668.19 | .71 | 2.13 | .02 | 4450.28 | 9.03 | 467.76 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 7870.00 | 668.51 | .76 | 2.20 | .04 | 4875.14 | 9.35 | 485.65 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 10800.00 | 669.44 | .92 | 2.41 | .10 | 6179.66 | 10.28 | 488.15 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 4520.00 | 667.95 | .61 | .81 | .05 | 3458.44 | 8.32 | 301.10 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 6970.00 | 669.10 | .84 | .94 | .11 | 4911.34 | 9.47 | 365.97 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 7870.00 | 669.47 | .92 | .98 | .12 | 5408.86 | 9.84 | 366.95 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 10800.00 | 670.49 | 1.14 | 1.09 | .18 | 6968.25 | 10.86 | 369.71 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 4520.00 | 668.35 | .74 | .43 | .10 | 3750.82 | 8.49 | 252.82 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 6970.00 | 669.57 | 1.03 | .51 | .15 | 5386.05 | 9.71 | 306.65 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 7870.00 | 669.96 | 1.13 | .53 | .17 | 5948.58 | 10.10 | 307.68 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 10800.00 | 671.03 | 1.43 | .60 | .23 | 7719.11 | 11.17 | 310.56 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 4520.00 | 668.48 | .80 | .14 | .05 | 3866.95 | 8.54 | 235.93 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 6970.00 | 669.72 | 1.13 | .17 | .07 | 5578.35 | 9.78 | 286.83 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 7870.00 | 670.11 | 1.23 | .17 | .08 | 6167.94 | 10.17 | 287.88 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 10800.00 | 671.20 | 1.57 | .20 | .11 | 8021.23 | 11.26 | 290.82 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 4520.00 | 668.61 | .88 | .15 | .07 | 4019.19 | 8.59 | 214.15 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 6970.00 | 669.87 | 1.27 | .18 | .11 | 5840.19 | 9.85 | 262.00 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 7870.00 | 670.26 | 1.39 | .19 | .13 | 6469.04 | 10.24 | 263.05 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 10800.00 | 671.37 | 1.78 | .21 | .17 | 8444.11 | 11.35 | 266.05 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 4520.00 | 668.70 | .95 | .10 | .06 | 4150.83 | 8.64 | 192.23 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 6970.00 | 669.97 | 1.40 | .13 | .11 | 6083.06 | 9.91 | 237.17 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 7870.00 | 670.36 | 1.55 | .13 | .13 | 6752.90 | 10.30 | 238.24 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 10800.00 | 671.48 | 2.03 | .15 | .19 | 8865.70 | 11.42 | 241.22 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 4520.00 | 668.77 | 1.15 | .11 | .16 | 4445.55 | 8.67 | 147.84 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 6970.00 | 670.04 | 1.75 | .14 | .28 | 6597.25 | 9.94 | 238.67 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 7870.00 | 670.44 | 1.92 | .15 | .29 | 7307.10 | 10.34 | 257.41 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 10800.00 | 671.59 | 2.29 | .17 | .21 | 9348.92 | 11.49 | 328.21 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 4520.00 | 668.87 | 1.12 | .06 | .01 | 4439.33 | 8.75 | 153.86 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 6970.00 | 670.39 | 1.54 | .08 | .06 | 6493.13 | 10.27 | 254.32 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 7870.00 | 670.92 | 1.61 | .08 | .09 | 7125.34 | 10.80 | 279.02 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 10800.00 | 672.97 | 1.29 | .07 | .30 | 8366.42 | 12.85 | 387.54 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 4520.00 | 669.23 | 1.08 | .30 | .01 | 4447.30 | 9.01 | 138.42 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 6970.00 | 670.73 | 1.55 | .35 | .00 | 6569.20 | 10.51 | 203.46 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 7870.00 | 671.26 | 1.65 | .35 | .04 | 7269.46 | 11.04 | 216.53 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 10800.00 | 673.16 | 1.65 | .27 | .29 | 9121.90 | 12.94 | 261.32 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 4520.00 | 669.57 | 1.08 | .34 | .00 | 4463.62 | 9.22 | 113.31 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 6970.00 | 671.14 | 1.56 | .40 | .01 | 6634.07 | 10.79 | 199.32 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 7870.00 | 671.67 | 1.66 | .41 | .01 | 7342.55 | 11.32 | 223.27 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 10800.00 | 673.51 | 1.69 | .35 | .03 | 9218.86 | 13.16 | 255.54 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 4520.00 | 669.92 | 1.06 | .33 | .00 | 4471.16 | 9.44 | 110.75 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 6970.00 | 671.74 | 1.38 | .37 | .05 | 6528.53 | 11.26 | 267.03 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 7870.00 | 672.47 | 1.31 | .35 | .10 | 7041.33 | 11.99 | 300.75 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 10800.00 | 674.53 | 1.12 | .29 | .17 | 8358.75 | 14.05 | 312.72 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 4520.00 | 670.26 | 1.08 | .34 | .00 | 4476.08 | 9.65 | 111.18 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 6970.00 | 672.27 | 1.21 | .34 | .02 | 6323.83 | 11.66 | 350.67 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 7870.00 | 673.08 | 1.04 | .30 | .03 | 6604.26 | 12.47 | 377.46 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 10800.00 | 675.21 | .70 | .21 | .04 | 7206.08 | 14.60 | 524.92 |

To

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 4520.00 | 671.70 | .99 | 1.35 | .01 | 4441.38 | 10.58 | 165.45 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 6970.00 | 673.80 | .90 | 1.20 | .03 | 5855.31 | 12.68 | 324.64 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 7870.00 | 674.34 | .87 | 1.08 | .02 | 6235.57 | 13.22 | 459.72 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 10800.00 | 676.01 | .67 | .76 | .00 | 6924.76 | 14.89 | 533.64 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 4520.00 | 673.33 | .87 | 1.50 | .01 | 4323.87 | 11.53 | 333.63 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 6970.00 | 675.29 | .60 | 1.16 | .03 | 5054.51 | 13.49 | 523.09 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 7870.00 | 675.79 | .56 | 1.10 | .03 | 5288.92 | 13.99 | 525.60 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 10800.00 | 677.13 | .49 | .92 | .02 | 6032.44 | 15.33 | 532.51 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 25.191 | 4630.000 | 624.520 | 0.000 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 7140.000 | 626.350 | 1.830 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 8060.000 | 626.870 | .520 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 11100.000 | 628.280 | 1.410 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.202 | 4630.000 | 625.053 | 0.000 | .533 | 0.000 | 157.073 | 0.000 | 60.000 |
| 25.202 | 7140.000 | 627.390 | 2.337 | 1.040 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.202 | 8060.000 | 628.116 | .726 | 1.246 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.202 | 11100.000 | 630.293 | 2.177 | 2.013 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.214 | 4630.000 | 625.092 | 0.000 | .039 | 0.000 | 141.559 | 0.000 | 60.000 |
| 25.214 | 7140.000 | 627.631 | 2.538 | .241 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.214 | 8060.000 | 628.381 | .750 | .265 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.214 | 11100.000 | 630.636 | 2.255 | .343 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.233 | 4630.000 | 625.171 | 0.000 | .079 | 0.000 | 115.696 | 0.000 | 102.000 |
| 25.233 | 7140.000 | 627.810 | 2.639 | .180 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.233 | 8060.000 | 628.573 | .763 | .192 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.233 | 11100.000 | 630.870 | 2.296 | .233 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.243 | 4630.000 | 625.274 | 0.000 | .102 | 0.000 | 89.499 | 0.000 | 51.000 |
| 25.243 | 7140.000 | 627.824 | 2.550 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.243 | 8060.000 | 628.587 | .763 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.243 | 11100.000 | 630.883 | 2.296 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.251 | 4630.000 | 625.634 | 0.000 | .360 | 0.000 | 93.999 | 0.000 | 44.000 |
| 25.251 | 7140.000 | 628.607 | 2.973 | .783 | 0.000 | 777.571 | -683.572 | 44.000 |
| 25.251 | 8060.000 | 629.164 | .557 | .576 | 0.000 | 781.999 | -688.000 | 44.000 |
| 25.251 | 11100.000 | 631.123 | 1.960 | .240 | 0.000 | 781.999 | -688.000 | 44.000 |
| 25.394 | 4630.000 | 626.185 | 0.000 | .551 | 0.000 | 172.682 | 0.000 | 755.000 |
| 25.394 | 7140.000 | 628.715 | 2.529 | .108 | 0.000 | 182.215 | -9.533 | 755.000 |
| 25.394 | 8060.000 | 629.268 | .553 | .105 | 0.000 | 184.300 | -11.618 | 755.000 |
| 25.394 | 11100.000 | 631.196 | 1.927 | .072 | 0.000 | 191.565 | -18.882 | 755.000 |
| 25.495 | 4630.000 | 626.348 | 0.000 | .162 | 0.000 | 126.308 | 0.000 | 530.000 |
| 25.495 | 7140.000 | 628.884 | 2.536 | .169 | 0.000 | 133.046 | -6.738 | 530.000 |
| 25.495 | 8060.000 | 629.450 | .566 | .181 | 0.000 | 134.550 | -8.242 | 530.000 |
| 25.495 | 11100.000 | 631.390 | 1.941 | .195 | 0.000 | 139.708 | -13.400 | 530.000 |
| 25.510 | 4630.000 | 626.401 | 0.000 | .053 | 0.000 | 113.999 | 0.000 | 76.000 |
| 25.510 | 7140.000 | 628.943 | 2.541 | .059 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.510 | 8060.000 | 629.514 | .572 | .065 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.510 | 11100.000 | 631.467 | 1.953 | .077 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.512 | 4630.000 | 626.785 | 0.000 | .384 | 0.000 | 113.999 | 0.000 | 14.000 |
| 25.512 | 7140.000 | 630.217 | 3.433 | 1.275 | 0.000 | 113.999 | -.000 | 14.000 |
| 25.512 | 8060.000 | 631.211 | .994 | 1.697 | 0.000 | 113.999 | -.000 | 14.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 25.571 | 4630.000 | 627.385 | 0.000 | .600 | 0.000 | 463.999 | 0.000 | 312.000 |
| 25.571 | 7140.000 | 630.813 | 3.428 | .595 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.571 | 8060.000 | 631.875 | 1.062 | .664 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.571 | 11100.000 | 635.133 | 3.259 | .823 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.630 | 4630.000 | 628.633 | 0.000 | 1.248 | 0.000 | 791.847 | 0.000 | 312.000 |
| 25.630 | 7140.000 | 631.191 | 2.559 | .379 | 0.000 | 806.832 | -14.985 | 312.000 |
| 25.630 | 8060.000 | 632.186 | .995 | .311 | 0.000 | 814.136 | -22.289 | 312.000 |
| 25.630 | 11100.000 | 635.346 | 3.160 | .213 | 0.000 | 837.345 | -45.498 | 312.000 |
| 25.706 | 4630.000 | 628.855 | 0.000 | .223 | 0.000 | 1212.731 | 0.000 | 401.000 |
| 25.706 | 7140.000 | 631.314 | 2.459 | .123 | 0.000 | 1242.459 | -29.728 | 401.000 |
| 25.706 | 8060.000 | 632.289 | .974 | .103 | 0.000 | 1256.197 | -43.466 | 401.000 |
| 25.706 | 11100.000 | 635.415 | 3.126 | .069 | 0.000 | 1300.282 | -87.551 | 401.000 |
| 26.218 | 4630.000 | 629.294 | 0.000 | .439 | 0.000 | 1217.359 | 0.000 | 2705.000 |
| 26.218 | 7140.000 | 631.587 | 2.293 | .273 | 0.000 | 1247.295 | -29.936 | 2705.000 |
| 26.218 | 8060.000 | 632.517 | .929 | .228 | 0.000 | 1260.398 | -43.039 | 2705.000 |
| 26.218 | 11100.000 | 635.558 | 3.042 | .143 | 0.000 | 1303.287 | -85.929 | 2705.000 |
| 26.788 | 4630.000 | 630.181 | 0.000 | .887 | 0.000 | 1146.348 | 0.000 | 3010.000 |
| 26.788 | 7140.000 | 632.131 | 1.950 | .544 | 0.000 | 1180.867 | -34.519 | 3010.000 |
| 26.788 | 8060.000 | 632.959 | .828 | .443 | 0.000 | 1195.560 | -49.211 | 3010.000 |
| 26.788 | 11100.000 | 635.811 | 2.852 | .253 | 0.000 | 1238.513 | -92.165 | 3010.000 |
| 27.048 | 4630.000 | 631.583 | 0.000 | 1.402 | 0.000 | 960.415 | 0.000 | 1370.000 |
| 27.048 | 7140.000 | 632.910 | 1.327 | .779 | 0.000 | 967.332 | -6.917 | 1370.000 |
| 27.048 | 8060.000 | 633.558 | .649 | .599 | 0.000 | 970.711 | -10.296 | 1370.000 |
| 27.048 | 11100.000 | 636.091 | 2.532 | .280 | 0.000 | 983.887 | -23.472 | 1370.000 |
| 27.559 | 4630.000 | 634.744 | 0.000 | 3.161 | 0.000 | 830.147 | 0.000 | 2700.000 |
| 27.559 | 7140.000 | 635.656 | .912 | 2.746 | 0.000 | 861.570 | -31.423 | 2700.000 |
| 27.559 | 8060.000 | 635.940 | .284 | 2.381 | 0.000 | 867.514 | -37.367 | 2700.000 |
| 27.559 | 11100.000 | 637.368 | 1.429 | 1.278 | 0.000 | 877.197 | -47.050 | 2700.000 |
| 27.851 | 4630.000 | 637.337 | 0.000 | 2.594 | 0.000 | 976.066 | 0.000 | 1540.000 |
| 27.851 | 7140.000 | 638.447 | 1.109 | 2.791 | 0.000 | 981.291 | -5.225 | 1540.000 |
| 27.851 | 8060.000 | 638.792 | .345 | 2.852 | 0.000 | 982.918 | -6.851 | 1540.000 |
| 27.851 | 11100.000 | 639.826 | 1.034 | 2.458 | 0.000 | 987.759 | -11.693 | 1540.000 |
| 28.150 | 4630.000 | 639.220 | 0.000 | 1.883 | 0.000 | 770.841 | 0.000 | 1580.000 |
| 28.150 | 7140.000 | 640.263 | 1.043 | 1.816 | 0.000 | 797.020 | -26.179 | 1580.000 |
| 28.150 | 8060.000 | 640.595 | .332 | 1.803 | 0.000 | 799.364 | -28.523 | 1580.000 |
| 28.150 | 11100.000 | 641.586 | .991 | 1.760 | 0.000 | 807.747 | -36.905 | 1580.000 |
| 28.455 | 4630.000 | 641.742 | 0.000 | 2.522 | 0.000 | 1280.599 | 0.000 | 1610.000 |
| 28.455 | 7140.000 | 642.508 | .765 | 2.245 | 0.000 | 1409.031 | -128.432 | 1610.000 |
| 28.455 | 8060.000 | 642.764 | .257 | 2.169 | 0.000 | 1423.914 | -143.315 | 1610.000 |
| 28.455 | 11100.000 | 643.561 | .797 | 1.975 | 0.000 | 1430.192 | -149.592 | 1610.000 |
| 29.032 | 4630.000 | 647.290 | 0.000 | 5.547 | 0.000 | 861.375 | 0.000 | 3050.000 |
| 29.032 | 7140.000 | 648.173 | .884 | 5.666 | 0.000 | 863.522 | -2.147 | 3050.000 |
| 29.032 | 8060.000 | 648.444 | .270 | 5.680 | 0.000 | 864.176 | -2.801 | 3050.000 |
| 29.032 | 11100.000 | 649.227 | .783 | 5.665 | 0.000 | 866.045 | -4.670 | 3050.000 |
| 29.089 | 4630.000 | 647.763 | 0.000 | .473 | 0.000 | 714.999 | 0.000 | 302.000 |
| 29.089 | 7140.000 | 648.678 | .915 | .504 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.089 | 8060.000 | 648.961 | .284 | .517 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.089 | 11100.000 | 649.787 | .826 | .561 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.175 | 4630.000 | 648.605 | 0.000 | .842 | 0.000 | 489.999 | 0.000 | 453.000 |
| 29.175 | 7140.000 | 649.597 | .992 | .919 | 0.000 | 489.999 | -.000 | 453.000 |
| 29.175 | 8060.000 | 649.907 | .310 | .946 | 0.000 | 489.999 | -.000 | 453.000 |
| 29.175 | 11100.000 | 650.811 | .904 | 1.023 | 0.000 | 489.999 | -.000 | 453.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29.261 | 4630.000 | 649.694 | 0.000 | 1.090 | 0.000 | 264.999 | 0.000 | 453.000 |
| 29.261 | 7140.000 | 650.868 | 1.173 | 1.270 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.261 | 8060.000 | 651.233 | .365 | 1.326 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.261 | 11100.000 | 652.291 | 1.059 | 1.481 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.318 | 4630.000 | 650.481 | 0.000 | .786 | 0.000 | 109.999 | 0.000 | 302.000 |
| 29.318 | 7140.000 | 651.851 | 1.370 | .983 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.318 | 8060.000 | 652.279 | .428 | 1.046 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.318 | 11100.000 | 653.519 | 1.240 | 1.227 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.329 | 4630.000 | 650.655 | 0.000 | .174 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 7140.000 | 652.082 | 1.427 | .231 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 8060.000 | 652.528 | .446 | .250 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 11100.000 | 653.825 | 1.297 | .306 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.330 | 4630.000 | 650.659 | 0.000 | .004 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 7140.000 | 652.087 | 1.429 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 8060.000 | 652.535 | .447 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 11100.000 | 653.834 | 1.299 | .009 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.337 | 4630.000 | 650.789 | 0.000 | .130 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 7140.000 | 652.309 | 1.520 | .222 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 8060.000 | 652.802 | .493 | .268 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 11100.000 | 654.325 | 1.523 | .491 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.338 | 4630.000 | 650.792 | 0.000 | .004 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 7140.000 | 652.314 | 1.522 | .005 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 8060.000 | 652.808 | .494 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 11100.000 | 654.333 | 1.525 | .008 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.357 | 4630.000 | 651.306 | 0.000 | .514 | 0.000 | 155.460 | 0.000 | 100.000 |
| 29.357 | 7140.000 | 653.514 | 2.207 | 1.200 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.357 | 8060.000 | 654.436 | .922 | 1.628 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.357 | 11100.000 | 657.108 | 2.673 | 2.776 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.370 | 4630.000 | 652.400 | 0.000 | 1.094 | 0.000 | 309.999 | 0.000 | 67.000 |
| 29.370 | 7140.000 | 654.413 | 2.012 | .899 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.370 | 8060.000 | 655.206 | .793 | .770 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.370 | 11100.000 | 657.726 | 2.520 | .618 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.824 | 4630.000 | 655.274 | 0.000 | 2.873 | 0.000 | 1265.230 | 0.000 | 2404.000 |
| 29.824 | 7140.000 | 656.582 | 1.308 | 2.169 | 0.000 | 1272.832 | -7.601 | 2404.000 |
| 29.824 | 8060.000 | 657.116 | .534 | 1.910 | 0.000 | 1275.899 | -10.668 | 2404.000 |
| 29.824 | 11100.000 | 659.063 | 1.947 | 1.337 | 0.000 | 1287.194 | -21.964 | 2404.000 |
| 30.038 | 4630.000 | 656.021 | 0.000 | .747 | 0.000 | 910.044 | 0.000 | 1130.000 |
| 30.038 | 7140.000 | 657.147 | 1.127 | .565 | 0.000 | 1072.526 | -162.483 | 1130.000 |
| 30.038 | 8060.000 | 657.607 | .459 | .491 | 0.000 | 1098.180 | -188.137 | 1130.000 |
| 30.038 | 11100.000 | 659.354 | 1.747 | .291 | 0.000 | 1198.111 | -288.067 | 1130.000 |
| 30.252 | 4630.000 | 658.716 | 0.000 | 2.695 | 0.000 | 1225.071 | 0.000 | 1130.000 |
| 30.252 | 7140.000 | 659.423 | .708 | 2.276 | 0.000 | 1271.270 | -46.199 | 1130.000 |
| 30.252 | 8060.000 | 659.649 | .226 | 2.042 | 0.000 | 1285.046 | -59.975 | 1130.000 |
| 30.252 | 11100.000 | 660.583 | .934 | 1.230 | 0.000 | 1345.433 | -120.362 | 1130.000 |
| 30.492 | 4630.000 | 660.255 | 0.000 | 1.539 | 0.000 | 1466.465 | 0.000 | 1265.000 |
| 30.492 | 7140.000 | 661.020 | .765 | 1.597 | 0.000 | 1559.157 | -92.692 | 1265.000 |
| 30.492 | 8060.000 | 661.267 | .247 | 1.618 | 0.000 | 1578.112 | -111.647 | 1265.000 |
| 30.492 | 11100.000 | 662.011 | .744 | 1.428 | 0.000 | 1610.455 | -143.991 | 1265.000 |
| 30.731 | 4520.000 | 661.708 | 0.000 | 1.453 | 0.000 | 1572.225 | 0.000 | 1265.000 |
| 30.731 | 6970.000 | 662.467 | .759 | 1.447 | 0.000 | 1639.498 | -67.273 | 1265.000 |
| 30.731 | 7870.000 | 662.708 | .240 | 1.440 | 0.000 | 1639.868 | -67.644 | 1265.000 |
| 30.731 | 10800.000 | 663.423 | .715 | 1.412 | 0.000 | 1640.976 | -68.751 | 1265.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 30.837 | 6970.000 | 664.052 | .729 | 1.585 | 0.000 | 1275.943 | -7.190 | 560.000 |
| 30.837 | 7870.000 | 664.284 | .231 | 1.576 | 0.000 | 1278.231 | -9.478 | 560.000 |
| 30.837 | 10800.000 | 664.960 | .676 | 1.538 | 0.000 | 1283.751 | -14.998 | 560.000 |
| 30.943 | 4520.000 | 665.246 | 0.000 | 1.923 | 0.000 | 853.088 | 0.000 | 560.000 |
| 30.943 | 6970.000 | 666.065 | .819 | 2.013 | 0.000 | 855.293 | -2.205 | 560.000 |
| 30.943 | 7870.000 | 666.321 | .256 | 2.037 | 0.000 | 855.981 | -2.893 | 560.000 |
| 30.943 | 10800.000 | 667.054 | .733 | 2.094 | 0.000 | 857.955 | -4.867 | 560.000 |
| 31.083 | 4520.000 | 667.157 | 0.000 | 1.911 | 0.000 | 399.982 | 0.000 | 740.000 |
| 31.083 | 6970.000 | 668.186 | 1.028 | 2.120 | 0.000 | 467.757 | -67.775 | 740.000 |
| 31.083 | 7870.000 | 668.514 | .328 | 2.193 | 0.000 | 485.654 | -85.672 | 740.000 |
| 31.083 | 10800.000 | 669.441 | .927 | 2.386 | 0.000 | 488.145 | -88.163 | 740.000 |
| 31.159 | 4520.000 | 667.951 | 0.000 | .794 | 0.000 | 301.102 | 0.000 | 400.000 |
| 31.159 | 6970.000 | 669.103 | 1.152 | .917 | 0.000 | 365.973 | -64.871 | 400.000 |
| 31.159 | 7870.000 | 669.466 | .363 | .952 | 0.000 | 366.952 | -65.851 | 400.000 |
| 31.159 | 10800.000 | 670.488 | 1.022 | 1.047 | 0.000 | 369.710 | -68.608 | 400.000 |
| 31.195 | 4520.000 | 668.354 | 0.000 | .402 | 0.000 | 252.821 | 0.000 | 200.000 |
| 31.195 | 6970.000 | 669.575 | 1.221 | .472 | 0.000 | 306.646 | -53.825 | 200.000 |
| 31.195 | 7870.000 | 669.957 | .382 | .491 | 0.000 | 307.680 | -54.859 | 200.000 |
| 31.195 | 10800.000 | 671.033 | 1.076 | .545 | 0.000 | 310.561 | -57.740 | 200.000 |
| 31.206 | 4520.000 | 668.480 | 0.000 | .126 | 0.000 | 235.930 | 0.000 | 60.000 |
| 31.206 | 6970.000 | 669.723 | 1.243 | .148 | 0.000 | 286.827 | -50.897 | 60.000 |
| 31.206 | 7870.000 | 670.110 | .387 | .153 | 0.000 | 287.877 | -51.947 | 60.000 |
| 31.206 | 10800.000 | 671.204 | 1.094 | .171 | 0.000 | 290.824 | -54.894 | 60.000 |
| 31.218 | 4520.000 | 668.609 | 0.000 | .129 | 0.000 | 214.148 | 0.000 | 60.000 |
| 31.218 | 6970.000 | 669.871 | 1.262 | .149 | 0.000 | 261.995 | -47.847 | 60.000 |
| 31.218 | 7870.000 | 670.264 | .392 | .154 | 0.000 | 263.053 | -48.906 | 60.000 |
| 31.218 | 10800.000 | 671.372 | 1.109 | .168 | 0.000 | 266.045 | -51.897 | 60.000 |
| 31.226 | 4520.000 | 668.697 | 0.000 | .088 | 0.000 | 192.232 | 0.000 | 40.000 |
| 31.226 | 6970.000 | 669.970 | 1.274 | .099 | 0.000 | 237.173 | -44.941 | 40.000 |
| 31.226 | 7870.000 | 670.365 | .395 | .101 | 0.000 | 238.243 | -46.011 | 40.000 |
| 31.226 | 10800.000 | 671.477 | 1.112 | .105 | 0.000 | 241.220 | -48.988 | 40.000 |
| 31.235 | 4520.000 | 668.771 | 0.000 | .074 | 0.000 | 147.837 | 0.000 | 40.000 |
| 31.235 | 6970.000 | 670.044 | 1.273 | .074 | 0.000 | 238.669 | -90.832 | 40.000 |
| 31.235 | 7870.000 | 670.442 | .398 | .077 | 0.000 | 257.405 | -109.568 | 40.000 |
| 31.235 | 10800.000 | 671.592 | 1.150 | .115 | 0.000 | 328.213 | -180.375 | 40.000 |
| 31.239 | 4520.000 | 668.875 | 0.000 | .104 | 0.000 | 153.862 | 0.000 | 21.000 |
| 31.239 | 6970.000 | 670.388 | 1.513 | .344 | 0.000 | 254.324 | -100.462 | 21.000 |
| 31.239 | 7870.000 | 670.923 | .536 | .481 | 0.000 | 279.019 | -125.157 | 21.000 |
| 31.239 | 10800.000 | 672.965 | 2.042 | 1.373 | 0.000 | 387.538 | -233.676 | 21.000 |
| 31.260 | 4520.000 | 669.228 | 0.000 | .353 | 0.000 | 138.423 | 0.000 | 106.400 |
| 31.260 | 6970.000 | 670.734 | 1.507 | .347 | 0.000 | 203.460 | -65.036 | 106.400 |
| 31.260 | 7870.000 | 671.262 | .528 | .339 | 0.000 | 216.532 | -78.109 | 106.400 |
| 31.260 | 10800.000 | 673.163 | 1.901 | .198 | 0.000 | 261.322 | -122.899 | 106.400 |
| 31.284 | 4520.000 | 669.570 | 0.000 | .342 | 0.000 | 113.314 | 0.000 | 127.400 |
| 31.284 | 6970.000 | 671.137 | 1.567 | .403 | 0.000 | 199.320 | -86.007 | 127.400 |
| 31.284 | 7870.000 | 671.669 | .532 | .407 | 0.000 | 223.274 | -109.961 | 127.400 |
| 31.284 | 10800.000 | 673.510 | 1.841 | .347 | 0.000 | 255.543 | -142.229 | 127.400 |
| 31.308 | 4520.000 | 669.925 | 0.000 | .355 | 0.000 | 110.752 | 0.000 | 127.400 |
| 31.308 | 6970.000 | 671.740 | 1.815 | .603 | 0.000 | 267.030 | -156.278 | 127.400 |
| 31.308 | 7870.000 | 672.475 | .735 | .805 | 0.000 | 300.746 | -189.993 | 127.400 |
| 31.308 | 10800.000 | 674.534 | 2.059 | 1.024 | 0.000 | 312.718 | -201.966 | 127.400 |
| 31.332 | 4520.000 | 670.260 | 0.000 | .335 | 0.000 | 111.185 | 0.000 | 127.400 |
| 31.332 | 6970.000 | 673.267 | 3.007 | .527 | 0.000 | 350.670 | -239.485 | 127.400 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 31.332 | 7870.000 | 673.077 | .810 | .603 | 0.000 | 377.456 | -266.272 | 127.400 |
| 31.332 | 10800.000 | 675.208 | 2.131 | .675 | 0.000 | 524.915 | -413.731 | 127.400 |
| 31.428 | 4520.000 | 671.702 | 0.000 | 1.442 | 0.000 | 165.445 | 0.000 | 510.000 |
| 31.428 | 6970.000 | 673.797 | 2.095 | 1.530 | 0.000 | 324.638 | -159.193 | 510.000 |
| 31.428 | 7870.000 | 674.337 | .540 | 1.260 | 0.000 | 459.724 | -294.279 | 510.000 |
| 31.428 | 10800.000 | 676.009 | 1.672 | .800 | 0.000 | 533.643 | -368.198 | 510.000 |
| 31.557 | 4520.000 | 673.333 | 0.000 | 1.631 | 0.000 | 333.633 | 0.000 | 680.100 |
| 31.557 | 6970.000 | 675.294 | 1.961 | 1.497 | 0.000 | 523.085 | -189.452 | 680.100 |
| 31.557 | 7870.000 | 675.789 | .495 | 1.452 | 0.000 | 525.597 | -191.964 | 680.100 |
| 31.557 | 10800.000 | 677.127 | 1.339 | 1.119 | 0.000 | 532.506 | -198.873 | 680.100 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | -189.000 | 510.777 | 0.000 |
| 2 | 1.000 | -189.000 | 542.746 | 31.969 |
| 3 | 1.000 | -189.000 | 548.911 | 38.134 |
| 4 | 1.000 | -189.000 | 561.242 | 50.465 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Clinton River
Main Branch

4) DOCUMENT TYPE: Multiple Run

00BREAK00

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 $$$$$$   $$    $$  $$$$$$$$  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$$
$$    $$  $$    $$  $$            $$     $$    $    $$    $$  $$    $$
$$        $$    $$  $$            $$     $$   $$$   $$    $$  $$    $$
 $$$$$$   $$$$$$$$  $$$$$           $$     $$  $ $$   $$$$$$   $$    $$
      $$  $$    $$  $$            $$     $$ $$ $$   $$    $$  $$    $$
      $$  $$    $$  $$            $$     $$ $  $$   $$    $$  $$$$$$$
      $$  $$    $$  $$            $$     $$$   $$   $$    $$  $$
$$    $$  $$    $$  $$         $$ $$      $    $$   $$    $$  $$
 $$$$$$   $$    $$  $$$$$$$$    $$$      $ $$$$$    $$$$$$   $$
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SHELBY TOWNSHIP

CLINTON RIVER MAIN BRANCH

MULTIPLE PROFILE RUN

8/25/77

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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C
1       SHELBY TOWNSHIP-JOB NO. 5670-08   PROJECT MANAGER  WILLIAM C. ROSSOW
T2       10 YEAR FLOOD = 4630 CFS
T3       CLINTON RIVER MAIN BRANCH

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -1.       2.        0.        0.  0.000000      0.00      0.0       0.   624.520    0.000

J2  NPROF     IPLOT     PRFVS     KSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .500     1.000     0.000     0.000     0.000     0.000     0.000
QT      4.000  4630.000  7140.000  8060.000 11100.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .090   651.000      .070   660.300      .035   725.400      .070   730.100      .050
NH   1210.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     25.191    28.000   700.000   785.000    63.000    63.000    63.000      .930     0.000     0.000
GR    641.500     0.000   638.000   100.000   635.800   200.000   634.100   300.000   633.100   400.000
GR    632.200   500.000   631.700   600.000   632.400   700.000   613.100   700.000   614.500   710.000
GR    615.000   720.000   615.900   730.000   616.300   741.000   628.500   741.000   628.500   743.500
GR    616.000   743.500   615.400   758.000   615.100   760.000   613.000   770.000   613.400   780.000
GR    613.700   785.000   632.200   785.000   631.800   800.000   631.300   900.000   631.200  1000.000
GR    630.800  1100.000   630.400  1200.000   629.000  1300.000     0.000     0.000     0.000     0.000
NH      5.000      .040   300.000      .060   333.000      .035   398.000      .040   700.000      .075
NH   1100.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   300.000   460.000   300.000   464.000     0.000

X1     25.202    27.000   300.000   416.000    60.000    60.000    60.000     0.000     -.440     0.000
GR    638.900     0.000   631.000    40.000   630.100   100.000   628.100   186.000   627.900   200.000
GR    626.200   300.000   618.500   332.000   616.400   333.000   616.000   339.000   615.700   345.000
GR    615.300   357.000   614.200   368.000   613.800   377.000   613.600   385.000   613.700   388.000
GR    615.400   398.000   618.200   400.000   620.500   416.000   620.100   500.000   619.400   600.000
GR    619.500   640.000   625.200   648.000   625.900   700.000   626.800   800.000   625.800   900.000
GR    626.600  1000.000   628.700  1100.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .040   300.000      .060   333.000      .035   398.000      .040   700.000      .075
NH   1100.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   300.000   445.000   300.000   524.000     0.000

X1     25.214     0.000     0.000     0.000    60.000    60.000    60.000     0.000      .160     0.000
NH      5.000      .040   300.000      .060   333.000      .035   398.000      .040   700.000      .075
NH   1100.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   300.000   420.000   300.000   626.000     0.000

X1     25.233     0.000     0.000     0.000   110.000    90.000   102.000     0.000      .280     0.000
NH      5.000      .040   318.000      .060   331.000      .035   403.000      .040   412.000      .075
NH   1100.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   318.000   412.000   318.000   695.000     0.000

X1     25.243    34.000   318.000   412.000    51.000    51.000    51.000     0.000     0.000     0.000
[illegible]      0.000   635.200    18.000   631.000    40.000   629.700   118.000   627.600   218.000
                                                                 617.100   318.000   615.800   331.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 625.500 | 367.250 | 613.700 | 367.250 | 612.700 | 378.000 | 613.600 | 388.000 | 617.600 | 393.000 |
| GR | 616.100 | 403.000 | 618.700 | 412.000 | 620.500 | 412.000 | 620.400 | 426.000 | 620.400 | 427.000 |
| GR | 620.100 | 500.000 | 619.400 | 600.000 | 619.500 | 640.000 | 625.200 | 648.000 | 625.900 | 700.000 |
| GR | 626.800 | 800.000 | 625.800 | 900.000 | 626.600 | 1000.000 | 628.700 | 1100.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.980 | 3.040 | 0.000 | 94.000 | 0.000 | 964.100 | 0.000 | 612.400 | 612.400 |
| NH | 5.000 | .050 | 318.000 | .060 | 331.000 | .035 | 403.000 | .060 | 412.000 | .050 |
| NH | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 318.000 | 412.000 | 318.000 | 1100.000 | 0.000 |
| X1 | 25.251 | 0.000 | 0.000 | 0.000 | 44.000 | 44.000 | 44.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 625.500 | 627.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 21.000 | 0.000 | 638.900 | 0.000 | 18.000 | 635.200 | 0.000 | 118.000 | 632.100 | 0.000 |
| BT | 218.000 | 629.500 | 0.000 | 297.000 | 629.000 | 0.000 | 298.000 | 633.100 | 0.000 | 318.000 |
| BT | 633.000 | 621.400 | 318.000 | 633.000 | 625.500 | 362.750 | 633.000 | 625.500 | 367.250 | 633.000 |
| BT | 625.500 | 412.000 | 633.000 | 625.500 | 412.000 | 633.000 | 620.500 | 426.000 | 633.100 | 0.000 |
| BT | 427.000 | 629.600 | 0.000 | 500.000 | 628.900 | 0.000 | 600.000 | 628.200 | 0.000 | 700.000 |
| BT | 627.500 | 0.000 | 800.000 | 627.000 | 0.000 | 900.000 | 627.100 | 0.000 | 1000.000 | 627.100 |
| BT | 0.000 | 1100.000 | 628.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 567.000 | .060 | 600.000 | .035 | 685.000 | .060 | 700.000 | .050 |
| NH | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.394 | 20.000 | 567.000 | 700.000 | 806.000 | 636.000 | 755.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.100 | 0.000 | 638.900 | 100.000 | 638.300 | 200.000 | 636.900 | 300.000 | 635.300 | 400.000 |
| GR | 633.900 | 500.000 | 633.400 | 567.000 | 620.500 | 584.000 | 620.200 | 600.000 | 616.800 | 609.000 |
| GR | 615.500 | 622.000 | 613.700 | 633.000 | 612.400 | 644.000 | 610.600 | 660.000 | 613.700 | 674.000 |
| GR | 613.800 | 685.000 | 623.600 | 700.000 | 625.700 | 748.000 | 635.900 | 773.000 | 635.300 | 800.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 900.000 | .060 | 938.000 | .035 | 1019.000 | .060 | 1032.000 | .050 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.495 | 25.000 | 900.000 | 1032.000 | 600.000 | 460.000 | 530.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1040.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.000 | 0.000 | 641.700 | 100.000 | 640.100 | 200.000 | 637.400 | 300.000 | 635.500 | 400.000 |
| GR | 634.100 | 441.000 | 627.800 | 480.000 | 633.300 | 515.000 | 633.800 | 600.000 | 634.400 | 700.000 |
| GR | 633.600 | 800.000 | 631.500 | 900.000 | 617.200 | 938.000 | 617.000 | 951.000 | 616.200 | 963.000 |
| GR | 615.200 | 974.000 | 615.000 | 983.000 | 614.400 | 992.000 | 613.000 | 1002.000 | 613.800 | 1010.000 |
| GR | 618.100 | 1019.000 | 622.000 | 1032.000 | 628.400 | 1100.000 | 635.700 | 1200.000 | 639.500 | 1300.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 900.000 | .060 | 927.000 | .035 | 1005.000 | .060 | 1014.000 | .050 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.510 | 31.000 | 900.000 | 1014.000 | 76.000 | 76.000 | 76.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1014.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.000 | 0.000 | 641.700 | 100.000 | 640.100 | 200.000 | 637.400 | 300.000 | 635.500 | 400.000 |
| GR | 634.100 | 441.000 | 627.800 | 480.000 | 633.300 | 515.000 | 633.800 | 600.000 | 634.400 | 700.000 |
| GR | 633.600 | 800.000 | 631.500 | 900.000 | 620.700 | 900.000 | 620.700 | 927.000 | 618.500 | 928.000 |
| GR | 616.000 | 938.000 | 616.900 | 954.000 | 626.200 | 954.000 | 626.200 | 960.000 | 615.900 | 960.000 |
| GR | 615.900 | 976.000 | 615.600 | 986.000 | 615.200 | 995.000 | 616.300 | 1005.000 | 617.700 | 1014.000 |
| GR | 618.100 | 1019.000 | 622.000 | 1032.000 | 628.400 | 1100.000 | 634.600 | 1185.000 | 635.700 | 1200.000 |
| GR | 639.500 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.900 | 3.040 | 0.000 | 114.000 | 0.000 | 948.600 | 0.000 | 615.200 | 615.200 |
| NH | 5.000 | .090 | 900.000 | .060 | 927.000 | .045 | 1005.000 | .060 | 1014.000 | .090 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.512 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 626.200 | 634.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 900.000 | 0.000 | 1014.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 19.000 | 0.000 | 644.000 | 0.000 | 100.000 | 641.700 | 0.000 | 200.000 | 640.100 | 0.000 |
| BT | 300.000 | 637.400 | 0.000 | 400.000 | 635.500 | 0.000 | 600.000 | 634.200 | 0.000 | 700.000 |
| BT | 634.400 | 0.000 | 800.000 | 634.100 | 0.000 | 900.000 | 634.200 | 626.100 | 900.000 | 634.200 |
| BT | 626.100 | 954.000 | 634.200 | 626.100 | 954.000 | 634.200 | 626.100 | 960.000 | 634.100 | 626.200 |
| BT | 960.000 | 634.100 | 626.200 | 1014.000 | 634.100 | 626.200 | 1014.000 | 634.100 | 617.700 | 1185.000 |
| BT | 634.600 | 0.000 | 1200.000 | 635.700 | 0.000 | 1300.000 | 639.500 | 0.000 | 0.000 | 0.000 |
| | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NH | 1093.000 | .060 | 1317.000 | .040 | 1400.000 | .000 | 0.000 | 0.000 | .000 | 0.000 |
| X1 | 25.571 | 35.000 | 1053.000 | 1093.000 | 175.000 | 175.000 | 312.000 | 0.000 | .090 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1305.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.800 | 0.000 | 631.000 | 100.000 | 625.500 | 132.000 | 622.300 | 134.000 | 622.600 | 145.000 |
| GR | 624.400 | 148.000 | 624.300 | 200.000 | 624.100 | 300.000 | 623.400 | 400.000 | 624.800 | 500.000 |
| GR | 624.800 | 600.000 | 624.500 | 669.000 | 622.300 | 679.000 | 624.600 | 700.000 | 622.000 | 714.000 |
| GR | 624.800 | 720.000 | 624.900 | 800.000 | 624.800 | 900.000 | 625.000 | 1000.000 | 624.400 | 1053.000 |
| GR | 621.600 | 1056.000 | 618.800 | 1060.000 | 617.200 | 1066.000 | 616.000 | 1073.000 | 615.100 | 1075.000 |
| GR | 618.000 | 1084.000 | 621.900 | 1090.000 | 624.900 | 1093.000 | 625.400 | 1100.000 | 624.900 | 1200.000 |
| GR | 625.600 | 1300.000 | 626.200 | 1317.000 | 629.500 | 1328.000 | 635.900 | 1375.000 | 649.700 | 1400.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.630 | 0.000 | 0.000 | 0.000 | 175.000 | 175.000 | 312.000 | 0.000 | -.010 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 533.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25.706 | 0.000 | 0.000 | 0.000 | 225.000 | 225.000 | 401.000 | 0.000 | -.010 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .060 | 148.000 | .090 | 1053.000 | .060 | 1060.000 | .045 | 1084.000 | .060 |
| NH | 1093.000 | .090 | 1317.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26.218 | 0.000 | 0.000 | 0.000 | 1516.000 | 1516.000 | 2705.000 | 0.000 | -.070 | 0.000 |
| NH | 7.000 | .080 | 88.000 | .060 | 268.000 | .080 | 918.000 | .060 | 922.000 | .040 |
| NH | 958.000 | .060 | 973.000 | .090 | 1358.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26.788 | 32.000 | 918.000 | 973.000 | 2000.000 | 1800.000 | 3010.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.500 | 0.000 | 633.900 | 27.000 | 628.700 | 38.000 | 628.900 | 58.000 | 627.500 | 88.000 |
| GR | 627.500 | 158.000 | 627.500 | 258.000 | 627.500 | 268.000 | 629.100 | 308.000 | 629.300 | 358.000 |
| GR | 628.000 | 458.000 | 627.500 | 558.000 | 628.300 | 658.000 | 627.600 | 758.000 | 627.300 | 785.000 |
| GR | 626.300 | 789.000 | 624.800 | 792.000 | 626.400 | 798.000 | 628.000 | 802.000 | 628.100 | 858.000 |
| GR | 627.600 | 918.000 | 624.100 | 922.000 | 622.000 | 928.000 | 621.900 | 938.000 | 620.500 | 948.000 |
| GR | 622.400 | 958.000 | 624.000 | 968.000 | 630.100 | 973.000 | 630.000 | 1058.000 | 628.700 | 1158.000 |
| GR | 635.100 | 1258.000 | 658.300 | 1358.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 460.000 | .040 | 700.000 | .100 | 821.000 | .040 | 900.000 | .100 |
| NH | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.048 | 27.000 | 821.000 | 910.000 | 1100.000 | 1250.000 | 1370.000 | 0.000 | 0.000 | 0.000 |
| GR | 655.200 | 0.000 | 654.500 | 35.000 | 630.200 | 100.000 | 629.900 | 200.000 | 629.900 | 300.000 |
| GR | 629.300 | 400.000 | 628.000 | 460.000 | 628.000 | 500.000 | 629.000 | 600.000 | 628.700 | 700.000 |
| GR | 629.300 | 800.000 | 630.200 | 821.000 | 626.700 | 824.000 | 623.500 | 830.000 | 623.800 | 840.000 |
| GR | 624.400 | 850.000 | 625.800 | 860.000 | 623.900 | 870.000 | 626.000 | 880.000 | 625.000 | 890.000 |
| GR | 626.800 | 900.000 | 629.900 | 910.000 | 628.700 | 1000.000 | 630.500 | 1054.000 | 648.700 | 1100.000 |
| GR | 649.800 | 1150.000 | 647.800 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 180.000 | .080 | 380.000 | .100 | 744.000 | .045 | 828.000 | .100 |
| NH | 1180.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.559 | 26.000 | 734.000 | 834.000 | 2100.000 | 2250.000 | 2700.000 | 0.000 | 0.000 | 0.000 |
| GR | 653.100 | 0.000 | 642.500 | 80.000 | 632.200 | 116.000 | 633.500 | 180.000 | 633.000 | 280.000 |
| GR | 633.900 | 380.000 | 633.000 | 480.000 | 633.300 | 580.000 | 634.100 | 680.000 | 632.700 | 734.000 |
| GR | 631.700 | 744.000 | 629.700 | 756.000 | 629.700 | 766.000 | 628.800 | 775.000 | 627.700 | 785.000 |
| GR | 626.300 | 797.000 | 626.200 | 806.000 | 625.700 | 817.000 | 626.100 | 828.000 | 632.700 | 834.000 |
| GR | 632.900 | 880.000 | 635.800 | 970.000 | 663.300 | 1060.000 | 664.000 | 1080.000 | 666.200 | 1117.000 |
| GR | 684.300 | 1180.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .090 | 128.000 | .070 | 422.000 | .120 | 823.000 | .045 | 880.000 | .110 |
| NH | 1211.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27.851 | 25.000 | 832.000 | 898.000 | 1350.000 | 1450.000 | 1540.000 | .984 | 0.000 | 0.000 |
| GR | 653.000 | 0.000 | 640.600 | 40.000 | 635.100 | 52.000 | 635.000 | 130.000 | 634.700 | 230.000 |
| GR | 635.300 | 330.000 | 633.300 | 430.000 | 633.700 | 530.000 | 634.100 | 630.000 | 634.700 | 730.000 |
| GR | 635.300 | 832.000 | 629.000 | 836.000 | 628.400 | 848.000 | 625.800 | 860.000 | 630.200 | 873.000 |
| GR | 631.000 | 884.000 | 630.800 | 894.000 | 635.400 | 898.000 | 635.100 | 930.000 | 634.500 | 1005.000 |
| GR | 633.100 | 1028.000 | 640.000 | 1046.000 | 645.300 | 1130.000 | 647.300 | 1148.000 | 666.000 | 1230.000 |
| NH | 4.000 | .040 | 700.000 | .080 | 795.000 | .040 | 856.000 | .090 | 964.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28.150 | 24.000 | 795.000 | 856.000 | 1700.000 | 1350.000 | 1580.000 | 0.000 | 0.000 | 0.000 |
| GR | 661.400 | 0.000 | 640.300 | 58.000 | 638.600 | 100.000 | 637.900 | 200.000 | 637.100 | 300.000 |
| GR | 637.600 | 400.000 | 637.600 | 500.000 | 637.800 | 600.000 | 638.800 | 636.000 | 635.600 | 644.000 |
| GR | 636.700 | 700.000 | 636.400 | 795.000 | 634.800 | 798.000 | 633.500 | 806.000 | 631.400 | 815.000 |
| GR | 629.900 | 823.000 | 629.900 | 830.000 | 630.200 | 838.000 | 632.500 | 853.000 | 640.500 | 856.000 |
| GR | 642.600 | 868.000 | 652.300 | 904.000 | 660.700 | 939.000 | 670.500 | 964.000 | 0.000 | 0.000 |
| NH | 6.000 | .150 | 500.000 | .060 | 1044.000 | .045 | 1113.000 | .120 | 1254.000 | .150 |
| NH | 1454.000 | .120 | 1654.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 28.455 | 27.000 | 1044.000 | 1113.000 | 1400.000 | 1150.000 | 1610.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.100 | 0.000 | 647.300 | 100.000 | 639.900 | 138.000 | 640.600 | 200.000 | 642.200 | 300.000 |
| GR | 641.100 | 400.000 | 639.400 | 500.000 | 640.000 | 600.000 | 639.500 | 700.000 | 640.700 | 800.000 |
| GR | 640.400 | 900.000 | 640.500 | 1000.000 | 640.900 | 1044.000 | 634.900 | 1051.000 | 633.300 | 1059.000 |
| GR | 633.400 | 1069.000 | 633.500 | 1079.000 | 634.500 | 1089.000 | 636.200 | 1099.000 | 638.000 | 1109.000 |
| GR | 639.600 | 1113.000 | 639.700 | 1154.000 | 639.700 | 1254.000 | 640.900 | 1354.000 | 641.400 | 1454.000 |
| GR | 642.700 | 1547.000 | 681.300 | 1654.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .070 | 98.200 | .080 | 352.600 | .040 | 445.600 | .100 | 905.200 | .150 |
| NH | 1895.000 | .120 | 2019.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29.032 | 36.000 | 359.000 | 453.700 | 2400.000 | 1900.000 | 3050.000 | .982 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 940.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 672.900 | 0.000 | 646.000 | 66.000 | 645.100 | 100.000 | 644.400 | 200.000 | 644.400 | 300.000 |
| GR | 644.600 | 359.000 | 643.500 | 360.000 | 640.200 | 371.200 | 640.000 | 382.400 | 640.500 | 392.600 |
| GR | 641.000 | 400.700 | 641.300 | 408.900 | 642.200 | 419.000 | 642.200 | 430.200 | 642.800 | 440.400 |
| GR | 645.400 | 453.700 | 645.500 | 501.700 | 646.000 | 601.700 | 645.600 | 701.700 | 644.400 | 801.700 |
| GR | 645.200 | 901.700 | 646.400 | 911.700 | 645.600 | 921.700 | 645.600 | 1001.700 | 645.300 | 1101.700 |
| GR | 645.100 | 1201.700 | 645.500 | 1301.700 | 645.300 | 1401.700 | 645.200 | 1501.700 | 645.600 | 1601.700 |
| GR | 645.800 | 1701.700 | 645.700 | 1801.700 | 646.100 | 1901.700 | 648.500 | 1929.700 | 658.200 | 1951.700 |
| GR | 703.800 | 2056.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .055 | 144.900 | .073 | 467.200 | .040 | 562.900 | .080 | 2145.300 | 0.000 |
| X1 | 29.089 | 90.000 | 467.200 | 562.900 | 210.000 | 220.000 | 302.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 210.000 | 0.000 | 925.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 672.100 | 0.000 | 667.800 | 16.100 | 663.500 | 32.200 | 659.100 | 48.300 | 654.800 | 64.400 |
| GR | 650.500 | 80.500 | 648.800 | 96.600 | 648.200 | 112.700 | 647.600 | 128.800 | 647.100 | 144.900 |
| GR | 646.700 | 161.100 | 646.400 | 177.200 | 646.100 | 193.300 | 645.800 | 209.400 | 645.500 | 225.500 |
| GR | 645.200 | 241.600 | 645.000 | 257.700 | 644.900 | 273.800 | 644.900 | 289.900 | 644.900 | 306.000 |
| GR | 644.900 | 322.200 | 644.900 | 338.300 | 644.900 | 354.400 | 644.900 | 370.500 | 644.900 | 386.600 |
| GR | 645.000 | 402.700 | 645.100 | 418.800 | 645.200 | 434.900 | 645.300 | 451.000 | 645.400 | 467.200 |
| GR | 643.800 | 470.300 | 642.800 | 473.500 | 641.800 | 476.700 | 640.900 | 479.900 | 640.700 | 483.100 |
| GR | 640.600 | 486.300 | 640.400 | 489.500 | 640.120 | 492.700 | 640.300 | 495.900 | 640.400 | 499.100 |
| GR | 640.600 | 502.300 | 640.900 | 505.500 | 641.100 | 508.600 | 641.400 | 511.800 | 641.500 | 515.000 |
| GR | 641.700 | 518.200 | 641.900 | 521.400 | 642.200 | 524.600 | 642.500 | 527.800 | 642.500 | 531.000 |
| GR | 642.500 | 534.200 | 642.500 | 537.400 | 642.600 | 540.600 | 642.800 | 543.800 | 643.000 | 546.900 |
| GR | 643.200 | 550.100 | 643.800 | 553.300 | 644.500 | 556.500 | 645.300 | 559.700 | 646.200 | 562.900 |
| GR | 646.200 | 615.700 | 646.400 | 668.400 | 646.500 | 721.100 | 646.300 | 773.900 | 645.900 | 826.600 |
| GR | 645.300 | 879.400 | 645.200 | 932.100 | 645.600 | 984.900 | 646.000 | 1037.600 | 646.000 | 1090.400 |
| GR | 646.000 | 1143.100 | 646.000 | 1195.900 | 645.800 | 1248.600 | 645.600 | 1301.400 | 645.700 | 1354.100 |
| GR | 645.900 | 1406.900 | 645.800 | 1459.600 | 645.800 | 1512.300 | 646.300 | 1565.100 | 646.800 | 1617.800 |
| GR | 647.300 | 1670.600 | 647.700 | 1723.300 | 648.100 | 1776.100 | 648.400 | 1828.800 | 648.400 | 1881.600 |
| GR | 648.500 | 1934.300 | 649.200 | 1987.100 | 658.700 | 2039.800 | 677.800 | 2092.600 | 696.800 | 2145.300 |
| NH | 4.000 | .060 | 238.700 | .075 | 629.500 | .040 | 726.800 | .090 | 2278.300 | 0.000 |
| X1 | 29.175 | 90.000 | 629.500 | 726.800 | 315.000 | 330.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 435.000 | 0.000 | 925.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 671.000 | 0.000 | 667.800 | 21.700 | 664.500 | 43.400 | 661.200 | 65.100 | 658.100 | 86.800 |
| GR | 654.900 | 108.500 | 653.300 | 130.200 | 652.400 | 151.900 | 651.300 | 173.600 | 650.400 | 195.300 |
| GR | 649.500 | 217.000 | 648.900 | 238.700 | 648.200 | 260.400 | 647.500 | 282.100 | 646.900 | 303.800 |
| GR | 646.400 | 325.600 | 645.900 | 347.300 | 645.800 | 369.000 | 645.800 | 390.700 | 645.800 | 412.400 |
| GR | 645.700 | 434.100 | 645.700 | 455.800 | 645.600 | 477.500 | 645.700 | 499.200 | 645.800 | 520.900 |
| GR | 646.000 | 542.600 | 646.200 | 564.300 | 646.400 | 586.000 | 646.500 | 607.700 | 646.700 | 629.500 |
| GR | 645.200 | 632.700 | 644.100 | 635.900 | 643.000 | 639.200 | 642.100 | 642.400 | 641.700 | 645.700 |
| GR | 641.300 | 648.900 | 640.900 | 652.200 | 640.500 | 655.400 | 640.300 | 658.700 | 640.500 | 661.900 |
| [illegible] | 640.700 | [illegible] | [illegible] | [illegible] | 641.500 | 671.600 | 641.800 | 674.900 | [illegible] | [illegible] |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 643.100 | 697.600 | 643.100 | 700.800 | 643.200 | 704.100 | 643.300 | 707.300 | 643.500 | 710.600 |
| GR | 643.700 | 713.800 | 644.200 | 717.100 | 645.200 | 720.300 | 646.300 | 723.600 | 647.400 | 726.800 |
| GR | 647.400 | 778.500 | 647.400 | 830.200 | 647.500 | 882.000 | 647.300 | 933.700 | 646.800 | 985.400 |
| GR | 646.200 | 1037.100 | 646.200 | 1088.800 | 646.600 | 1140.500 | 646.800 | 1192.200 | 646.700 | 1244.000 |
| GR | 646.900 | 1295.700 | 647.100 | 1347.400 | 646.700 | 1399.100 | 646.400 | 1450.800 | 646.500 | 1502.500 |
| GR | 646.500 | 1554.300 | 646.600 | 1606.000 | 646.700 | 1657.700 | 647.900 | 1709.400 | 649.100 | 1761.100 |
| GR | 650.000 | 1812.800 | 650.800 | 1864.600 | 651.700 | 1916.300 | 652.500 | 1968.000 | 652.500 | 2019.700 |
| GR | 652.600 | 2071.400 | 653.900 | 2123.100 | 660.800 | 2174.900 | 673.600 | 2226.600 | 686.500 | 2278.300 |
| NH | 4.000 | .065 | 354.900 | .078 | 791.800 | .040 | 890.700 | .100 | 2411.300 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.261 | 90.000 | 791.800 | 890.700 | 315.000 | 330.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 710.000 | 0.000 | 975.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.000 | 0.000 | 667.800 | 27.300 | 665.600 | 54.600 | 663.400 | 81.900 | 661.300 | 109.200 |
| GR | 659.300 | 136.500 | 657.900 | 163.800 | 656.600 | 191.100 | 655.100 | 218.400 | 653.700 | 245.700 |
| GR | 652.300 | 273.000 | 651.300 | 300.300 | 650.200 | 327.600 | 649.200 | 354.900 | 648.400 | 382.200 |
| GR | 647.600 | 409.500 | 646.800 | 436.800 | 646.600 | 464.100 | 646.600 | 491.400 | 646.600 | 518.700 |
| GR | 646.500 | 546.000 | 646.500 | 573.300 | 646.400 | 600.600 | 646.500 | 627.900 | 646.700 | 655.200 |
| GR | 647.000 | 682.500 | 647.300 | 709.800 | 647.500 | 737.100 | 647.700 | 764.400 | 647.900 | 791.800 |
| GR | 646.600 | 795.000 | 645.400 | 798.300 | 644.300 | 801.600 | 643.300 | 804.900 | 642.700 | 808.200 |
| GR | 642.100 | 811.500 | 641.500 | 814.800 | 640.800 | 818.100 | 640.500 | 821.400 | 640.600 | 824.700 |
| GR | 640.800 | 828.000 | 641.300 | 831.300 | 641.800 | 834.600 | 642.300 | 837.900 | 642.600 | 841.200 |
| GR | 642.800 | 844.500 | 643.000 | 847.800 | 643.200 | 851.100 | 643.400 | 854.400 | 643.500 | 857.700 |
| GR | 643.600 | 861.000 | 643.700 | 864.300 | 643.800 | 867.600 | 643.900 | 870.900 | 644.000 | 874.200 |
| GR | 644.100 | 877.500 | 644.600 | 880.800 | 645.800 | 884.100 | 647.200 | 887.400 | 648.600 | 890.700 |
| GR | 648.500 | 941.400 | 648.500 | 992.100 | 648.400 | 1042.800 | 648.200 | 1093.400 | 647.700 | 1144.100 |
| GR | 647.100 | 1194.800 | 647.200 | 1245.500 | 647.500 | 1296.200 | 647.500 | 1346.900 | 647.300 | 1397.600 |
| GR | 647.700 | 1448.200 | 648.100 | 1498.900 | 647.700 | 1549.600 | 647.200 | 1600.300 | 647.200 | 1651.000 |
| GR | 647.100 | 1701.700 | 647.400 | 1752.400 | 647.600 | 1803.000 | 649.600 | 1853.700 | 651.500 | 1904.400 |
| GR | 652.700 | 1955.100 | 654.000 | 2005.800 | 655.300 | 2056.500 | 656.600 | 2107.200 | 656.700 | 2157.900 |
| GR | 656.700 | 2208.500 | 658.700 | 2259.200 | 662.900 | 2309.900 | 669.500 | 2360.600 | 676.100 | 2411.300 |
| NH | 4.000 | .050 | 400.000 | .070 | 900.000 | .040 | 1150.000 | .070 | 2500.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.318 | 39.000 | 900.000 | 1000.000 | 210.000 | 220.000 | 302.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 895.000 | 0.000 | 1005.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.300 | 0.000 | 664.500 | 100.000 | 660.400 | 200.000 | 654.700 | 300.000 | 650.500 | 400.000 |
| GR | 647.300 | 500.000 | 647.200 | 600.000 | 646.900 | 700.000 | 648.000 | 800.000 | 648.800 | 900.000 |
| GR | 644.400 | 912.000 | 642.300 | 922.000 | 640.600 | 928.000 | 640.700 | 935.000 | 642.900 | 948.000 |
| GR | 643.200 | 954.000 | 643.900 | 966.000 | 644.200 | 975.000 | 644.500 | 987.000 | 645.100 | 991.000 |
| GR | 649.500 | 1000.000 | 651.500 | 1078.000 | 656.400 | 1090.000 | 656.100 | 1112.000 | 650.400 | 1125.000 |
| GR | 648.900 | 1200.000 | 647.700 | 1300.000 | 648.200 | 1400.000 | 647.800 | 1500.000 | 648.900 | 1600.000 |
| GR | 647.800 | 1700.000 | 647.600 | 1800.000 | 648.300 | 1900.000 | 653.100 | 2000.000 | 656.100 | 2100.000 |
| GR | 659.400 | 2200.000 | 659.500 | 2300.000 | 664.300 | 2400.000 | 669.200 | 2500.000 | 0.000 | 0.000 |
| NH | 4.000 | .050 | 400.000 | .070 | 900.000 | .040 | 1200.000 | .090 | 2500.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.329 | 40.000 | 900.000 | 980.000 | 60.000 | 60.000 | 60.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.600 | 0.000 | 660.800 | 100.000 | 658.300 | 200.000 | 656.200 | 300.000 | 655.600 | 400.000 |
| GR | 655.500 | 500.000 | 655.800 | 600.000 | 655.900 | 700.000 | 657.200 | 800.000 | 658.000 | 850.000 |
| GR | 658.500 | 877.000 | 661.600 | 877.000 | 661.600 | 900.000 | 643.500 | 900.000 | 643.000 | 911.000 |
| GR | 643.300 | 924.000 | 643.300 | 940.000 | 643.200 | 945.000 | 642.600 | 959.000 | 642.500 | 969.000 |
| GR | 642.500 | 973.000 | 644.900 | 980.000 | 661.600 | 980.000 | 661.600 | 1009.000 | 658.700 | 1009.000 |
| GR | 657.700 | 1100.000 | 656.700 | 1200.000 | 655.700 | 1300.000 | 655.500 | 1400.000 | 655.500 | 1500.000 |
| GR | 655.600 | 1600.000 | 656.200 | 1700.000 | 657.300 | 1800.000 | 658.900 | 1900.000 | 660.600 | 2000.000 |
| GR | 662.900 | 2100.000 | 665.800 | 2200.000 | 669.700 | 2300.000 | 675.300 | 2400.000 | 681.100 | 2500.000 |
| NC | .032 | .032 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.330 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 877.000 | 661.600 | 0.000 | 900.000 | 661.600 | 654.800 | 980.000 | 661.600 | 654.900 |
| BT | 1009.000 | 661.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.337 | 0.000 | 0.000 | 0.000 | 37.000 | 37.000 | 37.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 900.000 | .045 | 980.000 | .070 | 2500.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 29.338 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 29.357 | 39.000 | 900.000 | 1000.000 | 66.000 | 72.000 | 100.000 | 0.000 | 2.070 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 844.000 | 0.000 | 1062.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.300 | 0.000 | 664.500 | 100.000 | 660.400 | 200.000 | 654.700 | 300.000 | 650.500 | 400.000 |
| GR | 647.300 | 500.000 | 647.200 | 600.000 | 646.900 | 700.000 | 648.000 | 800.000 | 648.800 | 900.000 |
| GR | 644.400 | 912.000 | 642.300 | 922.000 | 640.600 | 928.000 | 640.700 | 935.000 | 642.900 | 948.000 |
| GR | 643.200 | 954.000 | 643.900 | 966.000 | 644.200 | 975.000 | 644.500 | 987.000 | 645.100 | 991.000 |
| GR | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 | 649.500 | 1000.000 |
| GR | 648.900 | 1200.000 | 647.700 | 1300.000 | 648.200 | 1400.000 | 647.800 | 1500.000 | 648.900 | 1600.000 |
| GR | 647.800 | 1700.000 | 647.600 | 1800.000 | 648.300 | 1900.000 | 653.100 | 2000.000 | 656.100 | 2100.000 |
| GR | 659.400 | 2200.000 | 659.500 | 2300.000 | 664.300 | 2400.000 | 669.200 | 2500.000 | 0.000 | 0.000 |
| X1 | 29.370 | 0.000 | 0.000 | 0.000 | 44.000 | 48.000 | 67.000 | 0.000 | .070 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 800.000 | 0.000 | 1110.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .110 | 110.000 | .050 | 400.000 | .060 | 947.000 | .045 | 1000.000 | .070 |
| NH | 1425.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29.824 | 29.000 | 947.000 | 1000.000 | 1440.000 | 1630.000 | 2404.000 | 0.000 | 0.000 | 0.000 |
| GR | 681.000 | 0.000 | 651.700 | 92.000 | 651.100 | 110.000 | 652.600 | 200.000 | 651.700 | 300.000 |
| GR | 653.000 | 400.000 | 653.500 | 500.000 | 652.600 | 600.000 | 653.200 | 700.000 | 653.000 | 800.000 |
| GR | 653.300 | 900.000 | 653.200 | 947.000 | 649.100 | 955.000 | 645.100 | 966.000 | 646.400 | 975.000 |
| GR | 647.000 | 984.000 | 648.100 | 996.000 | 652.300 | 1000.000 | 652.800 | 1100.000 | 652.600 | 1144.000 |
| GR | 647.200 | 1153.000 | 647.700 | 1166.000 | 647.500 | 1177.000 | 647.800 | 1186.000 | 653.500 | 1188.000 |
| GR | 653.100 | 1200.000 | 654.600 | 1300.000 | 654.900 | 1345.000 | 685.000 | 1425.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 718.000 | .045 | 777.000 | .070 | 1645.000 | 0.000 | 0.000 | 0.000 |
| X1 | 30.038 | 90.000 | 718.000 | 777.000 | 750.000 | 900.000 | 1130.000 | 0.000 | 0.000 | 0.000 |
| GR | 679.800 | 0.000 | 674.100 | 24.700 | 668.500 | 49.500 | 663.700 | 74.200 | 663.200 | 99.000 |
| GR | 663.000 | 123.700 | 662.800 | 148.500 | 662.100 | 173.300 | 661.400 | 198.000 | 660.600 | 222.800 |
| GR | 660.200 | 247.500 | 659.800 | 272.300 | 659.400 | 297.100 | 658.900 | 321.800 | 658.300 | 346.600 |
| GR | 657.800 | 371.300 | 657.200 | 396.100 | 656.800 | 420.800 | 656.400 | 445.600 | 656.200 | 470.400 |
| GR | 656.000 | 495.100 | 655.900 | 519.900 | 655.700 | 544.600 | 655.600 | 569.400 | 655.500 | 594.200 |
| GR | 655.400 | 618.900 | 655.300 | 643.700 | 655.200 | 668.400 | 655.100 | 693.200 | 654.900 | 718.000 |
| GR | 653.900 | 719.900 | 652.800 | 721.900 | 651.800 | 723.800 | 650.900 | 725.800 | 650.100 | 727.800 |
| GR | 649.400 | 729.700 | 649.000 | 731.700 | 648.600 | 733.700 | 648.300 | 735.600 | 647.900 | 737.600 |
| GR | 647.700 | 739.600 | 647.900 | 741.500 | 648.100 | 743.500 | 648.200 | 745.500 | 648.400 | 747.400 |
| GR | 648.600 | 749.400 | 648.700 | 751.400 | 648.800 | 753.300 | 648.900 | 755.300 | 649.000 | 757.300 |
| GR | 649.100 | 759.200 | 649.400 | 761.200 | 649.600 | 763.200 | 649.800 | 765.100 | 650.000 | 767.100 |
| GR | 650.500 | 769.100 | 651.000 | 771.000 | 651.800 | 773.000 | 653.300 | 775.000 | 654.700 | 777.000 |
| GR | 654.800 | 805.900 | 654.800 | 834.800 | 654.800 | 863.700 | 654.600 | 892.700 | 654.500 | 921.600 |
| GR | 654.800 | 950.500 | 655.100 | 979.500 | 654.700 | 1008.400 | 654.300 | 1037.300 | 654.100 | 1066.300 |
| GR | 651.600 | 1095.200 | 651.900 | 1124.100 | 651.900 | 1153.100 | 654.500 | 1182.000 | 654.700 | 1210.900 |
| GR | 654.900 | 1239.900 | 655.000 | 1268.800 | 655.000 | 1297.700 | 655.200 | 1326.700 | 655.500 | 1355.600 |
| GR | 655.900 | 1384.500 | 656.100 | 1413.500 | 656.400 | 1442.400 | 657.100 | 1471.300 | 659.600 | 1500.300 |
| GR | 662.700 | 1529.200 | 665.700 | 1558.100 | 670.100 | 1587.100 | 678.400 | 1616.000 | 686.800 | 1645.000 |
| NH | 5.000 | .050 | 365.000 | .100 | 489.000 | .045 | 554.000 | .100 | 1465.000 | .040 |
| NH | 1865.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 30.252 | 28.000 | 489.000 | 554.000 | 750.000 | 900.000 | 1130.000 | 0.000 | 0.000 | 0.000 |
| GR | 678.700 | 0.000 | 673.400 | 98.000 | 668.700 | 165.000 | 661.300 | 265.000 | 658.500 | 365.000 |
| GR | 657.200 | 465.000 | 656.700 | 489.000 | 653.400 | 495.000 | 650.700 | 502.000 | 650.300 | 512.000 |
| GR | 650.800 | 523.000 | 651.300 | 534.000 | 652.600 | 544.000 | 657.200 | 554.000 | 657.200 | 565.000 |
| GR | 657.400 | 665.000 | 656.300 | 765.000 | 657.600 | 865.000 | 655.600 | 965.000 | 656.300 | 1065.000 |
| GR | 655.900 | 1165.000 | 656.400 | 1265.000 | 656.200 | 1365.000 | 657.200 | 1465.000 | 658.100 | 1565.000 |
| GR | 661.600 | 1665.000 | 662.800 | 1765.000 | 688.600 | 1865.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 577.000 | .047 | 659.400 | .100 | 2086.400 | 0.000 | 0.000 | 0.000 |
| X1 | 30.492 | 90.000 | 577.000 | 659.400 | 750.000 | 525.000 | 1265.000 | 0.000 | 0.000 | 0.000 |
| GR | 682.400 | 0.000 | 675.100 | 19.800 | 669.000 | 39.700 | 668.600 | 59.600 | 668.100 | 79.500 |
| GR | 667.700 | 99.400 | 667.200 | 119.300 | 666.600 | 139.200 | 666.000 | 159.100 | 665.400 | 179.000 |
| GR | 664.900 | 198.900 | 664.300 | 218.800 | 663.800 | 238.700 | 663.200 | 258.600 | 662.600 | 278.500 |
| GR | 661.900 | 298.400 | 661.300 | 318.300 | 661.000 | 338.200 | 660.700 | 358.100 | 660.500 | 378.000 |
| GR | 660.200 | 397.900 | 659.900 | 417.800 | 659.700 | 437.700 | 659.600 | 457.600 | 659.400 | 477.500 |
| GR | 659.300 | 497.400 | 659.200 | 517.300 | 659.100 | 537.200 | 659.100 | 557.100 | 659.000 | 577.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 652.500 | 607.200 | 652.700 | 609.900 | 652.900 | 612.700 | 653.100 | 615.400 | 653.300 | 618.200 |
| GR | 653.500 | 620.900 | 653.800 | 623.700 | 654.000 | 626.400 | 654.100 | 629.200 | 654.300 | 631.900 |
| GR | 654.500 | 634.700 | 654.700 | 637.400 | 655.000 | 640.200 | 655.200 | 642.900 | 655.500 | 645.700 |
| GR | 656.000 | 648.400 | 656.600 | 651.200 | 657.200 | 653.900 | 658.000 | 656.700 | 659.100 | 659.400 |
| GR | 659.100 | 707.000 | 658.900 | 754.500 | 658.200 | 802.100 | 657.300 | 849.700 | 658.200 | 897.200 |
| GR | 658.200 | 944.800 | 658.400 | 992.400 | 658.400 | 1039.900 | 658.100 | 1087.500 | 657.800 | 1135.100 |
| GR | 657.800 | 1182.600 | 657.700 | 1230.200 | 657.500 | 1277.800 | 657.300 | 1325.300 | 657.400 | 1372.900 |
| GR | 657.500 | 1420.500 | 657.500 | 1468.000 | 657.400 | 1515.600 | 657.500 | 1563.200 | 657.900 | 1610.700 |
| GR | 657.900 | 1658.300 | 657.900 | 1705.900 | 658.000 | 1753.400 | 658.800 | 1801.000 | 660.000 | 1848.600 |
| GR | 661.000 | 1896.100 | 666.000 | 1943.700 | 668.100 | 1991.300 | 674.500 | 2038.800 | 689.700 | 2086.400 |
| QT | 4.000 | 4520.000 | 6970.000 | 7870.000 | 10800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 612.500 | .050 | 704.600 | .100 | 2125.600 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.731 | 40.000 | 665.000 | 764.900 | 750.000 | 525.000 | 1265.000 | .921 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1820.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.200 | 0.000 | 661.200 | 42.000 | 661.300 | 100.000 | 661.300 | 200.000 | 661.900 | 300.000 |
| GR | 661.400 | 400.000 | 661.100 | 500.000 | 660.900 | 600.000 | 661.300 | 665.000 | 660.100 | 679.200 |
| GR | 656.300 | 688.900 | 654.700 | 700.900 | 655.900 | 713.900 | 656.900 | 723.700 | 657.600 | 734.000 |
| GR | 659.500 | 760.600 | 661.000 | 764.900 | 661.100 | 807.900 | 660.300 | 907.900 | 658.400 | 930.900 |
| GR | 656.600 | 933.900 | 655.000 | 947.900 | 656.800 | 968.900 | 660.100 | 973.900 | 660.300 | 1007.900 |
| GR | 659.000 | 1107.900 | 660.600 | 1207.900 | 659.700 | 1307.900 | 659.000 | 1407.900 | 658.800 | 1507.900 |
| GR | 658.800 | 1607.900 | 658.500 | 1707.900 | 659.100 | 1807.900 | 658.100 | 1907.900 | 658.200 | 2007.900 |
| GR | 660.300 | 2107.900 | 670.600 | 2157.900 | 670.300 | 2207.900 | 671.800 | 2256.900 | 690.800 | 2307.900 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 573.500 | .045 | 662.400 | .100 | 1933.900 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.837 | 90.000 | 573.500 | 662.400 | 400.000 | 625.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 695.500 | 0.000 | 685.600 | 19.700 | 676.800 | 39.500 | 673.800 | 59.300 | 670.700 | 79.100 |
| GR | 667.600 | 98.800 | 664.600 | 118.600 | 662.600 | 138.400 | 662.500 | 158.200 | 662.400 | 177.900 |
| GR | 662.300 | 197.700 | 662.300 | 217.500 | 662.200 | 237.300 | 662.400 | 257.000 | 662.500 | 276.800 |
| GR | 662.500 | 296.600 | 662.600 | 316.400 | 662.600 | 336.100 | 662.700 | 355.900 | 662.600 | 375.700 |
| GR | 662.600 | 395.500 | 662.600 | 415.200 | 662.500 | 435.000 | 662.500 | 454.800 | 662.500 | 474.600 |
| GR | 662.400 | 494.300 | 662.400 | 514.100 | 662.400 | 533.900 | 662.100 | 553.700 | 661.700 | 573.500 |
| GR | 660.600 | 576.400 | 660.300 | 579.400 | 660.100 | 582.300 | 659.900 | 585.300 | 659.400 | 588.300 |
| GR | 658.700 | 591.200 | 658.000 | 594.200 | 657.600 | 597.200 | 657.300 | 600.100 | 657.100 | 603.100 |
| GR | 656.600 | 606.100 | 657.000 | 609.000 | 657.100 | 612.000 | 657.200 | 615.000 | 657.300 | 617.900 |
| GR | 657.400 | 620.900 | 657.600 | 623.900 | 657.700 | 626.800 | 657.800 | 629.800 | 657.900 | 632.700 |
| GR | 658.000 | 635.700 | 658.100 | 638.700 | 658.200 | 641.600 | 658.300 | 644.600 | 658.400 | 647.600 |
| GR | 658.600 | 650.500 | 658.700 | 653.500 | 658.900 | 656.500 | 660.200 | 659.400 | 662.400 | 662.400 |
| GR | 662.500 | 704.800 | 662.200 | 747.200 | 661.300 | 789.500 | 660.600 | 831.900 | 661.600 | 874.300 |
| GR | 661.300 | 916.700 | 661.500 | 959.100 | 662.100 | 1001.500 | 662.600 | 1043.800 | 662.300 | 1086.200 |
| GR | 662.000 | 1128.600 | 661.700 | 1171.000 | 661.600 | 1213.400 | 661.600 | 1255.800 | 661.500 | 1298.100 |
| GR | 661.500 | 1340.500 | 661.400 | 1382.900 | 661.300 | 1425.300 | 661.500 | 1467.700 | 661.800 | 1510.100 |
| GR | 662.500 | 1552.400 | 664.800 | 1594.800 | 665.600 | 1637.200 | 666.400 | 1679.600 | 667.100 | 1722.000 |
| GR | 667.900 | 1764.400 | 673.000 | 1806.700 | 673.400 | 1849.100 | 674.200 | 1891.500 | 683.800 | 1933.900 |
| NH | 5.000 | .030 | 110.000 | .110 | 482.000 | .040 | 560.000 | .110 | 1060.000 | .060 |
| NH | 1560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 30.943 | 28.000 | 482.000 | 560.000 | 400.000 | 625.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 960.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 704.900 | 0.000 | 664.100 | 110.000 | 662.800 | 200.000 | 664.100 | 300.000 | 664.100 | 400.000 |
| GR | 663.800 | 457.000 | 662.100 | 482.000 | 660.100 | 485.000 | 659.300 | 505.000 | 658.600 | 525.000 |
| GR | 658.400 | 535.000 | 658.400 | 545.000 | 658.300 | 554.000 | 658.900 | 556.000 | 663.900 | 560.000 |
| GR | 664.300 | 610.000 | 663.300 | 660.000 | 663.200 | 760.000 | 664.800 | 860.000 | 664.400 | 960.000 |
| GR | 664.400 | 1060.000 | 664.200 | 1160.000 | 664.800 | 1250.000 | 666.400 | 1260.000 | 671.200 | 1286.000 |
| GR | 674.800 | 1360.000 | 676.300 | 1460.000 | 676.900 | 1560.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.083 | 42.000 | 968.000 | 1040.000 | 770.000 | 530.000 | 740.000 | 0.000 | -.940 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1350.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.800 | 0.000 | 684.800 | 53.000 | 685.800 | 153.000 | 677.100 | 168.000 | 672.600 | 268.000 |
| GR | 671.000 | 368.000 | 667.800 | 468.000 | 668.600 | 568.000 | 668.900 | 611.000 | 664.200 | 622.000 |
| GR | 6[illegible]4.700 | 668.000 | 667.200 | 768.000 | 666.500 | 818.000 | 674.300 | 832.000 | 675.500 | 841.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 663.100 | 972.000 |

R(n)

S(n)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 662.800 | [illegible] | 662.100 | [illegible] | 661.[illegible] | [illegible]91.00 | [illegible] | [illegible] | 660.600 | [illegible] |
| GR | 660.100 | 1017.000 | 660.400 | 1025.000 | 663.000 | 1036.000 | 665.700 | 1040.000 | 666.100 | 1090.000 |
| GR | 665.100 | 1140.000 | 665.000 | 1240.000 | 666.600 | 1340.000 | 667.400 | 1440.000 | 667.400 | 1540.000 |
| GR | 667.200 | 1640.000 | 667.800 | 1730.000 | 669.400 | 1740.000 | 674.200 | 1766.000 | 677.800 | 1840.000 |
| GR | 679.300 | 1940.000 | 679.900 | 2040.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.159 | 0.000 | 0.000 | 0.000 | 400.000 | 280.000 | 400.000 | 0.000 | .470 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1230.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.195 | 0.000 | 0.000 | 0.000 | 215.000 | 145.000 | 200.000 | 0.000 | .230 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1170.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.206 | 0.000 | 0.000 | 0.000 | 65.000 | 44.000 | 60.000 | 0.000 | .080 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1150.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.218 | 0.000 | 0.000 | 0.000 | 65.000 | 44.000 | 60.000 | 0.000 | .080 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1125.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1040.000 | .080 | 2040.000 | 0.000 |
| X1 | 31.226 | 0.000 | 0.000 | 0.000 | 42.000 | 28.000 | 40.000 | 0.000 | .040 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1041.000 | .040 | 1459.000 | 0.000 |
| X1 | 31.235 | 35.000 | 968.000 | 1041.000 | 43.000 | 29.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.800 | 0.000 | 684.800 | 53.000 | 685.800 | 153.000 | 677.100 | 168.000 | 672.600 | 268.000 |
| GR | 671.000 | 368.000 | 667.800 | 468.000 | 668.600 | 568.000 | 668.900 | 611.000 | 664.200 | 622.000 |
| GR | 664.700 | 668.000 | 667.200 | 768.000 | 666.500 | 818.000 | 674.300 | 832.000 | 675.500 | 841.000 |
| GR | 674.400 | 851.000 | 668.100 | 868.000 | 669.400 | 941.000 | 665.500 | 968.000 | 663.100 | 972.000 |
| GR | 662.800 | 975.000 | 662.100 | 982.000 | 661.700 | 991.000 | 661.100 | 999.000 | 660.600 | 1009.000 |
| GR | 660.100 | 1017.000 | 660.400 | 1025.000 | 663.000 | 1036.000 | 666.700 | 1041.000 | 671.100 | 1068.000 |
| GR | 672.100 | 1108.000 | 669.000 | 1168.000 | 674.300 | 1268.000 | 675.000 | 1368.000 | 690.800 | 1459.000 |
| NH | 4.000 | .080 | 851.000 | .100 | 968.000 | .035 | 1041.000 | .040 | 1459.000 | 0.000 |
| X1 | 31.239 | 0.000 | 0.000 | 0.000 | 21.000 | 21.000 | 21.000 | 0.000 | .020 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 841.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .077 | 784.600 | .097 | 910.200 | .035 | 983.700 | .040 | 1406.500 | 0.000 |
| X1 | 31.260 | 90.000 | 910.200 | 983.700 | 106.400 | 106.400 | 106.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 784.600 | 0.000 | 1054.100 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 690.400 | 0.000 | 686.700 | 31.300 | 684.600 | 62.700 | 684.700 | 94.100 | 684.800 | 125.500 |
| GR | 677.400 | 156.900 | 675.200 | 188.300 | 673.800 | 219.700 | 672.400 | 251.100 | 671.900 | 282.400 |
| GR | 671.400 | 313.800 | 671.000 | 345.200 | 670.000 | 376.600 | 669.000 | 408.000 | 668.100 | 439.400 |
| GR | 668.400 | 470.800 | 668.700 | 502.200 | 668.900 | 533.500 | 669.100 | 564.900 | 665.000 | 596.300 |
| GR | 665.200 | 627.700 | 666.100 | 659.100 | 666.800 | 690.500 | 667.500 | 721.900 | 667.200 | 753.300 |
| GR | 674.700 | 784.600 | 668.800 | 816.000 | 669.400 | 847.400 | 669.900 | 878.800 | 666.400 | 910.200 |
| GR | 664.900 | 912.600 | 663.900 | 915.100 | 663.500 | 917.500 | 663.200 | 920.000 | 662.800 | 922.400 |
| GR | 662.500 | 924.900 | 662.300 | 927.300 | 662.100 | 929.800 | 661.900 | 932.200 | 661.600 | 934.700 |
| GR | 661.500 | 937.100 | 661.200 | 939.600 | 661.000 | 942.000 | 660.900 | 944.500 | 660.900 | 946.900 |
| GR | 660.800 | 949.400 | 660.600 | 951.800 | 660.500 | 954.300 | 660.400 | 956.700 | 660.220 | 959.200 |
| GR | 660.300 | 961.600 | 660.400 | 964.100 | 660.500 | 966.500 | 660.900 | 969.000 | 661.500 | 971.400 |
| GR | 662.100 | 973.900 | 662.700 | 976.300 | 663.500 | 978.800 | 665.200 | 981.200 | 667.000 | 983.700 |
| GR | 669.100 | 997.700 | 671.100 | 1011.800 | 671.400 | 1025.900 | 671.800 | 1040.000 | 671.900 | 1054.100 |
| GR | 671.300 | 1068.200 | 670.600 | 1082.300 | 670.000 | 1096.400 | 669.200 | 1110.500 | 669.800 | 1124.600 |
| GR | 670.400 | 1138.700 | 671.200 | 1152.800 | 671.800 | 1166.900 | 672.600 | 1181.000 | 673.300 | 1195.100 |
| GR | 673.900 | 1209.200 | 674.200 | 1223.300 | 674.300 | 1237.400 | 674.400 | 1251.500 | 674.500 | 1265.500 |
| GR | 674.600 | 1279.600 | 674.700 | 1293.700 | 674.700 | 1307.800 | 675.900 | 1321.900 | 678.300 | 1336.000 |
| GR | 680.500 | 1350.100 | 682.700 | 1364.200 | 685.100 | 1378.300 | 687.700 | 1392.400 | 690.300 | 1406.500 |
| NH | 4.000 | .075 | 750.000 | .095 | 852.500 | .035 | 926.400 | .040 | 1354.100 | 0.000 |
| X1 | 31.284 | 90.000 | 852.500 | 926.400 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 997.600 | 0.000 | 0.000 | 0.000 | 0.000 |

+ (0)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 690.10 | .000 | 686.5[illegible]0 | 29.30 | 68[illegible]0 | 58.70 | 684.200 | 8.10 | [illegible]0 | 117.500 |
| GR | 677.100 | 146.900 | 674.900 | 176.300 | 673.500 | 205.700 | 672.300 | 235.100 | 671.800 | 264.500 |
| GR | 671.400 | 293.900 | 671.100 | 323.300 | 670.200 | 352.700 | 669.300 | 382.100 | 668.500 | 411.500 |
| GR | 668.800 | 440.900 | 669.100 | 470.300 | 669.300 | 499.700 | 669.500 | 529.100 | 665.700 | 558.500 |
| GR | 665.900 | 587.900 | 666.700 | 617.300 | 667.400 | 646.700 | 668.000 | 676.100 | 667.800 | 705.500 |
| GR | 674.800 | 734.900 | 669.500 | 764.300 | 670.200 | 793.700 | 670.700 | 823.100 | 667.400 | 852.500 |
| GR | 665.900 | 854.900 | 664.800 | 857.400 | 664.400 | 859.800 | 664.000 | 862.300 | 663.500 | 864.800 |
| GR | 663.100 | 867.200 | 662.800 | 869.700 | 662.400 | 872.200 | 662.100 | 874.600 | 661.800 | 877.100 |
| GR | 661.600 | 879.500 | 661.300 | 882.000 | 661.100 | 884.500 | 661.000 | 886.900 | 661.000 | 889.400 |
| GR | 660.900 | 891.900 | 660.800 | 894.300 | 660.700 | 896.800 | 660.600 | 899.300 | 660.350 | 901.700 |
| GR | 660.500 | 904.200 | 660.600 | 906.600 | 660.700 | 909.100 | 661.200 | 911.600 | 661.800 | 914.000 |
| GR | 662.400 | 916.500 | 663.100 | 919.000 | 663.900 | 921.400 | 665.600 | 923.900 | 667.400 | 926.400 |
| GR | 669.300 | 940.600 | 671.200 | 954.900 | 671.500 | 969.100 | 671.900 | 983.400 | 672.000 | 997.600 |
| GR | 671.400 | 1011.900 | 670.800 | 1026.200 | 670.200 | 1040.400 | 669.500 | 1054.700 | 670.000 | 1068.900 |
| GR | 670.600 | 1083.200 | 671.300 | 1097.400 | 671.900 | 1111.700 | 672.600 | 1126.000 | 673.300 | 1140.200 |
| GR | 673.900 | 1154.500 | 674.200 | 1168.700 | 674.300 | 1183.000 | 674.400 | 1197.300 | 674.400 | 1211.500 |
| GR | 674.500 | 1225.800 | 674.600 | 1240.000 | 674.600 | 1254.300 | 675.700 | 1268.500 | 677.900 | 1282.800 |
| GR | 680.000 | 1297.100 | 682.000 | 1311.300 | 684.300 | 1325.600 | 687.100 | 1339.800 | 689.900 | 1354.100 |
| NH | 4.000 | .073 | 685.100 | .093 | 794.700 | .035 | 869.000 | .042 | 1301.600 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.308 | 90.000 | 794.700 | 869.000 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 685.100 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 689.800 | 0.000 | 686.200 | 27.400 | 684.100 | 54.800 | 683.700 | 82.200 | 683.400 | 109.600 |
| GR | 676.700 | 137.000 | 674.500 | 164.400 | 673.200 | 191.800 | 672.100 | 219.200 | 671.600 | 246.600 |
| GR | 671.300 | 274.000 | 671.100 | 301.400 | 670.300 | 328.800 | 669.500 | 356.200 | 668.900 | 383.600 |
| GR | 669.200 | 411.000 | 669.500 | 438.400 | 669.700 | 465.800 | 669.800 | 493.200 | 666.400 | 520.600 |
| GR | 666.600 | 548.100 | 667.300 | 575.500 | 667.900 | 602.900 | 668.500 | 630.300 | 668.400 | 657.700 |
| GR | 674.900 | 685.100 | 670.200 | 712.500 | 671.000 | 739.900 | 671.400 | 767.300 | 668.400 | 794.700 |
| GR | 666.800 | 797.200 | 665.700 | 799.700 | 665.200 | 802.100 | 664.700 | 804.600 | 664.100 | 807.100 |
| GR | 663.600 | 809.600 | 663.200 | 812.000 | 662.700 | 814.500 | 662.300 | 817.000 | 661.900 | 819.500 |
| GR | 661.700 | 822.000 | 661.300 | 824.400 | 661.100 | 826.900 | 661.100 | 829.400 | 661.000 | 831.900 |
| GR | 661.000 | 834.400 | 660.900 | 836.800 | 660.800 | 839.300 | 660.700 | 841.800 | 660.480 | 844.300 |
| GR | 660.700 | 846.700 | 660.800 | 849.200 | 660.900 | 851.700 | 661.400 | 854.200 | 662.100 | 856.700 |
| GR | 662.700 | 859.100 | 663.500 | 861.600 | 664.300 | 864.100 | 666.000 | 866.600 | 667.700 | 869.000 |
| GR | 669.500 | 883.500 | 671.300 | 897.900 | 671.600 | 912.300 | 671.900 | 926.700 | 672.000 | 941.100 |
| GR | 671.500 | 955.600 | 670.900 | 970.000 | 670.300 | 984.400 | 669.800 | 998.800 | 670.200 | 1013.200 |
| GR | 670.800 | 1027.700 | 671.400 | 1042.100 | 672.000 | 1056.500 | 672.600 | 1070.900 | 673.300 | 1085.300 |
| GR | 673.900 | 1099.800 | 674.200 | 1114.200 | 674.300 | 1128.600 | 674.300 | 1143.000 | 674.300 | 1157.400 |
| GR | 674.400 | 1171.900 | 674.500 | 1186.300 | 674.500 | 1200.700 | 675.500 | 1215.100 | 677.500 | 1229.500 |
| GR | 679.400 | 1244.000 | 681.300 | 1258.400 | 683.500 | 1272.800 | 686.500 | 1287.200 | 689.400 | 1301.600 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .070 | 660.700 | .090 | 751.900 | .035 | 811.800 | .043 | 1249.300 | 0.000 |
| | | | | | | | | | | |
| X1 | 31.332 | 90.000 | 737.000 | 811.800 | 127.400 | 127.400 | 127.400 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 635.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 689.500 | 0.000 | 686.100 | 25.400 | 683.900 | 50.800 | 683.300 | 76.200 | 682.800 | 101.600 |
| GR | 676.500 | 127.000 | 674.300 | 152.400 | 673.000 | 177.800 | 672.000 | 203.300 | 671.600 | 228.700 |
| GR | 671.400 | 254.100 | 671.200 | 279.500 | 670.600 | 304.900 | 669.900 | 330.300 | 669.300 | 355.700 |
| GR | 669.600 | 381.200 | 669.900 | 406.600 | 670.100 | 432.000 | 670.300 | 457.400 | 667.100 | 482.800 |
| GR | 667.300 | 508.200 | 667.900 | 533.600 | 668.500 | 559.100 | 669.000 | 584.500 | 669.000 | 609.900 |
| GR | 675.100 | 635.300 | 671.000 | 660.700 | 671.800 | 686.100 | 672.300 | 711.500 | 669.400 | 737.000 |
| GR | 667.900 | 739.400 | 666.700 | 741.900 | 666.100 | 744.400 | 665.500 | 746.900 | 664.800 | 749.400 |
| GR | 664.200 | 751.900 | 663.700 | 754.400 | 663.100 | 756.900 | 662.600 | 759.400 | 662.200 | 761.900 |
| GR | 661.900 | 764.400 | 661.500 | 766.900 | 661.200 | 769.400 | 661.200 | 771.900 | 661.200 | 774.300 |
| GR | 661.200 | 776.800 | 661.200 | 779.300 | 661.100 | 781.800 | 661.000 | 784.300 | 660.610 | 786.800 |
| GR | 661.000 | 789.300 | 661.000 | 791.800 | 661.200 | 794.300 | 661.700 | 796.800 | 662.400 | 799.300 |
| GR | 663.100 | 801.800 | 663.900 | 804.300 | 664.800 | 806.800 | 666.400 | 809.300 | 668.100 | 811.800 |
| GR | 669.800 | 826.300 | 671.400 | 840.900 | 671.700 | 855.500 | 672.000 | 870.100 | 672.200 | 884.700 |
| GR | 671.700 | 899.200 | 671.200 | 913.800 | 670.600 | 928.400 | 670.100 | 943.000 | 670.500 | 957.600 |
| GR | 671.000 | 972.200 | 671.500 | 986.700 | 672.100 | 1001.300 | 672.700 | 1015.900 | 673.300 | 1030.500 |
| GR | 673.900 | 1045.100 | 674.200 | 1059.700 | 674.300 | 1074.200 | 674.300 | 1088.800 | 674.300 | 1103.400 |
| GR | 674.300 | 1118.000 | 674.400 | 1132.600 | 674.400 | 1147.200 | 675.300 | 1161.700 | 677.100 | 1176.300 |
| GR | 678.900 | 1190.900 | 680.600 | 1205.500 | 682.800 | 1220.100 | 685.900 | 1234.700 | 689.000 | 1249.300 |
| NH | 4.000 | .060 | 453.600 | .080 | 528.900 | .035 | 582.600 | .046 | 1039.600 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 688.200 | 0.000 | 685.200 | 17.400 | 682.800 | 34.800 | 681.400 | 52.300 | 680.100 | 69.700 |
| GR | 675.400 | 87.200 | 673.000 | 104.600 | 672.000 | 122.100 | 671.400 | 139.500 | 671.300 | 157.000 |
| GR | 671.300 | 174.400 | 671.400 | 191.900 | 671.200 | 209.300 | 671.000 | 226.800 | 670.900 | 244.200 |
| GR | 671.200 | 261.700 | 671.600 | 279.100 | 671.700 | 296.600 | 671.800 | 314.000 | 669.900 | 331.500 |
| GR | 670.000 | 348.900 | 670.300 | 366.400 | 670.600 | 383.800 | 670.900 | 401.300 | 671.300 | 418.700 |
| GR | 675.500 | 436.200 | 674.000 | 453.600 | 674.900 | 471.100 | 675.300 | 488.500 | 673.300 | 506.000 |
| GR | 671.800 | 508.500 | 670.500 | 511.100 | 669.500 | 513.600 | 668.400 | 516.200 | 667.400 | 518.700 |
| GR | 666.400 | 521.300 | 665.400 | 523.800 | 664.500 | 526.400 | 663.500 | 528.900 | 662.900 | 531.500 |
| GR | 662.400 | 534.000 | 661.900 | 536.600 | 661.120 | 539.100 | 661.600 | 541.700 | 661.700 | 544.200 |
| GR | 661.800 | 546.800 | 661.900 | 549.400 | 661.900 | 551.900 | 661.900 | 554.500 | 661.900 | 557.000 |
| GR | 661.900 | 559.600 | 661.900 | 562.100 | 662.000 | 564.700 | 662.800 | 567.200 | 663.600 | 569.800 |
| GR | 664.400 | 572.300 | 665.400 | 574.900 | 666.500 | 577.400 | 668.000 | 580.000 | 669.500 | 582.600 |
| GR | 670.600 | 597.800 | 671.600 | 613.000 | 672.000 | 628.200 | 672.300 | 643.500 | 672.500 | 658.700 |
| GR | 672.200 | 673.900 | 671.900 | 689.200 | 671.500 | 704.400 | 671.200 | 719.600 | 671.400 | 734.900 |
| GR | 671.600 | 750.100 | 672.000 | 765.300 | 672.400 | 780.600 | 672.900 | 795.800 | 673.300 | 811.000 |
| GR | 673.800 | 826.300 | 674.000 | 841.500 | 674.100 | 856.700 | 674.100 | 872.000 | 674.000 | 887.200 |
| GR | 674.000 | 902.400 | 674.000 | 917.700 | 673.900 | 932.900 | 674.400 | 948.100 | 675.500 | 963.400 |
| GR | 676.700 | 978.600 | 677.800 | 993.800 | 679.700 | 1009.100 | 683.500 | 1024.300 | 687.300 | 1039.600 |
| NH | 4.000 | .050 | 198.000 | .070 | 222.000 | .035 | 277.000 | .050 | 760.000 | 0.000 |
| X1 | 31.557 | 22.000 | 198.000 | 277.000 | 680.100 | 680.100 | 680.100 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 189.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.600 | 0.000 | 670.600 | 43.000 | 670.700 | 60.000 | 673.900 | 110.000 | 673.500 | 160.000 |
| GR | 678.800 | 181.000 | 679.600 | 189.000 | 678.600 | 198.000 | 664.600 | 222.000 | 664.200 | 223.000 |
| GR | 661.800 | 232.000 | 662.900 | 243.000 | 663.100 | 251.000 | 663.000 | 258.000 | 666.400 | 267.000 |
| GR | 671.500 | 277.000 | 673.000 | 360.000 | 672.500 | 460.000 | 674.000 | 560.000 | 673.200 | 660.000 |
| GR | 674.200 | 723.000 | 685.000 | 760.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      SHELBY TOWNSHIP-JOB NO. 5670-08   PROJECT MANAGER  WILLIAM C. ROSSOW
T2      100 YEAR FLOOD = 8060 CFS
T3      CLINTON RIVER MAIN BRANCH
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 626.870 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

     25.19     13.87    626.87      0.00    626.87    628.03      1.16      0.00      0.00    632.40
     8060.        0.     8060.        0.        0.     931.        0.        0.        0.     632.20
      0.00      0.00      8.66      0.00     0.000      .037     0.000     0.000    613.00    651.00
   .002623       63.       63.       63.         0         0         1      0.00     76.72    730.05

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      300.0      464.0  TYPE=      1  TARGET=      164.000
     25.20     14.96    628.12      0.00      0.00    628.49       .38       .07       .39    625.76
     8060.        0.     6575.     1485.        0.     1274.      392.        2.        0.     620.06
       .00       .01      5.16      3.79      .040      .037      .040      .000    613.16    300.00
   .000631       60.       60.       60.         3         0         1      0.00    164.00    464.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      300.0      524.0  TYPE=      1  TARGET=      224.000
     25.21     15.06    628.38      0.00      0.00    628.60       .22       .03       .08    625.92
     8060.        0.     5278.     2782.        0.     1286.      910.        4.        0.     620.22
       .01       .01      4.10      3.06      .040      .037      .040      .000    613.32    300.00
   .000395       60.       60.       60.         2         0         1      0.00    224.00    524.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      300.0      626.0  TYPE=      1  TARGET=      326.000

                VALLEY SECTION A                                                   72

     25.23     14.97    628.57      0.00      0.00    628.68       .11       .03       .05    626.20
     8060.        0.     3869.     4191.        0.     1276.     1815.       10.        1.     620.50
       .02       .01      3.03      2.31      .040      .037      .040      .000    613.60    300.00
   .000217      110.      102.       90.         2         0         1      0.00    326.00    626.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      318.0      695.0  TYPE=      1  TARGET=      377.000
     25.24     16.19    628.59      0.00      0.00    628.73       .15       .01       .04    621.40
     8060.        0.     4761.     3299.        0.     1254.     2175.       14.        1.     620.50
       .02       .01      3.79      1.52      .040      .037      .075      .000    612.40    318.00
   .000356       51.       51.       51.         0         0         1      0.00    377.00    695.00

SPECIAL BRIDGE
```

| SD | XR | RCR | COFQ | DLEN | [illegible] | B P | BARE | SS | ELC U | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.98 | 3.04 | 0.00 | 94.00 | 0.00 | 964.10 | 0.00 | 612.40 | 612.40 |

1490 NH CARD USED
3280 CROSS SECTION 25.25 EXTENDED .46 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 630.74 | 628.73 | 0.00 | 3665. | 4396. | 964. | 625.50 | 627.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 318.0 1100.0 TYPE= 1 TARGET= 782.000

BRIDGE SECTION B AUBURN ROAD UPSTREAM FACE 73

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.25 | 16.76 | 629.16 | 0.00 | 0.00 | 629.23 | .06 | .49 | 0.00 | 621.40 |
| 8060. | 0. | 3450. | 4610. | 0. | 1308. | 3369. | 18. | 2. | 620.50 |
| .03 | .00 | 2.64 | 1.37 | .050 | .038 | .050 | .000 | 612.40 | 318.00 |
| .000170 | 44. | 44. | 44. | 2 | 0 | 3 | 0.00 | 782.00 | 1100.00 |

CCHV= .300 CEHV= .700
1490 NH CARD USED

VALLEY SECTION C 74

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.39 | 18.67 | 629.27 | 0.00 | 0.00 | 629.59 | .32 | .18 | .18 | 633.40 |
| 8060. | 0. | 7675. | 385. | 0. | 1654. | 237. | 70. | 9. | 623.60 |
| .07 | 0.00 | 4.64 | 1.62 | .050 | .037 | .050 | .000 | 610.60 | 572.45 |
| .000415 | 806. | 755. | 636. | 2 | 0 | 1 | 0.00 | 184.30 | 756.75 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 900.0 1040.0 TYPE= 1 TARGET= 140.000

VALLEY SECTION D 75

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.50 | 16.45 | 629.45 | 0.00 | 0.00 | 629.90 | .45 | .27 | .04 | 631.50 |
| 8060. | 0. | 7901. | 159. | 0. | 1457. | 57. | 91. | 11. | 622.00 |
| .10 | 0.00 | 5.42 | 2.80 | .050 | .037 | .050 | .000 | 613.00 | 905.45 |
| .000659 | 600. | 530. | 460. | 2 | 0 | 1 | 0.00 | 134.55 | 1040.00 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 900.0 1014.0 TYPE= 1 TARGET= 114.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25.51 | 14.31 | 629.51 | 0.00 | 0.00 | 630.08 | .57 | .06 | .12 | 631.50 |
| 8060. | 0. | 8060. | 0. | 0. | 1332. | 0. | 93. | 11. | 100000.00 |
| .10 | 0.00 | 6.05 | 0.00 | .050 | .039 | .050 | .000 | 615.20 | 900.00 |
| .001143 | 76. | 76. | 76. | 2 | 0 | 1 | 0.00 | 114.00 | 1014.00 |

```
SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.90      3.04      0.00    114.00      0.00    948.60      0.00    615.20    615.20

1490 NH CARD USED
PRESSURE FLOW

  EGPRS     EGLWC       H3       QWEIR      QPR       BAREA     ELLC      ELTRD     CLASS

  631.64    630.08     0.00        0.      8060.      949.    626.20    634.10     10.00


3470 ENCROACHMENT STATIONS=     900.0    1014.0  TYPE=     1  TARGET=     114.000

                BRIDGE SECTION E  CON RAIL RAILROAD  UPSTREAM FACE            76

    25.51     16.01    631.21     0.00      0.00    631.64      .43      1.56      0.00    631.50
    8060.       0.     8060.       0.        0.     1526.       0.       94.       12.  100000.00
      .11      0.00      5.28     0.00      .090      .048     .050      .000    615.20    900.00
  .001138      14.       14.      14.         2         0        1      0.00    114.00   1014.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     841.0    1305.0  TYPE=     1  TARGET=     464.000
    25.57     16.68    631.87     0.00      0.00    632.05      .18       .28       .13    624.49
    8060.     2781.     2746.    2533.     1475.     528.     1394.      107.       13.    624.99
      .13      1.89      5.21     1.82      .090      .048     .090      .000    615.19    841.00
  .000982     175.      312.     175.         2         0        1      0.00    464.00   1305.00

1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     533.0    1400.0  TYPE=     1  TARGET=    -533.000
    25.63     17.01    632.19     0.00      0.00    632.23      .05       .12       .06    624.48
    8060.     4546.     1701.    1813.     3867.     540.     1607.      127.       16.    624.98
      .17      1.18      3.15     1.13      .090      .048     .087      .000    615.18    533.00
  .000349     175.      312.     175.         2         0        1      0.00    814.14   1347.14

1490 NH CARD USED
    25.71     17.12    632.29     0.00      0.00    632.31      .02       .05       .02    624.47
    8060.     5758.     1105.    1197.     7323.     545.     1636.      170.       21.    624.97
      .24       .79      2.03      .73      .089      .048     .087      .000    615.17     91.77
  .000144     225.      401.     225.         2         0        1      0.00   1256.20   1347.96


CCHV=    .100 CEHV=     .300
1490 NH CARD USED

                VALLEY SECTION F                                                 77

    26.22     17.42    632.52     0.00      0.00    632.53      .02       .23       .00    624.40
    8060.     5771.     1076.    1213.     7609.     557.     1712.      522.       66.    624.90
      .76       .76      1.93      .71      .089      .048     .087      .000    615.10     89.75
```

1490 NH CARD USED

VALLEY SECTION G 78

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26.79 | 12.46 | 632.96 | 0.00 | 0.00 | 633.02 | .06 | .48 | .01 | 627.60 |
| 8060. | 5576. | 1919. | 566. | 4405. | 558. | 750. | 887. | 122. | 630.10 |
| 1.10 | 1.27 | 3.44 | .75 | .074 | .043 | .090 | .000 | 620.50 | 28.99 |
| .000466 | 2000. | 3010. | 1800. | 2 | 0 | 1 | 0.00 | 1195.56 | 1224.55 |

1490 NH CARD USED

VALLEY SECTION H 79

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.05 | 10.06 | 633.56 | 0.00 | 0.00 | 633.64 | .09 | .62 | .01 | 630.20 |
| 8060. | 4940. | 2562. | 559. | 3157. | 727. | 609. | 1022. | 151. | 629.90 |
| 1.25 | 1.56 | 3.52 | .92 | .062 | .041 | .100 | .000 | 623.50 | 91.02 |
| .000583 | 1100. | 1370. | 1250. | 2 | 0 | 1 | 0.00 | 970.71 | 1061.73 |

1490 NH CARD USED

VALLEY SECTION I 80

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.56 | 10.24 | 635.94 | 0.00 | 0.00 | 636.39 | .45 | 2.64 | .11 | 632.70 |
| 8060. | 2620. | 5043. | 397. | 1628. | 754. | 287. | 1207. | 197. | 632.70 |
| 1.39 | 1.61 | 6.69 | 1.38 | .093 | .047 | .100 | .000 | 625.70 | 102.94 |
| .002817 | 2100. | 2700. | 2250. | 3 | 0 | 1 | 0.00 | 867.51 | 970.45 |

1490 NH CARD USED

VALLEY SECTION J 81

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27.85 | 12.99 | 638.79 | 0.00 | 0.00 | 638.94 | .15 | 2.53 | .03 | 635.30 |
| 8060. | 4435. | 2971. | 654. | 3319. | 610. | 561. | 1321. | 226. | 635.40 |
| 1.55 | 1.34 | 4.87 | 1.17 | .102 | .046 | .110 | .000 | 625.80 | 43.24 |
| .001181 | 1350. | 1540. | 1450. | 2 | 0 | 1 | 0.00 | 982.92 | 1026.16 |

1490 NH CARD USED

VALLEY SECTION K 82

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28.15 | 10.69 | 640.59 | 0.00 | 0.00 | 640.79 | .20 | 1.83 | .01 | 636.40 |
| 8060. | 5326. | 2734. | 0. | 2250. | 530. | 0. | 1459. | 260. | 640.50 |
| 1.68 | 2.37 | 5.16 | .01 | .044 | .040 | .090 | .000 | 629.90 | 57.19 |
| .001056 | 1700. | 1580. | 1350. | 3 | 0 | 1 | 0.00 | 799.36 | 856.55 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION L 83

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28.46 | 9.46 | 642.76 | 0.00 | 0.00 | 643.05 | .29 | 2.23 | .03 | 640.90 |
| 8060. | 3808. | 3337. | 915. | 2097. | 525. | 910. | 1561. | 295. | 639.60 |
| 1.80 | 1.82 | 6.35 | 1.01 | .072 | .045 | .131 | .000 | 633.30 | 123.27 |

```
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        .0      923.1  TYPE=     1  TARGET=     939.999

                VALLEY SECTION M                                                84

    29.03      8.44    648.44      0.00      0.00    648.73       .29      5.68       .00    644.60
    8060.     2245.     3747.     2068.     1095.     623.     1467.     1741.      354.    645.40
     1.99      2.05      6.02      1.41      .079      .040      .101      .000    640.00     58.90
  .002021     2400.     3050.     1900.         4         0         1      0.00    864.18    923.08

CCHV=     .500 CEHV=   1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      210.0      925.0  TYPE=     1  TARGET=     715.000
    29.09      8.84    648.96      0.00      0.00    649.28       .32       .52       .03    645.40
    8060.     2268.     3992.     1800.     1002.     653.     1051.     1757.      358.    646.20
     2.01      2.26      6.11      1.71      .073      .040      .080      .000    640.12    210.00
  .002012      210.      302.      220.         2         0         1      0.00    715.00    925.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      435.0      925.0  TYPE=     1  TARGET=     490.000
    29.18      9.61    649.91      0.00      0.00    650.52       .61       .95       .29    646.70
    8060.     1998.     5260.      802.      757.     696.      493.     1776.      363.    647.40
     2.03      2.64      7.56      1.62      .075      .040      .090      .000    640.30    435.00
  .002870      315.      453.      330.         2         0         1      0.00    490.00    925.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      710.0      975.0  TYPE=     1  TARGET=     265.000
    29.26     10.73    651.23      0.00      0.00    652.29      1.05      1.33       .45    647.90
    8060.      790.     6883.      387.      297.     777.      228.     1790.      366.    648.60
     2.04      2.66      8.86      1.70      .078      .040      .100      .000    640.50    710.00
  .003486      315.      453.      330.         2         0         1      0.00    265.00    975.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      895.0     1005.0  TYPE=     1  TARGET=     110.000

                VALLEY SECTION N                                                85

    29.32     11.68    652.28      0.00      0.00    653.64      1.36      1.05       .31    648.80
    8060.       51.     7950.       59.       17.     844.       14.     1797.      367.    649.50
     2.05      2.94      9.42      4.34      .070      .040      .040      .000    640.60    895.00
  .003608      210.      302.      220.         2         0         1      0.00    110.00   1005.00

1490 NH CARD USED
    29.33     10.03    652.53      0.00      0.00    654.30      1.77       .25       .41    661.60
    8060.        0.     8060.        0.        0.     754.        0.     1798.      367.    661.60
     2.05      0.00     10.68      0.00      .070      .040      .040      .000    642.50    900.00
  .004848       60.       60.       60.         2         0         1      0.00     80.00    980.00

NORMAL BRIDGE,NRD= 4 MIN ELTRD=  661.60 MAX ELLC=  654.90

    29.33     10.03    652.53      0.00      0.00    654.30      1.77       .00       .00    661.60
```

N (I)

```
   2.05      0.00     1 .08      0. 0      . 32      . 32      .032      . 00      [illegible]      [illegible]
.003433       1.        1.        1.        0         0         1      0.00     80.00    980.00

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

NORMAL BRIDGE,NRD= 4 MIN ELTRD=  661.60 MAX ELLC=  654.90

                BRIDGE SECTION O  RYAN ROAD  UPSTREAM FACE                    86

   29.34     10.30    652.80      0.00      0.00    654.48      1.67       .12       .05    661.60      O (J)
   8060.       0.      8060.       0.        0.      776.       0.      1799.      367.    661.60
    2.05      0.00     10.38      0.00      .032      .032      .032      .000    642.50    900.00
 .003147      37.       37.       37.        2         0         1      0.00     80.00    980.00

1490 NH CARD USED
   29.34     10.31    652.81      0.00      0.00    654.48      1.67       .00       .00    661.60
   8060.       0.      8060.       0.        0.      777.       0.      1799.      367.    661.60
    2.05      0.00     10.38      0.00      .032      .045      .032      .000    642.50    900.00
 .005588       1.        I.        1.        0         0         1      0.00     80.00    980.00

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     844.0    1062.0  TYPE=     1  TARGET=     218.000
   29.36     11.77    654.44      0.00      0.00    655.31       .87       .43       .40    650.87
   8060.      754.     6833.      473.      212.      852.      183.     1801.      368.    651.57
    2.06      3.56      8.02      2.59      .060      .045      .070      .000    642.67    844.00
 .003500      66.      100.       72.        4         0         1      0.00    218.00   1062.00

3470 ENCROACHMENT STATIONS=     800.0    1110.0  TYPE=     1  TARGET=     310.000
   29.37     12.47    655.21      0.00      0.00    655.67       .46       .16       .20    650.94
   8060.     1405.     5742.      913.      467.      923.      410.     1803.      368.    651.64
    2.06      3.01      6.22      2.22      .060      .045      .070      .000    642.74    800.00
 .001897      44.       67.       48.        3         0         1      0.00    310.00   1110.00

1490 NH CARD USED

                VALLEY SECTION P                                              87

   29.82     12.02    657.12      0.00      0.00    657.16       .04      1.28       .21    653.20      P (K)
   8060.     4968.     1338.     1754.     3791.      496.     1530.     1949.      397.    652.30
    2.41      1.31      2.69      1.15      .056      .045      .070      .006    645.10     74.99
 .000342    1440.     2404.     1630.        4         0         1      0.00   1275.90   1350.89

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
   30.04      9.91    657.61      0.00      0.00    657.83       .23       .62       .06    654.90
   8060.      894.     2703.     4463.      593.      456.     2076.     2036.      420.    654.70
    2.48      1.51      5.92      2.15      .070      .045      .070      .008    647.70    379.06
 .002038     750.     1130.      900.        2         0         1      0.00   1098.18   1477.24
```

1490 NH CARD USED

VALLEY SECTION Q 88

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.25 | 9.35 | 659.65 | 0.00 | 0.00 | 659.88 | .23 | 2.05 | .00 | 656.70 |
| 8060. | 294. | 2967. | 4799. | 268. | 491. | 3051. | 2109. | 444. | 657.20 |
| 2.57 | 1.10 | 6.04 | 1.57 | .096 | .045 | .093 | .010 | 650.30 | 324.10 |
| .002186 | 750. | 1130. | 900. | 2 | 0 | 1 | 0.00 | 1285.05 | 1609.15 |

Q (L)

1490 NH CARD USED

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 30.49 | 8.77 | 661.27 | 0.00 | 0.00 | 661.39 | .12 | 1.50 | .01 | 659.00 |
| 8060. | 325. | 2442. | 5293. | 370. | 526. | 3909. | 2171. | 463. | 659.10 |
| 2.66 | .88 | 4.64 | 1.35 | .100 | .047 | .100 | .012 | 652.50 | 320.53 |
| .001686 | 750. | 1265. | 525. | 2 | 0 | 1 | 0.00 | 1578.11 | 1898.64 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1676.2 TYPE= 1 TARGET= 1819.999

VALLEY SECTION R 89

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.73 | 8.01 | 662.71 | 0.00 | 0.00 | 662.81 | .10 | 1.42 | .00 | 661.30 |
| 7870. | 695. | 1956. | 5219. | 796. | 455. | 3233. | 2238. | 486. | 661.00 |
| 2.76 | .87 | 4.30 | 1.61 | .100 | .050 | .100 | .014 | 654.70 | 36.35 |
| .002178 | 750. | 1265. | 525. | 2 | 0 | 1 | 0.00 | 1639.87 | 1676.22 |

R (A)

CCHV= .300 CEHV= .800
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1400.0 TYPE= 1 TARGET= 1399.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.84 | 7.68 | 664.28 | 0.00 | 0.00 | 664.62 | .34 | 1.62 | .19 | 661.70 |
| 7870. | 1112. | 3524. | 3234. | 813. | 523. | 1870. | 2289. | 505. | 662.40 |
| 2.80 | 1.37 | 6.74 | 1.73 | .100 | .045 | .100 | .015 | 656.60 | 121.77 |
| .003784 | 400. | 560. | 625. | 2 | 0 | 1 | 0.00 | 1278.23 | 1400.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 960.0 TYPE= 1 TARGET= 959.999

VALLEY SECTION S 90

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30.94 | 8.02 | 666.32 | 0.00 | 0.00 | 667.03 | .71 | 2.11 | .30 | 662.10 |
| 7870. | 1624. | 4798. | 1448. | 993. | 560. | 947. | 2324. | 518. | 663.90 |
| 2.82 | 1.64 | 8.57 | 1.53 | .109 | .040 | .110 | .015 | 658.30 | 104.02 |
| .003874 | 400. | 560. | 625. | 2 | 0 | 1 | 0.00 | 855.98 | 960.00 |

S (N)

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1350.0 TYPE= 1 TARGET= 509.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.08 | 9.35 | 668.51 | 0.00 | 0.00 | 669.28 | .76 | 2.20 | .04 | 664.56 |
| 7870. | 99. | 4875. | 2896. | 108. | 560. | 1204. | 2357. | 527. | 664.76 |
| 2.85 | .92 | 8.71 | 2.40 | .100 | .035 | .080 | .016 | 659.16 | 864.35 |
| .002711 | 770. | 740. | 530. | 3 | 0 | 1 | 0.00 | 485.65 | 1350.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1230.0 TYPE= 1 TARGET= 389.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.16 | 9.84 | 669.47 | 0.00 | 0.00 | 670.38 | .92 | .98 | .12 | 665.03 |
| 7870. | 174. | 5409. | 2287. | 158. | 594. | 858. | 2370. | 531. | 665.23 |
| 2.87 | 1.10 | 9.10 | 2.67 | .100 | .035 | .080 | .017 | 659.63 | 863.05 |
| .002742 | 400. | 400. | 280. | 2 | 0 | 1 | 0.00 | 366.95 | 1230.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1170.0 TYPE= 1 TARGET= 329.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.20 | 10.10 | 669.96 | 0.00 | 0.00 | 671.09 | 1.13 | .53 | .17 | 665.26 |
| 7870. | 233. | 5949. | 1688. | 187. | 614. | 599. | 2376. | 532. | 665.46 |
| 2.87 | 1.25 | 9.69 | 2.82 | .100 | .035 | .080 | .017 | 659.86 | 862.32 |
| .002984 | 215. | 200. | 145. | 1 | 0 | 1 | 0.00 | 307.68 | 1170.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1150.0 TYPE= 1 TARGET= 309.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.21 | 10.17 | 670.11 | 0.00 | 0.00 | 671.34 | 1.23 | .17 | .08 | 665.34 |
| 7870. | 254. | 6168. | 1448. | 194. | 619. | 505. | 2377. | 532. | 665.54 |
| 2.87 | 1.31 | 9.96 | 2.87 | .100 | .035 | .080 | .017 | 659.94 | 862.12 |
| .003120 | 65. | 60. | 44. | 1 | 0 | 1 | 0.00 | 287.88 | 1150.00 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 841.0 1125.0 TYPE= 1 TARGET= 284.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.22 | 10.24 | 670.26 | 0.00 | 0.00 | 671.66 | 1.39 | .19 | .13 | 665.42 |
| 7870. | 278. | 6469. | 1123. | 201. | 624. | 383. | 2379. | 533. | 665.62 |
| 2.88 | 1.38 | 10.37 | 2.93 | .100 | .035 | .080 | .017 | 660.02 | 861.95 |
| .003348 | 65. | 60. | 44. | 2 | 0 | 1 | 0.00 | 263.05 | 1125.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 841.0 1100.0 TYPE= 1 TARGET= 259.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.23 | 10.30 | 670.36 | 0.00 | 0.00 | 671.92 | 1.55 | .13 | .13 | 665.46 |
| 7870. | 303. | 6753. | 814. | 209. | 629. | 270. | 2380. | 533. | 665.66 |
| 2.88 | 1.45 | 10.74 | 3.02 | .100 | .035 | .080 | .017 | 660.06 | 861.76 |
| .003553 | 42. | 40. | 28. | 1 | 0 | 1 | 0.00 | 238.24 | 1100.00 |

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 841.0 1459.0 TYPE= 1 TARGET= -841.000

VALLEY SECTION T 91

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.24 | 10.34 | 670.44 | 669.40 | 0.00 | 672.36 | 1.92 | .15 | .29 | 665.50 |
| 7870. | 333. | 7307. | 230. | 212. | 635. | 83. | 2381. | 533. | 666.70 |
| 2.88 | 1.57 | 11.52 | 2.78 | .100 | .035 | .040 | .017 | 660.10 | 861.68 |
| .004103 | 43. | 40. | 29. | 4 | 11 | 1 | 0.00 | 257.41 | 1195.21 |

T (a)

1490 NH CARD USED

3265 DIVIDED FLOW

```
3470 ENCROACHMENT STATIONS=      841.0     1459.0  TYPE=      1  TARGET=     -841.000
    31.24     10.80    670.92      0.00      0.00    672.53      1.61       .08       .09    665.52
    7870.      414.     7125.      330.      261.      668.      123.     2381.      533.    666.72
     2.88      1.59     10.67      2.68      .100      .035      .040      .017    660.12    860.44
  .003296       21.       21.       21.         4         0         1      0.00    279.02   1203.88
```

1490 NH CARD USED

```
3470 ENCROACHMENT STATIONS=      784.6     1054.1  TYPE=      1  TARGET=      269.500
    31.26     11.04    671.26      0.00      0.00    672.91      1.65       .35       .04    666.40
    7870.      357.     7269.      244.      232.      679.       62.     2384.      534.    667.00
     2.88      1.53     10.70      3.93      .097      .035      .040      .017    660.22    802.90
  .003242      106.      106.      106.         2         0         1      0.00    216.53   1019.43
```

1490 NH CARD USED

```
3470 ENCROACHMENT STATIONS=      734.9      997.6  TYPE=      1  TARGET=      262.700
    31.28     11.32    671.67      0.00      0.00    673.33      1.66       .41       .01    667.40
    7870.      249.     7343.      278.      180.      687.       73.     2387.      535.    667.40
     2.89      1.38     10.68      3.82      .095      .035      .040      .017    660.35    752.21
  .003182      127.      127.      127.         0         0         1      0.00    223.27    975.49
```

1490 NH CARD USED

```
3470 ENCROACHMENT STATIONS=      685.1     1000.0  TYPE=      1  TARGET=      314.900
    31.31     11.99    672.47      0.00      0.00    673.79      1.31       .35       .10    668.40
    7870.      210.     7041.      618.      172.      727.      212.     2390.      535.    667.70
     2.89      1.23      9.69      2.91      .093      .035      .042      .017    660.48    699.25
  .002436      127.      127.      127.         3         0         1      0.00    300.75   1000.00
```

```
CCHV=     .100 CEHV=     .300
1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

```
3470 ENCROACHMENT STATIONS=      635.3     1249.3  TYPE=      1  TARGET=     -635.300
    31.33     12.47    673.08      0.00      0.00    674.11      1.04       .30       .03    669.40
    7870.      158.     6604.     1108.      139.      747.      395.     2393.      536.    668.10
     2.89      1.13      8.84      2.81      .088      .037      .043      .018    660.61    647.79
  .002236      127.      127.      127.         2         0         1      0.00    377.46   1025.25
```

1490 NH CARD USED

3265 DIVIDED FLOW

```
3470 ENCROACHMENT STATIONS=      436.2     1039.6  TYPE=      1  TARGET=     -436.200
    31.43     13.22    674.34      0.00      0.00    675.21       .87      1.08       .02    673.30
    7870.        3.     6236.     1631.        6.      750.      622.     2409.      541.    669.50
     2.91       .47      8.31      2.62      .079      .038      .046      .018    661.12    449.69
  .002003      510.      510.      510.         2         0         1      0.00    459.72    946.19
```

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 189.0 760.0 TYPE= 1 TARGET= -189.000

VALLEY SECTION U 92

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31.56 | 13.99 | 675.79 | 0.00 | 0.00 | 676.34 | .56 | 1.10 | .03 | 678.60 |
| 7870. | 0. | 5289. | 2581. | 0. | 741. | 1204. | 2435. | 549. | 671.50 |
| 2.95 | 0.00 | 7.14 | 2.14 | .079 | .037 | .050 | .019 | 661.80 | 202.83 |
| .001340 | 680. | 680. | 680. | 1 | 0 | 1 | 0.00 | 525.60 | 728.42 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER MAIN BRANC

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 4630.00 | 624.52 | .59 | 0.00 | 0.00 | 4630.00 | 11.52 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 7140.00 | 626.35 | 1.00 | 0.00 | 0.00 | 7140.00 | 13.35 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 8060.00 | 626.87 | 1.16 | 0.00 | 0.00 | 8060.00 | 13.87 | 76.72 |
| 25.19 | 63.00 | 0.00 | 0.00 | 613.00 | 11100.00 | 628.28 | 1.77 | 0.00 | 0.00 | 11100.00 | 15.28 | 76.72 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 4630.00 | 625.05 | .27 | .06 | .16 | 4022.05 | 11.89 | 157.07 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 7140.00 | 627.39 | .35 | .06 | .33 | 5881.14 | 14.23 | 164.00 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 8060.00 | 628.12 | .38 | .07 | .39 | 6575.23 | 14.96 | 164.00 |
| 25.20 | 60.00 | 0.00 | 0.00 | 613.16 | 11100.00 | 630.29 | .48 | .08 | .65 | 8847.00 | 17.13 | 164.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 4630.00 | 625.09 | .32 | .04 | .05 | 4222.38 | 11.77 | 141.56 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 7140.00 | 627.63 | .21 | .03 | .07 | 4757.28 | 14.31 | 224.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 8060.00 | 628.38 | .22 | .03 | .08 | 5277.66 | 15.06 | 224.00 |
| 25.21 | 60.00 | 0.00 | 0.00 | 613.32 | 11100.00 | 630.64 | .27 | .03 | .10 | 6975.09 | 17.32 | 224.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 4630.00 | 625.17 | .41 | .08 | .09 | 4572.45 | 11.57 | 115.70 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 7140.00 | 627.81 | .10 | .03 | .05 | 3511.40 | 14.21 | 326.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 8060.00 | 628.57 | .11 | .03 | .05 | 3868.94 | 14.97 | 326.00 |
| 25.23 | 102.00 | 0.00 | 0.00 | 613.60 | 11100.00 | 630.87 | .13 | .03 | .07 | 5036.80 | 17.27 | 326.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 4630.00 | 625.27 | .37 | .04 | .02 | 4630.00 | 12.87 | 89.50 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 7140.00 | 627.82 | .14 | .01 | .03 | 4336.24 | 15.42 | 377.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 8060.00 | 628.59 | .15 | .01 | .04 | 4760.64 | 16.19 | 377.00 |
| 25.24 | 51.00 | 0.00 | 0.00 | 612.40 | 11100.00 | 630.88 | .17 | .01 | .04 | 6119.20 | 18.48 | 377.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 4630.00 | 625.63 | .35 | .34 | 0.00 | 4630.00 | 13.23 | 94.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 7140.00 | 628.61 | .06 | .70 | 0.00 | 3208.10 | 16.21 | 777.57 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 8060.00 | 629.16 | .06 | .49 | 0.00 | 3449.82 | 16.76 | 782.00 |
| 25.25 | 44.00 | 627.00 | 625.50 | 612.40 | 11100.00 | 631.12 | .06 | .13 | 0.00 | 4074.89 | 18.72 | 782.00 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 4630.00 | 626.19 | .20 | .36 | .04 | 4577.53 | 15.59 | 172.68 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 7140.00 | 628.71 | .28 | .17 | .15 | 6845.89 | 18.11 | 182.22 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 8060.00 | 629.27 | .32 | .18 | .18 | 7674.78 | 18.67 | 184.30 |
| 25.39 | 755.00 | 0.00 | 0.00 | 610.60 | 11100.00 | 631.20 | .43 | .18 | .26 | 10326.87 | 20.60 | 191.56 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 4630.00 | 626.35 | .28 | .22 | .02 | 4575.53 | 13.35 | 126.31 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 7140.00 | 628.88 | .39 | .25 | .03 | 7008.36 | 15.88 | 133.05 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 8060.00 | 629.45 | .45 | .27 | .04 | 7901.41 | 16.45 | 134.55 |
| 25.50 | 530.00 | 0.00 | 0.00 | 613.00 | 11100.00 | 631.39 | .62 | .32 | .06 | 10840.86 | 18.39 | 139.71 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 4630.00 | 626.40 | .35 | .05 | .07 | 4630.00 | 11.20 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 7140.00 | 628.94 | .49 | .06 | .10 | 7140.00 | 13.74 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 8060.00 | 629.51 | .57 | .06 | .12 | 8060.00 | 14.31 | 114.00 |
| 25.51 | 76.00 | 0.00 | 0.00 | 615.20 | 11100.00 | 631.47 | .79 | .08 | .18 | 11100.00 | 16.27 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 4630.00 | 626.78 | .32 | .35 | 0.00 | 4630.00 | 11.58 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 7140.00 | 630.22 | .40 | 1.18 | 0.00 | 7140.00 | 15.02 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 8060.00 | 631.21 | .43 | 1.56 | 0.00 | 8060.00 | 16.01 | 114.00 |
| 25.51 | 14.00 | 634.10 | 626.20 | 615.20 | 11100.00 | 634.31 | .54 | 2.59 | 0.00 | 11100.00 | 19.11 | 114.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 4630.00 | 627.38 | .69 | .60 | .37 | 2888.09 | 12.19 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 7140.00 | 630.81 | .21 | .32 | .09 | 2681.86 | 15.62 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 8060.00 | 631.87 | .18 | .28 | .13 | 2746.47 | 16.68 | 464.00 |
| 25.57 | 312.00 | 0.00 | 0.00 | 615.19 | 11100.00 | 635.13 | .13 | .21 | .20 | 3067.31 | 19.94 | 464.00 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 4630.00 | 628.63 | .09 | .36 | .30 | 1566.85 | 13.45 | 791.85 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 7140.00 | 631.19 | .06 | .15 | .08 | 1664.83 | 16.01 | 806.83 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 8060.00 | 632.19 | .05 | .12 | .06 | 1700.86 | 17.01 | 814.14 |
| 25.63 | 312.00 | 0.00 | 0.00 | 615.18 | 11100.00 | 635.35 | .04 | .07 | .05 | 1863.50 | 20.17 | 837.34 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 4630.00 | 628.86 | .03 | .12 | .03 | 996.45 | 13.69 | 1212.73 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 7140.00 | 631.31 | .02 | .07 | .02 | 1079.67 | 16.14 | 1242.46 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 8060.00 | 632.29 | .02 | .05 | .02 | 1105.26 | 17.12 | 1256.20 |
| 25.71 | 401.00 | 0.00 | 0.00 | 615.17 | 11100.00 | 635.41 | .01 | .03 | .01 | 1213.43 | 20.24 | 1300.28 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 4630.00 | 629.29 | .02 | .43 | .00 | 910.89 | 14.19 | 1217.36 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 7140.00 | 631.59 | .02 | .27 | .00 | 1041.03 | 16.49 | 1247.29 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 8060.00 | 632.52 | .02 | .23 | .00 | 1076.19 | 17.42 | 1260.40 |
| 26.22 | 2705.00 | 0.00 | 0.00 | 615.10 | 11100.00 | 635.56 | .01 | .14 | .00 | 1198.83 | 20.46 | 1303.29 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 4630.00 | 630.18 | .18 | 1.00 | .05 | 2005.99 | 9.68 | 1146.35 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 7140.00 | 632.13 | .08 | .59 | .02 | 1944.25 | 11.63 | 1180.87 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 8060.00 | 632.96 | .06 | .48 | .01 | 1918.50 | 12.46 | 1195.56 |
| 26.79 | 3010.00 | 0.00 | 0.00 | 620.50 | 11100.00 | 635.81 | .04 | .27 | .01 | 1934.25 | 15.31 | 1238.51 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 4630.00 | 631.58 | .11 | 1.32 | .01 | 2012.98 | 8.08 | 960.42 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 7140.00 | 632.91 | .10 | .79 | .01 | 2464.70 | 9.41 | 967.33 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 8060.00 | 633.56 | .09 | .62 | .01 | 2561.58 | 10.06 | 970.71 |
| 27.05 | 1370.00 | 0.00 | 0.00 | 623.50 | 11100.00 | 636.09 | .06 | .30 | .01 | 2838.81 | 12.59 | 983.89 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 4630.00 | 634.74 | .40 | 3.36 | .09 | 3608.41 | 9.04 | 830.15 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 7140.00 | 635.66 | .44 | 2.98 | .10 | 4687.97 | 9.96 | 861.57 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 8060.00 | 635.94 | .45 | 2.64 | .11 | 5042.63 | 10.24 | 867.51 |
| 27.56 | 2700.00 | 0.00 | 0.00 | 625.70 | 11100.00 | 637.37 | .34 | 1.48 | .08 | 5660.96 | 11.67 | 877.20 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 4630.00 | 637.34 | .14 | 2.31 | .03 | 2193.43 | 11.54 | 976.07 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 7140.00 | 638.45 | .15 | 2.47 | .03 | 2770.16 | 12.65 | 981.29 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 8060.00 | 638.79 | .15 | 2.53 | .03 | 2970.98 | 12.99 | 982.92 |
| 27.85 | 1540.00 | 0.00 | 0.00 | 625.80 | 11100.00 | 639.83 | .17 | 2.27 | .02 | 3595.32 | 14.03 | 987.76 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 4630.00 | 639.22 | .24 | 1.95 | .03 | 2320.27 | 9.32 | 770.84 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 7140.00 | 640.26 | .20 | 1.85 | .02 | 2626.13 | 10.36 | 797.02 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 8060.00 | 640.59 | .20 | 1.83 | .01 | 2733.61 | 10.69 | 799.36 |
| 28.15 | 1580.00 | 0.00 | 0.00 | 629.90 | 11100.00 | 641.59 | .20 | 1.78 | .01 | 3079.99 | 11.69 | 807.75 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 4630.00 | 641.74 | .30 | 2.57 | .02 | 2621.25 | 8.44 | 1280.60 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 7140.00 | 642.51 | .29 | 2.31 | .03 | 3172.24 | 9.21 | 1409.03 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 8060.00 | 642.76 | .29 | 2.23 | .03 | 3337.08 | 9.46 | 1423.91 |
| 28.46 | 1610.00 | 0.00 | 0.00 | 633.30 | 11100.00 | 643.56 | .27 | 2.02 | .02 | 3803.72 | 10.26 | 1430.19 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 4630.00 | 647.29 | .23 | 5.47 | .01 | 2589.30 | 7.29 | 861.37 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 7140.00 | 648.17 | .27 | 5.64 | .00 | 3444.37 | 8.17 | 863.52 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 8060.00 | 648.44 | .29 | 5.68 | .00 | 3746.74 | 8.44 | 864.18 |
| 29.03 | 3050.00 | 0.00 | 0.00 | 640.00 | 11100.00 | 649.23 | .34 | 5.72 | .02 | 4714.76 | 9.23 | 866.05 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 4630.00 | 647.76 | .26 | .47 | .03 | 2758.96 | 7.64 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 7140.00 | 648.68 | .30 | .50 | .03 | 3672.39 | 8.56 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 8060.00 | 648.96 | .32 | .52 | .03 | 3991.95 | 8.84 | 715.00 |
| 29.09 | 302.00 | 0.00 | 0.00 | 640.12 | 11100.00 | 649.79 | .38 | .56 | .04 | 5009.56 | 9.67 | 715.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 4630.00 | 648.60 | .45 | .84 | .19 | 3486.66 | 8.30 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 7140.00 | 649.60 | .57 | .92 | .27 | 4802.96 | 9.30 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 8060.00 | 649.91 | .61 | .95 | .29 | 5259.95 | 9.61 | 490.00 |
| 29.18 | 453.00 | 0.00 | 0.00 | 640.30 | 11100.00 | 650.81 | .74 | 1.02 | .36 | 6709.74 | 10.51 | 490.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 4630.00 | 649.69 | .67 | 1.09 | .22 | 4269.88 | 9.19 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 7140.00 | 650.87 | .96 | 1.27 | .39 | 6201.06 | 10.37 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 8060.00 | 651.23 | 1.05 | 1.33 | .45 | 6883.19 | 10.73 | 265.00 |
| 29.26 | 453.00 | 0.00 | 0.00 | 640.50 | 11100.00 | 652.29 | 1.37 | 1.48 | .63 | 9076.10 | 11.79 | 265.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 4630.00 | 650.48 | .74 | .79 | .07 | 4608.73 | 9.88 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 7140.00 | 651.85 | 1.19 | .98 | .24 | 7057.40 | 11.25 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 8060.00 | 652.28 | 1.36 | 1.05 | .31 | 7949.72 | 11.68 | 110.00 |
| 29.32 | 302.00 | 0.00 | 0.00 | 640.60 | 11100.00 | 653.52 | 1.93 | 1.23 | .56 | 10885.41 | 12.92 | 110.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 4630.00 | 650.65 | .91 | .17 | .17 | 4630.00 | 8.15 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 7140.00 | 652.08 | 1.53 | .23 | .34 | 7140.00 | 9.58 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 8060.00 | 652.53 | 1.77 | .25 | .41 | 8060.00 | 10.03 | 80.00 |
| 29.33 | 60.00 | 0.00 | 0.00 | 642.50 | 11100.00 | 653.83 | 2.60 | .31 | .66 | 11100.00 | 11.33 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 4630.00 | 650.66 | .91 | .00 | .00 | 4630.00 | 8.16 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 7140.00 | 652.09 | 1.53 | .00 | .00 | 7140.00 | 9.59 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 8060.00 | 652.53 | 1.77 | .00 | .00 | 8060.00 | 10.03 | 80.00 |
| 29.33 | 1.00 | 661.60 | 654.90 | 642.50 | 11100.00 | 653.83 | 2.59 | .01 | .00 | 11100.00 | 11.33 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 4630.00 | 650.79 | .88 | .08 | .02 | 4630.00 | 8.29 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 7140.00 | 652.31 | 1.46 | .11 | .04 | 7140.00 | 9.81 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 8060.00 | 652.80 | 1.67 | .12 | .05 | 8060.00 | 10.30 | 80.00 |
| 29.34 | 37.00 | 661.60 | 654.90 | 642.50 | 11100.00 | 654.33 | 2.37 | .15 | .11 | 11100.00 | 11.83 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 4630.00 | 650.79 | .88 | .00 | .00 | 4630.00 | 8.29 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 7140.00 | 652.31 | 1.46 | .00 | .00 | 7140.00 | 9.81 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 8060.00 | 652.81 | 1.67 | .00 | .00 | 8060.00 | 10.31 | 80.00 |
| 29.34 | 1.00 | 0.00 | 0.00 | 642.50 | 11100.00 | 654.33 | 2.37 | .00 | .00 | 11100.00 | 11.83 | 80.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 4630.00 | 651.31 | 1.10 | .51 | .22 | 4571.47 | 8.64 | 155.46 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 7140.00 | 653.51 | .97 | .47 | .24 | 6325.42 | 10.84 | 218.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 8060.00 | 654.44 | .87 | .43 | .40 | 6832.69 | 11.77 | 218.00 |
| 29.36 | 100.00 | 0.00 | 0.00 | 642.67 | 11100.00 | 657.11 | .74 | .34 | .81 | 8541.66 | 14.44 | 218.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 4630.00 | 652.40 | .57 | .30 | .26 | 4115.16 | 9.66 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 7140.00 | 654.41 | .50 | .19 | .24 | 5359.73 | 11.67 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 8060.00 | 655.21 | .46 | .16 | .20 | 5742.41 | 12.47 | 310.00 |
| 29.37 | 67.00 | 0.00 | 0.00 | 642.74 | 11100.00 | 657.73 | .40 | .10 | .17 | 6992.26 | 14.99 | 310.00 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 4630.00 | 655.27 | .05 | 2.08 | .26 | 1141.54 | 10.17 | 1265.23 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 7140.00 | 656.58 | .04 | 1.49 | .23 | 1299.41 | 11.48 | 1272.83 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 8060.00 | 657.12 | .04 | 1.28 | .21 | 1337.83 | 12.02 | 1275.90 |
| 29.82 | 2404.00 | 0.00 | 0.00 | 645.10 | 11100.00 | 659.06 | .03 | .79 | .18 | 1438.74 | 13.96 | 1287.19 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 4630.00 | 656.02 | .40 | .99 | .11 | 2434.70 | 8.32 | 910.04 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 7140.00 | 657.15 | .27 | .73 | .07 | 2693.83 | 9.45 | 1072.53 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 8060.00 | 657.61 | .23 | .62 | .06 | 2702.94 | 9.91 | 1098.18 |
| 30.04 | 1130.00 | 0.00 | 0.00 | 647.70 | 11100.00 | 659.35 | .13 | .36 | .03 | 2653.09 | 11.65 | 1198.11 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 4630.00 | 658.72 | .21 | 2.48 | .02 | 2212.96 | 8.42 | 1225.07 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 7140.00 | 659.42 | .22 | 2.22 | .00 | 2774.87 | 9.12 | 1271.27 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 8060.00 | 659.65 | .23 | 2.05 | .00 | 2967.23 | 9.35 | 1285.05 |
| 30.25 | 1130.00 | 0.00 | 0.00 | 650.30 | 11100.00 | 660.58 | .20 | 1.28 | .02 | 3330.91 | 10.28 | 1345.43 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 4630.00 | 660.25 | .11 | 1.43 | .01 | 1785.32 | 7.75 | 1466.46 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 7140.00 | 661.02 | .12 | 1.48 | .01 | 2279.44 | 8.52 | 1559.16 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 8060.00 | 661.27 | .12 | 1.50 | .01 | 2441.60 | 8.77 | 1578.11 |
| 30.49 | 1265.00 | 0.00 | 0.00 | 652.50 | 11100.00 | 662.01 | .13 | 1.35 | .01 | 2941.36 | 9.51 | 1610.46 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 4520.00 | 661.71 | .09 | 1.44 | .00 | 1403.45 | 7.01 | 1572.22 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 6970.00 | 662.47 | .10 | 1.42 | .00 | 1815.60 | 7.77 | 1639.50 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 7870.00 | 662.71 | .10 | 1.42 | .00 | 1955.73 | 8.01 | 1639.87 |
| 30.73 | 1265.00 | 0.00 | 0.00 | 654.70 | 10800.00 | 663.42 | .11 | 1.39 | .00 | 2383.77 | 8.72 | 1640.98 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 4520.00 | 663.32 | .35 | 1.67 | .21 | 2670.39 | 6.72 | 1268.75 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 6970.00 | 664.05 | .34 | 1.63 | .19 | 3308.29 | 7.45 | 1275.94 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 7870.00 | 664.28 | .34 | 1.62 | .19 | 3523.95 | 7.68 | 1278.23 |
| 30.84 | 560.00 | 0.00 | 0.00 | 656.60 | 10800.00 | 664.96 | .34 | 1.59 | .19 | 4183.34 | 8.36 | 1283.75 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 4520.00 | 665.25 | .59 | 1.97 | .19 | 3374.26 | 6.95 | 853.09 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 6970.00 | 666.07 | .68 | 2.08 | .27 | 4439.22 | 7.77 | 855.29 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 7870.00 | 666.32 | .71 | 2.11 | .30 | 4797.52 | 8.02 | 855.98 |
| 30.94 | 560.00 | 0.00 | 0.00 | 658.30 | 10800.00 | 667.05 | .80 | 2.19 | .36 | 5890.89 | 8.75 | 857.96 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 4520.00 | 667.16 | .55 | 1.86 | .01 | 3215.18 | 8.00 | 399.98 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 6970.00 | 668.19 | .71 | 2.13 | .02 | 4450.28 | 9.03 | 467.76 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 7870.00 | 668.51 | .76 | 2.20 | .04 | 4875.14 | 9.35 | 485.65 |
| 31.08 | 740.00 | 0.00 | 0.00 | 659.16 | 10800.00 | 669.44 | .92 | 2.41 | .10 | 6179.66 | 10.28 | 488.15 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 4520.00 | 667.95 | .61 | .81 | .05 | 3458.44 | 8.32 | 301.10 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 6970.00 | 669.10 | .84 | .94 | .11 | 4911.34 | 9.47 | 365.97 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 7870.00 | 669.47 | .92 | .98 | .12 | 5408.86 | 9.84 | 366.95 |
| 31.16 | 400.00 | 0.00 | 0.00 | 659.63 | 10800.00 | 670.49 | 1.14 | 1.09 | .18 | 6968.25 | 10.86 | 369.71 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 4520.00 | 668.35 | .74 | .43 | .10 | 3750.82 | 8.49 | 252.82 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 6970.00 | 669.57 | 1.03 | .51 | .15 | 5386.05 | 9.71 | 306.65 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 7870.00 | 669.96 | 1.13 | .53 | .17 | 5948.58 | 10.10 | 307.68 |
| 31.20 | 200.00 | 0.00 | 0.00 | 659.86 | 10800.00 | 671.03 | 1.43 | .60 | .23 | 7719.11 | 11.17 | 310.56 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 4520.00 | 668.48 | .80 | .14 | .05 | 3866.95 | 8.54 | 235.93 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 6970.00 | 669.72 | 1.13 | .17 | .07 | 5578.35 | 9.78 | 286.83 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 7870.00 | 670.11 | 1.23 | .17 | .08 | 6167.94 | 10.17 | 287.88 |
| 31.21 | 60.00 | 0.00 | 0.00 | 659.94 | 10800.00 | 671.20 | 1.57 | .20 | .11 | 8021.23 | 11.26 | 290.82 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 4520.00 | 668.61 | .88 | .15 | .07 | 4019.19 | 8.59 | 214.15 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 6970.00 | 669.87 | 1.27 | .18 | .11 | 5840.19 | 9.85 | 262.00 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 7870.00 | 670.26 | 1.39 | .19 | .13 | 6469.04 | 10.24 | 263.05 |
| 31.22 | 60.00 | 0.00 | 0.00 | 660.02 | 10800.00 | 671.37 | 1.78 | .21 | .17 | 8444.11 | 11.35 | 266.05 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 4520.00 | 668.70 | .95 | .10 | .06 | 4150.83 | 8.64 | 192.23 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 6970.00 | 669.97 | 1.40 | .13 | .11 | 6083.06 | 9.91 | 237.17 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 7870.00 | 670.36 | 1.55 | .13 | .13 | 6752.90 | 10.30 | 238.24 |
| 31.23 | 40.00 | 0.00 | 0.00 | 660.06 | 10800.00 | 671.48 | 2.03 | .15 | .19 | 8865.70 | 11.42 | 241.22 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 4520.00 | 668.77 | 1.15 | .11 | .16 | 4445.55 | 8.67 | 147.84 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 6970.00 | 670.04 | 1.75 | .14 | .28 | 6597.25 | 9.94 | 238.67 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 7870.00 | 670.44 | 1.92 | .15 | .29 | 7307.10 | 10.34 | 257.41 |
| 31.24 | 40.00 | 0.00 | 0.00 | 660.10 | 10800.00 | 671.59 | 2.29 | .17 | .21 | 9348.92 | 11.49 | 328.21 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 4520.00 | 668.87 | 1.12 | .06 | .01 | 4439.33 | 8.75 | 153.86 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 6970.00 | 670.39 | 1.54 | .08 | .06 | 6493.13 | 10.27 | 254.32 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 7870.00 | 670.92 | 1.61 | .08 | .09 | 7125.34 | 10.80 | 279.02 |
| 31.24 | 21.00 | 0.00 | 0.00 | 660.12 | 10800.00 | 672.97 | 1.29 | .07 | .30 | 8366.42 | 12.85 | 387.54 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 4520.00 | 669.23 | 1.08 | .30 | .01 | 4447.30 | 9.01 | 138.42 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 6970.00 | 670.73 | 1.55 | .35 | .00 | 6569.20 | 10.51 | 203.46 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 7870.00 | 671.26 | 1.65 | .35 | .04 | 7269.46 | 11.04 | 216.53 |
| 31.26 | 106.40 | 0.00 | 0.00 | 660.22 | 10800.00 | 673.16 | 1.65 | .27 | .29 | 9121.90 | 12.94 | 261.32 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 4520.00 | 669.57 | 1.08 | .34 | .00 | 4463.62 | 9.22 | 113.31 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 6970.00 | 671.14 | 1.56 | .40 | .01 | 6634.07 | 10.79 | 199.32 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 7870.00 | 671.67 | 1.66 | .41 | .01 | 7342.55 | 11.32 | 223.27 |
| 31.28 | 127.40 | 0.00 | 0.00 | 660.35 | 10800.00 | 673.51 | 1.69 | .35 | .03 | 9218.86 | 13.16 | 255.54 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 4520.00 | 669.92 | 1.06 | .33 | .00 | 4471.16 | 9.44 | 110.75 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 6970.00 | 671.74 | 1.38 | .37 | .05 | 6528.53 | 11.26 | 267.03 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 7870.00 | 672.47 | 1.31 | .35 | .10 | 7041.33 | 11.99 | 300.75 |
| 31.31 | 127.40 | 0.00 | 0.00 | 660.48 | 10800.00 | 674.53 | 1.12 | .29 | .17 | 8358.75 | 14.05 | 312.72 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 4520.00 | 670.26 | 1.08 | .34 | .00 | 4476.08 | 9.65 | 111.18 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 6970.00 | 672.27 | 1.21 | .34 | .02 | 6323.83 | 11.66 | 350.67 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 7870.00 | 673.08 | 1.04 | .30 | .03 | 6604.26 | 12.47 | 377.46 |
| 31.33 | 127.40 | 0.00 | 0.00 | 660.61 | 10800.00 | 675.21 | .70 | .21 | .04 | 7206.08 | 14.60 | 524.92 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 4520.00 | 671.70 | .99 | 1.35 | .01 | 4441.38 | 10.58 | 165.45 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 6970.00 | 673.80 | .90 | 1.20 | .03 | 5855.31 | 12.68 | 324.64 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 7870.00 | 674.34 | .87 | 1.08 | .02 | 6235.57 | 13.22 | 459.72 |
| 31.43 | 510.00 | 0.00 | 0.00 | 661.12 | 10800.00 | 676.01 | .67 | .76 | .00 | 6924.76 | 14.89 | 533.64 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 4520.00 | 673.33 | .87 | 1.50 | .01 | 4323.87 | 11.53 | 333.63 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 6970.00 | 675.29 | .60 | 1.16 | .03 | 5054.51 | 13.49 | 523.09 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 7870.00 | 675.79 | .56 | 1.10 | .03 | 5288.92 | 13.99 | 525.60 |
| 31.56 | 680.10 | 0.00 | 0.00 | 661.80 | 10800.00 | 677.13 | .49 | .92 | .02 | 6032.44 | 15.33 | 532.51 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 25.191 | 4630.000 | 624.520 | 0.000 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 7140.000 | 626.350 | 1.830 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 8060.000 | 626.870 | .520 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.191 | 11100.000 | 628.280 | 1.410 | 0.000 | 0.000 | 76.725 | 0.000 | 63.000 |
| 25.202 | 4630.000 | 625.053 | 0.000 | .533 | 0.000 | 157.073 | 0.000 | 60.000 |
| 25.202 | 7140.000 | 627.390 | 2.337 | 1.040 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.202 | 8060.000 | 628.116 | .726 | 1.246 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.202 | 11100.000 | 630.293 | 2.177 | 2.013 | 0.000 | 163.999 | -6.926 | 60.000 |
| 25.214 | 4630.000 | 625.092 | 0.000 | .039 | 0.000 | 141.559 | 0.000 | 60.000 |
| 25.214 | 7140.000 | 627.631 | 2.538 | .241 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.214 | 8060.000 | 628.381 | .750 | .265 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.214 | 11100.000 | 630.636 | 2.255 | .343 | 0.000 | 223.999 | -82.440 | 60.000 |
| 25.233 | 4630.000 | 625.171 | 0.000 | .079 | 0.000 | 115.696 | 0.000 | 102.000 |
| 25.233 | 7140.000 | 627.810 | 2.639 | .180 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.233 | 8060.000 | 628.573 | .763 | .192 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.233 | 11100.000 | 630.870 | 2.296 | .233 | 0.000 | 325.999 | -210.303 | 102.000 |
| 25.243 | 4630.000 | 625.274 | 0.000 | .102 | 0.000 | 89.499 | 0.000 | 51.000 |
| 25.243 | 7140.000 | 627.824 | 2.550 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.243 | 8060.000 | 628.587 | .763 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.243 | 11100.000 | 630.883 | 2.296 | .014 | 0.000 | 376.999 | -287.500 | 51.000 |
| 25.251 | 4630.000 | 625.634 | 0.000 | .360 | 0.000 | 93.999 | 0.000 | 44.000 |
| 25.251 | 7140.000 | 628.607 | 2.973 | .783 | 0.000 | 777.571 | -683.572 | 44.000 |
| 25.251 | 8060.000 | 629.164 | .557 | .576 | 0.000 | 781.999 | -688.000 | 44.000 |
| 25.251 | 11100.000 | 631.123 | 1.960 | .240 | 0.000 | 781.999 | -688.000 | 44.000 |
| 25.394 | 4630.000 | 626.185 | 0.000 | .551 | 0.000 | 172.682 | 0.000 | 755.000 |
| 25.394 | 7140.000 | 628.715 | 2.529 | .108 | 0.000 | 182.215 | -9.533 | 755.000 |
| 25.394 | 8060.000 | 629.268 | .553 | .105 | 0.000 | 184.300 | -11.618 | 755.000 |
| 25.394 | 11100.000 | 631.196 | 1.927 | .072 | 0.000 | 191.565 | -18.882 | 755.000 |
| 25.495 | 4630.000 | 626.348 | 0.000 | .162 | 0.000 | 126.308 | 0.000 | 530.000 |
| 25.495 | 7140.000 | 628.884 | 2.536 | .169 | 0.000 | 133.046 | -6.738 | 530.000 |
| 25.495 | 8060.000 | 629.450 | .566 | .181 | 0.000 | 134.550 | -8.242 | 530.000 |
| 25.495 | 11100.000 | 631.390 | 1.941 | .195 | 0.000 | 139.708 | -13.400 | 530.000 |
| 25.510 | 4630.000 | 626.401 | 0.000 | .053 | 0.000 | 113.999 | 0.000 | 76.000 |
| 25.510 | 7140.000 | 628.943 | 2.541 | .059 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.510 | 8060.000 | 629.514 | .572 | .065 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.510 | 11100.000 | 631.467 | 1.953 | .077 | 0.000 | 113.999 | -.000 | 76.000 |
| 25.512 | 4630.000 | 626.785 | 0.000 | .384 | 0.000 | 113.999 | 0.000 | 14.000 |
| 25.512 | 7140.000 | 630.217 | 3.433 | 1.275 | 0.000 | 113.999 | -.000 | 14.000 |
| 25.512 | 8060.000 | 631.211 | .994 | 1.697 | 0.000 | 113.999 | -.000 | 14.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 25.571 | 4630.000 | 627.385 | 0.000 | .600 | 0.000 | 463.999 | 0.000 | 312.000 |
| 25.571 | 7140.000 | 630.813 | 3.428 | .595 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.571 | 8060.000 | 631.875 | 1.062 | .664 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.571 | 11100.000 | 635.133 | 3.259 | .823 | 0.000 | 463.999 | -.000 | 312.000 |
| 25.630 | 4630.000 | 628.633 | 0.000 | 1.248 | 0.000 | 791.847 | 0.000 | 312.000 |
| 25.630 | 7140.000 | 631.191 | 2.559 | .379 | 0.000 | 806.832 | -14.985 | 312.000 |
| 25.630 | 8060.000 | 632.186 | .995 | .311 | 0.000 | 814.136 | -22.289 | 312.000 |
| 25.630 | 11100.000 | 635.346 | 3.160 | .213 | 0.000 | 837.345 | -45.498 | 312.000 |
| 25.706 | 4630.000 | 628.855 | 0.000 | .223 | 0.000 | 1212.731 | 0.000 | 401.000 |
| 25.706 | 7140.000 | 631.314 | 2.459 | .123 | 0.000 | 1242.459 | -29.728 | 401.000 |
| 25.706 | 8060.000 | 632.289 | .974 | .103 | 0.000 | 1256.197 | -43.466 | 401.000 |
| 25.706 | 11100.000 | 635.415 | 3.126 | .069 | 0.000 | 1300.282 | -87.551 | 401.000 |
| 26.218 | 4630.000 | 629.294 | 0.000 | .439 | 0.000 | 1217.359 | 0.000 | 2705.000 |
| 26.218 | 7140.000 | 631.587 | 2.293 | .273 | 0.000 | 1247.295 | -29.936 | 2705.000 |
| 26.218 | 8060.000 | 632.517 | .929 | .228 | 0.000 | 1260.398 | -43.039 | 2705.000 |
| 26.218 | 11100.000 | 635.558 | 3.042 | .143 | 0.000 | 1303.287 | -85.929 | 2705.000 |
| 26.788 | 4630.000 | 630.181 | 0.000 | .887 | 0.000 | 1146.348 | 0.000 | 3010.000 |
| 26.788 | 7140.000 | 632.131 | 1.950 | .544 | 0.000 | 1180.867 | -34.519 | 3010.000 |
| 26.788 | 8060.000 | 632.959 | .828 | .443 | 0.000 | 1195.560 | -49.211 | 3010.000 |
| 26.788 | 11100.000 | 635.811 | 2.852 | .253 | 0.000 | 1238.513 | -92.165 | 3010.000 |
| 27.048 | 4630.000 | 631.583 | 0.000 | 1.402 | 0.000 | 960.415 | 0.000 | 1370.000 |
| 27.048 | 7140.000 | 632.910 | 1.327 | .779 | 0.000 | 967.332 | -6.917 | 1370.000 |
| 27.048 | 8060.000 | 633.558 | .649 | .599 | 0.000 | 970.711 | -10.296 | 1370.000 |
| 27.048 | 11100.000 | 636.091 | 2.532 | .280 | 0.000 | 983.887 | -23.472 | 1370.000 |
| 27.559 | 4630.000 | 634.744 | 0.000 | 3.161 | 0.000 | 830.147 | 0.000 | 2700.000 |
| 27.559 | 7140.000 | 635.656 | .912 | 2.746 | 0.000 | 861.570 | -31.423 | 2700.000 |
| 27.559 | 8060.000 | 635.940 | .284 | 2.381 | 0.000 | 867.514 | -37.367 | 2700.000 |
| 27.559 | 11100.000 | 637.368 | 1.429 | 1.278 | 0.000 | 877.197 | -47.050 | 2700.000 |
| 27.851 | 4630.000 | 637.337 | 0.000 | 2.594 | 0.000 | 976.066 | 0.000 | 1540.000 |
| 27.851 | 7140.000 | 638.447 | 1.109 | 2.791 | 0.000 | 981.291 | -5.225 | 1540.000 |
| 27.851 | 8060.000 | 638.792 | .345 | 2.852 | 0.000 | 982.918 | -6.851 | 1540.000 |
| 27.851 | 11100.000 | 639.826 | 1.034 | 2.458 | 0.000 | 987.759 | -11.693 | 1540.000 |
| 28.150 | 4630.000 | 639.220 | 0.000 | 1.883 | 0.000 | 770.841 | 0.000 | 1580.000 |
| 28.150 | 7140.000 | 640.263 | 1.043 | 1.816 | 0.000 | 797.020 | -26.179 | 1580.000 |
| 28.150 | 8060.000 | 640.595 | .332 | 1.803 | 0.000 | 799.364 | -28.523 | 1580.000 |
| 28.150 | 11100.000 | 641.586 | .991 | 1.760 | 0.000 | 807.747 | -36.905 | 1580.000 |
| 28.455 | 4630.000 | 641.742 | 0.000 | 2.522 | 0.000 | 1280.599 | 0.000 | 1610.000 |
| 28.455 | 7140.000 | 642.508 | .765 | 2.245 | 0.000 | 1409.031 | -128.432 | 1610.000 |
| 28.455 | 8060.000 | 642.764 | .257 | 2.169 | 0.000 | 1423.914 | -143.315 | 1610.000 |
| 28.455 | 11100.000 | 643.561 | .797 | 1.975 | 0.000 | 1430.192 | -149.592 | 1610.000 |
| 29.032 | 4630.000 | 647.290 | 0.000 | 5.547 | 0.000 | 861.375 | 0.000 | 3050.000 |
| 29.032 | 7140.000 | 648.173 | .884 | 5.666 | 0.000 | 863.522 | -2.147 | 3050.000 |
| 29.032 | 8060.000 | 648.444 | .270 | 5.680 | 0.000 | 864.176 | -2.801 | 3050.000 |
| 29.032 | 11100.000 | 649.227 | .783 | 5.665 | 0.000 | 866.045 | -4.670 | 3050.000 |
| 29.089 | 4630.000 | 647.763 | 0.000 | .473 | 0.000 | 714.999 | 0.000 | 302.000 |
| 29.089 | 7140.000 | 648.678 | .915 | .504 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.089 | 8060.000 | 648.961 | .284 | .517 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.089 | 11100.000 | 649.787 | .826 | .561 | 0.000 | 714.999 | -.000 | 302.000 |
| 29.175 | 4630.000 | 648.605 | 0.000 | .842 | 0.000 | 489.999 | 0.000 | 453.000 |
| 29.175 | 7140.000 | 649.597 | .992 | .919 | 0.000 | 489.999 | -.000 | 453.000 |
| 29.175 | 8060.000 | 649.907 | .310 | .946 | 0.000 | 489.999 | -.000 | 453.000 |
| 29.175 | 11100.000 | 650.811 | .904 | 1.023 | 0.000 | 489.999 | -.000 | 453.000 |

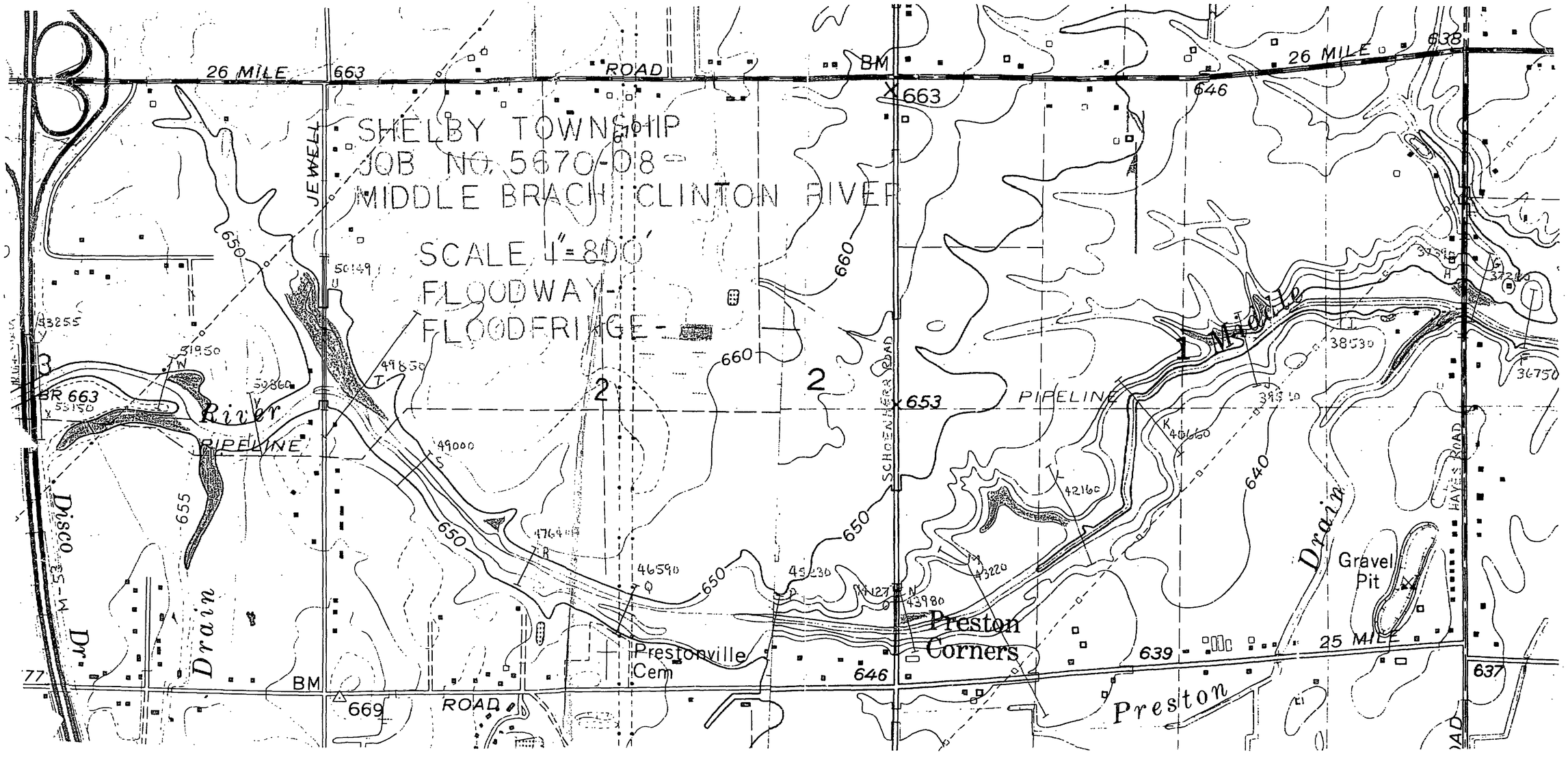
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 29.261 | [illegible] | [illegible] | .0[illegible] | 1.[illegible]0 | 0.00[illegible] | [illegible] | .0 0 | 453.000 |
| 29.261 | 7140.000 | 650.868 | 1.173 | 1.270 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.261 | 8060.000 | 651.233 | .365 | 1.326 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.261 | 11100.000 | 652.291 | 1.059 | 1.481 | 0.000 | 264.999 | -.000 | 453.000 |
| 29.318 | 4630.000 | 650.481 | 0.000 | .786 | 0.000 | 109.999 | 0.000 | 302.000 |
| 29.318 | 7140.000 | 651.851 | 1.370 | .983 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.318 | 8060.000 | 652.279 | .428 | 1.046 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.318 | 11100.000 | 653.519 | 1.240 | 1.227 | 0.000 | 109.999 | -.000 | 302.000 |
| 29.329 | 4630.000 | 650.655 | 0.000 | .174 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 7140.000 | 652.082 | 1.427 | .231 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 8060.000 | 652.528 | .446 | .250 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.329 | 11100.000 | 653.825 | 1.297 | .306 | 0.000 | 80.000 | 0.000 | 60.000 |
| 29.330 | 4630.000 | 650.659 | 0.000 | .004 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 7140.000 | 652.087 | 1.429 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 8060.000 | 652.535 | .447 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.330 | 11100.000 | 653.834 | 1.299 | .009 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.337 | 4630.000 | 650.789 | 0.000 | .130 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 7140.000 | 652.309 | 1.520 | .222 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 8060.000 | 652.802 | .493 | .268 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.337 | 11100.000 | 654.325 | 1.523 | .491 | 0.000 | 80.000 | 0.000 | 37.000 |
| 29.338 | 4630.000 | 650.792 | 0.000 | .004 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 7140.000 | 652.314 | 1.522 | .005 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 8060.000 | 652.808 | .494 | .006 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.338 | 11100.000 | 654.333 | 1.525 | .008 | 0.000 | 80.000 | 0.000 | 1.000 |
| 29.357 | 4630.000 | 651.306 | 0.000 | .514 | 0.000 | 155.460 | 0.000 | 100.000 |
| 29.357 | 7140.000 | 653.514 | 2.207 | 1.200 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.357 | 8060.000 | 654.436 | .922 | 1.628 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.357 | 11100.000 | 657.108 | 2.673 | 2.776 | 0.000 | 217.999 | -62.539 | 100.000 |
| 29.370 | 4630.000 | 652.400 | 0.000 | 1.094 | 0.000 | 309.999 | 0.000 | 67.000 |
| 29.370 | 7140.000 | 654.413 | 2.012 | .899 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.370 | 8060.000 | 655.206 | .793 | .770 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.370 | 11100.000 | 657.726 | 2.520 | .618 | 0.000 | 309.999 | -.000 | 67.000 |
| 29.824 | 4630.000 | 655.274 | 0.000 | 2.873 | 0.000 | 1265.230 | 0.000 | 2404.000 |
| 29.824 | 7140.000 | 656.582 | 1.308 | 2.169 | 0.000 | 1272.832 | -7.601 | 2404.000 |
| 29.824 | 8060.000 | 657.116 | .534 | 1.910 | 0.000 | 1275.899 | -10.668 | 2404.000 |
| 29.824 | 11100.000 | 659.063 | 1.947 | 1.337 | 0.000 | 1287.194 | -21.964 | 2404.000 |
| 30.038 | 4630.000 | 656.021 | 0.000 | .747 | 0.000 | 910.044 | 0.000 | 1130.000 |
| 30.038 | 7140.000 | 657.147 | 1.127 | .565 | 0.000 | 1072.526 | -162.483 | 1130.000 |
| 30.038 | 8060.000 | 657.607 | .459 | .491 | 0.000 | 1098.180 | -188.137 | 1130.000 |
| 30.038 | 11100.000 | 659.354 | 1.747 | .291 | 0.000 | 1198.111 | -288.067 | 1130.000 |
| 30.252 | 4630.000 | 658.716 | 0.000 | 2.695 | 0.000 | 1225.071 | 0.000 | 1130.000 |
| 30.252 | 7140.000 | 659.423 | .708 | 2.276 | 0.000 | 1271.270 | -46.199 | 1130.000 |
| 30.252 | 8060.000 | 659.649 | .226 | 2.042 | 0.000 | 1285.046 | -59.975 | 1130.000 |
| 30.252 | 11100.000 | 660.583 | .934 | 1.230 | 0.000 | 1345.433 | -120.362 | 1130.000 |
| 30.492 | 4630.000 | 660.255 | 0.000 | 1.539 | 0.000 | 1466.465 | 0.000 | 1265.000 |
| 30.492 | 7140.000 | 661.020 | .765 | 1.597 | 0.000 | 1559.157 | -92.692 | 1265.000 |
| 30.492 | 8060.000 | 661.267 | .247 | 1.618 | 0.000 | 1578.112 | -111.647 | 1265.000 |
| 30.492 | 11100.000 | 662.011 | .744 | 1.428 | 0.000 | 1610.455 | -143.991 | 1265.000 |
| 30.731 | 4520.000 | 661.708 | 0.000 | 1.453 | 0.000 | 1572.225 | 0.000 | 1265.000 |
| 30.731 | 6970.000 | 662.467 | .759 | 1.447 | 0.000 | 1639.498 | -67.273 | 1265.000 |
| 30.731 | 7870.000 | 662.708 | .240 | 1.440 | 0.000 | 1639.868 | -67.644 | 1265.000 |
| 30.731 | 10800.000 | 663.423 | .715 | 1.412 | 0.000 | 1640.976 | -68.751 | 1265.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 30.837 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 30.837 | 7870.000 | 664.284 | .231 | 1.576 | 0.000 | 1278.231 | -9.478 | 560.000 |
| 30.837 | 10800.000 | 664.960 | .676 | 1.538 | 0.000 | 1283.751 | -14.998 | 560.000 |
| 30.943 | 4520.000 | 665.246 | 0.000 | 1.923 | 0.000 | 853.088 | 0.000 | 560.000 |
| 30.943 | 6970.000 | 666.065 | .819 | 2.013 | 0.000 | 855.293 | -2.205 | 560.000 |
| 30.943 | 7870.000 | 666.321 | .256 | 2.037 | 0.000 | 855.981 | -2.893 | 560.000 |
| 30.943 | 10800.000 | 667.054 | .733 | 2.094 | 0.000 | 857.955 | -4.867 | 560.000 |
| 31.083 | 4520.000 | 667.157 | 0.000 | 1.911 | 0.000 | 399.982 | 0.000 | 740.000 |
| 31.083 | 6970.000 | 668.186 | 1.028 | 2.120 | 0.000 | 467.757 | -67.775 | 740.000 |
| 31.083 | 7870.000 | 668.514 | .328 | 2.193 | 0.000 | 485.654 | -85.672 | 740.000 |
| 31.083 | 10800.000 | 669.441 | .927 | 2.386 | 0.000 | 488.145 | -88.163 | 740.000 |
| 31.159 | 4520.000 | 667.951 | 0.000 | .794 | 0.000 | 301.102 | 0.000 | 400.000 |
| 31.159 | 6970.000 | 669.103 | 1.152 | .917 | 0.000 | 365.973 | -64.871 | 400.000 |
| 31.159 | 7870.000 | 669.466 | .363 | .952 | 0.000 | 366.952 | -65.851 | 400.000 |
| 31.159 | 10800.000 | 670.488 | 1.022 | 1.047 | 0.000 | 369.710 | -68.608 | 400.000 |
| 31.195 | 4520.000 | 668.354 | 0.000 | .402 | 0.000 | 252.821 | 0.000 | 200.000 |
| 31.195 | 6970.000 | 669.575 | 1.221 | .472 | 0.000 | 306.646 | -53.825 | 200.000 |
| 31.195 | 7870.000 | 669.957 | .382 | .491 | 0.000 | 307.680 | -54.859 | 200.000 |
| 31.195 | 10800.000 | 671.033 | 1.076 | .545 | 0.000 | 310.561 | -57.740 | 200.000 |
| 31.206 | 4520.000 | 668.480 | 0.000 | .126 | 0.000 | 235.930 | 0.000 | 60.000 |
| 31.206 | 6970.000 | 669.723 | 1.243 | .148 | 0.000 | 286.827 | -50.897 | 60.000 |
| 31.206 | 7870.000 | 670.110 | .387 | .153 | 0.000 | 287.877 | -51.947 | 60.000 |
| 31.206 | 10800.000 | 671.204 | 1.094 | .171 | 0.000 | 290.824 | -54.894 | 60.000 |
| 31.218 | 4520.000 | 668.609 | 0.000 | .129 | 0.000 | 214.148 | 0.000 | 60.000 |
| 31.218 | 6970.000 | 669.871 | 1.262 | .149 | 0.000 | 261.995 | -47.847 | 60.000 |
| 31.218 | 7870.000 | 670.264 | .392 | .154 | 0.000 | 263.053 | -48.906 | 60.000 |
| 31.218 | 10800.000 | 671.372 | 1.109 | .168 | 0.000 | 266.045 | -51.897 | 60.000 |
| 31.226 | 4520.000 | 668.697 | 0.000 | .088 | 0.000 | 192.232 | 0.000 | 40.000 |
| 31.226 | 6970.000 | 669.970 | 1.274 | .099 | 0.000 | 237.173 | -44.941 | 40.000 |
| 31.226 | 7870.000 | 670.365 | .395 | .101 | 0.000 | 238.243 | -46.011 | 40.000 |
| 31.226 | 10800.000 | 671.477 | 1.112 | .105 | 0.000 | 241.220 | -48.988 | 40.000 |
| 31.235 | 4520.000 | 668.771 | 0.000 | .074 | 0.000 | 147.837 | 0.000 | 40.000 |
| 31.235 | 6970.000 | 670.044 | 1.273 | .074 | 0.000 | 238.669 | -90.832 | 40.000 |
| 31.235 | 7870.000 | 670.442 | .398 | .077 | 0.000 | 257.405 | -109.568 | 40.000 |
| 31.235 | 10800.000 | 671.592 | 1.150 | .115 | 0.000 | 328.213 | -180.375 | 40.000 |
| 31.239 | 4520.000 | 668.875 | 0.000 | .104 | 0.000 | 153.862 | 0.000 | 21.000 |
| 31.239 | 6970.000 | 670.388 | 1.513 | .344 | 0.000 | 254.324 | -100.462 | 21.000 |
| 31.239 | 7870.000 | 670.923 | .536 | .481 | 0.000 | 279.019 | -125.157 | 21.000 |
| 31.239 | 10800.000 | 672.965 | 2.042 | 1.373 | 0.000 | 387.538 | -233.676 | 21.000 |
| 31.260 | 4520.000 | 669.228 | 0.000 | .353 | 0.000 | 138.423 | 0.000 | 106.400 |
| 31.260 | 6970.000 | 670.734 | 1.507 | .347 | 0.000 | 203.460 | -65.036 | 106.400 |
| 31.260 | 7870.000 | 671.262 | .528 | .339 | 0.000 | 216.532 | -78.109 | 106.400 |
| 31.260 | 10800.000 | 673.163 | 1.901 | .198 | 0.000 | 261.322 | -122.899 | 106.400 |
| 31.284 | 4520.000 | 669.570 | 0.000 | .342 | 0.000 | 113.314 | 0.000 | 127.400 |
| 31.284 | 6970.000 | 671.137 | 1.567 | .403 | 0.000 | 199.320 | -86.007 | 127.400 |
| 31.284 | 7870.000 | 671.669 | .532 | .407 | 0.000 | 223.274 | -109.961 | 127.400 |
| 31.284 | 10800.000 | 673.510 | 1.841 | .347 | 0.000 | 255.543 | -142.229 | 127.400 |
| 31.308 | 4520.000 | 669.925 | 0.000 | .355 | 0.000 | 110.752 | 0.000 | 127.400 |
| 31.308 | 6970.000 | 671.740 | 1.815 | .603 | 0.000 | 267.030 | -156.278 | 127.400 |
| 31.308 | 7870.000 | 672.475 | .735 | .805 | 0.000 | 300.746 | -189.993 | 127.400 |
| 31.308 | 10800.000 | 674.534 | 2.059 | 1.024 | 0.000 | 312.718 | -201.966 | 127.400 |
| 31.332 | 4520.000 | 670.260 | 0.000 | .335 | 0.000 | 111.185 | 0.000 | 127.400 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 31.332 | 7870.000 | 673.077 | .810 | .003 | .000 | 377.56 | -2[illegible].212 | 127.000 |
| 31.332 | 10800.000 | 675.208 | 2.131 | .675 | 0.000 | 524.915 | -413.731 | 127.400 |
| 31.428 | 4520.000 | 671.702 | 0.000 | 1.442 | 0.000 | 165.445 | 0.000 | 510.000 |
| 31.428 | 6970.000 | 673.797 | 2.095 | 1.530 | 0.000 | 324.638 | -159.193 | 510.000 |
| 31.428 | 7870.000 | 674.337 | .540 | 1.260 | 0.000 | 459.724 | -294.279 | 510.000 |
| 31.428 | 10800.000 | 676.009 | 1.672 | .800 | 0.000 | 533.643 | -368.198 | 510.000 |
| 31.557 | 4520.000 | 673.333 | 0.000 | 1.631 | 0.000 | 333.633 | 0.000 | 680.100 |
| 31.557 | 6970.000 | 675.294 | 1.961 | 1.497 | 0.000 | 523.085 | -189.452 | 680.100 |
| 31.557 | 7870.000 | 675.789 | .495 | 1.452 | 0.000 | 525.597 | -191.964 | 680.100 |
| 31.557 | 10800.000 | 677.127 | 1.339 | 1.119 | 0.000 | 532.506 | -198.873 | 680.100 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | -189.000 | 510.777 | 0.000 |
| 2 | 1.000 | -189.000 | 542.746 | 31.969 |
| 3 | 1.000 | -189.000 | 548.911 | 38.134 |
| 4 | 1.000 | -189.000 | 561.242 | 50.465 |


SHELBY TOWNSHIP
JOB NO. 5670-08
MIDDLE BRACH CLINTON RIVER
SCALE 1"=800'
FLOODWAY
FLOODFRINGE
26 MILE ROAD
663
BM
663
646
638
JEWELL
650
660
653
PIPELINE
SCHOENHERR ROAD
640
River
Disco Drain
Preston Drain
Preston Corners
Prestonville Cem
Gravel Pit
25 MILE
639
637
669
HAYES ROAD
2
3

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 10, 50, 100, 500 year floods.

25 mile Rd to Chestnut lake

00BREAK00

7.40

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 HEC-2                                                                                                                  7.40
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 HEC-2                                                                                                                  7.40
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 HEC-2                                                                                                                  7.40
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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************


C
1       SHELBY TOWNSHIP   5670-05          PROJECT MANAGER  BILL BOSSON
T2       10 YEAR FLOOD = 980
T3       MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

      -1.        2.         0.         0.   0.000000      0.00       0.0        0.   632.000     0.000

J2  NPROF     IPLOT      PRNTS     WSECV     WSECH      FN        ALLOC      IBW        CHNIM      ITRACE

      1.000     0.000    -1.000     0.000     0.000     0.000     0.000      0.000      0.000      0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
NC       .080      .080      .040      .400      .800     0.000     0.000     0.000     0.000     0.000
QT      4.000   980.000  1570.000  1300.000  2610.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   500.000      .035   600.000      .030  1100.000     0.000     0.000     0.000

X1  53346.000    33.000   500.000   600.000     1.000     1.000     1.000      .860     0.000     0.000
GR    664.600     0.000   664.300   100.000   664.100   200.000   663.800   300.000   663.500   400.000
GR    663.200   476.000   658.000   500.000   657.000   500.000   656.900   506.000   646.500   527.000
GR    646.300   531.000   659.500   531.000   659.500   534.000   646.200   534.000   645.400   539.000
GR    644.200   540.000   643.200   546.000   643.500   554.000   646.200   556.000   645.300   567.500
GR    659.400   567.500   659.400   570.500   646.900   570.500   647.000   573.000   656.400   595.000
GR    656.800   600.000   663.700   600.000   662.500   624.000   662.400   700.000   662.200   800.000
GR    661.900   900.000   661.600  1000.000   661.300  1100.000     0.000     0.000     0.000     0.000
NH      3.000      .070   202.000      .040   255.000      .055   442.000     0.000     0.000     0.000

X1  53446.000    15.000   202.000   255.000   100.000   100.000   100.000     0.000    -1.310     0.000
GR    660.100     0.000   652.100    42.000   652.000   142.000   653.700   202.000   649.400   220.000
GR    645.800   223.000   644.900   227.000   644.800   232.000   646.400   240.000   650.700   242.000
GR    654.400   255.000   653.000   274.000   658.900   257.000   659.000   342.000   661.000   442.000
NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000
NH      3.000      .070   202.000      .040   255.000      .055   442.000     0.000     0.000     0.000

X1  53900.000     0.000     0.000     0.000   504.000   374.000   454.000     0.000     1.310     0.000
NH      3.000      .060   162.000      .040   204.000      .055   374.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   132.000   232.000     1.000   374.000     0.000

X1  54400.000     7.000   162.000   204.000   510.000   430.000   500.000     0.000     0.000     0.000
GR    658.300     0.000   652.500   162.000   646.800   166.000   646.800   193.000   653.100   204.000
GR    653.000   281.000   660.000   374.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .060   270.000      .070   294.000      .040   312.000      .070   321.000      .120
NH    600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   270.000   321.000     1.000   600.000     0.000

X1  54500.000    16.000   270.000   321.000   100.000   100.000   100.000     0.000     0.000     0.000
GR    660.000     0.000   658.700   100.000   655.700   200.000   652.100   270.000   649.500   294.000
GR    649.500   300.000   646.500   303.000   645.500   305.000   646.000   309.000   646.800   312.000
GR    653.300   321.000   652.900   340.000   652.800   400.000   654.500   435.000   660.100   500.000
GR    661.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
        3.000      .030   300.000      .040   318.500      .030   500.000     0.000     0.000     0.000
                                                                   312.500     1.000   600.000     0.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 54557.000 | 18.000 | 300.000 | 318.500 | 77.000 | 47.000 | 57.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 658.700 | 100.000 | 655.700 | 200.000 | 652.100 | 270.000 | 649.500 | 294.000 |
| GR | 649.500 | 300.000 | 648.600 | 300.000 | 645.700 | 304.000 | 646.500 | 309.500 | 647.800 | 315.000 |
| GR | 649.200 | 318.500 | 653.300 | 318.500 | 652.900 | 340.000 | 552.800 | 400.000 | 654.500 | 435.000 |
| GR | 659.000 | 490.000 | 660.100 | 500.000 | 661.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 3.100 | 8.100 | 300.000 | 318.500 | 1.000 | 600.000 | 0.000 |
| SB | 0.000 | 1.736 | 3.030 | 0.000 | 1.000 | 0.000 | 93.000 | 0.000 | 646.500 | 646.500 |
| X1 | 54583.000 | 0.000 | 0.000 | 0.000 | 25.000 | 26.000 | 26.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 654.300 | 656.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 12.000 | 0.000 | 660.900 | 0.000 | 100.000 | 659.400 | 0.000 | 200.000 | 657.200 | 0.000 |
| BT | 300.000 | 656.400 | 643.500 | 304.000 | 656.400 | 653.000 | 303.500 | 656.400 | 654.300 | 315.000 |
| BT | 656.400 | 653.000 | 318.500 | 656.400 | 649.200 | 400.000 | 557.000 | 0.000 | 490.000 | 559.000 |
| BT | 0.000 | 500.000 | 660.100 | 0.000 | 600.000 | 661.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 740.000 | 1380.000 | 1360.000 | 1960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 284.000 | .140 | 310.000 | .070 | 700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 55730.000 | 15.000 | 254.000 | 310.000 | 1167.000 | 1217.000 | 1167.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.600 | 0.000 | 657.500 | 100.000 | 654.700 | 200.000 | 654.300 | 284.000 | 651.700 | 290.000 |
| GR | 648.600 | 291.000 | 645.200 | 294.000 | 648.500 | 296.000 | 648.900 | 298.000 | 650.600 | 300.000 |
| GR | 653.900 | 310.000 | 554.300 | 410.000 | 556.600 | 500.000 | 554.300 | 600.500 | 660.600 | 700.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 860.000 | .037 | 900.000 | .065 | 1361.000 | 0.000 | 0.000 | 0.000 |
| X1 | 56390.000 | 23.000 | 1000.000 | 1045.500 | 630.000 | 590.000 | 610.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1120.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1019.800 | 650.200 | 1023.300 | 649.600 | 1026.700 |
| GR | 650.300 | 1031.400 | 654.800 | 1036.000 | 655.500 | 1046.500 | 655.800 | 1116.300 | 656.100 | 1232.600 |
| GR | 657.700 | 1348.800 | 659.400 | 1465.100 | 659.700 | 1581.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 866.900 | .040 | 885.800 | .030 | 1346.700 | 0.000 | 0.000 | 0.000 |
| X1 | 56461.000 | 26.000 | 1008.000 | 1029.900 | 71.000 | 71.000 | 71.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.800 | 1000.000 | 652.000 | 1008.000 | 651.000 | 1008.000 | 652.600 | 1013.500 | 650.300 | 1016.700 |
| GR | 650.100 | 1018.900 | 650.700 | 1024.400 | 651.700 | 1029.900 | 654.800 | 1031.400 | 655.100 | 1037.100 |
| GR | 655.500 | 1041.700 | 655.800 | 1110.000 | 656.100 | 1224.000 | 657.700 | 1338.000 | 659.400 | 1451.900 |
| GR | 659.700 | 1565.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 866.900 | .040 | 885.800 | .030 | 1346.700 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.030 | 3.040 | 0.000 | 1.000 | 0.000 | 74.000 | 0.000 | 650.100 | 650.100 |
| X1 | 56498.000 | 26.000 | 1008.000 | 1029.900 | 37.000 | 37.000 | 37.000 | .860 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 658.500 | 657.200 | 0.000 | 0.000 | 0.000 | .860 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 20.000 | 200.000 | 659.900 | 0.000 | 200.000 | 659.900 | 0.000 | 400.000 | 658.700 | 0.000 |
| BT | 500.000 | 658.700 | 0.000 | 600.000 | 658.400 | 0.000 | 700.000 | 658.300 | 0.000 | 900.000 |
| BT | 657.200 | 0.000 | 950.000 | 657.300 | 0.000 | 1000.000 | 657.800 | 0.000 | 1000.000 | 658.400 |
| BT | 0.000 | 1008.000 | 658.400 | 652.000 | 1013.000 | 658.400 | 655.400 | 1016.000 | 658.400 | 656.100 |
| BT | 1018.000 | 658.400 | 656.500 | 1023.000 | 658.400 | 655.400 | 1028.000 | 658.400 | 651.700 | 1036.000 |
| BT | 658.400 | 0.000 | 1036.000 | 657.900 | 0.000 | 1100.000 | 657.900 | 0.000 | 1100.000 | 657.900 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.800 | 1000.000 | 652.000 | 1008.000 | 651.000 | 1008.000 | 652.600 | 1013.500 | 650.300 | 1016.700 |
| GR | 650.100 | 1018.900 | 650.700 | 1024.400 | 651.700 | 1029.900 | 654.800 | 1031.400 | 655.100 | 1037.100 |
| GR | 655.500 | 1041.700 | 655.800 | 1110.000 | 656.100 | 1224.000 | 657.700 | 1338.000 | 659.400 | 1451.900 |
| GR | 659.700 | 1565.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 1000.000 | .037 | 1040.000 | .065 | 1500.000 | 0.000 | 0.000 | 0.000 |
| | | | [illegible] | 1040.000 | 350.000 | 450.000 | 400.000 | 0.000 | 1.000 | 0.000 |
| | | | | | | | | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 658.200 | 0.000 | 658.800 | 110.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1017.000 | 650.200 | 1020.000 | 650.000 | 1023.000 |
| GR | 650.300 | 1027.000 | 654.800 | 1031.000 | 655.500 | 1040.000 | 655.800 | 1100.000 | 656.100 | 1200.000 |
| GR | 657.700 | 1300.000 | 659.400 | 1400.000 | 659.700 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 1000.000 | .037 | 1040.000 | .065 | 1500.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 850.000 | 1175.000 | 480.000 | 1175.000 | 0.000 |
| X1 | 57498.000 | 23.000 | 1000.000 | 1040.000 | 600.000 | 600.000 | 600.000 | 0.000 | 2.740 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1017.000 | 650.200 | 1020.000 | 649.600 | 1023.000 |
| GR | 650.300 | 1027.000 | 654.800 | 1031.000 | 655.500 | 1040.000 | 655.800 | 1100.000 | 656.100 | 1200.000 |
| GR | 657.700 | 1300.000 | 659.400 | 1400.000 | 659.700 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .075 | 336.000 | .035 | 387.000 | .060 | 1010.000 | 0.000 | 0.000 | 0.000 |
| X1 | 57980.000 | 28.000 | 459.000 | 510.000 | 450.000 | 500.000 | 482.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.000 | 662.000 | 0.000 | 662.000 | 0.000 | 662.000 | 5.000 | 659.900 | 10.000 |
| GR | 659.900 | 123.000 | 659.700 | 150.000 | 659.500 | 210.000 | 659.000 | 310.000 | 659.300 | 410.000 |
| GR | 660.700 | 459.000 | 655.900 | 484.000 | 655.000 | 486.000 | 654.100 | 488.000 | 653.600 | 491.000 |
| GR | 653.400 | 494.000 | 654.600 | 496.000 | 656.900 | 497.000 | 660.600 | 510.000 | 661.700 | 542.000 |
| GR | 668.600 | 610.000 | 663.700 | 657.000 | 665.300 | 710.000 | 662.700 | 775.000 | 668.600 | 792.000 |
| GR | 671.600 | 846.000 | 671.400 | 910.000 | 669.800 | 1010.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 685.000 | .040 | 709.000 | .030 | 1433.000 | 0.000 | 0.000 | 0.000 |
| X1 | 58441.000 | 30.000 | 685.000 | 709.000 | 371.000 | 501.000 | 461.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 830.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.000 | 662.300 | 85.000 | 662.400 | 185.000 | 662.700 | 285.000 | 662.800 | 335.000 |
| GR | 661.300 | 362.000 | 659.500 | 422.000 | 659.000 | 522.000 | 659.300 | 622.000 | 660.700 | 671.000 |
| GR | 658.400 | 683.000 | 658.000 | 685.000 | 654.900 | 685.000 | 653.700 | 691.000 | 654.300 | 695.000 |
| GR | 657.300 | 701.000 | 657.600 | 705.000 | 657.700 | 709.000 | 658.100 | 711.000 | 660.600 | 722.000 |
| GR | 661.700 | 754.000 | 663.500 | 772.000 | 668.600 | 822.000 | 668.700 | 869.000 | 665.300 | 922.000 |
| GR | 662.700 | 987.000 | 668.600 | 1004.000 | 671.600 | 1058.000 | 671.400 | 1122.000 | 669.800 | 1222.000 |
| SB | 0.000 | 2.980 | 3.030 | 0.000 | 1.000 | 0.000 | 110.100 | 0.000 | 653.700 | 653.700 |
| X1 | 58479.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 660.300 | 662.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 830.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 26.000 | 0.000 | 662.000 | 0.000 | 85.000 | 662.300 | 0.000 | 185.000 | 662.400 | 0.000 |
| BT | 285.000 | 662.700 | 0.000 | 335.000 | 662.800 | 0.000 | 362.000 | 662.900 | 0.000 | 422.000 |
| BT | 663.000 | 0.000 | 522.000 | 663.200 | 0.000 | 622.000 | 663.500 | 0.000 | 683.000 | 663.700 |
| BT | 0.000 | 663.000 | 655.200 | 0.000 | 685.000 | 666.200 | 658.000 | 685.000 | 666.200 | 660.300 |
| BT | 709.000 | 666.200 | 660.300 | 709.000 | 666.200 | 657.700 | 711.000 | 666.200 | 0.000 | 711.000 |
| BT | 663.700 | 0.000 | 772.000 | 663.500 | 0.000 | 822.000 | 668.600 | 0.000 | 869.000 | 668.700 |
| BT | 0.000 | 922.000 | 665.300 | 0.000 | 987.000 | 662.700 | 0.000 | 1004.000 | 668.600 | 0.000 |
| BT | 1058.000 | 671.600 | 0.000 | 1122.000 | 671.400 | 0.000 | 1222.000 | 669.800 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 762.000 | .037 | 800.000 | .060 | 1200.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 480.000 | 1200.000 | 300.000 | 1200.000 | 0.000 |
| X1 | 59760.000 | 17.000 | 762.000 | 800.000 | 1351.000 | 1121.000 | 1281.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.300 | 0.000 | 663.100 | 100.000 | 662.900 | 200.000 | 662.800 | 300.000 | 662.800 | 400.000 |
| GR | 662.300 | 500.000 | 662.000 | 600.000 | 662.300 | 700.000 | 662.900 | 762.000 | 656.000 | 768.000 |
| GR | 656.500 | 778.000 | 657.000 | 784.000 | 664.000 | 800.000 | 664.300 | 900.000 | 665.800 | 1000.000 |
| GR | 666.000 | 1100.000 | 666.500 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 645.000 | 1030.000 | 1200.000 | 1740.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 400.000 | .090 | 409.000 | .040 | 425.000 | .090 | 436.000 | .065 |
| NH | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 373.000 | 461.000 | 200.000 | 500.000 | 0.000 |
| X1 AK | 60810.000 | 14.000 | 400.000 | 436.000 | 1050.000 | 1050.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| GR | 665.800 | 0.000 | 664.900 | 100.000 | 664.700 | 200.000 | 664.600 | 300.000 | 664.900 | 400.000 |
| GR | 660.500 | 409.000 | 660.000 | 419.000 | 660.400 | 425.000 | 666.900 | 436.000 | 667.900 | 500.000 |
| [illegible] | [illegible] | [illegible] | 667.600 | 630.000 | 666.200 | 700.000 | 666.100 | 800.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 AL | 60920.000 | 23.000 | 400.000 | 435.000 | 60.000 | 120.000 | 110.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 230.000 | 0.000 | 440.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 666.200 | 0.000 | 665.700 | 100.000 | 665.400 | 200.000 | 665.300 | 300.000 | 666.200 | 400.000 |
| GR | 666.200 | 400.500 | 650.400 | 407.000 | 658.900 | 408.700 | 658.700 | 416.100 | 660.200 | 416.300 |
| GR | 666.700 | 416.900 | 666.700 | 418.700 | 660.300 | 419.300 | 658.800 | 419.500 | 659.000 | 426.800 |
| GR | 660.500 | 427.000 | 663.600 | 431.000 | 667.700 | 435.000 | 667.800 | 500.000 | 667.400 | 600.000 |
| GR | 667.900 | 658.000 | 667.300 | 700.000 | 668.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 550.000 | 880.000 | 1020.000 | 1470.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 343.000 | .035 | 426.000 | .040 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 353.000 | 426.000 | 250.000 | 530.000 | 0.000 |
| X1 AM | 62150.000 | 14.000 | 343.000 | 426.000 | 1100.000 | 1230.000 | 1230.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.800 | 0.000 | 671.000 | 100.000 | 667.700 | 200.000 | 667.800 | 210.000 | 667.300 | 300.000 |
| GR | 670.000 | 383.000 | 652.800 | 401.000 | 663.100 | 407.000 | 662.800 | 412.000 | 670.600 | 426.000 |
| GR | 668.800 | 451.000 | 663.600 | 500.000 | 667.800 | 600.000 | 668.500 | 700.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 491.500 | .040 | 508.500 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 491.500 | 508.500 | 400.000 | 680.000 | 0.000 |
| XI | 62454.000 | 27.000 | 491.500 | 503.500 | 314.000 | 244.000 | 304.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.800 | 0.000 | 670.800 | 100.000 | 671.000 | 200.000 | 669.500 | 255.000 | 667.800 | 310.000 |
| GR | 667.300 | 400.000 | 670.000 | 483.000 | 667.600 | 489.100 | 666.600 | 491.500 | 665.500 | 491.500 |
| GR | 665.000 | 495.750 | 664.600 | 500.000 | 664.600 | 504.250 | 664.600 | 508.500 | 665.400 | 510.900 |
| GR | 670.600 | 526.000 | 668.800 | 531.000 | 663.600 | 600.000 | 667.800 | 700.000 | 667.900 | 710.000 |
| GR | 668.600 | 800.000 | 668.600 | 801.000 | 663.600 | 800.000 | 668.500 | 800.000 | 668.600 | 800.000 |
| GR | 669.500 | 900.000 | 659.500 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 491.500 | 508.500 | 400.000 | 710.000 | 0.000 |
| SB | 0.000 | 1.980 | 3.030 | 0.000 | 1.000 | 0.000 | 59.900 | 0.000 | 664.600 | 664.600 |
| X1 | 62486.000 | 0.000 | 0.000 | 0.000 | 32.000 | 32.000 | 32.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 669.100 | 669.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 14.000 | 400.000 | 669.200 | 0.000 | 489.100 | 670.500 | 0.000 | 489.100 | 672.600 | 0.000 |
| BT | 491.500 | 672.600 | 665.500 | 495.750 | 672.600 | 669.100 | 500.000 | 672.600 | 670.000 | 504.250 |
| BT | 672.600 | 669.200 | 508.500 | 672.600 | 664.600 | 510.900 | 672.600 | 0.000 | 510.900 | 670.600 |
| BT | 0.000 | 526.000 | 670.600 | 0.000 | 600.000 | 669.700 | 0.000 | 700.000 | 669.300 | 0.000 |
| BT | 710.000 | 669.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 343.000 | .040 | 426.000 | .050 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 353.000 | 426.000 | 250.000 | 530.000 | 0.000 |
| X1 | 62600.000 | 14.000 | 343.000 | 426.000 | 114.000 | 114.000 | 114.000 | 0.000 | 1.270 | 0.000 |
| GR | 670.800 | 0.000 | 671.000 | 100.000 | 667.700 | 200.000 | 667.800 | 210.000 | 667.300 | 300.000 |
| GR | 670.000 | 383.000 | 652.500 | 401.000 | 663.500 | 407.000 | 663.500 | 412.000 | 670.600 | 426.000 |
| GR | 668.800 | 451.000 | 663.600 | 500.000 | 667.800 | 600.000 | 668.500 | 700.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 700.000 | .065 | 711.000 | .040 | 717.000 | .065 | 718.000 | .065 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 650.000 | 745.700 | 550.000 | 900.000 | 0.000 |
| X1 | 63740.000 | 20.000 | 700.000 | 718.000 | 1140.000 | 1074.000 | 1140.000 | 0.000 | 0.000 | 0.000 |
| GR | 676.700 | 0.000 | 676.300 | 100.000 | 676.100 | 184.000 | 675.200 | 200.000 | 674.700 | 300.000 |
| GR | 672.800 | 400.000 | 672.700 | 500.000 | 672.300 | 600.000 | 674.700 | 700.000 | 667.100 | 711.000 |
| GR | 666.800 | 714.000 | 666.500 | 717.000 | 669.200 | 718.000 | 672.900 | 731.000 | 673.100 | 800.000 |
| GR | 673.700 | 900.000 | 674.900 | 1000.000 | 675.500 | 1100.000 | 674.000 | 1200.000 | 673.800 | 1300.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 1500.000 | .040 | 1520.000 | .030 | 2300.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 1500.000 | 1531.000 | 1060.000 | 1670.000 | 0.000 |
| X1 | 63821.000 | 41.000 | 1500.000 | 1520.000 | 91.000 | 31.000 | 81.000 | 0.000 | 0.000 | 0.000 |
| GR | 681.100 | 0.000 | 680.200 | 100.000 | 679.400 | 200.000 | 679.100 | 300.000 | 678.600 | 400.000 |
| GR | 677.900 | 500.000 | 677.600 | 600.000 | 677.100 | 700.000 | 676.500 | 800.000 | 676.300 | 900.000 |
| GR | 676.100 | 984.000 | 675.200 | 1000.000 | 674.700 | 1100.000 | 672.800 | 1200.000 | 672.800 | 1240.000 |
| GR | 672.700 | 1300.000 | 672.300 | 1400.000 | 674.600 | 1497.100 | 674.700 | 1500.000 | 668.700 | 1500.000 |
| GR | 668.000 | 1505.000 | 667.900 | 1505.400 | 667.400 | 1505.400 | 667.400 | 1510.000 | 667.900 | 1515.000 |
| [illegible] | [illegible] | 1520.000 | 669.300 | 1522.900 | 672.900 | 1531.000 | 673.100 | 1600.000 | 674.200 | 1655.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 1770.000 | 674.700 | 1770.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 674.900 | 1800.000 | 675.500 | 1900.000 | 674.000 | 2000.000 | 673.800 | 2100.000 | 672.700 | 2200.000 |
| GR | 672.500 | 2300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.140 | 3.040 | 0.000 | 1.000 | 0.000 | 79.800 | 0.000 | 667.400 | 667.400 |
| | | | | | | | | | | |
| X1 | 63879.000 | 0.000 | 0.000 | 0.000 | 58.000 | 58.000 | 58.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 673.700 | 674.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1000.000 | 0.000 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 15.000 | 1000.000 | 675.200 | 0.000 | 1200.000 | 674.700 | 0.000 | 1400.000 | 676.200 | 0.000 |
| BT | 1497.100 | 677.100 | 0.000 | 1497.100 | 679.100 | 0.000 | 1500.000 | 679.100 | 668.700 | 1500.000 |
| BT | 679.100 | 668.700 | 1505.000 | 679.100 | 672.700 | 1510.000 | 679.100 | 673.700 | 1515.000 | 679.100 |
| BT | 672.500 | 1520.000 | 679.100 | 668.000 | 1522.900 | 679.100 | 0.000 | 1522.900 | 677.000 | 0.000 |
| BT | 1600.000 | 676.700 | 0.000 | 1700.000 | 675.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .075 | 155.000 | .055 | 196.000 | .045 | 204.000 | .055 | 207.000 | .075 |
| NH | 524.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 64830.000 | 13.000 | 185.000 | 207.000 | 791.000 | 971.000 | 951.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 330.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 678.100 | 0.000 | 676.300 | 100.000 | 675.400 | 135.000 | 668.200 | 196.000 | 668.100 | 200.000 |
| GR | 668.100 | 204.000 | 671.900 | 207.000 | 673.800 | 281.000 | 677.900 | 300.000 | 679.100 | 400.000 |
| GR | 677.900 | 400.000 | 673.500 | 500.000 | 679.800 | 524.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 460.000 | 740.000 | 865.000 | 1250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 234.000 | .045 | 245.000 | .040 | 478.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 66000.000 | 15.000 | 238.000 | 245.000 | 1120.000 | 1160.000 | 1170.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 190.000 | 0.000 | 380.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 683.000 | 0.000 | 679.000 | 44.000 | 679.000 | 55.000 | 679.900 | 100.000 | 679.800 | 200.000 |
| GR | 678.400 | 222.000 | 674.200 | 238.000 | 671.600 | 238.000 | 670.900 | 241.000 | 671.300 | 244.000 |
| GR | 673.600 | 245.000 | 678.200 | 256.000 | 678.300 | 300.000 | 684.300 | 400.000 | 681.400 | 478.000 |
| NH | 5.000 | .045 | 525.000 | .055 | 531.000 | .035 | 550.000 | .055 | 562.000 | .040 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 66850.000 | 17.000 | 525.000 | 532.000 | 820.000 | 840.000 | 850.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 523.000 | 0.000 | 565.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 687.100 | 0.000 | 687.400 | 100.000 | 687.100 | 200.000 | 684.900 | 279.000 | 686.000 | 300.000 |
| GR | 680.600 | 400.000 | 679.900 | 500.000 | 679.100 | 525.000 | 674.900 | 531.000 | 674.800 | 541.000 |
| GR | 674.800 | 550.000 | 679.400 | 562.000 | 680.500 | 600.000 | 683.500 | 700.000 | 689.500 | 800.000 |
| GR | 688.500 | 900.000 | 687.400 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 66893.000 | 22.000 | 390.000 | 410.000 | 43.000 | 43.000 | 43.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 391.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.900 | 0.000 | 686.000 | 100.000 | 683.500 | 200.000 | 682.000 | 300.000 | 682.100 | 320.000 |
| GR | 684.200 | 383.000 | 684.200 | 390.000 | 675.300 | 390.000 | 674.700 | 394.000 | 674.500 | 397.000 |
| GR | 674.400 | 400.000 | 674.700 | 403.000 | 674.300 | 405.000 | 677.200 | 408.000 | 676.100 | 410.000 |
| GR | 684.200 | 410.000 | 684.200 | 417.000 | 682.200 | 480.000 | 681.900 | 500.000 | 683.300 | 600.000 |
| GR | 687.300 | 700.000 | 688.800 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 66894.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 20.000 | 0.000 | 686.900 | 0.000 | 100.000 | 686.000 | 0.000 | 200.000 | 683.600 | 0.000 |
| BT | 300.000 | 682.000 | 0.000 | 320.000 | 682.100 | 0.000 | 383.000 | 684.200 | 0.000 | 390.000 |
| BT | 684.200 | 675.300 | 394.000 | 684.200 | 680.600 | 397.000 | 684.200 | 682.100 | 400.000 | 684.200 |
| BT | 682.500 | 403.000 | 684.200 | 682.100 | 405.000 | 684.200 | 681.000 | 408.000 | 684.200 | 679.500 |
| BT | 410.000 | 684.200 | 676.100 | 417.000 | 684.200 | 0.000 | 480.000 | 682.200 | 0.000 | 500.000 |
| BT | 681.900 | 0.000 | 600.000 | 683.300 | 0.000 | 700.000 | 687.300 | 0.000 | 800.000 | 688.800 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 66925.000 | 0.000 | 0.000 | 0.000 | 31.000 | 31.000 | 31.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 66926.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 340.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66946.000 | 15.000 | 349.000 | 359.000 | 20.000 | 20.000 | 20.000 | 0.000 | -3.650 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 324.000 | 0.000 | 394.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 696.500 | 0.000 | 695.200 | 100.000 | 687.410 | 200.000 | 684.300 | 300.000 | 683.400 | 349.000 |
| GR | 678.300 | 352.000 | 674.100 | 355.000 | 678.300 | 358.000 | 681.800 | 359.000 | 682.100 | 400.000 |
| GR | 684.500 | 500.000 | 690.500 | 600.000 | 693.300 | 700.000 | 693.300 | 800.000 | 690.300 | 925.000 |
| X1 | 67075.000 | 0.000 | 0.000 | 0.000 | 129.000 | 129.000 | 129.000 | 0.000 | .340 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 260.000 | 0.000 | 460.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 67500.000 | 0.000 | 0.000 | 0.000 | 321.000 | 295.000 | 425.000 | 0.000 | 1.100 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 67925.000 | 0.000 | 0.000 | 0.000 | 322.000 | 295.000 | 425.000 | 0.000 | 1.100 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 68350.000 | 0.000 | 0.000 | 0.000 | 322.000 | 295.000 | 425.000 | 0.000 | 1.110 | 0.000 |
| NH | 3.000 | .055 | 673.000 | .040 | 691.000 | .045 | 1360.000 | 0.000 | 0.000 | 0.000 |
| X1 | 69530.000 | 22.000 | 673.000 | 691.000 | 649.000 | 959.000 | 1150.000 | 0.000 | 0.000 | 0.000 |
| GR | 701.600 | 0.000 | 702.100 | 100.000 | 701.300 | 200.000 | 699.000 | 300.000 | 696.500 | 400.000 |
| GR | 691.500 | 500.000 | 687.300 | 600.000 | 685.900 | 673.000 | 683.200 | 678.000 | 683.500 | 682.000 |
| GR | 683.800 | 685.000 | 687.200 | 691.000 | 687.400 | 700.000 | 687.900 | 800.000 | 689.900 | 885.000 |
| GR | 696.800 | 913.000 | 696.100 | 1000.000 | 695.200 | 1050.000 | 696.900 | 1100.000 | 696.500 | 1200.000 |
| GR | 696.000 | 1300.000 | 696.400 | 1360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .055 | 619.000 | .040 | 636.700 | .045 | 1161.100 | 0.000 | 0.000 | 0.000 |
| X1 | 69730.000 | 90.000 | 619.000 | 636.700 | 200.000 | 200.000 | 200.000 | 0.000 | -.680 | 0.000 |
| GR | 703.200 | 0.000 | 703.300 | 21.300 | 703.300 | 42.600 | 703.300 | 64.000 | 703.300 | 85.300 |
| GR | 703.200 | 106.700 | 703.000 | 128.000 | 702.900 | 149.400 | 702.700 | 170.700 | 702.400 | 192.100 |
| GR | 701.900 | 213.400 | 701.400 | 234.800 | 700.300 | 256.100 | 699.100 | 277.500 | 698.000 | 298.800 |
| GR | 697.100 | 320.200 | 696.500 | 341.500 | 695.900 | 362.800 | 695.100 | 384.200 | 694.300 | 405.500 |
| GR | 693.400 | 426.900 | 692.500 | 448.200 | 691.700 | 469.600 | 691.000 | 490.900 | 690.400 | 512.300 |
| GR | 689.700 | 533.600 | 689.100 | 555.000 | 688.800 | 576.300 | 688.500 | 597.700 | 688.200 | 619.000 |
| GR | 687.600 | 619.600 | 687.000 | 620.200 | 686.400 | 620.800 | 686.000 | 621.400 | 685.700 | 621.900 |
| GR | 685.500 | 622.500 | 685.300 | 623.100 | 685.100 | 623.700 | 685.000 | 624.300 | 685.100 | 624.900 |
| GR | 685.100 | 625.500 | 685.100 | 626.100 | 685.200 | 626.700 | 685.200 | 627.200 | 685.200 | 627.800 |
| GR | 685.300 | 628.400 | 685.300 | 629.000 | 685.300 | 629.600 | 685.400 | 630.200 | 685.400 | 630.800 |
| GR | 685.600 | 631.400 | 685.900 | 632.000 | 686.100 | 632.500 | 685.300 | 633.100 | 686.600 | 633.700 |
| GR | 686.900 | 634.300 | 687.200 | 634.900 | 687.600 | 635.500 | 687.900 | 636.100 | 688.200 | 636.700 |
| GR | 688.800 | 654.800 | 689.300 | 673.000 | 689.800 | 691.100 | 690.300 | 709.300 | 690.900 | 727.400 |
| GR | 691.600 | 745.600 | 692.000 | 763.700 | 692.500 | 781.900 | 693.900 | 800.000 | 697.500 | 818.200 |
| GR | 697.500 | 836.300 | 697.400 | 854.500 | 697.400 | 872.600 | 697.300 | 890.800 | 697.200 | 908.900 |
| GR | 697.000 | 927.000 | 697.500 | 945.200 | 698.000 | 963.300 | 698.200 | 981.500 | 698.100 | 999.600 |
| GR | 698.000 | 1017.800 | 698.000 | 1035.900 | 697.900 | 1054.100 | 697.800 | 1072.200 | 697.700 | 1090.400 |
| GR | 697.700 | 1108.500 | 697.600 | 1126.700 | 697.700 | 1144.800 | 698.000 | 1163.000 | 698.400 | 1181.100 |
| NH | 3.000 | .060 | 564.900 | .045 | 582.200 | .040 | 1001.800 | 0.000 | 0.000 | 0.000 |
| X1 | 70197.000 | 90.000 | 564.900 | 582.200 | 450.000 | 475.000 | 467.000 | 0.000 | 0.000 | 0.000 |
| GR | 705.000 | 0.000 | 704.900 | 19.400 | 704.800 | 38.900 | 704.800 | 58.400 | 704.700 | 77.900 |
| GR | 704.500 | 97.400 | 704.400 | 116.800 | 704.200 | 136.300 | 704.000 | 155.800 | 703.700 | 175.300 |
| GR | 703.400 | 194.800 | 702.800 | 214.200 | 701.100 | 233.700 | 699.400 | 253.200 | 697.700 | 272.700 |
| GR | 696.500 | 292.200 | 695.800 | 311.600 | 695.100 | 331.100 | 694.600 | 350.600 | 694.000 | 370.100 |
| GR | 693.500 | 389.600 | 693.000 | 409.000 | 692.500 | 428.500 | 692.000 | 448.000 | 691.700 | 467.500 |
| GR | 691.400 | 487.000 | 691.100 | 506.500 | 690.900 | 525.900 | 690.700 | 545.400 | 690.500 | 564.900 |
| GR | 689.600 | 565.500 | 688.800 | 566.100 | 687.900 | 566.600 | 687.400 | 567.200 | 687.200 | 567.800 |
| GR | 687.100 | 568.400 | 687.000 | 568.900 | 686.900 | 569.500 | 686.900 | 570.100 | 686.900 | 570.700 |
| GR | 686.900 | 571.300 | 686.900 | 571.800 | 687.000 | 572.400 | 687.000 | 573.000 | 687.000 | 573.600 |
| GR | 687.000 | 574.100 | 687.000 | 574.700 | 687.000 | 575.300 | 687.100 | 575.900 | 687.100 | 576.500 |
| GR | 687.200 | 577.000 | 687.300 | 577.600 | 687.400 | 578.200 | 687.500 | 578.800 | 687.700 | 579.300 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 690.200 | 596.200 | 691.100 | 610.200 | 692.000 | 624.200 | 692.900 | 638.200 | 693.900 | 652.200 |
| GR | 694.800 | 666.100 | 695.100 | 690.100 | 695.500 | 694.100 | 696.300 | 708.100 | 698.200 | 722.100 |
| GR | 698.300 | 736.100 | 698.500 | 760.000 | 698.600 | 764.000 | 698.700 | 778.000 | 698.700 | 792.000 |
| GR | 698.800 | 806.000 | 699.200 | 820.000 | 699.500 | 834.000 | 699.500 | 847.900 | 699.500 | 861.900 |
| GR | 699.500 | 875.900 | 699.400 | 889.900 | 699.400 | 903.900 | 699.300 | 917.900 | 699.300 | 931.800 |
| GR | 699.200 | 945.800 | 699.200 | 959.800 | 699.400 | 973.800 | 699.900 | 987.800 | 700.400 | 1001.800 |
| NH | 3.000 | .060 | 511.000 | .045 | 528.000 | .040 | 323.000 | 0.000 | 0.000 | 0.000 |
| X1 | 70530.000 | 16.000 | 511.000 | 528.000 | 330.000 | 335.000 | 333.000 | 0.000 | 0.000 | 0.000 |
| GR | 706.700 | 0.000 | 705.800 | 100.000 | 704.700 | 190.000 | 696.300 | 255.000 | 694.300 | 300.000 |
| GR | 693.100 | 400.000 | 693.000 | 500.000 | 692.900 | 511.000 | 688.800 | 513.000 | 688.800 | 519.000 |
| GR | 688.800 | 525.000 | 690.400 | 528.000 | 697.900 | 585.000 | 701.000 | 700.000 | 700.800 | 800.000 |
| GR | 702.500 | 823.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 500.000 | .045 | 510.000 | .060 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 495.000 | 520.000 | 1.000 | 1000.000 | 0.000 |
| X1 | 71240.000 | 19.000 | 500.000 | 516.000 | 770.000 | 660.000 | 710.000 | 0.000 | 0.000 | 0.000 |
| GR | 707.300 | 0.000 | 704.100 | 100.000 | 702.600 | 200.000 | 700.400 | 300.000 | 697.100 | 400.000 |
| GR | 693.900 | 500.000 | 692.700 | 504.000 | 692.500 | 508.000 | 692.800 | 513.000 | 695.500 | 516.000 |
| GR | 695.900 | 600.000 | 697.000 | 531.000 | 700.700 | 670.000 | 702.800 | 700.000 | 705.600 | 735.000 |
| GR | 708.900 | 765.000 | 709.400 | 800.000 | 709.300 | 900.000 | 708.400 | 1000.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 509.500 | .040 | 522.500 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 509.500 | 522.500 | 1.000 | 1000.000 | 0.000 |
| X1 | 71290.000 | 33.000 | 509.500 | 522.500 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GR | 707.300 | 0.000 | 705.000 | 100.000 | 702.700 | 200.000 | 700.400 | 300.000 | 697.100 | 400.000 |
| GR | 693.900 | 500.000 | 693.700 | 509.500 | 693.100 | 509.900 | 692.300 | 510.700 | 692.000 | 512.000 |
| GR | 692.300 | 513.300 | 693.100 | 514.100 | 693.700 | 514.500 | 695.300 | 514.500 | 694.700 | 517.500 |
| GR | 693.100 | 517.500 | 692.500 | 517.900 | 691.700 | 518.700 | 691.400 | 520.000 | 691.700 | 521.300 |
| GR | 692.500 | 522.100 | 693.100 | 522.500 | 694.700 | 522.500 | 695.900 | 600.000 | 697.000 | 631.000 |
| GR | 700.700 | 670.000 | 702.800 | 700.000 | 703.600 | 710.000 | 705.600 | 735.000 | 708.900 | 765.000 |
| GR | 709.400 | 800.000 | 709.300 | 900.000 | 708.400 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 509.500 | 522.500 | 1.000 | 1000.000 | 0.000 |
| SB | 0.000 | 2.220 | 3.030 | 0.000 | 1.000 | 0.000 | 37.800 | 0.000 | 691.400 | 691.400 |
| X1 | 71330.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 697.000 | 698.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 27.000 | 0.000 | 707.300 | 0.000 | 100.000 | 705.000 | 0.000 | 200.000 | 702.700 | 0.000 |
| BT | 300.000 | 700.400 | 0.000 | 400.000 | 698.900 | 0.000 | 509.500 | 699.500 | 693.700 | 509.900 |
| BT | 699.500 | 695.700 | 510.700 | 699.500 | 696.500 | 512.000 | 699.500 | 696.800 | 513.300 | 699.500 |
| BT | 696.500 | 514.100 | 699.500 | 695.700 | 514.500 | 699.500 | 695.100 | 517.500 | 699.600 | 694.700 |
| BT | 517.900 | 699.600 | 695.300 | 513.700 | 699.600 | 696.100 | 520.000 | 699.600 | 696.400 | 521.300 |
| BT | 699.600 | 696.100 | 522.100 | 699.600 | 695.300 | 522.500 | 699.600 | 694.700 | 600.000 | 699.800 |
| BT | 0.000 | 700.000 | 703.100 | 0.000 | 710.000 | 703.500 | 0.000 | 735.000 | 705.600 | 0.000 |
| BT | 765.000 | 708.900 | 0.000 | 800.000 | 709.400 | 0.000 | 900.000 | 709.300 | 0.000 | 1000.000 |
| BT | 708.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 384.000 | .040 | 400.000 | .040 | 700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 71890.000 | 14.000 | 384.000 | 400.000 | 560.000 | 560.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| GR | 715.700 | 0.000 | 715.200 | 17.000 | 707.500 | 100.000 | 701.100 | 158.000 | 700.700 | 200.000 |
| GR | 698.500 | 300.000 | 697.000 | 384.000 | 694.200 | 388.000 | 694.200 | 392.000 | 694.900 | 396.000 |
| GR | 696.000 | 400.000 | 697.500 | 500.000 | 711.900 | 600.000 | 712.200 | 700.000 | 0.000 | 0.000 |
| X1 | 72166.000 | 90.000 | 473.200 | 489.900 | 276.000 | 276.000 | 276.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.500 | 0.000 | 717.200 | 16.300 | 716.400 | 32.600 | 715.500 | 48.900 | 714.600 | 65.200 |
| GR | 713.600 | 81.500 | 712.500 | 97.900 | 711.300 | 114.200 | 710.100 | 130.500 | 708.800 | 146.800 |
| GR | 707.500 | 163.100 | 706.200 | 179.500 | 704.900 | 195.800 | 704.400 | 212.100 | 704.100 | 228.400 |
| GR | 703.800 | 244.700 | 703.300 | 261.100 | 702.900 | 277.400 | 702.500 | 293.700 | 702.100 | 310.000 |
| GR | 701.700 | 326.300 | 701.400 | 342.600 | 701.000 | 359.000 | 700.600 | 375.300 | 700.300 | 391.600 |
| GR | 700.000 | 407.900 | 699.700 | 424.200 | 699.200 | 440.600 | 698.400 | 456.900 | 697.500 | 473.200 |
| GR | 697.200 | 473.700 | 696.900 | 474.300 | 696.500 | 474.900 | 696.200 | 475.400 | 695.900 | 476.000 |
| GR | 695.500 | 476.500 | 695.200 | 477.100 | 695.100 | 477.600 | 695.100 | 478.200 | 695.000 | 478.700 |
| GR | 695.000 | 479.300 | 695.000 | 479.900 | 695.000 | 480.400 | 694.900 | 481.000 | 694.900 | 481.500 |
| GR | 695.000 | 482.100 | 695.000 | 482.600 | 695.100 | 483.200 | 695.100 | 483.700 | 695.200 | 484.300 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 696.300 | 487.600 | 696.600 | 488.200 | 696.800 | 488.700 | 697.100 | 489.300 | 697.300 | 489.900 |
| GR | 697.400 | 500.200 | 697.400 | 510.500 | 697.500 | 520.400 | 697.600 | 531.200 | 697.800 | 541.500 |
| GR | 697.900 | 551.900 | 698.000 | 562.200 | 698.200 | 572.500 | 698.300 | 582.900 | 698.400 | 593.200 |
| GR | 699.400 | 603.500 | 700.500 | 613.900 | 701.600 | 624.200 | 702.700 | 634.500 | 703.900 | 644.900 |
| GR | 705.000 | 655.200 | 706.100 | 665.500 | 707.400 | 675.900 | 709.200 | 686.200 | 710.900 | 696.500 |
| GR | 711.800 | 706.900 | 712.400 | 717.200 | 713.000 | 727.500 | 713.900 | 737.900 | 714.700 | 748.200 |
| GR | 715.400 | 758.500 | 715.500 | 768.900 | 715.600 | 779.200 | 715.700 | 789.500 | 715.800 | 799.900 |
| X1 | 72444.000 | 90.000 | 562.700 | 580.000 | 276.000 | 276.000 | 278.000 | 0.000 | 0.000 | 0.000 |
| GR | 719.500 | 0.000 | 719.100 | 19.400 | 718.600 | 38.800 | 718.000 | 58.200 | 717.500 | 77.600 |
| GR | 716.600 | 97.000 | 715.600 | 116.400 | 714.500 | 135.800 | 713.500 | 155.200 | 712.300 | 174.600 |
| GR | 711.100 | 194.000 | 709.900 | 213.400 | 708.800 | 232.800 | 708.000 | 252.200 | 707.400 | 271.600 |
| GR | 706.900 | 291.000 | 706.300 | 310.400 | 705.700 | 329.800 | 705.200 | 349.200 | 704.700 | 368.700 |
| GR | 704.200 | 388.100 | 703.800 | 407.500 | 703.300 | 426.900 | 702.900 | 446.300 | 702.500 | 465.700 |
| GR | 702.100 | 485.100 | 701.700 | 504.500 | 701.000 | 523.900 | 699.500 | 543.300 | 698.100 | 562.700 |
| GR | 697.800 | 563.300 | 697.500 | 563.900 | 697.200 | 564.400 | 696.900 | 565.000 | 696.700 | 565.600 |
| GR | 696.400 | 566.200 | 696.100 | 566.400 | 696.000 | 567.300 | 695.000 | 567.900 | 695.900 | 568.500 |
| GR | 695.900 | 569.100 | 695.900 | 569.600 | 695.800 | 570.200 | 695.700 | 570.800 | 695.700 | 571.400 |
| GR | 695.700 | 572.000 | 695.700 | 572.500 | 695.700 | 573.100 | 695.700 | 573.700 | 695.800 | 574.300 |
| GR | 695.800 | 574.800 | 695.900 | 575.400 | 696.300 | 576.000 | 696.600 | 576.600 | 697.000 | 577.200 |
| GR | 697.300 | 577.700 | 697.700 | 578.300 | 698.000 | 578.900 | 698.400 | 579.500 | 698.800 | 580.000 |
| GR | 698.700 | 599.700 | 698.600 | 611.400 | 698.600 | 612.000 | 698.700 | 622.700 | 698.800 | 633.400 |
| GR | 699.000 | 644.000 | 699.100 | 654.700 | 699.200 | 665.400 | 699.300 | 676.000 | 699.500 | 686.700 |
| GR | 700.000 | 697.400 | 700.600 | 708.000 | 701.400 | 718.700 | 702.300 | 729.400 | 703.100 | 740.000 |
| GR | 703.900 | 750.700 | 704.700 | 761.400 | 705.800 | 772.000 | 707.900 | 782.700 | 710.000 | 793.400 |
| GR | 711.600 | 804.000 | 712.900 | 814.700 | 714.200 | 825.400 | 715.700 | 836.000 | 717.300 | 846.700 |
| GR | 718.800 | 857.400 | 719.000 | 868.000 | 719.100 | 878.700 | 719.300 | 889.400 | 719.400 | 900.100 |
| NH | 3.000 | .050 | 652.000 | .040 | 670.000 | .040 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 72720.000 | 19.000 | 652.000 | 670.000 | 276.000 | 276.000 | 276.000 | 0.000 | 0.000 | 0.000 |
| GR | 721.400 | 0.000 | 720.200 | 100.000 | 716.000 | 200.000 | 711.200 | 300.000 | 708.000 | 400.000 |
| GR | 705.600 | 500.000 | 703.500 | 600.000 | 698.700 | 652.000 | 697.100 | 656.000 | 696.400 | 662.000 |
| GR | 696.400 | 665.000 | 700.200 | 670.000 | 699.700 | 700.000 | 700.700 | 600.000 | 703.800 | 866.000 |
| GR | 711.400 | 900.000 | 715.100 | 922.000 | 722.200 | 955.000 | 723.100 | 1000.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 382.000 | .040 | 400.000 | .050 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 74110.000 | 16.000 | 382.000 | 400.000 | 1420.000 | 1370.000 | 1390.000 | 0.000 | 0.000 | 0.000 |
| GR | 728.300 | 0.000 | 728.000 | 25.000 | 720.500 | 54.000 | 709.500 | 104.000 | 709.400 | 200.000 |
| GR | 707.600 | 300.000 | 703.900 | 382.000 | 701.600 | 384.000 | 701.000 | 391.000 | 701.200 | 396.000 |
| GR | 705.000 | 400.000 | 708.700 | 468.000 | 715.100 | 500.000 | 719.000 | 500.000 | 728.100 | 700.000 |
| GR | 726.200 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .080 | 114.000 | .045 | 232.000 | .045 | 452.000 | 0.000 | 0.000 | 0.000 |
| X1 | 75420.000 | 11.000 | 114.000 | 232.000 | 1200.000 | 1410.000 | 1310.000 | 0.000 | 0.000 | 0.000 |
| GR | 739.700 | 0.000 | 733.600 | 52.000 | 719.800 | 114.000 | 712.100 | 159.000 | 710.400 | 183.000 |
| GR | 710.100 | 192.000 | 719.300 | 206.000 | 724.400 | 232.000 | 724.700 | 252.000 | 725.500 | 352.000 |
| GR | 725.100 | 452.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 365.000 | 550.000 | 575.000 | 985.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 297.000 | .040 | 322.000 | .030 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 75473.000 | 25.000 | 297.000 | 322.000 | 53.000 | 53.000 | 53.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 297.000 | 0.000 | 322.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 740.000 | 0.000 | 739.700 | 123.000 | 733.600 | 175.000 | 728.200 | 200.000 | 719.800 | 237.000 |
| GR | 714.900 | 282.000 | 714.900 | 297.000 | 712.900 | 297.500 | 711.900 | 299.000 | 711.900 | 301.000 |
| GR | 712.900 | 302.400 | 714.900 | 303.000 | 715.100 | 316.000 | 713.100 | 316.600 | 712.100 | 318.000 |
| GR | 712.100 | 320.000 | 713.100 | 321.400 | 715.100 | 322.000 | 715.100 | 322.000 | 715.100 | 338.000 |
| GR | 724.400 | 355.000 | 724.700 | 375.000 | 725.500 | 475.000 | 725.100 | 575.000 | 725.100 | 600.000 |
| SB | 0.000 | 2.030 | 2.820 | 0.000 | 1.000 | 0.000 | 54.700 | 0.000 | 711.900 | 711.900 |
| X1 | 75547.000 | 26.000 | 297.000 | 322.000 | 74.000 | 74.000 | 74.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 718.100 | 725.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 4.000 | 723.350 | 724.800 | 725.300 | 726.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 21.000 | 0.000 | 740.000 | 0.000 | 123.000 | 739.700 | 0.000 | 175.000 | 733.600 | 0.000 |
| | [illegible] | [illegible] | [illegible] | 297.000 | 725.800 | 0.000 | 297.000 | 725.800 | 714.900 | 297.600 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 716.900 | 303.000 | 725.800 | 714.900 | 316.000 | 725.800 | 715.100 | 316.600 | 725.800 | 716.100 |
| BT | 318.000 | 725.800 | 718.100 | 320.000 | 725.800 | 718.100 | 321.400 | 725.800 | 716.100 | 322.000 |
| BT | 725.800 | 715.100 | 375.000 | 725.900 | 0.000 | 475.000 | 725.700 | 0.000 | 575.000 | 725.100 |
| BT | 0.000 | 600.000 | 725.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 |
| GR | 708.000 | 0.000 | 708.000 | 123.000 | 708.000 | 175.000 | 708.000 | 200.000 | 708.000 | 297.000 |
| GR | 708.000 | 297.600 | 708.000 | 299.000 | 708.000 | 301.000 | 708.000 | 302.400 | 708.000 | 303.000 |
| GR | 708.000 | 316.000 | 708.000 | 315.000 | 708.000 | 318.000 | 708.000 | 320.000 | 708.000 | 321.400 |
| GR | 708.000 | 322.000 | 708.000 | 375.000 | 708.000 | 475.000 | 708.000 | 575.000 | 708.000 | 600.000 |
| GR | 730.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      SHELBY TOWNSHIP-JOB NO. 5670-09  PROJECT MANAGER WILLIAM C. ROSSO
T2      100 YEAR FLOOD = 1800
T3      MIDDLE BRANCH OF THE CLINTON RIVER
```

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 554.320 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
CCHV=     .400 CEHV=     .800
1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNC-       XNR        WTN        ELEVN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IPC        ICONT      CORAR      TOPWTD      ENDST

 53346.00     11.12     654.32      0.00      654.32     654.50      .28       0.00       0.00      664.00
    1800.        0.      1800.        0.          0.      426.        0.         0.         0.      653.70
     0.00      0.00       4.22      0.00       0.000      .040     0.000      0.000     643.20      439.04
  .000775        1.         1.        1.           0         0         1       0.00      62.71      507.51

1490 NH CARD USED
 53446.00     11.14     654.63      0.00       0.00     654.73      .10       .06        .07      652.39
    1800.       677.      1068.       55.       614.      344.       57.        2.         0.      653.09
      .01      1.10       3.11       .97       .070      .040      .055      .040     643.49       21.41
  .000505      100.       100.      100.          2         0         1       0.00     262.01      683.42

CCHV=     .100 CEHV=     .300
1490 NH CARD USED

                VALLEY SECTION AA                                                    344

 53900.00     10.10     654.90      0.00       0.00     655.09      .20       .33        .03      653.70
    1800.       555.      1217.       28.       428.      288.      29.        11.         3.      654.40
      .05      1.29       4.22       .96       .070      .040     .055      .039     644.80       27.30
  .001077      504.       454.      374.          2         0         1       0.00     253.03      280.33

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0      374.0  TYPE=      1  TARGET=      373.000

                VALLEY SECTION AB                                                    344.1

 54400.00      8.58     655.38      0.00       0.00     655.62      .24       .51        .01      652.50
    1800.       114.      1383.      302.       116.      314.     217.        14.         5.      653.10
      .09       .99       4.40      1.49       .060      .040     .055      .039     646.80       51.59
  .000980      510.       300.      430.          2         0         1       0.07     231.01      312.50

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0      600.0  TYPE=      1  TARGET=      599.000

                VALLEY SECTION AC                                                    345

 54500.00     10.02     655.52      0.00       0.00     655.75      .23       .13        .00      652.10
    1800.       178.      1350.      271.       114.      306.     278.        21.         6.      653.30
      .10      1.57       4.41       .98       .060      .049     .120      .039     545.50      203.52
  .001970      100.       100.      100.          2         0         1       0.00     243.30      446.43

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
```

Agrees with other lower Study U/S of M-53

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3470 ENCROACHMENT STATIONS=        1.0       500.0  TYPE=      1  TARGET=      599.000

                BRIDGE SECTION AD  BELLMAN ROAD  DOWNSTREAM FACE

 54557.00      9.25    655.75      0.00      0.00    655.84       .09       .05       .04    649.50
    1800.      709.     462.      629.      286.     155.      314.       22.        7.    653.30
      .10      2.48     2.97      2.10      .030     .040      .030      .039    646.50    198.39
  .000463       77.      57.       47.         2        0         1      0.00    251.87    450.26


SPECIAL BRIDGE

SB   XK        XKOS      CCFQ      BDLEN      RWC       BWP      BAREA      SS       ELCHU     ELCHD
     0.00      1.74      3.03       0.00     1.00      0.00     99.00     0.00    646.50    646.50

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TME    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XML       XMCH      XMR       WTM       FLWTM       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTOTAL    IDC       ICONT     CORBR     TOPWTD      EWDST

PRESSURE AND WEIR FLOW

  EGPRS     EGLWC       H3       QWEIR      QPR      BAREA     ELLC      ELTRD     CLASS

  664.84    655.84     0.00      912.      389.      98.     654.30    655.40     30.00


3470 ENCROACHMENT STATIONS=        1.0       600.0  TYPE=      1  TARGET=      599.000

                BRIDGE SECTION AD  BELLMAN ROAD  UPSTREAM FACE                    346

 54583.00      11.44   657.94      0.00      0.00    657.97       .03      2.12      0.00    649.50
    1800.      745.     287.      768.      588.     196.      632.       22.        7.    653.30
      .11      1.27     1.46      1.22      .030     .040      .030      .039    545.51    125.33
  .000083       26.      26.       26.         2        0         5      0.00    351.71    477.05


1490 NH CARD USED

                VALLEY SECTION AE                                                   347

 55780.00       9.90   658.10      0.00      0.00    658.13       .04       .16       .01    654.30
    1360.      407.     443.      511.      518.     131.      643.       60.       19.    653.40
      .36       .78     2.45       .79      .070     .040      .070      .040    548.20     45.72
  .000344     1167.    1167.     1217.         2        0         1      0.00    542.35    583.05


CCHV=     .100 CEHV=     .300
1490 NH CARD USED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      172.0       963.2  TYPE=      1  TARGET=      920.000

                VALLEY SECTION AF                                                   348

 56390.00       8.77   658.37      0.00      0.00    658.44       .07       .30       .01    654.60
    1360.      618.     537.      205.      742.     173.      172.       77.       28.    655.50
      .45       .83     3.11      1.20      .065     .037      .065      .040    645.60    312.04
  .000728      630.     610.      590.         2        0         1      0.00    548.36    963.20
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```
CCHV=     .300 CEHV=     .700
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      172.0      946.0  TYPE=      1  TARGET=      900.000

                BRIDGE SECTION AG  25 MILE ROAD  DOWNSTREAM FACE

 56461.00      8.35   658.45      0.00      0.00   658.48       .03       .02       .01   652.00
    1360.      845.     262.     253.      831.     139.      178.       79.       29.   651.70
      .47      1.02     1.89     1.42      .030     .040      .030      .040   650.10   303.38
  .000202       71.      71.      71.         2        0         1      0.00   540.62   946.00

1490 NH CARD USED

SPECIAL BRIDGE

SB   XK        XKOR      COFO      ROLEN      WSC       HAP       BAREA      SS        ELCRO     ELCFO
     0.00      2.03      3.04      0.00      1.00      0.00      74.00      0.00     650.10    650.10

PRESSURE AND WEIR FLOW

  EGPRS     EGLWC       HJ      QWEIR      QPR      BAREA     FLLC     ELTRD     CLASS

  669.10    658.48     0.00     1122.      236.      74.     655.50    657.20     30.00


3470 ENCROACHMENT STATIONS=      172.0      946.0  TYPE=      1  TARGET=      900.000

                BRIDGE SECTION AG  25 MILE ROAD  UPSTREAM FACE                 343

 56498.00      8.65   658.75      0.00      0.00   658.77       .02       .29      0.00   652.00
    1360.      897.     224.     239.     1009.     145.      196.       80.       29.   651.70
      .48       .89     1.55     1.22      .030     .040      .030      .040   650.10   274.68
  .000129       37.      37.      37.         1        0         6      0.00   667.32   946.10

1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELR     FS        HV        HL        HLOSS    HAGE ELEV
   W         QLOB      QCH       QROB      QLOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELWTN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRTOL    TOC       ICONT     CORAR     TOPWTD      ENDST


3470 ENCROACHMENT STATIONS=      460.0     1100.0  TYPE=      1  TARGET=      640.000
 56898.00      7.83   658.83      0.00      0.00   658.98       .15       .12       .09   659.50
    1360.      520.     645.     195.      531.     151.      131.       69.       35.   656.50
      .52       .98     4.27     1.50      .065     .037      .065      .040   651.00   460.00
  .001520      350.     400.     450.         0        0         1      0.00   633.06  1100.00

CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  57498.00 EXTENDED        .30 FEET
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3470 ENCROACHMENT STATIONS=      480.0     1175.0  TYPE=      1  TARGET=      695.000
 57498.00      7.66    660.00      0.00      0.00    660.32       .32      1.25       .03    651.54
    1360.      253.      772.      326.      253.      132.      194.       99.       43.    658.24
      .56      1.04      5.85      1.64      .065      .037      .065      .040    652.34    579.07
  .003075      600.      600.      600.         4         0         1      0.00    584.98   1175.00

1490 NH CARD USED

                VALLEY SECTION AH                                                    350

 57980.00      7.86    661.26      0.00      0.00    651.31       .04       .41       .03    660.70
    1360.      885.      472.        3.      770.      197.        5.      107.       49.    660.60
      .65      1.15      2.39       .43      .069      .060      .060      .040    653.40      6.75
  .001324      450.      442.      500.         2         0         1      0.00    522.53    524.29

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0      830.0  TYPE=      1  TARGET=      829.000

                BRIDGE SECTION AI  VAN DYKE ROAD  DOWNSTREAM FACE

 58441.00      7.82    661.52      0.00      0.00    661.57       .05       .25       .00    653.00
    1360.      997.      302.       61.      537.      139.       43.      115.       53.    657.70
      .71      1.57      2.16      1.41      .030      .040      .030      .041    653.70    353.03
  .000378      371.      461.      501.         3         0         1      0.00    390.75    743.78


SPECIAL BRIDGE

SB   XK        XKOR      COFO      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.98      3.03      0.00      1.00      0.00    110.10      0.00    653.70    653.70

PRESSURE AND WEIR FLOW

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     FLLC      ELTRO     CLASS

  668.58    661.57      0.00      708.      655.      110.    660.30    662.00     30.00


3470 ENCROACHMENT STATIONS=        1.0      330.0  TYPE=      1  TARGET=      829.000

                BRIDGE SECTION AI  VAN DYKE ROAD  UPSTREAM FACE                     351

 58479.00      9.45    663.15      0.00      0.00    663.16       .01      1.59      0.00    653.00
    1360.     1100.      172.       89.     1443.      179.      127.      115.       53.    657.70
      .72       .76       .96       .70      .030      .040      .030      .040    653.70      1.00
  .000054       38.       38.       38.         3         0         6      0.00    767.60    763.60

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      300.0     1200.0  TYPE=      1  TARGET=      900.000

                VALLEY SECTION AJ                                                    352

 59760.00      7.18    663.18      0.00      0.00    663.56       .37       .21       .18    662.90
    1360.      367.      993.        3.      349.      174.        0.      151.       73.    504.00
      .81      1.05      5.69      0.00      .060      .037      .030      .040    656.00    300.00
  .002306     1351.     1281.     1121.         2         0         1      0.00    498.15    798.15
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CCHV= .100 CEHV=    .300
1490 NH CARD USED
3280 CROSS SECTION  60810.00 EXTENDED        .03 FEET


   SECNO     DEPTH     CWSEL     CRIAS     WSELK     EG        FV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TAU    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     200.0     500.0  TYPE=     1  TARGET=     300.000

              VALLEY SECTION AK                                                  353

 60810.00      6.13    666.13      0.00      0.00    666.39       .26      2.82       .01    654.90
    1200.      440.      760.        0.      286.      153.        0.      163.       82.    665.40
      .89      1.54      4.97      0.00      .070      .047      .030      .040    550.00    230.00
  .003241     1050.     1050.     1050.         3         0         1      0.00    234.70    434.70


1490 NH CARD USED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     230.0     440.0  TYPE=     1  TARGET=     210.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      666.20 ELREA=      667.70


              VALLEY SECTION AL                                                  354

 60920.00      7.55    666.25      0.00      0.00    666.75       .50       .29       .07    666.20
    1200.      180.     1020.        0.      114.      157.        0.      163.       82.    667.70
      .89      1.57      5.12      0.00      .040      .040      .030      .040    555.70    230.00
  .002746       60.      110.      120.         2         0         1      0.00    201.70    433.59


1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  62150.00 EXTENDED        .55 FEET


3470 ENCROACHMENT STATIONS=     250.0     530.0  TYPE=     1  TARGET=     230.000

              VALLEY SECTION AM                                                  355

 62150.00      6.35    669.15      0.00      0.00    669.39       .24      2.62       .03    670.00
    1020.      265.      711.       44.      138.      155.       43.      172.       38.    670.60
      .98      1.92      4.59      1.02      .040      .035      .040      .040    662.80    250.00
  .001709     1100.     1230.     1230.         3         0         1      0.00    225.05    530.00


CCHV=    .300 CEHV=    .700
1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  62454.00 EXTENDED        .25 FEET
```

3470 ENCROACHMENT STATIONS= 400.0 680.0 TYPE= 1 TARGET= 280.000

BRIDGE SECTION AN RUANN DRIVE DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 62454.00 | 5.15 | 669.75 | 0.00 | 0.00 | 669.87 | .12 | .44 | .04 | 665.60 |
| 1020. | 215. | 308. | 497. | 105. | 84. | 215. | 174. | 89. | 664.60 |
| 1.01 | 2.05 | 3.67 | 2.31 | .030 | .040 | .030 | .040 | 664.60 | 400.00 |
| .001234 | 314. | 304. | 294. | 2 | 0 | 1 | 0.00 | 257.57 | 680.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COEW | RDLEN | BAC | HWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.98 | 3.03 | 0.00 | 1.00 | 0.00 | 59.90 | 0.00 | 664.60 | 664.60 |

3280 CROSS SECTION 62486.00 EXTENDED 1.13 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 678.67 | 669.87 | 0.00 | 702. | 325. | 60. | 669.10 | 669.20 | 30.00 |

3470 ENCROACHMENT STATIONS= 400.0 710.0 TYPE= 1 TARGET= 310.000

BRIDGE SECTION AN RUANN DRIVE UPSTREAM FACE 356

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 62486.00 | 6.03 | 670.63 | 0.00 | 0.00 | 670.66 | .03 | .79 | 0.00 | 666.60 |
| 1020. | 230. | 182. | 608. | 184. | 99. | 441. | 175. | 90. | 664.60 |
| 1.02 | 1.25 | 1.84 | 1.38 | .030 | .040 | .030 | .040 | 664.60 | 400.00 |
| .000251 | 32. | 32. | 32. | 2 | 0 | 5 | 0.00 | 310.00 | 710.00 |

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 62600.00 EXTENDED 2.34 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CRSEL | CRINS | WSELK | EG | HV | HL | DLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TAA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTR | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 250.0 530.0 TYPE= 1 TARGET= 230.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 62600.00 | 5.87 | 670.64 | 0.00 | 0.00 | 670.82 | .18 | .05 | .10 | 671.27 |
| 1020. | 354. | 599. | 67. | 163. | 146. | 62. | 175. | 90. | 671.87 |
| 1.03 | 2.17 | 4.09 | 1.07 | .040 | .040 | .050 | .040 | 664.77 | 250.00 |
| .001911 | 114. | 114. | 114. | 2 | 0 | 1 | 0.00 | 239.57 | 530.00 |

CCHV= .300 CEHV= .500
1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 63740.00 EXTENDED .26 FEET

3470 ENCROACHMENT STATIONS= 650.0 900.0 TYPE= 1 TARGET= 250.000

VALLEY SECTION 80 357

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63740.00 | 7.56 | 674.06 | 0.00 | 0.00 | 674.62 | .57 | 3.61 | .19 | 674.70 |
| 1020. | 7. | 635. | 379. | 7. | 85. | 179. | 184. | 96. | 669.20 |
| 1.08 | 1.02 | 7.48 | 2.12 | .050 | .046 | .065 | .040 | 566.50 | 551.70 |
| .006443 | 1140. | 1140. | 1074. | 4 | 0 | 1 | 0.00 | 222.51 | 900.00 |

CCHV= .500 CEHV= .700
1490 NH CARD USED
3280 CROSS SECTION 63821.00 EXTENDED 2.41 FEET

3301 HV CHANGED MORE THAN EVINS

3470 ENCROACHMENT STATIONS= 1060.0 1670.0 TYPE= 1 TARGET= 610.000

BRIDGE SECTION AP 24 MILE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63821.00 | 7.51 | 674.91 | 0.00 | 0.00 | 674.93 | .01 | .03 | .28 | 674.70 |
| 1020. | 600. | 190. | 231. | 719. | 141. | 262. | 185. | 97. | 668.00 |
| 1.11 | .14 | 1.34 | .34 | .030 | .040 | .030 | .040 | 657.40 | 1060.00 |
| .000121 | 91. | 81. | 31. | 2 | 0 | 1 | 0.00 | 510.00 | 1670.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | CUFQ | RDLEN | H-C | B-P | BAREA | SS | ELCHO | ELCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.14 | 3.04 | 0.00 | 1.00 | 0.00 | 79.20 | 0.00 | 667.40 | 667.40 |

3280 CROSS SECTION 63879.00 EXTENDED 2.94 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | WEIR | QPR | FAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 680.42 | 674.93 | 0.00 | 704. | 317. | 79. | 673.70 | 674.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 1000.0 1700.0 TYPE= 1 TARGET= 700.000

BRIDGE SECTION AP 24 MILE ROAD UPSTREAM FACE 353

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63879.00 | 8.03 | 675.43 | 0.00 | 0.00 | 675.44 | .01 | .32 | 0.00 | 674.70 |
| 1020. | 622. | 144. | 254. | 976. | 152. | 389. | 187. | 98. | 658.00 |
| 1.13 | .64 | .95 | .65 | .030 | .040 | .030 | .040 | 667.40 | 1000.00 |
| .000055 | 58. | 58. | 58. | 0 | 0 | 6 | 0.00 | 700.00 | 1700.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 330.0 TYPE= 1 TARGET= 329.999

VALLEY SECTION 80

```
 64830.00      7.42    675.52      0.00      0.00    675.74       .22       .15       .15    675.40
    1020.        0.      553.      466.        1.      117.      226.      206.      106.    671.90
     1.20       .16      4.74      2.06      .075      .049      .075      .040    568.10    173.62
  .002707      791.      951.      971.         0         0         1      0.00    116.65    290.18


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
   SECNO     DEPTH     CASEL     CRIWS     ASFLK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       VTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRTAL    TOC       ICONT     CORAR     TOPWTO      ENDST


3470 ENCROACHMENT STATIONS=      150.0      380.0  TYPE=      1  TARGET=      200.000

                VALLEY SECTION AR                                                  360

 66000.00      8.26    679.16      0.00      0.00    679.59       .43      3.79       .06    674.20
     865.      222.      365.      273.       50.       55.       82.      213.      103.    673.80
     1.26      4.42      6.65      3.39      .040      .045      .040      .040    670.90    210.00
  .004174     1120.     1170.     1160.         3         0         1      0.00    104.26    314.33


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      523.0      565.0  TYPE=      1  TARGET=      42.000

                VALLEY SECTION AS                                                  361

 66850.00      6.42    681.22      0.00      0.00    681.50       .28      1.90       .01    674.10
     865.        8.      846.       11.        4.      196.        5.      217.      110.    679.40
     1.32      2.02      4.31      2.04      .045      .039      .040      .040    674.80    523.00
  .001400      820.      850.      840.         3         0         1      0.00     42.00    565.00


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS*


3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000
 66893.00      6.91    681.31      0.00      0.00    682.16       .85       .05       .55    684.20
     865.        0.      865.        0.        0.      117.        0.      217.      110. 100000.00
     1.32      0.00      7.38      0.00      .045      .036      .040      .040    674.40    390.00
  .003926       43.       43.       43.         2         0         1      0.00     20.00    410.00


1490 NH CARD USED

NORMAL BRIDGE,NRD=20 MIN ELTRD=  681.90 MAX ELLC=  682.50


3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000

                BRIDGE SECTION AT  40UND ROAD  DOWNSTREAM FACE

 66894.00      6.92    681.32      0.00      0.00    682.66      1.34       .01       .50    684.20
     865.        0.      865.        0.        0.       93.        0.      217.      110. 100000.00
     1.32      0.00      9.30      0.00      .045      .036      .040      .040    674.40    390.00
  .006955        1.        1.        1.         0         0         1    -24.17     20.00    410.00
```

```
1490 NH CARD USED

NORMAL BRIDGE.NRD=20 MIN ELTRD=  681.90 MAX ELLC=  682.50

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000

                BRIDGE SECTION AT  ROUND ROAD  UPSTREAM FACE                  3n2

 66925.00      7.24    681.64      0.00      0.00    682.90      1.26       .20       .04    684.20
     865.        0.      865.        0.        0.      46.        4.      217.      110. 100000.00
    1.32      0.00      9.01      0.00      .045      .036      .040      .040    574.40    390.00
  .006154       31.       31.       31.         2         0         1    -27.77     20.00    410.00

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000
 66926.00      8.31    682.71      0.00      0.00    683.26       .55       .00       .35    684.20
     865.        0.      865.        0.        0.     145.        0.      217.      110. 100000.00
    1.32      0.00      5.97      0.00      .045      .036      .040      .040    574.40    390.00
  .002010        1.        1.        1.         3         0         1      0.00     20.00    410.00

1490 NH CARD USED
   SECNO     DEPTH     CMSFL     CHIPS     MSELK        FG        HV        HL     DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TOA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       MTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      324.0      384.0  TYPE=      1  TARGET=      50.000
 66946.00      8.89    683.34      0.00      0.00    683.49       .15       .02       .20    679.75
     865.      144.      244.      432.       54.      78.      128.      217.      110.    678.15
    1.32      3.25      3.12      3.39      .040      .045      .035      .040    574.45    324.00
  .000725       20.       20.       20.         2         0         1      0.00     60.00    384.00

3470 ENCROACHMENT STATIONS=      260.0      450.0  TYPE=      1  TARGET=     200.000
 67075.00      8.77    683.56      0.00      0.00    683.58       .02       .03       .03    683.65
     865.      143.      161.      382.      226.      77.      445.      214.      110.    678.45
    1.35       .81      1.31      1.31      .040      .045      .035      .040    574.79    260.00
  .000130      129.      129.      129.         2         0         1      0.00    200.00    450.00

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
 67500.00      7.72    683.61      0.00      0.00    683.65       .03       .06       .01    681.19
     865.      116.      120.      630.      134.      66.      426.      224.      112.    679.59
    1.41       .87      1.80      1.48      .040      .045      .035      .041    575.89    250.40
  .000291      321.      425.      295.         2         0         1      0.00    271.14    522.64

1490 NH CARD USED
 67925.00      6.75    683.74      0.00      0.00    683.83       .09       .16       .03    682.29
     865.       62.      179.      624.       54.      57.      275.      227.      114.    680.69
    1.45      1.15      3.15      2.27      .040      .045      .035      .041    576.99    282.13
  .001062      322.      425.      295.         2         0         1      0.00    223.77    505.40

1490 NH CARD USED
```

VALLEY SECTION AU 363

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 68350.00 | 6.12 | 684.22 | 0.00 | 0.00 | 684.44 | .22 | .54 | .05 | 683.40 |
| 865. | 21. | 248. | 597. | 19. | 50. | 188. | 230. | 115. | 681.60 |
| 1.48 | 1.12 | 4.91 | 3.18 | .040 | .045 | .035 | .041 | 578.10 | 303.96 |
| .002925 | 322. | 425. | 295. | 2 | 0 | 1 | 0.00 | 184.57 | 488.53 |

1490 NH CARD USED

VALLEY SECTION AV 364

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 69530.00 | 4.97 | 688.17 | 0.00 | 0.00 | 688.56 | .38 | 4.03 | .04 | 685.90 |
| 865. | 323. | 440. | 102. | 124. | 67. | 62. | 235. | 120. | 687.20 |
| 1.54 | 2.60 | 6.57 | 1.65 | .055 | .040 | .045 | .042 | 583.20 | 579.20 |
| .005525 | 849. | 1180. | 969. | 6 | 0 | 1 | 0.00 | 232.44 | 511.53 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 69730.00 | 4.95 | 689.27 | 0.00 | 0.00 | 689.77 | .53 | 1.15 | .05 | 687.52 |
| 865. | 228. | 501. | 135. | 96. | 70. | 50. | 236. | 121. | 687.52 |
| 1.55 | 2.38 | 7.15 | 2.69 | .055 | .040 | .045 | .041 | 634.32 | 525.98 |
| .005988 | 200. | 200. | 200. | 2 | 0 | 1 | 0.00 | 170.60 | 696.58 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70197.00 | 5.08 | 691.98 | 0.00 | 0.00 | 692.39 | .41 | 2.60 | .03 | 690.50 |
| 865. | 169. | 484. | 212. | 94. | 77. | 56. | 239. | 123. | 689.30 |
| 1.58 | 1.80 | 6.33 | 3.80 | .060 | .045 | .040 | .041 | 686.97 | 449.50 |
| .005228 | 450. | 467. | 475. | 2 | 0 | 1 | 0.00 | 174.34 | 623.64 |

1490 NH CARD USED

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELRTN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWTD | ENDST |

VALLEY SECTION AW 365

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70530.00 | 4.98 | 693.78 | 693.77 | 0.00 | 694.30 | .52 | 1.36 | .05 | 692.00 |
| 865. | 148. | 540. | 177. | 102. | 78. | 44. | 240. | 124. | 690.40 |
| 1.60 | 1.45 | 6.91 | 4.06 | .060 | .045 | .040 | .041 | 588.80 | 343.04 |
| .005990 | 330. | 333. | 335. | 2 | 6 | 1 | 0.00 | 210.67 | 553.71 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1.0 1000.0 TYPE= 1 TARGET= 999.000

VALLEY SECTION AX 366

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71240.00 | 4.44 | 696.94 | 0.00 | 0.00 | 697.16 | .22 | 2.76 | .03 | 693.90 |
| 865. | 369. | 330. | 167. | 145. | 62. | 120. | 245. | 128. | 695.50 |
| 1.65 | 2.54 | 5.34 | 1.40 | .040 | .035 | .060 | .041 | 542.50 | 404.43 |
| .002682 | 770. | 710. | 660. | 4 | 0 | 1 | 0.00 | 224.45 | 629.37 |

CCHV= .300 CEHV= .500
1490 NH CARD USED

[illegible] 1.0 1000.0 TYPE= 1 TARGET= 999.000

BRIDGE SECTION AY SHELBY ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71290.00 | 5.80 | 697.20 | 0.00 | 0.00 | 697.27 | .03 | .06 | .05 | 693.70 |
| 865. | 412. | 133. | 320. | 203. | 56. | 171. | 245. | 128. | 694.70 |
| 1.66 | 2.03 | 2.36 | 1.87 | .030 | .040 | .030 | .041 | 691.40 | 398.49 |
| .000692 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 236.25 | 633.14 |

SPECIAL BRIDGE

| SB | XK | XKOR | COEQ | BOLEN | BWC | BWP | BAREA | SS | ELCHO | FLCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.22 | 3.03 | 0.00 | 1.00 | 0.00 | 37.50 | 0.00 | 691.40 | 691.40 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | OWEIR | QPR | BAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 715.25 | 697.27 | 0.00 | 524. | 350. | 38. | 697.00 | 693.50 | 30.00 |

3470 ENCROACHMENT STATIONS= 1.0 1000.0 TYPE= 1 TARGET= 999.000

BRIDGE SECTION AY SHELBY ROAD UPSTREAM FACE 367

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71330.00 | 8.74 | 700.14 | 0.00 | 0.00 | 700.15 | .01 | 2.88 | 0.00 | 693.70 |
| 865. | 437. | 61. | 368. | 666. | 95. | 543. | 246. | 128. | 694.70 |
| 1.68 | .66 | .64 | .68 | .030 | .040 | .030 | .041 | 691.40 | 307.57 |
| .000027 | 40. | 40. | 40. | 0 | 0 | 7 | 0.00 | 356.63 | 664.20 |

1490 NH CARD USED

VALLEY SECTION AZ 368

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71890.00 | 5.97 | 700.17 | 0.00 | 0.00 | 700.20 | .03 | .04 | .01 | 697.00 |
| 865. | 171. | 162. | 532. | 266. | 83. | 366. | 259. | 132. | 696.00 |
| 1.79 | .64 | 1.94 | 1.45 | .065 | .040 | .040 | .041 | 694.20 | 224.22 |
| .000316 | 560. | 560. | 560. | 2 | 0 | 1 | 0.00 | 294.30 | 514.52 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72166.00 | 6.38 | 700.28 | 0.00 | 0.00 | 700.35 | .07 | .13 | .02 | 697.00 |
| 865. | 121. | 219. | 525. | 35. | 76. | 275. | 263. | 134. | 697.30 |
| 1.83 | 1.43 | 2.87 | 1.91 | .040 | .040 | .040 | .041 | 694.51 | 342.68 |
| .000813 | 276. | 276. | 276. | 2 | 0 | 1 | 0.00 | 219.16 | 611.52 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72444.00 | 4.88 | 700.58 | 0.00 | 0.00 | 700.75 | .16 | .35 | .05 | 695.10 |
| 865. | 97. | 310. | 454. | 42. | 70. | 190. | 265. | 136. | 698.80 |
| 1.85 | 2.30 | 4.40 | 2.41 | .040 | .040 | .040 | .041 | 695.70 | 529.31 |
| .002199 | 276. | 278. | 276. | 2 | 0 | 1 | 0.00 | 178.37 | 707.68 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION BA 369

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72720.00 | 4.91 | 701.31 | 0.00 | 0.00 | 701.58 | .27 | .73 | .05 | 698.70 |

```
     865.      80.     395.     390.      37.      71.     156.     267.     137.    700.20
    1.87     2.16     5.58     2.49    .050     .040     .040     .041   696.40    623.69
 .003733     276.     276.     276.       2        0        1     0.00   189.37    813.06

1490 NH CARD USED

                 VALLEY SECTION BB                                          370

 74110.00     5.80   706.80     0.00     0.00   707.37      .57     5.64      .15    703.90
     865.     181.     629.      55.      93.      90.      30.     275.     141.    705.00
    1.94     1.95     7.00     1.34     .065     .040     .050     .041   701.30    317.79
 .004432     1420.    1390.    1370.        4        0        1     0.00   115.23    433.53

1490 NH CARD USED

                 VALLEY SECTION BC                                          371

 75420.00     3.70   713.80     0.00     0.00   714.24      .44     5.33      .04    714.40
     865.       0.     865.       0.       0.      183.       0.     280.     144.    724.40
    2.01     0.00     2.29     0.00     .055     .045     .050     .041   710.10    145.05
 .006313     1200.    1310.    1410.        4        0        1     0.00    53.40    212.45

CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

   SECNO     DEPTH     CHSEL     CRIWS     WSELK      EG        HV        HL      QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELWTN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRIAL    IDC       ICONT     CORAR    TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      297.0      322.0  TYPE=      1  TARGET=      25.000

                 BLUE RIDGE DRIVE          DOWNSTREAM FACE

 75473.00     4.78   716.68   716.68      0.00   718.11     1.43      .46      0.00    714.90
     675.       0.     675.       0.       0.       70.       0.     280.     144. 100000.00
    2.01      .06     9.00     0.00     .030     .040     .050     .041   711.90    297.00
 .016535      53.      53.      53.        2       11        1     0.00    25.00    322.00


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.03      2.82      0.00      1.00      0.00      54.70     0.00     711.90    711.90

 WATER EL=X5 CARD=    725.300

                 BLUE RIDGE DRIVE          UPSTREAM FACE                     372

 75547.00    17.30   725.30     0.00     0.00   725.30      .00      .00      .72    708.00
     675.     336.      22.     317.     5138.     432.    4809.     289.     145.    708.00
    2.33      .07      .05      .07     .030     .040     .030     .041   708.00      0.00
 .000000      74.      74.      74.        0        0        1     0.00   500.00    600.00
```

Check plan! Bad loss?

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLT

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C#SEL | HV | HL | OLOSS | WCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.68 | .14 | 0.00 | 0.00 | 980.00 | 9.44 | 56.56 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.90 | .24 | 0.00 | 0.00 | 1570.00 | 10.70 | 61.14 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.32 | .26 | 0.00 | 0.00 | 1800.00 | 11.12 | 62.71 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.54 | .41 | 0.00 | 0.00 | 2610.00 | 12.34 | 67.29 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 980.00 | 652.77 | .11 | .05 | .01 | 752.52 | 9.28 | 240.42 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 1570.00 | 654.16 | .10 | .05 | .06 | 984.85 | 10.67 | 257.90 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 1800.00 | 654.63 | .10 | .05 | .07 | 1067.83 | 11.14 | 262.01 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 2610.00 | 655.05 | .10 | .07 | .13 | 1355.44 | 12.56 | 284.71 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 980.00 | 653.07 | .25 | .43 | .05 | 982.69 | 8.27 | 189.94 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 1570.00 | 654.43 | .22 | .36 | .04 | 1139.19 | 9.63 | 244.59 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 1800.00 | 654.90 | .20 | .33 | .03 | 1217.43 | 10.10 | 253.03 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 2610.00 | 656.29 | .17 | .29 | .02 | 1493.57 | 11.49 | 264.94 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 980.00 | 653.75 | .23 | .61 | .01 | 954.33 | 6.95 | 100.00 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 1570.00 | 654.96 | .24 | .54 | .01 | 1277.63 | 8.16 | 213.88 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 1800.00 | 655.39 | .24 | .51 | .01 | 1383.43 | 8.58 | 231.01 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 2610.00 | 656.67 | .22 | .42 | .02 | 1687.58 | 9.87 | 284.30 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 980.00 | 653.85 | .30 | .16 | .02 | 980.00 | 8.35 | 51.00 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 1570.00 | 655.10 | .24 | .14 | .00 | 1239.74 | 9.60 | 230.41 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 1800.00 | 655.52 | .23 | .13 | .00 | 1350.09 | 10.02 | 243.30 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 2610.00 | 656.81 | .21 | .12 | .00 | 1657.37 | 11.31 | 298.59 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 980.00 | 653.65 | 1.10 | .20 | .40 | 980.00 | 7.15 | 18.50 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 1570.00 | 655.34 | .10 | .05 | .04 | 450.10 | 8.84 | 239.21 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 1800.00 | 655.75 | .09 | .05 | .04 | 452.22 | 9.25 | 251.87 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 2610.00 | 657.00 | .09 | .04 | .04 | 497.65 | 10.50 | 308.92 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 980.00 | 655.73 | .62 | 1.60 | 0.00 | 980.00 | 9.23 | 18.50 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 1570.00 | 657.71 | .02 | 2.30 | 0.00 | 260.56 | 11.21 | 341.23 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 1800.00 | 657.94 | .03 | 2.12 | 0.00 | 286.60 | 11.44 | 351.71 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 2610.00 | 658.58 | .04 | 1.53 | 0.00 | 372.90 | 12.08 | 381.08 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 740.00 | 657.22 | .03 | .73 | .18 | 303.50 | 9.02 | 426.89 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1180.00 | 657.85 | .04 | .15 | .01 | 408.84 | 9.65 | 505.42 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1360.00 | 658.10 | .04 | .15 | .01 | 442.85 | 9.90 | 542.35 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1960.00 | 658.80 | .04 | .21 | .00 | 540.71 | 10.60 | 621.53 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 740.00 | 657.43 | .10 | .26 | .02 | 446.41 | 7.83 | 506.63 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1180.00 | 658.12 | .08 | .30 | .01 | 517.41 | 8.52 | 625.03 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1360.00 | 658.37 | .07 | .30 | .01 | 536.58 | 8.77 | 648.36 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1960.00 | 659.08 | .05 | .29 | .00 | 605.02 | 9.48 | 711.71 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 740.00 | 657.55 | .03 | .03 | .02 | 249.00 | 7.45 | 525.44 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1180.00 | 658.21 | .03 | .03 | .01 | 259.37 | 8.11 | 619.92 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1360.00 | 658.45 | .03 | .02 | .01 | 261.90 | 8.35 | 640.62 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1960.00 | 659.13 | .03 | .02 | .01 | 273.91 | 9.03 | 699.48 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C&SEL | HV | HL | OLOSS | OCH | DEPTH | TOP*ID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 740.00 | 658.21 | .01 | .63 | 0.00 | 162.52 | 8.11 | 620.33 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1180.00 | 658.61 | .02 | .39 | 0.00 | 207.79 | 8.51 | 655.59 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1360.00 | 658.75 | .02 | .29 | 0.00 | 224.19 | 8.65 | 667.32 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1960.00 | 659.25 | .02 | .14 | 0.00 | 258.54 | 9.18 | 711.75 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 740.00 | 658.25 | .14 | .08 | .09 | 473.43 | 7.25 | 507.01 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1180.00 | 658.69 | .14 | .11 | .09 | 599.41 | 7.69 | 630.29 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1360.00 | 658.83 | .15 | .12 | .09 | 644.70 | 7.83 | 633.06 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1960.00 | 659.37 | .12 | .12 | .07 | 727.41 | 8.37 | 636.92 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 740.00 | 659.24 | .45 | 1.15 | .15 | 620.77 | 6.90 | 241.36 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1180.00 | 659.62 | .35 | 1.24 | .10 | 741.30 | 7.48 | 523.25 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1360.00 | 660.00 | .32 | 1.25 | .08 | 771.77 | 7.66 | 584.98 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1960.00 | 660.45 | .25 | 1.15 | .07 | 870.59 | 8.11 | 687.23 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 740.00 | 660.64 | .04 | .55 | .12 | 339.39 | 7.24 | 500.94 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1180.00 | 661.12 | .04 | .39 | .09 | 433.26 | 7.72 | 517.49 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1360.00 | 661.25 | .04 | .31 | .08 | 471.33 | 7.85 | 522.33 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1960.00 | 661.68 | .06 | .96 | .06 | 590.95 | 8.28 | 535.60 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 740.00 | 660.87 | .03 | .22 | .00 | 224.02 | 7.17 | 353.40 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1180.00 | 661.36 | .04 | .24 | .00 | 250.15 | 7.66 | 383.33 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1360.00 | 661.52 | .05 | .25 | .00 | 301.54 | 7.82 | 390.75 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1960.00 | 661.97 | .06 | .29 | .00 | 365.60 | 8.27 | 406.81 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 740.00 | 662.52 | .01 | 1.62 | 0.00 | 115.24 | 8.82 | 646.66 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1180.00 | 663.02 | .01 | 1.63 | 0.00 | 155.24 | 9.32 | 766.31 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1360.00 | 663.15 | .01 | 1.59 | 0.00 | 171.58 | 9.45 | 767.60 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1960.00 | 663.46 | .02 | 1.44 | 0.00 | 224.55 | 9.76 | 770.70 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 740.00 | 662.49 | .33 | .13 | .16 | 704.03 | 6.49 | 273.92 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1180.00 | 663.03 | .37 | .19 | .18 | 924.84 | 7.03 | 497.81 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1360.00 | 663.18 | .37 | .21 | .18 | 992.53 | 7.18 | 498.15 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1960.00 | 663.59 | .39 | .31 | .19 | 1190.39 | 7.59 | 499.07 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 645.00 | 665.14 | .44 | 2.73 | .03 | 640.40 | 5.14 | 60.02 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1030.00 | 665.89 | .26 | 2.74 | .01 | 706.13 | 5.89 | 234.29 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1200.00 | 666.13 | .26 | 2.82 | .01 | 760.39 | 6.13 | 234.70 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1740.00 | 666.73 | .25 | 3.04 | .01 | 920.54 | 6.75 | 235.80 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 645.00 | 665.57 | .30 | .27 | .01 | 645.00 | 6.87 | 29.71 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1030.00 | 665.94 | .67 | .33 | .12 | 1030.00 | 7.24 | 30.55 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1200.00 | 666.25 | .50 | .29 | .07 | 1020.30 | 7.55 | 201.70 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1740.00 | 666.90 | .47 | .27 | .05 | 1206.01 | 8.20 | 204.22 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 550.00 | 667.91 | .35 | 2.40 | .02 | 550.00 | 5.11 | 32.94 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 860.00 | 669.06 | .21 | 2.61 | .05 | 631.53 | 6.26 | 224.59 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 1020.00 | 669.15 | .24 | 2.62 | .03 | 711.06 | 6.35 | 229.05 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 1470.00 | 669.73 | .24 | 2.58 | .02 | 852.57 | 6.93 | 257.87 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C#SEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 550.00 | 668.95 | .95 | 1.21 | .40 | 550.00 | 4.35 | 17.00 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 880.00 | 669.58 | .11 | .40 | .03 | 290.49 | 4.98 | 249.10 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 1020.00 | 669.75 | .12 | .44 | .04 | 308.38 | 5.15 | 257.57 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 1470.00 | 670.28 | .12 | .41 | .03 | 344.65 | 5.68 | 274.69 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 550.00 | 669.20 | .84 | .14 | 0.00 | 550.00 | 4.60 | 17.00 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 880.00 | 670.49 | .03 | .32 | 0.00 | 165.44 | 5.89 | 308.19 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 1020.00 | 670.63 | .03 | .79 | 0.00 | 182.17 | 6.03 | 310.00 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 1470.00 | 670.99 | .05 | .63 | 0.00 | 231.25 | 6.39 | 310.00 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 550.00 | 670.32 | .26 | .37 | .17 | 550.00 | 5.55 | 37.34 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 880.00 | 670.51 | .16 | .06 | .09 | 542.31 | 5.74 | 232.81 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 1020.00 | 670.64 | .18 | .06 | .10 | 599.42 | 5.87 | 239.57 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 1470.00 | 671.02 | .23 | .08 | .12 | 764.38 | 6.25 | 258.01 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 550.00 | 673.51 | .48 | 3.29 | .11 | 454.85 | 7.01 | 43.32 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 880.00 | 673.74 | .63 | 3.51 | 0.00 | 620.53 | 7.28 | 210.44 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 1020.00 | 674.03 | .57 | 3.61 | .19 | 634.72 | 7.56 | 222.51 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 1470.00 | 674.74 | .40 | 3.81 | .09 | 677.31 | 8.24 | 250.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 550.00 | 674.09 | .17 | .12 | .15 | 414.59 | 6.69 | 31.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 880.00 | 674.80 | .01 | .02 | .33 | 173.50 | 7.40 | 590.08 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 1020.00 | 674.91 | .01 | .03 | .28 | 189.52 | 7.51 | 610.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 1470.00 | 675.34 | .02 | .03 | .19 | 222.50 | 7.94 | 610.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 550.00 | 674.83 | .00 | .57 | 0.00 | 104.93 | 7.43 | 626.39 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 880.00 | 675.32 | .01 | .51 | 0.00 | 130.68 | 7.92 | 700.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 1020.00 | 675.43 | .01 | .52 | 0.00 | 143.77 | 8.03 | 700.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 1470.00 | 675.79 | .01 | .44 | 0.00 | 178.91 | 8.39 | 700.00 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 550.00 | 674.90 | .11 | .10 | .07 | 330.08 | 6.80 | 101.85 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 880.00 | 675.40 | .18 | .13 | .12 | 486.04 | 7.30 | 104.66 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 1020.00 | 675.52 | .22 | .15 | .15 | 553.40 | 7.42 | 116.65 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 1470.00 | 675.90 | .35 | .21 | .24 | 756.80 | 7.80 | 153.18 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 460.00 | 677.36 | .65 | 2.84 | .16 | 306.34 | 6.46 | 28.01 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 740.00 | 678.76 | .50 | 3.58 | .10 | 362.71 | 7.86 | 91.18 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 865.00 | 679.16 | .43 | 3.79 | .06 | 365.06 | 8.26 | 104.26 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 1250.00 | 680.08 | .32 | 4.15 | .00 | 376.37 | 9.18 | 149.62 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 460.00 | 679.78 | .16 | 1.88 | .05 | 458.37 | 4.98 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 740.00 | 680.91 | .24 | 1.36 | .03 | 726.50 | 6.11 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 865.00 | 681.22 | .28 | 1.90 | .01 | 845.74 | 6.42 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 1250.00 | 682.00 | .44 | 1.99 | .03 | 1210.48 | 7.20 | 42.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 460.00 | 679.85 | .43 | .07 | .27 | 460.00 | 5.45 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 740.00 | 680.99 | .69 | .08 | .46 | 740.00 | 6.59 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 865.00 | 681.31 | .85 | .09 | .56 | 865.00 | 6.91 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 1250.00 | 682.12 | 1.36 | .13 | .92 | 1250.00 | 7.72 | 20.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 460.00 | 679.85 | .59 | .00 | .17 | 460.00 | 5.45 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 740.00 | 681.00 | 1.05 | .00 | .35 | 740.00 | 6.60 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 865.00 | 681.32 | 1.34 | .01 | .50 | 865.00 | 6.92 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 1250.00 | 682.13 | 2.42 | .01 | 1.05 | 1250.00 | 7.73 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 460.00 | 680.02 | .56 | .11 | .02 | 460.00 | 5.62 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 740.00 | 681.23 | 1.00 | .17 | .02 | 740.00 | 6.83 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 865.00 | 681.64 | 1.26 | .20 | .04 | 865.00 | 7.24 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 1250.00 | 682.82 | 2.36 | .50 | .03 | 1250.00 | 8.42 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 460.00 | 680.34 | .34 | .00 | .11 | 460.00 | 5.94 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 740.00 | 681.99 | .50 | .00 | .25 | 740.00 | 7.59 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 865.00 | 682.71 | .55 | .00 | .35 | 865.00 | 8.31 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 1250.00 | 685.45 | .61 | .00 | .88 | 1250.00 | 11.06 | 20.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 460.00 | 680.49 | .27 | .05 | .04 | 231.23 | 6.14 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 740.00 | 682.52 | .16 | .03 | .17 | 234.35 | 8.07 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 865.00 | 683.34 | .15 | .02 | .20 | 244.04 | 8.89 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 1250.00 | 686.20 | .12 | .01 | .24 | 273.82 | 11.75 | 60.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 460.00 | 680.98 | .06 | .15 | .11 | 125.42 | 6.19 | 159.21 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 740.00 | 682.77 | .03 | .05 | .07 | 103.95 | 7.98 | 200.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 865.00 | 683.56 | .02 | .03 | .06 | 100.84 | 8.77 | 200.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 1250.00 | 686.37 | .02 | .01 | .05 | 98.49 | 11.58 | 200.00 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 460.00 | 681.34 | .17 | .42 | .06 | 188.08 | 5.45 | 119.71 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 740.00 | 682.85 | .05 | .10 | .01 | 138.29 | 6.96 | 234.07 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 865.00 | 683.61 | .03 | .06 | .01 | 119.54 | 7.72 | 271.14 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 1250.00 | 686.39 | .01 | .02 | .00 | 86.85 | 10.50 | 383.67 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 460.00 | 682.33 | .21 | 1.01 | .02 | 200.23 | 5.34 | 108.93 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 740.00 | 683.12 | .16 | .32 | .05 | 211.00 | 6.13 | 185.46 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 865.00 | 683.74 | .09 | .16 | .03 | 178.69 | 6.75 | 223.77 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 1250.00 | 686.41 | .02 | .02 | .00 | 108.30 | 9.42 | 351.73 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 460.00 | 683.45 | .21 | 1.12 | .00 | 199.88 | 5.35 | 109.23 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 740.00 | 683.96 | .23 | .88 | .04 | 242.59 | 5.86 | 159.26 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 865.00 | 684.22 | .22 | .54 | .06 | 247.57 | 6.12 | 184.67 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 1250.00 | 686.45 | .04 | .06 | .01 | 141.94 | 8.35 | 301.51 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 460.00 | 687.59 | .35 | 4.21 | .08 | 318.95 | 4.39 | 144.13 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 740.00 | 688.07 | .35 | 4.17 | .06 | 399.51 | 4.87 | 225.58 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 865.00 | 688.17 | .38 | 4.03 | .08 | 440.17 | 4.97 | 232.44 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 1250.00 | 689.31 | .51 | .93 | 0.00 | 590.38 | 6.11 | 241.30 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 460.00 | 685.59 | .49 | 1.07 | .06 | 363.31 | 4.27 | 122.82 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 740.00 | 689.08 | .51 | 1.09 | .08 | 466.29 | 4.76 | 158.39 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 865.00 | 689.27 | .50 | 1.15 | .06 | 501.34 | 4.95 | 170.60 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 1250.00 | 689.86 | .41 | 1.28 | .06 | 563.52 | 5.54 | 209.28 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | OCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70197.00 | 467.00 | 0.00 | 0.00 | 686.90 | 460.00 | 691.21 | .39 | 2.50 | .03 | 350.74 | 4.31 | 112.79 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 686.90 | 740.00 | 691.79 | .40 | 2.57 | .03 | 446.95 | 4.89 | 159.55 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 686.90 | 865.00 | 691.98 | .41 | 2.60 | .03 | 484.05 | 5.08 | 174.34 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 686.90 | 1250.00 | 692.35 | .49 | 2.53 | .04 | 599.63 | 5.45 | 195.31 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 460.00 | 692.94 | .48 | 1.78 | .05 | 379.76 | 4.14 | 41.19 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 740.00 | 693.58 | .54 | 1.85 | .07 | 505.66 | 4.78 | 192.08 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 865.00 | 693.78 | .52 | 1.85 | .05 | 540.28 | 4.98 | 210.67 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 1250.00 | 694.32 | .45 | 1.92 | .01 | 613.33 | 5.52 | 258.32 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 460.00 | 696.60 | .57 | 3.75 | .09 | 386.53 | 4.10 | 25.00 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 740.00 | 696.76 | .21 | 2.76 | .10 | 303.49 | 4.26 | 213.62 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 865.00 | 696.94 | .22 | 2.76 | .09 | 329.72 | 4.44 | 224.45 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 1250.00 | 697.35 | .24 | 2.75 | .05 | 401.15 | 4.85 | 242.53 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 460.00 | 696.62 | 1.37 | .37 | .35 | 460.00 | 5.22 | 13.00 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 740.00 | 697.02 | .06 | .05 | .05 | 123.96 | 5.62 | 225.75 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 865.00 | 697.20 | .06 | .06 | .05 | 133.19 | 5.80 | 236.25 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 1250.00 | 697.62 | .09 | .07 | .05 | 161.49 | 6.22 | 253.26 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 460.00 | 699.09 | .50 | 1.59 | 0.00 | 460.00 | 7.69 | 13.00 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 740.00 | 700.01 | .01 | 2.93 | 0.00 | 53.13 | 8.61 | 350.97 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 865.00 | 700.14 | .01 | 2.83 | 0.00 | 60.71 | 8.74 | 356.63 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 1250.00 | 700.47 | .01 | 2.77 | 0.00 | 83.37 | 9.07 | 370.79 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 460.00 | 699.90 | .01 | .13 | .15 | 91.03 | 5.70 | 281.00 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 740.00 | 700.03 | .03 | .03 | .01 | 142.69 | 5.83 | 286.89 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 865.00 | 700.17 | .03 | .04 | .01 | 161.65 | 5.97 | 294.30 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 1250.00 | 700.51 | .05 | .06 | .02 | 217.99 | 6.31 | 312.04 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 460.00 | 699.95 | .03 | .05 | .01 | 129.62 | 5.05 | 198.03 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 740.00 | 700.12 | .06 | .12 | .02 | 186.67 | 5.22 | 208.16 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 865.00 | 700.28 | .07 | .13 | .02 | 218.73 | 5.38 | 219.14 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 1250.00 | 700.67 | .10 | .18 | .02 | 281.93 | 5.77 | 242.53 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 460.00 | 700.09 | .10 | .19 | .04 | 207.25 | 4.39 | 163.43 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 740.00 | 700.40 | .16 | .33 | .05 | 286.50 | 4.70 | 172.88 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 865.00 | 700.58 | .16 | .35 | .05 | 310.03 | 4.88 | 178.37 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 1250.00 | 701.03 | .20 | .41 | .05 | 378.45 | 5.33 | 190.74 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 460.00 | 700.63 | .33 | .55 | .11 | 317.21 | 4.23 | 162.23 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 740.00 | 701.13 | .28 | .79 | .06 | 374.53 | 4.73 | 183.38 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 865.00 | 701.31 | .27 | .73 | .05 | 395.12 | 4.91 | 189.37 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 1250.00 | 701.78 | .27 | .78 | .04 | 454.42 | 5.38 | 204.30 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 460.00 | 705.89 | .39 | 5.29 | .03 | 394.93 | 4.89 | 78.60 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 740.00 | 706.58 | .52 | 5.57 | .12 | 562.20 | 5.58 | 106.27 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 865.00 | 706.80 | .57 | 5.64 | .15 | 629.28 | 5.80 | 115.23 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 1250.00 | 707.39 | .68 | 5.82 | .20 | 806.64 | 6.39 | 139.31 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 460.00 | 712.63 | .37 | 6.71 | .01 | 460.00 | 2.53 | 54.40 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 740.00 | 713.48 | .41 | 6.77 | .03 | 740.00 | 3.38 | 50.50 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 865.00 | 713.80 | .44 | 6.83 | .04 | 865.00 | 3.70 | 63.40 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 1250.00 | 714.62 | .51 | 7.01 | .05 | 1250.00 | 4.52 | 59.63 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.90 | 365.00 | 715.71 | .97 | .60 | 0.00 | 365.00 | 3.81 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.90 | 580.00 | 716.42 | 1.28 | .50 | 0.00 | 580.00 | 4.52 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.90 | 675.00 | 716.68 | 1.43 | .48 | 0.00 | 675.00 | 4.78 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.90 | 985.00 | 717.47 | 1.55 | .45 | 0.00 | 985.00 | 5.57 | 25.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 365.00 | 723.35 | .00 | .00 | .49 | 11.35 | 15.35 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 580.00 | 724.80 | .00 | .00 | .54 | 18.47 | 16.80 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 675.00 | 725.30 | .00 | .00 | .72 | 21.97 | 17.30 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 985.00 | 726.00 | .00 | .00 | .93 | 32.09 | 18.00 | 600.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH O | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | TOPW DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 53346.000 | 980.000 | 652.680 | 0.000 | 0.000 | 0.000 | 56.564 | 0.000 | 1.000 |
| 53346.000 | 1570.000 | 653.900 | 1.220 | 0.000 | 0.000 | 61.138 | -4.574 | 1.000 |
| 53346.000 | 1800.000 | 654.320 | .420 | 0.000 | 0.000 | 62.713 | -6.149 | 1.000 |
| 53346.000 | 2610.000 | 655.540 | 1.220 | 0.000 | 0.000 | 67.287 | -10.723 | 1.000 |
| 53446.000 | 980.000 | 652.765 | 0.000 | .086 | 0.000 | 240.416 | 0.000 | 100.000 |
| 53446.000 | 1570.000 | 654.156 | 1.391 | .256 | 0.000 | 257.899 | -17.483 | 100.000 |
| 53446.000 | 1800.000 | 654.634 | .478 | .314 | 0.000 | 262.107 | -21.691 | 100.000 |
| 53446.000 | 2610.000 | 656.050 | 1.416 | .510 | 0.000 | 284.714 | -44.298 | 100.000 |
| 53900.000 | 980.000 | 653.073 | 0.000 | .307 | 0.000 | 189.934 | 0.000 | 454.000 |
| 53900.000 | 1570.000 | 654.434 | 1.361 | .278 | 0.000 | 248.995 | -59.056 | 454.000 |
| 53900.000 | 1800.000 | 654.899 | .465 | .265 | 0.000 | 253.026 | -63.087 | 454.000 |
| 53900.000 | 2610.000 | 656.287 | 1.388 | .237 | 0.000 | 264.940 | -75.000 | 454.000 |
| 54400.000 | 980.000 | 653.747 | 0.000 | .674 | 0.000 | 99.999 | 0.000 | 500.000 |
| 54400.000 | 1570.000 | 654.963 | 1.216 | .529 | 0.000 | 213.885 | -113.886 | 500.000 |
| 54400.000 | 1800.000 | 655.379 | .416 | .480 | 0.000 | 231.014 | -131.015 | 500.000 |
| 54400.000 | 2610.000 | 656.672 | 1.293 | .385 | 0.000 | 284.300 | -184.301 | 500.000 |
| 54500.000 | 980.000 | 653.849 | 0.000 | .101 | 0.000 | 50.999 | 0.000 | 100.000 |
| 54500.000 | 1570.000 | 655.104 | 1.256 | .141 | 0.000 | 223.410 | -172.411 | 100.000 |
| 54500.000 | 1800.000 | 655.519 | .415 | .140 | 0.000 | 243.303 | -192.304 | 100.000 |
| 54500.000 | 2610.000 | 656.805 | 1.286 | .133 | 0.000 | 294.592 | -247.593 | 100.000 |
| 54557.000 | 980.000 | 653.651 | 0.000 | -.194 | 0.000 | 18.499 | 0.000 | 57.000 |
| 54557.000 | 1570.000 | 655.335 | 1.687 | .233 | 0.000 | 238.213 | -219.714 | 57.000 |
| 54557.000 | 1800.000 | 655.748 | .413 | .229 | 0.000 | 251.867 | -233.365 | 57.000 |
| 54557.000 | 2610.000 | 657.000 | 1.253 | .195 | 0.000 | 308.918 | -290.419 | 57.000 |
| 54583.000 | 980.000 | 655.726 | 0.000 | 2.075 | 0.000 | 18.499 | 0.000 | 26.000 |
| 54583.000 | 1570.000 | 657.710 | 1.984 | 2.372 | 0.000 | 341.229 | -322.730 | 26.000 |
| 54583.000 | 1800.000 | 657.940 | .230 | 2.192 | 0.000 | 351.713 | -333.214 | 26.000 |
| 54583.000 | 2610.000 | 658.585 | .645 | 1.584 | 0.000 | 381.081 | -362.582 | 26.000 |
| 55780.000 | 740.000 | 657.224 | 0.000 | 1.498 | 0.000 | 426.888 | 0.000 | 1197.000 |
| 55780.000 | 1180.000 | 657.850 | .626 | .140 | 0.000 | 505.422 | -78.534 | 1197.000 |
| 55780.000 | 1360.000 | 658.097 | .247 | .157 | 0.000 | 542.346 | -115.459 | 1197.000 |
| 55780.000 | 1960.000 | 658.795 | .698 | .211 | 0.000 | 621.530 | -194.642 | 1197.000 |
| 56390.000 | 740.000 | 657.432 | 0.000 | .208 | 0.000 | 506.630 | 0.000 | 610.000 |
| 56390.000 | 1180.000 | 658.119 | .687 | .269 | 0.000 | 625.034 | -118.403 | 610.000 |
| 56390.000 | 1360.000 | 658.371 | .252 | .274 | 0.000 | 648.355 | -141.726 | 610.000 |
| 56390.000 | 1960.000 | 559.075 | .704 | .250 | 0.000 | 711.712 | -205.082 | 610.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 56461.000 | 740.000 | 657.555 | 0.000 | .123 | 0.000 | 525.437 | 0.000 | 71.000 |
| 56461.000 | 1180.000 | 658.208 | .654 | .089 | 0.000 | 619.922 | -94.485 | 71.000 |
| 56461.000 | 1360.000 | 658.449 | .241 | .078 | 0.000 | 640.615 | -115.179 | 71.000 |
| 56461.000 | 1960.000 | 659.134 | .685 | .058 | 0.000 | 699.482 | -174.044 | 71.000 |
| 56498.000 | 740.000 | 658.208 | 0.000 | .653 | 0.000 | 520.324 | 0.000 | 37.000 |
| 56498.000 | 1180.000 | 658.615 | .407 | .407 | 0.000 | 555.585 | -35.256 | 37.000 |
| 56498.000 | 1360.000 | 658.750 | .135 | .301 | 0.000 | 567.318 | -46.989 | 37.000 |
| 56498.000 | 1960.000 | 659.276 | .526 | .143 | 0.000 | 711.750 | -91.421 | 37.000 |
| 56898.000 | 740.000 | 658.254 | 0.000 | .046 | 0.000 | 507.010 | 0.000 | 400.000 |
| 56898.000 | 1180.000 | 658.686 | .432 | .071 | 0.000 | 630.295 | -123.285 | 400.000 |
| 56898.000 | 1360.000 | 658.830 | .144 | .050 | 0.000 | 633.062 | -126.051 | 400.000 |
| 56898.000 | 1960.000 | 659.367 | .537 | .091 | 0.000 | 636.912 | -129.905 | 400.000 |
| 57498.000 | 740.000 | 659.245 | 0.000 | .991 | 0.000 | 241.351 | 0.000 | 600.000 |
| 57498.000 | 1180.000 | 659.822 | .577 | 1.135 | 0.000 | 523.245 | -281.894 | 600.000 |
| 57498.000 | 1360.000 | 660.003 | .181 | 1.172 | 0.000 | 544.980 | -303.519 | 600.000 |
| 57498.000 | 1960.000 | 660.452 | .449 | 1.084 | 0.000 | 587.233 | -445.771 | 600.000 |
| 57980.000 | 740.000 | 660.544 | 0.000 | 1.400 | 0.000 | 500.935 | 0.000 | 482.000 |
| 57980.000 | 1180.000 | 661.119 | .475 | 1.297 | 0.000 | 517.985 | -17.049 | 482.000 |
| 57980.000 | 1360.000 | 661.264 | .144 | 1.261 | 0.000 | 522.531 | -21.593 | 482.000 |
| 57980.000 | 1960.000 | 661.680 | .415 | 1.228 | 0.000 | 535.605 | -34.667 | 482.000 |
| 58441.000 | 740.000 | 660.863 | 0.000 | .223 | 0.000 | 353.402 | 0.000 | 461.000 |
| 58441.000 | 1180.000 | 661.362 | .495 | .243 | 0.000 | 383.332 | -29.930 | 461.000 |
| 58441.000 | 1360.000 | 661.520 | .157 | .256 | 0.000 | 390.745 | -37.343 | 461.000 |
| 58441.000 | 1960.000 | 661.971 | .451 | .291 | 0.000 | 406.810 | -53.408 | 461.000 |
| 58479.000 | 740.000 | 662.517 | 0.000 | 1.649 | 0.000 | 646.862 | 0.000 | 38.000 |
| 58479.000 | 1180.000 | 663.023 | .506 | 1.661 | 0.000 | 766.312 | -119.450 | 38.000 |
| 58479.000 | 1360.000 | 663.150 | .127 | 1.631 | 0.000 | 767.598 | -120.737 | 38.000 |
| 58479.000 | 1960.000 | 663.463 | .312 | 1.491 | 0.000 | 770.703 | -123.842 | 38.000 |
| 59760.000 | 740.000 | 662.469 | 0.000 | -.028 | 0.000 | 273.924 | 0.000 | 1281.000 |
| 59760.000 | 1180.000 | 663.031 | .542 | .009 | 0.000 | 497.305 | -223.381 | 1281.000 |
| 59760.000 | 1360.000 | 663.183 | .153 | .033 | 0.000 | 499.154 | -224.230 | 1281.000 |
| 59760.000 | 1960.000 | 663.587 | .404 | .124 | 0.000 | 499.070 | -225.146 | 1281.000 |
| 60810.000 | 645.000 | 665.141 | 0.000 | 2.652 | 0.000 | 60.020 | 0.000 | 1050.000 |
| 60810.000 | 1030.000 | 665.889 | .748 | 2.856 | 0.000 | 234.290 | -174.270 | 1050.000 |
| 60810.000 | 1200.000 | 666.130 | .242 | 2.947 | 0.000 | 234.594 | -174.574 | 1050.000 |
| 60810.000 | 1740.000 | 666.778 | .648 | 3.191 | 0.000 | 235.795 | -175.775 | 1050.000 |
| 60920.000 | 645.000 | 665.570 | 0.000 | .429 | 0.000 | 29.705 | 0.000 | 110.000 |
| 60920.000 | 1030.000 | 665.941 | .371 | .052 | 0.000 | 30.553 | -.848 | 110.000 |
| 60920.000 | 1200.000 | 666.249 | .309 | .115 | 0.000 | 201.704 | -171.999 | 110.000 |
| 60920.000 | 1740.000 | 666.897 | .648 | .119 | 0.000 | 204.219 | -174.514 | 110.000 |
| 62150.000 | 550.000 | 667.909 | 0.000 | 2.339 | 0.000 | 32.945 | 0.000 | 1230.000 |
| 62150.000 | 880.000 | 669.059 | 1.150 | 3.119 | 0.000 | 224.594 | -191.649 | 1230.000 |
| 62150.000 | 1020.000 | 669.151 | .091 | 2.902 | 0.000 | 229.045 | -196.102 | 1230.000 |
| 62150.000 | 1470.000 | 669.731 | .580 | 2.834 | 0.000 | 257.866 | -224.922 | 1230.000 |
| 62454.000 | 550.000 | 668.950 | 0.000 | 1.040 | 0.000 | 16.999 | 0.000 | 304.000 |
| 62454.000 | 880.000 | 669.583 | .634 | .524 | 0.000 | 249.095 | -232.096 | 304.000 |
| 62454.000 | 1020.000 | 669.753 | .170 | .602 | 0.000 | 257.566 | -240.567 | 304.000 |
| 62454.000 | 1470.000 | 670.284 | .531 | .553 | 0.000 | 274.688 | -257.689 | 304.000 |
| 62486.000 | 550.000 | 669.201 | 0.000 | .251 | 0.000 | 16.999 | 0.000 | 32.000 |
| 62486.000 | 880.000 | 670.492 | 1.291 | .909 | 0.000 | 308.135 | -291.136 | 32.000 |
| 62486.000 | 1020.000 | 670.626 | .134 | .873 | 0.000 | 309.999 | -293.000 | 32.000 |
| 62486.000 | 1470.000 | 670.991 | .364 | .707 | 0.000 | 309.999 | -293.000 | 32.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 62600.000 | 550.000 | 670.324 | 0.000 | 1.123 | 0.000 | 37.342 | 0.000 | 114.000 |
| 62600.000 | 880.000 | 670.507 | .183 | .015 | 0.000 | 232.806 | -195.464 | 114.000 |
| 62600.000 | 1020.000 | 670.644 | .137 | .018 | 0.000 | 239.571 | -202.230 | 114.000 |
| 62600.000 | 1470.000 | 671.017 | .373 | .027 | 0.000 | 258.096 | -220.654 | 114.000 |
| 63740.000 | 550.000 | 673.506 | 0.000 | 3.183 | 0.000 | 43.322 | 0.000 | 1140.000 |
| 63740.000 | 880.000 | 673.782 | .276 | 3.276 | 0.000 | 210.437 | -167.115 | 1140.000 |
| 63740.000 | 1020.000 | 674.057 | .275 | 3.413 | 0.000 | 222.514 | -179.192 | 1140.000 |
| 63740.000 | 1470.000 | 674.743 | .636 | 3.726 | 0.000 | 249.999 | -206.677 | 1140.000 |
| 63821.000 | 550.000 | 674.086 | 0.000 | .579 | 0.000 | 30.999 | 0.000 | 81.000 |
| 63821.000 | 880.000 | 674.601 | .715 | 1.018 | 0.000 | 590.081 | -559.082 | 81.000 |
| 63821.000 | 1020.000 | 674.911 | .110 | .854 | 0.000 | 609.999 | -579.000 | 81.000 |
| 63821.000 | 1470.000 | 675.339 | .428 | .596 | 0.000 | 609.999 | -579.000 | 81.000 |
| 63879.000 | 550.000 | 674.828 | 0.000 | .742 | 0.000 | 626.392 | 0.000 | 58.000 |
| 63879.000 | 880.000 | 675.321 | .493 | .520 | 0.000 | 599.999 | -73.607 | 58.000 |
| 63879.000 | 1020.000 | 675.435 | .114 | .523 | 0.000 | 599.999 | -73.607 | 58.000 |
| 63879.000 | 1470.000 | 675.791 | .357 | .452 | 0.000 | 599.999 | -73.607 | 58.000 |
| 64830.000 | 550.000 | 674.900 | 0.000 | .073 | 0.000 | 101.850 | 0.000 | 951.000 |
| 64830.000 | 880.000 | 675.401 | .501 | .090 | 0.000 | 104.655 | -2.807 | 951.000 |
| 64830.000 | 1020.000 | 675.524 | .123 | .049 | 0.000 | 116.652 | -14.802 | 951.000 |
| 64830.000 | 1470.000 | 675.896 | .372 | .105 | 0.000 | 153.176 | -51.325 | 951.000 |
| 66000.000 | 460.000 | 677.364 | 0.000 | 2.464 | 0.000 | 28.007 | 0.000 | 1170.000 |
| 66000.000 | 740.000 | 678.758 | 1.394 | 3.357 | 0.000 | 91.181 | -63.174 | 1170.000 |
| 66000.000 | 865.000 | 679.164 | .406 | 3.640 | 0.000 | 104.260 | -76.253 | 1170.000 |
| 66000.000 | 1250.000 | 680.083 | .920 | 4.187 | 0.000 | 149.620 | -121.613 | 1170.000 |
| 66850.000 | 460.000 | 679.775 | 0.000 | 2.413 | 0.000 | 41.999 | 0.000 | 850.000 |
| 66850.000 | 740.000 | 680.909 | 1.133 | 2.151 | 0.000 | 41.999 | -.000 | 850.000 |
| 66850.000 | 865.000 | 681.218 | .309 | 2.055 | 0.000 | 41.999 | -.000 | 850.000 |
| 66850.000 | 1250.000 | 681.995 | .778 | 1.913 | 0.000 | 41.999 | -.000 | 850.000 |
| 66893.000 | 460.000 | 679.846 | 0.000 | .070 | 0.000 | 19.999 | 0.000 | 43.000 |
| 66893.000 | 740.000 | 680.992 | 1.146 | .083 | 0.000 | 19.999 | -.000 | 43.000 |
| 66893.000 | 865.000 | 681.313 | .320 | .094 | 0.000 | 19.999 | -.000 | 43.000 |
| 66893.000 | 1250.000 | 682.124 | .812 | .128 | 0.000 | 19.999 | -.000 | 43.000 |
| 66894.000 | 460.000 | 679.849 | 0.000 | .003 | 0.000 | 19.999 | 0.000 | 1.000 |
| 66894.000 | 740.000 | 680.997 | 1.148 | .004 | 0.000 | 19.999 | -.000 | 1.000 |
| 66894.000 | 865.000 | 681.318 | .321 | .005 | 0.000 | 19.999 | -.000 | 1.000 |
| 66894.000 | 1250.000 | 682.133 | .816 | .009 | 0.000 | 19.999 | -.000 | 1.000 |
| 66925.000 | 460.000 | 680.021 | 0.000 | .172 | 0.000 | 19.999 | 0.000 | 31.000 |
| 66925.000 | 740.000 | 681.235 | 1.214 | .238 | 0.000 | 19.999 | -.000 | 31.000 |
| 66925.000 | 865.000 | 681.642 | .407 | .324 | 0.000 | 19.999 | -.000 | 31.000 |
| 66925.000 | 1250.000 | 682.815 | 1.173 | .582 | 0.000 | 19.999 | -.000 | 31.000 |
| 66926.000 | 460.000 | 680.342 | 0.000 | .320 | 0.000 | 19.999 | 0.000 | 1.000 |
| 66926.000 | 740.000 | 681.987 | 1.645 | .752 | 0.000 | 19.999 | -.000 | 1.000 |
| 66926.000 | 865.000 | 682.708 | .721 | 1.066 | 0.000 | 19.999 | -.000 | 1.000 |
| 66926.000 | 1250.000 | 685.456 | 2.747 | 2.641 | 0.000 | 19.999 | -.000 | 1.000 |
| 66946.000 | 460.000 | 680.493 | 0.000 | .151 | 0.000 | 59.999 | 0.000 | 20.000 |
| 66946.000 | 740.000 | 682.521 | 2.029 | .534 | 0.000 | 59.999 | -.000 | 20.000 |
| 66946.000 | 865.000 | 683.336 | .815 | .628 | 0.000 | 59.999 | -.000 | 20.000 |
| 66946.000 | 1250.000 | 686.198 | 2.861 | .742 | 0.000 | 59.999 | -.000 | 20.000 |
| 67075.000 | 460.000 | 680.975 | 0.000 | .482 | 0.000 | 159.210 | 0.000 | 129.000 |
| 67075.000 | 740.000 | 682.767 | 1.792 | .246 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67075.000 | 865.000 | 683.558 | .791 | .222 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67075.000 | 1250.000 | 686.368 | 2.810 | .170 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67500.000 | 460.000 | 681.340 | 0.000 | .365 | 0.000 | 119.706 | 0.000 | 425.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 67500.000 | 740.000 | 682.855 | 1.515 | .087 | 0.000 | 234.075 | -114.369 | 425.000 |
| 67500.000 | 865.000 | 683.612 | .758 | .054 | 0.000 | 271.142 | -151.436 | 425.000 |
| 67500.000 | 1250.000 | 686.388 | 2.776 | .020 | 0.000 | 383.667 | -263.961 | 425.000 |
| 67925.000 | 460.000 | 682.330 | 0.000 | .990 | 0.000 | 108.928 | 0.000 | 425.000 |
| 67925.000 | 740.000 | 683.125 | .795 | .270 | 0.000 | 185.464 | -75.536 | 425.000 |
| 67925.000 | 865.000 | 683.744 | .619 | .132 | 0.000 | 223.767 | -114.839 | 425.000 |
| 67925.000 | 1250.000 | 686.407 | 2.663 | .018 | 0.000 | 351.726 | -242.798 | 425.000 |
| 68350.000 | 460.000 | 683.452 | 0.000 | 1.122 | 0.000 | 109.227 | 0.000 | 425.000 |
| 68350.000 | 740.000 | 683.961 | .509 | .836 | 0.000 | 159.257 | -50.030 | 425.000 |
| 68350.000 | 865.000 | 684.224 | .263 | .480 | 0.000 | 184.668 | -75.441 | 425.000 |
| 68350.000 | 1250.000 | 686.452 | 2.227 | .045 | 0.000 | 301.505 | -192.279 | 425.000 |
| 69530.000 | 460.000 | 687.587 | 0.000 | 4.135 | 0.000 | 144.134 | 0.000 | 1180.000 |
| 69530.000 | 740.000 | 688.070 | .484 | 4.109 | 0.000 | 225.583 | -81.449 | 1180.000 |
| 69530.000 | 865.000 | 688.174 | .103 | 3.949 | 0.000 | 232.439 | -88.305 | 1180.000 |
| 69530.000 | 1250.000 | 688.307 | .134 | 1.856 | 0.000 | 241.306 | -97.171 | 1180.000 |
| 69730.000 | 460.000 | 689.589 | 0.000 | 1.001 | 0.000 | 122.922 | 0.000 | 200.000 |
| 69730.000 | 740.000 | 689.084 | .497 | 1.014 | 0.000 | 158.394 | -35.472 | 200.000 |
| 69730.000 | 865.000 | 689.256 | .181 | 1.092 | 0.000 | 170.695 | -47.773 | 200.000 |
| 69730.000 | 1250.000 | 689.853 | .593 | 1.551 | 0.000 | 208.275 | -85.453 | 200.000 |
| 70197.000 | 460.000 | 691.214 | 0.000 | 2.626 | 0.000 | 112.756 | 0.000 | 467.000 |
| 70197.000 | 740.000 | 691.793 | .580 | 2.709 | 0.000 | 159.553 | -46.798 | 467.000 |
| 70197.000 | 865.000 | 691.977 | .184 | 2.711 | 0.000 | 174.341 | -61.555 | 467.000 |
| 70197.000 | 1250.000 | 692.347 | .370 | 2.489 | 0.000 | 195.307 | -82.521 | 467.000 |
| 70530.000 | 460.000 | 692.944 | 0.000 | 1.731 | 0.000 | 41.188 | 0.000 | 333.000 |
| 70530.000 | 740.000 | 693.577 | .633 | 1.784 | 0.000 | 192.080 | -150.892 | 333.000 |
| 70530.000 | 865.000 | 693.784 | .206 | 1.807 | 0.000 | 210.673 | -169.485 | 333.000 |
| 70530.000 | 1250.000 | 694.325 | .541 | 1.977 | 0.000 | 258.317 | -217.130 | 333.000 |
| 71240.000 | 460.000 | 696.603 | 0.000 | 3.658 | 0.000 | 24.999 | 0.000 | 710.000 |
| 71240.000 | 740.000 | 696.760 | .158 | 3.183 | 0.000 | 213.618 | -188.619 | 710.000 |
| 71240.000 | 865.000 | 696.943 | .182 | 3.159 | 0.000 | 224.447 | -199.448 | 710.000 |
| 71240.000 | 1250.000 | 697.348 | .406 | 3.024 | 0.000 | 242.534 | -217.535 | 710.000 |
| 71290.000 | 460.000 | 696.623 | 0.000 | .020 | 0.000 | 12.999 | 0.000 | 50.000 |
| 71290.000 | 740.000 | 697.021 | .398 | .261 | 0.000 | 228.755 | -215.756 | 50.000 |
| 71290.000 | 865.000 | 697.203 | .182 | .260 | 0.000 | 236.249 | -223.250 | 50.000 |
| 71290.000 | 1250.000 | 697.619 | .417 | .271 | 0.000 | 253.253 | -240.264 | 50.000 |
| 71330.000 | 460.000 | 699.089 | 1.000 | 2.466 | 0.000 | 12.999 | 0.000 | 40.000 |
| 71330.000 | 740.000 | 700.006 | .918 | 2.985 | 0.000 | 350.958 | -337.959 | 40.000 |
| 71330.000 | 865.000 | 700.143 | .137 | 2.941 | 0.000 | 356.632 | -343.633 | 40.000 |
| 71330.000 | 1250.000 | 700.467 | .324 | 2.848 | 0.000 | 370.785 | -357.786 | 40.000 |
| 71890.000 | 460.000 | 699.905 | 0.000 | .816 | 0.000 | 281.000 | 0.000 | 560.000 |
| 71890.000 | 740.000 | 700.026 | .121 | .019 | 0.000 | 286.835 | -5.086 | 560.000 |
| 71890.000 | 865.000 | 700.167 | .142 | .024 | 0.000 | 294.301 | -13.302 | 560.000 |
| 71890.000 | 1250.000 | 700.505 | .338 | .038 | 0.000 | 312.037 | -31.037 | 560.000 |
| 72166.000 | 460.000 | 699.949 | 0.000 | .044 | 0.000 | 198.034 | 0.000 | 276.000 |
| 72166.000 | 740.000 | 700.124 | .175 | .098 | 0.000 | 209.156 | -11.122 | 276.000 |
| 72166.000 | 865.000 | 700.280 | .156 | .113 | 0.000 | 219.138 | -21.104 | 276.000 |
| 72166.000 | 1250.000 | 700.666 | .386 | .160 | 0.000 | 242.827 | -44.794 | 276.000 |
| 72444.000 | 460.000 | 700.093 | 0.000 | .144 | 0.000 | 153.434 | 0.000 | 278.000 |
| 72444.000 | 740.000 | 700.402 | .308 | .278 | 0.000 | 172.884 | -9.450 | 278.000 |
| 72444.000 | 865.000 | 700.581 | .179 | .301 | 0.000 | 178.369 | -14.935 | 278.000 |
| 72444.000 | 1250.000 | 701.031 | .450 | .365 | 0.000 | 190.735 | -27.301 | 278.000 |
| 72720.000 | 460.000 | 700.634 | 0.000 | .541 | 0.000 | 162.234 | 0.000 | 276.000 |
| 72720.000 | 740.000 | 701.127 | .493 | .725 | 0.000 | 183.379 | -21.145 | 276.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 72720.000 | 865.000 | 701.305 | .178 | .724 | 0.000 | 189.373 | -27.139 | 276.000 |
| 72720.000 | 1250.000 | 701.776 | .471 | .746 | 0.000 | 204.298 | -42.064 | 276.000 |
| 74110.000 | 460.000 | 705.893 | 0.000 | 5.258 | 0.000 | 78.602 | 0.000 | 1390.000 |
| 74110.000 | 740.000 | 706.575 | .683 | 5.448 | 0.000 | 106.259 | -27.667 | 1390.000 |
| 74110.000 | 865.000 | 706.797 | .222 | 5.492 | 0.000 | 115.235 | -36.632 | 1390.000 |
| 74110.000 | 1250.000 | 707.392 | .595 | 5.616 | 0.000 | 139.311 | -60.708 | 1390.000 |
| 75420.000 | 460.000 | 712.630 | 0.000 | 6.737 | 0.000 | 54.395 | 0.000 | 1310.000 |
| 75420.000 | 740.000 | 713.476 | .846 | 6.901 | 0.000 | 60.897 | -6.501 | 1310.000 |
| 75420.000 | 865.000 | 713.803 | .327 | 7.006 | 0.000 | 63.404 | -9.008 | 1310.000 |
| 75420.000 | 1250.000 | 714.616 | .812 | 7.223 | 0.000 | 69.635 | -15.235 | 1310.000 |
| 75473.000 | 365.000 | 715.711 | 0.000 | 3.081 | 0.000 | 24.999 | 0.000 | 53.000 |
| 75473.000 | 580.000 | 716.421 | .709 | 2.944 | 0.000 | 24.999 | -.000 | 53.000 |
| 75473.000 | 675.000 | 716.676 | .255 | 2.872 | 0.000 | 24.999 | -.000 | 53.000 |
| 75473.000 | 985.000 | 717.471 | .796 | 2.856 | 0.000 | 24.999 | -.000 | 53.000 |
| 75547.000 | 365.000 | 723.350 | 0.000 | 7.639 | 0.000 | 600.000 | 0.000 | 74.000 |
| 75547.000 | 580.000 | 724.800 | 1.450 | 8.379 | 0.000 | 600.000 | 0.000 | 74.000 |
| 75547.000 | 675.000 | 725.300 | .500 | 8.624 | 0.000 | 600.000 | 0.000 | 74.000 |
| 75547.000 | 985.000 | 726.000 | .700 | 8.529 | 0.000 | 600.000 | 0.000 | 74.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE FAC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 87.854 | 0.000 |
| 2 | 1.000 | 0.000 | 136.866 | 49.002 |
| 3 | 1.000 | 0.000 | 144.599 | 56.735 |
| 4 | 1.000 | 0.000 | 159.207 | 71.343 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp
Newland Drain

3) WATERCOURSE: Middle Br. Clinton River
25 Mile + Chesterfield Lake

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

# LETTER OF TRANSMITTAL

| DATE | JOB NO. |
|---|---|
| August 11, 1977 | 5670-08 |

RE: Shelby Township Flood Insurance Study

Hydraulic Computations

Newland Drain & Middle Branch Clinton River

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Daniel H. Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
5th Floor, Mason Building
P. O. Box 30028
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 8-11-77 | | Plan |
| 2 | 8-11-77 | | Profile |
| 2 | 8-11-77 | | HEC-2 Input and Output |
| 2 | 8-11-77 | | J&A IPLOT |
| 1 | 8-11-77 | | Hydraulic Analysis |

THESE ARE TRANSMITTED as checked below:

XX For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

**REMARKS:**

SIGNED:
William C. Rossow
William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) RFH/dp

SHELBY TOWNSHIP

# FLOOD INSURANCE STUDY

# NEWLAND DRAIN

# MIDDLE BRANCH OF THE CLINTON RIVER

J & A File No. 5670-08-1

JOHNSON & ANDERSON, INC.

Consulting Engineers

2300 Dixie Highway, P.O. Box 1166

Pontiac, Michigan 48056

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# HYDRAULIC ANALYSIS

## Introduction

The streams being studied are the Newland Drain and the Middle Branch of the Clinton River located in Shelby Township, Macomb County, Michigan.

The study limits for the Newland Drain are from its mouth at Chestnut Lake to a point approximately 100 feet downstream of 25 Mile Road. The field survey was taken in February 1977.

The study limits for the Middle Branch of the Clinton River extend from the Shelby-Macomb Township line to Chestnut Lake. This particular submittal includes the portion of the Middle Branch from a section one foot away from the upstream face of southbound Disco Drive (M-53) to Chestnut Lake. The date of the field survey is February, 1977.

The 10-, 50-, 100-, and 500-year flood frequency flows have been accepted by the Michigan Department of Natural Resources (letters dated February 25, 1977 and April 5, 1977).

The project manager for this analysis is William C. Rossow, P.E.

## Method of Analysis

Water surface profiles were computed by the HEC-2 standard step-backwater computer program developed by the U.S. Army Corps of Engineers.[1]

The hydraulic model has been developed for the 100-year flow. Each bridge section has been analyzed by the normal or special bridge routines using the guidelines specified in the HEC-2 Users Manual.[1] If an actual field-surveyed cross section was found to be located within the influence of a bridge constriction, the section was encroached as appropriate.

Starting Points

The backwater curve for the Middle Branch of the Clinton River was begun immediately upstream of Disco Drive (M-53). The backwater curve for the Middle Branch of the Clinton River in Shelby Township extending from the Shelby - Macomb township to Disco Drive has been previously submitted to the Michigan Department of Natural Resources (letter of transmittal dated July 5, 1977). Section 53346 is common to both studies. The water surface elevations determined in the first study at Section 53346 have been used as starting water surface elevations in this analysis.

For Newland Drain it was assumed that Chestnut Lake has a level surface from its outlet at the drop structures to the inlet for Newland Drain. With this assumption the starting water elevations for Newland Drain were taken from the stage discharge curve (Appendix B) for the Chestnut Lake drop structure. Since minimal storage results in the Lake, it was considered that at any moment inflow equals outflow.

## Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions found on pages 101 - 123 in Open Channel Hydraulics[2] by Ven Te Chow, with photographs and field inspection trips taken at every cross section. The "n" values were selected for summer conditions as this is the projected flood season.

For Newland Drain, Channel "n" values ranged from .025 for a smooth--surface bottom to .045 where the channel exhibits a rocky bottom strewn with debris. Bank slopes ranged from .03 to .09, depending on the amount of vegetation. Overbank "n" values ranged from .03 for light vegetation to .075 for an area with medium tree and undergrowth type of vegetation.

For the Middle Branch of the Clinton River, the following range of values was used for Manning's "n":

| Description | Manning's "n" |
|---|---|
| 1. Channel | |
| a. Sand and gravel bottom, clean stream with some meandering. | .035 |
| b. Same as above, but moderate meandering and/or debris | .04 - .045 |
| 2. Flood Plains | |
| a. Lawn Area | .03 - .04 |
| b. Scattered brush, heavy weeds | .04 - .05 |
| c. Light brush | .05 - .07 |
| d. Medium to dense brush | .07 - .12 |

The coefficient of contraction varied from 0.1 (reflecting a gradual change) to 0.5 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 1.0 for gradual to abrupt changes, respectively.

The total loss coefficient (XKOR) used when a bridge constriction experiences pressure flow or pressure and weir flow was calculated as outlined in Exhibit 2 of the HEC-2 Users Manual.[1] The inlet coefficients were taken from tables published by the Bureau of Public Roads.[3] The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

## Synthetic Cross Sections

Three types of synthetic cross sections were employed. The first type consists of the blending of two cross sections. The second type involves the repeating of a field measured cross section at different locations along the stream. For this case, the invert of the repeated section is adjusted to correspond to the straight line slope of the two cross sections that it is placed between. The third type of synthetic cross section involves the use of the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the elevations and stationing of the overbanks and channel of the two field - surveyed cross sections.

## Special Conditions

### MIDDLE BRANCH OF CLINTON RIVER

At Chestnut Lake on the Middle Branch, due to the drop structures (See field notes in Appendix B) at the outlet of the lake it was necessary to investigate special situations which HEC-2 is unable to handle. Initially considering the culverts as simple structures and with a given tailwater, the resulting headwater elevations for various flows were calculated. Next the headwater necessary to produce a given flow (assuming that the flow passed through critical depth) was found for each drop structure.

A comparison was then made to find if the headwater from the culvert for a given flow would affect the same flow over the brink of the drop structure. For the flows investigated, the reinforced concrete pipe's headwater had no effect on the lake elevation necessary to pass the flow over the weir. The corrugated metal pipe did produce a sufficient headwater to cause a submergence effect at higher flows over the weir. At these higher flows, a reiterative solution was used to balance the submergence effect, flow over the weir and flow through the culvert. Once this was accomplished, the stage-discharge curves were drawn for each culvert, the roadway, and the combined flows. The graphs and supporting calculations are found in Appendix B. Values from the combined flow curve for a given flow were used for the lake elevations as input on the X5 card.

## Sensitivity of Roughness Coefficients

A backwater curve was run for the Middle Branch of the Clinton River varying only the roughness coefficients. A 20% increase in the roughness coefficients, produced an average increase in the water surface of 0.2 feet while a 20% decrease produced an average decrease in the water surface of 0.2 feet.

## REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, Hec-2 Water Surface Profile, Users Manual, 1973.

2. Open Channel Hydraulics, Ven Te Chow, McGraw Hill Book Company, 1959.

3. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydrologic Engineering Circular No. 5, 1965.

4. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chapter A5, P. 23.

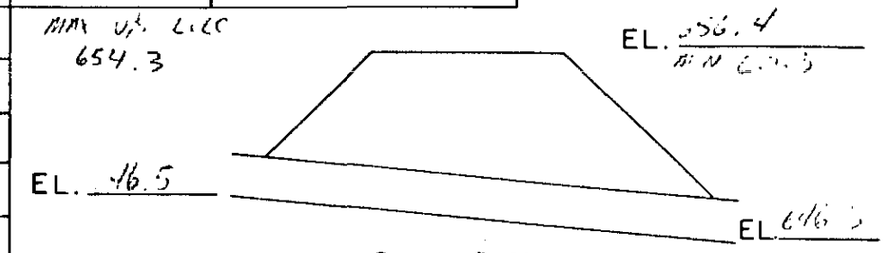
# APPENDIX A - CALCULATIONS FOR "XKOR"

| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 346 |
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: BELLMAN | | |

CULVERT DESCRIPTION: Multiplate arch with no wingwalls or headwalls

BY RFH | DATE 5-24-77

WEIR DESCRIPTION: Roadway with 25.5 foot breadth




A = 98.0 | D = 7.8

WP = 42.0 | Ke = (0.5) 0.9

$\frac{29.1}{R^{4/3}}$ = 9.4331 | n = .031

So = 0.00[illegible]

L = 26

Sta. 545+83 | Sta. 545+57

CALCULATIONS AND COMMENTS:

- Manning's n -

n for multiplate arch = .031

- XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (9.4331)(.031)^2\, 26$

XKOR = 1.736 ✓ for because of $K_e = 0.5$ $k_e = 0.9$

XKOR = 2.136

- CofQ -

Assume H = 1.0 for [illegible]

then $\frac{H}{L} = \frac{1}{26} = .038 < .15$

therefore use H = 1.0

∴ CofQ = 3.03

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# HYDRAULIC STRUCTURAL DATA

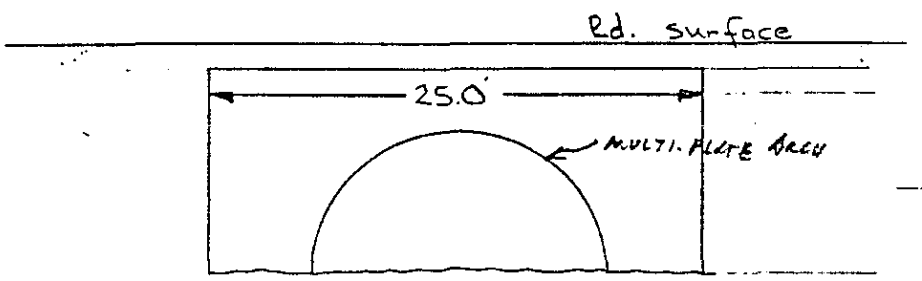
CODED BEH

Code No. 5670-08-BS 346

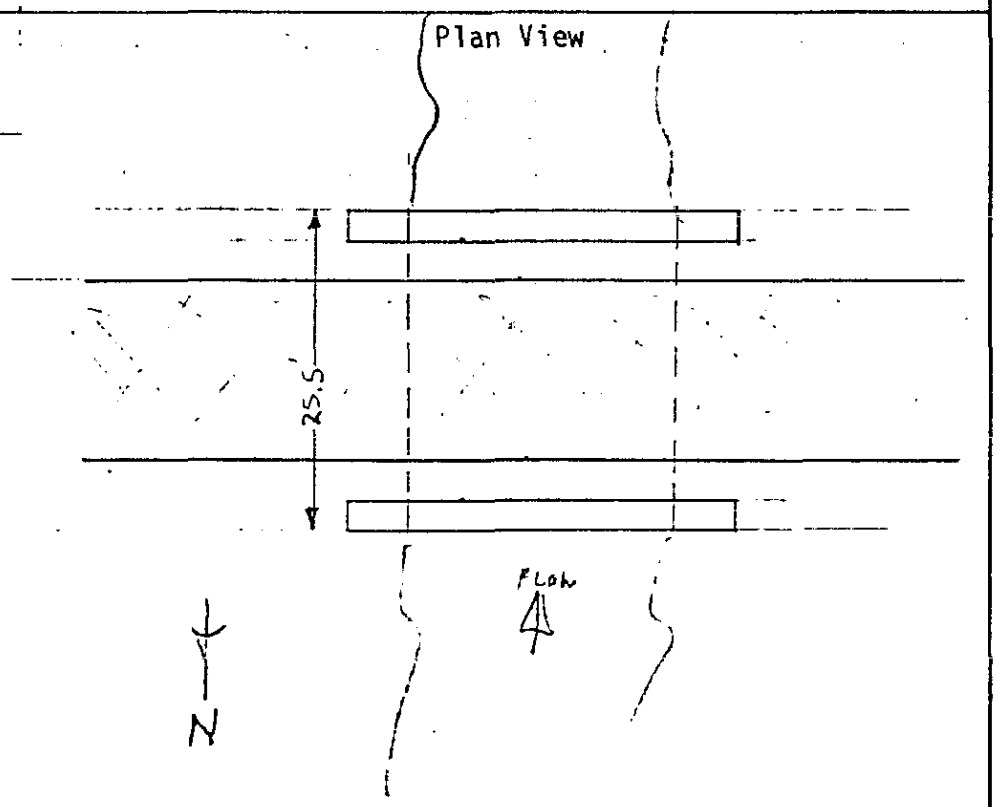
| | | | |
|---|---|---|---|
| Job Name: Shelby Twp. FIS | | By: P. Shunck, C. Mapley, R. Moses | |
| Date: 3-4-77 | Feature: MULTIPLATE ARCH BRIDGE | Water Course: Middle Branch, Clinton River | |
| Remarks: A. Bottom 1 Sand B. Photos: | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 648.6 | Length: 25.0' | Width of Deck: 25.5' | Skew: 90° |

## FIELD SKETCH

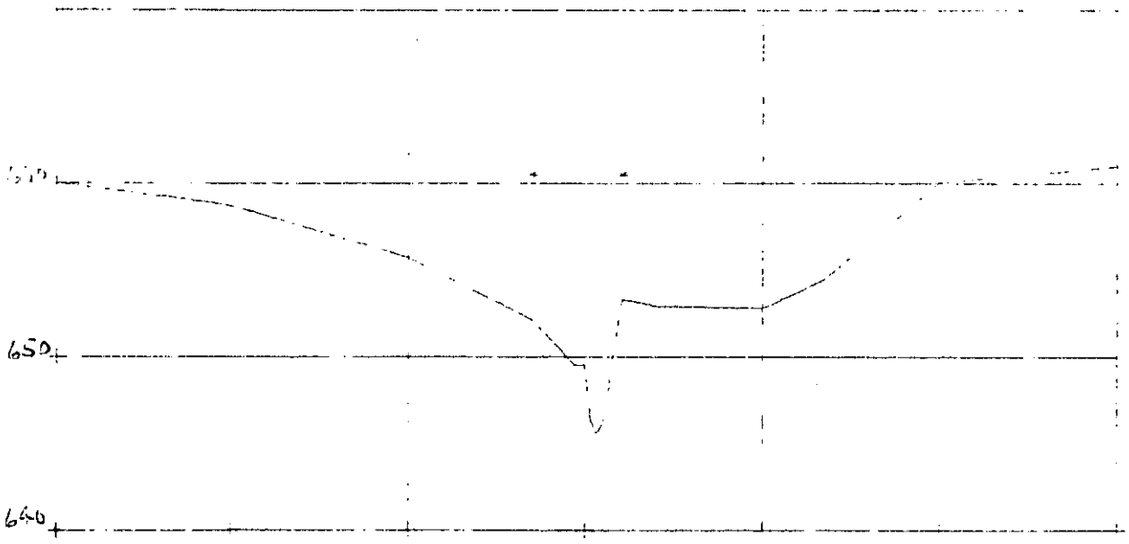
Profile View



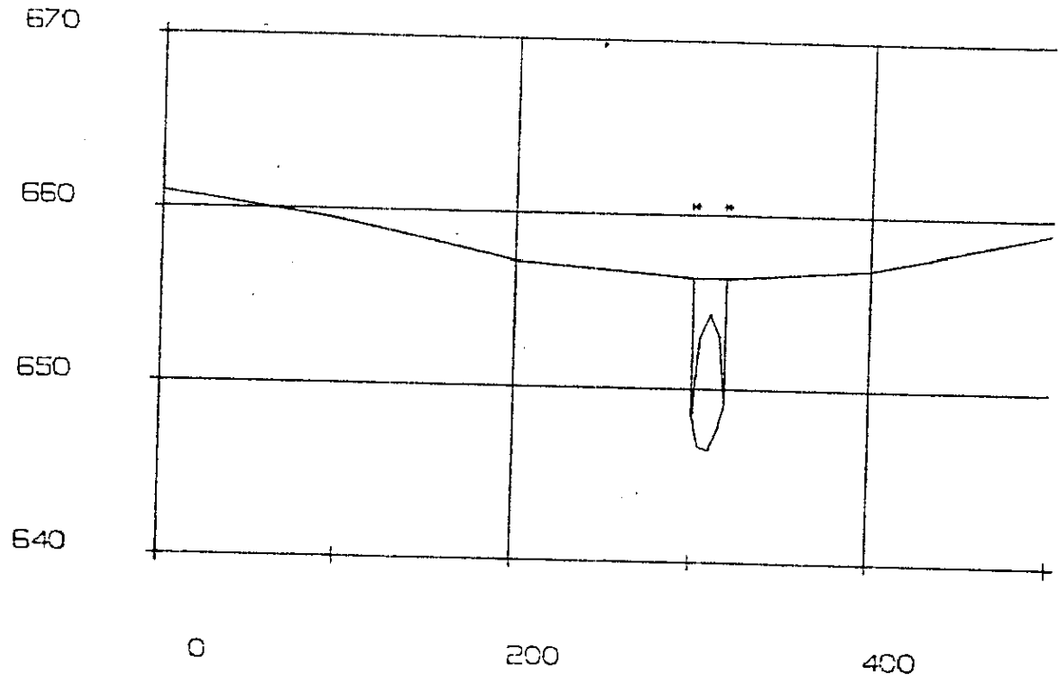

Plan View



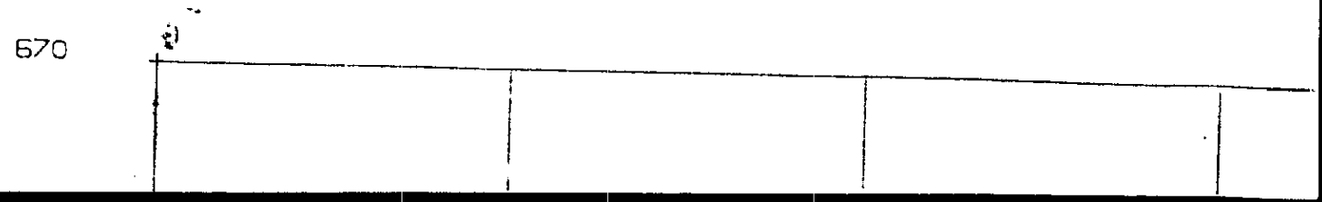
```
X1  5[illegible].00      18    300.00    318.50     77.00     47.00     57.00      1.000
54583

BT     12.00      0.00    660.90      0.00    100.00    659.40      0.00    200.00    657.20      0.00

BT    300.00    656.40    649.50    304.00    656.40    653.00    309.50    656.40    654.30    315.00
BT    656.40    653.00    318.50    656.40    649.20    400.00    657.00      0.00    490.00    659.00
BT      0.00    500.00    660.10      0.00    600.00    661.00      0.00

GR    660.00      0.00    658.70    100.00    655.70    200.00    652.10    270.00    649.50    294.00
GR    649.50    300.00    648.60    300.00    646.70    304.00    646.50    309.50    647.80    315.00
GR    649.20    318.50    653.30    318.50    652.90    340.00    652.80    400.00    654.50    435.00
GR    659.00    490.00    660.10    500.00    661.00    600.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

300.00  649.50  304.00  653.00  309.50  654.30  315.00  653.00  318.50  649.20

300.00  649.50  300.00  648.60  304.00  646.70  309.50  646.50  315.00  647.80
318.50  649.20  318.50  653.30
************** LISTING OF COORDINATES OF OPIFICE********************

300.00  649.50  304.00  653.00  309.50  654.30  315.00  653.00  318.50  649.20
318.50  649.20  315.00  647.80  309.50  646.50  304.00  646.70  300.00  648.60
300.00  649.50

ORIFICE AREA        98.0 WETTED PERIMETER      42.0  29.1/R**1.333       9.4331
```

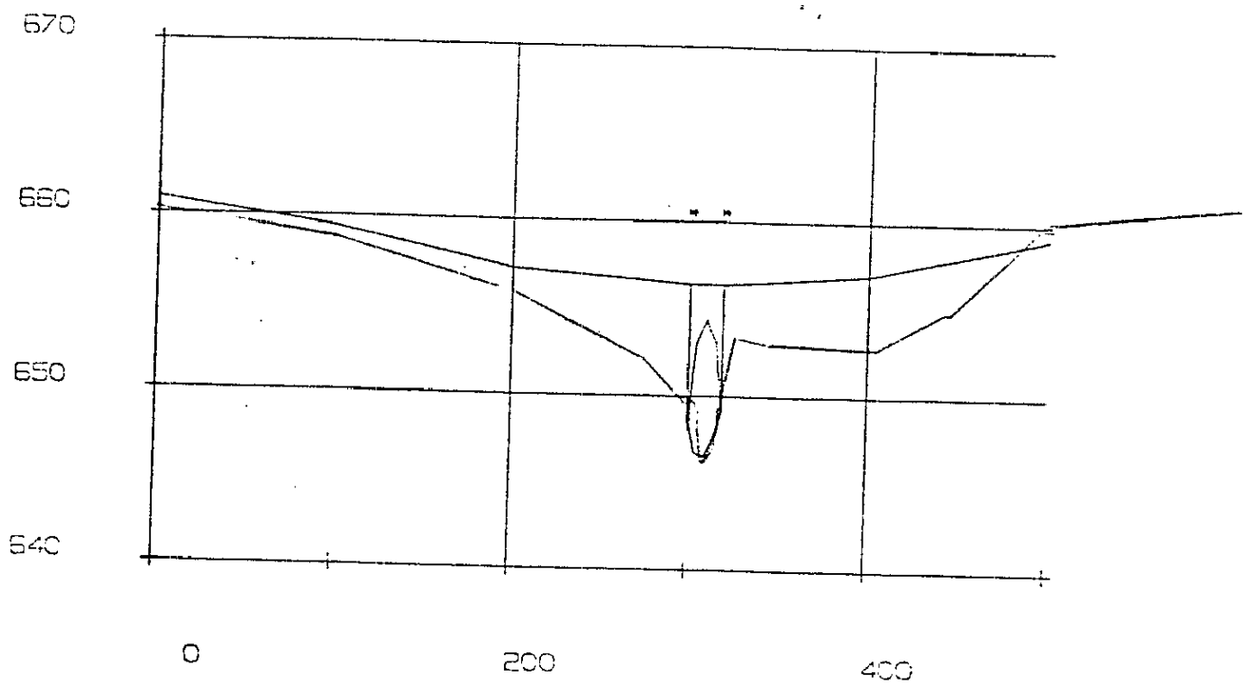



SECTION 345

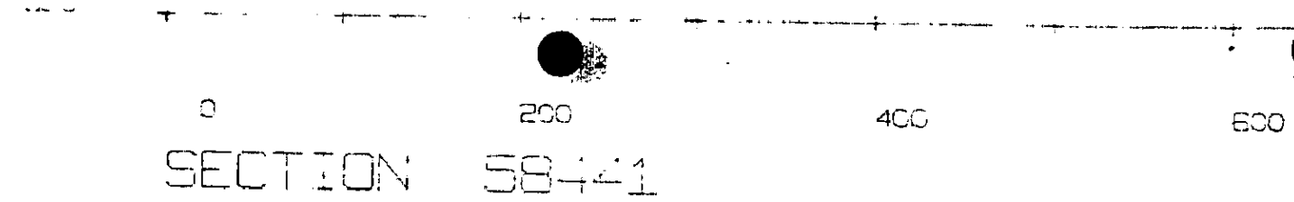



SECTION ~~345~~ 346

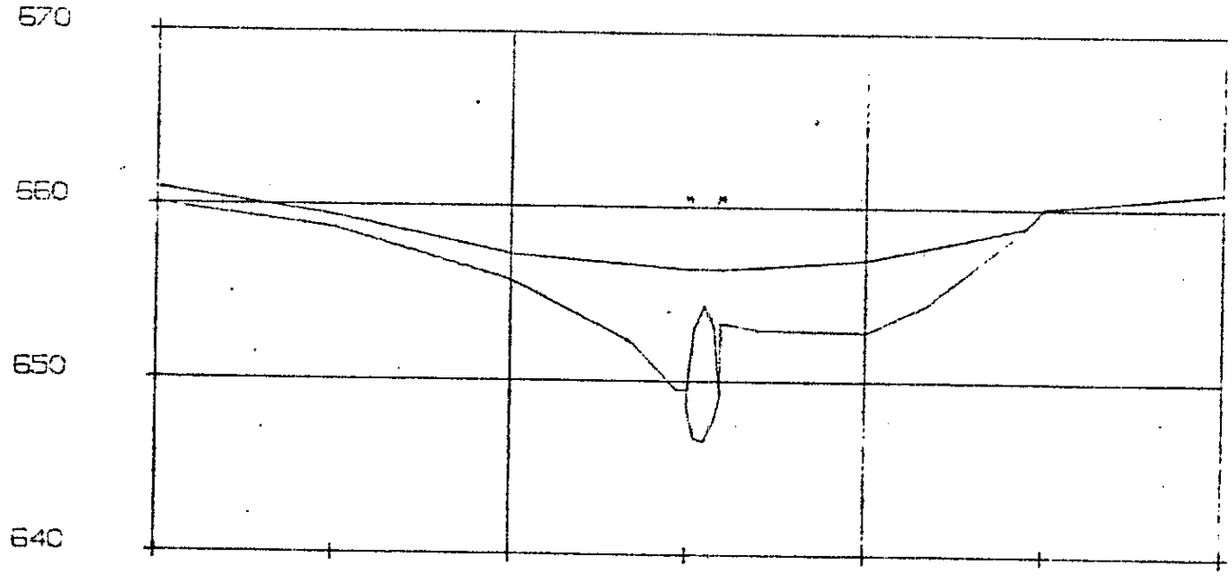


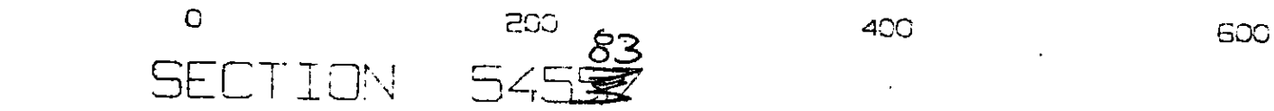



SECTION ~~5455~~ 346

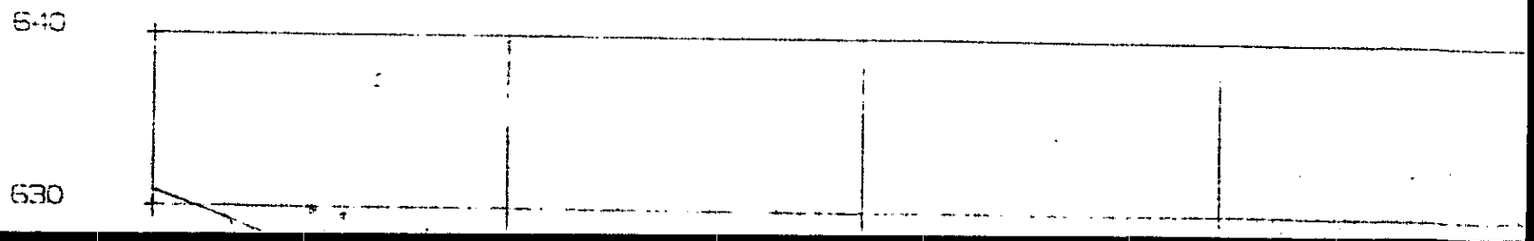



SECTION 58441



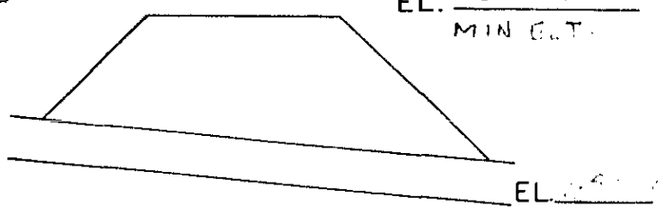

SECTION 5455~~7~~83



| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | | JOB NO. 5670 | 08 | 349 |
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: .5 MILE [illegible] | | |
| CULVERT DESCRIPTION: Multiplate arch with no wingwalls or headwalls | BY RFH | DATE 5-24-77 | |
| WEIR DESCRIPTION: Paved roadway [illegible] 37 foot breadth | | | |

MAX DIS ELEV 656.5

EL. [illegible] / MIN ELEV



EL. 650.1

EL. [illegible]

A = 74.0 D = 6.4

WP = 44.6 Ke = 0.5 0.9

$\frac{29.1}{R^{4/3}}$ = 14.8591 n = .031

So = 0.001

L = 37

Sta. [illegible]

Sta. [illegible]

CALCULATIONS AND COMMENTS:

- Manning's n -

n for multiplate arch = 0.031

- XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (14.8591)(.031)^2 37$ (0.9)

XKOR = 2.03

XKOR = 2.43

CORQ -

Assume H = 1.0 for [illegible]

then $\frac{H}{L} = \frac{1}{37} = .02 < .15$

therefore use H = 1.0

∴ CORQ = 3.05

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HYDRAULIC STRUCTURAL DATA

CODED BEH

Code No. 5670-08-349

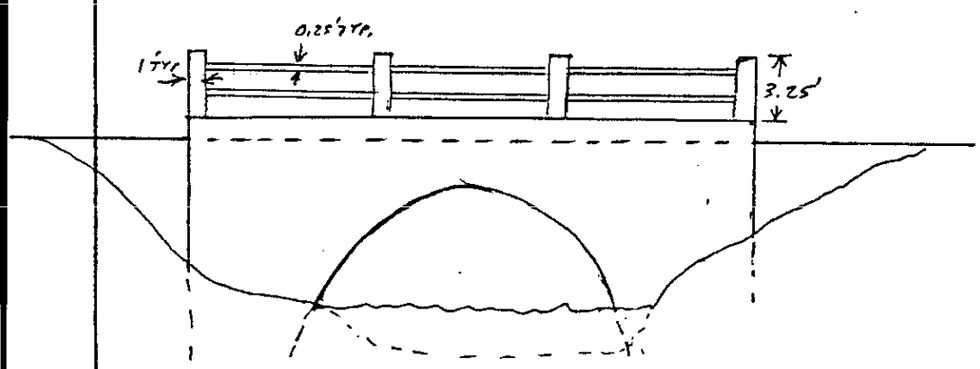
| | | |
|---|---|---|
| Job Name: SHELBY TWP, F.I.S. | | By: P. SHUHCK |
| Date: 2 MARCH 1977 | Feature: 25 mile Rd. multi-plate arch | Water Course: MIDDLE BRANCH CLINTON RIVER |
| Remarks: A. BOTTOM: GRAVEL | | |

| MBA#1 | USI 2 | USF 3 | RB 4 | LB 5 | DS 6 | DSF |
|---|---|---|---|---|---|---|

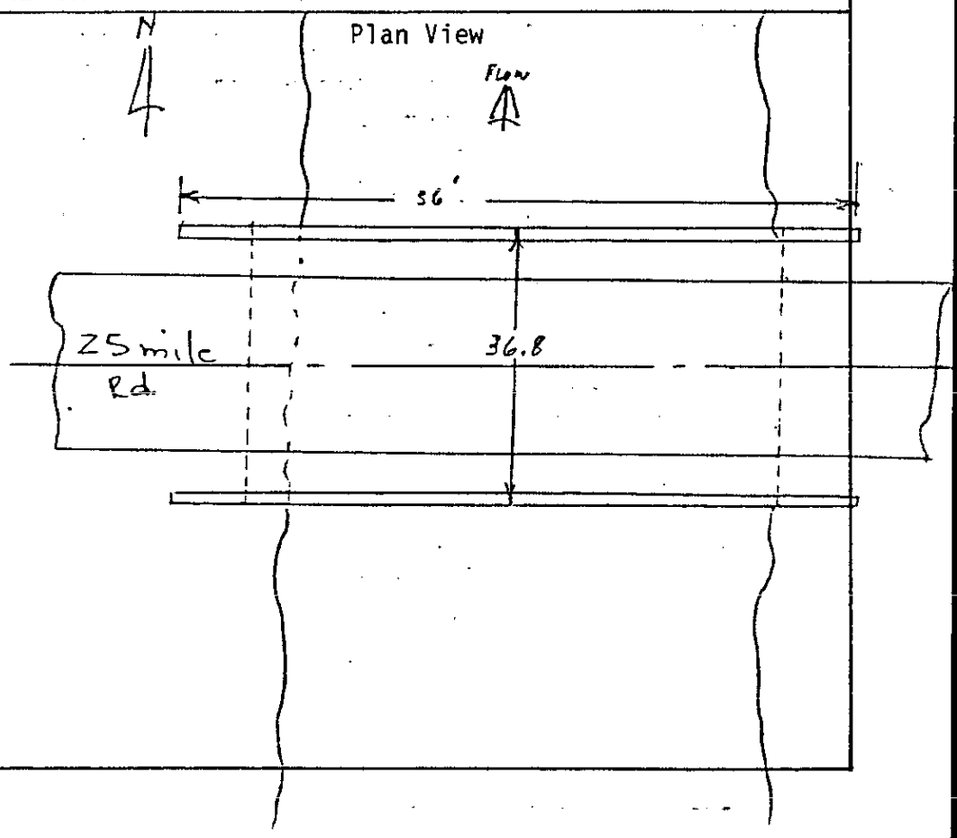
| | | | |
|---|---|---|---|
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 651.7 | Length: | Width of Deck: 36.8 | Skew: 90° |

FIELD SKETCH

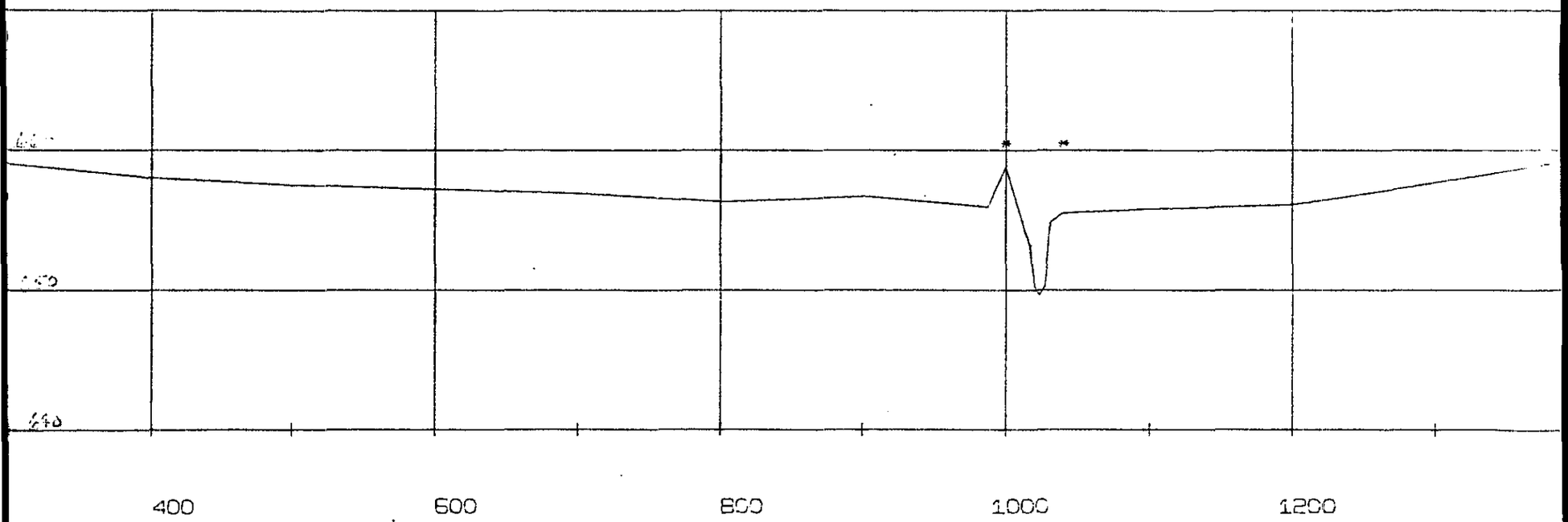
Profile View



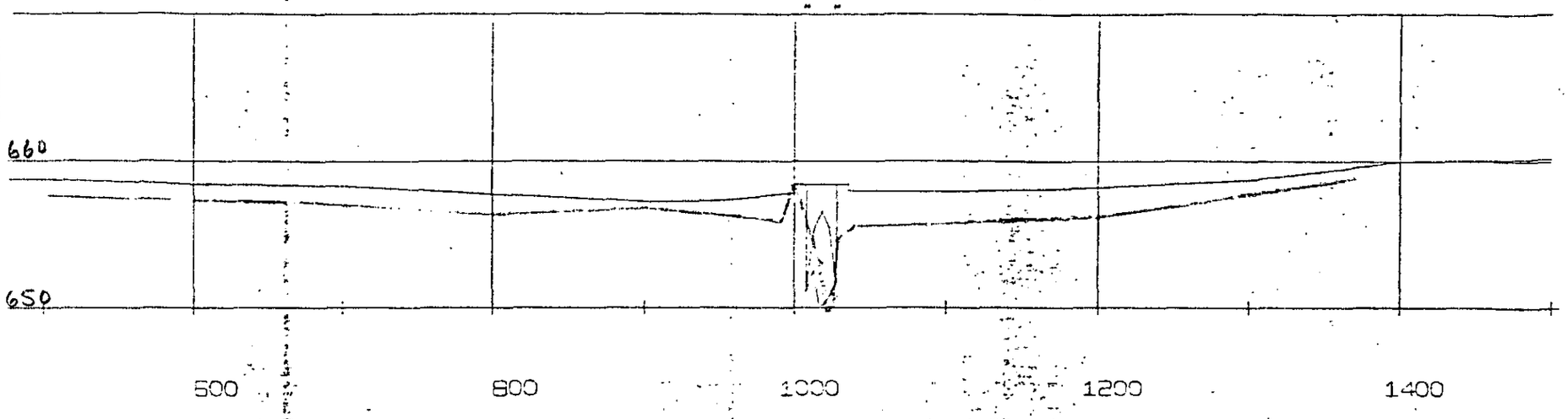

Plan View



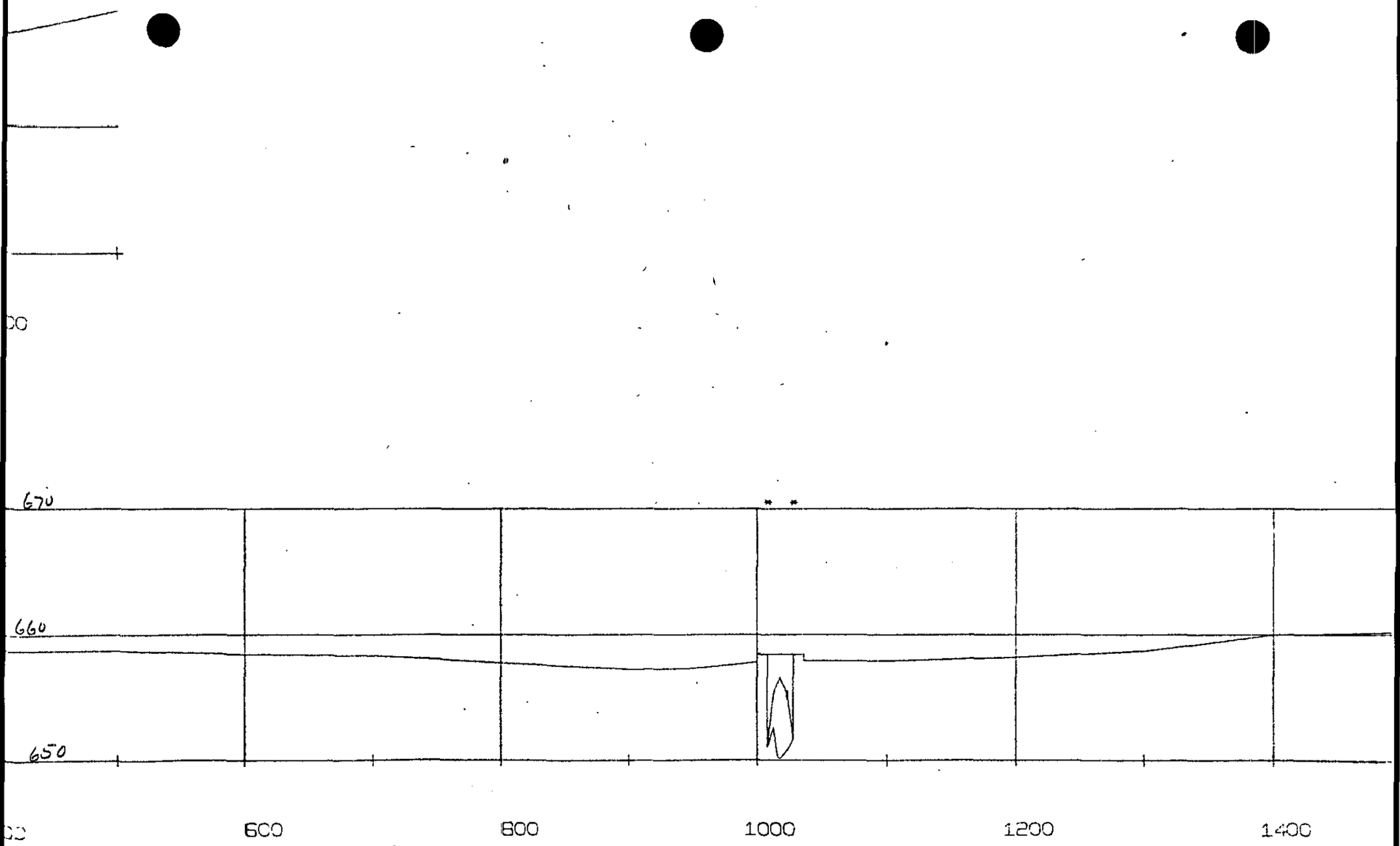
```
X1  ~~56461.~~00        26   1008.00   1028.00     71.00     71.00     71.00     1.000
56498

BT     23.00      0.00    659.80      0.00    200.00    659.90      0.00    400.00    658.70      0.00

BT    500.00    658.70      0.00    600.00    658.40      0.00    700.00    658.30      0.00    900.00
BT    657.20      0.00    950.00    657.30      0.00   1000.00    657.80      0.00   1000.00    658.40
BT      0.00   1008.00    658.40    652.00   1013.00    658.40    655.40   1016.00    658.40    656.10
BT   1018.00    658.40    656.50   1023.00    658.40    655.40   1028.00    658.40    651.70   1036.00
BT    658.40      0.00   1036.00    657.90      0.00   1100.00    657.90      0.00   1200.00    658.20
BT      0.00   1300.00    658.70      0.00   1400.00    660.00      0.00   1500.00    660.20      0.00

GR    658.20      0.00    658.60    100.00    660.00    200.00    659.00    300.00    658.00    400.00
GR    657.50    500.00    657.20    600.00    656.90    700.00    656.30    800.00    656.70    900.00
GR    655.80   1000.00    652.00   1008.00    651.00   1008.00    652.60   1013.00    650.30   1016.00
GR    650.10   1018.00    650.70   1023.00    651.70   1028.00    654.80   1031.00    655.10   1036.00
GR    655.50   1040.00    655.80   1100.00    656.10   1200.00    657.70   1300.00    659.40   1400.00
GR    659.70   1500.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

1008.00  652.00 1013.00  655.40 1016.00  656.10 1018.00  656.50 1023.00  655.40
1028.00  651.70

1008.00  652.00 1008.00  651.00 1013.00  652.60 1016.00  650.30 1018.00  650.10
1023.00  650.70 1028.00  651.70
************** LISTING OF COORDINATES OF ORIFICE*********************

1008.00  652.00 1013.00  655.40 1016.00  656.10 1018.00  656.50 1023.00  655.40
1028.00  651.70 1023.00  650.70 1018.00  650.10 1016.00  650.30 1013.00  652.60
1008.00  651.00 1008.00  652.00

 ORIFICE AREA        74.0 WETTED PERIMETER      44.6  29.1/R**1.333     14.8591
```



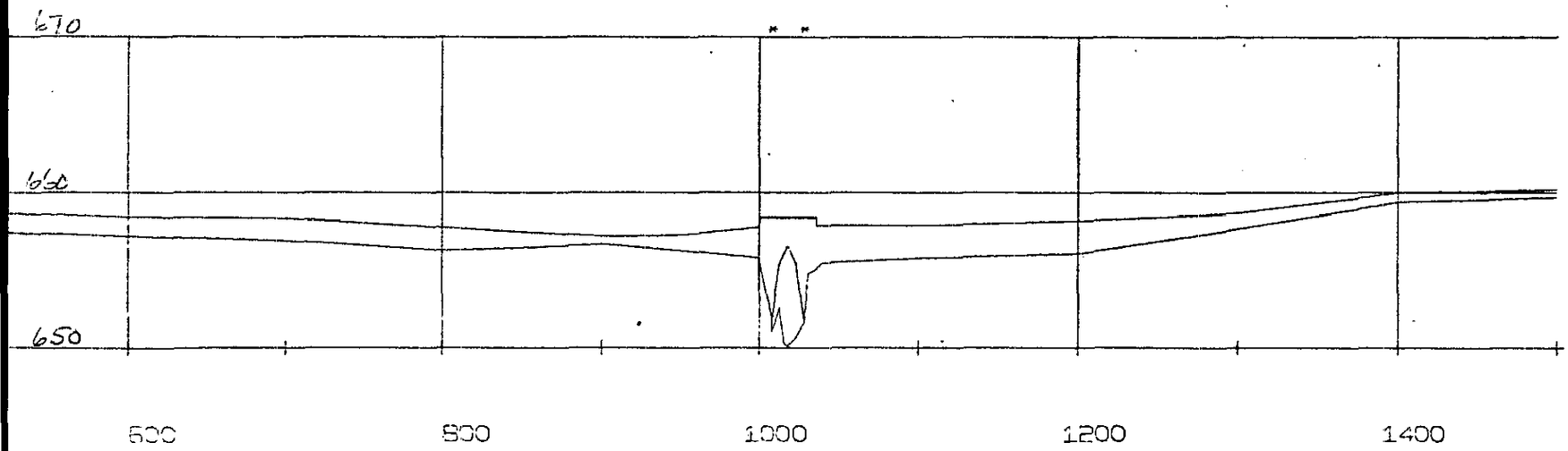

SECTION 348




SECTION 349




SECTION 349



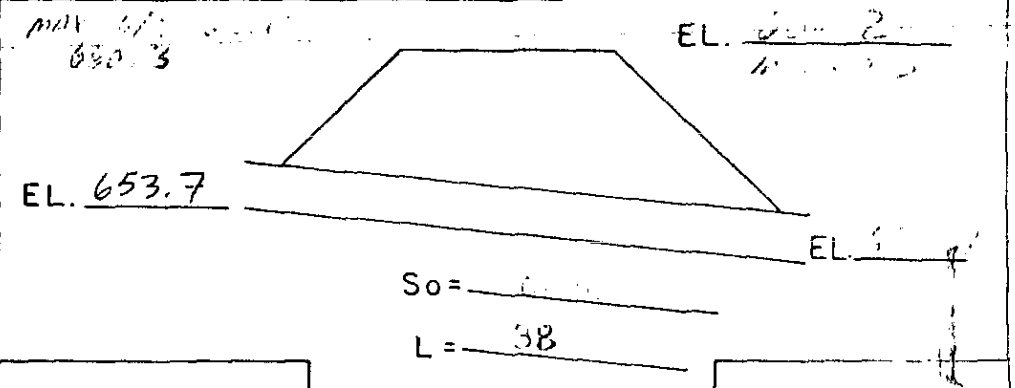

SECTION 56+98

JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 351

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: VAN [illegible]

CULVERT DESCRIPTION: Box [illegible] with headwalls and wingwalls | BY RFH | DATE 5-24-77

WEIR DESCRIPTION: Paved roadway with 38 foot breadth




A = 110.1 | D = 6.6

WP = 56.8 | Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 12.0779 | n = .0529

CALCULATIONS AND COMMENTS:

- Manning's "n" –

$$n = \frac{\left(.015^2 \times 5.5 + .07^2 \times 34 + .015^2 \times 2.5 + .04^2 \times 24.8\right)^{1/2}}{56.8}$$

n = .0529

- XKOR –

XKOR = $1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

XKOR = 1 + 0.7 + (12.0779)(.053)² 38

XKOR = 2.98

- COFQ –

[illegible]

therefore [illegible]

∴ Corr [illegible]

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P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

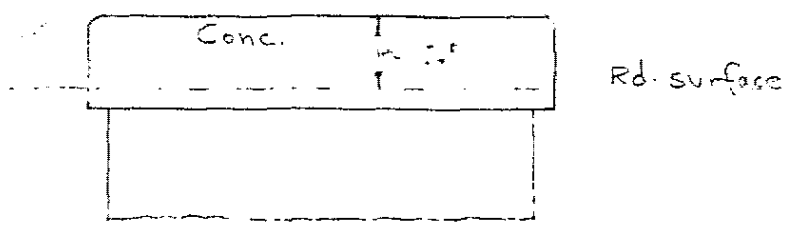
CODED BEH

Code No. 5670-08-BS-35)

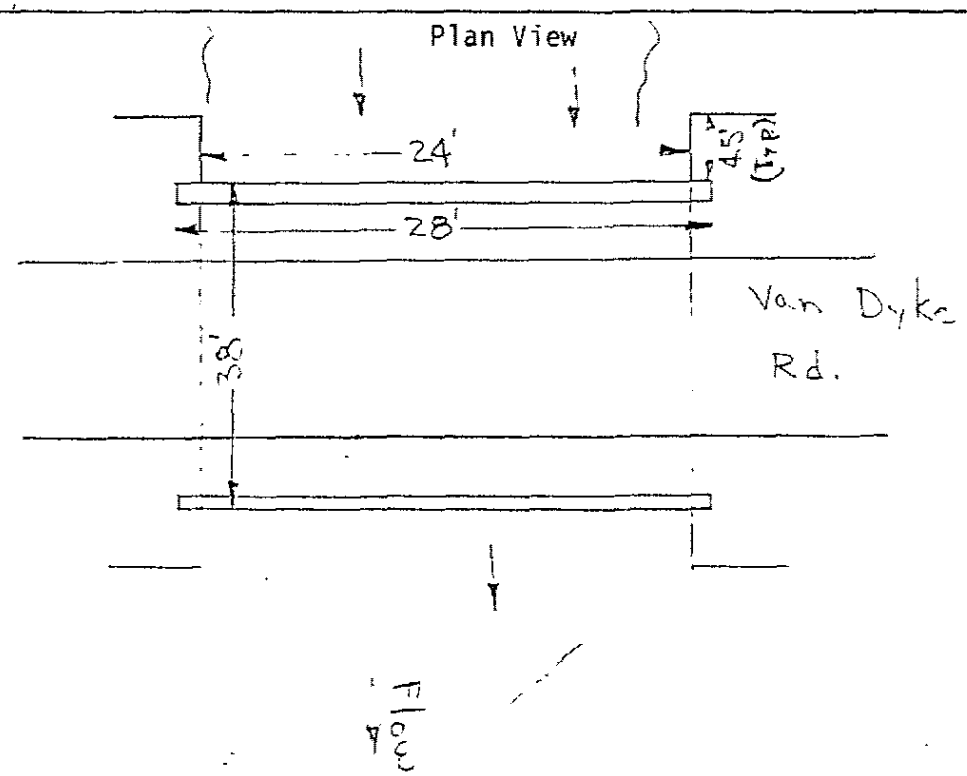
| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FTS | | By: C. Mahey, R. Moses, P. Shunk | |
| Date: 3-3-77 | Feature: Conc. bridge | Water Course: Middle Branch Clinton River | |
| Remarks: | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: | Length: 28' | Width of Deck: 38' | Skew: 90° |

FIELD SKETCH

Profile View




Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | 30 | 685.00 | 709.00 | 571.00 | 501.00 | 461.00 | 1.000 | | |

58479

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 26.00 | 0.00 | 662.00 | 0.00 | 85.00 | 662.30 | 0.00 | 185.00 | 662.40 | 0.00 |
| BT | 285.00 | 662.70 | 0.00 | 335.00 | 662.80 | 0.00 | 362.00 | 662.90 | 0.00 | 422.00 |
| BT | 663.00 | 0.00 | 522.00 | 663.20 | 0.00 | 622.00 | 663.50 | 0.00 | 683.00 | 663.70 |
| BT | 0.00 | 683.00 | 666.20 | 0.00 | 685.00 | 666.20 | 658.00 | 685.00 | 666.20 | 660.30 |
| BT | 709.00 | 666.20 | 660.30 | 709.00 | 666.20 | 657.70 | 711.00 | 666.20 | 0.00 | 711.00 |
| BT | 663.70 | 0.00 | 772.00 | 663.50 | 0.00 | 822.00 | 668.60 | 0.00 | 869.00 | 668.70 |
| BT | 0.00 | 922.00 | 665.30 | 0.00 | 987.00 | 662.70 | 0.00 | 1004.00 | 668.60 | 0.00 |
| BT | 1058.00 | 671.60 | 0.00 | 1122.00 | 671.40 | 0.00 | 1222.00 | 669.80 | 0.00 | |
| GR | 662.00 | 0.00 | 662.30 | 85.00 | 662.40 | 185.00 | 662.70 | 285.00 | 662.80 | 335.00 |
| GR | 661.30 | 362.00 | 659.50 | 422.00 | 659.00 | 522.00 | 659.30 | 622.00 | 660.70 | 671.00 |
| GR | 658.40 | 683.00 | 658.00 | 685.00 | 654.90 | 685.00 | 653.70 | 691.00 | 654.30 | 695.00 |
| GR | 657.30 | 701.00 | 657.60 | 705.00 | 657.70 | 709.00 | 658.10 | 711.00 | 660.60 | 722.00 |
| GR | 661.70 | 754.00 | 663.50 | 772.00 | 668.60 | 822.00 | 668.70 | 869.00 | 665.30 | 922.00 |
| GR | 662.70 | 987.00 | 668.60 | 1004.00 | 671.60 | 1058.00 | 671.40 | 1122.00 | 669.80 | 1222.00 |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

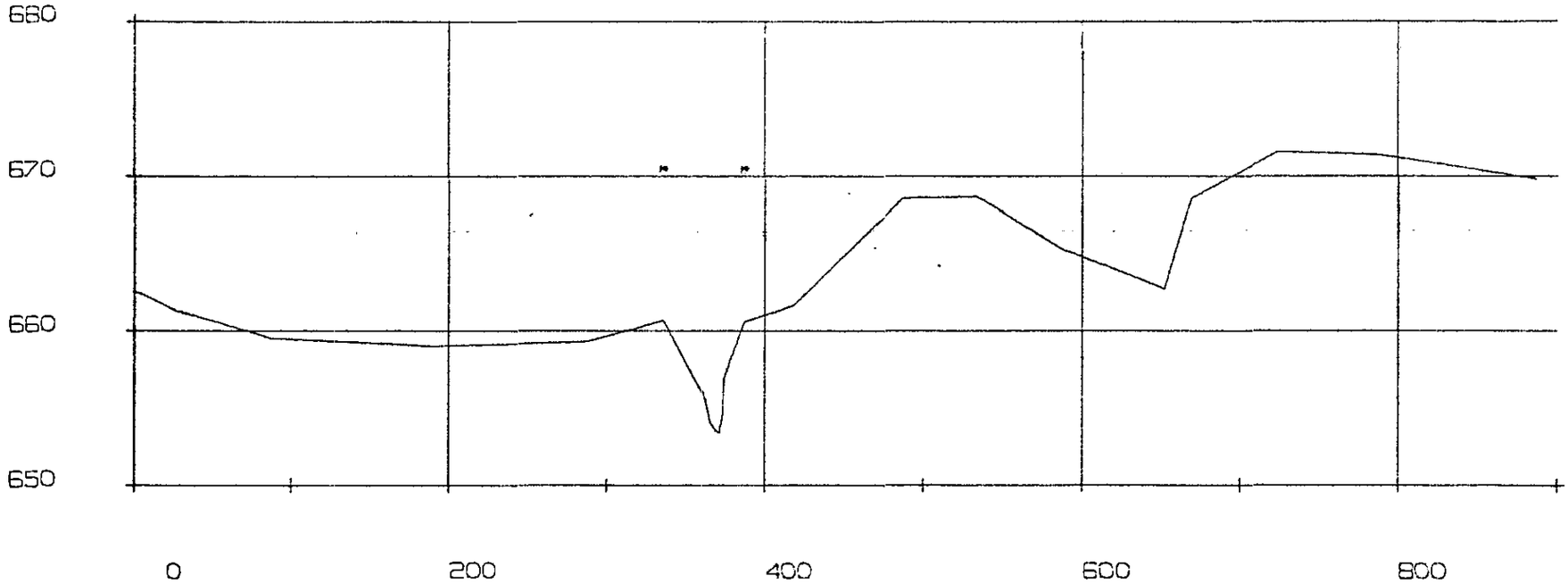
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 685.00 | 658.00 | 685.00 | 660.30 | 709.00 | 660.30 | 709.00 | 657.70 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 685.00 | 658.00 | 685.00 | 654.90 | 691.00 | 653.70 | 695.00 | 654.30 | 701.00 | 657.30 |
| 705.00 | 657.60 | 709.00 | 657.70 | | | | | | |

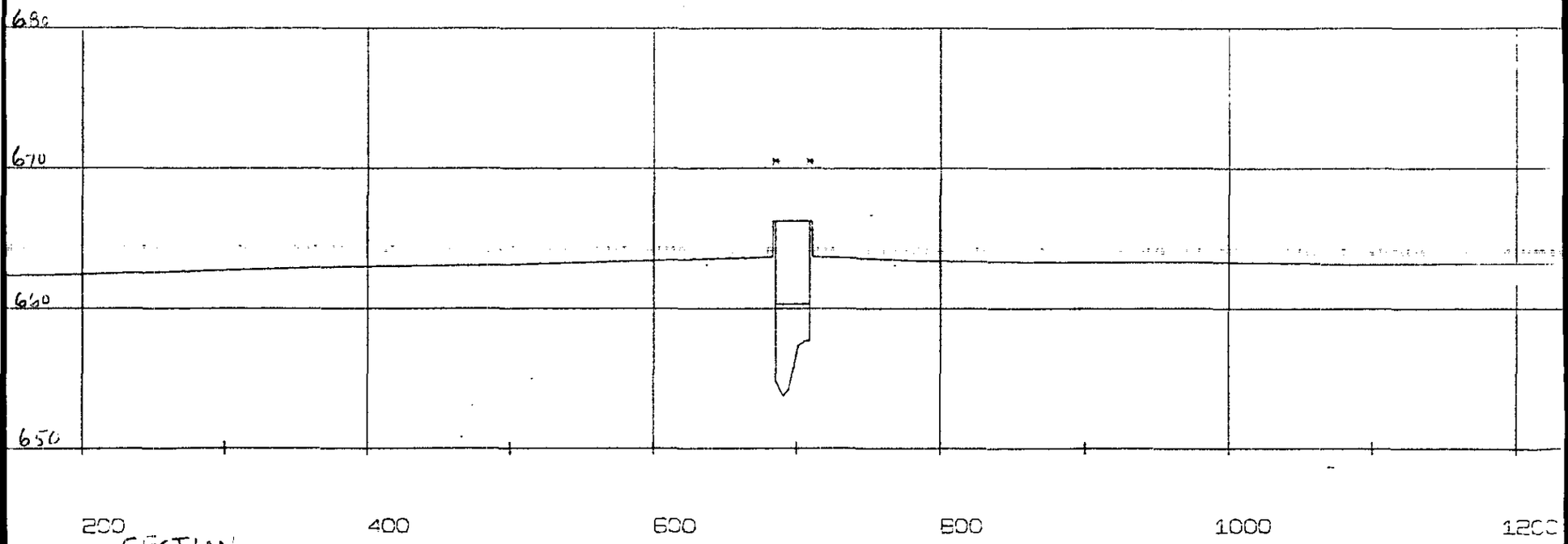
********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 685.00 | 658.00 | 685.00 | 660.30 | 709.00 | 660.30 | 709.00 | 657.70 | 705.00 | 657.60 |
| 701.00 | 657.30 | 695.00 | 654.30 | 691.00 | 653.70 | 685.00 | 654.90 | 685.00 | 658.00 |

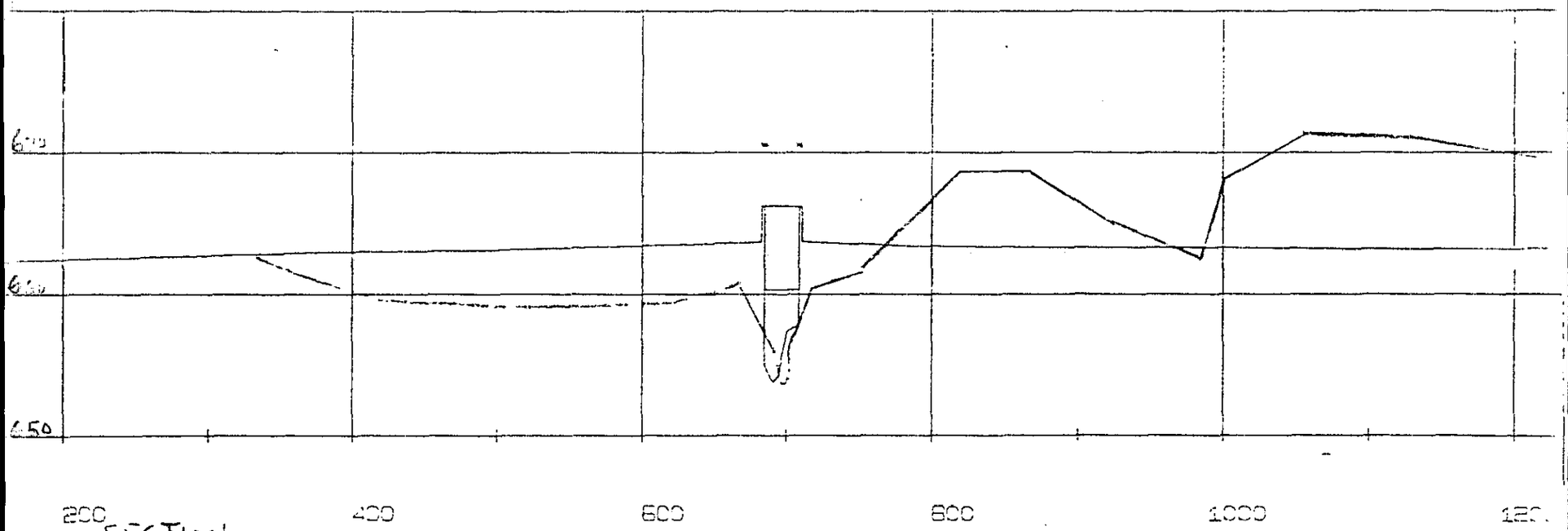
ORIFICE AREA 110.1 WETTED PERIMETER 56.8 29.1/R**1.333 12.0779



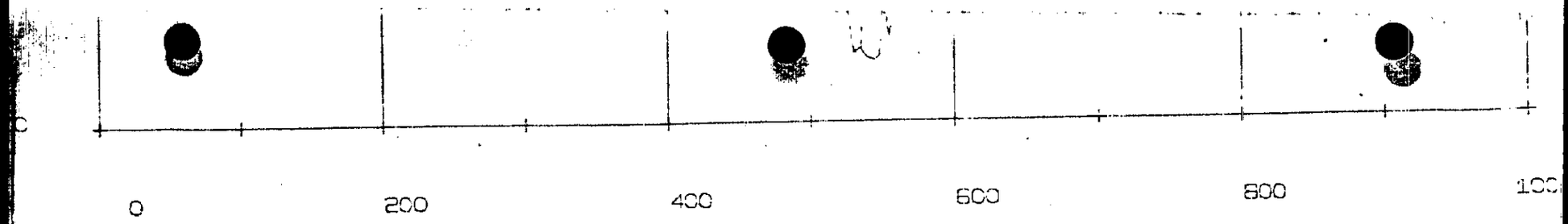

SECTION 350



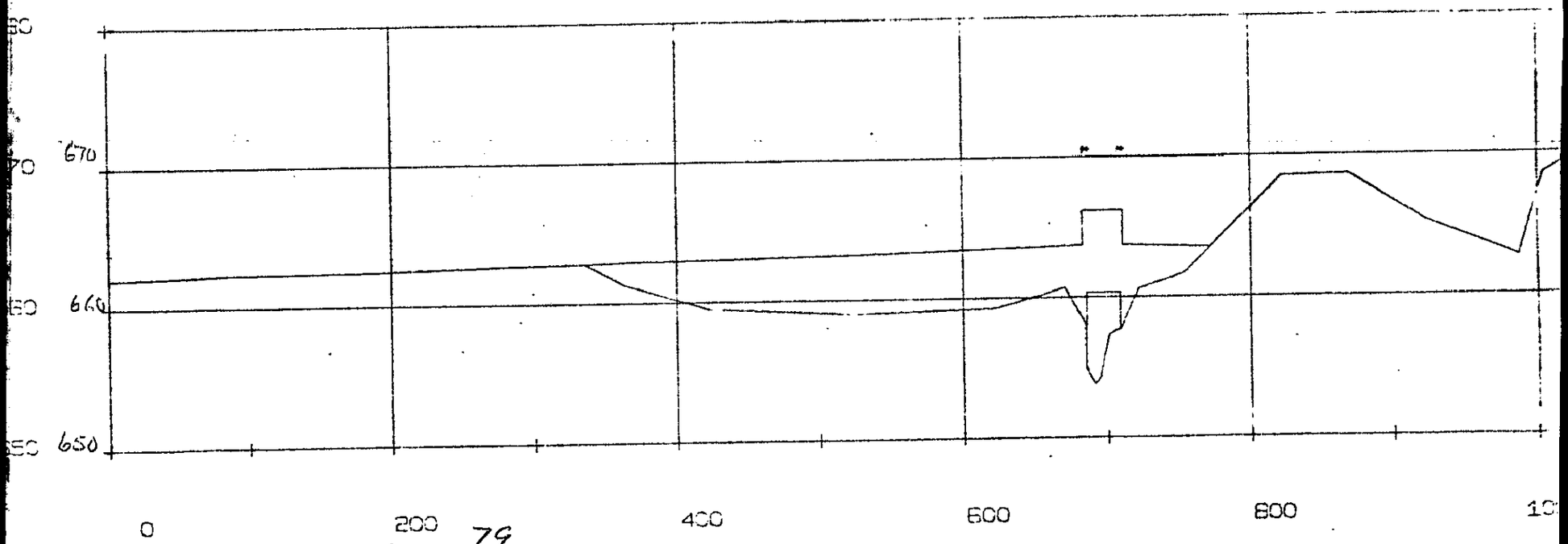

SECTION
351




SECTION
351




SECTION 66925




SECTION 58479

JOB NAME: Shelby Township, FIS | JOB NO. 5610 | [illegible] | 1 | [illegible]

WATERCOURSE: Middle Branch of the Clinton River | CULVERT LOCATION: Romeo [illegible]

CULVERT DESCRIPTION: Multiplate arch with wingwalls approximately 10° to barrel

BY RCK | DATE [illegible]

MAX U/S [illegible] 670.0

EL. [illegible]

WEIR DESCRIPTION: Roadway with 32 foot breadth

EL. 664.6

EL [illegible]

A = 51.9 | D = 5.4

WP = 37.5 | Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 15.6406 | n = .031

So = 0

L = 32

Sta. [illegible] | Sta. [illegible]

CALCULATIONS AND COMMENTS:

Mannings n -

n for multiplate arch = .031

XKOR -

$XKOR = 1 + K_o + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (15.4006)(.031)^2(32)$

$XKOR = 1.98$

COFFR

[illegible]

∴ [illegible]

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HYDRAULIC STRUCTURAL DATA

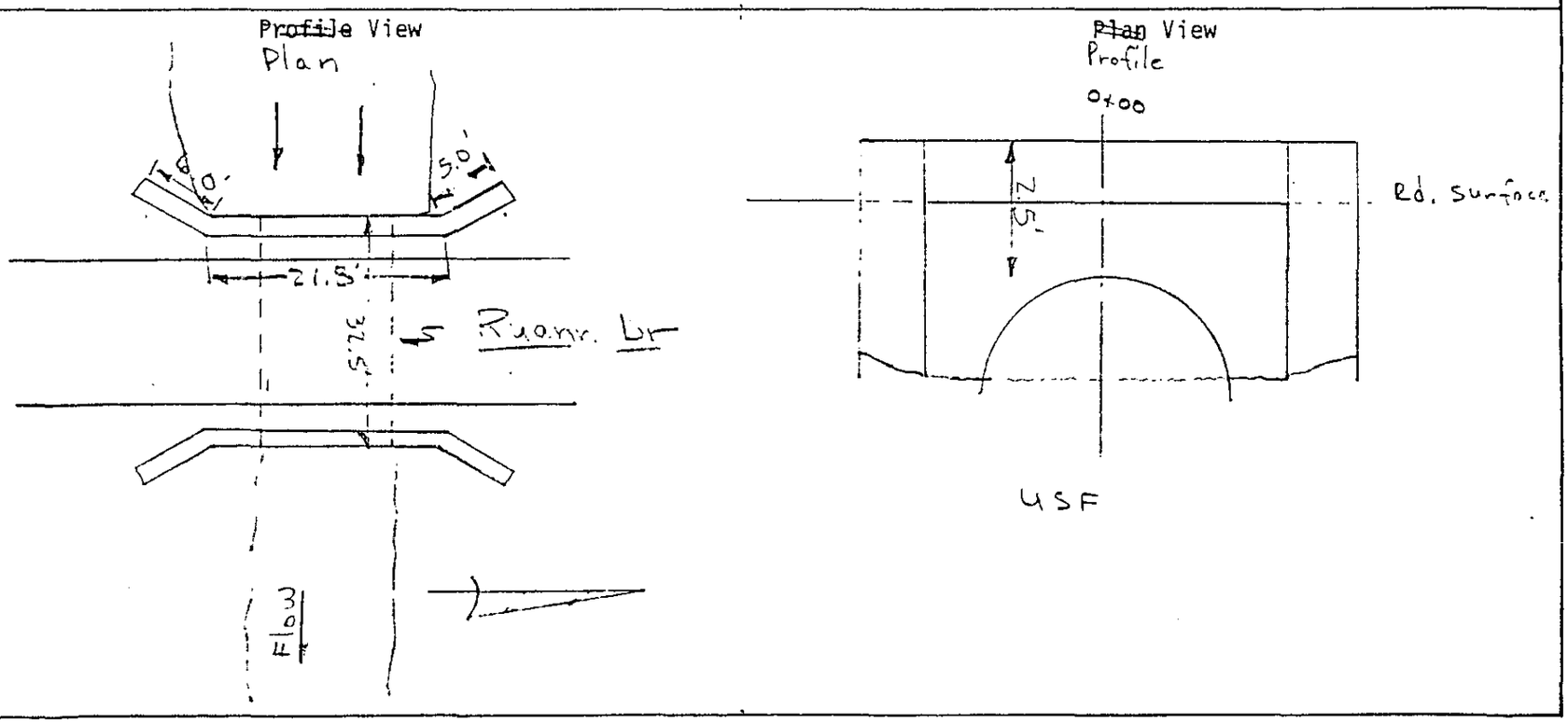
CODED BEH
2/21/77

Code No. 5670-08-BS-356

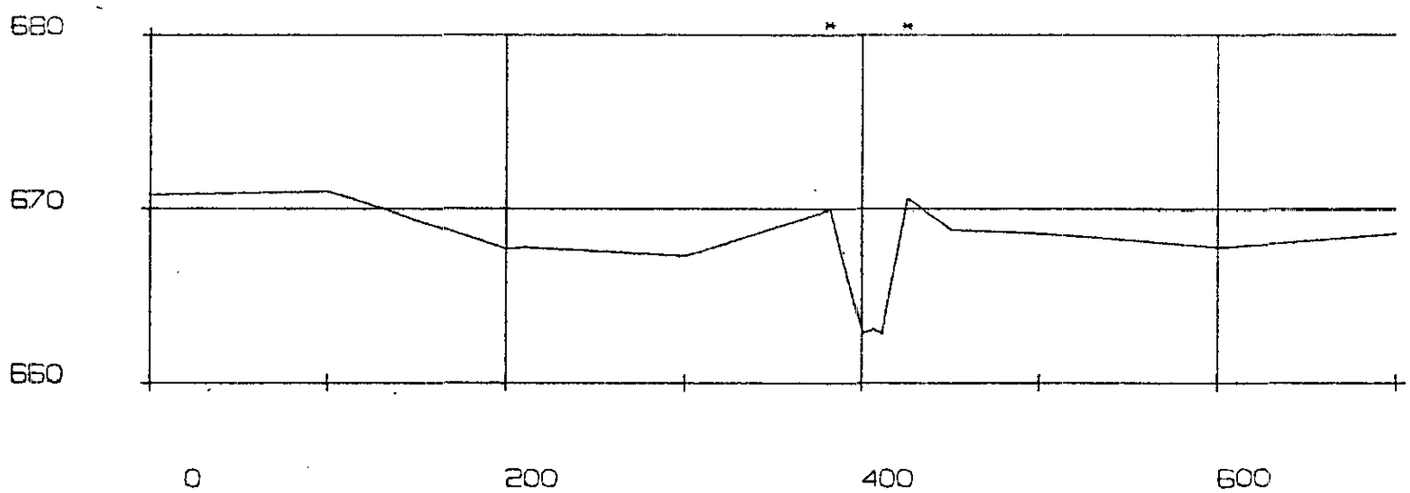
| | | |
|---|---|---|
| Job Name: Shelby Twp FIS | | By: C. Mapley L. MacDonald |
| Date: 2-17-77 | Feature: CMP Arch culvert | Water Course: MB Clinton River |
| Remarks: | | |

| | | | |
|---|---|---|---|
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: — |
| Water Elevation: [illegible] | Length: 31.8 | Width of Deck: [illegible] | Skew: 90° |

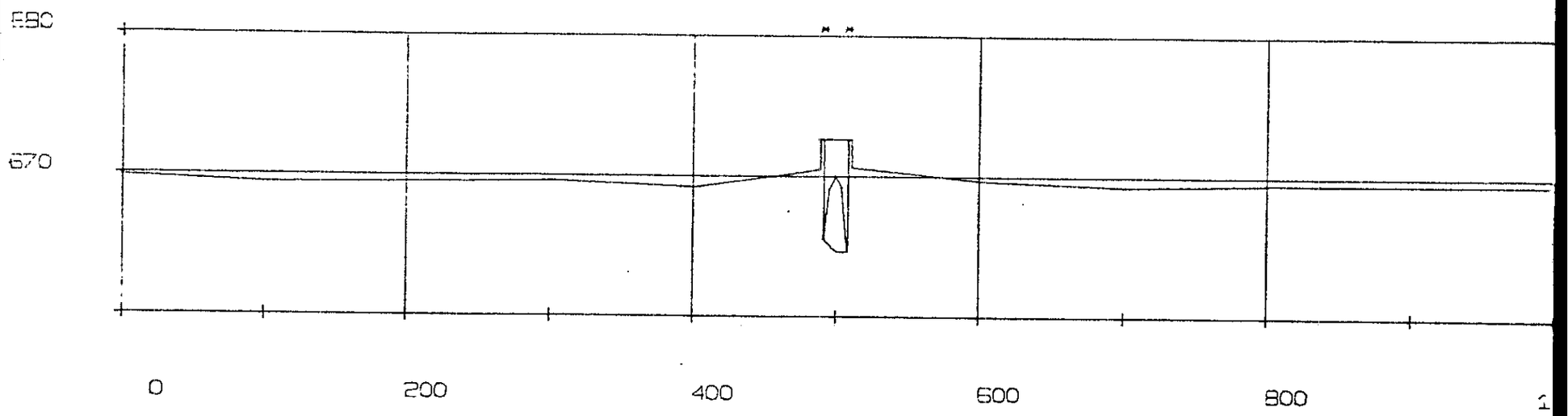
FIELD SKETCH



```
1  6245* 00        22     491.50     508.50     314.00     294.00     304.00      1.000

T     20.00       0.00     669.80       0.00     100.00     670.80       0.00     200.00     671.00       0.00

T    255.00     669.50       0.00     310.00     669.60       0.00     400.00     669.20       0.00     489.10
T    670.50       0.00     489.10     672.60       0.00     491.50     672.60     665.50     495.75     672.60
T    669.10     500.00     672.60     670.00     504.25     672.60     669.20     508.50     672.60     664.60
T    510.90     672.60       0.00     510.90     670.60       0.00     526.00     670.60       0.00     600.00
T    669.70       0.00     700.00     669.30       0.00     800.00     669.50       0.00    1000.00     669.50
T      0.00

R    669.80       0.00     670.80     100.00     671.00     200.00     669.50     255.00     667.80     310.00
R    667.30     400.00     670.00     483.00     667.60     489.10     666.60     491.50     665.50     491.50
R    665.00     495.75     664.60     500.00     664.60     504.25     664.60     508.50     665.40     510.90
R    670.60     526.00     668.80     551.00     668.60     600.00     667.80     700.00     668.60     800.00
R    669.50     900.00     669.50    1000.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

491.50  665.50  495.75  669.10  500.00  670.00  504.25  669.20  508.50  664.60

491.50  666.60  491.50  665.50  495.75  665.00  500.00  664.60  504.25  664.60
508.50  664.60
************* LISTING OF COORDINATES OF ORIFICE*********************

491.50  665.50  495.75  669.10  500.00  670.00  504.25  669.20  508.50  664.60
504.25  664.60  500.00  664.60  495.75  665.00  491.50  665.50  491.50  665.50

ORIFICE AREA        59.9 WETTED PERIMETER      37.5  29.1/R**1.333      15.6406
```

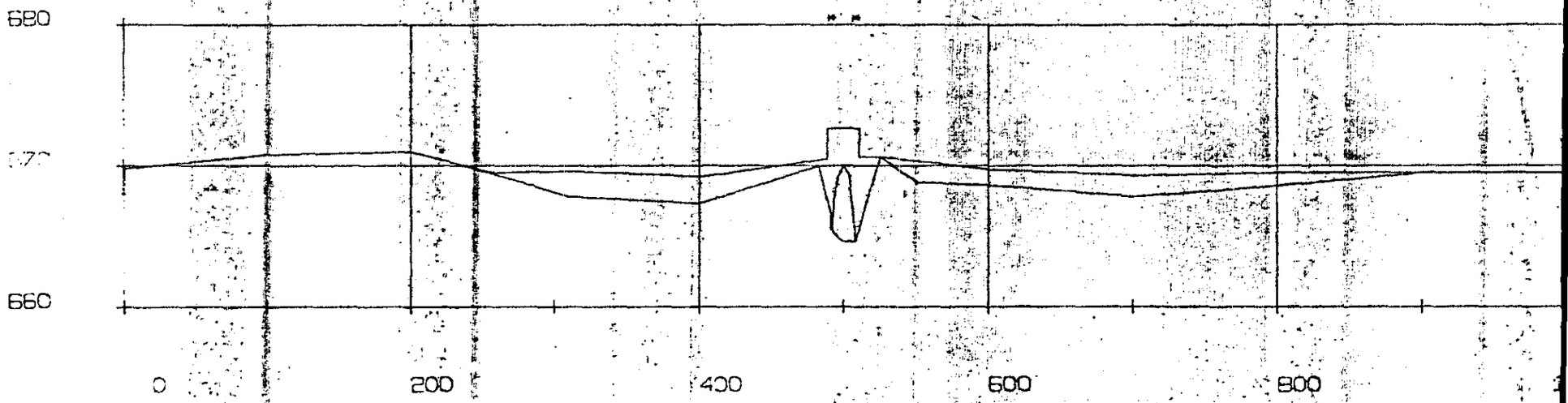



SECTION 355




SECTION 356

SECTION 356
0
200
400
600
800
660
670
680




SECTION ~~SE 4B~~
624.86

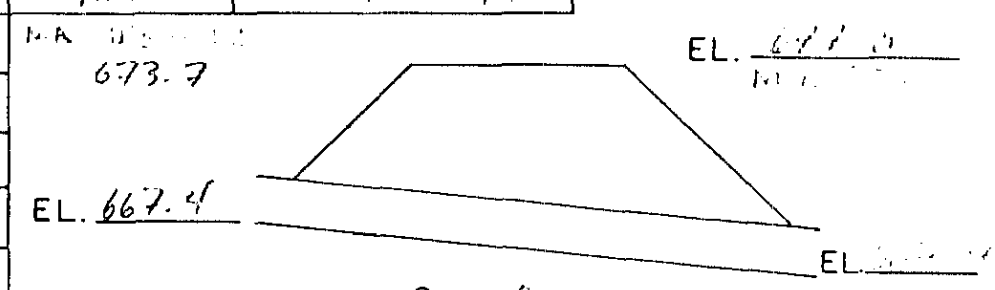
JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. [illegible]

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: Multiplate arch with wingwalls approximately 45° to barrel

BY RFH | DATE 5-24-77

WEIR DESCRIPTION: Paved roadway with 58 foot breadth




A = 79.2 | D = 6.3

WP = 43.9 | Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = 13.2866 | n = .031

So = [illegible] | L = 58

Sta. 638+79 | Sta. [illegible]

CALCULATIONS AND COMMENTS:

Manning's n -

n for multiplate arch = .031

XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.4 + (13.2866)(.031)^2 58$

XKOR = 2.14

COFQ -

Assume m/f [illegible]

then [illegible] = [illegible]

therefore [illegible]

∴ COFQ = 5.02

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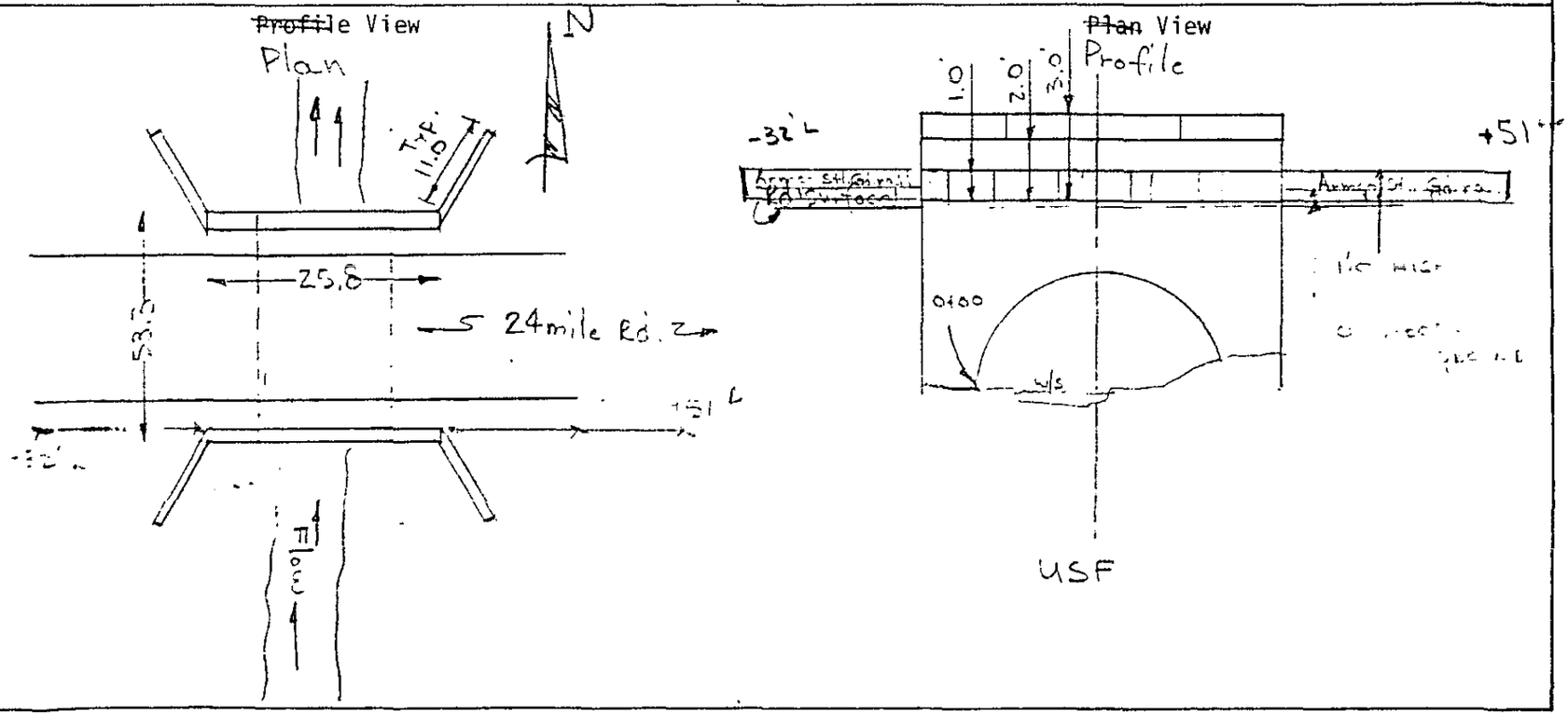
HYDRAULIC STRUCTURAL DATA CODED BEH 2/21/77

Code No. 5670-05-BS 35

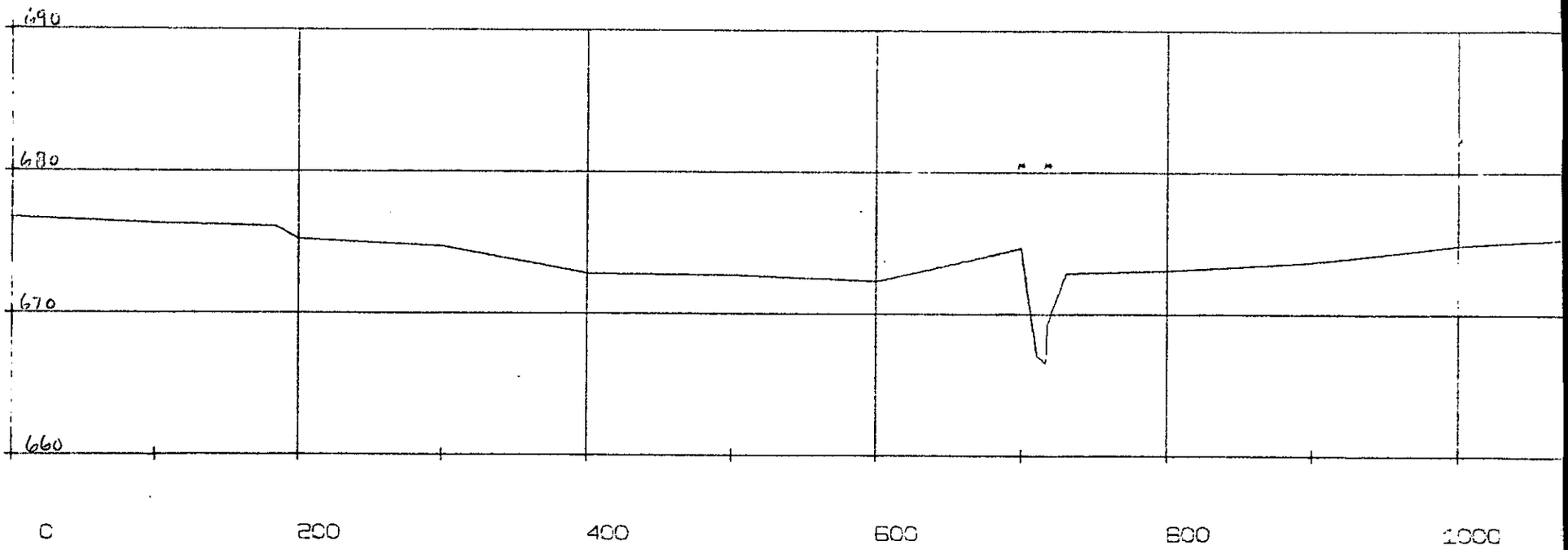
| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | | By: C. Mooney L. MacDonald |
| Date: 2-17-77 | Feature: CMP Arch Culvert | | Water Course: NB Clinton River |
| Remarks: | | | |
| | | | |
| | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 667.6 | Length: 25.8 | Width of Deck: 58.3 | Skew: |

FIELD SKETCH



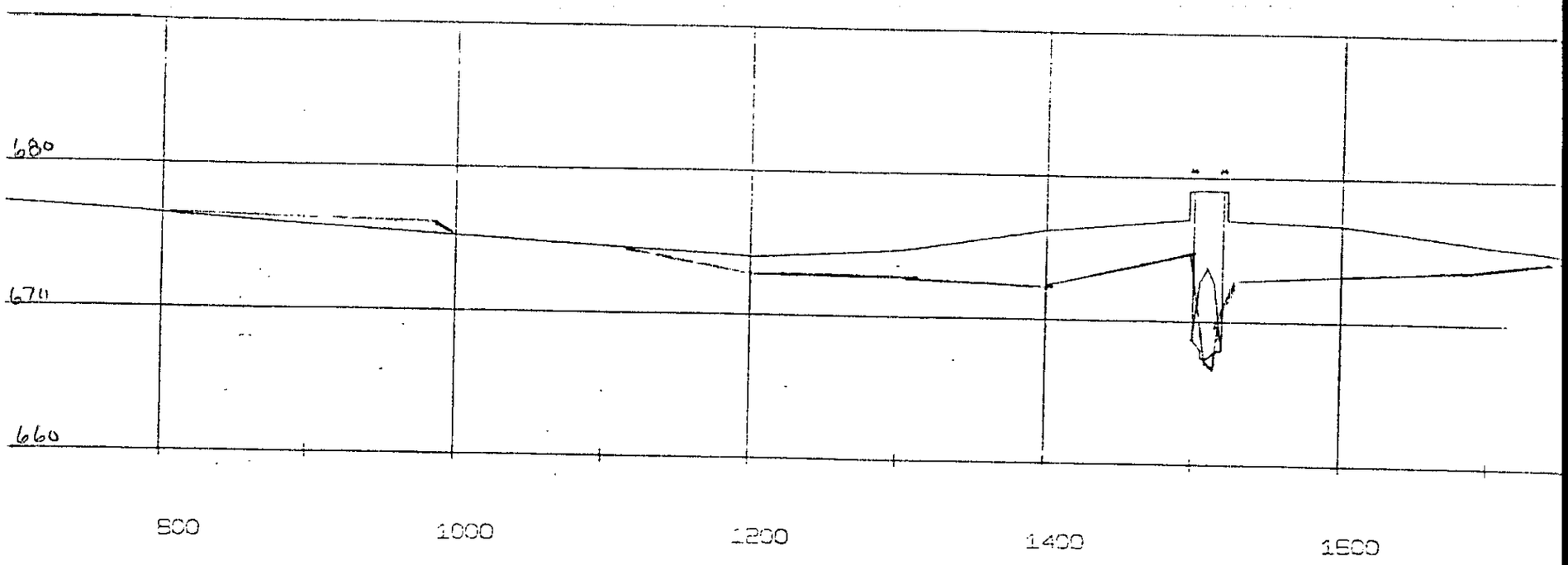
```
X1  63821.00      36   1500.00   1520.00     91.00     31.00     81.00     1.000
63879

BT     35.00      0.00    681.10      0.00    100.00    680.20      0.00    200.00    679.40      0.00

BT    300.00    679.10      0.00    400.00    678.60      0.00    500.00    677.90      0.00    600.00
BT    677.60      0.00    700.00    677.10      0.00    800.00    676.50      0.00    900.00    676.30
BT      0.00    984.00    676.10      0.00   1000.00    675.20      0.00   1100.00    674.70      0.00
BT   1200.00    674.00      0.00   1300.00    674.60      0.00   1400.00    676.20      0.00   1497.10
BT    677.10      0.00   1497.10    679.10      0.00   1500.00    679.10    668.70   1500.00    679.10
BT    668.70   1505.00    679.10    672.70   1510.00    679.10    673.70   1515.00    679.10    672.50
BT   1520.00    679.10    668.00   1522.90    679.10      0.00   1522.90    677.00      0.00   1600.00
BT    676.70      0.00   1700.00    675.40      0.00   1770.00    674.70      0.00   1800.00    674.90
BT      0.00   1900.00    675.50      0.00   2000.00    674.00      0.00   2100.00    673.80      0.00
BT   2200.00    672.70      0.00   2300.00    672.50      0.00

GR    681.10      0.00    680.20    100.00    679.40    200.00    679.10    300.00    678.60    400.00
GR    677.90    500.00    677.60    600.00    677.10    700.00    676.50    800.00    676.30    900.00
GR    676.10    984.00    675.20   1000.00    674.70   1100.00    672.80   1200.00    672.70   1300.00
GR    672.30   1400.00    674.60   1497.10    674.70   1500.00    668.70   1500.00    668.00   1505.00
GR    667.90   1505.40    667.40   1505.40    667.40   1510.00    667.90   1515.00    668.00   1520.00
GR    669.30   1522.90    672.90   1531.00    673.10   1600.00    673.70   1700.00    674.70   1770.00
GR    674.90   1800.00    675.50   1900.00    674.00   2000.00    673.80   2100.00    672.70   2200.00
GR    672.50   2300.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

1500.00  668.70 1500.00  668.70 1505.00  672.70 1510.00  673.70 1515.00  672.50
1520.00  668.00

1500.00  674.70 1500.00  668.70 1505.00  668.00 1505.40  667.90 1505.40  667.40
1510.00  667.40 1515.00  667.90 1520.00  668.00
************** LISTING OF COORDINATES OF ORIFICE*********************

1500.00  668.70 1500.00  668.70 1505.00  672.70 1510.00  673.70 1515.00  672.50
1520.00  668.00 1515.00  667.90 1510.00  667.40 1505.40  667.40 1505.40  667.90
1505.00  668.00 1500.00  668.70 1500.00  668.70
```

ORIFICE AREA 79.2 WETTED PERIMETER 43.9 29.1/R**1.333 13.2866

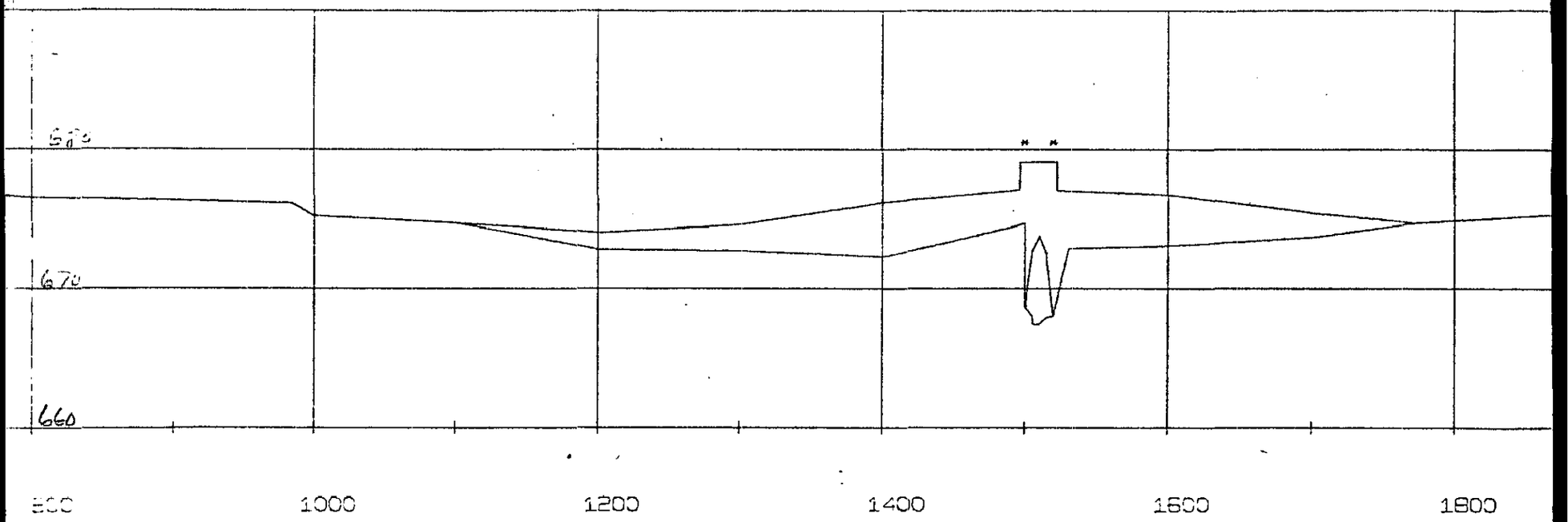



SECTION 357

SECTION 358




SECTION 358



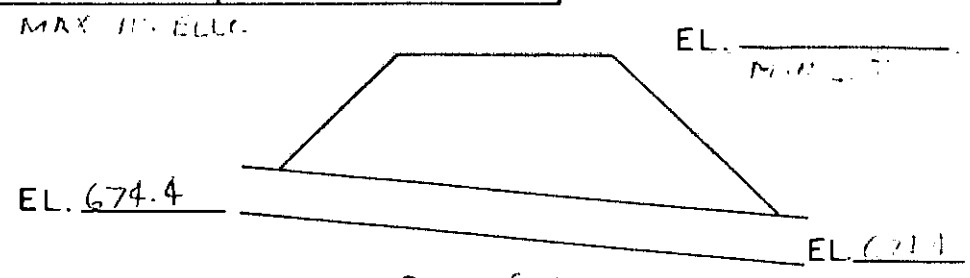

SECTION 63879

JOB NAME: SHELBY TOWNSHIP F15 JOB NO. 5670 05 [illegible]

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: MULTIPLATE ARCH BY BEH DATE 7/15/77

WEIR DESCRIPTION:




A = D =

WP = Ke =

$\frac{29.1}{R^{4/3}}$ = n = .036

So = [illegible]

L = 31

Sta. 669+27

Sta. [illegible]

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.03^2 \times 16 + .04^2 \times 22}{38}\right]^{1/2}$$

$n = .036$

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# HYDRAULIC STRUCTURAL DATA

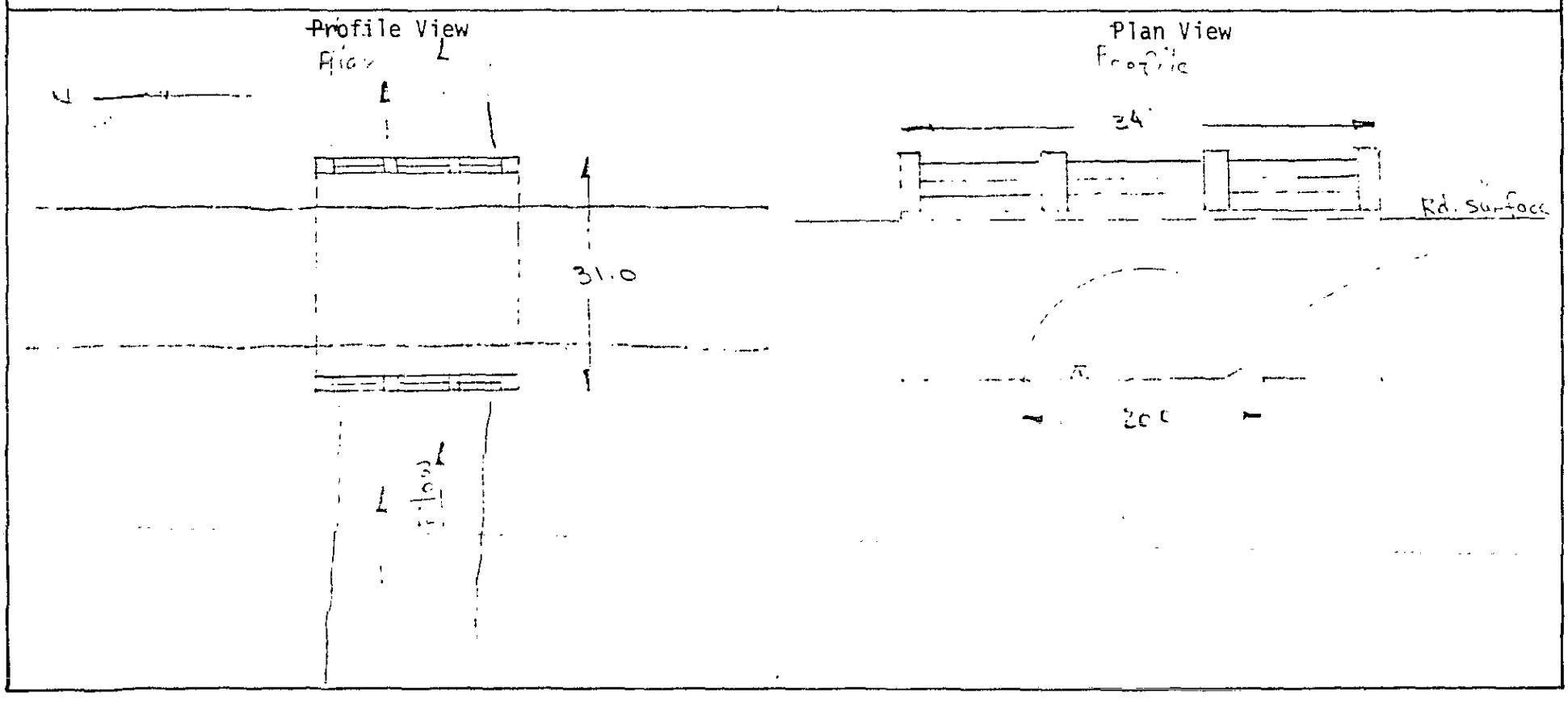
CODED BEH 2/14/77

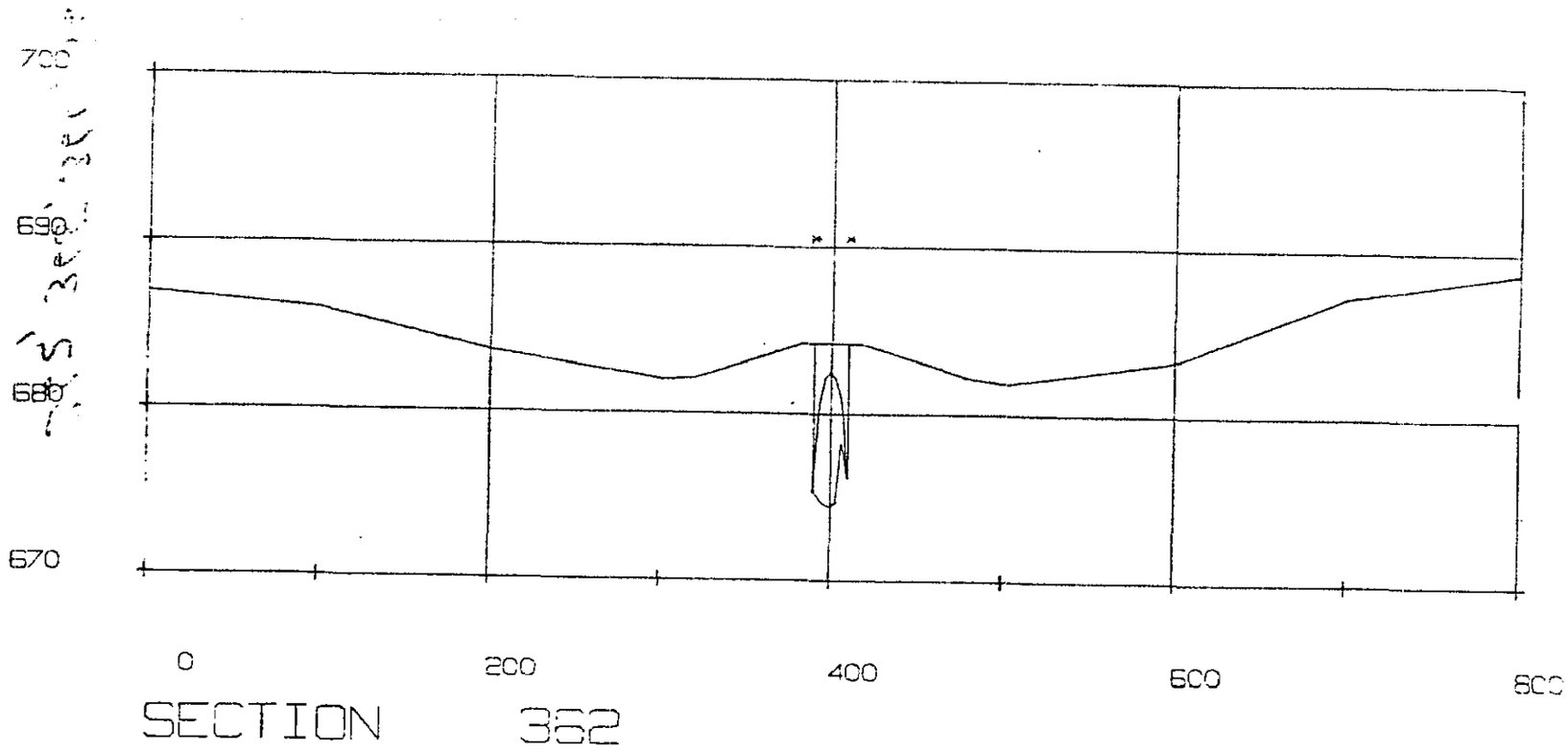
BC # [illegible]

Code No. 567[illegible]-0[illegible]

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp. FTS | | By: C. Marley C. McDonald R. Moses | |
| Date: 2-3-77 | Feature: Road Culvert Bridge | Water Course: Middle Branch Clinton River | |
| Remarks: Alch Multi. Plate Culvert [illegible] Mound Rd South of 24 Mile Rd | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: [illegible] | Area: — |
| Water Elevation: [illegible] | Length: 34.0 | Width of Deck: 31.0 | Skew: — |

FIELD SKETCH




700
690
680
670
0
200
400
600
800
SECTION 362

JOB NAME: SHELBY TOWNSHIP FIS JOB NO. [illegible]

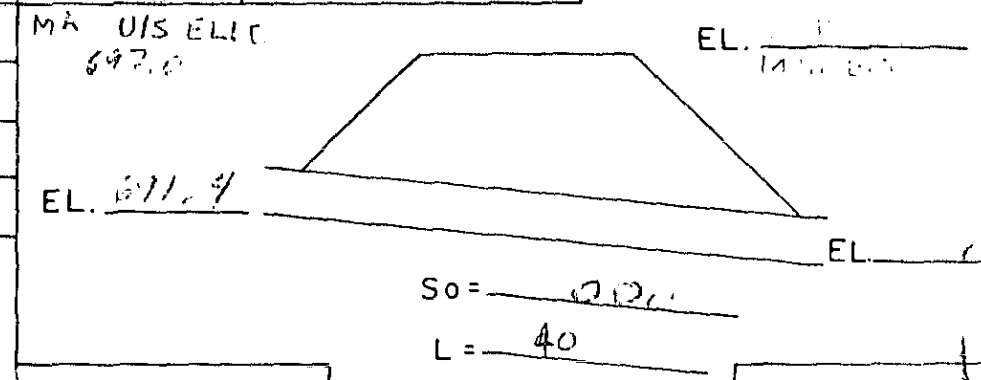
WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: Two 5' [illegible]

CMP — [illegible]

BY [illegible] DATE 5-[illegible]-77

WEIR DESCRIPTION: Paved roadway with 40 foot [illegible]




A = 37.8 D = 5.6

WP = 37.6 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 28.9712 n = .025

So = [illegible]

L = 40

Sta. 713+30 Sta. [illegible]

CALCULATIONS AND COMMENTS:

Manning's n -

n for CMP .025

XKOR -

XKOR = 1 + Ke + $\frac{29.1}{R^{4/3}}$ n² L

XKOR = 1 + 0.5 + (28.9712)(.025)²(40)

XKOR = 2.22

- CofQ -

[illegible]

[illegible] = .02[illegible]

therefore use H = 1.[illegible]

∴ CofQ = 3.[illegible]

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HYDRAULIC STRUCTURAL DATA

CODED BEH 2/14/77

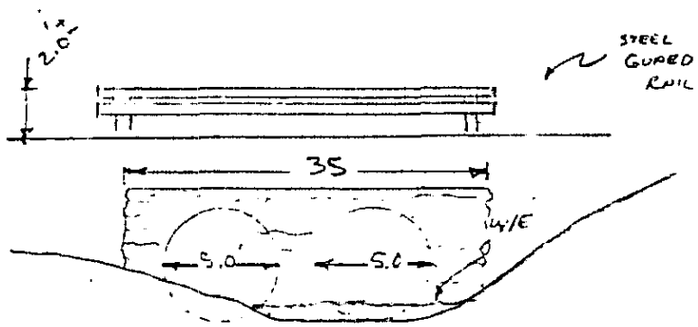
B.S. #367

Code No. 5670-08

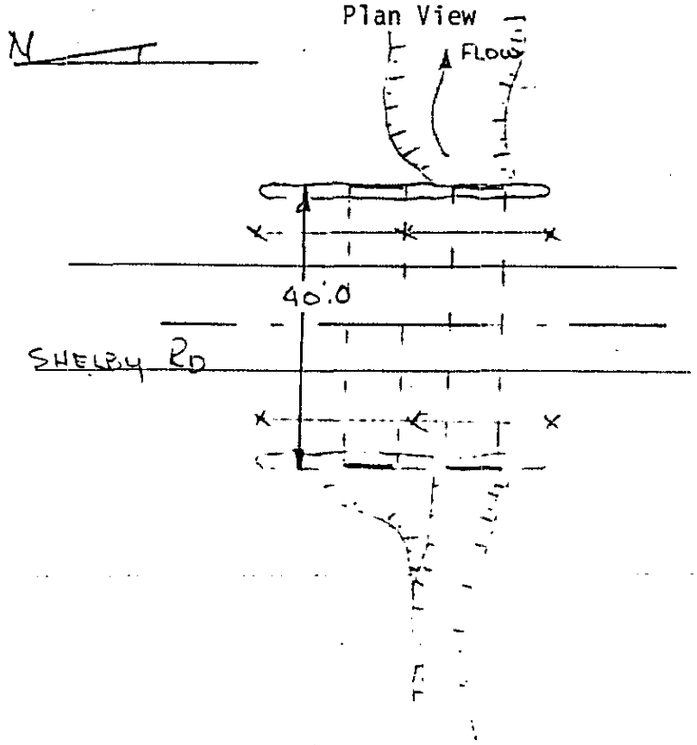
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP. | | | By: R. MOSES |
| Date: 2-9-77 | Feature: 2-5.0' C.M.P. CULVERTS | | Water Course: M.B CLINTON RIVER |
| Remarks: HEAVY BRUSH UPSTREAM OF ROAD. — MANY QUICK 90° BELOW IN RIVER DOWNSTREAM OF ROAD. CULVERTS ARE ON SHELBY RD. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 692.8 | Length: | Width of Deck: | Skew: |

FIELD SKETCH

Profile View




Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 71290.01 | 33 | 509.50 | 522.50 | 50.00 | 50.00 | 50.00 | 1.000 | | |
| 3T | 27.00 | 0.00 | 707.30 | 0.00 | 100.00 | 705.00 | 0.00 | 200.00 | 702.70 | 0.00 |
| 3T | 300.00 | 700.40 | 0.00 | 400.00 | 698.90 | 0.00 | 509.50 | 699.50 | 693.70 | 509.90 |
| 3T | 699.50 | 695.70 | 510.70 | 699.50 | 696.50 | 512.00 | 699.50 | 696.80 | 513.30 | 699.50 |
| 3T | 696.50 | 514.10 | 699.50 | 695.70 | 514.50 | 699.50 | 695.10 | 517.50 | 699.60 | 694.70 |
| 3T | 517.90 | 699.60 | 695.30 | 518.70 | 699.60 | 696.10 | 520.00 | 699.60 | 696.40 | 521.30 |
| 3T | 699.60 | 696.10 | 522.10 | 699.60 | 695.30 | 522.50 | 699.60 | 694.70 | 600.00 | 699.80 |
| 3T | 0.00 | 700.00 | 703.10 | 0.00 | 710.00 | 703.60 | 0.00 | 735.00 | 705.60 | 0.00 |
| 3T | 765.00 | 708.90 | 0.00 | 800.00 | 709.40 | 0.00 | 900.00 | 709.30 | 0.00 | 1000.00 |
| 3T | 708.40 | 0.00 | | | | | | | | |
| 3R | 707.30 | 0.00 | 705.00 | 100.00 | 702.70 | 200.00 | 700.40 | 300.00 | 697.10 | 400.00 |
| 3R | 693.90 | 500.00 | 693.70 | 509.50 | 693.10 | 509.90 | 692.30 | 510.70 | 692.00 | 512.00 |
| 3R | 692.30 | 513.30 | 693.10 | 514.10 | 693.70 | 514.50 | 695.30 | 514.50 | 694.70 | 517.50 |
| 3R | 693.10 | 517.50 | 692.50 | 517.90 | 691.70 | 518.70 | 691.40 | 520.00 | 691.70 | 521.30 |
| 3R | 692.50 | 522.10 | 693.10 | 522.50 | 694.70 | 522.50 | 695.90 | 600.00 | 697.00 | 631.00 |
| 3R | 700.70 | 670.00 | 702.80 | 700.00 | 703.60 | 710.00 | 705.60 | 735.00 | 708.90 | 765.00 |
| 3R | 709.40 | 800.00 | 709.30 | 900.00 | 708.40 | 1000.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 695.70 | 510.70 | 696.50 | 512.00 | 696.80 | 513.30 | 696.50 |
| 514.10 | 695.70 | 514.50 | 695.10 | 517.50 | 694.70 | 517.90 | 695.30 | 518.70 | 696.10 |
| 520.00 | 696.40 | 521.30 | 696.10 | 522.10 | 695.30 | 522.50 | 694.70 | | |

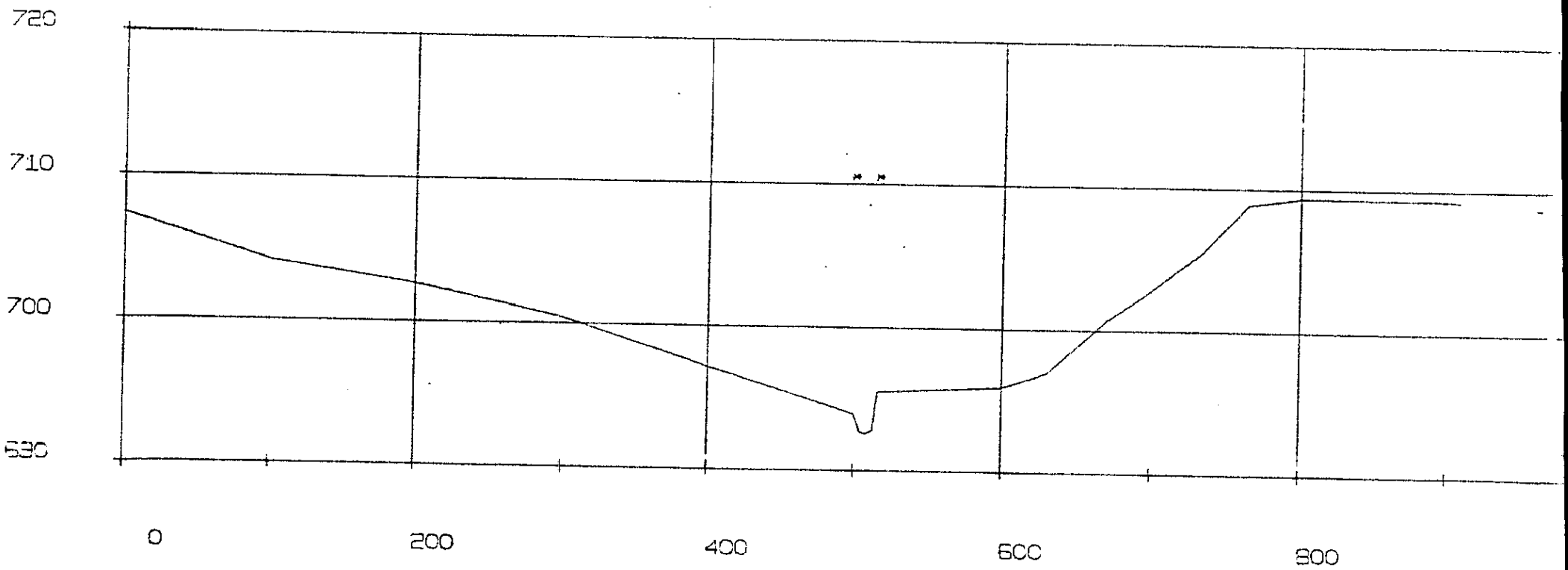
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 693.10 | 510.70 | 692.30 | 512.00 | 692.00 | 513.30 | 692.30 |
| 514.10 | 693.10 | 514.50 | 693.70 | 514.50 | 695.30 | 517.50 | 694.70 | 517.50 | 693.10 |
| 517.90 | 692.50 | 518.70 | 691.70 | 520.00 | 691.40 | 521.30 | 691.70 | 522.10 | 692.50 |
| 522.50 | 693.10 | 522.50 | 694.70 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

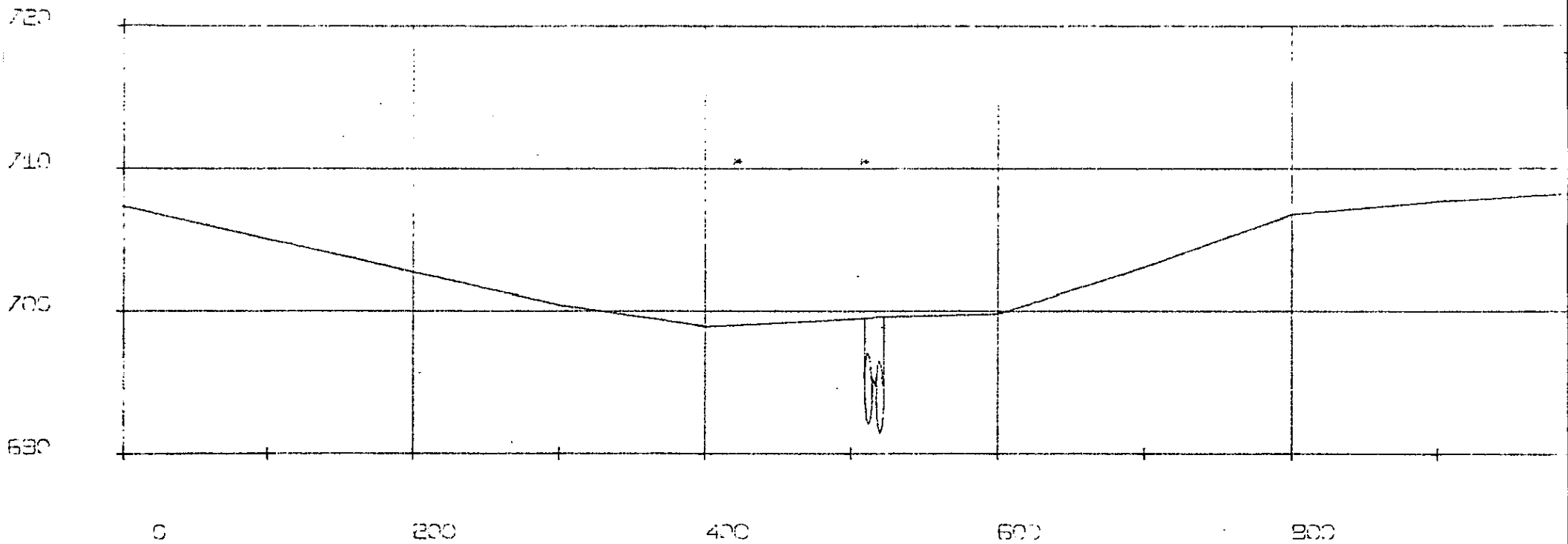
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 695.70 | 510.70 | 696.50 | 512.00 | 696.80 | 513.30 | 696.50 |
| 514.10 | 695.70 | 514.50 | 695.10 | 517.50 | 694.70 | 517.90 | 695.30 | 518.70 | 696.10 |
| 520.00 | 696.40 | 521.30 | 696.10 | 522.10 | 695.30 | 522.50 | 694.70 | 522.50 | 693.10 |
| 522.10 | 692.50 | 521.30 | 691.70 | 520.00 | 691.40 | 518.70 | 691.70 | 517.90 | 692.50 |
| 517.50 | 693.10 | 517.50 | 694.70 | 514.50 | 695.30 | 514.50 | 693.70 | 514.10 | 693.10 |

513.30 692.30 512.00 692.00 510.70 692.30 509.90 693.10 509.50 693.70

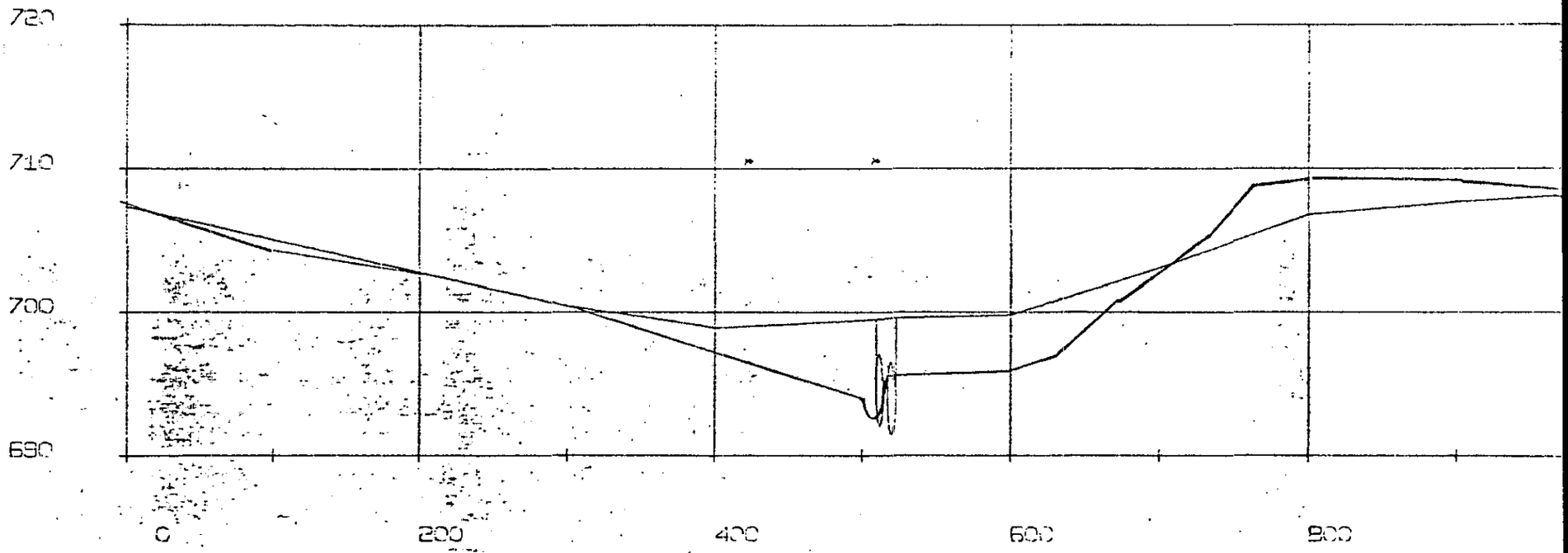
ORIFICE AREA 37.8 WETTED PERIMETER 37.6 29.1/R**1.333 28.9712



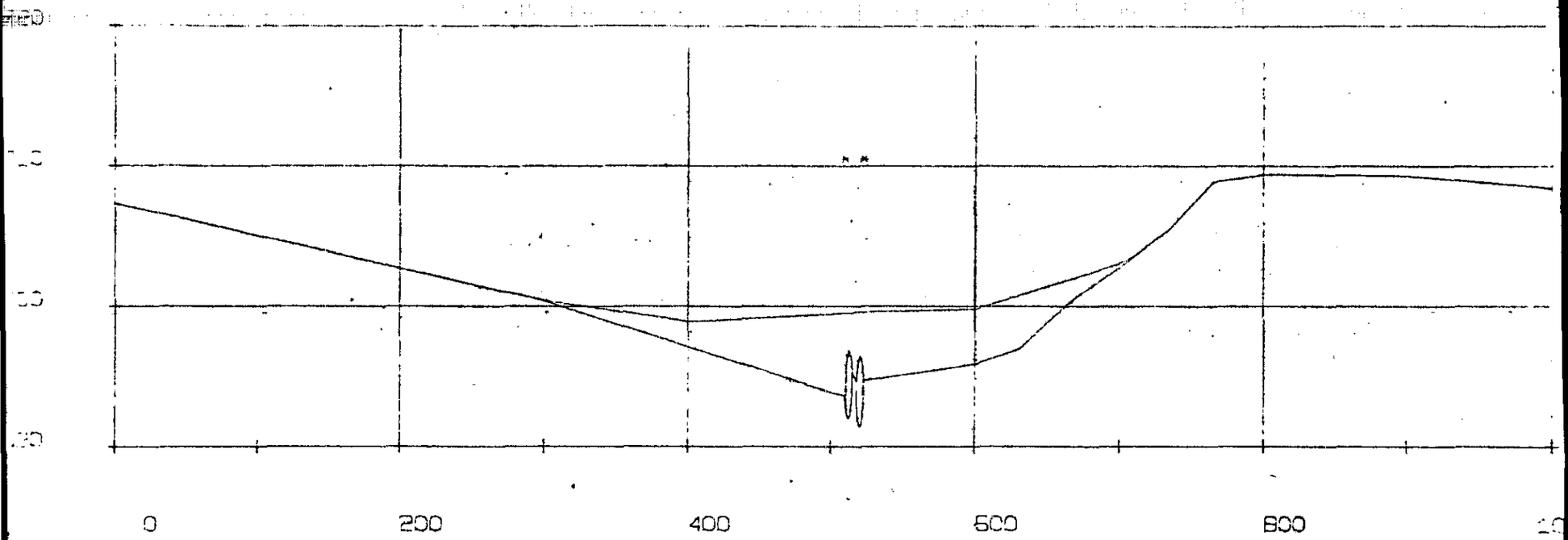

SECTION 366




SECTION 367.1




SECTION 367.1




SECTION 71 ~~200~~ 330

| | | | |
|---|---|---|---|
| JOB NAME: Shelby Township, FIS | JOB NO. 5670 | 08 | 1 | 375 |

WATERCOURSE: Newland Drain

CULVERT LOCATION: 24 Mile Road

CULVERT DESCRIPTION: Three 67" x 95" multi-plate arch projecting from fill

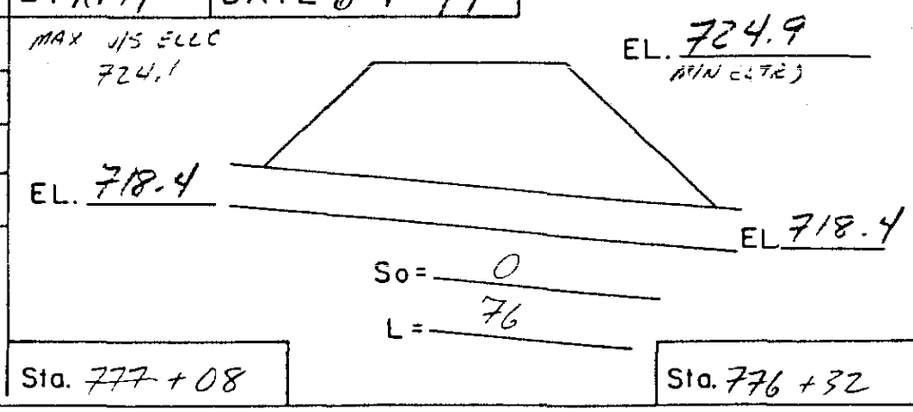
BY RFH DATE 6-1-77

WEIR DESCRIPTION: Paved roadway with 76 foot breadth

A = 104.8 D = 5.7

WP = 65.9 Ke = 0.8

$\frac{29.1}{R^{4/3}}$ = 15.6966 n = .03




CALCULATIONS AND COMMENTS:

– Manning's n –

n = .03

– XKOR –

$$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$$

$$XKOR = 1 + 0.8 + (15.6966)(.03)^2(76)$$

$$XKOR = 2.874$$

– COFQ –

Assume H = 1.0 for initial run

then $H/L = \frac{1}{76} = .0132 < .5$

therefore use H = 1.0

∴ COFQ = 3.03

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

S.S. #375

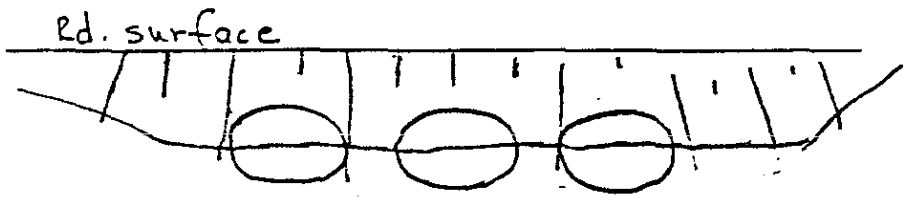
CODED BEH 2/8/77

Code No. 5670-08

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | | By: C. Mapley R. Moses B. McDonald |
| Date: 2-7-77 | Feature: C.M.P. Ro Culvert | | Water Course: Middle Branch Clinton River |
| Remarks: On 24 Mile Rd between Shelby Rd & Ryan Rd. Footing No longer in center of stream | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 721.4 | Length: | Width of Deck: | Skew: As noted |

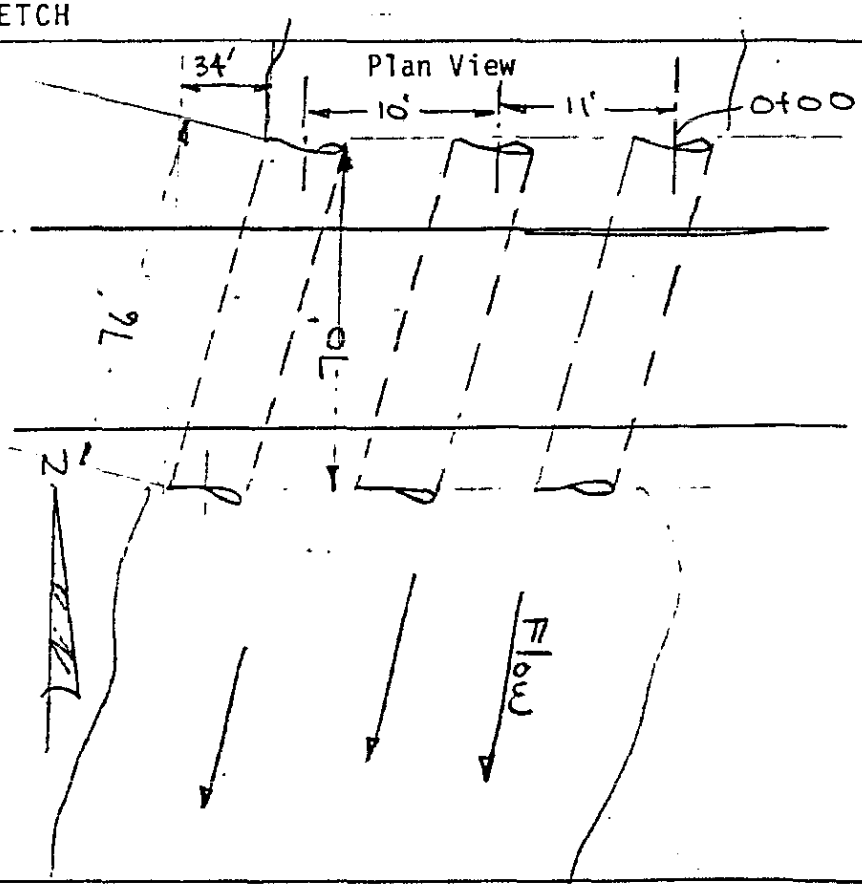
## FIELD SKETCH

Profile View




67" high x 95" ellipt-cmp.
5'-7" ✓ x 7'-11" ✓ ✓

Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 77706.61 | 37 | 253.00 | 282.00 | 76.00 | 76.00 | 76.00 | 1.000 | | |
| BT | 31.00 | 0.00 | 726.40 | 0.00 | 75.00 | 726.70 | 0.00 | 175.00 | 727.40 | 0.00 |
| BT | 235.00 | 725.40 | 0.00 | 253.00 | 725.50 | 721.40 | 253.60 | 725.50 | 722.80 | 255.00 |
| BT | 725.50 | 723.80 | 257.00 | 725.50 | 724.40 | 259.00 | 725.50 | 723.80 | 260.40 | 725.50 |
| BT | 722.80 | 261.00 | 725.50 | 721.40 | 264.00 | 725.50 | 721.00 | 264.60 | 725.50 | 722.40 |
| BT | 266.00 | 725.50 | 723.40 | 268.00 | 725.50 | 724.00 | 270.00 | 725.50 | 723.40 | 271.40 |
| BT | 725.50 | 722.40 | 272.00 | 725.50 | 721.00 | 274.00 | 725.50 | 721.40 | 274.60 | 725.50 |
| BT | 722.80 | 276.00 | 725.60 | 723.80 | 278.00 | 725.60 | 724.40 | 280.00 | 725.60 | 723.80 |
| BT | 281.40 | 725.60 | 722.80 | 282.00 | 725.60 | 721.40 | 375.00 | 725.80 | 0.00 | 475.00 |
| BT | 726.80 | 0.00 | 507.00 | 726.90 | 0.00 | 575.00 | 729.00 | 0.00 | 657.00 | 729.30 |
| BT | 0.00 | 757.00 | 730.60 | 0.00 | | | | | | |
| GR | 726.40 | 0.00 | 726.70 | 75.00 | 727.40 | 175.00 | 725.40 | 235.00 | 722.60 | 253.00 |
| GR | 720.20 | 253.00 | 719.40 | 253.60 | 719.00 | 255.00 | 718.80 | 257.00 | 719.00 | 259.00 |
| GR | 719.40 | 260.40 | 720.80 | 261.00 | 721.40 | 261.00 | 721.00 | 264.00 | 719.80 | 264.00 |
| GR | 719.00 | 264.60 | 718.60 | 266.00 | 718.40 | 268.00 | 718.60 | 270.00 | 719.00 | 271.40 |
| GR | 719.80 | 272.00 | 721.00 | 272.00 | 721.40 | 274.00 | 720.20 | 274.00 | 719.40 | 274.60 |
| GR | 719.00 | 276.00 | 718.80 | 278.00 | 719.00 | 280.00 | 719.40 | 281.40 | 720.20 | 282.00 |
| GR | 721.80 | 282.00 | 722.70 | 375.00 | 725.90 | 475.00 | 726.90 | 507.00 | 729.00 | 575.00 |
| GR | 729.30 | 657.00 | 730.60 | 757.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 253.00 | 721.40 | 253.60 | 722.80 | 255.00 | 723.80 | 257.00 | 724.40 | 259.00 | 723.80 |
| 260.40 | 722.80 | 261.00 | 721.40 | 264.00 | 721.00 | 264.60 | 722.40 | 266.00 | 723.40 |
| 268.00 | 724.00 | 270.00 | 723.40 | 271.40 | 722.40 | 272.00 | 721.00 | 274.00 | 721.40 |
| 274.60 | 722.80 | 276.00 | 723.80 | 278.00 | 724.40 | 280.00 | 723.80 | 281.40 | 722.80 |
| 282.00 | 721.40 | | | | | | | | |

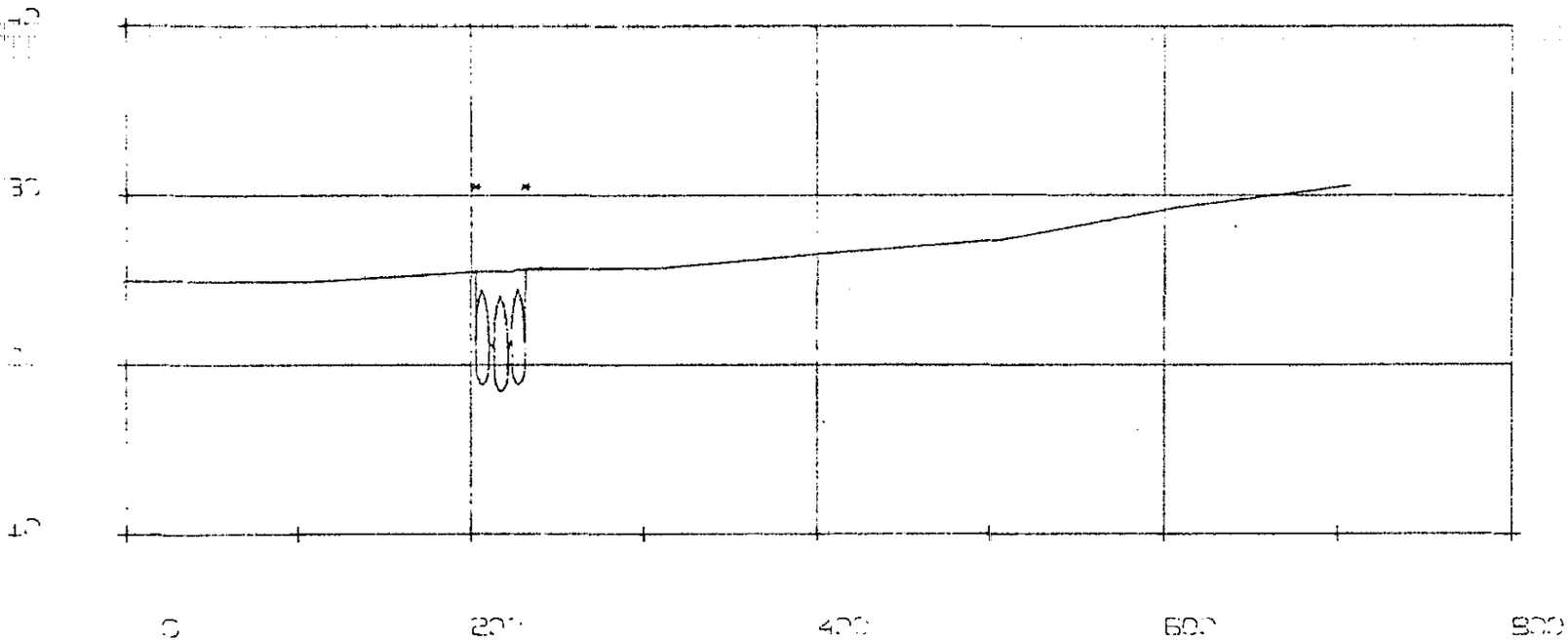
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 253.00 | 722.60 | 253.00 | 720.20 | 253.60 | 719.40 | 255.00 | 719.00 | 257.00 | 718.80 |
| 259.00 | 719.00 | 260.40 | 719.40 | 261.00 | 720.80 | 261.00 | 721.40 | 264.00 | 721.00 |
| 264.00 | 719.80 | 264.60 | 719.00 | 266.00 | 718.60 | 268.00 | 718.40 | 270.00 | 718.60 |
| 271.40 | 719.00 | 272.00 | 719.80 | 272.00 | 721.00 | 274.00 | 721.40 | 274.00 | 720.20 |
| 274.60 | 719.40 | 276.00 | 719.00 | 278.00 | 718.80 | 280.00 | 719.00 | 281.40 | 719.40 |
| 282.00 | 720.20 | 282.00 | 721.80 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

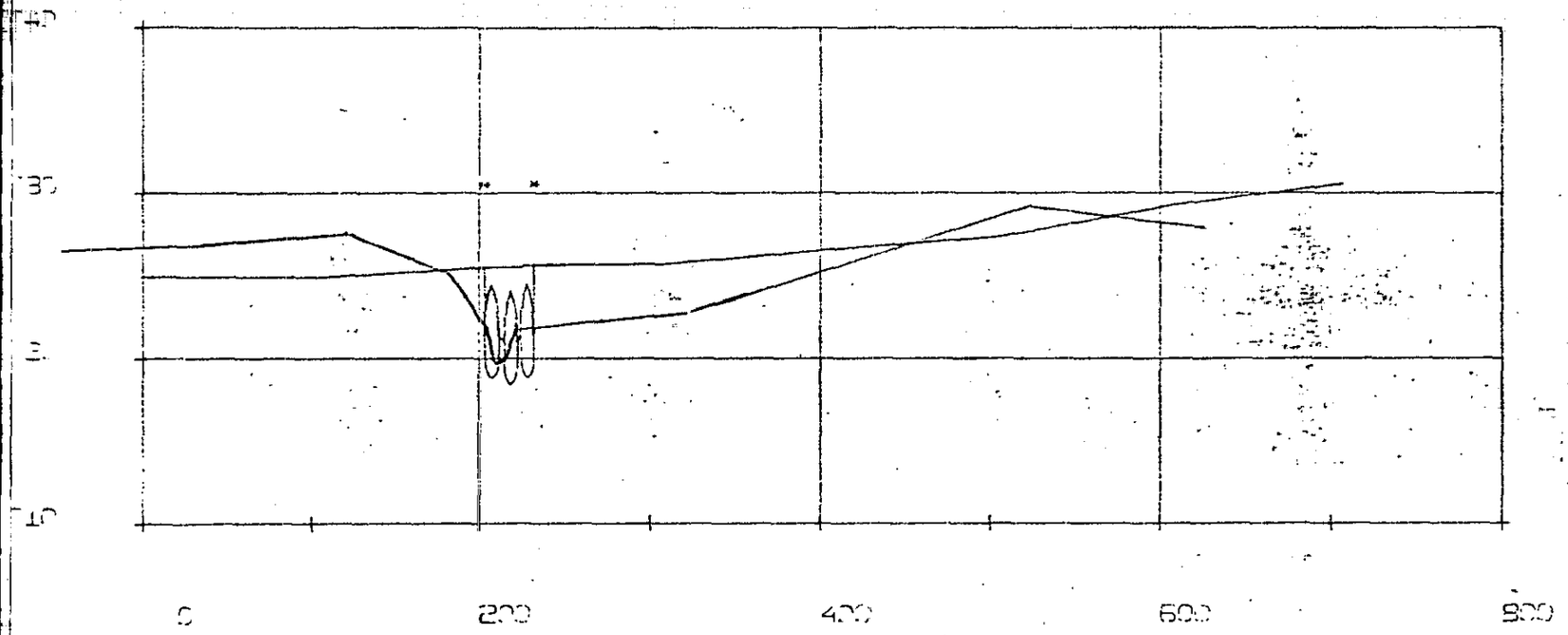
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| 260.40 | 722.80 | 261.00 | 721.40 | 264.00 | 721.00 | [illegible] | 722.40 | 266.00 | 723.40 |
| 268.00 | 724.00 | 270.00 | 723.40 | 271.40 | 722.40 | [illegible] | 721.00 | 274.00 | 721.40 |
| 274.60 | 722.80 | 276.00 | 723.80 | 278.00 | 724.40 | 280.00 | 723.80 | 281.40 | 722.80 |
| 282.00 | 721.40 | 282.00 | 720.20 | 281.40 | 719.40 | 280.00 | 719.00 | 278.00 | 718.80 |
| 276.00 | 719.00 | 274.60 | 719.40 | 274.00 | 720.20 | 274.00 | 721.40 | 272.00 | 721.00 |
| 272.00 | 719.80 | 271.40 | 719.00 | 270.00 | 718.60 | 268.00 | 718.40 | 266.00 | 718.60 |
| 264.60 | 719.00 | 264.00 | 719.80 | 264.00 | 721.00 | 261.00 | 721.40 | 261.00 | 720.80 |
| 260.40 | 719.40 | 259.00 | 719.00 | 257.00 | 718.80 | 255.00 | 719.00 | 253.60 | 719.40 |
| 253.00 | 720.20 | 253.00 | 721.40 | | | | | | |

ORIFICE AREA 104.8 WETTED PERIMETER 65.9 29.1/R**1.333 15.6966

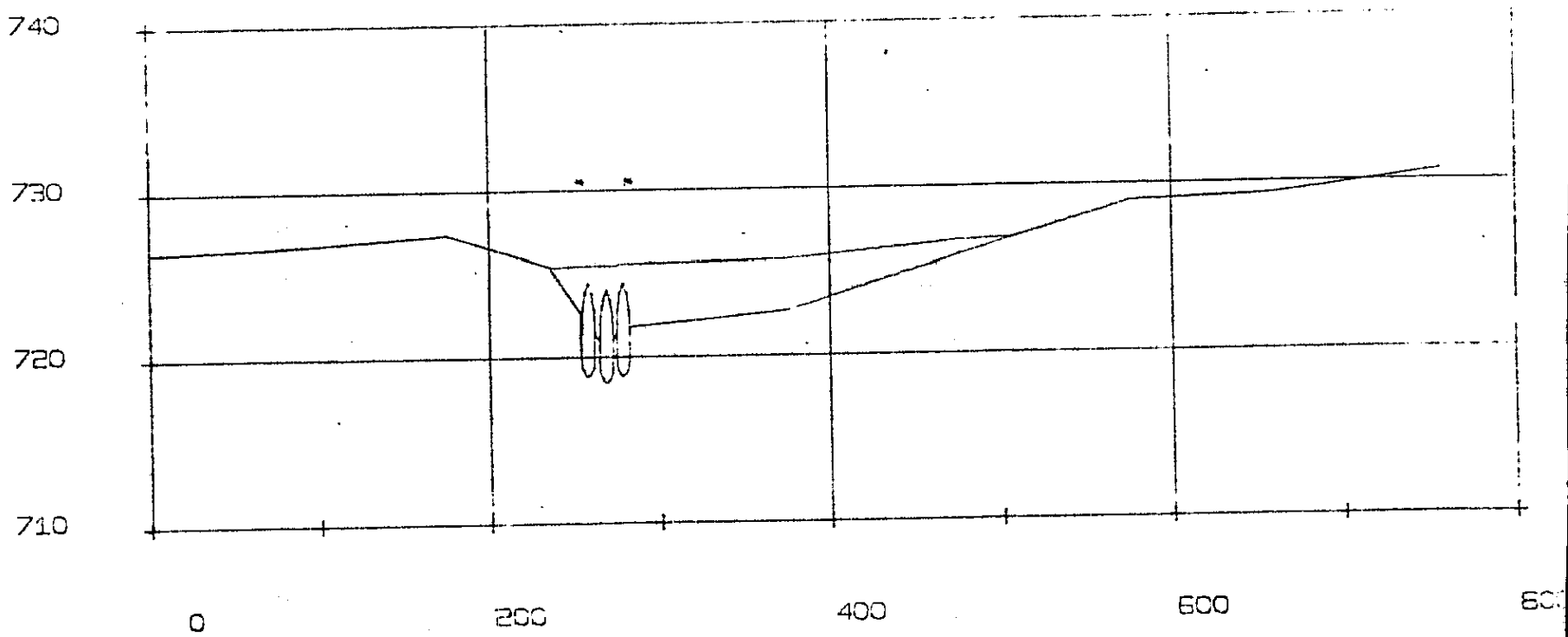
SECTION NO. 3/4




SECTION 375.1




SECTION 375.1



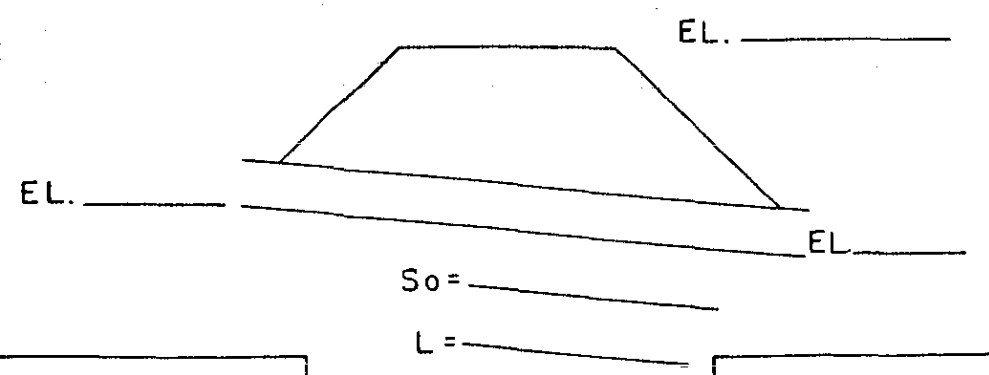

SECTION 77708

| | | | |
|---|---|---|---|
| JOB NAME: Shelby Township, FIS | JOB NO. 5670 | 08 | 1 | 379 |
| WATERCOURSE: Newland Drain | CULVERT LOCATION: Grand Trunk & Western R.R. | | |

CULVERT DESCRIPTION: Wooden railroad bridge

BY RFH DATE 6-1-77

WEIR DESCRIPTION: Railroad tracks with 14 foot breadth




A = D =

WP = Ke =

$\frac{29.1}{R^{4/3}}$ = n = .03

CALCULATIONS AND COMMENTS:

Hec-2 indicates a depth of 6.1 feet

n for creosoted timber = .012

n for channel = .035

$$n = \left( \frac{45 \times .035^2 + 2(2.2) \times .012^2 + 2(5.2) \times .012^2 + 2(2.3) \times .012^2}{64.4} \right)^{1/2}$$

$$n = .02998 \approx .03$$

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA
B.S. # 378

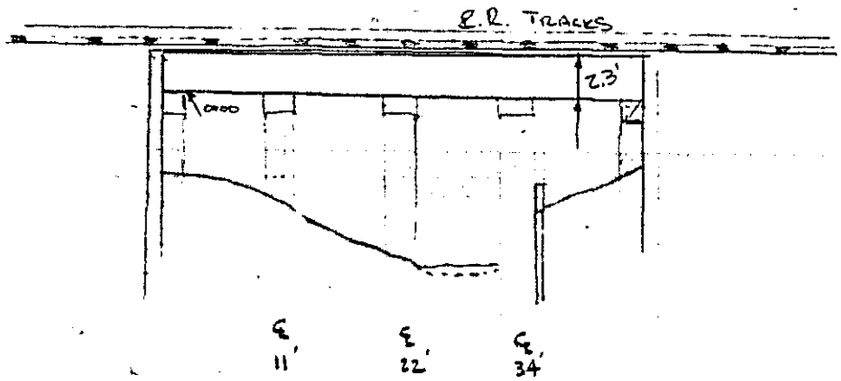
CODED BEH
2/14/77

Code No. 5670-08

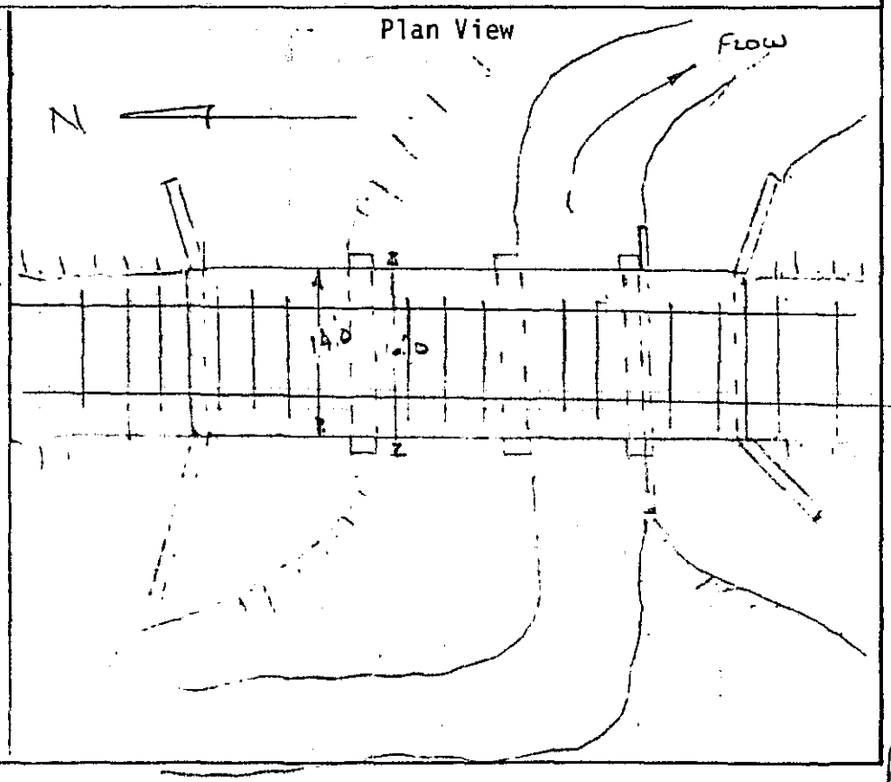
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP. F.I.S. | | By: R. MOSES | |
| Date: 2-11-77 | Feature: WOOD R.R. BRIDGE | Water Course: M.B. CLINTON RIVER | |
| Remarks: | | | |
| Width of Piers: 1.0' | Pier Shape: 12" DIA | No. of Piers: 3 | Area: |
| Water Elevation: 736.8 | Length: 45' | Width of Deck: 14 | Skew: |

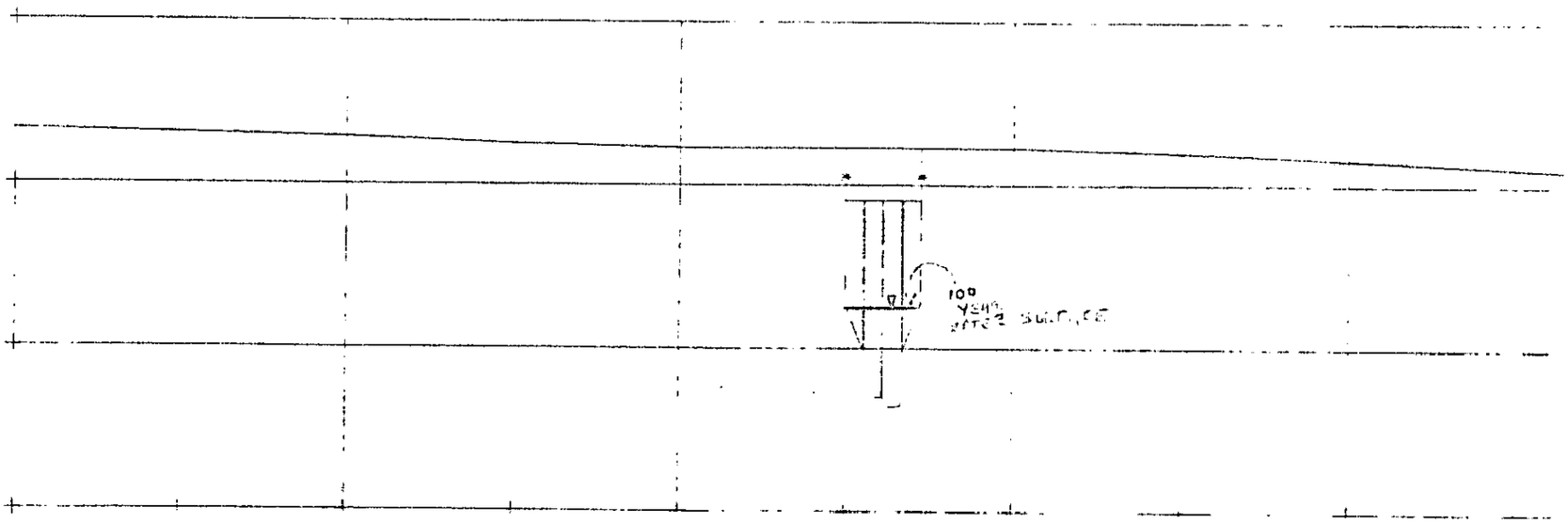
FIELD SKETCH

Profile View




Plan View






80127

SECTION 378

# APPENDIX B - CALCULATIONS AND GRAPHS FOR CHESTNUT LAKE

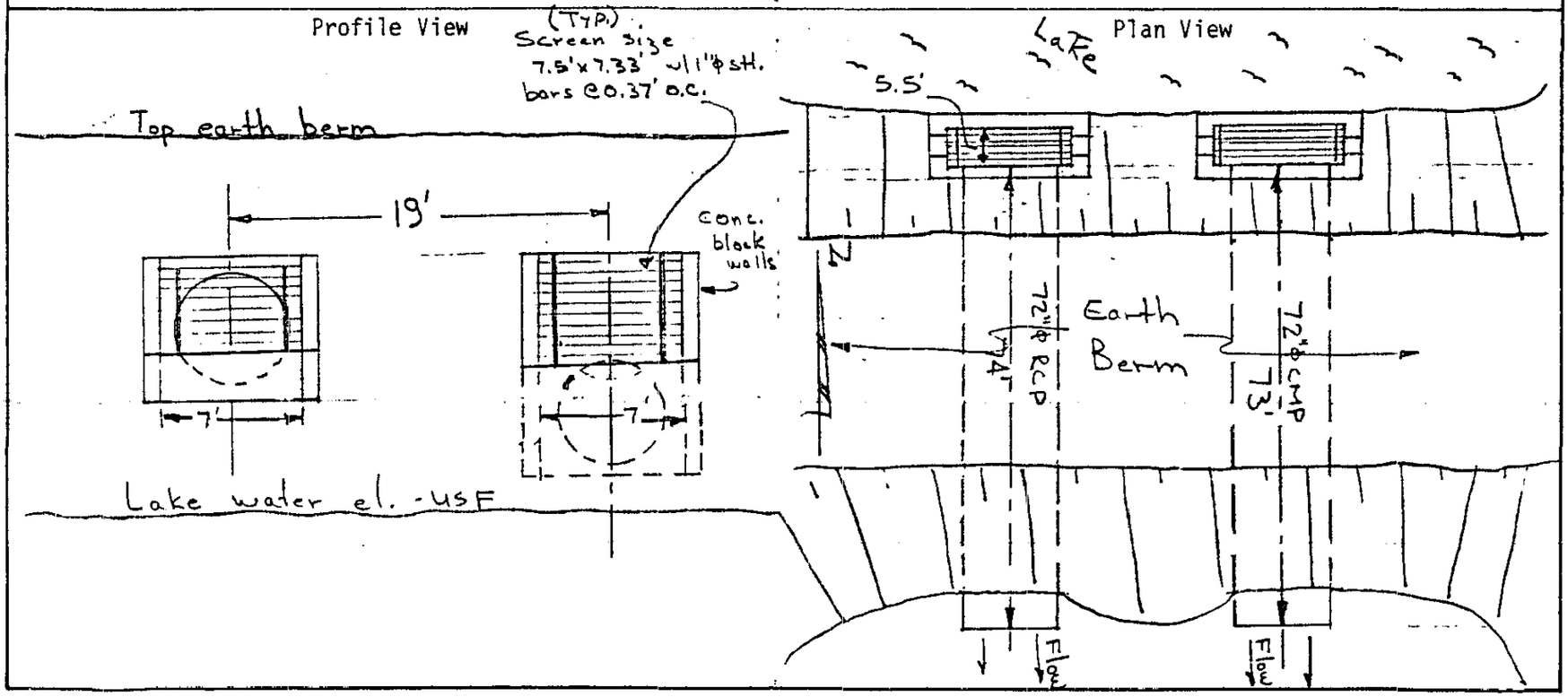
Johnson & Anderson, Inc.
Consulting Engineers
2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA CODED BEN 2/8/77

Code No. 5670-08-BS 372

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp. FIS | | By: C. Mapley, R. Moses, L. McDonald | |
| Date: 2-7-77 | Feature: Lake level control culverts | Water Course: Miggie Branch, Clinton River | |
| Remarks: JUST E. OF SCOTCH PINE CT. AT E END BLUE RIDGE DR. | | | |
| Width of Piers: — ub | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: 717.5 w/L / 710.6 w/L D/S | Length: 73' & 74' See sketch. | Width of Deck: — | Skew: |

FIELD SKETCH



SHELBY TOWNSHIP
CHESTNUT LAKE OUTLET
MIDDLE BRANCH OF THE CLINTON RIVER
GRAVEL ROADWAY
30' BREADTH
NUMBER OF POINTS= 6

| STATION | ELEVATION |
|---|---|
| 0.0 | 739.20 |
| 100.00 | 735.60 |
| 200.00 | 728.20 |
| 300.00 | 725.60 |
| 400.00 | 725.90 |
| 500.00 | 725.60 |
| 600.00 | 725.10 |
| 600.00 | 735.00 |

WIDTH OF ROADWAY= 30.00
ROAD SURFACE:GRAVEL

| ELEVATION FEET | FLOW CFS | CAV | TOP WIDTH FEET | AREA SFT |
|---|---|---|---|---|
| 725.10 | 0.0 | 0.0 | 0. | 0.0 |
| 725.20 | 0.64 | 2.520 | 20. | 1.00 |
| 725.30 | 3.66 | 2.540 | 40. | 4.00 |
| 725.40 | 10.19 | 2.558 | 60. | 9.01 |
| 725.50 | 21.12 | 2.576 | 80. | 16.01 |
| 725.60 | 37.28 | 2.595 | 100. | 25.01 |
| 725.70 | 59.50 | 2.604 | 133. | 36.53 |
| 725.80 | 89.57 | 2.616 | 166. | 51.25 |
| 725.90 | 133.35 | 2.592 | 304. | 74.81 |
| 726.00 | 195.20 | 2.627 | 308. | 105.23 |
| 726.10 | 271.13 | 2.658 | 312. | 136.04 |
| 726.20 | 362.66 | 2.689 | 317. | 168.32 |
| 726.30 | 462.90 | 2.720 | 321. | 199.99 |
| 726.40 | 573.90 | 2.748 | 325. | 232.94 |
| 726.50 | 695.06 | 2.772 | 329. | 264.45 |
| 726.60 | 826.34 | 2.795 | 333. | 297.29 |
| 726.70 | 966.85 | 2.815 | 337. | 330.53 |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY [illegible] DATE [illegible] JOB DESCRIPTION [illegible] SHEET ____ OF ____
SUBJECT [illegible] JOB NO. 5670-[illegible]

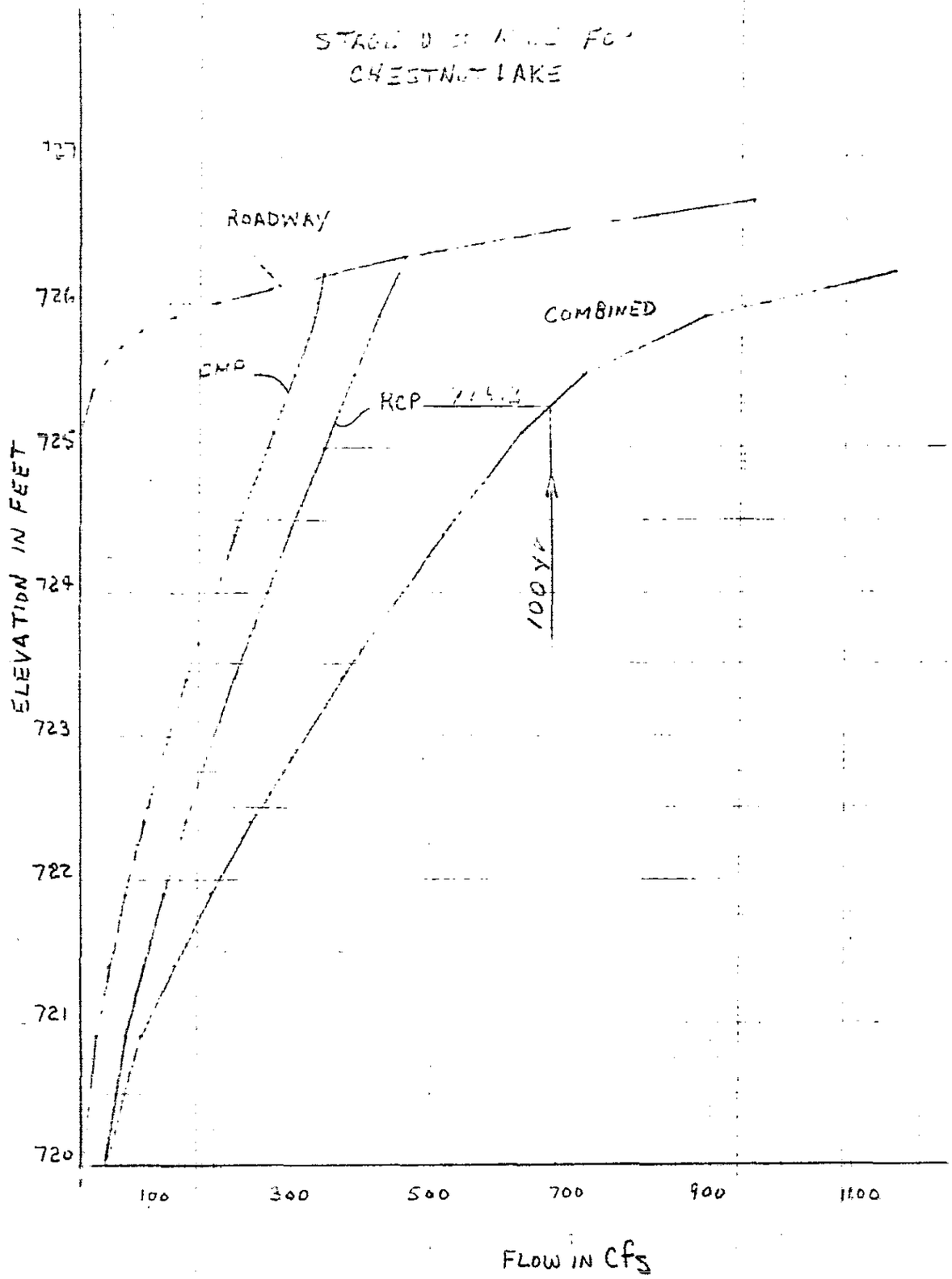
[illegible]

| ELEVATION | [illegible] | FL[illegible] IN CFS | % SUBMERGENCE |
|---|---|---|---|
| 720[illegible] | 2.0 | 654 | 0.00 |
| [illegible] | 2.5 | 913 | 0.00 |
| [illegible] | 3.0 | 120 | 0.00 |
| [illegible] | 3.5 | 151 | 0.00 |
| [illegible] | 4.5 | 220 | 0.00 |
| [illegible] | 5.5 | 298 | 21.8 |
| [illegible] | 6.2 | 357 | 40.3 |
| 72[illegible]5 | 6.6 | 392 | 50.0 |
| 72[illegible] | 7.0 | 428 | 62.9 |
| 726.2 | 7.3 | 456 | 71.2 |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY_____ DATE_____ JOB DESCRIPTION_____ SHEET _____ OF_____
SUBJECT_____ JOB NO._____

| | | | % SUBMERGENCE | C./C. (INITIAL VALUE ONLY) | CORRECTED FLOW |
|---|---|---|---|---|---|
| | 1.0 | 23.1 | 0.00 | | |
| 7[illegible] | 1.5 | 42.5 | 0.00 | | |
| [illegible] | 2.0 | 65 | 0.00 | | |
| 72[illegible] | 2.5 | 91 | 0.00 | | |
| [illegible] | 3.5 | 151 | 20.0 | | |
| [illegible] | 4.5 | 220 | 48.9 | | |
| [illegible] | 5.2 | 274 | 67.3 | 1.00 | 274 |
| [illegible] | 5.6 | 306 | 76.8 | 1.00 | 306 |
| [illegible] | 6.0 | 340 | 88.3 | .957 | 333 |
| 72[illegible]2 | 6.3 | 365 | 96.8 | .959 | 348 |
| 726.1 | 6.2 | 357 | 95.2 | .960 | 345 |
| 726.0 | 6.1 | 348 | 91.8 | .892 | 339 |


CHESTNUT LAKE
ROADWAY
COMBINED
CMP
RCP
100 YR
ELEVATION IN FEET
727
726
725
724
723
722
721
720
100
300
500
700
900
1100
FLOW IN Cfs

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Multiple Profile Line Township line to M-53

00BREAK00

```
 $$$$$$   $$    $$  $$$$$$$$  $$$$$$$$   $$$$$ $  $$$$$$$$   $$$$$$
$$    $$  $$    $$  $$          $$      $$    $  $$        $$    $$
$$        $$    $$  $$          $$      $$   $$$  $$        $$    $$
 $$$$$$   $$$$$$$$  $$$$$        $$      $$  $ $$  $$$$$$$   $$    $$
       $$  $$    $$  $$          $$      $$ $$ $$        $$  $$    $$
       $$  $$    $$  $$          $$      $$ $  $$        $$  $$    $$
       $$  $$    $$  $$          $$      $$$   $$        $$  $$    $$
$$    $$   $$    $$  $$       $$ $$       $    $$  $$    $$  $$    $$
 $$$$$$   $$    $$  $$$$$$$$   $$$       $ $$$$$   $$$$$$   $$$$$$
```

5.15

SHELBY TOWNSHIP

MIDDLE BRANCH OF THE CLINTON RIVER

ROMEO PLANK ROAD TO DISCO DRIVE

MULTIPLE PROFILE RUN

9-9-77 Revision

Township line to M-53

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
```

```
C
1       SHELBY TOWNSHIP-JOB NO. 5670-08  PROJECT MANAGER WILLIAM C. ROSSOW
T2       10 YEAR FLOOD =
T3       MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       2.        0.        0.  0.000000      0.00      0.0       0.   619.400    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
NC       .080      .080      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT      4.000  1590.000  2340.000  2670.000  3680.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .050   491.000      .070   506.000      .040   529.000      .070   555.000      .045
NH    855.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  31750.000    20.000   491.000   555.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   470.000   622.700   576.000     0.000     0.000     0.000     0.000
GR    630.400     0.000   621.600    35.000   620.500    55.000   618.400   155.000   619.100   255.000
GR    618.600   355.000   618.400   455.000   618.700   491.000   608.900   506.000   607.100   509.000
GR    606.900   510.000   607.200   515.000   607.300   520.000   607.500   526.000   608.900   528.000
GR    610.800   529.000   619.000   555.000   623.800   655.000   627.200   755.000   629.000   955.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
NH      5.000      .050   531.800      .070   548.000      .040   595.000      .070   600.000      .045
NH   1000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  31835.000    34.000   531.800   600.000    85.000    85.000    85.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   531.800   623.000   600.000     0.000     0.000     0.000     0.000
GR    630.900     0.000   629.200    45.000   621.600    75.000   620.500    95.000   618.400   195.000
GR    619.100   295.000   618.600   395.000   618.400   495.000   618.700   531.800   614.000   531.800
GR    615.400   548.000   611.100   549.000   610.400   552.200   621.200   552.200   621.200   553.400
GR    610.400   553.400   608.100   556.000   608.600   560.000   608.300   565.000   608.200   570.000
GR    608.200   576.200   621.100   576.200   621.100   577.400   608.200   577.400   608.800   580.000
GR    610.800   585.000   610.300   590.000   609.000   595.000   609.200   600.000   619.000   600.000
GR    623.800   695.000   627.500   795.000   628.600   900.000   630.000  1000.000     0.000     0.000
SB      0.000     1.870     3.020     0.000    68.200     0.000   696.300     0.000   608.100   608.100
NH      5.000      .050   531.800      .070   548.000      .040   595.000      .070   600.000      .045
NH   1000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  31865.000     0.000     0.000     0.000    30.000    30.000    30.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   621.200   623.300     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   531.800   623.000   600.000     0.000     0.000     0.000     0.000
BT     19.000     0.000   630.900     0.000    45.000   629.200     0.000    95.000   627.100     0.000
BT    195.000   624.600     0.000   295.000   623.500     0.000   395.000   623.300     0.000   495.000
BT    623.900     0.000   531.800   624.100   618.700   531.800   627.600   621.200   552.200   627.600
BT    621.200   553.400   627.600   621.200   576.200   627.500   621.100   577.400   627.500   621.100
BT    600.000   627.500   621.100   600.000   624.300   619.000   695.000   626.000     0.000   795.000
BT    627.500     0.000   900.000   628.600     0.000  1000.000   630.000     0.000     0.000     0.000
NH      6.000      .050   100.000      .090   136.000      .070   148.000      .040   178.000      .070
NH    193.000      .045   800.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 635.000 | 0.000 | 629.900 | 100.000 | 620.700 | 125.000 | 619.900 | 136.000 | 614.700 | 146.000 |
| GR | 610.800 | 148.000 | 610.200 | 150.000 | 610.200 | 160.000 | 610.200 | 170.000 | 610.200 | 176.000 |
| GR | 611.400 | 178.000 | 616.100 | 181.000 | 620.000 | 193.000 | 618.700 | 200.000 | 618.500 | 300.000 |
| GR | 618.500 | 400.000 | 624.300 | 500.000 | 631.100 | 540.000 | 631.200 | 600.000 | 633.500 | 700.000 |
| GR | 634.400 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .080 | 380.000 | .070 | 389.000 | .045 | 423.000 | .070 | 438.000 | .070 |
| NH | 560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 34140.000 | 21.000 | 380.000 | 438.000 | 1020.000 | 1090.000 | 1120.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.300 | 0.000 | 631.000 | 60.000 | 626.600 | 160.000 | 620.700 | 210.000 | 619.700 | 260.000 |
| GR | 620.500 | 360.000 | 620.500 | 380.000 | 614.300 | 387.000 | 613.100 | 389.000 | 611.600 | 391.000 |
| GR | 610.900 | 400.000 | 611.400 | 413.000 | 611.600 | 421.000 | 613.100 | 423.000 | 614.400 | 425.000 |
| GR | 619.600 | 438.000 | 618.800 | 460.000 | 617.400 | 480.000 | 623.900 | 497.000 | 632.000 | 517.000 |
| GR | 635.200 | 560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1340.000 | 2150.000 | 2540.000 | 3570.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .070 | 204.000 | .090 | 212.000 | .040 | 236.000 | .090 | 255.000 | .070 |
| NH | 490.000 | .060 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 35670.000 | 21.000 | 204.000 | 255.000 | 1400.000 | 1400.000 | 1530.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.600 | 0.000 | 632.900 | 35.000 | 622.900 | 95.000 | 622.400 | 135.000 | 620.800 | 163.000 |
| GR | 624.500 | 184.000 | 617.100 | 197.000 | 618.100 | 204.000 | 617.100 | 210.000 | 614.800 | 212.000 |
| GR | 614.000 | 213.000 | 614.000 | 225.000 | 613.600 | 232.000 | 613.900 | 235.000 | 614.800 | 236.000 |
| GR | 622.900 | 255.000 | 622.400 | 335.000 | 621.800 | 435.000 | 630.900 | 490.000 | 632.500 | 535.000 |
| GR | 634.700 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .030 | 240.000 | .080 | 407.000 | .060 | 414.000 | .040 | 433.000 | .060 |
| NH | 454.000 | .090 | 540.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 36750.000 | 14.000 | 407.000 | 454.000 | 1080.000 | 980.000 | 1080.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.800 | 0.000 | 624.200 | 100.000 | 621.600 | 240.000 | 621.000 | 300.000 | 622.700 | 407.000 |
| GR | 617.800 | 414.000 | 616.000 | 415.000 | 615.700 | 425.000 | 616.400 | 433.000 | 618.200 | 434.000 |
| GR | 618.700 | 444.000 | 621.100 | 454.000 | 625.600 | 502.000 | 634.100 | 540.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 470.000 | .070 | 480.000 | .037 | 495.000 | .070 | 508.000 | .075 |
| NH | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37080.000 | 13.000 | 470.000 | 508.000 | 330.000 | 330.000 | 330.000 | 0.000 | -.200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 320.000 | 0.000 | 578.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.300 | 0.000 | 624.400 | 90.000 | 622.800 | 336.000 | 623.600 | 391.000 | 622.700 | 470.000 |
| GR | 616.500 | 480.000 | 616.400 | 488.000 | 616.900 | 494.000 | 618.600 | 495.000 | 619.800 | 502.000 |
| GR | 622.500 | 508.000 | 626.100 | 570.000 | 634.200 | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 470.000 | .080 | 480.000 | .037 | 495.000 | .075 | 508.000 | .080 |
| NH | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37180.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .150 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 370.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 538.000 | .085 | 543.000 | .035 | 561.000 | .080 | 565.000 | .060 |
| NH | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37280.000 | 16.000 | 538.000 | 565.000 | 80.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 494.000 | 0.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.900 | 0.000 | 626.000 | 50.000 | 624.100 | 70.000 | 623.700 | 150.000 | 623.800 | 250.000 |
| GR | 624.200 | 350.000 | 624.500 | 450.000 | 622.200 | 538.000 | 618.400 | 543.000 | 616.500 | 546.000 |
| GR | 616.900 | 553.000 | 617.000 | 559.000 | 618.400 | 561.000 | 623.600 | 565.000 | 626.700 | 640.000 |
| GR | 634.000 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 600.000 | .085 | 604.000 | .035 | 663.000 | .080 | 667.000 | .060 |
| NH | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37349.000 | 28.000 | 600.000 | 668.800 | 89.000 | 59.000 | 69.000 | .064 | 0.000 | 0.000 |
| GR | 637.400 | 0.000 | 636.100 | 50.000 | 633.800 | 100.000 | 629.800 | 200.000 | 628.200 | 300.000 |
| GR | 628.700 | 400.000 | 630.000 | 500.000 | 631.100 | 550.000 | 631.100 | 550.000 | 632.400 | 600.000 |
| GR | 620.300 | 600.000 | 618.000 | 604.000 | 618.700 | 611.000 | 619.400 | 623.000 | 619.500 | 629.000 |
| GR | 618.400 | 638.000 | 618.100 | 640.000 | 618.000 | 645.000 | 617.800 | 650.000 | 617.800 | 655.000 |
| GR | 617.400 | 662.000 | 620.000 | 663.000 | 621.000 | 668.800 | 633.100 | 668.800 | 632.900 | 695.000 |
| GR | 633.900 | 695.000 | 635.000 | 800.000 | 637.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 37350.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .864 | 0.000 |
| BT | 17.000 | 0.000 | 637.400 | 0.000 | 50.000 | 636.100 | 0.000 | 100.000 | 633.800 | 0.000 |
| BT | 200.000 | 629.800 | 0.000 | 300.000 | 628.200 | 0.000 | 400.000 | 628.700 | 0.000 | 500.000 |
| BT | 630.000 | 0.000 | 550.000 | 631.100 | 0.000 | 550.000 | 631.100 | 0.000 | 600.000 | 632.400 |
| BT | 620.300 | 600.000 | 634.700 | 628.000 | 668.800 | 635.400 | 628.700 | 668.800 | 633.100 | 621.000 |
| BT | 695.000 | 632.900 | 0.000 | 695.000 | 632.900 | 0.000 | 800.000 | 635.000 | 0.000 | 900.000 |
| BT | 637.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37390.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 600.000 | .070 | 604.000 | .035 | 663.000 | .070 | 667.000 | .055 |
| NH | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37391.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 98.000 | .080 | 268.000 | .090 | 274.000 | .040 | 283.000 | .090 |
| NH | 295.000 | .090 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37506.000 | 17.000 | 268.000 | 295.000 | 115.000 | 115.000 | 115.000 | 0.000 | -.900 | 0.000 |
| GR | 641.200 | 0.000 | 639.300 | 55.000 | 625.800 | 98.000 | 626.300 | 150.000 | 623.900 | 250.000 |
| GR | 623.200 | 268.000 | 620.200 | 273.000 | 619.300 | 274.000 | 618.900 | 275.000 | 618.400 | 283.000 |
| GR | 619.100 | 288.000 | 620.200 | 291.000 | 626.000 | 295.000 | 626.900 | 350.000 | 633.200 | 450.000 |
| GR | 635.400 | 475.000 | 638.700 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 98.000 | .080 | 268.000 | .090 | 274.000 | .040 | 283.000 | .090 |
| NH | 295.000 | .090 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 38530.000 | 0.000 | 0.000 | 0.000 | 1024.000 | 1024.000 | 1024.000 | 0.000 | .900 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .100 | 300.000 | .080 | 310.000 | .045 | 336.000 | .080 | 344.000 | .100 |
| NH | 650.000 | .050 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 39520.000 | 20.000 | 300.000 | 344.000 | 1050.000 | 990.000 | 990.000 | 0.000 | 0.000 | 0.000 |
| GR | 639.400 | 0.000 | 638.100 | 100.000 | 637.200 | 120.000 | 630.600 | 179.000 | 627.400 | 200.000 |
| GR | 629.500 | 300.000 | 626.300 | 305.000 | 621.800 | 310.000 | 620.400 | 311.000 | 620.200 | 315.000 |
| GR | 620.600 | 325.000 | 620.700 | 335.000 | 621.800 | 336.000 | 628.800 | 344.000 | 627.100 | 400.000 |
| GR | 628.200 | 500.000 | 628.300 | 600.000 | 625.300 | 610.000 | 637.300 | 650.000 | 639.200 | 700.000 |
| QT | 4.000 | 1310.000 | 2110.000 | 2490.000 | 3500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 216.000 | .045 | 237.000 | .080 | 330.000 | .050 | 900.000 | 0.000 |
| X1 | 40660.000 | 20.000 | 211.000 | 238.000 | 1180.000 | 1080.000 | 1140.000 | 0.000 | 0.000 | 0.000 |
| GR | 643.100 | 0.000 | 641.700 | 35.000 | 629.800 | 65.000 | 629.900 | 200.000 | 629.900 | 211.000 |
| GR | 624.200 | 216.000 | 622.400 | 217.000 | 621.700 | 220.000 | 622.200 | 227.000 | 623.700 | 237.000 |
| GR | 626.100 | 238.000 | 628.400 | 300.000 | 632.200 | 330.000 | 629.700 | 345.000 | 630.300 | 400.000 |
| GR | 632.900 | 500.000 | 636.100 | 600.000 | 637.900 | 700.000 | 639.100 | 800.000 | 640.200 | 900.000 |
| NH | 6.000 | .050 | 624.700 | .060 | 697.900 | .070 | 709.600 | .040 | 735.000 | .070 |
| NH | 752.500 | .060 | 976.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 42160.000 | 23.000 | 715.000 | 771.000 | 1400.000 | 1500.000 | 1500.000 | .976 | 0.000 | 0.000 |
| GR | 639.700 | 0.000 | 638.900 | 100.000 | 638.700 | 200.000 | 637.700 | 300.000 | 637.500 | 400.000 |
| GR | 635.700 | 500.000 | 632.000 | 600.000 | 631.000 | 640.000 | 632.000 | 700.000 | 633.200 | 715.000 |
| GR | 625.100 | 727.000 | 625.000 | 730.000 | 625.100 | 735.000 | 625.300 | 745.000 | 625.400 | 753.000 |
| GR | 633.700 | 771.000 | 631.900 | 800.000 | 632.500 | 836.000 | 629.700 | 844.000 | 632.100 | 867.000 |
| GR | 631.900 | 900.000 | 631.600 | 937.000 | 641.500 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 663.000 | .060 | 669.000 | .040 | 692.000 | .090 | 715.000 | .060 |
| NH | 976.000 | .050 | 1850.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 43220.000 | 22.000 | 663.000 | 715.000 | 1070.000 | 1060.000 | 1060.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 643.400 | 0.000 | 642.300 | 100.000 | 641.500 | 200.000 | 640.900 | 300.000 | 633.800 | 600.000 |
| GR | 634.500 | 663.000 | 629.300 | 669.000 | 628.500 | 670.000 | 626.900 | 680.000 | 626.900 | 685.000 |
| GR | 629.100 | 692.000 | 629.600 | 693.000 | 634.900 | 715.000 | 633.800 | 800.000 | 633.200 | 900.000 |
| GR | 634.800 | 938.000 | 642.000 | 976.000 | 644.300 | 1000.000 | 643.900 | 1100.000 | 633.500 | 1700.000 |
| GR | 638.700 | 1800.000 | 640.200 | 1850.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 366.000 | .100 | 373.000 | .035 | 392.000 | .100 | 400.000 | .055 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 43980.000 | 17.000 | 366.000 | 400.000 | 720.000 | 780.000 | 760.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 330.000 | 0.000 | 465.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 644.300 | 60.000 | 641.100 | 100.000 | 635.700 | 160.000 | 634.600 | 200.000 |
| GR | 635.000 | 300.000 | 635.900 | 338.000 | 632.600 | 366.000 | 628.500 | 373.000 | 628.100 | 375.000 |
| GR | 627.700 | 380.000 | 627.800 | 385.000 | 628.300 | 390.000 | 629.100 | 392.000 | 634.000 | 400.000 |
| GR | 641.200 | 500.000 | 643.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .060 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44092.000 | 24.000 | 400.000 | 450.000 | 102.000 | 122.000 | 112.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 643.000 | 100.000 | 641.900 | 200.000 | 641.700 | 300.000 | 642.000 | 398.000 |
| GR | 644.300 | 398.000 | 644.300 | 400.000 | 638.500 | 400.000 | 632.900 | 401.000 | 629.300 | 414.000 |
| GR | 628.500 | 420.000 | 628.500 | 425.000 | 628.400 | 430.000 | 628.200 | 434.000 | 629.100 | 436.000 |
| GR | 630.600 | 438.000 | 632.800 | 448.000 | 639.300 | 450.000 | 644.800 | 450.000 | 644.800 | 452.000 |
| GR | 642.500 | 452.000 | 643.200 | 500.000 | 644.500 | 600.000 | 645.500 | 650.000 | 0.000 | 0.000 |
| X1 | 44093.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 398.000 | 644.300 | 0.000 | 400.000 | 644.300 | 638.500 | 450.000 | 644.800 | 639.300 |
| BT | 452.000 | 644.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44127.000 | 0.000 | 0.000 | 0.000 | 34.000 | 34.000 | 34.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 300.000 | .070 | 398.000 | .120 | 401.000 | .035 | 450.000 | .120 |
| NH | 452.000 | .040 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44128.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 366.000 | .100 | 373.000 | .035 | 392.000 | .100 | 400.000 | .055 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44250.000 | 17.000 | 366.000 | 400.000 | 122.000 | 122.000 | 122.000 | 0.000 | .520 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 644.300 | 60.000 | 641.100 | 100.000 | 635.700 | 160.000 | 634.600 | 200.000 |
| GR | 635.000 | 300.000 | 635.900 | 338.000 | 632.600 | 366.000 | 628.500 | 373.000 | 628.100 | 375.000 |
| GR | 627.700 | 380.000 | 627.800 | 385.000 | 628.300 | 390.000 | 629.100 | 392.000 | 634.000 | 400.000 |
| GR | 641.200 | 500.000 | 643.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .100 | 198.000 | .030 | 204.000 | .040 | 225.000 | .080 | 235.000 | .070 |
| NH | 350.000 | .040 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 45230.000 | 21.000 | 198.000 | 235.000 | 960.000 | 990.000 | 980.000 | 0.000 | 0.000 | 0.000 |
| GR | 649.700 | 0.000 | 648.700 | 19.000 | 637.400 | 55.000 | 636.400 | 100.000 | 637.000 | 134.000 |
| GR | 633.600 | 144.000 | 633.000 | 168.000 | 639.400 | 186.000 | 637.200 | 198.000 | 630.700 | 204.000 |
| GR | 629.300 | 205.000 | 628.800 | 210.000 | 628.400 | 215.000 | 628.800 | 220.000 | 629.900 | 225.000 |
| GR | 637.000 | 235.000 | 636.800 | 300.000 | 637.200 | 350.000 | 644.500 | 400.000 | 650.400 | 500.000 |
| GR | 650.900 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .055 | 100.000 | .080 | 183.000 | .050 | 218.000 | .040 | 245.000 | .050 |
| NH | 253.000 | .080 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 46590.000 | 14.000 | 183.000 | 253.000 | 1350.000 | 1370.000 | 1360.000 | 0.000 | 0.000 | 0.000 |
| GR | 657.300 | 0.000 | 651.800 | 100.000 | 644.800 | 183.000 | 635.200 | 205.000 | 632.700 | 218.000 |
| GR | 631.700 | 225.000 | 631.100 | 235.000 | 631.400 | 242.000 | 632.700 | 245.000 | 640.200 | 253.000 |
| GR | 636.700 | 300.000 | 642.300 | 400.000 | 643.300 | 478.000 | 658.400 | 500.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 140.000 | .030 | 145.000 | .045 | 165.000 | .080 | 180.000 | .100 |
| NH | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 180.000 | 1.000 | 400.000 | 0.000 |
| X1 | 47640.000 | 18.000 | 140.000 | 180.000 | 1040.000 | 1040.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| GR | 656.500 | 0.000 | 653.800 | 30.000 | 644.700 | 60.000 | 640.700 | 100.000 | 641.300 | 118.000 |
| GR | 642.100 | 127.000 | 639.400 | 140.000 | 633.900 | 145.000 | 632.800 | 150.000 | 631.700 | 155.000 |
| GR | 632.400 | 160.000 | 633.800 | 165.000 | 638.100 | 167.000 | 643.500 | 180.000 | 640.000 | 200.000 |
| GR | 640.800 | 300.000 | 644.100 | 365.000 | 655.600 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 179.000 | .080 | 185.000 | .050 | 212.000 | .080 | 231.000 | .100 |
| NH | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 231.000 | 1.000 | 450.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 |
| GR | 651.900 | 0.000 | 643.000 | 50.000 | 642.100 | 150.000 | 643.600 | 179.000 | 635.200 | 185.000 |
| GR | 635.500 | 195.000 | 635.100 | 196.000 | 634.300 | 200.000 | 634.700 | 205.000 | 635.600 | 211.000 |
| GR | 636.000 | 212.000 | 646.100 | 231.000 | 642.800 | 270.000 | 653.100 | 320.000 | 653.000 | 370.000 |
| GR | 657.700 | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 179.000 | .080 | 185.000 | .050 | 212.000 | .080 | 231.000 | .100 |
| NH | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 231.000 | 1.000 | 450.000 | 0.000 |
| X1 | 49425.000 | 0.000 | 0.000 | 0.000 | 430.000 | 415.000 | 425.000 | 0.000 | 1.200 | 0.000 |
| QT | 4.000 | 1030.000 | 1660.000 | 1910.000 | 2760.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .050 | 800.000 | .100 | 968.000 | .090 | 985.000 | .040 | 999.000 | .090 |
| NH | 1013.000 | .100 | 1200.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 1024.000 | 1.000 | 1400.000 | 0.000 |
| X1 | 49850.000 | 31.000 | 968.000 | 1013.000 | 430.000 | 415.000 | 425.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.700 | 0.000 | 659.400 | 100.000 | 659.200 | 200.000 | 660.300 | 300.000 | 660.100 | 400.000 |
| GR | 660.200 | 500.000 | 659.400 | 600.000 | 658.400 | 700.000 | 655.800 | 750.000 | 648.300 | 800.000 |
| GR | 646.000 | 820.000 | 644.100 | 882.000 | 640.800 | 889.000 | 636.800 | 892.000 | 636.400 | 900.000 |
| GR | 636.100 | 904.000 | 641.600 | 908.000 | 647.600 | 968.000 | 637.700 | 985.000 | 637.000 | 990.000 |
| GR | 636.800 | 995.000 | 636.700 | 999.000 | 637.700 | 1001.000 | 645.200 | 1013.000 | 647.200 | 1024.000 |
| GR | 643.200 | 1069.000 | 652.300 | 1085.000 | 653.600 | 1100.000 | 656.300 | 1200.000 | 658.000 | 1300.000 |
| GR | 660.100 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 1200.000 | .040 | 1249.500 | .080 | 1400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50114.000 | 39.000 | 1200.000 | 1249.500 | 314.000 | 204.000 | 264.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.700 | 0.000 | 659.700 | 100.000 | 658.300 | 200.000 | 655.000 | 300.000 | 650.900 | 400.000 |
| GR | 649.100 | 500.000 | 649.000 | 600.000 | 649.200 | 645.000 | 639.600 | 645.500 | 638.500 | 647.000 |
| GR | 638.400 | 650.000 | 639.000 | 655.000 | 639.600 | 660.000 | 639.900 | 663.000 | 642.000 | 665.000 |
| GR | 643.600 | 674.000 | 649.400 | 674.000 | 649.200 | 700.000 | 648.100 | 800.000 | 648.700 | 900.000 |
| GR | 648.900 | 1000.000 | 648.900 | 1100.000 | 650.400 | 1179.000 | 651.500 | 1180.000 | 651.400 | 1200.000 |
| GR | 643.200 | 1200.000 | 638.300 | 1211.000 | 637.700 | 1216.000 | 637.800 | 1221.000 | 637.400 | 1226.000 |
| GR | 637.400 | 1230.000 | 638.100 | 1234.000 | 638.900 | 1237.000 | 643.300 | 1249.500 | 651.700 | 1249.500 |
| GR | 651.700 | 1266.000 | 651.100 | 1267.000 | 651.600 | 1300.000 | 653.700 | 1400.000 | 0.000 | 0.000 |
| X1 | 50115.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 1180.000 | 651.500 | 0.000 | 1200.000 | 651.400 | 0.000 | 1200.000 | 653.700 | 648.200 |
| BT | 1249.500 | 654.000 | 648.500 | 1249.500 | 651.700 | 0.000 | 1266.000 | 651.700 | 0.000 | 0.000 |
| X1 | 50149.000 | 0.000 | 0.000 | 0.000 | 34.000 | 34.000 | 34.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .080 | 1200.000 | .040 | 1249.500 | .080 | 1400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50150.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 385.000 | .090 | 394.000 | .040 | 408.000 | .090 | 413.000 | .050 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50190.000 | 17.000 | 385.000 | 413.000 | 40.000 | 40.000 | 40.000 | 0.000 | .100 | 0.000 |
| GR | 658.200 | 0.000 | 655.700 | 100.000 | 653.200 | 200.000 | 650.100 | 300.000 | 649.000 | 350.000 |
| GR | 646.500 | 365.000 | 641.900 | 377.000 | 643.600 | 385.000 | 638.800 | 394.000 | 637.300 | 400.000 |
| GR | 637.400 | 403.000 | 639.500 | 408.000 | 647.800 | 413.000 | 645.700 | 428.000 | 645.000 | 490.000 |
| GR | 653.600 | 540.000 | 660.900 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 371.200 | .090 | 379.900 | .040 | 393.400 | .090 | 398.200 | .050 |
| NH | 578.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50860.000 | 0.000 | 0.000 | 0.000 | 670.000 | 642.000 | 670.000 | .964 | -.100 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 980.000 | 1570.000 | 1800.000 | 2610.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .070 | 303.000 | .045 | 315.000 | .070 | 325.000 | .080 | 500.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.900 | 0.000 | 656.900 | 100.000 | 651.200 | 190.000 | 649.500 | 200.000 | 648.100 | 260.000 |
| GR | 649.900 | 275.000 | 645.200 | 300.000 | 641.600 | 303.000 | 641.300 | 306.000 | 641.400 | 309.000 |
| GR | 641.400 | 312.000 | 641.800 | 315.000 | 649.400 | 325.000 | 648.800 | 400.000 | 648.800 | 465.000 |
| GR | 655.200 | 484.000 | 655.500 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .120 | 351.800 | .040 | 362.100 | .090 | 774.100 | 0.000 | 0.000 | 0.000 |
| X1 | 53150.000 | 18.000 | 400.000 | 440.000 | 1200.000 | 1150.000 | 1200.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 370.000 | 0.000 | 471.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 659.100 | 0.000 | 657.100 | 100.000 | 657.400 | 200.000 | 656.900 | 210.000 | 651.600 | 300.000 |
| GR | 648.500 | 400.000 | 643.100 | 409.000 | 643.000 | 415.000 | 643.400 | 421.000 | 646.300 | 424.000 |
| GR | 651.400 | 440.000 | 649.400 | 463.000 | 652.500 | 500.000 | 658.300 | 560.000 | 659.400 | 600.000 |
| GR | 660.300 | 700.000 | 659.800 | 800.000 | 658.800 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .120 | 500.000 | .040 | 600.000 | .090 | 1100.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53204.000 | 33.000 | 500.000 | 600.000 | 54.000 | 54.000 | 54.000 | .860 | 0.000 | 0.000 |
| GR | 664.600 | 0.000 | 664.300 | 100.000 | 664.100 | 200.000 | 663.800 | 300.000 | 663.500 | 400.000 |
| GR | 663.200 | 476.000 | 664.000 | 500.000 | 657.000 | 500.000 | 656.900 | 506.000 | 646.500 | 527.000 |
| GR | 646.300 | 531.000 | 659.500 | 531.000 | 659.500 | 534.000 | 646.200 | 534.000 | 645.400 | 539.000 |
| GR | 644.200 | 540.000 | 643.200 | 546.000 | 643.500 | 554.000 | 646.200 | 556.000 | 645.300 | 567.500 |
| GR | 659.400 | 567.500 | 659.400 | 570.500 | 646.900 | 570.500 | 647.000 | 573.000 | 656.400 | 595.000 |
| GR | 656.800 | 600.000 | 663.700 | 600.000 | 662.500 | 624.000 | 662.400 | 700.000 | 662.200 | 900.000 |
| GR | 661.900 | 900.000 | 661.600 | 1000.000 | 661.300 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .120 | .090 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53205.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 500.000 | 664.000 | 659.600 | 531.000 | 663.900 | 659.500 | 534.000 | 663.900 | 659.500 |
| BT | 567.500 | 663.800 | 659.400 | 570.500 | 663.800 | 659.400 | 600.000 | 663.700 | 659.300 | 0.000 |
| X1 | 53255.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53256.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53294.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53295.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 500.000 | 664.000 | 659.600 | 531.000 | 663.900 | 659.500 | 534.000 | 663.900 | 659.500 |
| BT | 567.500 | 663.800 | 659.400 | 570.500 | 663.800 | 659.400 | 600.000 | 663.700 | 659.300 | 0.000 |
| X1 | 53345.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53346.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*******************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      SHELBY TOWNSHIP-JOB NO. 5670-08  PROJECT MANAGER WILLIAM C. ROSSOW
T2      100 YEAR FLOOD =
T3      MIDDLE BRANCH OF THE CLINTON RIVER
```

| J1 | ICHECK | INO | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 623.600 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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CCHV=     .100 CEHV=     .300
1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN        SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID       ENDST


3470 ENCROACHMENT STATIONS=      470.0      576.0  TYPE=      1  TARGET=      106.000
 ELENCL=     622.70  ELENCR= 100000.00

                VALLEY SECTION A                                                  318

 31750.00     16.70    623.60      0.00    623.60    623.71       .11      0.00      0.00    618.70
    2670.      370.     2165.      135.      498.      743.       86.        0.        0.    619.00
     0.00       .74      2.91      1.57      .050      .048      .045     0.000    606.90     30.91
  .000344        0.        0.        0.         0         0         1      0.00    545.09    576.00


CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      531.8      600.0  TYPE=      1  TARGET=      68.200
 ELENCL=     623.00  ELENCR= 100000.00
 31835.00     15.59    623.69      0.00      0.00    623.75       .07       .03       .01    618.70
    2670.      139.     2531.        0.      314.     1184.        0.        3.        1. 100000.00
      .01       .44      2.14      0.00      .050      .045      .045      .035    608.10     71.68
  .000366       85.       85.       85.         2         0         1      0.00    528.32    600.00


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.87      3.02      0.00      68.20     0.00      696.30    0.00      608.10    608.10

1490 NH CARD USED
PRESSURE AND WEIR FLOW

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

   624.11    623.75     0.00      253.     2399.      696.     621.20    623.30     30.00


3470 ENCROACHMENT STATIONS=      531.8      600.0  TYPE=      1  TARGET=      68.200
 ELENCL=     623.00  ELENCR= 100000.00

                BRIDGE SECTION B  ROMEO PLANK ROAD  UPSTREAM FACE                319

 31865.00     15.88    623.98      0.00      0.00    624.03       .05       .28      0.00    618.70
    2670.      235.     2435.        0.      452.     1341.        0.        4.        1. 100000.00
      .02       .52      1.82      0.00      .050      .045      .045      .034    608.10     70.24
  .000315       30.       30.       30.         2         0         3      0.00    529.76    600.00


1490 NH CARD USED

                VALLEY SECTION C                                                  320
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  2670.      23.    1120.    1527.      60.     615.    1445.      52.      13.   620.00
   .24       .39     1.82     1.06    .090     .044     .045    .037   610.20   115.48
 .000118    984.    1155.     984.       2        0        1    0.00   382.85   498.33


CCHV=     .100 CEHV=     .300
1490 NH CARD USED

                VALLEY SECTION D                                          321

 34140.00    13.47   624.37     0.00     0.00   624.45     .07     .20      .01   620.50
  2670.      646.    1677.     347.     771.     628.     303.    100.      22.   619.60
   .39       .84     2.67     1.14    .080     .049     .070    .036   610.90   178.86
 .000321    1020.    1120.    1090.       2        0        1    0.00   319.31   498.17


1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL      QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL     TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR   TOPWID     ENDST


                VALLEY SECTION E                                          322

 35670.00    11.41   625.01     0.00     0.00   625.13     .12     .67      .01   618.10
  2540.      455.    1540.     545.     360.     445.     511.    150.      33.   622.90
   .55       1.27     3.46     1.07    .070     .048     .070    .036   613.60    82.33
 .000699    1400.    1530.    1400.       2        0        1    0.00   372.07   454.41

1490 NH CARD USED

                VALLEY SECTION F                                          323

 36750.00     9.98   625.68     0.00     0.00   625.74     .06     .60      .01   622.70
  2540.     1510.     961.      69.    1077.     360.     112.    184.      42.   621.10
   .71       1.40     2.67      .62    .052     .046     .090    .036   615.70    77.63
 .000460    1080.    1080.     980.       2        0        1    0.00   424.71   502.34


CCHV=     .300 CEHV=     .700
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      320.0      578.0  TYPE=      1  TARGET=      258.000
 37080.00     9.68   625.88     0.00     0.00   626.15     .26     .27      .14   622.50
  2540.      945.    1460.     135.     441.     284.     110.    193.      45.   622.30
   .73       2.14     5.13     1.23    .060     .046     .075    .036   616.20   320.00
 .001777     330.     330.     330.       1        0        1    0.00   249.57   569.57


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      370.0      595.0  TYPE=      1  TARGET=     -370.000
 37180.00     9.71   626.06     0.00     0.00   626.39     .34     .20      .05   622.65
  2540.      815.    1582.     144.     289.     285.     112.    195.      45.   622.45
   .74       2.82     5.54     1.28    .050     .047     .080    .036   616.35   370.00
 .002171     100.     100.     100.       2        0        1    0.00   200.02   570.02


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      494.0      590.0  TYPE=      1  TARGET=       96.000
```

```
 37280.00      9.66    626.16      0.00      0.00    626.96       .80       .24       .32    622.20
    2540.       682.     1747.      111.      149.      214.       51.      196.       46.    623.60
      .74      4.58      8.15      2.18      .040      .038      .060      .036    616.50    494.00
  .002998       80.      100.      100.         2         0         1      0.00     96.00    590.00


1490 NH CARD USED
 37349.00      9.37    626.77      0.00      0.00    627.21       .44       .14       .11    632.40
    2540.        0.     2540.        0.        0.      480.        0.      197.       46.    633.10
      .75      0.00      5.30      0.00      .040      .040      .060      .036    617.40    518.40
  .001405       89.       69.       59.         2         0         1      0.00     59.44    577.84


NORMAL BRIDGE,NRD=17 MIN ELTRD=  628.20 MAX ELLC=  628.70

 37350.00      9.37    626.77      0.00      0.00    627.21       .44       .00       .00    632.40
    2540.        0.     2540.        0.        0.      480.        0.      197.       46.    633.10
      .75      0.00      5.29      0.00      .040      .040      .060      .036    617.40    518.40
  .001404        1.        1.        1.         0         0         1      0.00     59.44    577.84


NORMAL BRIDGE,NRD=17 MIN ELTRD=  628.20 MAX ELLC=  628.70

                BRIDGE SECTION H  HAYES ROAD  UPSTREAM FACE                    325

 37390.00      9.44    626.84      0.00      0.00    627.27       .43       .06       .00    632.40
    2540.        0.     2540.        0.        0.      483.        0.      198.       46.    633.10
      .75      0.00      5.26      0.00      .040      .040      .060      .036    617.40    518.40
  .001373       40.       40.       40.         0         0         1      0.00     59.44    577.84


1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     QLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 37391.00      9.44    626.84      0.00      0.00    627.27       .43       .00       .00    632.40
    2540.        0.     2540.        0.        0.      483.        0.      198.       46.    633.10
      .75      0.00      5.26      0.00      .040      .050      .060      .036    617.40    518.40
  .002144        1.        1.        1.         0         0         1      0.00     59.44    577.84


1490 NH CARD USED
 37506.00      9.83    627.33      0.00      0.00    627.61       .28       .29       .05    622.30
    2540.     1155.     1242.      143.      522.      221.      113.      199.       46.    625.10
      .76      2.21      5.62      1.27      .080      .058      .090      .036    617.50     90.23
  .003090      115.      115.      115.         2         0         1      0.00    281.04    371.27


1490 NH CARD USED

                VALLEY SECTION I                                                  326

 38530.00     11.08    629.48      0.00      0.00    629.59       .12      1.94       .05    623.20
    2540.     1308.      991.      241.      742.      254.      218.      224.       53.    626.00
      .87      1.76      3.90      1.10      .079      .059      .090      .036    618.40     86.32
  .001279     1024.     1024.     1024.         2         0         1      0.00    304.44    390.76
```

1490 NH CARD USED

VALLEY SECTION J 327

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39520.00 | 10.47 | 630.67 | 0.00 | 0.00 | 630.85 | .18 | 1.24 | .02 | 629.50 |
| 2540. | 219. | 1526. | 795. | 258. | 354. | 785. | 254. | 62. | 628.80 |
| .96 | .85 | 4.32 | 1.01 | .100 | .048 | .100 | .036 | 620.20 | 178.33 |
| .001188 | 1050. | 990. | 990. | 3 | 0 | 1 | 0.00 | 449.59 | 627.92 |

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION K 328

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 40660.00 | 10.41 | 632.11 | 0.00 | 0.00 | 632.30 | .19 | 1.44 | .00 | 629.90 |
| 2490. | 395. | 1145. | 950. | 335. | 234. | 551. | 286. | 73. | 626.10 |
| 1.07 | 1.18 | 4.89 | 1.72 | .080 | .046 | .071 | .036 | 621.70 | 59.19 |
| .001385 | 1180. | 1140. | 1080. | 2 | 0 | 1 | 0.00 | 408.94 | 469.44 |

1490 NH CARD USED

VALLEY SECTION L 329

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 42160.00 | 9.03 | 634.03 | 0.00 | 0.00 | 634.20 | .17 | 1.90 | .00 | 633.20 |
| 2490. | 500. | 1479. | 510. | 321. | 360. | 357. | 323. | 87. | 633.70 |
| 1.20 | 1.56 | 4.11 | 1.43 | .055 | .045 | .060 | .035 | 625.00 | 532.22 |
| .001194 | 1400. | 1500. | 1500. | 1 | 0 | 1 | 0.00 | 397.35 | 929.57 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

VALLEY SECTION M 330

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 43220.00 | 8.78 | 635.68 | 0.00 | 0.00 | 635.95 | .27 | 1.71 | .03 | 634.50 |
| 2490. | 284. | 1499. | 706. | 171. | 289. | 397. | 346. | 97. | 634.90 |
| 1.28 | 1.66 | 5.19 | 1.78 | .050 | .046 | .060 | .035 | 626.90 | 520.62 |
| .002307 | 1070. | 1060. | 1060. | 2 | 0 | 1 | 0.00 | 422.02 | 942.64 |

CCHV= .400 CEHV= .800
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 330.0 465.0 TYPE= 1 TARGET= 135.000

VALLEY SECTION N 331

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 43980.00 | 9.78 | 637.48 | 0.00 | 0.00 | 638.15 | .67 | 1.89 | .32 | 632.60 |
| 2490. | 332. | 1987. | 170. | 104. | 276. | 84. | 357. | 101. | 634.00 |
| 1.31 | 3.20 | 7.21 | 2.02 | .050 | .043 | .055 | .035 | 627.70 | 330.00 |
| .002688 | 720. | 760. | 780. | 2 | 0 | 1 | 0.00 | 118.35 | 448.35 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 44092.00 | 9.52 | 637.72 | 0.00 | 0.00 | 638.43 | .71 | .24 | .03 | 644.30 |

```
     2490.      0.      2490.      0.      0.      369.      0.      358.      101.      644.80
     1.32     0.00      6.75     0.00    .050      .032    .060      .035    628.20      400.14
  .001813     102.      112.     122.       2         0       1      0.00     49.37      449.51


NORMAL BRIDGE,NRD= 4 MIN ELTRD=  644.30 MAX ELLC=  639.30

 44093.00     9.52   637.72     0.00    0.00   638.43     .71       .00       .00      644.30
     2490.      0.     2490.      0.      0.      369.      0.      358.      101.      644.80
     1.32     0.00      6.75     0.00    .050      .032    .060      .035    628.20      400.14
  .001811       1.        1.       1.       0         0       1      0.00     49.38      449.51


NORMAL BRIDGE,NRD= 4 MIN ELTRD=  644.30 MAX ELLC=  639.30

                BRIDGE SECTION O  SCHOENHERR ROAD  UPSTREAM FACE              332

 44127.00     9.60   637.80     0.00    0.00   638.50     .69       .06       .01      644.30
     2490.      0.     2490.      0.      0.      373.      0.      359.      102.      644.80
     1.32     0.00      6.68     0.00    .050      .032    .060      .035    628.20      400.13
  .001762      34.       34.      34.       1         0       1      0.00     49.41      449.54


1490 NH CARD USED
 44128.00     9.60   637.80     0.00    0.00   638.50     .69       .00       .00      644.30
     2490.      0.     2490.      0.      0.      373.      0.      359.      102.      644.80
     1.32     0.00      6.68     0.00    .050      .035    .060      .035    628.20      400.13
  .001643       1.        1.       1.       1         0       1      0.00     49.41      449.54


1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      200.0      500.0  TYPE=      1  TARGET=     -200.000
 44250.00    10.46   638.68     0.00    0.00   638.85     .17       .14       .21      633.12
     2490.    1066.     1269.    155.    548.      299.    120.      361.      102.      634.52
     1.33     1.95      4.25     1.29    .050      .043    .055      .035    628.22      200.00
  .000861     122.      122.     122.       3         0       1      0.00    257.74      457.74


1490 NH CARD USED

                VALLEY SECTION P                                              333

 45230.00    11.21   639.61     0.00    0.00   639.81     .20       .93       .02      637.20
     2490.     595.     1460.    435.    499.      320.    325.      384.      108.      637.00
     1.41     1.19      4.57     1.34    .100      .044    .068      .035    628.40       47.99
  .001074     960.      980.     990.       2         0       1      0.00    318.46      366.45


CCHV=     .100 CEHV=     .300
1490 NH CARD USED

                VALLEY SECTION Q                                              334

 46590.00    10.05   641.15     0.00    0.00   641.48     .33      1.63       .04      644.80
     2490.      0.     2117.    373.      0.      428.    304.      413.      116.      640.20
     1.50     0.00      4.94     1.23    .100      .043    .080      .035    631.10      191.37
  .001349    1350.     1360.    1370.       2         0       1      0.00    188.08      379.45
```

```
3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=        1.0      400.0  TYPE=      1  TARGET=      399.000

              VALLEY SECTION R                                                  335

 47640.00     11.31    643.01      0.00      0.00    643.56       .55      2.02       .07    639.40
    2490.      122.     1899.      469.      104.      281.      335.      431.      122.    643.50
     1.55      1.17      6.75      1.40      .100      .048      .100      .035    631.70     76.90
  .002960     1040.     1050.     1040.         3         0         1     0.00    262.66    343.53

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0      450.0  TYPE=      1  TARGET=      449.000

              VALLEY SECTION S                                                  336

 49000.00     11.73    646.03      0.00      0.00    646.25       .22      2.66       .03    643.60
    2490.      572.     1852.       66.      466.      430.       87.      457.      130.    646.10
     1.66      1.23      4.30      .76      .100      .054      .100      .034    634.30     32.98
  .001390     1330.     1360.     1390.         2         0         1     0.00    251.75    285.68

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0      450.0  TYPE=      1  TARGET=      449.000
 49425.00     11.16    646.66      0.00      0.00    646.96       .29       .68       .02    644.80
    2490.      488.     1956.       46.      384.      401.       59.      466.      132.    647.30
     1.69      1.27      4.87      .78      .100      .054      .100      .034    635.50     36.16
  .001882      430.      425.      415.         2         0         1     0.00    238.03    282.93

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0     1400.0  TYPE=      1  TARGET=     1399.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      647.60 ELREA=      645.20

              VALLEY SECTION T                                                  337

 49850.00     10.78    647.48      0.00      0.00    647.90       .42       .91       .04    647.60
    1910.        0.     1746.      164.        0.      322.      133.      473.      134.    645.20
     1.71      0.00      5.43      1.23      .100      .052      .100      .034    636.70    968.20
  .002551      430.      425.      415.         2         0         1     0.00    108.33   1076.53

CCHV=    .400 CEHV=    .700
1490 NH CARD USED
```

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 651.40 ELREA= 651.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50114.00 | 10.62 | 648.02 | 0.00 | 0.00 | 648.32 | .30 | .37 | .05 | 651.40 |
| 1910. | 0. | 1910. | 0. | 0. | 432. | 0. | 475. | 134. | 651.70 |
| 1.73 | 0.00 | 4.42 | 0.00 | .100 | .040 | .100 | .034 | 637.40 | 1200.00 |
| .000898 | 314. | 264. | 204. | 2 | 0 | 1 | 0.00 | 49.50 | 1249.50 |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 651.40 MAX ELLC= 648.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 651.40 ELREA= 651.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50115.00 | 10.62 | 648.02 | 0.00 | 0.00 | 648.32 | .30 | .00 | .00 | 651.40 |
| 1910. | 0. | 1910. | 0. | 0. | 432. | 0. | 475. | 134. | 651.70 |
| 1.73 | 0.00 | 4.42 | 0.00 | .100 | .040 | .100 | .034 | 637.40 | 1200.00 |
| .000897 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 49.50 | 1249.50 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 651.40 MAX ELLC= 648.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 651.40 ELREA= 651.70

BRIDGE SECTION U JEWELL ROAD UPSTREAM FACE 338

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50149.00 | 10.65 | 648.05 | 0.00 | 0.00 | 648.35 | .30 | .03 | .00 | 651.40 |
| 1910. | 0. | 1910. | 0. | 0. | 433. | 0. | 476. | 134. | 651.70 |
| 1.73 | 0.00 | 4.41 | 0.00 | .100 | .040 | .100 | .034 | 637.40 | 1200.00 |
| .000888 | 34. | 34. | 34. | 0 | 0 | 1 | 0.00 | 49.50 | 1249.50 |

1490 NH CARD USED

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 651.40 ELREA= 651.70

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50150.00 | 10.65 | 648.05 | 0.00 | 0.00 | 648.35 | .30 | .00 | .00 | 651.40 |
| 1910. | 0. | 1910. | 0. | 0. | 434. | 0. | 476. | 134. | 651.70 |
| 1.73 | 0.00 | 4.41 | 0.00 | .100 | .040 | .100 | .034 | 637.40 | 1200.00 |
| .000887 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 49.50 | 1249.50 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50190.00 | 10.70 | 648.10 | 0.00 | 0.00 | 648.42 | .32 | .05 | .01 | 643.70 |
| 1910. | 221. | 1206. | 483. | 94. | 222. | 208. | 476. | 134. | 647.90 |
| 1.73 | 2.35 | 5.43 | 2.32 | .070 | .047 | .050 | .034 | 637.40 | 356.06 |
| .001956 | 40. | 40. | 40. | 1 | 0 | 1 | 0.00 | 151.32 | 507.38 |

1490 NH CARD USED

VALLEY SECTION V 339

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 50860.00 | 11.90 | 649.20 | 0.00 | 0.00 | 649.37 | .17 | .89 | .06 | 643.60 |
| 1910. | 238. | 1011. | 661. | 129. | 247. | 315. | 485. | 137. | 647.80 |
| 1.79 | 1.84 | 4.10 | 2.10 | .070 | .048 | .050 | .034 | 637.30 | 328.67 |
| .000984 | 670. | 670. | 642. | 2 | 0 | 1 | 0.00 | 167.23 | 495.90 |

```
CCHV=    .100 CEHV=    .300
1490 NH CARD USED

                VALLEY SECTION W                                        340

 51950.00     9.42   650.72     0.00     0.00   650.96      .24     1.57      .02   649.90
    1800.     235.    1220.     345.     144.     263.     250.     501.     142.   649.40
     1.87     1.63     4.64     1.38     .070     .053     .080     .034   641.30   192.89
  .002633     960.    1090.    1000.        1        0        1     0.00   277.78   470.67

CCHV=    .400 CEHV=    .800
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     318.2     405.1  TYPE=     1  TARGET=     101.000

                VALLEY SECTION X                                        341

 53150.00    10.83   653.83     0.00     0.00   654.17      .34     3.13      .08   648.50
    1800.     228.    1382.     190.     125.     264.      96.     517.     147.   651.40
     1.95     1.82     5.23     1.98     .120     .056     .090     .034   643.00   318.20
  .002620    1200.    1200.    1150.        2        0        1     0.00    86.86   405.06

1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL     OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

 53204.00    10.94   654.14     0.00     0.00   654.43      .29      .24      .02   664.00
    1800.       0.    1800.       0.       0.     415.       0.     517.     147.   663.70
     1.95     0.00     4.34     0.00     .120     .102     .090     .034   643.20   439.95
  .009391      54.      54.      54.        2        0        1     0.00    62.04   507.15

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

 53205.00    10.94   654.14     0.00     0.00   654.43      .29      .00      .00   664.00
    1800.       0.    1800.       0.       0.     415.       0.     517.     147.   663.70
     1.95     0.00     4.33     0.00     .120     .030     .090     .034   643.20   439.94
  .001146       1.       1.       1.        0        0        1     0.00    62.06   507.16

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

                BRIDGE SECTION Y  NORTH BOUND M-53  UPSTREAM FACE        342

 53255.00    11.01   654.21     0.00     0.00   654.49      .29      .06      .00   664.00
    1800.       0.    1800.       0.       0.     419.       0.     518.     147.   663.70
     1.95     0.00     4.29     0.00     .120     .030     .090     .034   643.20   439.84
```

```
.001113      50.      50.      50.       2        0        2     0.00    62.29   507.29

3265 DIVIDED FLOW

 53256.00    11.01   654.21     0.00     0.00   654.49      .29      .00      .00   664.00
    1800.       0.    1800.       0.       0.     419.       0.     518.     147.   663.70
     1.95     0.00     4.29     0.00     .120     .030     .090     .034   643.20   439.83
 .001113        1.       1.       1.        0        0        1     0.00    62.29   507.29

3265 DIVIDED FLOW

 53294.00    11.06   654.26     0.00     0.00   654.54      .28      .04      .00   664.00
    1800.       0.    1800.       0.       0.     422.       0.     518.     147.   663.70
     1.96     0.00     4.27     0.00     .120     .030     .090     .034   643.20   439.76
 .001100       38.      38.      38.        0        0        1     0.00    62.45   507.37

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

 53295.00    11.06   654.26     0.00     0.00   654.54      .28      .00      .00   664.00
    1800.       0.    1800.       0.       0.     422.       0.     518.     147.   663.70
     1.96     0.00     4.27     0.00     .120     .030     .090     .034   643.20   439.76
 .001100        1.       1.       1.        0        0        1     0.00    62.46   507.38

3265 DIVIDED FLOW

    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     QLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      FLMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

                BRIDGE SECTION Z  SOUTH BOUND M-53  UPSTREAM FACE              343

 53345.00    11.12   654.32     0.00     0.00   654.60      .28      .05      .00   664.00
    1800.       0.    1800.       0.       0.     426.       0.     519.     147.   663.70
     1.96     0.00     4.23     0.00     .120     .030     .090     .034   643.20   439.65
 .001075       50.      50.      50.        1        0        1     0.00    62.68   507.50

3265 DIVIDED FLOW

 53346.00    11.12   654.32     0.00     0.00   654.60      .28      .00      .00   664.00
    1800.       0.    1800.       0.       0.     426.       0.     519.     147.   663.70
     1.96     0.00     4.23     0.00     .120     .030     .090     .034   643.20   439.65
 .001074        1.       1.       1.        0        0        1     0.00    62.69   507.50
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SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLI

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 1590.00 | 619.40 | .17 | 0.00 | 0.00 | 1578.95 | 12.50 | 93.33 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 2340.00 | 622.60 | .14 | 0.00 | 0.00 | 2116.62 | 15.70 | 106.00 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 2670.00 | 623.60 | .11 | 0.00 | 0.00 | 2164.92 | 16.70 | 545.09 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 3680.00 | 626.20 | .04 | 0.00 | 0.00 | 1945.96 | 19.30 | 556.91 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 1590.00 | 619.52 | .11 | .05 | .02 | 1590.00 | 11.42 | 65.80 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 2340.00 | 622.64 | .13 | .04 | .00 | 2340.00 | 14.54 | 68.20 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 2670.00 | 623.69 | .07 | .03 | .01 | 2531.22 | 15.59 | 528.32 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 3680.00 | 626.26 | .01 | .01 | .01 | 2366.08 | 18.16 | 540.75 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 1590.00 | 619.54 | .11 | .01 | .00 | 1590.00 | 11.44 | 65.80 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 2340.00 | 622.84 | .13 | .19 | 0.00 | 2340.00 | 14.74 | 68.20 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 2670.00 | 623.98 | .05 | .28 | 0.00 | 2434.91 | 15.88 | 529.76 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 3680.00 | 626.38 | .01 | .13 | 0.00 | 2320.66 | 18.28 | 541.39 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 1590.00 | 620.10 | .13 | .57 | .01 | 1251.56 | 9.90 | 294.29 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 2340.00 | 623.22 | .04 | .25 | .03 | 1102.47 | 13.02 | 363.14 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 2670.00 | 624.20 | .03 | .20 | .00 | 1119.89 | 14.00 | 382.85 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 3680.00 | 626.50 | .03 | .12 | .01 | 1234.41 | 16.30 | 403.67 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 1590.00 | 620.80 | .17 | .72 | .01 | 1446.18 | 9.90 | 279.73 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 2340.00 | 623.43 | .09 | .25 | .01 | 1604.26 | 12.53 | 308.93 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 2670.00 | 624.37 | .07 | .20 | .01 | 1676.85 | 13.47 | 319.31 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 3680.00 | 626.61 | .06 | .14 | .01 | 1946.92 | 15.71 | 344.22 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 1340.00 | 622.22 | .23 | 1.47 | .02 | 1223.39 | 8.62 | 171.90 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 2150.00 | 624.20 | .15 | .81 | .02 | 1489.04 | 10.60 | 360.14 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 2540.00 | 625.01 | .12 | .67 | .01 | 1540.30 | 11.41 | 372.07 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 3570.00 | 627.06 | .08 | .46 | .00 | 1647.61 | 13.46 | 396.78 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 1340.00 | 623.57 | .12 | 1.22 | .01 | 869.32 | 7.87 | 346.12 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 2150.00 | 625.04 | .07 | .75 | .01 | 938.44 | 9.34 | 408.69 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 2540.00 | 625.68 | .06 | .60 | .01 | 961.14 | 9.98 | 424.71 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 3570.00 | 627.45 | .04 | .35 | .00 | 1001.77 | 11.75 | 459.50 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 1340.00 | 623.98 | .36 | .49 | .17 | 1119.10 | 7.78 | 216.97 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 2150.00 | 625.29 | .29 | .32 | .16 | 1371.05 | 9.09 | 239.39 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 2540.00 | 625.88 | .26 | .27 | .14 | 1459.89 | 9.68 | 249.57 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 3570.00 | 627.56 | .19 | .16 | .10 | 1608.54 | 11.36 | 255.13 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 1340.00 | 624.23 | .38 | .25 | .01 | 1147.04 | 7.88 | 168.64 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 2150.00 | 625.49 | .35 | .22 | .04 | 1465.27 | 9.14 | 190.36 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 2540.00 | 626.06 | .34 | .20 | .05 | 1581.78 | 9.71 | 200.02 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 3570.00 | 627.67 | .27 | .13 | .06 | 1783.69 | 11.32 | 205.01 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 1340.00 | 624.41 | .63 | .26 | .18 | 1142.55 | 7.91 | 90.57 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 2150.00 | 625.62 | .77 | .25 | .29 | 1572.64 | 9.12 | 96.00 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 2540.00 | 626.16 | .80 | .24 | .32 | 1747.27 | 9.66 | 96.00 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 3570.00 | 627.70 | .80 | .18 | .37 | 2124.25 | 11.20 | 96.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 1340.00 | 625.08 | .19 | .10 | .13 | 1340.00 | 7.68 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 2150.00 | 626.28 | .35 | .13 | .12 | 2150.00 | 8.88 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 2540.00 | 626.77 | .44 | .14 | .11 | 2540.00 | 9.37 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 3570.00 | 628.05 | .64 | .15 | .05 | 3570.00 | 10.65 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 1340.00 | 625.08 | .19 | .00 | .00 | 1340.00 | 7.68 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 2150.00 | 626.29 | .35 | .00 | .00 | 2150.00 | 8.89 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 2540.00 | 626.77 | .44 | .00 | .00 | 2540.00 | 9.37 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 3570.00 | 628.05 | .64 | .00 | .00 | 3570.00 | 10.65 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 1340.00 | 625.11 | .19 | .03 | .00 | 1340.00 | 7.71 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 2150.00 | 626.34 | .35 | .05 | .00 | 2150.00 | 8.94 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 2540.00 | 626.84 | .43 | .06 | .00 | 2540.00 | 9.44 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 3570.00 | 628.14 | .63 | .07 | .00 | 3570.00 | 10.74 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 1340.00 | 625.12 | .19 | .00 | .00 | 1340.00 | 7.72 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 2150.00 | 626.34 | .35 | .00 | .00 | 2150.00 | 8.94 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 2540.00 | 626.84 | .43 | .00 | .00 | 2540.00 | 9.44 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 3570.00 | 628.14 | .63 | .00 | .00 | 3570.00 | 10.74 | 59.44 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 1340.00 | 625.29 | .50 | .26 | .22 | 1052.29 | 7.79 | 193.16 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 2150.00 | 626.64 | .36 | .30 | .00 | 1226.40 | 9.14 | 267.77 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 2540.00 | 627.33 | .28 | .29 | .05 | 1241.82 | 9.83 | 281.04 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 3570.00 | 628.98 | .19 | .26 | .13 | 1307.06 | 11.48 | 312.29 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 1340.00 | 627.94 | .10 | 2.13 | .12 | 699.23 | 9.54 | 275.23 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 2150.00 | 629.04 | .11 | 2.08 | .07 | 903.69 | 10.64 | 296.09 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 2540.00 | 629.48 | .12 | 1.94 | .05 | 991.37 | 11.08 | 304.44 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 3570.00 | 630.64 | .13 | 1.58 | .02 | 1177.27 | 12.24 | 326.59 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 1340.00 | 629.03 | .20 | 1.16 | .03 | 1116.52 | 8.83 | 409.78 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 2150.00 | 630.21 | .19 | 1.22 | .02 | 1408.46 | 10.01 | 444.82 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 2540.00 | 630.67 | .18 | 1.24 | .02 | 1525.75 | 10.47 | 449.59 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 3570.00 | 631.80 | .16 | 1.19 | .01 | 1788.07 | 11.60 | 463.41 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 1310.00 | 630.54 | .23 | 1.53 | .01 | 887.41 | 8.84 | 322.89 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 2110.00 | 631.67 | .20 | 1.47 | .01 | 1077.16 | 9.97 | 385.16 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 2490.00 | 632.11 | .19 | 1.44 | .00 | 1145.09 | 10.41 | 408.94 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 3500.00 | 633.11 | .17 | 1.31 | .00 | 1281.27 | 11.41 | 450.04 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 1310.00 | 632.62 | .19 | 2.04 | .00 | 1085.81 | 7.62 | 324.73 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 2110.00 | 633.66 | .17 | 1.95 | .00 | 1366.99 | 8.66 | 384.04 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 2490.00 | 634.03 | .17 | 1.90 | .00 | 1479.43 | 9.03 | 397.35 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 3500.00 | 634.88 | .17 | 1.77 | .00 | 1745.51 | 9.88 | 425.34 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 1310.00 | 634.36 | .39 | 1.88 | .06 | 1171.75 | 7.46 | 295.38 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 2110.00 | 635.33 | .30 | 1.76 | .04 | 1414.04 | 8.43 | 405.66 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 2490.00 | 635.68 | .27 | 1.71 | .03 | 1499.18 | 8.78 | 422.02 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 3500.00 | 636.45 | .24 | 1.62 | .02 | 1699.10 | 9.55 | 458.81 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 1310.00 | 636.01 | .39 | 1.65 | .00 | 1188.60 | 8.31 | 97.94 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 2110.00 | 637.10 | .58 | 1.83 | .23 | 1742.14 | 9.40 | 113.08 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 2490.00 | 637.48 | .67 | 1.89 | .32 | 1987.18 | 9.78 | 118.35 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 3500.00 | 638.31 | .90 | 1.99 | .53 | 2596.67 | 10.61 | 129.83 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 1310.00 | 636.29 | .30 | .14 | .04 | 1310.00 | 8.09 | 48.68 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 2110.00 | 637.34 | .56 | .21 | .01 | 2110.00 | 9.14 | 49.19 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 2490.00 | 637.72 | .71 | .24 | .03 | 2490.00 | 9.52 | 49.37 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 3500.00 | 638.59 | 1.12 | .33 | .18 | 3500.00 | 10.39 | 49.78 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 1310.00 | 636.29 | .30 | .00 | .00 | 1310.00 | 8.09 | 48.68 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 2110.00 | 637.34 | .56 | .00 | .00 | 2110.00 | 9.14 | 49.19 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 2490.00 | 637.72 | .71 | .00 | .00 | 2490.00 | 9.52 | 49.36 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 3500.00 | 638.60 | 1.12 | .00 | .00 | 3500.00 | 10.40 | 49.78 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 1310.00 | 636.32 | .30 | .03 | .00 | 1310.00 | 8.12 | 48.69 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 2110.00 | 637.40 | .55 | .05 | .00 | 2110.00 | 9.20 | 49.22 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 2490.00 | 637.80 | .69 | .06 | .01 | 2490.00 | 9.60 | 49.41 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 3500.00 | 638.74 | 1.09 | .10 | .01 | 3500.00 | 10.54 | 49.83 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 1310.00 | 636.33 | .30 | .00 | .00 | 1310.00 | 8.13 | 48.69 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 2110.00 | 637.40 | .55 | .00 | .00 | 2110.00 | 9.20 | 49.22 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 2490.00 | 637.80 | .69 | .00 | .00 | 2490.00 | 9.60 | 49.41 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 3500.00 | 638.76 | 1.08 | .00 | .00 | 3500.00 | 10.56 | 49.83 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 1310.00 | 636.48 | .28 | .13 | .01 | 1050.92 | 8.26 | 227.27 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 2110.00 | 638.06 | .19 | .14 | .15 | 1202.13 | 9.84 | 249.16 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 2490.00 | 638.68 | .17 | .14 | .21 | 1269.26 | 10.46 | 257.74 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 3500.00 | 640.20 | .15 | .14 | .37 | 1427.32 | 11.98 | 278.89 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 1310.00 | 637.77 | .21 | 1.18 | .03 | 1028.69 | 9.37 | 286.52 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 2110.00 | 639.06 | .21 | 1.00 | .02 | 1344.81 | 10.66 | 310.18 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 2490.00 | 639.61 | .20 | .93 | .02 | 1460.19 | 11.21 | 318.46 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 3500.00 | 640.96 | .18 | .77 | .03 | 1706.85 | 12.56 | 332.14 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 1310.00 | 639.22 | .23 | 1.47 | .01 | 1238.65 | 8.12 | 134.95 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 2110.00 | 640.61 | .30 | 1.62 | .03 | 1853.72 | 9.51 | 177.28 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 2490.00 | 641.15 | .33 | 1.63 | .04 | 2117.27 | 10.05 | 188.08 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 3500.00 | 642.40 | .37 | 1.57 | .06 | 2763.46 | 11.30 | 219.11 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 1310.00 | 640.79 | .65 | 1.87 | .13 | 1306.86 | 9.09 | 44.03 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 2110.00 | 642.42 | .92 | 2.24 | .18 | 2031.20 | 10.72 | 94.74 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 2490.00 | 643.01 | .55 | 2.02 | .07 | 1899.26 | 11.31 | 262.66 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 3500.00 | 644.32 | .47 | 1.99 | .03 | 2247.91 | 12.62 | 301.84 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 1310.00 | 643.93 | .19 | 2.64 | .05 | 1200.95 | 9.63 | 182.17 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 2110.00 | 645.89 | .18 | 2.65 | .07 | 1630.78 | 11.59 | 196.81 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 2490.00 | 646.03 | .22 | 2.66 | .03 | 1852.17 | 11.73 | 251.75 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 3500.00 | 647.22 | .25 | 2.66 | .02 | 2337.74 | 12.92 | 265.20 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 1310.00 | 644.52 | .27 | .64 | .02 | 1262.67 | 9.02 | 171.92 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 2110.00 | 646.41 | .25 | .57 | .02 | 1725.89 | 10.91 | 191.73 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 2490.00 | 646.66 | .29 | .68 | .02 | 1956.10 | 11.16 | 238.03 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 3500.00 | 647.90 | .31 | .72 | .02 | 2446.11 | 12.40 | 259.73 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1030.00 | 645.32 | .32 | .83 | .01 | 1030.00 | 8.62 | 41.72 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1660.00 | 647.10 | .45 | .84 | .06 | 1652.74 | 10.40 | 54.61 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1910.00 | 647.48 | .42 | .91 | .04 | 1746.08 | 10.78 | 108.33 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 2760.00 | 648.72 | .12 | .62 | .02 | 1397.59 | 12.62 | 281.53 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.82 | .16 | .28 | .06 | 1030.00 | 8.42 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.73 | .25 | .34 | .08 | 1660.00 | 10.33 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.02 | .30 | .37 | .05 | 1910.00 | 10.62 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 648.93 | .52 | .33 | .28 | 2760.00 | 11.53 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1030.00 | 645.82 | .16 | .00 | .00 | 1030.00 | 8.42 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1660.00 | 647.73 | .24 | .00 | .00 | 1660.00 | 10.33 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1910.00 | 648.02 | .30 | .00 | .00 | 1910.00 | 10.62 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 2760.00 | 648.91 | .59 | .00 | .05 | 2760.00 | 11.51 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1030.00 | 645.84 | .16 | .02 | .00 | 1030.00 | 8.44 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1660.00 | 647.76 | .24 | .03 | .00 | 1660.00 | 10.36 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1910.00 | 648.05 | .30 | .03 | .00 | 1910.00 | 10.65 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 2760.00 | 649.05 | .59 | .13 | .00 | 2760.00 | 11.65 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.84 | .16 | .00 | .00 | 1030.00 | 8.44 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.76 | .24 | .00 | .00 | 1660.00 | 10.36 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.05 | .30 | .00 | .00 | 1910.00 | 10.65 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 649.18 | .49 | .00 | .04 | 2760.00 | 11.78 | 49.50 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.79 | .48 | .05 | .23 | 925.53 | 8.39 | 109.66 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.79 | .30 | .04 | .04 | 1098.58 | 10.39 | 146.92 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.10 | .32 | .05 | .01 | 1205.75 | 10.70 | 151.32 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 649.53 | .29 | .06 | .08 | 1418.33 | 12.13 | 185.20 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1030.00 | 647.30 | .16 | 1.06 | .13 | 725.50 | 10.00 | 134.23 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1660.00 | 648.82 | .16 | .84 | .06 | 925.43 | 11.52 | 155.35 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1910.00 | 649.20 | .17 | .89 | .06 | 1010.95 | 11.90 | 167.23 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 2760.00 | 650.51 | .18 | .83 | .04 | 1233.79 | 13.21 | 226.50 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 980.00 | 649.00 | .46 | 1.91 | .09 | 980.00 | 7.70 | 44.66 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 1570.00 | 650.32 | .27 | 1.58 | .03 | 1162.81 | 9.02 | 274.37 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 1800.00 | 650.72 | .24 | 1.57 | .02 | 1220.10 | 9.42 | 277.78 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 2610.00 | 651.91 | .18 | 1.40 | .00 | 1407.36 | 10.61 | 295.38 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 980.00 | 652.36 | .19 | 2.99 | .11 | 817.43 | 9.36 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 1570.00 | 653.45 | .30 | 3.14 | .03 | 1228.83 | 10.45 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 1800.00 | 653.83 | .34 | 3.13 | .08 | 1382.18 | 10.83 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 2610.00 | 654.91 | .48 | 3.06 | .24 | 1908.73 | 11.91 | 86.86 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.58 | .14 | .15 | .02 | 980.00 | 9.38 | 56.20 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.74 | .25 | .22 | .02 | 1570.00 | 10.54 | 60.56 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.14 | .29 | .24 | .02 | 1800.00 | 10.94 | 62.04 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.28 | .44 | .32 | .02 | 2610.00 | 12.08 | 66.30 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 930.00 | 652.58 | .14 | .00 | .00 | 980.00 | 9.38 | 56.21 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.75 | .25 | .00 | .00 | 1570.00 | 10.55 | 60.58 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.14 | .29 | .00 | .00 | 1800.00 | 10.94 | 62.06 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.28 | .44 | .00 | .00 | 2610.00 | 12.08 | 66.33 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.62 | .14 | .03 | .00 | 980.00 | 9.42 | 56.34 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.80 | .25 | .05 | .00 | 1570.00 | 10.60 | 60.78 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.21 | .29 | .06 | .00 | 1800.00 | 11.01 | 62.29 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.37 | .43 | .08 | .00 | 2610.00 | 12.17 | 66.67 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.62 | .14 | .00 | .00 | 980.00 | 9.42 | 56.34 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.80 | .25 | .00 | .00 | 1570.00 | 10.60 | 60.78 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.21 | .29 | .00 | .00 | 1800.00 | 11.01 | 62.29 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.38 | .43 | .00 | .00 | 2610.00 | 12.18 | 66.67 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.65 | .14 | .02 | .00 | 980.00 | 9.45 | 56.43 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.85 | .24 | .04 | .00 | 1570.00 | 10.65 | 60.93 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.26 | .28 | .04 | .00 | 1800.00 | 11.06 | 62.45 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.44 | .43 | .06 | .00 | 2610.00 | 12.24 | 66.89 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.65 | .14 | .00 | .00 | 980.00 | 9.45 | 56.43 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.85 | .24 | .00 | .00 | 1570.00 | 10.65 | 60.93 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.26 | .28 | .00 | .00 | 1800.00 | 11.06 | 62.46 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.44 | .43 | .00 | .00 | 2610.00 | 12.24 | 66.90 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.68 | .14 | .03 | .00 | 980.00 | 9.48 | 56.55 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.90 | .24 | .05 | .00 | 1570.00 | 10.70 | 61.11 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.32 | .28 | .05 | .00 | 1800.00 | 11.12 | 62.68 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.53 | .41 | .07 | .00 | 2610.00 | 12.33 | 67.26 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.68 | .14 | .00 | .00 | 980.00 | 9.48 | 56.55 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.90 | .24 | .00 | .00 | 1570.00 | 10.70 | 61.12 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.32 | .28 | .00 | .00 | 1800.00 | 11.12 | 62.69 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.54 | .41 | .00 | .00 | 2610.00 | 12.34 | 67.27 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 31750.000 | 1590.000 | 619.400 | 0.000 | 0.000 | 0.000 | 93.333 | 0.000 | 0.000 |
| 31750.000 | 2340.000 | 622.600 | 3.200 | 0.000 | 0.000 | 106.000 | -12.667 | 0.000 |
| 31750.000 | 2670.000 | 623.600 | 1.000 | 0.000 | 0.000 | 545.090 | -451.757 | 0.000 |
| 31750.000 | 3680.000 | 626.200 | 2.600 | 0.000 | 0.000 | 556.908 | -463.575 | 0.000 |
| 31835.000 | 1590.000 | 619.522 | 0.000 | .122 | 0.000 | 65.799 | 0.000 | 85.000 |
| 31835.000 | 2340.000 | 622.644 | 3.122 | .044 | 0.000 | 68.200 | -2.401 | 85.000 |
| 31835.000 | 2670.000 | 623.686 | 1.042 | .086 | 0.000 | 528.317 | -462.518 | 85.000 |
| 31835.000 | 3680.000 | 626.255 | 2.570 | .055 | 0.000 | 540.751 | -474.952 | 85.000 |
| 31865.000 | 1590.000 | 619.536 | 0.000 | .014 | 0.000 | 65.799 | 0.000 | 30.000 |
| 31865.000 | 2340.000 | 622.843 | 3.307 | .199 | 0.000 | 68.200 | -2.401 | 30.000 |
| 31865.000 | 2670.000 | 623.983 | 1.141 | .298 | 0.000 | 529.757 | -463.958 | 30.000 |
| 31865.000 | 3680.000 | 626.382 | 2.399 | .127 | 0.000 | 541.394 | -475.595 | 30.000 |
| 33020.000 | 1590.000 | 620.098 | 0.000 | .563 | 0.000 | 294.289 | 0.000 | 1155.000 |
| 33020.000 | 2340.000 | 623.216 | 3.117 | .373 | 0.000 | 363.138 | -68.849 | 1155.000 |
| 33020.000 | 2670.000 | 624.203 | .988 | .220 | 0.000 | 382.855 | -88.566 | 1155.000 |
| 33020.000 | 3680.000 | 626.496 | 2.292 | .114 | 0.000 | 403.666 | -109.377 | 1155.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 34140.000 | 1590.000 | 620.799 | 0.000 | .701 | 0.000 | 279.730 | 0.000 | 1120.000 |
| 34140.000 | 2340.000 | 623.433 | 2.634 | .217 | 0.000 | 308.935 | -29.204 | 1120.000 |
| 34140.000 | 2670.000 | 624.374 | .942 | .171 | 0.000 | 319.308 | -39.578 | 1120.000 |
| 34140.000 | 3680.000 | 626.614 | 2.239 | .118 | 0.000 | 344.218 | -64.488 | 1120.000 |
| 35670.000 | 1340.000 | 622.224 | 0.000 | 1.425 | 0.000 | 171.900 | 0.000 | 1530.000 |
| 35670.000 | 2150.000 | 624.202 | 1.978 | .769 | 0.000 | 360.136 | -188.236 | 1530.000 |
| 35670.000 | 2540.000 | 625.010 | .809 | .636 | 0.000 | 372.072 | -200.172 | 1530.000 |
| 35670.000 | 3570.000 | 627.063 | 2.052 | .449 | 0.000 | 396.785 | -224.885 | 1530.000 |
| 36750.000 | 1340.000 | 623.566 | 0.000 | 1.342 | 0.000 | 346.120 | 0.000 | 1080.000 |
| 36750.000 | 2150.000 | 625.038 | 1.472 | .836 | 0.000 | 408.687 | -62.567 | 1080.000 |
| 36750.000 | 2540.000 | 625.677 | .639 | .666 | 0.000 | 424.713 | -78.593 | 1080.000 |
| 36750.000 | 3570.000 | 627.449 | 1.773 | .387 | 0.000 | 459.500 | -113.380 | 1080.000 |
| 37080.000 | 1340.000 | 623.982 | 0.000 | .416 | 0.000 | 216.969 | 0.000 | 330.000 |
| 37080.000 | 2150.000 | 625.293 | 1.310 | .254 | 0.000 | 239.386 | -22.417 | 330.000 |
| 37080.000 | 2540.000 | 625.883 | .590 | .206 | 0.000 | 249.574 | -32.605 | 330.000 |
| 37080.000 | 3570.000 | 627.564 | 1.682 | .115 | 0.000 | 255.133 | -38.164 | 330.000 |
| 37180.000 | 1340.000 | 624.229 | 0.000 | .247 | 0.000 | 168.643 | 0.000 | 100.000 |
| 37180.000 | 2150.000 | 625.490 | 1.261 | .198 | 0.000 | 190.364 | -21.721 | 100.000 |
| 37180.000 | 2540.000 | 626.056 | .566 | .174 | 0.000 | 200.019 | -31.377 | 100.000 |
| 37180.000 | 3570.000 | 627.673 | 1.617 | .109 | 0.000 | 205.009 | -36.367 | 100.000 |
| 37280.000 | 1340.000 | 624.409 | 0.000 | .180 | 0.000 | 90.565 | 0.000 | 100.000 |
| 37280.000 | 2150.000 | 625.618 | 1.209 | .127 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37280.000 | 2540.000 | 626.156 | .538 | .100 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37280.000 | 3570.000 | 627.696 | 1.540 | .023 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37349.000 | 1340.000 | 625.078 | 0.000 | .669 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 2150.000 | 626.285 | 1.207 | .667 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 2540.000 | 626.772 | .487 | .616 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 3570.000 | 628.053 | 1.281 | .357 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37350.000 | 1340.000 | 625.079 | 0.000 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 2150.000 | 626.286 | 1.208 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 2540.000 | 626.774 | .487 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 3570.000 | 628.055 | 1.281 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37390.000 | 1340.000 | 625.114 | 0.000 | .036 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 2150.000 | 626.341 | 1.227 | .055 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 2540.000 | 626.837 | .496 | .063 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 3570.000 | 628.138 | 1.301 | .083 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37391.000 | 1340.000 | 625.115 | 0.000 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 2150.000 | 626.343 | 1.227 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 2540.000 | 626.839 | .496 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 3570.000 | 628.143 | 1.304 | .005 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37506.000 | 1340.000 | 625.287 | 0.000 | .171 | 0.000 | 193.157 | 0.000 | 115.000 |
| 37506.000 | 2150.000 | 626.643 | 1.357 | .301 | 0.000 | 267.774 | -74.617 | 115.000 |
| 37506.000 | 2540.000 | 627.331 | .688 | .492 | 0.000 | 281.044 | -87.887 | 115.000 |
| 37506.000 | 3570.000 | 628.980 | 1.648 | .837 | 0.000 | 312.287 | -119.130 | 115.000 |
| 38530.000 | 1340.000 | 627.943 | 0.000 | 2.656 | 0.000 | 275.228 | 0.000 | 1024.000 |
| 38530.000 | 2150.000 | 629.038 | 1.096 | 2.395 | 0.000 | 296.089 | -20.861 | 1024.000 |
| 38530.000 | 2540.000 | 629.475 | .437 | 2.144 | 0.000 | 304.445 | -29.217 | 1024.000 |
| 38530.000 | 3570.000 | 630.637 | 1.162 | 1.658 | 0.000 | 326.586 | -51.358 | 1024.000 |
| 39520.000 | 1340.000 | 629.026 | 0.000 | 1.083 | 0.000 | 409.776 | 0.000 | 990.000 |
| 39520.000 | 2150.000 | 630.211 | 1.185 | 1.173 | 0.000 | 444.821 | -35.046 | 990.000 |
| 39520.000 | 2540.000 | 630.675 | .464 | 1.200 | 0.000 | 449.588 | -39.812 | 990.000 |
| 39520.000 | 3570.000 | 631.803 | 1.129 | 1.166 | 0.000 | 463.409 | -53.633 | 990.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 40660.000 | 2110.000 | 631.672 | 1.135 | 1.461 | 0.000 | 385.157 | -62.270 | 1140.000 |
| 40660.000 | 2490.000 | 632.106 | .433 | 1.431 | 0.000 | 408.943 | -86.057 | 1140.000 |
| 40660.000 | 3500.000 | 633.114 | 1.009 | 1.311 | 0.000 | 450.040 | -127.154 | 1140.000 |
| 42160.000 | 1310.000 | 632.625 | 0.000 | 2.088 | 0.000 | 324.732 | 0.000 | 1500.000 |
| 42160.000 | 2110.000 | 633.655 | 1.030 | 1.983 | 0.000 | 384.039 | -59.307 | 1500.000 |
| 42160.000 | 2490.000 | 634.033 | .378 | 1.927 | 0.000 | 397.350 | -72.618 | 1500.000 |
| 42160.000 | 3500.000 | 634.883 | .850 | 1.769 | 0.000 | 425.340 | -100.608 | 1500.000 |
| 43220.000 | 1310.000 | 634.359 | 0.000 | 1.735 | 0.000 | 295.384 | 0.000 | 1060.000 |
| 43220.000 | 2110.000 | 635.332 | .973 | 1.677 | 0.000 | 405.665 | -110.281 | 1060.000 |
| 43220.000 | 2490.000 | 635.677 | .345 | 1.644 | 0.000 | 422.016 | -126.632 | 1060.000 |
| 43220.000 | 3500.000 | 636.452 | .775 | 1.570 | 0.000 | 458.812 | -163.429 | 1060.000 |
| 43980.000 | 1310.000 | 636.012 | 0.000 | 1.652 | 0.000 | 97.941 | 0.000 | 760.000 |
| 43980.000 | 2110.000 | 637.103 | 1.091 | 1.771 | 0.000 | 113.078 | -15.136 | 760.000 |
| 43980.000 | 2490.000 | 637.483 | .380 | 1.806 | 0.000 | 118.354 | -20.413 | 760.000 |
| 43980.000 | 3500.000 | 638.309 | .826 | 1.856 | 0.000 | 129.829 | -31.888 | 760.000 |
| 44092.000 | 1310.000 | 636.287 | 0.000 | .275 | 0.000 | 48.678 | 0.000 | 112.000 |
| 44092.000 | 2110.000 | 637.337 | 1.050 | .234 | 0.000 | 49.188 | -.511 | 112.000 |
| 44092.000 | 2490.000 | 637.720 | .383 | .237 | 0.000 | 49.375 | -.697 | 112.000 |
| 44092.000 | 3500.000 | 638.594 | .874 | .285 | 0.000 | 49.783 | -1.105 | 112.000 |
| 44093.000 | 1310.000 | 636.288 | 0.000 | .001 | 0.000 | 48.678 | 0.000 | 1.000 |
| 44093.000 | 2110.000 | 637.339 | 1.051 | .002 | 0.000 | 49.189 | -.511 | 1.000 |
| 44093.000 | 2490.000 | 637.722 | .384 | .002 | 0.000 | 49.376 | -.697 | 1.000 |
| 44093.000 | 3500.000 | 638.596 | .874 | .002 | 0.000 | 49.784 | -1.106 | 1.000 |
| 44127.000 | 1310.000 | 636.324 | 0.000 | .036 | 0.000 | 48.694 | 0.000 | 34.000 |
| 44127.000 | 2110.000 | 637.402 | 1.078 | .064 | 0.000 | 49.217 | -.523 | 34.000 |
| 44127.000 | 2490.000 | 637.801 | .399 | .079 | 0.000 | 49.409 | -.716 | 34.000 |
| 44127.000 | 3500.000 | 638.740 | .939 | .144 | 0.000 | 49.828 | -1.134 | 34.000 |
| 44128.000 | 1310.000 | 636.325 | 0.000 | .001 | 0.000 | 48.694 | 0.000 | 1.000 |
| 44128.000 | 2110.000 | 637.404 | 1.079 | .002 | 0.000 | 49.218 | -.523 | 1.000 |
| 44128.000 | 2490.000 | 637.805 | .401 | .003 | 0.000 | 49.413 | -.718 | 1.000 |
| 44128.000 | 3500.000 | 638.760 | .955 | .020 | 0.000 | 49.831 | -1.136 | 1.000 |
| 44250.000 | 1310.000 | 636.483 | 0.000 | .158 | 0.000 | 227.269 | 0.000 | 122.000 |
| 44250.000 | 2110.000 | 638.060 | 1.577 | .656 | 0.000 | 249.163 | -21.894 | 122.000 |
| 44250.000 | 2490.000 | 638.678 | .618 | .873 | 0.000 | 257.739 | -30.470 | 122.000 |
| 44250.000 | 3500.000 | 640.201 | 1.523 | 1.441 | 0.000 | 278.895 | -51.626 | 122.000 |
| 45230.000 | 1310.000 | 637.765 | 0.000 | 1.282 | 0.000 | 286.524 | 0.000 | 980.000 |
| 45230.000 | 2110.000 | 639.058 | 1.293 | .998 | 0.000 | 310.177 | -23.653 | 980.000 |
| 45230.000 | 2490.000 | 639.606 | .547 | .928 | 0.000 | 318.463 | -31.939 | 980.000 |
| 45230.000 | 3500.000 | 640.964 | 1.358 | .763 | 0.000 | 332.136 | -45.612 | 980.000 |
| 46590.000 | 1310.000 | 639.219 | 0.000 | 1.454 | 0.000 | 134.954 | 0.000 | 1360.000 |
| 46590.000 | 2110.000 | 640.613 | 1.394 | 1.555 | 0.000 | 177.280 | -42.326 | 1360.000 |
| 46590.000 | 2490.000 | 641.149 | .536 | 1.544 | 0.000 | 188.082 | -53.129 | 1360.000 |
| 46590.000 | 3500.000 | 642.397 | 1.247 | 1.433 | 0.000 | 219.110 | -84.157 | 1360.000 |
| 47640.000 | 1310.000 | 640.794 | 0.000 | 1.575 | 0.000 | 44.034 | 0.000 | 1050.000 |
| 47640.000 | 2110.000 | 642.424 | 1.630 | 1.811 | 0.000 | 94.735 | -50.702 | 1050.000 |
| 47640.000 | 2490.000 | 643.010 | .586 | 1.861 | 0.000 | 262.657 | -218.623 | 1050.000 |
| 47640.000 | 3500.000 | 644.317 | 1.307 | 1.921 | 0.000 | 301.836 | -257.802 | 1050.000 |
| 49000.000 | 1310.000 | 643.934 | 0.000 | 3.140 | 0.000 | 182.171 | 0.000 | 1360.000 |
| 49000.000 | 2110.000 | 645.887 | 1.953 | 3.463 | 0.000 | 196.812 | -14.641 | 1360.000 |
| 49000.000 | 2490.000 | 646.030 | .143 | 3.020 | 0.000 | 251.748 | -69.577 | 1360.000 |
| 49000.000 | 3500.000 | 647.224 | 1.193 | 2.906 | 0.000 | 265.201 | -83.029 | 1360.000 |
| 49425.000 | 1310.000 | 644.518 | 0.000 | .584 | 0.000 | 171.919 | 0.000 | 425.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 49425.000 | 2490.000 | 646.662 | .256 | .632 | 0.000 | 238.034 | -66.116 | 425.000 |
| 49425.000 | 3500.000 | 647.901 | 1.238 | .677 | 0.000 | 259.727 | -87.808 | 425.000 |
| 49850.000 | 1030.000 | 645.316 | 0.000 | .799 | 0.000 | 41.719 | 0.000 | 425.000 |
| 49850.000 | 1660.000 | 647.102 | 1.786 | .696 | 0.000 | 54.605 | -12.887 | 425.000 |
| 49850.000 | 1910.000 | 647.482 | .380 | .820 | 0.000 | 108.326 | -66.608 | 425.000 |
| 49850.000 | 2760.000 | 648.723 | 1.242 | .823 | 0.000 | 281.534 | -239.815 | 425.000 |
| 50114.000 | 1030.000 | 645.815 | 0.000 | .499 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 1660.000 | 647.732 | 1.917 | .630 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 1910.000 | 648.015 | .283 | .533 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 2760.000 | 648.931 | .916 | .208 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50115.000 | 1030.000 | 645.816 | 0.000 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 1660.000 | 647.733 | 1.917 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 1910.000 | 648.016 | .283 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 2760.000 | 648.913 | .897 | -.018 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50149.000 | 1030.000 | 645.839 | 0.000 | .022 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 1660.000 | 647.760 | 1.922 | .027 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 1910.000 | 648.050 | .289 | .033 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 2760.000 | 649.047 | .998 | .134 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50150.000 | 1030.000 | 645.839 | 0.000 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 1660.000 | 647.761 | 1.922 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 1910.000 | 648.051 | .289 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 2760.000 | 649.182 | 1.131 | .135 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50190.000 | 1030.000 | 645.789 | 0.000 | -.050 | 0.000 | 109.659 | 0.000 | 40.000 |
| 50190.000 | 1660.000 | 647.790 | 2.000 | .029 | 0.000 | 146.918 | -37.259 | 40.000 |
| 50190.000 | 1910.000 | 648.096 | .306 | .045 | 0.000 | 151.318 | -41.660 | 40.000 |
| 50190.000 | 2760.000 | 649.526 | 1.430 | .344 | 0.000 | 185.204 | -75.545 | 40.000 |
| 50860.000 | 1030.000 | 647.298 | 0.000 | 1.509 | 0.000 | 134.231 | 0.000 | 670.000 |
| 50860.000 | 1660.000 | 648.822 | 1.524 | 1.032 | 0.000 | 155.351 | -21.120 | 670.000 |
| 50860.000 | 1910.000 | 649.199 | .377 | 1.104 | 0.000 | 167.228 | -32.997 | 670.000 |
| 50860.000 | 2760.000 | 650.508 | 1.308 | .982 | 0.000 | 226.496 | -92.265 | 670.000 |
| 51950.000 | 980.000 | 648.995 | 0.000 | 1.697 | 0.000 | 44.663 | 0.000 | 1090.000 |
| 51950.000 | 1570.000 | 650.324 | 1.328 | 1.502 | 0.000 | 274.371 | -229.708 | 1090.000 |
| 51950.000 | 1800.000 | 650.719 | .395 | 1.519 | 0.000 | 277.781 | -233.118 | 1090.000 |
| 51950.000 | 2610.000 | 651.907 | 1.188 | 1.399 | 0.000 | 295.381 | -250.718 | 1090.000 |
| 53150.000 | 980.000 | 652.362 | 0.000 | 3.367 | 0.000 | 86.859 | 0.000 | 1200.000 |
| 53150.000 | 1570.000 | 653.455 | 1.092 | 3.131 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53150.000 | 1800.000 | 653.831 | .376 | 3.112 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53150.000 | 2610.000 | 654.906 | 1.076 | 3.000 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53204.000 | 980.000 | 652.583 | 0.000 | .220 | 0.000 | 56.200 | 0.000 | 54.000 |
| 53204.000 | 1570.000 | 653.745 | 1.162 | .290 | 0.000 | 60.558 | -4.358 | 54.000 |
| 53204.000 | 1800.000 | 654.139 | .395 | .309 | 0.000 | 62.038 | -5.838 | 54.000 |
| 53204.000 | 2610.000 | 655.276 | 1.137 | .370 | 0.000 | 66.302 | -10.102 | 54.000 |
| 53205.000 | 980.000 | 652.584 | 0.000 | .002 | 0.000 | 56.214 | 0.000 | 1.000 |
| 53205.000 | 1570.000 | 653.748 | 1.163 | .003 | 0.000 | 60.578 | -4.364 | 1.000 |
| 53205.000 | 1800.000 | 654.143 | .395 | .003 | 0.000 | 62.060 | -5.846 | 1.000 |
| 53205.000 | 2610.000 | 655.281 | 1.138 | .005 | 0.000 | 66.331 | -10.117 | 1.000 |
| 53255.000 | 980.000 | 652.619 | 0.000 | .035 | 0.000 | 56.337 | 0.000 | 50.000 |
| 53255.000 | 1570.000 | 653.804 | 1.185 | .056 | 0.000 | 60.779 | -4.443 | 50.000 |
| 53255.000 | 1800.000 | 654.207 | .403 | .064 | 0.000 | 62.290 | -5.954 | 50.000 |
| 53255.000 | 2610.000 | 655.374 | 1.167 | .093 | 0.000 | 66.668 | -10.331 | 50.000 |
| 53256.000 | 980.000 | 652.620 | 0.000 | .001 | 0.000 | 56.339 | 0.000 | 1.000 |
| 53256.000 | 1570.000 | 653.805 | 1.185 | .001 | 0.000 | 60.783 | -4.444 | 1.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 53256.000 | 2610.000 | 655.376 | 1.168 | .002 | 0.000 | 66.674 | -10.335 | 1.000 |
| 53294.000 | 980.000 | 652.646 | 0.000 | .026 | 0.000 | 56.431 | 0.000 | 38.000 |
| 53294.000 | 1570.000 | 653.847 | 1.201 | .042 | 0.000 | 60.925 | -4.495 | 38.000 |
| 53294.000 | 1800.000 | 654.255 | .409 | .047 | 0.000 | 62.454 | -6.023 | 38.000 |
| 53294.000 | 2610.000 | 655.443 | 1.188 | .067 | 0.000 | 66.892 | -10.461 | 38.000 |
| 53295.000 | 980.000 | 652.646 | 0.000 | .001 | 0.000 | 56.433 | 0.000 | 1.000 |
| 53295.000 | 1570.000 | 653.848 | 1.201 | .001 | 0.000 | 60.929 | -4.496 | 1.000 |
| 53295.000 | 1800.000 | 654.256 | .409 | .001 | 0.000 | 62.458 | -6.025 | 1.000 |
| 53295.000 | 2610.000 | 655.444 | 1.188 | .002 | 0.000 | 66.898 | -10.465 | 1.000 |
| 53345.000 | 980.000 | 652.680 | 0.000 | .034 | 0.000 | 56.552 | 0.000 | 50.000 |
| 53345.000 | 1570.000 | 653.901 | 1.221 | .054 | 0.000 | 61.113 | -4.561 | 50.000 |
| 53345.000 | 1800.000 | 654.318 | .416 | .061 | 0.000 | 62.683 | -6.131 | 50.000 |
| 53345.000 | 2610.000 | 655.533 | 1.216 | .089 | 0.000 | 67.263 | -10.711 | 50.000 |
| 53346.000 | 980.000 | 652.681 | 0.000 | .001 | 0.000 | 56.555 | 0.000 | 1.000 |
| 53346.000 | 1570.000 | 653.902 | 1.222 | .001 | 0.000 | 61.117 | -4.562 | 1.000 |
| 53346.000 | 1800.000 | 654.319 | .417 | .001 | 0.000 | 62.687 | -6.133 | 1.000 |
| 53346.000 | 2610.000 | 655.535 | 1.216 | .002 | 0.000 | 67.268 | -10.714 | 1.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 101.134 | 0.000 |
| 2 | 1.000 | 0.000 | 128.816 | 27.682 |
| 3 | 1.000 | 0.000 | 147.129 | 45.995 |
| 4 | 1.000 | 0.000 | 160.326 | 59.192 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: 10, 50, 100, 500 year floods.

25 mile Rd to Chestnut lake

00BREAK00

7.4-0

Middle Branch Clinton River
10, 50, 100 and 500 year floods
8-10-77

~2.5 mile upst of Chestnut Lake

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************


C
1       SHELBY TOWNSHIP   5670-05        PROJECT MANAGER  BILL POSSON
T2       10 YEAR FLOOD = 981
T3       MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        2.        0.        0.   0.000000     0.00      0.0       0.   632.540    0.000

J2  NPROF     IPLOT     PRINT     ISECN     IBASEC     FN       ALLDC     IBW       CHNTW     ITRACE

      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
NC       .080      .080      .040      .030      .080     0.000     0.000     0.000     0.000     0.000
QT      4.000   980.000  1570.000  1300.000  2610.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   500.000      .035   600.000      .030  1100.000     0.000     0.000     0.000

X1  53346.000    33.000   530.000   630.000     1.000     1.000     1.000      .860     0.000     0.000
GR    664.600     0.000   664.300   100.000   664.100   200.000   663.800   300.000   663.500   400.000
GR    663.200   476.000   658.000   500.000   657.000   500.000   656.900   506.000   646.500   527.000
GR    646.300   531.000   659.500   531.000   659.500   534.000   646.200   534.000   645.400   539.000
GR    644.200   540.000   643.200   545.000   643.500   554.000   646.200   556.000   645.300   567.500
GR    659.400   567.500   659.400   570.500   646.900   570.500   647.000   573.000   656.400   595.000
GR    656.800   600.000   663.700   600.000   662.500   624.000   662.400   700.000   662.200   800.000
GR    661.900   900.000   661.600  1000.000   661.300  1100.000     0.000     0.000     0.000     0.000
NH      3.000      .070   202.000      .040   255.000      .055   442.000     0.000     0.000     0.000

X1  53446.000    15.000   202.000   255.000   100.000   100.000   100.000     0.000    -1.310     0.000
GR    660.100     0.000   652.100    42.000   652.000   142.000   653.700   202.000   649.400   220.000
GR    645.800   223.000   644.900   227.000   644.800   232.000   645.400   240.000   650.700   242.000
GR    654.400   255.000   653.000   274.000   650.900   257.000   654.000   342.000   661.000   442.000
NC      0.000     0.000     0.000      .100      .300     0.000     0.100     0.000     0.000     0.000
NH      3.000      .070   202.000      .040   255.000      .055   442.000     0.000     0.000     0.000

X1  53900.000     0.000     0.000     0.100   504.000   374.000   454.000     0.000     1.310     0.000
NH      3.000      .060   152.000      .040   204.000      .055   374.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   132.000   232.000     1.000   374.000     0.000

X1  54400.000     7.000   162.000   204.000   510.000   430.000   500.000     0.000     0.000     0.000
GR    658.300     0.000   652.500   162.000   646.800   160.000   646.800   193.000   653.100   204.000
GR    653.000   281.000   660.000   374.000     0.000     0.000     0.000     0.000     0.000     0.000
NH      5.000      .060   270.000      .070   294.000      .040   312.000      .070   321.000      .120
NH    600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     6.100     8.100     8.100     8.100   270.000   321.000     1.000   600.000     0.000

X1  54500.000    16.000   270.000   321.000   100.000   100.000   100.000     0.000     0.000     0.000
GR    660.000     0.000   658.700   100.000   655.700   200.000   652.100   270.000   649.500   294.000
GR    649.500   300.000   646.500   303.000   645.500   305.000   646.000   309.000   646.800   312.000
GR    653.300   321.000   652.900   340.000   652.800   400.000   654.500   435.000   660.100   500.000
GR    661.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   300.000      .040   318.500      .030   500.000     0.000     0.000     0.000
                                                          [illegible]   318.500     1.000   600.000     0.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 54557.000 | 18.000 | 300.000 | 318.500 | 77.000 | 47.000 | 57.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.000 | 0.000 | 658.700 | 100.000 | 655.700 | 200.000 | 652.100 | 270.000 | 649.500 | 294.000 |
| GR | 649.500 | 300.000 | 648.600 | 300.000 | 645.700 | 304.000 | 646.500 | 309.500 | 647.800 | 315.000 |
| GR | 649.200 | 318.500 | 653.300 | 318.500 | 652.900 | 340.000 | 552.800 | 400.000 | 654.500 | 435.000 |
| GR | 659.000 | 490.000 | 660.100 | 500.000 | 661.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 3.100 | 8.100 | 300.000 | 318.500 | 1.000 | 500.000 | 0.000 |
| SB | 0.000 | 1.736 | 3.030 | 0.000 | 1.000 | 0.000 | 98.000 | 0.000 | 646.500 | 646.500 |
| X1 | 54583.000 | 0.000 | 0.000 | 0.000 | 25.000 | 26.000 | 26.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 654.300 | 656.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 12.000 | 0.000 | 660.900 | 0.000 | 100.000 | 659.400 | 0.000 | 200.000 | 657.200 | 0.000 |
| BT | 300.000 | 656.400 | 643.500 | 304.000 | 656.400 | 653.000 | 303.500 | 656.400 | 654.300 | 315.000 |
| BT | 656.400 | 653.000 | 318.500 | 650.400 | 649.200 | 400.000 | 657.000 | 0.000 | 490.000 | 559.000 |
| BT | 0.000 | 500.000 | 660.100 | 0.000 | 600.000 | 661.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 740.000 | 1180.000 | 1360.000 | 1960.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 284.000 | .140 | 310.000 | .070 | 700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 55730.000 | 15.000 | 254.000 | 310.000 | 1167.000 | 1217.000 | 1167.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.600 | 0.000 | 657.500 | 100.000 | 654.700 | 200.000 | 654.300 | 284.000 | 651.700 | 290.000 |
| GR | 648.600 | 291.100 | 645.200 | 296.300 | 648.500 | 298.000 | 648.900 | 298.000 | 650.600 | 300.000 |
| GR | 653.900 | 310.900 | 654.300 | 400.000 | 656.600 | 500.000 | 658.300 | 500.000 | 660.600 | 700.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 860.000 | .037 | 900.000 | .065 | 1361.000 | 0.000 | 0.000 | 0.000 |
| X1 | 56390.000 | 23.000 | 1000.000 | 1046.500 | 630.000 | 540.000 | 610.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1120.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1019.800 | 650.200 | 1023.300 | 649.600 | 1026.700 |
| GR | 650.300 | 1031.400 | 654.800 | 1046.000 | 655.500 | 1046.500 | 655.800 | 1116.300 | 656.100 | 1232.600 |
| GR | 657.700 | 1348.800 | 659.400 | 1465.100 | 659.700 | 1531.400 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 866.900 | .040 | 885.800 | .030 | 1346.700 | 0.000 | 0.000 | 0.000 |
| X1 | 56461.000 | 26.000 | 1008.000 | 1029.900 | 71.000 | 71.000 | 71.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.800 | 1000.000 | 652.000 | 1008.000 | 651.000 | 1008.000 | 652.600 | 1013.500 | 650.300 | 1016.700 |
| GR | 650.100 | 1018.900 | 650.700 | 1024.400 | 651.700 | 1029.900 | 654.800 | 1031.400 | 655.100 | 1037.100 |
| GR | 655.500 | 1041.700 | 655.800 | 1110.000 | 656.100 | 1224.000 | 657.700 | 1338.000 | 659.400 | 1451.900 |
| GR | 659.700 | 1565.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 866.900 | .040 | 885.800 | .030 | 1346.700 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.030 | 3.040 | 0.000 | 1.000 | 0.000 | 74.000 | 0.000 | 650.100 | 650.100 |
| X1 | 56498.000 | 26.000 | 1008.000 | 1029.900 | 37.000 | 37.000 | 37.000 | .860 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 658.500 | 657.200 | 0.000 | 0.000 | 0.000 | .860 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 20.000 | 200.000 | 659.900 | 0.000 | 200.000 | 659.900 | 0.000 | 400.000 | 658.700 | 0.000 |
| BT | 500.000 | 658.700 | 0.000 | 600.000 | 658.400 | 0.000 | 700.000 | 658.300 | 0.000 | 900.000 |
| BT | 657.200 | 0.000 | 950.000 | 657.300 | 0.000 | 1000.000 | 657.800 | 0.000 | 1000.000 | 658.400 |
| BT | 0.000 | 1008.000 | 658.400 | 652.000 | 1013.000 | 658.400 | 655.400 | 1016.000 | 658.400 | 656.100 |
| BT | 1018.000 | 658.400 | 656.500 | 1023.000 | 658.400 | 655.400 | 1028.000 | 658.400 | 651.700 | 1036.000 |
| BT | 658.400 | 0.000 | 1036.000 | 657.900 | 0.000 | 1100.000 | 657.900 | 0.000 | 1100.000 | 657.900 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.800 | 1000.000 | 652.000 | 1008.000 | 651.000 | 1008.000 | 652.600 | 1013.500 | 650.300 | 1016.700 |
| GR | 650.100 | 1018.900 | 650.700 | 1024.400 | 651.700 | 1029.900 | 654.800 | 1031.400 | 655.100 | 1037.100 |
| GR | 655.500 | 1041.700 | 655.800 | 1110.000 | 656.100 | 1224.000 | 657.700 | 1338.000 | 659.400 | 1451.900 |
| GR | 659.700 | 1565.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 1000.000 | .037 | 1040.000 | .065 | 1500.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | [illegible] | 22.000 | 1000.000 | 1040.000 | 350.000 | 450.000 | 400.000 | 0.000 | 1.000 | 0.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 658.200 | 0.000 | 658.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1017.000 | 650.200 | 1020.000 | 650.000 | 1023.000 |
| GR | 650.300 | 1027.000 | 654.800 | 1031.000 | 655.500 | 1040.000 | 655.800 | 1100.000 | 656.100 | 1200.000 |
| GR | 657.700 | 1300.000 | 659.400 | 1400.000 | 659.700 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 1000.000 | .037 | 1040.000 | .065 | 1500.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 850.000 | 1175.000 | 480.000 | 1175.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 57498.000 | 23.000 | 1000.000 | 1040.000 | 600.000 | 600.000 | 600.000 | 0.000 | 2.740 | 0.000 |
| GR | 658.200 | 0.000 | 656.600 | 100.000 | 660.000 | 200.000 | 659.000 | 300.000 | 658.000 | 400.000 |
| GR | 657.500 | 500.000 | 657.200 | 600.000 | 656.900 | 700.000 | 656.300 | 800.000 | 656.700 | 900.000 |
| GR | 655.900 | 988.000 | 658.800 | 1000.000 | 653.100 | 1017.000 | 650.200 | 1020.000 | 649.600 | 1023.000 |
| GR | 650.300 | 1027.000 | 654.800 | 1031.000 | 655.500 | 1040.000 | 655.800 | 1100.000 | 656.100 | 1200.000 |
| GR | 657.700 | 1300.000 | 659.400 | 1400.000 | 659.700 | 1500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .075 | 336.000 | .035 | 387.000 | .060 | 1010.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 57980.000 | 28.000 | 459.000 | 510.000 | 450.000 | 500.000 | 482.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.000 | 662.000 | 0.000 | 662.000 | 0.000 | 662.000 | 5.000 | 659.900 | 10.000 |
| GR | 659.900 | 123.000 | 659.700 | 150.000 | 659.500 | 210.000 | 659.000 | 310.000 | 659.300 | 410.000 |
| GR | 660.700 | 459.000 | 655.900 | 484.000 | 655.000 | 486.000 | 654.100 | 488.000 | 653.600 | 491.000 |
| GR | 653.400 | 494.000 | 654.600 | 496.000 | 656.900 | 497.000 | 660.600 | 510.000 | 661.700 | 542.000 |
| GR | 668.600 | 610.000 | 668.700 | 657.000 | 665.300 | 710.000 | 662.700 | 775.000 | 668.600 | 792.000 |
| GR | 671.600 | 846.000 | 671.400 | 910.000 | 669.800 | 1010.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 685.000 | .040 | 709.000 | .030 | 1433.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 58441.000 | 30.000 | 685.000 | 709.000 | 371.000 | 501.000 | 461.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 830.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 662.000 | 0.000 | 662.300 | 85.000 | 662.400 | 185.000 | 662.700 | 285.000 | 662.800 | 335.000 |
| GR | 661.300 | 362.000 | 659.500 | 422.000 | 659.000 | 522.000 | 659.300 | 622.000 | 660.700 | 671.000 |
| GR | 658.400 | 683.000 | 658.000 | 685.000 | 654.900 | 685.000 | 653.700 | 691.000 | 654.300 | 695.000 |
| G | 657.300 | 701.000 | 657.600 | 705.000 | 657.700 | 709.000 | 658.100 | 711.000 | 660.600 | 722.000 |
| GR | 661.700 | 754.000 | 663.500 | 772.000 | 668.600 | 822.000 | 668.700 | 869.000 | 665.300 | 922.000 |
| GR | 662.700 | 987.000 | 668.600 | 1004.000 | 671.600 | 1058.000 | 671.400 | 1122.000 | 669.800 | 1222.000 |
| SB | 0.000 | 2.980 | 3.030 | 0.000 | 1.000 | 0.000 | 110.100 | 0.000 | 653.700 | 653.700 |
| | | | | | | | | | | |
| X1 | 58479.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 660.300 | 662.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 830.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 26.000 | 0.000 | 662.000 | 0.000 | 85.000 | 662.300 | 0.000 | 185.000 | 662.400 | 0.000 |
| BT | 285.000 | 662.700 | 0.000 | 335.000 | 662.800 | 0.000 | 362.000 | 662.900 | 0.000 | 422.000 |
| BT | 663.000 | 0.000 | 522.000 | 663.200 | 0.000 | 622.000 | 663.500 | 0.000 | 683.000 | 663.700 |
| BT | 0.000 | 683.000 | 685.200 | 0.000 | 685.000 | 666.200 | 658.000 | 685.000 | 666.200 | 660.300 |
| BT | 709.000 | 665.200 | 660.300 | 709.000 | 666.200 | 657.700 | 711.000 | 666.200 | 0.000 | 711.000 |
| BT | 663.700 | 0.000 | 772.000 | 663.500 | 0.000 | 822.000 | 668.600 | 0.000 | 869.000 | 668.700 |
| BT | 0.000 | 922.000 | 665.300 | 0.000 | 987.000 | 662.700 | 0.000 | 1004.000 | 668.600 | 0.000 |
| BT | 1058.000 | 671.600 | 0.000 | 1122.000 | 671.400 | 0.000 | 1222.000 | 669.800 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 762.000 | .037 | 800.000 | .030 | 1200.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 430.000 | 1200.000 | 300.000 | 1200.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 59760.000 | 17.000 | 762.000 | 800.000 | 1351.000 | 1121.000 | 1281.000 | 0.000 | 0.000 | 0.000 |
| GR | 663.300 | 0.000 | 663.100 | 100.000 | 662.900 | 200.000 | 662.800 | 300.000 | 662.800 | 400.000 |
| GR | 662.300 | 500.000 | 662.000 | 600.000 | 662.300 | 700.000 | 662.900 | 762.000 | 656.000 | 768.000 |
| GR | 656.500 | 778.000 | 657.000 | 784.000 | 664.000 | 800.000 | 664.300 | 900.000 | 665.800 | 1000.000 |
| GR | 666.000 | 1100.000 | 666.500 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 645.000 | 1030.000 | 1200.000 | 1740.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 400.000 | .090 | 409.000 | .040 | 425.000 | .090 | 436.000 | .065 |
| NH | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 373.000 | 461.000 | 200.000 | 500.000 | 0.000 |
| | | | | | | | | | | |
| X1 AK | 60810.000 | 14.000 | 400.000 | 436.000 | 1050.000 | 1050.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| GR | 665.800 | 0.000 | 664.900 | 100.000 | 664.700 | 200.000 | 664.500 | 300.000 | 664.900 | 400.000 |
| GR | 660.500 | 409.000 | 660.000 | 419.000 | 660.400 | 425.000 | 666.900 | 436.000 | 667.900 | 500.000 |
| | [illegible] | [illegible] | [illegible] | 630.000 | 666.200 | 700.000 | 666.100 | 800.000 | 0.000 | 0.000 |
| | | | | | | | [illegible] | [illegible] | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 FL | 60920.000 | 23.000 | 400.000 | 435.000 | 60.000 | 120.000 | 110.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 230.000 | 0.000 | 440.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 666.200 | 0.000 | 665.700 | 100.000 | 665.400 | 200.000 | 665.300 | 300.000 | 666.200 | 400.000 |
| GR | 666.200 | 400.500 | 650.400 | 407.000 | 658.900 | 408.700 | 658.700 | 416.100 | 660.200 | 416.300 |
| GR | 666.700 | 416.900 | 666.700 | 418.700 | 660.300 | 419.300 | 658.800 | 419.500 | 659.000 | 426.800 |
| GR | 660.500 | 427.000 | 663.600 | 431.000 | 667.700 | 435.000 | 667.800 | 500.000 | 667.400 | 600.000 |
| GR | 667.900 | 658.000 | 667.300 | 700.000 | 668.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 550.000 | 880.000 | 1020.000 | 1470.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 343.000 | .035 | 426.000 | .040 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 4.100 | 4.100 | 353.000 | 426.000 | 250.000 | 530.000 | 0.000 |
| X1 AM | 62150.000 | 14.000 | 343.000 | 426.000 | 1100.000 | 1230.000 | 1230.000 | 0.000 | 0.000 | 0.000 |
| GR | 670.800 | 0.000 | 671.000 | 100.000 | 667.700 | 200.000 | 667.800 | 210.000 | 667.300 | 300.000 |
| GR | 670.000 | 383.000 | 662.800 | 401.000 | 663.100 | 407.000 | 662.800 | 412.000 | 670.600 | 426.000 |
| GR | 668.800 | 451.000 | 664.600 | 500.000 | 667.800 | 600.000 | 668.500 | 700.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 491.500 | .040 | 508.500 | .050 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 491.500 | 508.500 | 400.000 | 680.000 | 0.000 |
| X1 | 62454.000 | 27.000 | 491.500 | 508.500 | 314.000 | 244.000 | 304.000 | 0.000 | 0.000 | 0.000 |
| GR | 669.800 | 0.000 | 670.800 | 100.000 | 671.000 | 200.000 | 669.500 | 255.000 | 567.800 | 310.000 |
| GR | 667.300 | 400.000 | 670.000 | 483.000 | 667.600 | 489.100 | 666.600 | 491.500 | 665.500 | 491.500 |
| GR | 665.000 | 495.750 | 664.600 | 500.000 | 664.600 | 504.250 | 664.600 | 508.500 | 665.400 | 510.900 |
| GR | 670.600 | 526.000 | 668.800 | 531.000 | 663.600 | 600.000 | 667.800 | 700.000 | 667.900 | 710.000 |
| GR | 668.600 | 800.000 | 668.600 | 807.000 | 663.600 | 800.000 | 668.500 | 800.000 | 668.600 | 800.000 |
| GR | 669.500 | 900.000 | 664.500 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 491.500 | 508.500 | 400.000 | 710.000 | 0.000 |
| SB | 0.000 | 1.980 | 3.030 | 0.000 | 1.000 | 0.000 | 59.900 | 0.000 | 664.600 | 664.600 |
| X1 | 62486.000 | 0.000 | 0.000 | 0.000 | 32.000 | 32.000 | 32.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 669.100 | 669.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 14.000 | 400.000 | 669.200 | 0.000 | 489.100 | 670.500 | 0.000 | 489.100 | 672.600 | 0.000 |
| BT | 491.500 | 672.600 | 665.500 | 495.750 | 672.600 | 669.100 | 500.000 | 672.600 | 670.000 | 504.250 |
| BT | 672.600 | 669.200 | 508.500 | 672.600 | 664.600 | 510.900 | 672.600 | 0.000 | 510.900 | 670.600 |
| BT | 0.000 | 526.000 | 670.600 | 0.000 | 600.000 | 669.700 | 0.000 | 700.000 | 669.300 | 0.000 |
| BT | 710.000 | 669.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 343.000 | .040 | 426.000 | .050 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 353.000 | 426.000 | 250.000 | 530.000 | 0.000 |
| X1 | 62600.000 | 14.000 | 343.000 | 426.000 | 114.000 | 114.000 | 114.000 | 0.000 | 1.270 | 0.000 |
| GR | 670.800 | 0.000 | 671.000 | 100.000 | 667.700 | 200.000 | 667.800 | 210.000 | 667.300 | 300.000 |
| GR | 670.000 | 383.000 | 662.800 | 401.000 | 663.500 | 407.000 | 663.500 | 412.000 | 670.600 | 426.000 |
| GR | 668.800 | 451.000 | 663.600 | 500.000 | 667.800 | 600.000 | 668.500 | 700.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 700.000 | .065 | 711.000 | .040 | 717.000 | .065 | 718.000 | .065 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 650.000 | 745.000 | 550.000 | 900.000 | 0.000 |
| X1 | 63740.000 | 20.000 | 700.000 | 718.100 | 1140.000 | 1074.000 | 1140.000 | 0.000 | 0.000 | 0.000 |
| GR | 676.700 | 0.000 | 676.300 | 100.000 | 676.100 | 184.000 | 675.200 | 200.000 | 674.700 | 300.000 |
| GR | 672.800 | 400.000 | 672.700 | 500.000 | 672.300 | 600.000 | 674.700 | 700.000 | 667.100 | 711.000 |
| GR | 666.800 | 714.000 | 666.500 | 717.000 | 669.200 | 718.000 | 672.900 | 731.000 | 673.100 | 800.000 |
| GR | 673.700 | 900.000 | 674.900 | 1000.000 | 675.500 | 1100.000 | 674.000 | 1200.000 | 673.800 | 1300.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 1500.000 | .040 | 1520.000 | .030 | 2300.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 5.100 | 1500.000 | 1531.000 | 1060.000 | 1670.000 | 0.000 |
| X1 | 63821.000 | 41.000 | 1500.000 | 1520.000 | 91.000 | 31.000 | 81.000 | 0.000 | 0.000 | 0.000 |
| GR | 681.100 | 0.000 | 680.200 | 100.000 | 679.400 | 200.000 | 679.100 | 300.000 | 678.600 | 400.000 |
| GR | 677.900 | 500.000 | 677.600 | 600.000 | 677.100 | 700.000 | 676.500 | 800.000 | 676.300 | 900.000 |
| GR | 676.100 | 984.000 | 675.200 | 1000.000 | 674.700 | 1100.000 | 672.900 | 1200.000 | 672.800 | 1240.000 |
| GR | 672.700 | 1300.000 | 672.300 | 1400.000 | 674.600 | 1437.100 | 674.700 | 1500.000 | 668.700 | 1500.000 |
| GR | 668.000 | 1505.000 | 667.900 | 1505.400 | 667.400 | 1505.400 | 667.400 | 1510.000 | 667.900 | 1515.000 |
| | | [illegible] | 664.300 | 1522.900 | 672.900 | 1531.000 | 673.100 | 1600.000 | 674.200 | 1655.000 |
| | | | | | | | | 1770.000 | 674.700 | 1770.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 674.900 | 1800.000 | 675.500 | 1900.000 | 674.000 | 2000.000 | 673.800 | 2100.000 | 672.700 | 2200.000 |
| GR | 672.500 | 2300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.140 | 3.040 | 0.000 | 1.000 | 0.000 | 79.800 | 0.000 | 667.400 | 667.400 |
| X1 | 63879.000 | 0.000 | 0.000 | 0.000 | 58.000 | 58.000 | 58.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 673.700 | 674.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1010.000 | 0.000 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 15.000 | 1000.000 | 676.200 | 0.000 | 1200.000 | 574.700 | 0.000 | 1400.000 | 676.200 | 0.000 |
| BT | 1497.100 | 677.100 | 0.000 | 1497.100 | 679.100 | 0.000 | 1500.000 | 679.100 | 668.700 | 1500.000 |
| BT | 679.100 | 668.700 | 1505.000 | 679.100 | 672.700 | 1510.000 | 679.100 | 673.700 | 1515.000 | 679.100 |
| BT | 672.500 | 1520.000 | 679.100 | 653.000 | 1522.900 | 679.100 | 0.000 | 1522.900 | 677.000 | 0.000 |
| BT | 1600.000 | 676.700 | 0.000 | 1700.000 | 675.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .075 | 155.000 | .055 | 150.000 | .045 | 204.000 | .055 | 207.000 | .075 |
| NH | 524.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 64830.000 | 13.000 | 185.000 | 207.000 | 791.000 | 971.000 | 951.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 330.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 678.100 | 0.000 | 676.400 | 140.000 | 675.400 | 135.000 | 668.200 | 156.000 | 668.100 | 200.000 |
| GR | 668.100 | 204.000 | 571.900 | 217.000 | 673.300 | 241.000 | 677.900 | 400.000 | 679.100 | 400.000 |
| GR | 677.900 | 400.000 | 673.500 | 500.000 | 679.800 | 524.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 460.000 | 740.000 | 455.000 | 1250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 234.000 | .045 | 245.000 | .040 | 478.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66000.000 | 15.000 | 238.000 | 245.000 | 1120.000 | 1160.000 | 1170.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 100.000 | 0.000 | 380.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 683.000 | 0.000 | 679.000 | 44.000 | 679.000 | 55.000 | 679.900 | 100.000 | 679.800 | 200.000 |
| GR | 678.400 | 222.000 | 674.200 | 238.000 | 671.600 | 238.000 | 670.900 | 241.000 | 671.300 | 244.000 |
| GR | 673.600 | 245.000 | 678.200 | 256.000 | 678.300 | 300.000 | 684.300 | 400.000 | 681.400 | 478.000 |
| NH | 5.000 | .045 | 525.000 | .055 | 531.000 | .035 | 550.000 | .055 | 562.000 | .040 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66850.000 | 17.000 | 525.000 | 552.000 | 820.000 | 840.000 | 850.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 523.000 | 0.000 | 565.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 687.100 | 0.000 | 687.400 | 100.000 | 687.100 | 200.000 | 684.900 | 279.000 | 686.000 | 300.000 |
| GR | 680.600 | 400.000 | 679.900 | 500.000 | 679.100 | 525.000 | 674.900 | 531.000 | 674.800 | 541.000 |
| GR | 674.800 | 550.000 | 679.400 | 562.000 | 680.500 | 600.000 | 683.500 | 700.000 | 689.500 | 800.000 |
| GR | 688.500 | 900.000 | 687.400 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66893.000 | 22.000 | 390.000 | 410.000 | 43.000 | 43.000 | 43.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 391.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 686.900 | 0.000 | 655.000 | 100.000 | 683.500 | 200.000 | 682.000 | 300.000 | 682.100 | 320.000 |
| GR | 684.200 | 383.000 | 684.200 | 397.000 | 675.300 | 400.000 | 674.700 | 444.000 | 674.300 | 397.000 |
| GR | 674.400 | 400.000 | 674.700 | 403.000 | 674.300 | 405.000 | 677.200 | 408.000 | 676.100 | 410.000 |
| GR | 684.200 | 410.000 | 684.200 | 417.000 | 682.200 | 480.000 | 681.900 | 500.000 | 683.300 | 600.000 |
| GR | 687.300 | 700.000 | 688.800 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66894.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 20.000 | 0.000 | 686.900 | 0.000 | 100.000 | 686.000 | 0.000 | 200.000 | 683.600 | 0.000 |
| BT | 300.000 | 682.000 | 0.000 | 320.000 | 682.100 | 0.000 | 383.000 | 684.200 | 0.000 | 390.000 |
| BT | 684.200 | 675.300 | 394.000 | 684.200 | 680.800 | 397.000 | 684.200 | 682.100 | 400.000 | 684.200 |
| BT | 682.500 | 403.000 | 684.200 | 682.100 | 405.000 | 684.200 | 681.900 | 408.000 | 684.200 | 679.500 |
| BT | 410.000 | 684.200 | 676.100 | 417.000 | 684.200 | 0.000 | 480.000 | 682.200 | 0.000 | 500.000 |
| BT | 681.900 | 0.000 | 500.000 | 683.300 | 0.000 | 700.000 | 687.300 | 0.000 | 800.000 | 688.800 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66925.000 | 0.000 | 0.000 | 0.000 | 31.000 | 31.000 | 31.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .036 | 390.000 | .036 | 410.000 | .036 | 800.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 66926.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 340.000 | 0.000 | 410.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 66946.000 | 15.000 | 349.000 | 354.000 | 20.000 | 20.000 | 20.000 | 0.000 | -3.650 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 324.000 | 0.000 | 384.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 696.500 | 0.000 | 695.200 | 100.000 | 687.410 | 200.000 | 684.300 | 300.000 | 683.400 | 349.000 |
| GR | 678.300 | 352.000 | 674.100 | 355.000 | 678.300 | 358.000 | 681.900 | 359.000 | 682.100 | 400.000 |
| GR | 684.500 | 500.000 | 690.500 | 600.000 | 693.300 | 700.000 | 693.300 | 400.000 | 690.300 | 925.000 |
| X1 | 67075.000 | 0.000 | 0.000 | 0.000 | 129.000 | 129.000 | 129.000 | 0.000 | .340 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 260.000 | 0.000 | 460.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 67500.000 | 0.000 | 0.000 | 0.000 | 321.000 | 245.000 | 425.000 | 0.000 | 1.100 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 67925.000 | 0.000 | 0.000 | 0.000 | 322.100 | 245.000 | 425.000 | 0.000 | 1.100 | 0.000 |
| NH | 3.000 | .040 | 349.000 | .045 | 359.000 | .035 | 925.000 | 0.000 | 0.000 | 0.000 |
| X1 | 68350.000 | 0.000 | 0.000 | 0.000 | 322.100 | 245.000 | 425.000 | 0.000 | 1.110 | 0.000 |
| NH | 3.000 | .055 | 673.000 | .040 | 691.000 | .045 | 1360.000 | 0.000 | 0.000 | 0.000 |
| X1 | 69530.000 | 22.000 | 673.000 | 691.000 | 649.000 | 959.000 | 1150.000 | 0.000 | 0.000 | 0.000 |
| GR | 701.600 | 0.000 | 702.100 | 100.000 | 701.300 | 200.000 | 699.000 | 300.000 | 696.500 | 400.000 |
| GR | 691.500 | 500.000 | 687.300 | 600.000 | 685.900 | 673.000 | 683.200 | 678.000 | 683.500 | 682.000 |
| GR | 683.800 | 685.000 | 687.200 | 691.000 | 687.400 | 700.000 | 687.900 | 800.000 | 689.900 | 885.000 |
| GR | 696.800 | 913.000 | 696.100 | 1000.000 | 695.200 | 1050.000 | 696.900 | 1100.000 | 696.500 | 1200.000 |
| GR | 696.000 | 1300.000 | 696.400 | 1360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .055 | 619.000 | .040 | 636.700 | .045 | 1181.100 | 0.000 | 0.000 | 0.000 |
| X1 | 69730.000 | 90.000 | 619.000 | 636.700 | 200.000 | 200.000 | 200.000 | 0.000 | -.680 | 0.000 |
| GR | 703.200 | 0.000 | 703.300 | 21.300 | 703.300 | 42.600 | 703.300 | 64.000 | 703.300 | 85.300 |
| GR | 703.200 | 106.700 | 703.000 | 128.000 | 702.900 | 149.400 | 702.700 | 170.700 | 702.400 | 192.100 |
| GR | 701.900 | 213.400 | 701.400 | 234.800 | 700.300 | 256.100 | 699.100 | 277.500 | 698.000 | 298.800 |
| GR | 697.100 | 320.200 | 696.500 | 341.500 | 695.900 | 362.800 | 695.100 | 384.200 | 694.300 | 405.500 |
| GR | 693.400 | 426.900 | 692.500 | 448.200 | 691.700 | 469.600 | 691.000 | 490.900 | 690.400 | 512.300 |
| GR | 689.700 | 533.600 | 689.100 | 555.000 | 688.800 | 576.300 | 688.500 | 597.700 | 688.200 | 619.000 |
| GR | 687.600 | 619.600 | 687.000 | 620.200 | 686.400 | 620.800 | 686.000 | 621.400 | 685.700 | 621.900 |
| GR | 685.500 | 622.500 | 685.300 | 623.100 | 685.100 | 623.700 | 685.000 | 624.300 | 685.100 | 624.900 |
| GR | 685.100 | 625.500 | 685.100 | 626.100 | 685.200 | 626.700 | 685.200 | 627.200 | 685.200 | 627.800 |
| GR | 685.300 | 628.400 | 685.300 | 629.000 | 685.300 | 629.600 | 685.400 | 630.200 | 685.400 | 630.800 |
| GR | 685.600 | 631.400 | 685.900 | 632.000 | 686.100 | 632.500 | 686.300 | 633.100 | 686.600 | 633.700 |
| GR | 686.900 | 634.300 | 687.200 | 634.900 | 687.600 | 635.500 | 687.900 | 636.100 | 688.200 | 636.700 |
| GR | 688.800 | 654.800 | 689.300 | 673.000 | 689.800 | 691.100 | 690.300 | 709.300 | 690.900 | 727.400 |
| GR | 691.600 | 745.600 | 692.000 | 763.700 | 692.500 | 781.900 | 693.900 | 800.000 | 697.500 | 818.200 |
| GR | 697.500 | 836.300 | 697.400 | 854.500 | 697.400 | 872.600 | 697.300 | 890.800 | 697.200 | 908.900 |
| GR | 697.000 | 927.000 | 697.500 | 945.200 | 698.000 | 963.300 | 698.200 | 981.500 | 698.100 | 999.600 |
| GR | 698.000 | 1017.800 | 698.000 | 1035.900 | 697.900 | 1054.100 | 697.800 | 1072.200 | 697.700 | 1090.400 |
| GR | 697.700 | 1108.500 | 697.600 | 1126.700 | 697.700 | 1144.800 | 698.000 | 1163.000 | 698.400 | 1181.100 |
| NH | 3.000 | .060 | 564.900 | .045 | 582.200 | .040 | 1001.800 | 0.000 | 0.000 | 0.000 |
| X1 | 70197.000 | 90.000 | 564.900 | 582.200 | 450.000 | 475.000 | 467.000 | 0.000 | 0.000 | 0.000 |
| GR | 705.000 | 0.000 | 704.900 | 19.400 | 704.800 | 38.900 | 704.800 | 58.400 | 704.700 | 77.900 |
| GR | 704.500 | 97.400 | 704.400 | 115.800 | 704.200 | 136.300 | 704.000 | 155.800 | 703.700 | 175.300 |
| GR | 703.400 | 194.800 | 702.800 | 214.200 | 701.100 | 233.700 | 699.400 | 253.200 | 697.700 | 272.700 |
| GR | 696.500 | 292.200 | 695.800 | 311.600 | 695.100 | 331.100 | 694.600 | 350.600 | 694.000 | 370.100 |
| GR | 693.500 | 389.600 | 693.000 | 409.000 | 692.500 | 428.500 | 692.000 | 448.000 | 691.700 | 467.500 |
| GR | 691.400 | 487.000 | 691.100 | 506.500 | 690.900 | 525.900 | 690.700 | 545.400 | 690.500 | 564.900 |
| GR | 689.600 | 565.500 | 688.800 | 566.100 | 687.900 | 566.600 | 687.400 | 567.200 | 687.200 | 567.800 |
| GR | 687.100 | 568.400 | 687.000 | 569.000 | 686.900 | 569.500 | 686.900 | 570.100 | 686.900 | 570.700 |
| GR | 686.900 | 571.300 | 686.900 | 571.800 | 687.000 | 572.400 | 687.000 | 573.000 | 687.000 | 573.600 |
| GR | 687.000 | 574.100 | 687.000 | 574.700 | 687.000 | 575.300 | 687.100 | 575.900 | 687.100 | 576.500 |
| GR | 687.200 | 577.000 | 687.300 | 577.600 | 687.400 | 578.200 | 687.500 | 578.800 | 687.700 | 579.300 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 690.200 | 596.200 | 691.100 | 610.200 | 692.000 | 624.200 | 692.900 | 638.200 | 693.900 | 652.200 |
| GR | 694.800 | 666.100 | 695.100 | 640.100 | 695.500 | 694.100 | 696.300 | 705.100 | 696.200 | 722.100 |
| GR | 698.300 | 736.100 | 698.500 | 750.000 | 698.600 | 754.000 | 698.700 | 778.000 | 698.700 | 792.000 |
| GR | 698.800 | 806.000 | 699.200 | 820.000 | 699.500 | 834.000 | 699.500 | 847.900 | 699.500 | 861.900 |
| GR | 699.500 | 875.900 | 699.400 | 889.900 | 699.400 | 903.900 | 699.300 | 917.900 | 699.300 | 931.800 |
| GR | 699.200 | 945.800 | 699.200 | 959.800 | 699.400 | 973.800 | 699.900 | 987.800 | 700.400 | 1001.800 |
| NH | 3.000 | .060 | 511.000 | .045 | 528.000 | .040 | 323.000 | 0.000 | 0.000 | 0.000 |
| X1 | 70530.000 | 16.000 | 511.000 | 528.000 | 330.000 | 335.000 | 333.000 | 0.000 | 0.000 | 0.000 |
| GR | 706.700 | 0.000 | 705.800 | 100.000 | 704.700 | 190.000 | 696.300 | 255.000 | 694.300 | 300.000 |
| GR | 693.100 | 400.000 | 593.000 | 500.000 | 692.900 | 511.000 | 688.800 | 513.000 | 688.800 | 519.000 |
| GR | 688.800 | 525.000 | 590.400 | 528.000 | 697.900 | 535.000 | 701.000 | 700.000 | 700.800 | 800.000 |
| GR | 702.500 | 823.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 500.000 | .035 | 516.000 | .050 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 495.000 | 520.000 | 1.000 | 1000.000 | 0.000 |
| X1 | 71240.000 | 19.000 | 500.000 | 516.000 | 770.000 | 650.000 | 710.000 | 0.000 | 0.000 | 0.000 |
| GR | 707.300 | 0.000 | 704.100 | 100.000 | 702.600 | 200.000 | 700.400 | 300.000 | 697.100 | 400.000 |
| GR | 693.900 | 500.000 | 692.700 | 504.000 | 692.500 | 508.000 | 692.300 | 513.000 | 695.500 | 516.000 |
| GR | 695.900 | 530.000 | 697.000 | 531.000 | 700.700 | 570.000 | 702.900 | 700.000 | 705.600 | 735.000 |
| GR | 708.900 | 765.000 | 709.400 | 800.000 | 709.300 | 900.000 | 708.400 | 1000.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.100 | 0.000 | .030 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 509.500 | .040 | 522.500 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 509.500 | 522.500 | 1.000 | 1000.000 | 0.000 |
| X1 | 71290.000 | 33.000 | 509.500 | 522.500 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| GR | 707.300 | 0.000 | 705.000 | 100.000 | 702.700 | 200.000 | 700.400 | 300.000 | 697.100 | 400.000 |
| GR | 693.900 | 500.000 | 693.700 | 509.500 | 693.100 | 509.900 | 692.300 | 510.700 | 692.000 | 512.000 |
| GR | 692.300 | 513.300 | 693.100 | 514.100 | 693.700 | 514.500 | 695.300 | 514.500 | 694.700 | 517.500 |
| GR | 693.100 | 517.500 | 692.500 | 517.900 | 691.700 | 518.700 | 691.400 | 520.000 | 691.700 | 521.300 |
| GR | 692.500 | 522.100 | 693.100 | 522.500 | 694.700 | 522.500 | 695.900 | 600.000 | 697.000 | 631.000 |
| GR | 700.700 | 670.000 | 702.800 | 700.000 | 703.600 | 710.000 | 705.600 | 735.000 | 708.900 | 765.000 |
| GR | 709.400 | 800.000 | 709.300 | 900.000 | 708.400 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 8.100 | 8.100 | 8.100 | 509.500 | 522.500 | 1.000 | 1000.000 | 0.000 |
| SB | 0.000 | 2.220 | 3.030 | 0.000 | 1.000 | 0.000 | 37.800 | 0.000 | 691.400 | 691.400 |
| X1 | 71330.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 697.000 | 698.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 27.000 | 0.000 | 707.300 | 0.000 | 100.000 | 705.000 | 0.000 | 200.000 | 702.700 | 0.000 |
| BT | 300.000 | 700.400 | 0.000 | 400.000 | 698.900 | 0.000 | 509.500 | 699.500 | 693.700 | 509.900 |
| BT | 699.500 | 695.700 | 510.700 | 699.500 | 696.500 | 512.000 | 699.500 | 696.800 | 513.300 | 699.500 |
| BT | 696.500 | 514.100 | 699.500 | 695.700 | 514.500 | 699.500 | 695.100 | 517.500 | 699.600 | 694.700 |
| BT | 517.900 | 699.600 | 695.300 | 513.700 | 699.600 | 696.100 | 520.000 | 699.600 | 696.400 | 521.300 |
| BT | 699.600 | 696.100 | 522.100 | 699.600 | 695.300 | 522.500 | 699.600 | 694.700 | 600.000 | 699.800 |
| BT | 0.000 | 700.000 | 705.100 | 0.000 | 710.000 | 703.500 | 0.000 | 735.000 | 705.600 | 0.000 |
| BT | 765.000 | 708.900 | 0.000 | 800.000 | 709.400 | 0.000 | 900.000 | 709.300 | 0.000 | 1000.000 |
| BT | 708.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 384.000 | .040 | 400.000 | .040 | 700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 71890.000 | 14.000 | 384.000 | 400.000 | 560.000 | 560.000 | 560.000 | 0.000 | 0.000 | 0.000 |
| GR | 715.700 | 0.000 | 715.200 | 17.000 | 707.500 | 100.000 | 701.100 | 158.000 | 700.700 | 200.000 |
| GR | 698.500 | 300.000 | 697.000 | 384.000 | 694.200 | 388.000 | 694.200 | 392.000 | 694.900 | 396.000 |
| GR | 696.000 | 400.000 | 697.500 | 500.000 | 711.900 | 600.000 | 712.200 | 700.000 | 0.000 | 0.000 |
| X1 | 72166.000 | 90.000 | 473.200 | 489.900 | 276.000 | 276.000 | 276.000 | 0.000 | 0.000 | 0.000 |
| GR | 717.500 | 0.000 | 717.200 | 16.300 | 716.400 | 32.600 | 715.500 | 48.900 | 714.600 | 65.200 |
| GR | 713.600 | 81.500 | 712.500 | 97.900 | 711.300 | 114.200 | 710.100 | 130.500 | 708.800 | 146.800 |
| GR | 707.500 | 163.100 | 706.200 | 179.500 | 704.900 | 195.800 | 704.400 | 212.100 | 704.100 | 228.400 |
| GR | 703.800 | 244.700 | 703.300 | 261.100 | 702.900 | 277.400 | 702.500 | 293.700 | 702.100 | 310.000 |
| GR | 701.700 | 326.300 | 701.400 | 342.600 | 701.000 | 359.000 | 700.600 | 375.300 | 700.300 | 391.600 |
| GR | 700.000 | 407.900 | 699.700 | 424.200 | 699.200 | 440.600 | 698.400 | 456.900 | 697.500 | 473.200 |
| GR | 697.200 | 473.700 | 696.900 | 474.300 | 696.500 | 474.900 | 696.200 | 475.400 | 695.900 | 476.000 |
| GR | 695.500 | 476.500 | 695.200 | 477.100 | 695.100 | 477.600 | 695.100 | 478.200 | 695.000 | 478.700 |
| GR | 695.000 | 479.300 | 695.000 | 479.900 | 695.000 | 480.400 | 694.900 | 481.000 | 694.900 | 481.500 |
| GR | 695.000 | 482.100 | 695.000 | 482.600 | 695.100 | 483.200 | 695.100 | 483.700 | 695.200 | 484.300 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 696.300 | 487.600 | 696.600 | 488.200 | 696.800 | 488.700 | 697.100 | 489.300 | 697.300 | 489.900 |
| GR | 697.400 | 500.200 | 697.400 | 510.500 | 697.500 | 520.400 | 697.600 | 531.200 | 697.600 | 541.500 |
| GR | 697.900 | 551.900 | 698.000 | 562.200 | 698.200 | 572.500 | 699.300 | 582.900 | 698.400 | 593.200 |
| GR | 699.400 | 603.500 | 700.500 | 613.900 | 701.600 | 624.200 | 702.700 | 634.500 | 703.900 | 644.900 |
| GR | 705.000 | 655.200 | 706.100 | 665.500 | 707.400 | 675.900 | 709.200 | 686.200 | 710.900 | 696.500 |
| GR | 711.800 | 706.900 | 712.400 | 717.200 | 713.000 | 727.500 | 713.900 | 737.900 | 714.700 | 748.200 |
| GR | 715.400 | 758.500 | 715.500 | 768.900 | 715.600 | 779.200 | 715.700 | 799.500 | 715.800 | 799.900 |
| X1 | 72444.000 | 90.000 | 562.700 | 580.000 | 276.000 | 276.000 | 278.000 | 0.000 | 0.000 | 0.000 |
| GR | 719.500 | 0.000 | 719.100 | 19.400 | 718.600 | 38.800 | 718.000 | 58.200 | 717.500 | 77.600 |
| GR | 716.600 | 97.000 | 715.600 | 116.400 | 714.500 | 135.800 | 713.500 | 155.200 | 712.300 | 174.600 |
| GR | 711.100 | 194.000 | 709.900 | 213.400 | 708.800 | 232.800 | 708.000 | 252.200 | 707.400 | 271.600 |
| GR | 706.900 | 291.000 | 706.300 | 310.400 | 705.700 | 329.800 | 705.200 | 349.200 | 704.700 | 358.700 |
| GR | 704.200 | 388.100 | 703.800 | 407.500 | 703.300 | 425.900 | 702.900 | 446.300 | 702.500 | 455.700 |
| GR | 702.100 | 485.100 | 701.700 | 504.500 | 701.000 | 523.900 | 699.500 | 543.300 | 698.100 | 552.700 |
| GR | 697.800 | 563.300 | 697.500 | 563.900 | 697.200 | 564.400 | 696.900 | 565.000 | 696.700 | 565.600 |
| GR | 696.400 | 566.200 | 696.100 | 566.800 | 696.000 | 567.300 | 695.900 | 567.900 | 695.900 | 568.500 |
| GR | 695.900 | 569.100 | 695.900 | 569.600 | 695.800 | 570.200 | 695.700 | 570.800 | 695.700 | 571.400 |
| GR | 695.700 | 572.000 | 695.700 | 572.500 | 695.700 | 573.100 | 695.700 | 573.700 | 595.800 | 574.300 |
| GR | 695.800 | 574.800 | 695.900 | 575.400 | 696.300 | 576.000 | 696.600 | 576.600 | 697.000 | 577.200 |
| GR | 697.300 | 577.700 | 697.700 | 578.300 | 698.000 | 578.900 | 698.400 | 579.500 | 698.800 | 580.000 |
| GR | 698.700 | 599.700 | 698.600 | 601.400 | 698.600 | 612.000 | 554.700 | 622.700 | 698.800 | 633.400 |
| GR | 699.000 | 644.000 | 699.100 | 654.700 | 699.200 | 665.400 | 699.300 | 676.000 | 699.500 | 686.700 |
| GR | 700.000 | 697.400 | 700.600 | 708.000 | 701.400 | 718.700 | 702.300 | 729.400 | 703.100 | 740.000 |
| GR | 703.900 | 750.700 | 704.700 | 761.400 | 705.800 | 772.000 | 707.900 | 782.700 | 710.000 | 793.400 |
| GR | 711.600 | 804.000 | 712.900 | 814.700 | 714.200 | 825.400 | 715.700 | 836.000 | 717.300 | 846.700 |
| GR | 718.800 | 857.400 | 719.000 | 868.000 | 719.100 | 878.700 | 719.300 | 889.400 | 719.400 | 900.100 |
| NH | 3.000 | .050 | 652.000 | .040 | 670.000 | .040 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 72720.000 | 19.000 | 652.000 | 670.000 | 276.000 | 276.000 | 276.000 | 0.000 | 0.000 | 0.000 |
| GR | 721.400 | 0.000 | 720.200 | 100.000 | 718.000 | 200.000 | 711.200 | 300.000 | 708.000 | 400.000 |
| GR | 705.600 | 500.000 | 703.500 | 600.000 | 698.700 | 652.000 | 697.100 | 656.000 | 696.400 | 662.000 |
| GR | 696.400 | 665.000 | 700.200 | 670.000 | 699.700 | 700.000 | 700.700 | 800.000 | 703.800 | 866.000 |
| GR | 711.400 | 900.000 | 715.100 | 922.000 | 722.200 | 955.000 | 723.100 | 1000.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 382.000 | .040 | 400.000 | .050 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 74110.000 | 16.000 | 382.000 | 400.000 | 1420.000 | 1370.000 | 1390.000 | 0.000 | 0.000 | 0.000 |
| GR | 728.300 | 0.000 | 728.000 | 25.000 | 720.500 | 58.000 | 709.500 | 104.000 | 709.400 | 200.000 |
| GR | 707.600 | 300.000 | 703.900 | 382.000 | 701.600 | 384.000 | 701.000 | 391.000 | 701.200 | 396.000 |
| GR | 705.000 | 400.000 | 708.700 | 463.000 | 715.100 | 500.000 | 719.000 | 500.000 | 728.100 | 700.000 |
| GR | 726.200 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .080 | 114.000 | .045 | 232.000 | .045 | 452.000 | 0.000 | 0.000 | 0.000 |
| X1 | 75420.000 | 11.000 | 114.000 | 232.000 | 1206.000 | 1410.000 | 1410.000 | 0.000 | 0.000 | 0.000 |
| GR | 739.700 | 0.000 | 733.600 | 52.000 | 719.400 | 114.700 | 712.100 | 159.000 | 710.400 | 183.000 |
| GR | 710.100 | 192.000 | 719.300 | 206.000 | 724.400 | 232.000 | 724.700 | 252.000 | 725.500 | 352.000 |
| GR | 725.100 | 452.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RT | 4.000 | 365.000 | 500.000 | 575.000 | 935.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 297.000 | .040 | 322.000 | .030 | 600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 75473.000 | 25.000 | 297.000 | 322.000 | 53.000 | 53.000 | 53.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 297.000 | 0.000 | 322.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 740.000 | 0.000 | 739.700 | 123.000 | 733.600 | 175.000 | 728.200 | 200.000 | 719.800 | 237.000 |
| GR | 714.900 | 282.000 | 714.900 | 297.000 | 712.900 | 297.000 | 711.900 | 299.000 | 711.900 | 301.000 |
| GR | 712.900 | 302.400 | 714.900 | 303.000 | 715.100 | 316.000 | 713.100 | 316.600 | 712.100 | 318.000 |
| GR | 712.100 | 320.000 | 713.100 | 321.400 | 715.100 | 322.000 | 715.100 | 322.000 | 715.100 | 338.000 |
| GR | 724.400 | 355.000 | 724.700 | 375.000 | 725.500 | 475.000 | 725.100 | 575.000 | 725.100 | 600.000 |
| SB | 0.000 | 2.030 | 2.820 | 0.000 | 1.000 | 0.000 | 54.700 | 0.000 | 711.900 | 711.900 |
| X1 | 75547.000 | 26.000 | 297.000 | 322.000 | 74.000 | 74.000 | 74.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 718.100 | 725.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X5 | 4.000 | 723.350 | 724.800 | 725.300 | 726.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| RT | 21.000 | 0.000 | 740.000 | 0.000 | 123.000 | 739.700 | 0.000 | 175.000 | 733.600 | 0.000 |
| [illegible] | [illegible] | 738.200 | 0.000 | 297.000 | 725.800 | 0.000 | 297.000 | 725.800 | 714.900 | 297.600 |
| | | | | | | | | | 302.400 | 725.800 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 716.900 | 303.000 | 725.800 | 714.900 | 316.000 | 725.800 | 715.100 | 316.600 | 725.800 | 716.100 |
| BT | 318.000 | 725.800 | 718.100 | 320.000 | 725.800 | 718.100 | 321.400 | 725.800 | 716.100 | 322.000 |
| BT | 725.800 | 715.100 | 375.000 | 725.900 | 0.000 | 475.000 | 725.700 | 0.000 | 575.000 | 725.100 |
| BT | 0.000 | 600.000 | 725.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 | 730.000 | 0.000 |
| GR | 708.000 | 0.000 | 708.000 | 123.000 | 708.000 | 175.000 | 708.000 | 200.000 | 708.000 | 297.000 |
| GR | 708.000 | 297.600 | 708.000 | 299.000 | 708.000 | 301.000 | 708.000 | 302.400 | 708.000 | 303.000 |
| GR | 708.000 | 316.000 | 708.000 | 316.000 | 708.000 | 318.000 | 708.000 | 320.000 | 708.000 | 321.400 |
| GR | 708.000 | 322.000 | 708.000 | 375.000 | 708.000 | 475.000 | 708.000 | 575.000 | 708.000 | 600.000 |
| GR | 730.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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T1      SHELBY TOWNSHIP-JOB NO. 5670-08  PROJECT MANAGER WILLIAM C. ROSSO
T2      100 YEAR FLOOD = 1400
T3      MIDDLE BRANCH OF THE CLINTON RIVER
```

| J1 | ICHECK | INO | NINV | IDIR | STRT | METRIC | HVINS | J | WSEL | FD |
|---|---|---|---|---|---|---|---|---|---|---|
| | -1. | 4. | 0. | 0. | 1.000000 | 0.00 | 0.0 | 0. | 554.320 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
CCHV=     .400 CEHV=     .800
1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         QLOSS    BANK ELEV
   Q          QLOB       QCH        VROB       ALOB       ACH        AROB       VOL        TWA      LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNC        XNR        ITM        FLOTW       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IPC        TCONT      CORAR      TOPWID      ENDST

 53346.00     11.12      654.32     0.00       654.32     654.50     .24        0.00       0.00       664.00
    1800.     0.         1800.      0.         0.         426.       0.         0.         0.         653.70
     0.00     0.00       4.22       0.00       0.000      .040       0.000      0.000      643.20     439.04
  .000775     1.         1.         1.         0          0          1          1.00       62.71      507.51

1490 NH CARD USED
 53446.00     11.14      654.63     0.00       0.00       654.73     .10        .06        .07        552.39
    1800.     677.       1068.      55.        614.       344.       57.        2.         0.         653.04
     .01      1.10       3.11       .97        .070       .040       .055       .040       643.49     21.31
  .000505     100.       100.       100.       2          0          1          0.00       262.01     683.42

CCHV=     .100 CEHV=     .300
1490 NH CARD USED

                    VALLEY SECTION AA                                                    344

 53900.00     10.10      654.90     0.00       0.00       655.09     .20        .33        .03        653.70
    1800.     555.       1217.      28.        428.       288.       29.        11.        3.         654.40
     .05      1.29       4.22       .96        .070       .040       .055       .039       644.80     27.30
  .001077     504.       454.       374.       2          0          1          0.00       253.03     280.33

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0       374.0  TYPE=      1  TARGET=      373.000

                    VALLEY SECTION AB                                                    344.1

 54400.00     8.58       655.38     0.00       0.00       655.62     .24        .31        .01        652.50
    1800.     114.       1383.      302.       116.       314.       217.       14.        5.         653.10
     .09      .99        4.40       1.45       .060       .040       .055       .039       646.80     51.59
  .000980     510.       306.       430.       2          0          1          0.00       231.01     312.50

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0       600.0  TYPE=      1  TARGET=      599.000

                    VALLEY SECTION AC                                                    345

 54500.00     10.02      655.52     0.00       0.00       655.75     .23        .13        .00        652.10
    1800.     178.       1350.      271.       114.       306.       278.       21.        6.         653.30
     .10      1.57       4.41       .98        .060       .049       .120       .039       545.50     203.52
  .001970     100.       100.       100.       2          0          1          0.00       243.30     440.43

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
```

Reduce width and lower
Study
U/S of M-53

3470 ENCROACHMENT STATIONS= 1.0 600.0 TYPE= 1 TARGET= 599.000

BRIDGE SECTION AD BELLMAN ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 54557.00 | 9.25 | 655.75 | 0.00 | 0.00 | 655.84 | .09 | .05 | .04 | 649.50 |
| 1800. | 709. | 462. | 629. | 286. | 155. | 314. | 22. | 7. | 653.30 |
| .10 | 2.48 | 2.97 | 2.10 | .030 | .040 | .030 | .039 | 646.50 | 198.39 |
| .000463 | 77. | 57. | 47. | 2 | 0 | 1 | 0.00 | 251.87 | 450.26 |

SPECIAL BRIDGE

| SE | XK | XKOR | CCFQ | RDLEN | BWC | BVP | AREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.74 | 2.03 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 646.50 | 646.50 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWE | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTD | FLXTN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | TTOTAL | IDC | ICONT | CORRR | TOP TO | EDIST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | HB | QWETR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 664.84 | 655.84 | 0.00 | 912. | 389. | 98. | 654.30 | 655.40 | 30.00 |

3470 ENCROACHMENT STATIONS= 1.0 600.0 TYPE= 1 TARGET= 599.000

BRIDGE SECTION AD BELLMAN ROAD UPSTREAM FACE 346

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 54583.00 | 11.44 | 657.94 | 0.00 | 0.00 | 657.97 | .03 | 2.12 | 0.00 | 649.50 |
| 1800. | 745. | 287. | 768. | 588. | 196. | 632. | 22. | 7. | 653.30 |
| .11 | 1.27 | 1.46 | 1.22 | .030 | .040 | .030 | .034 | 645.50 | 126.33 |
| .000083 | 26. | 26. | 26. | 2 | 0 | 6 | 0.00 | 351.71 | 477.05 |

1490 NH CARD USED

VALLEY SECTION AE 347

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 55780.00 | 9.90 | 658.10 | 0.00 | 0.00 | 658.13 | .04 | .16 | .01 | 654.30 |
| 1360. | 407. | 443. | 511. | 518. | 131. | 643. | 60. | 14. | 653.90 |
| .36 | .78 | 2.45 | .79 | .070 | .040 | .070 | .040 | 648.20 | 45.72 |
| .000344 | 1167. | 1167. | 1217. | 2 | 0 | 1 | 0.00 | 542.35 | 383.05 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 172.0 963.2 TYPE= 1 TARGET= 920.000

VALLEY SECTION AF 348

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 56390.00 | 8.77 | 658.37 | 0.00 | 0.00 | 658.44 | .07 | .30 | .01 | 654.50 |
| 1360. | 618. | 537. | 200. | 742. | 173. | 172. | 77. | 28. | 655.50 |
| .45 | .83 | 3.11 | 1.20 | .065 | .037 | .065 | .040 | 647.60 | 312.04 |
| .000728 | 630. | 610. | 590. | 2 | 0 | 1 | 0.00 | 548.36 | 963.20 |

```
CCHV=     .300 CEHV=     .700
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      172.0      946.0  TYPE=      1  TARGET=      900.000

                BRIDGE SECTION AG  25 MILE ROAD  DOWNSTREAM FACE

 56461.00      8.35    658.45      0.00      0.00    658.48       .03       .02       .01    652.00
    1360.      845.      262.      253.      831.      139.      178.       79.       29.    651.70
      .47      1.02      1.89      1.42      .030      .040      .030      .040    550.10    303.38
  .000202       71.       71.       71.         2         0         1      0.00    540.62    946.00

1490 NH CARD USED

SPECIAL BRIDGE

SB   XK        XKOR      COFD      BOLEN      WSC       HAP       BAREA      SS       ELCRW     ELCFD
     0.00      2.03      3.04      0.00      1.00      0.10      74.00      0.00    650.10    650.10

PRESSURE AND WEIR FLOW

  EGPRS     EGLWC       HB       QWEIR      QPR       BAREA     FLLC      ELTRD     CLASS

  669.10    658.48      0.00      1122.      236.       74.     655.59    657.20     30.00


3470 ENCROACHMENT STATIONS=      172.0      946.0  TYPE=      1  TARGET=      900.000

                BRIDGE SECTION AG  25 MILE ROAD  UPSTREAM FACE                  343

 56498.00      8.65    658.75      0.00      0.00    658.77       .02       .29      0.00    652.00
    1360.      897.      224.      239.     1009.      145.      196.       80.       29.    651.70
      .48       .89      1.55      1.22      .030      .040      .030      .040    650.10    278.58
  .000129       37.       37.       37.         1         0         6      0.00    667.32    946.10

1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELR     FS        HV        HL        HLOSS     HARF ELEV
   Q         QLOB      QCH       QROB      QLOB      ACH       AROB      VOL       TYP    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMTN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRTOL    TOC       ICONT     CORAR     TOPWTD      ENDST


3470 ENCROACHMENT STATIONS=      460.0     1100.0  TYPE=      1  TARGET=      640.000
 56898.00      7.83    658.83      0.00      0.00    658.98       .15       .12       .09    659.50
    1360.      520.      645.      195.      531.      151.      131.       69.       35.    656.50
      .52       .98      4.27      1.50      .065      .037      .065      .040    651.00    460.00
  .001520      350.      400.      450.         0         0         1      0.00    633.06   1100.00

CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  57498.00 EXTENDED        .30 FEET
```

3470 ENCROACHMENT STATIONS= 481.0 1175.0 TYPE= 1 TARGET= 695.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 57498.00 | 7.66 | 660.00 | 0.00 | 0.00 | 660.32 | .32 | 1.25 | .03 | 651.74 |
| 1360. | 253. | 772. | 326. | 253. | 132. | 199. | 99. | 43. | 658.24 |
| .56 | 1.04 | 5.85 | 1.64 | .065 | .037 | .065 | .040 | 652.34 | 579.07 |
| .003075 | 600. | 600. | 600. | 4 | 0 | 1 | 0.00 | 584.98 | 1175.00 |

1490 NH CARD USED

VALLEY SECTION A- 350

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 57980.00 | 7.86 | 661.26 | 0.00 | 0.00 | 661.31 | .04 | .41 | .03 | 660.70 |
| 1360. | 885. | 472. | 3. | 770. | 197. | 5. | 107. | 49. | 660.60 |
| .65 | 1.15 | 2.34 | .43 | .064 | .040 | .060 | .040 | 654.40 | 6.75 |
| .001324 | 450. | 442. | 500. | 2 | 0 | 1 | 0.00 | 522.53 | 524.24 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1.0 830.0 TYPE= 1 TARGET= 829.000

BRIDGE SECTION A1 VAN DYKE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 58441.00 | 7.82 | 661.52 | 0.00 | 0.00 | 661.57 | .05 | .25 | .00 | 653.00 |
| 1360. | 997. | 302. | 61. | 637. | 139. | 43. | 115. | 53. | 657.70 |
| .71 | 1.57 | 2.16 | 1.41 | .030 | .040 | .030 | .041 | 653.70 | 353.03 |
| .000378 | 371. | 461. | 501. | 3 | 0 | 1 | 0.00 | 390.75 | 743.78 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.98 | 3.03 | 0.00 | 1.00 | 0.00 | 110.10 | 0.00 | 653.70 | 653.70 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | HB | QWEIR | QPR | BAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 668.58 | 661.57 | 0.00 | 708. | 655. | 110. | 660.30 | 662.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 1.0 330.0 TYPE= 1 TARGET= 829.000

BRIDGE SECTION A1 VAN DYKE ROAD UPSTREAM FACE 351

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 58479.00 | 9.45 | 663.15 | 0.00 | 0.00 | 663.16 | .01 | 1.59 | 0.00 | 653.00 |
| 1360. | 1100. | 172. | 89. | 1443. | 179. | 127. | 113. | 53. | 657.70 |
| .72 | .76 | .96 | .70 | .030 | .040 | .030 | .040 | 653.70 | 1.00 |
| .000054 | 38. | 38. | 38. | 0 | 0 | 6 | 0.00 | 757.60 | 763.60 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 300.0 1200.0 TYPE= 1 TARGET= 900.000

VALLEY SECTION A0 352

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 59760.00 | 7.18 | 663.15 | 0.00 | 0.00 | 663.56 | .37 | .21 | .18 | 652.90 |
| 1360. | 357. | 993. | 0. | 349. | 174. | 0. | 151. | 73. | 564.00 |
| .81 | 1.05 | 5.69 | 0.00 | .060 | .037 | .030 | .040 | 656.00 | 300.00 |
| .002306 | 1351. | 1281. | 1121. | 2 | 0 | 1 | 0.00 | 498.15 | 798.15 |

```
CCHV=    .100 CEHV=     .300
1490 NH CARD USED
3280 CROSS SECTION  60810.00 EXTENDED        .03 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    RANK -LEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWTD      ENDST


3470 ENCROACHMENT STATIONS=      200.0      700.0  TYPE=      1  TARGET=      300.000

                VALLEY SECTION AK                                                  353

 60810.00      6.13    666.13      0.00      0.00    666.39       .26      2.82       .01    694.90
    1200.      440.      760.        0.      236.      153.        0.      163.       82.    565.40
      .89      1.54      4.97      0.00      .070      .047      .030      .040    550.00    230.30
  .003241     1050.     1050.     1050.         3         0         1      0.00    234.70    434.70

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      230.0      440.0  TYPE=      1  TARGET=      210.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       666.20 ELREA=       667.70

                VALLEY SECTION AL                                                  354

 60920.00      7.55    666.25      0.00      0.00    666.75       .50       .29       .07    666.20
    1200.      190.     1020.        0.      114.      167.        0.      163.       82.    667.70
      .89      1.57      5.12      0.00      .040      .040      .030      .040    555.70    230.00
  .002746       60.      110.      120.         2         0         1      0.00    201.70    433.54

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  62150.00 EXTENDED        .55 FEET


3470 ENCROACHMENT STATIONS=      250.0      530.0  TYPE=      1  TARGET=      240.000

                VALLEY SECTION AM                                                  355

 62150.00      6.35    669.15      0.00      0.00    669.39       .24      2.62       .03    670.00
    1020.      265.      711.       44.      138.      155.       43.      172.       38.    670.60
      .98      1.92      4.59      1.32      .040      .035      .040      .040    662.80    250.00
  .001709     1100.     1230.     1230.         3         0         1      0.00    225.05    530.00


CCHV=     .300 CEHV=     .700
1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  62454.00 EXTENDED        .25 FEET
```

```
3470 ENCROACHMENT STATIONS=      400.0      680.0  TYPE=      1  TARGET=      280.000

              BRIDGE SECTION AN  RUANN DRIVE  DOWNSTREAM FACE

 62454.00      5.15   669.75      0.00      0.00   664.87       .12       .44       .04   665.60
    1020.      215.      308.      497.      105.      84.      215.      174.      89.   664.60
     1.01      2.05      3.67      2.31      .030      .040      .030      .040   664.60   400.00
  .001234      314.      304.      294.         2         0         1      0.00   257.57   680.00


SPECIAL BRIDGE

SB   KK        KKOR      COEQ      BDLEN     BWC       BWP       BAREA     SS        ELCBD     ELCBD
     0.00      1.98      3.03      0.00      1.00      0.00      54.90     0.00      664.60    664.60

3280 CROSS SECTION  52486.00 EXTENDED      1.13 FEET

PRESSURE AND WEIR FLOW

  EGPRS     EGLRC      G3       QWEIR     QPR       BAREA     FLLC      ELTRD     CLASS

  678.67    669.87     0.00      702.      325.      60.     669.10    669.20     30.00


3470 ENCROACHMENT STATIONS=      400.0      710.0  TYPE=      1  TARGET=      310.000

              BRIDGE SECTION AN  RUANN DRIVE  UPSTREAM FACE                    356

 62486.00      6.03   670.63      0.00      0.00   670.65       .03       .74      0.00   665.60
    1020.      230.      182.      608.      184.      99.      441.      175.      90.   664.60
     1.02      1.25      1.84      1.38      .030      .040      .030      .040   664.60   400.00
  .000251       32.       32.       32.         2         0         5      0.00   311.00   710.00


1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION  52600.00 EXTENDED      2.14 FEET

   SECNO     DEPTH     CMSEL     CRITS     WSELK     EG        HV        HL        DLOSS     BANK ELEV
   Q         QLOB      QC-       QROB      ALOB      ACH       AROB      VOL       TAR       LEFT/RIGHT
   TIME      VLOB      VC-       VROB      KNL       KNCH      KNR       WT        FLOWIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWTD       ENDST


3470 ENCROACHMENT STATIONS=      250.0      530.0  TYPE=      1  TARGET=      230.000
 62600.00      5.87   670.64      0.00      0.00   670.82       .18       .05       .10   671.27
    1020.      354.      599.       67.      163.     146.       62.      175.      90.   671.87
     1.03      2.17      4.09      1.07      .040      .040      .050      .040   664.77   250.00
  .001911      114.      114.      114.         2         0         1      0.00   239.57   530.00


CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3265 DIVIDED FLOW
```

3280 CROSS SECTION 63740.00 EXTENDED .26 FEET

3470 ENCROACHMENT STATIONS= 650.0 900.0 TYPE= 1 TARGET= 250.000

VALLEY SECTION AO 357

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63740.00 | 7.56 | 674.06 | 0.00 | 0.00 | 674.62 | .57 | 3.61 | .19 | 674.70 |
| 1020. | 7. | 635. | 379. | 7. | 85. | 179. | 184. | 96. | 659.20 |
| 1.08 | 1.02 | 7.48 | 2.12 | .050 | .046 | .065 | .040 | 566.50 | 651.20 |
| .006443 | 1140. | 1140. | 1074. | 4 | 0 | 1 | 0.00 | 722.51 | 900.00 |

CCHV= .500 CEHV= .700
1490 NH CARD USED
3280 CROSS SECTION 63821.00 EXTENDED 2.41 FEET

3301 HV CHANGED MORE THAN EVTOL

3470 ENCROACHMENT STATIONS= 1060.0 1670.0 TYPE= 1 TARGET= 610.000

BRIDGE SECTION AP 24 MILE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63821.00 | 7.51 | 674.91 | 0.00 | 0.00 | 674.93 | .01 | .02 | .28 | 674.70 |
| 1020. | 600. | 190. | 231. | 719. | 141. | 262. | 185. | 97. | 668.00 |
| 1.11 | .14 | 1.34 | .33 | .030 | .040 | .030 | .040 | 657.40 | 1060.00 |
| .000121 | 91. | 81. | 31. | 2 | 0 | 1 | 0.00 | 610.00 | 1670.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | CUFQ | ROLEN | H/C | B/P | BAREA | SS | ELCHO | ELCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.14 | 3.04 | 0.00 | 1.00 | 0.00 | 79.20 | 0.00 | 667.40 | 667.40 |

3280 CROSS SECTION 63879.00 EXTENDED 2.94 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | WEIR | QPR | FAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 680.42 | 674.93 | 0.00 | 704. | 317. | 79. | 673.70 | 674.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 1000.0 1700.0 TYPE= 1 TARGET= 700.000

BRIDGE SECTION AP 24 MILE ROAD UPSTREAM FACE 353

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 63879.00 | 8.03 | 675.43 | 0.00 | 0.00 | 675.44 | .01 | .02 | 0.00 | 674.70 |
| 1020. | 622. | 144. | 254. | 976. | 152. | 389. | 187. | 98. | 668.00 |
| 1.13 | .64 | .95 | .65 | .030 | .040 | .030 | .040 | 667.40 | 1000.00 |
| .000055 | 58. | 58. | 58. | 0 | 0 | 6 | 0.00 | 700.00 | 1700.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 330.0 TYPE= 1 TARGET= 329.999

VALLEY SECTION AQ 359

```
 64830.00      7.42    675.52      0.00      0.00    675.74       .22       .15       .15    675.40
    1020.        0.      553.      466.        1.      117.      226.      206.      106.    671.90
     1.20       .16      4.74      2.06      .075      .049      .075      .040    568.10    173.62
  .002707      791.      951.      971.         0         0         1      0.00    116.65    290.18


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
   SECNO     DEPTH     CASEL     CRINS     HSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       VROB      ALOB      ACH       AROB      VOL       TIME   LEFT/RIGHT
   TIME      VLOB      VCH       VLOB      XNL       XNCH      XNR       VTN       FLOTN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRTA     TOC       TCONT     CORAR     TOPWTD      ENVST


3470 ENCROACHMENT STATIONS=      150.0      380.0  TYPE=      1  TARGET=      200.000

                VALLEY SECTION AR                                                  360

 66000.00      8.26    679.15      0.00      0.00    679.59       .43      1.79       .05    674.20
    865.       222.      365.      273.       59.       55.       82.      213.      103.    673.00
     1.26      4.42      6.05      3.39      .040      .045      .040      .040    670.50    211.00
  .004174     1120.     1170.     1160.         3         0         1      0.00    104.26    314.33


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      523.0      565.0  TYPE=      1  TARGET=       42.000

                VALLEY SECTION AS                                                  361

 66850.00      6.42    681.22      0.00      0.00    681.50       .28      1.90       .01    674.10
    865.         8.      846.       11.        4.      196.        5.      217.      110.    679.40
     1.32      2.02      4.31      2.04      .045      .039      .040      .040    674.80    523.00
  .001400      820.      850.      840.         3         0         1      0.00     42.00    565.00


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=       20.000
 66893.00      6.91    681.31      0.00      0.00    682.16       .85       .09       .50    684.20
    865.         0.      865.        0.        0.      117.        0.      217.      110.  100000.00
     1.32      0.00      7.38      0.00      .045      .036      .040      .040    674.40    390.00
  .003926       43.       43.       43.         2         0         1      0.00     20.00    410.00


1490 NH CARD USED

NORMAL BRIDGE,NRD=20 MIN ELTRD=  681.90 MAX ELLC=  682.50

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=       20.000

                BRIDGE SECTION AT  MOUND ROAD  DOWNSTREAM FACE

 66894.00      6.92    681.32      0.00      0.00    682.66      1.34       .01       .50    684.20
    865.         0.      865.        0.        0.       93.        0.      217.      110.  100000.00
     1.32      0.00      9.30      0.00      .045      .036      .040      .040    674.40    390.00
  .006955        1.        1.        1.         0         0         1    -24.17     20.00    410.00
```

```
1490 NH CARD USED

NORMAL BRIDGE.NRD=20 MIN ELTRD=  681.90 MAX ELLC=  682.50

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000

                BRIDGE SECTION AT  ROUND ROAD  UPSTREAM FACE                  382

 66925.00      7.24    681.64      0.00      0.00    682.90      1.26       .20       .04    684.20
     865.        0.      865.        0.        0.      96.        0.      217.      110.  100000.00
     1.32      0.00      9.01      0.00      .045      .036      .040      .040    674.40    390.00
  .006154       31.       31.       31.         2         0         1    -27.77     20.00    -10.00

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      390.0      410.0  TYPE=      1  TARGET=      20.000
 66926.00      8.31    682.11      0.00      0.00    683.26       .55       .00       .35    684.20
     865.        0.      865.        0.        0.     145.        0.      217.      110.  100000.00
     1.32      0.00      5.97      0.00      .045      .036      .040      .040    674.40    390.00
  .002010        1.        1.        1.         3         0         1      0.00     20.00    410.00

1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     DLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     L-FT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       RTN       FLMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      324.0      384.0  TYPE=      1  TARGET=      50.000
 66946.00      8.89    683.34      0.00      0.00    683.49       .15       .02       .20    684.75
     865.      144.      242.      432.       46.       78.      128.      217.      110.    674.15
     1.32      2.25      3.12      3.39      .040      .045      .035      .040    674.45    324.00
  .000725       20.       20.       20.         2         0         1      0.00     60.00    384.00

3470 ENCROACHMENT STATIONS=      260.0      450.0  TYPE=      1  TARGET=     200.000
 67075.00      8.77    683.58      0.00      1.00    683.78       .02       .03       .03    684.15
     865.      143.      181.      382.      226.       77.      445.      219.      110.    678.49
     1.35       .91      1.31      1.31      .040      .045      .035      .040    674.79    260.00
  .000130      129.      129.      129.         2         0         1      0.00    200.00    450.00

CCHV=     .300 CEHV=     .500
1490 NH CARD USED
 67500.00      7.72    683.61      0.00      0.00    683.65       .03       .06       .01    681.19
     865.      116.      120.      630.      134.       66.      426.      224.      112.    679.59
     1.41       .87      1.80      1.48      .040      .045      .035      .041    675.89    250.40
  .000291      321.      425.      295.         2         0         1      0.00    271.14    522.04

1490 NH CARD USED
 67925.00      6.75    683.74      0.00      0.00    683.83       .09       .15       .03    682.29
     865.       62.      179.      624.       54.       57.      215.      227.      114.    680.64
     1.45      1.15      3.15      2.27      .040      .045      .035      .041    676.94    282.13
  .001062      322.      425.      295.         2         0         1      0.00    223.77    505.90

1490 NH CARD USED
```

VALLEY SECTION AU 363

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 68350.00 | 6.12 | 684.22 | 0.00 | 0.00 | 684.44 | .22 | .54 | .05 | 683.40 |
| 865. | 21. | 248. | 597. | 19. | 50. | 188. | 230. | 115. | 681.60 |
| 1.48 | 1.12 | 4.91 | 3.18 | .040 | .045 | .035 | .041 | 578.10 | 303.96 |
| .002925 | 322. | 425. | 295. | 2 | 0 | 1 | 0.00 | 186.57 | 488.53 |

1490 NH CARD USED

VALLEY SECTION AV 364

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 69530.00 | 4.97 | 688.17 | 0.00 | 0.00 | 688.56 | .38 | 1.03 | .04 | 685.90 |
| 865. | 323. | 440. | 102. | 124. | 67. | 62. | 235. | 120. | 687.20 |
| 1.54 | 2.60 | 6.57 | 1.65 | .055 | .040 | .045 | .042 | 583.20 | 579.21 |
| .005525 | 849. | 1180. | 969. | 6 | 0 | 1 | 0.00 | 232.44 | 511.03 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 69730.00 | 4.95 | 684.27 | 0.00 | 0.00 | 684.77 | .50 | 1.15 | .05 | 687.52 |
| 865. | 228. | 501. | 135. | 96. | 70. | 50. | 236. | 121. | 687.52 |
| 1.55 | 2.38 | 7.15 | 2.69 | .055 | .040 | .045 | .041 | 644.32 | 525.40 |
| .005988 | 200. | 200. | 200. | 2 | 0 | 1 | 0.00 | 170.60 | 645.34 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70197.00 | 5.08 | 691.98 | 0.00 | 0.00 | 692.39 | .41 | 2.60 | .03 | 690.50 |
| 865. | 169. | 484. | 212. | 94. | 77. | 56. | 239. | 123. | 689.30 |
| 1.58 | 1.80 | 6.33 | 3.40 | .060 | .045 | .040 | .041 | 686.97 | 449.50 |
| .005228 | 450. | 467. | 475. | 2 | 0 | 1 | 0.00 | 174.34 | 623.64 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CHSEL | CRIWS | WSELK | FG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | T.A | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELWIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWTD | ENDST |

VALLEY SECTION AW 365

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 70530.00 | 4.98 | 693.73 | 693.77 | 0.00 | 694.30 | .52 | 1.35 | .05 | 692.00 |
| 865. | 148. | 540. | 177. | 102. | 78. | 45. | 241. | 124. | 690.40 |
| 1.60 | 1.65 | 6.91 | 4.06 | .060 | .045 | .040 | .041 | 588.80 | 343.04 |
| .005990 | 330. | 333. | 335. | 2 | 6 | 1 | 0.00 | 210.67 | 551.71 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1.0 1000.0 TYPE= 1 TARGET= 999.000

VALLEY SECTION AX 366

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71240.00 | 4.44 | 696.94 | 0.00 | 0.00 | 697.16 | .22 | 2.76 | .03 | 693.40 |
| 865. | 368. | 330. | 167. | 145. | 62. | 120. | 245. | 122. | 695.50 |
| 1.65 | 2.54 | 5.34 | 1.40 | .040 | .035 | .060 | .041 | 592.50 | 404.43 |
| .002682 | 770. | 710. | 660. | 4 | 0 | 1 | 0.00 | 224.45 | 624.37 |

CCHV= .300 CEHV= .500
1490 NH CARD USED

[illegible] 1.0 1000.0 TYPE= 1 TARGET= 999.000

BRIDGE SECTION AY SHELBY ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71290.00 | 5.80 | 697.20 | 0.00 | 0.00 | 697.27 | .03 | .06 | .05 | 693.70 |
| 865. | 412. | 133. | 320. | 203. | 56. | 171. | 245. | 128. | 694.70 |
| 1.66 | 2.03 | 2.36 | 1.87 | .030 | .040 | .030 | .041 | 691.40 | 395.49 |
| .000692 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 236.25 | 633.14 |

SPECIAL BRIDGE

| SB | XK | XKOR | COEQ | ROLEN | BWC | BWP | BAREA | SS | ELCHO | ELCHO |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.22 | 3.03 | 0.00 | 1.00 | 0.00 | 37.50 | 0.00 | 691.40 | 691.40 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLOC | H3 | OWEIR | QPR | BAREA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 715.25 | 697.27 | 0.00 | 524. | 350. | 38. | 697.00 | 694.00 | 31.00 |

3470 ENCROACHMENT STATIONS= 1.0 1000.0 TYPE= 1 TARGET= 999.000

BRIDGE SECTION AY SHELBY ROAD UPSTREAM FACE 367

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71330.00 | 8.76 | 700.14 | 0.00 | 0.00 | 700.15 | .01 | 2.88 | 0.00 | 693.70 |
| 865. | 437. | 61. | 368. | 666. | 95. | 543. | 246. | 128. | 694.70 |
| 1.68 | .66 | .64 | .68 | .030 | .040 | .030 | .041 | 691.40 | 307.57 |
| .000027 | 40. | 40. | 40. | 0 | 0 | 7 | 0.00 | 356.63 | 664.20 |

1490 NH CARD USED

VALLEY SECTION AZ 368

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 71890.00 | 5.97 | 700.17 | 0.00 | 0.00 | 700.20 | .03 | .04 | .01 | 697.00 |
| 865. | 171. | 162. | 532. | 266. | 83. | 366. | 259. | 132. | 696.30 |
| 1.79 | .64 | 1.94 | 1.45 | .065 | .040 | .040 | .041 | 694.20 | 224.22 |
| .000316 | 560. | 560. | 560. | 2 | 0 | 1 | 0.00 | 294.30 | 513.52 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72165.00 | 5.38 | 700.28 | 0.00 | 0.00 | 700.35 | .07 | .13 | .02 | 697.00 |
| 865. | 121. | 215. | 525. | 55. | 75. | 275. | 264. | 134. | 697.30 |
| 1.83 | 1.43 | 2.87 | 1.91 | .040 | .040 | .040 | .041 | 694.50 | 342.58 |
| .000813 | 276. | 276. | 276. | 2 | 0 | 1 | 0.00 | 219.14 | 611.52 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72444.00 | 4.88 | 700.58 | 0.00 | 0.00 | 700.75 | .16 | .35 | .05 | 695.10 |
| 865. | 97. | 310. | 453. | 42. | 70. | 190. | 265. | 135. | 698.80 |
| 1.85 | 2.30 | 4.40 | 2.41 | .040 | .040 | .040 | .041 | 695.70 | 529.31 |
| .002199 | 276. | 278. | 275. | 2 | 0 | 1 | 0.00 | 178.37 | 707.68 |

1490 NH CARD USED

| SECNO | DEPTH | CASEL | CRIMS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION BA 369

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 72730.00 | 4.91 | 701.31 | 0.00 | 0.00 | 701.58 | .27 | .73 | .05 | 698.70 |

```
     865.       80.      395.      390.       37.       71.      156.      267.      137.    700.20
    1.87      2.16      5.58      2.49     .050      .040      .040      .041    696.40    623.69
 .003733      276.      276.      276.        2         0         1      0.00    189.37    813.06

1490 NH CARD USED

                VALLEY SECTION BB                                          370

 74110.00      5.80    706.80      0.00      0.00    707.37       .57      5.64       .15    703.40
     865.      191.      629.       55.       93.       90.       30.      275.      141.    705.00
     1.94      1.95      7.00      1.36      .065      .040      .050      .041    701.10    317.79
 .004432     1420.     1399.     1371.         4         0         1      0.00    115.23    433.53

1490 NH CARD USED

                VALLEY SECTION BC                                          371

 75420.00      3.70    713.80      0.00      0.00    714.24       .44      3.33       .94    719.40
     865.        0.      865.        0.        0.       163.        0.      280.      144.    724.40
     2.01      0.00      5.29      0.00      .055      .045      .050      .041    710.11    145.05
 .006313     1200.     1410.     1410.         4         0         1      0.00     55.40    214.45

CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        FG        HV        HL     QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWP    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     TTRTAL    TOC       ICONT     COPAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      297.0      322.0  TYPE=      1  TARGET=      25.000

                BLUE RIDGE DRIVE          DOWNSTREAM FACE

 75473.00      4.78    716.66    716.68      0.00    718.11      1.43       .48      0.00    714.40
     675.        0.      675.        0.        0.       70.        0.      280.      144. 100000.00
     2.01       .06      9.00      0.00      .030      .040      .050      .041    711.90    297.00
 .016535       53.       53.       53.         2        11         1      0.00     25.00    322.00

SPECIAL BRIDGE

SB  XK        XKOR      COEQ      BDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.00      2.03      2.82      0.00      1.00      0.00      54.70     0.00    711.90    711.90

 WATER EL=X5 CARD=    725.300

                BLUE RIDGE DRIVE          UPSTREAM FACE                    372

 75547.00     17.30    725.30      0.00      0.00    725.30       .00       .00       .72    708.00
     675.      336.       22.      317.     5138.      432.     4809.      289.      145.    708.00
     2.33       .07       .05       .07      .030      .040      .030      .041    708.00      0.00
 .000000       74.       74.       74.         0         0         1      0.00    500.00    600.00
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Check plan! Too Bad loss?

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLI

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C#SEL | HV | HL | OLOSS | VCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.64 | .14 | 0.00 | 0.00 | 980.10 | 9.44 | 56.56 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.90 | .24 | 0.00 | 0.00 | 1570.00 | 10.70 | 61.14 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.32 | .28 | 0.00 | 0.00 | 1800.00 | 11.12 | 62.71 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.54 | .41 | 0.00 | 0.00 | 2610.00 | 12.34 | 67.24 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 980.00 | 652.77 | .11 | .05 | .01 | 752.52 | 9.28 | 240.42 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 1570.00 | 654.10 | .13 | .06 | .06 | 984.85 | 10.67 | 257.90 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 1800.00 | 654.63 | .10 | .05 | .07 | 1067.43 | 11.14 | 262.01 |
| 53446.00 | 100.00 | 0.00 | 0.00 | 643.49 | 2610.00 | 656.05 | .10 | .07 | .13 | 1355.44 | 12.56 | 284.71 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 980.00 | 653.07 | .25 | .43 | .15 | 942.69 | 8.27 | 189.94 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 1570.00 | 654.43 | .22 | .30 | .14 | 1139.19 | 9.63 | 243.59 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 1800.00 | 654.90 | .20 | .33 | .03 | 1217.43 | 10.10 | 253.03 |
| 53900.00 | 454.00 | 0.00 | 0.00 | 644.80 | 2610.00 | 656.29 | .17 | .29 | .02 | 1493.57 | 11.49 | 264.94 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 980.00 | 653.75 | .23 | .61 | .01 | 954.33 | 6.95 | 100.00 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 1570.00 | 654.96 | .24 | .54 | .01 | 1277.63 | 8.16 | 213.88 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 1800.00 | 655.39 | .24 | .51 | .01 | 1393.43 | 8.58 | 231.01 |
| 54400.00 | 500.00 | 0.00 | 0.00 | 646.80 | 2610.00 | 656.67 | .22 | .42 | .02 | 1687.58 | 9.87 | 284.30 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 980.00 | 653.85 | .30 | .16 | .02 | 980.00 | 8.35 | 51.00 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 1570.00 | 655.10 | .24 | .14 | .00 | 1234.74 | 9.60 | 230.41 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 1800.00 | 655.52 | .23 | .13 | .00 | 1350.09 | 10.02 | 243.30 |
| 54500.00 | 100.00 | 0.00 | 0.00 | 645.50 | 2610.00 | 656.81 | .21 | .12 | .00 | 1657.37 | 11.31 | 298.59 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 980.00 | 653.65 | 1.10 | .20 | .40 | 980.00 | 7.15 | 18.50 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 1570.00 | 655.34 | .10 | .05 | .04 | 450.10 | 8.84 | 239.21 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 1800.00 | 655.75 | .09 | .05 | .04 | 452.22 | 9.25 | 251.87 |
| 54557.00 | 57.00 | 0.00 | 0.00 | 646.50 | 2610.00 | 657.00 | .09 | .04 | .04 | 497.55 | 10.50 | 308.92 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 980.00 | 655.73 | .62 | 1.50 | 0.00 | 980.00 | 9.23 | 18.50 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 1570.00 | 657.71 | .02 | 2.30 | 0.00 | 260.55 | 11.21 | 341.23 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 1800.00 | 657.94 | .03 | 2.15 | 0.00 | 298.60 | 11.44 | 351.71 |
| 54583.00 | 26.00 | 656.40 | 654.30 | 646.50 | 2610.00 | 658.53 | .04 | 1.53 | 0.00 | 372.93 | 12.03 | 381.05 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 740.00 | 657.22 | .03 | .73 | .18 | 303.50 | 9.02 | 426.89 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1180.00 | 657.85 | .04 | .15 | .01 | 408.84 | 9.65 | 505.42 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1360.00 | 658.10 | .04 | .15 | .01 | 442.85 | 9.90 | 542.35 |
| 55780.00 | 1197.00 | 0.00 | 0.00 | 648.20 | 1960.00 | 658.80 | .04 | .21 | .00 | 540.71 | 10.60 | 621.53 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 740.00 | 657.43 | .10 | .26 | .02 | 446.41 | 7.83 | 506.63 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1180.00 | 658.12 | .08 | .30 | .01 | 517.41 | 8.52 | 625.03 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1360.00 | 658.37 | .07 | .30 | .01 | 536.58 | 8.77 | 648.36 |
| 56390.00 | 610.00 | 0.00 | 0.00 | 649.60 | 1960.00 | 659.08 | .05 | .29 | .00 | 605.02 | 9.48 | 711.71 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 740.00 | 657.55 | .03 | .03 | .02 | 249.00 | 7.45 | 525.44 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1180.00 | 658.21 | .03 | .03 | .01 | 259.57 | 8.11 | 619.92 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1360.00 | 658.45 | .03 | .02 | .01 | 261.90 | 8.35 | 640.62 |
| 56461.00 | 71.00 | 0.00 | 0.00 | 650.10 | 1960.00 | 659.13 | .03 | .02 | .01 | 273.91 | 9.03 | 699.48 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C&SEL | HV | HL | OLOSS | DCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 740.00 | 658.21 | .01 | .63 | 0.00 | 162.52 | 8.11 | 620.33 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1180.00 | 658.61 | .02 | .39 | 0.00 | 207.79 | 8.51 | 655.59 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1360.00 | 658.75 | .02 | .29 | 0.00 | 224.19 | 8.65 | 667.32 |
| 56498.00 | 37.00 | 657.20 | 656.50 | 650.10 | 1960.00 | 659.25 | .02 | .14 | 0.00 | 258.54 | 9.18 | 711.75 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 740.00 | 658.25 | .14 | .08 | .09 | 473.43 | 7.25 | 507.01 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1180.00 | 658.69 | .14 | .11 | .09 | 594.41 | 7.69 | 630.29 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1360.00 | 658.83 | .15 | .12 | .09 | 644.71 | 7.83 | 633.66 |
| 56898.00 | 400.00 | 0.00 | 0.00 | 651.00 | 1960.00 | 659.37 | .12 | .12 | .07 | 727.41 | 8.37 | 636.92 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 740.00 | 659.24 | .45 | 1.15 | .15 | 620.77 | 5.90 | 241.36 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1180.00 | 659.82 | .35 | 1.24 | .10 | 741.30 | 7.48 | 523.25 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1360.00 | 660.00 | .32 | 1.25 | .08 | 771.77 | 7.66 | 584.98 |
| 57498.00 | 600.00 | 0.00 | 0.00 | 652.34 | 1960.00 | 660.45 | .25 | 1.15 | .07 | 870.59 | 8.11 | 587.23 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 740.00 | 660.64 | .04 | .55 | .12 | 339.39 | 7.24 | 500.94 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1180.00 | 661.12 | .04 | .39 | .09 | 433.26 | 7.72 | 517.59 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1360.00 | 661.25 | .04 | .41 | .08 | 471.33 | 7.85 | 522.33 |
| 57980.00 | 482.00 | 0.00 | 0.00 | 653.40 | 1960.00 | 661.68 | .06 | .96 | .06 | 590.95 | 8.28 | 535.60 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 740.00 | 660.87 | .03 | .22 | .00 | 224.02 | 7.17 | 353.40 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1180.00 | 661.36 | .04 | .24 | .00 | 250.15 | 7.66 | 383.33 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1360.00 | 661.52 | .05 | .25 | .00 | 301.54 | 7.82 | 390.75 |
| 58441.00 | 461.00 | 0.00 | 0.00 | 653.70 | 1960.00 | 661.97 | .06 | .29 | .00 | 365.00 | 8.27 | 406.81 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 740.00 | 662.52 | .01 | 1.62 | 0.00 | 115.24 | 8.82 | 646.66 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1180.00 | 663.02 | .01 | 1.63 | 0.00 | 155.24 | 9.32 | 766.31 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1360.00 | 663.15 | .01 | 1.59 | 0.00 | 171.58 | 9.45 | 767.60 |
| 58479.00 | 38.00 | 662.00 | 660.30 | 653.70 | 1960.00 | 663.46 | .02 | 1.44 | 0.00 | 224.55 | 9.76 | 770.70 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 740.00 | 662.49 | .33 | .13 | .16 | 704.03 | 6.49 | 273.92 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1180.00 | 663.03 | .37 | .19 | .18 | 924.84 | 7.03 | 447.81 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1360.00 | 663.18 | .37 | .21 | .18 | 992.53 | 7.18 | 498.15 |
| 59760.00 | 1281.00 | 0.00 | 0.00 | 656.00 | 1960.00 | 663.59 | .39 | .31 | .19 | 1190.39 | 7.59 | 499.07 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 645.00 | 665.14 | .44 | 2.73 | .03 | 640.40 | 5.14 | 60.02 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1030.00 | 665.89 | .26 | 2.74 | .01 | 706.13 | 5.89 | 234.29 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1200.00 | 666.13 | .26 | 2.82 | .01 | 760.39 | 6.13 | 234.70 |
| 60810.00 | 1050.00 | 0.00 | 0.00 | 660.00 | 1740.00 | 666.73 | .25 | 3.04 | .01 | 920.54 | 6.73 | 235.80 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 645.00 | 665.57 | .30 | .27 | .01 | 645.00 | 6.87 | 29.71 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1030.00 | 665.94 | .67 | .33 | .12 | 1030.00 | 7.24 | 30.55 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1200.00 | 666.25 | .50 | .29 | .07 | 1020.30 | 7.55 | 201.70 |
| 60920.00 | 110.00 | 0.00 | 0.00 | 658.70 | 1740.00 | 663.50 | .47 | .27 | .05 | 1206.01 | 8.20 | 204.22 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 550.00 | 667.91 | .38 | 2.40 | .02 | 550.00 | 5.11 | 32.94 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 860.00 | 669.06 | .21 | 2.61 | .05 | 631.53 | 6.26 | 224.59 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 1020.00 | 669.15 | .24 | 2.62 | .03 | 711.06 | 6.35 | 229.05 |
| 62150.00 | 1230.00 | 0.00 | 0.00 | 662.80 | 1470.00 | 669.73 | .24 | 2.58 | .02 | 852.57 | 6.93 | 257.87 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX FL OF LOW CHORD | MIN FL GROUND | DISCHARGE (CFS) | C#SEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 550.00 | 668.95 | .95 | 1.21 | .40 | 550.00 | 4.35 | 17.00 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 880.00 | 669.59 | .11 | .40 | .03 | 290.49 | 4.98 | 249.10 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 1020.00 | 669.75 | .12 | .44 | .04 | 308.38 | 5.15 | 257.57 |
| 62454.00 | 304.00 | 0.00 | 0.00 | 664.60 | 1470.00 | 670.28 | .12 | .41 | .03 | 344.65 | 5.68 | 274.69 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 550.00 | 669.20 | .94 | .14 | 0.00 | 550.00 | 4.60 | 17.00 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 880.00 | 670.49 | .03 | .32 | 0.00 | 155.44 | 5.89 | 308.19 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 1020.00 | 670.63 | .03 | .79 | 0.00 | 192.17 | 6.03 | 310.00 |
| 62486.00 | 32.00 | 669.20 | 669.10 | 664.60 | 1470.00 | 670.99 | .05 | .63 | 0.00 | 231.25 | 6.39 | 310.00 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 550.00 | 670.32 | .26 | .37 | .17 | 550.00 | 5.55 | 37.34 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 880.00 | 670.51 | .18 | .06 | .09 | 542.31 | 5.74 | 232.81 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 1020.00 | 670.64 | .18 | .06 | .10 | 599.42 | 5.87 | 239.57 |
| 62600.00 | 114.00 | 0.00 | 0.00 | 664.77 | 1470.00 | 671.02 | .23 | .08 | .12 | 764.38 | 6.25 | 258.01 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 550.00 | 673.51 | .43 | 3.29 | .11 | 454.85 | 7.01 | 43.32 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 880.00 | 673.74 | .63 | 3.51 | 0.00 | 620.53 | 7.28 | 210.44 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 1020.00 | 674.05 | .57 | 3.61 | .19 | 634.72 | 7.56 | 222.51 |
| 63740.00 | 1140.00 | 0.00 | 0.00 | 666.50 | 1470.00 | 674.74 | .40 | 3.81 | .09 | 677.31 | 8.24 | 250.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 550.00 | 674.09 | .17 | .12 | .15 | 414.59 | 6.69 | 31.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 880.00 | 674.80 | .01 | .02 | .33 | 173.50 | 7.40 | 590.08 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 1020.00 | 674.91 | .01 | .03 | .28 | 189.52 | 7.51 | 610.00 |
| 63821.00 | 81.00 | 0.00 | 0.00 | 667.40 | 1470.00 | 675.34 | .02 | .03 | .19 | 222.50 | 7.94 | 610.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 550.00 | 674.83 | .00 | .57 | 0.00 | 104.93 | 7.43 | 626.39 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 880.00 | 675.32 | .01 | .51 | 0.00 | 130.68 | 7.92 | 700.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 1020.00 | 675.43 | .01 | .52 | 0.00 | 143.77 | 8.03 | 700.00 |
| 63879.00 | 58.00 | 674.00 | 673.70 | 667.40 | 1470.00 | 675.79 | .01 | .44 | 0.00 | 178.91 | 8.39 | 700.00 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 550.00 | 674.90 | .11 | .10 | .07 | 330.08 | 6.80 | 101.85 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 880.00 | 675.40 | .18 | .13 | .12 | 486.04 | 7.30 | 104.66 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 1020.00 | 675.52 | .22 | .15 | .15 | 553.40 | 7.42 | 116.65 |
| 64830.00 | 951.00 | 0.00 | 0.00 | 668.10 | 1470.00 | 675.90 | .35 | .21 | .24 | 756.80 | 7.80 | 153.18 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 460.00 | 677.36 | .65 | 2.84 | .16 | 306.34 | 6.46 | 28.01 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 740.00 | 678.76 | .50 | 3.58 | .10 | 362.71 | 7.86 | 91.18 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 865.00 | 679.16 | .43 | 3.79 | .06 | 365.06 | 8.26 | 104.26 |
| 66000.00 | 1170.00 | 0.00 | 0.00 | 670.90 | 1250.00 | 680.08 | .32 | 4.15 | .00 | 376.37 | 9.18 | 149.62 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 460.00 | 679.78 | .16 | 1.88 | .05 | 458.37 | 4.98 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 740.00 | 680.91 | .24 | 1.86 | .03 | 726.50 | 6.11 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 865.00 | 681.22 | .28 | 1.90 | .01 | 845.74 | 6.42 | 42.00 |
| 66850.00 | 850.00 | 0.00 | 0.00 | 674.80 | 1250.00 | 682.00 | .44 | 1.99 | .03 | 1210.48 | 7.20 | 42.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 460.00 | 679.85 | .43 | .07 | .27 | 460.00 | 5.45 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 740.00 | 680.99 | .69 | .08 | .46 | 740.00 | 6.59 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 865.00 | 681.31 | .85 | .09 | .56 | 865.00 | 6.91 | 20.00 |
| 66893.00 | 43.00 | 0.00 | 0.00 | 674.40 | 1250.00 | 682.12 | 1.36 | .13 | .92 | 1250.00 | 7.72 | 20.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 460.00 | 679.85 | .59 | .00 | .17 | 460.00 | 5.45 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 740.00 | 681.00 | 1.05 | .00 | .35 | 740.00 | 6.60 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 865.00 | 681.32 | 1.34 | .01 | .50 | 865.00 | 6.92 | 20.00 |
| 66894.00 | 1.00 | 681.90 | 682.50 | 674.40 | 1250.00 | 682.13 | 2.42 | .01 | 1.05 | 1250.00 | 7.73 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 460.00 | 680.02 | .56 | .11 | .02 | 460.00 | 5.62 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 740.00 | 681.23 | 1.00 | .17 | .02 | 740.00 | 6.83 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 865.00 | 681.64 | 1.26 | .20 | .04 | 865.00 | 7.24 | 20.00 |
| 66925.00 | 31.00 | 681.90 | 682.50 | 674.40 | 1250.00 | 682.82 | 2.36 | .50 | .03 | 1250.00 | 8.42 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 460.00 | 680.34 | .34 | .00 | .11 | 460.00 | 5.94 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 740.00 | 681.99 | .50 | .00 | .25 | 740.00 | 7.59 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 865.00 | 682.71 | .55 | .00 | .35 | 865.00 | 8.31 | 20.00 |
| 66926.00 | 1.00 | 0.00 | 0.00 | 674.40 | 1250.00 | 685.45 | .61 | .00 | .88 | 1250.00 | 11.06 | 20.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 460.00 | 680.49 | .27 | .05 | .04 | 231.23 | 6.14 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 740.00 | 682.52 | .16 | .03 | .17 | 234.35 | 8.07 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 865.00 | 683.34 | .15 | .02 | .20 | 244.04 | 8.89 | 60.00 |
| 66946.00 | 20.00 | 0.00 | 0.00 | 674.45 | 1250.00 | 686.20 | .12 | .01 | .24 | 273.82 | 11.75 | 60.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 460.00 | 680.98 | .06 | .15 | .11 | 125.42 | 6.19 | 159.21 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 740.00 | 682.77 | .03 | .05 | .07 | 103.95 | 7.98 | 200.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 865.00 | 683.56 | .02 | .03 | .06 | 100.84 | 8.77 | 200.00 |
| 67075.00 | 129.00 | 0.00 | 0.00 | 674.79 | 1250.00 | 686.37 | .02 | .01 | .05 | 98.49 | 11.58 | 200.00 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 460.00 | 681.34 | .17 | .42 | .06 | 138.08 | 5.45 | 119.71 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 740.00 | 682.85 | .05 | .10 | .01 | 138.29 | 6.96 | 234.07 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 865.00 | 683.61 | .03 | .06 | .01 | 119.54 | 7.72 | 271.14 |
| 67500.00 | 425.00 | 0.00 | 0.00 | 675.89 | 1250.00 | 686.39 | .01 | .02 | .00 | 86.85 | 10.50 | 383.67 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 460.00 | 682.33 | .21 | 1.01 | .02 | 200.23 | 5.34 | 108.93 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 740.00 | 683.12 | .16 | .32 | .05 | 211.00 | 6.13 | 185.46 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 865.00 | 683.74 | .09 | .16 | .03 | 178.69 | 6.75 | 223.77 |
| 67925.00 | 425.00 | 0.00 | 0.00 | 676.99 | 1250.00 | 686.41 | .02 | .02 | .00 | 108.30 | 9.42 | 351.73 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 460.00 | 683.45 | .21 | 1.12 | .00 | 199.88 | 5.35 | 109.23 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 740.00 | 683.96 | .23 | .88 | .04 | 242.59 | 5.86 | 159.26 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 865.00 | 684.22 | .22 | .54 | .06 | 247.57 | 6.12 | 184.67 |
| 68350.00 | 425.00 | 0.00 | 0.00 | 678.10 | 1250.00 | 686.45 | .04 | .06 | .01 | 141.94 | 8.35 | 401.51 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 460.00 | 687.59 | .35 | 4.21 | .08 | 318.95 | 4.39 | 144.13 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 740.00 | 688.07 | .45 | 4.17 | .06 | 399.51 | 4.87 | 225.58 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 865.00 | 688.17 | .46 | 4.03 | .08 | 440.17 | 4.97 | 232.44 |
| 69530.00 | 1180.00 | 0.00 | 0.00 | 683.20 | 1250.00 | 689.31 | .51 | .54 | 0.00 | 590.38 | 5.11 | 241.30 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 460.00 | 685.59 | .44 | 1.07 | .06 | 353.31 | 4.27 | 122.82 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 740.00 | 689.08 | .51 | 1.09 | .08 | 466.29 | 4.76 | 158.39 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 865.00 | 689.27 | .50 | 1.15 | .06 | 501.34 | 4.95 | 170.60 |
| 69730.00 | 200.00 | 0.00 | 0.00 | 684.32 | 1250.00 | 689.86 | .41 | 1.28 | .06 | 563.52 | 5.54 | 209.28 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | OCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70197.00 | 467.00 | 0.00 | 0.00 | 696.90 | 460.00 | 691.21 | .39 | 2.50 | .03 | 350.74 | 4.31 | 112.79 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 696.90 | 740.00 | 691.79 | .40 | 2.57 | .03 | 446.95 | 4.89 | 159.55 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 696.90 | 865.00 | 691.98 | .41 | 2.60 | .03 | 484.06 | 5.08 | 174.34 |
| 70197.00 | 467.00 | 0.00 | 0.00 | 696.90 | 1250.00 | 692.35 | .49 | 2.63 | .04 | 599.63 | 5.45 | 195.31 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 460.00 | 692.94 | .48 | 1.74 | .05 | 379.76 | 4.14 | 41.19 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 740.00 | 693.58 | .54 | 1.85 | .07 | 505.06 | 4.78 | 192.08 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 865.00 | 693.78 | .52 | 1.85 | .05 | 540.28 | 4.98 | 210.67 |
| 70530.00 | 333.00 | 0.00 | 0.00 | 688.80 | 1250.00 | 694.32 | .45 | 1.92 | .01 | 613.33 | 5.52 | 258.32 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 460.00 | 696.60 | .67 | 3.73 | .09 | 386.53 | 4.10 | 25.00 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 740.00 | 696.76 | .71 | 2.76 | .10 | 303.49 | 4.26 | 213.62 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 865.00 | 696.94 | .72 | 2.76 | .09 | 325.72 | 4.44 | 224.45 |
| 71240.00 | 710.00 | 0.00 | 0.00 | 692.50 | 1250.00 | 697.35 | .74 | 2.75 | .05 | 401.15 | 4.85 | 242.53 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 460.00 | 696.62 | 1.37 | .37 | .35 | 460.00 | 5.22 | 13.00 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 740.00 | 697.02 | .06 | .07 | .07 | 123.90 | 5.62 | 225.75 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 865.00 | 697.20 | .08 | .08 | .05 | 133.19 | 5.80 | 236.25 |
| 71290.00 | 50.00 | 0.00 | 0.00 | 691.40 | 1250.00 | 697.62 | .09 | .07 | .05 | 161.49 | 6.22 | 253.26 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 460.00 | 699.09 | .50 | 1.59 | 0.00 | 460.00 | 7.69 | 13.00 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 740.00 | 700.01 | .01 | 2.93 | 0.00 | 53.13 | 8.61 | 350.97 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 865.00 | 700.14 | .01 | 2.83 | 0.00 | 60.71 | 8.74 | 356.63 |
| 71330.00 | 40.00 | 698.90 | 697.00 | 691.40 | 1250.00 | 700.47 | .01 | 2.77 | 0.00 | 83.37 | 9.07 | 370.79 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 460.00 | 699.90 | .01 | .13 | .15 | 91.03 | 5.70 | 281.00 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 740.00 | 700.03 | .03 | .03 | .01 | 142.69 | 5.83 | 286.89 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 865.00 | 700.17 | .03 | .04 | .01 | 161.65 | 5.97 | 294.30 |
| 71890.00 | 560.00 | 0.00 | 0.00 | 694.20 | 1250.00 | 700.51 | .05 | .06 | .02 | 217.99 | 6.31 | 312.04 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 460.00 | 699.95 | .03 | .05 | .01 | 129.62 | 5.05 | 198.03 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 740.00 | 700.12 | .06 | .12 | .02 | 156.67 | 5.22 | 204.16 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 865.00 | 700.28 | .07 | .13 | .02 | 218.73 | 5.38 | 219.14 |
| 72166.00 | 276.00 | 0.00 | 0.00 | 694.90 | 1250.00 | 700.67 | .10 | .18 | .02 | 291.93 | 5.77 | 242.53 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 460.00 | 700.09 | .10 | .13 | .04 | 207.25 | 4.39 | 163.43 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 740.00 | 700.40 | .16 | .33 | .05 | 286.50 | 4.70 | 172.48 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 865.00 | 700.54 | .16 | .35 | .05 | 310.03 | 4.84 | 178.37 |
| 72444.00 | 278.00 | 0.00 | 0.00 | 695.70 | 1250.00 | 701.03 | .21 | .41 | .05 | 378.[illegible] | 5.33 | 190.74 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 460.00 | 700.53 | .33 | .55 | .11 | 317.21 | 4.23 | 162.23 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 740.00 | 701.13 | .28 | .74 | .06 | 374.53 | 4.73 | 183.38 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 865.00 | 701.31 | .27 | .73 | .05 | 395.12 | 4.91 | 189.37 |
| 72720.00 | 276.00 | 0.00 | 0.00 | 696.40 | 1250.00 | 701.79 | .27 | .78 | .04 | 454.42 | 5.39 | 204.30 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 460.00 | 705.89 | .39 | 5.29 | .03 | 394.93 | 4.89 | 78.60 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 740.00 | 706.58 | .52 | 5.57 | .12 | 562.20 | 5.58 | 106.27 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 865.00 | 706.80 | .57 | 5.64 | .15 | 629.28 | 5.80 | 115.23 |
| 74110.00 | 1390.00 | 0.00 | 0.00 | 701.00 | 1250.00 | 707.39 | .68 | 5.82 | .20 | 806.64 | 6.39 | 139.31 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 460.00 | 712.63 | .37 | 6.71 | .01 | 460.00 | 2.53 | 54.40 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 740.00 | 713.48 | .41 | 6.77 | .03 | 740.00 | 3.38 | 60.50 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 865.00 | 713.80 | .44 | 6.83 | .04 | 865.00 | 3.70 | 63.40 |
| 75420.00 | 1310.00 | 0.00 | 0.00 | 710.10 | 1250.00 | 714.62 | .51 | 7.01 | .05 | 1250.00 | 4.52 | 69.63 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.40 | 365.00 | 715.71 | .97 | .60 | 0.00 | 365.00 | 3.81 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.40 | 580.00 | 716.42 | 1.28 | .50 | 0.00 | 580.00 | 4.52 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.40 | 675.00 | 716.68 | 1.43 | .48 | 0.00 | 675.00 | 4.78 | 25.00 |
| 75473.00 | 53.00 | 0.00 | 0.00 | 711.40 | 985.00 | 717.47 | 1.55 | .45 | 0.00 | 985.00 | 5.57 | 25.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 365.00 | 723.35 | .00 | .00 | .49 | 11.35 | 15.35 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 580.00 | 724.80 | .00 | .00 | .54 | 18.37 | 16.80 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 675.00 | 725.30 | .00 | .00 | .72 | 21.97 | 17.30 | 600.00 |
| 75547.00 | 74.00 | 100000.00 | 100000.00 | 708.00 | 985.00 | 726.00 | .00 | .00 | .93 | 32.04 | 18.00 | 600.00 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH O | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | TOPW DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 53346.000 | 980.000 | 652.680 | 0.000 | 0.000 | 0.000 | 56.564 | 0.000 | 1.000 |
| 53346.000 | 1570.000 | 653.900 | 1.220 | 0.000 | 0.000 | 61.138 | -4.574 | 1.000 |
| 53346.000 | 1800.000 | 654.320 | .420 | 0.000 | 0.000 | 62.713 | -6.149 | 1.000 |
| 53346.000 | 2610.000 | 655.540 | 1.220 | 0.000 | 0.000 | 67.287 | -10.723 | 1.000 |
| 53446.000 | 980.000 | 652.765 | 0.000 | .085 | 0.000 | 240.416 | 0.000 | 100.000 |
| 53446.000 | 1570.000 | 654.156 | 1.391 | .256 | 0.000 | 257.899 | -17.483 | 100.000 |
| 53446.000 | 1800.000 | 654.634 | .478 | .314 | 0.000 | 262.307 | -21.891 | 100.000 |
| 53446.000 | 2610.000 | 656.050 | 1.416 | .510 | 0.000 | 284.714 | -44.298 | 100.000 |
| 53900.000 | 980.000 | 653.073 | 0.000 | .307 | 0.000 | 189.934 | 0.000 | 454.000 |
| 53900.000 | 1570.000 | 654.434 | 1.361 | .278 | 0.000 | 248.995 | -59.056 | 454.000 |
| 53900.000 | 1800.000 | 654.899 | .465 | .265 | 0.000 | 253.026 | -63.087 | 454.000 |
| 53900.000 | 2610.000 | 656.287 | 1.388 | .237 | 0.000 | 264.940 | -75.000 | 454.000 |
| 54400.000 | 980.000 | 653.747 | 0.000 | .674 | 0.000 | 99.994 | 0.000 | 500.000 |
| 54400.000 | 1570.000 | 654.963 | 1.216 | .529 | 0.000 | 213.885 | -113.886 | 500.000 |
| 54400.000 | 1800.000 | 655.379 | .416 | .480 | 0.000 | 231.014 | -131.015 | 500.000 |
| 54400.000 | 2610.000 | 656.672 | 1.293 | .385 | 0.000 | 294.300 | -194.301 | 500.000 |
| 54500.000 | 980.000 | 653.849 | 0.000 | .101 | 0.000 | 50.994 | 0.000 | 100.000 |
| 54500.000 | 1570.000 | 655.104 | 1.256 | .141 | 0.000 | 220.410 | -169.411 | 100.000 |
| 54500.000 | 1800.000 | 655.519 | .415 | .140 | 0.000 | 243.303 | -192.304 | 100.000 |
| 54500.000 | 2610.000 | 656.805 | 1.286 | .133 | 0.000 | 294.592 | -247.593 | 100.000 |
| 54557.000 | 980.000 | 653.651 | 0.000 | -.194 | 0.000 | 18.499 | 0.000 | 57.000 |
| 54557.000 | 1570.000 | 655.338 | 1.687 | .233 | 0.000 | 234.214 | -215.715 | 57.000 |
| 54557.000 | 1800.000 | 655.748 | .410 | .229 | 0.000 | 251.867 | -233.368 | 57.000 |
| 54557.000 | 2610.000 | 657.000 | 1.253 | .195 | 0.000 | 308.918 | -290.419 | 57.000 |
| 54583.000 | 980.000 | 655.726 | 0.000 | 2.075 | 0.000 | 18.499 | 0.000 | 26.000 |
| 54583.000 | 1570.000 | 657.710 | 1.984 | 2.372 | 0.000 | 341.229 | -322.730 | 26.000 |
| 54583.000 | 1800.000 | 657.940 | .230 | 2.192 | 0.000 | 351.713 | -333.214 | 26.000 |
| 54583.000 | 2610.000 | 658.585 | .645 | 1.584 | 0.000 | 381.081 | -362.582 | 26.000 |
| 55780.000 | 740.000 | 657.224 | 0.000 | 1.498 | 0.000 | 426.888 | 0.000 | 1197.000 |
| 55780.000 | 1180.000 | 657.850 | .626 | .140 | 0.000 | 505.422 | -78.534 | 1197.000 |
| 55780.000 | 1360.000 | 658.097 | .247 | .157 | 0.000 | 542.346 | -115.459 | 1197.000 |
| 55780.000 | 1960.000 | 658.795 | .698 | .211 | 0.000 | 621.530 | -194.642 | 1197.000 |
| 56390.000 | 740.000 | 657.432 | 0.000 | .208 | 0.000 | 506.630 | 0.000 | 610.000 |
| 56390.000 | 1180.000 | 658.119 | .687 | .269 | 0.000 | 625.034 | -118.403 | 610.000 |
| 56390.000 | 1360.000 | 658.371 | .252 | .274 | 0.000 | 648.355 | -141.726 | 610.000 |
| 56390.000 | 1960.000 | 659.075 | .704 | .250 | 0.000 | 711.712 | -205.082 | 610.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 56461.000 | 740.000 | 657.555 | 0.000 | .123 | 0.000 | 525.437 | 0.000 | 71.000 |
| 56461.000 | 1180.000 | 658.208 | .654 | .085 | 0.000 | 519.922 | -94.485 | 71.000 |
| 56461.000 | 1360.000 | 658.449 | .241 | .078 | 0.000 | 540.015 | -115.179 | 71.000 |
| 56461.000 | 1960.000 | 659.134 | .685 | .058 | 0.000 | 599.482 | -174.044 | 71.000 |
| 56498.000 | 740.000 | 658.205 | 0.000 | .653 | 0.000 | 520.329 | 0.000 | 37.000 |
| 56498.000 | 1180.000 | 658.615 | .407 | .407 | 0.000 | 555.585 | -35.256 | 37.000 |
| 56498.000 | 1360.000 | 658.750 | .135 | .301 | 0.000 | 567.318 | -46.989 | 37.000 |
| 56498.000 | 1960.000 | 659.276 | .526 | .143 | 0.000 | 711.750 | -91.421 | 37.000 |
| 56898.000 | 740.000 | 658.254 | 0.000 | .046 | 0.000 | 507.010 | 0.000 | 400.000 |
| 56898.000 | 1180.000 | 658.685 | .432 | .071 | 0.000 | 530.245 | -123.245 | 400.000 |
| 56898.000 | 1360.000 | 558.830 | .144 | .050 | 0.000 | 533.162 | -126.351 | 400.000 |
| 56898.000 | 1960.000 | 559.367 | .537 | .091 | 0.000 | 536.918 | -129.935 | 400.000 |
| 57498.000 | 740.000 | 559.245 | 0.000 | .991 | 0.000 | 241.351 | 0.000 | 600.000 |
| 57498.000 | 1180.000 | 559.822 | .577 | 1.136 | 0.000 | 523.245 | -281.894 | 600.000 |
| 57498.000 | 1360.000 | 560.003 | .181 | 1.172 | 0.000 | 534.980 | -343.219 | 600.000 |
| 57498.000 | 1960.000 | 560.452 | .449 | 1.084 | 0.000 | 537.235 | -445.471 | 600.000 |
| 57980.000 | 740.000 | 560.544 | 0.000 | 1.400 | 0.000 | 500.335 | 0.000 | 482.000 |
| 57980.000 | 1180.000 | 661.119 | .575 | 1.297 | 0.000 | 517.935 | -17.949 | 482.000 |
| 57980.000 | 1360.000 | 661.264 | .144 | 1.261 | 0.000 | 522.531 | -21.593 | 482.000 |
| 57980.000 | 1960.000 | 561.680 | .415 | 1.228 | 0.000 | 535.805 | -34.067 | 482.000 |
| 58441.000 | 740.000 | 560.863 | 0.000 | .223 | 0.000 | 353.402 | 0.000 | 461.000 |
| 58441.000 | 1180.000 | 661.362 | .495 | .243 | 0.000 | 383.332 | -29.930 | 461.000 |
| 58441.000 | 1360.000 | 661.520 | .157 | .256 | 0.000 | 390.745 | -37.343 | 461.000 |
| 58441.000 | 1960.000 | 661.971 | .451 | .291 | 0.000 | 406.810 | -53.408 | 461.000 |
| 58479.000 | 740.000 | 662.517 | 0.000 | 1.649 | 0.000 | 646.852 | 0.000 | 38.000 |
| 58479.000 | 1180.000 | 663.023 | .506 | 1.661 | 0.000 | 766.312 | -119.430 | 38.000 |
| 58479.000 | 1360.000 | 663.150 | .127 | 1.631 | 0.000 | 767.598 | -120.737 | 38.000 |
| 58479.000 | 1960.000 | 663.463 | .312 | 1.491 | 0.000 | 770.703 | -123.842 | 38.000 |
| 59760.000 | 740.000 | 662.489 | 0.000 | -.028 | 0.000 | 273.924 | 0.000 | 1281.000 |
| 59760.000 | 1180.000 | 663.031 | .542 | .008 | 0.000 | 497.305 | -223.381 | 1281.000 |
| 59760.000 | 1360.000 | 663.183 | .153 | .033 | 0.000 | 499.154 | -225.230 | 1281.000 |
| 59760.000 | 1960.000 | 663.587 | .404 | .124 | 0.000 | 499.070 | -225.146 | 1281.000 |
| 60810.000 | 645.000 | 665.141 | 0.000 | 2.652 | 0.000 | 60.020 | 0.000 | 1050.000 |
| 60810.000 | 1030.000 | 665.889 | .748 | 2.855 | 0.000 | 234.290 | -174.270 | 1050.000 |
| 60810.000 | 1200.000 | 666.130 | .242 | 2.947 | 0.000 | 234.594 | -174.574 | 1050.000 |
| 60810.000 | 1740.000 | 666.775 | .645 | 3.191 | 0.000 | 235.795 | -175.775 | 1050.000 |
| 60920.000 | 645.000 | 665.570 | 0.000 | .425 | 0.000 | 29.705 | 0.000 | 110.000 |
| 60920.000 | 1030.000 | 665.941 | .371 | .052 | 0.000 | 30.553 | -.848 | 110.000 |
| 60920.000 | 1200.000 | 666.245 | .304 | .115 | 0.000 | 201.704 | -171.999 | 110.000 |
| 60920.000 | 1740.000 | 666.897 | .652 | .119 | 0.000 | 204.219 | -174.514 | 110.000 |
| 62150.000 | 550.000 | 667.909 | 0.000 | 2.339 | 0.000 | 32.945 | 0.000 | 1230.000 |
| 62150.000 | 880.000 | 669.059 | 1.150 | 3.119 | 0.000 | 224.594 | -191.649 | 1230.000 |
| 62150.000 | 1020.000 | 669.151 | .091 | 2.902 | 0.000 | 229.045 | -196.102 | 1230.000 |
| 62150.000 | 1470.000 | 669.731 | .580 | 2.834 | 0.000 | 257.865 | -224.922 | 1230.000 |
| 62454.000 | 550.000 | 668.950 | 0.000 | 1.040 | 0.000 | 16.999 | 0.000 | 304.000 |
| 62454.000 | 880.000 | 669.583 | .634 | .524 | 0.000 | 249.095 | -232.096 | 304.000 |
| 62454.000 | 1020.000 | 669.753 | .170 | .602 | 0.000 | 257.566 | -240.567 | 304.000 |
| 62454.000 | 1470.000 | 670.284 | .531 | .553 | 0.000 | 274.588 | -257.589 | 304.000 |
| 62486.000 | 550.000 | 669.201 | 0.000 | .251 | 0.000 | 16.999 | 0.000 | 32.000 |
| 62486.000 | 880.000 | 670.492 | 1.291 | .909 | 0.000 | 308.135 | -291.135 | 32.000 |
| 62486.000 | 1020.000 | 670.626 | .134 | .873 | 0.000 | 309.999 | -293.000 | 32.000 |
| 62486.000 | 1470.000 | 670.991 | .364 | .707 | 0.000 | 309.999 | -293.000 | 32.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 62600.000 | 550.000 | 670.324 | 0.000 | 1.123 | 0.000 | 37.442 | 0.000 | 114.000 |
| 62600.000 | 880.000 | 670.507 | .183 | .015 | 0.000 | 232.806 | -195.454 | 114.000 |
| 62600.000 | 1020.000 | 670.644 | .137 | .018 | 0.000 | 239.571 | -202.239 | 114.000 |
| 62600.000 | 1470.000 | 671.017 | .373 | .027 | 0.000 | 258.096 | -220.864 | 114.000 |
| 63740.000 | 550.000 | 673.505 | 0.000 | 3.183 | 0.000 | 43.322 | 0.000 | 1140.000 |
| 63740.000 | 880.000 | 673.782 | .276 | 3.276 | 0.000 | 210.437 | -167.115 | 1140.000 |
| 63740.000 | 1020.000 | 674.057 | .275 | 3.413 | 0.000 | 222.514 | -179.192 | 1140.000 |
| 63740.000 | 1470.000 | 674.743 | .636 | 3.726 | 0.000 | 249.999 | -205.677 | 1140.000 |
| 63821.000 | 550.000 | 674.086 | 0.000 | .579 | 0.000 | 30.999 | 0.000 | 81.000 |
| 63821.000 | 880.000 | 674.601 | .715 | 1.018 | 0.000 | 590.081 | -559.082 | 81.000 |
| 63821.000 | 1020.000 | 674.911 | .310 | .854 | 0.000 | 609.999 | -579.000 | 81.000 |
| 63821.000 | 1470.000 | 675.339 | .428 | .596 | 0.000 | 609.999 | -579.000 | 81.000 |
| 63879.000 | 550.000 | 674.828 | 0.000 | .742 | 0.000 | 626.392 | 0.000 | 58.000 |
| 63879.000 | 880.000 | 675.321 | .493 | .520 | 0.000 | 599.999 | -75.607 | 58.000 |
| 63879.000 | 1020.000 | 675.435 | .114 | .523 | 0.000 | 599.999 | -75.607 | 58.000 |
| 63879.000 | 1470.000 | 675.791 | .357 | .452 | 0.000 | 599.999 | -75.607 | 58.000 |
| 64830.000 | 550.000 | 674.900 | 0.000 | .073 | 0.000 | 101.859 | 0.000 | 951.000 |
| 64830.000 | 880.000 | 675.401 | .501 | .090 | 0.000 | 104.655 | -2.407 | 951.000 |
| 64830.000 | 1020.000 | 675.524 | .123 | .049 | 0.000 | 116.852 | -14.912 | 951.000 |
| 64830.000 | 1470.000 | 675.896 | .372 | .105 | 0.000 | 159.176 | -51.325 | 951.000 |
| 66000.000 | 460.000 | 677.364 | 0.000 | 2.464 | 0.000 | 28.007 | 0.000 | 1170.000 |
| 66000.000 | 740.000 | 678.758 | 1.394 | 3.357 | 0.000 | 91.181 | -63.174 | 1170.000 |
| 66000.000 | 865.000 | 679.164 | .406 | 3.640 | 0.000 | 104.260 | -76.253 | 1170.000 |
| 66000.000 | 1250.000 | 680.083 | .920 | 4.187 | 0.000 | 149.620 | -121.613 | 1170.000 |
| 66850.000 | 460.000 | 679.775 | 0.000 | 2.413 | 0.000 | 41.999 | 0.000 | 850.000 |
| 66850.000 | 740.000 | 680.909 | 1.133 | 2.151 | 0.000 | 41.999 | -.000 | 850.000 |
| 66850.000 | 865.000 | 681.218 | .309 | 2.055 | 0.000 | 41.999 | -.000 | 850.000 |
| 66850.000 | 1250.000 | 681.995 | .778 | 1.913 | 0.000 | 41.999 | -.000 | 850.000 |
| 66893.000 | 460.000 | 679.846 | 0.000 | .070 | 0.000 | 19.999 | 0.000 | 43.000 |
| 66893.000 | 740.000 | 680.992 | 1.146 | .083 | 0.000 | 19.999 | -.000 | 43.000 |
| 66893.000 | 865.000 | 681.313 | .320 | .094 | 0.000 | 19.999 | -.000 | 43.000 |
| 66893.000 | 1250.000 | 682.124 | .812 | .128 | 0.000 | 19.999 | -.000 | 43.000 |
| 66894.000 | 460.000 | 679.849 | 0.000 | .003 | 0.000 | 19.999 | 0.000 | 1.000 |
| 66894.000 | 740.000 | 680.997 | 1.148 | .004 | 0.000 | 19.999 | -.000 | 1.000 |
| 66894.000 | 865.000 | 681.318 | .321 | .005 | 0.000 | 19.999 | -.000 | 1.000 |
| 66894.000 | 1250.000 | 682.133 | .816 | .009 | 0.000 | 19.999 | -.000 | 1.000 |
| 66925.000 | 460.000 | 680.021 | 0.000 | .172 | 0.000 | 19.999 | 0.000 | 31.000 |
| 66925.000 | 740.000 | 681.235 | 1.214 | .238 | 0.000 | 19.999 | -.000 | 31.000 |
| 66925.000 | 865.000 | 681.642 | .407 | .324 | 0.000 | 19.999 | -.000 | 31.000 |
| 66925.000 | 1250.000 | 682.815 | 1.173 | .582 | 0.000 | 19.999 | -.000 | 31.000 |
| 66926.000 | 460.000 | 680.342 | 0.000 | .320 | 0.000 | 19.999 | 0.000 | 1.000 |
| 66926.000 | 740.000 | 681.987 | 1.645 | .752 | 0.000 | 19.999 | -.000 | 1.000 |
| 66926.000 | 865.000 | 682.708 | .721 | 1.066 | 0.000 | 19.999 | -.000 | 1.000 |
| 66926.000 | 1250.000 | 685.456 | 2.747 | 2.641 | 0.000 | 19.999 | -.000 | 1.000 |
| 66946.000 | 460.000 | 680.493 | 0.000 | .151 | 0.000 | 59.999 | 0.000 | 20.000 |
| 66946.000 | 740.000 | 682.521 | 2.029 | .534 | 0.000 | 59.999 | -.000 | 20.000 |
| 66946.000 | 865.000 | 683.336 | .815 | .628 | 0.000 | 59.999 | -.000 | 20.000 |
| 66946.000 | 1250.000 | 686.198 | 2.861 | .742 | 0.000 | 59.999 | -.000 | 20.000 |
| 67075.000 | 460.000 | 680.975 | 0.000 | .482 | 0.000 | 159.210 | 0.000 | 129.000 |
| 67075.000 | 740.000 | 682.767 | 1.792 | .246 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67075.000 | 865.000 | 683.558 | .791 | .222 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67075.000 | 1250.000 | 686.368 | 2.810 | .170 | 0.000 | 199.999 | -40.789 | 129.000 |
| 67500.000 | 460.000 | 681.340 | 0.000 | .365 | 0.000 | 119.706 | 0.000 | 425.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 67500.000 | 740.000 | 682.855 | 1.615 | .087 | 0.000 | 234.075 | -114.369 | 425.000 |
| 67500.000 | 865.000 | 683.612 | .758 | .054 | 0.000 | 271.142 | -151.436 | 425.000 |
| 67500.000 | 1250.000 | 686.388 | 2.776 | .020 | 0.000 | 383.667 | -263.961 | 425.000 |
| 67925.000 | 460.000 | 682.330 | 0.000 | .990 | 0.000 | 108.928 | 0.000 | 425.000 |
| 67925.000 | 740.000 | 683.125 | .795 | .270 | 0.000 | 185.464 | -75.536 | 425.000 |
| 67925.000 | 865.000 | 683.744 | .619 | .132 | 0.000 | 223.787 | -114.839 | 425.000 |
| 67925.000 | 1250.000 | 686.407 | 2.663 | .018 | 0.000 | 351.726 | -242.738 | 425.000 |
| 68350.000 | 460.000 | 683.452 | 0.000 | 1.122 | 0.000 | 109.227 | 0.000 | 425.000 |
| 68350.000 | 740.000 | 683.961 | .509 | .836 | 0.000 | 159.257 | -50.030 | 425.000 |
| 68350.000 | 865.000 | 684.224 | .263 | .480 | 0.000 | 184.653 | -75.441 | 425.000 |
| 68350.000 | 1250.000 | 686.452 | 2.227 | .045 | 0.000 | 301.505 | -192.278 | 425.000 |
| 69530.000 | 460.000 | 687.587 | 0.000 | 4.135 | 0.000 | 144.134 | 0.000 | 1180.000 |
| 69530.000 | 740.000 | 688.070 | .484 | 4.109 | 0.000 | 225.553 | -81.449 | 1180.000 |
| 69530.000 | 865.000 | 688.174 | .103 | 3.949 | 0.000 | 232.439 | -88.305 | 1180.000 |
| 69530.000 | 1250.000 | 688.307 | .134 | 1.856 | 0.000 | 241.305 | -97.171 | 1180.000 |
| 69730.000 | 460.000 | 688.588 | 0.000 | 1.001 | 0.000 | 122.822 | 0.000 | 200.000 |
| 69730.000 | 740.000 | 689.084 | .497 | 1.014 | 0.000 | 158.394 | -35.572 | 200.000 |
| 69730.000 | 865.000 | 689.255 | .181 | 1.092 | 0.000 | 170.593 | -47.775 | 200.000 |
| 69730.000 | 1250.000 | 689.853 | .593 | 1.351 | 0.000 | 209.275 | -86.453 | 200.000 |
| 70197.000 | 460.000 | 691.214 | 0.000 | 2.626 | 0.000 | 112.755 | 0.000 | 467.000 |
| 70197.000 | 740.000 | 691.793 | .580 | 2.709 | 0.000 | 159.553 | -46.758 | 467.000 |
| 70197.000 | 865.000 | 691.977 | .184 | 2.711 | 0.000 | 174.341 | -61.555 | 467.000 |
| 70197.000 | 1250.000 | 692.347 | .370 | 2.489 | 0.000 | 195.307 | -82.521 | 467.000 |
| 70530.000 | 460.000 | 692.944 | 0.000 | 1.731 | 0.000 | 41.198 | 0.000 | 333.000 |
| 70530.000 | 740.000 | 693.577 | .633 | 1.754 | 0.000 | 192.340 | -150.492 | 333.000 |
| 70530.000 | 865.000 | 693.784 | .206 | 1.807 | 0.000 | 210.673 | -169.485 | 333.000 |
| 70530.000 | 1250.000 | 694.325 | .541 | 1.977 | 0.000 | 258.317 | -217.130 | 333.000 |
| 71240.000 | 460.000 | 696.603 | 0.000 | 3.658 | 0.000 | 24.999 | 0.000 | 710.000 |
| 71240.000 | 740.000 | 696.760 | .158 | 3.183 | 0.000 | 213.618 | -188.619 | 710.000 |
| 71240.000 | 865.000 | 696.943 | .182 | 3.159 | 0.000 | 224.447 | -199.448 | 710.000 |
| 71240.000 | 1250.000 | 697.348 | .406 | 3.024 | 0.000 | 242.534 | -217.535 | 710.000 |
| 71290.000 | 460.000 | 696.623 | 0.000 | .020 | 0.000 | 12.999 | 0.000 | 50.000 |
| 71290.000 | 740.000 | 697.021 | .398 | .261 | 0.000 | 228.755 | -215.756 | 50.000 |
| 71290.000 | 865.000 | 697.203 | .182 | .260 | 0.000 | 236.249 | -223.250 | 50.000 |
| 71290.000 | 1250.000 | 697.619 | .417 | .271 | 0.000 | 253.253 | -240.254 | 50.000 |
| 71330.000 | 460.000 | 699.089 | 1.010 | 2.465 | 0.000 | 12.999 | 0.000 | 40.000 |
| 71330.000 | 740.000 | 700.006 | .918 | 2.985 | 0.000 | 350.958 | -337.959 | 40.000 |
| 71330.000 | 865.000 | 700.143 | .137 | 2.941 | 0.000 | 355.632 | -343.633 | 40.000 |
| 71330.000 | 1250.000 | 700.467 | .324 | 2.848 | 0.000 | 370.785 | -357.786 | 40.000 |
| 71890.000 | 460.000 | 699.905 | 0.000 | .816 | 0.000 | 281.000 | 0.000 | 560.000 |
| 71890.000 | 740.000 | 700.026 | .121 | .019 | 0.000 | 286.835 | -5.836 | 560.000 |
| 71890.000 | 865.000 | 700.167 | .142 | .024 | 0.000 | 294.301 | -13.302 | 560.000 |
| 71890.000 | 1250.000 | 700.505 | .338 | .038 | 0.000 | 312.037 | -31.037 | 560.000 |
| 72166.000 | 460.000 | 699.949 | 0.000 | .044 | 0.000 | 198.034 | 0.000 | 276.000 |
| 72166.000 | 740.000 | 700.124 | .175 | .098 | 0.000 | 209.156 | -11.122 | 276.000 |
| 72166.000 | 865.000 | 700.280 | .156 | .113 | 0.000 | 219.138 | -21.104 | 276.000 |
| 72166.000 | 1250.000 | 700.666 | .386 | .160 | 0.000 | 242.827 | -44.794 | 276.000 |
| 72444.000 | 460.000 | 700.093 | 0.000 | .144 | 0.000 | 153.434 | 0.000 | 278.000 |
| 72444.000 | 740.000 | 700.402 | .308 | .278 | 0.000 | 172.884 | -9.450 | 278.000 |
| 72444.000 | 865.000 | 700.581 | .179 | .301 | 0.000 | 178.369 | -14.935 | 278.000 |
| 72444.000 | 1250.000 | 701.031 | .450 | .365 | 0.000 | 190.735 | -27.301 | 278.000 |
| 72720.000 | 460.000 | 700.634 | 0.000 | .541 | 0.000 | 162.234 | 0.000 | 276.000 |
| 72720.000 | 740.000 | 701.127 | .493 | .725 | 0.000 | 183.379 | -21.145 | 276.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 72720.000 | 865.000 | 701.305 | .178 | .724 | 0.000 | 169.373 | -27.139 | 276.000 |
| 72720.000 | 1250.000 | 701.776 | .471 | .746 | 0.000 | 204.298 | -42.064 | 276.000 |
| 74110.000 | 460.000 | 705.893 | 0.000 | 5.258 | 0.000 | 78.602 | 0.000 | 1390.000 |
| 74110.000 | 740.000 | 706.575 | .683 | 5.448 | 0.000 | 106.259 | -27.667 | 1390.000 |
| 74110.000 | 865.000 | 706.797 | .222 | 5.492 | 0.000 | 115.235 | -36.632 | 1390.000 |
| 74110.000 | 1250.000 | 707.392 | .595 | 5.616 | 0.000 | 135.311 | -60.708 | 1390.000 |
| 75420.000 | 460.000 | 712.630 | 0.000 | 6.737 | 0.000 | 54.396 | 0.000 | 1310.000 |
| 75420.000 | 740.000 | 713.476 | .846 | 6.901 | 0.000 | 60.897 | -6.501 | 1310.000 |
| 75420.000 | 865.000 | 713.803 | .327 | 7.006 | 0.000 | 63.404 | -9.008 | 1310.000 |
| 75420.000 | 1250.000 | 714.616 | .812 | 7.223 | 0.000 | 69.635 | -15.239 | 1310.000 |
| 75473.000 | 365.000 | 715.711 | 0.000 | 3.081 | 0.000 | 24.999 | 0.000 | 53.000 |
| 75473.000 | 580.000 | 716.421 | .709 | 2.944 | 0.000 | 24.999 | -.000 | 53.000 |
| 75473.000 | 675.000 | 716.676 | .255 | 2.872 | 0.000 | 24.999 | -.000 | 53.000 |
| 75473.000 | 985.000 | 717.471 | .796 | 2.856 | 0.000 | 24.994 | -.000 | 53.000 |
| 75547.000 | 365.000 | 723.350 | 0.000 | 7.639 | 0.000 | 500.000 | 0.000 | 74.000 |
| 75547.000 | 580.000 | 724.800 | 1.450 | 8.379 | 0.000 | 600.000 | 0.000 | 74.000 |
| 75547.000 | 675.000 | 725.300 | .500 | 8.624 | 0.000 | 600.000 | 0.000 | 74.000 |
| 75547.000 | 985.000 | 726.000 | .700 | 8.529 | 0.000 | 600.000 | 0.000 | 74.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE FAC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 87.864 | 0.000 |
| 2 | 1.000 | 0.000 | 136.866 | 49.002 |
| 3 | 1.000 | 0.000 | 144.599 | 56.735 |
| 4 | 1.000 | 0.000 | 159.207 | 71.343 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analysis Township line to M-53

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

RECEIVED
JUL 7 1977
WATER MANAGEMENT

# LETTER OF TRANSMITTAL

| DATE | JOB NO |
|---|---|
| July 5, 1977 | 5670-08-1 |

RE: Shelby Township Flood Insurance Study
Middle Branch of the Clinton River
Hydraulic Computations

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Dan Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
5th Floor, Mason Building
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO | DESCRIPTION |
|---|---|---|---|
| 1 | 7-5-77 | | Plan & Profile |
| 1 | 7-5-77 | | HEC-2 Input, Output, and J&A IPLOT |
| 1 | 7-5-77 | | Hydraulic Analysis Book |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

REMARKS:

SIGNED:
William C. Rossow
William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) BEH/dp

# SHELBY TOWNSHIP

# FLOOD INSURANCE STUDY

# MIDDLE BRANCH OF THE CLINTON RIVER

# HYDRAULIC ANALYSIS

J & A FILE NUMBER 5670-08-1

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Highway, P. O. Box 1166
Pontiac, Michigan 48056

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# HYDRAULIC ANALYSIS

## Introduction

The stream being studied is the Middle Branch of the Clinton River in Shelby Township, Macomb County, Michigan. The study limits are from the Shelby-Macomb Township line to Chestnut Lake at the upstream end of the river. This particular submittal will include the stream to the upstream face of M-53. The date of field survey was January, 1977.

The discharges were computed using a combination of gage analysis, the SCS TR 20 Hydrology Program and the Unit Hydrograph - Infiltration Capacity Method developed by Dr. Ernest F. Brater. The 10-, 50-, 100-, and 500-year flood frequency flows used in this study have been accepted by the Michigan Department of Natural Resources (letter dated April 5, 1977).

The Project Manager for this analysis is William C. Rossow, P. E.

## Method of Analysis

Water-surface profiles were computed by the HEC-2 Standard Step-Backwater Computer Program developed by the U. S. Army Corps of Engineers.The hydraulic model was developed for the 100-year flow. The "Normal Bridge" Routine was used for bridge constrictions under low flow conditions for the 100-year discharge. The "Special Bridge" Routine was used for bridge constrictions that experienced pressure flow for the 100-year discharge. All bridge constrictions were inspected for inlet control.

Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections were those outlined on pages 18-21 of the HEC Training Document No. 6 Application of HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If the actual field-surveyed cross-section fell within this distance, this section was encroached as appropriate.

## Starting Point

Profile computations for the Middle Branch were begun using the Macomb Gage, just downstream of Romeo Plank Road. A stage discharge curve was drawn using data from the gage. To get starting water surfaces for flows greater than those recorded, the curve was extrapolated by eye. To check the adequacy of this method, the 100-year flow was run from the gage to the Macomb-Shelby Township line at Hayes Road using the elevation determined from the extrapolated curve, along with a run started 1½ feet higher and 1½ feet lower. By the time the Township line was reached the lower two profiles had converged and the upper one was about .2 feet higher. Values from the stage discharge curve were used to start the computations.

Continued to be corrected

## Variables and Coefficients

The roughness factors (Manning's "n") for summer conditions were established by comparing the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics, by Ven Te Chow, with photographs and field inspection trips taken at every cross-section. In general, the following range of values was used:

| | Description | Manning's "n" |
|---|---|---|
| 1. | Channel | |
| | a. Sand and gravel bottom, clean stream with some meandering. | .035 |
| | b. Same as above but moderate meandering and/or debris. | .04 - .045 |
| | c. Same as above but heavy debris. | .05 |
| 2. | Flood Plains | |
| | a. Lawn areas | .03 - .04 |
| | b. Scattered brush, heavy weeds. | .04 - .05 |
| | c. Light brush | .05 - .07 |
| | d. Medium to dense brush | .07 - .12 |

The proposed flood season for this portion of the Middle Branch is summer. The variation of roughness was taken into account by use of the NH card with due consideration made of conditions existing upstream and downstream of the given section.

The coefficient of contraction varied from 0.1 (reflecting a gradual change) to 0.4 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 0.8 for gradual to abrupt changes, respectively.

The total loss coefficient (XKOR) used in the HEC-2 "Special Bridge" Routine was determined as outlined in Exhibit 2 of the HEC-2 Users Manual. The inlet coefficients were taken from tables published by the Bureau of Public Roads.[2]

For inlet-control, nomographs from the Bureau of Public Roads[2] were used. The weir discharge coefficients are taken from charts supplied by the Michigan Department of Natural Resources, as published by the U. S. Department of the Interior.[3]

## Synthetic Cross-Sections

Synthetic cross-sections utilized in the Hydraulic Analysis were developed in three ways. The three methods used were blending of the two cross-sections, repetition of a field-surveyed cross-section with appropriate invert and area adjustment, or interpolating between two field surveyed cross-sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross-section by averaging the overbanks and channel of the two known cross-sections.

Since inverts are known only at field sections, a straight line is assumed between these known points.

# REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Users Manual, 1973.

2. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965).

3. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water - Resources Investigations, Book 3, Chapter A5, p. 23.

# APPENDIX A
# SECNO TABLE

SHELBY TOWNSHIP FLOOD INSURANCE STUDY
MIDDLE BRANCH OF THE CLINTON RIVER J&A NO. 5670-08
PROJECT MANAGER WILLIAM C. ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| A | 31750 | VALLEY SECTION A<br>10- AND 50-YEAR ENCROACHMENTS DUE TO EXPANSION OF FLOW FOR LOW FLOW OR PRESSURE FLOW CONDITIONS. 100- AND 500-YEAR FLOWS HAVE WEIR FLOW ON LEFT SIDE |
| | 31835 | BRIDGE SECTION B ROMEO PLANK ROAD DOWNSTREAM FACE<br>RIGHT ENCROACHMENT DUE TO BRIDGE OPENING<br>LEFT ENCROACHMENT DUE TO BRIDGE OPENING<br>ENCROACHMENT ELEVATION ON LEFT SIDE FOR CONTINUITY |
| B | 31865 | BRIDGE SECTION B ROMEO PLANK ROAD UPSTREAM FACE<br>RIGHT ENCROACHMENT DUE TO BRIDGE OPENING<br>LEFT ENCROACHMENT DUE TO BRIDGE OPENING<br>ENCROACHMENT ELEVATION ON LEFT SIDE FOR CONTINUITY |
| C | 33020 | VALLEY SECTION C |
| D | 34140 | VALLEY SECTION D |
| E | 35670 | VALLEY SECTION E |
| F | 36750 | VALLEY SECTION F |
| | 37080 | VALLEY SECTION BLEND OF SECTIONS F AND G<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 37180 | VALLEY SECTION 36950 REPEATED INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| G | 37280 | VALLEY SECTION G<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 37349 | BRIDGE SECTION H RELOCATED GROUND POINTS ONLY<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37350 | BRIDGE SECTION H HAYES ROAD DOWNSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| H | 37390 | BRIDGE SECTION H HAYES ROAD UPSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37391 | BRIDGE SECTION H RELOCATED GROUND POINTS ONLY<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37506 | VALLEY SECTION I RELOCATED INVERT ADJUSTED |
| I | 38530 | VALLEY SECTION I |

| | | |
|---|---|---|
| J | 39520 | VALLEY SECTION J |
| K | 40660 | VALLEY SECTION K |
| L | 42150 | VALLEY SECTION L<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| M | 43220 | VALLEY SECTION M<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND |
| N | 43980 | VALLEY SECTION N<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 44092 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 44093 | BRIDGE SECTION O SCHOENHERR ROAD DOWNSTREAM FACE |
| O | 44127 | BRIDGE SECTION O SCHOENHERR ROAD UPSTREAM FACE |
| | 44128 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 44250 | VALLEY SECTION N RELOCATED INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO CONTRACTION OF FLOW |
| P | 45230 | VALLEY SECTION P |
| Q | 46590 | VALLEY SECTION Q |
| R | 47640 | VALLEY SECTION R<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND |
| S | 49000 | VALLEY SECTION S<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND |
| | 49425 | VALLEY SECTION S RELOCATED INVERT ADJUSTED<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND<br>SECTION ADDED DUE TO RAPID CHANGE IN FLOW |
| T | 49850 | VALLEY SECTION T<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND<br>LEFT ENCROACHMENT TO ELIMINATE LOW GROUND OF ADJACEN<br>TRIBUTARY |
| | 50114 | BRIDGE SECTION U RELOCATED GROUND POINTS ONLY |
| | 50115 | BRIDGE SECTION U JEWELL ROAD DOWNSTREAM FACE |
| U | 50149 | BRIDGE SECTION U JEWELL ROAD UPSTREAM FACE |
| | 50150 | BRIDGE SECTION U RELOCATED GROUND POINTS ONLY |
| | 50190 | VALLEY SECTION V RELOCATED INVERT ADJUSTED |
| V | 50860 | VALLEY SECTION V<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| W | 51950 | VALLEY SECTION W |

| | | |
|---|---|---|
| X | 53150 | VALLEY SECTION X<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 53204 | BRIDGE SECTION Y RELOCATED GROUND POINTS ONLY |
| | 53205 | BRIDGE SECTION Y NORTH BOUND M-53 DOWNSTREAM FACE |
| Y | 53255 | BRIDGE SECTION Y NORTH BOUND M-53 UPSTREAM FACE |
| | 53255 | BRIDGE SECTION Y RELOCATED GROUND POINTS ONLY |
| | 53294 | BRIDGE SECTION Z RELOCATED GROUND POINTS ONLY |
| | 53295 | BRIDGE SECTION Z SOUTH BOUND M-53 DOWNSTREAM FACE |
| Z | 53345 | BRIDGE SECTION Z SOUTH BOUND M-53 UPSTREAM FACE |
| | 53346 | BRIDGE SECTION Z RELOCATED GROUND POINTS ONLY |

# APPENDIX B
# XKOR DATA AND CALCULATIONS

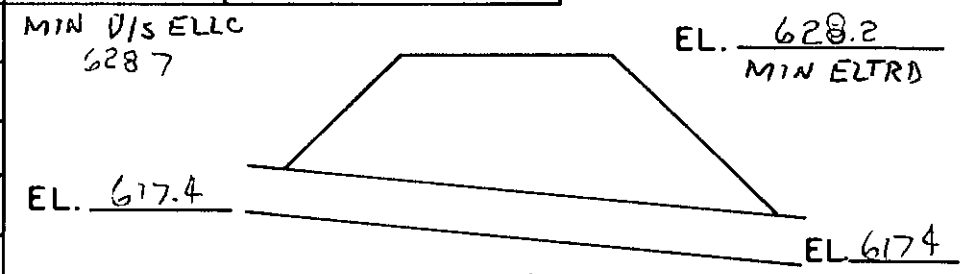
| | | | | | |
|---|---|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | | JOB NO. | 5670 | 08 | 1 | 325 |

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: HAYES ROAD

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0324

So = 0.000

L = 40

Sta. 373+90 Sta. 373+50

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.015^2 \times 15 + .035^2 \times 70}{85}\right]^{1/2}$$

$n = .0324$

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# HYDRAULIC STRUCTURAL DATA CODED BEH

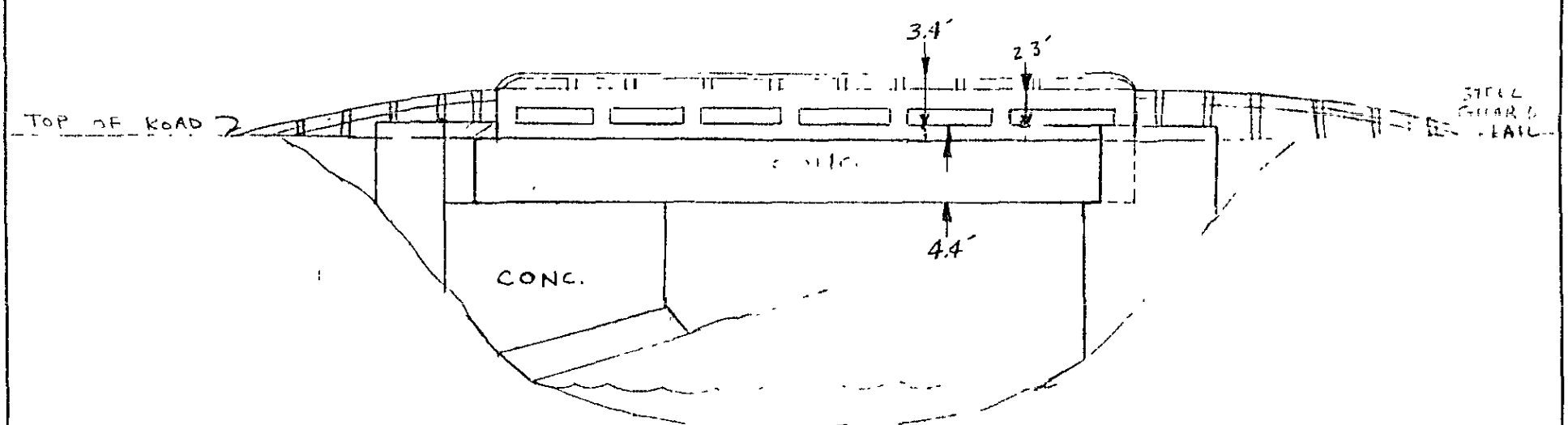
Code No. _____

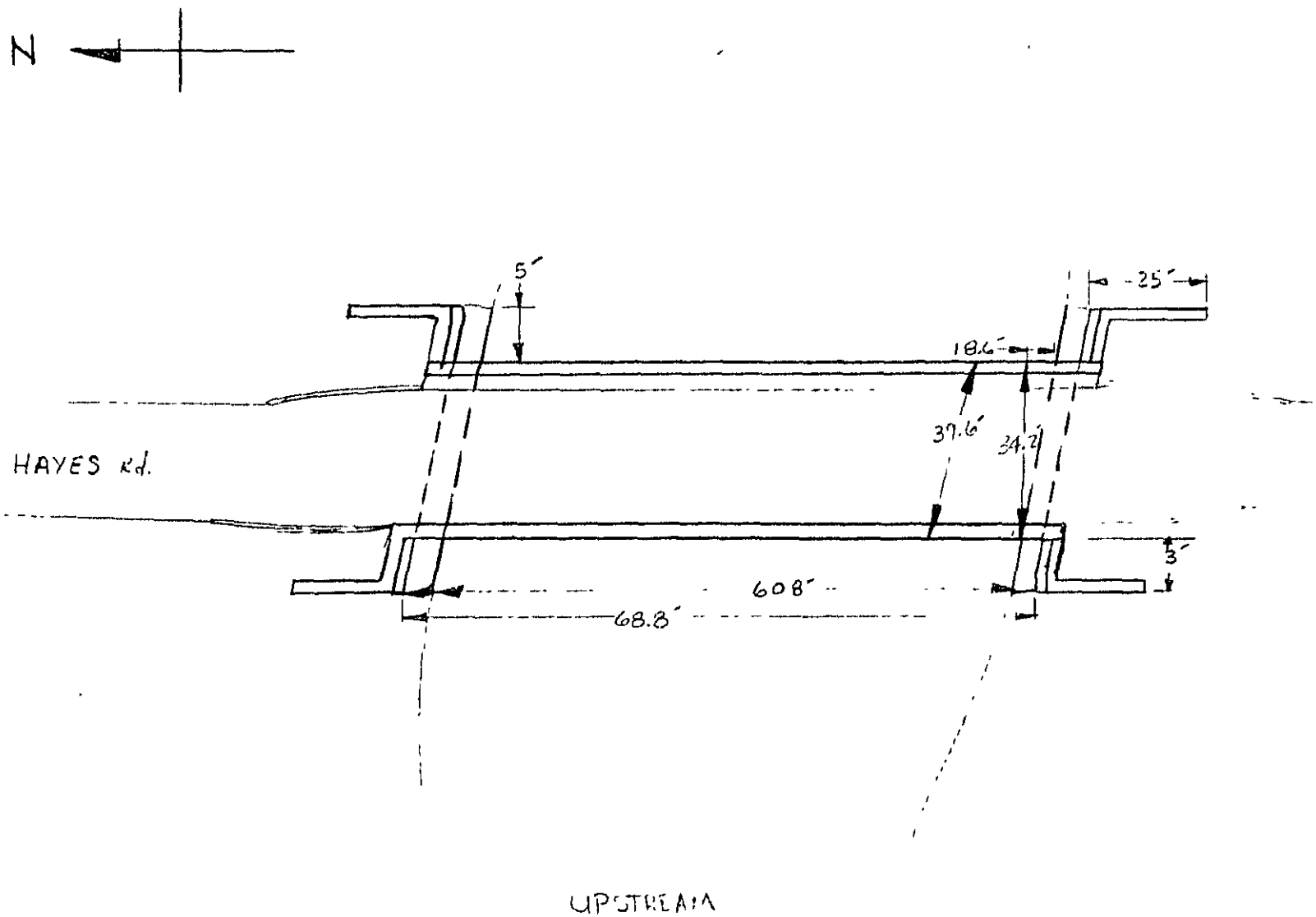
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP F.I.S. | | | By: [illegible] |
| Date: DRAWN: 10-25-76 REV RAN: | Feature: HAYES [illegible] | | Water Course: [illegible] |
| Remarks: BRIDGE [illegible] PLATE = MACOMB Co. Rd Comm 1972 [illegible] | | | |
| PHOTO LOG: MB9 - U.S.F ; MB10 - U.S. ; MB11 - RIGHT ; MB12 - LEFT | | | |
| MB13 D.S. ; MB14 D.S.F. | | | |
| Width of Piers: — | Pier Shape: | No. of Piers: | Area: |
| Water Elevation: 618.7 | Length: 68.8' | Width of Deck: 90° : 34.2' skew | Skew: SEE SHEET 3 |

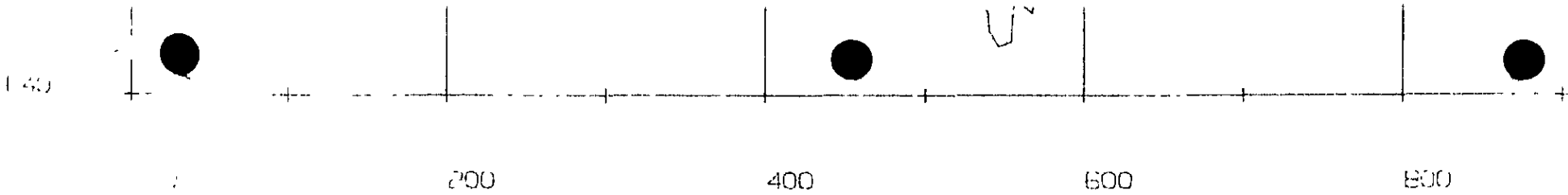
## FIELD SKETCH

Profile View

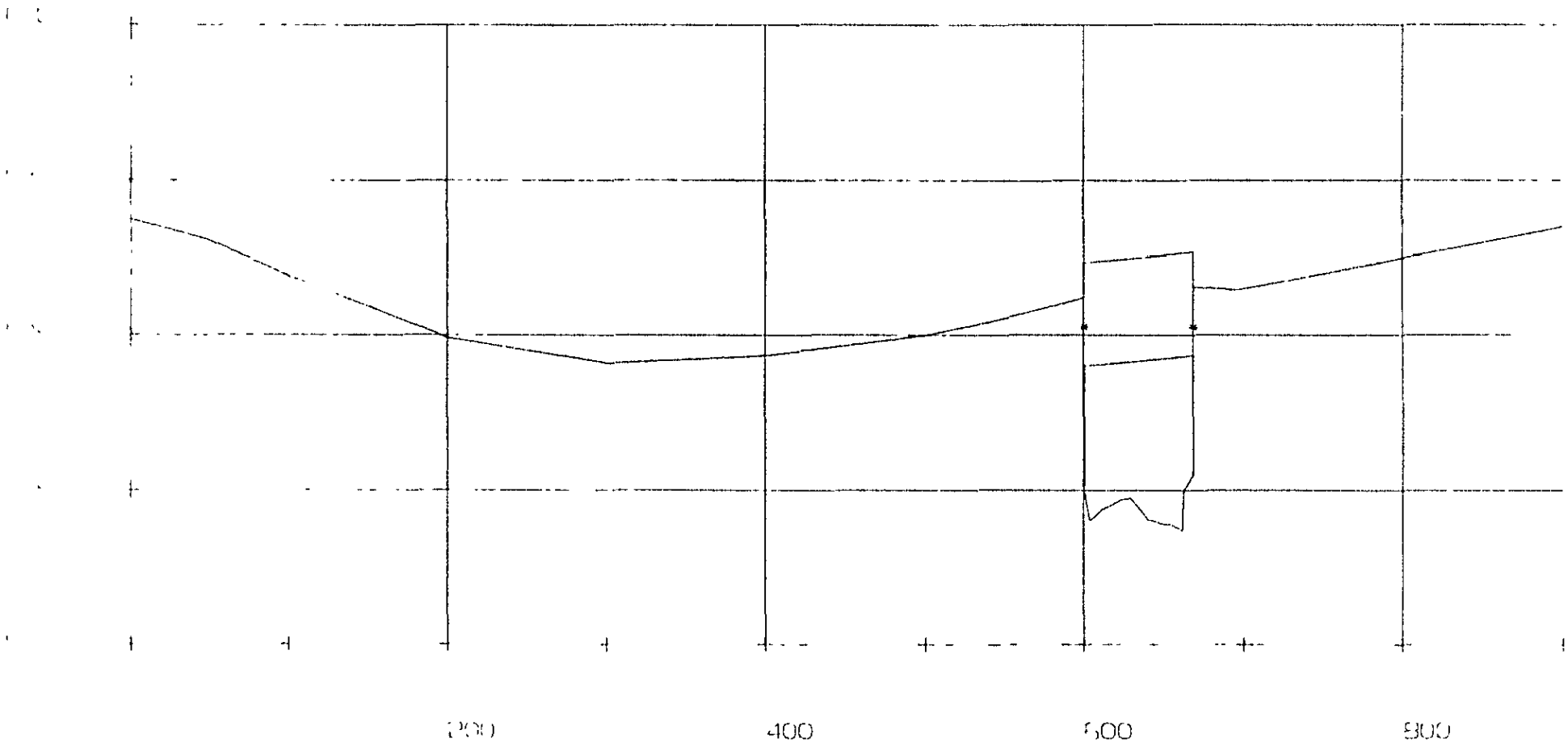
SEE Plan View PAGE




N
5'
25'
18.6'
37.6'
34.2'
HAYES Rd.
3'
60.8'
68.8'
UPSTREAM




SECTION 53204




SECTION ~~53204~~

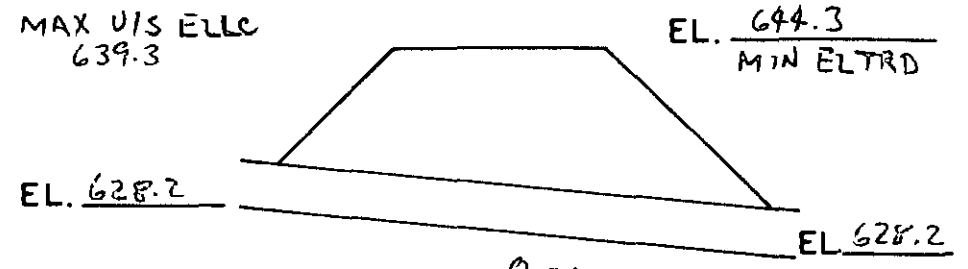
325

| JOB NAME: SHELBY TOWNSHIP F15 | JOB NO. 5670 | 08 | 1 | 332 |
|---|---|---|---|---|
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: SCHOENHERR ROAD | | | |

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0318

So = 0.000

L = 34

Sta. 441+27

Sta. 440+93

CALCULATIONS AND COMMENTS:

– MANNING'S n –

$$n = \left[\frac{.015^2 \times 15 + .035^2 \times 55}{70}\right]^{1/2}$$

$$n = .0318$$

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Consulting Engineers
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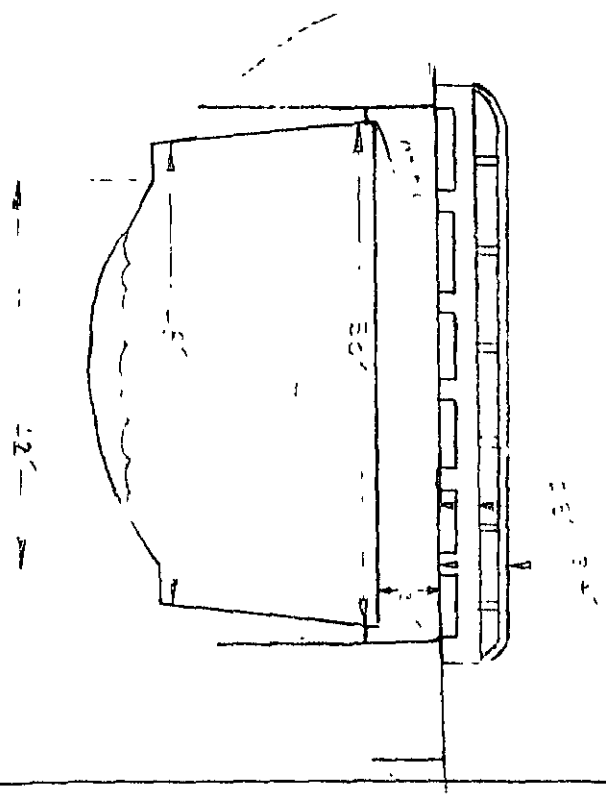
# HYDRAULIC STRUCTURAL DATA CODED BEN

Code No. 05

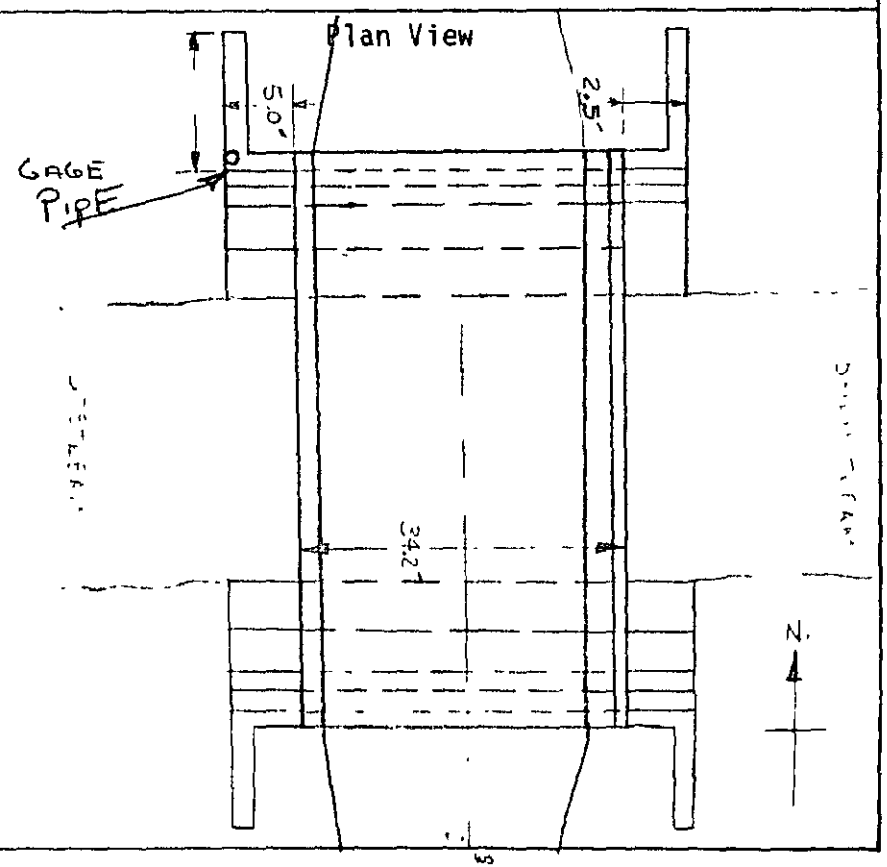
| | | | |
|---|---|---|---|
| Job Name: SHIEB/ [illegible] F.T.S. | | By: T.R. PRUYT | |
| Date: [illegible] 2-25-76 [illegible] | Feature: SCHOENHERR Rd. BRIDGE | Water Course: MIDDLE BRANCH-CLINTON [illegible] | |
| Remarks: [illegible] GRAVEL [illegible] | | | |
| [illegible] : MB15 U.S.F. Lt. ; MB16 U.S.F. Lt. ; MB17 U.S. ; MB18 Rt. ; MB19 Lt. ; MB20 U.S. ; MB21 D.S.F. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: | Length: 50 | Width of Deck: 34.2' | Skew: 90° |

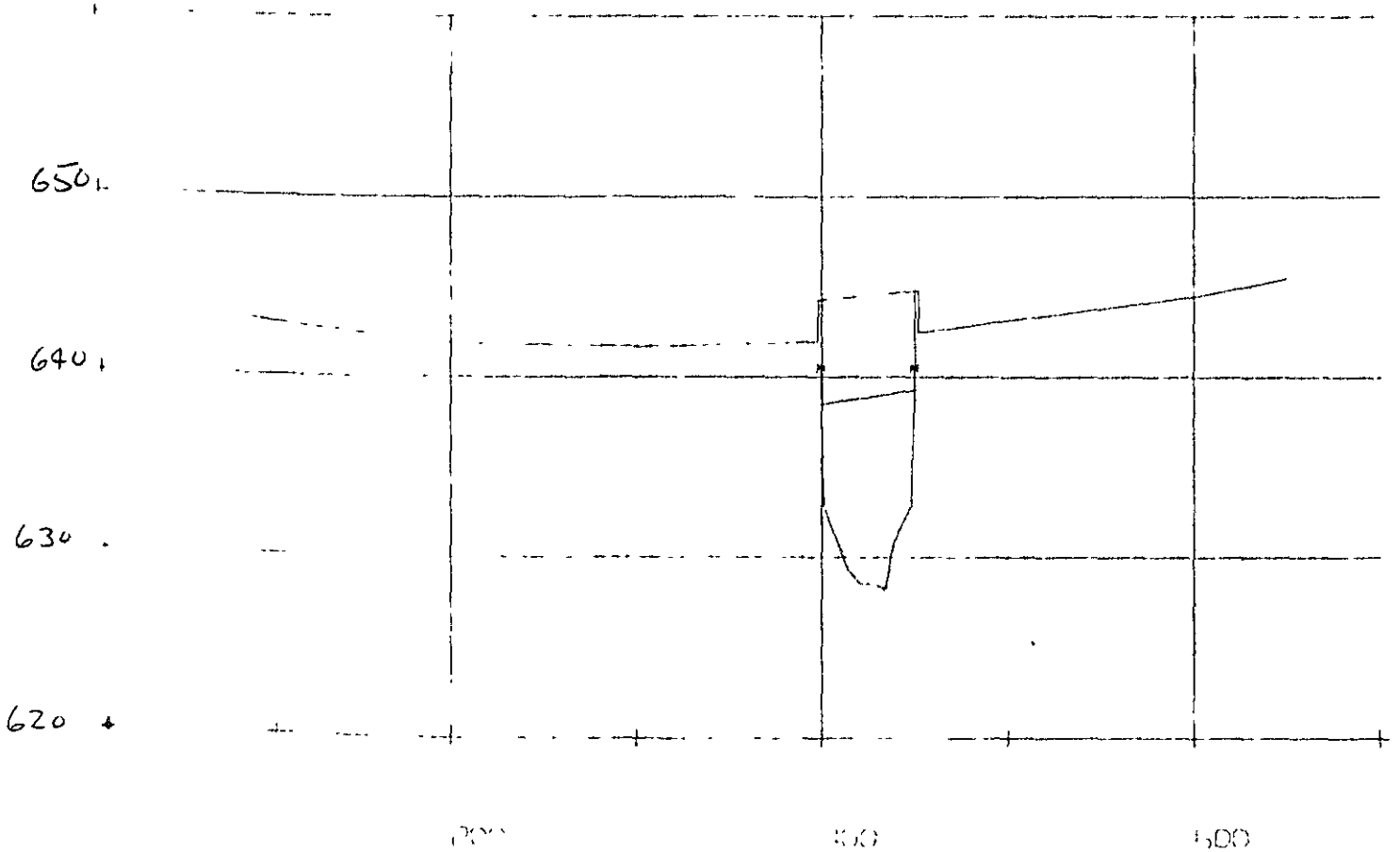
## FIELD SKETCH

Profile View




Plan View






SECTION 332

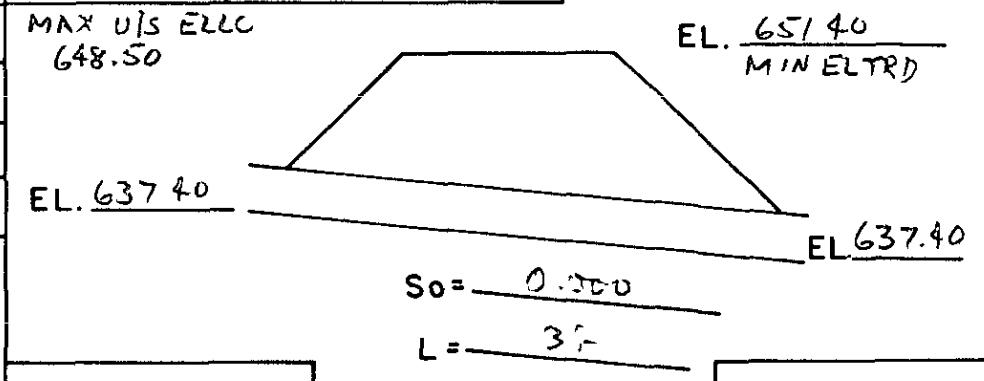
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | / | 338 |
|---|---|---|---|---|

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: JEWELL ROAD

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0361

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[ \frac{.015^2 + 15 + .040^2 \times 55}{70} \right]^{1/2}$$

$n = .0361$

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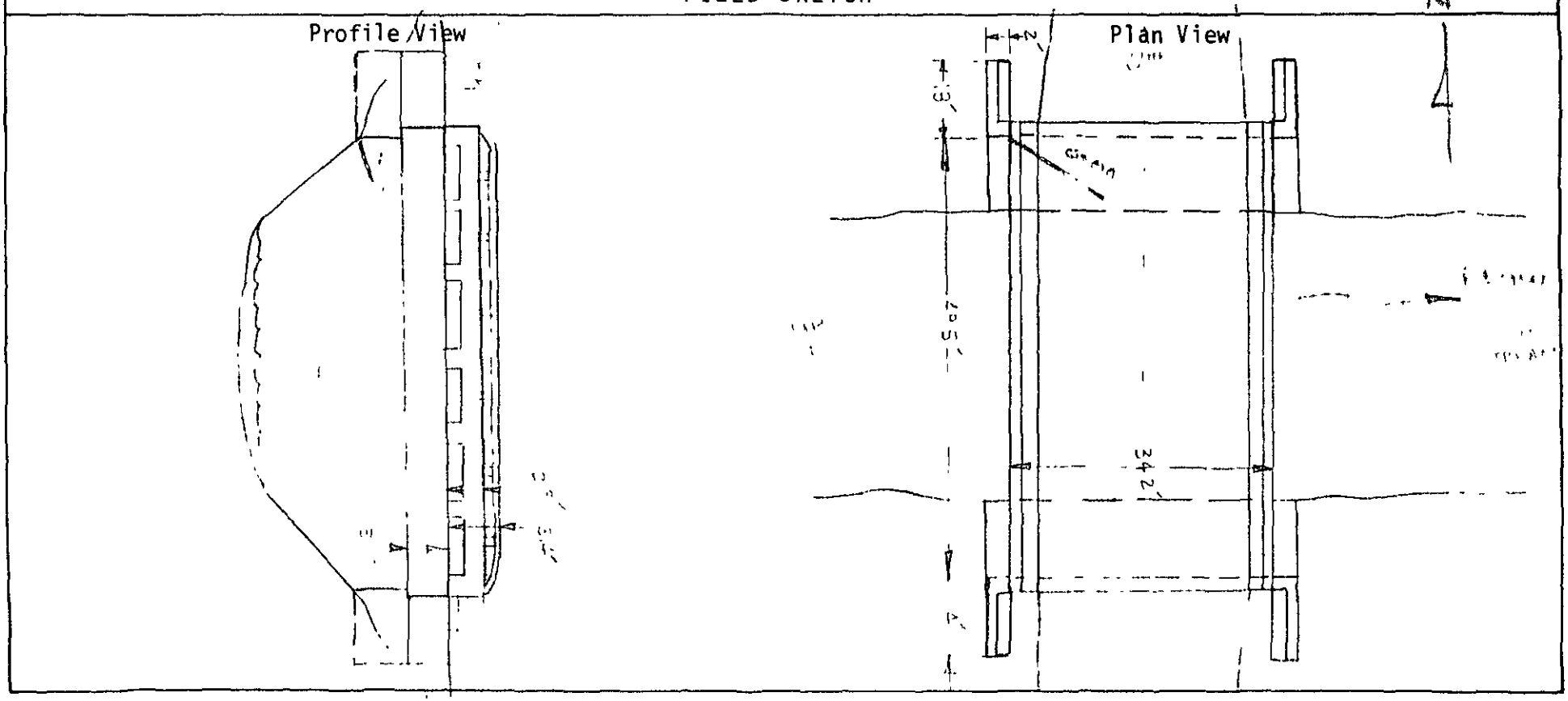
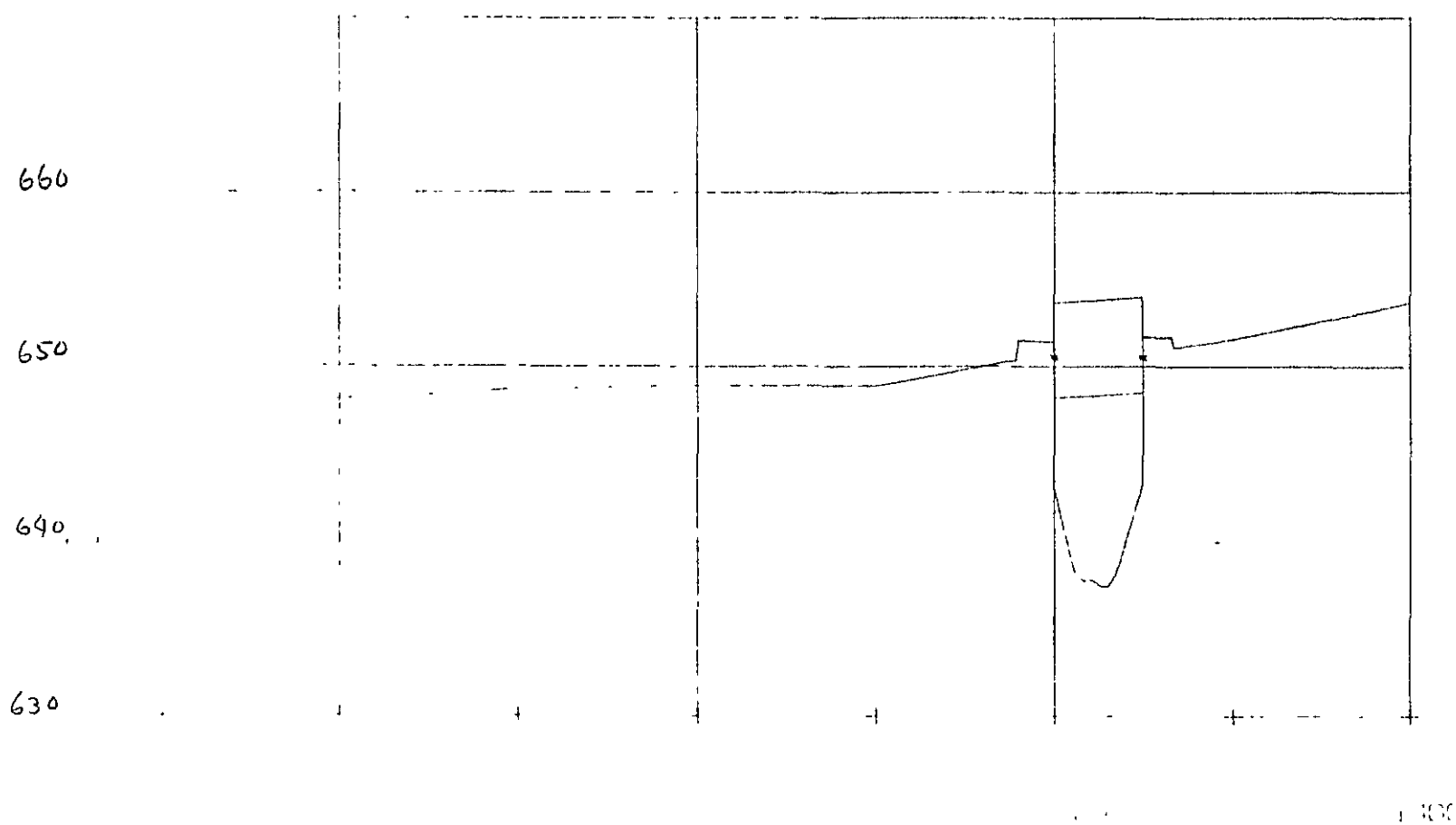
# HYDRAULIC STRUCTURAL DATA CODED BEH

Code No. 05.

| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP F.I. | | | By: T.R. PRUYT |
| Date: [illegible] | Feature: [illegible] | | Water Course: MIDDLE BRANCH - CLINTON RIVER |
| Remarks: [illegible] | | | |
| [illegible] MB22 - U.S.F ; MB23 U.S. ; MB24 Rt. ; MB25 Lt. ; MB26 D.S. ; MB27 D.S.F. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: 638.2 | Length: 49.5' | Width of Deck: 34.2' | Skew: 90° |

FIELD SKETCH





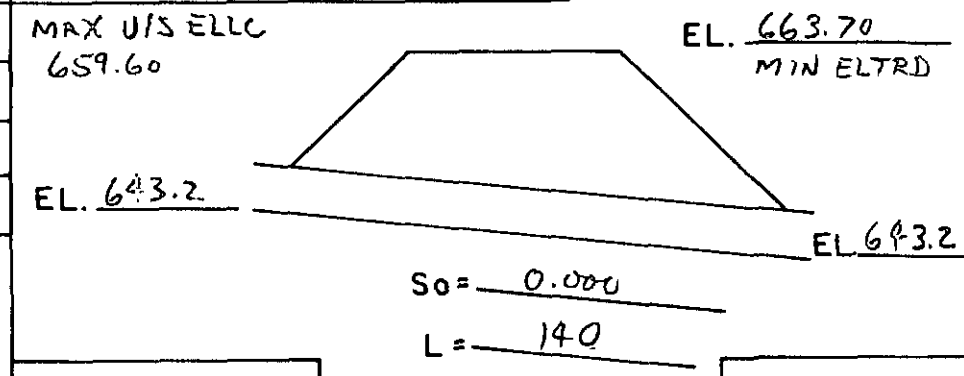

SECTION 338

| JOB NAME: SHELBY TOWNSHIP F15 | JOB NO. 5670 08 / 342 + 343 |
|---|---|
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: M-53 |

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0307

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.015^2 \times 55 + .040^2 \times 60}{115}\right]^{1/2}$$

$$n = .0307$$

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Consulting Engineers
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# HYDRAULIC STRUCTURAL DATA

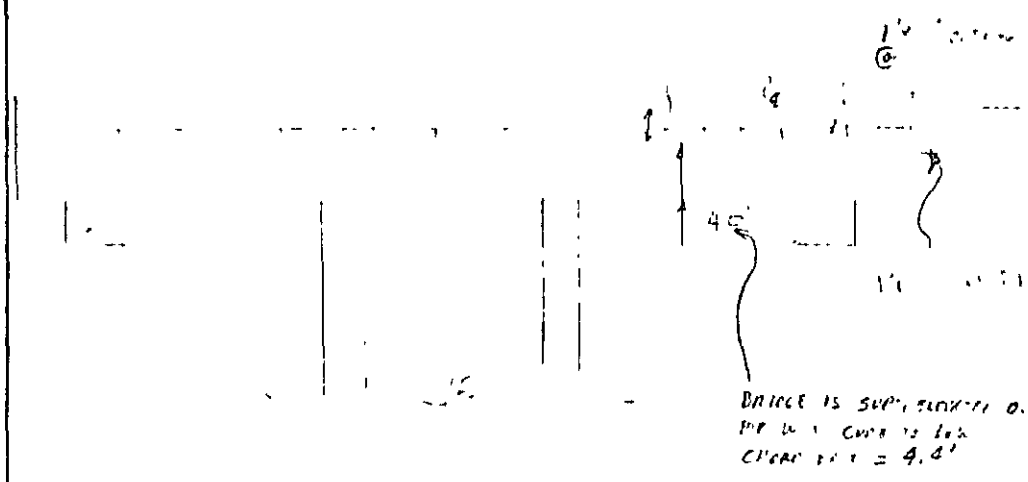
CODED BEH

Code No. 5670-08-3924

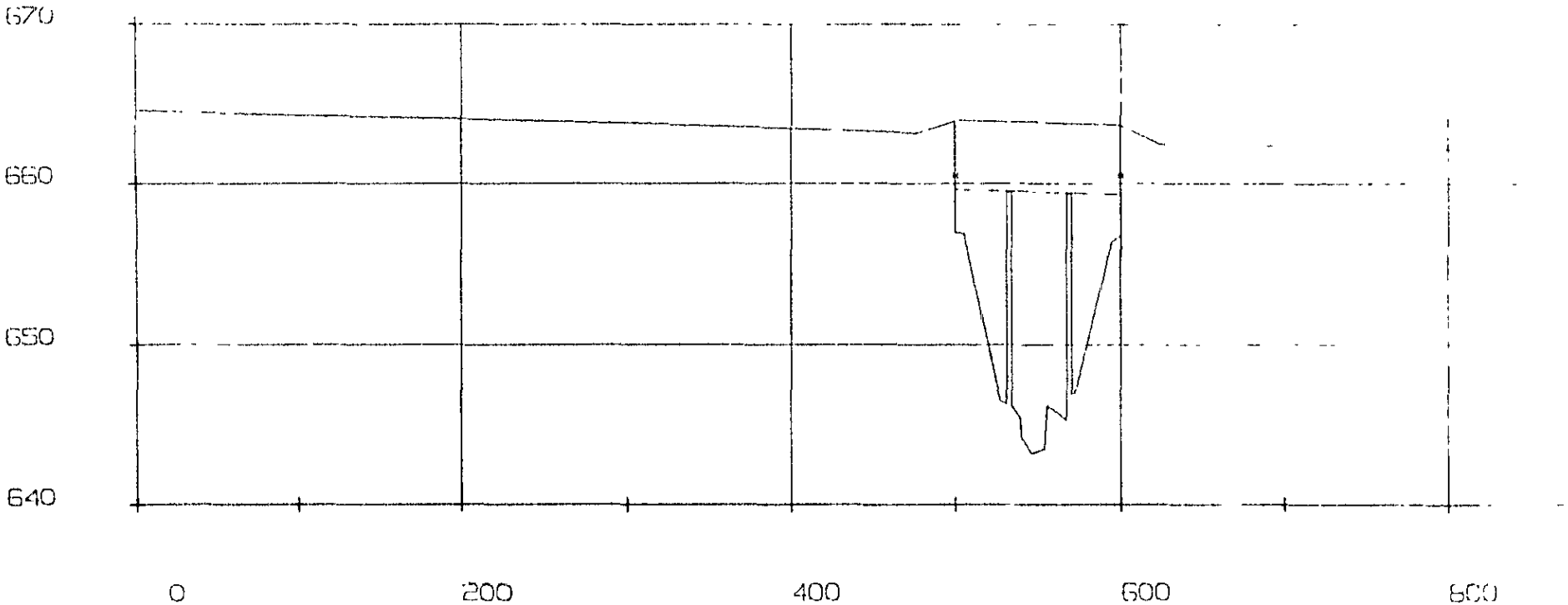
| | | | |
|---|---|---|---|
| Job Name: [illegible] | | | By: C. Murphy [illegible] |
| Date: [illegible]-4-71 | Feature: NORTH [illegible] & SOUTHBOUND M-53 BRIDGES | | Water Course: M B CLINTON RIVER |
| Remarks: A. BOTTOM: GRAVEL & SLOPES [illegible] MUD [illegible] LONG GRASS | | | |
| B. [illegible] FOR [illegible] BRIDGE SECTIONS (MOST PROBABLE) — BRIDGES ARE IDENTICAL | | | |
| Width of Piers: 2.8' | Pier Shape: | No. of Piers: 7 | Area: |
| Water Elevation: 644.5 | Length: 100' | Width of Deck: 43' AT 2.0° 50' ON SKEW | Skew: SEE BELOW |

## FIELD SKETCH

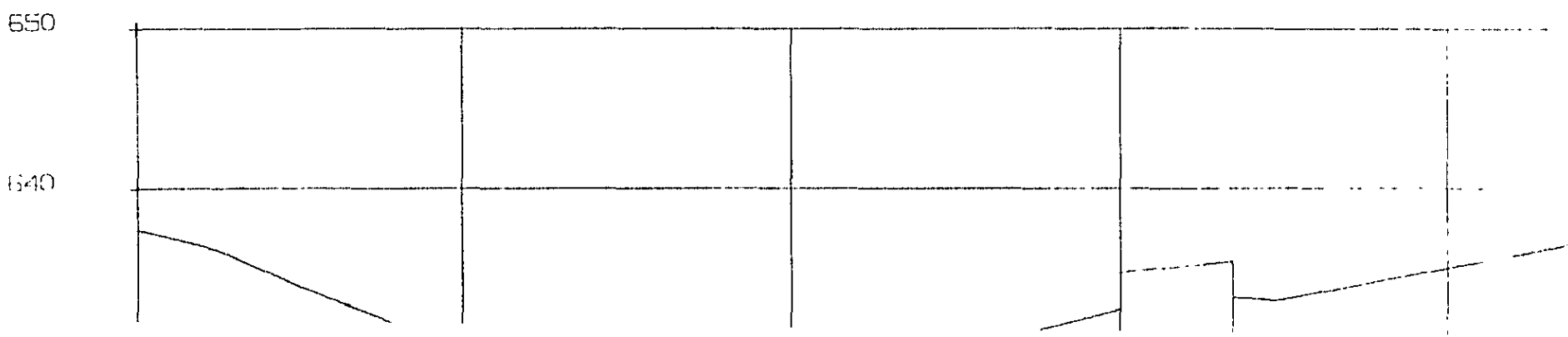
Profile View



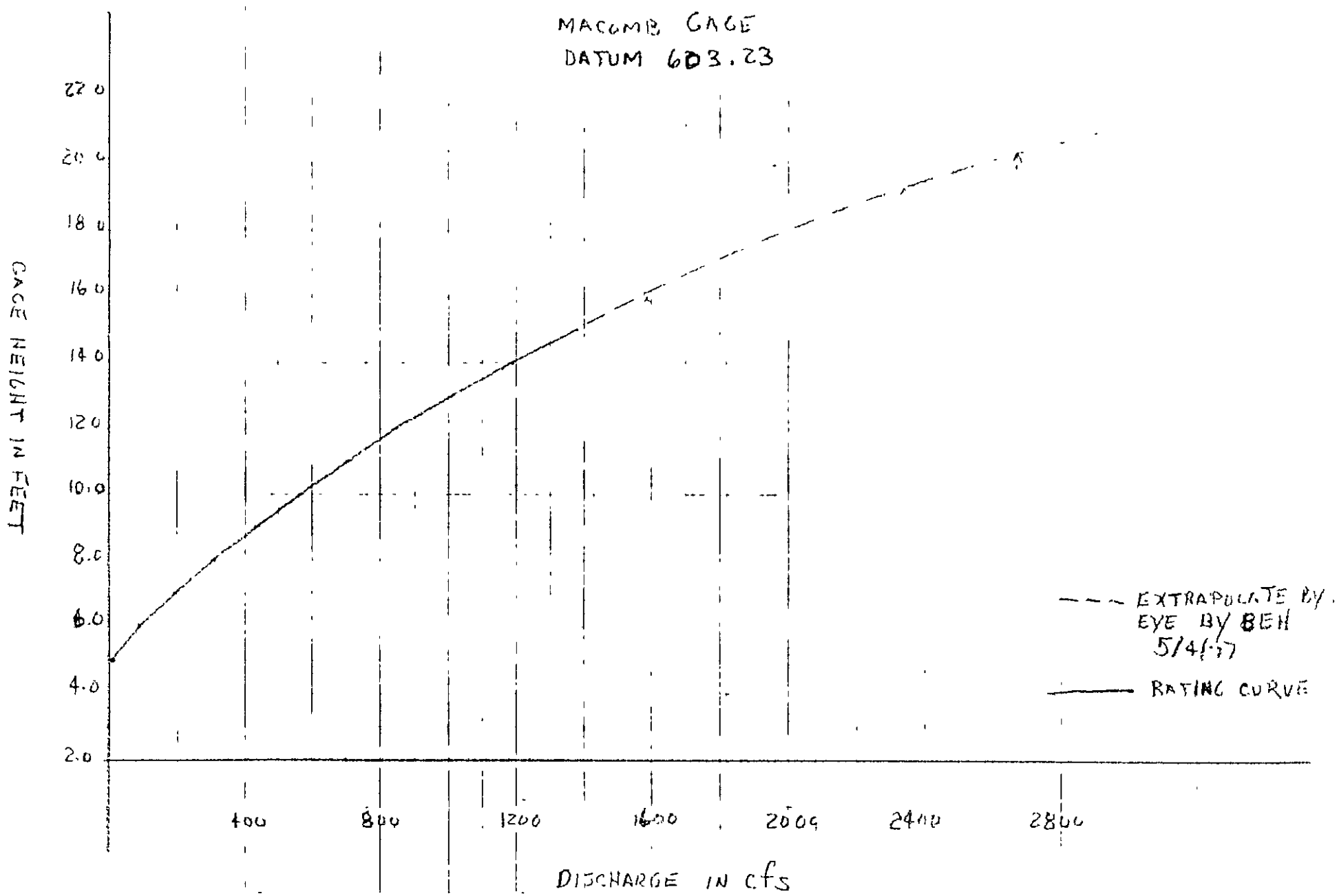

Plan View N




SECTION ~~53204~~
342 + 343



# APPENDIX C
# MACOMB GAGE STAGE-DISCHARGE CURVE


MACOMB GAGE
DATUM 603.23
GAGE HEIGHT IN FEET
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
400
800
1200
1600
2000
2400
2800
DISCHARGE IN cfs
EXTRAPOLATE BY EYE BY BEH 5/4/77
RATING CURVE

00BREAK00

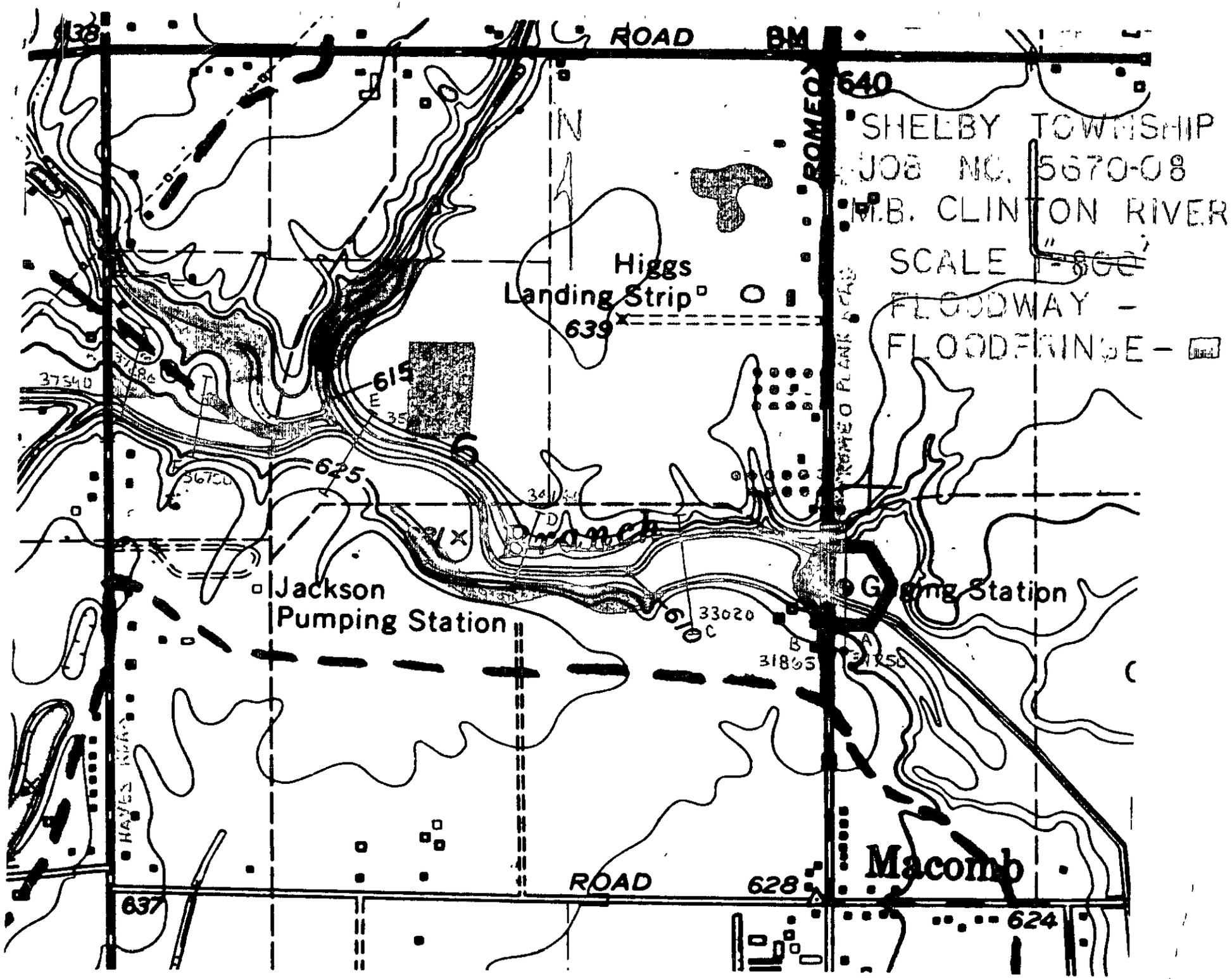
1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Map

00BREAK00


ROAD
BM
640
638
ROMEO
SHELBY TOWNSHIP
JOB NO. 5670-08
M.B. CLINTON RIVER
SCALE 1"=800'
FLOODWAY -
FLOODFRINGE -
Higgs
Landing Strip
639
615
625
6
Jackson
Pumping Station
Gaging Station
610
33020
31865
31750
37540
36750
HAYES ROAD
ROAD
637
628
624
Macomb

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Multiple Profile Plan

Township line to M-53

00BREAK00

```
 $$$$$$   $$     $$  $$$$$$$$  $$$$$$$$   $$$$$ $  $$$$$$$$   $$$$$$
$$    $$  $$     $$  $$            $$     $$    $   $$         $$    $$
$$        $$     $$  $$            $$     $$   $$$  $$         $$    $$
 $$$$$$   $$$$$$$$  $$$$$          $$     $$  $ $$  $$$$$$$    $$    $$
       $$ $$     $$  $$            $$     $$ $$ $$         $$  $$    $$
       $$ $$     $$  $$            $$     $$ $  $$         $$  $$    $$
       $$ $$     $$  $$            $$     $$$   $$         $$  $$    $$
$$    $$  $$     $$  $$         $$ $$      $    $$  $$    $$  $$    $$
 $$$$$$   $$     $$  $$$$$$$$   $$$       $ $$$$$   $$$$$$   $$$$$$
```

5.15

SHELBY TOWNSHIP

MIDDLE BRANCH OF THE CLINTON RIVER

ROMEO PLANK ROAD TO DISCO DRIVE

MULTIPLE PROFILE RUN

9-9-77 Revision

Township line to M-53

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
```

```
C
1       SHELBY TOWNSHIP-JOB NO. 5670-08  PROJECT MANAGER WILLIAM C. ROSSOW
T2       10 YEAR FLOOD =
T3       MIDDLE BRANCH OF THE CLINTON RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        2.         0.         0.   0.000000       0.00       0.0        0.    619.400     0.000

J2  NPROF     IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     1.000     0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
NC       .080       .080       .035       .100       .300      0.000      0.000      0.000      0.000      0.000
QT      4.000   1590.000   2340.000   2670.000   3680.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050    491.000       .070    506.000       .040    529.000       .070    555.000       .045
NH    855.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  31750.000     20.000    491.000    555.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    470.000    622.700    576.000      0.000      0.000      0.000      0.000
GR    630.400      0.000    621.600     35.000    620.500     55.000    618.400    155.000    619.100    255.000
GR    618.600    355.000    618.400    455.000    618.700    491.000    608.900    506.000    607.100    509.000
GR    606.900    510.000    607.200    515.000    607.300    520.000    607.500    526.000    608.900    528.000
GR    610.800    529.000    619.000    555.000    623.800    655.000    627.200    755.000    629.000    955.000
NC      0.000      0.000      0.000       .100       .500      0.000      0.000      0.000      0.000      0.000
NH      5.000       .050    531.800       .070    548.000       .040    595.000       .070    600.000       .045
NH   1000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  31835.000     34.000    531.800    600.000     85.000     85.000     85.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    531.800    623.000    600.000      0.000      0.000      0.000      0.000
GR    630.900      0.000    629.200     45.000    621.600     75.000    620.500     95.000    618.400    195.000
GR    619.100    295.000    618.600    395.000    618.400    495.000    618.700    531.800    614.000    531.800
GR    615.400    548.000    611.100    549.000    610.400    552.200    621.200    552.200    621.200    553.400
GR    610.400    553.400    608.100    556.000    608.600    560.000    608.300    565.000    608.200    570.000
GR    608.200    576.200    621.100    576.200    621.100    577.400    608.200    577.400    608.800    580.000
GR    610.800    585.000    610.300    590.000    609.000    595.000    609.200    600.000    619.000    600.000
GR    623.800    695.000    627.500    795.000    628.600    900.000    630.000   1000.000      0.000      0.000
SB      0.000      1.870      3.020      0.000     68.200      0.000    696.300      0.000    608.100    608.100
NH      5.000       .050    531.800       .070    548.000       .040    595.000       .070    600.000       .045
NH   1000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1  31865.000      0.000      0.000      0.000     30.000     30.000     30.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    621.200    623.300      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    531.800    623.000    600.000      0.000      0.000      0.000      0.000
BT     19.000      0.000    630.900      0.000     45.000    629.200      0.000     95.000    627.100      0.000
BT    195.000    624.600      0.000    295.000    623.500      0.000    395.000    623.300      0.000    495.000
BT    623.900      0.000    531.800    624.100    618.700    531.800    627.600    621.200    552.200    627.600
BT    621.200    553.400    627.600    621.200    576.200    627.500    621.100    577.400    627.500    621.100
BT    600.000    627.500    621.100    600.000    624.300    619.000    695.000    626.000      0.000    795.000
BT    627.500      0.000    900.000    628.600      0.000   1000.000    630.000      0.000      0.000      0.000
NH      6.000       .050    100.000       .090    136.000       .070    148.000       .040    178.000       .070
NH    193.000       .045    800.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 635.000 | 0.000 | 629.900 | 100.000 | 620.700 | 125.000 | 619.900 | 136.000 | 614.700 | 146.000 |
| GR | 610.800 | 148.000 | 610.200 | 150.000 | 610.200 | 160.000 | 610.200 | 170.000 | 610.200 | 176.000 |
| GR | 611.400 | 178.000 | 616.100 | 181.000 | 620.000 | 193.000 | 618.700 | 200.000 | 618.500 | 300.000 |
| GR | 618.500 | 400.000 | 624.300 | 500.000 | 631.100 | 540.000 | 631.200 | 600.000 | 633.500 | 700.000 |
| GR | 634.400 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .080 | 380.000 | .070 | 389.000 | .045 | 423.000 | .070 | 438.000 | .070 |
| NH | 560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 34140.000 | 21.000 | 380.000 | 438.000 | 1020.000 | 1090.000 | 1120.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.300 | 0.000 | 631.000 | 60.000 | 626.600 | 160.000 | 620.700 | 210.000 | 619.700 | 260.000 |
| GR | 620.500 | 360.000 | 620.500 | 380.000 | 614.300 | 387.000 | 613.100 | 389.000 | 611.600 | 391.000 |
| GR | 610.900 | 400.000 | 611.400 | 413.000 | 611.600 | 421.000 | 613.100 | 423.000 | 614.400 | 425.000 |
| GR | 619.600 | 438.000 | 618.800 | 460.000 | 617.400 | 480.000 | 623.900 | 497.000 | 632.000 | 517.000 |
| GR | 635.200 | 560.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1340.000 | 2150.000 | 2540.000 | 3570.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .070 | 204.000 | .090 | 212.000 | .040 | 236.000 | .090 | 255.000 | .070 |
| NH | 490.000 | .060 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 35670.000 | 21.000 | 204.000 | 255.000 | 1400.000 | 1400.000 | 1530.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.600 | 0.000 | 632.900 | 35.000 | 622.900 | 95.000 | 622.400 | 135.000 | 620.800 | 163.000 |
| GR | 624.500 | 184.000 | 617.100 | 197.000 | 618.100 | 204.000 | 617.100 | 210.000 | 614.800 | 212.000 |
| GR | 614.000 | 213.000 | 614.000 | 225.000 | 613.600 | 232.000 | 613.900 | 235.000 | 614.800 | 236.000 |
| GR | 622.900 | 255.000 | 622.400 | 335.000 | 621.800 | 435.000 | 630.900 | 490.000 | 632.500 | 535.000 |
| GR | 634.700 | 635.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .030 | 240.000 | .080 | 407.000 | .060 | 414.000 | .040 | 433.000 | .060 |
| NH | 454.000 | .090 | 540.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 36750.000 | 14.000 | 407.000 | 454.000 | 1080.000 | 980.000 | 1080.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.800 | 0.000 | 624.200 | 100.000 | 621.600 | 240.000 | 621.000 | 300.000 | 622.700 | 407.000 |
| GR | 617.800 | 414.000 | 616.000 | 415.000 | 615.700 | 425.000 | 616.400 | 433.000 | 618.200 | 434.000 |
| GR | 618.700 | 444.000 | 621.100 | 454.000 | 625.600 | 502.000 | 634.100 | 540.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 470.000 | .070 | 480.000 | .037 | 495.000 | .070 | 508.000 | .075 |
| NH | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37080.000 | 13.000 | 470.000 | 508.000 | 330.000 | 330.000 | 330.000 | 0.000 | -.200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 320.000 | 0.000 | 578.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.300 | 0.000 | 624.400 | 90.000 | 622.800 | 336.000 | 623.600 | 391.000 | 622.700 | 470.000 |
| GR | 616.500 | 480.000 | 616.400 | 488.000 | 616.900 | 494.000 | 618.600 | 495.000 | 619.800 | 502.000 |
| GR | 622.500 | 508.000 | 626.100 | 570.000 | 634.200 | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 470.000 | .080 | 480.000 | .037 | 495.000 | .075 | 508.000 | .080 |
| NH | 595.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37180.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .150 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 370.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 538.000 | .085 | 543.000 | .035 | 561.000 | .080 | 565.000 | .060 |
| NH | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37280.000 | 16.000 | 538.000 | 565.000 | 80.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 494.000 | 0.000 | 590.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.900 | 0.000 | 626.000 | 50.000 | 624.100 | 70.000 | 623.700 | 150.000 | 623.800 | 250.000 |
| GR | 624.200 | 350.000 | 624.500 | 450.000 | 622.200 | 538.000 | 618.400 | 543.000 | 616.500 | 546.000 |
| GR | 616.900 | 553.000 | 617.000 | 559.000 | 618.400 | 561.000 | 623.600 | 565.000 | 626.700 | 640.000 |
| GR | 634.000 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .040 | 600.000 | .085 | 604.000 | .035 | 663.000 | .080 | 667.000 | .060 |
| NH | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37349.000 | 28.000 | 600.000 | 668.800 | 89.000 | 59.000 | 69.000 | .064 | 0.000 | 0.000 |
| GR | 637.400 | 0.000 | 636.100 | 50.000 | 633.800 | 100.000 | 629.800 | 200.000 | 628.200 | 300.000 |
| GR | 628.700 | 400.000 | 630.000 | 500.000 | 631.100 | 550.000 | 631.100 | 550.000 | 632.400 | 600.000 |
| GR | 620.300 | 600.000 | 618.000 | 604.000 | 618.700 | 611.000 | 619.400 | 623.000 | 619.500 | 629.000 |
| GR | 618.400 | 638.000 | 618.100 | 640.000 | 618.000 | 645.000 | 617.800 | 650.000 | 617.800 | 655.000 |
| GR | 617.400 | 662.000 | 620.000 | 663.000 | 621.000 | 668.800 | 633.100 | 668.800 | 632.900 | 695.000 |
| [illegible] | [illegible] | 605.000 | 635.000 | 800.000 | 637.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 37350.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | .864 | 0.000 |
| BT | 17.000 | 0.000 | 637.400 | 0.000 | 50.000 | 636.100 | 0.000 | 100.000 | 633.800 | 0.000 |
| BT | 200.000 | 629.800 | 0.000 | 300.000 | 628.200 | 0.000 | 400.000 | 628.700 | 0.000 | 500.000 |
| BT | 630.000 | 0.000 | 550.000 | 631.100 | 0.000 | 550.000 | 631.100 | 0.000 | 600.000 | 632.400 |
| BT | 620.300 | 600.000 | 634.700 | 628.000 | 668.800 | 635.400 | 628.700 | 668.800 | 633.100 | 621.000 |
| BT | 695.000 | 632.900 | 0.000 | 695.000 | 632.900 | 0.000 | 800.000 | 635.000 | 0.000 | 900.000 |
| BT | 637.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37390.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 600.000 | .070 | 604.000 | .035 | 663.000 | .070 | 667.000 | .055 |
| NH | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37391.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 98.000 | .080 | 268.000 | .090 | 274.000 | .040 | 283.000 | .090 |
| NH | 295.000 | .090 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37506.000 | 17.000 | 268.000 | 295.000 | 115.000 | 115.000 | 115.000 | 0.000 | -.900 | 0.000 |
| GR | 641.200 | 0.000 | 639.300 | 55.000 | 625.800 | 98.000 | 626.300 | 150.000 | 623.900 | 250.000 |
| GR | 623.200 | 268.000 | 620.200 | 273.000 | 619.300 | 274.000 | 618.900 | 275.000 | 618.400 | 283.000 |
| GR | 619.100 | 288.000 | 620.200 | 291.000 | 626.000 | 295.000 | 626.900 | 350.000 | 633.200 | 450.000 |
| GR | 635.400 | 475.000 | 638.700 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 98.000 | .080 | 268.000 | .090 | 274.000 | .040 | 283.000 | .090 |
| NH | 295.000 | .090 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 38530.000 | 0.000 | 0.000 | 0.000 | 1024.000 | 1024.000 | 1024.000 | 0.000 | .900 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .100 | 300.000 | .080 | 310.000 | .045 | 336.000 | .080 | 344.000 | .100 |
| NH | 650.000 | .050 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 39520.000 | 20.000 | 300.000 | 344.000 | 1050.000 | 990.000 | 990.000 | 0.000 | 0.000 | 0.000 |
| GR | 639.400 | 0.000 | 638.100 | 100.000 | 637.200 | 120.000 | 630.600 | 179.000 | 627.400 | 200.000 |
| GR | 629.500 | 300.000 | 626.300 | 305.000 | 621.800 | 310.000 | 620.400 | 311.000 | 620.200 | 315.000 |
| GR | 620.600 | 325.000 | 620.700 | 335.000 | 621.800 | 336.000 | 628.800 | 344.000 | 627.100 | 400.000 |
| GR | 628.200 | 500.000 | 628.300 | 600.000 | 625.300 | 610.000 | 637.300 | 650.000 | 639.200 | 700.000 |
| QT | 4.000 | 1310.000 | 2110.000 | 2490.000 | 3500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .080 | 216.000 | .045 | 237.000 | .080 | 330.000 | .050 | 900.000 | 0.000 |
| X1 | 40660.000 | 20.000 | 211.000 | 238.000 | 1180.000 | 1080.000 | 1140.000 | 0.000 | 0.000 | 0.000 |
| GR | 643.100 | 0.000 | 641.700 | 35.000 | 629.800 | 65.000 | 629.900 | 200.000 | 629.900 | 211.000 |
| GR | 624.200 | 216.000 | 622.400 | 217.000 | 621.700 | 220.000 | 622.200 | 227.000 | 623.700 | 237.000 |
| GR | 626.100 | 238.000 | 628.400 | 300.000 | 632.200 | 330.000 | 629.700 | 345.000 | 630.300 | 400.000 |
| GR | 632.900 | 500.000 | 636.100 | 600.000 | 637.900 | 700.000 | 639.100 | 800.000 | 640.200 | 900.000 |
| NH | 6.000 | .050 | 624.700 | .060 | 697.900 | .070 | 709.600 | .040 | 735.000 | .070 |
| NH | 752.500 | .060 | 976.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 42160.000 | 23.000 | 715.000 | 771.000 | 1400.000 | 1500.000 | 1500.000 | .976 | 0.000 | 0.000 |
| GR | 639.700 | 0.000 | 638.900 | 100.000 | 638.700 | 200.000 | 637.700 | 300.000 | 637.500 | 400.000 |
| GR | 635.700 | 500.000 | 632.000 | 600.000 | 631.000 | 640.000 | 632.000 | 700.000 | 633.200 | 715.000 |
| GR | 625.100 | 727.000 | 625.000 | 730.000 | 625.100 | 735.000 | 625.300 | 745.000 | 625.400 | 753.000 |
| GR | 633.700 | 771.000 | 631.900 | 800.000 | 632.500 | 836.000 | 629.700 | 844.000 | 632.100 | 867.000 |
| GR | 631.900 | 900.000 | 631.600 | 937.000 | 641.500 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 663.000 | .060 | 669.000 | .040 | 692.000 | .090 | 715.000 | .060 |
| NH | 976.000 | .050 | 1850.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 43220.000 | 22.000 | 663.000 | 715.000 | 1070.000 | 1060.000 | 1060.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 643.400 | 0.000 | 642.300 | 100.000 | 641.500 | 200.000 | 640.900 | 300.000 | 633.800 | 600.000 |
| GR | 634.500 | 663.000 | 629.300 | 669.000 | 628.500 | 670.000 | 626.900 | 680.000 | 626.900 | 685.000 |
| GR | 629.100 | 692.000 | 629.600 | 693.000 | 634.900 | 715.000 | 633.800 | 800.000 | 633.200 | 900.000 |
| GR | 634.800 | 938.000 | 642.000 | 976.000 | 644.300 | 1000.000 | 643.900 | 1100.000 | 633.500 | 1700.000 |
| GR | 638.700 | 1800.000 | 640.200 | 1850.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 366.000 | .100 | 373.000 | .035 | 392.000 | .100 | 400.000 | .055 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 43980.000 | 17.000 | 366.000 | 400.000 | 720.000 | 780.000 | 760.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 330.000 | 0.000 | 465.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 644.300 | 60.000 | 641.100 | 100.000 | 635.700 | 160.000 | 634.600 | 200.000 |
| GR | 635.000 | 300.000 | 635.900 | 338.000 | 632.600 | 366.000 | 628.500 | 373.000 | 628.100 | 375.000 |
| GR | 627.700 | 380.000 | 627.800 | 385.000 | 628.300 | 390.000 | 629.100 | 392.000 | 634.000 | 400.000 |
| GR | 641.200 | 500.000 | 643.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .060 | .032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44092.000 | 24.000 | 400.000 | 450.000 | 102.000 | 122.000 | 112.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 643.000 | 100.000 | 641.900 | 200.000 | 641.700 | 300.000 | 642.000 | 398.000 |
| GR | 644.300 | 398.000 | 644.300 | 400.000 | 638.500 | 400.000 | 632.900 | 401.000 | 629.300 | 414.000 |
| GR | 628.500 | 420.000 | 628.500 | 425.000 | 628.400 | 430.000 | 628.200 | 434.000 | 629.100 | 436.000 |
| GR | 630.600 | 438.000 | 632.800 | 448.000 | 639.300 | 450.000 | 644.800 | 450.000 | 644.800 | 452.000 |
| GR | 642.500 | 452.000 | 643.200 | 500.000 | 644.500 | 600.000 | 645.500 | 650.000 | 0.000 | 0.000 |
| X1 | 44093.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 4.000 | 398.000 | 644.300 | 0.000 | 400.000 | 644.300 | 638.500 | 450.000 | 644.800 | 639.300 |
| BT | 452.000 | 644.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44127.000 | 0.000 | 0.000 | 0.000 | 34.000 | 34.000 | 34.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 300.000 | .070 | 398.000 | .120 | 401.000 | .035 | 450.000 | .120 |
| NH | 452.000 | .040 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44128.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 366.000 | .100 | 373.000 | .035 | 392.000 | .100 | 400.000 | .055 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 44250.000 | 17.000 | 366.000 | 400.000 | 122.000 | 122.000 | 122.000 | 0.000 | .520 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 644.400 | 0.000 | 644.300 | 60.000 | 641.100 | 100.000 | 635.700 | 160.000 | 634.600 | 200.000 |
| GR | 635.000 | 300.000 | 635.900 | 338.000 | 632.600 | 366.000 | 628.500 | 373.000 | 628.100 | 375.000 |
| GR | 627.700 | 380.000 | 627.800 | 385.000 | 628.300 | 390.000 | 629.100 | 392.000 | 634.000 | 400.000 |
| GR | 641.200 | 500.000 | 643.000 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .100 | 198.000 | .030 | 204.000 | .040 | 225.000 | .080 | 235.000 | .070 |
| NH | 350.000 | .040 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 45230.000 | 21.000 | 198.000 | 235.000 | 960.000 | 990.000 | 980.000 | 0.000 | 0.000 | 0.000 |
| GR | 649.700 | 0.000 | 648.700 | 19.000 | 637.400 | 55.000 | 636.400 | 100.000 | 637.000 | 134.000 |
| GR | 633.600 | 144.000 | 633.000 | 168.000 | 639.400 | 186.000 | 637.200 | 198.000 | 630.700 | 204.000 |
| GR | 629.300 | 205.000 | 628.800 | 210.000 | 628.400 | 215.000 | 628.800 | 220.000 | 629.900 | 225.000 |
| GR | 637.000 | 235.000 | 636.800 | 300.000 | 637.200 | 350.000 | 644.500 | 400.000 | 650.400 | 500.000 |
| GR | 650.900 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .055 | 100.000 | .080 | 183.000 | .050 | 218.000 | .040 | 245.000 | .050 |
| NH | 253.000 | .080 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 46590.000 | 14.000 | 183.000 | 253.000 | 1350.000 | 1370.000 | 1360.000 | 0.000 | 0.000 | 0.000 |
| GR | 657.300 | 0.000 | 651.800 | 100.000 | 644.800 | 183.000 | 635.200 | 205.000 | 632.700 | 218.000 |
| GR | 631.700 | 225.000 | 631.100 | 235.000 | 631.400 | 242.000 | 632.700 | 245.000 | 640.200 | 253.000 |
| GR | 636.700 | 300.000 | 642.300 | 400.000 | 643.300 | 478.000 | 658.400 | 500.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 140.000 | .080 | 145.000 | .045 | 165.000 | .080 | 180.000 | .100 |
| NH | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 180.000 | 1.000 | 400.000 | 0.000 |
| X1 | 47640.000 | 18.000 | 140.000 | 180.000 | 1040.000 | 1040.000 | 1050.000 | 0.000 | 0.000 | 0.000 |
| GR | 656.500 | 0.000 | 653.800 | 30.000 | 644.700 | 60.000 | 640.700 | 100.000 | 641.300 | 118.000 |
| GR | 642.100 | 127.000 | 639.400 | 140.000 | 633.900 | 145.000 | 632.800 | 150.000 | 631.700 | 155.000 |
| GR | 632.400 | 160.000 | 633.800 | 165.000 | 638.100 | 167.000 | 643.500 | 180.000 | 640.000 | 200.000 |
| GR | 640.800 | 300.000 | 644.100 | 365.000 | 655.600 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 179.000 | .080 | 185.000 | .050 | 212.000 | .080 | 231.000 | .100 |
| NH | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 231.000 | 1.000 | 450.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 651.900 | 0.000 | 643.000 | 50.000 | 642.100 | 150.000 | 643.600 | 179.000 | 635.200 | 185.000 |
| GR | 635.500 | 195.000 | 635.100 | 196.000 | 634.300 | 200.000 | 634.700 | 205.000 | 635.600 | 211.000 |
| GR | 636.000 | 212.000 | 646.100 | 231.000 | 642.800 | 270.000 | 653.100 | 320.000 | 653.000 | 370.000 |
| GR | 657.700 | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .100 | 179.000 | .080 | 185.000 | .050 | 212.000 | .080 | 231.000 | .100 |
| NH | 450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 231.000 | 1.000 | 450.000 | 0.000 |
| X1 | 49425.000 | 0.000 | 0.000 | 0.000 | 430.000 | 415.000 | 425.000 | 0.000 | 1.200 | 0.000 |
| QT | 4.000 | 1030.000 | 1660.000 | 1910.000 | 2760.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 7.000 | .050 | 800.000 | .100 | 963.000 | .090 | 985.000 | .040 | 999.000 | .090 |
| NH | 1013.000 | .100 | 1200.000 | .040 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 8.100 | 8.100 | 1.000 | 1024.000 | 1.000 | 1400.000 | 0.000 |
| X1 | 49850.000 | 31.000 | 968.000 | 1013.000 | 430.000 | 415.000 | 425.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.700 | 0.000 | 659.400 | 100.000 | 659.200 | 200.000 | 660.300 | 300.000 | 660.100 | 400.000 |
| GR | 660.200 | 500.000 | 659.400 | 600.000 | 658.400 | 700.000 | 655.800 | 750.000 | 648.300 | 800.000 |
| GR | 646.000 | 820.000 | 644.100 | 882.000 | 640.800 | 889.000 | 636.800 | 892.000 | 636.400 | 900.000 |
| GR | 636.100 | 904.000 | 641.600 | 908.000 | 647.600 | 968.000 | 637.700 | 985.000 | 637.000 | 990.000 |
| GR | 636.800 | 995.000 | 636.700 | 999.000 | 637.700 | 1001.000 | 645.200 | 1013.000 | 647.200 | 1024.000 |
| GR | 643.200 | 1069.000 | 652.300 | 1085.000 | 653.600 | 1100.000 | 656.300 | 1200.000 | 658.000 | 1300.000 |
| GR | 660.100 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 1200.000 | .040 | 1249.500 | .080 | 1400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50114.000 | 39.000 | 1200.000 | 1249.500 | 314.000 | 204.000 | 264.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.700 | 0.000 | 659.700 | 100.000 | 658.300 | 200.000 | 655.000 | 300.000 | 650.900 | 400.000 |
| GR | 649.100 | 500.000 | 649.000 | 600.000 | 649.200 | 645.000 | 639.600 | 645.500 | 638.500 | 647.000 |
| GR | 638.400 | 650.000 | 639.000 | 655.000 | 639.600 | 660.000 | 639.900 | 663.000 | 642.000 | 665.000 |
| GR | 643.600 | 674.000 | 649.400 | 674.000 | 649.200 | 700.000 | 648.100 | 800.000 | 648.700 | 900.000 |
| GR | 648.900 | 1000.000 | 648.900 | 1100.000 | 650.400 | 1179.000 | 651.500 | 1180.000 | 651.400 | 1200.000 |
| GR | 643.200 | 1200.000 | 638.300 | 1211.000 | 637.700 | 1216.000 | 637.800 | 1221.000 | 637.400 | 1226.000 |
| GR | 637.400 | 1230.000 | 638.100 | 1234.000 | 638.900 | 1237.000 | 643.300 | 1249.500 | 651.700 | 1249.500 |
| GR | 651.700 | 1266.000 | 651.100 | 1267.000 | 651.600 | 1300.000 | 653.700 | 1400.000 | 0.000 | 0.000 |
| X1 | 50115.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 1180.000 | 651.500 | 0.000 | 1200.000 | 651.400 | 0.000 | 1200.000 | 653.700 | 648.200 |
| BT | 1249.500 | 654.000 | 648.500 | 1249.500 | 651.700 | 0.000 | 1266.000 | 651.700 | 0.000 | 0.000 |
| X1 | 50149.000 | 0.000 | 0.000 | 0.000 | 34.000 | 34.000 | 34.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .080 | 1200.000 | .040 | 1249.500 | .080 | 1400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50150.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 385.000 | .090 | 394.000 | .040 | 408.000 | .090 | 413.000 | .050 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50190.000 | 17.000 | 385.000 | 413.000 | 40.000 | 40.000 | 40.000 | 0.000 | .100 | 0.000 |
| GR | 658.200 | 0.000 | 655.700 | 100.000 | 653.200 | 200.000 | 650.100 | 300.000 | 649.000 | 350.000 |
| GR | 646.500 | 365.000 | 641.900 | 377.000 | 643.600 | 385.000 | 638.800 | 394.000 | 637.300 | 400.000 |
| GR | 637.400 | 403.000 | 639.500 | 408.000 | 647.800 | 413.000 | 645.700 | 428.000 | 645.000 | 490.000 |
| GR | 653.600 | 540.000 | 660.900 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 371.200 | .090 | 379.900 | .040 | 393.400 | .090 | 398.200 | .050 |
| NH | 578.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 50860.000 | 0.000 | 0.000 | 0.000 | 670.000 | 642.000 | 670.000 | .964 | -.100 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 980.000 | 1570.000 | 1800.000 | 2610.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .070 | 303.000 | .045 | 315.000 | .070 | 325.000 | .080 | 500.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X3 | 10.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 658.900 | 0.000 | 656.900 | 100.000 | 651.200 | 190.000 | 649.500 | 200.000 | 648.100 | 260.000 |
| GR | 649.900 | 275.000 | 645.200 | 300.000 | 641.600 | 303.000 | 641.300 | 306.000 | 641.400 | 309.000 |
| GR | 641.400 | 312.000 | 641.800 | 315.000 | 649.400 | 325.000 | 648.800 | 400.000 | 648.800 | 465.000 |
| GR | 655.200 | 484.000 | 655.500 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .400 | .800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .120 | 351.800 | .040 | 362.100 | .090 | 774.100 | 0.000 | 0.000 | 0.000 |
| X1 | 53150.000 | 18.000 | 400.000 | 440.000 | 1200.000 | 1150.000 | 1200.000 | .860 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 370.000 | 0.000 | 471.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 659.100 | 0.000 | 657.100 | 100.000 | 657.400 | 200.000 | 656.900 | 210.000 | 651.600 | 300.000 |
| GR | 648.500 | 400.000 | 643.100 | 409.000 | 643.000 | 415.000 | 643.400 | 421.000 | 646.300 | 424.000 |
| GR | 651.400 | 440.000 | 649.400 | 463.000 | 652.500 | 500.000 | 658.300 | 560.000 | 659.400 | 600.000 |
| GR | 660.300 | 700.000 | 659.800 | 800.000 | 658.800 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .120 | 500.000 | .040 | 600.000 | .090 | 1100.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53204.000 | 33.000 | 500.000 | 600.000 | 54.000 | 54.000 | 54.000 | .860 | 0.000 | 0.000 |
| GR | 664.600 | 0.000 | 664.300 | 100.000 | 664.100 | 200.000 | 663.800 | 300.000 | 663.500 | 400.000 |
| GR | 663.200 | 476.000 | 664.000 | 500.000 | 657.000 | 500.000 | 656.900 | 506.000 | 646.500 | 527.000 |
| GR | 646.300 | 531.000 | 659.500 | 531.000 | 659.500 | 534.000 | 646.200 | 534.000 | 645.400 | 539.000 |
| GR | 644.200 | 540.000 | 643.200 | 546.000 | 643.500 | 554.000 | 646.200 | 556.000 | 645.300 | 567.500 |
| GR | 659.400 | 567.500 | 659.400 | 570.500 | 646.900 | 570.500 | 647.000 | 573.000 | 656.400 | 595.000 |
| GR | 656.800 | 600.000 | 663.700 | 600.000 | 662.500 | 624.000 | 662.400 | 700.000 | 662.200 | 800.000 |
| GR | 661.900 | 900.000 | 661.600 | 1000.000 | 661.300 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .120 | .090 | .030 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53205.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 500.000 | 664.000 | 659.600 | 531.000 | 663.900 | 659.500 | 534.000 | 663.900 | 659.500 |
| BT | 567.500 | 663.800 | 659.400 | 570.500 | 663.800 | 659.400 | 600.000 | 663.700 | 659.300 | 0.000 |
| X1 | 53255.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53256.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53294.000 | 0.000 | 0.000 | 0.000 | 38.000 | 38.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53295.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 6.000 | 500.000 | 664.000 | 659.600 | 531.000 | 663.900 | 659.500 | 534.000 | 663.900 | 659.500 |
| BT | 567.500 | 663.800 | 659.400 | 570.500 | 663.800 | 659.400 | 600.000 | 663.700 | 659.300 | 0.000 |
| X1 | 53345.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X1 | 53346.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      SHELBY TOWNSHIP-JOB NO. 5670-08  PROJECT MANAGER WILLIAM C. ROSSOW
T2      100 YEAR FLOOD =
T3      MIDDLE BRANCH OF THE CLINTON RIVER
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INO | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | -1. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 623.600 | 0.000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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CCHV=     .100 CEHV=     .300
1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


3470 ENCROACHMENT STATIONS=     470.0     576.0  TYPE=     1  TARGET=     106.000
 ELENCL=     622.70  ELENCR= 100000.00

                VALLEY SECTION A                                                  318

 31750.00     16.70    623.60      0.00    623.60    623.71       .11      0.00      0.00    618.70
    2670.      370.     2165.      135.     498.      743.       86.        0.        0.    619.00
     0.00       .74      2.91      1.57      .050      .048      .045     0.000    606.90     30.91
  .000344        0.        0.        0.         0         0         1      0.00    545.09    576.00


CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     531.8     600.0  TYPE=     1  TARGET=      68.200
 ELENCL=     623.00  ELENCR= 100000.00
 31835.00     15.59    623.69      0.00      0.00    623.75       .07       .03       .01    618.70
    2670.      139.     2531.        0.      314.     1184.        0.        3.        1. 100000.00
      .01       .44      2.14      0.00      .050      .045      .045      .035    608.10     71.68
  .000366       85.       85.       85.         2         0         1      0.00    528.32    600.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.87      3.02      0.00     68.20      0.00    696.30      0.00    608.10    608.10

1490 NH CARD USED
PRESSURE AND WEIR FLOW

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

   624.11    623.75      0.00      253.     2399.      696.    621.20    623.30     30.00


3470 ENCROACHMENT STATIONS=     531.8     600.0  TYPE=     1  TARGET=      68.200
 ELENCL=     623.00  ELENCR= 100000.00

                BRIDGE SECTION B  ROMEO PLANK ROAD  UPSTREAM FACE                319

 31865.00     15.88    623.98      0.00      0.00    624.03       .05       .28      0.00    618.70
    2670.      235.     2435.        0.      452.     1341.        0.        4.        1. 100000.00
      .02       .52      1.82      0.00      .050      .045      .045      .034    608.10     70.24
  .000315       30.       30.       30.         2         0         3      0.00    529.76    600.00


1490 NH CARD USED

                VALLEY SECTION C                                                  320
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   2670.      23.    1120.    1527.      60.     615.    1445.      52.      13.    620.00
    .24      .39     1.82     1.06    .090     .044     .045    .037   610.20    115.48
 .000118     984.    1155.     984.       2        0        1    0.00   382.85    498.33


CCHV=    .100 CEHV=    .300
1490 NH CARD USED

                VALLEY SECTION D                                          321

 34140.00    13.47   624.37     0.00     0.00   624.45      .07      .20      .01    620.50
   2670.     646.    1677.     347.     771.     628.     303.     100.      22.    619.60
    .39      .84     2.67     1.14     .080     .049     .070    .036   610.90    178.86
 .000321    1020.    1120.    1090.        2        0        1    0.00   319.31    498.17


1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL      OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL     TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN     ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR   TOPWID     ENDST


                VALLEY SECTION E                                          322

 35670.00    11.41   625.01     0.00     0.00   625.13      .12      .67      .01    618.10
   2540.     455.    1540.     545.     360.     445.     511.     150.      33.    622.90
    .55      1.27     3.46     1.07     .070     .048     .070    .036   613.60     82.33
 .000699    1400.    1530.    1400.        2        0        1    0.00   372.07    454.41


1490 NH CARD USED

                VALLEY SECTION F                                          323

 36750.00     9.98   625.68     0.00     0.00   625.74      .06      .60      .01    622.70
   2540.    1510.     951.      69.    1077.     360.     112.     184.      42.    621.10
    .71      1.40     2.67      .62     .052     .046     .090    .036   615.70     77.63
 .000460    1080.    1080.     980.        2        0        1    0.00   424.71    502.34


CCHV=    .300 CEHV=    .700
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      320.0      578.0  TYPE=      1  TARGET=      258.000
 37080.00     9.68   625.88     0.00     0.00   626.15      .26      .27      .14    622.50
   2540.     945.    1460.     135.     441.     284.     110.     193.      45.    622.30
    .73      2.14     5.13     1.23     .060     .046     .075    .036   616.20    320.00
 .001777     330.     330.     330.        1        0        1    0.00   249.57    569.57


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      370.0      595.0  TYPE=      1  TARGET=     -370.000
 37180.00     9.71   626.06     0.00     0.00   626.39      .34      .20      .05    622.65
   2540.     815.    1582.     144.     289.     285.     112.     195.      45.    622.45
    .74      2.82     5.54     1.28     .050     .047     .080    .036   616.35    370.00
 .002171     100.     100.     100.        2        0        1    0.00   200.02    570.02


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      494.0      590.0  TYPE=      1  TARGET=       96.000
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37280.00      9.66    626.16      0.00      0.00    626.96       .80       .24       .32    622.20
   2540.      682.     1747.     111.      149.      214.       51.      196.       46.     623.60
     .74      4.58      8.15      2.18      .040      .038      .060      .036    616.50    494.00
 .002998       80.      100.      100.         2         0         1      0.00     96.00    590.00

1490 NH CARD USED
37349.00      9.37    626.77      0.00      0.00    627.21       .44       .14       .11    632.40
   2540.        0.     2540.        0.        0.      480.        0.      197.       46.     633.10
     .75      0.00      5.30      0.00      .040      .040      .060      .036    617.40    518.40
 .001405       89.       69.       59.         2         0         1      0.00     59.44    577.84

NORMAL BRIDGE,NRD=17 MIN ELTRD=  628.20 MAX ELLC=  628.70

37350.00      9.37    626.77      0.00      0.00    627.21       .44       .00       .00    632.40
   2540.        0.     2540.        0.        0.      480.        0.      197.       46.     633.10
     .75      0.00      5.29      0.00      .040      .040      .060      .036    617.40    518.40
 .001404        1.        1.        1.         0         0         1      0.00     59.44    577.84

NORMAL BRIDGE,NRD=17 MIN ELTRD=  628.20 MAX ELLC=  628.70

                BRIDGE SECTION H  HAYES ROAD  UPSTREAM FACE                    325

37390.00      9.44    626.84      0.00      0.00    627.27       .43       .06       .00    632.40
   2540.        0.     2540.        0.        0.      483.        0.      198.       46.     633.10
     .75      0.00      5.26      0.00      .040      .040      .060      .036    617.40    518.40
 .001373       40.       40.       40.         0         0         1      0.00     59.44    577.84

1490 NH CARD USED
   SECND     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH      AROB       VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH       XNR       WTN     ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC      ICONT     CORAR    TOPWID      ENDST

37391.00      9.44    626.84      0.00      0.00    627.27       .43       .00       .00    632.40
   2540.        0.     2540.        0.        0.      483.        0.      198.       46.     633.10
     .75      0.00      5.26      0.00      .040      .050      .060      .036    617.40    518.40
 .002144        1.        1.        1.         0         0         1      0.00     59.44    577.84

1490 NH CARD USED
37506.00      9.83    627.33      0.00      0.00    627.61       .28       .29       .05    622.30
   2540.     1155.     1242.     143.      522.      221.      113.      199.       46.     625.10
     .76      2.21      5.62      1.27      .080      .058      .090      .036    617.50     90.23
 .003090      115.      115.      115.         2         0         1      0.00    281.04    371.27

1490 NH CARD USED

                VALLEY SECTION I                                                  326

38530.00     11.08    629.48      0.00      0.00    629.59       .12      1.94       .05    623.20
   2540.     1308.      991.     241.      742.      254.      218.      224.       53.     626.00
     .87      1.76      3.90      1.10      .079      .059      .090      .036    618.40     86.32
 .001279     1024.     1024.     1024.         2         0         1      0.00    304.44    390.76
```

1490 NH CARD USED

VALLEY SECTION J 327

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39520.00 | 10.47 | 630.67 | 0.00 | 0.00 | 630.85 | .18 | 1.24 | .02 | 629.50 |
| 2540. | 219. | 1526. | 795. | 258. | 354. | 785. | 254. | 62. | 628.80 |
| .96 | .85 | 4.32 | 1.01 | .100 | .048 | .100 | .036 | 620.20 | 178.33 |
| .001188 | 1050. | 990. | 990. | 3 | 0 | 1 | 0.00 | 449.59 | 627.92 |

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION K 328

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 40660.00 | 10.41 | 632.11 | 0.00 | 0.00 | 632.30 | .19 | 1.44 | .00 | 629.90 |
| 2490. | 395. | 1145. | 950. | 335. | 234. | 551. | 286. | 73. | 626.10 |
| 1.07 | 1.18 | 4.89 | 1.72 | .080 | .046 | .071 | .036 | 621.70 | 59.19 |
| .001385 | 1180. | 1140. | 1080. | 2 | 0 | 1 | 0.00 | 408.94 | 469.44 |

1490 NH CARD USED

VALLEY SECTION L 329

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 42160.00 | 9.03 | 634.03 | 0.00 | 0.00 | 634.20 | .17 | 1.90 | .00 | 633.20 |
| 2490. | 500. | 1479. | 510. | 321. | 360. | 357. | 323. | 87. | 633.70 |
| 1.20 | 1.56 | 4.11 | 1.43 | .055 | .045 | .060 | .035 | 625.00 | 532.22 |
| .001194 | 1400. | 1500. | 1500. | 1 | 0 | 1 | 0.00 | 397.35 | 929.57 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

VALLEY SECTION M 330

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 43220.00 | 8.78 | 635.68 | 0.00 | 0.00 | 635.95 | .27 | 1.71 | .03 | 634.50 |
| 2490. | 284. | 1499. | 706. | 171. | 289. | 397. | 346. | 97. | 634.90 |
| 1.28 | 1.66 | 5.19 | 1.78 | .050 | .046 | .060 | .035 | 626.90 | 520.62 |
| .002307 | 1070. | 1060. | 1060. | 2 | 0 | 1 | 0.00 | 422.02 | 942.64 |

CCHV= .400 CEHV= .800
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 330.0 465.0 TYPE= 1 TARGET= 135.000

VALLEY SECTION N 331

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 43980.00 | 9.78 | 637.48 | 0.00 | 0.00 | 638.15 | .67 | 1.89 | .32 | 632.60 |
| 2490. | 332. | 1987. | 170. | 104. | 276. | 84. | 357. | 101. | 634.00 |
| 1.31 | 3.20 | 7.21 | 2.02 | .050 | .043 | .055 | .035 | 627.70 | 330.00 |
| .002688 | 720. | 760. | 780. | 2 | 0 | 1 | 0.00 | 118.35 | 448.35 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 44092.00 | 9.52 | 637.72 | 0.00 | 0.00 | 638.43 | .71 | .24 | .03 | 644.30 |

```
      1.32      0.00      6.75      0.00      .050      .032      .060      .035    628.20    400.14
  .001813      102.      112.      122.         2         0         1      0.00     49.37    449.51


NORMAL BRIDGE,NRD= 4 MIN ELTRD=  644.30 MAX ELLC=  639.30

 44093.00      9.52    637.72      0.00      0.00    638.43       .71       .00       .00    644.30
    2490.        0.      2490.       0.        0.      369.        0.      358.      101.    644.30
      1.32      0.00      6.75      0.00      .050      .032      .060      .035    628.20    400.14
  .001811        1.        1.        1.         0         0         1      0.00     49.38    449.51


NORMAL BRIDGE,NRD= 4 MIN ELTRD=  644.30 MAX ELLC=  639.30

                BRIDGE SECTION O  SCHOENHERR ROAD  UPSTREAM FACE              332

 44127.00      9.60    637.80      0.00      0.00    638.50       .69       .06       .01    644.30
    2490.        0.      2490.       0.        0.      373.        0.      359.      102.    644.80
      1.32      0.00      6.68      0.00      .050      .032      .060      .035    628.20    400.13
  .001762       34.       34.       34.         1         0         1      0.00     49.41    449.54

1490 NH CARD USED
 44128.00      9.60    637.80      0.00      0.00    638.50       .69       .00       .00    644.30
    2490.        0.      2490.       0.        0.      373.        0.      359.      102.    644.80
      1.32      0.00      6.68      0.00      .050      .035      .060      .035    628.20    400.13
  .001643        1.        1.        1.         1         0         1      0.00     49.41    449.54


1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      200.0      500.0  TYPE=      1  TARGET=     -200.000
 44250.00     10.46    638.68      0.00      0.00    638.85       .17       .14       .21    633.12
    2490.      1066.     1269.     155.      548.      299.      120.      361.      102.    634.52
      1.33      1.95      4.25      1.29      .050      .043      .055      .035    628.22    200.00
  .000861      122.      122.      122.         3         0         1      0.00    257.74    457.74


1490 NH CARD USED

                VALLEY SECTION P                                              333

 45230.00     11.21    639.61      0.00      0.00    639.81       .20       .93       .02    637.20
    2490.      595.     1460.     435.      499.      320.      325.      384.      108.    637.00
      1.41      1.19      4.57      1.34      .100      .044      .068      .035    628.40     47.99
  .001074      960.      980.      990.         2         0         1      0.00    318.46    366.45


CCHV=     .100 CEHV=     .300
1490 NH CARD USED

                VALLEY SECTION Q                                              334

 46590.00     10.05    641.15      0.00      0.00    641.48       .33      1.63       .04    644.80
    2490.        0.      2117.     373.        0.      428.      304.      413.      116.    640.20
      1.50      0.00      4.94      1.23      .100      .043      .080      .035    631.10    191.37
  .001349     1350.     1360.     1370.         2         0         1      0.00    188.08    379.45
```

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3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=        1.0      400.0  TYPE=      1  TARGET=      399.000

                VALLEY SECTION R                                                  335

 47640.00     11.31    643.01      0.00      0.00    643.56       .55      2.02       .07    639.40
    2490.      122.     1899.      469.      104.      281.      335.      431.      122.    643.50
     1.55      1.17      6.75      1.40      .100      .048      .100      .035    631.70     76.90
  .002960     1040.     1050.     1040.         3         0         1     0.00    262.66    343.53

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0      450.0  TYPE=      1  TARGET=      449.000

                VALLEY SECTION S                                                  336

 49000.00     11.73    646.03      0.00      0.00    646.25       .22      2.66       .03    643.60
    2490.      572.     1852.       66.      466.       430.       87.      457.      130.    646.10
     1.66      1.23      4.30      .76      .100      .054      .100      .034    634.30     32.98
  .001390     1330.     1360.     1390.         2         0         1      0.00    251.75    285.68

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=        1.0      450.0  TYPE=      1  TARGET=      449.000
 49425.00     11.16    646.66      0.00      0.00    646.96       .29       .68       .02    644.80
    2490.      488.     1956.       46.      384.       401.       59.      466.      132.    647.30
     1.69      1.27      4.87      .78      .100      .054      .100      .034    635.50     36.16
  .001882      430.      425.      415.         2         0         1      0.00    238.03    282.93

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        1.0     1400.0  TYPE=      1  TARGET=     1399.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      647.60 ELREA=      645.20

                VALLEY SECTION T                                                  337

 49850.00     10.78    647.48      0.00      0.00    647.90       .42       .91       .04    647.60
    1910.        0.     1746.      164.        0.       322.      133.      473.      134.    645.20
     1.71      0.00      5.43      1.23      .100      .052      .100      .034    636.70    968.20
  .002551      430.      425.      415.         2         0         1      0.00    108.33   1076.53

CCHV=     .400 CEHV=     .700
1490 NH CARD USED
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```
 50114.00    10.62   648.02     0.00     0.00   648.32      .30      .37      .05   651.40
    1910.       0.    1910.       0.       0.     432.       0.     475.     134.   651.70
     1.73     0.00     4.42     0.00     .100     .040     .100     .034   637.40  1200.00
  .000898     314.     264.     204.        2        0        1     0.00    49.50  1249.50


NORMAL BRIDGE,NRD= 6 MIN ELTRD=  651.40 MAX ELLC=  648.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      651.40 ELREA=      651.70

 50115.00    10.62   648.02     0.00     0.00   648.32      .30      .00      .00   651.40
    1910.       0.    1910.       0.       0.     432.       0.     475.     134.   651.70
     1.73     0.00     4.42     0.00     .100     .040     .100     .034   637.40  1200.00
  .000897       1.       1.       1.        0        0        1     0.00    49.50  1249.50


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


NORMAL BRIDGE,NRD= 6 MIN ELTRD=  651.40 MAX ELLC=  648.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      651.40 ELREA=      651.70


                BRIDGE SECTION U  JEWELL ROAD  UPSTREAM FACE                 338

 50149.00    10.65   648.05     0.00     0.00   648.35      .30      .03      .00   651.40
    1910.       0.    1910.       0.       0.     433.       0.     476.     134.   651.70
     1.73     0.00     4.41     0.00     .100     .040     .100     .034   637.40  1200.00
  .000888      34.      34.      34.        0        0        1     0.00    49.50  1249.50


1490 NH CARD USED

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      651.40 ELREA=      651.70

 50150.00    10.65   648.05     0.00     0.00   648.35      .30      .00      .00   651.40
    1910.       0.    1910.       0.       0.     434.       0.     476.     134.   651.70
     1.73     0.00     4.41     0.00     .100     .040     .100     .034   637.40  1200.00
  .000887       1.       1.       1.        0        0        1     0.00    49.50  1249.50


1490 NH CARD USED
 50190.00    10.70   648.10     0.00     0.00   648.42      .32      .05      .01   643.70
    1910.     221.    1206.     483.      94.     222.     208.     476.     134.   647.90
     1.73     2.35     5.43     2.32     .070     .047     .050     .034   637.40   356.06
  .001956      40.      40.      40.        1        0        1     0.00   151.32   507.38


1490 NH CARD USED

                VALLEY SECTION V                                             339

 50860.00    11.90   649.20     0.00     0.00   649.37      .17      .89      .06   643.60
    1910.     238.    1011.     661.     129.     247.     315.     485.     137.   647.80
     1.79     1.84     4.10     2.10     .070     .048     .050     .034   637.30   328.67
  .000984     670.     670.     642.        2        0        1     0.00   167.23   495.90
```

```
CCHV=    .100 CEHV=    .300
1490 NH CARD USED

                VALLEY SECTION W                                          340

 51950.00     9.42   650.72     0.00     0.00   650.96      .24     1.57      .02   649.90
    1800.     235.    1220.     345.     144.     263.     250.     501.     142.   649.40
     1.87     1.63     4.64     1.38     .070     .053     .080     .034   641.30   192.89
  .002633     960.    1090.    1000.        1        0        1     0.00   277.78   470.67


CCHV=    .400 CEHV=    .800
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     318.2     405.1  TYPE=     1  TARGET=     101.000

                VALLEY SECTION X                                          341

 53150.00    10.83   653.83     0.00     0.00   654.17      .34     3.13      .08   648.50
    1800.     228.    1382.     190.     125.     264.      96.     517.     147.   651.40
     1.95     1.82     5.23     1.98     .120     .056     .090     .034   643.00   318.20
  .002620    1200.    1200.    1150.        2        0        1     0.00    86.86   405.06


1490 NH CARD USED

3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST

 53204.00    10.94   654.14     0.00     0.00   654.43      .29      .24      .02   664.00
    1800.       0.    1800.       0.       0.     415.       0.     517.     147.   663.70
     1.95     0.00     4.34     0.00     .120     .102     .090     .034   643.20   439.95
 .009391       54.      54.      54.        2        0        1     0.00    62.04   507.15


3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

 53205.00    10.94   654.14     0.00     0.00   654.43      .29      .00      .00   664.00
    1800.       0.    1800.       0.       0.     415.       0.     517.     147.   663.70
     1.95     0.00     4.33     0.00     .120     .030     .090     .034   643.20   439.94
  .001146       1.       1.       1.        0        0        1     0.00    62.06   507.16


3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  663.70 MAX ELLC=  659.60

            BRIDGE SECTION Y  NORTH BOUND M-53  UPSTREAM FACE              342

 53255.00    11.01   654.21     0.00     0.00   654.49      .29      .06      .00   664.00
    1800.       0.    1800.       0.       0.     419.       0.     518.     147.   663.70
     1.95     0.00     4.29     0.00     .120     .030     .090     .034   643.20   439.84
```

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 53256.00 | 11.01 | 654.21 | 0.00 | 0.00 | 654.49 | .29 | .00 | .00 | 664.00 |
| 1800. | 0. | 1800. | 0. | 0. | 419. | 0. | 518. | 147. | 663.70 |
| 1.95 | 0.00 | 4.29 | 0.00 | .120 | .030 | .090 | .034 | 643.20 | 439.83 |
| .001113 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 62.29 | 507.29 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 53294.00 | 11.06 | 654.26 | 0.00 | 0.00 | 654.54 | .28 | .04 | .00 | 664.00 |
| 1800. | 0. | 1800. | 0. | 0. | 422. | 0. | 518. | 147. | 663.70 |
| 1.96 | 0.00 | 4.27 | 0.00 | .120 | .030 | .090 | .034 | 643.20 | 439.76 |
| .001100 | 38. | 38. | 38. | 0 | 0 | 1 | 0.00 | 62.45 | 507.37 |

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 663.70 MAX ELLC= 659.60

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 53295.00 | 11.06 | 654.26 | 0.00 | 0.00 | 654.54 | .28 | .00 | .00 | 664.00 |
| 1800. | 0. | 1800. | 0. | 0. | 422. | 0. | 518. | 147. | 663.70 |
| 1.96 | 0.00 | 4.27 | 0.00 | .120 | .030 | .090 | .034 | 643.20 | 439.76 |
| .001100 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 62.46 | 507.38 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | FLMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 663.70 MAX ELLC= 659.60

BRIDGE SECTION Z SOUTH BOUND M-53 UPSTREAM FACE 343

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 53345.00 | 11.12 | 654.32 | 0.00 | 0.00 | 654.60 | .28 | .05 | .00 | 664.00 |
| 1800. | 0. | 1800. | 0. | 0. | 426. | 0. | 519. | 147. | 663.70 |
| 1.96 | 0.00 | 4.23 | 0.00 | .120 | .030 | .090 | .034 | 643.20 | 439.65 |
| .001075 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 62.68 | 507.50 |

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 53346.00 | 11.12 | 654.32 | 0.00 | 0.00 | 654.60 | .28 | .00 | .00 | 664.00 |
| 1800. | 0. | 1800. | 0. | 0. | 426. | 0. | 519. | 147. | 663.70 |
| 1.96 | 0.00 | 4.23 | 0.00 | .120 | .030 | .090 | .034 | 643.20 | 439.65 |
| .001074 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 62.69 | 507.50 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MIDDLE BRANCH OF THE CLI

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 1590.00 | 619.40 | .17 | 0.00 | 0.00 | 1578.95 | 12.50 | 93.33 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 2340.00 | 622.60 | .14 | 0.00 | 0.00 | 2116.62 | 15.70 | 106.00 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 2670.00 | 623.60 | .11 | 0.00 | 0.00 | 2164.92 | 16.70 | 545.09 |
| 31750.00 | 0.00 | 0.00 | 0.00 | 606.90 | 3680.00 | 626.20 | .04 | 0.00 | 0.00 | 1945.96 | 19.30 | 556.91 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 1590.00 | 619.52 | .11 | .05 | .02 | 1590.00 | 11.42 | 65.80 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 2340.00 | 622.64 | .13 | .04 | .00 | 2340.00 | 14.54 | 68.20 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 2670.00 | 623.69 | .07 | .03 | .01 | 2531.22 | 15.59 | 528.32 |
| 31835.00 | 85.00 | 0.00 | 0.00 | 608.10 | 3680.00 | 626.26 | .01 | .01 | .01 | 2366.08 | 18.16 | 540.75 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 1590.00 | 619.54 | .11 | .01 | .00 | 1590.00 | 11.44 | 65.80 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 2340.00 | 622.84 | .13 | .19 | 0.00 | 2340.00 | 14.74 | 68.20 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 2670.00 | 623.98 | .05 | .28 | 0.00 | 2434.91 | 15.88 | 529.76 |
| 31865.00 | 30.00 | 623.30 | 621.20 | 608.10 | 3680.00 | 626.38 | .01 | .13 | 0.00 | 2320.66 | 18.28 | 541.39 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 1590.00 | 620.10 | .13 | .57 | .01 | 1251.56 | 9.90 | 294.29 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 2340.00 | 623.22 | .04 | .25 | .03 | 1102.47 | 13.02 | 363.14 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 2670.00 | 624.20 | .03 | .20 | .00 | 1119.89 | 14.00 | 382.85 |
| 33020.00 | 1155.00 | 0.00 | 0.00 | 610.20 | 3680.00 | 626.50 | .03 | .12 | .01 | 1234.41 | 16.30 | 403.67 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 1590.00 | 620.80 | .17 | .72 | .01 | 1446.18 | 9.90 | 279.73 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 2340.00 | 623.43 | .09 | .25 | .01 | 1604.26 | 12.53 | 308.93 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 2670.00 | 624.37 | .07 | .20 | .01 | 1676.85 | 13.47 | 319.31 |
| 34140.00 | 1120.00 | 0.00 | 0.00 | 610.90 | 3680.00 | 626.61 | .06 | .14 | .01 | 1946.92 | 15.71 | 344.22 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 1340.00 | 622.22 | .23 | 1.47 | .02 | 1223.39 | 8.62 | 171.90 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 2150.00 | 624.20 | .15 | .81 | .02 | 1489.04 | 10.60 | 360.14 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 2540.00 | 625.01 | .12 | .67 | .01 | 1540.30 | 11.41 | 372.07 |
| 35670.00 | 1530.00 | 0.00 | 0.00 | 613.60 | 3570.00 | 627.06 | .08 | .46 | .00 | 1647.61 | 13.46 | 396.78 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 1340.00 | 623.57 | .12 | 1.22 | .01 | 869.32 | 7.87 | 346.12 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 2150.00 | 625.04 | .07 | .75 | .01 | 938.44 | 9.34 | 408.69 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 2540.00 | 625.68 | .06 | .60 | .01 | 961.14 | 9.98 | 424.71 |
| 36750.00 | 1080.00 | 0.00 | 0.00 | 615.70 | 3570.00 | 627.45 | .04 | .35 | .00 | 1001.77 | 11.75 | 459.50 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 1340.00 | 623.98 | .36 | .49 | .17 | 1119.10 | 7.78 | 216.97 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 2150.00 | 625.29 | .29 | .32 | .16 | 1371.05 | 9.09 | 239.39 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 2540.00 | 625.88 | .26 | .27 | .14 | 1459.89 | 9.68 | 249.57 |
| 37080.00 | 330.00 | 0.00 | 0.00 | 616.20 | 3570.00 | 627.56 | .19 | .16 | .10 | 1608.54 | 11.36 | 255.13 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 1340.00 | 624.23 | .38 | .25 | .01 | 1147.04 | 7.88 | 168.64 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 2150.00 | 625.49 | .35 | .22 | .04 | 1465.27 | 9.14 | 190.36 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 2540.00 | 626.06 | .34 | .20 | .05 | 1581.78 | 9.71 | 200.02 |
| 37180.00 | 100.00 | 0.00 | 0.00 | 616.35 | 3570.00 | 627.67 | .27 | .13 | .06 | 1783.69 | 11.32 | 205.01 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 1340.00 | 624.41 | .63 | .26 | .18 | 1142.55 | 7.91 | 90.57 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 2150.00 | 625.62 | .77 | .25 | .29 | 1572.64 | 9.12 | 96.00 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 2540.00 | 626.16 | .80 | .24 | .32 | 1747.27 | 9.66 | 96.00 |
| 37280.00 | 100.00 | 0.00 | 0.00 | 616.50 | 3570.00 | 627.70 | .80 | .18 | .37 | 2124.25 | 11.20 | 96.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 1340.00 | 625.08 | .19 | .10 | .13 | 1340.00 | 7.68 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 2150.00 | 626.28 | .35 | .13 | .12 | 2150.00 | 8.88 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 2540.00 | 626.77 | .44 | .14 | .11 | 2540.00 | 9.37 | 59.44 |
| 37349.00 | 69.00 | 0.00 | 0.00 | 617.40 | 3570.00 | 628.05 | .64 | .15 | .05 | 3570.00 | 10.65 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 1340.00 | 625.08 | .19 | .00 | .00 | 1340.00 | 7.68 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 2150.00 | 626.29 | .35 | .00 | .00 | 2150.00 | 8.89 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 2540.00 | 626.77 | .44 | .00 | .00 | 2540.00 | 9.37 | 59.44 |
| 37350.00 | 1.00 | 628.20 | 628.70 | 617.40 | 3570.00 | 628.05 | .64 | .00 | .00 | 3570.00 | 10.65 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 1340.00 | 625.11 | .19 | .03 | .00 | 1340.00 | 7.71 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 2150.00 | 626.34 | .35 | .05 | .00 | 2150.00 | 8.94 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 2540.00 | 626.84 | .43 | .06 | .00 | 2540.00 | 9.44 | 59.44 |
| 37390.00 | 40.00 | 628.20 | 628.70 | 617.40 | 3570.00 | 628.14 | .63 | .07 | .00 | 3570.00 | 10.74 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 1340.00 | 625.12 | .19 | .00 | .00 | 1340.00 | 7.72 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 2150.00 | 626.34 | .35 | .00 | .00 | 2150.00 | 8.94 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 2540.00 | 626.84 | .43 | .00 | .00 | 2540.00 | 9.44 | 59.44 |
| 37391.00 | 1.00 | 0.00 | 0.00 | 617.40 | 3570.00 | 628.14 | .63 | .00 | .00 | 3570.00 | 10.74 | 59.44 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 1340.00 | 625.29 | .50 | .26 | .22 | 1052.29 | 7.79 | 193.16 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 2150.00 | 626.64 | .36 | .30 | .00 | 1226.40 | 9.14 | 267.77 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 2540.00 | 627.33 | .28 | .29 | .05 | 1241.82 | 9.83 | 281.04 |
| 37506.00 | 115.00 | 0.00 | 0.00 | 617.50 | 3570.00 | 628.98 | .19 | .26 | .13 | 1307.06 | 11.48 | 312.29 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 1340.00 | 627.94 | .10 | 2.13 | .12 | 699.23 | 9.54 | 275.23 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 2150.00 | 629.04 | .11 | 2.08 | .07 | 903.69 | 10.64 | 296.09 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 2540.00 | 629.48 | .12 | 1.94 | .05 | 991.37 | 11.08 | 304.44 |
| 38530.00 | 1024.00 | 0.00 | 0.00 | 618.40 | 3570.00 | 630.64 | .13 | 1.58 | .02 | 1177.27 | 12.24 | 326.59 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 1340.00 | 629.03 | .20 | 1.16 | .03 | 1116.52 | 8.83 | 409.78 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 2150.00 | 630.21 | .19 | 1.22 | .02 | 1408.46 | 10.01 | 444.82 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 2540.00 | 630.67 | .18 | 1.24 | .02 | 1525.75 | 10.47 | 449.59 |
| 39520.00 | 990.00 | 0.00 | 0.00 | 620.20 | 3570.00 | 631.80 | .16 | 1.19 | .01 | 1788.07 | 11.60 | 463.41 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 1310.00 | 630.54 | .23 | 1.53 | .01 | 887.41 | 8.84 | 322.89 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 2110.00 | 631.67 | .20 | 1.47 | .01 | 1077.16 | 9.97 | 385.16 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 2490.00 | 632.11 | .19 | 1.44 | .00 | 1145.09 | 10.41 | 408.94 |
| 40660.00 | 1140.00 | 0.00 | 0.00 | 621.70 | 3500.00 | 633.11 | .17 | 1.31 | .00 | 1281.27 | 11.41 | 450.04 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 1310.00 | 632.62 | .19 | 2.04 | .00 | 1085.81 | 7.62 | 324.73 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 2110.00 | 633.66 | .17 | 1.95 | .00 | 1366.99 | 8.66 | 384.04 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 2490.00 | 634.03 | .17 | 1.90 | .00 | 1479.43 | 9.03 | 397.35 |
| 42160.00 | 1500.00 | 0.00 | 0.00 | 625.00 | 3500.00 | 634.88 | .17 | 1.77 | .00 | 1745.51 | 9.88 | 425.34 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 1310.00 | 634.36 | .39 | 1.88 | .06 | 1171.75 | 7.46 | 295.38 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 2110.00 | 635.33 | .30 | 1.76 | .04 | 1414.04 | 8.43 | 405.66 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 2490.00 | 635.68 | .27 | 1.71 | .03 | 1499.18 | 8.78 | 422.02 |
| 43220.00 | 1060.00 | 0.00 | 0.00 | 626.90 | 3500.00 | 636.45 | .24 | 1.62 | .02 | 1699.10 | 9.55 | 458.81 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 1310.00 | 636.01 | .39 | 1.65 | .00 | 1188.60 | 8.31 | 97.94 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 2110.00 | 637.10 | .58 | 1.83 | .23 | 1742.14 | 9.40 | 113.08 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 2490.00 | 637.48 | .67 | 1.89 | .32 | 1987.18 | 9.78 | 118.35 |
| 43980.00 | 760.00 | 0.00 | 0.00 | 627.70 | 3500.00 | 638.31 | .90 | 1.99 | .53 | 2596.67 | 10.61 | 129.83 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 1310.00 | 636.29 | .30 | .14 | .04 | 1310.00 | 8.09 | 48.68 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 2110.00 | 637.34 | .56 | .21 | .01 | 2110.00 | 9.14 | 49.19 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 2490.00 | 637.72 | .71 | .24 | .03 | 2490.00 | 9.52 | 49.37 |
| 44092.00 | 112.00 | 0.00 | 0.00 | 628.20 | 3500.00 | 638.59 | 1.12 | .33 | .18 | 3500.00 | 10.39 | 49.78 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 1310.00 | 636.29 | .30 | .00 | .00 | 1310.00 | 8.09 | 48.68 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 2110.00 | 637.34 | .56 | .00 | .00 | 2110.00 | 9.14 | 49.19 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 2490.00 | 637.72 | .71 | .00 | .00 | 2490.00 | 9.52 | 49.38 |
| 44093.00 | 1.00 | 644.30 | 639.30 | 628.20 | 3500.00 | 638.60 | 1.12 | .00 | .00 | 3500.00 | 10.40 | 49.78 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 1310.00 | 636.32 | .30 | .03 | .00 | 1310.00 | 8.12 | 48.69 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 2110.00 | 637.40 | .55 | .05 | .00 | 2110.00 | 9.20 | 49.22 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 2490.00 | 637.80 | .69 | .06 | .01 | 2490.00 | 9.60 | 49.41 |
| 44127.00 | 34.00 | 644.30 | 639.30 | 628.20 | 3500.00 | 638.74 | 1.09 | .10 | .01 | 3500.00 | 10.54 | 49.83 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 1310.00 | 636.33 | .30 | .00 | .00 | 1310.00 | 8.13 | 48.69 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 2110.00 | 637.40 | .55 | .00 | .00 | 2110.00 | 9.20 | 49.22 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 2490.00 | 637.80 | .69 | .00 | .00 | 2490.00 | 9.60 | 49.41 |
| 44128.00 | 1.00 | 0.00 | 0.00 | 628.20 | 3500.00 | 638.76 | 1.08 | .00 | .00 | 3500.00 | 10.56 | 49.83 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 1310.00 | 636.48 | .28 | .13 | .01 | 1050.92 | 8.26 | 227.27 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 2110.00 | 638.06 | .19 | .14 | .15 | 1202.13 | 9.84 | 249.16 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 2490.00 | 638.68 | .17 | .14 | .21 | 1269.26 | 10.46 | 257.74 |
| 44250.00 | 122.00 | 0.00 | 0.00 | 628.22 | 3500.00 | 640.20 | .15 | .14 | .37 | 1427.32 | 11.98 | 278.89 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 1310.00 | 637.77 | .21 | 1.18 | .03 | 1028.69 | 9.37 | 286.52 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 2110.00 | 639.06 | .21 | 1.00 | .02 | 1344.81 | 10.66 | 310.18 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 2490.00 | 639.61 | .20 | .93 | .02 | 1460.19 | 11.21 | 318.46 |
| 45230.00 | 980.00 | 0.00 | 0.00 | 628.40 | 3500.00 | 640.96 | .18 | .77 | .03 | 1706.85 | 12.56 | 332.14 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 1310.00 | 639.22 | .23 | 1.47 | .01 | 1238.65 | 8.12 | 134.95 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 2110.00 | 640.61 | .30 | 1.62 | .03 | 1853.72 | 9.51 | 177.28 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 2490.00 | 641.15 | .33 | 1.63 | .04 | 2117.27 | 10.05 | 188.08 |
| 46590.00 | 1360.00 | 0.00 | 0.00 | 631.10 | 3500.00 | 642.40 | .37 | 1.57 | .06 | 2763.46 | 11.30 | 219.11 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 1310.00 | 640.79 | .65 | 1.87 | .13 | 1306.86 | 9.09 | 44.03 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 2110.00 | 642.42 | .92 | 2.24 | .18 | 2031.20 | 10.72 | 94.74 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 2490.00 | 643.01 | .55 | 2.02 | .07 | 1899.26 | 11.31 | 262.66 |
| 47640.00 | 1050.00 | 0.00 | 0.00 | 631.70 | 3500.00 | 644.32 | .47 | 1.99 | .03 | 2247.91 | 12.62 | 301.84 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 1310.00 | 643.93 | .19 | 2.64 | .05 | 1200.95 | 9.63 | 182.17 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 2110.00 | 645.89 | .18 | 2.65 | .07 | 1630.78 | 11.59 | 196.81 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 2490.00 | 646.03 | .22 | 2.66 | .03 | 1852.17 | 11.73 | 251.75 |
| 49000.00 | 1360.00 | 0.00 | 0.00 | 634.30 | 3500.00 | 647.22 | .25 | 2.66 | .02 | 2337.74 | 12.92 | 265.20 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 1310.00 | 644.52 | .27 | .64 | .02 | 1262.67 | 9.02 | 171.92 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 2110.00 | 646.41 | .25 | .57 | .02 | 1725.89 | 10.91 | 191.73 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 2490.00 | 646.66 | .29 | .68 | .02 | 1956.10 | 11.16 | 238.03 |
| 49425.00 | 425.00 | 0.00 | 0.00 | 635.50 | 3500.00 | 647.90 | .31 | .72 | .02 | 2446.11 | 12.40 | 259.73 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1030.00 | 645.32 | .32 | .83 | .01 | 1030.00 | 8.62 | 41.72 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1660.00 | 647.10 | .45 | .84 | .06 | 1652.74 | 10.40 | 54.61 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 1910.00 | 647.48 | .42 | .91 | .04 | 1746.08 | 10.78 | 108.33 |
| 49850.00 | 425.00 | 0.00 | 0.00 | 636.10 | 2760.00 | 648.72 | .12 | .62 | .02 | 1397.59 | 12.62 | 281.53 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.82 | .16 | .28 | .06 | 1030.00 | 8.42 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.73 | .25 | .34 | .08 | 1660.00 | 10.33 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.02 | .30 | .37 | .05 | 1910.00 | 10.62 | 49.50 |
| 50114.00 | 264.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 648.93 | .52 | .33 | .28 | 2760.00 | 11.53 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1030.00 | 645.82 | .16 | .00 | .00 | 1030.00 | 8.42 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1660.00 | 647.73 | .24 | .00 | .00 | 1660.00 | 10.33 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 1910.00 | 648.02 | .30 | .00 | .00 | 1910.00 | 10.62 | 49.50 |
| 50115.00 | 1.00 | 651.40 | 648.50 | 637.40 | 2760.00 | 648.91 | .59 | .00 | .05 | 2760.00 | 11.51 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1030.00 | 645.84 | .16 | .02 | .00 | 1030.00 | 8.44 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1660.00 | 647.76 | .24 | .03 | .00 | 1660.00 | 10.36 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 1910.00 | 648.05 | .30 | .03 | .00 | 1910.00 | 10.65 | 49.50 |
| 50149.00 | 34.00 | 651.40 | 648.50 | 637.40 | 2760.00 | 649.05 | .59 | .13 | .00 | 2760.00 | 11.65 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.84 | .16 | .00 | .00 | 1030.00 | 8.44 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.76 | .24 | .00 | .00 | 1660.00 | 10.36 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.05 | .30 | .00 | .00 | 1910.00 | 10.65 | 49.50 |
| 50150.00 | 1.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 649.18 | .49 | .00 | .04 | 2760.00 | 11.78 | 49.50 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1030.00 | 645.79 | .48 | .05 | .23 | 925.53 | 8.39 | 109.66 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1660.00 | 647.79 | .30 | .04 | .04 | 1098.68 | 10.39 | 146.92 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 1910.00 | 648.10 | .32 | .05 | .01 | 1205.75 | 10.70 | 151.32 |
| 50190.00 | 40.00 | 0.00 | 0.00 | 637.40 | 2760.00 | 649.53 | .29 | .06 | .08 | 1418.33 | 12.13 | 185.20 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1030.00 | 647.30 | .16 | 1.06 | .13 | 725.50 | 10.00 | 134.23 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1660.00 | 648.82 | .16 | .84 | .06 | 925.43 | 11.52 | 155.35 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 1910.00 | 649.20 | .17 | .89 | .06 | 1010.95 | 11.90 | 167.23 |
| 50860.00 | 670.00 | 0.00 | 0.00 | 637.30 | 2760.00 | 650.51 | .18 | .83 | .04 | 1233.79 | 13.21 | 226.50 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 980.00 | 649.00 | .46 | 1.91 | .09 | 980.00 | 7.70 | 44.66 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 1570.00 | 650.32 | .27 | 1.58 | .03 | 1162.81 | 9.02 | 274.37 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 1800.00 | 650.72 | .24 | 1.57 | .02 | 1220.10 | 9.42 | 277.78 |
| 51950.00 | 1090.00 | 0.00 | 0.00 | 641.30 | 2610.00 | 651.91 | .18 | 1.40 | .00 | 1407.36 | 10.61 | 295.38 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 980.00 | 652.36 | .19 | 2.99 | .11 | 817.43 | 9.36 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 1570.00 | 653.45 | .30 | 3.14 | .03 | 1228.83 | 10.45 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 1800.00 | 653.83 | .34 | 3.13 | .08 | 1382.18 | 10.83 | 86.86 |
| 53150.00 | 1200.00 | 0.00 | 0.00 | 643.00 | 2610.00 | 654.91 | .48 | 3.06 | .24 | 1908.73 | 11.91 | 86.86 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.58 | .14 | .15 | .02 | 980.00 | 9.38 | 56.20 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.74 | .25 | .22 | .02 | 1570.00 | 10.54 | 60.56 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.14 | .29 | .24 | .02 | 1800.00 | 10.94 | 62.04 |
| 53204.00 | 54.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.28 | .44 | .32 | .02 | 2610.00 | 12.08 | 66.30 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 930.00 | 652.58 | .14 | .00 | .00 | 980.00 | 9.38 | 56.21 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.75 | .25 | .00 | .00 | 1570.00 | 10.55 | 60.58 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.14 | .29 | .00 | .00 | 1800.00 | 10.94 | 62.06 |
| 53205.00 | 1.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.28 | .44 | .00 | .00 | 2610.00 | 12.08 | 66.33 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.62 | .14 | .03 | .00 | 980.00 | 9.42 | 56.34 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.80 | .25 | .05 | .00 | 1570.00 | 10.60 | 60.78 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.21 | .29 | .06 | .00 | 1800.00 | 11.01 | 62.29 |
| 53255.00 | 50.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.37 | .43 | .08 | .00 | 2610.00 | 12.17 | 66.67 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.62 | .14 | .00 | .00 | 980.00 | 9.42 | 56.34 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.80 | .25 | .00 | .00 | 1570.00 | 10.60 | 60.78 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.21 | .29 | .00 | .00 | 1800.00 | 11.01 | 62.29 |
| 53256.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.38 | .43 | .00 | .00 | 2610.00 | 12.18 | 66.67 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.65 | .14 | .02 | .00 | 980.00 | 9.45 | 56.43 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.85 | .24 | .04 | .00 | 1570.00 | 10.65 | 60.93 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.26 | .28 | .04 | .00 | 1800.00 | 11.06 | 62.45 |
| 53294.00 | 38.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.44 | .43 | .06 | .00 | 2610.00 | 12.24 | 66.89 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.65 | .14 | .00 | .00 | 980.00 | 9.45 | 56.43 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.85 | .24 | .00 | .00 | 1570.00 | 10.65 | 60.93 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.26 | .28 | .00 | .00 | 1800.00 | 11.06 | 62.46 |
| 53295.00 | 1.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.44 | .43 | .00 | .00 | 2610.00 | 12.24 | 66.90 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 980.00 | 652.68 | .14 | .03 | .00 | 980.00 | 9.48 | 56.55 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1570.00 | 653.90 | .24 | .05 | .00 | 1570.00 | 10.70 | 61.11 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 1800.00 | 654.32 | .28 | .05 | .00 | 1800.00 | 11.12 | 62.68 |
| 53345.00 | 50.00 | 663.70 | 659.60 | 643.20 | 2610.00 | 655.53 | .41 | .07 | .00 | 2610.00 | 12.33 | 67.26 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 980.00 | 652.68 | .14 | .00 | .00 | 980.00 | 9.48 | 56.55 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1570.00 | 653.90 | .24 | .00 | .00 | 1570.00 | 10.70 | 61.12 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 1800.00 | 654.32 | .28 | .00 | .00 | 1800.00 | 11.12 | 62.69 |
| 53346.00 | 1.00 | 0.00 | 0.00 | 643.20 | 2610.00 | 655.54 | .41 | .00 | .00 | 2610.00 | 12.34 | 67.27 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 31750.000 | 1590.000 | 619.400 | 0.000 | 0.000 | 0.000 | 93.333 | 0.000 | 0.000 |
| 31750.000 | 2340.000 | 622.600 | 3.200 | 0.000 | 0.000 | 106.000 | -12.667 | 0.000 |
| 31750.000 | 2670.000 | 623.600 | 1.000 | 0.000 | 0.000 | 545.090 | -451.757 | 0.000 |
| 31750.000 | 3680.000 | 626.200 | 2.600 | 0.000 | 0.000 | 556.908 | -463.575 | 0.000 |
| 31835.000 | 1590.000 | 619.522 | 0.000 | .122 | 0.000 | 65.799 | 0.000 | 85.000 |
| 31835.000 | 2340.000 | 622.644 | 3.122 | .044 | 0.000 | 68.200 | -2.401 | 85.000 |
| 31835.000 | 2670.000 | 623.686 | 1.042 | .086 | 0.000 | 528.317 | -462.518 | 85.000 |
| 31835.000 | 3680.000 | 626.255 | 2.570 | .055 | 0.000 | 540.751 | -474.952 | 85.000 |
| 31865.000 | 1590.000 | 619.536 | 0.000 | .014 | 0.000 | 65.799 | 0.000 | 30.000 |
| 31865.000 | 2340.000 | 622.843 | 3.307 | .199 | 0.000 | 68.200 | -2.401 | 30.000 |
| 31865.000 | 2670.000 | 623.983 | 1.141 | .298 | 0.000 | 529.757 | -463.958 | 30.000 |
| 31865.000 | 3680.000 | 626.382 | 2.399 | .127 | 0.000 | 541.394 | -475.595 | 30.000 |
| 33020.000 | 1590.000 | 620.098 | 0.000 | .563 | 0.000 | 294.289 | 0.000 | 1155.000 |
| 33020.000 | 2340.000 | 623.216 | 3.117 | .373 | 0.000 | 363.138 | -68.849 | 1155.000 |
| 33020.000 | 2670.000 | 624.203 | .988 | .220 | 0.000 | 382.855 | -88.566 | 1155.000 |
| 33020.000 | 3680.000 | 626.496 | 2.292 | .114 | 0.000 | 403.666 | -109.377 | 1155.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 34140.000 | 1590.000 | 620.799 | 0.000 | .701 | 0.000 | 279.730 | 0.000 | 1120.000 |
| 34140.000 | 2340.000 | 623.433 | 2.634 | .217 | 0.000 | 308.935 | -29.204 | 1120.000 |
| 34140.000 | 2670.000 | 624.374 | .942 | .171 | 0.000 | 319.308 | -39.578 | 1120.000 |
| 34140.000 | 3680.000 | 626.614 | 2.239 | .118 | 0.000 | 344.218 | -64.488 | 1120.000 |
| 35670.000 | 1340.000 | 622.224 | 0.000 | 1.425 | 0.000 | 171.900 | 0.000 | 1530.000 |
| 35670.000 | 2150.000 | 624.202 | 1.978 | .769 | 0.000 | 360.136 | -188.236 | 1530.000 |
| 35670.000 | 2540.000 | 625.010 | .809 | .636 | 0.000 | 372.072 | -200.172 | 1530.000 |
| 35670.000 | 3570.000 | 627.063 | 2.052 | .449 | 0.000 | 396.785 | -224.885 | 1530.000 |
| 36750.000 | 1340.000 | 623.566 | 0.000 | 1.342 | 0.000 | 346.120 | 0.000 | 1080.000 |
| 36750.000 | 2150.000 | 625.038 | 1.472 | .836 | 0.000 | 408.687 | -62.567 | 1080.000 |
| 36750.000 | 2540.000 | 625.677 | .639 | .666 | 0.000 | 424.713 | -78.593 | 1080.000 |
| 36750.000 | 3570.000 | 627.449 | 1.773 | .387 | 0.000 | 459.500 | -113.380 | 1080.000 |
| 37080.000 | 1340.000 | 623.982 | 0.000 | .416 | 0.000 | 216.969 | 0.000 | 330.000 |
| 37080.000 | 2150.000 | 625.293 | 1.310 | .254 | 0.000 | 239.386 | -22.417 | 330.000 |
| 37080.000 | 2540.000 | 625.883 | .590 | .206 | 0.000 | 249.574 | -32.605 | 330.000 |
| 37080.000 | 3570.000 | 627.564 | 1.682 | .115 | 0.000 | 255.133 | -38.164 | 330.000 |
| 37180.000 | 1340.000 | 624.229 | 0.000 | .247 | 0.000 | 168.643 | 0.000 | 100.000 |
| 37180.000 | 2150.000 | 625.490 | 1.261 | .198 | 0.000 | 190.364 | -21.721 | 100.000 |
| 37180.000 | 2540.000 | 626.056 | .566 | .174 | 0.000 | 200.019 | -31.377 | 100.000 |
| 37180.000 | 3570.000 | 627.673 | 1.617 | .109 | 0.000 | 205.009 | -36.367 | 100.000 |
| 37280.000 | 1340.000 | 624.409 | 0.000 | .180 | 0.000 | 90.565 | 0.000 | 100.000 |
| 37280.000 | 2150.000 | 625.618 | 1.209 | .127 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37280.000 | 2540.000 | 626.156 | .538 | .100 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37280.000 | 3570.000 | 627.696 | 1.540 | .023 | 0.000 | 95.999 | -5.434 | 100.000 |
| 37349.000 | 1340.000 | 625.078 | 0.000 | .669 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 2150.000 | 626.285 | 1.207 | .667 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 2540.000 | 626.772 | .487 | .616 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37349.000 | 3570.000 | 628.053 | 1.281 | .357 | 0.000 | 59.443 | 0.000 | 69.000 |
| 37350.000 | 1340.000 | 625.079 | 0.000 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 2150.000 | 626.286 | 1.208 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 2540.000 | 626.774 | .487 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37350.000 | 3570.000 | 628.055 | 1.281 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37390.000 | 1340.000 | 625.114 | 0.000 | .036 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 2150.000 | 626.341 | 1.227 | .055 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 2540.000 | 626.837 | .496 | .063 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37390.000 | 3570.000 | 628.138 | 1.301 | .083 | 0.000 | 59.443 | 0.000 | 40.000 |
| 37391.000 | 1340.000 | 625.115 | 0.000 | .001 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 2150.000 | 626.343 | 1.227 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 2540.000 | 626.839 | .496 | .002 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37391.000 | 3570.000 | 628.143 | 1.304 | .005 | 0.000 | 59.443 | 0.000 | 1.000 |
| 37506.000 | 1340.000 | 625.287 | 0.000 | .171 | 0.000 | 193.157 | 0.000 | 115.000 |
| 37506.000 | 2150.000 | 626.643 | 1.357 | .301 | 0.000 | 267.774 | -74.617 | 115.000 |
| 37506.000 | 2540.000 | 627.331 | .688 | .492 | 0.000 | 281.044 | -87.887 | 115.000 |
| 37506.000 | 3570.000 | 628.980 | 1.648 | .837 | 0.000 | 312.287 | -119.130 | 115.000 |
| 38530.000 | 1340.000 | 627.943 | 0.000 | 2.656 | 0.000 | 275.228 | 0.000 | 1024.000 |
| 38530.000 | 2150.000 | 629.038 | 1.096 | 2.395 | 0.000 | 296.089 | -20.861 | 1024.000 |
| 38530.000 | 2540.000 | 629.475 | .437 | 2.144 | 0.000 | 304.445 | -29.217 | 1024.000 |
| 38530.000 | 3570.000 | 630.637 | 1.162 | 1.658 | 0.000 | 326.586 | -51.358 | 1024.000 |
| 39520.000 | 1340.000 | 629.026 | 0.000 | 1.083 | 0.000 | 409.776 | 0.000 | 990.000 |
| 39520.000 | 2150.000 | 630.211 | 1.185 | 1.173 | 0.000 | 444.821 | -35.046 | 990.000 |
| 39520.000 | 2540.000 | 630.675 | .464 | 1.200 | 0.000 | 449.588 | -39.812 | 990.000 |
| 39520.000 | 3570.000 | 631.803 | 1.129 | 1.166 | 0.000 | 463.409 | -53.633 | 990.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 40660.000 | 2110.000 | 631.672 | 1.135 | 1.461 | 0.000 | 385.157 | -62.270 | 1140.000 |
| 40660.000 | 2490.000 | 632.106 | .433 | 1.431 | 0.000 | 408.943 | -86.057 | 1140.000 |
| 40660.000 | 3500.000 | 633.114 | 1.009 | 1.311 | 0.000 | 450.040 | -127.154 | 1140.000 |
| 42160.000 | 1310.000 | 632.625 | 0.000 | 2.088 | 0.000 | 324.732 | 0.000 | 1500.000 |
| 42160.000 | 2110.000 | 633.655 | 1.030 | 1.983 | 0.000 | 384.039 | -59.307 | 1500.000 |
| 42160.000 | 2490.000 | 634.033 | .378 | 1.927 | 0.000 | 397.350 | -72.618 | 1500.000 |
| 42160.000 | 3500.000 | 634.883 | .850 | 1.769 | 0.000 | 425.340 | -100.608 | 1500.000 |
| 43220.000 | 1310.000 | 634.359 | 0.000 | 1.735 | 0.000 | 295.384 | 0.000 | 1060.000 |
| 43220.000 | 2110.000 | 635.332 | .973 | 1.677 | 0.000 | 405.665 | -110.281 | 1060.000 |
| 43220.000 | 2490.000 | 635.677 | .345 | 1.644 | 0.000 | 422.016 | -126.632 | 1060.000 |
| 43220.000 | 3500.000 | 636.452 | .775 | 1.570 | 0.000 | 458.812 | -163.429 | 1060.000 |
| 43980.000 | 1310.000 | 636.012 | 0.000 | 1.652 | 0.000 | 97.941 | 0.000 | 760.000 |
| 43980.000 | 2110.000 | 637.103 | 1.091 | 1.771 | 0.000 | 113.078 | -15.136 | 760.000 |
| 43980.000 | 2490.000 | 637.483 | .380 | 1.806 | 0.000 | 118.354 | -20.413 | 760.000 |
| 43980.000 | 3500.000 | 638.309 | .826 | 1.856 | 0.000 | 129.829 | -31.888 | 760.000 |
| 44092.000 | 1310.000 | 636.287 | 0.000 | .275 | 0.000 | 48.678 | 0.000 | 112.000 |
| 44092.000 | 2110.000 | 637.337 | 1.050 | .234 | 0.000 | 49.188 | -.511 | 112.000 |
| 44092.000 | 2490.000 | 637.720 | .383 | .237 | 0.000 | 49.375 | -.697 | 112.000 |
| 44092.000 | 3500.000 | 638.594 | .874 | .285 | 0.000 | 49.783 | -1.105 | 112.000 |
| 44093.000 | 1310.000 | 636.288 | 0.000 | .001 | 0.000 | 48.678 | 0.000 | 1.000 |
| 44093.000 | 2110.000 | 637.339 | 1.051 | .002 | 0.000 | 49.189 | -.511 | 1.000 |
| 44093.000 | 2490.000 | 637.722 | .384 | .002 | 0.000 | 49.376 | -.697 | 1.000 |
| 44093.000 | 3500.000 | 638.596 | .874 | .002 | 0.000 | 49.784 | -1.106 | 1.000 |
| 44127.000 | 1310.000 | 636.324 | 0.000 | .036 | 0.000 | 48.694 | 0.000 | 34.000 |
| 44127.000 | 2110.000 | 637.402 | 1.078 | .064 | 0.000 | 49.217 | -.523 | 34.000 |
| 44127.000 | 2490.000 | 637.801 | .399 | .079 | 0.000 | 49.409 | -.716 | 34.000 |
| 44127.000 | 3500.000 | 638.740 | .939 | .144 | 0.000 | 49.828 | -1.134 | 34.000 |
| 44128.000 | 1310.000 | 636.325 | 0.000 | .001 | 0.000 | 48.694 | 0.000 | 1.000 |
| 44128.000 | 2110.000 | 637.404 | 1.079 | .002 | 0.000 | 49.218 | -.523 | 1.000 |
| 44128.000 | 2490.000 | 637.805 | .401 | .003 | 0.000 | 49.413 | -.718 | 1.000 |
| 44128.000 | 3500.000 | 638.760 | .955 | .020 | 0.000 | 49.831 | -1.135 | 1.000 |
| 44250.000 | 1310.000 | 636.483 | 0.000 | .158 | 0.000 | 227.269 | 0.000 | 122.000 |
| 44250.000 | 2110.000 | 638.060 | 1.577 | .656 | 0.000 | 249.163 | -21.894 | 122.000 |
| 44250.000 | 2490.000 | 638.678 | .618 | .873 | 0.000 | 257.739 | -30.470 | 122.000 |
| 44250.000 | 3500.000 | 640.201 | 1.523 | 1.441 | 0.000 | 278.895 | -51.626 | 122.000 |
| 45230.000 | 1310.000 | 637.765 | 0.000 | 1.282 | 0.000 | 286.524 | 0.000 | 980.000 |
| 45230.000 | 2110.000 | 639.058 | 1.293 | .998 | 0.000 | 310.177 | -23.653 | 980.000 |
| 45230.000 | 2490.000 | 639.606 | .547 | .928 | 0.000 | 318.463 | -31.939 | 980.000 |
| 45230.000 | 3500.000 | 640.964 | 1.358 | .763 | 0.000 | 332.136 | -45.612 | 980.000 |
| 46590.000 | 1310.000 | 639.219 | 0.000 | 1.454 | 0.000 | 134.954 | 0.000 | 1360.000 |
| 46590.000 | 2110.000 | 640.613 | 1.394 | 1.555 | 0.000 | 177.280 | -42.326 | 1360.000 |
| 46590.000 | 2490.000 | 641.149 | .536 | 1.544 | 0.000 | 188.082 | -53.129 | 1360.000 |
| 46590.000 | 3500.000 | 642.397 | 1.247 | 1.433 | 0.000 | 219.110 | -84.157 | 1360.000 |
| 47640.000 | 1310.000 | 640.794 | 0.000 | 1.575 | 0.000 | 44.034 | 0.000 | 1050.000 |
| 47640.000 | 2110.000 | 642.424 | 1.630 | 1.811 | 0.000 | 94.735 | -50.702 | 1050.000 |
| 47640.000 | 2490.000 | 643.010 | .586 | 1.861 | 0.000 | 262.657 | -218.623 | 1050.000 |
| 47640.000 | 3500.000 | 644.317 | 1.307 | 1.921 | 0.000 | 301.836 | -257.802 | 1050.000 |
| 49000.000 | 1310.000 | 643.934 | 0.000 | 3.140 | 0.000 | 182.171 | 0.000 | 1360.000 |
| 49000.000 | 2110.000 | 645.887 | 1.953 | 3.463 | 0.000 | 196.812 | -14.641 | 1360.000 |
| 49000.000 | 2490.000 | 646.030 | .143 | 3.020 | 0.000 | 251.748 | -69.577 | 1360.000 |
| 49000.000 | 3500.000 | 647.224 | 1.193 | 2.906 | 0.000 | 265.201 | -83.029 | 1360.000 |
| 49425.000 | 1310.000 | 644.518 | 0.000 | .584 | 0.000 | 171.919 | 0.000 | 425.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 49425.000 | 2490.000 | 646.662 | .256 | .632 | 0.000 | 238.034 | -66.116 | 425.000 |
| 49425.000 | 3500.000 | 647.901 | 1.238 | .677 | 0.000 | 259.727 | -87.808 | 425.000 |
| 49850.000 | 1030.000 | 645.316 | 0.000 | .799 | 0.000 | 41.719 | 0.000 | 425.000 |
| 49850.000 | 1660.000 | 647.102 | 1.786 | .696 | 0.000 | 54.605 | -12.887 | 425.000 |
| 49850.000 | 1910.000 | 647.482 | .380 | .820 | 0.000 | 108.326 | -66.608 | 425.000 |
| 49850.000 | 2760.000 | 648.723 | 1.242 | .823 | 0.000 | 281.534 | -239.815 | 425.000 |
| 50114.000 | 1030.000 | 645.815 | 0.000 | .499 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 1660.000 | 647.732 | 1.917 | .630 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 1910.000 | 648.015 | .283 | .533 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50114.000 | 2760.000 | 648.931 | .916 | .208 | 0.000 | 49.500 | 0.000 | 264.000 |
| 50115.000 | 1030.000 | 645.816 | 0.000 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 1660.000 | 647.733 | 1.917 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 1910.000 | 648.016 | .283 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50115.000 | 2760.000 | 648.913 | .897 | -.018 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50149.000 | 1030.000 | 645.839 | 0.000 | .022 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 1660.000 | 647.760 | 1.922 | .027 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 1910.000 | 648.050 | .289 | .033 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50149.000 | 2760.000 | 649.047 | .998 | .134 | 0.000 | 49.500 | 0.000 | 34.000 |
| 50150.000 | 1030.000 | 645.839 | 0.000 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 1660.000 | 647.761 | 1.922 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 1910.000 | 648.051 | .289 | .001 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50150.000 | 2760.000 | 649.182 | 1.131 | .135 | 0.000 | 49.500 | 0.000 | 1.000 |
| 50190.000 | 1030.000 | 645.789 | 0.000 | -.050 | 0.000 | 109.659 | 0.000 | 40.000 |
| 50190.000 | 1660.000 | 647.790 | 2.000 | .029 | 0.000 | 146.918 | -37.259 | 40.000 |
| 50190.000 | 1910.000 | 648.096 | .306 | .045 | 0.000 | 151.318 | -41.660 | 40.000 |
| 50190.000 | 2760.000 | 649.526 | 1.430 | .344 | 0.000 | 185.204 | -75.545 | 40.000 |
| 50860.000 | 1030.000 | 647.298 | 0.000 | 1.509 | 0.000 | 134.231 | 0.000 | 670.000 |
| 50860.000 | 1660.000 | 648.822 | 1.524 | 1.032 | 0.000 | 155.351 | -21.120 | 670.000 |
| 50860.000 | 1910.000 | 649.199 | .377 | 1.104 | 0.000 | 167.228 | -32.997 | 670.000 |
| 50860.000 | 2760.000 | 650.508 | 1.308 | .982 | 0.000 | 226.496 | -92.265 | 670.000 |
| 51950.000 | 980.000 | 648.995 | 0.000 | 1.697 | 0.000 | 44.663 | 0.000 | 1090.000 |
| 51950.000 | 1570.000 | 650.324 | 1.328 | 1.502 | 0.000 | 274.371 | -229.708 | 1090.000 |
| 51950.000 | 1800.000 | 650.719 | .395 | 1.519 | 0.000 | 277.781 | -233.118 | 1090.000 |
| 51950.000 | 2610.000 | 651.907 | 1.188 | 1.399 | 0.000 | 295.381 | -250.718 | 1090.000 |
| 53150.000 | 980.000 | 652.362 | 0.000 | 3.367 | 0.000 | 86.859 | 0.000 | 1200.000 |
| 53150.000 | 1570.000 | 653.455 | 1.092 | 3.131 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53150.000 | 1800.000 | 653.831 | .376 | 3.112 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53150.000 | 2610.000 | 654.906 | 1.076 | 3.000 | 0.000 | 86.859 | -.000 | 1200.000 |
| 53204.000 | 980.000 | 652.583 | 0.000 | .220 | 0.000 | 56.200 | 0.000 | 54.000 |
| 53204.000 | 1570.000 | 653.745 | 1.162 | .290 | 0.000 | 60.558 | -4.358 | 54.000 |
| 53204.000 | 1800.000 | 654.139 | .395 | .309 | 0.000 | 62.038 | -5.838 | 54.000 |
| 53204.000 | 2610.000 | 655.276 | 1.137 | .370 | 0.000 | 66.302 | -10.102 | 54.000 |
| 53205.000 | 980.000 | 652.584 | 0.000 | .002 | 0.000 | 56.214 | 0.000 | 1.000 |
| 53205.000 | 1570.000 | 653.748 | 1.163 | .003 | 0.000 | 60.578 | -4.364 | 1.000 |
| 53205.000 | 1800.000 | 654.143 | .395 | .003 | 0.000 | 62.060 | -5.846 | 1.000 |
| 53205.000 | 2610.000 | 655.281 | 1.138 | .005 | 0.000 | 66.331 | -10.117 | 1.000 |
| 53255.000 | 980.000 | 652.619 | 0.000 | .035 | 0.000 | 56.337 | 0.000 | 50.000 |
| 53255.000 | 1570.000 | 653.804 | 1.185 | .056 | 0.000 | 60.779 | -4.443 | 50.000 |
| 53255.000 | 1800.000 | 654.207 | .403 | .064 | 0.000 | 62.290 | -5.954 | 50.000 |
| 53255.000 | 2610.000 | 655.374 | 1.167 | .093 | 0.000 | 66.668 | -10.331 | 50.000 |
| 53256.000 | 980.000 | 652.620 | 0.000 | .001 | 0.000 | 56.339 | 0.000 | 1.000 |
| 53256.000 | 1570.000 | 653.805 | 1.185 | .001 | 0.000 | 60.783 | -4.44[illegible] | 1.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 53256.000 | 2610.000 | 655.376 | 1.168 | .002 | 0.000 | 66.674 | -10.335 | 1.000 |
| 53294.000 | 980.000 | 652.646 | 0.000 | .026 | 0.000 | 56.431 | 0.000 | 38.000 |
| 53294.000 | 1570.000 | 653.847 | 1.201 | .042 | 0.000 | 60.925 | -4.495 | 38.000 |
| 53294.000 | 1800.000 | 654.255 | .409 | .047 | 0.000 | 62.454 | -6.023 | 38.000 |
| 53294.000 | 2610.000 | 655.443 | 1.188 | .067 | 0.000 | 66.892 | -10.461 | 38.000 |
| 53295.000 | 980.000 | 652.646 | 0.000 | .001 | 0.000 | 56.433 | 0.000 | 1.000 |
| 53295.000 | 1570.000 | 653.848 | 1.201 | .001 | 0.000 | 60.929 | -4.496 | 1.000 |
| 53295.000 | 1800.000 | 654.256 | .409 | .001 | 0.000 | 62.458 | -6.025 | 1.000 |
| 53295.000 | 2610.000 | 655.444 | 1.188 | .002 | 0.000 | 66.898 | -10.465 | 1.000 |
| 53345.000 | 980.000 | 652.680 | 0.000 | .034 | 0.000 | 56.552 | 0.000 | 50.000 |
| 53345.000 | 1570.000 | 653.901 | 1.221 | .054 | 0.000 | 61.113 | -4.561 | 50.000 |
| 53345.000 | 1800.000 | 654.318 | .416 | .061 | 0.000 | 62.683 | -6.131 | 50.000 |
| 53345.000 | 2610.000 | 655.533 | 1.216 | .089 | 0.000 | 67.263 | -10.711 | 50.000 |
| 53346.000 | 980.000 | 652.681 | 0.000 | .001 | 0.000 | 56.555 | 0.000 | 1.000 |
| 53346.000 | 1570.000 | 653.902 | 1.222 | .001 | 0.000 | 61.117 | -4.562 | 1.000 |
| 53346.000 | 1800.000 | 654.319 | .417 | .001 | 0.000 | 62.687 | -6.133 | 1.000 |
| 53346.000 | 2610.000 | 655.535 | 1.216 | .002 | 0.000 | 67.268 | -10.714 | 1.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 101.134 | 0.000 |
| 2 | 1.000 | 0.000 | 128.816 | 27.682 |
| 3 | 1.000 | 0.000 | 147.129 | 45.995 |
| 4 | 1.000 | 0.000 | 160.326 | 59.192 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp.

3) WATERCOURSE: Middle Branch Clinton River

4) DOCUMENT TYPE: Hydraulic Analyses Township line to M-53

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

RECEIVED
JUL 7 1977
WATER MANAGEMENT

# LETTER OF TRANSMITTAL

| DATE | JOB NO. |
|---|---|
| July 5, 1977 | 5670-08-1 |

RE: Shelby Township Flood Insurance Study

Middle Branch of the Clinton River

Hydraulic Computations

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Dan Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
5th Floor, Mason Building
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO. | DESCRIPTION |
|---|---|---|---|
| 1 | 7-5-77 | | Plan & Profile |
| 1 | 7-5-77 | | HEC-2 Input, Output, and J&A IPLOT |
| 1 | 7-5-77 | | Hydraulic Analysis Book |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

REMARKS:

SIGNED:
William C. Rossow
William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) BEH/dp

# SHELBY TOWNSHIP

# FLOOD INSURANCE STUDY

# MIDDLE BRANCH OF THE CLINTON RIVER

# HYDRAULIC ANALYSIS

J & A FILE NUMBER 5670-08-1

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Highway, P. O. Box 1166
Pontiac, Michigan 48056

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Starting Point

Variables and Coefficients

Synthetic Cross-Sections

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# HYDRAULIC ANALYSIS

## Introduction

The stream being studied is the Middle Branch of the Clinton River in Shelby Township, Macomb County, Michigan. The study limits are from the Shelby-Macomb Township line to Chestnut Lake at the upstream end of the river. This particular submittal will include the stream to the upstream face of M-53. The date of field survey was January, 1977.

The discharges were computed using a combination of gage analysis, the SCS TR 20 Hydrology Program and the Unit Hydrograph - Infiltration Capacity Method developed by Dr. Ernest F. Brater. The 10-, 50-, 100-, and 500-year flood frequency flows used in this study have been accepted by the Michigan Department of Natural Resources (letter dated April 5, 1977).

The Project Manager for this analysis is William C. Rossow, P. E.

## Method of Analysis

Water-surface profiles were computed by the HEC-2 Standard Step-Backwater Computer Program developed by the U. S. Army Corps of Engineers.The hydraulic model was developed for the 100-year flow. The "Normal Bridge" Routine was used for bridge constrictions under low flow conditions for the 100-year discharge. The "Special Bridge" Routine was used for bridge constrictions that experienced pressure flow for the 100-year discharge. All bridge constrictions were inspected for inlet control.

Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections were those outlined on pages 18-21 of the HEC Training Document No. 6 Application of HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If the actual field-surveyed cross-section fell within this distance, this section was encroached as appropriate.

## Starting Point

Profile computations for the Middle Branch were begun using the Macomb Gage, just downstream of Romeo Plank Road. A stage discharge curve was drawn using data from the gage. To get starting water surfaces for flows greater than those recorded, the curve was extrapolated by eye. To check the adequacy of this method, the 100-year flow was run from the gage to the Macomb-Shelby Township line at Hayes Road using the elevation determined from the extrapolated curve, along with a run started 1½ feet higher and 1½ feet lower. By the time the Township line was reached the lower two profiles had converged and the upper one was about .2 feet higher. Values from the stage discharge curve were used to start the computations.

assumed to be correct

## Variables and Coefficients

The roughness factors (Manning's "n") for summer conditions were established by comparing the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics, by Ven Te Chow, with photographs and field inspection trips taken at every cross-section. In general, the following range of values was used:

| | Description | Manning's "n" |
|---|---|---|
| 1. | Channel | |
| a. | Sand and gravel bottom, clean stream with some meandering. | .035 |
| b. | Same as above but moderate meandering and/or debris. | .04 - .045 |
| c. | Same as above but heavy debris. | .05 |
| 2. | Flood Plains | |
| a. | Lawn areas | .03 - .04 |
| b. | Scattered brush, heavy weeds. | .04 - .05 |
| c. | Light brush | .05 - .07 |
| d. | Medium to dense brush | .07 - .12 |

The proposed flood season for this portion of the Middle Branch is summer. The variation of roughness was taken into account by use of the NH card with due consideration made of conditions existing upstream and downstream of the given section.

The coefficient of contraction varied from 0.1 (reflecting a gradual change) to 0.4 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 0.8 for gradual to abrupt changes, respectively.

The total loss coefficient (XKOR) used in the HEC-2 "Special Bridge" Routine was determined as outlined in Exhibit 2 of the HEC-2 Users Manual. The inlet coefficients were taken from tables published by the Bureau of Public Roads.[2]

For inlet control, nomographs from the Bureau of Public Roads[2] were used. The weir discharge coefficients are taken from charts supplied by the Michigan Department of Natural Resources, as published by the U. S. Department of the Interior.[3]

## Synthetic Cross-Sections

Synthetic cross-sections utilized in the Hydraulic Analysis were developed in three ways. The three methods used were blending of the two cross-sections, repetition of a field-surveyed cross-section with appropriate invert and area adjustment, or interpolating between two field surveyed cross-sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross-section by averaging the overbanks and channel of the two known cross-sections.

Since inverts are known only at field sections, a straight line is assumed between these known points.

## REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Users Manual, 1973.

2. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965).

3. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water - Resources Investigations, Book 3, Chapter A5, p. 23.

# APPENDIX A
# SECNO TABLE

SHELBY TOWNSHIP FLOOD INSURANCE STUDY
MIDDLE BRANCH OF THE CLINTON RIVER J&A NO. 5670-08
PROJECT MANAGER WILLIAM C. ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| A | 31750 | VALLEY SECTION A<br>10- AND 50-YEAR ENCROACHMENTS DUE TO EXPANSION OF FLOW FOR LOW FLOW OR PRESSURE FLOW CONDITIONS. 100- AND 500-YEAR FLOWS HAVE WEIR FLOW ON LEFT SIDE |
| | 31835 | BRIDGE SECTION B ROMEO PLANK ROAD DOWNSTREAM FACE<br>RIGHT ENCROACHMENT DUE TO BRIDGE OPENING<br>LEFT ENCROACHMENT DUE TO BRIDGE OPENING<br>ENCROACHMENT ELEVATION ON LEFT SIDE FOR CONTINUITY |
| B | 31865 | BRIDGE SECTION B ROMEO PLANK ROAD UPSTREAM FACE<br>RIGHT ENCROACHMENT DUE TO BRIDGE OPENING<br>LEFT ENCROACHMENT DUE TO BRIDGE OPENING<br>ENCROACHMENT ELEVATION ON LEFT SIDE FOR CONTINUITY |
| C | 33020 | VALLEY SECTION C |
| D | 34140 | VALLEY SECTION D |
| E | 35670 | VALLEY SECTION E |
| F | 36750 | VALLEY SECTION F |
| | 37080 | VALLEY SECTION BLEND OF SECTIONS F AND G<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 37180 | VALLEY SECTION 36950 REPEATED INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| G | 37280 | VALLEY SECTION G<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 37349 | BRIDGE SECTION H RELOCATED GROUND POINTS ONLY<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37350 | BRIDGE SECTION H HAYES ROAD DOWNSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| H | 37390 | BRIDGE SECTION H HAYES ROAD UPSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37391 | BRIDGE SECTION H RELOCATED GROUND POINTS ONLY<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| | 37506 | VALLEY SECTION I RELOCATED INVERT ADJUSTED |
| I | 38530 | VALLEY SECTION I |

| | | |
|---|---|---|
| J | 39520 | VALLEY SECTION J |
| K | 40660 | VALLEY SECTION K |
| L | 42150 | VALLEY SECTION L<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| M | 43220 | VALLEY SECTION M<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND |
| N | 43980 | VALLEY SECTION N<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 44092 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 44093 | BRIDGE SECTION O SCHOENHERR ROAD DOWNSTREAM FACE |
| O | 44127 | BRIDGE SECTION O SCHOENHERR ROAD UPSTREAM FACE |
| | 44128 | BRIDGE SECTION O RELOCATED GROUND POINTS ONLY |
| | 44250 | VALLEY SECTION N RELOCATED INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO CONTRACTION OF FLOW |
| P | 45230 | VALLEY SECTION P |
| Q | 46590 | VALLEY SECTION Q |
| R | 47640 | VALLEY SECTION R<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND |
| S | 49000 | VALLEY SECTION S<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND |
| | 49425 | VALLEY SECTION S RELOCATED INVERT ADJUSTED<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND<br>SECTION ADDED DUE TO RAPID CHANGE IN FLOW |
| T | 49850 | VALLEY SECTION T<br>10- AND 50-YEAR ENCROACHMENTS DUE TO HIGH GROUND<br>LEFT ENCROACHMENT TO ELIMINATE LOW GROUND OF ADJACEN<br>TRIBUTARY |
| | 50114 | BRIDGE SECTION U RELOCATED GROUND POINTS ONLY |
| | 50115 | BRIDGE SECTION U JEWELL ROAD DOWNSTREAM FACE |
| U | 50149 | BRIDGE SECTION U JEWELL ROAD UPSTREAM FACE |
| | 50150 | BRIDGE SECTION U RELOCATED GROUND POINTS ONLY |
| | 50190 | VALLEY SECTION V RELOCATED INVERT ADJUSTED |
| V | 50860 | VALLEY SECTION V<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW |
| W | 51960 | VALLEY SECTION W |

| | | |
|---|---|---|
| X | 53150 | VALLEY SECTION X<br>SECTION SKEWED FOR PERPENDICULARITY TO MASS OF FLOW<br>RIGHT ENCROACHMENT DUE TO EXPANSION OF FLOW<br>LEFT ENCROACHMENT DUE TO EXPANSION OF FLOW |
| | 53204 | BRIDGE SECTION Y RELOCATED GROUND POINTS ONLY |
| | 53205 | BRIDGE SECTION Y NORTH BOUND M-53 DOWNSTREAM FACE |
| Y | 53255 | BRIDGE SECTION Y NORTH BOUND M-53 UPSTREAM FACE |
| | 53256 | BRIDGE SECTION Y RELOCATED GROUND POINTS ONLY |
| | 53294 | BRIDGE SECTION Z RELOCATED GROUND POINTS ONLY |
| | 53295 | BRIDGE SECTION Z SOUTH BOUND M-53 DOWNSTREAM FACE |
| Z | 53345 | BRIDGE SECTION Z SOUTH BOUND M-53 UPSTREAM FACE |
| | 53346 | BRIDGE SECTION Z RELOCATED GROUND POINTS ONLY |

# APPENDIX B
# XKOR DATA AND CALCULATIONS

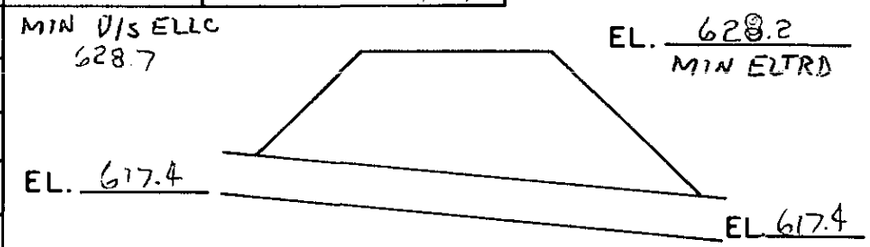
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 1 | 325 |
|---|---|---|---|---|

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: HAYES ROAD

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0324

So = 0.000

L = 40

Sta. 373+90 Sta. 373+50

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.015^2 \times 15 + .035^2 \times 70}{85}\right]^{1/2}$$

$n = .0324$

Johnson & Anderson, Inc.
Consulting Engineers
P. O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA CODED BEH

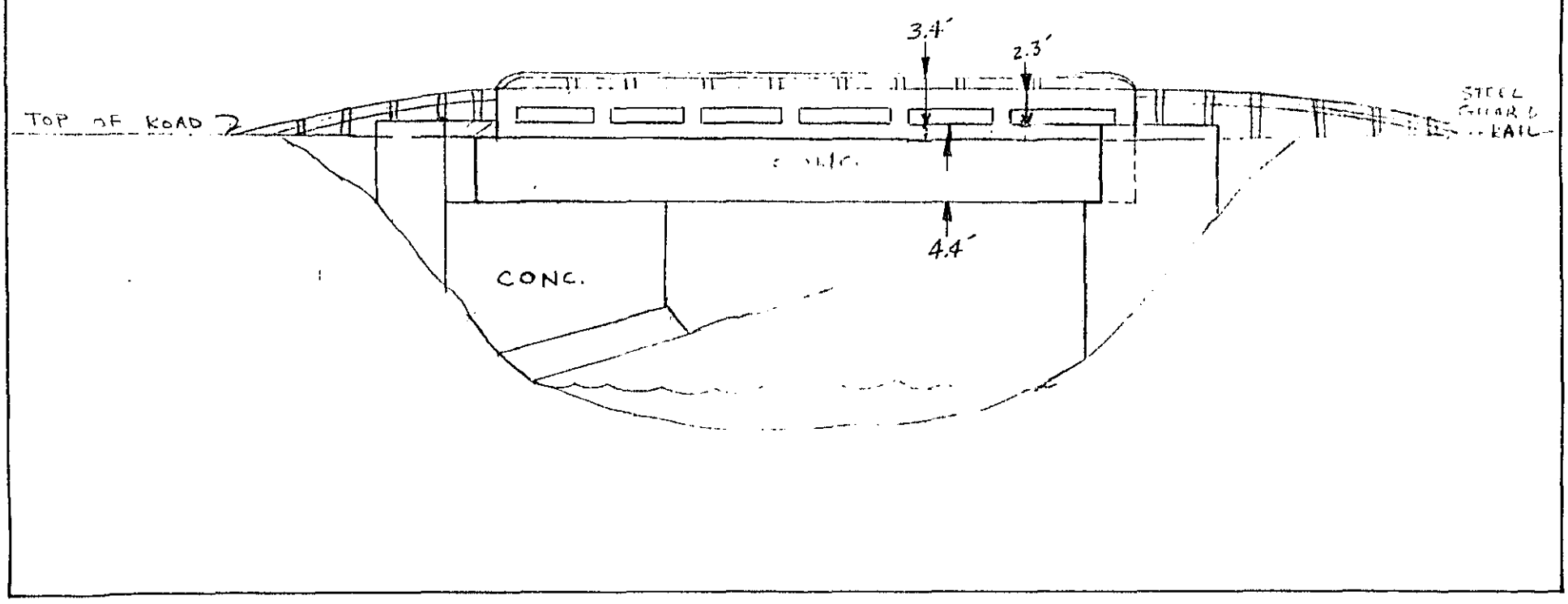
Code No. _____

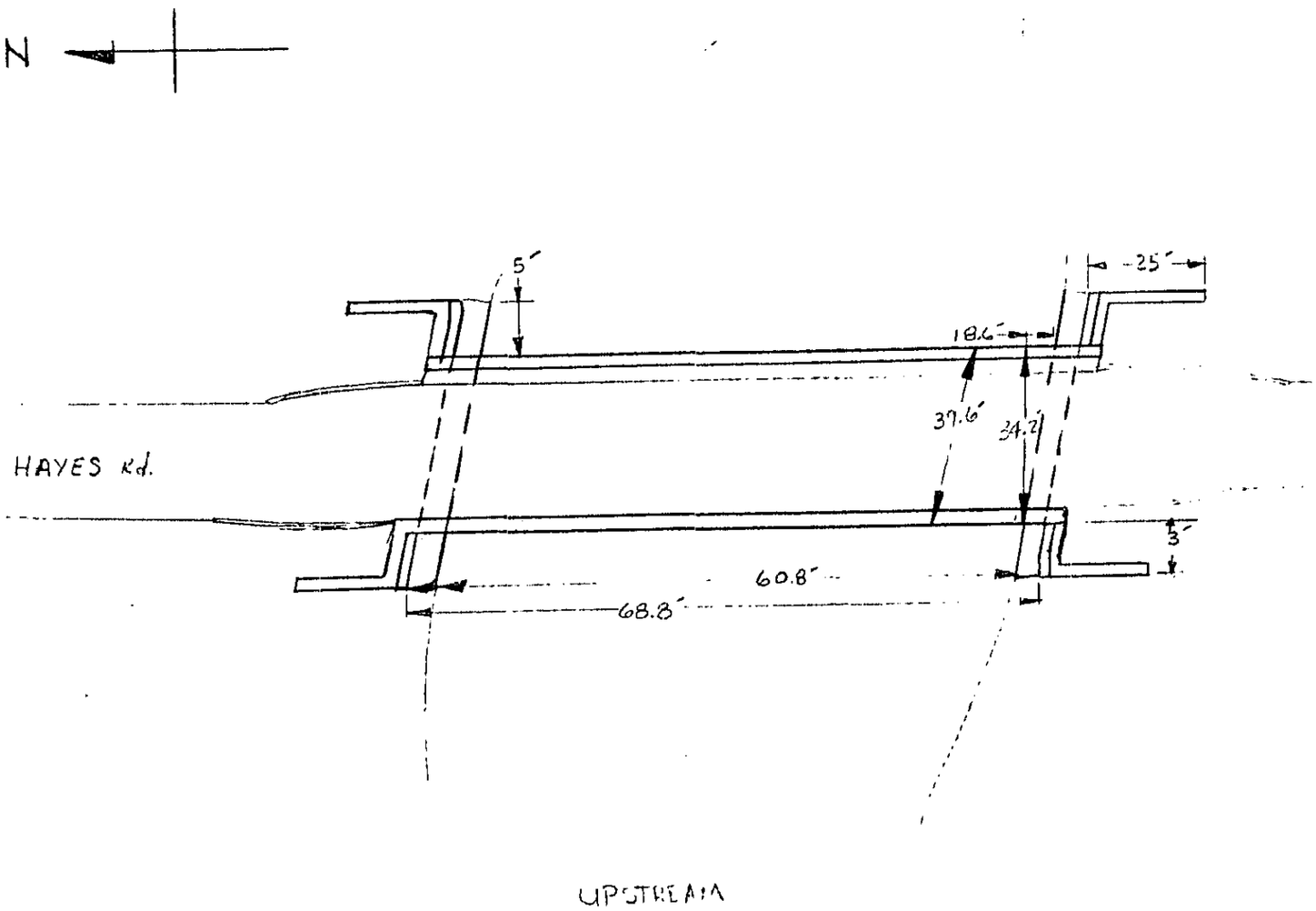
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP. F.I.S. | | | By: [illegible] |
| Date: DRAWN: 10-25-76 REV. RAN: | Feature: HAYES [illegible] | | Water Course: [illegible] |
| Remarks: BRIDGE [illegible] PLATE = MACOMB Co. Rd Comm 1972 — [illegible] | | | |
| PHOTO LOG: MB9 - U.S.F ; MB10 - U.S. ; MB11 - RIGHT ; MB12 - LEFT | | | |
| MB13 D.S. ; MB14 D.S.F. | | | |
| Width of Piers: — | Pier Shape: | No. of Piers: | Area: |
| Water Elevation: 618.7 | Length: 68.8' | Width of Deck: 90° : 34.2' Skew: | Skew: SEE SKETCH |

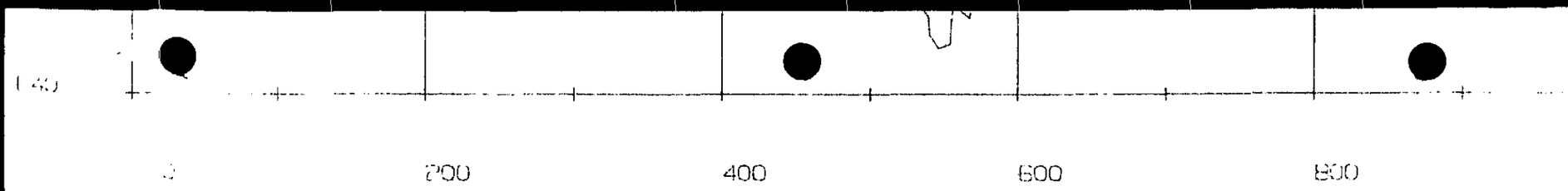
FIELD SKETCH

Profile View

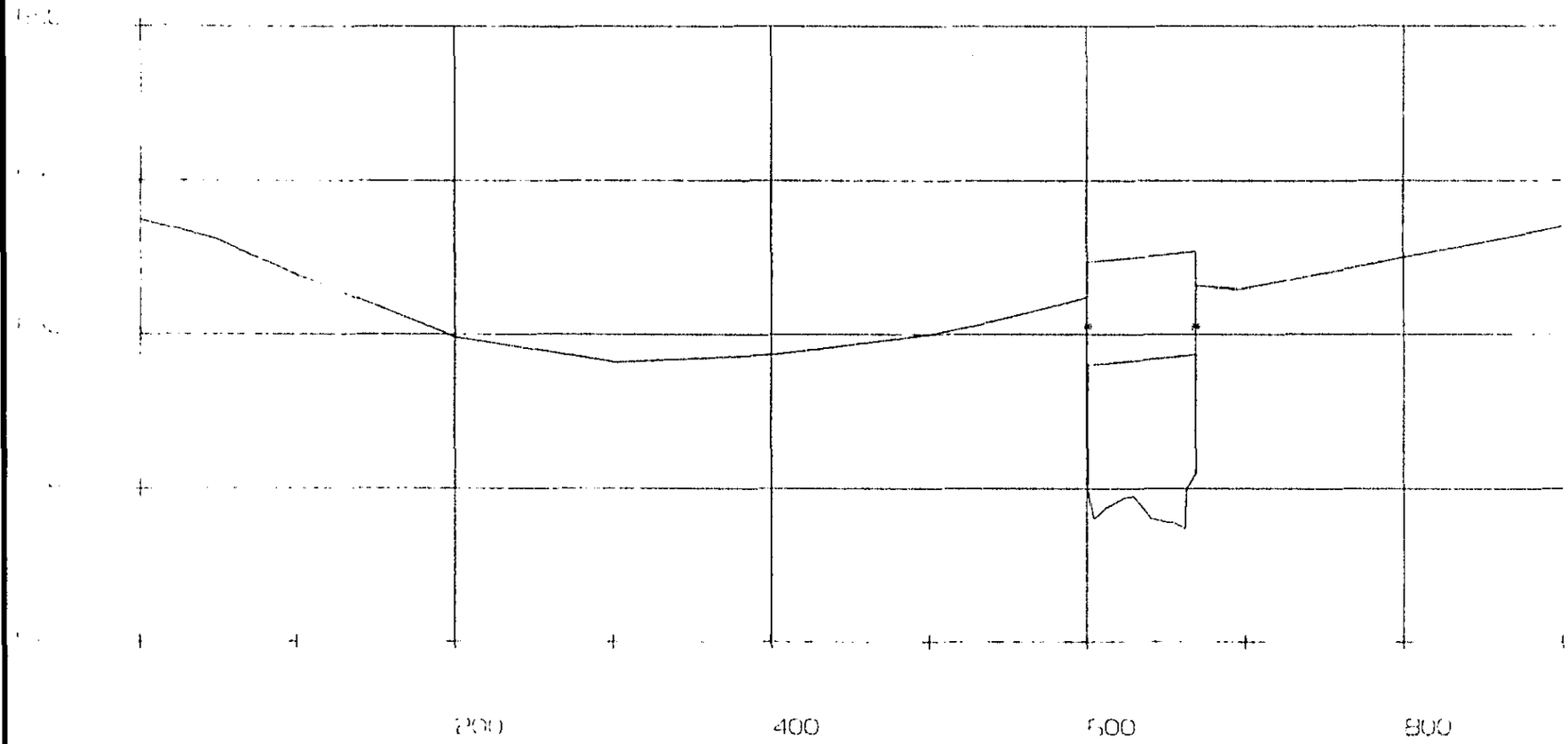
SEE Plan View PAGE




N
5'
25'
18.6'
37.6'
34.2'
HAYES Rd.
3'
60.8'
68.8'
UPSTREAM




SECTION 53204



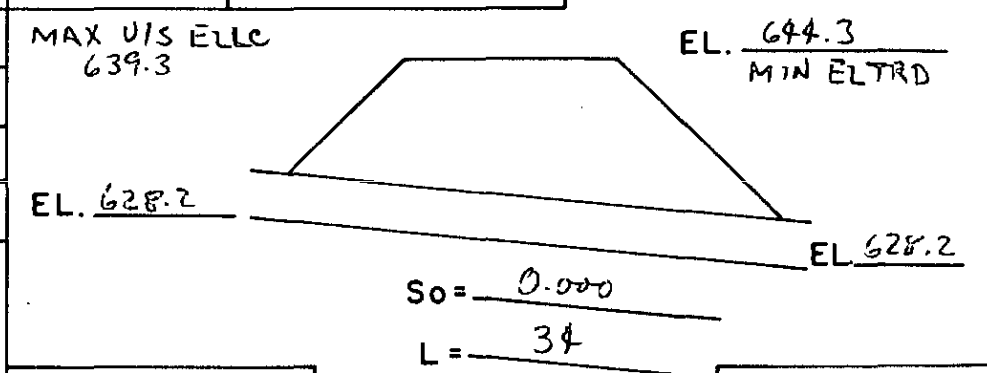

SECTION ~~32147~~
325

| | | | | |
|---|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP F15 | JOB NO. 5670 | 08 | 1 | 332 |

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: SCHOENHERR ROAD

CULVERT DESCRIPTION: BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = D =

WP = Ke =

$\frac{29.1}{R^{4/3}}$ = n = .0318

CALCULATIONS AND COMMENTS:

– MANNING'S n –

$$n = \left[\frac{.015^2 \times 15 + .035^2 \times 55}{70}\right]^{1/2}$$

$n = .0318$

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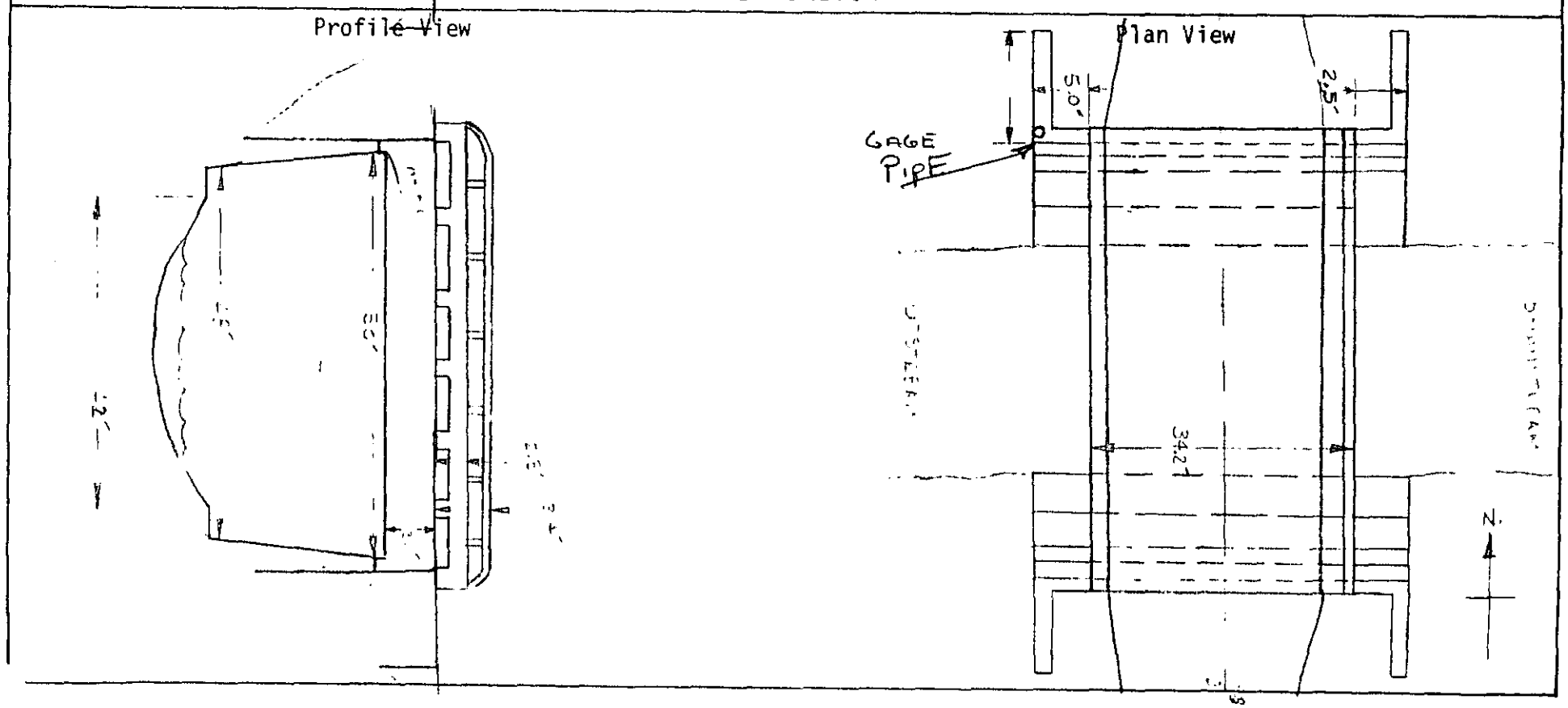
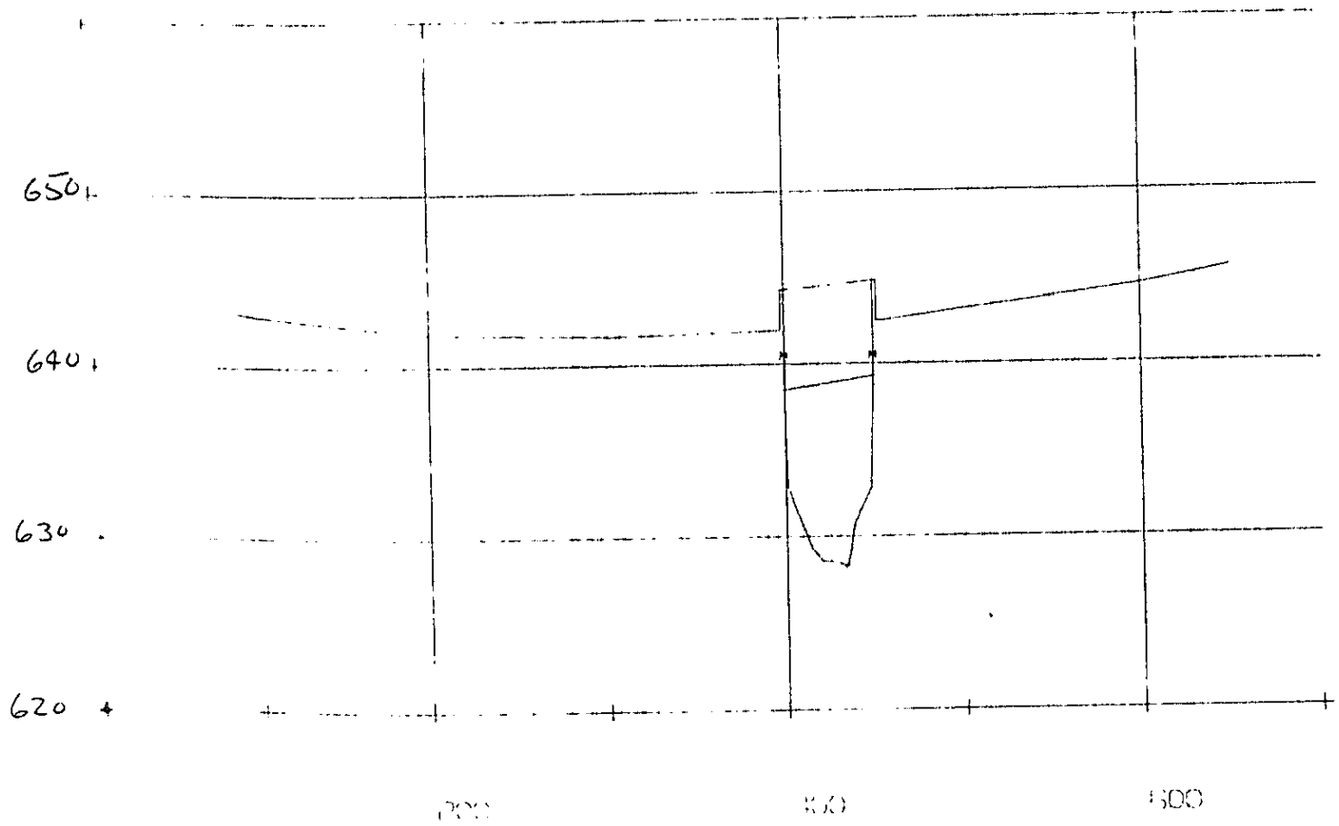
# HYDRAULIC STRUCTURAL DATA CODED BEN

Code No. 09

| | | | |
|---|---|---|---|
| Job Name: SHELBY TOWN. F.T.S. | | By: T.R. PRUYT | |
| Date: [illegible]: 12-25-76 [illegible] | Feature: SCHOENHERR Rd. BRIDGE | Water Course: MIDDLE BRANCH-CLINTON [illegible] | |
| Remarks: [illegible]: GRAVEL [illegible] | | | |
| PHOTOS [illegible]: MB15 U.S.F. Lt. ; MB16 U.S.F. Lt. ; MB17 U.S. ; MB18 Rt. ; MB19 Lt. ; MB20 U.S. ; MB21 D.S.F. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: | Length: 50 | Width of Deck: 34.2' | Skew: 90° |

FIELD SKETCH






SECTION 332

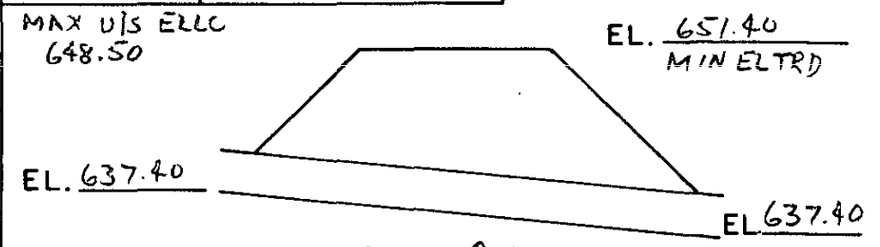
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 1 | 338 |
|---|---|---|---|---|

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: JEWELL ROAD

CULVERT DESCRIPTION:

BY BEH DATE 6/24/77

WEIR DESCRIPTION:




A = D =

WP = Ke =

$\frac{29.1}{R^{4/3}}$ = n = .0361

So = 0.000

L = 35

Sta. 501+49 Sta. 501+15

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[ \frac{.015^2 + 15 + .040^2 \times 55}{70} \right]^{1/2}$$

$n = .0361$

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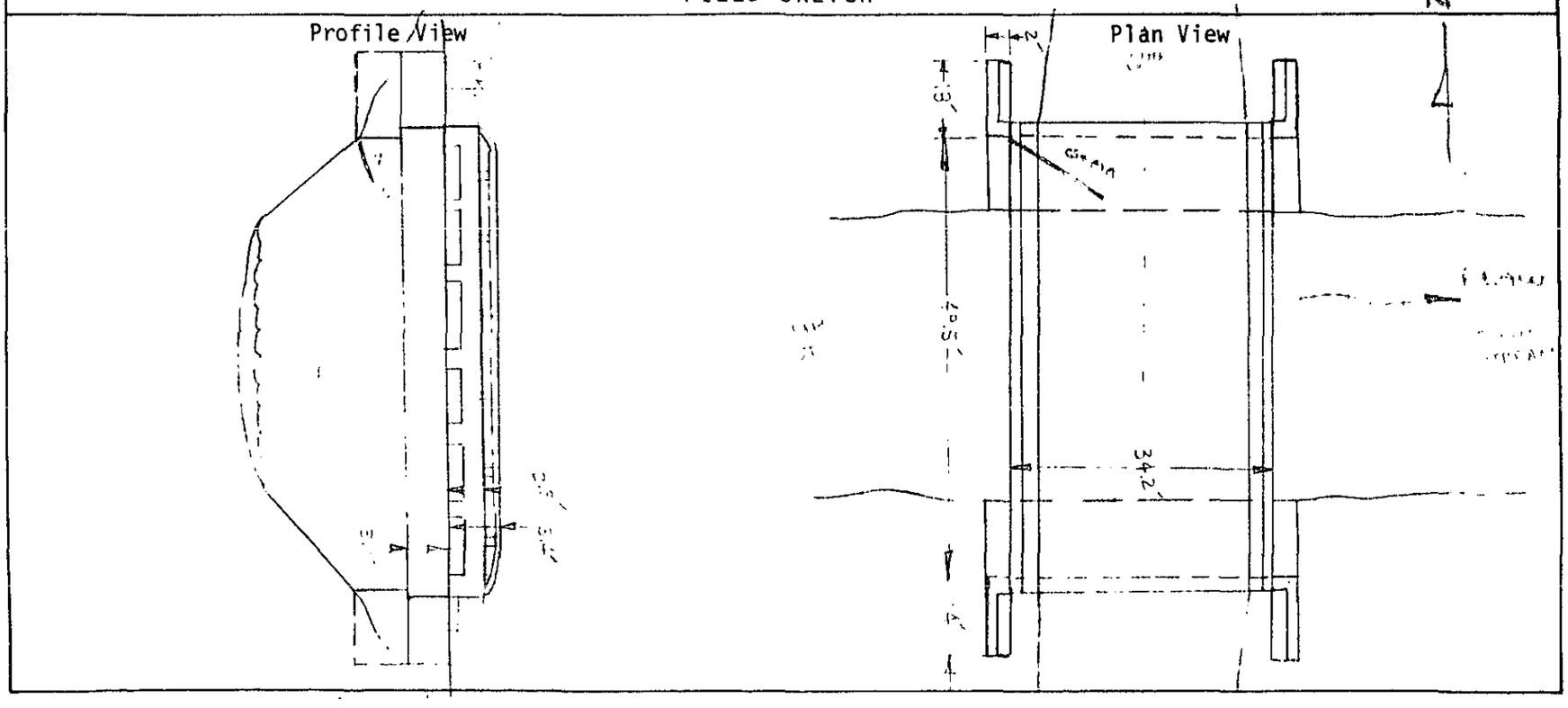
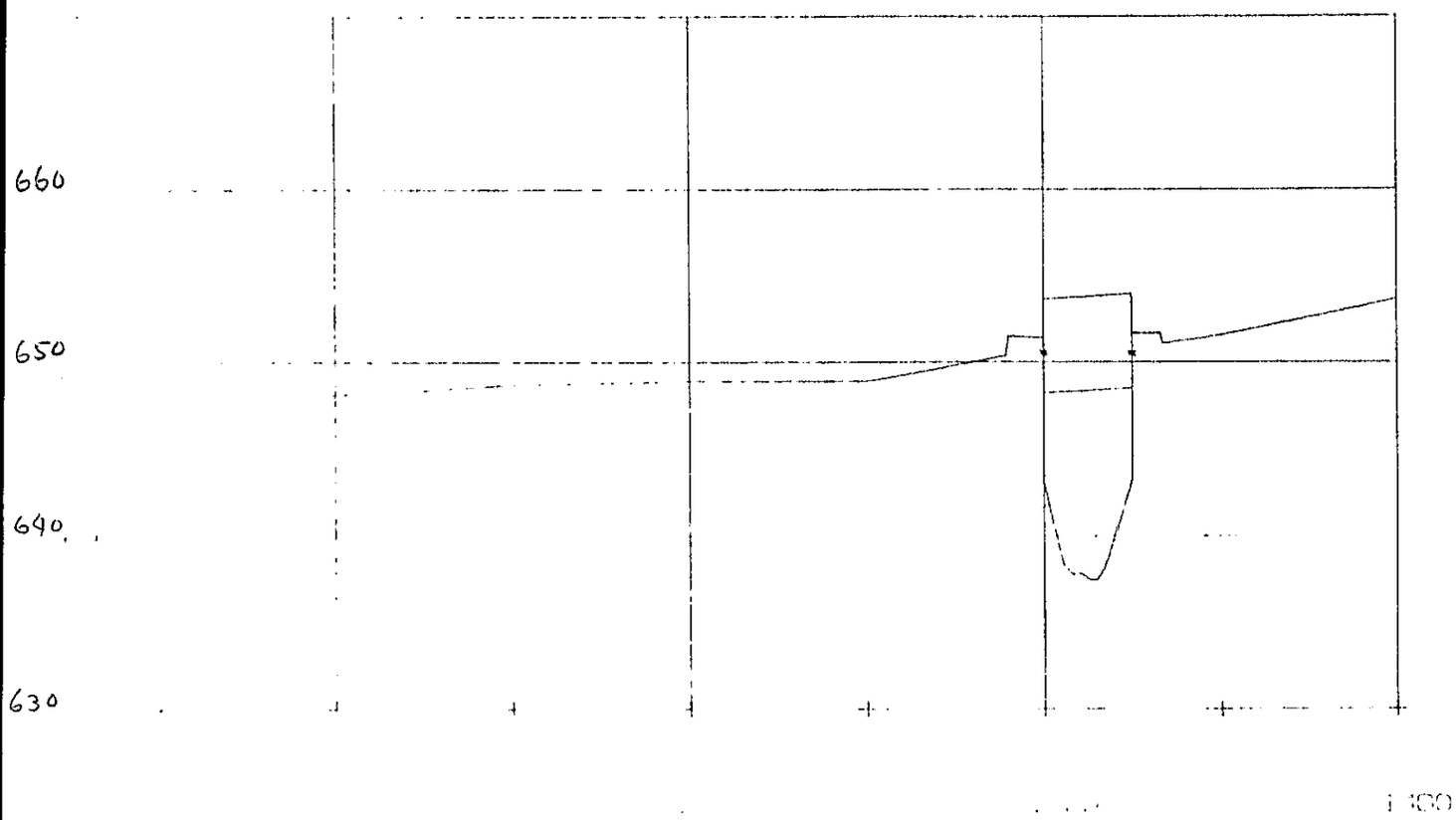
# HYDRAULIC STRUCTURAL DATA CODED BEH

Code No. 05

| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP F.I.S. | | By: T.R. PRUYT | |
| Date: DRAWN: [illegible] | Feature: SEVEN [illegible] | Water Course: MIDDLE BRANCH - CLINTON RIVER | |
| Remarks: [illegible] | | | |
| [illegible] MB22 - U.S.F. ; MB23 U.S. ; MB24 Rt. ; MB25 Lt. ; MB26 D.S. ; MB27 D.S.F. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: 638.2 | Length: 49.5' | Width of Deck: 34.2' | Skew: 90° |

FIELD SKETCH





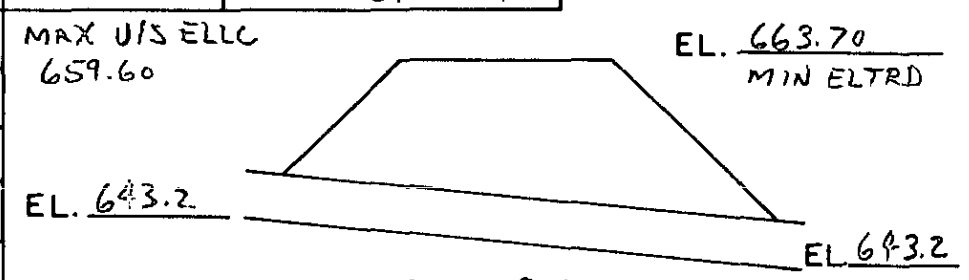

SECTION 338

| | | | | | |
|---|---|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP F15 | | JOB NO. | 5670 | 08 | / | 342 + 343 |
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: M-53 | | | | |

CULVERT DESCRIPTION:

BY BEH | DATE 6/24/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .0307

So = 0.000

L = 140

Sta. 533+45

Sta. 532+05

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.015^2 \times 55 + .040^2 \times 60}{115}\right]^{1/2}$$

$n = .0307$

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# HYDRAULIC STRUCTURAL DATA

CODED BEH

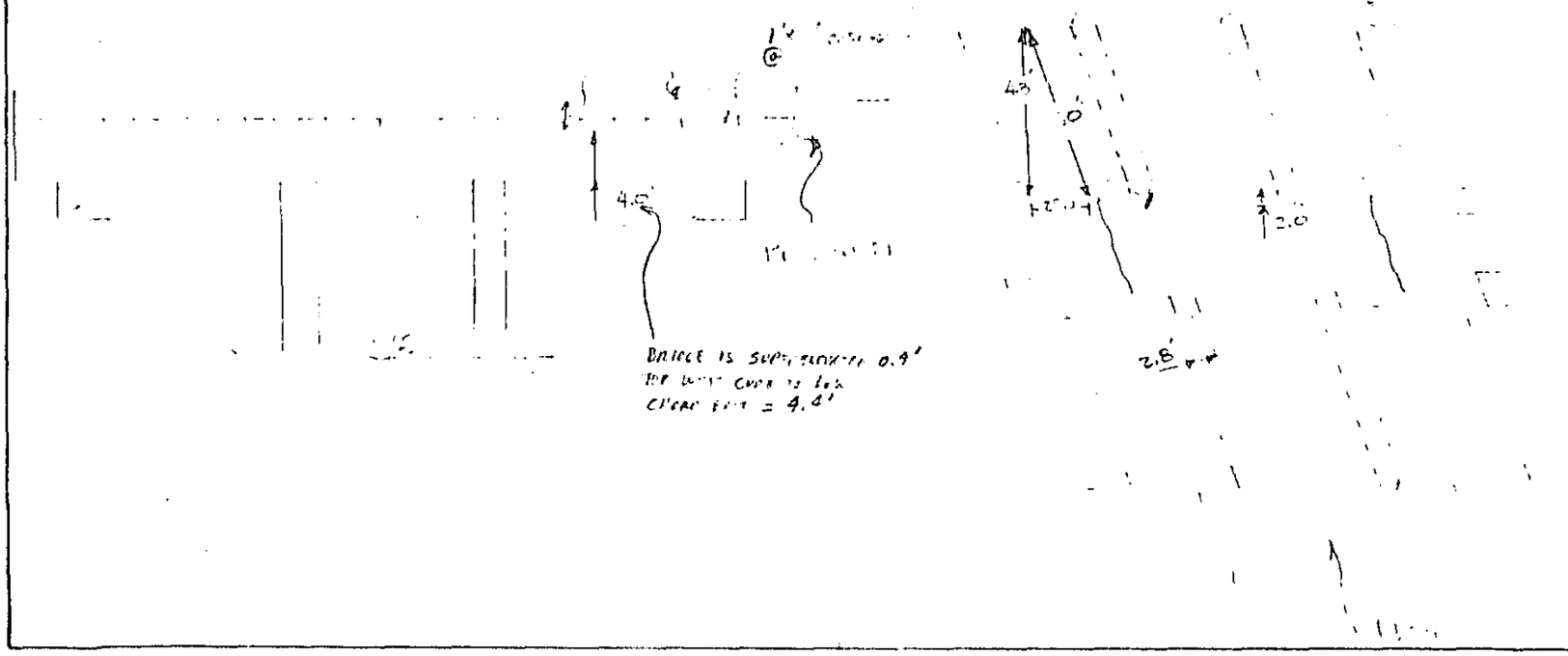
Code No. 5670-08-39243

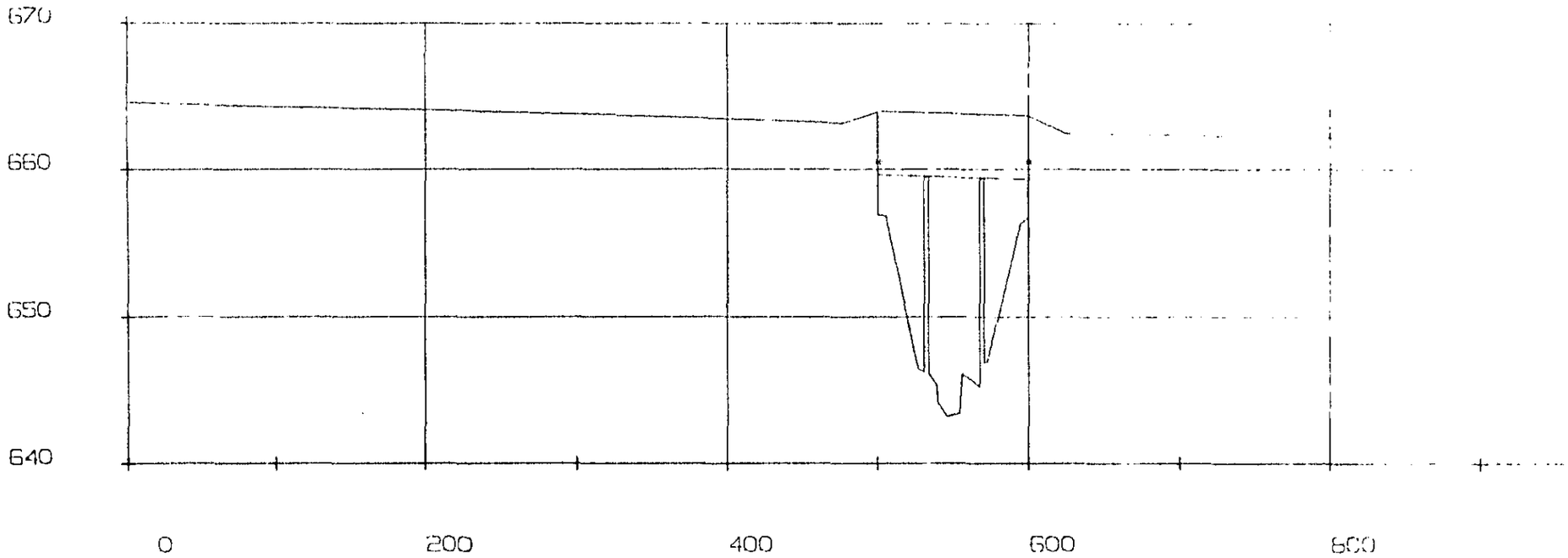
| | | | |
|---|---|---|---|
| Job Name: [illegible] | | | By: C. Mapley, P. [illegible] |
| Date: [illegible]-4-71 | Feature: North[illegible] & Southbound M-53 Bridges | | Water Course: M B. Clinton River |
| Remarks: A. Bottom: gravel; slopes and [illegible] are long grass | | | |
| B. [illegible] Bridge solutions (most economical) — Bridges are identical | | | |
| Width of Piers: 2.8' | Pier Shape: | No. of Piers: 7 | Area: |
| Water Elevation: 644.5 | Length: 120' | Width of Deck: 43' at 90°, 50' on skew | Skew: See below |

## FIELD SKETCH

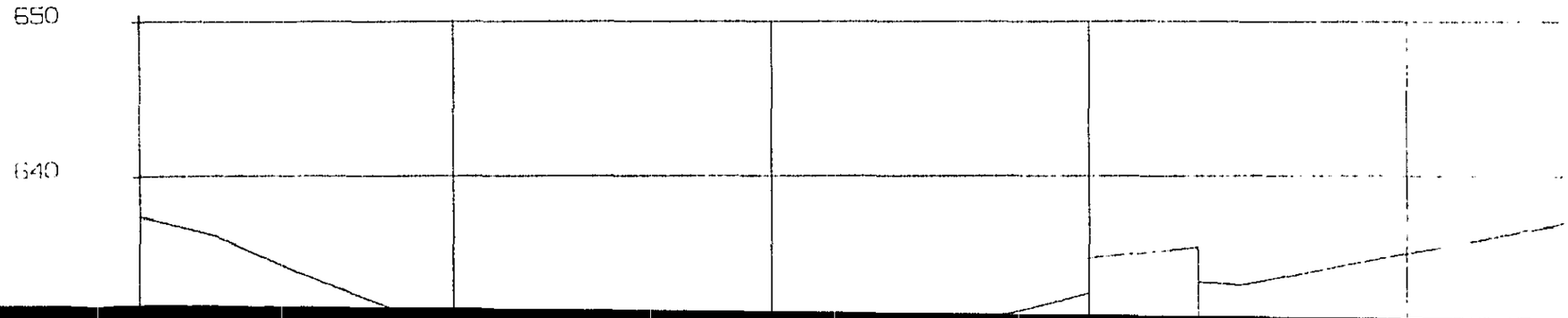
Profile View

Plan View

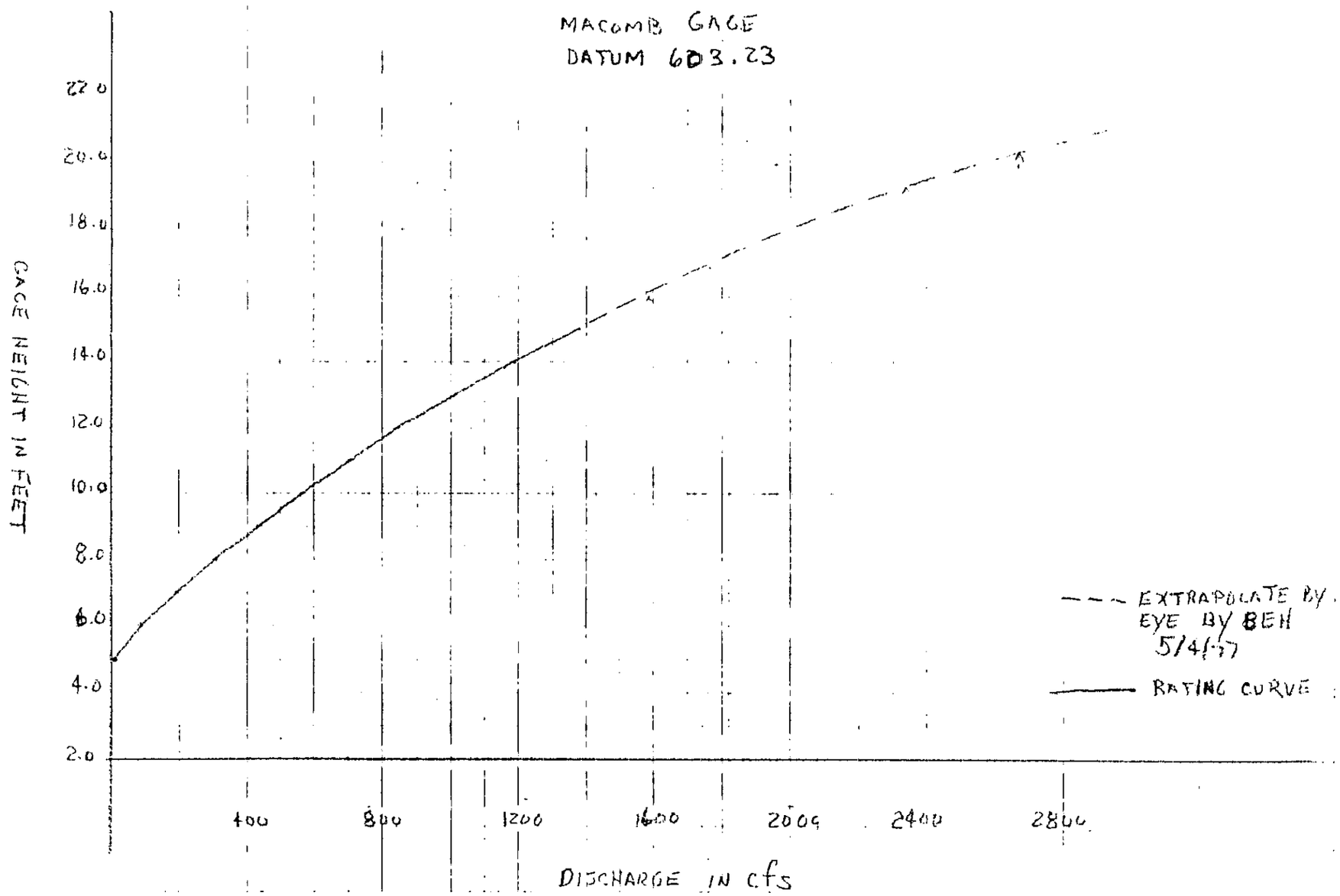





SECTION ~~53204~~
342 + 343



# APPENDIX C
# MACOMB GAGE STAGE-DISCHARGE CURVE


MACOMB GAGE
DATUM 603.23
GAGE HEIGHT IN FEET
22.0
20.0
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
400
800
1200
1600
2000
2400
2800
DISCHARGE IN cfs
EXTRAPOLATE BY EYE BY BEH 5/4/77
RATING CURVE

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp
Newland Drain
Middle Br. Clinton River

3) WATERCOURSE: 25 Mile + Chesterfield Lake

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

# LETTER OF TRANSMITTAL

| DATE | JOB NO |
|---|---|
| August 11, 1977 | 5670-08 |

RE: Shelby Township Flood Insurance Study

Hydraulic Computations

Newland Drain & Middle Branch Clinton River

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Daniel H. Morgan, Chief
Flood Insurance Unit
MDNR-Water Management Division
5th Floor, Mason Building
P. O. Box 30028
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

| COPIES | DATE | NO | DESCRIPTION |
|---|---|---|---|
| 1 | 8-11-77 | | Plan |
| 2 | 8-11-77 | | Profile |
| 2 | 8-11-77 | | HEC-2 Input and Output |
| 2 | 8-11-77 | | J&A IPLOT |
| 1 | 8-11-77 | | Hydraulic Analysis |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

**REMARKS:**

SIGNED:

William C. Rossow

William C. Rossow, P.E.
Project Manager

Copy to: File

(Yellow copy to File)
FORM GU-030 (11-72) RFH/dp

SHELBY TOWNSHIP

# FLOOD INSURANCE STUDY

# NEWLAND DRAIN

# MIDDLE BRANCH OF THE CLINTON RIVER

J & A File No. 5670-08-1

JOHNSON & ANDERSON, INC.

Consulting Engineers

2300 Dixie Highway, P.O. Box 1166

Pontiac, Michigan 48056

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Method of Analysis

Starting Points

Variables and Coefficients

Synthetic Cross Sections

Special Conditions

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Sensitivity of Roughness Coefficients

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Appendix B - Calculations and Graphs for Chestnut Lake

# HYDRAULIC ANALYSIS

## Introduction

The streams being studied are the Newland Drain and the Middle Branch of the Clinton River located in Shelby Township, Macomb County, Michigan.

The study limits for the Newland Drain are from its mouth at Chestnut Lake to a point approximately 100 feet downstream of 25 Mile Road. The field survey was taken in February 1977.

The study limits for the Middle Branch of the Clinton River extend from the Shelby-Macomb Township line to Chestnut Lake. This particular submittal includes the portion of the Middle Branch from a section one foot away from the upstream face of southbound Disco Drive (M-53) to Chestnut Lake. The date of the field survey is February, 1977.

The 10-, 50-, 100-, and 500-year flood frequency flows have been accepted by the Michigan Department of Natural Resources (letters dated February 25, 1977 and April 5, 1977).

The project manager for this analysis is William C. Rossow, P.E.

## Method of Analysis

Water surface profiles were computed by the HEC-2 standard step-backwater computer program developed by the U.S. Army Corps of Engineers.[1]

The hydraulic model has been developed for the 100-year flow. Each bridge section has been analyzed by the normal or special bridge routines using the guidelines specified in the HEC-2 Users Manual.[1] If an actual field-surveyed cross section was found to be located within the influence of a bridge constriction, the section was encroached as appropriate.

Starting Points

The backwater curve for the Middle Branch of the Clinton River was begun immediately upstream of Disco Drive (M-53). The backwater curve for the Middle Branch of the Clinton River in Shelby Township extending from the Shelby - Macomb township to Disco Drive has been previously submitted to the Michigan Department of Natural Resources (letter of transmittal dated July 5, 1977). Section 53346 is common to both studies. The water surface elevations determined in the first study at Section 53346 have been used as starting water surface elevations in this analysis.

For Newland Drain it was assumed that Chestnut Lake has a level surface from its outlet at the drop structures to the inlet for Newland Drain. With this assumption the starting water elevations for Newland Drain were taken from the stage discharge curve (Appendix B) for the Chestnut Lake drop structure. Since minimal storage results in the Lake, it was considered that at any moment inflow equals outflow.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions found on pages 101 - 123 in Open Channel Hydraulics[2] by Ven Te Chow, with photographs and field inspection trips taken at every cross section. The "n" values were selected for summer conditions as this is the projected flood season.

For Newland Drain, Channel "n" values ranged from .025 for a smooth--surface bottom to .045 where the channel exhibits a rocky bottom strewn with debris. Bank slopes ranged from .03 to .09, depending on the amount of vegetation. Overbank "n" values ranged from .03 for light vegetation to .075 for an area with medium tree and undergrowth type of vegetation.

For the Middle Branch of the Clinton River, the following range of values was used for Manning's "n":

| | | Description | Manning's "n" |
|---|---|---|---|
| 1. | Channel | | |
| | a. | Sand and gravel bottom, clean stream with some meandering. | .035 |
| | b. | Same as above, but moderate meandering and/or debris | .04 - .045 |
| 2. | Flood Plains | | |
| | a. | Lawn Area | .03 - .04 |
| | b. | Scattered brush, heavy weeds | .04 - .05 |
| | c. | Light brush | .05 - .07 |
| | d. | Medium to dense brush | .07 - .12 |

The coefficient of contraction varied from 0.1 (reflecting a gradual change) to 0.5 (used for abrupt changes). The coefficient of expansion ranged from 0.3 to 1.0 for gradual to abrupt changes, respectively.

The total loss coefficient (XKOR) used when a bridge constriction experiences pressure flow or pressure and weir flow was calculated as outlined in Exhibit 2 of the HEC-2 Users Manual.[1] The inlet coefficients were taken from tables published by the Bureau of Public Roads.[3] The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

## Synthetic Cross Sections

Three types of synthetic cross sections were employed. The first type consists of the blending of two cross sections. The second type involves the repeating of a field measured cross section at different locations along the stream. For this case, the invert of the repeated section is adjusted to correspond to the straight line slope of the two cross sections that it is placed between. The third type of synthetic cross section involves the use of the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the elevations and stationing of the overbanks and channel of the two field - surveyed cross sections.

## Special Conditions

### MIDDLE BRANCH OF CLINTON RIVER

At Chestnut Lake on the Middle Branch, due to the drop structures (See field notes in Appendix B) at the outlet of the lake it was necessary to investigate special situations which HEC-2 is unable to handle. Initially considering the culverts as simple structures and with a given tailwater, the resulting headwater elevations for various flows were calculated. Next the headwater necessary to produce a given flow (assuming that the flow passed through critical depth) was found for each drop structure.

A comparison was then made to find if the headwater from the culvert for a given flow would affect the same flow over the brink of the drop structure. For the flows investigated, the reinforced concrete pipe's headwater had no effect on the lake elevation necessary to pass the flow over the weir. The corrugated metal pipe did produce a sufficient headwater to cause a submergence effect at higher flows over the weir. At these higher flows, a reiterative solution was used to balance the submergence effect, flow over the weir and flow through the culvert. Once this was accomplished, the stage-discharge curves were drawn for each culvert, the roadway, and the combined flows. The graphs and supporting calculations are found in Appendix B. Values from the combined flow curve for a given flow were used for the lake elevations as input on the X5 card.

## Sensitivity of Roughness Coefficients

A backwater curve was run for the Middle Branch of the Clinton River varying only the roughness coefficients. A 20% increase in the roughness coefficients, produced an average increase in the water surface of 0.2 feet while a 20% decrease produced an average decrease in the water surface of 0.2 feet.

## REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, Hec-2 Water Surface Profile, Users Manual, 1973.

2. Open Channel Hydraulics, Ven Te Chow, McGraw Hill Book Company, 1959.

3. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydrologic Engineering Circular No. 5, 1965.

4. Measurement of Peak Discharge at Dams by Indirect Methods, U. S. Department of the Interior, Geological Survey, Techniques of Water-Resources Investigations, Book 3, Chapter A5, P. 23.

# APPENDIX A - CALCULATIONS FOR "XKOR"

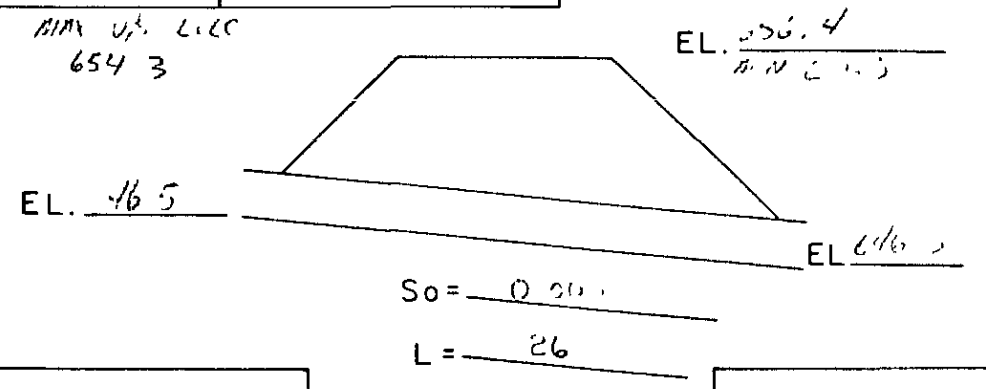
| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 08 | 346 |

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: BELLMAN

CULVERT DESCRIPTION: Multiplate arch with no wingwalls or headwalls

BY RFH DATE 5 24 77

WEIR DESCRIPTION: Roadway with 25.5 foot breadth




A = 98 0 D = 7.8

WP = 42.0 Ke = (0.5) 0.9

$\frac{29.1}{R^{4/3}}$ = 9 4331 n = .031

Sta. 54 5 + 83 Sta 54 5 + 57

CALCULATIONS AND COMMENTS:

- Manning's n -

n for multiplate arch = .031

- XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (9.4331)(.031)^2 26$

XKOR = 1.736 for bracket of $K_e = 0.5$ $K_e = 0.9$

XKOR = 2.136

- CofQ -

Assume H = 1.0 [illegible]

then $\frac{H}{L} = \frac{1}{26} = .038 < .15$

therefore use H = 1.0

∴ CofQ = 3.03

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# HYDRAULIC STRUCTURAL DATA

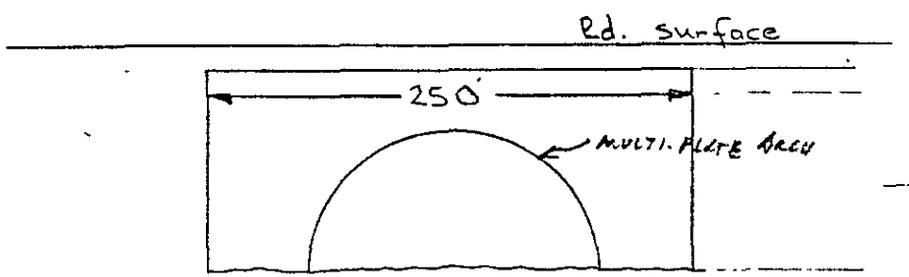
CODED BEH

Code No. 5670-08-BS 344

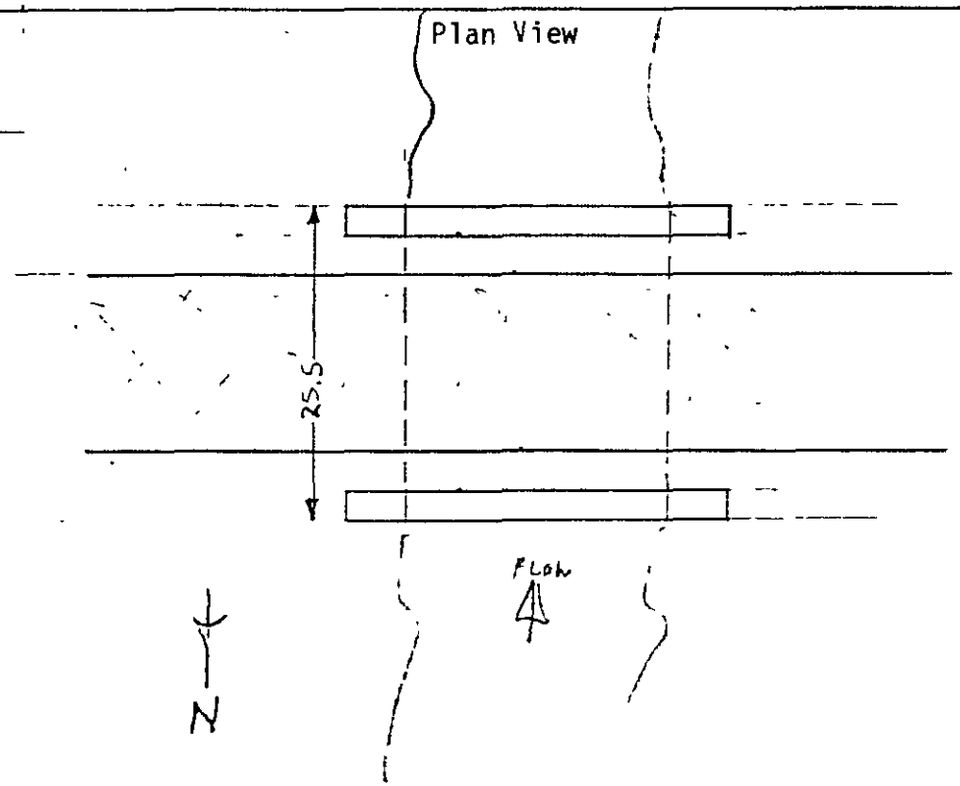
| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | By: P. Shunck, C. Mapley, R. Moses | |
| Date: 3-4-77 | Feature: MULTIPLATE ARCH BRIDGE | Water Course: Middle Branch, Clinton River | |
| Remarks: AI BOTTOM I SAND | | | |
| B PHOTOS! | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 648.6 | Length: 25.0' | Width of Deck: 25.5' | Skew: 90° |

## FIELD SKETCH

Profile View




Plan View



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 54583

BT     12.00       0.00     660.90       0.00     100.00     659.40       0.00     200.00     657.20       0.00

BT    300.00     656.40     649.50     304.00     656.40     653.00     309.50     656.40     654.30     315.00
BT    656.40     653.00     318.50     656.40     649.20     400.00     657.00       0.00     490.00     659.00
BT      0.00     500.00     660.10       0.00     600.00     661.00       0.00

GR    660.00       0.00     658.70     100.00     655.70     200.00     652.10     270.00     649.50     294.00
GR    649.50     300.00     648.60     300.00     646.70     304.00     646.50     309.50     647.80     315.00
GR    649.20     318.50     653.30     318.50     652.90     340.00     652.80     400.00     654.50     435.00
GR    659.00     490.00     660.10     500.00     661.00     600.00
******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

 300.00  649.50  304.00  653.00  309.50  654.30  315.00  653.00  318.50  649.20

 300.00  649.50  300.00  648.60  304.00  646.70  309.50  646.50  315.00  647.80
 318.50  649.20  318.50  653.30
************** LISTING OF COORDINATES OF OPIFICE*******************

 300.00  649.50  304.00  653.00  309.50  654.30  315.00  653.00  318.50  649.20
 318.50  649.20  315.00  647.80  309.50  646.50  304.00  646.70  300.00  648.60
 300.00  649.50

 ORIFICE AREA        98.0 WETTED PERIMETER      42.0  29.1/R**1.333       9.4331
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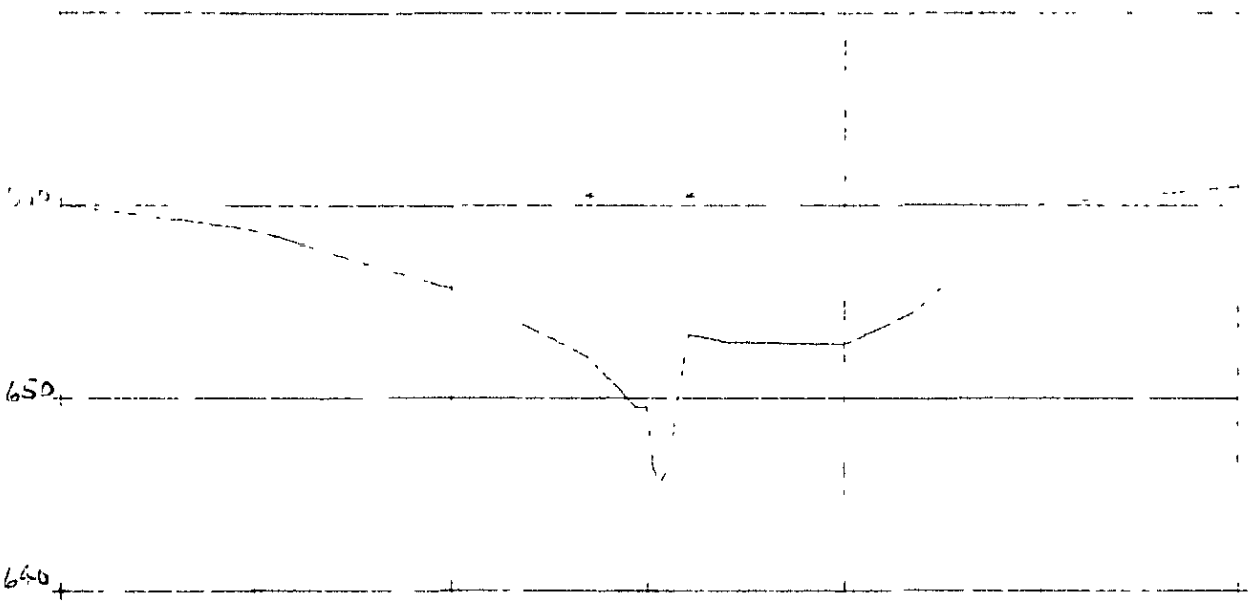
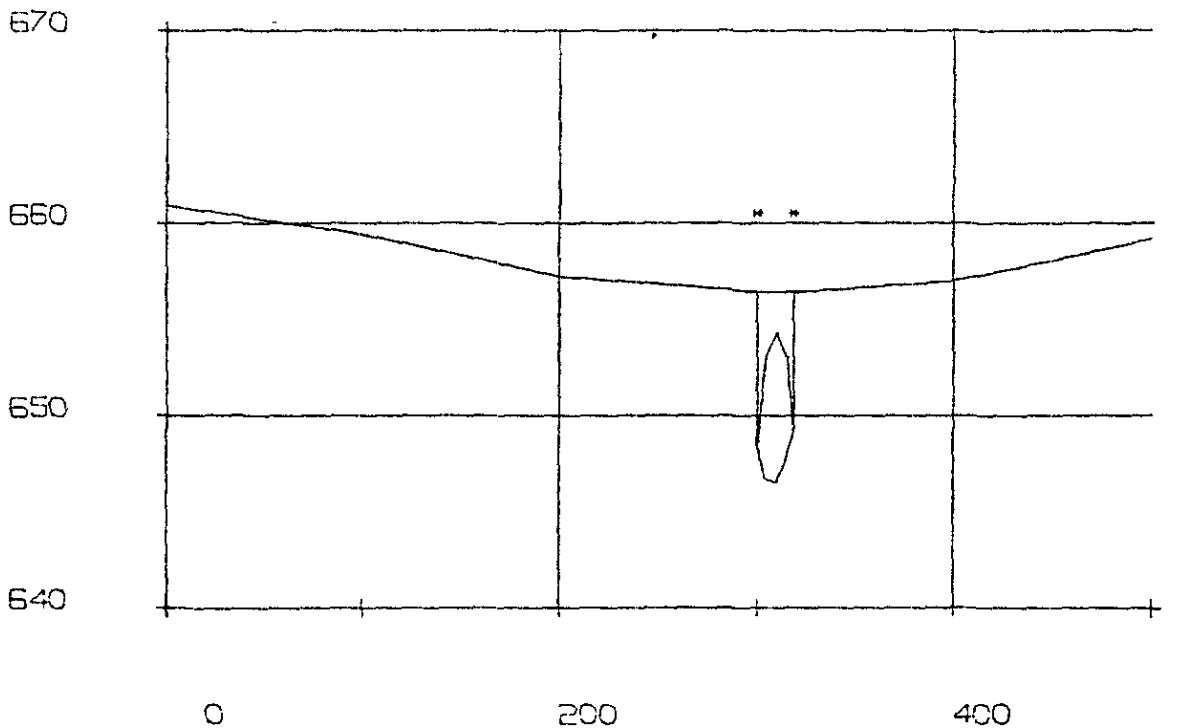
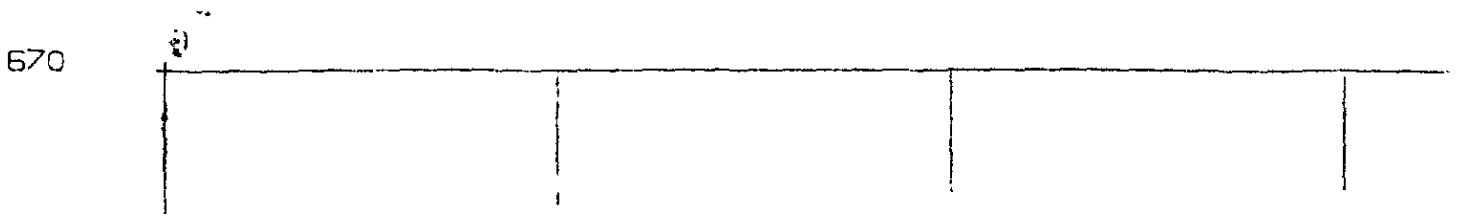
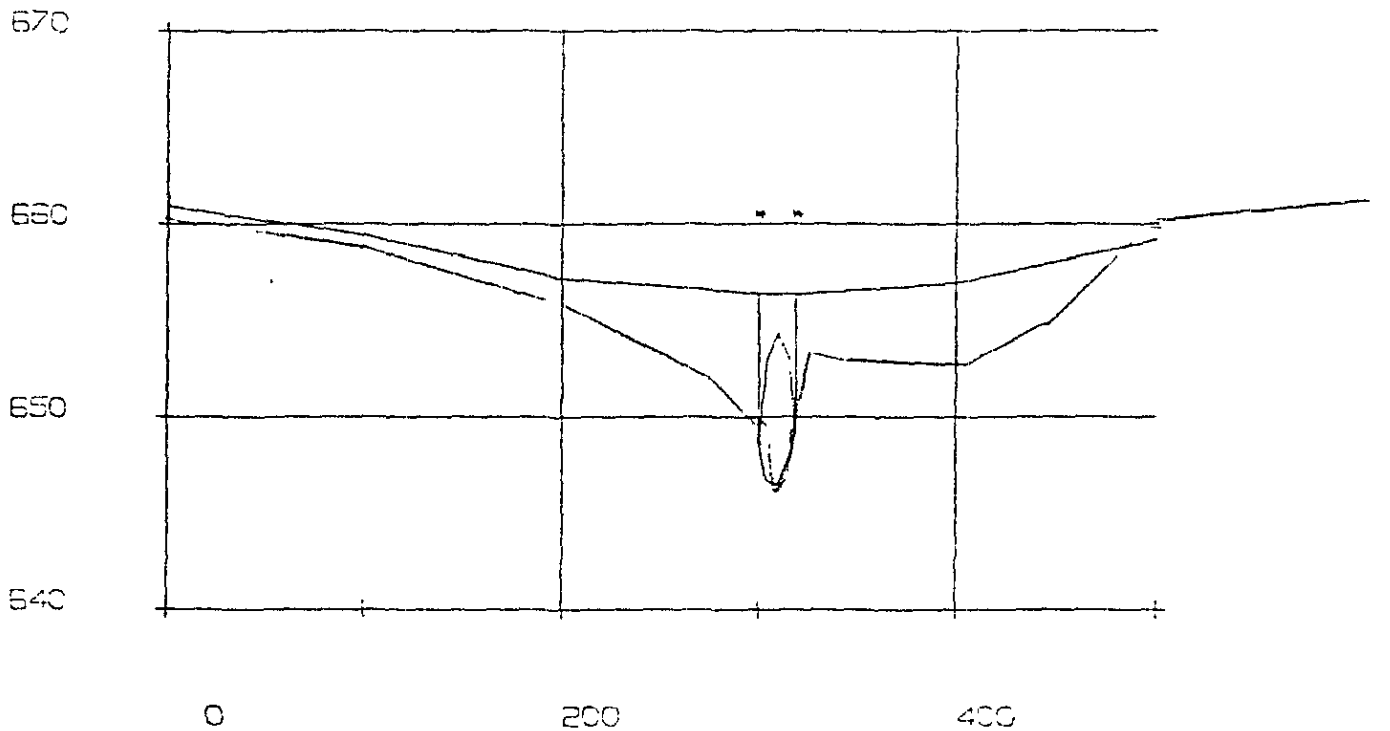

650
660



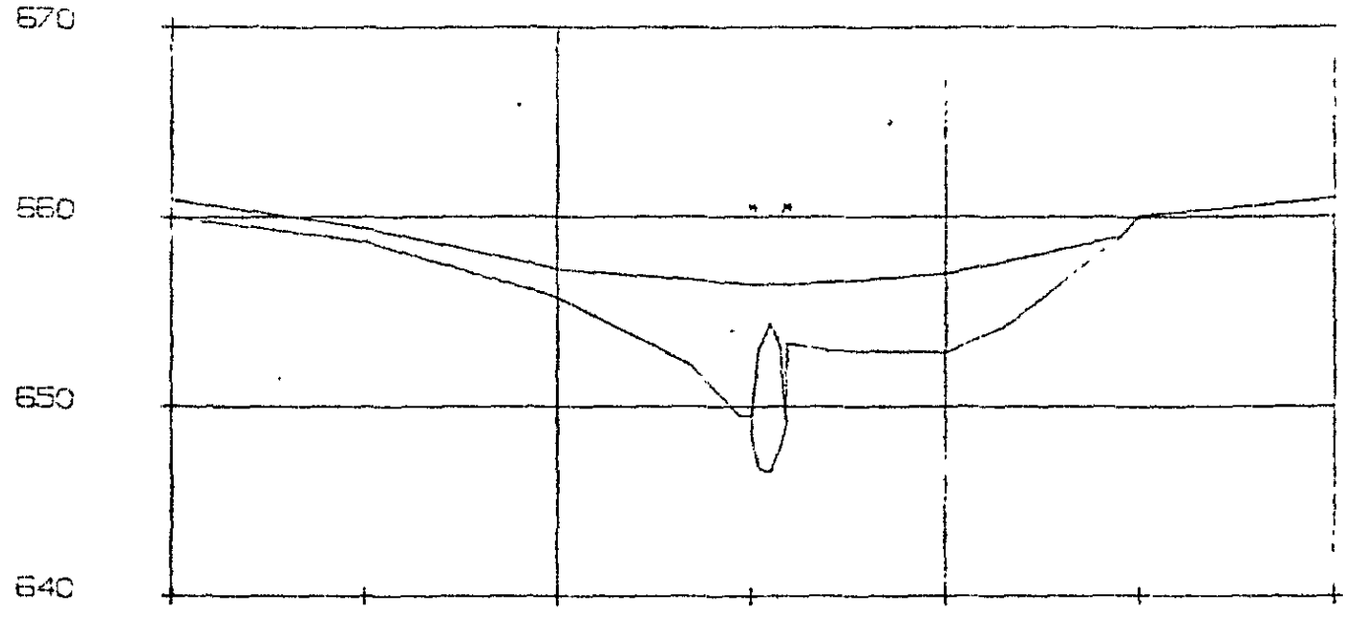

SECTION ~~345~~ 346

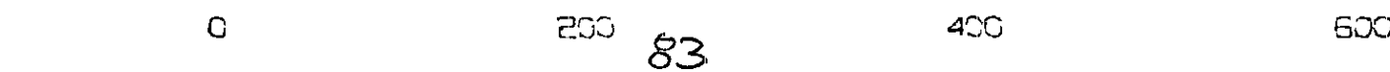




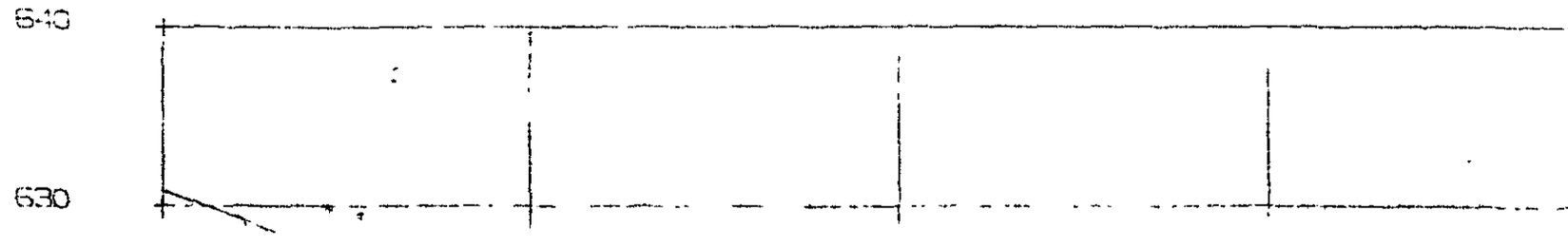

SECTION ~~5457~~
346

SECTION 58+41




SECTION 545~~5~~83



JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. 5670 | 06 | 37[illegible]

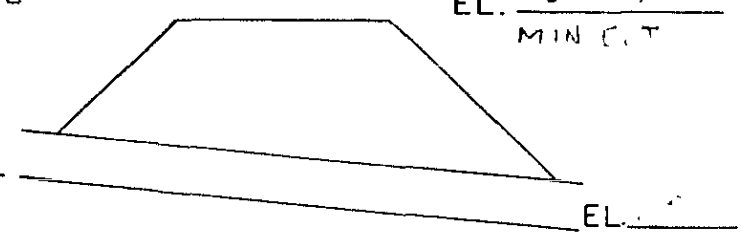
WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: .5 MILE [illegible]

CULVERT DESCRIPTION: Multiplate arch with no wingwalls or headwalls

BY RFH | DATE 5-24-77

MAX DIS EL. C 656.5

EL. [illegible] / MIN EL. T



WEIR DESCRIPTION: Paved roadway [illegible] 37 foot breadth

EL. 650.1

EL. [illegible]

A = 74.0 | D = 6.4

WP = 44.6 | Ke = 0.5 (0.9)

$\frac{29.1}{R^{4/3}}$ = 14.8591 | n = .031

So = 0.50[illegible]

L = 31

Sta. 55+98 | Sta. [illegible]

CALCULATIONS AND COMMENTS:

- Manning's n -

n for multiplate arch = 0.031

- XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.5 + (14.8591)(.031)^2 37$ (0.9)

XKOR = 2.03

XKOR = 2.43

CofQ

Assume H: 1.0 for [illegible]

then $\frac{H}{L} = \frac{1}{37} = .02 < .15$

therefore use H: 1.0

∴ CofQ = 3.05

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P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA CODED BEH

Code No. 5670-08-349

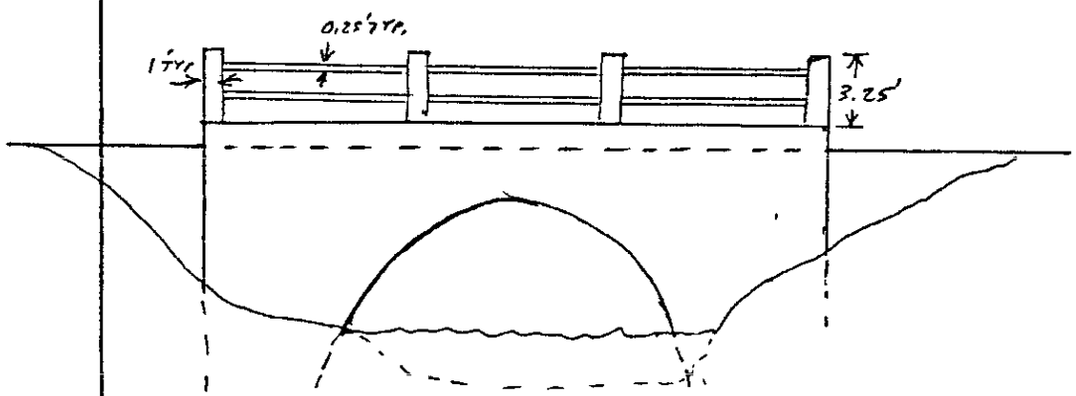
| | | |
|---|---|---|
| Job Name: SHELBY TWP, FIRS, | | By: P. SHUNCK |
| Date: 2 MARCH 1977 | Feature: 25 mile Rd. multi-plate arch | Water Course: MIDDLE BRANCH CLINTON RIVER |
| Remarks: A. BOTTOM: GRAVEL | | |

| USI | USF | RB | LB | DS | DSF |
|---|---|---|---|---|---|
| MBA#1 | 2 | 3 | 4 | 5 | 6 |

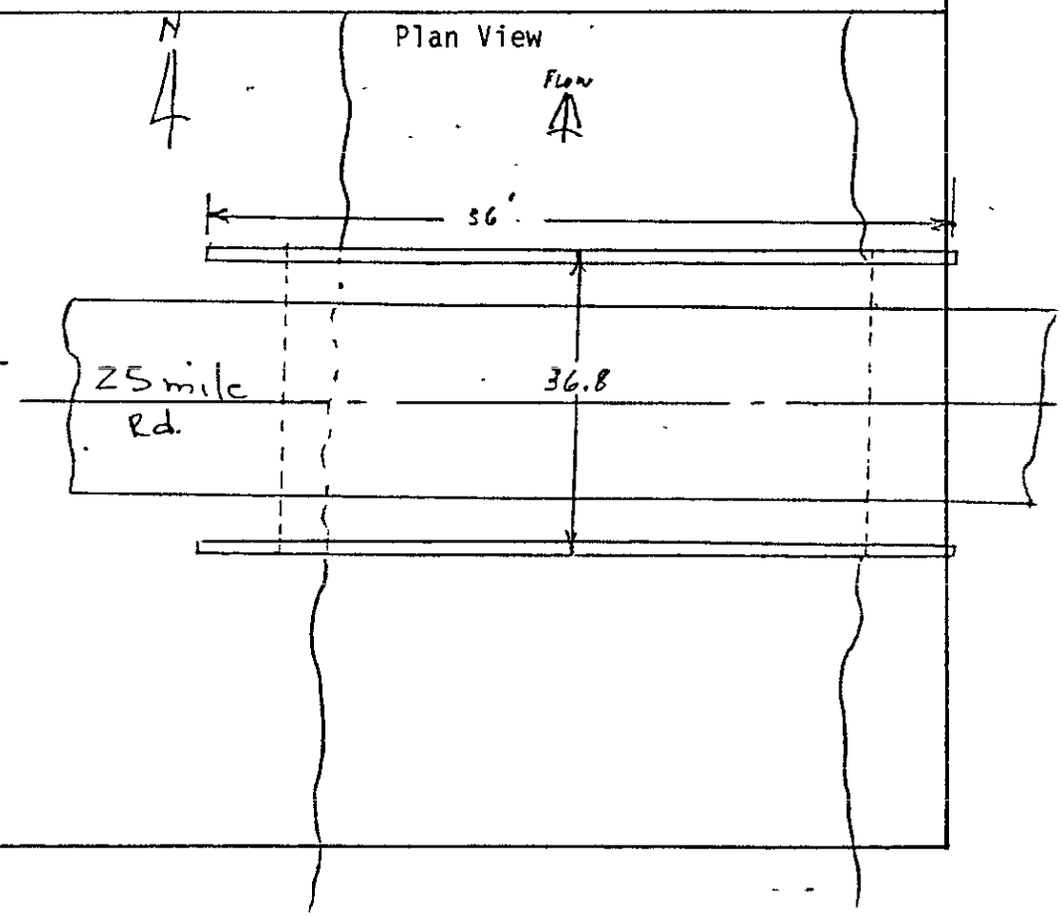
| | | | |
|---|---|---|---|
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 651.7 | Length: | Width of Deck: 36.8 | Skew: 90° |

FIELD SKETCH

Profile View




Plan View



```
X1  5 #  +0u        26   1008.00   1028.00     71.00     71.00    71.00     1.000
56498

BT     23.00      0.00    659.80      0.00    200.00    659.90      0.00    400.00    658.70      0.00

BT    500.00    658.70      0.00    600.00    658.40      0.00    700.00    658.30      0.00    900.00
BT    657.20      0.00    950.00    657.30      0.00   1000.00    657.80      0.00   1000.00    658.40
BT      0.00   1008.00    658.40    652.00   1013.00    658.40    655.40   1016.00    658.40    656.10
BT   1018.00    658.40    656.50   1023.00    658.40    655.40   1028.00    658.40    651.70   1036.00
BT    658.40      0.00   1036.00    657.90      0.00   1100.00    657.90      0.00   1200.00    658.20
BT      0.00   1300.00    658.70      0.00   1400.00    660.00      0.00   1500.00    660.20      0.00

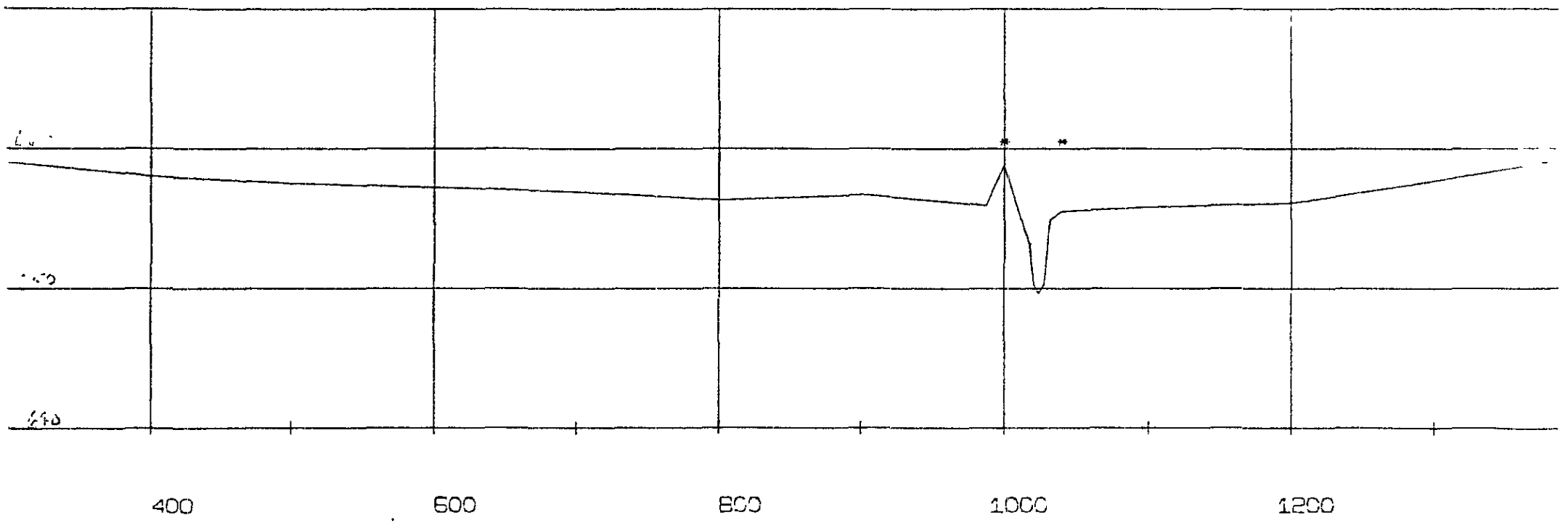
GR    658.20      0.00    658.60    100.00    660.00    200.00    659.00    300.00    658.00    400.00
GR    657.50    500.00    657.20    600.00    656.90    700.00    656.30    800.00    656.70    900.00
GR    655.80   1000.00    652.00   1008.00    651.00   1008.00    652.60   1013.00    650.30   1016.00
GR    650.10   1018.00    650.70   1023.00    651.70   1028.00    654.80   1031.00    655.10   1036.00
GR    655.50   1040.00    655.80   1100.00    656.10   1200.00    657.70   1300.00    659.40   1400.00
GR    659.70   1500.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

1008.00  652.00 1013.00  655.40 1016.00  656.10 1018.00  656.50 1023.00  655.40
1028.00  651.70

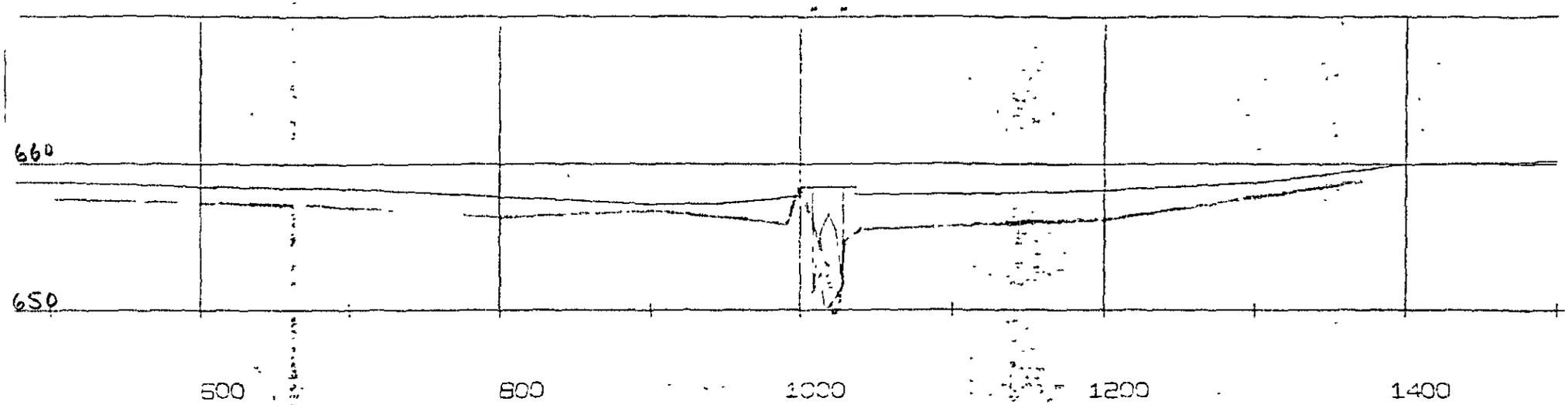
1008.00  652.00 1008.00  651.00 1013.00  652.60 1016.00  650.30 1018.00  650.10
1023.00  650.70 1028.00  651.70
************** LISTING OF COORDINATES OF ORIFICE*********************

1008.00  652.00 1013.00  655.40 1016.00  656.10 1018.00  656.50 1023.00  655.40
1028.00  651.70 1023.00  650.70 1018.00  650.10 1016.00  650.30 1013.00  652.60
1008.00  651.00 1008.00  652.00

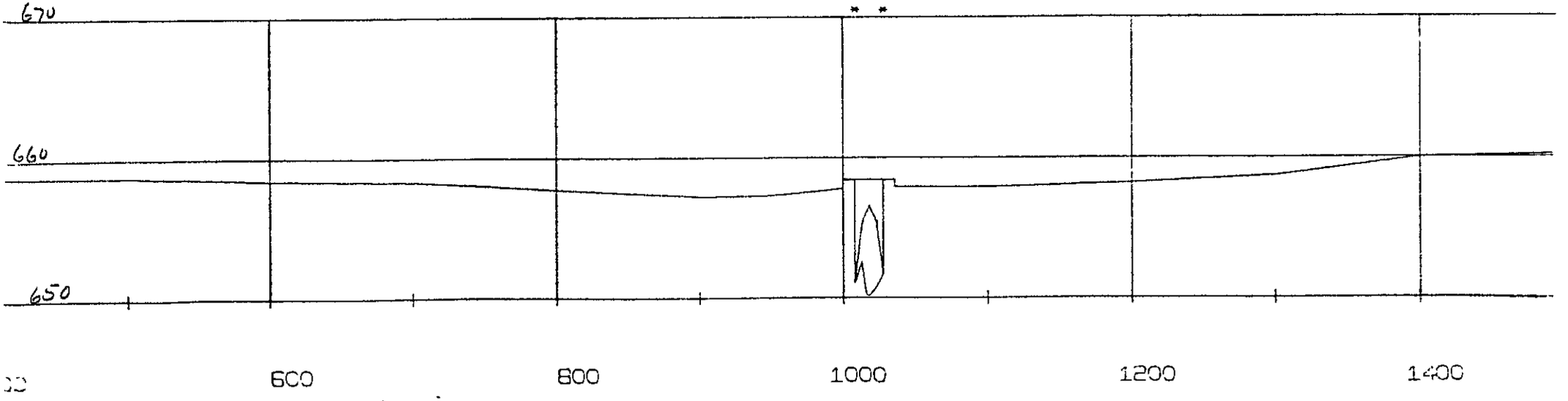
 ORIFICE AREA        74.0 WETTED PERIMETER      44.6  29.1/R**1.333      14.8591
```



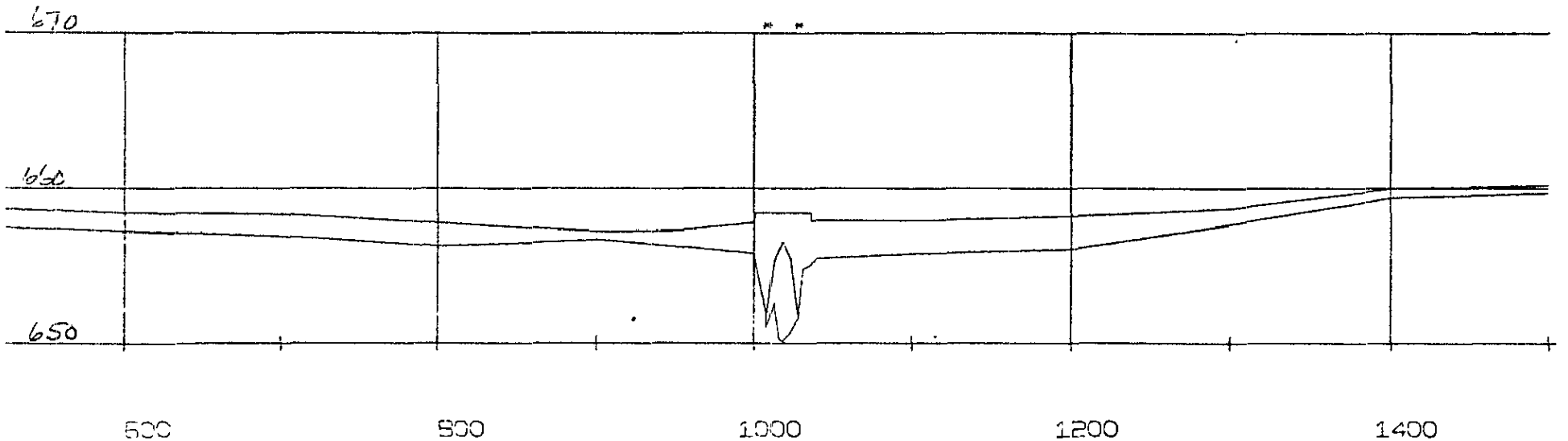

SECTION 348




SECTION 349

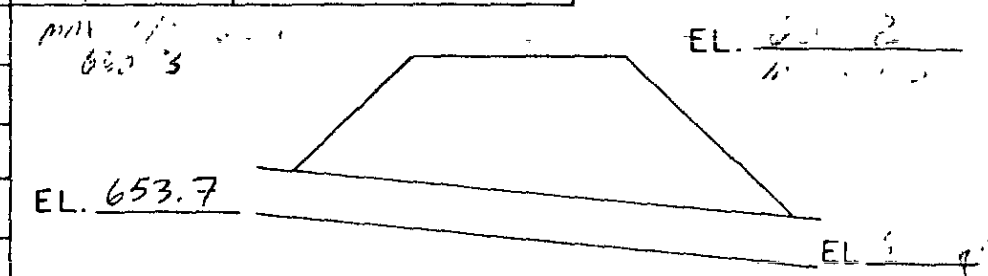



SECTION 349




SECTION 56+98

| | | | |
|---|---|---|---|
| JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. | 5670 | 1.8 | 3.51 |
| WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: [illegible] | | |
| CULVERT DESCRIPTION: Box [illegible] headwall, [illegible] | BY RIII | DATE 5-24-77 | |
| WEIR DESCRIPTION: Paved roadway with 38 foot [illegible] | | | |




A = 110.1 D = 6.6

WP = 56.8 Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 12.0779 n = .0529

Sta. 584+11 Sta. [illegible]

CALCULATIONS AND COMMENTS:

- Manning's "n" –

$$n = \frac{\left(.015^2 \times 5.5 + .07^2 \times 24 + .015^2 \times 2.5 + .04^2 \times 24.8\right)^{1/2}}{56.8}$$

n = .0529

- XKOR –

XKOR = $1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

XKOR = 1 + 0.7 + (12.0779)(.053)² 38

XKOR = 2.98

- COFQ –

[illegible]

[illegible]

[illegible]

[illegible]

∴ COFQ [illegible]

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# HYDRAULIC STRUCTURAL DATA

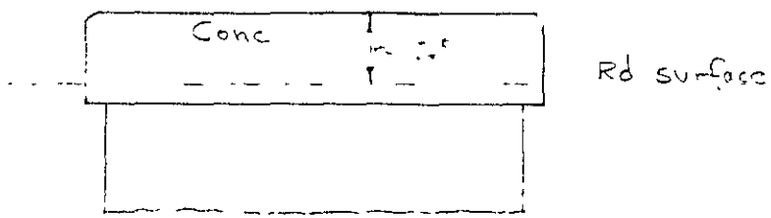
CODED BEH

Code No. 5670-03-BS-35)

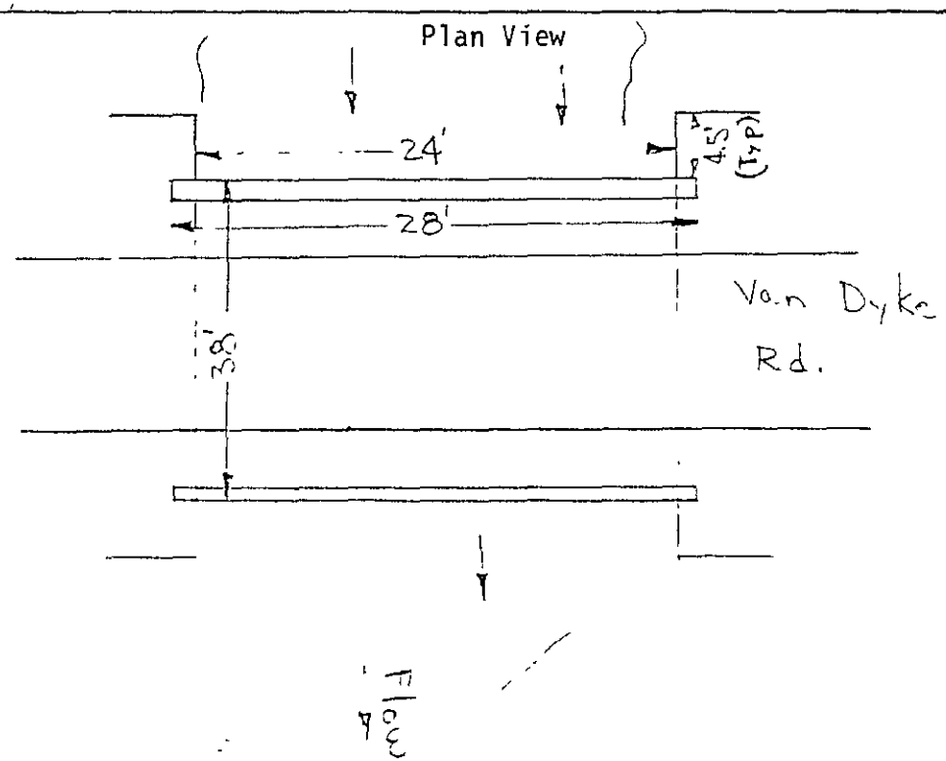
| | | | |
|---|---|---|---|
| Job Name: Sheary Lump FES | | By: C. Mahew, P Shurck, R Moses | |
| Date: 3-3-77 | Feature: Conc bridge | Water Course: Middle Branch Clinton River | |
| Remarks: | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: | Length: 28' | Width of Deck: 38' | Skew: 90° |

## FIELD SKETCH

Profile View




Plan View



```
X1 =: =-=0          30     685.00     709.00     571.00     501.00     461.00      1.000
58479

BT      26.00       0.00     662.00       0.00      85.00     662.30       0.00     185.00     662.40       0.00

BT     285.00     662.70       0.00     335.00     662.80       0.00     362.00     662.90       0.00     422.00
BT     663.00       0.00     522.00     663.20       0.00     622.00     663.50       0.00     683.00     663.70
BT       0.00     683.00     666.20       0.00     685.00     666.20     658.00     685.00     666.20     660.30
BT     709.00     666.20     660.30     709.00     666.20     657.70     711.00     666.20       0.00     711.00
BT     663.70       0.00     772.00     663.50       0.00     822.00     668.60       0.00     869.00     668.70
BT       0.00     922.00     665.30       0.00     987.00     662.70       0.00    1004.00     668.60       0.00
BT    1058.00     671.60       0.00    1122.00     671.40       0.00    1222.00     669.80       0.00

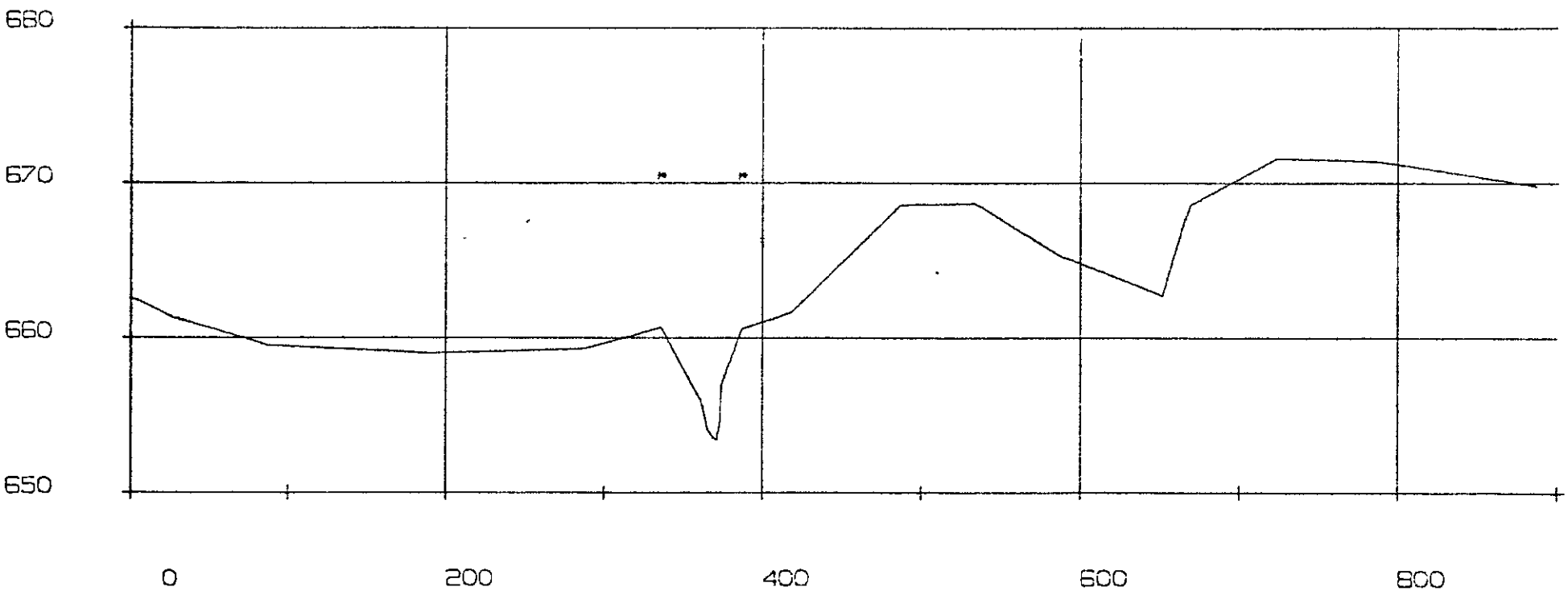
GR     662.00       0.00     662.30      85.00     662.40     185.00     662.70     285.00     662.80     335.00
GR     661.30     362.00     659.50     422.00     659.00     522.00     659.30     622.00     660.70     671.00
GR     658.40     683.00     658.00     685.00     654.90     685.00     653.70     691.00     654.30     695.00
GR     657.30     701.00     657.60     705.00     657.70     709.00     658.10     711.00     660.60     722.00
GR     661.70     754.00     663.50     772.00     668.60     822.00     668.70     869.00     665.30     922.00
GR     662.70     987.00     668.60    1004.00     671.60    1058.00     671.40    1122.00     669.80    1222.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

 685.00  658.00  685.00  660.30  709.00  660.30  709.00  657.70

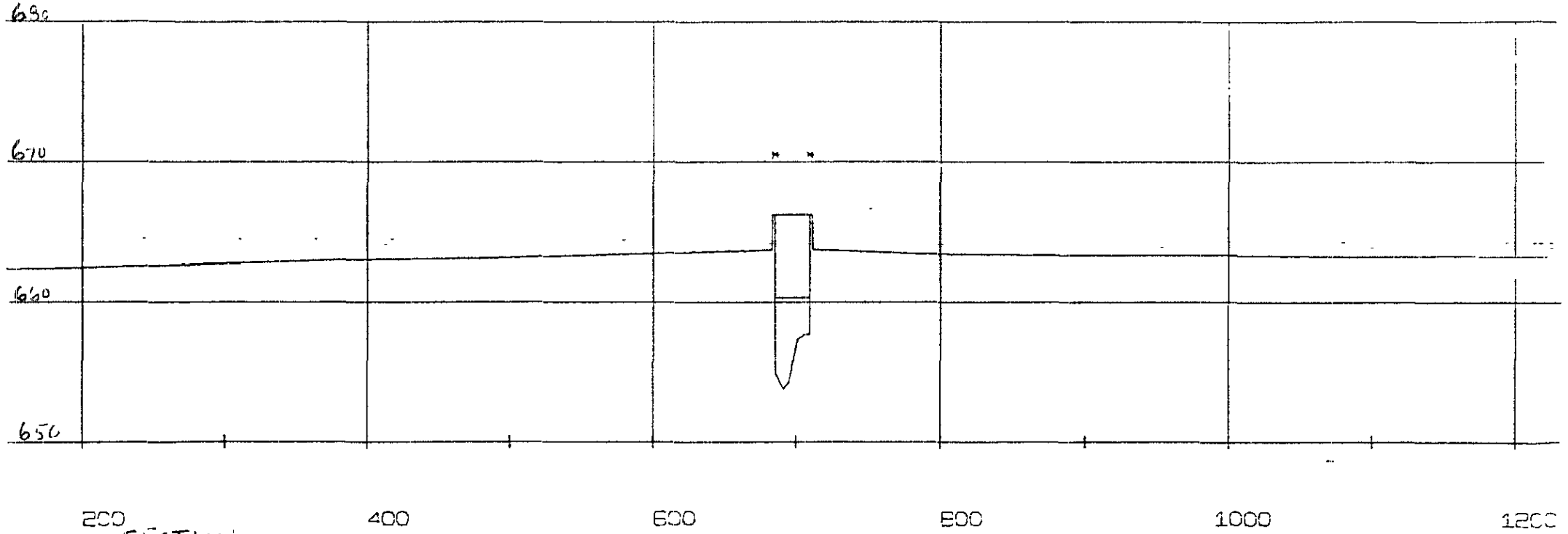
 685.00  658.00  685.00  654.90  691.00  653.70  695.00  654.30  701.00  657.30
 705.00  657.60  709.00  657.70
************** LISTING OF COORDINATES OF ORIFICE*********************

 685.00  658.00  685.00  660.30  709.00  660.30  709.00  657.70  705.00  657.60
 701.00  657.30  695.00  654.30  691.00  653.70  685.00  654.90  685.00  658.00

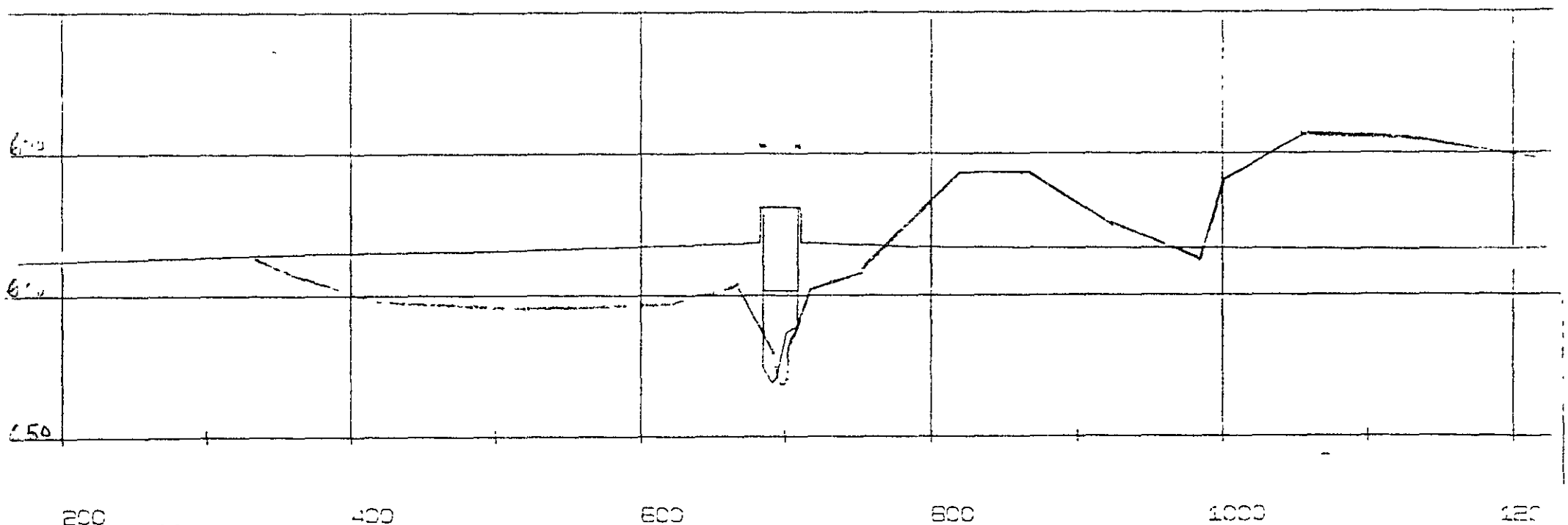
 ORIFICE AREA      110.1 WETTED PERIMETER      56.8  29.1/R**1.333      12.0779
```



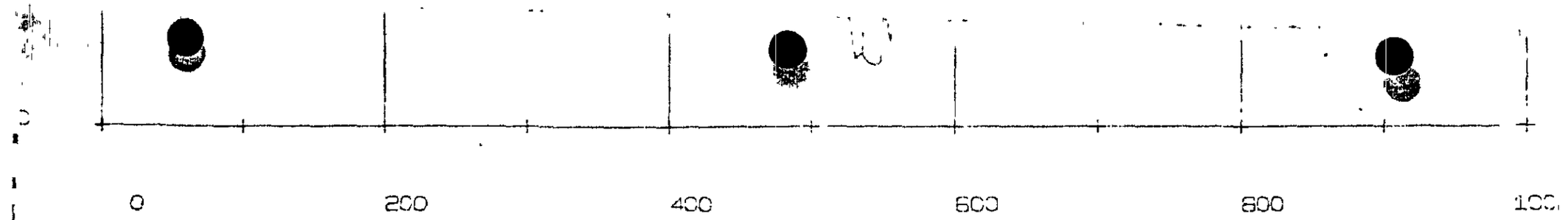

SECTION 350



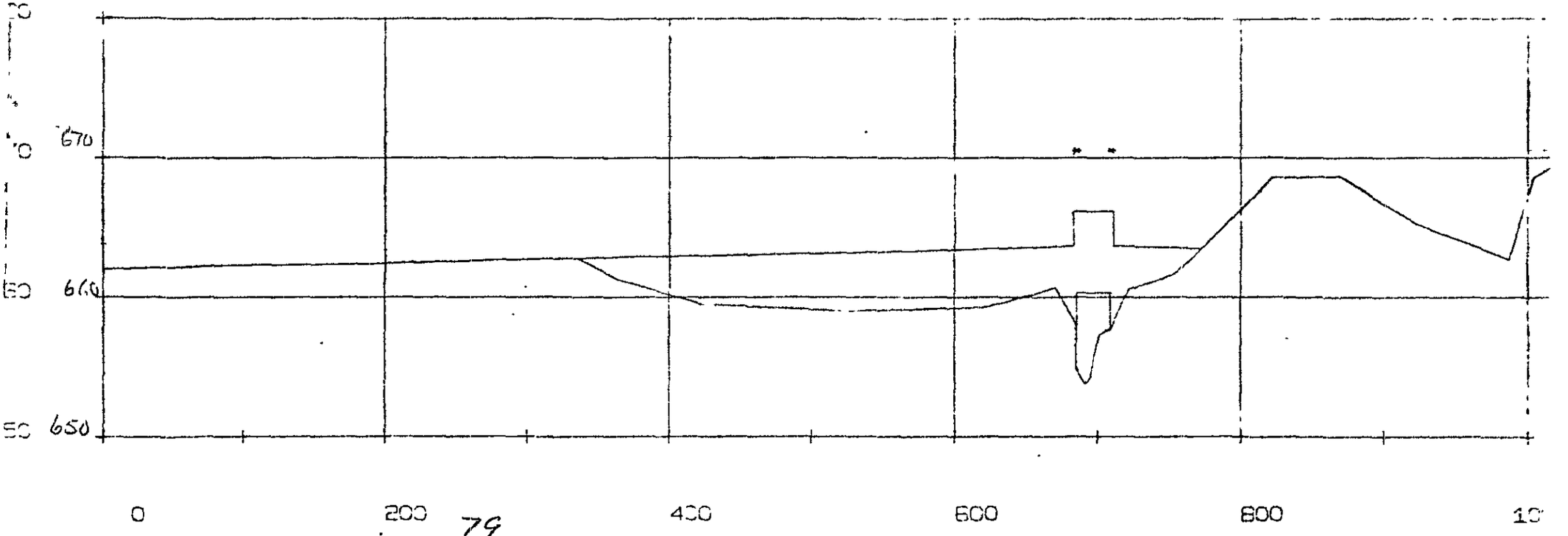

SECTION
351




SECTION
351




SECTION 66925




SECTION 58479

JOB NAME: Shelby Township, FIS | JOB NO. 5670

WATERCOURSE: Middle Branch of the Clinton [illegible] | CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: Multiplate arch with wingwalls approx. 10° to barrel

BY [illegible] | DATE [illegible]

WEIR DESCRIPTION: Roadway with 32 foot breadth

MAX U/S [illegible] 670 [illegible]

EL. [illegible]

EL. 664.6

EL. [illegible]

A = 57.4 | D = 5.4

WP = 37.5 | Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 15.6406 | n = .031

So = [illegible]

L = 32

Sta. [illegible] | Sta. [illegible]

CALCULATIONS AND COMMENTS:

Manning's n –

n for multiplate arch = .031

XKOR =

XKOR = $1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

XKOR = 1 + 0.5 + (15.6406) [illegible] (.031)²(32)

XKOR = 1.98

CONTROL

[illegible]

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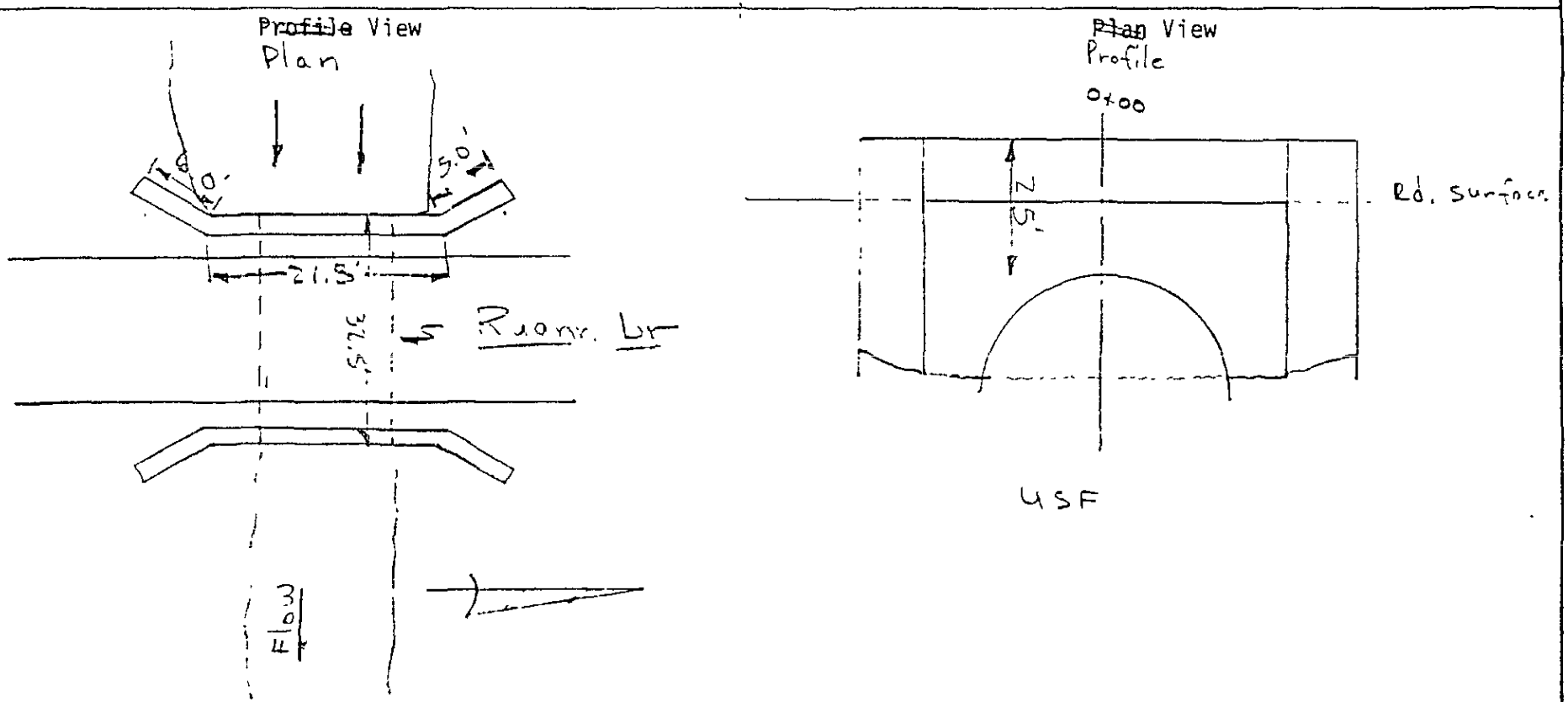
# HYDRAULIC STRUCTURAL DATA

CODED BEH 2/21/77

Code No. 5670-08-BS-356

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | | By: C. Mapley L. MacDonald |
| Date: 2-17-77 | Feature: CMP Arch culvert | | Water Course: MB Clinton River |
| Remarks: | | | |
| | | | |
| | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: — |
| Water Elevation: [illegible] | Length: 21.8 | Width of Deck: [illegible] | Skew: 90° |

FIELD SKETCH



```
1  6245* 00        22    491.50    508.50    314.00    294.00    304.00     1.000

T     20.00      0.00    669.80      0.00    100.00    670.80      0.00    200.00    671.00      0.00

T    255.00    669.50      0.00    310.00    669.60      0.00    400.00    669.20      0.00    489.10
T    670.50      0.00    489.10    672.60      0.00    491.50    672.60    665.50    495.75    672.60
T    669.10    500.00    672.60    670.00    504.25    672.60    669.20    508.50    672.60    664.60
T    510.90    672.60      0.00    510.90    670.60      0.00    526.00    670.60      0.00    600.00
T    669.70      0.00    700.00    669.30      0.00    800.00    669.50      0.00   1000.00    669.50
T      0.00

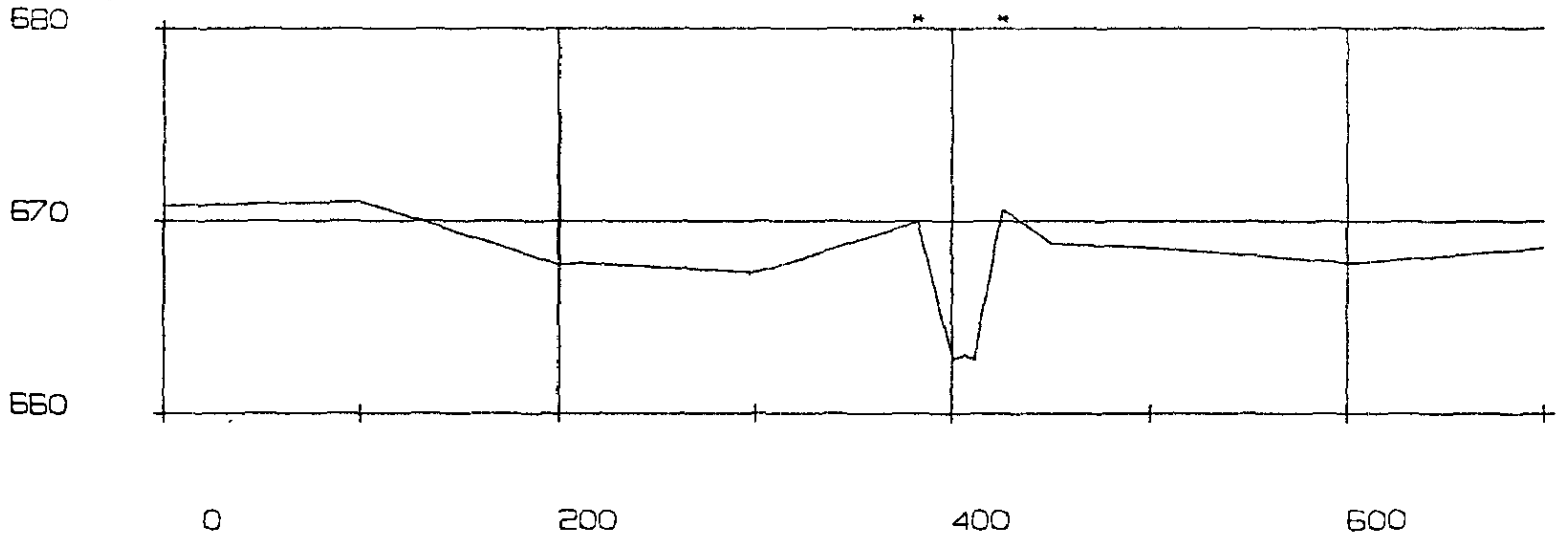
R    669.80      0.00    670.80    100.00    671.00    200.00    669.50    255.00    667.80    310.00
R    667.30    400.00    670.00    483.00    667.60    489.10    666.60    491.50    665.50    491.50
R    665.00    495.75    664.60    500.00    664.60    504.25    664.60    508.50    665.40    510.90
R    670.60    526.00    668.80    551.00    668.60    600.00    667.80    700.00    668.60    800.00
R    669.50    900.00    669.50   1000.00
*****************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE******************

491.50  665.50  495.75  669.10  500.00  670.00  504.25  669.20  508.50  664.60

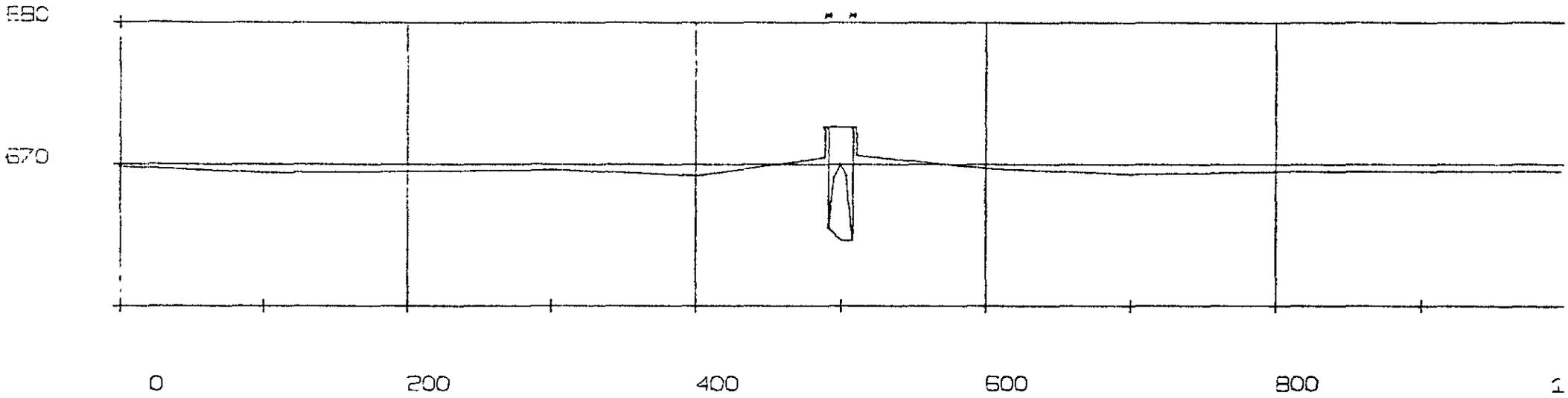
491.50  666.60  491.50  665.50  495.75  665.00  500.00  664.60  504.25  664.60
508.50  664.60
************* LISTING OF COORDINATES OF ORIFICE*********************

491.50  665.50  495.75  669.10  500.00  670.00  504.25  669.20  508.50  664.60
504.25  664.60  500.00  664.60  495.75  665.00  491.50  665.50  491.50  665.50

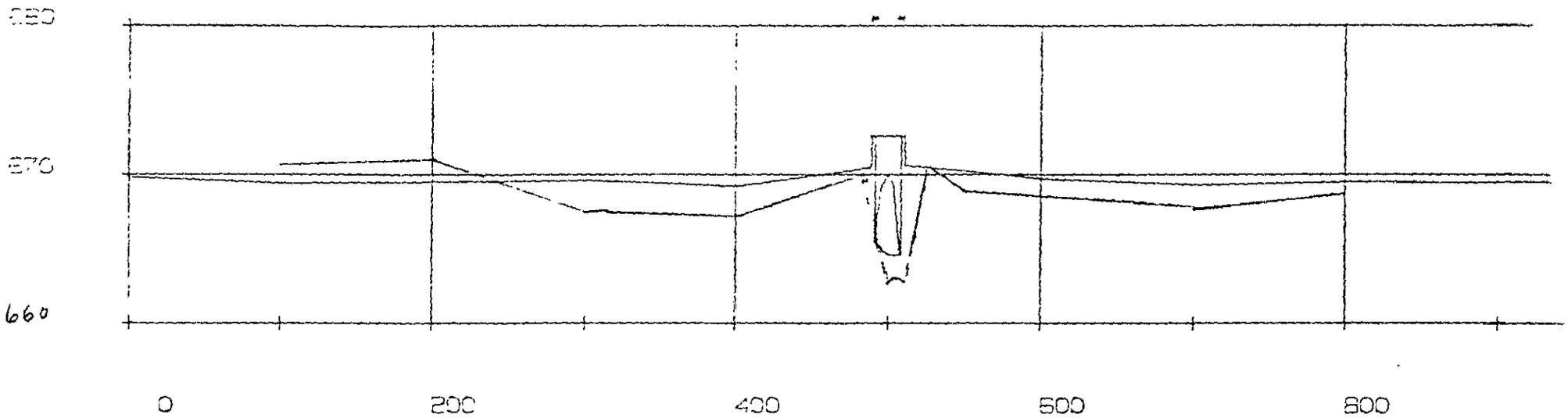
ORIFICE AREA        59.9 WETTED PERIMETER     37.5  29.1/R**1.333     15.6406
```



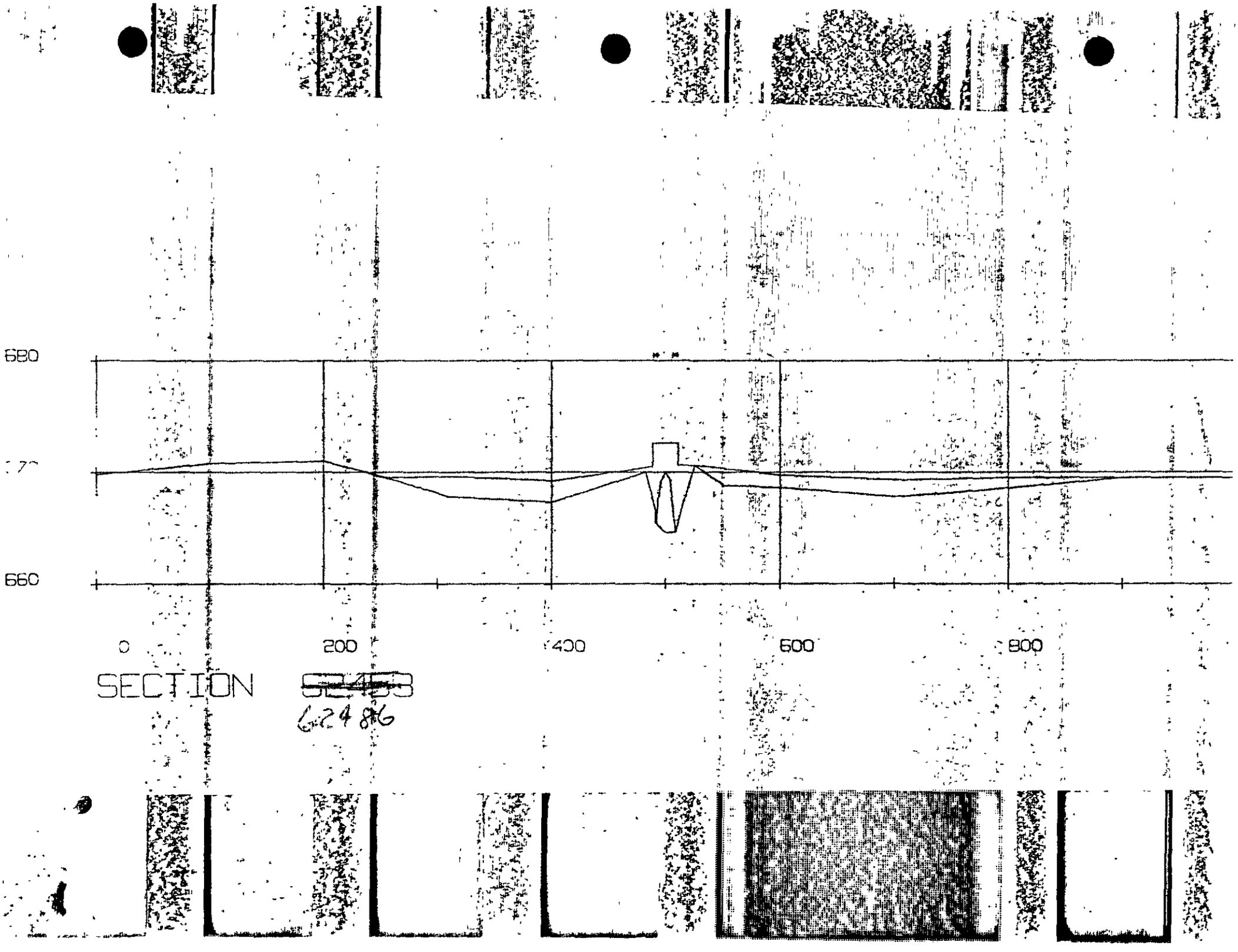

SECTION 355




SECTION 356




SECTION 356


680
660
0
200
400
600
800
SECTION
624 86

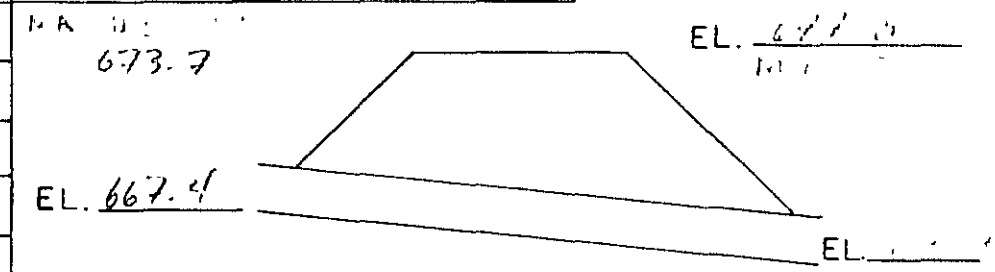
JOB NAME: SHELBY TOWNSHIP FIS | JOB NO. [illegible]

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: Multiplate arch with wingwalls approximately 45° to barrel

BY RFH | DATE 5-24-77

WEIR DESCRIPTION: Paved roadway with 58 foot breadth




A = 79.2 | D = 6.3

WP = 43.9 | Ke = 0.4

$\frac{29.1}{R^{4/3}}$ = 13.2866 | n = .031

So = [illegible]

L = 58

Sta. 638+79 | Sta. [illegible]

CALCULATIONS AND COMMENTS:

Manning's n -

n for multiplate arch = .031

XKOR -

$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$

$XKOR = 1 + 0.4 + (13.2866)(.031)^2 58$

$XKOR = 2.14$

COFQ -

Assume [illegible]

then [illegible] = [illegible]

therefore [illegible]

∴ COFQ = 5.0%

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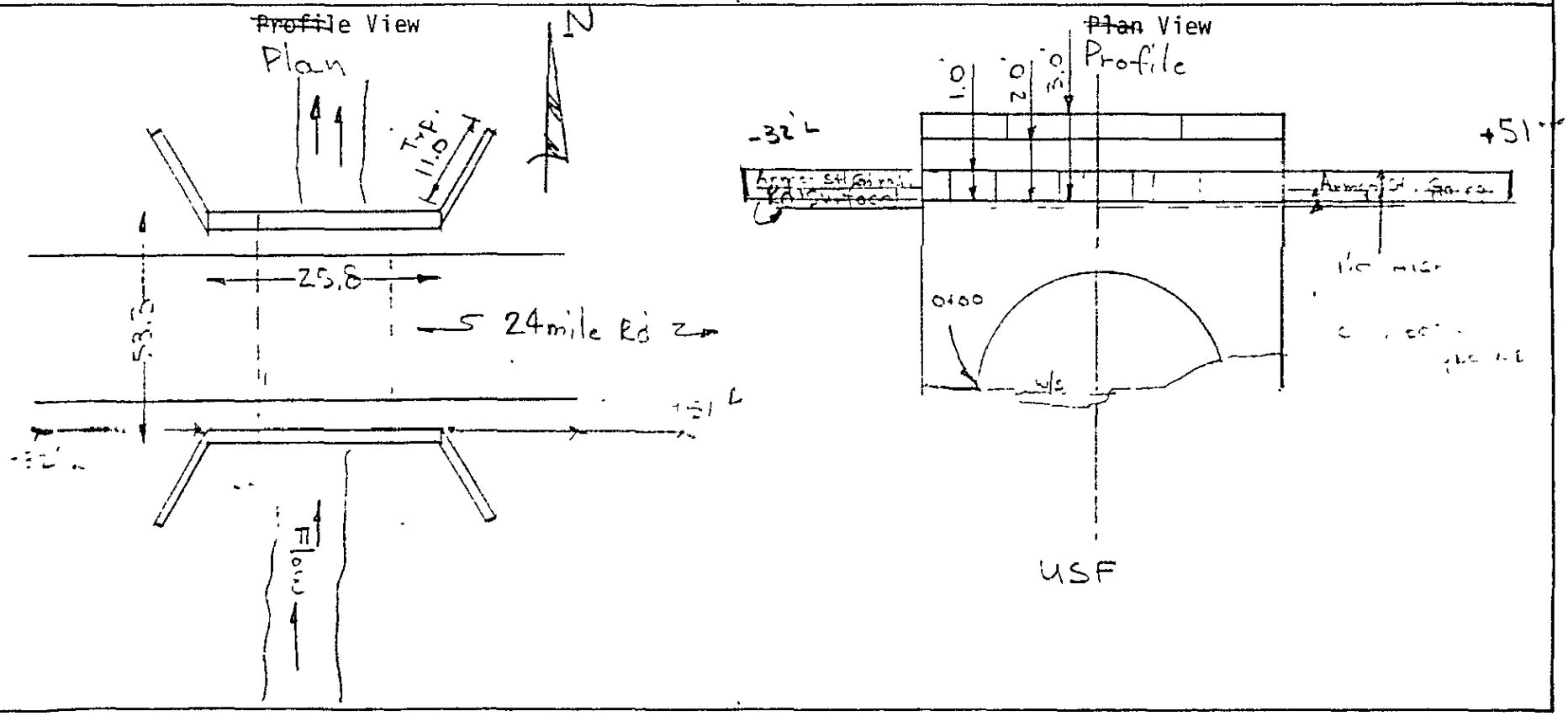
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA CODED BEH 2/21/77

Code No. 5670-05-BS 35

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FTS | | | By: C. Money, L. MacDonald |
| Date: 2-17-77 | Feature: CMP Arch Culvert | | Water Course: MB Clinton River |
| Remarks: | | | |
| | | | |
| | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: NA | Area: |
| Water Elevation: 667.6 | Length: 25.8 | Width of Deck: 58.3 | Skew: |

FIELD SKETCH



| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| X1 | 63821.00 | 36 | 1500.00 | 1520.00 | 91.00 | 31.00 | 81.00 | 1.000 |

63879

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 35.00 | 0.00 | 681.10 | 0.00 | 100.00 | 680.20 | 0.00 | 200.00 | 679.40 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 300.00 | 679.10 | 0.00 | 400.00 | 678.60 | 0.00 | 500.00 | 677.90 | 0.00 | 600.00 |
| BT | 677.60 | 0.00 | 700.00 | 677.10 | 0.00 | 800.00 | 676.50 | 0.00 | 900.00 | 676.30 |
| BT | 0.00 | 984.00 | 676.10 | 0.00 | 1000.00 | 675.20 | 0.00 | 1100.00 | 674.70 | 0.00 |
| BT | 1200.00 | 674.00 | 0.00 | 1300.00 | 674.60 | 0.00 | 1400.00 | 676.20 | 0.00 | 1497.10 |
| BT | 677.10 | 0.00 | 1497.10 | 679.10 | 0.00 | 1500.00 | 679.10 | 668.70 | 1500.00 | 679.10 |
| BT | 668.70 | 1505.00 | 679.10 | 672.70 | 1510.00 | 679.10 | 673.70 | 1515.00 | 679.10 | 672.50 |
| BT | 1520.00 | 679.10 | 668.00 | 1522.90 | 679.10 | 0.00 | 1522.90 | 677.00 | 0.00 | 1600.00 |
| BT | 676.70 | 0.00 | 1700.00 | 675.40 | 0.00 | 1770.00 | 674.70 | 0.00 | 1800.00 | 674.90 |
| BT | 0.00 | 1900.00 | 675.50 | 0.00 | 2000.00 | 674.00 | 0.00 | 2100.00 | 673.80 | 0.00 |
| BT | 2200.00 | 672.70 | 0.00 | 2300.00 | 672.50 | 0.00 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 681.10 | 0.00 | 680.20 | 100.00 | 679.40 | 200.00 | 679.10 | 300.00 | 678.60 | 400.00 |
| GR | 677.90 | 500.00 | 677.60 | 600.00 | 677.10 | 700.00 | 676.50 | 800.00 | 676.30 | 900.00 |
| GR | 676.10 | 984.00 | 675.20 | 1000.00 | 674.70 | 1100.00 | 672.80 | 1200.00 | 672.70 | 1300.00 |
| GR | 672.30 | 1400.00 | 674.60 | 1497.10 | 674.70 | 1500.00 | 668.70 | 1500.00 | 668.00 | 1505.00 |
| GR | 667.90 | 1505.40 | 667.40 | 1505.40 | 667.40 | 1510.00 | 667.90 | 1515.00 | 668.00 | 1520.00 |
| GR | 669.30 | 1522.90 | 672.90 | 1531.00 | 673.10 | 1600.00 | 673.70 | 1700.00 | 674.70 | 1770.00 |
| GR | 674.90 | 1800.00 | 675.50 | 1900.00 | 674.00 | 2000.00 | 673.80 | 2100.00 | 672.70 | 2200.00 |
| GR | 672.50 | 2300.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

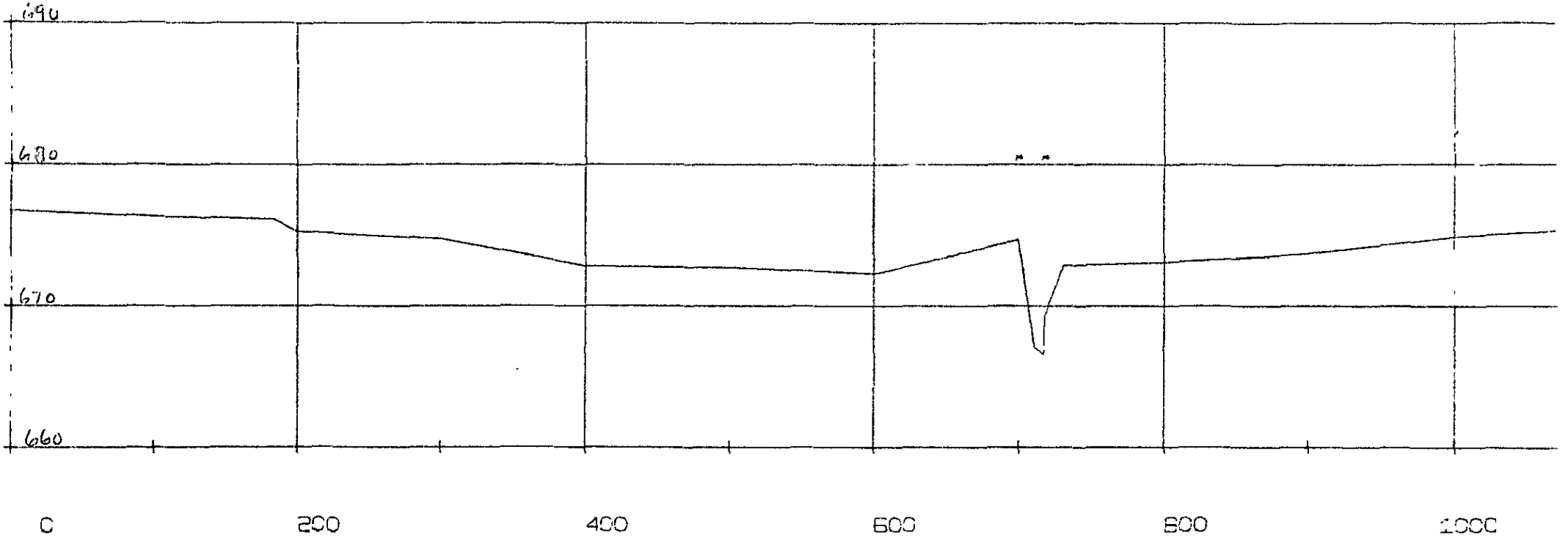
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1500.00 | 668.70 | 1500.00 | 668.70 | 1505.00 | 672.70 | 1510.00 | 673.70 | 1515.00 | 672.50 |
| 1520.00 | 668.00 | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1500.00 | 674.70 | 1500.00 | 668.70 | 1505.00 | 668.00 | 1505.40 | 667.90 | 1505.40 | 667.40 |
| 1510.00 | 667.40 | 1515.00 | 667.90 | 1520.00 | 668.00 | | | | |

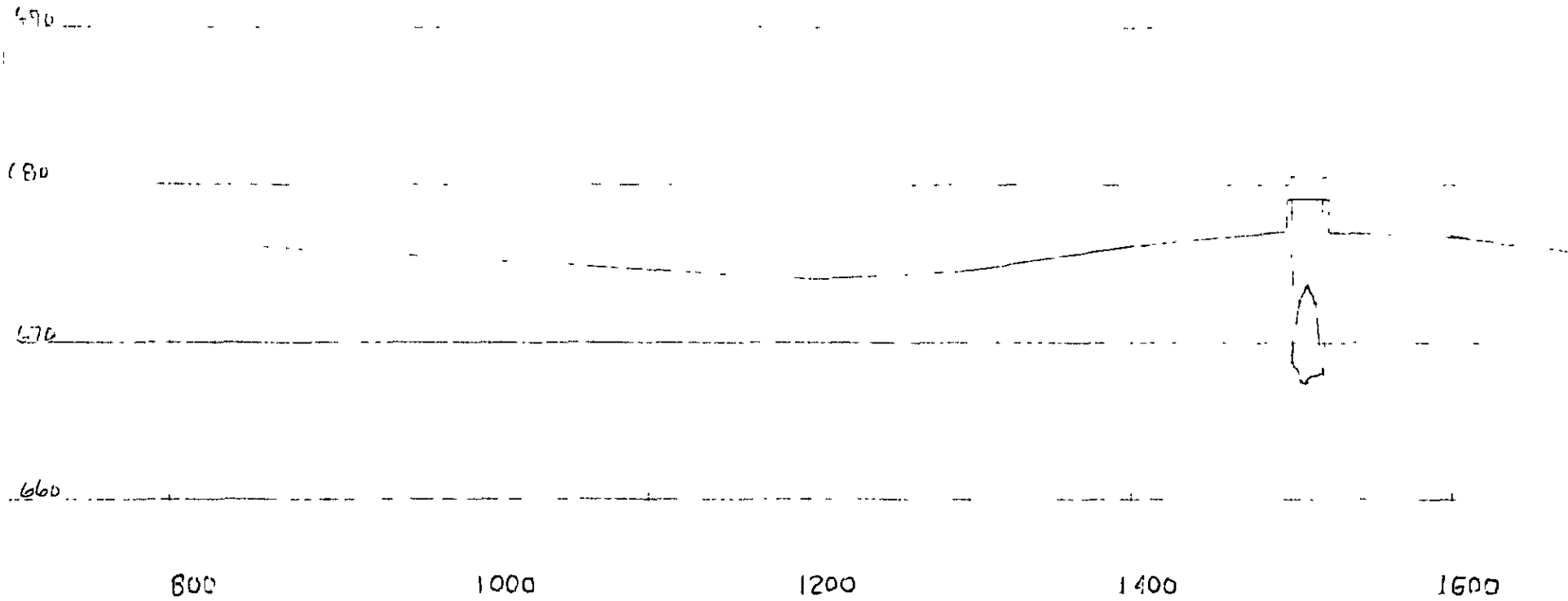
********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1500.00 | 668.70 | 1500.00 | 668.70 | 1505.00 | 672.70 | 1510.00 | 673.70 | 1515.00 | 672.50 |
| 1520.00 | 668.00 | 1515.00 | 667.90 | 1510.00 | 667.40 | 1505.40 | 667.40 | 1505.40 | 667.90 |
| 1505.00 | 668.00 | 1500.00 | 668.70 | 1500.00 | 668.70 | | | | |

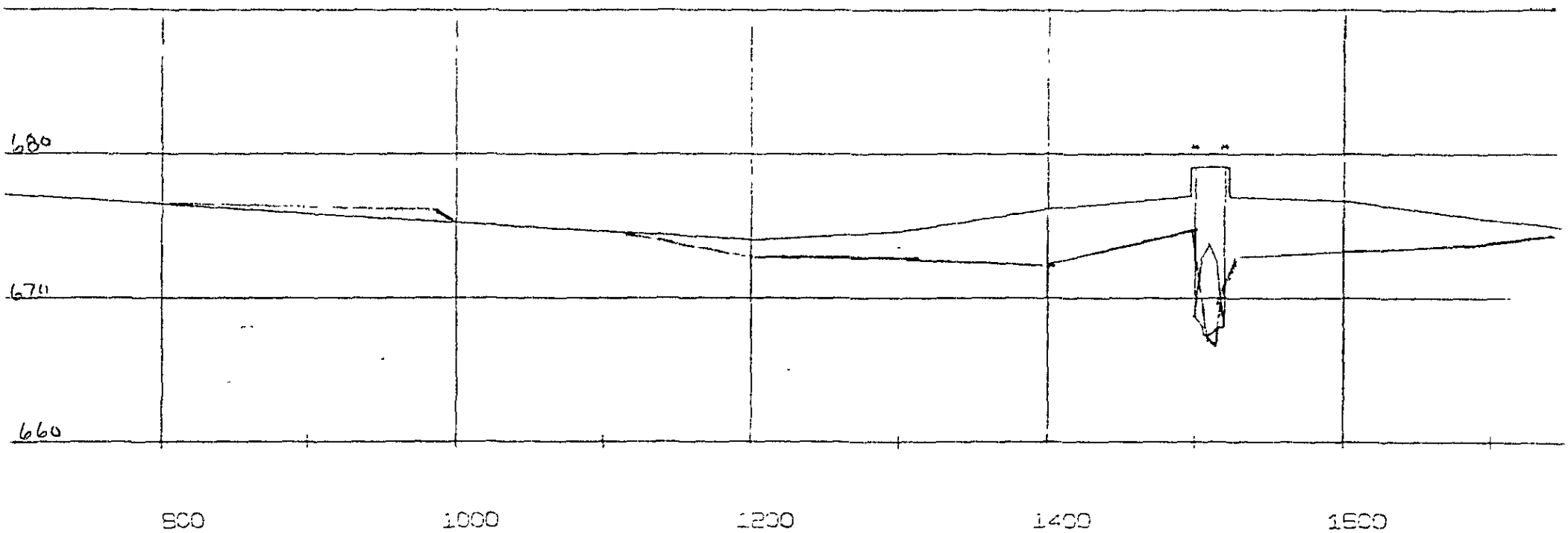
ORIFICE AREA 79.2 WETTED PERIMETER 43.9 29.1/R**1.333 13.2866



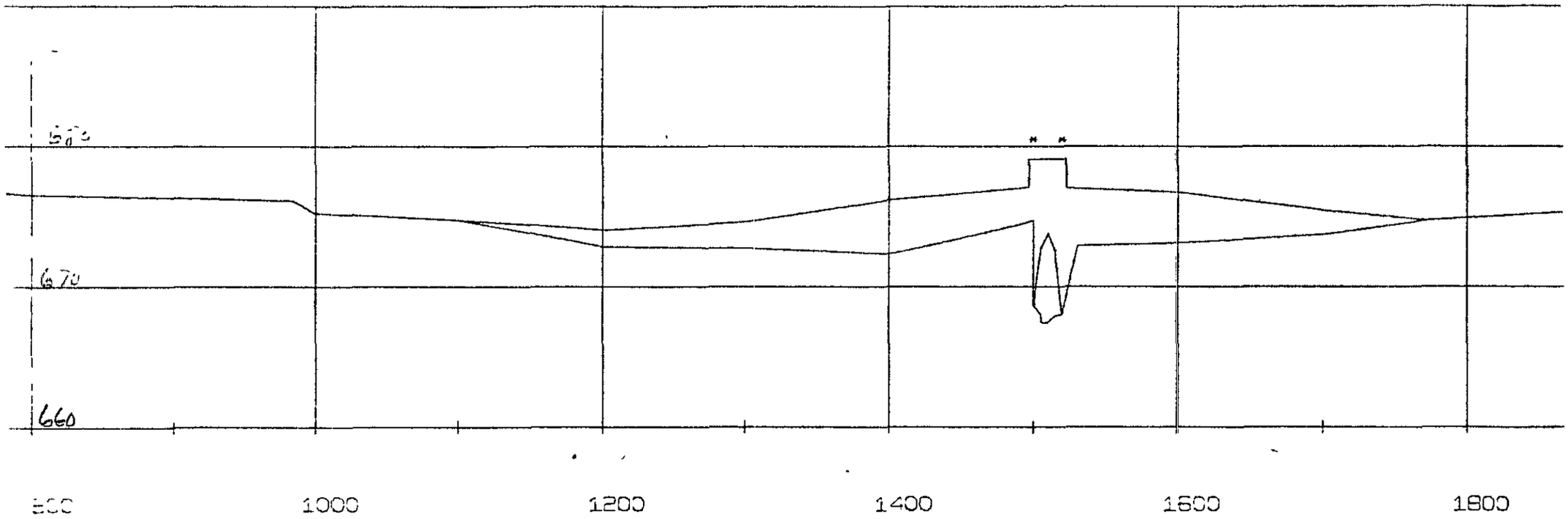

SECTION 357




SECTION 358




SECTION 358



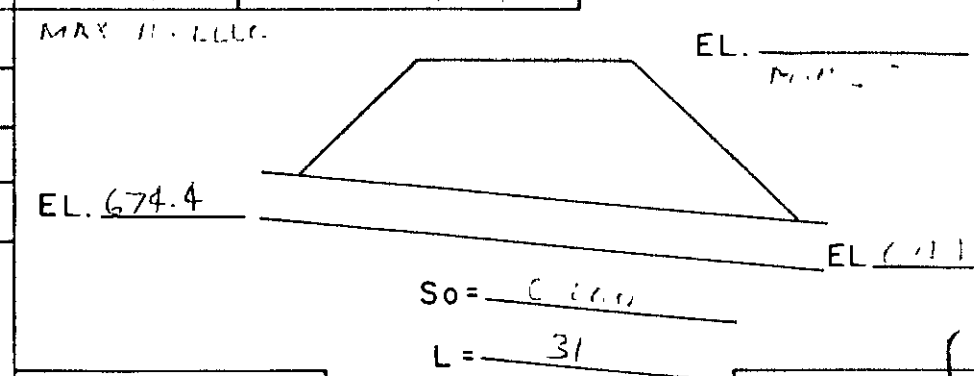

SECTION 63879

JOB NAME: SHELBY TOWNSHIP F15 | JOB NO. 5670 | 05 | 5 2

WATERCOURSE: MIDDLE BRANCH CLINTON RIVER | CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: MULTIPLATE ARCH | BY BCH | DATE 7/15/77

WEIR DESCRIPTION:




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .036

Sta. 669+27 | Sta. [illegible]

CALCULATIONS AND COMMENTS:

— MANNING'S n —

$$n = \left[\frac{.03^2 \times 16 + .04^2 \times 22}{38}\right]^{1/2}$$

$n = .036$

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HYDRAULIC STRUCTURAL DATA

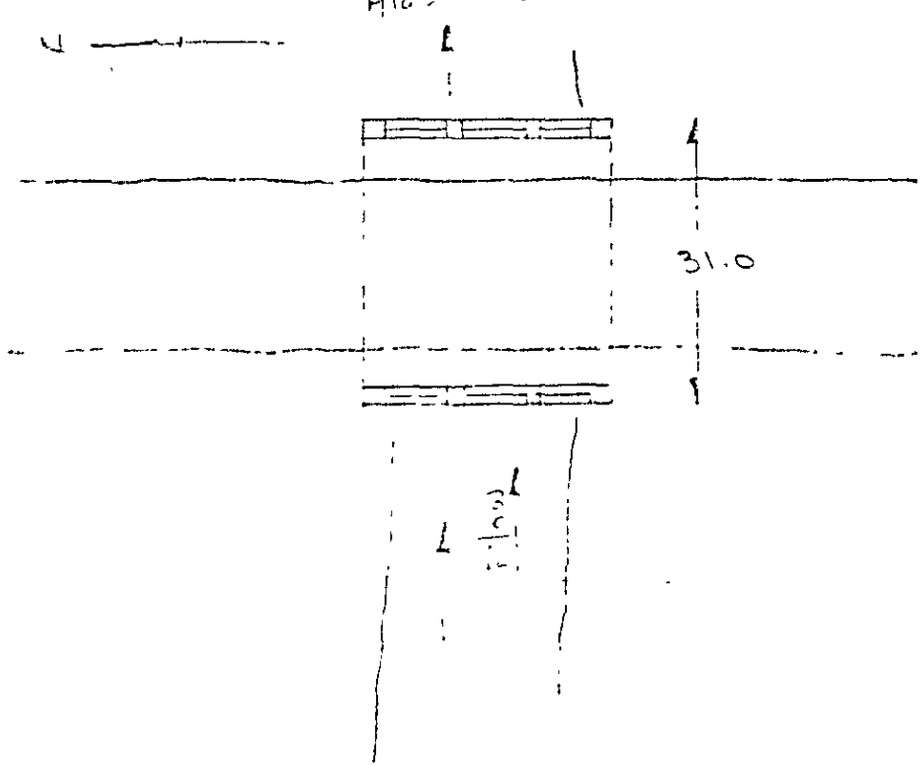
CODED BEH 2/14/77

Code No. 567-0B-

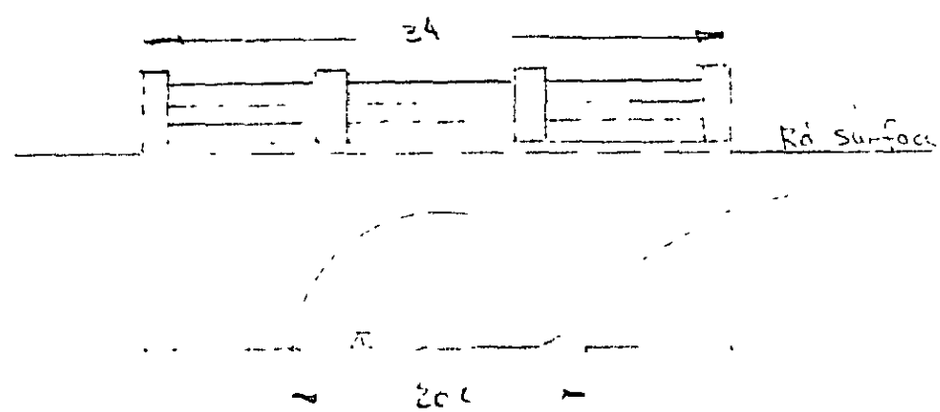
| | | | |
|---|---|---|---|
| Job Name: [illegible] | | By: C. Mabley C. McDonald R. Vogel | |
| Date: 2-8-77 | Feature: Rock Culvert Bridge | Water Course: [illegible] | |
| Remarks: Arch Multi Plate Culvert [illegible] Rd South of 24 Mile Rd | | | |
| Width of Piers: NA | Pier Shape: NA | No. of Piers: [illegible] | Area: — |
| Water Elevation: [illegible] | Length: 34.0 | Width of Deck: 31.0 | Skew: — |

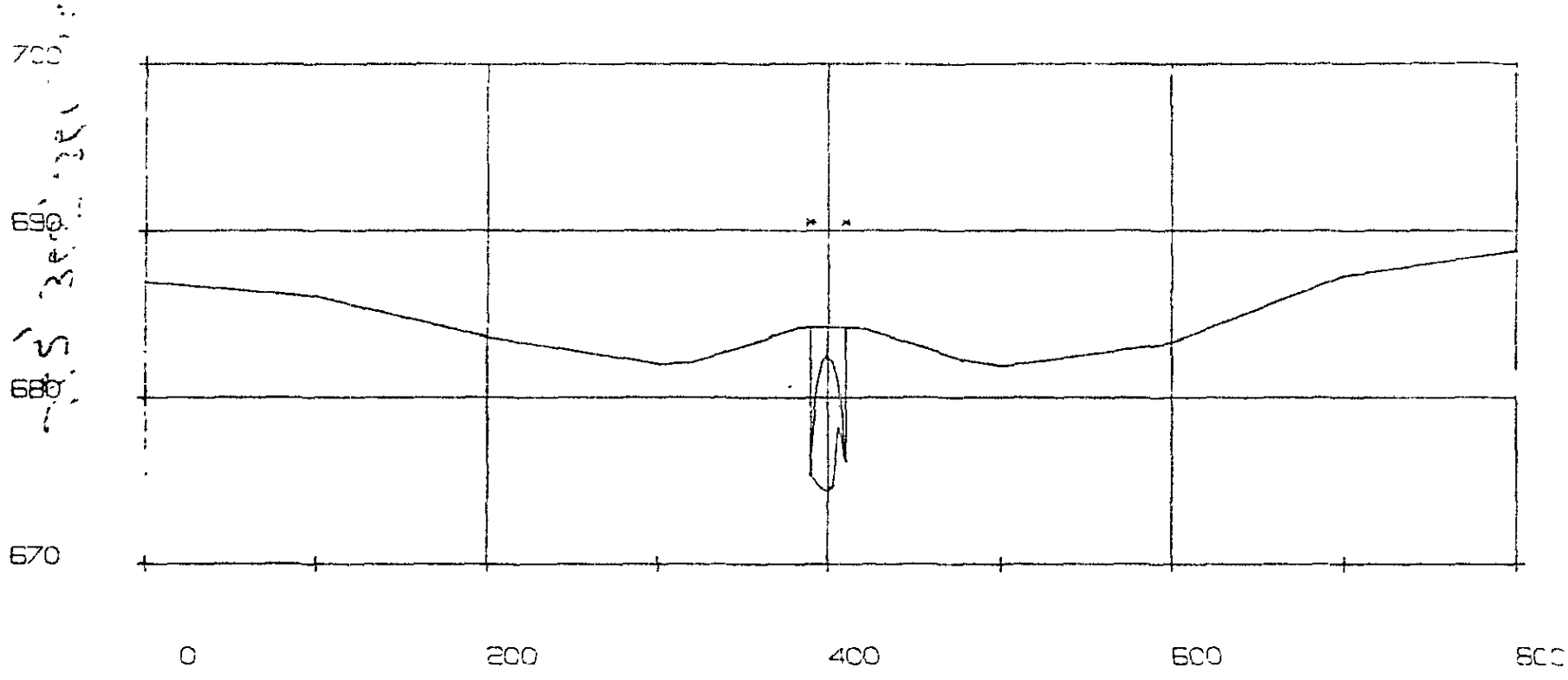
FIELD SKETCH

Profile View




Plan View






SECTION 362

JOB NAME: SHELBY TOWNSHIP FIS JOB NO. [illegible]

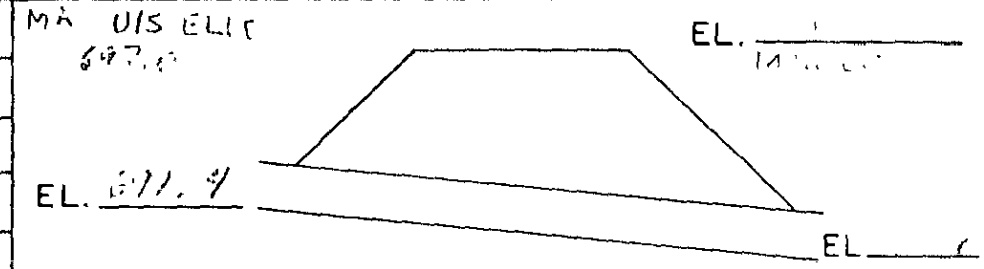
WATERCOURSE: MIDDLE BRANCH CLINTON RIVER CULVERT LOCATION: [illegible]

CULVERT DESCRIPTION: Two 5' [illegible]

CMP — [illegible]

BY [illegible] DATE [illegible] 77

WEIR DESCRIPTION: Paved roadway with 40 foot [illegible]




A = 37.8 D = 5.6

WP = 37.6 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 28.9712 n = .025

So = [illegible]

L = 40

Sta. 713+30 Sta. [illegible]

CALCULATIONS AND COMMENTS:

Manning's n -

n for CMP .025

XKOR -

XKOR = 1 + Ke + $\frac{29.1}{R^{4/3}}$ n² L

XKOR = 1 + 0.5 + (28.9712)(.025)²(40)

XKOR = 2.22

- COFQ -

[illegible]

[illegible]

[illegible]

∴ COFQ = 3.05

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HYDRAULIC STRUCTURAL DATA

CODED BEH 2/14/77

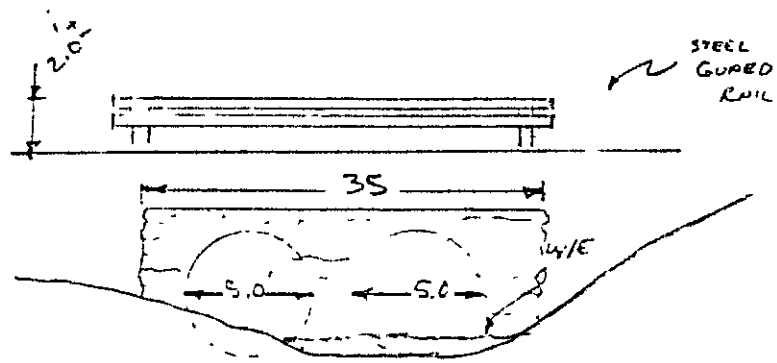
B.S. #367

Code No. 5670-08

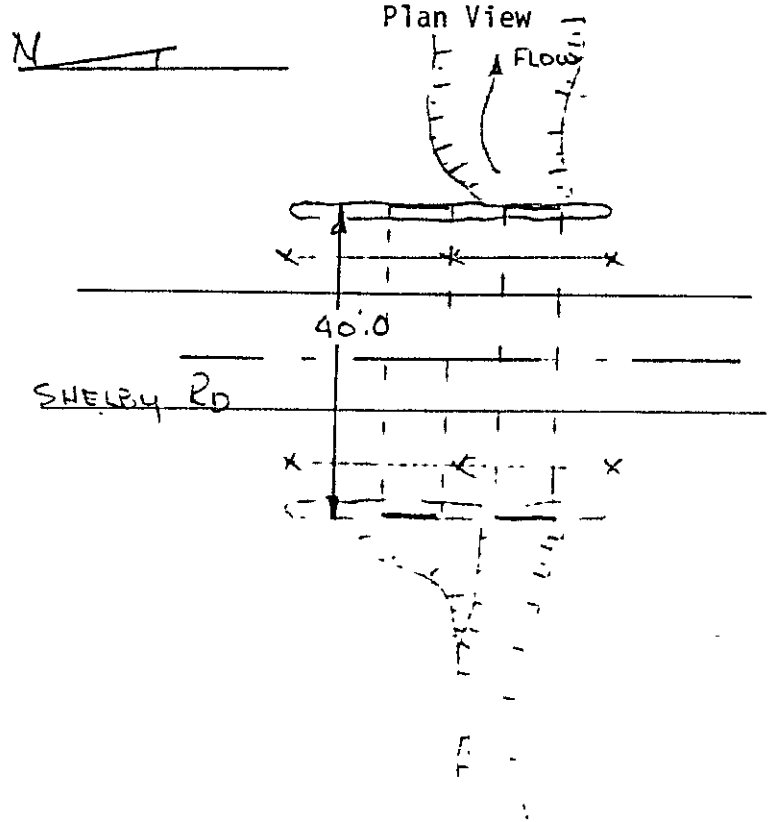
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP. | | | By: R. MOSES |
| Date: 2-9-77 | Feature: 2-5.0' CMP. CULVERT | | Water Course: M.B CLINTON RIVER |
| Remarks: HEAVY BRUSH UPSTREAM OF ROAD — MANY CURVE 90° BELOW IN RIVER DN/STREAM OF ROAD CULVERTS ARE ON SHELBY RD | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 692.8 | Length: | Width of Deck: | Skew: |

FIELD SKETCH

Profile View




Plan View



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| X1 | 71290.01 | 33 | 509.50 | 522.50 | 50.00 | 50.00 | 50.00 | 1.000 | |
| 3T | 27.00 | 0.00 | 707.30 | 0.00 | 100.00 | 705.00 | 0.00 | 200.00 | 702.70 | 0.00 |
| 3T | 300.00 | 700.40 | 0.00 | 400.00 | 698.90 | 0.00 | 509.50 | 699.50 | 693.70 | 509.90 |
| 3T | 699.50 | 695.70 | 510.70 | 699.50 | 696.50 | 512.00 | 699.50 | 696.80 | 513.30 | 699.50 |
| 3T | 696.50 | 514.10 | 699.50 | 695.70 | 514.50 | 699.50 | 695.10 | 517.50 | 699.60 | 694.70 |
| 3T | 517.90 | 699.60 | 695.30 | 518.70 | 699.60 | 696.10 | 520.00 | 699.60 | 696.40 | 521.30 |
| 3T | 699.60 | 696.10 | 522.10 | 699.60 | 695.30 | 522.50 | 699.60 | 694.70 | 600.00 | 699.80 |
| 3T | 0.00 | 700.00 | 703.10 | 0.00 | 710.00 | 703.60 | 0.00 | 735.00 | 705.60 | 0.00 |
| 3T | 765.00 | 708.90 | 0.00 | 800.00 | 709.40 | 0.00 | 900.00 | 709.30 | 0.00 | 1000.00 |
| 3T | 708.40 | 0.00 | | | | | | | | |
| 3R | 707.30 | 0.00 | 705.00 | 100.00 | 702.70 | 200.00 | 700.40 | 300.00 | 697.10 | 400.00 |
| 3R | 693.90 | 500.00 | 693.70 | 509.50 | 693.10 | 509.90 | 692.30 | 510.70 | 692.00 | 512.00 |
| 3R | 692.30 | 513.30 | 693.10 | 514.10 | 693.70 | 514.50 | 695.30 | 514.50 | 694.70 | 517.50 |
| 3R | 693.10 | 517.50 | 692.50 | 517.90 | 691.70 | 518.70 | 691.40 | 520.00 | 691.70 | 521.30 |
| 3R | 692.50 | 522.10 | 693.10 | 522.50 | 694.70 | 522.50 | 695.90 | 600.00 | 697.00 | 631.00 |
| 3R | 700.70 | 670.00 | 702.80 | 700.00 | 703.60 | 710.00 | 705.60 | 735.00 | 708.90 | 765.00 |
| 3R | 709.40 | 800.00 | 709.30 | 900.00 | 708.40 | 1000.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 695.70 | 510.70 | 696.50 | 512.00 | 696.80 | 513.30 | 696.50 |
| 514.10 | 695.70 | 514.50 | 695.10 | 517.50 | 694.70 | 517.90 | 695.30 | 518.70 | 696.10 |
| 520.00 | 696.40 | 521.30 | 696.10 | 522.10 | 695.30 | 522.50 | 694.70 | | |

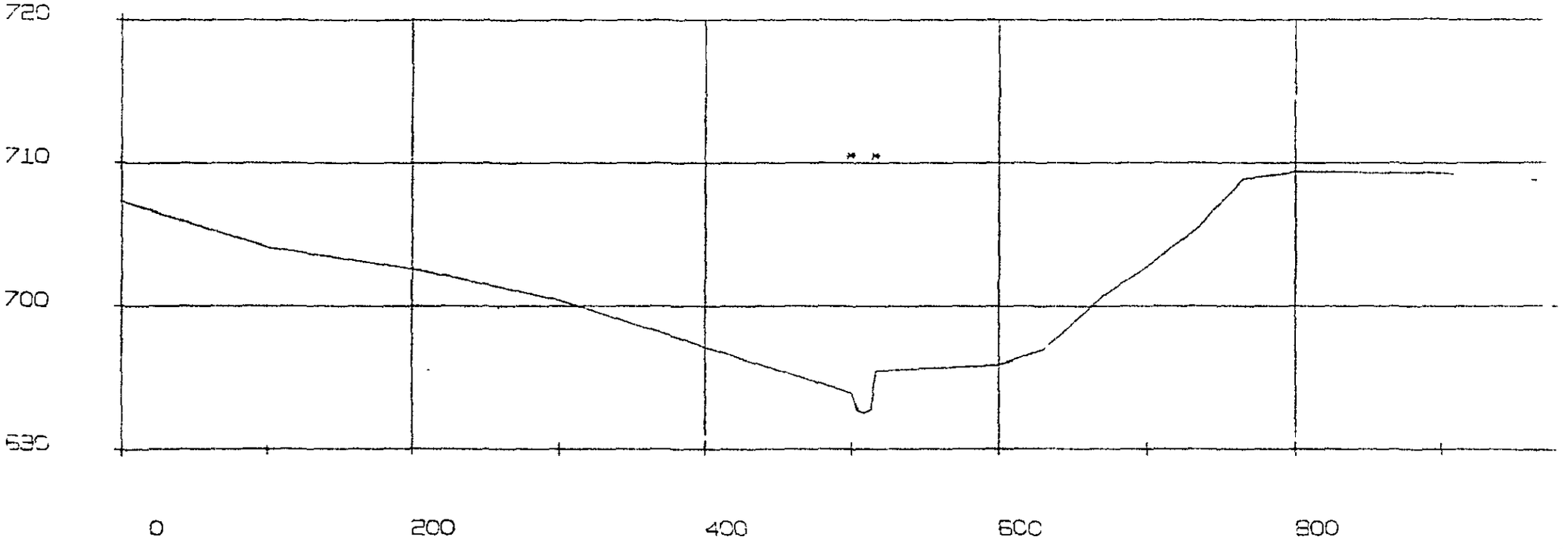
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 693.10 | 510.70 | 692.30 | 512.00 | 692.00 | 513.30 | 692.30 |
| 514.10 | 693.10 | 514.50 | 693.70 | 514.50 | 695.30 | 517.50 | 694.70 | 517.50 | 693.10 |
| 517.90 | 692.50 | 518.70 | 691.70 | 520.00 | 691.40 | 521.30 | 691.70 | 522.10 | 692.50 |
| 522.50 | 693.10 | 522.50 | 694.70 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

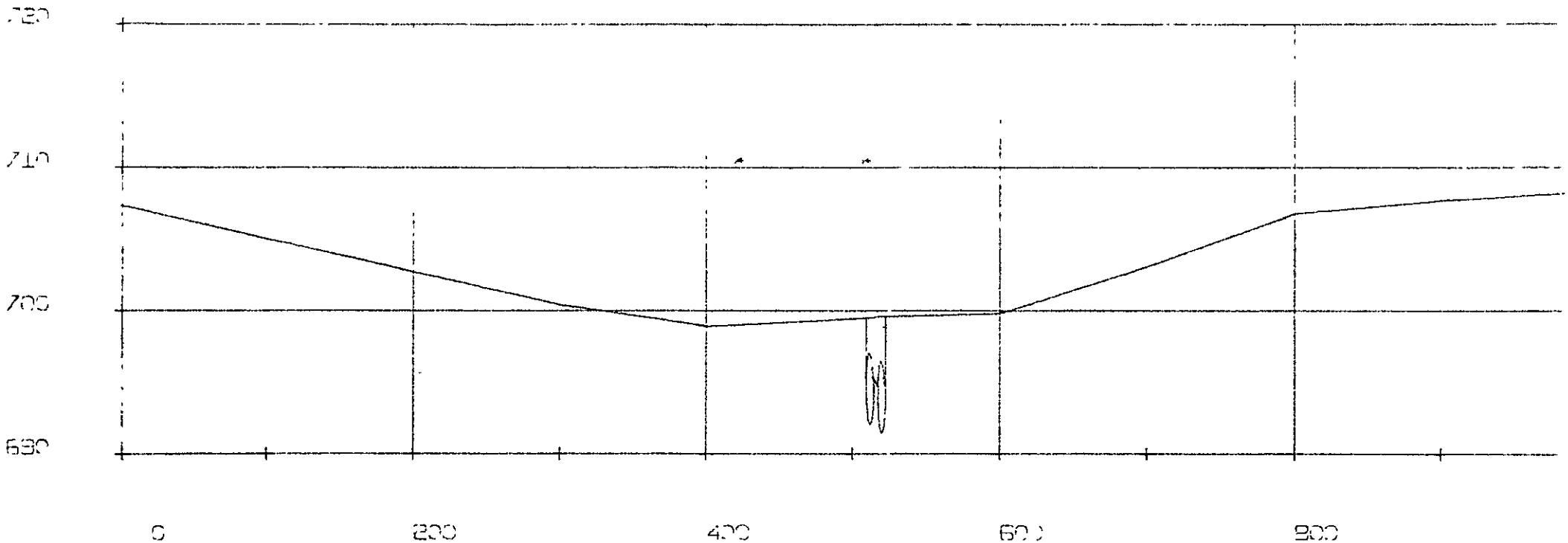
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 509.50 | 693.70 | 509.90 | 695.70 | 510.70 | 696.50 | 512.00 | 696.80 | 513.30 | 696.50 |
| 514.10 | 695.70 | 514.50 | 695.10 | 517.50 | 694.70 | 517.90 | 695.30 | 518.70 | 696.10 |
| 520.00 | 696.40 | 521.30 | 696.10 | 522.10 | 695.30 | 522.50 | 694.70 | 522.50 | 693.10 |
| 522.10 | 692.50 | 521.30 | 691.70 | 520.00 | 691.40 | 518.70 | 691.70 | 517.90 | 692.50 |
| 517.50 | 693.10 | 517.50 | 694.70 | 514.50 | 695.30 | 514.50 | 693.70 | 514.10 | 693.10 |

513.30 692.30 512.00 692.00 510.70 692.30 509.90 693.10 509.50 693.70

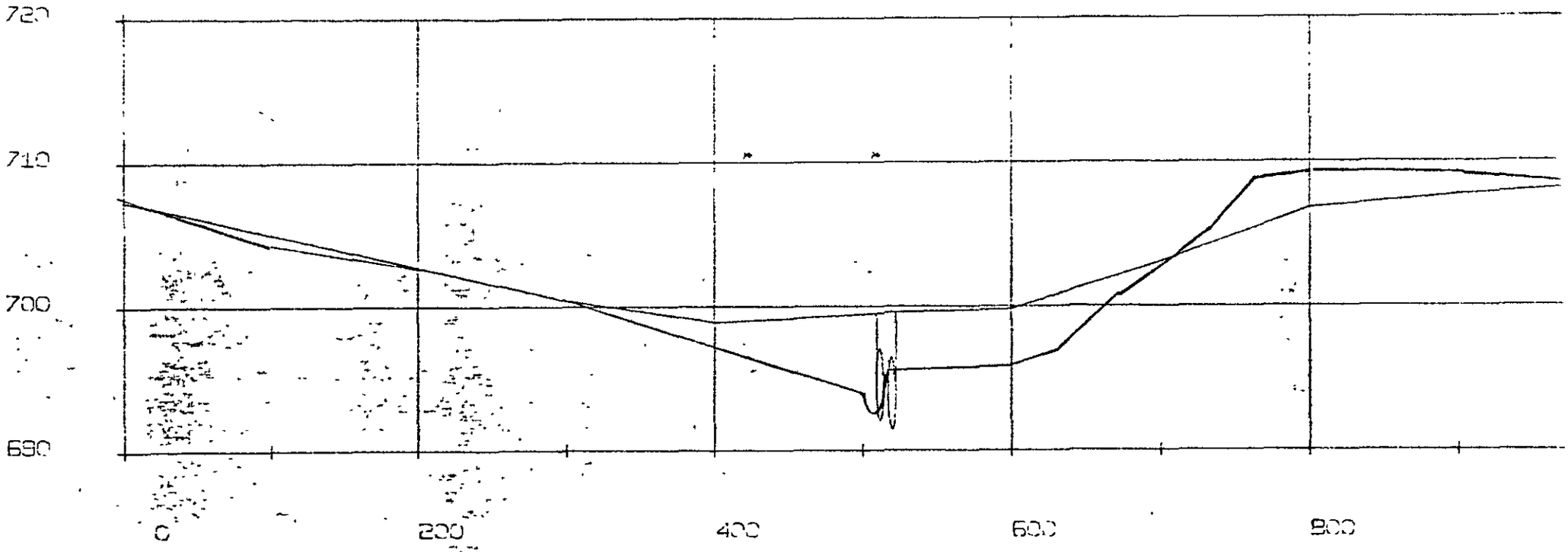
ORIFICE AREA 37.8 WETTED PERIMETER 37.6 29.1/R**1.333 28.9712



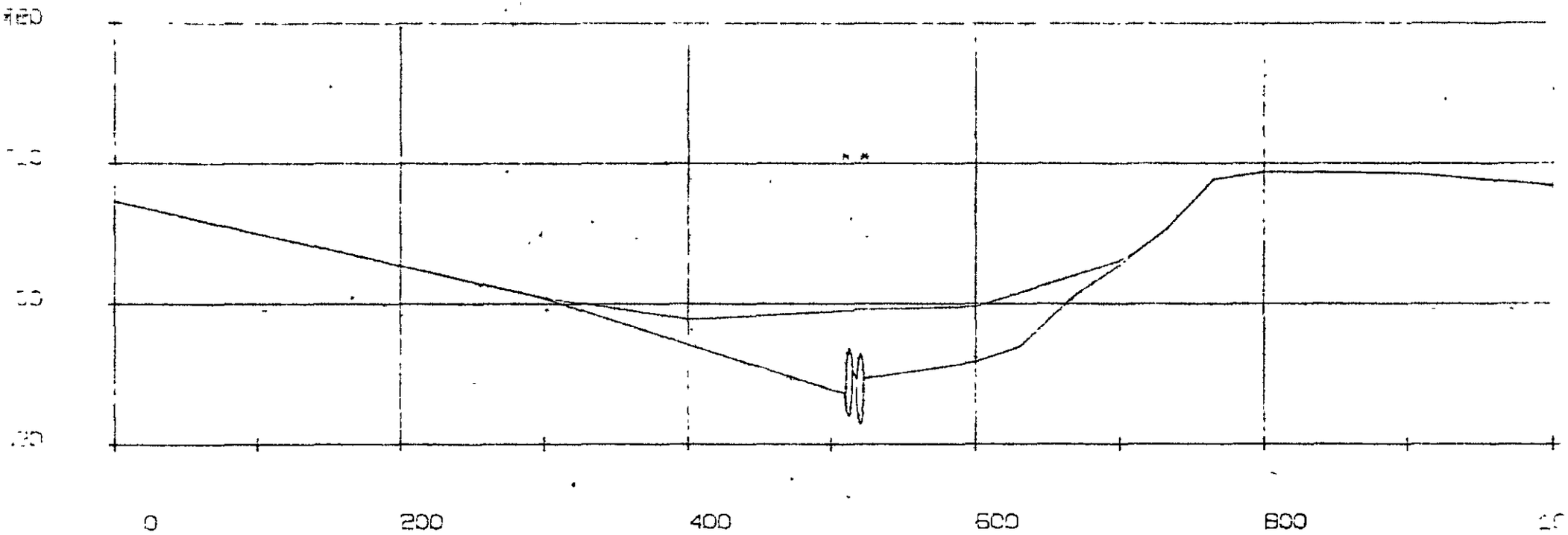

SECTION 366




SECTION 367.1




SECTION 367.1

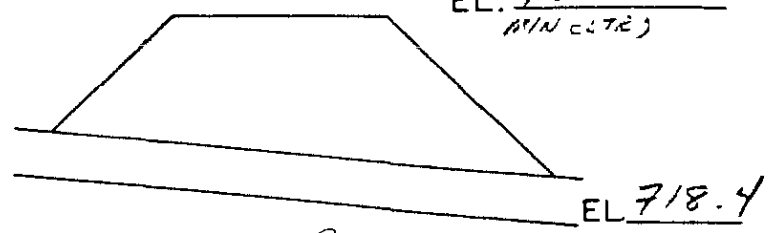



SECTION 71~~200~~
330

| | | | | |
|---|---|---|---|---|
| JOB NAME: Shelby Township, FIS | JOB NO. 5670 | 08 | 1 | 375 |
| WATERCOURSE: Newland Drain | CULVERT LOCATION: 24 Mile Road | | | |
| CULVERT DESCRIPTION: Three 67" x 95" multi-plate arch projecting from fill | BY RFH | DATE 6-1-77 | | |

MAX U/S ELEV 724.1

EL. 724.9 (MIN ELEV)



EL. 718.4

EL. 718.4

So = 0

L = 76

Sta. 777 + 08

Sta. 776 + 32

WEIR DESCRIPTION: Paved roadway with 76 foot breadth

A = 104.8 D = 5.7

WP = 65.9 Ke = 0.8

$\frac{29.1}{R^{4/3}}$ = 15.6966 n = .03

CALCULATIONS AND COMMENTS:

- Manning's n -

n = .03

- XKOR -

$$XKOR = 1 + K_e + \frac{29.1}{R^{4/3}} n^2 L$$

$$XKOR = 1 + 0.8 + (15.6966)(.03)^2(76)$$

$$XKOR = 2.874$$

- COFQ -

Assume H = 1.0 for initial run

then $H/L = \frac{1}{76} = .0132 < .5$

therefore use H = 1.0

$\therefore$ COFQ = 3.03

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Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED BEH 2/8/77

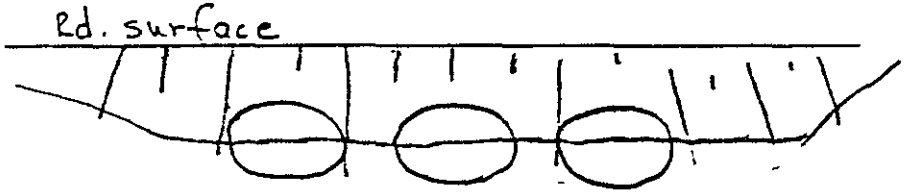
U.S. #375

Code No. 5670-08

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | | By: C. Mapley B. McDonald R. Moses |
| Date: 2-7-77 | Feature: C.M.P. Rd. Culvert | | Water Course: Middle Branch Clinton River |
| Remarks: On 24 Mile Rd. Between Shelby Rd & Ryan Rd. | | | |
| Footing No 10' or 12' in center of stream | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 721.4 | Length: | Width of Deck: | Skew: As noted |

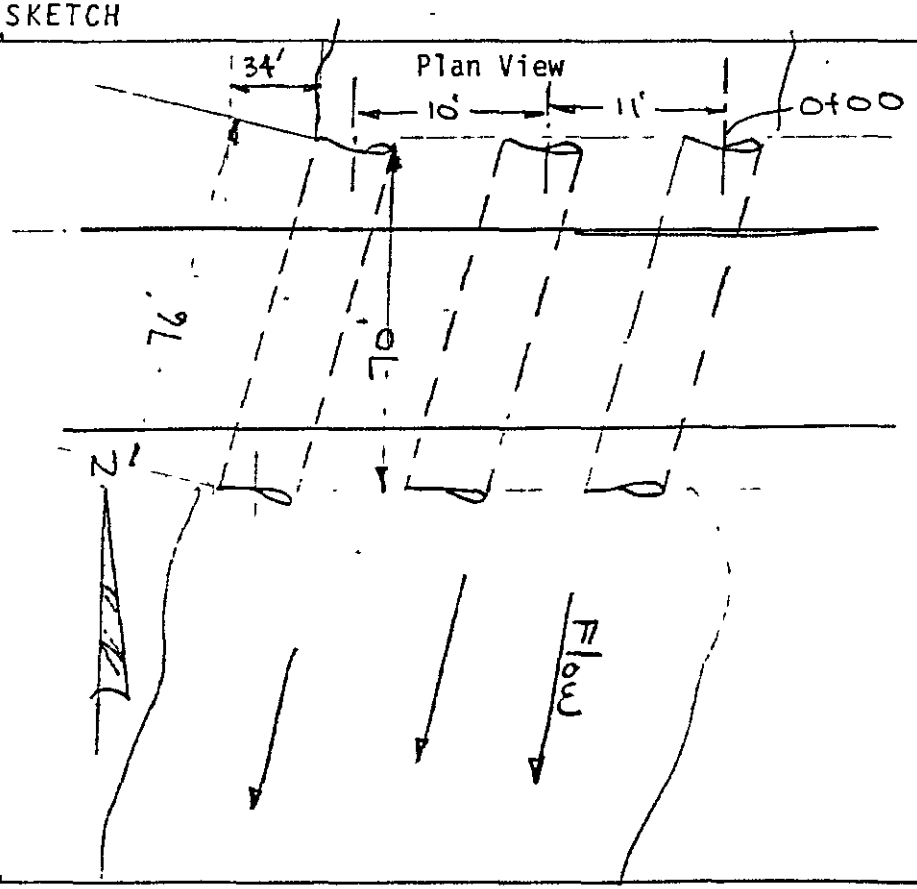
FIELD SKETCH

Profile View




67" high x 95' ellipt-CMP.
5'-7" " x 7'-11" " "

Plan View



| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 77701.01 | 57 | 253.00 | 282.00 | 76.00 | 76.00 | 76.00 | 1.000 | | |
| BT | 31.00 | 0.00 | 726.40 | 0.00 | 75.00 | 726.70 | 0.00 | 175.00 | 727.40 | 0.00 |
| BT | 235.00 | 725.40 | 0.00 | 253.00 | 725.50 | 721.40 | 253.60 | 725.50 | 722.80 | 255.00 |
| BT | 725.50 | 723.80 | 257.00 | 725.50 | 724.40 | 259.00 | 725.50 | 723.80 | 260.40 | 725.50 |
| BT | 722.80 | 261.00 | 725.50 | 721.40 | 264.00 | 725.50 | 721.00 | 264.60 | 725.50 | 722.40 |
| BT | 266.00 | 725.50 | 723.40 | 268.00 | 725.50 | 724.00 | 270.00 | 725.50 | 723.40 | 271.40 |
| BT | 725.50 | 722.40 | 272.00 | 725.50 | 721.00 | 274.00 | 725.50 | 721.40 | 274.60 | 725.50 |
| BT | 722.80 | 276.00 | 725.60 | 723.80 | 278.00 | 725.60 | 724.40 | 280.00 | 725.60 | 723.80 |
| BT | 281.40 | 725.60 | 722.80 | 282.00 | 725.60 | 721.40 | 375.00 | 725.80 | 0.00 | 475.00 |
| BT | 726.80 | 0.00 | 507.00 | 726.90 | 0.00 | 575.00 | 729.00 | 0.00 | 657.00 | 729.30 |
| BT | 0.00 | 757.00 | 730.60 | 0.00 | | | | | | |
| GR | 726.40 | 0.00 | 726.70 | 75.00 | 727.40 | 175.00 | 725.40 | 235.00 | 722.60 | 253.00 |
| GR | 720.20 | 253.00 | 719.40 | 253.60 | 719.00 | 255.00 | 718.80 | 257.00 | 719.00 | 259.00 |
| GR | 719.40 | 260.40 | 720.80 | 261.00 | 721.40 | 261.00 | 721.00 | 264.00 | 719.80 | 264.00 |
| GR | 719.00 | 264.60 | 718.60 | 266.00 | 718.40 | 268.00 | 718.60 | 270.00 | 719.00 | 271.40 |
| GR | 719.80 | 272.00 | 721.00 | 272.00 | 721.40 | 274.00 | 720.20 | 274.00 | 719.40 | 274.60 |
| GR | 719.00 | 276.00 | 718.80 | 278.00 | 719.00 | 280.00 | 719.40 | 281.40 | 720.20 | 282.00 |
| GR | 721.80 | 282.00 | 722.70 | 375.00 | 725.90 | 475.00 | 726.90 | 507.00 | 729.00 | 575.00 |
| GR | 729.30 | 657.00 | 730.60 | 757.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 253.00 | 721.40 | 253.60 | 722.80 | 255.00 | 723.80 | 257.00 | 724.40 | 259.00 | 723.80 |
| 260.40 | 722.80 | 261.00 | 721.40 | 264.00 | 721.00 | 264.60 | 722.40 | 266.00 | 723.40 |
| 268.00 | 724.00 | 270.00 | 723.40 | 271.40 | 722.40 | 272.00 | 721.00 | 274.00 | 721.40 |
| 274.60 | 722.80 | 276.00 | 723.80 | 278.00 | 724.40 | 280.00 | 723.80 | 281.40 | 722.80 |
| 282.00 | 721.40 | | | | | | | | |

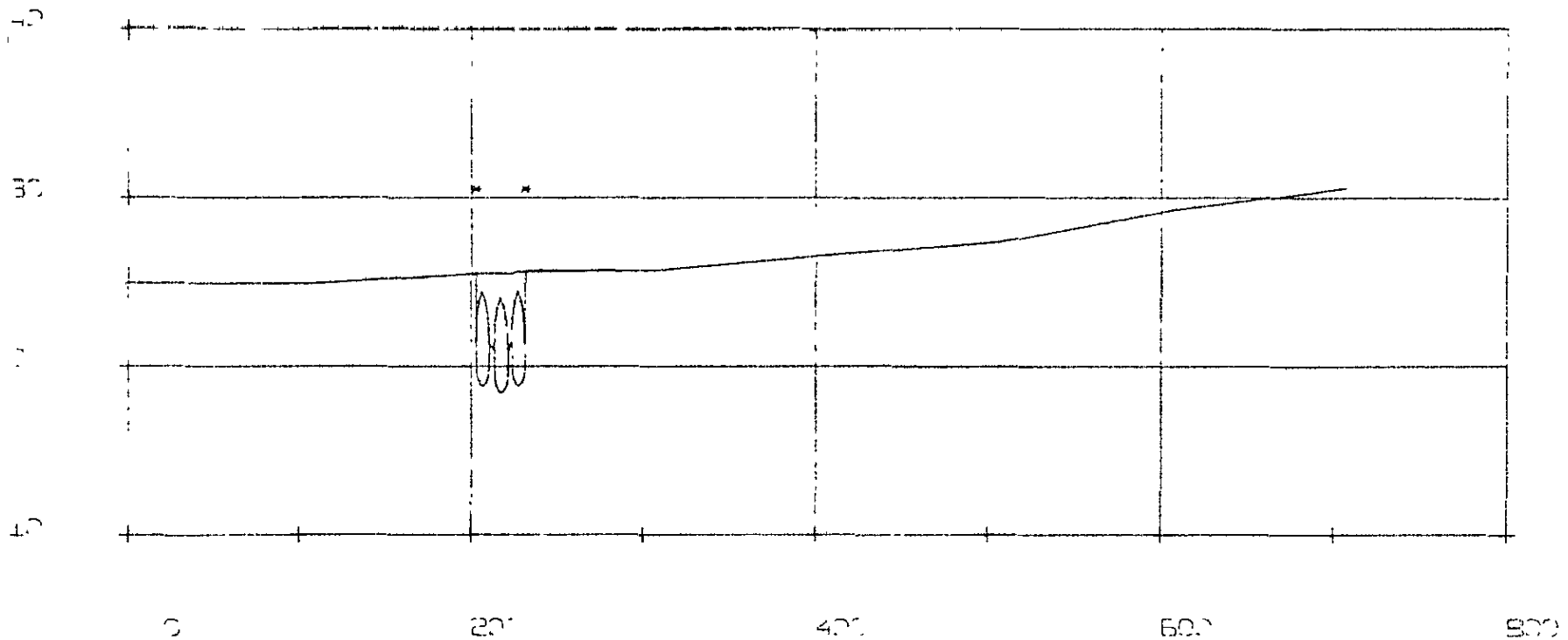
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 253.00 | 722.60 | 253.00 | 720.20 | 253.60 | 719.40 | 255.00 | 719.00 | 257.00 | 718.80 |
| 259.00 | 719.00 | 260.40 | 719.40 | 261.00 | 720.80 | 261.00 | 721.40 | 264.00 | 721.00 |
| 264.00 | 719.80 | 264.60 | 719.00 | 266.00 | 718.60 | 268.00 | 718.40 | 270.00 | 718.60 |
| 271.40 | 719.00 | 272.00 | 719.80 | 272.00 | 721.00 | 274.00 | 721.40 | 274.00 | 720.20 |
| 274.60 | 719.40 | 276.00 | 719.00 | 278.00 | 718.80 | 280.00 | 719.00 | 281.40 | 719.40 |
| 282.00 | 720.20 | 282.00 | 721.80 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

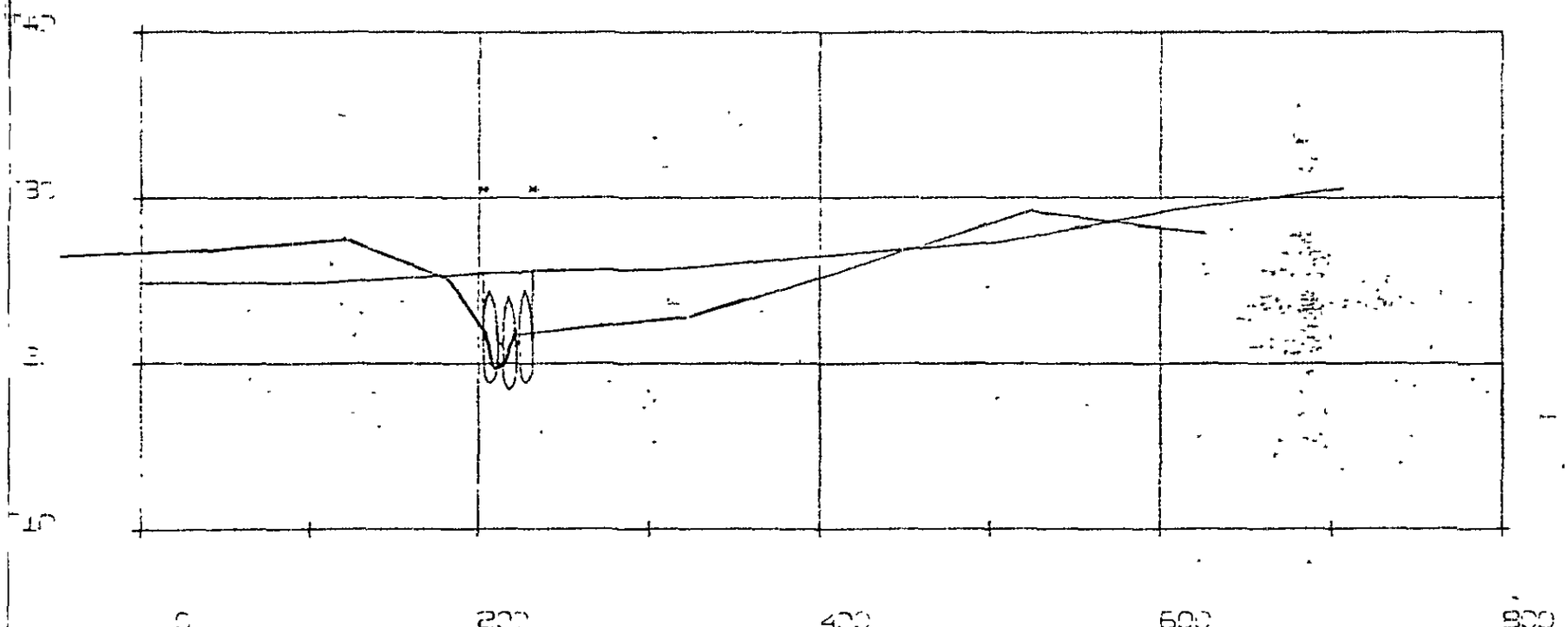
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 260.40 | 722.80 | 261.00 | 721.40 | 264.00 | 721.00 | [illegible] | 722.40 | 266.00 | 723.40 |
| 268.00 | 724.00 | 270.00 | 723.40 | 271.40 | 722.40 | [illegible] | 721.00 | 274.00 | 721.40 |
| 274.60 | 722.80 | 276.00 | 723.80 | 278.00 | 724.40 | 280.00 | 723.80 | 281.40 | 722.80 |
| 282.00 | 721.40 | 282.00 | 720.20 | 281.40 | 719.40 | 280.00 | 719.00 | 278.00 | 718.80 |
| 276.00 | 719.00 | 274.60 | 719.40 | 274.00 | 720.20 | 274.00 | 721.40 | 272.00 | 721.00 |
| 272.00 | 719.80 | 271.40 | 719.00 | 270.00 | 718.60 | 268.00 | 718.40 | 266.00 | 718.60 |
| 264.60 | 719.00 | 264.00 | 719.80 | 264.00 | 721.00 | 261.00 | 721.40 | 261.00 | 720.80 |
| 260.40 | 719.40 | 259.00 | 719.00 | 257.00 | 718.80 | 255.00 | 719.00 | 253.60 | 719.40 |
| 253.00 | 720.20 | 253.00 | 721.40 | | | | | | |

ORIFICE AREA 104.8 WETTED PERIMETER 65.9 29.1/R**1.333 15.6966

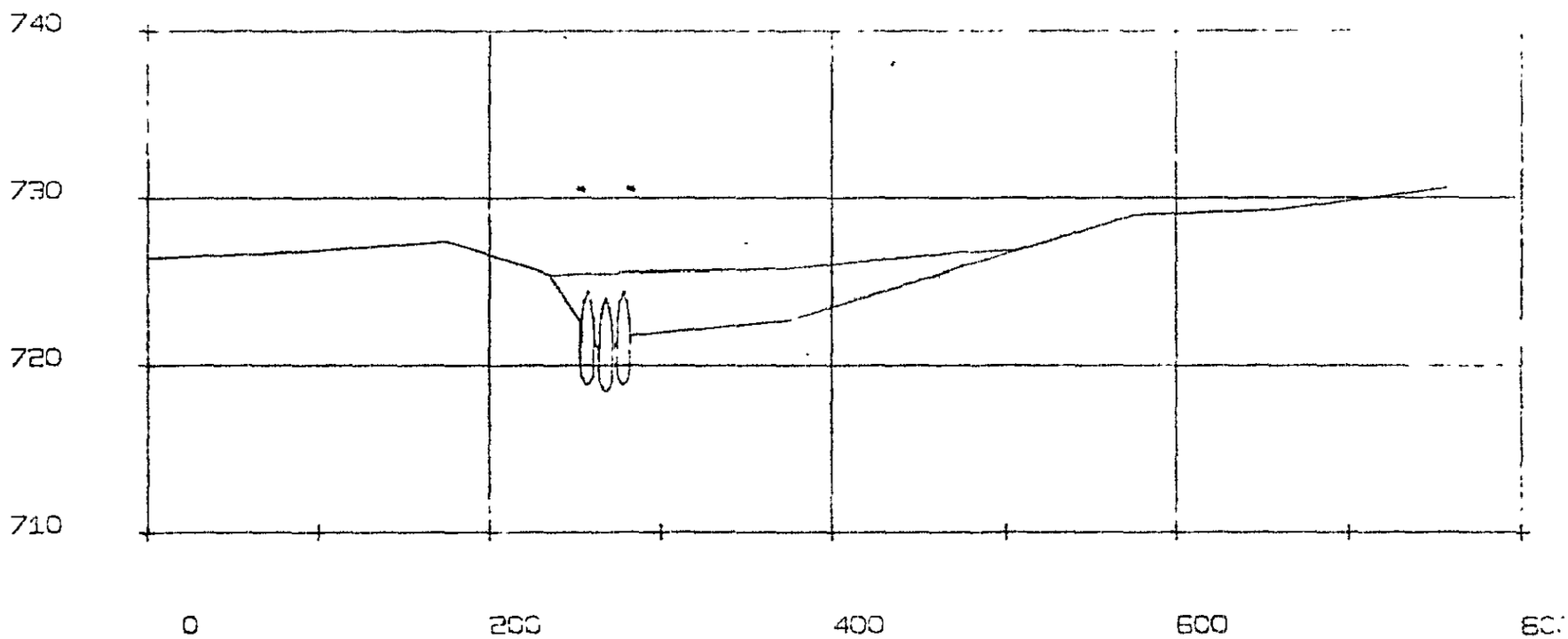
SECTION 374



SECTION 375.1

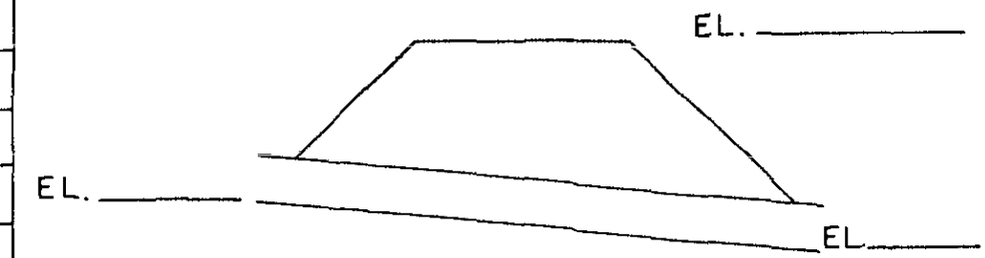



SECTION 375.1




SECTION 77708

| | | | | |
|---|---|---|---|---|
| JOB NAME: Shelby Township, F15 | JOB NO. 5670 | 08 | 1 | 379 |
| WATERCOURSE: Newland Drain | CULVERT LOCATION: Grand Trunk & Western R.R. | | | |
| CULVERT DESCRIPTION: Wooden railroad bridge | BY RFH | DATE 6-1-77 | | |
| WEIR DESCRIPTION: Railroad tracks with 14 foot breadth | | | | |




A = _____ D = _____

WP = _____ Ke = _____

$\frac{29.1}{R^{4/3}}$ = _____ n = .03

So = _____

L = _____

Sta. Sta.

CALCULATIONS AND COMMENTS:

Hec-2 indicates a depth of 6.1 feet

n for creosoted timber = .012

n for channel = .035

$$n = \left( \frac{45 \times .035^2 + 2(2.2) \times .012^2 + 2(5.2) \times .012^2 + 2(2.3) \times .012^2}{64.4} \right)^{1/2}$$

$$n = .02998 \approx .03$$

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA
B.S. # 378

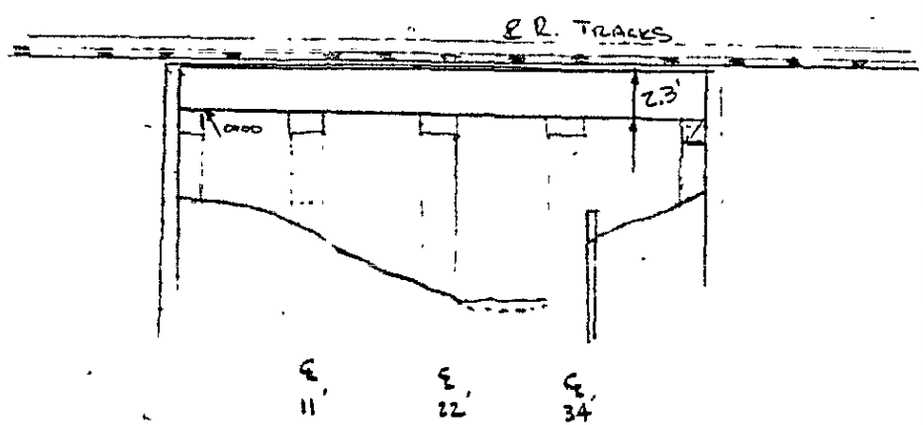
CODED BEH
2/14/77

Code No. 5670-08

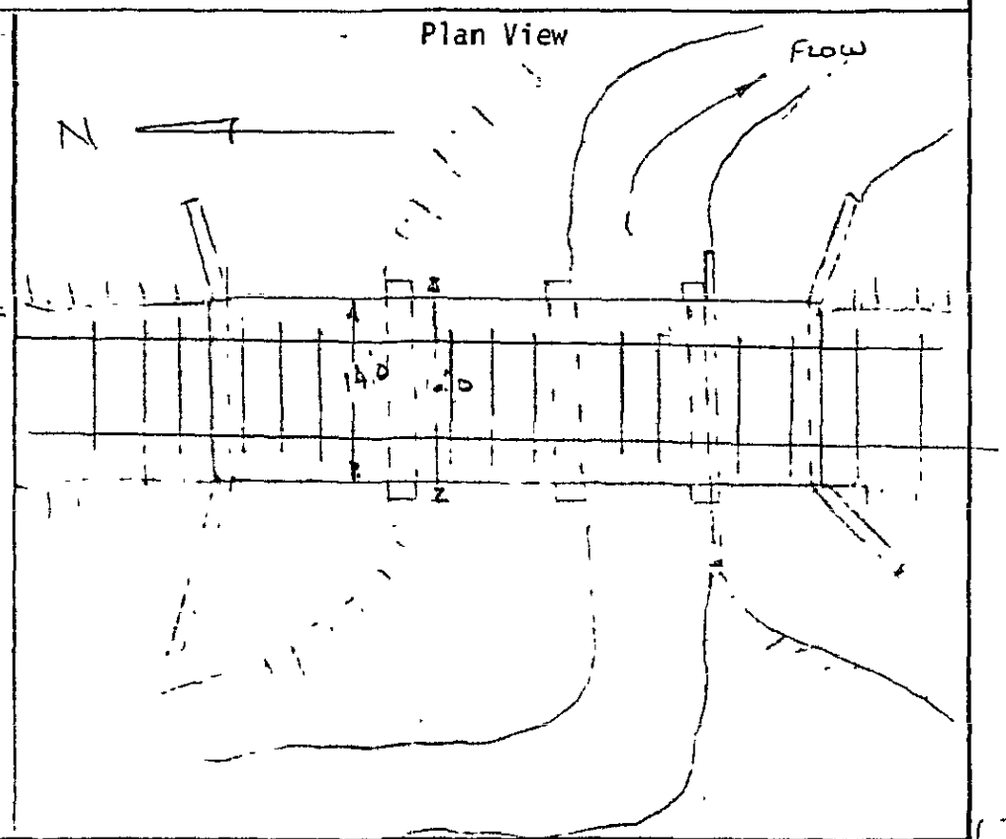
| | | | |
|---|---|---|---|
| Job Name: SHELBY TWP. F.I.S. | | By: R. MOSES | |
| Date: 2-11-77 | Feature: WOOD R.R BRIDGE | Water Course: N.B. CLINTON RIVER | |
| Remarks: | | | |
| Width of Piers: 1.0' | Pier Shape: 12" DIA | No. of Piers: 3 | Area: |
| Water Elevation: 736.8 | Length: 45' | Width of Deck: 14 | Skew: |

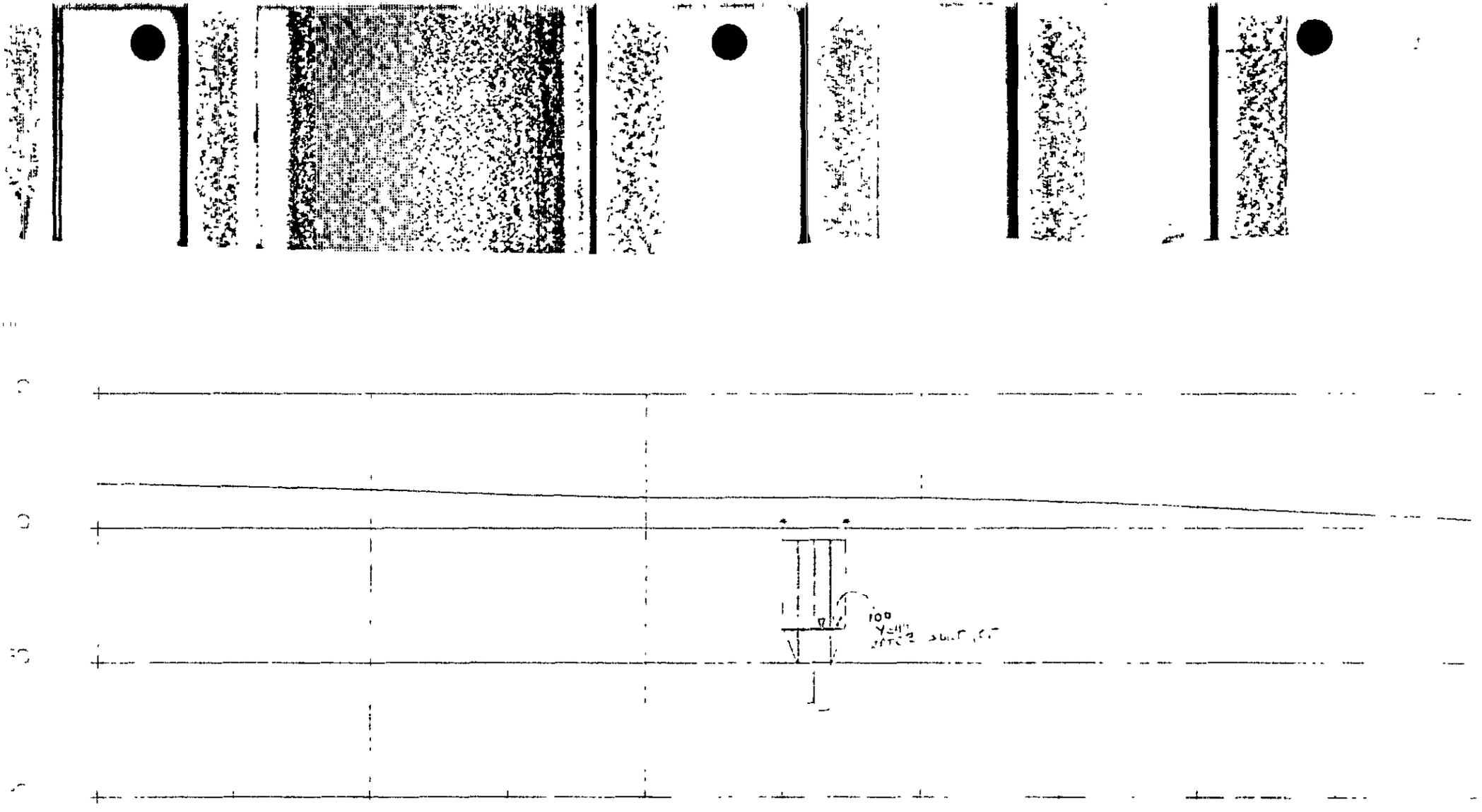
FIELD SKETCH

Profile View




Plan View






80127

SECTION 373

# APPENDIX B - CALCULATIONS AND GRAPHS FOR CHESTNUT LAKE

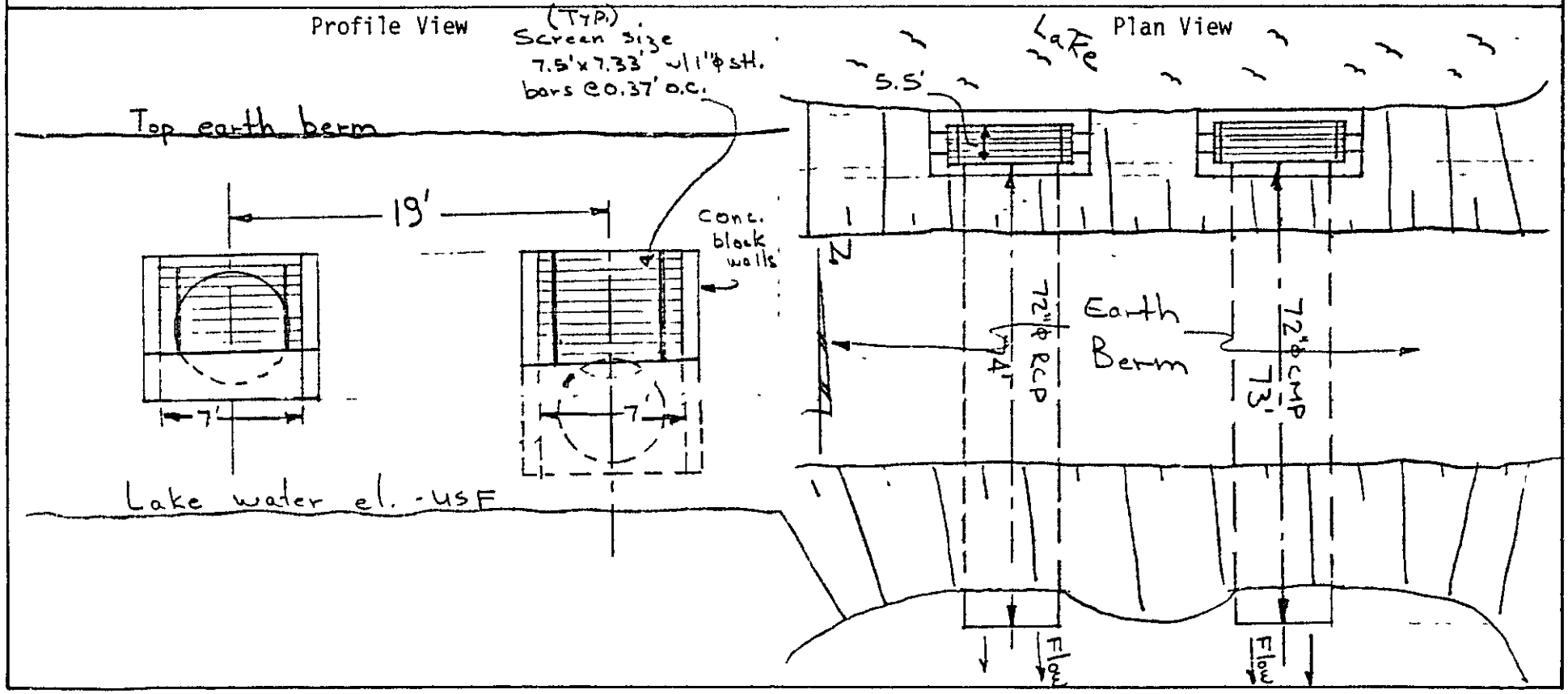
Johnson & Anderson, Inc.
Consulting Engineers
2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA CODED BEN 2/8/77

Code No. 5670-08-BS 372

| | | | |
|---|---|---|---|
| Job Name: Shelby Twp FIS | | By: C. Mapley, R Moses, L. McDonob | |
| Date: 2-7-77 | Feature: Lake level control culverts | Water Course: Miggie Branch, Clinton River | |
| Remarks: Just E. of Scotch Pine Ct, at E end Blue Ridge Dr. | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: |
| Water Elevation: 717.5 w/L (U/S) / 710.6 w/L (D/S) | Length: 73' & 74' See sketch. | Width of Deck: — | Skew: |

FIELD SKETCH



SHELBY TOWNSHIP
CHESTNUT LAKE OUTLET
MIDDLE BRANCH OF THE CLINTON RIVER
GRAVEL ROADWAY
30' BREADTH
NUMBER OF POINTS= 8

| STATION | ELEVATION |
|---|---|
| 0.0 | 739.20 |
| 100.00 | 735.60 |
| 200.00 | 728.20 |
| 300.00 | 725.60 |
| 400.00 | 725.90 |
| 500.00 | 725.60 |
| 600.00 | 725.10 |
| 600.00 | 735.00 |

WIDTH OF ROADWAY= 30.00
ROAD SURFACE:GRAVEL

| ELEVATION FEET | FLOW CFS | CAV | TOP WIDTH FEET | AREA SFT |
|---|---|---|---|---|
| 725.10 | 0.0 | 0.0 | 0. | 0.0 |
| 725.20 | 0.64 | 2.520 | 20. | 1.00 |
| 725.30 | 3.66 | 2.540 | 40. | 4.00 |
| 725.40 | 10.19 | 2.558 | 60. | 9.01 |
| 725.50 | 21.12 | 2.576 | 80. | 16.01 |
| 725.60 | 37.28 | 2.595 | 100. | 25.01 |
| 725.70 | 59.50 | 2.604 | 133. | 36.53 |
| 725.80 | 89.57 | 2.616 | 166. | 51.25 |
| 725.90 | 133.35 | 2.592 | 304. | 74.81 |
| 726.00 | 195.20 | 2.627 | 308. | 105.23 |
| 726.10 | 271.13 | 2.658 | 312. | 136.14 |
| 726.20 | 362.66 | 2.689 | 317. | 168.32 |
| 726.30 | 462.90 | 2.720 | 321. | 199.49 |
| 726.40 | 573.90 | 2.748 | 325. | 232.14 |
| 726.50 | 695.06 | 2.772 | 329. | 264.45 |
| 726.60 | 826.34 | 2.795 | 333. | 297.29 |
| 726.70 | 966.85 | 2.815 | 337. | 330.53 |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY [illegible] DATE [illegible] JOB DESCRIPTION [illegible] SHEET [illegible] OF [illegible]
SUBJECT [illegible] JOB NO. 5670-[illegible]

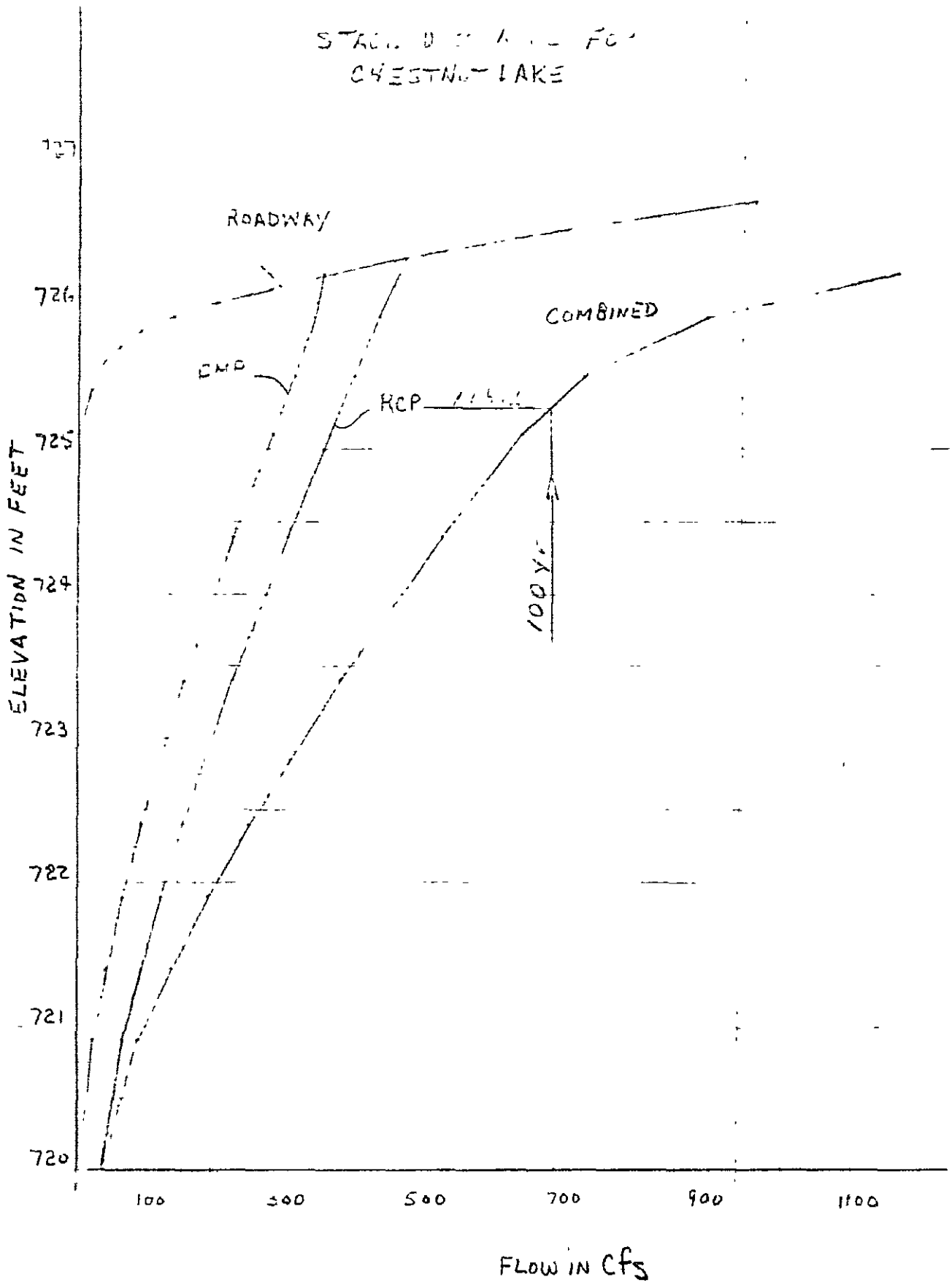
[illegible]

| ELEVATION | [illegible] | FLOW IN CFS | % SUBMERGENCE |
|---|---|---|---|
| [illegible] | 2.0 | 654 | 0.00 |
| [illegible] | 2.5 | 913 | 0.00 |
| [illegible] | 3.0 | 120 | 0.00 |
| [illegible] | 3.5 | 151 | 0.00 |
| [illegible] | 4.5 | 220 | 0.00 |
| [illegible] | 5.5 | 298 | 21.8 |
| [illegible] | 6.2 | 357 | 40.3 |
| 72[illegible].5 | 6.6 | 392 | 50.0 |
| 72[illegible] | 7.0 | 428 | 62.9 |
| 726.2 | 7.3 | 456 | 71.2 |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY_____ DATE_____ JOB DESCRIPTION_____ SHEET _____ OF_____
SUBJECT_____ JOB NO_____

| | | | % SUBMERGENCE | C/C. (INITIAL VALUE ONLY) | CORRECTED FLOW |
|---|---|---|---|---|---|
| | 1.0 | 23.1 | 0.00 | | |
| 7 | 1.5 | 42.5 | 0.00 | | |
| | 2.0 | 65 | 0.00 | | |
| 72 | 2.5 | 91 | 0.00 | | |
| | 3.5 | 151 | 20.6 | | |
| | 4.5 | 220 | 48.9 | | |
| | 5.2 | 274 | 67.3 | 1.00 | 274 |
| | 5.6 | 306 | 76.8 | 1.00 | 306 |
| | 6.0 | 340 | 88.3 | .957 | 333 |
| 2 | 6.3 | 365 | 96.8 | .559 | 348 |
| 726.1 | 6.2 | 357 | 95.2 | .760 | 345 |
| 726.0 | 6.1 | 348 | 91.8 | .892 | 339 |


CHESTNUT LAKE
ROADWAY
COMBINED
CMP
RCP
100 yr
ELEVATION IN FEET
727
726
725
724
723
722
721
720
100
300
500
700
900
1100
FLOW IN Cfs

00BREAK00

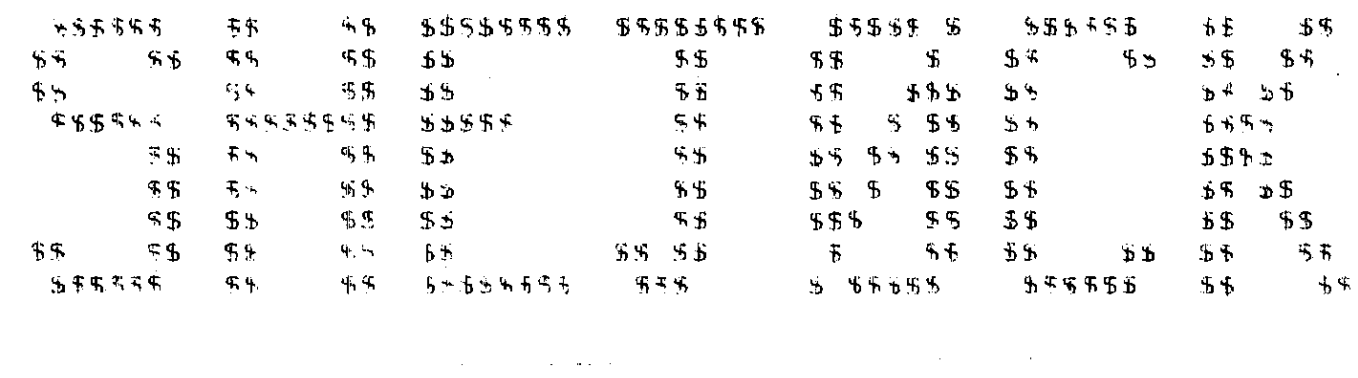
1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Newland Drain

4) DOCUMENT TYPE: Multi Profile Run
10, 50, 100, 500 yr
floods

00BREAK00



Newland Drain
Multiple profile run
10, 50, 100 and 500 yr. floods
8-10-77

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
```

```
C
1       SHELBY TOWNSHIP     5670-J8     PROJECT MANAGER   WILLIAM ROSSON
T2       10 YEAR FLOOD
T3      .NEWLAND DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.        2.        0.        0.   0.000000     0.00      0.0       0.   723.300    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

    1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
QT      4.000   365.000   580.000   575.000   985.000     0.000     0.000     0.000     0.000     0.000
NC       .050      .050      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
NH      3.000      .070   183.000      .040   193.000      .040   483.000     0.000     0.000     0.000

X1  77200.000    12.000   183.000   193.000  1562.000  1712.000  1652.000     0.000     0.000     0.000
X3      0.000     0.000     0.000    53.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    728.600     0.000   733.700    53.000   729.300    83.000   723.500   106.000   720.300   183.000
GR    718.300   188.000   717.900   191.000   718.500   193.000   726.700   237.000   728.600   283.000
GR    727.400   383.000   730.500   483.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000
NH      3.000      .050   257.000      .040   275.000      .050   675.000     0.000     0.000     0.000

X1  77620.000    13.000   257.000   275.000   430.000   340.000   420.000     0.000     0.000     0.000
GR    726.400     0.000   726.700    75.000   727.400   175.000   725.100   235.000   722.000   257.000
GR    719.900   261.000   719.600   265.000   719.800   270.000   721.700   275.000   722.700   375.000
GR    725.900   475.000   729.000   575.000   728.000   675.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .500     1.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   253.000      .040   282.000      .030   757.000     0.000     0.000     0.000

X1  77632.000    37.000   253.000   282.000    12.000    12.000    12.000     0.000     0.000     0.000
GR    726.400     0.000   726.700    75.000   727.400   175.000   725.400   235.000   722.600   253.000
GR    720.200   253.000   719.400   253.000   719.000   255.000   718.800   257.000   719.000   259.000
GR    719.400   260.400   720.800   261.000   721.400   261.000   721.000   264.000   719.800   264.000
GR    719.000   264.600   718.600   266.000   719.400   268.000   718.600   270.000   719.000   271.400
GR    719.800   272.000   721.000   272.000   721.400   274.000   720.200   274.000   719.400   274.600
GR    719.000   276.000   718.800   278.000   719.000   280.000   719.400   281.400   720.200   282.000
GR    721.800   282.000   722.700   375.000   725.900   475.000   726.900   507.000   729.000   575.000
GR    729.300   657.000   730.600   757.000     0.000     0.000     0.000     0.000     0.000     0.000
SB      0.000     2.874     3.030     0.000    29.000     0.000   104.800     0.000   718.400   718.400

X1  77708.000     0.000     0.000     0.000    76.000    76.000    76.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   724.400   724.900     0.000     0.000     0.000     0.000     0.000
BT     31.000     0.000   726.400     0.000    75.000   726.700     0.000   175.000   727.400     0.000
BT    235.000   725.400     0.000   253.000   725.500   721.400   253.600   725.500   722.800   255.000
BT    725.500   723.800   257.000   725.500   724.400   259.000   725.500   723.800   260.400   725.500
BT    722.800   261.000   725.500   721.400   264.000   725.500   721.000   264.600   725.500   722.400
BT    266.000   725.500   723.400   268.000   725.500   724.000   270.000   725.500   723.400   271.400
BT    725.500   722.400   272.000   725.500   721.000   274.000   725.500   721.400   274.600   725.500
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 281.400 | 725.600 | 722.800 | 232.000 | 725.800 | 721.400 | 375.000 | 725.600 | 0.000 | 475.000 |
| BT | 726.800 | 0.000 | 507.000 | 726.400 | 0.000 | 575.000 | 729.000 | 0.000 | 657.000 | 729.300 |
| BT | 0.000 | 757.000 | 730.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 257.000 | .040 | 275.000 | .050 | 675.000 | 0.000 | 0.000 | 0.000 |
| X1 | 77808.000 | 13.000 | 257.000 | 275.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 175.000 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 725.500 | 0.000 | 725.800 | 75.000 | 726.500 | 175.000 | 724.200 | 235.000 | 721.100 | 257.000 |
| GR | 719.000 | 261.000 | 716.700 | 265.000 | 718.900 | 270.000 | 720.800 | 275.000 | 721.800 | 375.000 |
| GR | 725.000 | 475.000 | 728.100 | 575.000 | 727.100 | 675.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 257.000 | .040 | 275.000 | .050 | 675.000 | 0.000 | 0.000 | 0.000 |
| X1 | 77908.000 | 13.000 | 257.000 | 275.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 175.000 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 725.800 | 0.000 | 726.100 | 75.000 | 726.500 | 175.000 | 724.500 | 235.000 | 721.400 | 257.000 |
| GR | 719.300 | 261.000 | 719.000 | 265.000 | 719.200 | 270.000 | 721.100 | 275.000 | 722.100 | 375.000 |
| GR | 725.300 | 475.000 | 728.400 | 575.000 | 727.400 | 675.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 251.600 | .040 | 273.600 | .050 | 630.300 | 0.000 | 0.000 | 0.000 |
| X1 | 78198.000 | 90.000 | 251.600 | 273.600 | 240.000 | 240.000 | 240.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 151.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 728.100 | 0.000 | 728.200 | 3.800 | 728.200 | 17.300 | 728.300 | 25.000 | 728.400 | 34.700 |
| GR | 728.400 | 43.300 | 728.400 | 52.000 | 728.300 | 60.700 | 728.300 | 69.400 | 728.300 | 78.100 |
| GR | 728.200 | 86.700 | 728.200 | 95.400 | 728.200 | 104.100 | 728.100 | 112.800 | 728.100 | 121.400 |
| GR | 728.100 | 130.100 | 728.100 | 138.400 | 728.000 | 147.500 | 728.000 | 156.200 | 727.900 | 164.800 |
| GR | 727.800 | 173.500 | 727.400 | 182.200 | 727.100 | 190.900 | 726.800 | 199.600 | 726.400 | 208.200 |
| GR | 726.100 | 216.900 | 725.800 | 225.600 | 725.100 | 234.300 | 724.200 | 242.900 | 723.200 | 251.600 |
| GR | 722.700 | 252.400 | 722.200 | 253.100 | 721.700 | 253.800 | 721.100 | 254.600 | 720.600 | 255.300 |
| GR | 720.100 | 256.000 | 719.900 | 256.800 | 719.900 | 257.500 | 719.900 | 258.200 | 719.900 | 259.000 |
| GR | 720.000 | 259.700 | 720.000 | 260.400 | 720.000 | 261.200 | 720.100 | 261.900 | 720.200 | 262.600 |
| GR | 720.400 | 263.400 | 720.600 | 264.100 | 720.700 | 264.800 | 720.900 | 265.600 | 721.000 | 266.300 |
| GR | 721.200 | 267.000 | 721.400 | 267.800 | 721.700 | 268.500 | 722.000 | 269.200 | 722.300 | 270.000 |
| GR | 722.500 | 270.700 | 722.800 | 271.400 | 723.100 | 272.200 | 723.400 | 272.900 | 723.700 | 273.600 |
| GR | 723.800 | 285.500 | 723.900 | 297.400 | 724.000 | 309.300 | 724.100 | 321.200 | 724.200 | 333.100 |
| GR | 724.400 | 345.000 | 724.500 | 355.900 | 724.600 | 368.700 | 724.500 | 380.600 | 724.400 | 392.500 |
| GR | 724.500 | 404.400 | 724.800 | 416.300 | 725.100 | 428.200 | 725.400 | 440.100 | 725.700 | 452.000 |
| GR | 726.000 | 463.900 | 726.300 | 475.800 | 726.900 | 487.500 | 727.400 | 499.500 | 727.700 | 511.400 |
| GR | 728.100 | 523.300 | 728.400 | 535.200 | 728.500 | 547.100 | 728.500 | 559.000 | 728.500 | 570.900 |
| GR | 728.400 | 582.800 | 728.400 | 594.700 | 728.300 | 606.500 | 728.300 | 618.400 | 728.200 | 630.300 |
| NH | 3.000 | .050 | 246.300 | .040 | 272.300 | .050 | 585.600 | 0.000 | 0.000 | 0.000 |
| X1 | 78490.000 | 90.000 | 246.300 | 272.300 | 242.000 | 242.000 | 242.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 730.400 | 0.000 | 730.500 | 8.400 | 730.600 | 16.900 | 730.700 | 25.400 | 730.800 | 33.900 |
| GR | 730.900 | 42.400 | 730.800 | 50.900 | 730.700 | 59.400 | 730.600 | 67.900 | 730.400 | 76.400 |
| GR | 730.300 | 84.900 | 730.200 | 93.400 | 730.100 | 101.900 | 730.000 | 110.400 | 729.800 | 118.900 |
| GR | 729.700 | 127.400 | 729.600 | 135.900 | 729.500 | 144.300 | 729.300 | 152.800 | 729.100 | 161.300 |
| GR | 728.900 | 169.800 | 728.500 | 178.300 | 728.200 | 186.800 | 727.900 | 195.300 | 727.500 | 203.800 |
| GR | 727.200 | 212.300 | 726.900 | 220.800 | 726.400 | 229.300 | 725.900 | 237.800 | 725.200 | 246.300 |
| GR | 724.400 | 247.100 | 723.700 | 248.300 | 722.900 | 248.400 | 722.200 | 249.700 | 721.500 | 250.600 |
| GR | 720.700 | 251.500 | 720.600 | 252.300 | 720.500 | 253.200 | 720.700 | 254.100 | 720.800 | 254.900 |
| GR | 720.900 | 255.800 | 721.000 | 256.700 | 721.100 | 257.500 | 721.200 | 258.400 | 721.500 | 259.300 |
| GR | 721.800 | 260.100 | 722.100 | 261.000 | 722.400 | 261.900 | 722.700 | 262.700 | 722.900 | 263.600 |
| GR | 723.200 | 264.500 | 723.500 | 265.300 | 723.900 | 266.200 | 724.300 | 267.100 | 724.600 | 267.900 |
| GR | 725.000 | 268.800 | 725.300 | 269.700 | 725.700 | 270.500 | 726.000 | 271.400 | 726.400 | 272.300 |
| GR | 726.500 | 282.700 | 726.500 | 293.200 | 726.600 | 303.800 | 726.700 | 314.100 | 726.800 | 324.500 |
| GR | 726.900 | 334.900 | 726.900 | 345.400 | 726.900 | 355.800 | 726.300 | 366.300 | 725.800 | 376.700 |
| GR | 725.400 | 387.200 | 725.600 | 397.500 | 725.800 | 408.000 | 725.900 | 418.500 | 726.100 | 428.900 |
| GR | 726.300 | 439.400 | 726.500 | 449.800 | 727.300 | 460.300 | 727.900 | 470.700 | 728.200 | 481.100 |
| GR | 728.400 | 491.600 | 728.600 | 502.000 | 728.800 | 512.500 | 728.800 | 522.900 | 728.900 | 533.400 |
| GR | 728.900 | 543.800 | 729.000 | 554.200 | 729.000 | 564.700 | 729.100 | 575.100 | 729.200 | 585.600 |
| NH | 3.000 | .045 | 241.000 | .045 | 271.000 | .045 | 541.000 | 0.000 | 0.000 | 0.000 |
| X1 | 78780.000 | 13.000 | 241.000 | 271.000 | 240.000 | 240.000 | 240.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 120.000 | 0.000 | 336.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 732.800 | 0.000 | 733.500 | 41.000 | 731.000 | 141.000 | 727.100 | 241.000 | 721.400 | 347.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 721.300 | 249.000 | 722.400 | 255.000 | 729.100 | 271.000 | 729.500 | 341.000 | 726.400 | 367.000 |
| GR | 726.700 | 423.000 | 728.500 | 441.000 | 730.100 | 541.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .045 | 233.000 | .035 | 266.300 | .045 | 474.000 | 0.000 | 0.000 | 0.000 |
| X1 | 79160.000 | 90.000 | 238.000 | 266.300 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 732.300 | 0.000 | 732.400 | 8.200 | 732.500 | 16.400 | 732.700 | 24.600 | 732.800 | 32.800 |
| GR | 732.900 | 41.000 | 732.900 | 49.200 | 732.800 | 57.400 | 732.700 | 65.600 | 732.600 | 73.800 |
| GR | 732.500 | 82.000 | 732.400 | 90.200 | 732.300 | 98.400 | 732.200 | 106.600 | 732.000 | 114.800 |
| GR | 731.800 | 123.100 | 731.600 | 131.300 | 731.500 | 139.500 | 731.200 | 147.700 | 731.000 | 155.900 |
| GR | 730.700 | 164.100 | 730.400 | 172.300 | 730.200 | 180.500 | 729.900 | 188.700 | 729.700 | 196.900 |
| GR | 729.400 | 205.100 | 729.100 | 213.300 | 728.800 | 221.500 | 728.600 | 229.700 | 728.300 | 238.000 |
| GR | 727.600 | 238.900 | 726.800 | 239.500 | 726.100 | 240.200 | 725.400 | 241.700 | 724.700 | 242.700 |
| GR | 723.900 | 243.600 | 723.500 | 244.800 | 723.700 | 245.500 | 722.430 | 246.500 | 723.700 | 247.400 |
| GR | 723.800 | 248.300 | 723.800 | 249.300 | 723.800 | 250.200 | 723.900 | 251.200 | 724.000 | 252.100 |
| GR | 724.200 | 253.100 | 724.400 | 254.000 | 724.600 | 255.000 | 724.800 | 255.900 | 724.700 | 256.600 |
| GR | 724.900 | 257.800 | 725.200 | 258.700 | 725.500 | 259.700 | 725.800 | 260.600 | 726.100 | 261.600 |
| GR | 726.400 | 262.500 | 726.700 | 263.500 | 727.100 | 264.400 | 727.700 | 265.300 | 728.300 | 266.300 |
| GR | 728.900 | 273.200 | 729.400 | 280.100 | 730.000 | 287.100 | 730.500 | 294.000 | 731.100 | 300.900 |
| GR | 731.700 | 307.800 | 732.200 | 314.800 | 732.100 | 321.700 | 731.400 | 328.600 | 730.800 | 335.500 |
| GR | 730.300 | 342.500 | 730.400 | 349.400 | 730.500 | 356.300 | 730.600 | 363.200 | 730.700 | 370.200 |
| GR | 730.700 | 377.100 | 730.900 | 384.000 | 731.500 | 390.900 | 732.100 | 397.800 | 732.300 | 404.800 |
| GR | 732.400 | 411.700 | 732.600 | 418.600 | 732.700 | 425.500 | 732.900 | 432.500 | 733.000 | 439.400 |
| GR | 733.200 | 446.300 | 733.300 | 453.200 | 733.500 | 460.200 | 733.600 | 467.100 | 733.700 | 474.000 |
| NH | 3.000 | .045 | 234.900 | .035 | 261.600 | .045 | 406.900 | 0.000 | 0.000 | 0.000 |
| X1 | 79540.000 | 90.000 | 234.900 | 261.600 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 731.700 | 0.000 | 731.900 | 8.100 | 732.000 | 16.200 | 732.200 | 24.300 | 732.300 | 32.400 |
| GR | 732.500 | 40.500 | 732.500 | 48.600 | 732.500 | 56.700 | 732.500 | 64.800 | 732.600 | 72.900 |
| GR | 732.600 | 81.000 | 732.600 | 89.100 | 732.600 | 97.200 | 732.600 | 105.300 | 732.400 | 113.400 |
| GR | 732.300 | 121.500 | 732.100 | 129.600 | 732.000 | 137.700 | 731.800 | 145.800 | 731.600 | 153.900 |
| GR | 731.400 | 162.000 | 731.200 | 170.100 | 731.000 | 178.200 | 730.900 | 186.300 | 730.700 | 194.400 |
| GR | 730.500 | 202.500 | 730.200 | 210.600 | 730.000 | 218.700 | 729.800 | 226.800 | 729.500 | 234.900 |
| GR | 729.000 | 235.800 | 728.500 | 236.700 | 728.000 | 237.600 | 727.500 | 238.500 | 727.000 | 239.400 |
| GR | 726.500 | 240.300 | 726.300 | 241.200 | 726.100 | 242.100 | 726.000 | 242.900 | 725.900 | 243.800 |
| GR | 725.700 | 244.700 | 725.600 | 245.600 | 725.500 | 246.500 | 725.400 | 247.400 | 725.300 | 248.300 |
| GR | 725.300 | 249.200 | 725.200 | 250.100 | 725.200 | 250.900 | 725.200 | 251.800 | 724.600 | 252.700 |
| GR | 723.370 | 253.600 | 724.700 | 254.500 | 724.900 | 255.400 | 725.100 | 256.300 | 725.300 | 257.200 |
| GR | 725.500 | 258.100 | 725.700 | 258.900 | 726.100 | 259.800 | 726.300 | 260.700 | 727.600 | 261.600 |
| GR | 726.700 | 266.500 | 729.700 | 271.300 | 730.800 | 276.100 | 731.900 | 281.000 | 733.000 | 285.800 |
| GR | 734.000 | 290.700 | 735.000 | 295.500 | 735.000 | 300.400 | 734.700 | 305.200 | 734.500 | 310.000 |
| GR | 734.300 | 314.900 | 734.400 | 319.700 | 734.600 | 324.500 | 734.700 | 329.400 | 734.800 | 334.200 |
| GR | 734.900 | 339.100 | 735.000 | 343.900 | 735.400 | 348.800 | 735.800 | 353.600 | 736.000 | 358.500 |
| GR | 736.100 | 363.300 | 736.300 | 368.100 | 736.400 | 373.000 | 736.600 | 377.800 | 736.700 | 382.700 |
| GR | 736.900 | 387.500 | 737.000 | 392.400 | 737.200 | 397.200 | 737.300 | 402.000 | 737.500 | 406.900 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .045 | 232.000 | .035 | 243.000 | .040 | 255.000 | .055 | 257.000 | .045 |
| NH | 340.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 79920.000 | 12.000 | 232.000 | 257.000 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 178.000 | 0.000 | 312.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 731.300 | 0.000 | 733.100 | 100.000 | 731.600 | 200.000 | 730.800 | 232.000 | 725.500 | 248.000 |
| GR | 724.000 | 249.000 | 724.300 | 251.000 | 724.700 | 255.000 | 726.900 | 257.000 | 737.800 | 276.000 |
| GR | 739.000 | 300.000 | 741.200 | 340.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 500.000 | .040 | 545.000 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80112.000 | 28.000 | 500.000 | 545.000 | 242.000 | 152.000 | 152.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.300 | 0.000 | 743.100 | 100.000 | 742.900 | 200.000 | 742.500 | 300.000 | 742.300 | 400.000 |
| GR | 742.300 | 500.000 | 732.800 | 500.000 | 729.900 | 510.500 | 739.100 | 510.500 | 739.100 | 511.500 |
| GR | 729.900 | 511.500 | 727.000 | 518.000 | 727.000 | 521.500 | 739.100 | 521.500 | 739.100 | 522.500 |
| GR | 727.000 | 522.500 | 726.400 | 525.000 | 726.500 | 533.500 | 739.100 | 533.500 | 739.100 | 534.500 |
| GR | 729.800 | 534.500 | 732.700 | 545.000 | 742.300 | 545.000 | 742.300 | 600.000 | 742.000 | 700.000 |
| GR | 741.600 | 800.000 | 741.100 | 900.000 | 740.600 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 500.000 | .030 | 545.000 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 80113.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 18.000 | 0.000 | 743.300 | 0.000 | 100.000 | 743.100 | 0.000 | 200.000 | 742.900 | 0.000 |
| BT | 300.000 | 742.500 | 0.000 | 400.000 | 742.300 | 0.000 | 500.000 | 742.300 | 739.100 | 510.500 |
| BT | 742.300 | 739.100 | 511.500 | 742.300 | 739.100 | 521.500 | 742.300 | 739.100 | 522.500 | 742.300 |
| BT | 739.100 | 533.500 | 742.300 | 739.100 | 534.500 | 742.300 | 739.100 | 545.000 | 742.300 | 739.100 |
| BT | 600.000 | 742.300 | 0.000 | 700.000 | 742.000 | 0.000 | 800.000 | 741.600 | 0.000 | 900.000 |
| BT | 741.100 | 0.000 | 1000.000 | 740.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80127.000 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 500.000 | .035 | 545.000 | .070 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80128.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 51.000 | .035 | 65.000 | .070 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80490.000 | 15.000 | 51.000 | 65.000 | 242.000 | 442.000 | 362.700 | 0.000 | 0.000 | 0.000 |
| GR | 742.100 | 0.000 | 730.800 | 51.000 | 728.100 | 52.000 | 728.100 | 57.000 | 728.200 | 62.000 |
| GR | 728.300 | 63.000 | 730.500 | 55.000 | 731.300 | 100.000 | 734.500 | 200.000 | 738.300 | 300.000 |
| GR | 741.300 | 400.000 | 743.500 | 510.300 | 745.000 | 500.000 | 747.500 | 700.000 | 750.200 | 800.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 80.000 | .035 | 152.000 | .050 | 500.000 | 0.000 | 0.000 | 0.000 |
| X1 | 81190.000 | 13.000 | 80.000 | 152.000 | 680.000 | 750.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.500 | 0.000 | 735.000 | 30.000 | 733.000 | 115.000 | 733.000 | 125.000 | 732.400 | 132.000 |
| GR | 732.000 | 136.000 | 732.400 | 140.000 | 732.600 | 145.000 | 734.000 | 152.000 | 736.100 | 200.000 |
| GR | 740.200 | 300.000 | 744.800 | 400.000 | 750.700 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 443.000 | .035 | 460.000 | .070 | 865.000 | 0.000 | 0.000 | 0.000 |
| X1 | 82890.000 | 16.000 | 443.000 | 466.000 | 1750.000 | 1400.000 | 1700.000 | 0.000 | 0.000 | 0.000 |
| GR | 755.000 | 0.000 | 744.400 | 100.000 | 740.700 | 200.000 | 736.100 | 300.000 | 736.700 | 400.000 |
| GR | 736.800 | 443.000 | 734.100 | 447.000 | 733.400 | 452.000 | 733.500 | 457.000 | 733.200 | 462.000 |
| GR | 736.700 | 466.000 | 736.700 | 500.000 | 736.100 | 600.000 | 736.000 | 690.000 | 748.700 | 800.000 |
| GR | 754.100 | 865.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 324.100 | .035 | 341.100 | .065 | 676.800 | 0.000 | 0.000 | 0.000 |
| X1 | 83210.000 | 90.000 | 324.100 | 341.100 | 333.000 | 250.100 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 751.000 | 0.000 | 749.800 | 11.100 | 748.700 | 22.300 | 747.500 | 33.500 | 746.300 | 44.700 |
| GR | 745.100 | 55.800 | 743.900 | 67.000 | 743.100 | 73.200 | 742.500 | 89.400 | 742.100 | 100.500 |
| GR | 741.600 | 111.700 | 741.200 | 122.900 | 740.800 | 134.100 | 740.300 | 145.200 | 739.800 | 156.400 |
| GR | 739.300 | 167.600 | 738.800 | 178.800 | 738.300 | 190.000 | 737.800 | 201.100 | 737.200 | 212.300 |
| GR | 736.900 | 223.500 | 736.900 | 234.700 | 736.900 | 245.800 | 737.000 | 257.000 | 737.000 | 268.200 |
| GR | 737.000 | 279.400 | 737.000 | 290.500 | 737.000 | 301.700 | 736.900 | 312.900 | 736.900 | 324.100 |
| GR | 736.200 | 324.600 | 735.900 | 325.200 | 735.500 | 325.700 | 735.200 | 326.300 | 734.800 | 326.900 |
| GR | 734.700 | 327.400 | 734.600 | 328.000 | 734.500 | 328.600 | 734.500 | 329.100 | 734.400 | 329.700 |
| GR | 734.400 | 330.300 | 734.300 | 330.900 | 734.300 | 331.400 | 734.400 | 332.000 | 734.400 | 332.600 |
| GR | 734.500 | 333.100 | 734.500 | 333.700 | 734.500 | 334.300 | 734.500 | 334.900 | 734.500 | 335.400 |
| GR | 734.500 | 336.000 | 734.500 | 336.600 | 734.500 | 337.100 | 734.500 | 337.700 | 734.600 | 338.300 |
| GR | 735.100 | 338.900 | 735.600 | 339.400 | 736.000 | 340.000 | 735.500 | 340.600 | 736.500 | 341.100 |
| GR | 737.200 | 352.300 | 737.300 | 353.500 | 737.400 | 374.500 | 737.500 | 365.800 | 737.600 | 347.000 |
| GR | 737.700 | 408.200 | 737.600 | 419.400 | 737.900 | 430.500 | 737.900 | 441.500 | 738.000 | 453.000 |
| GR | 738.200 | 464.200 | 738.300 | 475.400 | 738.400 | 486.600 | 738.500 | 497.700 | 738.700 | 508.900 |
| GR | 738.800 | 520.100 | 739.100 | 531.300 | 740.300 | 542.500 | 741.500 | 553.700 | 742.700 | 564.900 |
| GR | 743.900 | 576.100 | 745.100 | 587.300 | 746.300 | 598.500 | 747.500 | 609.700 | 748.600 | 620.800 |
| GR | 749.600 | 632.000 | 750.500 | 643.200 | 751.400 | 654.400 | 752.300 | 665.600 | 753.200 | 676.800 |
| NH | 3.000 | .060 | 204.800 | .035 | 215.800 | .065 | 485.100 | 0.000 | 0.000 | 0.000 |
| X1 | 83530.000 | 90.000 | 204.800 | 215.800 | 333.000 | 250.000 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 747.100 | 0.000 | 746.300 | 7.000 | 745.600 | 14.100 | 744.800 | 21.100 | 744.100 | 28.200 |
| GR | 743.400 | 35.300 | 742.600 | 42.300 | 742.000 | 49.400 | 741.600 | 56.500 | 741.200 | 63.500 |
| GR | 740.900 | 70.600 | 740.600 | 77.700 | 740.300 | 84.700 | 740.000 | 91.800 | 739.700 | 98.900 |
| GR | 739.300 | 105.900 | 739.000 | 113.000 | 738.700 | 120.100 | 738.300 | 127.100 | 738.000 | 134.200 |
| GR | 737.800 | 141.200 | 737.700 | 148.300 | 737.500 | 155.400 | 737.500 | 162.400 | 737.500 | 169.500 |
| GR | 737.400 | 176.600 | 737.300 | 183.600 | 737.300 | 190.700 | 737.200 | 197.800 | 737.100 | 204.800 |
| GR | 736.200 | 205.100 | 736.000 | 205.500 | 735.900 | 205.800 | 735.700 | 206.200 | 735.500 | 206.600 |
| GR | 735.400 | 207.000 | 735.300 | 207.300 | 735.300 | 207.700 | 735.300 | 208.100 | 735.300 | 208.500 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 735.300 | 208.800 | 735.300 | 209.200 | 735.300 | 209.600 | 735.400 | 210.000 | 735.400 | 210.300 |
| GR | 735.500 | 210.700 | 735.600 | 211.100 | 735.600 | 211.500 | 735.700 | 211.800 | 735.700 | 212.200 |
| GR | 735.700 | 212.600 | 735.800 | 212.900 | 735.800 | 213.300 | 735.800 | 213.700 | 735.900 | 214.100 |
| GR | 736.200 | 214.400 | 736.500 | 214.300 | 736.800 | 215.200 | 737.000 | 215.600 | 737.300 | 215.800 |
| GR | 737.700 | 224.900 | 738.000 | 234.000 | 738.200 | 243.100 | 738.500 | 252.100 | 738.800 | 261.200 |
| GR | 739.000 | 270.300 | 739.300 | 279.400 | 739.500 | 288.400 | 739.800 | 297.500 | 740.000 | 306.600 |
| GR | 740.300 | 315.700 | 740.600 | 324.700 | 740.800 | 333.800 | 741.100 | 342.900 | 741.400 | 352.000 |
| GR | 741.700 | 361.000 | 742.100 | 370.100 | 742.900 | 379.200 | 743.800 | 388.300 | 744.600 | 397.300 |
| GR | 745.400 | 406.400 | 746.300 | 415.500 | 747.100 | 424.600 | 748.000 | 433.600 | 748.800 | 442.700 |
| GR | 749.500 | 451.800 | 750.200 | 460.900 | 750.900 | 469.900 | 751.600 | 479.000 | 752.300 | 488.100 |
| NH | 3.000 | .055 | 96.000 | .035 | 91.000 | .060 | 300.000 | 0.000 | 0.000 | 0.000 |
| XI | 83850.000 | 10.000 | 85.000 | 91.000 | 333.000 | 280.000 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.200 | 0.000 | 740.100 | 30.000 | 737.300 | 86.000 | 736.300 | 86.000 | 736.100 | 57.000 |
| GR | 736.300 | 88.000 | 737.500 | 91.100 | 738.400 | 100.000 | 744.400 | 200.000 | 751.500 | 300.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

00BREAK00

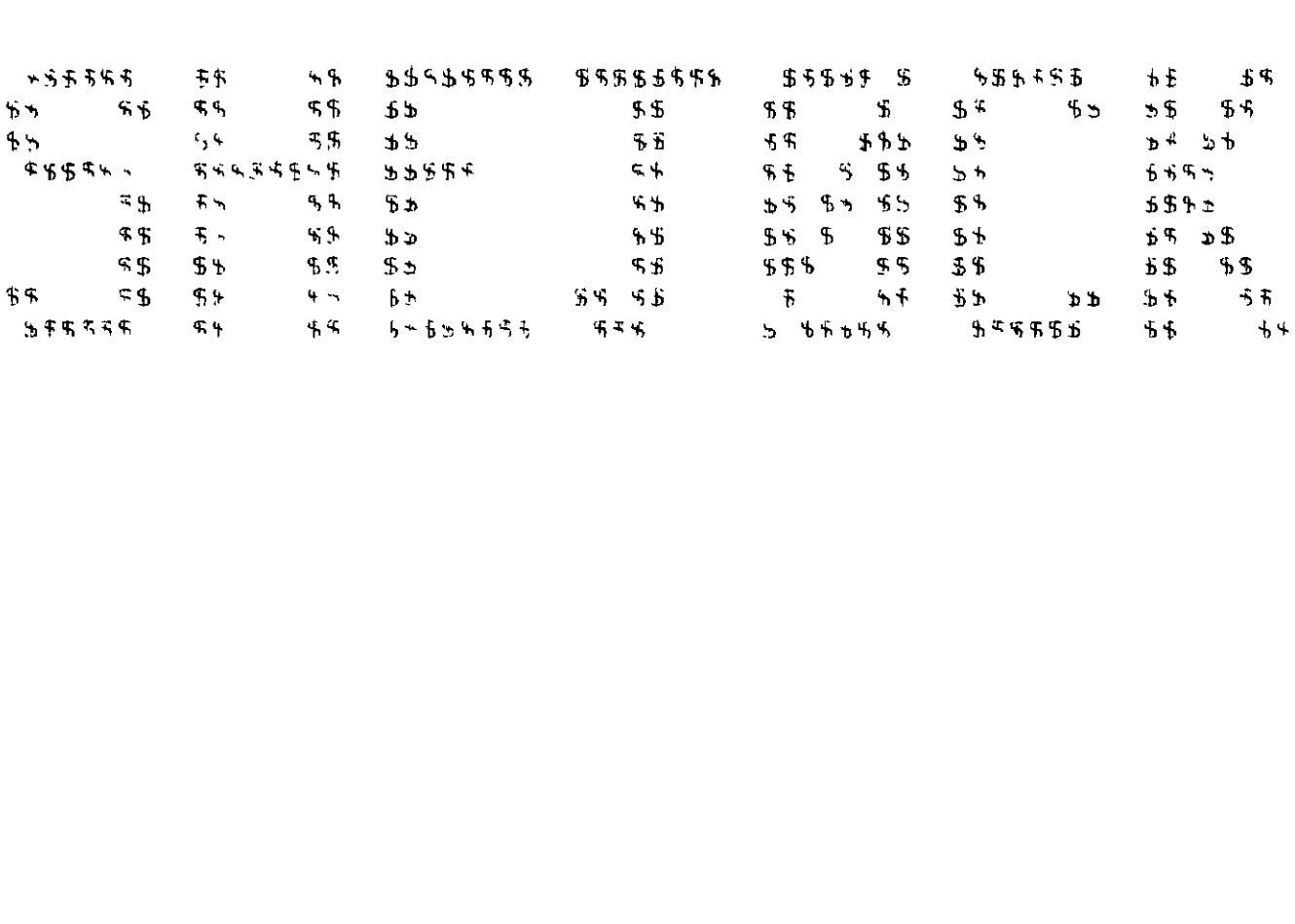
1) COUNTY: Macomb

2) STUDY NAME: Shelby Twp

3) WATERCOURSE: Newland Drain

4) DOCUMENT TYPE: Multi Profile Run
10, 50, 100, 500 yr
floods

00BREAK00



Newland Drain
Multiple profile run
10, 50, 100 and 500 yr. floods
8-10-77

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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C
1       SHELBY TOWNSHIP     5670-08     PROJECT MANAGER   WILLIAM ROSSOW
T2       10 YEAR FLOOD
T3       NEWLAND DRAIN

J1  ICHECK     INO        NINV       IDIR       STRT       METRIC     HVINS      [illegible]     WSEL       FQ

     0.         2.         0.         0.   0.000000       0.00       0.0        0.   723.300     0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLOC      IBW        CHNIM      ITRACE

    1.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

J3      1.000     10.000     11.000     12.000     14.000      8.000      4.000      0.000      0.000      0.000
QT      4.000    365.000    580.000    575.000    985.000      0.000      0.000      0.000      0.000      0.000
NC       .050       .050       .040       .300       .500      0.000      0.000      0.000      0.000      0.000
NH      3.000       .070    183.000       .040    193.000       .040    483.000      0.000      0.000      0.000

X1  77200.000     12.000    183.000    193.000   1562.000   1712.000   1652.000      0.000      0.000      0.000
X3      0.000      0.000      0.000     53.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    728.600      0.000    733.700     53.000    729.300     83.000    723.500    106.000    720.300    183.000
GR    718.300    188.000    717.900    191.000    718.500    193.000    726.700    237.000    728.600    283.000
GR    727.400    383.000    730.500    483.000      0.000      0.000      0.000      0.000      0.000      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000
NH      3.000       .050    257.000       .040    275.000       .050    675.000      0.000      0.000      0.000

X1  77620.000     13.000    257.000    275.000    430.000    340.000    420.000      0.000      0.000      0.000
GR    726.400      0.000    726.700     75.000    727.400    175.000    725.100    235.000    722.000    257.000
GR    719.900    261.000    719.600    265.000    719.800    270.000    721.700    275.000    722.700    375.000
GR    725.900    475.000    729.000    575.000    728.000    675.000      0.000      0.000      0.000      0.000
NC      0.000      0.030      0.030       .030      1.000      0.000      0.000      0.000      0.000      0.000
NH      3.000       .030    253.000       .040    282.000       .030    757.000      0.000      0.000      0.000

X1  77632.000     37.000    253.000    282.000     12.000     12.000     12.000      0.000      0.000      0.000
GR    726.400      0.000    726.700     75.000    727.400    175.000    725.400    235.000    722.600    253.000
GR    720.200    253.000    719.400    253.000    719.000    255.000    718.000    257.000    719.000    259.000
GR    719.400    260.400    720.800    261.000    721.400    261.000    721.000    264.000    719.800    264.000
GR    719.000    264.600    718.600    266.000    718.400    268.000    718.600    270.000    719.000    271.400
GR    719.800    272.000    721.000    272.000    721.400    274.000    720.200    274.000    719.400    274.600
GR    719.000    276.000    718.800    278.000    719.000    280.000    719.400    281.400    720.200    282.000
GR    721.800    282.000    722.700    375.000    725.900    475.000    726.900    507.000    729.000    575.000
GR    729.300    657.000    730.600    757.000      0.000      0.000      0.000      0.000      0.000      0.000
SB      0.000      2.974      3.030      0.000     29.000      0.000    104.800      0.000    718.400    718.400

X1  77708.000      0.000      0.000      0.000     76.000     76.000     76.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    724.400    724.900      0.000      0.000      0.000      0.000      0.000
BT     31.000      0.000    726.400      0.000     75.000    726.700      0.000    175.000    727.400      0.000
BT    235.000    725.400      0.000    253.000    725.500    721.400    253.600    725.500    722.800    255.000
BT    725.500    723.800    257.000    725.500    724.400    255.000    725.500    723.800    260.400    725.500
BT    722.800    261.000    725.500    721.400    264.000    725.500    721.000    264.600    725.500    722.400
BT    266.000    725.500    723.400    268.000    725.500    724.000    270.000    725.500    723.400    271.400
BT    725.500    722.400    272.000    725.500    721.000    274.000    725.500    721.400    274.600    725.500
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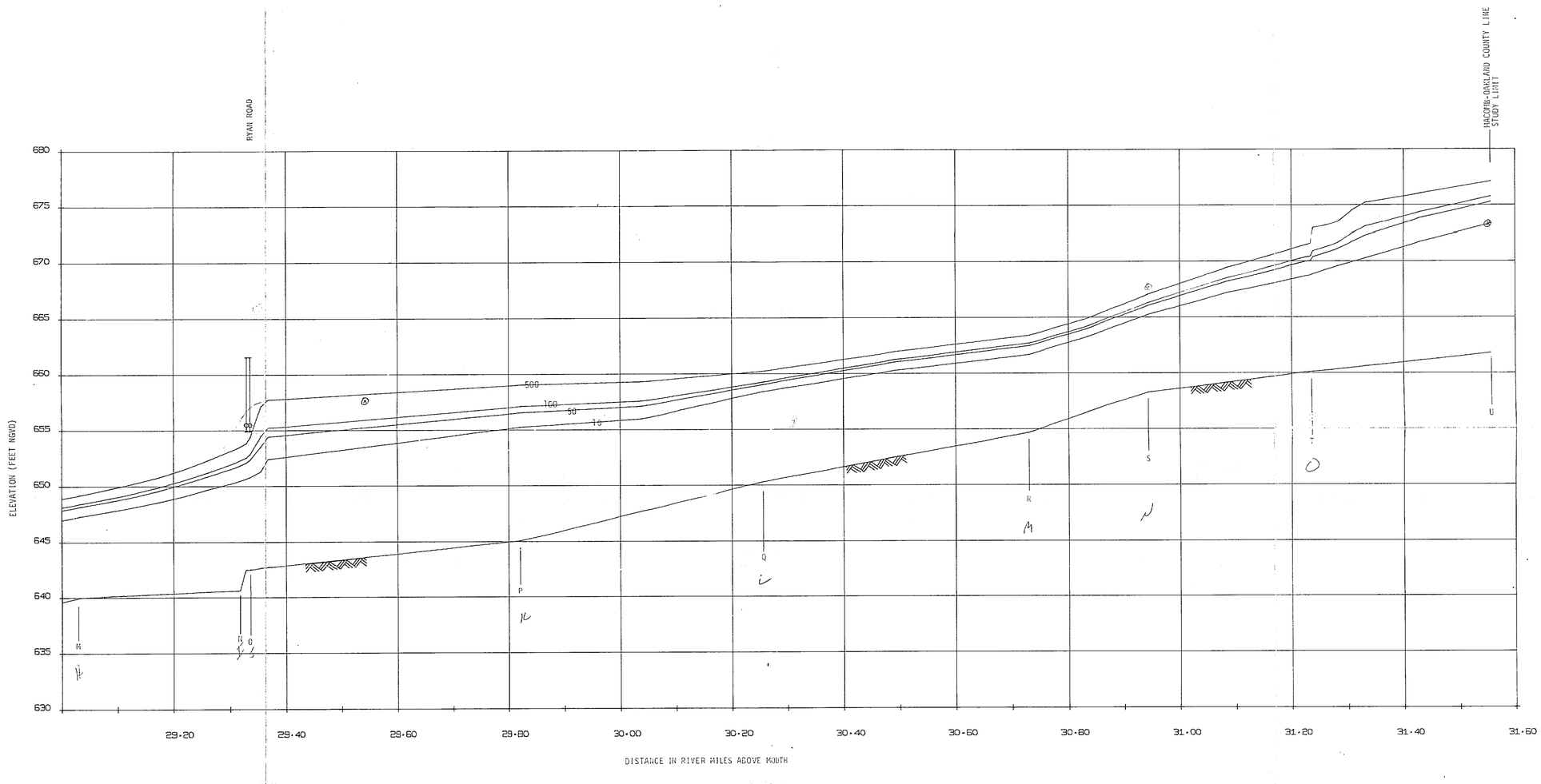
| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 281.400 | 725.500 | 722.800 | 232.000 | 725.600 | 721.400 | 375.000 | 725.800 | 0.000 | 475.000 |
| BT | 726.800 | 0.000 | 507.000 | 726.400 | 0.000 | 575.000 | 729.000 | 0.000 | 657.000 | 729.300 |
| BT | 0.000 | 757.100 | 730.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 257.000 | .040 | 275.000 | .050 | 675.000 | 0.000 | 0.000 | 0.000 |
| X1 | 77808.000 | 13.000 | 257.000 | 275.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 175.000 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 725.500 | 0.000 | 725.800 | 75.000 | 726.500 | 175.000 | 724.200 | 235.000 | 721.100 | 257.000 |
| GR | 719.000 | 261.000 | 716.700 | 265.000 | 718.900 | 270.000 | 720.800 | 275.000 | 721.800 | 375.000 |
| GR | 725.000 | 475.000 | 728.100 | 575.000 | 727.100 | 675.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 257.000 | .040 | 275.000 | .050 | 675.000 | 0.000 | 0.000 | 0.000 |
| X1 | 77908.000 | 13.000 | 257.000 | 275.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 175.100 | 0.000 | 310.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 725.800 | 0.000 | 726.100 | 75.000 | 726.500 | 175.000 | 724.500 | 235.000 | 721.400 | 257.000 |
| GR | 719.300 | 261.000 | 719.000 | 265.000 | 719.200 | 270.000 | 721.100 | 275.000 | 722.100 | 375.000 |
| GR | 725.300 | 475.000 | 728.400 | 575.000 | 727.400 | 675.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 251.600 | .040 | 273.600 | .050 | 630.300 | 0.000 | 0.000 | 0.000 |
| X1 | 78198.000 | 90.000 | 251.600 | 273.600 | 240.000 | 240.000 | 240.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 151.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 728.100 | 0.000 | 728.200 | 4.800 | 728.200 | 17.400 | 728.300 | 25.000 | 728.400 | 34.700 |
| GR | 728.400 | 43.300 | 728.400 | 52.000 | 728.300 | 60.700 | 728.300 | 69.400 | 728.300 | 78.100 |
| GR | 728.200 | 86.700 | 728.200 | 95.400 | 728.200 | 104.100 | 728.100 | 112.800 | 728.100 | 121.400 |
| GR | 728.100 | 130.100 | 728.100 | 139.400 | 728.000 | 147.500 | 728.000 | 156.200 | 727.900 | 164.800 |
| GR | 727.800 | 173.500 | 727.400 | 182.200 | 727.100 | 190.900 | 726.800 | 199.600 | 726.400 | 208.200 |
| GR | 726.100 | 216.900 | 725.800 | 225.500 | 725.100 | 234.300 | 724.200 | 242.900 | 723.200 | 251.600 |
| GR | 722.700 | 252.400 | 722.200 | 253.100 | 721.700 | 253.800 | 721.100 | 254.600 | 720.600 | 255.300 |
| GR | 720.100 | 256.000 | 719.900 | 256.800 | 719.900 | 257.500 | 719.900 | 258.200 | 719.900 | 259.000 |
| GR | 720.000 | 259.700 | 720.000 | 260.400 | 720.000 | 261.200 | 720.100 | 261.900 | 720.200 | 262.600 |
| GR | 721.400 | 263.400 | 720.500 | 264.100 | 720.700 | 264.800 | 720.900 | 265.600 | 721.000 | 266.300 |
| GR | 721.200 | 267.000 | 721.400 | 267.800 | 721.700 | 268.500 | 722.000 | 269.200 | 722.300 | 270.000 |
| GR | 722.500 | 270.700 | 722.800 | 271.400 | 723.100 | 272.200 | 723.400 | 272.900 | 723.700 | 273.500 |
| GR | 723.800 | 285.500 | 723.900 | 297.400 | 724.000 | 309.300 | 724.100 | 321.200 | 724.200 | 333.100 |
| GR | 724.400 | 345.000 | 724.500 | 355.900 | 724.600 | 368.700 | 724.500 | 380.600 | 724.400 | 392.500 |
| GR | 724.500 | 404.400 | 724.800 | 416.300 | 725.100 | 428.200 | 725.400 | 440.100 | 725.700 | 452.000 |
| GR | 726.000 | 463.900 | 726.300 | 475.800 | 726.900 | 487.500 | 727.400 | 499.500 | 727.700 | 511.400 |
| GR | 728.100 | 523.300 | 728.400 | 535.200 | 728.500 | 547.100 | 728.500 | 559.000 | 728.500 | 570.900 |
| GR | 728.400 | 582.800 | 728.400 | 594.700 | 728.300 | 606.500 | 728.300 | 618.400 | 728.200 | 630.300 |
| NH | 3.000 | .050 | 246.300 | .040 | 272.300 | .050 | 595.600 | 0.000 | 0.000 | 0.000 |
| X1 | 78490.000 | 90.000 | 246.300 | 272.300 | 292.000 | 292.000 | 292.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 730.400 | 0.000 | 730.500 | 8.400 | 730.600 | 16.900 | 730.700 | 25.400 | 730.800 | 33.900 |
| GR | 730.900 | 42.400 | 730.800 | 50.900 | 730.700 | 59.400 | 730.600 | 67.900 | 730.400 | 76.400 |
| GR | 730.300 | 84.900 | 730.200 | 93.400 | 730.100 | 101.900 | 730.000 | 110.400 | 729.800 | 118.900 |
| GR | 729.700 | 127.400 | 729.600 | 135.900 | 729.500 | 144.300 | 729.300 | 152.800 | 729.100 | 161.300 |
| GR | 728.900 | 169.800 | 728.500 | 178.300 | 728.200 | 186.800 | 727.900 | 195.300 | 727.500 | 203.800 |
| GR | 727.200 | 212.300 | 726.900 | 220.800 | 726.400 | 229.300 | 725.900 | 237.800 | 725.200 | 246.300 |
| GR | 724.400 | 247.100 | 723.700 | 248.900 | 722.900 | 248.400 | 722.200 | 249.700 | 721.500 | 250.600 |
| GR | 720.700 | 251.500 | 720.600 | 252.300 | 720.500 | 253.200 | 720.700 | 254.100 | 720.800 | 254.900 |
| GR | 720.900 | 255.800 | 721.000 | 256.700 | 721.100 | 257.500 | 721.200 | 258.400 | 721.500 | 259.300 |
| GR | 721.800 | 260.100 | 722.100 | 261.000 | 722.400 | 261.900 | 722.700 | 262.700 | 722.900 | 263.600 |
| GR | 723.200 | 264.500 | 723.500 | 265.300 | 723.900 | 266.200 | 724.300 | 267.100 | 724.600 | 267.900 |
| GR | 725.000 | 268.800 | 725.300 | 269.700 | 725.700 | 270.500 | 726.000 | 271.400 | 726.400 | 272.300 |
| GR | 726.500 | 282.700 | 726.500 | 293.200 | 726.600 | 303.500 | 726.700 | 314.100 | 726.800 | 324.500 |
| GR | 726.900 | 334.900 | 726.900 | 345.400 | 726.900 | 355.800 | 726.300 | 366.300 | 725.800 | 376.700 |
| GR | 725.400 | 387.200 | 725.600 | 397.600 | 725.800 | 408.000 | 725.900 | 418.500 | 726.100 | 428.900 |
| GR | 726.300 | 439.400 | 726.500 | 449.800 | 727.300 | 460.300 | 727.900 | 470.700 | 728.200 | 481.100 |
| GR | 728.400 | 491.600 | 728.600 | 502.000 | 728.800 | 512.500 | 728.800 | 522.900 | 728.900 | 533.400 |
| GR | 728.900 | 543.800 | 729.000 | 554.200 | 729.000 | 564.700 | 729.100 | 575.100 | 729.200 | 585.600 |
| NH | 3.000 | .045 | 241.000 | .045 | 271.000 | .045 | 541.000 | 0.000 | 0.000 | 0.000 |
| X1 | 78780.000 | 13.000 | 241.000 | 271.000 | 290.000 | 290.000 | 290.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 120.000 | 0.000 | 336.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 732.800 | 0.000 | 733.500 | 41.000 | 731.000 | 141.000 | 727.100 | 241.000 | 721.400 | [illegible] |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 721.300 | 249.000 | 722.400 | 255.000 | 729.100 | 271.000 | 729.500 | 341.000 | 726.400 | 367.000 |
| GR | 726.700 | 423.000 | 728.500 | 441.000 | 730.100 | 541.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .045 | 234.000 | .035 | 266.300 | .045 | 474.000 | 0.000 | 0.000 | 0.000 |
| X1 | 79160.000 | 90.000 | 238.000 | 265.300 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 732.300 | 0.000 | 732.400 | 8.200 | 732.500 | 16.400 | 732.700 | 24.600 | 732.800 | 32.800 |
| GR | 732.900 | 41.000 | 732.900 | 49.200 | 732.800 | 57.400 | 732.700 | 65.600 | 732.600 | 73.800 |
| GR | 732.500 | 82.000 | 732.400 | 90.200 | 732.300 | 98.400 | 732.200 | 106.600 | 732.000 | 114.800 |
| GR | 731.800 | 123.100 | 731.600 | 131.300 | 731.500 | 139.500 | 731.200 | 147.700 | 731.000 | 155.900 |
| GR | 730.700 | 164.100 | 730.400 | 172.300 | 730.200 | 180.500 | 729.900 | 188.700 | 729.700 | 196.900 |
| GR | 729.410 | 205.100 | 729.100 | 213.300 | 728.800 | 221.500 | 728.600 | 229.700 | 728.300 | 238.000 |
| GR | 727.600 | 238.900 | 726.800 | 239.700 | 726.100 | 240.200 | 725.400 | 241.700 | 724.700 | 242.700 |
| GR | 723.900 | 243.500 | 723.500 | 244.500 | 723.700 | 245.500 | 722.330 | 246.500 | 723.700 | 247.400 |
| GR | 723.900 | 248.300 | 723.800 | 249.300 | 723.800 | 250.200 | 723.900 | 251.200 | 724.000 | 252.100 |
| GR | 724.200 | 253.100 | 724.400 | 254.000 | 724.600 | 255.000 | 724.800 | 255.900 | 724.700 | 256.800 |
| GR | 724.900 | 257.800 | 725.200 | 258.700 | 725.500 | 259.700 | 725.800 | 260.600 | 726.100 | 261.600 |
| GR | 726.400 | 262.500 | 726.700 | 263.500 | 727.100 | 264.400 | 727.700 | 265.300 | 728.300 | 266.300 |
| GR | 728.900 | 273.200 | 729.400 | 280.100 | 730.000 | 287.100 | 730.500 | 294.000 | 731.100 | 300.900 |
| GR | 731.700 | 307.800 | 732.200 | 314.800 | 732.100 | 321.700 | 731.400 | 328.600 | 730.800 | 335.500 |
| GR | 730.300 | 342.500 | 730.400 | 349.400 | 730.500 | 356.300 | 730.600 | 363.200 | 730.700 | 370.200 |
| GR | 730.700 | 377.100 | 730.900 | 384.000 | 731.500 | 390.900 | 732.100 | 397.800 | 732.300 | 404.800 |
| GR | 732.400 | 411.700 | 732.600 | 418.600 | 732.700 | 425.500 | 732.900 | 432.500 | 733.000 | 439.400 |
| GR | 733.200 | 446.300 | 733.300 | 453.200 | 733.500 | 460.200 | 733.600 | 467.100 | 733.700 | 474.000 |
| NH | 3.000 | .045 | 234.900 | .035 | 261.600 | .045 | 406.900 | 0.000 | 0.000 | 0.000 |
| X1 | 79540.000 | 90.000 | 234.900 | 261.500 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 150.000 | 0.000 | 315.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 731.700 | 0.000 | 731.900 | 8.100 | 732.000 | 16.200 | 732.200 | 24.300 | 732.300 | 32.400 |
| GR | 732.500 | 40.500 | 732.500 | 48.600 | 732.500 | 56.700 | 732.500 | 64.800 | 732.600 | 72.900 |
| GR | 732.600 | 81.000 | 732.600 | 89.100 | 732.600 | 97.200 | 732.600 | 105.300 | 732.400 | 113.400 |
| GR | 732.300 | 121.500 | 732.100 | 129.500 | 732.000 | 137.700 | 731.800 | 145.800 | 731.600 | 153.900 |
| GR | 731.400 | 162.000 | 731.200 | 170.100 | 731.000 | 178.200 | 730.900 | 186.300 | 730.700 | 194.400 |
| GR | 730.500 | 202.500 | 730.200 | 210.600 | 730.000 | 218.700 | 729.800 | 226.800 | 729.500 | 234.900 |
| GR | 729.000 | 235.800 | 728.500 | 236.700 | 728.000 | 237.600 | 727.500 | 238.500 | 727.000 | 239.400 |
| GR | 726.500 | 240.300 | 726.300 | 241.200 | 726.100 | 242.100 | 726.000 | 242.900 | 725.900 | 243.800 |
| GR | 725.700 | 244.700 | 725.600 | 245.500 | 725.500 | 246.500 | 725.400 | 247.400 | 725.300 | 248.300 |
| GR | 725.300 | 249.200 | 725.200 | 250.100 | 725.200 | 250.900 | 725.200 | 251.600 | 724.600 | 252.700 |
| GR | 723.370 | 253.600 | 724.700 | 254.500 | 724.900 | 255.400 | 725.100 | 256.300 | 725.300 | 257.200 |
| GR | 725.500 | 258.100 | 725.700 | 258.900 | 726.100 | 259.400 | 726.300 | 260.700 | 727.600 | 261.600 |
| GR | 728.700 | 266.500 | 729.700 | 271.300 | 730.800 | 276.100 | 731.900 | 281.000 | 733.000 | 285.800 |
| GR | 734.000 | 290.700 | 735.000 | 295.500 | 735.000 | 300.400 | 734.700 | 305.200 | 734.500 | 310.000 |
| GR | 734.300 | 314.900 | 734.400 | 319.700 | 734.600 | 324.500 | 734.700 | 329.400 | 734.800 | 334.200 |
| GR | 734.910 | 339.100 | 735.000 | 343.900 | 735.400 | 348.800 | 735.800 | 353.600 | 736.000 | 358.500 |
| GR | 736.100 | 363.300 | 735.300 | 368.100 | 735.400 | 373.000 | 736.600 | 377.800 | 736.700 | 382.700 |
| GR | 736.900 | 387.500 | 737.000 | 392.400 | 737.200 | 397.200 | 737.300 | 402.000 | 737.500 | 406.900 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .045 | 232.000 | .035 | 243.000 | .040 | 255.000 | .055 | 257.000 | .045 |
| NH | 340.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 79920.000 | 12.000 | 232.000 | 257.000 | 380.000 | 380.000 | 380.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 178.000 | 0.000 | 312.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 731.300 | 0.000 | 733.100 | 100.000 | 731.600 | 200.000 | 730.800 | 232.000 | 725.500 | 248.000 |
| GR | 724.000 | 249.000 | 724.300 | 251.000 | 724.700 | 255.000 | 726.900 | 257.000 | 737.800 | 276.000 |
| GR | 739.000 | 300.000 | 741.200 | 340.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 500.000 | .040 | 545.000 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80112.000 | 28.000 | 500.000 | 545.000 | 242.000 | 152.000 | 152.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.300 | 0.000 | 743.100 | 100.000 | 742.900 | 200.000 | 742.500 | 300.000 | 742.300 | 400.000 |
| GR | 742.300 | 500.000 | 732.800 | 500.000 | 729.900 | 510.500 | 739.100 | 510.500 | 739.100 | 511.500 |
| GR | 729.900 | 511.500 | 727.000 | 518.000 | 727.000 | 521.500 | 739.100 | 521.500 | 739.100 | 522.500 |
| GR | 727.000 | 522.500 | 726.400 | 525.000 | 726.500 | 533.500 | 739.100 | 533.500 | 739.100 | 534.500 |
| GR | 729.800 | 534.500 | 732.700 | 545.000 | 742.300 | 545.000 | 742.300 | 500.000 | 742.000 | 700.000 |
| GR | 741.600 | 800.000 | 741.100 | 900.000 | 740.600 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 500.000 | .030 | 545.000 | .030 | 1000.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 80113.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| BT | 18.000 | 0.000 | 743.300 | 0.000 | 100.000 | 743.100 | 0.000 | 200.000 | 742.900 | 0.000 |
| BT | 300.000 | 742.500 | 0.000 | 400.000 | 742.300 | 0.000 | 500.000 | 742.300 | 739.100 | 510.500 |
| BT | 742.300 | 739.100 | 511.500 | 742.300 | 739.100 | 521.500 | 742.300 | 739.100 | 522.500 | 742.300 |
| BT | 739.100 | 533.500 | 742.300 | 739.100 | 534.500 | 742.300 | 739.100 | 545.000 | 742.300 | 739.100 |
| BT | 600.000 | 742.300 | 0.000 | 700.000 | 742.000 | 0.000 | 800.000 | 741.600 | 0.000 | 900.000 |
| BT | 741.100 | 0.000 | 1000.000 | 740.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80127.000 | 0.000 | 0.000 | 0.000 | 14.000 | 14.000 | 14.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 500.000 | .035 | 545.000 | .070 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80128.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 51.000 | .035 | 55.000 | .070 | 400.000 | 0.000 | 0.000 | 0.000 |
| X1 | 80490.000 | 15.000 | 51.000 | 65.000 | 242.000 | 442.000 | 362.000 | 0.000 | 0.000 | 0.000 |
| GR | 742.100 | 0.000 | 730.800 | 51.000 | 728.100 | 52.000 | 728.100 | 57.000 | 728.200 | 62.000 |
| GR | 728.300 | 63.000 | 730.500 | 55.000 | 731.300 | 100.000 | 734.500 | 200.000 | 738.300 | 300.000 |
| GR | 741.300 | 400.000 | 743.500 | 510.000 | 745.000 | 500.000 | 747.500 | 700.000 | 750.200 | 800.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.300 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 80.000 | .035 | 152.000 | .050 | 500.000 | 0.000 | 0.000 | 0.000 |
| X1 | 81190.000 | 13.000 | 80.000 | 152.000 | 680.000 | 750.000 | 700.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.500 | 0.000 | 735.000 | 30.000 | 733.000 | 115.000 | 733.000 | 125.000 | 732.400 | 132.000 |
| GR | 732.000 | 136.000 | 732.400 | 140.000 | 732.600 | 145.000 | 734.000 | 152.000 | 736.100 | 200.000 |
| GR | 740.200 | 300.000 | 744.800 | 400.000 | 750.700 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 443.000 | .035 | 466.000 | .070 | 865.000 | 0.000 | 0.000 | 0.000 |
| X1 | 82890.000 | 16.000 | 443.000 | 466.000 | 1750.000 | 1400.000 | 1700.000 | 0.000 | 0.000 | 0.000 |
| GR | 755.000 | 0.000 | 744.400 | 100.000 | 740.700 | 200.000 | 736.100 | 300.000 | 736.700 | 400.000 |
| GR | 736.800 | 443.000 | 734.100 | 447.000 | 733.400 | 452.000 | 733.500 | 457.000 | 733.200 | 462.000 |
| GR | 736.700 | 466.000 | 735.700 | 500.000 | 736.100 | 600.000 | 736.000 | 690.000 | 748.700 | 800.000 |
| GR | 754.100 | 865.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .065 | 324.100 | .035 | 341.100 | .065 | 676.800 | 0.000 | 0.000 | 0.000 |
| X1 | 83210.000 | 90.000 | 324.100 | 341.100 | 333.000 | 250.100 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 751.000 | 0.000 | 749.800 | 11.100 | 748.700 | 22.300 | 747.500 | 33.500 | 746.300 | 44.700 |
| GR | 745.100 | 55.800 | 743.900 | 67.000 | 743.100 | 73.200 | 742.500 | 89.400 | 742.100 | 100.500 |
| GR | 741.600 | 111.700 | 741.200 | 122.900 | 740.800 | 134.100 | 740.300 | 145.200 | 739.800 | 156.400 |
| GR | 739.300 | 167.600 | 738.800 | 179.800 | 738.300 | 190.000 | 737.800 | 201.100 | 737.200 | 212.300 |
| GR | 736.900 | 223.500 | 736.900 | 234.700 | 736.900 | 245.800 | 737.000 | 257.000 | 737.000 | 268.200 |
| GR | 737.000 | 279.400 | 737.000 | 290.500 | 737.000 | 301.700 | 736.900 | 312.900 | 736.900 | 324.100 |
| GR | 736.200 | 324.600 | 735.900 | 325.200 | 735.500 | 325.700 | 735.200 | 326.300 | 734.800 | 326.900 |
| GR | 734.700 | 327.400 | 734.500 | 328.000 | 734.500 | 328.000 | 734.500 | 329.100 | 734.400 | 329.700 |
| GR | 734.400 | 330.300 | 734.300 | 330.900 | 734.300 | 331.400 | 734.400 | 332.000 | 734.400 | 332.600 |
| GR | 734.500 | 333.100 | 734.500 | 333.700 | 734.500 | 334.300 | 734.500 | 334.900 | 734.500 | 335.400 |
| GR | 734.500 | 336.000 | 734.500 | 336.600 | 734.500 | 337.100 | 734.500 | 337.700 | 734.600 | 338.300 |
| GR | 735.100 | 338.900 | 735.600 | 339.410 | 736.000 | 340.000 | 736.500 | 340.600 | 736.500 | 341.100 |
| GR | 737.200 | 352.300 | 737.300 | 353.500 | 737.400 | 374.500 | 737.500 | 367.600 | 737.600 | 347.000 |
| GR | 737.700 | 408.200 | 737.600 | 419.400 | 737.900 | 430.500 | 737.900 | 441.600 | 738.000 | 453.000 |
| GR | 738.200 | 464.200 | 738.300 | 475.400 | 738.400 | 486.600 | 738.500 | 497.700 | 738.700 | 508.900 |
| GR | 738.800 | 520.100 | 739.100 | 531.300 | 740.300 | 542.500 | 741.500 | 553.700 | 742.700 | 564.900 |
| GR | 743.900 | 576.100 | 745.100 | 587.300 | 746.300 | 598.500 | 747.500 | 609.700 | 748.600 | 620.800 |
| GR | 749.600 | 632.000 | 750.500 | 643.200 | 751.400 | 654.400 | 752.300 | 665.600 | 753.200 | 676.800 |
| NH | 3.000 | .060 | 204.800 | .035 | 215.400 | .065 | 486.100 | 0.000 | 0.000 | 0.000 |
| X1 | 83530.000 | 90.000 | 204.800 | 215.800 | 333.000 | 250.000 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 747.100 | 0.000 | 746.300 | 7.000 | 745.600 | 14.100 | 744.800 | 21.100 | 744.100 | 28.200 |
| GR | 743.400 | 35.300 | 742.600 | 42.300 | 742.000 | 49.400 | 741.600 | 56.500 | 741.200 | 63.500 |
| GR | 740.900 | 70.600 | 740.600 | 77.700 | 740.300 | 84.700 | 740.000 | 91.800 | 739.700 | 98.900 |
| GR | 739.300 | 105.900 | 739.000 | 113.000 | 738.700 | 120.100 | 738.300 | 127.100 | 738.000 | 134.200 |
| GR | 737.800 | 141.200 | 737.700 | 148.300 | 737.500 | 155.400 | 737.500 | 162.400 | 737.500 | 169.500 |
| GR | 737.400 | 176.600 | 737.300 | 183.600 | 737.300 | 190.700 | 737.200 | 197.800 | 737.100 | 204.800 |
| GR | 736.200 | 205.100 | 736.000 | 205.500 | 735.900 | 205.800 | 735.700 | 206.200 | 735.500 | 206.600 |
| GR | 735.400 | 207.000 | 735.300 | 207.300 | 735.300 | 207.700 | 735.300 | 208.100 | 735.300 | [illegible] |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 735.300 | 208.800 | 735.300 | 209.200 | 735.300 | 209.600 | 735.400 | 210.000 | 735.400 | 210.300 |
| GR | 735.500 | 210.700 | 735.600 | 211.100 | 735.600 | 211.500 | 735.700 | 211.800 | 735.700 | 212.200 |
| GR | 735.700 | 212.600 | 735.800 | 212.900 | 735.800 | 213.300 | 735.800 | 213.700 | 735.900 | 214.100 |
| GR | 736.200 | 214.400 | 736.500 | 214.800 | 736.800 | 215.200 | 737.000 | 215.600 | 737.300 | 215.800 |
| GR | 737.700 | 224.900 | 738.000 | 234.000 | 738.200 | 243.100 | 738.500 | 252.100 | 738.800 | 261.200 |
| GR | 739.000 | 270.300 | 739.300 | 279.400 | 739.500 | 288.400 | 739.800 | 297.500 | 740.000 | 306.600 |
| GR | 740.300 | 315.700 | 740.600 | 324.700 | 740.800 | 333.800 | 741.100 | 342.900 | 741.400 | 352.000 |
| GR | 741.700 | 361.000 | 742.100 | 370.100 | 742.900 | 379.200 | 743.800 | 388.300 | 744.600 | 397.300 |
| GR | 745.400 | 406.400 | 746.300 | 415.500 | 747.100 | 424.600 | 748.000 | 433.600 | 748.800 | 442.700 |
| GR | 749.500 | 451.800 | 750.200 | 460.900 | 750.900 | 469.900 | 751.600 | 479.000 | 752.300 | 488.100 |
| NH | 3.000 | .055 | 86.000 | .035 | 91.000 | .060 | 300.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 83850.000 | 10.000 | 85.000 | 91.000 | 333.000 | 280.000 | 320.000 | 0.000 | 0.000 | 0.000 |
| GR | 743.200 | 0.000 | 740.100 | 30.000 | 737.300 | 86.000 | 736.300 | 85.000 | 736.100 | 57.000 |
| GR | 736.300 | 88.000 | 737.500 | 91.100 | 738.400 | 100.000 | 744.400 | 200.000 | 751.500 | 300.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |




DRAWN:
DESIGN:
CHECKED:

FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = .1 MILES

| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

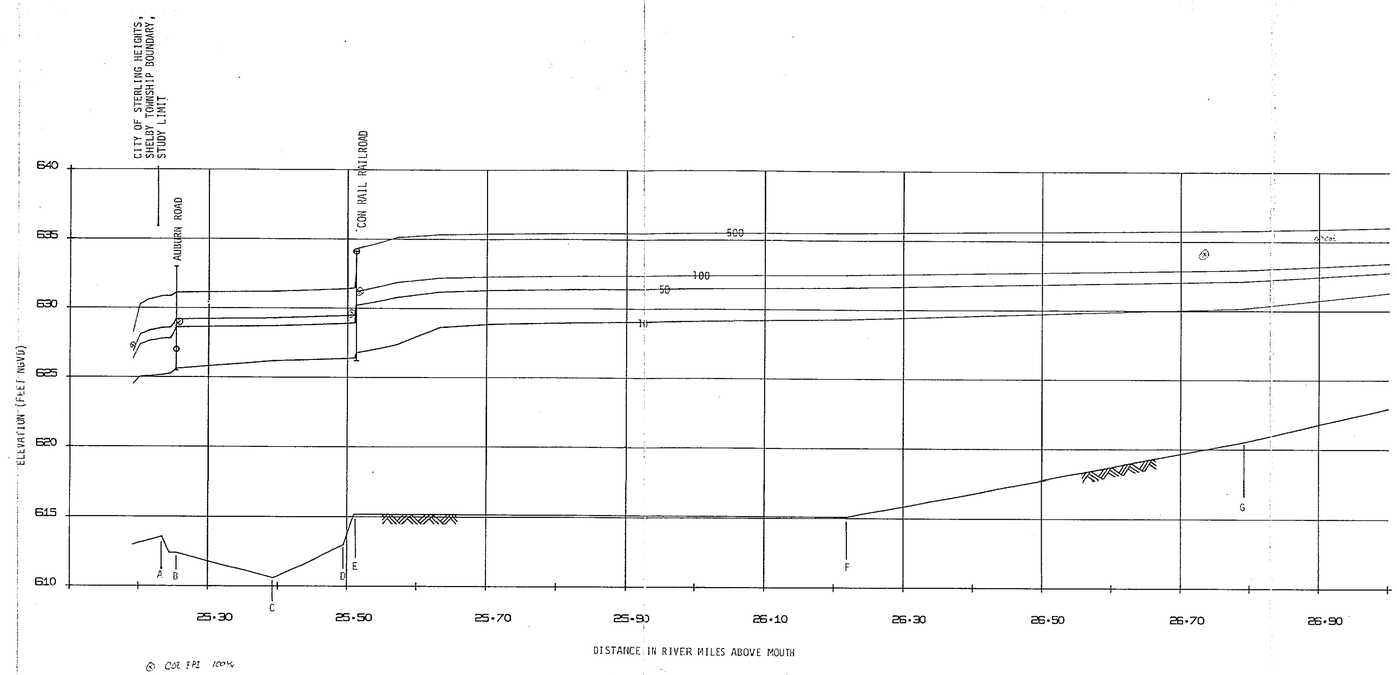
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

# SHELBY TOWNSHIP FIS
## CLINTON RIVER MAIN
PROJECT MANAGER WILLIAM ROSSOW

JOB NO. 5670-08
DATE ISSUED 6-30-77
SHEET NO. 2

Job No. | Contr. No. | Cont. Tab No. | Type of Job No. | Sheet No. of Sheets | As Built | Section | City No. in County | Town No. in County | Village No. in County | County | State | Construction Contract | Job Code No.

NOTE: THE STARTING WATER SURFACES ARE FROM THE CITY OF STERLING HEIGHTS FIS REPORT.

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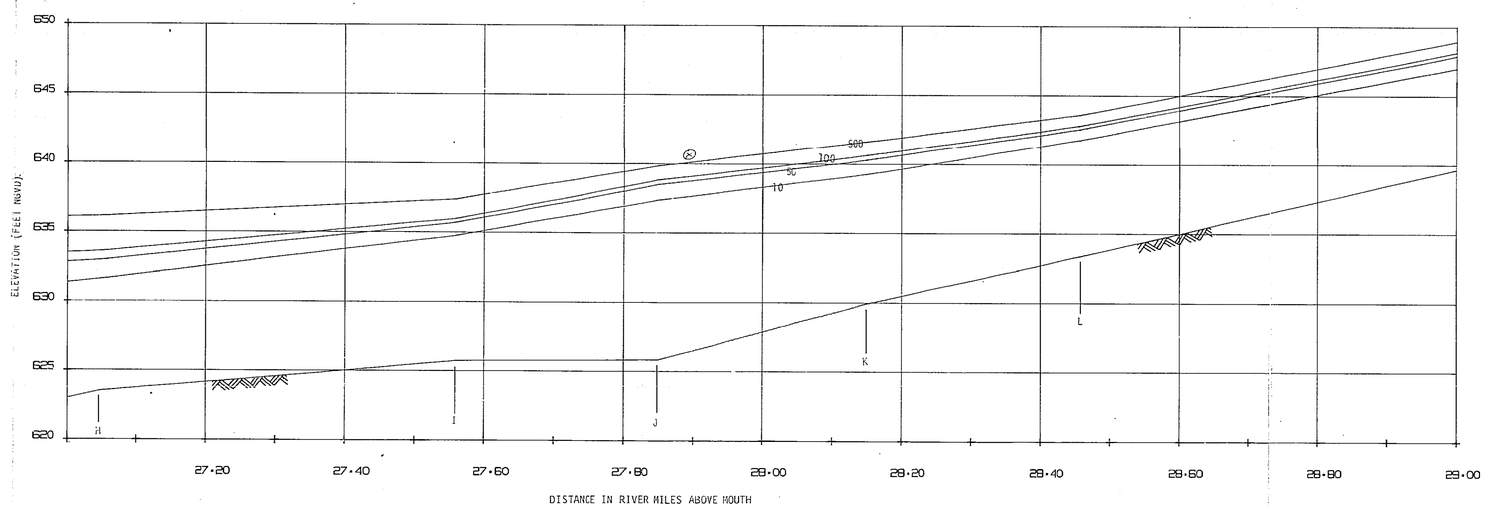


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FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = .1 MILE:S

| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
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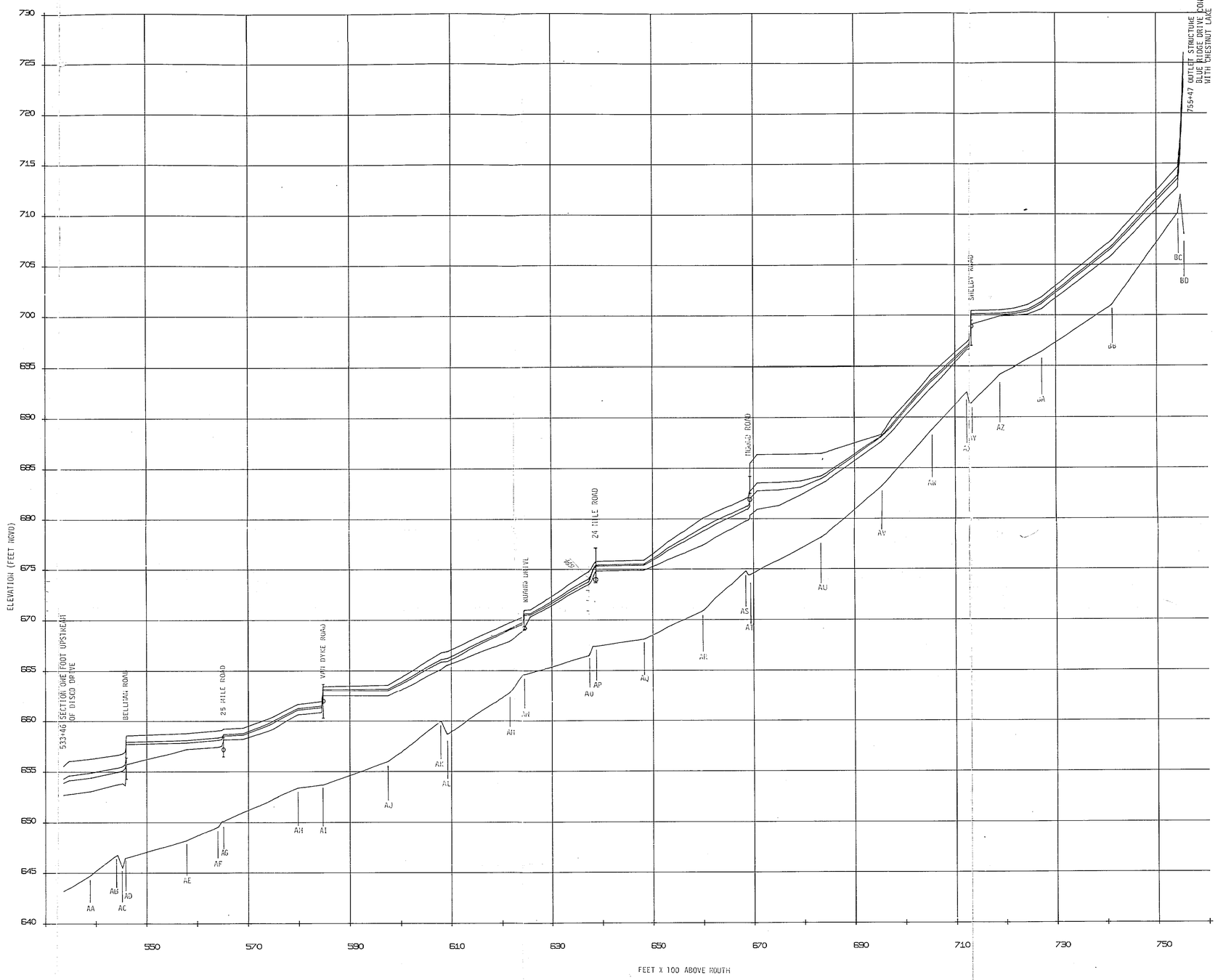
| | | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

# SHELBY TOWNSHIP FIS
## CLINTON RIVER MAIN
PROJECT MANAGER - WILLIAM ROSSOW

JOB NO. 5670-08
DATE ISSUED 8-26-77
SHEET NO. 1

Job No. | Contr. No. | Dist. Tab No. | Tunnel Job No. | Sheet No. Sheet No. of Sheets | As Built | Section | City No. Township Name | Town No. Village No. Town Name | County No. or Parks | State | Construction Contract | Job Code No.




| Job No. | Contr. No. | Cont. Tab No. | Type of Job No. | Sheet No. of Sheets | Alt. Built | Section | City No. in County | Twp. No. in County | Village No. in County | County | State | Construction Contract | Job Code No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 4 5 | 6 7 8 9 10 | 11 12 13 14 | 15 16 17 18 19 | 20 21 22 23 24 | 25 26 27 28 | 29 30 31 | 32 33 | 34 35 36 | 37 38 39 | 40 41 42 | 43 44 | 45 46 47 48 | 49 50 51 52 53 | 54 55 56 57 58 59 60 |

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PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 1000'

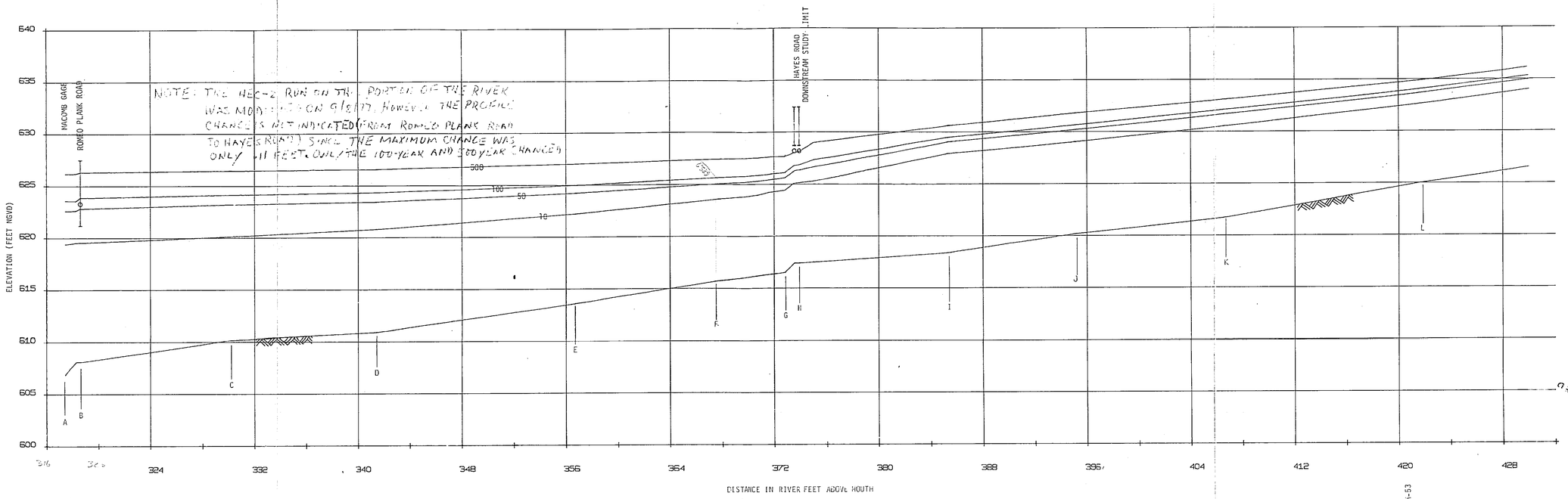
| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

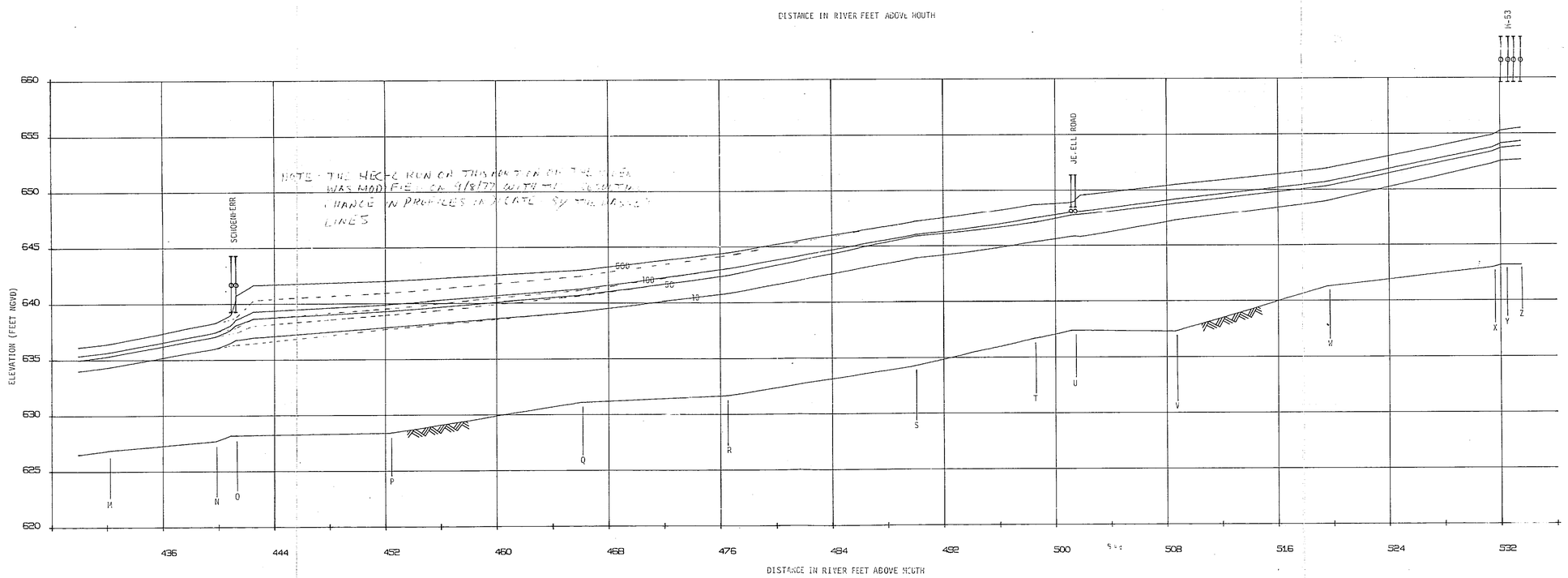
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

MIDDLE BRANCH OF CLINTON RIVER
(FROM DISCO DRIVE TO CHESTNUT LAKE)

SHELBY TOWNSHIP, MACOMB CO, MI
PROJECT MANAGER - WILLIAM ROSSOW

JOB NO. 5670-08
DATE ISSUED 8-11-77
SHEET NO. 1




RECEIVED
SEP 12 1977
WATER MANAGEMENT

| Job No. | Contr. No. | Cont. To No. | Type of Job No. | Sheet No. Sheet No. of Sheets | As Built | Section | City No. in County | Twp. No. in County | Village No. in County | County Number State | State | Construction Contract | Job Code No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 4 5 6 | 7 8 | 9 10 | 11 12 13 14 | 15 16 17 18 19 20 21 22 23 24 | 25 26 | 27 28 | 29 30 | 31 32 | 33 34 | 35 36 37 38 39 40 | 41 42 | 43 44 45 46 47 48 49 50 | 51 52 53 78 79 80 |

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DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 400'

| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
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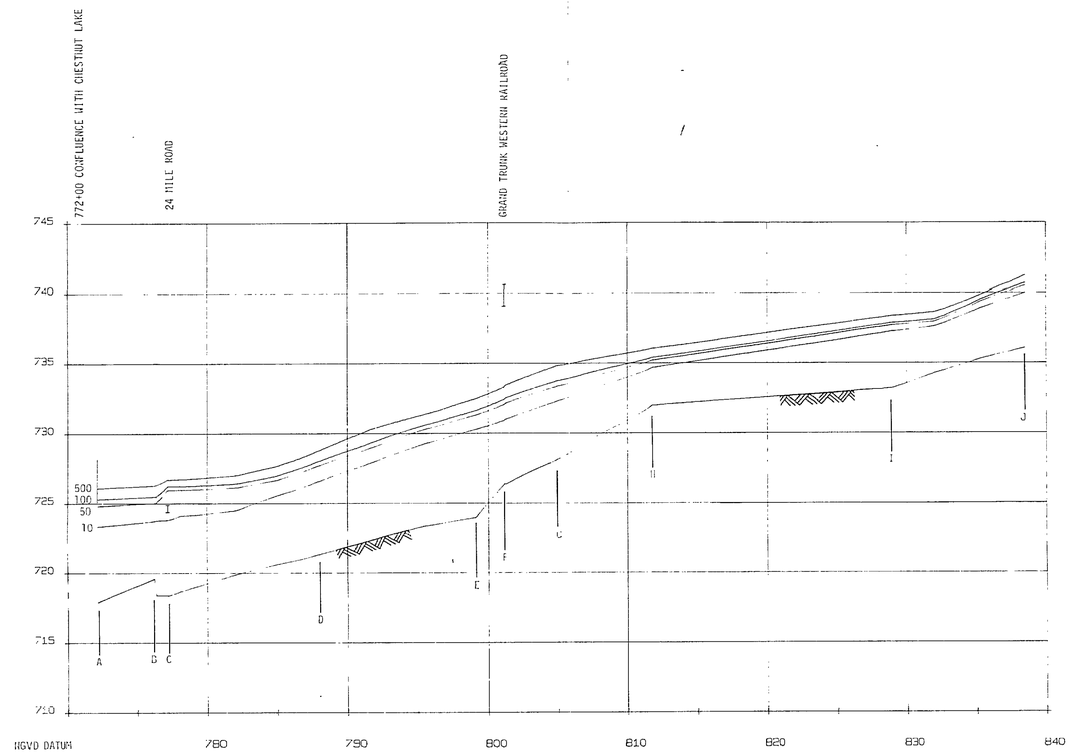
| | | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

# SHELBY TOWNSHIP FIS
## MIDDLE BRANCH OF THE CLINTON RIVER
PROJECT MANAGER WILLIAM ROSSOW

JOB NO. 5670-08-1
DATE ISSUED 6-27-77
SHEET NO. 1




| Job No. | Contr. No. | Cont. Tab No. | Type of Job No. | Sheet No. / No. of Sheets | Air Right | Junction | City No. in County | Twp. No. in County | Village No. in County | County No. in State | State | Construction Contract | Job Code No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 2 3 4 5 | 6 7 8 | 9 10 11 | 12 13 14 | 15 16 17 18 19 20 21 22 23 | 24 25 | 26 27 28 | 29 30 31 | 32 33 34 | 35 36 37 | 38 39 40 | 41 42 43 | 44 45 46 47 48 49 | 50 51 52 53 54 55 56 57 58 59 60 |

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FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

# NEWLAND DRAIN

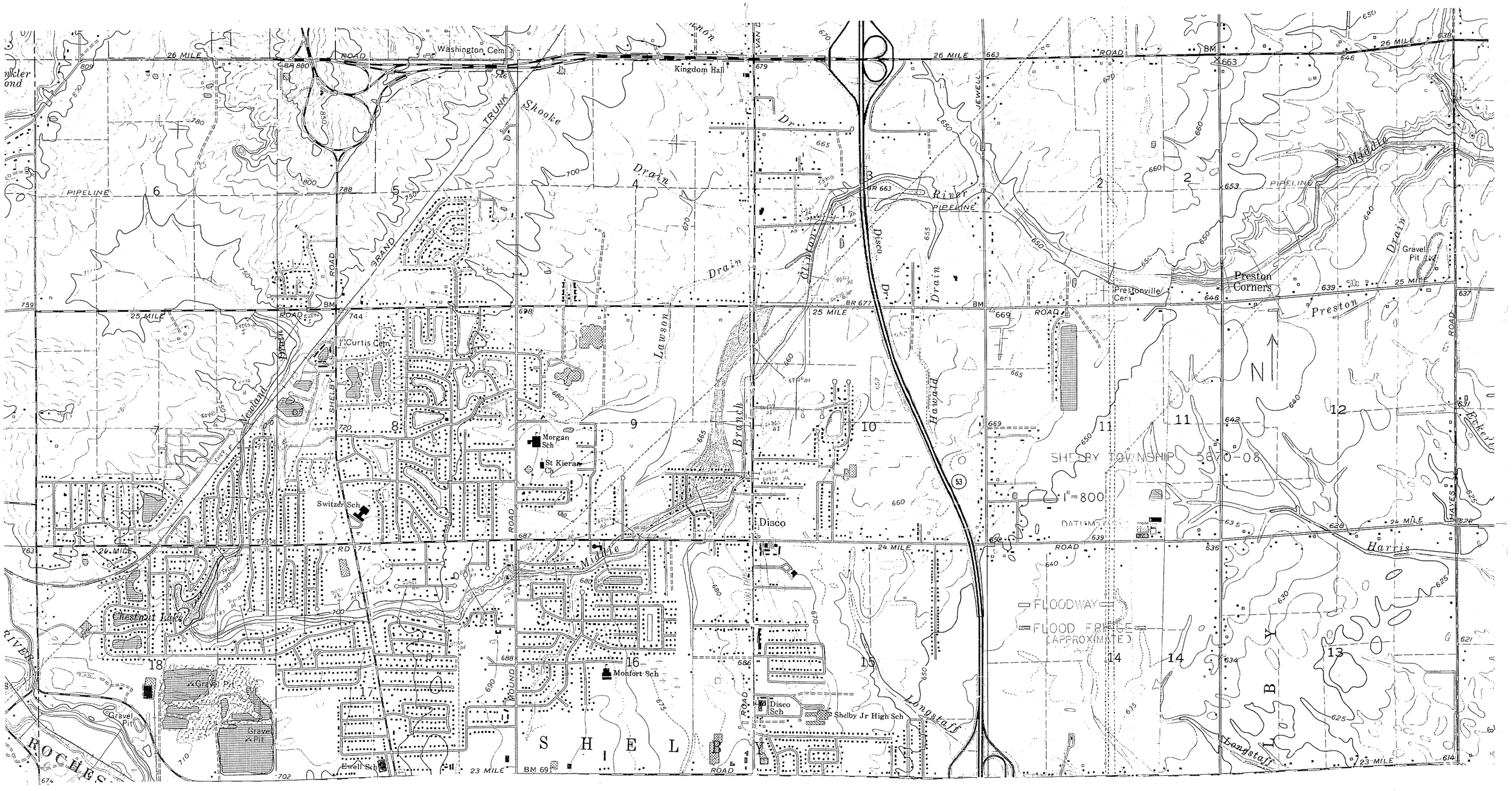
SHELBY TOWNSHIP, MI, FIS

PROJECT MANAGER - WILLIAM C. ROSSOW

JOB NO. 5670-08

DATE ISSUED 8-11-77

SHEET NO. 1


26 MILE
ROAD
Washington Cem
Kingdom Hall
TRUNK
Shooke
Drain
PIPELINE
GRAND
ROAD
Curtis Cem
Newland
Branch
SHELBY
Lawson
Drain
Branch
Morgan Sch
St Kieran Ch
Switzer Sch
Disco
Middle
River
Disco
Drain
Hawald
JEWELL
VAN
Preston Corners
Prestonville Cem
Gravel Pit
Preston
Drain
25 MILE
24 MILE
23 MILE
N
SHELBY TOWNSHIP
1"=800'
DATUM
FLOODWAY
FLOOD FRINGE
(APPROXIMATE)
Harris
HAYES
Berkey
Chestnut Lake
Gravel Pit
Monfort Sch
Disco Sch
Shelby Jr High Sch
Longstaff
MOUND
Ewell Sch
S H E L B Y
ROCKES
RIVER

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Chrissman Drain Old Channel REVISED

4) DOCUMENT TYPE: 10 yr. Flood

00BREAK00

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                    $$     $$     $$  $$$$$$$$   $$$$$ $        $$    $$$$$$$$
                 $$        $$     $$     $$      $$     $       $$$    $$     $$
                 $$        $$     $$     $$      $$    $$$      $$$$    $$     $$
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          $$     $$        $$     $$     $$      $$ $  $$   $$$$$$$$   $$$$$$$$
          $$     $$        $$     $$     $$      $$$    $$        $$    $$
   $$     $$     $$        $$     $$  $$ $$       $     $$        $$    $$
    $$$$$$$       $$        $$     $$   $$$       $ $$$$$         $$    $$
STHJ04P  JANDA                 11/29/77  15.04.46  7600   JO
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LSD
11-30

Chrissman Drain - Old Channel

REVISED

Dec 77

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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C
1       CITY OF STERLING HEIGHTS     5670-10      PROJECT MANAGER  WILLIAM ROSSOW
T2       10 YEAR FLOOD
T3       CHRISSMAN DRAIN   OLD   CHANNEL

J1  ICHECK     INQ       NINV      IDIR      STRT     METRIC    HVINS      Q        WSEL      FQ

       0.       2.        0.        0. -1.000000      0.00      0.0       0.   616.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN     ALLOC      IBW     CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000   0.000     0.000    0.000     0.000     0.000

J3     1.000    10.000    11.000    12.000    14.000    8.000     4.000     0.000     0.000     0.000
NC      .065      .065      .045      .300      .500    0.000     0.000     0.000     0.000     0.000
QT     4.000    28.000   157.000   220.000   421.000    0.000     0.000     0.000     0.000     0.000
NH     3.000      .065   715.000      .045   750.000      .065  1000.000     0.000     0.000     0.000

XI    50.000    24.000   715.000   750.000    50.000   50.000    50.000     0.000    -3.100     0.000
GR   627.700     0.000   627.100   100.000   625.900  150.000   624.700   190.000   626.600   200.000
GR   629.400   270.000   628.700   300.000   625.700  335.000   624.200   360.000   623.700   400.000
GR   623.500   500.000   623.800   560.000   624.900  575.000   624.300   600.000   618.900   700.000
GR   618.600   715.000   617.000   722.000   615.900  732.000   615.600   746.000   618.500   750.000
GR   620.000   800.000   627.100   855.000   628.300  900.000   629.500  1000.000     0.000     0.000

X1   590.000     0.000     0.000     0.000   450.000  650.000   540.000     0.000     3.100     0.000

X1   690.000     0.000     0.000     0.000   100.000  100.000   100.000     0.000      .200     0.000

X1   790.000     0.000     0.000     0.000   100.000  100.000   100.000     0.000      .100     0.000

X1   865.000     0.000     0.000     0.000    75.000   75.000    75.000     0.000      .100     0.000
NC      .065      .065      .045      .500     1.000    0.000     0.000     0.000     0.000     0.000
NH     3.000      .065   973.300      .045   984.700      .065  1300.000     0.000     0.000     0.000

X1  1141.000    39.000   973.300   984.700   225.000  325.000   275.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   973.300     0.000  984.700     0.000     0.000     0.000     0.000
GR   627.700     0.000   626.600   100.000   626.200  131.000   625.000   165.000   625.100   200.000
GR   631.800   225.000   624.600   293.000   624.400  300.000   624.700   400.000   625.100   500.000
GR   625.600   600.000   625.400   700.000   623.100  800.000   619.700   850.000   620.600   900.000
GR   623.600   973.300   620.000   973.300   618.000  973.300   616.800   974.100   616.300   976.000
GR   616.800   977.900   618.000   978.700   620.000  978.700   623.600   978.700   623.600   979.300
GR   620.300   979.300   618.300   979.300   617.100  980.100   616.600   982.000   617.100   983.900
GR   618.300   984.700   620.300   984.700   623.600  984.700   622.700  1000.000   622.000  1020.000
GR   626.200  1100.000   626.700  1200.000   626.900 1250.000   626.700  1300.000     0.000     0.000
NC      .065      .065      .015      .500     1.000    0.000     0.000     0.000     0.000     0.000

X1  1142.000     0.000     0.000     0.000     1.000    1.000     1.000     0.000     0.000     0.000
X3     0.000     0.000     0.000   973.300     0.000  984.700     0.000     0.000     0.000     0.000
BT    33.000     0.000   627.700     0.000   100.000  626.600     0.000   131.000   626.200     0.000
BT   165.000   625.000     0.000   200.000   629.100    0.000   225.000   631.300     0.000   293.000
BT   624.600     0.000   300.000   624.400     0.000  400.000   624.700     0.000   500.000   625.100
BT     0.000   600.000   625.600     0.000   700.000  625.400     0.000   800.000   623.100     0.000
                                                      0.000   973.300   623.600   620.000   974.100
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 623.600 | 621.200 | 976.000 | 623.600 | 621.700 | 977.900 | 623.600 | 621.200 | 978.700 | 623.600 |
| BT | 620.000 | 978.700 | 623.600 | 620.000 | 979.300 | 623.600 | 621.700 | 979.300 | 623.600 | 620.300 |
| BT | 980.100 | 623.600 | 621.500 | 982.000 | 623.600 | 622.000 | 983.900 | 623.600 | 621.500 | 984.700 |
| BT | 623.600 | 620.300 | 1000.000 | 622.700 | 0.000 | 1020.000 | 622.000 | 0.000 | 1100.000 | 626.200 |
| BT | 0.000 | 1200.000 | 623.600 | 0.000 | 1250.000 | 623.600 | 0.000 | 1300.000 | 626.700 | 0.000 |
| X1 | 1159.000 | 0.000 | 0.000 | 0.000 | 17.000 | 17.000 | 17.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 973.300 | 0.000 | 984.700 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .065 | .065 | .045 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1160.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 973.300 | 0.000 | 984.700 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1210.000 | 24.000 | 715.000 | 750.000 | 50.000 | 50.000 | 50.000 | 0.000 | .800 | 0.000 |
| GR | 627.700 | 0.000 | 627.100 | 100.000 | 625.900 | 150.000 | 624.700 | 190.000 | 626.600 | 200.000 |
| GR | 629.400 | 270.000 | 628.700 | 300.000 | 625.700 | 335.000 | 624.200 | 360.000 | 623.700 | 400.000 |
| GR | 623.500 | 500.000 | 623.800 | 560.000 | 624.900 | 575.000 | 624.300 | 600.000 | 618.900 | 700.000 |
| GR | 618.600 | 715.000 | 617.000 | 722.000 | 615.900 | 732.000 | 615.600 | 746.000 | 618.500 | 750.000 |
| GR | 620.000 | 800.000 | 627.100 | 855.000 | 628.300 | 900.000 | 629.500 | 1000.000 | 0.000 | 0.000 |
| NC | .065 | .065 | .045 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1570.000 | 0.000 | 0.000 | 0.000 | 360.000 | 360.000 | 360.000 | 0.000 | 1.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Chrissman Drain
Old Channel

4) DOCUMENT TYPE: 100 year flood

00BREAK00

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*****************************************
 2 VERSION UPDATED JAN 1976
RROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CITY OF STERLING HEIGHTS    5670-10     PROJECT MANAGER  WILLIAM ROSSOW
T2      100 YEAR FLOOD
T3      CHRISSMAN DRAIN   OLD  CHANNEL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0. -1.000000     0.00       0.0       0.   617.380    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

3720 ASSUMED CRITICAL DEPTH

CCHV= .300 CEHV= .500
1490 NH CARD USED

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | FLMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 50.00 | 1.78 | 614.28 | 614.28 | 617.38 | 614.91 | .63 | 0.00 | 0.00 | 615.50 |
| 220. | 0. | 220. | 0. | 0. | 35. | 0. | 0. | 0. | 615.40 |
| 0.00 | 0.00 | 6.36 | 0.00 | .065 | .045 | .065 | 0.000 | 612.50 | 720.34 |
| .024851 | 50. | 50. | 50. | 0 | 21 | 1 | 0.00 | 28.11 | 748.45 |

VALLEY SECTION A 305A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 590.00 | 2.91 | 618.51 | 0.00 | 0.00 | 618.67 | .15 | 3.62 | .14 | 618.60 |
| 220. | 0. | 220. | 0. | 0. | 70. | 0. | 1. | 0. | 618.50 |
| .05 | 0.00 | 3.13 | .01 | .065 | .045 | .065 | .045 | 615.60 | 715.36 |
| .003053 | 450. | 540. | 650. | 5 | 0 | 1 | 0.00 | 35.26 | 750.61 |
| 690.00 | 3.02 | 618.82 | 0.00 | 0.00 | 618.95 | .14 | .23 | .00 | 618.80 |
| 220. | 0. | 220. | 0. | 0. | 74. | 0. | 1. | 0. | 618.70 |
| .06 | .01 | 2.98 | .18 | .065 | .045 | .065 | .045 | 615.80 | 714.22 |
| .002655 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 39.63 | 753.85 |
| 790.00 | 3.18 | 619.08 | 0.00 | 0.00 | 619.20 | .12 | .24 | .01 | 618.90 |
| 220. | 0. | 219. | 0. | 1. | 79. | 1. | 1. | 1. | 618.80 |
| .07 | .21 | 2.76 | .28 | .065 | .045 | .065 | .045 | 615.90 | 706.12 |
| .002110 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 53.13 | 759.25 |
| 865.00 | 3.24 | 619.24 | 0.00 | 0.00 | 619.35 | .11 | .15 | .00 | 619.00 |
| 220. | 0. | 219. | 1. | 2. | 82. | 2. | 1. | 1. | 618.90 |
| .08 | .25 | 2.68 | .31 | .065 | .045 | .065 | .045 | 616.00 | 702.63 |
| .001914 | 75. | 75. | 75. | 1 | 0 | 1 | 0.00 | 58.95 | 761.58 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 973.3 984.7 TYPE= 1 TARGET= 11.400

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1141.00 | 3.94 | 620.24 | 0.00 | 0.00 | 620.84 | .60 | 1.00 | .49 | 623.60 |
| 220. | 0. | 220. | 0. | 0. | 35. | 0. | 2. | 1. | 100000.00 |
| .09 | 0.00 | 6.20 | 0.00 | .065 | .045 | .065 | .045 | 616.30 | 973.30 |
| .009447 | 225. | 275. | 325. | 2 | 0 | 1 | 0.00 | 10.80 | 984.70 |

CCHV= .500 CEHV= 1.000

3265 DIVIDED FLOW

OLOSS BANK ELEV

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Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        T.A    LEFT/RIGHT
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

NORMAL BRIDGE,NRD=33 MIN ELTRD=  619.70 MAX ELLC=  622.00

3470 ENCROACHMENT STATIONS=     973.3     984.7  TYPE=     1  TARGET=      11.400
  1142.00      3.94    620.24      0.00       0.00    620.85       .60        .00        .00     623.60
     220.        0.     220.        0.         0.       35.        0.         2.         1. 100000.00
      .09      0.00      6.22      0.00       .065      .015      .065       .045     616.30     973.30
  .002199        1.        1.        1.          0         0         1       -.19      10.80     984.70

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=33 MIN ELTRD=  619.70 MAX ELLC=  622.00

3470 ENCROACHMENT STATIONS=     973.3     984.7  TYPE=     1  TARGET=      11.400
                BRIDGE SECTION B                                                3058
  1159.00      4.02    620.32      0.00       0.00    620.89       .58        .04        .01     623.60
     220.        0.     220.        0.         0.       36.        0.         2.         1. 100000.00
      .09      0.00      6.10      0.00       .065      .015      .065       .044     616.30     973.30
  .002188       17.       17.       17.          2         0         1       -.27      10.80     984.70

CCHV=    .500 CEHV=   1.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     973.3     984.7  TYPE=     1  TARGET=      11.400
  1160.00      4.05    620.35      0.00       0.00    620.91       .56        .00        .01     623.60
     220.        0.     220.        0.         0.       37.        0.         2.         1. 100000.00
      .09      0.00      5.99      0.00       .065      .045      .065       .044     616.30     973.30
  .017072        1.        1.        1.          2         0         1       0.00      10.80     984.70

3301 HV CHANGED MORE THAN HVINS

  1210.00      4.80    621.20      0.00       0.00    621.22       .02        .04        .27     619.40
     220.       19.     177.       23.        45.      136.       58.         2.         1.     619.30
      .10       .42      1.30       .41       .065      .045      .065       .044     616.40     672.29
  .000266       50.       50.       50.          2         0         1       0.00     130.79     803.07

CCHV=    .300 CEHV=    .500
  1570.00      3.94    621.34      0.00       0.00    621.39       .05        .16        .02     620.40
     220.        8.     205.        8.        16.      106.       18.         3.         2.     620.30
      .16       .50      1.93       .42       .065      .045      .065       .044     617.40     688.21
  .000817      360.      360.      360.          3         0         1       0.00      96.34     784.55
```

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CHRISSMAN DRAIN OLD C

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | WCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50.00 | 50.00 | 0.00 | 0.00 | 612.50 | 28.00 | 613.13 | .21 | 0.00 | 0.00 | 28.00 | .63 | 17.89 |
| 50.00 | 50.00 | 0.00 | 0.00 | 612.50 | 157.00 | 614.00 | .52 | 0.00 | 0.00 | 157.00 | 1.50 | 26.53 |
| 50.00 | 50.00 | 0.00 | 0.00 | 612.50 | 220.00 | 614.28 | .63 | 0.00 | 0.00 | 220.00 | 1.78 | 28.11 |
| 50.00 | 50.00 | 0.00 | 0.00 | 612.50 | 421.00 | 614.99 | .88 | 0.00 | 0.00 | 421.00 | 2.49 | 32.19 |
| 590.00 | 540.00 | 0.00 | 0.00 | 615.60 | 28.00 | 616.77 | .04 | 3.40 | .05 | 28.00 | 1.17 | 23.50 |
| 590.00 | 540.00 | 0.00 | 0.00 | 615.60 | 157.00 | 618.11 | .12 | 3.58 | .12 | 157.00 | 2.51 | 32.29 |
| 590.00 | 540.00 | 0.00 | 0.00 | 615.60 | 220.00 | 618.51 | .15 | 3.62 | .14 | 220.00 | 2.91 | 35.26 |
| 590.00 | 540.00 | 0.00 | 0.00 | 615.60 | 421.00 | 619.42 | .22 | 3.58 | .20 | 398.34 | 3.82 | 90.84 |
| 690.00 | 100.00 | 0.00 | 0.00 | 615.80 | 28.00 | 617.01 | .03 | .23 | .00 | 28.00 | 1.21 | 23.91 |
| 690.00 | 100.00 | 0.00 | 0.00 | 615.80 | 157.00 | 618.39 | .11 | .28 | .00 | 157.00 | 2.59 | 32.75 |
| 690.00 | 100.00 | 0.00 | 0.00 | 615.80 | 220.00 | 618.82 | .14 | .28 | .00 | 219.96 | 3.02 | 39.63 |
| 690.00 | 100.00 | 0.00 | 0.00 | 615.80 | 421.00 | 619.75 | .20 | .29 | .01 | 392.35 | 3.95 | 97.01 |
| 790.00 | 100.00 | 0.00 | 0.00 | 615.90 | 28.00 | 617.20 | .03 | .19 | .00 | 28.00 | 1.30 | 24.87 |
| 790.00 | 100.00 | 0.00 | 0.00 | 615.90 | 157.00 | 618.64 | .09 | .23 | .01 | 157.00 | 2.74 | 33.71 |
| 790.00 | 100.00 | 0.00 | 0.00 | 615.90 | 220.00 | 619.08 | .12 | .24 | .01 | 219.47 | 3.18 | 53.13 |
| 790.00 | 100.00 | 0.00 | 0.00 | 615.90 | 421.00 | 620.03 | .16 | .24 | .01 | 381.96 | 4.13 | 107.02 |
| 865.00 | 75.00 | 0.00 | 0.00 | 616.00 | 28.00 | 617.32 | .02 | .12 | .00 | 28.00 | 1.32 | 25.05 |
| 865.00 | 75.00 | 0.00 | 0.00 | 616.00 | 157.00 | 618.79 | .09 | .14 | .00 | 157.00 | 2.79 | 33.95 |
| 865.00 | 75.00 | 0.00 | 0.00 | 616.00 | 220.00 | 619.24 | .11 | .15 | .00 | 218.99 | 3.24 | 58.95 |
| 865.00 | 75.00 | 0.00 | 0.00 | 616.00 | 421.00 | 620.20 | .15 | .15 | .00 | 378.91 | 4.20 | 109.85 |
| 1141.00 | 275.00 | 0.00 | 0.00 | 616.30 | 28.00 | 618.00 | .09 | .68 | .07 | 28.00 | 1.70 | 10.39 |
| 1141.00 | 275.00 | 0.00 | 0.00 | 616.30 | 157.00 | 619.73 | .43 | .94 | .34 | 157.00 | 3.43 | 10.80 |
| 1141.00 | 275.00 | 0.00 | 0.00 | 616.30 | 220.00 | 620.24 | .60 | 1.00 | .49 | 220.00 | 3.94 | 10.80 |
| 1141.00 | 275.00 | 0.00 | 0.00 | 616.30 | 421.00 | 621.33 | 1.23 | 1.14 | 1.08 | 421.00 | 5.03 | 10.80 |
| 1142.00 | 1.00 | 619.70 | 622.00 | 616.30 | 28.00 | 618.00 | .09 | .00 | .00 | 28.00 | 1.70 | 10.40 |
| 1142.00 | 1.00 | 619.70 | 622.00 | 616.30 | 157.00 | 619.74 | .42 | .00 | .00 | 157.00 | 3.44 | 10.80 |
| 1142.00 | 1.00 | 619.70 | 622.00 | 616.30 | 220.00 | 620.24 | .60 | .00 | .00 | 220.00 | 3.94 | 10.80 |
| 1142.00 | 1.00 | 619.70 | 622.00 | 616.30 | 421.00 | 621.34 | 1.35 | .01 | .12 | 421.00 | 5.04 | 10.80 |
| 1159.00 | 17.00 | 619.70 | 622.00 | 616.30 | 28.00 | 618.02 | .09 | .01 | .00 | 28.00 | 1.72 | 10.42 |
| 1159.00 | 17.00 | 619.70 | 622.00 | 616.30 | 157.00 | 619.79 | .41 | .03 | .01 | 157.00 | 3.49 | 10.80 |
| 1159.00 | 17.00 | 619.70 | 622.00 | 616.30 | 220.00 | 620.32 | .58 | .04 | .01 | 220.00 | 4.02 | 10.80 |
| 1159.00 | 17.00 | 619.70 | 622.00 | 616.30 | 421.00 | 621.54 | 1.28 | .09 | .03 | 421.00 | 5.24 | 10.80 |
| 1160.00 | 1.00 | 0.00 | 0.00 | 616.30 | 28.00 | 618.02 | .09 | .00 | .00 | 28.00 | 1.72 | 10.42 |
| 1160.00 | 1.00 | 0.00 | 0.00 | 616.30 | 157.00 | 619.79 | .41 | .00 | .00 | 157.00 | 3.49 | 10.80 |
| 1160.00 | 1.00 | 0.00 | 0.00 | 616.30 | 220.00 | 620.35 | .56 | .00 | .01 | 220.00 | 4.05 | 10.80 |
| 1160.00 | 1.00 | 0.00 | 0.00 | 616.30 | 421.00 | 622.18 | .86 | .01 | .21 | 421.00 | 5.88 | 10.80 |
| 1210.00 | 50.00 | 0.00 | 0.00 | 616.40 | 28.00 | 618.20 | .01 | .06 | .04 | 28.00 | 1.80 | 28.19 |
| 1210.00 | 50.00 | 0.00 | 0.00 | 616.40 | 157.00 | 620.42 | .03 | .05 | .19 | 144.44 | 4.02 | 100.67 |
| 1210.00 | 50.00 | 0.00 | 0.00 | 616.40 | 220.00 | 621.20 | .02 | .04 | .27 | 177.29 | 4.80 | 130.79 |
| 1210.00 | 50.00 | 0.00 | 0.00 | 616.40 | 421.00 | 623.47 | .01 | .02 | .43 | 240.45 | 7.07 | 190.59 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1570.00 | 360.00 | 0.00 | 0.00 | 617.40 | 28.00 | 618.53 | .04 | .35 | .01 | 28.00 | 1.13 | 23.13 |
| 1570.00 | 360.00 | 0.00 | 0.00 | 617.40 | 157.00 | 620.62 | .06 | .72 | .02 | 156.37 | 3.22 | 56.96 |
| 1570.00 | 360.00 | 0.00 | 0.00 | 617.40 | 220.00 | 621.34 | .05 | .16 | .02 | 204.75 | 3.94 | 96.34 |
| 1570.00 | 360.00 | 0.00 | 0.00 | 617.40 | 421.00 | 623.52 | .02 | .05 | .01 | 273.05 | 6.12 | 165.43 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 50.000 | 28.000 | 613.132 | 0.000 | 0.000 | 0.000 | 17.991 | 0.000 | 50.000 |
| 50.000 | 157.000 | 614.005 | .872 | 0.000 | 0.000 | 26.533 | -8.642 | 50.000 |
| 50.000 | 220.000 | 614.280 | .275 | 0.000 | 0.000 | 28.115 | -10.224 | 50.000 |
| 50.000 | 421.000 | 614.987 | .708 | 0.000 | 0.000 | 32.188 | -14.298 | 50.000 |
| 590.000 | 28.000 | 616.768 | 0.000 | 3.636 | 0.000 | 23.504 | 0.000 | 540.000 |
| 590.000 | 157.000 | 618.105 | 1.337 | 4.101 | 0.000 | 32.290 | -8.785 | 540.000 |
| 590.000 | 220.000 | 618.514 | .408 | 4.234 | 0.000 | 35.257 | -11.753 | 540.000 |
| 590.000 | 421.000 | 619.423 | .909 | 4.436 | 0.000 | 90.841 | -67.336 | 540.000 |
| 690.000 | 28.000 | 617.005 | 0.000 | .237 | 0.000 | 23.905 | 0.000 | 100.000 |
| 690.000 | 157.000 | 618.394 | 1.389 | .289 | 0.000 | 32.753 | -8.848 | 100.000 |
| 690.000 | 220.000 | 618.816 | .421 | .302 | 0.000 | 39.531 | -15.726 | 100.000 |
| 690.000 | 421.000 | 619.749 | .933 | .326 | 0.000 | 97.003 | -73.103 | 100.000 |
| 790.000 | 28.000 | 617.199 | 0.000 | .193 | 0.000 | 24.870 | 0.000 | 100.000 |
| 790.000 | 157.000 | 618.643 | 1.445 | .249 | 0.000 | 33.713 | -8.843 | 100.000 |
| 790.000 | 220.000 | 619.078 | .434 | .262 | 0.000 | 53.134 | -28.264 | 100.000 |
| 790.000 | 421.000 | 620.033 | .955 | .284 | 0.000 | 107.017 | -82.147 | 100.000 |
| 865.000 | 28.000 | 617.316 | 0.000 | .117 | 0.000 | 25.054 | 0.000 | 75.000 |
| 865.000 | 157.000 | 618.793 | 1.476 | .149 | 0.000 | 33.945 | -8.891 | 75.000 |
| 865.000 | 220.000 | 619.238 | .446 | .161 | 0.000 | 58.950 | -33.896 | 75.000 |
| 865.000 | 421.000 | 620.197 | .959 | .164 | 0.000 | 109.849 | -84.795 | 75.000 |
| 1141.000 | 28.000 | 617.998 | 0.000 | .682 | 0.000 | 10.388 | 0.000 | 275.000 |
| 1141.000 | 157.000 | 619.733 | 1.734 | .940 | 0.000 | 10.799 | -.411 | 275.000 |
| 1141.000 | 220.000 | 620.240 | .507 | 1.001 | 0.000 | 10.799 | -.411 | 275.000 |
| 1141.000 | 421.000 | 621.334 | 1.094 | 1.137 | 0.000 | 10.799 | -.411 | 275.000 |
| 1142.000 | 28.000 | 618.001 | 0.000 | .002 | 0.000 | 10.397 | 0.000 | 1.000 |
| 1142.000 | 157.000 | 619.738 | 1.737 | .005 | 0.000 | 10.799 | -.402 | 1.000 |
| 1142.000 | 220.000 | 620.244 | .506 | .004 | 0.000 | 10.799 | -.402 | 1.000 |
| 1142.000 | 421.000 | 621.342 | 1.098 | .008 | 0.000 | 10.799 | -.402 | 1.000 |
| 1159.000 | 28.000 | 618.017 | 0.000 | .017 | 0.000 | 10.423 | 0.000 | 17.000 |
| 1159.000 | 157.000 | 619.789 | 1.771 | .051 | 0.000 | 10.799 | -.376 | 17.000 |
| 1159.000 | 220.000 | 620.317 | .528 | .073 | 0.000 | 10.799 | -.376 | 17.000 |
| 1159.000 | 421.000 | 621.537 | 1.221 | .195 | 0.000 | 10.799 | -.376 | 17.000 |
| 1160.000 | 28.000 | 618.019 | 0.000 | .002 | 0.000 | 10.424 | 0.000 | 1.000 |
| 1160.000 | 157.000 | 619.793 | 1.774 | .004 | 0.000 | 10.799 | -.375 | 1.000 |
| 1160.000 | 220.000 | 620.351 | .559 | .035 | 0.000 | 10.799 | -.375 | 1.000 |
| 1160.000 | 421.000 | 622.177 | 1.825 | .639 | 0.000 | 10.799 | -.375 | 1.000 |
| 1210.000 | 28.000 | 618.197 | 0.000 | .178 | 0.000 | 28.188 | 0.000 | 50.000 |
| 1210.000 | 157.000 | 620.421 | 2.224 | .628 | 0.000 | 100.672 | -72.483 | 50.000 |
| 1210.000 | 220.000 | 621.197 | .776 | .846 | 0.000 | 130.786 | -102.598 | 50.000 |
| 1210.000 | 421.000 | 623.474 | 2.276 | 1.297 | 0.000 | 190.585 | -162.397 | 50.000 |
| 1570.000 | 28.000 | 618.532 | 0.000 | .335 | 0.000 | 23.126 | 0.000 | 360.000 |
| 1570.000 | 157.000 | 620.623 | 2.091 | .202 | 0.000 | 56.963 | -33.837 | 360.000 |
| 1570.000 | 220.000 | 621.336 | .713 | .139 | 0.000 | 96.337 | -73.211 | 360.000 |
| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | 0.000 | 165.435 | -142.309 | 360.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 0.000 | .761 | 0.000 |
| 2 | 0.000 | 0.000 | 1.435 | .675 |
| 3 | 0.000 | 0.000 | 1.927 | 1.166 |
| 4 | 0.000 | 0.000 | 3.392 | 2.631 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7440.00 | 4.27 | 657.97 | 0.00 | 0.00 | 658.09 | .12 | 7.86 | .01 | 655.70 |
| 465. | 148. | 194. | 124. | 157. | 46. | 131. | 59. | 41. | 656.70 |
| 1.17 | .94 | 4.17 | .94 | .100 | .048 | .100 | .040 | 653.70 | 390.41 |
| .003574 | 1700. | 1700. | 1700. | 6 | 0 | 1 | 0.00 | 336.99 | 727.40 |

1490 NH CARD USED

VALLEY SECTION AT 296

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8940.00 | 1.56 | 666.36 | 666.09 | 0.00 | 666.51 | .15 | 8.41 | .01 | 664.80 |
| 465. | 183. | 126. | 156. | 109. | 23. | 105. | 69. | 50. | 664.80 |
| 1.32 | 1.68 | 5.39 | 1.48 | .100 | .040 | .100 | .040 | 664.80 | 472.79 |
| .011596 | 1200. | 1500. | 1600. | 23 | 17 | 1 | 0.00 | 256.92 | 729.72 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION AU 297

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10440.00 | 3.75 | 674.75 | 0.00 | 0.00 | 674.91 | .16 | 8.39 | .00 | 673.90 |
| 375. | 15. | 261. | 99. | 16. | 75. | 42. | 75. | 56. | 672.60 |
| 1.46 | .91 | 3.50 | 2.34 | .050 | .042 | .050 | .040 | 671.00 | 361.27 |
| .002944 | 1500. | 1500. | 1500. | 6 | 0 | 1 | 0.00 | 96.69 | 457.96 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Chrissman Drain
Chrissman Drain
Overland Flow

4) DOCUMENT TYPE: ~~10 year~~ REVISED 100 year flood

00BREAK00

```
 $$$$$$   $$$$$$$$  $$    $$  $$$$$$$$   $$$$$ $       $$   $$    $$
$$    $$   $$      $$    $$    $$     $$    $       $$$   $$    $$
$$         $$      $$    $$    $$     $$   $$$     $$$$   $$    $$
 $$$$$$    $$      $$$$$$$$    $$     $$  $ $$    $$ $$   $$    $$
      $$   $$      $$    $$    $$     $$ $$ $$   $$  $$   $$ $$ $$
      $$   $$      $$    $$    $$     $$ $  $$  $$$$$$$$  $$$$$$$$
      $$   $$      $$    $$    $$     $$$   $$      $$    $$$  $$$
$$    $$   $$      $$    $$  $$ $$     $    $$      $$    $$    $$
 $$$$$$    $$      $$    $$   $$$     $ $$$$$       $$    $     $
STHJ04W  JANDA              11/29/77  15.06.25  7600   J0
```

LSD
11/3

Chrissman Drain
Chrissman Drain Overland Flow

REVISED

Dec 77

CITY OF STERLING HEIGHTS
CHRISSMAN DRAIN
PROJECT MANAGER

FLOOD INSURANCE STUDY
J@A JOB NUMBER 5670-10
WILLIAM ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 40 | BRIDGE SECTION A<br>DOWNSTREAM FACE STORM SEWER |
| A | 963 | BRIDGE SECTION A<br>UPSTREAM FACE STORM SEWER |
| | 964 | BRIDGE SECTION A<br>SECTION IS LOCATED IMMEDIATELY UPSTREAM<br>OF DROP STRUCTURE |
| | 1525 | BRIDGE SECTION B<br>DOWNSTREAM FACE FENCE CROSSING CULVERT<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| B | 1545 | BRIDGE SECTION B<br>UPSTREAM FACE FENCE CROSSING CULVERT<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| | 1575 | BRIDGE SECTION C<br>DOWNSTREAM FACE 18.5 MILE ROAD<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| C | 1605 | BRIDGE SECTION C<br>UPSTREAM FACE 18.5 MILE ROAD<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| | 2620 | BRIDGE SECTION D<br>DOWNSTREAM FACE CONCRETE CULVERT |
| D | 2640 | BRIDGE SECTION D<br>UPSTREAM FACE CONCRETE CULVERT |
| E | 2810 | VALLEY SECTION E |
| | 3091 | BRIDGE SECTION F<br>DOWNSTREAM FACE MOUND ROAD<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| F | 3168 | BRIDGE SECTION F<br>UPSTREAM FACE MOUND ROAD<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| G | 4020 | VALLEY SECTION G<br>ENCROACHMENTS DUE TO HOUSES |
| | 4173 | BRIDGE SECTION H<br>DOWNSTREAM FACE HANKS LANE DRIVE<br>ENCROACHMENTS DUE TO HOUSES |
| H | 4217 | BRIDGE SECTION H<br>UPSTREAM FACE HANKS LANE DRIVE<br>ENCROACHMENTS DUE TO HOUSES |

| | | |
|---|---|---|
| | | GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| | 4997 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| | 5057 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| | 5086 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| I | 5115 | VALLEY SECTION I<br>ENCROACHMENTS DUE TO HOUSES |
| | 5165 | BRIDGE SECTION J<br>DOWNSTREAM FACE 19 MILE ROAD<br>ENCROACHMENTS DUE TO HOUSES |
| J | 5205 | BRIDGE SECTION J<br>UPSTREAM FACE 19 MILE ROAD<br>ENCROACHMENTS DUE TO HOUSES |
| | 5286 | BRIDGE SECTION K<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>GROUND POINTS ONLY<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND |
| | 5386 | BRIDGE SECTION K<br>GROUND POINTS RELOCATED<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND |
| | 5486 | BRIDGE SECTION K<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>RIGHT ENCROACHMENT DUE TO HIGH GROUND |
| | 5586 | BRIDGE SECTION K<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 5686 | BRIDGE SECTION K<br>DOWNSTREAM FACE DRIVEWAY CULVERT |
| K | 5704 | BRIDGE SECTION K<br>UPSTREAM FACE DRIVEWAY CULVERT |
| L | 6295 | VALLEY SECTION L<br>ENCROACHMENT DUE TO HIGH GROUND |
| | 6748 | AVSEC DEVELOPED FROM VALLEY SECTION L<br>AND VALLEY SECTION M |
| | 7202 | AVSEC DEVELOPED FROM VALLEY SECTION L<br>AND VALLEY SECTION M |
| M | 7655 | VALLEY SECTION M |

| | | |
|---|---|---|
| | 7755 | VALLEY SECTION M<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 7855 | VALLEY SECTION M<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 7955 | VALLEY SECTION M<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 8055 | VALLEY SECTION M<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 8100 | VALLEY SECTION M<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 8158 | AVSEC DEVELOPED FROM VALLEY SECTION M<br>AND VALLEY SECTION N<br>ENCROACHMENTS DUE TO EXPANSION AND<br>CONTRACTION OF FLOW |
| | 8622 | AVSEC DEVELOPED FROM VALLEY SECTION M<br>AND VALLEY SECTION N<br>ENCROACHMENTS DUE TO EXPANSION AND<br>CONTRACTION OF FLOW |
| N | 9165 | VALLEY SECTION N |
| O | 10495 | VALLEY SECTION O |
| | 10545 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10595 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10645 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10695 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10745 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10800 | VALLEY SECTION O<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 10838 | AVSEC DEVELOPED FROM VALLEY SECTION O<br>AND VALLEY SECTION P<br>ENCROACHMENTS DUE TO EXPANSION AND<br>CONTRACTION OF FLOW |
| | 11182 | AVSEC DEVELOPED FROM VALLEY SECTION O<br>AND VALLEY SECTION P |

| | | |
|---|---|---|
| | | CONTRACTION OF FLOW |
| P | 11525 | VALLEY SECTION P |
| | -4937 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ISLAND PROBLEM CALCULATIONS BEGUN |
| | 99 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| | 190 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS DUE TO HOUSES |
| | 500 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 570 | VALLEY SECTION I<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>INCLUDES ONLY THE GROUND POINTS INVOLVED<br>IN THE ISLAND PROBLEM |

CITY OF STERLING HEIGHTS FLOOD INSURANCE STUDY

CHRISSMAN DRAIN (OLD CHANNEL) J@A JOB NUMBER 5670-10

PROJECT MANAGER WILLIAM ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 50 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| A | 590 | VALLEY SECTION A<br>SEE TEXT FOR STARTING WATER SURFACE ELEVATIONS |
| | 690 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 790 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 865 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1141 | BRIDGE SECTION B<br>GROUND POINTS RELOCATED<br>ENCROACHMENTS DUE TO LOW FLOW |
| | 1142 | BRIDGE SECTION B<br>ABANDONED CULVERT IN FIELD<br>DOWNSTREAM FACE<br>ENCROACHMENTS DUE TO LOW FLOW |
| B | 1159 | BRIDGE SECTION B<br>ABANDONED CULVERT IN FIELD<br>UPSTREAM FACE<br>ENCROACHMENTS DUE TO LOW FLOW |
| | 1160 | BRIDGE SECTION B<br>GROUND POINTS RELOCATED<br>ENCROACHMENTS DUE TO LOW FLOW |
| | 1570 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1       CITY OF STERLING HEIGHTS    5670-10     PROJECT MANAGER WILLIAM ROSSOW
T2       10 YEAR FLOOD
T3        CHRISSMAN DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0.  0.000000      0.00       0.0       0.   616.700     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH      FN      ALLDC     IBW      CHNIM     ITRACE

     1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
NC       .060      .060      .040      .500     1.000     0.000     0.000     0.000     0.000     0.000
QT      4.000   248.000   235.000   230.000   215.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .065   778.000      .040   820.000      .060  1100.000     0.000     0.000     0.000

X1     40.000    22.000   778.000   820.000    40.000    40.000    40.000     0.000     0.000     0.000
GR    624.700     0.000   622.600   100.000   620.400   200.000   621.700   300.000   622.300   400.000
GR    621.900   500.000   622.100   600.000   620.800   700.000   619.100   778.000   611.800   797.500
GR    609.800   797.500   608.800   798.500   608.300   799.500   608.300   800.500   608.800   801.500
GR    609.800   802.500   611.800   802.500   611.800   802.500   618.200   820.000   616.700   900.000
GR    623.300  1000.000   623.300  1100.000     0.000     0.000     0.000     0.000     0.000     0.000
SB      0.000     2.624     2.780     0.000     1.000     0.000    19.620     0.000   613.200   608.300

X1    963.000     0.000     0.000     0.000   923.000   923.000   923.000     0.000     4.900     0.000
X2      0.000     0.000     1.000   618.200   623.000     0.000     0.000     0.000     0.000     0.000
BT     12.000   600.000   627.700     0.000   700.000   625.700     0.000   778.000   624.000     0.000
BT    797.500   623.000   616.700   798.500   623.000   617.700   799.500   623.000   618.200   800.500
BT    623.000   618.200   801.500   623.000   617.700   802.500   623.000   616.700   890.000   623.000
BT      0.000   950.000   625.200     0.000   980.000   627.100     0.000     0.000     0.000     0.000
QT      4.000   217.000   310.000   360.000   510.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .065   774.000      .040   817.000      .060  1100.000     0.000     0.000     0.000

X1    964.000    14.000   774.000   817.000     1.000     1.000     1.000     0.000     0.000     0.000
GR    629.600     0.000   627.500   100.000   625.300   200.000   626.600   300.000   627.200   400.000
GR    626.800   500.000   627.000   600.000   624.200   774.000   617.600   796.000   617.600   804.000
GR    620.800   817.000   621.600   900.000   628.200  1000.000   628.200  1100.000     0.000     0.000

X1   1251.000     0.000     0.000     0.000   287.000   287.000   287.000     0.000    -.600     0.000
NH      5.000      .055   996.000      .050   998.000      .035  1001.200      .050  1004.000      .050
NH   1600.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   1525.000    25.000   996.000  1004.000   274.000   274.000   274.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   996.000     0.000  1004.000     0.000     0.000     0.000     0.000
GR    628.500     0.000   628.500   100.000   629.700   200.000   629.400   300.000   629.300   400.000
GR    629.100   500.000   628.800   600.000   629.600   700.000   629.400   800.000   627.400   900.000
GR    625.100   987.000   625.400   996.000   618.800   996.000   616.500   998.800   616.500  1001.200
GR    618.800  1004.000   625.700  1004.000   626.200  1020.000   627.500  1060.000   627.700  1100.000
GR    626.500  1200.000   627.200  1300.000   627.100  1400.000   626.900  1500.000   626.800  1600.000
SB      0.000     1.641     2.710     0.000     8.000     0.000    56.740     0.000   616.500   616.500

X1   1545.000     0.000     0.000     0.000    20.000    20.000    20.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X2 | 0.000 | 0.000 | 1.000 | 625.000 | 625.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 996.000 | 0.000 | 1004.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 23.000 | 0.000 | 628.500 | 0.000 | 100.000 | 628.500 | 0.000 | 200.000 | 629.700 | 0.000 |
| BT | 300.000 | 629.400 | 0.000 | 400.000 | 629.300 | 0.000 | 500.000 | 629.100 | 0.000 | 600.000 |
| BT | 628.800 | 0.000 | 700.000 | 629.600 | 0.000 | 800.000 | 629.400 | 0.000 | 900.000 | 627.400 |
| BT | 0.000 | 987.000 | 625.100 | 0.000 | 996.000 | 625.400 | 622.800 | 998.800 | 625.400 | 625.000 |
| BT | 1001.200 | 625.600 | 625.000 | 1004.000 | 625.700 | 622.800 | 1020.000 | 626.200 | 0.000 | 1060.000 |
| BT | 627.500 | 0.000 | 1100.000 | 627.700 | 0.000 | 1200.000 | 626.500 | 0.000 | 1300.000 | 627.200 |
| BT | 0.000 | 1400.000 | 627.100 | 0.000 | 1500.000 | 626.900 | 0.000 | 1600.000 | 626.800 | 0.000 |
| NH | 3.000 | .080 | 995.400 | .040 | 1004.600 | .080 | 1700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1575.000 | 23.000 | 995.400 | 1004.600 | 30.000 | 30.000 | 30.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 995.400 | 0.000 | 1004.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 628.500 | 0.000 | 628.400 | 100.000 | 628.400 | 200.000 | 629.000 | 300.000 | 628.800 | 400.000 |
| GR | 628.800 | 500.000 | 628.600 | 600.000 | 628.700 | 700.000 | 628.600 | 800.000 | 626.900 | 900.000 |
| GR | 626.900 | 995.400 | 619.200 | 995.400 | 616.600 | 998.000 | 616.600 | 1002.000 | 619.200 | 1004.600 |
| GR | 626.900 | 1004.600 | 627.400 | 1100.000 | 628.200 | 1200.000 | 628.300 | 1300.000 | 628.700 | 1400.000 |
| GR | 628.400 | 1500.000 | 629.300 | 1600.000 | 629.300 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.679 | 3.030 | 0.000 | 9.200 | 0.000 | 70.880 | 0.000 | 616.600 | 616.600 |
| X1 | 1605.000 | 0.000 | 0.000 | 0.000 | 30.000 | 30.000 | 30.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 625.800 | 626.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 995.400 | 0.000 | 1004.600 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 21.000 | 0.000 | 628.500 | 0.000 | 100.000 | 628.400 | 0.000 | 200.000 | 628.400 | 0.000 |
| BT | 300.000 | 629.000 | 0.000 | 400.000 | 628.800 | 0.000 | 500.000 | 628.800 | 0.000 | 600.000 |
| BT | 628.600 | 0.000 | 700.000 | 628.700 | 0.000 | 800.000 | 628.600 | 0.000 | 900.000 | 626.900 |
| BT | 0.000 | 995.400 | 626.900 | 623.200 | 998.000 | 626.900 | 625.800 | 1002.000 | 626.900 | 625.800 |
| BT | 1004.600 | 626.900 | 623.200 | 1100.000 | 627.400 | 0.000 | 1200.000 | 628.200 | 0.000 | 1300.000 |
| BT | 628.300 | 0.000 | 1400.000 | 628.700 | 0.000 | 1500.000 | 628.400 | 0.000 | 1600.000 | 629.300 |
| BT | 0.000 | 1700.000 | 629.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 148.500 | .050 | 151.500 | .055 | 300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 2620.000 | 13.000 | 148.500 | 151.500 | 1100.000 | 1000.000 | 1015.000 | 0.000 | 0.000 | 0.000 |
| GR | 630.700 | 0.000 | 629.700 | 50.000 | 628.700 | 130.000 | 624.500 | 148.500 | 623.500 | 148.500 |
| GR | 622.800 | 149.000 | 622.500 | 150.000 | 622.800 | 151.000 | 623.500 | 151.500 | 624.500 | 151.500 |
| GR | 628.900 | 170.000 | 631.400 | 250.000 | 631.800 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.697 | 2.710 | 0.000 | 3.000 | 0.000 | 7.060 | 0.000 | 622.500 | 622.500 |
| X1 | 2640.000 | 0.000 | 0.000 | 0.000 | 20.000 | 20.000 | 20.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 625.500 | 628.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 11.000 | 0.000 | 630.700 | 0.000 | 50.000 | 629.700 | 0.000 | 130.000 | 628.700 | 0.000 |
| BT | 148.500 | 628.400 | 624.500 | 149.000 | 628.400 | 625.200 | 150.000 | 628.400 | 625.500 | 151.000 |
| BT | 628.400 | 625.200 | 151.500 | 628.400 | 624.500 | 170.000 | 628.900 | 0.000 | 250.000 | 631.400 |
| BT | 0.000 | 300.000 | 631.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 300.000 | .050 | 309.000 | .040 | 315.000 | .050 | 330.000 | .060 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 2810.000 | 10.000 | 300.000 | 330.000 | 170.000 | 170.000 | 170.000 | 0.000 | 0.000 | 0.000 |
| GR | 631.600 | 0.000 | 630.900 | 100.000 | 630.600 | 200.000 | 628.500 | 300.000 | 622.900 | 309.000 |
| GR | 624.800 | 315.000 | 630.000 | 330.000 | 631.600 | 400.000 | 633.400 | 500.000 | 633.400 | 600.000 |
| NH | 3.000 | .050 | 400.000 | 35.000 | 416.000 | .045 | 800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3091.000 | 17.000 | 400.000 | 416.000 | 350.000 | 200.000 | 281.000 | .636 | 0.000 | 0.000 |
| GR | 632.100 | 0.000 | 631.600 | 100.000 | 630.900 | 200.000 | 630.600 | 300.000 | 628.500 | 398.000 |
| GR | 628.500 | 400.000 | 629.500 | 400.000 | 626.200 | 400.000 | 625.700 | 416.000 | 629.500 | 416.000 |
| GR | 628.300 | 416.000 | 628.300 | 422.000 | 630.000 | 436.000 | 631.600 | 506.000 | 633.400 | 606.000 |
| GR | 633.400 | 706.000 | 633.300 | 806.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.338 | 3.030 | 0.000 | 16.000 | 0.000 | 22.500 | 0.000 | 625.700 | 625.700 |
| X1 | 3168.000 | 0.000 | 0.000 | 0.000 | 77.000 | 77.000 | 77.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 629.500 | 632.100 | 0.000 | 0.000 | 0.000 | .636 | 0.000 |
| BT | 14.000 | 0.000 | 632.100 | 0.000 | 100.000 | 632.300 | 0.000 | 200.000 | 632.600 | 0.000 |
| BT | 300.000 | 632.800 | 0.000 | 398.000 | 633.100 | 0.000 | 398.000 | 634.800 | 0.000 | 400.000 |
| BT | 634.800 | 629.500 | 416.000 | 634.800 | 629.500 | 422.000 | 634.800 | 0.000 | 422.000 | 633.000 |
| BT | 0.000 | 506.000 | 633.100 | 0.000 | 606.000 | 633.400 | 0.000 | 706.000 | 633.400 | 0.000 |
| BT | 806.000 | 633.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| QT | 4.000 | 161.000 | 227.000 | 265.000 | 375.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 292.000 | .050 | 296.000 | .040 | 305.000 | .040 | 312.000 | .045 |
| NH | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4020.000 | 10.000 | 292.000 | 312.000 | 750.000 | 1000.000 | 852.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 634.600 | 0.000 | 634.400 | 100.000 | 631.800 | 200.000 | 632.000 | 292.000 | 627.900 | 296.000 |
| GR | 628.100 | 302.000 | 628.400 | 305.000 | 632.100 | 312.000 | 636.600 | 400.000 | 636.700 | 500.000 |
| QT | 4.000 | 154.000 | 217.000 | 250.000 | 355.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 298.000 | .070 | 302.000 | .055 | 545.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4173.000 | 18.000 | 298.000 | 302.000 | 250.000 | 200.000 | 153.000 | .795 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 634.600 | 0.000 | 634.400 | 100.000 | 633.500 | 126.000 | 631.800 | 200.000 | 632.200 | 292.000 |
| GR | 629.500 | 298.000 | 630.900 | 298.000 | 628.400 | 299.000 | 628.200 | 300.000 | 628.400 | 301.000 |
| GR | 629.500 | 302.000 | 630.900 | 302.000 | 629.500 | 302.000 | 632.100 | 312.000 | 633.900 | 350.000 |
| GR | 636.600 | 400.000 | 636.700 | 500.000 | 636.900 | 545.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 298.000 | .070 | 302.000 | .055 | 545.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.700 | 2.710 | 0.000 | 4.000 | 0.000 | 12.560 | 0.000 | 628.200 | 628.200 |
| X1 | 4217.000 | 18.000 | 298.000 | 302.000 | 44.000 | 44.000 | 44.000 | .795 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 632.200 | 633.400 | 0.000 | 0.000 | 0.000 | .795 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 200.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 8.000 | 200.000 | 633.400 | 0.000 | 298.000 | 633.600 | 630.900 | 299.000 | 633.600 | 632.000 |
| BT | 300.000 | 633.600 | 632.200 | 301.000 | 633.600 | 632.000 | 302.000 | 633.600 | 630.900 | 350.000 |
| BT | 633.900 | 0.000 | 400.000 | 636.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 634.600 | 0.000 | 634.400 | 100.000 | 633.500 | 126.000 | 631.800 | 200.000 | 632.200 | 292.000 |
| GR | 629.500 | 298.000 | 630.900 | 298.000 | 628.400 | 299.000 | 628.200 | 300.000 | 628.400 | 301.000 |
| GR | 629.500 | 302.000 | 630.900 | 302.000 | 629.500 | 302.000 | 632.100 | 312.000 | 633.900 | 350.000 |
| GR | 636.600 | 400.000 | 636.700 | 500.000 | 636.900 | 545.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .045 | 400.000 | .045 | 409.000 | .040 | 413.000 | .045 | 418.000 | .045 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 133.000 | 187.000 | 217.000 | 305.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4937.000 | 18.000 | 400.000 | 418.000 | 600.000 | 800.000 | 720.000 | 0.000 | -.500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.900 | 0.000 | 634.300 | 100.000 | 633.900 | 700.000 | 634.700 | 300.000 | 634.300 | 400.000 |
| GR | 631.800 | 405.000 | 630.900 | 409.000 | 631.700 | 413.000 | 634.700 | 418.000 | 637.200 | 500.000 |
| GR | 634.600 | 600.000 | 635.300 | 700.000 | 635.000 | 800.000 | 634.500 | 900.000 | 634.900 | 1000.000 |
| GR | 634.500 | 1100.000 | 636.000 | 1200.000 | 637.700 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4997.000 | 0.000 | 0.000 | 0.000 | 55.000 | 70.000 | 60.000 | 0.000 | .200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 116.000 | 150.000 | 163.000 | 190.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5057.000 | 0.000 | 0.000 | 0.000 | 50.000 | 70.000 | 60.000 | 0.000 | .100 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5086.000 | 0.000 | 0.000 | 0.000 | 25.000 | 35.000 | 29.000 | 0.000 | .100 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5115.000 | 0.000 | 0.000 | 0.000 | 25.000 | 35.000 | 29.000 | 0.000 | .100 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 90.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 695.500 | .040 | 704.500 | .050 | 1700.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5165.000 | 36.000 | 688.000 | 712.000 | 50.000 | 50.000 | 50.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.900 | 0.000 | 633.900 | 100.000 | 633.900 | 200.000 | 633.900 | 300.000 | 634.300 | 400.000 |
| GR | 633.900 | 500.000 | 634.700 | 600.000 | 634.300 | 688.000 | 632.000 | 695.400 | 634.300 | 695.500 |
| GR | 632.000 | 695.500 | 630.900 | 696.500 | 630.700 | 697.500 | 630.900 | 698.500 | 632.000 | 699.500 |
| GR | 633.700 | 699.500 | 633.700 | 700.500 | 632.600 | 700.500 | 631.500 | 701.500 | 631.300 | 702.500 |
| GR | 631.500 | 703.500 | 633.700 | 704.500 | 632.000 | 704.600 | 634.800 | 712.000 | 636.000 | 753.000 |
| GR | 637.200 | 800.000 | 635.500 | 851.000 | 634.600 | 900.000 | 635.300 | 1000.000 | 635.000 | 1100.000 |
| GR | 634.500 | 1200.000 | 634.900 | 1300.000 | 634.500 | 1400.000 | 636.000 | 1500.000 | 637.700 | 1600.000 |
| GR | 638.700 | 1700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 0.000 | [illegible] | 3.030 | 0.010 | [illegible] | 0.000 | 25.100 | 0.000 | 630.700 | 630.700 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 5205.000 | 0.000 | 0.000 | 0.000 | 40.000 | 40.000 | 40.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 634.500 | 634.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 17.000 | 400.000 | 634.900 | 0.000 | 500.000 | 634.900 | 0.000 | 600.000 | 635.300 | 0.000 |
| BT | 688.000 | 636.200 | 0.000 | 695.500 | 636.300 | 634.300 | 696.500 | 636.300 | 634.600 | 697.500 |
| BT | 636.300 | 634.800 | 698.500 | 636.300 | 634.600 | 699.500 | 636.300 | 633.500 | 700.500 | 636.300 |
| BT | 633.700 | 701.500 | 636.300 | 634.800 | 702.500 | 636.300 | 635.000 | 703.500 | 636.300 | 634.800 |
| BT | 704.500 | 636.300 | 633.700 | 712.000 | 636.300 | 0.000 | 753.000 | 636.000 | 0.000 | 800.000 |
| BT | 637.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 85.000 | .045 | 110.000 | .060 | 200.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5286.000 | 6.000 | 85.000 | 110.000 | 320.000 | 75.000 | 81.000 | 0.000 | -.200 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 130.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.100 | 0.000 | 635.600 | 85.000 | 631.000 | 100.000 | 635.200 | 110.000 | 636.400 | 130.000 |
| GR | 634.900 | 200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5386.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 130.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5486.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .100 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 130.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5586.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .100 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 130.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5686.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 85.000 | .045 | 110.000 | .060 | 200.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.317 | 2.810 | 0.000 | 4.000 | 0.000 | 12.500 | 0.000 | 631.000 | 631.000 |
| X1 | 5704.000 | 14.000 | 85.000 | 110.000 | 18.000 | 18.000 | 18.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 634.700 | 634.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 10.000 | 0.000 | 636.100 | 0.000 | 90.000 | 635.500 | 0.000 | 98.000 | 635.400 | 633.700 |
| BT | 99.000 | 635.400 | 634.800 | 100.000 | 635.400 | 635.000 | 101.000 | 635.400 | 634.800 | 102.000 |
| BT | 635.400 | 633.700 | 110.000 | 635.200 | 0.000 | 130.000 | 636.400 | 0.000 | 200.000 | 634.900 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.100 | 0.000 | 635.600 | 85.000 | 631.000 | 97.900 | 633.700 | 98.000 | 632.300 | 98.000 |
| GR | 631.200 | 99.000 | 631.000 | 100.000 | 631.200 | 101.000 | 632.300 | 102.000 | 633.700 | 102.000 |
| GR | 631.000 | 102.100 | 635.200 | 110.000 | 636.400 | 130.000 | 634.900 | 200.000 | 0.000 | 0.000 |
| QT | 4.000 | 133.000 | 187.000 | 217.000 | 305.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .065 | 800.000 | .060 | 806.000 | .060 | 812.000 | .060 | 814.000 | .060 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 6295.000 | 19.000 | 800.000 | 814.000 | 550.000 | 800.000 | 591.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.000 | 0.000 | 636.100 | 100.000 | 636.600 | 200.000 | 636.400 | 300.000 | 637.200 | 400.000 |
| GR | 636.900 | 500.000 | 636.200 | 600.000 | 635.800 | 700.000 | 636.000 | 800.000 | 635.000 | 801.000 |
| GR | 634.700 | 806.000 | 634.700 | 812.000 | 636.400 | 814.000 | 635.700 | 900.000 | 636.200 | 1000.000 |
| GR | 640.300 | 1100.000 | 640.000 | 1200.000 | 640.300 | 1300.000 | 640.600 | 1400.000 | 0.000 | 0.000 |
| NH | 3.000 | .070 | 926.500 | .045 | 943.200 | .070 | 1566.500 | 0.000 | 0.000 | 0.000 |
| X1 | 6748.000 | 90.000 | 926.500 | 943.200 | 493.000 | 483.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.800 | 0.000 | 636.900 | 31.900 | 637.000 | 63.800 | 637.000 | 95.800 | 637.100 | 127.700 |
| GR | 637.100 | 159.700 | 637.300 | 191.600 | 637.400 | 223.600 | 637.400 | 255.500 | 637.400 | 287.500 |
| GR | 637.300 | 319.400 | 637.300 | 351.400 | 637.400 | 383.300 | 637.500 | 415.300 | 637.600 | 447.200 |
| GR | 637.600 | 479.200 | 637.600 | 511.100 | 637.500 | 543.100 | 637.500 | 575.000 | 637.400 | 607.000 |
| GR | 637.300 | 638.900 | 637.200 | 670.900 | 637.000 | 702.800 | 636.800 | 734.800 | 636.600 | 766.700 |
| GR | 636.400 | 798.700 | 636.400 | 830.600 | 636.400 | 862.600 | 636.500 | 894.500 | 636.600 | 926.500 |
| GR | 636.200 | 927.000 | 635.700 | 927.600 | 635.600 | 928.200 | 635.500 | 928.700 | 635.500 | 929.300 |
| GR | 635.400 | 929.800 | 635.400 | 930.400 | 635.400 | 930.900 | 635.300 | 931.500 | 635.300 | 932.000 |
| GR | 635.300 | 932.600 | 635.200 | 933.200 | 635.200 | 933.700 | 635.200 | 934.300 | 635.100 | 934.800 |
| GR | 635.100 | 935.400 | 635.100 | 935.900 | 635.200 | 936.500 | 635.200 | 937.000 | 635.300 | 937.600 |
| GR | 635.400 | 938.200 | 635.400 | 938.700 | 635.500 | 939.300 | 635.600 | 939.800 | 635.600 | 940.400 |
| GR | 635.800 | 940.900 | 636.100 | 941.500 | 636.500 | 942.000 | 636.800 | 942.600 | 637.100 | 943.200 |
| GR | 637.200 | 963.900 | 637.200 | 984.700 | 637.300 | 1005.500 | 637.300 | 1026.300 | 637.500 | 1047.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 637.800 | 1067.800 | 638.200 | 1088.600 | 638.500 | 1109.400 | 638.700 | 1130.100 | 639.000 | 1150.900 |
| GR | 639.600 | 1171.700 | 640.200 | 1192.500 | 640.700 | 1213.200 | 641.300 | 1234.000 | 641.600 | 1254.800 |
| GR | 641.500 | 1275.600 | 641.500 | 1296.400 | 641.500 | 1317.100 | 641.400 | 1337.900 | 641.400 | 1358.700 |
| GR | 641.500 | 1379.500 | 641.500 | 1400.200 | 641.400 | 1421.000 | 641.400 | 1441.800 | 641.300 | 1462.600 |
| GR | 641.300 | 1483.300 | 641.400 | 1504.100 | 641.400 | 1524.900 | 641.500 | 1545.700 | 641.500 | 1566.500 |
| NH | 3.000 | .065 | 1053.400 | .045 | 1072.700 | .070 | 1733.500 | 0.000 | 0.000 | 0.000 |
| X1 | 7202.000 | 90.000 | 1053.400 | 1072.700 | 493.000 | 483.000 | 454.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.800 | 0.000 | 637.800 | 36.300 | 637.900 | 72.600 | 638.000 | 108.900 | 638.000 | 145.300 |
| GR | 638.100 | 181.600 | 638.200 | 217.900 | 638.300 | 254.200 | 638.300 | 290.600 | 638.300 | 326.900 |
| GR | 638.200 | 363.200 | 638.100 | 399.500 | 638.100 | 435.900 | 638.200 | 472.200 | 638.200 | 508.500 |
| GR | 638.200 | 544.800 | 638.100 | 581.200 | 638.000 | 617.500 | 638.100 | 653.800 | 638.200 | 690.100 |
| GR | 638.200 | 726.500 | 638.000 | 762.800 | 637.900 | 799.100 | 637.600 | 835.500 | 637.300 | 871.800 |
| GR | 637.100 | 908.100 | 637.100 | 944.400 | 637.000 | 980.800 | 637.200 | 1017.100 | 637.400 | 1053.400 |
| GR | 636.900 | 1054.100 | 636.500 | 1054.700 | 636.200 | 1055.300 | 636.200 | 1056.000 | 636.100 | 1056.600 |
| GR | 636.100 | 1057.300 | 636.000 | 1057.900 | 636.000 | 1058.600 | 635.900 | 1059.200 | 635.900 | 1059.900 |
| GR | 635.800 | 1060.500 | 635.800 | 1061.100 | 635.700 | 1061.800 | 635.700 | 1062.400 | 635.600 | 1063.100 |
| GR | 635.600 | 1063.700 | 635.600 | 1064.400 | 635.700 | 1065.000 | 635.800 | 1065.700 | 635.900 | 1066.300 |
| GR | 636.100 | 1066.900 | 636.200 | 1067.600 | 636.400 | 1068.200 | 636.500 | 1068.900 | 636.700 | 1069.500 |
| GR | 636.800 | 1070.200 | 637.100 | 1070.800 | 637.400 | 1071.500 | 637.700 | 1072.100 | 638.000 | 1072.700 |
| GR | 638.200 | 1094.800 | 638.400 | 1116.800 | 638.600 | 1138.800 | 638.900 | 1160.800 | 639.300 | 1182.900 |
| GR | 639.900 | 1204.900 | 640.400 | 1226.900 | 641.000 | 1248.900 | 641.300 | 1271.000 | 641.500 | 1293.000 |
| GR | 641.900 | 1315.000 | 642.200 | 1337.000 | 642.500 | 1359.100 | 642.800 | 1381.100 | 642.900 | 1403.100 |
| GR | 642.900 | 1425.100 | 642.900 | 1447.100 | 642.900 | 1469.200 | 642.900 | 1491.200 | 642.900 | 1513.200 |
| GR | 642.900 | 1535.200 | 642.800 | 1557.300 | 642.700 | 1579.300 | 642.600 | 1601.300 | 642.400 | 1623.300 |
| GR | 642.300 | 1645.400 | 642.400 | 1667.400 | 642.400 | 1689.400 | 642.400 | 1711.400 | 642.500 | 1733.500 |
| NH | 5.000 | .065 | 1180.000 | .060 | 1182.000 | .040 | 1195.000 | .050 | 1202.000 | .065 |
| NH | 1900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 7655.000 | 24.000 | 1180.000 | 1202.000 | 493.000 | 483.000 | 453.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.700 | 0.000 | 639.000 | 100.000 | 639.000 | 200.000 | 639.300 | 300.000 | 639.200 | 400.000 |
| GR | 638.900 | 500.000 | 638.800 | 600.000 | 638.600 | 700.000 | 639.100 | 800.000 | 638.800 | 900.000 |
| GR | 637.800 | 1000.000 | 637.700 | 1100.000 | 638.100 | 1180.000 | 636.900 | 1182.000 | 636.100 | 1192.000 |
| GR | 636.700 | 1195.000 | 638.800 | 1202.000 | 640.600 | 1300.000 | 643.900 | 1400.000 | 644.400 | 1500.000 |
| GR | 644.300 | 1600.000 | 644.400 | 1700.000 | 643.400 | 1800.000 | 643.500 | 1900.000 | 0.000 | 0.000 |
| X1 | 7755.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .300 | 0.000 |
| X1 | 7855.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .300 | 0.000 |
| X1 | 7955.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .300 | 0.000 |
| X1 | 8055.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .400 | 0.000 |
| X1 | 8100.000 | 0.000 | 0.000 | 0.000 | 45.000 | 45.000 | 45.000 | 0.000 | .200 | 0.000 |
| NH | 3.000 | .070 | 1140.300 | .045 | 1158.700 | .070 | 1966.600 | 0.000 | 0.000 | 0.000 |
| X1 | 8158.000 | 90.000 | 1140.300 | 1158.700 | 48.000 | 59.000 | 58.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 992.000 | 0.000 | 1308.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 640.100 | 0.000 | 640.200 | 39.300 | 640.300 | 78.600 | 640.300 | 117.900 | 640.300 | 157.200 |
| GR | 640.300 | 196.600 | 640.400 | 235.900 | 640.400 | 275.200 | 640.400 | 314.500 | 640.400 | 353.900 |
| GR | 640.400 | 393.200 | 640.300 | 432.500 | 640.200 | 471.800 | 640.100 | 511.200 | 640.000 | 550.500 |
| GR | 640.000 | 589.800 | 640.000 | 629.100 | 639.900 | 668.400 | 639.900 | 707.800 | 640.000 | 747.100 |
| GR | 640.000 | 786.400 | 639.900 | 825.700 | 639.900 | 865.100 | 639.600 | 904.400 | 639.400 | 943.700 |
| GR | 639.300 | 983.000 | 639.300 | 1022.400 | 639.400 | 1061.700 | 639.600 | 1101.000 | 639.800 | 1140.300 |
| GR | 639.400 | 1140.900 | 639.000 | 1141.500 | 638.700 | 1142.200 | 638.500 | 1142.800 | 638.400 | 1143.400 |
| GR | 638.300 | 1144.000 | 638.200 | 1144.600 | 638.200 | 1145.200 | 638.100 | 1145.800 | 638.100 | 1146.400 |
| GR | 638.000 | 1147.000 | 638.000 | 1147.700 | 637.900 | 1148.300 | 637.900 | 1148.900 | 637.800 | 1149.500 |
| GR | 637.800 | 1150.100 | 637.800 | 1150.700 | 637.900 | 1151.300 | 638.000 | 1151.900 | 638.100 | 1152.500 |
| GR | 638.300 | 1153.200 | 638.400 | 1153.800 | 638.600 | 1154.400 | 638.700 | 1155.000 | 638.900 | 1155.600 |
| GR | 639.000 | 1156.200 | 639.200 | 1156.800 | 639.500 | 1157.400 | 639.800 | 1158.000 | 640.100 | 1158.700 |
| GR | 640.100 | 1185.600 | 640.400 | 1212.500 | 640.600 | 1239.400 | 640.900 | 1266.400 | 641.400 | 1293.300 |
| GR | 641.900 | 1320.200 | 642.500 | 1347.200 | 643.300 | 1374.100 | 643.700 | 1401.000 | 644.100 | 1428.000 |
| GR | 644.700 | 1454.900 | 645.200 | 1481.800 | 645.500 | 1508.700 | 645.500 | 1535.700 | 645.500 | 1562.600 |
| GR | 645.600 | 1589.500 | 645.700 | 1616.500 | 645.900 | 1643.400 | 645.900 | 1670.300 | 646.000 | 1697.300 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 646.000 | 1858.800 | 646.200 | 1885.800 | 646.500 | 1912.700 | 646.800 | 1939.600 | 647.100 | 1966.600 |
| NH | 3.000 | .075 | 1100.600 | .045 | 1115.200 | .070 | 2033.400 | 0.000 | 0.000 | 0.000 |
| X1 | 8622.000 | 90.000 | 1100.600 | 1115.200 | 483.000 | 500.000 | 464.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 778.000 | 0.000 | 1438.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.700 | 0.000 | 641.700 | 37.900 | 641.700 | 75.900 | 641.700 | 113.800 | 641.700 | 151.800 |
| GR | 641.700 | 189.700 | 641.700 | 227.700 | 641.700 | 265.600 | 641.600 | 303.600 | 641.600 | 341.500 |
| GR | 641.600 | 379.500 | 641.600 | 417.400 | 641.400 | 455.400 | 641.300 | 493.300 | 641.200 | 531.300 |
| GR | 641.300 | 569.200 | 641.300 | 607.200 | 641.200 | 645.100 | 641.100 | 683.100 | 641.000 | 721.000 |
| GR | 641.000 | 759.000 | 641.000 | 797.000 | 641.000 | 834.900 | 640.900 | 872.900 | 640.800 | 910.800 |
| GR | 640.800 | 948.800 | 641.000 | 986.700 | 641.100 | 1024.700 | 641.300 | 1062.600 | 641.500 | 1100.600 |
| GR | 641.200 | 1101.100 | 640.800 | 1101.600 | 640.500 | 1102.000 | 640.300 | 1102.500 | 640.000 | 1103.000 |
| GR | 639.900 | 1103.500 | 639.900 | 1104.000 | 639.800 | 1104.500 | 639.800 | 1105.000 | 639.800 | 1105.500 |
| GR | 639.700 | 1106.000 | 639.700 | 1106.400 | 639.600 | 1106.900 | 639.600 | 1107.400 | 639.600 | 1107.900 |
| GR | 639.500 | 1108.400 | 639.500 | 1108.900 | 639.600 | 1109.400 | 639.600 | 1109.900 | 639.700 | 1110.300 |
| GR | 639.700 | 1110.800 | 639.800 | 1111.300 | 639.900 | 1111.800 | 640.000 | 1112.300 | 640.100 | 1112.800 |
| GR | 640.200 | 1113.300 | 640.300 | 1113.800 | 640.700 | 1114.300 | 641.100 | 1114.700 | 641.600 | 1115.200 |
| GR | 641.000 | 1145.800 | 641.100 | 1176.400 | 641.200 | 1207.100 | 641.300 | 1237.700 | 641.600 | 1268.300 |
| GR | 642.000 | 1298.900 | 642.400 | 1329.500 | 643.000 | 1360.100 | 643.600 | 1390.700 | 644.200 | 1421.300 |
| GR | 645.200 | 1451.900 | 646.200 | 1482.500 | 646.700 | 1513.100 | 646.700 | 1543.700 | 646.700 | 1574.300 |
| GR | 646.900 | 1604.900 | 647.200 | 1635.500 | 647.400 | 1666.100 | 647.600 | 1696.700 | 647.600 | 1727.300 |
| GR | 647.700 | 1757.900 | 647.900 | 1788.500 | 648.100 | 1819.100 | 648.300 | 1849.700 | 648.500 | 1880.300 |
| GR | 648.700 | 1910.900 | 648.900 | 1941.500 | 649.500 | 1972.100 | 650.100 | 2002.700 | 650.700 | 2033.400 |
| NH | 5.000 | .070 | 1061.000 | .060 | 1063.000 | .045 | 1071.000 | .060 | 1072.000 | .065 |
| NH | 2100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 9165.000 | 27.000 | 1061.000 | 1072.000 | 500.000 | 520.000 | 543.000 | 0.000 | 0.000 | 0.000 |
| GR | 643.200 | 0.000 | 643.100 | 100.000 | 643.100 | 200.000 | 642.800 | 300.000 | 642.900 | 400.000 |
| GR | 642.500 | 500.000 | 642.700 | 600.000 | 642.100 | 700.000 | 642.100 | 800.000 | 642.300 | 900.000 |
| GR | 643.000 | 1000.000 | 643.300 | 1061.000 | 641.600 | 1063.000 | 641.200 | 1068.000 | 641.500 | 1071.000 |
| GR | 643.000 | 1072.000 | 642.000 | 1100.000 | 641.800 | 1200.000 | 642.100 | 1300.000 | 643.800 | 1400.000 |
| GR | 647.900 | 1500.000 | 648.000 | 1600.000 | 649.200 | 1700.000 | 649.400 | 1800.000 | 650.700 | 1900.000 |
| GR | 651.800 | 2000.000 | 654.400 | 2100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .065 | 895.000 | .060 | 896.000 | .040 | 902.000 | .060 | 905.000 | .070 |
| NH | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10495.000 | 20.000 | 895.000 | 905.000 | 1400.000 | 1410.000 | 1330.000 | 0.000 | 0.000 | 0.000 |
| GR | 645.000 | 0.000 | 644.700 | 100.000 | 644.900 | 200.000 | 644.300 | 300.000 | 644.500 | 400.000 |
| GR | 644.400 | 500.000 | 644.000 | 600.000 | 643.300 | 700.000 | 643.300 | 800.000 | 643.500 | 895.000 |
| GR | 642.800 | 896.000 | 642.400 | 902.000 | 642.800 | 904.000 | 643.600 | 905.000 | 642.700 | 1000.000 |
| GR | 642.900 | 1100.000 | 644.900 | 1165.000 | 648.700 | 1200.000 | 649.800 | 1300.000 | 649.900 | 1400.000 |
| X1 | 10545.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .300 | 0.000 |
| X1 | 10595.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 10645.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 10695.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .300 | 0.000 |
| X1 | 10745.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 10800.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 55.000 | 0.000 | .200 | 0.000 |
| NH | 3.000 | .070 | 796.700 | .045 | 818.400 | .075 | 1300.100 | 0.000 | 0.000 | 0.000 |
| X1 | 10838.000 | 90.000 | 796.700 | 818.400 | 35.000 | 30.000 | 38.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 553.000 | 0.000 | 1068.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 646.800 | 0.000 | 646.500 | 27.400 | 646.200 | 54.900 | 645.900 | 82.400 | 645.700 | 109.800 |
| GR | 645.600 | 137.300 | 645.600 | 164.800 | 645.600 | 192.300 | 645.400 | 219.700 | 645.300 | 247.200 |
| GR | 645.200 | 274.700 | 645.100 | 302.200 | 645.100 | 329.600 | 645.000 | 357.100 | 644.900 | 384.600 |
| GR | 644.900 | 412.100 | 645.000 | 439.500 | 645.000 | 467.000 | 645.000 | 494.500 | 645.000 | 522.000 |
| GR | 644.900 | 549.400 | 644.800 | 576.900 | 644.700 | 604.400 | 644.700 | 631.900 | 644.700 | 659.300 |
| GR | 644.700 | 686.800 | 644.700 | 714.300 | 644.700 | 741.800 | 644.800 | 769.200 | 644.800 | 796.700 |
| GR | 644.600 | 797.400 | 644.400 | 798.200 | 644.200 | 798.900 | 644.100 | 799.600 | 644.000 | 800.300 |
| GR | 644.000 | 801.000 | 644.000 | 801.800 | 644.000 | 802.500 | 644.200 | 803.200 | 644.400 | 803.900 |
| GR | 644.400 | 804.700 | 644.400 | 805.400 | 644.300 | 806.100 | 644.300 | 806.800 | 644.300 | 807.500 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 644.200 | 808.300 | 644.700 | 809.000 | 644.900 | 809.700 | 644.900 | 810.400 | 645.000 | 811.200 |
| GR | 645.000 | 811.900 | 645.100 | 812.600 | 645.200 | 813.300 | 645.300 | 814.000 | 645.400 | 814.800 |
| GR | 645.500 | 815.500 | 645.600 | 816.200 | 645.800 | 816.900 | 646.000 | 817.600 | 646.300 | 818.400 |
| GR | 645.900 | 834.400 | 645.600 | 850.500 | 645.200 | 866.500 | 645.000 | 882.600 | 644.900 | 898.600 |
| GR | 644.800 | 914.700 | 644.900 | 930.800 | 644.900 | 946.800 | 644.900 | 962.900 | 645.000 | 978.900 |
| GR | 645.200 | 995.000 | 645.500 | 1011.000 | 646.100 | 1027.100 | 646.700 | 1043.200 | 647.300 | 1059.200 |
| GR | 648.100 | 1075.300 | 649.500 | 1091.300 | 650.500 | 1107.400 | 650.600 | 1123.400 | 650.800 | 1139.500 |
| GR | 650.900 | 1155.500 | 651.000 | 1171.600 | 651.100 | 1187.700 | 651.200 | 1203.700 | 651.100 | 1219.800 |
| GR | 651.100 | 1235.800 | 651.100 | 1251.900 | 651.000 | 1267.900 | 651.000 | 1284.000 | 650.900 | 1300.100 |
| NH | 3.000 | .070 | 698.200 | .050 | 731.500 | .070 | 1199.900 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 11182.000 | 90.000 | 698.200 | 731.500 | 333.000 | 316.000 | 344.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 446.000 | 0.000 | 982.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 648.600 | 0.000 | 648.100 | 24.000 | 647.600 | 48.100 | 647.200 | 72.200 | 646.700 | 96.300 |
| GR | 646.400 | 120.300 | 646.400 | 144.400 | 646.400 | 168.500 | 646.300 | 192.600 | 646.200 | 216.600 |
| GR | 646.100 | 240.700 | 646.000 | 264.800 | 645.800 | 288.900 | 645.700 | 313.000 | 645.500 | 337.000 |
| GR | 645.400 | 361.100 | 645.600 | 385.200 | 645.700 | 409.300 | 645.900 | 433.300 | 646.000 | 457.400 |
| GR | 646.000 | 481.500 | 646.000 | 505.600 | 646.100 | 529.600 | 646.100 | 553.700 | 646.200 | 577.800 |
| GR | 646.200 | 601.900 | 646.200 | 626.000 | 646.200 | 650.000 | 646.200 | 674.100 | 646.200 | 698.200 |
| GR | 646.000 | 699.300 | 645.800 | 700.400 | 645.600 | 701.500 | 645.400 | 702.600 | 645.300 | 703.700 |
| GR | 645.300 | 704.900 | 645.400 | 706.000 | 645.400 | 707.100 | 645.700 | 708.200 | 646.300 | 709.300 |
| GR | 646.200 | 710.400 | 646.200 | 711.500 | 646.100 | 712.600 | 646.100 | 713.700 | 646.000 | 714.900 |
| GR | 646.000 | 716.000 | 647.000 | 717.100 | 647.400 | 718.200 | 647.500 | 719.300 | 647.600 | 720.400 |
| GR | 647.700 | 721.500 | 647.800 | 722.600 | 647.900 | 723.700 | 648.100 | 724.900 | 648.200 | 726.000 |
| GR | 648.300 | 727.100 | 648.400 | 728.200 | 648.600 | 729.300 | 648.800 | 730.400 | 649.000 | 731.500 |
| GR | 648.500 | 747.100 | 647.900 | 762.800 | 647.400 | 778.400 | 647.000 | 794.000 | 647.000 | 809.600 |
| GR | 647.000 | 825.200 | 647.000 | 840.800 | 647.100 | 856.400 | 647.100 | 872.000 | 647.200 | 887.600 |
| GR | 647.600 | 903.200 | 648.100 | 918.900 | 648.800 | 934.500 | 649.400 | 950.100 | 650.100 | 965.700 |
| GR | 650.900 | 981.300 | 651.900 | 996.900 | 652.400 | 1012.500 | 652.400 | 1028.100 | 652.500 | 1043.700 |
| GR | 652.500 | 1059.400 | 652.600 | 1075.000 | 652.600 | 1090.600 | 652.600 | 1106.200 | 652.500 | 1121.800 |
| GR | 652.400 | 1137.400 | 652.300 | 1153.000 | 652.200 | 1168.600 | 652.100 | 1184.200 | 652.100 | 1199.900 |
| NH | 5.000 | .065 | 600.000 | .055 | 608.000 | .050 | 626.000 | .055 | 645.000 | .065 |
| NH | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 11525.000 | 19.000 | 600.000 | 645.000 | 333.000 | 316.000 | 343.000 | 0.000 | 0.000 | 0.000 |
| GR | 650.500 | 0.000 | 647.200 | 100.000 | 647.200 | 200.000 | 645.900 | 300.000 | 647.100 | 400.000 |
| GR | 647.700 | 500.000 | 647.600 | 600.000 | 647.100 | 604.000 | 646.500 | 608.000 | 647.000 | 613.000 |
| GR | 648.200 | 615.000 | 647.800 | 624.000 | 649.800 | 626.000 | 651.800 | 645.000 | 649.100 | 700.000 |
| GR | 649.400 | 800.000 | 654.300 | 900.000 | 654.200 | 1000.000 | 653.200 | 1100.000 | 0.000 | 0.000 |
| QT | 4.000 | 133.000 | 187.000 | 217.000 | 305.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .045 | 400.000 | .045 | 409.000 | .040 | 413.000 | .045 | 418.000 | .045 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | -4937.000 | 18.000 | 400.000 | 418.000 | 600.000 | 800.000 | 720.000 | 0.000 | -.500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 60.000 | 0.000 | 550.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.900 | 0.000 | 634.300 | 100.000 | 633.900 | 200.000 | 634.700 | 300.000 | 634.300 | 400.000 |
| GR | 631.800 | 405.000 | 630.900 | 409.000 | 631.700 | 413.000 | 634.700 | 418.000 | 637.200 | 500.000 |
| GR | 634.600 | 600.000 | 635.300 | 700.000 | 635.000 | 800.000 | 634.500 | 900.000 | 634.900 | 1000.000 |
| GR | 634.500 | 1100.000 | 636.000 | 1200.000 | 637.700 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 17.000 | 38.000 | 54.000 | 115.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .025 | .025 | .025 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 99.000 | 5.000 | 0.000 | 400.000 | 100.000 | 100.000 | 100.000 | 0.000 | -.300 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 100.000 | 0.000 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 634.500 | 0.000 | 634.900 | 100.000 | 634.500 | 200.000 | 636.000 | 300.000 | 637.700 | 400.000 |
| | | | | | | | | | | |
| X1 | 190.000 | 0.000 | 0.000 | 0.000 | 91.000 | 91.000 | 91.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 100.000 | 0.000 | 300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .050 | .050 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | | | |
| X1 | 500.000 | 0.000 | 0.000 | 0.000 | 200.000 | 400.000 | 310.000 | 0.000 | .200 | 0.000 |
| | | | | | | | | | | |
| X1 | 570.000 | 0.000 | 0.000 | 0.000 | 70.000 | 70.000 | 70.000 | 0.000 | .100 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

```
*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
```

```
T1      CITY OF STERLING HEIGHTS    5670-10     PROJECT MANAGER WILLIAM ROSSOW
T2      100 YEAR FLOOD
T3       CHRISSMAN DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.  0.000000      0.00       0.0       0.   618.200     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

```
CCHV=     .500 CEHV=    1.000
1490 NH CARD USED
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

                BRIDGE SECTION A    DOWNSTREAM FACE OF STORM SEWER

    40.00     9.90    618.20      0.00    618.20    618.22       .02      0.00      0.00    619.10
     230.       0.      208.       22.       0.      158.       77.        0.        0.    618.20
     0.00     0.00      1.32       .29     0.000      .040      .060     0.000    608.30    780.40
  .000204      40.       40.       40.         0         0         1      0.00    142.32    922.73

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.62      2.78      0.00      1.00      0.00      19.62     0.00     613.20    608.30
PRESSURE AND WEIR FLOW

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

  623.80    623.12    0.00        16.      216.       20.     618.20    623.00     30.00

                BRIDGE SECTION A    UPSTREAM FACE OF STORM SEWER        280EXT

    963.00     9.93    623.13      0.00      0.00    623.15       .02      4.93      0.00    624.00
     230.       0.      206.       24.       0.      159.       80.        5.        3.    623.10
      .21     0.00      1.30       .29     0.000      .040      .060      .040    613.20    780.33
  .000198      923.      923.      923.         2         0         4      0.00    142.82    923.15

1490 NH CARD USED
    964.00     5.53    623.13      0.00      0.00    623.16       .03       .00       .01    624.20
     360.       0.      242.      118.       0.      146.      178.        5.        3.    620.80
      .21     0.00      1.66       .66     0.000      .040      .060      .040    617.60    777.57
  .000327       1.        1.        1.         0         0         1      0.00    145.58    923.16

   1251.00     6.21    623.21      0.00      0.00    623.23       .02       .06       .01    623.60
*    360.       0.      219.      141.       0.      174.      253.        7.        4.    620.20
      .30     0.00      1.26       .56     0.000      .040      .060      .040    617.00    775.32  * new section
  .000162      287.      287.      287.         0         0         1      0.00    158.07    933.39

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     996.0    1004.0  TYPE=     1  TARGET=      8.000

                BRIDGE SECTION B    DOWNSTREAM FACE  FENCE CROSSING CULVERT
```

```
1525.00      6.84    623.34      0.00      0.00    624.21       .86       .13       .85    625.40
   360.        0.      360.        0.        0.       48.        0.        9.        5. 100000.00
    .31      0.00      7.45      0.00     0.000      .039      .060      .040    616.50    996.00
.005528      274.      274.      274.         2         0         1      0.00      8.00   1004.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.64      2.71      0.00      8.00      0.00      56.74     0.00      616.50    616.50


6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   624.206  ELLC=   625.000  PCWSE=   623.343  ELTRD=   625.100
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


NORMAL BRIDGE.NRD=23 MIN ELTRD=  625.10 MAX ELLC=  625.00

3470 ENCROACHMENT STATIONS=     996.0    1004.0  TYPE=     1  TARGET=       8.000

                BRIDGE SECTION B    UPSTREAM FACE  FENCE CROSSING CULVERT     305

1545.00      6.96    623.46      0.00      0.00    624.36       .90       .12       .03    625.40
   360.        0.      360.        0.        0.       47.        0.        9.        5. 100000.00
    .31      0.00      7.59      0.00     0.000      .038      .060      .040    616.50    996.00
.006735       20.       20.       20.         2         0         1     -1.86      8.00   1004.00


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     995.4    1004.6  TYPE=     1  TARGET=       9.200

                BRIDGE SECTION C    DOWNSTREAM FACE     18.5 MILE ROAD

1575.00      7.57    624.17      0.00      0.00    624.68       .51       .12       .19    626.90
   360.        0.      360.        0.        0.       63.        0.        9.        5. 100000.00
    .31      0.00      5.72      0.00     0.000      .040      .060      .040    616.60    995.40
.002718       30.       30.       30.         2         0         1      0.00      9.20   1004.60


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.68      3.03      0.00      9.20      0.00      70.88     0.00      616.60    616.60


6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   624.677  ELLC=   625.800  PCWSE=   624.167  ELTRD=   626.900

NORMAL BRIDGE.NRD=21 MIN ELTRD=  626.90 MAX ELLC=  625.80

3470 ENCROACHMENT STATIONS=     995.4    1004.6  TYPE=     1  TARGET=       9.200

                BRIDGE SECTION C    UPSTREAM FACE     18.5 MILE ROAD     306
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1605.00 | 7.66 | 624.26 | 0.00 | 0.00 | 62-.80 | .54 | .09 | .03 | 626.90 |
| 360. | 0. | 360. | 0. | 0. | 61. | 0. | 9. | 5. | 100000.00 |
| .31 | 0.00 | 5.91 | 0.00 | 0.000 | .040 | .060 | .040 | 616.60 | 995.40 |
| .003321 | 30. | 30. | 30. | 2 | 0 | 1 | -2.75 | 9.20 | 1004.60 |

1490 NH CARD USED

BRIDGE SECTION D DOWNSTREAM FACE CONCRETE CULVERT

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2620.00 | 6.38 | 628.88 | 0.00 | 0.00 | 629.13 | .25 | 4.18 | .15 | 624.50 |
| 360. | 128. | 103. | 129. | 44. | 18. | 40. | 11. | 5. | 624.50 |
| .38 | 2.93 | 5.68 | 3.20 | .060 | .050 | .055 | .040 | 622.50 | 115.51 |
| .005104 | 1100. | 1015. | 1000. | 3 | 0 | 1 | 0.00 | 54.42 | 169.92 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.70 | 2.71 | 0.00 | 3.00 | 0.00 | 7.06 | 0.00 | 622.50 | 622.50 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 697.40 | 629.13 | 0.00 | 318. | 44. | 7. | 625.50 | 628.40 | 30.00 |

BRIDGE SECTION D UPSTREAM FACE CONCRETE CULVERT 307A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2640.00 | 7.33 | 629.83 | 0.00 | 0.00 | 629.89 | .07 | .77 | 0.00 | 624.50 |
| 360. | 156. | 70. | 134. | 110. | 21. | 72. | 11. | 5. | 624.50 |
| .39 | 1.42 | 3.33 | 1.87 | .060 | .050 | .055 | .040 | 622.50 | 43.67 |
| .001460 | 20. | 20. | 20. | 2 | 0 | 9 | 0.00 | 155.97 | 199.65 |

1490 NH CARD USED

VALLEY SECTION E 307

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2810.00 | 7.14 | 630.04 | 0.00 | 0.00 | 630.14 | .10 | .21 | .03 | 628.50 |
| 360. | 47. | 313. | 0. | 56. | 116. | 0. | 12. | 6. | 630.00 |
| .41 | .83 | 2.71 | .01 | .050 | .045 | .060 | .040 | 622.90 | 226.68 |
| .001101 | 170. | 170. | 170. | 2 | 0 | 1 | 0.00 | 105.05 | 331.74 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

BRIDGE SECTION F DOWNSTREAM FACE MOUND ROAD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3091.00 | 4.89 | 630.59 | 0.00 | 0.00 | 630.72 | .13 | .55 | .03 | 628.50 |
| 360. | 130. | 172. | 58. | 67. | 47. | 26. | 13. | 7. | 628.30 |
| .43 | 1.93 | 3.65 | 2.19 | .050 | .050 | .050 | .040 | 625.70 | 191.09 |
| .003942 | 350. | 281. | 200. | 2 | 0 | 1 | 0.00 | 102.63 | 293.72 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.34 | 3.03 | 0.00 | 16.00 | 0.00 | 22.50 | 0.00 | 625.70 | 625.70 |

3280 CROSS SECTION 3168.00 EXTENDED .79 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 639.88 | 630.72 | 0.00 | 183. | 179. | 23. | 629.50 | 632.10 | 30.00 |

BRIDGE SECTION F UPSTREAM FACE MOUND ROAD 308

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3168.00 | 7.19 | 632.89 | 0.00 | 0.00 | 632.89 | .00 | 2.17 | 0.00 | 628.50 |
| 360. | 237. | 47. | 76. | 520. | 71. | 173. | 14. | 7. | 628.30 |
| .48 | .46 | .66 | .44 | .050 | .050 | .050 | .040 | 625.70 | 0.00 |
| .000076 | 77. | 77. | 77. | 0 | 0 | 7 | 0.00 | 367.40 | 367.40 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

VALLEY SECTION G 309

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4020.00 | 5.11 | 633.01 | 0.00 | 0.00 | 633.07 | .06 | .12 | .06 | 632.00 |
| 265. | 85. | 176. | 4. | 101. | 76. | 8. | 23. | 12. | 632.10 |
| .60 | .84 | 2.32 | .51 | .050 | .041 | .045 | .040 | 627.90 | 200.00 |
| .000699 | 750. | 852. | 1000. | 2 | 0 | 1 | 0.00 | 129.66 | 329.66 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 159.0 318.0 TYPE= 1 TARGET= 200.000

BRIDGE SECTION H DOWNSTREAM FACE HANKS LANE DRIVE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4173.00 | 5.04 | 633.24 | 0.00 | 0.00 | 633.29 | .05 | .22 | .00 | 629.50 |
| 250. | 160. | 39. | 51. | 102. | 14. | 30. | 23. | 12. | 629.50 |
| .64 | 1.58 | 2.77 | 1.68 | .050 | .050 | .050 | .039 | 628.20 | 159.00 |
| .002031 | 250. | 153. | 200. | 2 | 0 | 1 | 0.00 | 108.05 | 267.05 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.70 | 2.71 | 0.00 | 4.00 | 0.00 | 12.56 | 0.00 | 628.20 | 628.20 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 649.85 | 633.29 | 0.00 | 188. | 62. | 13. | 632.20 | 633.40 | 30.00 |

BRIDGE SECTION H UPSTREAM FACE HANKS LANE DRIVE 310

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4217.00 | 6.06 | 634.26 | 0.00 | 0.00 | 634.27 | .01 | .98 | 0.00 | 629.50 |
| 250. | 173. | 22. | 55. | 182. | 17. | 67. | 24. | 12. | 629.50 |
| .65 | .95 | 1.29 | .82 | .050 | .050 | .050 | .039 | 628.20 | 159.00 |
| .000342 | 44. | 44. | 44. | 1 | 0 | 7 | 0.00 | 124.61 | 283.61 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 60.0 550.0 TYPE= 1 TARGET= 490.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4937.00 | 4.11 | 634.51 | 0.00 | 0.00 | 634.53 | .01 | .25 | .00 | 633.80 |
| 217. | 145. | 72. | 0. | 246. | 48. | 2. | 28. | 16. | 634.20 |
| .85 | .59 | 1.48 | .21 | .045 | .043 | .045 | .040 | 630.40 | 60.00 |
| .000468 | 600. | 720. | 800. | 3 | 0 | 1 | 0.00 | 368.28 | 428.28 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 60.0 550.0 TYPE= 1 TARGET= 490.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4997.00 | 3.95 | 634.55 | 0.00 | 0.00 | 634.58 | .03 | .04 | .01 | 634.00 |
| 217. | 128. | 89. | 0. | 186. | 45. | 0. | 28. | 16. | 634.40 |
| .87 | .69 | 1.97 | .17 | .045 | .043 | .045 | .040 | 630.60 | 60.00 |
| .000885 | 55. | 60. | 70. | 0 | 0 | 1 | 0.00 | 362.54 | 422.54 |

3470 ENCROACHMENT STATIONS= 60.0 550.0 TYPE= 1 TARGET= 490.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5057.00 | 3.90 | 634.60 | 0.00 | 0.00 | 634.62 | .02 | .04 | .00 | 634.10 |
| 163. | 93. | 70. | 0. | 174. | 45. | 0. | 28. | 17. | 634.50 |
| .88 | .53 | 1.58 | .11 | .045 | .043 | .045 | .040 | 630.70 | 60.00 |
| .000578 | 50. | 60. | 70. | 2 | 0 | 1 | 0.00 | 361.33 | 421.33 |

3470 ENCROACHMENT STATIONS= 60.0 550.0 TYPE= 1 TARGET= 490.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5086.00 | 3.82 | 634.62 | 0.00 | 0.00 | 634.65 | .03 | .02 | .01 | 634.20 |
| 163. | 84. | 79. | 0. | 147. | 43. | 0. | 28. | 17. | 634.60 |
| .89 | .57 | 1.83 | .01 | .045 | .043 | .045 | .040 | 630.80 | 60.00 |
| .000798 | 25. | 29. | 35. | 0 | 0 | 1 | 0.00 | 358.76 | 418.76 |

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 90.0 550.0 TYPE= 1 TARGET= 460.000

VALLEY SECTION I 311

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5115.00 | 3.75 | 634.65 | 0.00 | 0.00 | 634.69 | .05 | .03 | .02 | 634.30 |
| 163. | 70. | 93. | 0. | 107. | 42. | 0. | 29. | 17. | 634.70 |
| .89 | .65 | 2.23 | 0.00 | .045 | .043 | .045 | .040 | 630.90 | 90.00 |
| .001227 | 25. | 29. | 35. | 0 | 0 | 1 | 0.00 | 306.74 | 417.91 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 400.0 800.0 TYPE= 1 TARGET= 400.000

BRIDGE SECTION J DOWNSTREAM FACE 19 MILE ROAD

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5165.00 | 4.03 | 634.73 | 0.00 | 0.00 | 634.76 | .03 | .06 | .01 | 634.30 |
| 163. | 79. | 84. | 0. | 128. | 49. | 0. | 29. | 18. | 634.80 |
| .90 | .62 | 1.72 | 0.00 | .050 | .043 | .045 | .040 | 630.70 | 400.00 |
| .001108 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 311.83 | 711.83 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.23 | 3.03 | 0.00 | 24.00 | 0.00 | 25.10 | 0.00 | 630.70 | 630.70 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 636.19 | 634.76 | 0.00 | 70. | 94. | 25. | 634.50 | 634.90 | 30.00 |

3470 ENCROACHMENT STATIONS= 400.0 800.0 TYPE= 1 TARGET= 400.000

BRIDGE SECTION J UPSTREAM FACE 19 MILE ROAD 312

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5205.00 | 4.51 | 635.21 | 0.00 | 0.00 | 635.22 | .01 | .46 | 0.00 | 634.30 |
| 163. | 112. | 50. | 0. | 267. | 61. | 3. | 29. | 18. | 634.80 |
| .92 | .42 | .83 | .15 | .050 | .044 | .050 | .040 | 630.70 | 400.00 |
| .000214 | 40. | 40. | 40. | 0 | 0 | 5 | 0.00 | 326.28 | 726.28 |

1490 NH CARD USED
3280 CROSS SECTION 5286.00 EXTENDED .40 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= .0 130.0 TYPE= 1 TARGET= 129.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5286.00 | 4.50 | 635.30 | 0.00 | 0.00 | 635.42 | .13 | .08 | .12 | 635.40 |
| 163. | 0. | 163. | 0. | 0. | 57. | 1. | 30. | 19. | 635.00 |
| .94 | 0.00 | 2.86 | .36 | .050 | .045 | .060 | .040 | 630.80 | 85.33 |
| .002656 | 320. | 81. | 75. | 2 | 0 | 1 | 0.00 | 29.62 | 114.96 |

3280 CROSS SECTION 5386.00 EXTENDED .66 FEET

3470 ENCROACHMENT STATIONS= .0 130.0 TYPE= 1 TARGET= 129.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5386.00 | 4.76 | 635.56 | 0.00 | 0.00 | 635.66 | .10 | .22 | .01 | 635.40 |
| 163. | 0. | 161. | 1. | 2. | 63. | 3. | 30. | 19. | 635.00 |
| .95 | .17 | 2.54 | .46 | .070 | .045 | .060 | .040 | 630.80 | 58.13 |
| .001856 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 61.17 | 119.30 |

3280 CROSS SECTION 5486.00 EXTENDED .94 FEET

```
3470 ENCROACHMENT STATIONS=          .0      130.0  TYPE=      1  TARGET=      129.999
  5486.00      4.84    635.74      0.00      0.00    635.84      .09       .17       .00    635.50
     163.        1.      160.        2.        5.       66.       3.       30.       19.    635.10
      .96       .21      2.44       .47      .070      .045      .060      .040    630.90     43.37
 .001635      100.      100.      100.         2         0         1      0.00     77.38    120.75
```

3280 CROSS SECTION 5586.00 EXTENDED 1.02 FEET

```
3470 ENCROACHMENT STATIONS=          .0      130.0  TYPE=      1  TARGET=      129.999
  5586.00      4.91    635.91      0.00      0.00    635.99      .08       .15       .00    635.60
     163.        2.      159.        2.        9.       67.       4.       31.       20.    635.20
      .98       .24      2.35       .48      .070      .045      .060      .040    631.00     30.69
 .001463      100.      100.      100.         0         0         I      0.00     91.30    121.99
```

3265 DIVIDED FLOW

3280 CROSS SECTION 5686.00 EXTENDED 1.17 FEET

BRIDGE SECTION K DOWNSTREAM FACE DRIVEWAY CULVERT

```
  5686.00      5.08    636.08      0.00      0.00    636.13      .05       .11       .02    635.60
     163.        5.      139.       20.       19.       71.      39.       31.       20.    635.20
      .99       .25      1.94       .51      .070      .045      .060      .040    631.00      4.36
 .000924      100.      100.      100.         0         0         I      0.00    175.02    200.00
```

1490 NH CARD USED

SPECIAL BRIDGE

```
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.32      2.81      0.00      4.00      0.00     12.50      0.00    631.00    631.00
```

3265 DIVIDED FLOW

3280 CROSS SECTION 5704.00 EXTENDED 1.21 FEET

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
```

PRESSURE AND WEIR FLOW

```
  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS
  639.55    636.13     0.00      139.       25.       13.    634.70    634.90     30.00
```

BRIDGE SECTION K UPSTREAM FACE DRIVEWAY CULVERT 312A

```
  5704.00      5.11    636.11      0.00      0.00    636.15      .04       .03       0.00    635.60
     163.        5.      139.       19.       22.       80.      41.       31.       20.    635.20
```

```
.000723      18.      18.      18.       2       0       6    0.00   181.91   200.00

CCHV=    .100 CEHV=    .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     400.0    1400.0  TYPE=    1  TARGET=    -400.000

                VALLEY SECTION L                                          313

  6295.00     2.01   636.71     0.00     0.00   636.72      .01      .56      .00   636.00
     217.     100.      29.      87.     172.      25.     137.      34.      25.   636.40
    1.25      .59     1.18      .64     .065     .060     .060     .039   634.70   526.54
 .001049     550.     591.     800.        2        0        1     0.00   486.00  1012.54

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION   6748.00 EXTENDED       .53 FEET

  6748.00     2.23   637.33     0.00     0.00   637.35      .02      .63      .00   636.60
     217.     156.      59.       2.     243.      30.       9.      38.      31.   637.10
    1.38      .64     2.01      .22     .070     .045     .070     .039   635.10     0.00
 .001641     493.     453.     483.        2        0        1     0.00   652.21  1029.39

1490 NH CARD USED

3265 DIVIDED FLOW
3280 CROSS SECTION   7202.00 EXTENDED       .25 FEET

  7202.00     2.45   638.05     0.00     0.00   638.07      .02      .72      .00   637.40
     217.     152.      65.       0.     222.      35.       0.      41.      38.   638.00
    1.51      .68     1.88      .06     .065     .045     .070     .039   635.60     0.00
 .001355     493.     454.     483.        2        0        1     0.00   519.90  1077.88

1490 NH CARD USED

3265 DIVIDED FLOW

                VALLEY SECTION M                                          314

  7655.00     2.59   638.69     0.00     0.00   638.72      .03      .65      .00   638.10
     217.     141.      76.       0.     200.      38.       0.      44.      43.   638.80
    1.63      .71     2.00     0.00     .065     .042     .070     .039   636.10   653.77
 .001347     493.     453.     483.        1        0        1     0.00   355.61  1201.64

  7755.00     2.45   638.85     0.00     0.00   638.89      .04      .17      .01   638.40
     217.     131.      86.       0.     160.      35.       0.      44.      44.   639.10
    1.65      .82     2.47     0.00     .065     .041     .070     .039   636.40   925.14
 .002210     100.     100.     100.        2        0        1     0.00   276.03  1201.16

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL      TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID     ENDST
```

```
 7855.00     2.39   639.09     0.00     0.00   639.14      .05      .25      .00   638.70
    217.     126.     91.       0.     144.     33.        0.      45.      44.   639.40
    1.66      .87    2.72     0.00     .065     .041     .070     .039   636.70   931.25
 .002772    100.     100.     100.        2        0        1     0.00   269.71  1200.96

 7955.00     2.37   639.37     0.00     0.00   639.43      .06      .29      .00   639.00
    217.     125.     92.       0.     140.     33.        0.      45.      45.   639.70
    1.68      .89    2.79     0.00     .065     .041     .070     .039   637.00   932.91
 .002954    100.     100.     100.        2        0        1     0.00   268.00  1200.90

 8055.00     2.30   639.70     0.00     0.00   639.78      .08      .34      .01   639.40
    217.     117.    100.       0.     122.     32.        0.      45.      45.   640.10
    1.69      .96    3.17     0.00     .065     .041     .070     .039   637.40   940.31
 .003967    100.     100.     100.        2        0        1     0.00   260.34  1200.66

 8100.00     2.28   639.88     0.00     0.00   639.96      .09      .19      .00   639.60
    217.     115.    102.       0.     118.     31.        0.      45.      46.   640.30
    1.70      .98    3.28     0.00     .065     .041     .070     .039   637.60   942.23
 .004294     45.      45.      45.        2        0        1     0.00   258.37  1200.59

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     992.0    1308.0  TYPE=     1  TARGET=     316.000
 8158.00     2.31   640.11     0.00     0.00   640.22      .11      .25      .01   639.80
    217.     112.    105.       0.      95.     30.        0.      46.      46.   640.10
    1.71     1.18    3.53      .07     .070     .045     .070     .039   637.80   992.00
 .005263     48.      58.      59.        1        0        1     0.00   194.53  1186.53

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     778.0    1438.0  TYPE=     I  TARGET=     660.000
 8622.00     2.14   641.64     0.00     0.00   641.66      .02     1.43      .01   641.50
    217.     135.     48.      34.     202.     23.       62.      48.      50.   641.60
    1.84      .67    2.07      .54     .075     .045     .070     .039   639.50   778.00
 .001933    483.     464.     500.        5        0        1     0.00   493.67  1271.67

1490 NH CARD USED

3265 DIVIDED FLOW

                VALLEY SECTION N                                          315

 9165.00     1.45   642.65     0.00     0.00   642.66      .01     1.00      .00   643.30
    217.      74.     18.     125.     143.     11.      160.      51.      57.   643.00
    2.03      .52    1.60      .78     .070     .046     .065     .039   641.20   462.25
 .001955    500.     543.     520.        3        0        1     0.00   715.87  1332.41

1490 NH CARD USED

                VALLEY SECTION O                                          316

10495.00     1.66   644.06     0.00     0.00   644.06      .00     1.40      .00   643.50
    217.      76.     13.     128.     181.     13.      235.      63.      77.   643.60
    2.77      .42    1.00      .54     .065     .045     .070     .039   642.40   584.43
 .000608   1400.    1330.    1410.        3        0        1     0.00   553.34  1137.77
```

```
SECNO      DEPTH      CHSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      BANK ELEV
Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

  10545.00      1.40    644.10      0.00       0.00    644.12        .01        .05        .00    643.60
      217.       59.       17.      141.       107.       11.       176.       64.        78.     643.90
      2.79       .55      1.53       .80       .065      .044       .070      .039     642.70    627.94
  .001834       50.       50.       50.          2         0          1      0.00     501.46   1129.39

  10595.00      1.32    644.22      0.00       0.00    644.23        .02        .11        .00    644.00
      217.       51.       18.      148.        84.       10.       156.       64.        78.     644.10
      2.80       .61      1.84       .95       .065      .044       .070      .039     642.90    640.70
  .002913       50.       50.       50.          2         0          1      0.00     485.79   1126.49

  10645.00      1.28    644.38      0.00       0.00    644.39        .02        .16        .00    644.20
      217.       47.       19.      151.        74.       10.       147.       64.        79.     644.30
      2.81       .63      2.01      1.03       .065      .044       .070      .039     643.10    646.38
  .003643       50.       50.       50.          2         0          1      0.00     478.82   1125.20

3265 DIVIDED FLOW

  10695.00      1.20    644.60      0.00       0.00    644.62        .03        .23        .00    644.50
      217.       37.       21.      158.        55.        9.       130.       65.        80.     644.60
      2.82       .68      2.43      1.22       .065      .044       .070      .039     643.40    657.57
  .005864       50.       50.       50.          2         0          1      0.00     464.77   1122.65

  10745.00      1.25    644.85      0.00       0.00    644.87        .02        .25        .00    644.70
      217.       44.       20.      153.        67.        9.       141.       65.        80.     644.80
      2.84       .65      2.14      1.08       .065      .044       .070      .039     643.60    650.21
  .004265       50.       50.       50.          1         0          1      0.00     474.12   1124.33

  10800.00      1.26    645.06      0.00       0.00    645.08        .02        .21        .00    644.90
      217.       45.       20.      152.        70.        9.       144.       65.        81.     645.00
      2.85       .64      2.08      1.06       .065      .044       .070      .039     643.80    648.44
  .003962       50.       55.       50.          2         0          1      0.00     476.29   1124.73

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      553.0     1068.0  TYPE=      1  TARGET=      515.000
  10838.00      1.23    645.23      0.00       0.00    645.27        .04        .19        .01    644.80
      217.      149.       37.       31.       121.       13.        36.       65.        81.     646.30
      2.86      1.23      2.85       .84       .070      .045       .075      .039     644.00    553.00
  .008486       35.       38.       30.          2         0          1      0.00     397.17    995.79

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      446.0      982.0  TYPE=      1  TARGET=      536.000
  11182.00      1.56    646.86      0.00       0.00    646.88        .02       1.61        .00    646.20
      217.      183.       34.        0.       187.       19.         0.       67.        83.     649.00
      2.94       .98      1.78       0.00      .070      .050       .070      .039     645.30    446.00
  .003100      333.      344.      316.          5         0          1      0.00     270.95    716.95
```

1490 NH CARD USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION P 317

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 11525.00 | 1.66 | 647.56 | 0.00 | 0.00 | 647.57 | .01 | .69 | .00 | 647.60 |
| 217. | 210. | 7. | 0. | 264. | 8. | 0. | 69. | 86. | 651.80 |
| 3.06 | .80 | .86 | 0.00 | .065 | .052 | .070 | .039 | 645.90 | 88.99 |
| .001477 | 333. | 343. | 316. | 5 | 0 | 1 | 0.00 | 401.89 | 613.94 |

1490 NH CARD USED

```
START TRIB COMP
  -4937.000  4937.000 63451.154   634.512
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      60.0     550.0  TYPE=     1  TARGET=     490.000

                START ISLAND PROBLEM

 -4937.00      4.11    634.51      0.00      0.00    634.53       .01       .48      0.00    633.80
     217.      145.       72.        0.      245.       48.        2.       73.       91.    634.20
     3.25       .59      1.48       .21      .045      .043      .045      .040    630.40     60.00
  .000471      600.      720.      800.         0         0         1      0.00    368.22    428.22

CCHV=    .300 CEHV=    .500
3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     100.0     300.0  TYPE=     1  TARGET=     200.000
    99.00       .37    634.57    634.57      0.00    634.67       .09       .07      0.00 99999.70
      54.        0.       54.        0.        0.       22.        0.       73.       92.  99999.70
     3.26      0.00      2.45      0.00      .025      .025      .025      .039    634.20    106.68
  .015901      100.      100.      100.        30        25         1      0.00    118.20    224.88


3470 ENCROACHMENT STATIONS=     100.0     300.0  TYPE=     1  TARGET=     200.000
   190.00       .66    634.86      0.00      0.00    634.87       .01       .18      .02100000.00
      54.        0.       54.        0.        0.       60.        0.       73.       92. 100000.00
     3.29      0.00       .90      0.00      .025      .025      .025      .039    634.20    100.00
  .000733       91.       91.       91.         5         0         1      0.00    143.81    243.81

CCHV=    .300 CEHV=    .500
3280 CROSS SECTION    500.00 EXTENDED       .69 FEET

   500.00       .69    635.09      0.00      0.00    635.10       .00       .22       .00    634.40
      54.        0.       54.        0.        0.      115.        0.       74.       94.    637.60
     3.47      0.00       .47      0.00      .050      .050      .050      .040    634.40      0.00
  .000699      200.      310.      400.         5         0         1      0.00    246.20    246.20

3280 CROSS SECTION    570.00 EXTENDED       .64 FEET
```

VALLEY SECTION I

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 570.00 | .65 | 635.15 | 0.00 | 0.00 | 635.15 | .00 | .06 | .00 | 634.50 |
| 54. | 0. | 54. | 0. | 0. | 102. | 0. | 74. | 94. | 637.70 |
| 3.51 | 0.00 | .53 | 0.00 | .050 | .050 | .050 | .040 | 634.50 | 0.00 |
| .000999 | 70. | 70. | 70. | 0 | 0 | 1 | 0.00 | 242.88 | 242.88 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CHRISSMAN DRAIN

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40.00 | 40.00 | 0.00 | 0.00 | 608.30 | 248.00 | 616.70 | .09 | 0.00 | 0.00 | 248.00 | 8.40 | 31.49 |
| 40.00 | 40.00 | 0.00 | 0.00 | 608.30 | 235.00 | 617.80 | .04 | 0.00 | 0.00 | 222.97 | 9.50 | 112.77 |
| 40.00 | 40.00 | 0.00 | 0.00 | 608.30 | 230.00 | 618.20 | .02 | 0.00 | 0.00 | 207.50 | 9.90 | 142.32 |
| 40.00 | 40.00 | 0.00 | 0.00 | 608.30 | 215.00 | 619.30 | .01 | 0.00 | 0.00 | 160.66 | 11.00 | 170.57 |
| 963.00 | 923.00 | 623.00 | 618.20 | 613.20 | 248.00 | 623.02 | .03 | 6.27 | 0.00 | 226.15 | 9.82 | 136.67 |
| 963.00 | 923.00 | 623.00 | 618.20 | 613.20 | 235.00 | 623.10 | .03 | 5.29 | 0.00 | 211.92 | 9.90 | 142.37 |
| 963.00 | 923.00 | 623.00 | 618.20 | 613.20 | 230.00 | 623.13 | .02 | 4.93 | 0.00 | 206.49 | 9.93 | 142.82 |
| 963.00 | 923.00 | 623.00 | 618.20 | 613.20 | 215.00 | 623.18 | .02 | 3.89 | 0.00 | 191.00 | 9.98 | 143.90 |
| 964.00 | 1.00 | 0.00 | 0.00 | 617.60 | 217.00 | 623.05 | .01 | .00 | .01 | 148.00 | 5.45 | 144.16 |
| 964.00 | 1.00 | 0.00 | 0.00 | 617.60 | 310.00 | 623.11 | .02 | .00 | .00 | 209.53 | 5.51 | 145.11 |
| 964.00 | 1.00 | 0.00 | 0.00 | 617.60 | 360.00 | 623.13 | .03 | .00 | .01 | 242.27 | 5.53 | 145.58 |
| 964.00 | 1.00 | 0.00 | 0.00 | 617.60 | 510.00 | 623.18 | .06 | .00 | .04 | 334.76 | 5.58 | 146.69 |
| 1251.00 | 287.00 | 0.00 | 0.00 | 617.00 | 217.00 | 623.08 | .01 | .03 | .00 | 134.00 | 6.08 | 155.87 |
| 1251.00 | 287.00 | 0.00 | 0.00 | 617.00 | 310.00 | 623.17 | .01 | .05 | .01 | 189.22 | 6.17 | 157.43 |
| 1251.00 | 287.00 | 0.00 | 0.00 | 617.00 | 360.00 | 623.21 | .02 | .06 | .01 | 218.71 | 6.21 | 158.07 |
| 1251.00 | 287.00 | 0.00 | 0.00 | 617.00 | 510.00 | 623.34 | .03 | .12 | .01 | 304.47 | 6.34 | 160.53 |
| 1525.00 | 274.00 | 0.00 | 0.00 | 616.50 | 217.00 | 623.14 | .34 | .05 | .33 | 217.00 | 6.64 | 8.00 |
| 1525.00 | 274.00 | 0.00 | 0.00 | 616.50 | 310.00 | 623.27 | .66 | .10 | .64 | 310.00 | 6.77 | 8.00 |
| 1525.00 | 274.00 | 0.00 | 0.00 | 616.50 | 360.00 | 623.34 | .86 | .13 | .85 | 360.00 | 6.84 | 8.00 |
| 1525.00 | 274.00 | 0.00 | 0.00 | 616.50 | 510.00 | 623.57 | 1.61 | .23 | 1.58 | 510.00 | 7.07 | 8.00 |
| 1545.00 | 20.00 | 625.10 | 625.00 | 616.50 | 217.00 | 623.19 | .35 | .05 | .01 | 217.00 | 6.69 | 8.00 |
| 1545.00 | 20.00 | 625.10 | 625.00 | 616.50 | 310.00 | 623.36 | .68 | .09 | .02 | 310.00 | 6.96 | 8.00 |
| 1545.00 | 20.00 | 625.10 | 625.00 | 616.50 | 360.00 | 623.46 | .90 | .12 | .03 | 360.00 | 6.96 | 8.00 |
| 1545.00 | 20.00 | 625.10 | 625.00 | 616.50 | 510.00 | 624.21 | 1.32 | .36 | 0.00 | 510.00 | 7.71 | 8.00 |
| 1575.00 | 30.00 | 0.00 | 0.00 | 616.60 | 217.00 | 623.41 | .23 | .06 | .06 | 217.00 | 6.81 | 9.20 |
| 1575.00 | 30.00 | 0.00 | 0.00 | 616.60 | 310.00 | 623.86 | .41 | .10 | .13 | 310.00 | 7.25 | 9.20 |
| 1575.00 | 30.00 | 0.00 | 0.00 | 616.60 | 360.00 | 624.17 | .51 | .12 | .19 | 360.00 | 7.57 | 9.20 |
| 1575.00 | 30.00 | 0.00 | 0.00 | 616.60 | 510.00 | 625.18 | .78 | .15 | .27 | 510.00 | 8.58 | 9.20 |
| 1605.00 | 30.00 | 626.90 | 625.80 | 616.60 | 217.00 | 623.46 | .24 | .05 | .00 | 217.00 | 6.86 | 9.20 |
| 1605.00 | 30.00 | 626.90 | 625.80 | 616.60 | 310.00 | 623.94 | .43 | .08 | .02 | 310.00 | 7.34 | 9.20 |
| 1605.00 | 30.00 | 626.90 | 625.80 | 616.60 | 360.00 | 624.26 | .54 | .09 | .03 | 360.00 | 7.66 | 9.20 |
| 1605.00 | 30.00 | 626.90 | 625.80 | 616.60 | 510.00 | 625.88 | .65 | .57 | 0.00 | 510.00 | 9.28 | 9.20 |
| 2620.00 | 1015.00 | 0.00 | 0.00 | 622.50 | 217.00 | 627.21 | .54 | 3.75 | .30 | 101.01 | 4.71 | 26.25 |
| 2620.00 | 1015.00 | 0.00 | 0.00 | 622.50 | 310.00 | 628.36 | .30 | 4.23 | .06 | 102.45 | 5.86 | 36.23 |
| 2620.00 | 1015.00 | 0.00 | 0.00 | 622.50 | 360.00 | 628.88 | .25 | 4.18 | .15 | 103.30 | 6.38 | 54.42 |
| 2620.00 | 1015.00 | 0.00 | 0.00 | 622.50 | 510.00 | 629.73 | .16 | 3.11 | .25 | 104.05 | 7.23 | 148.33 |
| 2640.00 | 20.00 | 628.40 | 625.50 | 622.50 | 217.00 | 629.47 | .04 | 1.76 | 0.00 | 49.75 | 6.97 | 119.73 |
| 2640.00 | 20.00 | 628.40 | 625.50 | 622.50 | 310.00 | 629.72 | .06 | 1.11 | 0.00 | 63.70 | 7.22 | 147.15 |
| 2640.00 | 20.00 | 628.40 | 625.50 | 622.50 | 360.00 | 629.83 | .07 | .77 | 0.00 | 70.12 | 7.33 | 155.97 |
| 2640.00 | 20.00 | 628.40 | 625.50 | 622.50 | 510.00 | 630.11 | .09 | .31 | 0.00 | 86.08 | 7.61 | 179.53 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2810.00 | 170.00 | 0.00 | 0.00 | 622.90 | 217.00 | 629.60 | .06 | .13 | .01 | 202.58 | 6.70 | 81.02 |
| 2810.00 | 170.00 | 0.00 | 0.00 | 622.90 | 310.00 | 629.90 | .09 | .19 | .03 | 276.12 | 7.00 | 96.58 |
| 2810.00 | 170.00 | 0.00 | 0.00 | 622.90 | 360.00 | 630.04 | .10 | .21 | .03 | 313.25 | 7.14 | 105.05 |
| 2810.00 | 170.00 | 0.00 | 0.00 | 622.90 | 510.00 | 630.40 | .14 | .29 | .05 | 414.28 | 7.50 | 137.83 |
| 3091.00 | 281.00 | 0.00 | 0.00 | 625.70 | 217.00 | 629.97 | .13 | .38 | .07 | 137.79 | 4.27 | 67.74 |
| 3091.00 | 281.00 | 0.00 | 0.00 | 625.70 | 310.00 | 630.40 | .13 | .50 | .05 | 161.80 | 4.70 | 91.75 |
| 3091.00 | 281.00 | 0.00 | 0.00 | 625.70 | 360.00 | 630.59 | .13 | .55 | .03 | 172.17 | 4.89 | 102.63 |
| 3091.00 | 281.00 | 0.00 | 0.00 | 625.70 | 510.00 | 631.07 | .11 | .62 | .01 | 184.18 | 5.37 | 194.81 |
| 3168.00 | 77.00 | 632.10 | 629.50 | 625.70 | 217.00 | 632.48 | .00 | 2.38 | 0.00 | 34.18 | 6.78 | 352.82 |
| 3168.00 | 77.00 | 632.10 | 629.50 | 625.70 | 310.00 | 632.78 | .00 | 2.25 | 0.00 | 42.21 | 7.08 | 363.69 |
| 3168.00 | 77.00 | 632.10 | 629.50 | 625.70 | 360.00 | 632.89 | .00 | 2.17 | 0.00 | 46.82 | 7.19 | 367.40 |
| 3168.00 | 77.00 | 632.10 | 629.50 | 625.70 | 510.00 | 633.11 | .01 | 1.94 | 0.00 | 60.45 | 7.41 | 375.41 |
| 4020.00 | 852.00 | 0.00 | 0.00 | 627.90 | 161.00 | 632.56 | .05 | .08 | .04 | 128.73 | 4.66 | 120.88 |
| 4020.00 | 852.00 | 0.00 | 0.00 | 627.90 | 227.00 | 632.89 | .05 | .10 | .05 | 158.05 | 4.99 | 127.30 |
| 4020.00 | 852.00 | 0.00 | 0.00 | 627.90 | 265.00 | 633.01 | .06 | .12 | .06 | 175.79 | 5.11 | 129.66 |
| 4020.00 | 852.00 | 0.00 | 0.00 | 627.90 | 375.00 | 633.29 | .08 | .18 | .07 | 223.92 | 5.39 | 135.14 |
| 4173.00 | 153.00 | 0.00 | 0.00 | 628.20 | 154.00 | 632.75 | .06 | .20 | .01 | 36.14 | 4.55 | 100.01 |
| 4173.00 | 153.00 | 0.00 | 0.00 | 628.20 | 217.00 | 633.10 | .05 | .21 | .00 | 37.64 | 4.90 | 105.74 |
| 4173.00 | 153.00 | 0.00 | 0.00 | 628.20 | 250.00 | 633.24 | .05 | .22 | .00 | 39.11 | 5.04 | 108.05 |
| 4173.00 | 153.00 | 0.00 | 0.00 | 628.20 | 355.00 | 633.58 | .06 | .27 | .01 | 44.53 | 5.38 | 113.84 |
| 4217.00 | 44.00 | 633.40 | 632.20 | 628.20 | 154.00 | 633.98 | .01 | 1.18 | 0.00 | 15.61 | 5.78 | 120.55 |
| 4217.00 | 44.00 | 633.40 | 632.20 | 628.20 | 217.00 | 634.17 | .01 | 1.03 | 0.00 | 20.17 | 5.97 | 123.33 |
| 4217.00 | 44.00 | 633.40 | 632.20 | 628.20 | 250.00 | 634.26 | .01 | .98 | 0.00 | 22.39 | 6.06 | 124.61 |
| 4217.00 | 44.00 | 633.40 | 632.20 | 628.20 | 355.00 | 634.49 | .02 | .87 | 0.00 | 29.03 | 6.29 | 128.00 |
| 4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 133.00 | 634.18 | .02 | .20 | .01 | 67.97 | 3.78 | 352.35 |
| 4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 187.00 | 634.41 | .02 | .24 | .00 | 69.67 | 4.01 | 364.94 |
| 4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 217.00 | 634.51 | .01 | .25 | .00 | 71.63 | 4.11 | 368.28 |
| 4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 305.00 | 634.80 | .01 | .29 | .01 | 76.23 | 4.40 | 377.58 |
| 4997.00 | 60.00 | 0.00 | 0.00 | 630.60 | 133.00 | 634.23 | .05 | .05 | .02 | 84.10 | 3.63 | 294.73 |
| 4997.00 | 60.00 | 0.00 | 0.00 | 630.60 | 187.00 | 634.45 | .03 | .04 | .02 | 87.81 | 3.85 | 359.39 |
| 4997.00 | 60.00 | 0.00 | 0.00 | 630.60 | 217.00 | 634.55 | .03 | .04 | .01 | 88.96 | 3.95 | 362.54 |
| 4997.00 | 60.00 | 0.00 | 0.00 | 630.60 | 305.00 | 634.82 | .02 | .03 | .01 | 89.42 | 4.22 | 371.92 |
| 5057.00 | 60.00 | 0.00 | 0.00 | 630.70 | 116.00 | 634.30 | .04 | .06 | .00 | 77.60 | 3.60 | 279.48 |
| 5057.00 | 60.00 | 0.00 | 0.00 | 630.70 | 150.00 | 634.51 | .03 | .05 | .00 | 75.55 | 3.81 | 356.33 |
| 5057.00 | 60.00 | 0.00 | 0.00 | 630.70 | 163.00 | 634.60 | .02 | .04 | .00 | 70.30 | 3.90 | 361.33 |
| 5057.00 | 60.00 | 0.00 | 0.00 | 630.70 | 190.00 | 634.87 | .01 | .03 | .01 | 59.86 | 4.17 | 369.66 |
| 5086.00 | 29.00 | 0.00 | 0.00 | 630.90 | 116.00 | 634.33 | .06 | .03 | .02 | 85.07 | 3.53 | 254.03 |
| 5086.00 | 29.00 | 0.00 | 0.00 | 630.80 | 150.00 | 634.53 | .04 | .02 | .01 | 83.74 | 3.73 | 328.32 |
| 5086.00 | 29.00 | 0.00 | 0.00 | 630.80 | 163.00 | 634.62 | .03 | .02 | .01 | 78.78 | 3.82 | 358.76 |
| 5086.00 | 29.00 | 0.00 | 0.00 | 630.80 | 190.00 | 634.87 | .01 | .01 | .00 | 65.96 | 4.07 | 366.85 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5115.00 | 29.00 | 0.00 | 0.00 | 630.90 | 116.00 | 634.37 | .08 | .04 | .02 | 93.17 | 3.47 | 202.73 |
| 5115.00 | 29.00 | 0.00 | 0.00 | 630.90 | 150.00 | 634.56 | .06 | .03 | .02 | 95.91 | 3.66 | 273.49 |
| 5115.00 | 29.00 | 0.00 | 0.00 | 630.90 | 163.00 | 634.65 | .05 | .03 | .02 | 93.03 | 3.75 | 306.74 |
| 5115.00 | 29.00 | 0.00 | 0.00 | 630.90 | 190.00 | 634.89 | .02 | .01 | .01 | 78.85 | 3.99 | 333.92 |
| 5165.00 | 50.00 | 0.00 | 0.00 | 630.70 | 116.00 | 634.52 | .03 | .07 | .02 | 77.81 | 3.82 | 249.37 |
| 5165.00 | 50.00 | 0.00 | 0.00 | 630.70 | 150.00 | 634.67 | .03 | .07 | .01 | 83.74 | 3.97 | 302.47 |
| 5165.00 | 50.00 | 0.00 | 0.00 | 630.70 | 163.00 | 634.73 | .03 | .06 | .01 | 84.02 | 4.03 | 311.83 |
| 5165.00 | 50.00 | 0.00 | 0.00 | 630.70 | 190.00 | 634.93 | .02 | .03 | .00 | 77.17 | 4.23 | 316.49 |
| 5205.00 | 40.00 | 634.90 | 634.50 | 630.70 | 116.00 | 635.04 | .00 | .49 | 0.00 | 42.00 | 4.34 | 320.30 |
| 5205.00 | 40.00 | 634.90 | 634.50 | 630.70 | 150.00 | 635.17 | .00 | .47 | 0.00 | 48.15 | 4.47 | 324.83 |
| 5205.00 | 40.00 | 634.90 | 634.50 | 630.70 | 163.00 | 635.21 | .01 | .46 | 0.00 | 50.49 | 4.51 | 326.28 |
| 5205.00 | 40.00 | 634.90 | 634.50 | 630.70 | 190.00 | 635.30 | .01 | .36 | 0.00 | 54.84 | 4.60 | 329.39 |
| 5286.00 | 81.00 | 0.00 | 0.00 | 630.80 | 116.00 | 635.10 | .08 | .07 | .07 | 116.00 | 4.30 | 25.78 |
| 5286.00 | 81.00 | 0.00 | 0.00 | 630.80 | 150.00 | 635.25 | .11 | .08 | .11 | 149.84 | 4.45 | 28.67 |
| 5286.00 | 81.00 | 0.00 | 0.00 | 630.80 | 163.00 | 635.30 | .13 | .08 | .12 | 162.74 | 4.50 | 29.62 |
| 5286.00 | 81.00 | 0.00 | 0.00 | 630.80 | 190.00 | 635.40 | .16 | .09 | .15 | 189.40 | 4.60 | 31.47 |
| 5386.00 | 100.00 | 0.00 | 0.00 | 630.80 | 116.00 | 635.28 | .07 | .15 | .01 | 115.84 | 4.48 | 29.19 |
| 5386.00 | 100.00 | 0.00 | 0.00 | 630.80 | 150.00 | 635.49 | .09 | .20 | .01 | 149.14 | 4.69 | 47.63 |
| 5386.00 | 100.00 | 0.00 | 0.00 | 630.80 | 163.00 | 635.56 | .10 | .22 | .01 | 161.46 | 4.76 | 61.17 |
| 5386.00 | 100.00 | 0.00 | 0.00 | 630.80 | 190.00 | 635.71 | .12 | .25 | .02 | 185.37 | 4.91 | 89.83 |
| 5486.00 | 100.00 | 0.00 | 0.00 | 630.90 | 116.00 | 635.41 | .06 | .13 | .00 | 115.77 | 4.51 | 30.13 |
| 5486.00 | 100.00 | 0.00 | 0.00 | 630.90 | 150.00 | 635.66 | .08 | .17 | .00 | 148.57 | 4.76 | 61.47 |
| 5486.00 | 100.00 | 0.00 | 0.00 | 630.90 | 163.00 | 635.74 | .09 | .17 | .00 | 160.29 | 4.84 | 77.38 |
| 5486.00 | 100.00 | 0.00 | 0.00 | 630.90 | 190.00 | 635.92 | .10 | .19 | .01 | 182.28 | 5.02 | 109.61 |
| 5586.00 | 100.00 | 0.00 | 0.00 | 631.00 | 116.00 | 635.54 | .06 | .13 | .00 | 115.72 | 4.54 | 30.68 |
| 5586.00 | 100.00 | 0.00 | 0.00 | 631.00 | 150.00 | 635.82 | .08 | .15 | .00 | 147.79 | 4.82 | 73.72 |
| 5586.00 | 100.00 | 0.00 | 0.00 | 631.00 | 163.00 | 635.91 | .08 | .15 | .00 | 158.86 | 4.91 | 91.30 |
| 5586.00 | 100.00 | 0.00 | 0.00 | 631.00 | 190.00 | 636.09 | .09 | .16 | .01 | 179.32 | 5.09 | 124.72 |
| 5686.00 | 100.00 | 0.00 | 0.00 | 631.00 | 116.00 | 635.67 | .05 | .11 | .01 | 109.64 | 4.67 | 82.65 |
| 5686.00 | 100.00 | 0.00 | 0.00 | 631.00 | 150.00 | 635.97 | .05 | .11 | .01 | 131.88 | 4.97 | 151.82 |
| 5686.00 | 100.00 | 0.00 | 0.00 | 631.00 | 163.00 | 636.08 | .05 | .11 | .02 | 138.53 | 5.08 | 175.02 |
| 5686.00 | 100.00 | 0.00 | 0.00 | 631.00 | 190.00 | 636.27 | .05 | .11 | .02 | 148.85 | 5.27 | 191.43 |
| 5704.00 | 18.00 | 634.90 | 634.70 | 631.00 | 116.00 | 635.84 | .03 | .15 | 0.00 | 107.02 | 4.84 | 120.23 |
| 5704.00 | 18.00 | 634.90 | 634.70 | 631.00 | 150.00 | 636.04 | .04 | .05 | 0.00 | 131.04 | 5.04 | 165.96 |
| 5704.00 | 18.00 | 634.90 | 634.70 | 631.00 | 163.00 | 636.11 | .04 | .03 | 0.00 | 138.53 | 5.11 | 181.91 |
| 5704.00 | 18.00 | 634.90 | 634.70 | 631.00 | 190.00 | 636.29 | .04 | .01 | 0.00 | 150.01 | 5.29 | 193.08 |
| 6295.00 | 591.00 | 0.00 | 0.00 | 634.70 | 133.00 | 636.44 | .01 | .58 | .00 | 27.47 | 1.74 | 441.13 |
| 6295.00 | 591.00 | 0.00 | 0.00 | 634.70 | 187.00 | 636.64 | .01 | .57 | .00 | 28.07 | 1.94 | 472.97 |
| 6295.00 | 591.00 | 0.00 | 0.00 | 634.70 | 217.00 | 636.71 | .01 | .56 | .00 | 29.37 | 2.01 | 486.00 |
| 6295.00 | 591.00 | 0.00 | 0.00 | 634.70 | 305.00 | 636.89 | .01 | .57 | .00 | 33.97 | 2.19 | 515.65 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6748.00 | 453.00 | 0.00 | 0.00 | 635.10 | 133.00 | 637.15 | .02 | .72 | .00 | 46.84 | 2.05 | 442.46 |
| 6748.00 | 453.00 | 0.00 | 0.00 | 635.10 | 187.00 | 637.27 | .02 | .64 | .00 | 55.71 | 2.17 | 535.86 |
| 6748.00 | 453.00 | 0.00 | 0.00 | 635.10 | 217.00 | 637.33 | .02 | .63 | .00 | 59.23 | 2.23 | 652.21 |
| 6748.00 | 453.00 | 0.00 | 0.00 | 635.10 | 305.00 | 637.49 | .02 | .61 | .00 | 66.07 | 2.39 | 880.12 |
| 7202.00 | 454.00 | 0.00 | 0.00 | 635.60 | 133.00 | 637.81 | .02 | .66 | .00 | 51.73 | 2.21 | 300.58 |
| 7202.00 | 454.00 | 0.00 | 0.00 | 635.60 | 187.00 | 637.97 | .02 | .71 | .00 | 60.85 | 2.37 | 399.54 |
| 7202.00 | 454.00 | 0.00 | 0.00 | 635.60 | 217.00 | 638.05 | .02 | .72 | .00 | 65.31 | 2.45 | 519.90 |
| 7202.00 | 454.00 | 0.00 | 0.00 | 635.60 | 305.00 | 638.21 | .02 | .72 | .00 | 76.23 | 2.61 | 954.44 |
| 7655.00 | 453.00 | 0.00 | 0.00 | 636.10 | 133.00 | 638.43 | .03 | .63 | .00 | 59.37 | 2.33 | 263.35 |
| 7655.00 | 453.00 | 0.00 | 0.00 | 636.10 | 187.00 | 638.61 | .03 | .64 | .00 | 69.97 | 2.51 | 288.34 |
| 7655.00 | 453.00 | 0.00 | 0.00 | 636.10 | 217.00 | 638.69 | .03 | .65 | .00 | 75.62 | 2.59 | 355.61 |
| 7655.00 | 453.00 | 0.00 | 0.00 | 636.10 | 305.00 | 638.88 | .03 | .68 | .00 | 90.11 | 2.78 | 630.72 |
| 7755.00 | 100.00 | 0.00 | 0.00 | 636.40 | 133.00 | 638.59 | .05 | .17 | .01 | 69.63 | 2.19 | 249.15 |
| 7755.00 | 100.00 | 0.00 | 0.00 | 636.40 | 187.00 | 638.76 | .04 | .17 | .01 | 80.17 | 2.36 | 267.32 |
| 7755.00 | 100.00 | 0.00 | 0.00 | 636.40 | 217.00 | 638.85 | .04 | .17 | .01 | 85.70 | 2.45 | 276.03 |
| 7755.00 | 100.00 | 0.00 | 0.00 | 636.40 | 305.00 | 639.05 | .04 | .17 | .00 | 101.52 | 2.65 | 415.71 |
| 7855.00 | 100.00 | 0.00 | 0.00 | 636.70 | 133.00 | 638.84 | .06 | .26 | .00 | 73.82 | 2.14 | 244.47 |
| 7855.00 | 100.00 | 0.00 | 0.00 | 636.70 | 187.00 | 639.01 | .06 | .25 | .00 | 85.16 | 2.31 | 261.44 |
| 7855.00 | 100.00 | 0.00 | 0.00 | 636.70 | 217.00 | 639.09 | .05 | .25 | .00 | 90.89 | 2.39 | 269.71 |
| 7855.00 | 100.00 | 0.00 | 0.00 | 636.70 | 305.00 | 639.29 | .05 | .25 | .00 | 106.90 | 2.59 | 350.08 |
| 7955.00 | 100.00 | 0.00 | 0.00 | 637.00 | 133.00 | 639.14 | .06 | .30 | .00 | 74.35 | 2.14 | 243.92 |
| 7955.00 | 100.00 | 0.00 | 0.00 | 637.00 | 187.00 | 639.29 | .06 | .29 | .00 | 86.37 | 2.29 | 260.11 |
| 7955.00 | 100.00 | 0.00 | 0.00 | 637.00 | 217.00 | 639.37 | .06 | .29 | .00 | 92.42 | 2.37 | 268.00 |
| 7955.00 | 100.00 | 0.00 | 0.00 | 637.00 | 305.00 | 639.56 | .06 | .28 | .00 | 108.80 | 2.56 | 333.22 |
| 8055.00 | 100.00 | 0.00 | 0.00 | 637.40 | 133.00 | 639.47 | .09 | .35 | .01 | 81.61 | 2.07 | 236.92 |
| 8055.00 | 100.00 | 0.00 | 0.00 | 637.40 | 187.00 | 639.62 | .08 | .34 | .01 | 93.83 | 2.22 | 252.72 |
| 8055.00 | 100.00 | 0.00 | 0.00 | 637.40 | 217.00 | 639.70 | .08 | .34 | .01 | 99.98 | 2.30 | 260.34 |
| 8055.00 | 100.00 | 0.00 | 0.00 | 637.40 | 305.00 | 639.89 | .08 | .33 | .01 | 116.52 | 2.49 | 279.79 |
| 8100.00 | 45.00 | 0.00 | 0.00 | 637.60 | 133.00 | 639.66 | .10 | .19 | .00 | 82.92 | 2.06 | 235.76 |
| 8100.00 | 45.00 | 0.00 | 0.00 | 637.60 | 187.00 | 639.81 | .09 | .19 | .00 | 95.76 | 2.21 | 251.00 |
| 8100.00 | 45.00 | 0.00 | 0.00 | 637.60 | 217.00 | 639.88 | .09 | .19 | .00 | 102.14 | 2.28 | 258.37 |
| 8100.00 | 45.00 | 0.00 | 0.00 | 637.60 | 305.00 | 640.06 | .08 | .18 | .00 | 119.15 | 2.46 | 277.24 |
| 8158.00 | 58.00 | 0.00 | 0.00 | 637.80 | 133.00 | 639.91 | .09 | .24 | .00 | 78.46 | 2.11 | 166.23 |
| 8158.00 | 58.00 | 0.00 | 0.00 | 637.80 | 187.00 | 640.05 | .10 | .25 | .00 | 96.26 | 2.25 | 166.56 |
| 8158.00 | 58.00 | 0.00 | 0.00 | 637.80 | 217.00 | 640.11 | .11 | .25 | .01 | 105.38 | 2.31 | 194.53 |
| 8158.00 | 58.00 | 0.00 | 0.00 | 637.80 | 305.00 | 640.29 | .12 | .25 | .01 | 128.90 | 2.49 | 210.27 |
| 8622.00 | 464.00 | 0.00 | 0.00 | 639.50 | 133.00 | 641.42 | .02 | 1.45 | .01 | 41.98 | 1.92 | 451.29 |
| 8622.00 | 464.00 | 0.00 | 0.00 | 639.50 | 187.00 | 641.57 | .02 | 1.44 | .01 | 46.20 | 2.07 | 486.51 |
| 8622.00 | 464.00 | 0.00 | 0.00 | 639.50 | 217.00 | 641.64 | .02 | 1.43 | .01 | 48.43 | 2.14 | 493.67 |
| 8622.00 | 464.00 | 0.00 | 0.00 | 639.50 | 305.00 | 641.82 | .02 | 1.42 | .01 | 54.81 | 2.32 | 507.02 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9165.00 | 543.00 | 0.00 | 0.00 | 641.20 | 133.00 | 642.50 | .01 | 1.06 | .00 | 14.19 | 1.30 | 542.01 |
| 9165.00 | 543.00 | 0.00 | 0.00 | 641.20 | 187.00 | 642.60 | .01 | 1.02 | .00 | 16.75 | 1.40 | 557.36 |
| 9165.00 | 543.00 | 0.00 | 0.00 | 641.20 | 217.00 | 642.65 | .01 | 1.00 | .00 | 17.96 | 1.45 | 715.87 |
| 9165.00 | 543.00 | 0.00 | 0.00 | 641.20 | 305.00 | 642.79 | .01 | .95 | .00 | 21.01 | 1.58 | 510.57 |
| 10495.00 | 1330.00 | 0.00 | 0.00 | 642.40 | 133.00 | 643.84 | .00 | 1.34 | .00 | 9.87 | 1.44 | 508.03 |
| 10495.00 | 1330.00 | 0.00 | 0.00 | 642.40 | 187.00 | 643.99 | .00 | 1.38 | .00 | 12.24 | 1.59 | 534.38 |
| 10495.00 | 1330.00 | 0.00 | 0.00 | 642.40 | 217.00 | 644.06 | .00 | 1.40 | .00 | 13.47 | 1.66 | 553.34 |
| 10495.00 | 1330.00 | 0.00 | 0.00 | 642.40 | 305.00 | 644.24 | .01 | 1.45 | .00 | 16.92 | 1.84 | 602.63 |
| 10545.00 | 50.00 | 0.00 | 0.00 | 642.70 | 133.00 | 643.89 | .01 | .05 | .00 | 13.19 | 1.19 | 464.39 |
| 10545.00 | 50.00 | 0.00 | 0.00 | 642.70 | 187.00 | 644.04 | .01 | .05 | .00 | 15.32 | 1.34 | 491.10 |
| 10545.00 | 50.00 | 0.00 | 0.00 | 642.70 | 217.00 | 644.10 | .01 | .05 | .00 | 16.70 | 1.40 | 501.46 |
| 10545.00 | 50.00 | 0.00 | 0.00 | 642.70 | 305.00 | 644.28 | .01 | .05 | .00 | 19.97 | 1.58 | 534.28 |
| 10595.00 | 50.00 | 0.00 | 0.00 | 642.90 | 133.00 | 644.02 | .02 | .14 | .00 | 14.59 | 1.12 | 443.90 |
| 10595.00 | 50.00 | 0.00 | 0.00 | 642.90 | 187.00 | 644.15 | .02 | .12 | .00 | 17.20 | 1.25 | 474.32 |
| 10595.00 | 50.00 | 0.00 | 0.00 | 642.90 | 217.00 | 644.22 | .02 | .11 | .00 | 18.40 | 1.32 | 485.79 |
| 10595.00 | 50.00 | 0.00 | 0.00 | 642.90 | 305.00 | 644.38 | .02 | .10 | .00 | 21.89 | 1.48 | 514.48 |
| 10645.00 | 50.00 | 0.00 | 0.00 | 643.10 | 133.00 | 644.21 | .02 | .19 | .00 | 14.91 | 1.11 | 439.65 |
| 10645.00 | 50.00 | 0.00 | 0.00 | 643.10 | 187.00 | 644.32 | .02 | .17 | .00 | 17.91 | 1.22 | 469.10 |
| 10645.00 | 50.00 | 0.00 | 0.00 | 643.10 | 217.00 | 644.38 | .02 | .16 | .00 | 19.31 | 1.28 | 478.82 |
| 10645.00 | 50.00 | 0.00 | 0.00 | 643.10 | 305.00 | 644.52 | .02 | .15 | .00 | 23.08 | 1.42 | 504.45 |
| 10695.00 | 50.00 | 0.00 | 0.00 | 643.40 | 133.00 | 644.44 | .02 | .24 | .00 | 16.37 | 1.04 | 394.47 |
| 10695.00 | 50.00 | 0.00 | 0.00 | 643.40 | 187.00 | 644.55 | .03 | .23 | .00 | 19.80 | 1.15 | 450.82 |
| 10695.00 | 50.00 | 0.00 | 0.00 | 643.40 | 217.00 | 644.60 | .03 | .23 | .00 | 21.47 | 1.20 | 464.77 |
| 10695.00 | 50.00 | 0.00 | 0.00 | 643.40 | 305.00 | 644.73 | .03 | .21 | .00 | 25.56 | 1.33 | 487.53 |
| 10745.00 | 50.00 | 0.00 | 0.00 | 643.60 | 133.00 | 644.70 | .02 | .25 | .00 | 15.11 | 1.10 | 436.80 |
| 10745.00 | 50.00 | 0.00 | 0.00 | 643.60 | 187.00 | 644.80 | .02 | .25 | .00 | 18.39 | 1.20 | 465.87 |
| 10745.00 | 50.00 | 0.00 | 0.00 | 643.60 | 217.00 | 644.85 | .02 | .25 | .00 | 19.99 | 1.25 | 474.12 |
| 10745.00 | 50.00 | 0.00 | 0.00 | 643.60 | 305.00 | 644.97 | .02 | .24 | .00 | 24.44 | 1.37 | 494.63 |
| 10800.00 | 55.00 | 0.00 | 0.00 | 643.80 | 133.00 | 644.91 | .02 | .21 | .00 | 14.96 | 1.11 | 439.10 |
| 10800.00 | 55.00 | 0.00 | 0.00 | 643.80 | 187.00 | 645.01 | .02 | .21 | .00 | 18.11 | 1.21 | 467.71 |
| 10800.00 | 55.00 | 0.00 | 0.00 | 643.80 | 217.00 | 645.06 | .02 | .21 | .00 | 19.67 | 1.25 | 475.29 |
| 10800.00 | 55.00 | 0.00 | 0.00 | 643.80 | 305.00 | 645.19 | .02 | .21 | .00 | 23.90 | 1.39 | 498.36 |
| 10838.00 | 38.00 | 0.00 | 0.00 | 644.00 | 133.00 | 645.09 | .04 | .20 | .01 | 29.98 | 1.09 | 370.04 |
| 10838.00 | 38.00 | 0.00 | 0.00 | 644.00 | 187.00 | 645.19 | .04 | .19 | .01 | 34.44 | 1.19 | 386.62 |
| 10838.00 | 38.00 | 0.00 | 0.00 | 644.00 | 217.00 | 645.23 | .04 | .19 | .01 | 37.07 | 1.23 | 392.17 |
| 10838.00 | 38.00 | 0.00 | 0.00 | 644.00 | 305.00 | 645.35 | .04 | .18 | .01 | 44.52 | 1.35 | 404.34 |
| 11182.00 | 344.00 | 0.00 | 0.00 | 645.30 | 133.00 | 646.68 | .01 | 1.57 | .00 | 24.16 | 1.38 | 270.75 |
| 11182.00 | 344.00 | 0.00 | 0.00 | 645.30 | 187.00 | 646.80 | .02 | 1.59 | .00 | 30.78 | 1.50 | 270.89 |
| 11182.00 | 344.00 | 0.00 | 0.00 | 645.30 | 217.00 | 646.86 | .02 | 1.61 | .00 | 34.30 | 1.56 | 270.95 |
| 11182.00 | 344.00 | 0.00 | 0.00 | 645.30 | 305.00 | 647.02 | .03 | 1.65 | .00 | 44.40 | 1.72 | 321.86 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11525.00 | 343.00 | 0.00 | 0.00 | 645.90 | 133.00 | 647.34 | .01 | .65 | .00 | 3.89 | 1.44 | 355.86 |
| 11525.00 | 343.00 | 0.00 | 0.00 | 645.90 | 187.00 | 647.49 | .01 | .68 | .00 | 5.47 | 1.59 | 387.17 |
| 11525.00 | 343.00 | 0.00 | 0.00 | 645.90 | 217.00 | 647.56 | .01 | .69 | .00 | 7.11 | 1.66 | 401.89 |
| 11525.00 | 343.00 | 0.00 | 0.00 | 645.90 | 305.00 | 647.75 | .01 | .70 | .00 | 10.51 | 1.85 | 530.92 |
| -4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 133.00 | 634.18 | .02 | .58 | 0.00 | 68.05 | 3.78 | 352.03 |
| -4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 187.00 | 634.41 | .02 | .50 | 0.00 | 69.82 | 4.01 | 364.89 |
| -4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 217.00 | 634.51 | .01 | .48 | 0.00 | 71.77 | 4.11 | 368.22 |
| -4937.00 | 720.00 | 0.00 | 0.00 | 630.40 | 305.00 | 634.80 | .01 | .42 | 0.00 | 76.29 | 4.40 | 377.55 |
| 99.00 | 100.00 | 0.00 | 0.00 | 634.20 | 17.00 | 634.43 | .06 | .08 | 0.00 | 17.00 | .23 | 73.83 |
| 99.00 | 100.00 | 0.00 | 0.00 | 634.20 | 38.00 | 634.52 | .08 | .07 | 0.00 | 38.00 | .32 | 102.17 |
| 99.00 | 100.00 | 0.00 | 0.00 | 634.20 | 54.00 | 634.57 | .09 | .07 | 0.00 | 54.00 | .37 | 118.20 |
| 99.00 | 100.00 | 0.00 | 0.00 | 634.20 | 115.00 | 634.83 | .06 | .06 | .03 | 115.00 | .63 | 142.34 |
| 190.00 | 91.00 | 0.00 | 0.00 | 634.20 | 17.00 | 634.65 | .00 | .15 | .02 | 17.00 | .45 | 129.84 |
| 190.00 | 91.00 | 0.00 | 0.00 | 634.20 | 38.00 | 634.78 | .01 | .16 | .02 | 38.00 | .58 | 139.20 |
| 190.00 | 91.00 | 0.00 | 0.00 | 634.20 | 54.00 | 634.86 | .01 | .18 | .02 | 54.00 | .66 | 143.81 |
| 190.00 | 91.00 | 0.00 | 0.00 | 634.20 | 115.00 | 635.04 | .03 | .17 | .01 | 115.00 | .84 | 156.00 |
| 500.00 | 310.00 | 0.00 | 0.00 | 634.40 | 17.00 | 634.84 | .00 | .19 | .00 | 17.00 | .44 | 229.47 |
| 500.00 | 310.00 | 0.00 | 0.00 | 634.40 | 38.00 | 634.99 | .00 | .21 | .00 | 38.00 | .59 | 239.88 |
| 500.00 | 310.00 | 0.00 | 0.00 | 634.40 | 54.00 | 635.09 | .00 | .22 | .00 | 54.00 | .69 | 246.20 |
| 500.00 | 310.00 | 0.00 | 0.00 | 634.40 | 115.00 | 635.35 | .01 | .28 | .01 | 115.00 | .95 | 263.43 |
| 570.00 | 70.00 | 0.00 | 0.00 | 634.50 | 17.00 | 634.91 | .00 | .06 | .00 | 17.00 | .41 | 226.72 |
| 570.00 | 70.00 | 0.00 | 0.00 | 634.50 | 38.00 | 635.05 | .00 | .06 | .00 | 38.00 | .55 | 236.66 |
| 570.00 | 70.00 | 0.00 | 0.00 | 634.50 | 54.00 | 635.15 | .00 | .06 | .00 | 54.00 | .65 | 242.88 |
| 570.00 | 70.00 | 0.00 | 0.00 | 634.50 | 115.00 | 635.41 | .01 | .06 | .00 | 115.00 | .91 | 261.02 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 40.000 | 248.000 | 616.700 | 0.000 | 0.000 | 0.000 | 31.487 | 0.000 | 40.000 |
| 40.000 | 235.000 | 617.800 | 1.100 | 0.000 | 0.000 | 112.767 | -81.280 | 40.000 |
| 40.000 | 230.000 | 618.200 | .400 | 0.000 | 0.000 | 142.323 | -110.836 | 40.000 |
| 40.000 | 215.000 | 619.300 | 1.100 | 0.000 | 0.000 | 170.570 | -139.083 | 40.000 |
| 963.000 | 248.000 | 623.024 | 0.000 | 6.324 | 0.000 | 136.671 | 0.000 | 923.000 |
| 963.000 | 235.000 | 623.103 | .079 | 5.303 | 0.000 | 142.371 | -5.699 | 923.000 |
| 963.000 | 230.000 | 623.128 | .025 | 4.928 | 0.000 | 142.825 | -6.153 | 923.000 |
| 963.000 | 215.000 | 623.178 | .050 | 3.878 | 0.000 | 143.897 | -7.226 | 923.000 |
| 964.000 | 217.000 | 623.051 | 0.000 | .028 | 0.000 | 144.157 | 0.000 | 1.000 |
| 964.000 | 310.000 | 623.106 | .055 | .003 | 0.000 | 145.114 | -.958 | 1.000 |
| 964.000 | 360.000 | 623.128 | .023 | .000 | 0.000 | 145.584 | -1.428 | 1.000 |
| 964.000 | 510.000 | 623.179 | .050 | .000 | 0.000 | 146.695 | -2.538 | 1.000 |
| 1251.000 | 217.000 | 623.085 | 0.000 | .034 | 0.000 | 155.874 | 0.000 | 287.000 |
| 1251.000 | 310.000 | 623.171 | .086 | .065 | 0.000 | 157.432 | -1.558 | 287.000 |
| 1251.000 | 360.000 | 623.214 | .043 | .085 | 0.000 | 158.069 | -2.195 | 287.000 |
| 1251.000 | 510.000 | 623.337 | .124 | .158 | 0.000 | 160.534 | -4.660 | 287.000 |
| 1525.000 | 217.000 | 623.138 | 0.000 | .053 | 0.000 | 7.999 | 0.000 | 274.000 |
| 1525.000 | 310.000 | 623.270 | .132 | .099 | 0.000 | 7.999 | -.000 | 274.000 |
| 1525.000 | 360.000 | 623.343 | .073 | .129 | 0.000 | 7.999 | -.000 | 274.000 |
| 1525.000 | 510.000 | 623.566 | .224 | .224 | 0.000 | 7.999 | -.000 | 274.000 |
| 1545.000 | 217.000 | 623.187 | 0.000 | .049 | 0.000 | 7.999 | 0.000 | 20.000 |
| 1545.000 | 310.000 | 623.364 | .177 | .094 | 0.000 | 7.999 | -.000 | 20.000 |
| 1545.000 | 360.000 | 623.465 | .101 | .122 | 0.000 | 7.999 | -.000 | 20.000 |
| 1545.000 | 510.000 | 624.212 | .747 | .646 | 0.000 | 7.999 | -.000 | 20.000 |

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|---|---|---|---|---|---|---|---|---|
| 1575.000 | 217.000 | 623.413 | 0.000 | .226 | 0.000 | 9.199 | 0.000 | 30.000 |
| 1575.000 | 310.000 | 623.862 | .449 | .498 | 0.000 | 9.199 | -.000 | 30.000 |
| 1575.000 | 360.000 | 624.167 | .306 | .703 | 0.000 | 9.199 | -.000 | 30.000 |
| 1575.000 | 510.000 | 625.179 | 1.012 | .967 | 0.000 | 9.199 | -.000 | 30.000 |
| 1605.000 | 217.000 | 623.458 | 0.000 | .046 | 0.000 | 9.199 | 0.000 | 30.000 |
| 1605.000 | 310.000 | 623.938 | .480 | .076 | 0.000 | 9.199 | -.000 | 30.000 |
| 1605.000 | 360.000 | 624.257 | .319 | .090 | 0.000 | 9.199 | -.000 | 30.000 |
| 1605.000 | 510.000 | 625.875 | 1.618 | .696 | 0.000 | 9.199 | -.000 | 30.000 |
| 2620.000 | 217.000 | 627.207 | 0.000 | 3.748 | 0.000 | 26.254 | 0.000 | 1015.000 |
| 2620.000 | 310.000 | 628.361 | 1.154 | 4.423 | 0.000 | 36.233 | -9.979 | 1015.000 |
| 2620.000 | 360.000 | 628.880 | .519 | 4.622 | 0.000 | 54.415 | -28.161 | 1015.000 |
| 2620.000 | 510.000 | 629.733 | .853 | 3.858 | 0.000 | 148.326 | -122.071 | 1015.000 |
| 2640.000 | 217.000 | 629.469 | 0.000 | 2.262 | 0.000 | 119.727 | 0.000 | 20.000 |
| 2640.000 | 310.000 | 629.719 | .250 | 1.358 | 0.000 | 147.148 | -27.422 | 20.000 |
| 2640.000 | 360.000 | 629.826 | .108 | .946 | 0.000 | 155.974 | -36.247 | 20.000 |
| 2640.000 | 510.000 | 630.113 | .287 | .380 | 0.000 | 179.532 | -59.806 | 20.000 |
| 2810.000 | 217.000 | 629.595 | 0.000 | .127 | 0.000 | 81.021 | 0.000 | 170.000 |
| 2810.000 | 310.000 | 629.904 | .308 | .185 | 0.000 | 96.577 | -15.556 | 170.000 |
| 2810.000 | 360.000 | 630.041 | .137 | .214 | 0.000 | 105.053 | -24.031 | 170.000 |
| 2810.000 | 510.000 | 630.399 | .358 | .285 | 0.000 | 137.832 | -56.811 | 170.000 |
| 3091.000 | 217.000 | 629.973 | 0.000 | .377 | 0.000 | 67.737 | 0.000 | 281.000 |
| 3091.000 | 310.000 | 630.401 | .428 | .497 | 0.000 | 91.746 | -24.009 | 281.000 |
| 3091.000 | 360.000 | 630.590 | .189 | .550 | 0.000 | 102.627 | -34.890 | 281.000 |
| 3091.000 | 510.000 | 631.066 | .475 | .667 | 0.000 | 194.813 | -127.076 | 281.000 |
| 3168.000 | 217.000 | 632.475 | 0.000 | 2.503 | 0.000 | 352.817 | 0.000 | 77.000 |
| 3168.000 | 310.000 | 632.782 | .307 | 2.381 | 0.000 | 363.690 | -10.873 | 77.000 |
| 3168.000 | 360.000 | 632.887 | .104 | 2.296 | 0.000 | 367.401 | -14.585 | 77.000 |
| 3168.000 | 510.000 | 633.111 | .224 | 2.045 | 0.000 | 375.406 | -22.589 | 77.000 |
| 4020.000 | 161.000 | 632.559 | 0.000 | .083 | 0.000 | 120.885 | 0.000 | 852.000 |
| 4020.000 | 227.000 | 632.887 | .328 | .105 | 0.000 | 127.297 | -6.412 | 852.000 |
| 4020.000 | 265.000 | 633.008 | .121 | .122 | 0.000 | 129.662 | -8.777 | 852.000 |
| 4020.000 | 375.000 | 633.287 | .279 | .177 | 0.000 | 135.142 | -14.258 | 852.000 |
| 4173.000 | 154.000 | 632.754 | 0.000 | .195 | 0.000 | 100.013 | 0.000 | 153.000 |
| 4173.000 | 217.000 | 633.098 | .344 | .211 | 0.000 | 105.738 | -5.725 | 153.000 |
| 4173.000 | 250.000 | 633.242 | .144 | .234 | 0.000 | 108.055 | -8.042 | 153.000 |
| 4173.000 | 355.000 | 633.582 | .340 | .295 | 0.000 | 113.844 | -13.831 | 153.000 |
| 4217.000 | 154.000 | 633.981 | 0.000 | 1.227 | 0.000 | 120.547 | 0.000 | 44.000 |
| 4217.000 | 217.000 | 634.171 | .191 | 1.073 | 0.000 | 123.334 | -2.787 | 44.000 |
| 4217.000 | 250.000 | 634.257 | .086 | 1.015 | 0.000 | 124.615 | -4.068 | 44.000 |
| 4217.000 | 355.000 | 634.494 | .237 | .912 | 0.000 | 127.996 | -7.449 | 44.000 |
| 4937.000 | 133.000 | 634.184 | 0.000 | .203 | 0.000 | 352.349 | 0.000 | 720.000 |
| 4937.000 | 187.000 | 634.410 | .226 | .238 | 0.000 | 364.943 | -12.593 | 720.000 |
| 4937.000 | 217.000 | 634.512 | .102 | .254 | 0.000 | 368.277 | -15.927 | 720.000 |
| 4937.000 | 305.000 | 634.796 | .285 | .302 | 0.000 | 377.579 | -25.230 | 720.000 |
| 4997.000 | 133.000 | 634.232 | 0.000 | .048 | 0.000 | 294.730 | 0.000 | 60.000 |
| 4997.000 | 187.000 | 634.449 | .216 | .039 | 0.000 | 359.393 | -64.664 | 60.000 |
| 4997.000 | 217.000 | 634.547 | .099 | .036 | 0.000 | 362.535 | -67.805 | 60.000 |
| 4997.000 | 305.000 | 634.824 | .277 | .028 | 0.000 | 371.922 | -77.192 | 60.000 |
| 5057.000 | 116.000 | 634.299 | 0.000 | .067 | 0.000 | 279.483 | 0.000 | 60.000 |
| 5057.000 | 150.000 | 634.506 | .207 | .057 | 0.000 | 356.332 | -76.849 | 60.000 |
| 5057.000 | 163.000 | 634.601 | .096 | .054 | 0.000 | 361.328 | -81.845 | 60.000 |
| 5057.000 | 190.000 | 634.865 | .264 | .041 | 0.000 | 369.660 | -90.177 | 60.000 |

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|---|---|---|---|---|---|---|---|---|
| 5086.000 | 116.000 | 634.332 | 0.000 | .033 | 0.000 | 254.028 | 0.000 | 29.000 |
| 5086.000 | 150.000 | 634.529 | .198 | .024 | 0.000 | 328.321 | -74.293 | 29.000 |
| 5086.000 | 163.000 | 634.619 | .090 | .018 | 0.000 | 358.760 | -104.732 | 29.000 |
| 5086.000 | 190.000 | 634.874 | .255 | .009 | 0.000 | 366.846 | -112.818 | 29.000 |
| 5115.000 | 116.000 | 634.375 | 0.000 | .043 | 0.000 | 202.729 | 0.000 | 29.000 |
| 5115.000 | 150.000 | 634.562 | .188 | .033 | 0.000 | 273.493 | -70.764 | 29.000 |
| 5115.000 | 163.000 | 634.646 | .084 | .027 | 0.000 | 306.744 | -104.015 | 29.000 |
| 5115.000 | 190.000 | 634.888 | .242 | .014 | 0.000 | 333.920 | -131.191 | 29.000 |
| 5165.000 | 116.000 | 634.519 | 0.000 | .144 | 0.000 | 249.369 | 0.000 | 50.000 |
| 5165.000 | 150.000 | 634.673 | .154 | .110 | 0.000 | 302.473 | -53.104 | 50.000 |
| 5165.000 | 163.000 | 634.735 | .062 | .089 | 0.000 | 311.829 | -62.460 | 50.000 |
| 5165.000 | 190.000 | 634.931 | .197 | .043 | 0.000 | 316.494 | -67.125 | 50.000 |
| 5205.000 | 116.000 | 635.039 | 0.000 | .520 | 0.000 | 320.297 | 0.000 | 40.000 |
| 5205.000 | 150.000 | 635.170 | .132 | .498 | 0.000 | 324.825 | -4.528 | 40.000 |
| 5205.000 | 163.000 | 635.213 | .042 | .478 | 0.000 | 326.282 | -5.985 | 40.000 |
| 5205.000 | 190.000 | 635.303 | .090 | .372 | 0.000 | 329.385 | -9.088 | 40.000 |
| 5286.000 | 116.000 | 635.104 | 0.000 | .066 | 0.000 | 25.775 | 0.000 | 81.000 |
| 5286.000 | 150.000 | 635.250 | .145 | .079 | 0.000 | 28.673 | -2.898 | 81.000 |
| 5286.000 | 163.000 | 635.297 | .048 | .085 | 0.000 | 29.623 | -3.848 | 81.000 |
| 5286.000 | 190.000 | 635.397 | .099 | .094 | 0.000 | 31.472 | -5.697 | 81.000 |
| 5386.000 | 116.000 | 635.276 | 0.000 | .171 | 0.000 | 29.190 | 0.000 | 100.000 |
| 5386.000 | 150.000 | 635.485 | .209 | .235 | 0.000 | 47.625 | -18.435 | 100.000 |
| 5386.000 | 163.000 | 635.558 | .073 | .261 | 0.000 | 61.171 | -31.981 | 100.000 |
| 5386.000 | 190.000 | 635.712 | .154 | .315 | 0.000 | 89.828 | -60.637 | 100.000 |
| 5486.000 | 116.000 | 635.414 | 0.000 | .138 | 0.000 | 30.130 | 0.000 | 100.000 |
| 5486.000 | 150.000 | 635.660 | .246 | .175 | 0.000 | 61.475 | -31.345 | 100.000 |
| 5486.000 | 163.000 | 635.745 | .085 | .187 | 0.000 | 77.383 | -47.253 | 100.000 |
| 5486.000 | 190.000 | 635.918 | .173 | .206 | 0.000 | 109.610 | -79.480 | 100.000 |
| 5586.000 | 116.000 | 635.544 | 0.000 | .130 | 0.000 | 30.683 | 0.000 | 100.000 |
| 5586.000 | 150.000 | 635.817 | .273 | .158 | 0.000 | 73.721 | -43.038 | 100.000 |
| 5586.000 | 163.000 | 635.910 | .093 | .165 | 0.000 | 91.298 | -60.615 | 100.000 |
| 5586.000 | 190.000 | 636.093 | .183 | .176 | 0.000 | 124.717 | -94.034 | 100.000 |
| 5686.000 | 116.000 | 635.674 | 0.000 | .130 | 0.000 | 82.654 | 0.000 | 100.000 |
| 5686.000 | 150.000 | 635.974 | .300 | .157 | 0.000 | 151.823 | -69.169 | 100.000 |
| 5686.000 | 163.000 | 636.076 | .101 | .165 | 0.000 | 175.018 | -92.365 | 100.000 |
| 5686.000 | 190.000 | 636.270 | .195 | .177 | 0.000 | 191.435 | -108.781 | 100.000 |
| 5704.000 | 116.000 | 635.840 | 0.000 | .165 | 0.000 | 120.234 | 0.000 | 18.000 |
| 5704.000 | 150.000 | 636.036 | .196 | .061 | 0.000 | 165.963 | -45.729 | 18.000 |
| 5704.000 | 163.000 | 636.114 | .079 | .039 | 0.000 | 181.911 | -61.677 | 18.000 |
| 5704.000 | 190.000 | 636.291 | .176 | .020 | 0.000 | 193.075 | -72.841 | 18.000 |
| 6295.000 | 133.000 | 636.443 | 0.000 | .604 | 0.000 | 441.131 | 0.000 | 591.000 |
| 6295.000 | 187.000 | 636.635 | .192 | .599 | 0.000 | 472.971 | -31.840 | 591.000 |
| 6295.000 | 217.000 | 636.713 | .078 | .599 | 0.000 | 486.003 | -44.872 | 591.000 |
| 6295.000 | 305.000 | 636.890 | .177 | .600 | 0.000 | 515.649 | -74.518 | 591.000 |
| 6748.000 | 133.000 | 637.151 | 0.000 | .708 | 0.000 | 442.460 | 0.000 | 453.000 |
| 6748.000 | 187.000 | 637.265 | .115 | .630 | 0.000 | 535.460 | -93.401 | 453.000 |
| 6748.000 | 217.000 | 637.329 | .064 | .616 | 0.000 | 652.212 | -209.752 | 453.000 |
| 6748.000 | 305.000 | 637.490 | .161 | .599 | 0.000 | 880.123 | -437.664 | 453.000 |
| 7202.000 | 133.000 | 637.806 | 0.000 | .655 | 0.000 | 300.532 | 0.000 | 454.000 |
| 7202.000 | 187.000 | 637.973 | .167 | .707 | 0.000 | 399.543 | -98.960 | 454.000 |
| 7202.000 | 217.000 | 638.046 | .073 | .717 | 0.000 | 519.902 | -219.319 | 454.000 |
| 7202.000 | 305.000 | 638.206 | .160 | .716 | 0.000 | 954.443 | -653.860 | 454.000 |
| 7655.000 | 133.000 | 638.431 | 0.000 | .624 | 0.000 | 263.346 | 0.000 | 453.000 |

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|---|---|---|---|---|---|---|---|---|
| 7655.000 | 187.000 | 638.607 | .177 | .635 | 0.000 | 288.337 | -24.991 | 453.000 |
| 7655.000 | 217.000 | 638.691 | .083 | .645 | 0.000 | 355.606 | -92.259 | 453.000 |
| 7655.000 | 305.000 | 638.884 | .194 | .679 | 0.000 | 630.719 | -367.373 | 453.000 |
| 7755.000 | 133.000 | 638.588 | 0.000 | .158 | 0.000 | 249.153 | 0.000 | 100.000 |
| 7755.000 | 187.000 | 638.764 | .176 | .157 | 0.000 | 267.324 | -18.171 | 100.000 |
| 7755.000 | 217.000 | 638.849 | .084 | .158 | 0.000 | 276.025 | -26.872 | 100.000 |
| 7755.000 | 305.000 | 639.048 | .199 | .163 | 0.000 | 415.706 | -166.553 | 100.000 |
| 7855.000 | 133.000 | 638.843 | 0.000 | .254 | 0.000 | 244.469 | 0.000 | 100.000 |
| 7855.000 | 187.000 | 639.007 | .165 | .243 | 0.000 | 261.437 | -16.968 | 100.000 |
| 7855.000 | 217.000 | 639.087 | .080 | .239 | 0.000 | 269.713 | -25.243 | 100.000 |
| 7855.000 | 305.000 | 639.286 | .198 | .238 | 0.000 | 350.084 | -105.615 | 100.000 |
| 7955.000 | 133.000 | 639.138 | 0.000 | .295 | 0.000 | 243.916 | 0.000 | 100.000 |
| 7955.000 | 187.000 | 639.295 | .157 | .287 | 0.000 | 260.109 | -16.194 | 100.000 |
| 7955.000 | 217.000 | 639.371 | .076 | .283 | 0.000 | 267.995 | -24.080 | 100.000 |
| 7955.000 | 305.000 | 639.565 | .194 | .279 | 0.000 | 333.220 | -89.305 | 100.000 |
| 8055.000 | 133.000 | 639.470 | 0.000 | .332 | 0.000 | 236.916 | 0.000 | 100.000 |
| 8055.000 | 187.000 | 639.623 | .153 | .328 | 0.000 | 252.717 | -15.801 | 100.000 |
| 8055.000 | 217.000 | 639.697 | .074 | .326 | 0.000 | 260.343 | -23.427 | 100.000 |
| 8055.000 | 305.000 | 639.885 | .188 | .320 | 0.000 | 279.788 | -42.872 | 100.000 |
| 8100.000 | 133.000 | 639.659 | 0.000 | .189 | 0.000 | 235.762 | 0.000 | 45.000 |
| 8100.000 | 187.000 | 639.806 | .148 | .183 | 0.000 | 250.997 | -15.236 | 45.000 |
| 8100.000 | 217.000 | 639.878 | .071 | .181 | 0.000 | 258.367 | -22.605 | 45.000 |
| 8100.000 | 305.000 | 640.060 | .183 | .175 | 0.000 | 277.241 | -41.479 | 45.000 |
| 8158.000 | 133.000 | 639.906 | 0.000 | .247 | 0.000 | 166.235 | 0.000 | 58.000 |
| 8158.000 | 187.000 | 640.046 | .140 | .240 | 0.000 | 166.564 | -.330 | 58.000 |
| 8158.000 | 217.000 | 640.115 | .069 | .237 | 0.000 | 194.526 | -28.292 | 58.000 |
| 8158.000 | 305.000 | 640.290 | .175 | .230 | 0.000 | 210.266 | -44.032 | 58.000 |
| 8622.000 | 133.000 | 641.422 | 0.000 | 1.516 | 0.000 | 451.289 | 0.000 | 464.000 |
| 8622.000 | 187.000 | 641.568 | .147 | 1.522 | 0.000 | 486.506 | -35.217 | 464.000 |
| 8622.000 | 217.000 | 641.640 | .071 | 1.525 | 0.000 | 493.672 | -42.384 | 464.000 |
| 8622.000 | 305.000 | 641.818 | .178 | 1.528 | 0.000 | 507.020 | -55.731 | 464.000 |
| 9165.000 | 133.000 | 642.498 | 0.000 | 1.076 | 0.000 | 542.012 | 0.000 | 543.000 |
| 9165.000 | 187.000 | 642.601 | .103 | 1.032 | 0.000 | 657.364 | -115.352 | 543.000 |
| 9165.000 | 217.000 | 642.650 | .049 | 1.010 | 0.000 | 715.872 | -173.860 | 543.000 |
| 9165.000 | 305.000 | 642.779 | .130 | .961 | 0.000 | 810.565 | -268.553 | 543.000 |
| 10495.000 | 133.000 | 643.843 | 0.000 | 1.344 | 0.000 | 508.028 | 0.000 | 1330.000 |
| 10495.000 | 187.000 | 643.991 | .149 | 1.390 | 0.000 | 534.380 | -26.352 | 1330.000 |
| 10495.000 | 217.000 | 644.060 | .069 | 1.410 | 0.000 | 553.340 | -45.312 | 1330.000 |
| 10495.000 | 305.000 | 644.238 | .179 | 1.459 | 0.000 | 602.630 | -94.602 | 1330.000 |
| 10545.000 | 133.000 | 643.888 | 0.000 | .046 | 0.000 | 464.391 | 0.000 | 50.000 |
| 10545.000 | 187.000 | 644.035 | .147 | .044 | 0.000 | 491.096 | -26.704 | 50.000 |
| 10545.000 | 217.000 | 644.104 | .069 | .045 | 0.000 | 501.457 | -37.065 | 50.000 |
| 10545.000 | 305.000 | 644.283 | .178 | .044 | 0.000 | 534.282 | -69.890 | 50.000 |
| 10595.000 | 133.000 | 644.023 | 0.000 | .135 | 0.000 | 443.896 | 0.000 | 50.000 |
| 10595.000 | 187.000 | 644.150 | .127 | .114 | 0.000 | 474.321 | -30.425 | 50.000 |
| 10595.000 | 217.000 | 644.215 | .065 | .111 | 0.000 | 485.792 | -41.896 | 50.000 |
| 10595.000 | 305.000 | 644.379 | .163 | .096 | 0.000 | 514.477 | -70.581 | 50.000 |
| 10645.000 | 133.000 | 644.208 | 0.000 | .185 | 0.000 | 439.647 | 0.000 | 50.000 |
| 10645.000 | 187.000 | 644.320 | .112 | .170 | 0.000 | 469.097 | -29.451 | 50.000 |
| 10645.000 | 217.000 | 644.376 | .056 | .160 | 0.000 | 478.817 | -39.171 | 50.000 |
| 10645.000 | 305.000 | 644.522 | .146 | .143 | 0.000 | 504.449 | -64.602 | 50.000 |
| 10695.000 | 133.000 | 644.444 | 0.000 | .235 | 0.000 | 394.469 | 0.000 | 50.000 |
| 10695.000 | 187.000 | 644.548 | .104 | .228 | 0.000 | 450.825 | -56.356 | 50.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 10695.000 | 217.000 | 644.597 | .049 | .222 | 0.000 | 464.773 | -70.304 | 50.000 |
| 10695.000 | 305.000 | 644.725 | .128 | .204 | 0.000 | 487.531 | -93.062 | 50.000 |
| 10745.000 | 133.000 | 644.700 | 0.000 | .257 | 0.000 | 436.802 | 0.000 | 50.000 |
| 10745.000 | 187.000 | 644.804 | .104 | .257 | 0.000 | 465.870 | -29.068 | 50.000 |
| 10745.000 | 217.000 | 644.853 | .048 | .255 | 0.000 | 474.116 | -37.314 | 50.000 |
| 10745.000 | 305.000 | 644.975 | .122 | .249 | 0.000 | 494.629 | -57.827 | 50.000 |
| 10800.000 | 133.000 | 644.907 | 0.000 | .206 | 0.000 | 439.097 | 0.000 | 55.000 |
| 10800.000 | 187.000 | 645.012 | .106 | .208 | 0.000 | 467.710 | -28.613 | 55.000 |
| 10800.000 | 217.000 | 645.061 | .049 | .209 | 0.000 | 476.293 | -37.196 | 55.000 |
| 10800.000 | 305.000 | 645.187 | .126 | .212 | 0.000 | 498.359 | -59.262 | 55.000 |
| 10838.000 | 133.000 | 645.088 | 0.000 | .181 | 0.000 | 370.042 | 0.000 | 38.000 |
| 10838.000 | 187.000 | 645.187 | .099 | .175 | 0.000 | 386.623 | -16.582 | 38.000 |
| 10838.000 | 217.000 | 645.234 | .047 | .172 | 0.000 | 392.174 | -22.133 | 38.000 |
| 10838.000 | 305.000 | 645.354 | .121 | .167 | 0.000 | 404.340 | -34.299 | 38.000 |
| 11182.000 | 133.000 | 646.684 | 0.000 | 1.596 | 0.000 | 270.755 | 0.000 | 344.000 |
| 11182.000 | 187.000 | 646.804 | .121 | 1.617 | 0.000 | 270.885 | -.130 | 344.000 |
| 11182.000 | 217.000 | 646.862 | .058 | 1.628 | 0.000 | 270.952 | -.197 | 344.000 |
| 11182.000 | 305.000 | 647.024 | .162 | 1.669 | 0.000 | 321.863 | -51.108 | 344.000 |
| 11525.000 | 133.000 | 647.343 | 0.000 | .659 | 0.000 | 355.862 | 0.000 | 343.000 |
| 11525.000 | 187.000 | 647.493 | .150 | .689 | 0.000 | 387.170 | -31.308 | 343.000 |
| 11525.000 | 217.000 | 647.564 | .071 | .702 | 0.000 | 401.992 | -46.030 | 343.000 |
| 11525.000 | 305.000 | 647.745 | .181 | .721 | 0.000 | 530.917 | -175.055 | 343.000 |
| -4937.000 | 133.000 | 634.184 | 0.000 | -13.159 | 0.000 | 352.030 | 0.000 | 720.000 |
| -4937.000 | 187.000 | 634.410 | .226 | -13.083 | 0.000 | 364.886 | -12.856 | 720.000 |
| -4937.000 | 217.000 | 634.512 | .102 | -13.052 | 0.000 | 368.219 | -16.189 | 720.000 |
| -4937.000 | 305.000 | 634.796 | .285 | -12.949 | 0.000 | 377.550 | -25.521 | 720.000 |
| 99.000 | 17.000 | 634.433 | 0.000 | .249 | 0.000 | 73.831 | 0.000 | 100.000 |
| 99.000 | 38.000 | 634.523 | .089 | .113 | 0.000 | 102.166 | -28.335 | 100.000 |
| 99.000 | 54.000 | 634.573 | .051 | .062 | 0.000 | 118.203 | -44.372 | 100.000 |
| 99.000 | 115.000 | 634.830 | .257 | .034 | 0.000 | 142.342 | -68.511 | 100.000 |
| 190.000 | 17.000 | 634.652 | 0.000 | .219 | 0.000 | 129.836 | 0.000 | 91.000 |
| 190.000 | 38.000 | 634.779 | .127 | .257 | 0.000 | 139.204 | -9.368 | 91.000 |
| 190.000 | 54.000 | 634.859 | .079 | .285 | 0.000 | 143.812 | -13.976 | 91.000 |
| 190.000 | 115.000 | 635.045 | .186 | .214 | 0.000 | 156.000 | -26.163 | 91.000 |
| 500.000 | 17.000 | 634.843 | 0.000 | .191 | 0.000 | 229.971 | 0.000 | 310.000 |
| 500.000 | 38.000 | 634.994 | .151 | .214 | 0.000 | 239.878 | -9.906 | 310.000 |
| 500.000 | 54.000 | 635.092 | .099 | .234 | 0.000 | 246.201 | -16.230 | 310.000 |
| 500.000 | 115.000 | 635.349 | .256 | .304 | 0.000 | 263.427 | -33.455 | 310.000 |
| 570.000 | 17.000 | 634.907 | 0.000 | .064 | 0.000 | 226.725 | 0.000 | 70.000 |
| 570.000 | 38.000 | 635.054 | .147 | .060 | 0.000 | 236.664 | -9.939 | 70.000 |
| 570.000 | 54.000 | 635.150 | .096 | .058 | 0.000 | 242.875 | -16.151 | 70.000 |
| 570.000 | 115.000 | 635.406 | .256 | .058 | 0.000 | 261.019 | -34.294 | 70.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 0.000 | 77.507 | 0.000 |
| 2 | 0.000 | 0.000 | 87.310 | 9.803 |
| 3 | 0.000 | 0.000 | 94.033 | 16.526 |
| 4 | 0.000 | 0.000 | 112.767 | 35.260 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Plumbrook Drain

4) DOCUMENT TYPE: 10, 50, 100, 500 yr flood

00BREAK00

FINAL Dec 7, 77

WCR

Plum Brook & Gibson

Dec 77

CITY OF STERLING HEIGHTS FLOOD INSURANCE STUDY

GIBSON DRAIN J@A JOB NUMBER 5670-10

PROJECT MANAGER WILLIAM ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| A | 33835 | VALLEY SECTION A<br>LEFT ENCROACHMENT TO MODEL PROPER<br>CONTINUITY OF FLOW |
| | 35279 | BRIDGE SECTION B FARM LANE BRIDGE<br>DOWNSTREAM FACE |
| B | 35290 | BRIDGE SECTION B FARM LANE BRIDGE<br>UPSTREAM FACE |
| C | 35725 | VALLEY SECTION C |
| D | 36925 | VALLEY SECTION D |
| | 37819 | BRIDGE SECTION E 18 MILE ROAD BRIDGE<br>DOWNSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| E | 37851 | BRIDGE SECTION E 18 MILE ROAD BRIDGE<br>UPSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| F | 39285 | VALLEY SECTION F |
| | 39585 | AVSEC FORMED FROM VALLEY SECTIONS<br>F AND G |
| | 39885 | AVSEC FORMED FROM VALLEY SECTIONS<br>F AND G |
| G | 40185 | VALLEY SECTION G |
| H | 41175 | VALLEY SECTION H |

CITY OF STERLING HEIGHTS
PLUM BROOK
PROJECT MANAGER

FLOOD INSURANCE STUDY
J@A JOB NUMBER 5670-10
WILLIAM C. ROSSOW

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 20 | VALLEY SECTION A<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>SEE TEXT FOR STARTING WATER SURFACE ELEVATIONS |
| A | 875 | VALLEY SECTION A<br>INVERT READJUSTED |
| B | 3080 | VALLEY SECTION B |
| C | 4680 | VALLEY SECTION C<br>RIGHT ENCROACHMENT DUE TO APARTMENTS |
| D | 6200 | VALLEY SECTION D |
| | 6254 | BRIDGE SECTION E<br>SCHOENHERR ROAD DOWNSTREAM FACE |
| E | 6279 | BRIDGE SECTION E<br>SCHOENHERR ROAD UPSTREAM FACE |
| | 6420 | BRIDGE SECTION F<br>GROUND POINTS RELOCATED |
| | 6421 | BRIDGE SECTION F<br>DAM AT GOLF COURSE<br>DOWNSTREAM FACE |
| F | 6447 | BRIDGE SECTION F<br>DAM AT GOLF COURSE<br>UPSTREAM FACE |
| | 6448 | BRIDGE SECTION F<br>GROUND POINTS RELOCATED |
| G | 7325 | VALLEY SECTION G |
| H | 8475 | VALLEY SECTION H<br>LEFT ENCROACHMENT DUE TO HOUSES |
| | 8858 | AVSEC DEVELOPED FROM VALLEY SECTION H AND VALLEY SECTION I |
| I | 9240 | VALLEY SECTION I<br>ENCROACHMENTS DUE TO HOUSES |
| J | 10875 | VALLEY SECTION J<br>ENCROACHMENTS DUE TO HOUSES |
| K | 12280 | VALLEY SECTION K<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| | 12308 | BRIDGE SECTION L<br>DODGE PARK ROAD DOWNSTREAM FACE |

| | | |
|---|---|---|
| L | 12356 | BRIDGE SECTION L<br>DODGE PARK ROAD UPSTREAM FACE<br>ENCROACHMENTS DUE TO LOW FLOW CONDITIONS |
| M | 13470 | VALLEY SECTION M<br>LEFT ENCROACHMENT DUE TO HOUSES |
| N | 14920 | VALLEY SECTION N<br>ENCROACHMENTS DUE TO HOUSES |
| O | 17000 | VALLEY SECTION O<br>ENCROACHMENTS DUE TO HOUSES |
| P | 19025 | VALLEY SECTION P<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO<br>PRESSURE FLOW |
| | 19046 | BRIDGE SECTION Q<br>VAN DYKE ROAD DOWNSTREAM FACE<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO<br>PRESSURE FLOW |
| Q | 19149 | BRIDGE SECTION Q<br>VAN DYKE ROAD UPSTREAM FACE<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO<br>PRESSURE FLOW |
| | 19549 | BRIDGE SECTION R<br>DOWNSTREAM FACE |
| R | 19571 | BRIDGE SECTION R<br>UPSTREAM FACE |
| S | 20325 | VALLEY SECTION S |
| | 21759 | VALLEY SECTION T<br>GROUND POINTS RELOCATED |
| T | 21760 | VALLEY SECTION T |
| | 21761 | VALLEY SECTION T<br>GROUND POINTS RELOCATED |
| U | 21836 | VALLEY SECTION U |
| | 22628 | AVSEC DEVELOPED FROM VALLEY SECTION U<br>AND VALLEY SECTION V |
| | 22952 | AVSEC DEVELOPED FROM VALLEY SECTION U<br>AND VALLEY SECTION V<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| | 23202 | AVSEC DEVELOPED FROM VALLEY SECTION U<br>AND VALLEY SECTION V<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| V | 23275 | VALLEY SECTION V<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| | 23384 | BRIDGE SECTION W<br>PENN CENTRAL RAILROAD DOWNSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW |
| W | 23410 | BRIDGE SECTION W |

| | | |
|---|---|---|
| | | ENCROACHMENTS DUE TO PRESSURE FLOW |
| X | 24050 | VALLEY SECTION X<br>INVERT READJUSTED<br>ENCROACHMENTS DUE TO HIGH GROUND |
| Y | 24665 | VALLEY SECTION Y<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| | 24693 | BRIDGE SECTION Z<br>18 MILE ROAD DOWNSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW |
| Z | 24757 | BRIDGE SECTION Z<br>18 MILE ROAD UPSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW |
| AA | 25435 | VALLEY SECTION AA<br>ENCROACHMENT USED TO MODEL PROPER<br>CONTINUITY OF FLOW |
| | 25560 | BRIDGE SECTION AB<br>GROUND POINTS RELOCATED |
| AB | 25565 | BRIDGE SECTION AB |
| | 25570 | BRIDGE SECTION AB<br>GROUND POINTS RELOCATED |
| AC | 26765 | VALLEY SECTION AC<br>ENCROACHMENTS DUE TO EXPANSION OF FLOW |
| | 26891 | BRIDGE SECTION AD<br>MOUND ROAD DOWNSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| AD | 26947 | BRIDGE SECTION AD<br>MOUND ROAD UPSTREAM FACE<br>ENCROACHMENTS DUE TO PRESSURE FLOW<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| AE | 27975 | VALLEY SECTION AE |
| AF | 29270 | VALLEY SECTION AF |
| | 29440 | BRIDGE SECTION AG<br>18.5 MILE ROAD DOWNSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| AG | 29460 | BRIDGE SECTION AG<br>18.5 MILE ROAD UPSTREAM FACE<br>SECTION SKEWED FOR PERPENDICULARITY<br>TO MASS OF FLOW |
| AH | 30470 | VALLEY SECTION AH<br>ENCROACHMENT USED TO DEFINE HOUSE LINE |
| AI | 31350 | VALLEY SECTION AI |
| AJ | 33025 | VALLEY SECTION AJ<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO |

| | | |
|---|---|---|
| | 33109 | BRIDGE SECTION AK<br>RYAN ROAD DOWNSTREAM FACE<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO<br>PRESSURE FLOW |
| AK | 33143 | BRIDGE SECTION AK<br>RYAN ROAD UPSTREAM FACE<br>ENCROACHMENTS ON 10 YEAR FLOOD DUE TO<br>PRESSURE FLOW |
| | 33675 | VALLEY SECTION AJ<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>SECTION IS LOCATED AT CONFLUENCE OF<br>PLUM BROOK AT GIBSON DRAIN |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1       CITY OF STERLING HEIGHTS     5670-10     PROJECT MANAGER  WILLIAM ROSSOW
T2       10 YEAR FLOOD
T3       PLUM BROOK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.  0.000000     0.00      0.0       0.    598.800    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
QT      4.000  1540.000  2240.000  2560.000  3500.000     0.000     0.000     0.000     0.000     0.000
NC       .050      .050      .050      .100      .300     0.000     0.000     0.000     0.000     0.000
NH      6.000      .060   800.000      .080  1075.000      .070  1080.000      .040  1097.000      .070
NH   1100.000      .080  1320.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     20.000    20.000  1075.000  1100.000     0.000     0.000     0.000     0.000     -.700     0.000
GR    602.400     0.000   599.800   100.000   599.300   200.000   599.700   300.000   599.800   400.000
GR    601.100   500.000   601.000   600.000   602.100   700.000   602.400   800.000   598.900   900.000
GR    596.500  1000.000   589.900  1025.000   592.900  1050.000   591.500  1075.000   586.300  1080.000
GR    586.100  1088.000   586.600  1097.000   588.400  1100.000   592.100  1180.000   603.600  1320.000

X1    875.000     0.000     0.000     0.000   855.000   855.000   855.000     0.000      .700     0.000
QT      4.000  1470.000  2150.000  2450.000  3350.000     0.000     0.000     0.000     0.000     0.000
NH      6.000      .060   800.000      .065   807.000      .040   830.000      .065   835.000      .090
NH   1100.000      .060  1150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   3080.000    20.000   800.000   835.000  1800.000  2100.000  2205.000     0.000     0.000     0.000
GR    600.700     0.000   601.800   100.000   601.400   200.000   600.700   300.000   600.500   400.000
GR    601.300   500.000   600.300   600.000   597.700   700.000   595.100   800.000   587.100   807.000
GR    586.500   810.000   586.100   820.000   587.400   830.000   593.200   835.000   594.500   900.000
GR    593.900  1000.000   594.300  1030.000   601.300  1038.000   604.500  1100.000   605.300  1150.000
QT      4.000  1460.000  2130.000  2430.000  3330.000     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   500.000      .040   538.000      .030  1000.000     0.000     0.000     0.000

X1   4680.000    16.000   500.000   538.000  1600.000  1400.000  1600.000     0.000     0.000     0.000
X3      0.000     0.000     0.000     0.000     0.000   670.000     0.000     0.000     0.000     0.000
GR    604.800     0.000   604.500   100.000   602.500   200.000   600.900   300.000   598.100   400.000
GR    592.600   500.000   589.800   506.000   589.800   515.000   590.000   525.000   590.300   534.000
GR    594.600   538.000   595.000   600.000   596.400   700.000   598.300   800.000   603.600   900.000
GR    602.800  1000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .500     1.000     0.000     0.000     0.000     0.000     0.000
NH      6.000      .050   614.000      .040   617.000      .040   636.000      .080   639.000      .080
NH   1214.000      .050  1614.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   6200.000    25.000   614.000   639.000  1600.000  1600.000  1520.000     0.000     0.000     0.000
GR    604.500     0.000   603.100    14.000   601.300   114.000   601.500   214.000   602.500   314.000
GR    601.500   414.000   600.100   514.000   598.900   538.000   598.000   589.000   593.200   614.000
GR    588.900   617.000   589.400   624.000   590.000   634.000   590.100   636.000   594.000   639.000
GR    599.200   714.000   598.200   814.000   595.600   914.000   599.300  1014.000   602.000  1114.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NH | 3.000 | .035 | 674.000 | .080 | 1238.000 | .035 | 1638.000 | 0.000 | 0.000 | 0.000 |
| X1 | 6254.000 | 44.000 | 624.000 | 674.000 | 54.000 | 54.000 | 54.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.500 | 0.000 | 604.500 | 24.000 | 603.100 | 38.000 | 601.600 | 124.000 | 601.300 | 138.000 |
| GR | 601.500 | 224.000 | 601.500 | 239.000 | 602.400 | 324.000 | 602.500 | 338.000 | 601.600 | 424.000 |
| GR | 601.500 | 438.000 | 600.200 | 524.000 | 600.100 | 538.000 | 598.900 | 562.000 | 598.000 | 613.000 |
| GR | 595.900 | 624.000 | 592.800 | 628.000 | 589.900 | 632.000 | 590.100 | 644.000 | 589.600 | 648.500 |
| GR | 599.200 | 648.500 | 599.200 | 649.500 | 589.500 | 649.500 | 589.000 | 654.000 | 589.400 | 664.000 |
| GR | 590.300 | 666.000 | 593.300 | 674.000 | 594.100 | 674.000 | 598.100 | 724.000 | 599.200 | 738.000 |
| GR | 598.300 | 824.000 | 598.200 | 838.000 | 596.000 | 924.000 | 595.600 | 938.000 | 598.800 | 1024.000 |
| GR | 599.300 | 1038.000 | 601.600 | 1124.000 | 601.600 | 1124.000 | 602.000 | 1165.000 | 603.100 | 1238.000 |
| GR | 603.500 | 1338.000 | 604.100 | 1438.000 | 603.400 | 1538.000 | 603.700 | 1638.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.534 | 3.030 | 0.000 | 50.000 | 0.000 | 423.400 | 0.000 | 589.000 | 589.000 |
| X1 | 6279.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 599.500 | 600.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 25.000 | 0.000 | 604.500 | 0.000 | 24.000 | 604.500 | 0.000 | 124.000 | 603.000 | 0.000 |
| BT | 224.000 | 602.500 | 0.000 | 300.000 | 602.100 | 0.000 | 324.000 | 602.400 | 0.000 | 338.000 |
| BT | 602.500 | 0.000 | 424.000 | 601.600 | 0.000 | 424.000 | 601.600 | 0.000 | 524.000 | 601.100 |
| BT | 0.000 | 624.000 | 601.100 | 595.900 | 624.000 | 601.100 | 599.500 | 674.000 | 600.900 | 598.800 |
| BT | 674.000 | 600.900 | 593.300 | 724.000 | 600.900 | 0.000 | 824.000 | 600.800 | 0.000 | 924.000 |
| BT | 601.100 | 0.000 | 1024.000 | 601.200 | 0.000 | 1124.000 | 602.300 | 0.000 | 1165.000 | 603.100 |
| BT | 0.000 | 1238.000 | 603.100 | 0.000 | 1338.000 | 603.500 | 0.000 | 1438.000 | 604.100 | 0.000 |
| BT | 1538.000 | 603.400 | 0.000 | 1638.000 | 603.700 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 614.000 | .035 | 639.000 | .030 | 1614.000 | 0.000 | 0.000 | 0.000 |
| X1 | 6420.000 | 25.000 | 614.000 | 639.000 | 141.000 | 141.000 | 141.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.500 | 0.000 | 603.100 | 14.000 | 601.300 | 114.000 | 601.500 | 214.000 | 602.500 | 314.000 |
| GR | 601.500 | 414.000 | 600.100 | 514.000 | 598.900 | 538.000 | 598.000 | 589.000 | 593.200 | 614.000 |
| GR | 588.900 | 617.000 | 589.400 | 624.000 | 590.000 | 634.000 | 590.100 | 636.000 | 594.000 | 639.000 |
| GR | 599.200 | 714.000 | 598.200 | 814.000 | 595.600 | 914.000 | 599.300 | 1014.000 | 602.000 | 1114.000 |
| GR | 603.100 | 1214.000 | 603.500 | 1314.000 | 604.100 | 1414.000 | 603.400 | 1514.000 | 603.700 | 1614.000 |
| NH | 3.000 | .030 | 600.000 | .035 | 626.000 | .030 | 1600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 6421.000 | 33.000 | 600.000 | 626.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| GR | 603.100 | 0.000 | 602.000 | 70.000 | 601.700 | 100.000 | 602.000 | 200.000 | 601.600 | 220.000 |
| GR | 602.500 | 300.000 | 601.500 | 400.000 | 600.400 | 500.000 | 599.100 | 600.000 | 595.100 | 600.000 |
| GR | 595.100 | 608.000 | 596.800 | 608.000 | 596.800 | 609.300 | 595.100 | 609.300 | 595.100 | 616.500 |
| GR | 596.700 | 616.500 | 596.700 | 617.800 | 595.100 | 617.800 | 595.100 | 626.000 | 599.100 | 626.000 |
| GR | 597.600 | 680.000 | 599.200 | 700.000 | 598.200 | 800.000 | 597.400 | 830.000 | 597.800 | 900.000 |
| GR | 597.600 | 940.000 | 599.300 | 1000.000 | 602.000 | 1100.000 | 603.100 | 1200.000 | 603.500 | 1300.000 |
| GR | 604.100 | 1400.000 | 603.400 | 1500.000 | 603.700 | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 600.000 | .035 | 626.000 | .030 | 1600.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.488 | 3.030 | 0.000 | 26.000 | 0.000 | 73.700 | 0.000 | 595.100 | 595.100 |
| X1 | 6447.000 | 0.000 | 0.000 | 0.000 | 26.000 | 26.000 | 26.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 599.100 | 597.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 23.000 | 0.000 | 603.100 | 0.000 | 70.000 | 602.000 | 0.000 | 100.000 | 601.700 | 0.000 |
| BT | 200.000 | 602.000 | 0.000 | 220.000 | 601.600 | 0.000 | 300.000 | 602.500 | 0.000 | 400.000 |
| BT | 601.500 | 0.000 | 500.000 | 600.400 | 0.000 | 600.000 | 599.100 | 598.100 | 626.000 | 599.100 |
| BT | 598.100 | 680.000 | 597.600 | 0.000 | 700.000 | 599.200 | 0.000 | 800.000 | 598.200 | 0.000 |
| BT | 830.000 | 597.400 | 0.000 | 900.000 | 597.800 | 0.000 | 940.000 | 597.600 | 0.000 | 1000.000 |
| BT | 599.300 | 0.000 | 1100.000 | 602.000 | 0.000 | 1200.000 | 603.100 | 0.000 | 1300.000 | 603.500 |
| BT | 0.000 | 1400.000 | 604.100 | 0.000 | 1500.000 | 603.400 | 0.000 | 1600.000 | 603.700 | 0.000 |
| NH | 3.000 | .030 | 614.000 | .035 | 639.000 | .030 | 1614.000 | 0.000 | 0.000 | 0.000 |
| X1 | 6448.000 | 25.000 | 614.000 | 639.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.500 | 0.000 | 603.100 | 14.000 | 601.300 | 114.000 | 601.500 | 214.000 | 602.500 | 314.000 |
| GR | 601.500 | 414.000 | 600.100 | 514.000 | 598.900 | 538.000 | 598.000 | 589.000 | 593.200 | 614.000 |
| GR | 588.900 | 617.000 | 589.400 | 624.000 | 590.000 | 634.000 | 590.100 | 636.000 | 594.000 | 639.000 |
| GR | 599.200 | 714.000 | 598.200 | 814.000 | 595.600 | 914.000 | 599.300 | 1014.000 | 602.000 | 1114.000 |
| GR | 603.100 | 1214.000 | 603.500 | 1314.000 | 604.100 | 1414.000 | 603.400 | 1514.000 | 603.700 | 1614.000 |
| NH | 3.000 | .030 | 410.000 | .035 | 455.000 | .030 | 900.000 | 0.000 | 0.000 | 0.000 |
| X1 | 7325.000 | 17.000 | 410.000 | 455.000 | 877.000 | 877.000 | 877.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | 300.000 | 598.500 | 300.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 599.200 | 400.000 | 599.400 | 410.000 | 593.400 | 413.000 | 592.600 | 430.000 | 592.700 | 440.000 |
| GR | 593.500 | 447.000 | 598.800 | 455.000 | 597.800 | 500.000 | 603.600 | 600.000 | 605.200 | 700.000 |
| GR | 607.200 | 800.000 | 607.200 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .055 | 495.000 | .050 | 500.000 | .040 | 530.000 | .050 | 534.000 | .030 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8475.000 | 17.000 | 495.000 | 534.000 | 1150.000 | 1150.000 | 1150.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 603.700 | 0.000 | 600.800 | 100.000 | 603.100 | 200.000 | 601.800 | 300.000 | 598.400 | 400.000 |
| GR | 599.300 | 495.000 | 593.700 | 500.000 | 591.200 | 510.000 | 593.000 | 520.000 | 595.200 | 527.000 |
| GR | 595.500 | 530.000 | 599.400 | 534.000 | 598.200 | 600.000 | 598.600 | 700.000 | 602.900 | 800.000 |
| GR | 604.100 | 900.000 | 604.400 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 387.500 | .035 | 425.000 | .030 | 760.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8858.000 | 90.000 | 387.500 | 425.000 | 383.000 | 383.000 | 383.000 | 0.000 | 0.000 | 0.000 |
| GR | 604.700 | 0.000 | 604.400 | 13.300 | 604.200 | 26.700 | 603.900 | 40.000 | 603.700 | 53.400 |
| GR | 603.400 | 66.800 | 603.200 | 80.100 | 603.400 | 93.500 | 603.600 | 106.800 | 603.700 | 120.200 |
| GR | 603.800 | 133.600 | 603.800 | 145.900 | 603.800 | 160.300 | 603.600 | 173.700 | 603.300 | 187.000 |
| GR | 603.100 | 200.400 | 602.800 | 213.700 | 602.600 | 227.100 | 602.300 | 240.500 | 601.800 | 253.800 |
| GR | 601.300 | 267.200 | 600.800 | 280.600 | 600.300 | 293.900 | 599.800 | 307.300 | 599.500 | 320.600 |
| GR | 599.400 | 334.000 | 599.200 | 347.400 | 599.100 | 360.700 | 599.000 | 374.100 | 598.900 | 387.500 |
| GR | 597.600 | 388.700 | 596.400 | 390.000 | 595.200 | 391.200 | 594.300 | 392.400 | 594.000 | 393.700 |
| GR | 593.600 | 394.900 | 593.300 | 396.200 | 592.900 | 397.400 | 592.700 | 398.700 | 592.500 | 399.900 |
| GR | 592.300 | 401.200 | 592.300 | 402.400 | 592.400 | 403.700 | 592.500 | 404.900 | 592.600 | 406.200 |
| GR | 592.700 | 407.400 | 592.800 | 408.700 | 592.900 | 409.900 | 593.100 | 411.200 | 593.300 | 412.400 |
| GR | 593.500 | 413.700 | 593.800 | 414.900 | 594.000 | 416.200 | 594.200 | 417.400 | 594.400 | 418.700 |
| GR | 594.700 | 419.900 | 595.000 | 421.200 | 595.800 | 422.400 | 596.600 | 423.700 | 597.500 | 425.000 |
| GR | 598.300 | 436.100 | 599.100 | 447.300 | 599.700 | 458.500 | 599.600 | 469.600 | 599.600 | 480.800 |
| GR | 599.700 | 492.000 | 599.700 | 503.100 | 599.800 | 514.300 | 599.800 | 525.500 | 599.900 | 536.600 |
| GR | 600.100 | 547.800 | 600.500 | 559.000 | 600.900 | 570.100 | 601.300 | 581.300 | 601.700 | 592.400 |
| GR | 602.100 | 603.600 | 602.500 | 614.800 | 602.700 | 625.900 | 602.900 | 637.100 | 603.000 | 648.300 |
| GR | 603.200 | 659.400 | 603.400 | 670.600 | 603.500 | 681.800 | 603.700 | 692.900 | 603.800 | 704.100 |
| GR | 604.000 | 715.300 | 604.200 | 726.400 | 604.300 | 737.600 | 604.500 | 748.800 | 604.700 | 760.000 |
| NH | 5.000 | .040 | 280.000 | .080 | 284.000 | .040 | 310.000 | .080 | 316.000 | .040 |
| NH | 520.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 9240.000 | 14.000 | 280.000 | 316.000 | 382.000 | 382.000 | 382.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 605.700 | 0.000 | 605.700 | 80.000 | 602.900 | 180.000 | 598.500 | 280.000 | 595.300 | 284.000 |
| GR | 593.500 | 290.000 | 593.200 | 300.000 | 593.700 | 310.000 | 595.300 | 315.000 | 595.800 | 316.000 |
| GR | 601.000 | 335.000 | 601.300 | 380.000 | 603.300 | 480.000 | 605.100 | 520.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 500.000 | .090 | 800.000 | .080 | 813.000 | .040 | 843.000 | .080 |
| NH | 860.000 | .060 | 1085.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10875.000 | 19.000 | 813.000 | 843.000 | 1635.000 | 1635.000 | 1635.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 220.000 | 0.000 | 930.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 606.800 | 0.000 | 605.800 | 100.000 | 606.100 | 200.000 | 606.800 | 300.000 | 609.100 | 400.000 |
| GR | 607.600 | 500.000 | 604.600 | 600.000 | 601.100 | 700.000 | 600.700 | 800.000 | 597.400 | 813.000 |
| GR | 595.200 | 814.000 | 594.500 | 820.000 | 594.100 | 830.000 | 594.300 | 835.000 | 595.200 | 843.000 |
| GR | 598.900 | 860.000 | 600.900 | 900.000 | 605.600 | 935.000 | 605.300 | 1085.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 1000.000 | .080 | 1010.000 | .040 | 1031.000 | .080 | 1035.000 | .065 |
| NH | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12280.000 | 21.000 | 1010.000 | 1031.000 | 1405.000 | 1405.000 | 1405.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 961.000 | 0.000 | 1075.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 607.900 | 0.000 | 608.100 | 100.000 | 607.600 | 200.000 | 607.000 | 300.000 | 608.000 | 400.000 |
| GR | 609.600 | 500.000 | 609.000 | 600.000 | 608.200 | 700.000 | 606.500 | 800.000 | 605.500 | 900.000 |
| GR | 601.700 | 1000.000 | 595.500 | 1010.000 | 595.000 | 1015.000 | 596.000 | 1031.000 | 602.200 | 1035.000 |
| GR | 603.700 | 1100.000 | 605.300 | 1200.000 | 606.500 | 1300.000 | 609.100 | 1400.000 | 609.100 | 1500.000 |
| GR | 607.200 | 1600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 923.000 | .035 | 1016.000 | .040 | 1600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12308.000 | 30.000 | 923.000 | 1016.000 | 150.000 | 28.000 | 28.000 | 0.000 | 0.000 | 0.000 |
| | | | | | | | | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 607.900 | 0.000 | 608.100 | 100.000 | 607.600 | 200.000 | 607.000 | 300.000 | 608.000 | 400.000 |
| GR | 609.600 | 500.000 | 609.000 | 600.000 | 608.200 | 700.000 | 607.800 | 723.000 | 606.500 | 800.000 |
| GR | 606.300 | 823.000 | 605.500 | 900.000 | 604.600 | 923.000 | 599.700 | 923.000 | 596.400 | 955.000 |
| GR | 595.700 | 968.000 | 606.000 | 968.000 | 606.000 | 971.000 | 595.200 | 971.000 | 596.100 | 981.000 |
| GR | 599.000 | 1016.000 | 601.800 | 1016.000 | 601.900 | 1023.000 | 602.200 | 1035.000 | 603.700 | 1100.000 |
| GR | 605.300 | 1200.000 | 606.500 | 1300.000 | 609.100 | 1400.000 | 609.100 | 1500.000 | 607.200 | 1600.000 |
| SB | 0.000 | 1.575 | 3.030 | 0.000 | 93.000 | 0.000 | 783.000 | 0.000 | 595.200 | 595.200 |
| X1 | 12356.000 | 0.000 | 0.000 | 0.000 | 48.000 | 48.000 | 48.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 606.000 | 606.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 923.000 | 0.000 | 1016.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 23.000 | 0.000 | 607.900 | 0.000 | 100.000 | 608.100 | 0.000 | 200.000 | 607.600 | 0.000 |
| BT | 300.000 | 607.000 | 0.000 | 350.000 | 608.100 | 0.000 | 400.000 | 608.000 | 0.000 | 500.000 |
| BT | 609.600 | 0.000 | 600.000 | 609.000 | 0.000 | 700.000 | 608.200 | 0.000 | 723.000 | 608.000 |
| BT | 0.000 | 823.000 | 608.700 | 0.000 | 923.000 | 610.400 | 604.600 | 923.000 | 610.400 | 606.000 |
| BT | 1016.000 | 610.400 | 606.000 | 1016.000 | 610.400 | 601.800 | 1023.000 | 609.300 | 0.000 | 1123.000 |
| BT | 607.900 | 0.000 | 1223.000 | 606.800 | 0.000 | 1323.000 | 607.800 | 0.000 | 1360.000 | 608.100 |
| BT | 0.000 | 1400.000 | 609.100 | 0.000 | 1500.000 | 609.100 | 0.000 | 1600.000 | 607.200 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .050 | 400.000 | .080 | 700.000 | .070 | 703.000 | .050 | 723.000 | .070 |
| NH | 730.000 | .100 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 12556.000 | 19.000 | 700.000 | 730.000 | 200.000 | 200.000 | 200.000 | 0.000 | -.400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 608.900 | 0.000 | 608.900 | 100.000 | 609.400 | 200.000 | 604.000 | 300.000 | 603.900 | 400.000 |
| GR | 603.900 | 500.000 | 604.200 | 600.000 | 602.000 | 700.000 | 597.200 | 703.000 | 596.100 | 710.000 |
| GR | 595.700 | 720.000 | 596.200 | 723.000 | 604.700 | 730.000 | 605.700 | 800.000 | 607.400 | 900.000 |
| GR | 609.500 | 1000.000 | 609.800 | 1100.000 | 608.800 | 1200.000 | 609.500 | 1300.000 | 0.000 | 0.000 |
| X1 | 13470.000 | 0.000 | 0.000 | 0.000 | 800.000 | 1000.000 | 914.000 | 0.000 | .400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 390.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 195.000 | .045 | 230.000 | .040 | 275.000 | .045 | 300.000 | .060 |
| NH | 415.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 14920.000 | 14.000 | 195.000 | 300.000 | 1450.000 | 1450.000 | 1450.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 610.200 | 0.000 | 612.000 | 100.000 | 610.000 | 160.000 | 604.500 | 185.000 | 603.300 | 195.000 |
| GR | 600.800 | 230.000 | 599.900 | 240.000 | 598.600 | 250.000 | 598.400 | 260.000 | 599.700 | 270.000 |
| GR | 601.000 | 275.000 | 602.900 | 300.000 | 607.700 | 354.000 | 608.400 | 415.000 | 0.000 | 0.000 |
| QT | 4.000 | 1350.000 | 1970.000 | 2250.000 | 3080.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 600.000 | .065 | 643.000 | .040 | 660.000 | .050 | 667.000 | .060 |
| NH | 870.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 17000.000 | 18.000 | 643.000 | 667.000 | 2080.000 | 2080.000 | 2080.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 250.000 | 0.000 | 720.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 613.900 | 0.000 | 614.300 | 100.000 | 613.800 | 200.000 | 613.600 | 300.000 | 613.000 | 400.000 |
| GR | 610.700 | 500.000 | 607.000 | 600.000 | 603.200 | 643.000 | 599.800 | 646.000 | 600.100 | 650.000 |
| GR | 599.700 | 660.000 | 601.100 | 665.000 | 603.200 | 666.000 | 604.800 | 667.000 | 608.800 | 680.000 |
| GR | 609.800 | 700.000 | 612.500 | 800.000 | 611.200 | 870.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1240.000 | 1810.000 | 2070.000 | 2830.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .030 | 287.000 | .070 | 298.000 | .040 | 318.000 | .070 | 345.000 | .030 |
| NH | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 271.000 | 362.000 | 0.000 | 0.000 | 0.000 |
| X1 | 19025.000 | 15.000 | 287.000 | 345.000 | 2000.000 | 1900.000 | 2025.000 | 0.000 | 0.000 | 0.000 |
| GR | 616.100 | 0.000 | 615.000 | 100.000 | 615.100 | 200.000 | 613.000 | 287.000 | 606.500 | 298.000 |
| GR | 603.100 | 306.000 | 603.700 | 310.000 | 603.000 | 312.000 | 604.400 | 315.000 | 605.700 | 318.000 |
| GR | 607.300 | 332.000 | 612.100 | 345.000 | 613.000 | 400.000 | 615.600 | 500.000 | 615.000 | 600.000 |
| NH | 3.000 | .035 | 380.000 | .040 | 461.000 | .035 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 380.000 | 461.000 | 0.000 | 0.000 | 0.000 |
| X1 | 19046.000 | 18.000 | 380.000 | 451.000 | 21.000 | 21.000 | 21.000 | 0.000 | 0.000 | 0.000 |
| GR | 617.200 | 0.000 | 616.100 | 100.000 | 615.000 | 200.000 | 615.100 | 300.000 | 613.200 | 380.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 605.800 | 414.000 | 606.100 | 424.000 | 604.800 | 436.000 | 604.700 | 453.000 | 612.500 | 461.000 |
| GR | 613.000 | 500.000 | 615.600 | 600.000 | 615.000 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .035 | 400.000 | .040 | 452.000 | .035 | 700.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 400.000 | 452.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.280 | 3.040 | 0.000 | 52.000 | 0.000 | 357.500 | 0.000 | 603.900 | 603.900 |
| X1 | 19149.000 | 16.000 | 400.000 | 452.000 | 103.000 | 103.000 | 103.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 612.000 | 614.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 15.000 | 0.000 | 617.200 | 0.000 | 100.000 | 616.100 | 0.000 | 200.000 | 615.500 | 0.000 |
| BT | 300.000 | 615.300 | 0.000 | 400.000 | 616.200 | 0.000 | 400.000 | 619.400 | 612.000 | 452.000 |
| BT | 619.400 | 612.000 | 452.000 | 616.200 | 0.000 | 500.000 | 615.300 | 0.000 | 600.000 | 615.600 |
| BT | 0.000 | 700.000 | 615.000 | 0.000 | 800.000 | 614.400 | 0.000 | 900.000 | 614.500 | 0.000 |
| BT | 1000.000 | 614.400 | 0.000 | 1100.000 | 615.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 617.200 | 0.000 | 616.100 | 100.000 | 615.000 | 200.000 | 615.100 | 300.000 | 612.700 | 400.000 |
| GR | 603.600 | 400.000 | 604.600 | 410.000 | 606.200 | 420.000 | 606.400 | 430.000 | 604.700 | 440.000 |
| GR | 604.200 | 450.000 | 604.200 | 452.000 | 612.200 | 452.000 | 613.000 | 500.000 | 615.600 | 600.000 |
| GR | 615.000 | 700.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .035 | 278.000 | .035 | 285.000 | .030 | 415.000 | 0.000 | 0.000 | 0.000 |
| X1 | 19549.000 | 13.000 | 271.000 | 298.500 | 400.000 | 400.000 | 400.000 | 0.000 | 0.000 | 0.000 |
| GR | 616.800 | 0.000 | 616.400 | 85.000 | 611.400 | 185.000 | 610.300 | 271.000 | 607.300 | 273.000 |
| GR | 605.200 | 278.000 | 604.200 | 285.000 | 604.600 | 290.000 | 607.000 | 293.000 | 609.600 | 295.000 |
| GR | 610.800 | 298.500 | 611.000 | 349.000 | 617.900 | 415.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .035 | 283.000 | .035 | 287.000 | .030 | 415.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.644 | 3.030 | 0.000 | 4.000 | 0.000 | 12.560 | 0.000 | 604.900 | 604.200 |
| X1 | 19571.000 | 14.000 | 283.000 | 287.000 | 22.000 | 22.000 | 22.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 608.900 | 610.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 12.000 | 0.000 | 616.800 | 0.000 | 85.000 | 616.400 | 0.000 | 185.000 | 611.400 | 0.000 |
| BT | 271.500 | 610.300 | 0.000 | 283.000 | 610.100 | 607.600 | 284.000 | 610.100 | 608.700 | 285.000 |
| BT | 610.100 | 608.900 | 285.000 | 610.200 | 608.700 | 287.000 | 610.200 | 607.600 | 298.500 | 610.800 |
| BT | 0.000 | 349.000 | 611.000 | 0.000 | 415.000 | 617.900 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 616.800 | 0.000 | 616.400 | 85.000 | 611.400 | 185.000 | 610.300 | 271.500 | 610.100 | 283.000 |
| GR | 606.200 | 283.000 | 605.100 | 284.000 | 604.900 | 285.000 | 605.100 | 286.000 | 606.200 | 287.000 |
| GR | 610.200 | 287.000 | 610.800 | 298.500 | 611.000 | 349.000 | 617.900 | 415.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .030 | 100.000 | .060 | 300.000 | .070 | 309.000 | .045 | 324.000 | .070 |
| NH | 329.000 | .060 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 19641.000 | 15.000 | 300.000 | 329.000 | 70.000 | 70.000 | 70.000 | 0.000 | .600 | 0.000 |
| GR | 618.500 | 0.000 | 617.600 | 100.000 | 613.600 | 123.000 | 610.600 | 200.000 | 610.500 | 300.000 |
| GR | 606.600 | 309.000 | 604.200 | 316.000 | 605.500 | 324.000 | 610.500 | 329.000 | 610.900 | 400.000 |
| GR | 614.600 | 500.000 | 617.400 | 600.000 | 617.100 | 700.000 | 618.100 | 800.000 | 618.200 | 900.000 |
| X1 | 20325.000 | 0.000 | 0.000 | 0.000 | 684.000 | 684.000 | 684.000 | 0.000 | -.600 | 0.000 |
| NH | 3.000 | .030 | 520.000 | .035 | 569.000 | .030 | 680.000 | 0.000 | 0.000 | 0.000 |
| X1 | 21759.000 | 11.000 | 520.000 | 569.000 | 1434.000 | 1434.000 | 1434.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.000 | 0.000 | 618.900 | 100.000 | 618.700 | 200.000 | 613.900 | 300.000 | 612.800 | 400.000 |
| GR | 613.200 | 520.000 | 608.200 | 530.000 | 608.200 | 563.000 | 612.900 | 569.000 | 613.700 | 602.000 |
| GR | 621.500 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 520.000 | .035 | 569.000 | .030 | 680.000 | 0.000 | 0.000 | 0.000 |
| X1 | 21760.000 | 11.000 | 520.000 | 569.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.000 | 0.000 | 618.900 | 100.000 | 618.700 | 200.000 | 613.900 | 300.000 | 612.800 | 400.000 |
| GR | 613.200 | 520.000 | 611.100 | 530.000 | 611.100 | 563.000 | 612.900 | 569.000 | 613.700 | 602.000 |
| GR | 621.500 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 520.000 | .035 | 569.000 | .030 | 680.000 | 0.000 | 0.000 | 0.000 |
| X1 | 21761.000 | 11.000 | 520.000 | 569.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.000 | 0.000 | 618.900 | 100.000 | 618.700 | 200.000 | 613.900 | 300.000 | 612.800 | 400.000 |
| GR | 613.200 | 520.000 | 606.200 | 530.000 | 606.200 | 563.000 | 612.900 | 569.000 | 613.700 | 602.000 |
| GR | 621.500 | 680.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 300.000 | .040 | 336.000 | .030 | 685.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 620.000 | 0.000 | 618.900 | 100.000 | 618.700 | 200.000 | 613.900 | 300.000 | 609.200 | 303.000 |
| GR | 606.100 | 310.000 | 606.000 | 320.000 | 606.600 | 330.000 | 610.100 | 335.000 | 614.700 | 338.000 |
| GR | 612.700 | 400.000 | 613.000 | 500.000 | 614.900 | 600.000 | 623.400 | 665.000 | 0.000 | 0.000 |
| NH | 3.000 | .035 | 210.000 | .035 | 251.000 | .040 | 602.500 | 0.000 | 0.000 | 0.000 |
| X1 | 22628.000 | 90.000 | 210.000 | 251.000 | 792.000 | 792.000 | 792.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.900 | 0.000 | 620.100 | 7.200 | 619.300 | 14.400 | 618.600 | 21.700 | 617.800 | 28.900 |
| GR | 617.400 | 36.200 | 617.300 | 43.400 | 617.200 | 50.600 | 617.100 | 57.900 | 617.000 | 65.100 |
| GR | 616.900 | 72.400 | 616.900 | 79.500 | 616.800 | 86.800 | 616.800 | 94.100 | 616.700 | 101.300 |
| GR | 616.600 | 108.600 | 616.600 | 115.800 | 616.500 | 123.100 | 616.500 | 130.300 | 616.500 | 137.500 |
| GR | 616.400 | 144.800 | 616.100 | 152.000 | 615.900 | 159.300 | 615.700 | 166.500 | 615.400 | 173.700 |
| GR | 615.200 | 181.000 | 615.000 | 188.200 | 614.700 | 195.500 | 614.500 | 202.700 | 614.300 | 210.000 |
| GR | 613.100 | 211.300 | 612.000 | 212.700 | 611.300 | 214.100 | 610.800 | 215.400 | 610.200 | 216.800 |
| GR | 608.700 | 218.100 | 607.100 | 219.500 | 606.800 | 220.900 | 606.800 | 222.200 | 606.700 | 223.600 |
| GR | 606.700 | 225.000 | 606.600 | 226.300 | 606.600 | 227.700 | 606.500 | 229.100 | 606.500 | 230.400 |
| GR | 606.400 | 231.800 | 606.300 | 233.200 | 606.300 | 234.500 | 606.300 | 235.900 | 606.200 | 237.300 |
| GR | 606.600 | 238.600 | 607.200 | 240.000 | 607.800 | 241.400 | 608.400 | 242.700 | 609.300 | 244.100 |
| GR | 610.200 | 245.500 | 611.000 | 246.800 | 612.100 | 248.200 | 613.500 | 249.600 | 614.900 | 251.000 |
| GR | 614.600 | 262.700 | 614.400 | 274.400 | 614.200 | 286.100 | 614.000 | 297.800 | 613.800 | 309.500 |
| GR | 613.700 | 321.200 | 613.700 | 333.000 | 613.700 | 344.700 | 613.700 | 356.400 | 613.700 | 368.100 |
| GR | 613.700 | 379.800 | 613.600 | 391.500 | 613.600 | 403.300 | 613.600 | 415.000 | 613.700 | 426.700 |
| GR | 613.800 | 438.400 | 613.900 | 450.100 | 614.000 | 461.800 | 614.100 | 473.600 | 614.200 | 485.300 |
| GR | 614.300 | 497.000 | 614.500 | 508.700 | 614.800 | 520.400 | 615.400 | 532.100 | 616.100 | 543.900 |
| GR | 616.700 | 555.600 | 617.400 | 567.300 | 620.200 | 579.000 | 621.300 | 590.700 | 622.000 | 602.500 |
| NH | 3.000 | .035 | 165.000 | .035 | 207.500 | .040 | 561.200 | 0.000 | 0.000 | 0.000 |
| X1 | 22952.000 | 90.000 | 165.000 | 207.500 | 324.000 | 324.000 | 324.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 61.000 | 0.000 | 314.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 621.400 | 0.000 | 620.200 | 5.600 | 619.100 | 11.300 | 618.000 | 17.000 | 616.900 | 22.700 |
| GR | 616.400 | 28.400 | 616.300 | 34.100 | 616.200 | 39.800 | 616.100 | 45.500 | 616.000 | 51.200 |
| GR | 615.900 | 56.800 | 615.900 | 62.500 | 615.800 | 68.200 | 615.700 | 73.900 | 615.600 | 79.600 |
| GR | 615.500 | 85.300 | 615.500 | 91.000 | 615.400 | 96.700 | 615.400 | 102.400 | 615.400 | 108.100 |
| GR | 615.400 | 113.700 | 615.200 | 119.400 | 615.200 | 125.100 | 615.100 | 130.800 | 614.900 | 136.500 |
| GR | 614.800 | 142.200 | 614.800 | 147.900 | 614.600 | 153.600 | 614.500 | 159.300 | 614.500 | 165.000 |
| GR | 613.700 | 166.400 | 613.000 | 167.800 | 612.500 | 169.200 | 612.100 | 170.600 | 611.400 | 172.000 |
| GR | 609.400 | 173.400 | 607.300 | 174.900 | 607.200 | 176.300 | 607.100 | 177.700 | 607.000 | 179.100 |
| GR | 607.000 | 180.500 | 606.900 | 181.900 | 606.900 | 183.400 | 606.800 | 184.800 | 606.700 | 186.200 |
| GR | 606.600 | 187.600 | 606.500 | 189.000 | 606.400 | 190.400 | 606.300 | 191.900 | 606.200 | 193.300 |
| GR | 606.700 | 194.700 | 607.600 | 196.100 | 608.500 | 197.500 | 609.200 | 198.900 | 610.100 | 200.400 |
| GR | 610.900 | 201.800 | 611.800 | 203.200 | 612.700 | 204.600 | 613.800 | 206.000 | 615.000 | 207.500 |
| GR | 614.800 | 219.200 | 614.700 | 231.000 | 614.500 | 242.800 | 614.400 | 254.600 | 614.300 | 266.400 |
| GR | 614.200 | 278.200 | 614.200 | 290.000 | 614.200 | 301.800 | 614.100 | 313.600 | 614.100 | 325.400 |
| GR | 614.100 | 337.200 | 614.000 | 348.900 | 614.000 | 360.700 | 613.900 | 372.500 | 614.000 | 384.300 |
| GR | 614.000 | 396.100 | 614.100 | 407.900 | 614.100 | 419.700 | 614.100 | 431.500 | 614.200 | 443.300 |
| GR | 614.200 | 455.100 | 614.300 | 466.900 | 614.500 | 478.700 | 614.900 | 490.400 | 615.300 | 502.200 |
| GR | 615.700 | 514.000 | 616.200 | 525.800 | 619.800 | 537.600 | 620.800 | 549.400 | 621.300 | 561.200 |
| NH | 3.000 | .040 | 130.100 | .035 | 173.800 | .045 | 529.300 | 0.000 | 0.000 | 0.000 |
| X1 | 23202.000 | 90.000 | 130.100 | 173.800 | 250.000 | 250.000 | 250.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 88.000 | 0.000 | 216.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 621.700 | 0.000 | 620.300 | 4.400 | 619.000 | 8.900 | 617.600 | 13.400 | 616.200 | 17.900 |
| GR | 615.700 | 22.400 | 615.600 | 26.900 | 615.500 | 31.400 | 615.400 | 35.900 | 615.300 | 40.300 |
| GR | 615.200 | 44.800 | 615.100 | 49.300 | 615.000 | 53.800 | 614.900 | 58.300 | 614.800 | 62.800 |
| GR | 614.700 | 67.300 | 614.700 | 71.800 | 614.600 | 76.300 | 614.600 | 80.700 | 614.600 | 85.200 |
| GR | 614.600 | 89.700 | 614.600 | 94.200 | 614.600 | 98.700 | 614.600 | 103.200 | 614.600 | 107.700 |
| GR | 614.600 | 112.200 | 614.600 | 116.700 | 614.600 | 121.100 | 614.600 | 125.600 | 614.600 | 130.100 |
| GR | 614.200 | 131.600 | 613.800 | 133.000 | 613.400 | 134.500 | 613.100 | 135.900 | 612.300 | 137.400 |
| GR | 610.100 | 138.900 | 607.500 | 140.300 | 607.500 | 141.800 | 607.400 | 143.200 | 607.300 | 144.700 |
| GR | 607.300 | 146.100 | 607.200 | 147.600 | 607.100 | 149.000 | 607.000 | 150.500 | 606.900 | 152.000 |
| GR | 606.700 | 153.400 | 606.600 | 154.900 | 606.500 | 156.300 | 606.300 | 157.800 | 606.200 | 159.200 |
| GR | 606.800 | 160.700 | 607.900 | 162.100 | 609.000 | 163.600 | 609.800 | 165.000 | 610.700 | 166.500 |
| GR | 611.500 | 168.000 | 612.400 | 169.400 | 613.200 | 170.900 | 614.100 | 172.300 | 615.000 | 173.800 |
| GR | 614.900 | 185.600 | 614.900 | 197.500 | 614.800 | 209.300 | 614.800 | 221.200 | 614.700 | 233.000 |
| GR | 614.600 | 244.900 | 614.600 | 256.700 | 614.500 | 268.600 | 614.500 | 280.400 | 614.400 | 292.300 |
| GR | 614.400 | 304.100 | 614.300 | 316.000 | 614.300 | 327.800 | 614.200 | 339.700 | 614.200 | 351.500 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 614.200 | 422.600 | 614.200 | 434.500 | 614.400 | 446.300 | 614.600 | 458.200 | 614.700 | 470.000 |
| GR | 614.900 | 481.900 | 615.300 | 493.700 | 619.500 | 505.600 | 620.400 | 517.400 | 620.800 | 529.300 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 120.000 | .080 | 130.000 | .040 | 154.000 | .080 | 164.000 | .070 |
| NH | 520.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 23275.000 | 17.000 | 120.000 | 164.000 | 73.000 | 73.000 | 73.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 95.000 | 0.000 | 188.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 621.900 | 0.000 | 615.600 | 18.000 | 614.400 | 70.000 | 614.700 | 120.000 | 613.200 | 127.000 |
| GR | 610.100 | 129.000 | 607.700 | 130.000 | 607.200 | 140.000 | 606.200 | 150.000 | 609.400 | 154.000 |
| GR | 615.100 | 164.000 | 614.900 | 220.000 | 614.400 | 320.000 | 614.200 | 420.000 | 614.900 | 484.000 |
| GR | 620.100 | 498.000 | 620.700 | 520.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 700.000 | .035 | 749.000 | .040 | 1300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 23384.000 | 34.000 | 700.000 | 744.000 | 150.000 | 50.000 | 109.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 700.000 | 0.000 | 744.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 623.600 | 0.000 | 623.100 | 100.000 | 622.700 | 200.000 | 622.300 | 300.000 | 622.100 | 400.000 |
| GR | 621.800 | 500.000 | 621.800 | 580.000 | 615.600 | 598.000 | 614.400 | 668.000 | 614.700 | 700.000 |
| GR | 613.200 | 707.000 | 612.900 | 709.000 | 612.700 | 710.000 | 612.500 | 714.000 | 617.700 | 714.000 |
| GR | 617.700 | 715.000 | 612.500 | 715.000 | 609.400 | 718.000 | 608.500 | 725.000 | 608.500 | 728.000 |
| GR | 617.700 | 728.000 | 617.700 | 729.000 | 608.500 | 729.000 | 609.100 | 735.000 | 610.100 | 744.000 |
| GR | 615.100 | 744.000 | 614.900 | 800.000 | 614.400 | 900.000 | 614.200 | 1000.000 | 614.900 | 1064.000 |
| GR | 620.100 | 1078.000 | 620.700 | 1100.000 | 623.500 | 1200.000 | 624.000 | 1300.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.854 | 2.820 | 0.000 | 44.000 | 0.000 | 296.200 | 0.000 | 608.500 | 608.500 |
| X1 | 23410.000 | 0.000 | 0.000 | 0.000 | 26.000 | 26.000 | 26.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 617.800 | 621.800 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 700.000 | 0.000 | 744.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 22.000 | 0.000 | 623.600 | 0.000 | 100.000 | 623.100 | 0.000 | 200.000 | 622.700 | 0.000 |
| BT | 300.000 | 622.300 | 0.000 | 400.000 | 622.100 | 0.000 | 500.000 | 621.800 | 0.000 | 700.000 |
| BT | 621.800 | 614.700 | 700.000 | 621.800 | 617.600 | 714.000 | 622.000 | 617.700 | 715.000 | 622.000 |
| BT | 617.700 | 728.000 | 622.000 | 617.700 | 729.000 | 622.000 | 617.700 | 744.000 | 622.100 | 617.800 |
| BT | 744.000 | 622.100 | 615.100 | 800.000 | 622.100 | 0.000 | 900.000 | 622.400 | 0.000 | 1000.000 |
| BT | 622.700 | 0.000 | 1064.000 | 623.200 | 0.000 | 1078.000 | 623.300 | 0.000 | 1100.000 | 623.400 |
| BT | 0.000 | 1200.000 | 623.500 | 0.000 | 1300.000 | 624.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 6.000 | .030 | 595.000 | .060 | 650.000 | .075 | 660.000 | .045 | 675.000 | .080 |
| NH | 690.000 | .070 | 1190.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 23583.000 | 20.000 | 650.000 | 690.000 | 173.000 | 173.000 | 173.000 | 0.000 | -.500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 530.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 623.300 | 0.000 | 600.900 | 40.000 | 600.900 | 415.000 | 614.600 | 460.000 | 622.300 | 490.000 |
| GR | 622.900 | 530.000 | 611.100 | 595.000 | 615.700 | 650.000 | 611.100 | 660.000 | 609.000 | 661.000 |
| GR | 609.200 | 664.000 | 609.500 | 668.000 | 610.000 | 671.000 | 611.100 | 675.000 | 615.100 | 690.000 |
| GR | 615.500 | 790.000 | 615.600 | 890.000 | 622.900 | 990.000 | 622.900 | 1090.000 | 622.700 | 1190.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 24050.000 | 0.000 | 0.000 | 0.000 | 427.000 | 827.000 | 467.000 | 0.000 | .500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 530.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 745.000 | .070 | 760.000 | .040 | 785.000 | .070 | 800.000 | .060 |
| NH | 1345.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 24665.000 | 21.000 | 745.000 | 800.000 | 700.000 | 500.000 | 615.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 744.000 | 0.000 | 803.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 624.900 | 0.000 | 624.200 | 145.000 | 624.100 | 245.000 | 623.300 | 345.000 | 623.800 | 445.000 |
| GR | 623.500 | 535.000 | 616.600 | 569.000 | 616.200 | 645.000 | 616.100 | 745.000 | 611.900 | 760.000 |
| GR | 609.400 | 762.000 | 609.900 | 771.000 | 610.500 | 775.000 | 612.200 | 785.000 | 617.100 | 800.000 |
| GR | 617.500 | 845.000 | 617.900 | 945.000 | 621.500 | 1045.000 | 623.700 | 1145.000 | 623.300 | 1245.000 |
| GR | 625.700 | 1345.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .040 | 700.000 | .030 | 745.000 | .040 | 1290.000 | 0.000 | 0.000 | 0.000 |
| X1 | 24693.000 | 25.000 | 700.000 | 745.000 | 28.000 | 28.000 | 28.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 700.000 | 0.000 | 745.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| [illegible] | 625.100 | 0.000 | 624.200 | 100.000 | 624.000 | 200.000 | 623.400 | 300.000 | 623.800 | 400.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 616.100 | 685.000 | 616.100 | 700.000 | 610.900 | 700.000 | 609.000 | 710.000 | 610.100 | 720.000 |
| GR | 609.700 | 730.000 | 610.400 | 740.000 | 611.500 | 745.000 | 617.100 | 745.000 | 617.500 | 800.000 |
| GR | 618.200 | 900.000 | 621.700 | 1000.000 | 623.700 | 1090.000 | 623.300 | 1190.000 | 625.700 | 1290.000 |
| SB | 0.000 | 1.660 | 3.040 | 0.000 | 45.000 | 0.000 | 396.700 | 0.000 | 609.000 | 609.000 |
| X1 | 24757.000 | 0.000 | 0.000 | 0.000 | 64.000 | 64.000 | 64.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 518.900 | 621.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 700.000 | 0.000 | 745.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 23.000 | 0.000 | 625.100 | 0.000 | 100.000 | 624.200 | 0.000 | 200.000 | 624.000 | 0.000 |
| BT | 300.000 | 623.400 | 0.000 | 400.000 | 623.800 | 0.000 | 480.000 | 623.500 | 0.000 | 490.000 |
| BT | 621.300 | 0.000 | 500.000 | 621.300 | 0.000 | 600.000 | 622.300 | 0.000 | 685.000 | 623.400 |
| BT | 0.000 | 685.000 | 626.900 | 0.000 | 700.000 | 626.800 | 616.100 | 700.000 | 626.800 | 618.900 |
| BT | 745.000 | 626.600 | 618.700 | 745.000 | 626.600 | 617.100 | 760.000 | 626.500 | 0.000 | 760.000 |
| BT | 623.000 | 0.000 | 800.000 | 622.300 | 0.000 | 900.000 | 622.000 | 0.000 | 1000.000 | 621.700 |
| BT | 0.000 | 1090.000 | 623.700 | 0.000 | 1190.000 | 623.300 | 0.000 | 1290.000 | 625.700 | 0.000 |
| QT | 4.000 | 1200.000 | 1760.000 | 2000.000 | 2750.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 463.000 | .080 | 480.000 | .045 | 508.000 | .080 | 518.000 | .085 |
| NH | 640.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 24832.000 | 14.000 | 463.000 | 518.000 | 75.000 | 75.000 | 75.000 | 0.000 | -1.900 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 625.400 | 0.000 | 621.700 | 100.000 | 616.000 | 200.000 | 616.500 | 300.000 | 618.500 | 400.000 |
| GR | 617.200 | 463.000 | 611.200 | 480.000 | 612.000 | 490.000 | 612.400 | 500.000 | 611.200 | 508.000 |
| GR | 618.000 | 518.000 | 620.400 | 550.000 | 624.300 | 600.000 | 625.700 | 640.000 | 0.000 | 0.000 |
| WC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25435.000 | 0.000 | 0.000 | 0.000 | 825.000 | 525.000 | 603.000 | 0.000 | 1.900 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 360.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1140.000 | 1660.000 | 1890.000 | 2600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 87.000 | .040 | 145.000 | .050 | 300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25560.000 | 9.000 | 87.000 | 145.000 | 125.000 | 125.000 | 125.000 | 0.000 | 0.000 | 0.000 |
| GR | 619.000 | 0.000 | 618.100 | 84.000 | 612.200 | 87.000 | 612.200 | 145.000 | 618.600 | 152.000 |
| GR | 618.200 | 200.000 | 617.800 | 220.000 | 622.600 | 236.000 | 625.300 | 300.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 87.000 | .040 | 145.000 | .050 | 300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25565.000 | 15.000 | 87.000 | 145.000 | 5.000 | 5.000 | 5.000 | 0.000 | 0.000 | 0.000 |
| GR | 619.000 | 0.000 | 618.100 | 84.000 | 612.500 | 87.000 | 612.200 | 99.000 | 618.100 | 100.000 |
| GR | 615.600 | 104.000 | 615.600 | 121.000 | 617.500 | 130.000 | 615.300 | 131.000 | 614.200 | 145.000 |
| GR | 618.600 | 152.000 | 618.200 | 200.000 | 617.800 | 220.000 | 622.600 | 236.000 | 625.300 | 300.000 |
| NH | 3.000 | .050 | 87.000 | .040 | 145.000 | .050 | 300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 25570.000 | 9.000 | 87.000 | 145.000 | 5.000 | 5.000 | 5.000 | 0.000 | 0.000 | 0.000 |
| GR | 620.100 | 0.000 | 619.200 | 84.000 | 613.300 | 87.000 | 613.300 | 145.000 | 619.700 | 152.000 |
| GR | 619.300 | 200.000 | 618.900 | 220.000 | 623.700 | 236.000 | 626.400 | 300.000 | 0.000 | 0.000 |
| NH | 5.000 | .070 | 500.000 | .065 | 514.000 | .040 | 539.000 | .065 | 560.000 | .075 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 6.100 | 0.000 | 457.000 | 603.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26765.000 | 16.000 | 500.000 | 560.000 | 1195.000 | 1195.000 | 1195.000 | 0.000 | 0.000 | 0.000 |
| GR | 624.900 | 0.000 | 627.300 | 100.000 | 626.500 | 200.000 | 625.700 | 300.000 | 623.200 | 400.000 |
| GR | 620.700 | 500.000 | 614.300 | 514.000 | 612.600 | 519.000 | 613.300 | 530.000 | 614.300 | 539.000 |
| GR | 624.500 | 560.000 | 625.300 | 600.000 | 626.400 | 700.000 | 626.700 | 800.000 | 628.000 | 900.000 |
| GR | 628.700 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 800.000 | .040 | 824.000 | .060 | 1400.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 6.100 | 6.100 | 0.000 | 800.000 | 824.000 | 0.000 | 0.000 | 0.000 |
| X1 | 26891.000 | 28.000 | 800.000 | 824.000 | 126.000 | 126.000 | 126.000 | .921 | 0.000 | 0.000 |
| GR | 627.400 | 0.000 | 627.200 | 100.000 | 625.900 | 200.000 | 626.500 | 300.000 | 626.300 | 360.000 |
| GR | 627.300 | 400.000 | 626.500 | 500.000 | 625.700 | 600.000 | 625.700 | 650.000 | 623.200 | 700.000 |
| GR | 620.800 | 796.000 | 620.800 | 797.000 | 620.700 | 800.000 | 614.000 | 800.000 | 612.900 | 810.000 |
| GR | 612.400 | 815.000 | 613.400 | 820.000 | 613.700 | 824.000 | 623.800 | 824.000 | 623.900 | 829.000 |
| GR | 623.900 | 830.000 | 625.300 | 900.000 | 625.600 | 930.000 | 626.400 | 1000.000 | 626.700 | 1100.000 |
| GR | 628.000 | 1200.000 | 628.700 | 1300.000 | 627.200 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 800.000 | .040 | 824.000 | .060 | 1400.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0.000 | 1.740 | 3.030 | 0.000 | 24.000 | 0.000 | 218.700 | 0.000 | 612.400 | 612.400 |
| X1 | 26947.000 | 28.000 | 800.000 | 824.000 | 56.000 | 56.000 | 56.000 | .921 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 622.300 | 625.500 | 0.000 | 0.000 | 0.000 | .921 | 0.000 |
| BT | 24.000 | 0.000 | 627.400 | 0.000 | 100.000 | 627.200 | 0.000 | 200.000 | 625.900 | 0.000 |
| BT | 300.000 | 626.500 | 0.000 | 360.000 | 626.300 | 0.000 | 400.000 | 627.300 | 0.000 | 500.000 |
| BT | 626.500 | 0.000 | 600.000 | 625.700 | 0.000 | 650.000 | 625.700 | 0.000 | 700.000 | 625.700 |
| BT | 0.000 | 796.000 | 625.600 | 0.000 | 797.000 | 629.200 | 0.000 | 800.000 | 629.200 | 620.700 |
| BT | 800.000 | 629.200 | 622.300 | 824.000 | 624.200 | 622.300 | 829.000 | 629.200 | 0.000 | 830.000 |
| BT | 625.600 | 0.000 | 900.000 | 625.500 | 0.000 | 930.000 | 625.600 | 0.000 | 1000.000 | 626.400 |
| BT | 0.000 | 1100.000 | 626.700 | 0.000 | 1200.000 | 628.000 | 0.000 | 1300.000 | 628.700 | 0.000 |
| BT | 1400.000 | 627.200 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 627.400 | 0.000 | 627.200 | 100.000 | 625.900 | 200.000 | 626.500 | 300.000 | 626.300 | 360.000 |
| GR | 627.300 | 400.000 | 626.500 | 500.000 | 625.700 | 600.000 | 625.700 | 650.000 | 623.200 | 700.000 |
| GR | 620.800 | 796.000 | 620.800 | 797.000 | 620.700 | 800.000 | 614.000 | 800.000 | 612.900 | 810.000 |
| GR | 612.400 | 815.000 | 613.400 | 820.000 | 613.700 | 824.000 | 623.800 | 824.000 | 623.900 | 829.000 |
| GR | 623.900 | 830.000 | 625.300 | 900.000 | 625.600 | 930.000 | 626.400 | 1000.000 | 626.700 | 1100.000 |
| GR | 628.000 | 1200.000 | 628.700 | 1300.000 | 627.200 | 1400.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 500.000 | .080 | 700.000 | .070 | 706.000 | .040 | 720.000 | .070 |
| NH | 740.000 | .060 | 1050.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27267.000 | 21.000 | 700.000 | 740.000 | 320.000 | 320.000 | 320.000 | 0.000 | -.100 | 0.000 |
| GR | 627.000 | 0.000 | 627.300 | 100.000 | 627.600 | 200.000 | 625.300 | 300.000 | 623.300 | 400.000 |
| GR | 623.800 | 500.000 | 621.900 | 600.000 | 619.100 | 700.000 | 614.900 | 706.000 | 613.600 | 710.000 |
| GR | 612.500 | 714.000 | 613.500 | 716.000 | 615.500 | 718.000 | 617.000 | 720.000 | 619.800 | 740.000 |
| GR | 620.000 | 800.000 | 620.700 | 900.000 | 621.100 | 940.000 | 627.900 | 955.000 | 628.600 | 1000.000 |
| GR | 628.600 | 1050.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 27975.000 | 0.000 | 0.000 | 0.000 | 530.000 | 708.000 | 880.000 | 0.000 | .100 | 0.000 |
| NH | 5.000 | .060 | 260.000 | .080 | 269.000 | .035 | 286.000 | .080 | 292.000 | .060 |
| NH | 610.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 221.000 | 330.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29270.000 | 14.000 | 260.000 | 292.000 | 1295.000 | 1295.000 | 1295.000 | 0.000 | 0.000 | 0.000 |
| GR | 628.300 | 0.000 | 625.700 | 60.000 | 624.200 | 160.000 | 622.400 | 260.000 | 616.200 | 269.000 |
| GR | 615.100 | 275.000 | 616.500 | 280.000 | 616.400 | 286.000 | 622.200 | 292.000 | 622.800 | 327.000 |
| GR | 623.200 | 360.000 | 622.900 | 460.000 | 633.800 | 560.000 | 633.900 | 610.000 | 0.000 | 0.000 |
| NC | .030 | .030 | .045 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 300.000 | .045 | 324.000 | .030 | 650.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 300.000 | 324.000 | 0.000 | 0.000 | 0.000 |
| X1 | 29440.000 | 17.000 | 300.000 | 324.000 | 170.000 | 170.000 | 170.000 | .875 | 0.000 | 0.000 |
| GR | 630.000 | 0.000 | 627.300 | 65.000 | 625.700 | 100.000 | 624.200 | 200.000 | 622.400 | 300.000 |
| GR | 619.000 | 300.000 | 617.500 | 306.000 | 617.600 | 312.000 | 618.100 | 318.000 | 618.100 | 324.000 |
| GR | 622.100 | 324.000 | 622.200 | 332.000 | 622.800 | 367.000 | 623.200 | 400.000 | 622.900 | 500.000 |
| GR | 633.800 | 600.000 | 633.900 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 300.000 | 324.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.640 | 3.030 | 0.000 | 24.000 | 0.000 | 154.600 | 0.000 | 617.500 | 617.500 |
| X1 | 29460.000 | 17.000 | 300.000 | 324.000 | 20.000 | 20.000 | 20.000 | .875 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 624.700 | 626.100 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 13.000 | 0.000 | 630.000 | 0.000 | 65.000 | 627.300 | 0.000 | 100.000 | 627.900 | 0.000 |
| BT | 200.000 | 626.500 | 0.000 | 300.000 | 627.300 | 622.400 | 300.000 | 627.300 | 625.300 | 324.000 |
| BT | 627.300 | 625.300 | 324.000 | 627.300 | 622.100 | 400.000 | 626.100 | 0.000 | 500.000 | 627.300 |
| BT | 0.000 | 560.000 | 629.500 | 0.000 | 600.000 | 633.400 | 0.000 | 650.000 | 633.900 | 0.000 |
| GR | 630.000 | 0.000 | 627.300 | 65.000 | 625.700 | 100.000 | 624.200 | 200.000 | 622.400 | 300.000 |
| GR | 619.000 | 300.000 | 617.500 | 306.000 | 617.600 | 312.000 | 618.100 | 318.000 | 618.100 | 324.000 |
| GR | 622.100 | 324.000 | 622.200 | 332.000 | 622.800 | 367.000 | 623.200 | 400.000 | 622.900 | 500.000 |
| GR | 633.800 | 600.000 | 633.900 | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 353.000 | .080 | 361.000 | .040 | 382.000 | .080 | 400.000 | .100 |
| NH | 593.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 30470.000 | 14.000 | 353.000 | 400.000 | 900.000 | 750.000 | 1010.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 250.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 623.500 | 353.000 | 617.500 | 361.000 | 615.400 | 370.000 | 615.100 | 375.000 | 616.300 | 380.000 |
| GR | 616.600 | 382.000 | 628.000 | 400.000 | 633.000 | 500.000 | 634.200 | 593.000 | 0.000 | 0.000 |
| QT | 4.000 | 1110.000 | 1620.000 | 1850.000 | 2540.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 203.000 | .070 | 208.000 | .045 | 219.000 | .070 | 225.000 | .080 |
| NH | 625.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 31350.000 | 16.000 | 203.000 | 225.000 | 880.000 | 880.000 | 880.000 | 0.000 | 0.000 | 0.000 |
| GR | 633.800 | 0.000 | 630.500 | 25.000 | 624.600 | 125.000 | 625.300 | 203.000 | 622.000 | 205.000 |
| GR | 617.900 | 208.000 | 617.300 | 211.000 | 617.600 | 216.000 | 619.800 | 219.000 | 625.300 | 225.000 |
| GR | 624.300 | 277.000 | 628.100 | 325.000 | 632.500 | 355.000 | 635.100 | 425.000 | 636.100 | 525.000 |
| GR | 635.400 | 625.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 1080.000 | 1570.000 | 1740.000 | 2460.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .060 | 409.000 | .035 | 422.000 | .100 | 500.000 | .040 | 850.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 377.000 | 449.000 | 0.000 | 0.000 | 0.000 |
| X1 | 33025.000 | 18.000 | 400.000 | 426.000 | 2000.000 | 1650.000 | 1675.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.000 | 0.000 | 636.200 | 100.000 | 634.800 | 200.000 | 631.000 | 300.000 | 626.400 | 400.000 |
| GR | 620.700 | 409.000 | 620.300 | 412.000 | 619.800 | 415.000 | 619.800 | 420.000 | 620.800 | 422.000 |
| GR | 623.700 | 426.000 | 627.100 | 450.000 | 627.300 | 500.000 | 627.100 | 600.000 | 627.000 | 700.000 |
| GR | 629.700 | 770.000 | 634.400 | 800.000 | 635.600 | 850.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .060 | 400.000 | .035 | 430.000 | .050 | 500.000 | .040 | 850.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 400.000 | 430.000 | 0.000 | 0.000 | 0.000 |
| X1 | 33109.000 | 21.000 | 400.000 | 430.000 | 84.000 | 84.000 | 84.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.000 | 0.000 | 636.600 | 100.000 | 634.800 | 200.000 | 631.000 | 300.000 | 626.600 | 396.000 |
| GR | 626.400 | 400.000 | 624.700 | 400.000 | 621.500 | 411.000 | 621.000 | 415.000 | 621.100 | 420.000 |
| GR | 621.500 | 422.000 | 624.200 | 430.000 | 624.600 | 433.000 | 627.100 | 450.000 | 627.300 | 500.000 |
| GR | 627.100 | 600.000 | 627.000 | 700.000 | 629.700 | 770.000 | 633.200 | 790.000 | 634.400 | 800.000 |
| GR | 635.600 | 850.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 6.100 | 0.000 | 0.000 | 0.000 | 400.000 | 430.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.283 | 3.030 | 0.000 | 30.000 | 0.000 | 209.200 | 0.000 | 621.000 | 621.000 |
| X1 | 33143.000 | 0.000 | 0.000 | 0.000 | 34.000 | 34.000 | 34.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 629.300 | 630.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 18.000 | 0.000 | 637.000 | 0.000 | 100.000 | 636.600 | 0.000 | 200.000 | 634.800 | 0.000 |
| BT | 300.000 | 632.700 | 0.000 | 396.000 | 632.500 | 0.000 | 396.000 | 633.100 | 0.000 | 400.000 |
| BT | 633.100 | 626.400 | 400.000 | 633.100 | 629.300 | 430.000 | 633.100 | 629.300 | 430.000 | 633.100 |
| BT | 624.200 | 433.000 | 633.100 | 0.000 | 433.000 | 632.400 | 0.000 | 500.000 | 631.400 | 0.000 |
| BT | 600.000 | 630.900 | 0.000 | 700.000 | 631.400 | 0.000 | 790.000 | 633.200 | 0.000 | 800.000 |
| BT | 634.400 | 0.000 | 850.000 | 635.600 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 4.000 | .060 | 409.000 | .035 | 422.000 | .050 | 500.000 | .040 | 850.000 | 0.000 |
| QT | 4.000 | 1070.000 | 1560.000 | 1740.000 | 2450.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 33675.000 | 18.000 | 400.000 | 426.000 | 532.000 | 532.000 | 532.000 | 0.000 | 1.500 | 0.000 |
| GR | 637.000 | 0.000 | 636.600 | 100.000 | 634.800 | 200.000 | 631.000 | 300.000 | 626.400 | 400.000 |
| GR | 620.700 | 409.000 | 620.300 | 412.000 | 619.800 | 415.000 | 619.800 | 420.000 | 620.800 | 422.000 |
| GR | 623.700 | 426.000 | 627.100 | 450.000 | 627.300 | 500.000 | 627.100 | 600.000 | 627.000 | 700.000 |
| GR | 629.700 | 770.000 | 634.400 | 800.000 | 635.600 | 850.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | .050 | .050 | .040 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 910.000 | 1320.000 | 1470.000 | 2070.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 673.000 | .055 | 677.000 | .035 | 687.000 | .055 | 700.000 | .050 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 33835.000 | 20.000 | 673.000 | 700.000 | 250.000 | 140.000 | 160.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 500.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.900 | 0.000 | 636.700 | 100.000 | 633.900 | 200.000 | 628.700 | 300.000 | 628.400 | 400.000 |
| GR | 628.400 | 500.000 | 626.800 | 600.000 | 626.900 | 650.000 | 625.100 | 673.000 | 621.500 | 677.000 |
| GR | 620.600 | 681.000 | 622.000 | 687.000 | 629.400 | 700.000 | 634.500 | 735.000 | 635.100 | 800.000 |
| GR | 636.700 | 900.000 | 637.000 | 1000.000 | 637.100 | 1100.000 | 637.500 | 1200.000 | 638.900 | 1300.000 |
| NH | 3.000 | .045 | 684.500 | .040 | 700.000 | .045 | 1300.000 | 0.000 | 0.000 | 0.000 |
| X1 | 35279.000 | 24.000 | 684.500 | 700.000 | 1144.000 | 1544.000 | 1444.000 | 0.000 | 0.000 | 0.000 |
| GR | 636.900 | 0.000 | 636.700 | 100.000 | 633.700 | 200.000 | 628.700 | 300.000 | 628.400 | 400.000 |
| GR | 628.400 | 500.000 | 626.800 | 600.000 | 626.900 | 650.000 | 624.900 | 684.500 | 629.200 | 684.500 |
| GR | 623.200 | 684.500 | 622.800 | 692.000 | 623.700 | 696.000 | 625.800 | 700.000 | 628.700 | 700.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 637.000 | 1000.000 | 637.100 | 1100.000 | 637.500 | 1200.000 | 638.900 | 1300.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.558 | 3.030 | 0.000 | 1.000 | 0.000 | 84.200 | 0.000 | 622.800 | 622.800 |
| X1 | 35290.000 | 0.000 | 0.000 | 0.000 | 11.000 | 11.000 | 11.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 629.200 | 629.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 17.000 | 0.000 | 636.900 | 0.000 | 100.000 | 636.700 | 0.000 | 200.000 | 633.700 | 0.000 |
| BT | 300.000 | 634.100 | 0.000 | 400.000 | 634.900 | 0.000 | 500.000 | 634.700 | 0.000 | 600.000 |
| BT | 633.000 | 0.000 | 684.500 | 630.200 | 629.200 | 700.000 | 629.700 | 628.700 | 706.000 | 629.400 |
| BT | 0.000 | 735.000 | 634.500 | 0.000 | 800.000 | 635.100 | 0.000 | 900.000 | 636.700 | 0.000 |
| BT | 1000.000 | 637.000 | 0.000 | 1100.000 | 637.100 | 0.000 | 1200.000 | 637.500 | 0.000 | 1300.000 |
| BT | 638.900 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 372.000 | .050 | 380.000 | .035 | 385.000 | .050 | 400.000 | .050 |
| NH | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 35725.000 | 17.000 | 372.000 | 400.000 | 535.000 | 335.000 | 435.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.700 | 0.000 | 637.200 | 100.000 | 636.500 | 200.000 | 634.200 | 300.000 | 631.500 | 350.000 |
| GR | 628.700 | 372.000 | 624.100 | 380.000 | 623.400 | 383.000 | 624.000 | 385.000 | 630.200 | 400.000 |
| GR | 629.800 | 500.000 | 631.900 | 600.000 | 637.200 | 700.000 | 637.300 | 800.000 | 638.100 | 900.000 |
| GR | 638.500 | 1000.000 | 637.900 | 1100.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .050 | 1173.000 | .040 | 1180.000 | .030 | 1195.000 | .040 | 1200.000 | .050 |
| NH | 2033.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 36925.000 | 27.000 | 1173.000 | 1200.000 | 1500.000 | 1000.000 | 1200.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.300 | 0.000 | 638.500 | 100.000 | 637.900 | 200.000 | 637.500 | 300.000 | 638.200 | 400.000 |
| GR | 637.700 | 500.000 | 637.700 | 600.000 | 637.500 | 700.000 | 636.700 | 800.000 | 638.000 | 900.000 |
| GR | 631.600 | 1000.000 | 630.400 | 1100.000 | 632.700 | 1173.000 | 626.000 | 1180.000 | 624.500 | 1188.000 |
| GR | 627.300 | 1195.000 | 632.100 | 1200.000 | 631.600 | 1265.000 | 635.800 | 1300.000 | 637.900 | 1400.000 |
| GR | 637.800 | 1500.000 | 638.300 | 1600.000 | 638.300 | 1700.000 | 637.700 | 1800.000 | 637.500 | 1900.000 |
| GR | 638.300 | 2000.000 | 639.600 | 2033.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .500 | 1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37253.000 | 0.000 | 0.000 | 0.000 | 328.000 | 200.000 | 328.000 | 0.000 | 1.000 | 0.000 |
| NH | 3.000 | .045 | 1200.000 | .040 | 1236.000 | .045 | 2800.000 | 0.000 | 0.000 | 0.000 |
| X1 | 37819.000 | 41.000 | 1200.000 | 1236.000 | 466.000 | 194.000 | 566.000 | .934 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1200.000 | 0.000 | 1236.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.300 | 0.000 | 638.500 | 100.000 | 637.900 | 200.000 | 637.500 | 300.000 | 638.200 | 400.000 |
| GR | 637.700 | 500.000 | 637.700 | 600.000 | 637.500 | 700.000 | 636.700 | 800.000 | 638.100 | 900.000 |
| GR | 631.600 | 1000.000 | 630.400 | 1100.000 | 633.000 | 1200.000 | 635.400 | 1200.000 | 628.000 | 1200.000 |
| GR | 627.400 | 1205.000 | 627.200 | 1210.000 | 627.600 | 1215.000 | 627.900 | 1220.000 | 628.900 | 1225.000 |
| GR | 628.200 | 1230.000 | 627.500 | 1236.000 | 635.300 | 1236.000 | 632.100 | 1236.000 | 631.600 | 1265.000 |
| GR | 635.800 | 1300.000 | 636.200 | 1348.000 | 637.900 | 1400.000 | 638.300 | 1600.000 | 638.300 | 1700.000 |
| GR | 637.700 | 1800.000 | 637.500 | 1900.000 | 638.300 | 2000.000 | 639.600 | 2033.000 | 639.100 | 2200.000 |
| GR | 638.900 | 2300.000 | 639.000 | 2400.000 | 638.900 | 2500.000 | 639.200 | 2600.000 | 639.400 | 2700.000 |
| GR | 639.800 | 2800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .045 | 1200.000 | .040 | 1236.000 | .045 | 2800.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.613 | 3.030 | 0.000 | 1.000 | 0.000 | 252.100 | 0.000 | 627.200 | 627.200 |
| X1 | 37851.000 | 41.000 | 1200.000 | 1236.000 | 32.000 | 32.000 | 32.000 | .934 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 635.400 | 636.200 | 0.000 | 0.000 | 0.000 | .934 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 1200.000 | 0.000 | 1236.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 29.000 | 0.000 | 641.100 | 0.000 | 100.000 | 640.900 | 0.000 | 200.000 | 640.400 | 0.000 |
| BT | 300.000 | 640.000 | 0.000 | 400.000 | 640.000 | 0.000 | 500.000 | 640.000 | 0.000 | 600.000 |
| BT | 639.700 | 0.000 | 700.000 | 639.000 | 0.000 | 800.000 | 638.400 | 0.000 | 900.000 | 638.100 |
| BT | 0.000 | 1000.000 | 637.300 | 0.000 | 1100.000 | 637.800 | 0.000 | 1200.000 | 637.700 | 635.400 |
| BT | 1236.000 | 637.400 | 635.300 | 1348.000 | 636.200 | 0.000 | 1400.000 | 637.900 | 0.000 | 1600.000 |
| BT | 638.300 | 0.000 | 1700.000 | 638.300 | 0.000 | 1800.000 | 637.700 | 0.000 | 1900.000 | 637.500 |
| BT | 0.000 | 2000.000 | 638.300 | 0.000 | 2033.000 | 639.600 | 0.000 | 2200.000 | 639.100 | 0.000 |
| BT | 2300.000 | 638.900 | 0.000 | 2400.000 | 639.000 | 0.000 | 2500.000 | 638.900 | 0.000 | 2600.000 |
| BT | 639.200 | 0.000 | 2700.000 | 639.400 | 0.000 | 2800.000 | 639.800 | 0.000 | 0.000 | 0.000 |
| GR | 638.300 | 0.000 | 638.500 | 100.000 | 637.900 | 200.000 | 637.500 | 300.000 | 638.200 | 400.000 |
| GR | 637.700 | 500.000 | 637.700 | 600.000 | 637.500 | 700.000 | 636.700 | 800.000 | 638.100 | 900.000 |
| GR | 631.600 | 1000.000 | 630.400 | 1100.000 | 633.000 | 1200.000 | 635.400 | 1200.000 | 628.000 | 1200.000 |
| GR | 627.400 | 1205.000 | 627.200 | 1210.000 | 627.600 | 1215.000 | 627.900 | 1220.000 | 628.900 | 1225.000 |
| GR | 628.200 | 1230.000 | 627.500 | 1236.000 | 635.300 | 1236.000 | 632.100 | 1236.000 | 631.600 | 1265.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 637.700 | 1800.000 | 637.500 | 1900.000 | 638.300 | 2000.000 | 639.600 | 2033.000 | 639.100 | 2200.000 |
| GR | 638.900 | 2300.000 | 639.000 | 2400.000 | 638.900 | 2500.000 | 639.200 | 2600.000 | 639.400 | 2700.000 |
| GR | 639.800 | 2800.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .060 | 481.000 | .050 | 485.000 | .040 | 496.000 | .050 | 500.000 | .060 |
| NH | 650.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XI | 38084.000 | 14.000 | 481.000 | 500.000 | 233.000 | 233.000 | 233.000 | 0.000 | -2.800 | 0.000 |
| GR | 639.900 | 0.000 | 639.000 | 100.000 | 635.400 | 200.000 | 634.100 | 300.000 | 634.300 | 400.000 |
| GR | 635.600 | 475.000 | 634.300 | 481.000 | 631.700 | 482.000 | 630.500 | 485.000 | 630.600 | 490.000 |
| GR | 631.700 | 496.000 | 635.300 | 500.000 | 634.900 | 600.000 | 635.400 | 650.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .300 | .500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XI | 39285.000 | 0.000 | 0.000 | 0.000 | 901.000 | 1401.000 | 1201.000 | 0.000 | 2.800 | 0.000 |
| NH | 5.000 | .060 | 503.300 | .050 | 506.100 | .040 | 521.500 | .050 | 524.300 | .060 |
| NH | 766.500 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XI | 39335.000 | 90.000 | 503.300 | 524.300 | 61.000 | 50.000 | 50.000 | 0.000 | -.900 | 0.000 |
| GR | 640.400 | 0.000 | 640.200 | 17.300 | 640.100 | 34.700 | 639.900 | 52.000 | 639.700 | 69.400 |
| GR | 639.500 | 86.700 | 639.400 | 104.100 | 639.000 | 121.400 | 638.600 | 138.800 | 638.200 | 156.100 |
| GR | 637.700 | 173.500 | 637.300 | 190.900 | 637.000 | 208.200 | 636.800 | 225.600 | 636.700 | 242.900 |
| GR | 636.500 | 260.300 | 636.400 | 277.600 | 636.300 | 295.000 | 636.100 | 312.300 | 636.100 | 329.700 |
| GR | 636.100 | 347.100 | 636.100 | 364.400 | 636.200 | 381.800 | 636.200 | 399.100 | 636.200 | 416.500 |
| GR | 636.400 | 433.800 | 636.600 | 451.200 | 636.700 | 468.500 | 636.700 | 485.900 | 635.700 | 503.300 |
| GR | 634.400 | 504.000 | 633.500 | 504.700 | 633.100 | 505.400 | 632.700 | 506.100 | 632.400 | 506.800 |
| GR | 632.200 | 507.500 | 632.000 | 508.200 | 632.000 | 508.900 | 631.900 | 509.600 | 631.900 | 510.300 |
| GR | 631.800 | 511.000 | 631.700 | 511.700 | 631.700 | 512.400 | 631.600 | 513.100 | 631.700 | 513.800 |
| GR | 631.800 | 514.500 | 631.900 | 515.200 | 632.000 | 515.900 | 632.100 | 516.600 | 632.300 | 517.300 |
| GR | 632.400 | 518.000 | 632.500 | 518.700 | 632.600 | 519.400 | 632.800 | 520.100 | 633.200 | 520.800 |
| GR | 633.800 | 521.500 | 634.500 | 522.200 | 635.100 | 522.900 | 635.800 | 523.600 | 636.400 | 524.300 |
| GR | 636.300 | 532.300 | 636.100 | 540.400 | 636.100 | 548.500 | 636.000 | 556.600 | 636.000 | 564.600 |
| GR | 636.000 | 572.700 | 635.900 | 580.800 | 635.900 | 588.900 | 635.900 | 596.900 | 635.800 | 605.000 |
| GR | 635.800 | 613.100 | 635.700 | 621.200 | 635.800 | 629.200 | 636.100 | 637.300 | 636.400 | 645.400 |
| GR | 636.600 | 653.500 | 636.700 | 661.500 | 636.700 | 669.600 | 636.800 | 677.700 | 636.800 | 685.800 |
| GR | 636.900 | 693.800 | 637.000 | 701.900 | 637.100 | 710.000 | 637.000 | 718.100 | 637.000 | 726.100 |
| GR | 637.000 | 734.200 | 636.900 | 742.300 | 636.900 | 750.400 | 636.900 | 758.400 | 636.800 | 766.500 |
| XI | 39385.000 | 0.000 | 0.000 | 0.000 | 61.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| XI | 39485.000 | 0.000 | 0.000 | 0.000 | 122.000 | 100.000 | 100.000 | 0.000 | .400 | 0.000 |
| XI | 39585.000 | 0.000 | 0.000 | 0.000 | 122.000 | 100.000 | 100.000 | 0.000 | .300 | 0.000 |
| NH | 5.000 | .060 | 525.600 | .050 | 530.200 | .035 | 542.500 | .050 | 548.600 | .060 |
| NH | 883.400 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| XI | 39885.000 | 90.000 | 525.600 | 548.600 | 366.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.000 | 0.000 | 640.800 | 18.100 | 640.600 | 36.200 | 640.400 | 54.300 | 640.200 | 72.500 |
| GR | 640.000 | 90.600 | 639.900 | 108.700 | 639.600 | 126.800 | 639.400 | 145.000 | 639.200 | 163.100 |
| GR | 638.900 | 181.200 | 638.700 | 199.300 | 638.500 | 217.500 | 638.500 | 235.600 | 638.400 | 253.700 |
| GR | 638.400 | 271.900 | 638.300 | 290.000 | 638.200 | 308.100 | 638.200 | 326.200 | 638.200 | 344.400 |
| GR | 638.200 | 362.500 | 638.200 | 380.600 | 638.200 | 398.700 | 638.200 | 416.900 | 638.300 | 435.000 |
| GR | 638.400 | 453.100 | 638.500 | 471.300 | 638.400 | 489.400 | 638.000 | 507.500 | 637.200 | 525.600 |
| GR | 636.200 | 526.400 | 635.400 | 527.200 | 634.900 | 527.900 | 634.400 | 528.700 | 634.000 | 529.500 |
| GR | 633.800 | 530.200 | 633.600 | 531.000 | 633.500 | 531.800 | 633.300 | 532.500 | 633.200 | 533.300 |
| GR | 633.100 | 534.100 | 632.900 | 534.800 | 632.800 | 535.600 | 632.700 | 536.400 | 632.700 | 537.100 |
| GR | 632.800 | 537.900 | 632.900 | 538.700 | 633.100 | 539.400 | 633.200 | 540.200 | 633.300 | 541.000 |
| GR | 633.400 | 541.700 | 633.500 | 542.500 | 633.600 | 543.300 | 633.800 | 544.000 | 634.100 | 544.800 |
| GR | 634.700 | 545.600 | 635.400 | 546.300 | 636.100 | 547.100 | 636.900 | 547.900 | 637.600 | 548.600 |
| GR | 637.300 | 559.800 | 637.000 | 571.000 | 637.000 | 582.100 | 636.900 | 593.300 | 636.900 | 604.400 |
| GR | 636.800 | 615.600 | 636.800 | 626.800 | 636.700 | 637.900 | 636.700 | 649.100 | 636.600 | 660.200 |
| GR | 636.500 | 671.400 | 636.400 | 682.500 | 636.700 | 693.700 | 637.200 | 704.900 | 637.800 | 716.000 |
| GR | 638.400 | 727.200 | 638.500 | 738.300 | 638.600 | 749.500 | 638.700 | 760.700 | 638.800 | 771.800 |
| GR | 638.900 | 783.000 | 639.000 | 794.100 | 639.200 | 805.300 | 639.000 | 816.400 | 638.900 | 827.600 |
| GR | 638.800 | 838.800 | 638.700 | 849.900 | 638.600 | 861.100 | 638.500 | 872.200 | 638.400 | 883.400 |
| NH | 5.000 | .060 | 548.000 | .050 | 552.000 | .035 | 569.000 | .050 | 573.000 | .060 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 40185.000 | 17.000 | 548.000 | 573.000 | 366.000 | 300.000 | 300.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.600 | 0.000 | 640.400 | 100.000 | 640.100 | 200.000 | 640.300 | 300.000 | 640.200 | 400.000 |
| GR | 640.400 | 500.000 | 638.700 | 548.000 | 635.700 | 552.000 | 633.700 | 560.000 | 635.000 | 569.000 |
| GR | 638.800 | 573.000 | 638.000 | 600.000 | 637.500 | 700.000 | 637.100 | 750.000 | 640.100 | 800.000 |
| GR | 641.300 | 900.000 | 639.900 | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 820.000 | 1200.000 | 1330.000 | 1890.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 5.000 | .045 | 500.000 | .050 | 518.000 | .035 | 526.000 | .050 | 536.000 | .050 |
| NH | 1000.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 41175.000 | 19.000 | 500.000 | 536.000 | 890.000 | 1390.000 | 990.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.000 | 0.000 | 640.600 | 100.000 | 640.900 | 200.000 | 640.600 | 300.000 | 641.300 | 400.000 |
| GR | 639.000 | 450.000 | 642.400 | 500.000 | 638.500 | 508.000 | 638.100 | 510.000 | 634.700 | 512.000 |
| GR | 634.100 | 518.000 | 634.900 | 526.000 | 637.700 | 528.000 | 639.900 | 536.000 | 640.400 | 600.000 |
| GR | 638.700 | 700.000 | 639.400 | 800.000 | 641.900 | 900.000 | 642.200 | 1000.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CITY OF STERLING HEIGHTS    5670-10     PROJECT MANAGER  WILLIAM ROSSOW
T2      100 YEAR FLOOD
T3      PLUM BROOK
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| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 4. | 0. | 0. | 0.000000 | 0.00 | 0.0 | 0. | 602.600 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0.000 | -1.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

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CCHV=     .100 CEHV=     .300
1490 NH CARD USED
3280 CROSS SECTION      20.00 EXTENDED        .90 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

    20.00     17.20    602.60      0.00    602.60    602.61       .01      0.00      0.00    590.80
    2560.     1251.     465.      843.     3772.     409.     1808.       0.        0.      587.70
     0.00       .33     1.14       .47      .070     .045      .080     0.000    585.40      0.00
  .000031       0.        0.        0.        0         0         1      0.00   1316.35   1316.35

3280 CROSS SECTION     875.00 EXTENDED        .23 FEET

                VALLEY SECTION A                                                    255

   875.00     16.53    602.63      0.00      0.00    602.64       .01       .03       .00    591.50
    2560.     1133.     521.      906.     3048.     392.     1665.      109.       26.     588.40
      .38       .37     1.33       .54      .072     .045      .080      .050    586.10      0.00
  .000044     855.      855.      855.        0         0         1      0.00   1308.15   1308.15

1490 NH CARD USED
3280 CROSS SECTION    3080.00 EXTENDED       2.02 FEET

                VALLEY SECTION B                                                    256

  3080.00     16.62    602.72      0.00      0.00    602.74       .01       .10       .00    595.10
    2450.     826.      744.      880.     2020.     515.     1747.      319.       77.     593.20
     1.12       .41     1.44       .50      .060     .043      .090      .053    586.10      0.00
  .000054    1800.     2205.     2100.         2         0         1      0.00   1065.61   1065.61

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=          .0      670.0  TYPE=      1  TARGET=      669.999

                VALLEY SECTION C                                                    257

  4680.00     12.98    602.78      0.00      0.00    602.79       .01       .06       .00    592.60
    2430.     948.      475.     1007.     1184.     470.     1006.      440.      104.     594.60
     1.57       .80     1.01      1.00      .030     .040      .030      .053    589.80    185.47
  .000027    1600.     1600.     1400.         1         0         1      0.00    484.53    670.00

CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

                VALLEY SECTION D                                                    258

  6200.00     13.95    602.85      0.00      0.00    602.87       .01       .07       .00    593.20
    2430.     641.      565.     1224.     1075.     321.     2274.      556.      134.     594.00
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .000097 | 1600. | 1520. | 1600. | 0 | 0 | 1 | 0.00 | 1164.06 | 1191.69 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

BRIDGE SECTION E SCHOENHERR ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6254.00 | 13.86 | 602.86 | 0.00 | 0.00 | 602.87 | .02 | .00 | .00 | 595.90 |
| 2430. | 573. | 922. | 935. | 963. | 609. | 2223. | 560. | 136. | 594.10 |
| 2.12 | .60 | 1.51 | .42 | .035 | .035 | .080 | .052 | 589.00 | 51.88 |
| .000060 | 54. | 54. | 54. | 0 | 0 | 1 | 0.00 | 1170.06 | 1221.94 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.53 | 3.03 | 0.00 | 50.00 | 0.00 | 423.40 | 0.00 | 589.00 | 589.00 |

PRESSURE AND WETR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 603.64 | 602.87 | 0.00 | 1718. | 712. | 423. | 599.50 | 600.90 | 30.00 |

BRIDGE SECTION E SCHOENHERR ROAD UPSTREAM FACE 259

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6279.00 | 13.91 | 602.91 | 0.00 | 0.00 | 602.93 | .02 | .05 | 0.00 | 595.90 |
| 2430. | 586. | 910. | 934. | 997. | 612. | 2257. | 562. | 137. | 594.10 |
| 2.12 | .59 | 1.49 | .41 | .035 | .035 | .080 | .052 | 589.00 | 48.42 |
| .000057 | 25. | 25. | 25. | 1 | 0 | 7 | 0.00 | 1177.52 | 1225.94 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6420.00 | 14.03 | 602.93 | 0.00 | 0.00 | 602.93 | .01 | .00 | .00 | 593.20 |
| 2430. | 526. | 331. | 1574. | 1118. | 323. | 2314. | 575. | 140. | 594.00 |
| 2.18 | .47 | 1.02 | .68 | .030 | .035 | .030 | .052 | 588.90 | 23.64 |
| .000022 | 141. | 141. | 141. | 0 | 0 | 1 | 0.00 | 1174.59 | 1198.23 |

1490 NH CARD USED

BRIDGE SECTION F DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6421.00 | 7.83 | 602.93 | 0.00 | 0.00 | 602.94 | .01 | .00 | .00 | 599.10 |
| 2430. | 449. | 166. | 1814. | 868. | 199. | 2031. | 575. | 140. | 599.10 |
| 2.18 | .52 | .84 | .89 | .030 | .035 | .030 | .052 | 595.10 | 11.04 |
| .000046 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 1173.19 | 1184.23 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.49 | 3.03 | 0.00 | 25.00 | 0.00 | 73.70 | 0.00 | 595.10 | 595.10 |

PRESS FLOW BECAUSE EGLWC OF 602.94 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 628.05 | 602.94 | 0.00 | 2312. | 115. | 74. | 599.10 | 597.60 | 30.00 |

BRIDGE SECTION F UPSTREAM FACE 260

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6447.00 | 7.87 | 602.97 | 0.00 | 0.00 | 602.98 | .01 | .05 | 0.00 | 599.10 |
| 2430. | 459. | 164. | 1807. | 898. | 201. | 2060. | 577. | 141. | 599.10 |
| 2.19 | .51 | .82 | .88 | .030 | .035 | .030 | .052 | 595.10 | 7.76 |
| .000044 | 26. | 26. | 26. | 1 | 0 | 7 | 0.00 | 1181.15 | 1188.91 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6448.00 | 14.08 | 602.98 | 0.00 | 0.00 | 602.98 | .01 | .00 | .00 | 593.20 |
| 2430. | 532. | 327. | 1571. | 1148. | 324. | 2343. | 577. | 141. | 594.00 |
| 2.19 | .46 | 1.01 | .67 | .030 | .035 | .030 | .052 | 588.90 | 20.77 |
| .000021 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 1182.14 | 1202.92 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | C-SEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

VALLEY SECTION G 261

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7325.00 | 10.41 | 603.01 | 0.00 | 0.00 | 603.02 | .02 | .03 | .01 | 599.40 |
| 2430. | 1512. | 537. | 381. | 1565. | 401. | 445. | 639. | 159. | 598.80 |
| 2.43 | .97 | 1.34 | .85 | .030 | .035 | .030 | .051 | 592.60 | 11.90 |
| .000055 | 877. | 877. | 877. | 0 | 0 | 1 | 0.00 | 577.86 | 589.77 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 260.0 1000.0 TYPE= 1 TARGET= -260.000

VALLEY SECTION H 262

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8475.00 | 11.89 | 603.09 | 0.00 | 0.00 | 603.11 | .03 | .09 | .00 | 599.30 |
| 2430. | 501. | 607. | 1322. | 742. | 358. | 987. | 699. | 174. | 599.40 |
| 2.67 | .67 | 1.70 | 1.34 | .055 | .041 | .030 | .051 | 591.20 | 260.00 |
| .000117 | 1150. | 1150. | 1150. | 2 | 0 | 1 | 0.00 | 555.56 | 815.56 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8858.00 | 10.82 | 603.12 | 0.00 | 0.00 | 603.14 | .06 | .06 | .01 | 598.90 |
| 2430. | 558. | 928. | 944. | 465. | 342. | 584. | 714. | 178. | 597.50 |
| 2.73 | 1.20 | 2.71 | 1.62 | .040 | .035 | .030 | .051 | 592.30 | 199.08 |
| .000220 | 383. | 383. | 383. | 0 | 0 | 1 | 0.00 | 455.86 | 654.94 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 500.0 TYPE= 1 TARGET= 499.999

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9240.00 | 9.98 | 603.18 | 0.00 | 0.00 | 603.37 | .19 | .15 | .04 | 598.50 |
| 2430. | 505. | 1388. | 537. | 250. | 325. | 271. | 724. | 182. | 595.80 |
| 2.76 | 2.02 | 4.28 | 1.98 | .040 | .044 | .040 | .051 | 593.20 | 169.86 |
| .000891 | 382. | 382. | 382. | 0 | 0 | 1 | 0.00 | 304.33 | 474.19 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 220.0 930.0 TYPE= 1 TARGET= 710.000

VALLEY SECTION 604.50 old 604.63 old 264

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10875.00 | 10.36 | 604.46 | 0.00 | 0.00 | 604.63 | .17 | 1.25 | .00 | 597.40 |
| 2430. | 550. | 1291. | 589. | 586. | 296. | 355. | 763. | 193. | 595.20 |
| 2.92 | .94 | 4.36 | 1.66 | .088 | .040 | .068 | .051 | 594.10 | 604.22 |
| .000666 | 1635. | 1635. | 1635. | 2 .09 old | 0 old | 1 .06 old | 0.00 | 322.23 | 926.45 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 961.0 1075.0 TYPE= 1 TARGET= 114.000

VALLEY SECTION 605.91 old 606.34 old 265

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12280.00 | 10.90 | 605.90 | 0.00 | 0.00 | 606.50 | .61 | 1.44 | .44 | 595.50 |
| 2430. | 468. | 1639. | 323. | 208. | 220. | 156. | 792. | 200. | 596.00 |
| 2.98 | 2.25 | 7.47 | 2.06 | .074 | .040 | .067 | .051 | 595.00 | 961.00 |
| .001774 | 1405. | 1405. | 1405. | 2 old | 0 old | 1 old | 0.00 | 114.00 | 1075.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 923.0 1016.0 TYPE= 1 TARGET= 93.000

Δ=.21

BRIDGE SECTION 606.37 old BRIDGE PARK ROAD DOWNSTREAM FACE 606.51 old 45

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12308.00 | 11.44 | 606.64 | 0.00 | 0.00 | 606.77 | .13 | .02 | .24 | 604.60 |
| 2430. | 0. | 2430. | 0. | 0. | 843. | 0. | 793. | 201. | 100000.00 |
| 2.99 | .01 | 2.88 | 0.00 | .050 | .035 | .067 | .051 | 595.20 | 923.00 |
| .000317 | 150. | 28. | 28. | .02 old | 0 old | 1 old | 0.00 | 93.00 | 1016.00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.58 | 3.03 | 0.00 | 93.00 | 0.00 | 783.00 | 0.00 | 595.20 | 595.20 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 606.87 old | 606.77 | 0.00 | 0. | 2430. | 783. | 606.00 | 606.80 | 30.00 |

BRIDGE SECTION L DODGE PARK ROAD UPSTREAM FACE 266

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12356.00 | 11.55 | 606.75 | 0.00 | 0.00 | 606.87 | .13 | .11 | 0.00 | 604.60 |
| 2430. | 0. | 2430. | 0. | 0. | 853. | 0. | 794. | 201. | 100000.00 |
| 2.99 | .01 | 2.85 | 0.00 | .050 | .035 | .067 | .051 | 595.20 | 923.00 |
| .000305 | 48. | 48. | 48. | 2 | 0 | 4 | 0.00 | 93.00 | 1016.00 |

CCHV= .300 CEHV= .500
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 390.0 1300.0 TYPE= 1 TARGET= -390.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 12556.00 | 11.59 | 606.89 | 0.00 | 0.00 | 606.98 | .08 | .09 | .01 | 601.60 |
| 2430. | 1330. | 979. | 120. | 1117. | 294. | 221. | 800. | 202. | 604.30 |
| 3.02 | 1.19 | 3.34 | .54 | .079 | .052 | .100 | .051 | 595.30 | 390.00 |
| .000708 | 200. | 200. | 200. | 2 | 0 | 1 | 0.00 | 503.83 | 893.83 |

* NEW SECTION

3470 ENCROACHMENT STATIONS= 390.0 1300.0 TYPE= 1 TARGET= -390.000

VALLEY SECTION M 267

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13470.00 | 11.78 | 607.48 | 0.00 | 0.00 | 607.55 | .07 | .57 | .00 | 602.00 |
| 2430. | 1351. | 944. | 135. | 1173. | 299. | 252. | 832. | 212. | 604.70 |
| 3.15 | 1.15 | 3.16 | .53 | .079 | .052 | .100 | .051 | 595.70 | 390.00 |
| .000622 | 800. | 914. | 1000. | 2 | 0 | 1 | 0.00 | 513.58 | 903.58 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 100.0 415.0 TYPE= 1 TARGET= -100.000

VALLEY SECTION N 268

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 14920.00 | 9.80 | 608.20 | 0.00 | 0.00 | 608.31 | .11 | .75 | .02 | 603.30 |
| 2430. | 99. | 2165. | 166. | 74. | 767. | 168. | 878. | 225. | 602.90 |
| 3.30 | 1.33 | 2.82 | .99 | .050 | .042 | .060 | .051 | 598.40 | 168.17 |
| .000434 | 1450. | 1450. | 1450. | 2 | 0 | 1 | 0.00 | 229.56 | 397.73 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 250.0 720.0 TYPE= 1 TARGET= 470.000

VALLEY SECTION O 269

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17000.00 | 9.89 | 609.59 | 0.00 | 0.00 | 610.08 | .49 | 1.65 | .11 | 603.20 |
| 2250. | 694. | 1473. | 83. | 284. | 219. | 43. | 915. | 234. | 604.80 |
| 3.41 | 2.44 | 6.73 | 1.94 | .062 | .042 | .060 | .051 | 599.70 | 529.89 |
| .002082 | 2080. | 2080. | 2080. | 2 | 0 | 1 | 0.00 | 165.99 | 695.88 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

VALLEY SECTION P 270

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19025.00 | 10.78 | 613.78 | 0.00 | 0.00 | 614.11 | .33 | 3.95 | .08 | 613.00 |
| 2070. | 15. | 1874. | 181. | 13. | 390. | 80. | 939. | 242. | 612.10 |
| 3.53 | 1.14 | 4.80 | 2.26 | .030 | .049 | .030 | .051 | 603.00 | 254.31 |
| .001844 | 2000. | 2025. | 1900. | 2 | 0 | 1 | 0.00 | 176.03 | 430.35 |

1490 NH CARD USED

BRIDGE SECTION Q VAN DYKE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19046.00 | 10.16 | 614.06 | 0.00 | 0.00 | 614.22 | .16 | .02 | .09 | 613.20 |
| 2070. | 8. | 1990. | 71. | 16. | 613. | 73. | 939. | 242. | 612.50 |
| 3.53 | .54 | 3.25 | .98 | .035 | .040 | .035 | .051 | 603.90 | 343.73 |
| .000493 | 21. | 21. | 21. | 2 | 0 | 1 | 0.00 | 197.09 | 540.82 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.28 | 3.04 | 0.00 | 52.00 | 0.00 | 357.50 | 0.00 | 603.90 | 603.90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 615.25 | 614.30 | 0.00 | 227. | 1843. | 358. | 612.00 | 614.50 | 30.00 |

BRIDGE SECTION Q VAN DYKE ROAD UPSTREAM FACE



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19149.00 | 11.25 | 614.85 | 0.00 | 0.00 | 615.00 | .16 | .78 | 0.00 | 612.70 |
| 2070. | 97. | 1735. | 238. | 96. | 506. | 173. | 941. | 242. | 612.20 |
| 3.54 | 1.01 | 3.43 | 1.38 | .035 | .040 | .035 | .051 | 603.60 | 310.61 |
| .000518 | 103. | 103. | 103. | 2 | 0 | 4 | 0.00 | 260.36 | 570.97 |

1490 NH CARD USED

BRIDGE SECTION R DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19549.00 | 10.90 | 615.10 | 0.00 | 0.00 | 615.18 | .08 | .14 | .04 | 610.30 |
| 2070. | 795. | 732. | 543. | 503. | 242. | 293. | 949. | 245. | 610.80 |
| 3.59 | 1.58 | 3.03 | 1.85 | .035 | .033 | .030 | .051 | 604.20 | 110.92 |
| .000258 | 400. | 400. | 400. | 2 | 0 | 1 | 0.00 | 277.33 | 388.25 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.64 | 3.03 | 0.00 | 4.00 | 0.00 | 12.56 | 0.00 | 604.90 | 604.20 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 1308.49 | 615.88 | 0.00 | 2046. | 33. | 13. | 606.90 | 610.10 | 30.00 |

BRIDGE SECTION R UPSTREAM FACE 271A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19571.00 | 10.31 | 615.21 | 0.00 | 0.00 | 615.28 | .07 | .10 | 0.00 | 610.10 |
| 2070. | 1143. | 100. | 827. | 580. | 40. | 356. | 950. | 245. | 610.20 |
| 3.60 | 1.97 | 2.54 | 2.32 | .035 | .035 | .030 | .051 | 604.90 | 108.82 |
| .000371 | 22. | 22. | 22. | 2 | 0 | 10 | 0.00 | 280.44 | 389.26 |

CCHV= .300 CEHV= .500
1490 NH CARD USED

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| * 19641.00 | 10.46 | 615.26 | 0.00 | 0.00 | 615.32 | .05 | .03 | .01 | 611.10 | |
| 2070. | 844. | 634. | 591. | 512. | 232. | 473. | 951. | 246. | 611.10 | * new section |
| 3.61 | 1.38 | 2.74 | 1.25 | .060 | .050 | .060 | .051 | 604.80 | 116.89 | |
| .000571 | 70. | 70. | 70. | 2 | 0 | 1 | 0.00 | 385.35 | 502.24 | |

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VALLEY SECTION R 615.93 272

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20325.00 | 11.36 | 615.56 | 0.00 | 0.00 | 615.59 | .03 | .27 | .01 | 610.50 |
| 2070. | 880. | 533. | 658. | 779. | 258. | 643. | 975. | 252. | 610.50 |
| 3.75 | 1.13 | 2.07 | 1.02 | .060 | .051 | .060 | .051 | 604.20 | 111.71 |
| .000289 | 684. | 684. | 684. | 2 | 0 | 1 | 0.00 | 422.71 | 534.42 |

1490 NH CARD USED

VALLEY SECTION T 273A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21759.00 | 7.75 | 615.95 | 0.00 | 0.00 | 616.02 | .06 | .40 | .02 | 613.20 |
| 2070. | 1040. | 870. | 160. | 658. | 341. | 113. | 1021. | 265. | 612.90 |
| 3.95 | 1.58 | 2.55 | 1.42 | .030 | .035 | .030 | .051 | 608.20 | 257.28 |
| .000276 | 1434. | 1434. | 1434. | 2 | 0 | 1 | 0.00 | 367.23 | 624.51 |

1490 NH CARD USED

| SECNO | DEPTH | CSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 21760.00 | 4.85 | 615.95 | 0.00 | 0.00 | 616.02 | .07 | .00 | .00 | 613.20 |
| 2070. | 1322. | 544. | 204. | 658. | 222. | 113. | 1021. | 265. | 612.90 |
| 3.95 | 2.01 | 2.45 | 1.51 | .030 | .035 | .030 | .051 | 611.10 | 257.27 |
| .000445 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 367.24 | 624.51 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21761.00 | 9.76 | 615.96 | 0.00 | 0.00 | 616.02 | .06 | .00 | .00 | 613.20 |
| 2070. | 883. | 1051. | 136. | 658. | 423. | 113. | 1021. | 265. | 612.90 |
| 3.95 | 1.34 | 2.49 | 1.21 | .030 | .035 | .030 | .051 | 606.20 | 257.26 |
| .000199 | 1. | 1. | 1. | 0 | 0 | 1 | 0.00 | 367.25 | 624.51 |

1490 NH CARD USED

VALLEY SECTION U 273

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21836.00 | 9.97 | 615.97 | 0.00 | 0.00 | 616.05 | .08 | .02 | .01 | 613.90 |
| 2070. | 42. | 892. | 1136. | 45. | 316. | 662. | 1023. | 266. | 614.70 |
| 3.96 | .94 | 2.82 | 1.72 | .030 | .040 | .030 | .051 | 606.00 | 256.76 |
| .000342 | 75. | 75. | 75. | 0 | 0 | 1 | 0.00 | 353.99 | 610.75 |

```
 22628.00     10.06    616.26      0.00      0.00    616.38       .12       .31       .02    614.30
    2070.       67.     1125.      878.       62.      313.      637.     1041.      272.    614.90
     4.05      1.08      3.59      1.38      .035      .035      .040      .051    606.20    148.15
  .000459      792.      792.      792.         2         0         1      0.00    398.88    547.03


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      61.0      314.0  TYPE=      1  TARGET=      253.000
 22952.00     10.18    616.38      0.00      0.00    616.67       .29       .20       .08    614.50
    2070.      179.     1525.      366.      120.      310.      209.     1047.      275.    615.00
     4.07      1.49      4.93      1.76      .035      .035      .040      .051    606.20     61.00
  .000896      324.      324.      324.         1         0         1      0.00    253.00    314.00


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      88.0      216.0  TYPE=      1  TARGET=      128.000
 23202.00     10.36    616.56      0.00      0.00    617.01       .46       .26       .08    614.60
    2070.      169.     1785.      116.       82.      309.       70.     1051.      276.    615.00
     4.08      2.06      5.78      1.65      .040      .035      .045      .051    606.20     88.00
  .001256      250.      250.      250.         0         0         1      0.00    128.00    216.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=      96.0      188.0  TYPE=      1  TARGET=      92.000

           VALLEY SECTION V                                                   274

 23275.00     10.39    616.59      0.00      0.00    617.18       .58       .12       .04    614.70
    2070.       89.     1930.       51.       47.      305.       37.     1051.      276.    615.10
     4.09      1.89      6.33      1.37      .060      .043      .070      .051    606.20     96.00
  .002365       73.       73.       73.         2         0         1      0.00     92.00    188.00


CCHV=     .500 CEHV=    1.000
1490 NH CARD USED

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     700.0      744.0  TYPE=      1  TARGET=      44.000

           BRIDGE SECTION W  PENN CENTRAL RAILROAD  DOWNSTREAM FACE

 23384.00      8.43    616.93      0.00      0.00    617.89       .96       .34       .37    614.70
    2070.        0.     2070.        0.        0.      264.        0.     1052.      276. 100000.00
     4.09       .02      7.84      0.00      .040      .035      .070      .050    608.50    700.00
  .004210      150.      109.       50.         2         0         1      0.00     42.00    744.00


SPECIAL BRIDGE

SB  XK        XKOR      CDFQ      ROLEN      RWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.85      2.82      0.00     44.00      0.00     296.20     0.00     608.50    608.50


3265 DIVIDED FLOW

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TTME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
```

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 618.34 | 617.89 | 0.00 | 0. | 2070. | 296. | 617.80 | 621.80 | 10.00 |

3470 ENCROACHMENT STATIONS= 700.0 744.0 TYPE= 1 TARGET= 44.000

Δ= .16

BRIDGE SECTION 7 PENN CENTRAL RAILROAD UPSTREAM FACE 275

617.7/old 618.86 new

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 23410.00 | 9.04 | 617.54 | 0.00 | 0.00 | 618.34 | .79 | .45 | 0.00 | 614.70 |
| 2070. | 0. | 2070. | 0. | 0. | 290. | 0. | 1052. | 276. | 100000.00 |
| 4.09 | .02 | 7.15 | 0.00 | .040 | .035 | .070 | .050 | 608.50 | 700.00 |
| .003191 | 26. | 26. | 26. | 3 | 0 | 1 | 0.00 | 42.00 | 744.00 |

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 530.0 1190.0 TYPE= 1 TARGET= -530.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 23583.00 | 10.30 | 618.80 | 0.00 | 0.00 | 618.83 | .03 | .12 | .38 | 615.20 | * new section |
| 2070. | 832. | 503. | 734. | 510. | 295. | 869. | 1056. | 277. | 614.60 | |
| 4.13 | 1.63 | 1.70 | .85 | .046 | .055 | .070 | .050 | 608.50 | 549.83 | |
| .000284 | 173. | 173. | 173. | 2 | 0 | 1 | 0.00 | 390.85 | 940.68 | |

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS= 530.0 1190.0 TYPE= 1 TARGET= -530.000

Δ= -.26

VALLEY SECTION X 618.73 old 619.29 old 276

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24050.00 | 9.97 | 618.97 | 0.00 | 0.00 | 619.00 | .03 | .17 | .00 | 615.70 |
| 2070. | 692. | 495. | 882. | 477. | 282. | 787. | 1080. | 283. | 615.10 |
| 4.24 | 1.45 | 1.76 | 1.12 | .050 | .050 | .050 | .050 | 609.00 | 551.65 |
| .000285 | 427. | 467. | 827. | 2 | 0 | 1 | 0.00 | 384.52 | 936.16 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 744.0 803.0 TYPE= 1 TARGET= 59.000

Δ= -.51

VALLEY SECTION Y 277

619.63 old 620.06 old

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24665.00 | 9.72 | 619.12 | 0.00 | 0.00 | 619.62 | .50 | .38 | .24 | 616.10 |
| 2070. | 8. | 2051. | 12. | 3. | 359. | 6. | 1093. | 286. | 617.10 |
| 4.27 | 2.56 | 5.71 | 1.95 | .060 | .046 | .060 | .050 | 609.40 | 744.00 |
| .002454 | 700. | 615. | 500. | 2 | 0 | 1 | 0.00 | 59.00 | 803.00 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 700.0 745.0 TYPE= 1 TARGET= 45.000

Δ= .66

BRIDGE SECTION Z 18 MILE ROAD DOWNSTREAM FACE

619.18 old 620.13 old

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 24693.00 | 10.34 | 619.34 | 0.00 | 0.00 | 619.71 | .38 | .03 | .06 | 616.10 |

```
     4.28       .01      4.92      0.00      .040      .030      .060      .050    609.00    700.00
  .000563       28.       28.       28.         2         0         1      0.00     45.00    745.00


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLFN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.66      3.04      0.00     45.00      0.00    395.70      0.00    609.00    609.00

PRESSURE FLOW

  EGPRS     EGLWC      H3        QWEIR     QPR       BAREA     ELLC      ELTRD     CLASS

  620.04    619.71     0.00        0.      2070.      397.     618.90    621.30     10.00


3470 ENCROACHMENT STATIONS=      700.0      745.0  TYPE=      1  TARGET=      45.000
                  Δ=.52
          BRIDGE SECTION Z  18 MILE ROAD  UPSTREAM FACE                    278
                  620.17/old                    620.99
 24757.00    10.69   619.69    0.00      0.00    620.04 old  .35       .33       0.00    616.10
    2070.       0.     2070.      0.        0.      437.       0.     1094.      286.  100000.00
     4.28      .01      4.74    0.00      .040      .030      .060      .050    609.00    700.00
  .000498       64.       64.       64.         2         0         1      0.00     45.00    745.00


1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


* 3470 ENCROACHMENT STATIONS=      360.0      640.0  TYPE=      1  TARGET=    -360.000
 24832.00    10.82   620.12    0.00      0.00    620.21     .09       .04       .13     615.30   * [illegible]
    2000.      541.     1378.     81.      419.      491.      107.     1095.      286.    616.10
     4.29      1.29      2.81     .76      .070      .053      .085      .050    609.30    360.00
  .000568       75.       75.       75.         2         0         1      0.00    210.73    570.73


CCHV=     .300 CEHV=     .500

3470 ENCROACHMENT STATIONS=      360.0      640.0  TYPE=      1  TARGET=    -360.000
          VALLEY SECTION 620.88/old                 620.01/old                    279
 25435.00     9.38   620.58    0.00      0.00    620.73     .15       .49       .03     617.20
    2000.      495.     1453.     52.      271.      412.      44.     1109.      290.    618.00
     4.35      1.83      3.53     1.18     .050      .050      .050      .050    611.20    360.00
  .001037      825.      603.      525.         2         0         1      0.00    192.28    552.28


1490 NH CARD USED
3280 CROSS SECTION  25560.00 EXTENDED      1.71 FEET

 25560.00     8.51   620.71    0.00      0.00    620.82     .11       .07       .01     612.20
    1890.      188.     1468.    233.      198.      493.      216.     1111.      290.    612.20
     4.36      .95      2.98     1.08     .050      .040      .050      .050    612.20      0.00
  .000369      125.      125.      125.         2         0         1      0.00    229.69    229.69
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1490 NH CARD USED
3280 CROSS SECTION  25565.00 EXTENDED      1.69 FEET


          BRIDGE SECTION AB                                                  279A

 25565.00      8.49   620.69      0.00      0.00   620.85      .16       .00       .02   612.50
    1890.       303.   1230.      357.      196.     326.     207.     1111.      290.   614.20
     4.36      1.55     3.77      1.72      .050     .040     .050      .050   612.20     0.00
  .000989        5.       5.        5.         2        0        1      0.00   229.62   229.62


1490 NH CARD USED
3280 CROSS SECTION  25570.00 EXTENDED      .57 FEET


 25570.00      7.37   620.67      0.00      0.00   620.87      .21       .00       .03   613.30
    1890.       88.   1662.      140.       99.     427.     122.     1111.      290.   613.30
     4.36      .89     3.89      1.15      .050     .040     .050      .050   613.30     0.00
  .000765        5.       5.        5.         2        0        1      0.00   225.89   225.89


1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     457.0      603.0  TYPE=     1  TARGET=     146.000

          VALLEY SECTION AC                                                   280

 26765.00      9.37   621.97      0.00      0.00   622.44      .46      1.44       .13   620.70
    1890.       25.   1865.        0.       32.     339.       0.     1125.      295.   624.50
     4.42      .80     5.51      0.00      .070     .044     .050      .050   612.60   457.00
  .002152     1195.   1195.      1195.         2        0        1      0.00    97.80   554.80


1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     736.8      758.9  TYPE=     1  TARGET=      24.000

          BRIDGE SECTION AD-MOUND ROAD DOWNSTREAM FACE

 26891.00      9.60   622.00      0.00      0.00   623.46     1.46       .52       .50   620.70
    1890.        0.   1890.        0.        0.     195.       0.     1126.      295. 100000.00
     4.43      .03     9.70      0.00      .060     .060     .050      .050   612.40   736.80
  .011028      126.    126.      126.         2        0        1      0.00    22.10   758.90


1490 NH CARD USED

SPECIAL BRIDGE

SB   XK        XKOR      COFD      RDLEN     HPC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.74      3.03      0.00    24.00      0.00    218.70      0.00    612.40    612.40

   SECNO     DEPTH     CRSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


PRESSURE FLOW
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| EGPRS | FGLWC | H3 | QWEIR | QPR | BARFA | FLLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 624.01 | 623.46 | 0.00 | 0. | 1890. | 219. | 622.30 | 625.50 | 10.00 |

3470 ENCROACHMENT STATIONS= 736.8 756.9 TYPE= 1 TARGET= 24.000

BRIDGE SECTION AROUND ROAD UPSTREAM FACE 261

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26947.00 | 10.38 | 622.78 | 0.00 | 0.00 | 624.01 | 1.23 | .56 | 0.00 | 620.70 |
| 1890. | 0. | 1890. | 0. | 0. | 212. | 0. | 1126. | 295. | 100000.00 |
| 4.43 | .02 | 8.91 | 0.00 | .060 | .060 | .050 | .050 | 612.40 | 736.80 |
| .008308 | 56. | 56. | 56. | 3 | 0 | 1 | 0.00 | 22.10 | 758.90 |

1490 NH CARD USED

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27267.00 | 12.19 | 624.59 | 0.00 | 0.00 | 624.62 | .02 | .24 | .36 | 619.00 |
| 1890. | 475. | 605. | 810. | 766. | 321. | 888. | 1134. | 297. | 619.70 |
| 4.51 | .62 | 1.88 | .91 | .077 | .050 | .070 | .050 | 612.40 | 330.35 |
| .000261 | 320. | 320. | 320. | 3 | 0 | 1 | 0.00 | 617.58 | 947.93 |

CCHV= .300 CEHV= .500

VALLEY SECTION AB 282

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27975.00 | 12.24 | 624.74 | 0.00 | 0.00 | 624.76 | .02 | .14 | .00 | 619.10 |
| 1890. | 571. | 446. | 873. | 784. | 323. | 898. | 1165. | 306. | 619.80 |
| 4.70 | .73 | 1.38 | .97 | .050 | .050 | .050 | .050 | 612.50 | 327.98 |
| .000149 | 530. | 880. | 708. | 3 | 0 | 1 | 0.00 | 620.05 | 948.03 |

1490 NH CARD USED

VALLEY SECTION AF 283

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29270.00 | 9.96 | 625.06 | 0.00 | 0.00 | 625.28 | .21 | .42 | .10 | 622.40 |
| 1890. | 232. | 1126. | 532. | 201. | 241. | 380. | 1207. | 321. | 622.20 |
| 4.81 | 1.15 | 4.68 | 1.40 | .060 | .041 | .060 | .050 | 615.10 | 102.48 |
| .001192 | 1295. | 1295. | 1295. | 2 | 0 | 1 | 0.00 | 377.36 | 479.84 |

CCHV= .500 CEHV= 1.000
1490 NH CARD USED

BRIDGE SECTION AG 18.5 MILE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29440.00 | 7.83 | 625.33 | 0.00 | 0.00 | 625.46 | .13 | .15 | .04 | 622.40 |
| 1890. | 399. | 648. | 842. | 215. | 155. | 400. | 1210. | 322. | 622.10 |
| 4.83 | 1.86 | 4.18 | 2.11 | .030 | .030 | .033 | .050 | 617.50 | 108.98 |
| .000674 | 170. | 170. | 170. | 2 | 0 | 1 | 0.00 | 348.04 | 457.02 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | ROLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.64 | 3.03 | 0.00 | 24.00 | 0.00 | 154.60 | 0.00 | 617.50 | 617.50 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | AAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 629.14 | 625.46 | 0.00 | 493. | 1397. | 155. | 624.70 | 626.10 | 30.00 |

BRIDGE SECTION AG 18.5 MILE ROAD UPSTREAM FACE 284

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 29460.00 | 9.88 | 627.38 | 0.00 | 0.00 | 627.41 | .03 | 1.95 | 0.00 | 622.40 |
| 1890. | 631. | 361. | 898. | 598. | 198. | 773. | 1210. | 322. | 622.10 |
| 4.83 | 1.06 | 1.82 | 1.16 | .030 | .030 | .032 | .050 | 617.50 | 55.09 |
| .000093 | 20. | 20. | 20. | 2 | 0 | 4 | 0.00 | 418.41 | 473.50 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 250.0 593.0 TYPE= 1 TARGET= -250.000

VALLEY SECTION AH 627.73 285

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 30470.00 | 12.45 | 627.55 | 0.00 | 0.00 | 627.65 | .10 | .16 | .08 | 623.50 |
| 1890. | 690. | 1200. | 0. | 460. | 394. | 0. | 1235. | 328. | 628.00 |
| 4.94 | 1.50 | 3.05 | 0.00 | .060 | .046 | .032 | .050 | 615.10 | 250.00 |
| .000497 | 900. | 1010. | 750. | 2 | 0 | 1 | 0.00 | 149.29 | 399.29 |

1490 NH CARD USED

VALLEY SECTION AI 286

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31350.00 | 10.93 | 628.23 | 0.00 | 0.00 | 628.38 | .15 | .68 | .04 | 625.30 |
| 1850. | 674. | 747. | 389. | 368. | 182. | 276. | 1252. | 332. | 625.30 |
| 5.02 | 1.83 | 4.31 | 1.41 | .060 | .049 | .080 | .050 | 617.30 | 63.48 |
| .001388 | 880. | 880. | 880. | 2 | 0 | 1 | 0.00 | 262.41 | 325.89 |

1490 NH CARD USED

VALLEY SECTION AJ 287

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33025.00 | 9.88 | 629.68 | 0.00 | 0.00 | 629.75 | .07 | 1.33 | .04 | 626.40 |
| 1740. | 87. | 632. | 1021. | 117. | 209. | 830. | 1291. | 346. | 623.70 |
| 5.28 | .75 | 3.02 | 1.23 | .060 | .042 | .049 | .050 | 619.80 | 328.72 |
| .000471 | 2000. | 1675. | 1650. | 2 | 0 | 1 | 0.00 | 440.74 | 769.46 |

1490 NH CARD USED

BRIDGE SECTION AK RYAN ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33109.00 | 8.72 | 629.72 | 0.00 | 0.00 | 629.78 | .06 | .03 | .00 | 626.40 |
| 1740. | 79. | 647. | 1013. | 119. | 222. | 822. | 1294. | 347. | 624.20 |
| 5.30 | .67 | 2.92 | 1.23 | .060 | .035 | .042 | .050 | 621.00 | 327.98 |
| .000354 | 84. | 84. | 84. | 2 | 0 | 1 | 0.00 | 442.12 | 770.10 |

SPECIAL BRIDGE

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     0.00       2.28       3.03       0.00      30.00       0.00     209.20       0.00     621.00     621.00
PRESSURE AND WEIR FLOW

   EGPRS     EGLWC       H3      QWEIR       QPR     BAREA      ELLC     ELTRD     CLASS
  632.17    629.78     0.00       200.      1534.      209.    629.30    630.90     30.00


            BRIDGE SECTION AK  RYAN ROAD  UPSTREAM FACE                    288

 33143.00     10.61    631.61      0.00      0.00    631.62       .02      1.84      0.00    626.40
    1740.      127.      427.     1186.      296.      279.     1477.     1295.      348.    624.20
     5.31       .43      1.53       .80      .060      .035      .042      .050    621.00    283.82
  .000073       34.       34.       34.         1         0         3      0.00    497.12    780.94

1490 NH CARD USED
 33675.00     10.37    631.67      0.00      0.00    631.71       .04       .06       .02    627.90
    1740.       90.      517.     1133.      155.      222.     1000.     1316.      353.    625.20
     5.41       .58      2.33      1.13      .060      .040      .043      .050    621.30    318.02
  .000238      532.      532.      532.         2         0         1      0.00    454.98    773.01

CCHV=     .300 CEHV=     .500
1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     500.0     1300.0  TYPE=     1  TARGET=    -500.000

       BEGIN GIBSON              DRAIN            CROSS SECTIONS

            VALLEY SECTION A                                            298

 33835.00     11.11    631.71      0.00      0.00    631.75       .04       .04       .00    625.10
    1470.      992.      469.        9.      785.      217.       18.     1321.      355.    629.40
     5.44      1.26      2.16       .50      .050      .041      .050      .050    620.60    500.00
  .000237      250.      160.      140.         1         0         1      0.00    215.83    715.83

1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      FG        HV        HL      QLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN      ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR    TOPWID      ENDST


            BRIDGE SECTION B    FARM LANE BRIDGE    DOWNSTREAM FACE

 35279.00      9.12    631.92      0.00      0.00    631.93       .01       .16       .01    624.90
    1470.     1307.      142.       22.     1684.      130.       44.     1360.      364.    625.80
     5.86       .78      1.09       .49      .045      .040      .045      .050    622.80    235.67
  .000087     1144.     1444.     1544.         2         0         1      0.00    484.64    720.31


SPECIAL BRIDGE

SB  XK        XKOR      COEQ      RDLEN     HWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.56      3.03      0.00      1.00      0.00     84.20      0.00    622.80    622.80

PRESSURE AND WEIR FLOW
```

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 639.29 | 631.93 | 0.00 | 909. | 562. | 84. | 629.20 | 629.40 | 30.00 |

BRIDGE SECTION B FARM LANE BRIDGE UPSTREAM FACE 298A

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 35290.00 | 10.19 | 632.99 | 0.00 | 0.00 | 632.99 | .01 | 1.07 | 0.00 | 624.90 |
| 1470. | 1326. | 118. | 26. | 2180. | 147. | 69. | 1361. | 364. | 625.80 |
| 5.86 | .61 | .80 | .38 | .045 | .040 | .045 | .050 | 622.80 | 214.11 |
| .000041 | 11. | 11. | 11. | 0 | 0 | 6 | 0.00 | 512.33 | 726.44 |

1490 NH CARD USED

VALLEY SECTION C 299

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 35725.00 | 9.60 | 633.00 | 0.00 | 0.00 | 633.08 | .08 | .05 | .04 | 628.70 |
| 1470. | 115. | 574. | 780. | 85. | 188. | 527. | 1379. | 369. | 630.20 |
| 5.92 | 1.36 | 3.06 | 1.48 | .050 | .044 | .050 | .049 | 623.40 | 322.20 |
| .000703 | 535. | 435. | 335. | 2 | 0 | 1 | 0.00 | 298.58 | 620.78 |

1490 NH CARD USED

VALLEY SECTION D 300

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 36925.00 | 9.26 | 633.76 | 0.00 | 0.00 | 633.89 | .13 | .79 | .03 | 632.70 |
| 1470. | 624. | 692. | 154. | 474. | 174. | 144. | 1401. | 378. | 632.10 |
| 6.06 | 1.32 | 3.97 | 1.07 | .050 | .031 | .050 | .049 | 624.50 | 966.23 |
| .000602 | 1500. | 1200. | 1000. | 2 | 0 | 1 | 0.00 | 316.78 | 1283.01 |

CCHV= .500 CEHV= 1.000

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 37253.00 | 8.57 | 634.07 | 0.00 | 0.00 | 634.25 | .18 | .31 | .05 | 633.70 | * Main section |
| 1470. | 635. | 710. | 125. | 335. | 156. | 88. | 1406. | 380. | 633.10 | |
| 6.09 | 1.90 | 4.56 | 1.42 | .050 | .040 | .050 | .049 | 625.50 | 977.02 | |
| .001850 | 328. | 328. | 200. | 2 | 0 | 1 | 0.00 | 300.24 | 1277.26 | |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1120.8 1154.4 TYPE= 1 TARGET= 36.000

BRIDGE SECTION E 18 MILE ROAD BRIDGE-DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 37819.00 | 8.02 | 635.22 | 0.00 | 0.00 | 635.77 | .55 | 1.15 | .36 | 633.00 |
| 1470. | 0. | 1470. | 0. | 0. | 248. | 0. | 1410. | 381. | 100000.00 |
| 6.11 | .02 | 5.93 | 0.00 | .045 | .045 | .050 | .049 | 627.20 | 1120.80 |
| .002599 | 466. | 566. | 194. | 2 | 0 | 1 | 0.00 | 33.62 | 1154.42 |

1490 NH CARD USED

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.61 | 3.03 | 0.00 | 1.00 | 0.00 | 252.10 | 0.00 | 627.20 | 627.20 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECND | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | QLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNLO | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

PRESSURE FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 636.07 | 635.77 | 0.00 | 0. | 1470. | 252. | 635.40 | 636.20 | 10.00 |

3470 ENCROACHMENT STATIONS= 1120.8 1154.4 TYPE= 1 TARGET= 36.000

A = 91

BRIDGE SECTION E 18 MILE ROAD BRIDGE UPSTREAM FACE 301

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 37851.00 | 8.38 | 635.58 | 0.00 | 0.00 | 636.07 | .50 | .30 | 0.00 | 633.00 |
| 1470. | 0. | 1470. | 0. | 0. | 260. | 0. | 1411. | 381. | 100000.00 |
| 6.11 | .02 | 5.66 | 0.00 | .045 | .045 | .050 | .049 | 627.20 | 1120.80 |
| .002219 | 32. | 32. | 32. | 2 | 0 | 1 | 0.00 | 33.62 | 1154.42 |

Water will FLOW over Road in unencroached RUN. Weir FLOW WAS CUT OFF WHEN encroachments WERE put IN.

SAB 12-5-80

1490 NH CARD USED

3280 CROSS SECTION 38084.00 EXTENDED 3.77 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 38084.00 | 8.67 | 636.37 | 0.00 | 0.00 | 635.38 | .01 | .06 | .24 | 631.50 |
| 1470. | 920. | 180. | 370. | 1479. | 144. | 608. | 1417. | 383. | 632.50 |
| 6.20 | .62 | 1.25 | .61 | .060 | .043 | .060 | .049 | 627.70 | 81.23 |
| .000094 | 233. | 233. | 233. | 2 | 0 | 1 | 0.00 | 568.77 | 650.00 |

CCHV= .300 CEHV= .500

3280 CROSS SECTION 39285.00 EXTENDED 1.18 FEET

VALLEY SECTION F 302

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39285.00 | 6.08 | 636.58 | 0.00 | 0.00 | 636.64 | .06 | .24 | .03 | 634.30 |
| 1470. | 884. | 306. | 280. | 573. | 95. | 220. | 1455. | 396. | 635.30 |
| 6.36 | 1.54 | 3.22 | 1.27 | .050 | .040 | .050 | .049 | 630.50 | 167.14 |
| .001100 | 901. | 1201. | 1401. | 2 | 0 | 1 | 0.00 | 482.86 | 650.00 |

1490 NH CARD USED

3280 CROSS SECTION 39335.00 EXTENDED .72 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39335.00 | 5.91 | 636.61 | 0.00 | 0.00 | 636.80 | .20 | .09 | .07 | 634.80 |
| 1470. | 507. | 549. | 414. | 342. | 99. | 264. | 1456. | 396. | 635.50 |
| 6.37 | 1.48 | 5.52 | 1.57 | .060 | .041 | .060 | .049 | 630.70 | 181.55 |
| .002927 | 61. | 50. | 50. | 0 | 0 | 1 | 0.00 | 584.95 | 766.50 |

3280 CROSS SECTION 39385.00 EXTENDED .66 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39385.00 | 5.86 | 636.76 | 0.00 | 0.00 | 636.99 | .23 | .17 | .01 | 635.00 |
| 1470. | 494. | 571. | 405. | 324. | 98. | 251. | 1457. | 397. | 635.70 |
| 6.37 | 1.52 | 5.82 | 1.62 | .060 | .041 | .060 | .049 | 630.90 | 184.03 |
| .003288 | 61. | 50. | 50. | 2 | 0 | 1 | 0.00 | 582.47 | 766.50 |

3280 CROSS SECTION 39485.00 EXTENDED .61 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1470. | 483. | 589. | 398. | 310. | 97. | 240. | 1459. | 399. | 636.10 |
| 6.38 | 1.56 | 6.05 | 1.66 | .060 | .041 | .060 | .049 | 631.30 | 185.93 |
| .003599 | 122. | 100. | 100. | 2 | 0 | 1 | 0.00 | 580.57 | 766.50 |

3280 CROSS SECTION 39585.00 EXTENDED .74 FEET

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | FG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | TTRTAL | TDC | ICONT | CORAR | TOPWID | ENDST |
| 39585.00 | 5.93 | 637.53 | 0.00 | 0.00 | 637.72 | .19 | .34 | .02 | 635.70 |
| 1470. | 512. | 542. | 417. | 349. | 100. | 269. | 1460. | 400. | 636.40 |
| 6.39 | 1.47 | 5.43 | 1.55 | .060 | .041 | .060 | .049 | 631.60 | 180.65 |
| .002809 | 122. | 100. | 100. | 2 | 0 | 1 | 0.00 | 585.85 | 766.50 |

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 39885.00 EXTENDED .11 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 39885.00 | 5.81 | 638.51 | 638.38 | 0.00 | 638.96 | .45 | 1.11 | .13 | 637.20 |
| 1470. | 69. | 747. | 655. | 78. | 103. | 280. | 1465. | 404. | 637.60 |
| 6.41 | .88 | 7.23 | 2.34 | .060 | .038 | .060 | .049 | 632.70 | 216.22 |
| .004610 | 366. | 300. | 300. | 4 | 11 | 1 | 0.00 | 536.41 | 883.40 |

1490 NH CARD USED

VALLEY SECTION G 303

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 40185.00 | 6.09 | 639.79 | 0.00 | 0.00 | 640.03 | .24 | 1.00 | .06 | 638.70 |
| 1470. | 14. | 621. | 835. | 17. | 112. | 426. | 1468. | 407. | 638.80 |
| 6.44 | .82 | 5.57 | 1.96 | .060 | .036 | .060 | .049 | 633.70 | 517.25 |
| .002485 | 366. | 300. | 300. | 2 | 0 | 1 | 0.00 | 277.57 | 794.82 |

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 41175.00 EXTENDED .43 FEET

VALLEY SECTION H 304

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 41175.00 | 7.32 | 641.42 | 0.00 | 0.00 | 641.47 | .04 | 1.38 | .06 | 642.40 |
| 1330. | 255. | 408. | 667. | 355. | 154. | 591. | 1491. | 422. | 639.90 |
| 6.65 | .72 | 2.65 | 1.13 | .045 | .042 | .050 | .048 | 634.10 | 0.00 |
| .000635 | 390. | 990. | 1390. | 4 | 0 | 1 | 0.00 | 365.03 | 881.26 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

PLUM BROOK

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C/SEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | 0.00 | 0.00 | 0.00 | 585.40 | 1540.00 | 598.80 | .02 | 0.00 | 0.00 | 486.85 | 13.40 | 477.23 |
| 20.00 | 0.00 | 0.00 | 0.00 | 585.40 | 2240.00 | 601.90 | .01 | 0.00 | 0.00 | 458.16 | 16.50 | 1307.83 |
| 20.00 | 0.00 | 0.00 | 0.00 | 585.40 | 2560.00 | 602.60 | .01 | 0.00 | 0.00 | 465.28 | 17.20 | 1316.35 |
| 20.00 | 0.00 | 0.00 | 0.00 | 585.40 | 3500.00 | 603.20 | .01 | 0.00 | 0.00 | 577.26 | 17.80 | 1320.00 |
| 875.00 | 855.00 | 0.00 | 0.00 | 586.10 | 1540.00 | 598.87 | .02 | .08 | .00 | 513.61 | 12.77 | 361.07 |
| 875.00 | 855.00 | 0.00 | 0.00 | 586.10 | 2240.00 | 601.93 | .01 | .04 | .00 | 512.14 | 15.83 | 1152.61 |
| 875.00 | 855.00 | 0.00 | 0.00 | 586.10 | 2560.00 | 602.63 | .01 | .03 | .00 | 521.25 | 16.53 | 1308.15 |
| 875.00 | 855.00 | 0.00 | 0.00 | 586.10 | 3500.00 | 603.24 | .01 | .04 | .00 | 642.88 | 17.14 | 1315.57 |
| 3080.00 | 2205.00 | 0.00 | 0.00 | 586.10 | 1470.00 | 599.11 | .03 | .25 | .00 | 751.59 | 13.01 | 389.86 |
| 3080.00 | 2205.00 | 0.00 | 0.00 | 586.10 | 2150.00 | 602.04 | .01 | .11 | .00 | 736.08 | 15.94 | 1052.36 |
| 3080.00 | 2205.00 | 0.00 | 0.00 | 586.10 | 2450.00 | 602.72 | .01 | .10 | .00 | 743.82 | 16.62 | 1065.61 |
| 3080.00 | 2205.00 | 0.00 | 0.00 | 586.10 | 3350.00 | 603.37 | .02 | .13 | .00 | 912.73 | 17.27 | 1078.03 |
| 4680.00 | 1600.00 | 0.00 | 0.00 | 589.80 | 1460.00 | 599.27 | .02 | .15 | .00 | 449.27 | 9.47 | 311.90 |
| 4680.00 | 1600.00 | 0.00 | 0.00 | 589.80 | 2130.00 | 602.10 | .01 | .06 | .00 | 449.34 | 12.30 | 445.31 |
| 4680.00 | 1600.00 | 0.00 | 0.00 | 589.80 | 2430.00 | 602.78 | .01 | .06 | .00 | 475.27 | 12.98 | 484.53 |
| 4680.00 | 1600.00 | 0.00 | 0.00 | 589.80 | 3330.00 | 603.44 | .02 | .08 | .00 | 608.15 | 13.64 | 517.01 |
| 6200.00 | 1520.00 | 0.00 | 0.00 | 588.90 | 1460.00 | 599.51 | .08 | .23 | .06 | 744.69 | 10.61 | 495.75 |
| 6200.00 | 1520.00 | 0.00 | 0.00 | 588.90 | 2130.00 | 602.19 | .02 | .08 | .01 | 580.49 | 13.29 | 1002.15 |
| 6200.00 | 1520.00 | 0.00 | 0.00 | 588.90 | 2430.00 | 602.85 | .01 | .07 | .00 | 565.09 | 13.95 | 1164.06 |
| 6200.00 | 1520.00 | 0.00 | 0.00 | 588.90 | 3330.00 | 603.54 | .02 | .10 | .00 | 661.14 | 14.64 | 1373.27 |
| 6254.00 | 54.00 | 0.00 | 0.00 | 589.00 | 1460.00 | 599.56 | .06 | .02 | .01 | 1023.96 | 10.56 | 498.83 |
| 6254.00 | 54.00 | 0.00 | 0.00 | 589.00 | 2130.00 | 602.19 | .02 | .01 | .00 | 933.04 | 13.19 | 1022.94 |
| 6254.00 | 54.00 | 0.00 | 0.00 | 589.00 | 2430.00 | 602.86 | .02 | .00 | .00 | 921.70 | 13.86 | 1170.06 |
| 6254.00 | 54.00 | 0.00 | 0.00 | 589.00 | 3330.00 | 603.55 | .02 | .00 | .00 | 1089.56 | 14.55 | 1375.92 |
| 6279.00 | 25.00 | 600.90 | 599.50 | 589.00 | 1460.00 | 599.79 | .05 | .22 | 0.00 | 982.73 | 10.79 | 512.20 |
| 6279.00 | 25.00 | 600.90 | 599.50 | 589.00 | 2130.00 | 602.25 | .02 | .06 | 0.00 | 917.52 | 13.26 | 1048.40 |
| 6279.00 | 25.00 | 600.90 | 599.50 | 589.00 | 2430.00 | 602.91 | .02 | .05 | 0.00 | 909.66 | 13.91 | 1177.52 |
| 6279.00 | 25.00 | 600.90 | 599.50 | 589.00 | 3330.00 | 603.60 | .02 | .05 | 0.00 | 1072.75 | 14.60 | 1422.41 |
| 6420.00 | 141.00 | 0.00 | 0.00 | 588.90 | 1460.00 | 599.85 | .03 | .02 | .01 | 449.36 | 10.95 | 515.18 |
| 6420.00 | 141.00 | 0.00 | 0.00 | 588.90 | 2130.00 | 602.28 | .01 | .01 | .00 | 339.56 | 13.38 | 1035.20 |
| 6420.00 | 141.00 | 0.00 | 0.00 | 588.90 | 2430.00 | 602.93 | .01 | .00 | .00 | 330.70 | 14.03 | 1174.59 |
| 6420.00 | 141.00 | 0.00 | 0.00 | 588.90 | 3330.00 | 603.62 | .01 | .01 | .00 | 385.68 | 14.72 | 1428.70 |
| 6421.00 | 1.00 | 0.00 | 0.00 | 595.10 | 1460.00 | 599.85 | .06 | .00 | .04 | 276.51 | 4.75 | 477.70 |
| 6421.00 | 1.00 | 0.00 | 0.00 | 595.10 | 2130.00 | 602.28 | .01 | .00 | .00 | 173.35 | 7.18 | 1031.05 |
| 6421.00 | 1.00 | 0.00 | 0.00 | 595.10 | 2430.00 | 602.93 | .01 | .00 | .00 | 166.37 | 7.83 | 1173.19 |
| 6421.00 | 1.00 | 0.00 | 0.00 | 595.10 | 3330.00 | 603.62 | .01 | .00 | .00 | 192.62 | 8.52 | 1423.55 |
| 6447.00 | 26.00 | 597.60 | 599.10 | 595.10 | 1460.00 | 599.87 | .06 | .02 | .00 | 118.95 | 4.77 | 480.03 |
| 6447.00 | 26.00 | 597.60 | 599.10 | 595.10 | 2130.00 | 602.33 | .01 | .05 | 0.00 | 170.64 | 7.23 | 1050.98 |
| 6447.00 | 26.00 | 597.60 | 599.10 | 595.10 | 2430.00 | 602.97 | .01 | .05 | 0.00 | 164.20 | 7.87 | 1181.15 |
| 6447.00 | 26.00 | 597.60 | 599.10 | 595.10 | 3330.00 | 603.67 | .01 | .05 | 0.00 | 190.03 | 8.57 | 1460.86 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | C#SEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6448.00 | 1.00 | 0.00 | 0.00 | 588.90 | 1460.00 | 599.93 | .02 | .00 | .02 | 437.21 | 11.03 | 519.92 |
| 6448.00 | 1.00 | 0.00 | 0.00 | 588.90 | 2130.00 | 602.34 | .01 | .00 | .00 | 334.74 | 13.44 | 1055.35 |
| 6448.00 | 1.00 | 0.00 | 0.00 | 588.90 | 2430.00 | 602.98 | .01 | .00 | .00 | 326.67 | 14.08 | 1182.14 |
| 6448.00 | 1.00 | 0.00 | 0.00 | 588.90 | 3330.00 | 603.67 | .01 | .00 | .00 | 380.61 | 14.77 | 1466.65 |
| 7325.00 | 877.00 | 0.00 | 0.00 | 592.60 | 1460.00 | 600.07 | .06 | .14 | .04 | 691.20 | 7.47 | 450.16 |
| 7325.00 | 877.00 | 0.00 | 0.00 | 592.60 | 2130.00 | 602.37 | .02 | .03 | .01 | 528.70 | 9.77 | 557.51 |
| 7325.00 | 877.00 | 0.00 | 0.00 | 592.60 | 2430.00 | 603.01 | .02 | .03 | .01 | 536.57 | 10.41 | 577.86 |
| 7325.00 | 877.00 | 0.00 | 0.00 | 592.60 | 3330.00 | 603.71 | .02 | .03 | .01 | 658.04 | 11.11 | 605.20 |
| 8475.00 | 1150.00 | 0.00 | 0.00 | 591.20 | 1460.00 | 600.50 | .08 | .44 | .00 | 718.23 | 9.30 | 405.83 |
| 8475.00 | 1150.00 | 0.00 | 0.00 | 591.20 | 2130.00 | 602.47 | .03 | .11 | .00 | 604.82 | 11.27 | 530.04 |
| 8475.00 | 1150.00 | 0.00 | 0.00 | 591.20 | 2430.00 | 603.09 | .03 | .09 | .00 | 606.90 | 11.89 | 555.56 |
| 8475.00 | 1150.00 | 0.00 | 0.00 | 591.20 | 3330.00 | 603.80 | .04 | .10 | .00 | 726.91 | 12.60 | 615.10 |
| 8858.00 | 383.00 | 0.00 | 0.00 | 592.30 | 1460.00 | 600.63 | .21 | .23 | .04 | 1052.38 | 8.33 | 277.98 |
| 8858.00 | 383.00 | 0.00 | 0.00 | 592.30 | 2130.00 | 602.51 | .08 | .07 | .01 | 932.45 | 10.21 | 384.48 |
| 8858.00 | 383.00 | 0.00 | 0.00 | 592.30 | 2430.00 | 603.12 | .06 | .06 | .01 | 928.27 | 10.82 | 455.86 |
| 8858.00 | 383.00 | 0.00 | 0.00 | 592.30 | 3330.00 | 603.84 | .07 | .07 | .01 | 1090.00 | 11.54 | 662.18 |
| 9240.00 | 382.00 | 0.00 | 0.00 | 593.20 | 1460.00 | 600.97 | .32 | .42 | .03 | 1204.25 | 7.77 | 110.98 |
| 9240.00 | 382.00 | 0.00 | 0.00 | 593.20 | 2130.00 | 602.60 | .23 | .19 | .04 | 1369.67 | 9.40 | 257.66 |
| 9240.00 | 382.00 | 0.00 | 0.00 | 593.20 | 2430.00 | 603.18 | .19 | .15 | .04 | 1387.86 | 9.98 | 304.33 |
| 9240.00 | 382.00 | 0.00 | 0.00 | 593.20 | 3330.00 | 603.91 | .20 | .16 | .04 | 1620.77 | 10.71 | 349.58 |
| 10875.00 | 1635.00 | 0.00 | 0.00 | 594.10 | 1460.00 | 602.79 | .16 | 1.64 | .02 | 957.14 | 8.69 | 262.40 |
| 10875.00 | 1635.00 | 0.00 | 0.00 | 594.10 | 2130.00 | 604.02 | .17 | 1.36 | .01 | 1191.37 | 9.92 | 306.63 |
| 10875.00 | 1635.00 | 0.00 | 0.00 | 594.10 | 2430.00 | 604.46 | .17 | 1.25 | .00 | 1290.92 | 10.36 | 322.23 |
| 10875.00 | 1635.00 | 0.00 | 0.00 | 594.10 | 3330.00 | 605.31 | .20 | 1.40 | .00 | 1599.15 | 11.21 | 353.52 |
| 12280.00 | 1405.00 | 0.00 | 0.00 | 595.00 | 1460.00 | 604.19 | .49 | 1.39 | .33 | 1155.84 | 9.19 | 114.00 |
| 12280.00 | 1405.00 | 0.00 | 0.00 | 595.00 | 2130.00 | 605.43 | .57 | 1.41 | .41 | 1495.93 | 10.43 | 114.00 |
| 12280.00 | 1405.00 | 0.00 | 0.00 | 595.00 | 2430.00 | 605.90 | .61 | 1.44 | .44 | 1639.48 | 10.90 | 114.00 |
| 12280.00 | 1405.00 | 0.00 | 0.00 | 595.00 | 3330.00 | 606.97 | .75 | 1.67 | .54 | 2067.37 | 11.97 | 114.00 |
| 12308.00 | 28.00 | 0.00 | 0.00 | 595.20 | 1460.00 | 604.84 | .07 | .02 | .21 | 1460.00 | 9.64 | 90.00 |
| 12308.00 | 28.00 | 0.00 | 0.00 | 595.20 | 2130.00 | 606.15 | .11 | .02 | .23 | 2130.00 | 10.95 | 93.00 |
| 12308.00 | 28.00 | 0.00 | 0.00 | 595.20 | 2430.00 | 606.64 | .13 | .02 | .24 | 2430.00 | 11.44 | 93.00 |
| 12308.00 | 28.00 | 0.00 | 0.00 | 595.20 | 3330.00 | 607.84 | .19 | .03 | .28 | 3330.00 | 12.64 | 93.00 |
| 12356.00 | 48.00 | 606.80 | 606.00 | 595.20 | 1460.00 | 604.85 | .07 | .01 | .00 | 1460.00 | 9.65 | 90.00 |
| 12356.00 | 48.00 | 606.80 | 606.00 | 595.20 | 2130.00 | 606.22 | .11 | .07 | 0.00 | 2130.00 | 11.02 | 93.00 |
| 12356.00 | 48.00 | 606.80 | 606.00 | 595.20 | 2430.00 | 606.75 | .13 | .11 | 0.00 | 2430.00 | 11.55 | 93.00 |
| 12356.00 | 48.00 | 606.80 | 606.00 | 595.20 | 3330.00 | 607.92 | .19 | .08 | 0.00 | 3330.00 | 12.72 | 93.00 |
| 12556.00 | 200.00 | 0.00 | 0.00 | 595.30 | 1460.00 | 604.89 | .16 | .09 | .05 | 963.95 | 9.59 | 381.19 |
| 12556.00 | 200.00 | 0.00 | 0.00 | 595.30 | 2130.00 | 606.32 | .10 | .09 | .00 | 971.22 | 11.02 | 470.23 |
| 12556.00 | 200.00 | 0.00 | 0.00 | 595.30 | 2430.00 | 606.89 | .08 | .09 | .01 | 979.13 | 11.59 | 503.83 |
| 12556.00 | 200.00 | 0.00 | 0.00 | 595.30 | 3330.00 | 608.17 | .07 | .09 | .04 | 1058.99 | 12.87 | 565.58 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13470.00 | 914.00 | 0.00 | 0.00 | 595.70 | 1460.00 | 605.89 | .10 | .90 | .02 | 817.33 | 10.19 | 421.30 |
| 13470.00 | 914.00 | 0.00 | 0.00 | 595.70 | 2130.00 | 607.00 | .06 | .65 | .01 | 914.31 | 11.30 | 486.18 |
| 13470.00 | 914.00 | 0.00 | 0.00 | 595.70 | 2430.00 | 607.48 | .07 | .57 | .00 | 943.90 | 11.78 | 513.58 |
| 13470.00 | 914.00 | 0.00 | 0.00 | 595.70 | 3330.00 | 608.64 | .06 | .47 | .00 | 1045.92 | 12.94 | 569.18 |
| 14920.00 | 1450.00 | 0.00 | 0.00 | 598.40 | 1460.00 | 606.68 | .07 | .75 | .01 | 1365.11 | 8.28 | 167.25 |
| 14920.00 | 1450.00 | 0.00 | 0.00 | 598.40 | 2130.00 | 607.75 | .10 | .77 | .01 | 1930.16 | 9.35 | 188.11 |
| 14920.00 | 1450.00 | 0.00 | 0.00 | 598.40 | 2430.00 | 608.20 | .11 | .75 | .02 | 2164.89 | 9.80 | 229.56 |
| 14920.00 | 1450.00 | 0.00 | 0.00 | 598.40 | 3330.00 | 609.33 | .14 | .72 | .04 | 2821.01 | 10.93 | 251.95 |
| 17000.00 | 2080.00 | 0.00 | 0.00 | 599.70 | 1350.00 | 607.89 | .46 | 1.48 | .11 | 1068.01 | 8.19 | 100.92 |
| 17000.00 | 2080.00 | 0.00 | 0.00 | 599.70 | 1970.00 | 609.12 | .49 | 1.64 | .12 | 1365.27 | 9.42 | 143.58 |
| 17000.00 | 2080.00 | 0.00 | 0.00 | 599.70 | 2250.00 | 609.59 | .49 | 1.65 | .11 | 1472.95 | 9.89 | 165.99 |
| 17000.00 | 2080.00 | 0.00 | 0.00 | 599.70 | 3080.00 | 610.78 | .47 | 1.68 | .10 | 1722.22 | 11.08 | 223.88 |
| 19025.00 | 2025.00 | 0.00 | 0.00 | 603.00 | 1240.00 | 612.10 | .26 | 3.94 | .09 | 1240.00 | 9.10 | 56.48 |
| 19025.00 | 2025.00 | 0.00 | 0.00 | 603.00 | 1810.00 | 613.38 | .33 | 4.01 | .08 | 1720.14 | 10.38 | 143.29 |
| 19025.00 | 2025.00 | 0.00 | 0.00 | 603.00 | 2070.00 | 613.78 | .33 | 3.95 | .08 | 1874.36 | 10.78 | 176.03 |
| 19025.00 | 2025.00 | 0.00 | 0.00 | 603.00 | 2330.00 | 614.69 | .33 | 3.70 | .07 | 2208.29 | 11.69 | 247.94 |
| 19046.00 | 21.00 | 0.00 | 0.00 | 603.90 | 1240.00 | 612.37 | .11 | .02 | .09 | 1240.00 | 8.47 | 79.52 |
| 19046.00 | 21.00 | 0.00 | 0.00 | 603.90 | 1810.00 | 613.67 | .14 | .02 | .09 | 1773.38 | 9.77 | 165.83 |
| 19046.00 | 21.00 | 0.00 | 0.00 | 603.90 | 2070.00 | 614.06 | .16 | .02 | .09 | 1990.49 | 10.16 | 197.09 |
| 19046.00 | 21.00 | 0.00 | 0.00 | 603.90 | 2830.00 | 614.90 | .20 | .02 | .06 | 2561.56 | 11.00 | 264.61 |
| 19149.00 | 103.00 | 614.50 | 612.00 | 603.60 | 1240.00 | 612.64 | .16 | .32 | 0.00 | 1240.00 | 9.04 | 52.00 |
| 19149.00 | 103.00 | 614.50 | 612.00 | 603.60 | 1810.00 | 614.40 | .15 | .74 | 0.00 | 1604.78 | 10.80 | 224.93 |
| 19149.00 | 103.00 | 614.50 | 612.00 | 603.60 | 2070.00 | 614.85 | .16 | .78 | 0.00 | 1734.52 | 11.25 | 260.36 |
| 19149.00 | 103.00 | 614.50 | 612.00 | 603.60 | 2830.00 | 615.44 | .20 | .54 | 0.00 | 2139.58 | 11.84 | 507.59 |
| 19549.00 | 400.00 | 0.00 | 0.00 | 604.20 | 1240.00 | 612.88 | .16 | .24 | .00 | 713.62 | 8.68 | 211.68 |
| 19549.00 | 400.00 | 0.00 | 0.00 | 604.20 | 1810.00 | 614.65 | .08 | .15 | .04 | 693.37 | 10.46 | 264.25 |
| 19549.00 | 400.00 | 0.00 | 0.00 | 604.20 | 2070.00 | 615.10 | .08 | .14 | .04 | 732.26 | 10.90 | 277.33 |
| 19549.00 | 400.00 | 0.00 | 0.00 | 604.20 | 2830.00 | 615.75 | .10 | .17 | .05 | 901.01 | 11.55 | 296.53 |
| 19571.00 | 22.00 | 610.10 | 608.90 | 604.90 | 1240.00 | 612.95 | .15 | .06 | 0.00 | 135.24 | 8.05 | 213.67 |
| 19571.00 | 22.00 | 610.10 | 608.90 | 604.90 | 1810.00 | 614.76 | .07 | .09 | 0.00 | 98.71 | 9.86 | 267.10 |
| 19571.00 | 22.00 | 610.10 | 608.90 | 604.90 | 2070.00 | 615.21 | .07 | .10 | 0.00 | 100.33 | 10.31 | 280.44 |
| 19571.00 | 22.00 | 610.10 | 608.90 | 604.90 | 2830.00 | 615.87 | .09 | .11 | 0.00 | 117.95 | 10.97 | 300.13 |
| 19641.00 | 70.00 | 0.00 | 0.00 | 604.80 | 1240.00 | 613.06 | .15 | .12 | .00 | 676.43 | 8.26 | 290.03 |
| 19641.00 | 70.00 | 0.00 | 0.00 | 604.80 | 1810.00 | 614.81 | .06 | .04 | .00 | 611.58 | 10.01 | 370.00 |
| 19641.00 | 70.00 | 0.00 | 0.00 | 604.80 | 2070.00 | 615.26 | .05 | .03 | .01 | 634.38 | 10.46 | 385.35 |
| 19641.00 | 70.00 | 0.00 | 0.00 | 604.80 | 2830.00 | 615.95 | .07 | .04 | .01 | 757.23 | 11.15 | 413.70 |
| 20325.00 | 684.00 | 0.00 | 0.00 | 604.20 | 1240.00 | 613.75 | .04 | .54 | .03 | 468.92 | 9.55 | 354.70 |
| 20325.00 | 684.00 | 0.00 | 0.00 | 604.20 | 1810.00 | 615.14 | .03 | .29 | .01 | 503.73 | 10.94 | 404.98 |
| 20325.00 | 684.00 | 0.00 | 0.00 | 604.20 | 2070.00 | 615.56 | .03 | .27 | .01 | 532.83 | 11.36 | 422.71 |
| 20325.00 | 684.00 | 0.00 | 0.00 | 604.20 | 2830.00 | 616.24 | .04 | .31 | .01 | 647.51 | 12.09 | 453.01 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21759.00 | 1434.00 | 0.00 | 0.00 | 608.20 | 1240.00 | 614.42 | .10 | .71 | .03 | 813.37 | 6.22 | 320.18 |
| 21759.00 | 1434.00 | 0.00 | 0.00 | 608.20 | 1810.00 | 615.56 | .07 | .44 | .02 | 838.04 | 7.36 | 355.01 |
| 21759.00 | 1434.00 | 0.00 | 0.00 | 608.20 | 2070.00 | 615.95 | .06 | .40 | .02 | 869.79 | 7.75 | 367.23 |
| 21759.00 | 1434.00 | 0.00 | 0.00 | 608.20 | 2830.00 | 616.70 | .07 | .43 | .02 | 1017.68 | 8.50 | 390.27 |
| 21760.00 | 1.00 | 0.00 | 0.00 | 611.10 | 1240.00 | 614.41 | .13 | .00 | .01 | 516.65 | 3.31 | 320.03 |
| 21760.00 | 1.00 | 0.00 | 0.00 | 611.10 | 1810.00 | 615.55 | .07 | .00 | .00 | 518.28 | 4.45 | 355.01 |
| 21760.00 | 1.00 | 0.00 | 0.00 | 611.10 | 2070.00 | 615.95 | .07 | .00 | .00 | 544.28 | 4.85 | 367.24 |
| 21760.00 | 1.00 | 0.00 | 0.00 | 611.10 | 2830.00 | 616.70 | .08 | .00 | .00 | 655.49 | 5.60 | 390.28 |
| 21761.00 | 1.00 | 0.00 | 0.00 | 606.20 | 1240.00 | 614.47 | .08 | .00 | .01 | 914.80 | 8.27 | 321.67 |
| 21761.00 | 1.00 | 0.00 | 0.00 | 606.20 | 1810.00 | 615.56 | .06 | .00 | .00 | 1005.76 | 9.36 | 355.03 |
| 21761.00 | 1.00 | 0.00 | 0.00 | 606.20 | 2070.00 | 615.96 | .06 | .00 | .00 | 1050.60 | 9.76 | 367.25 |
| 21761.00 | 1.00 | 0.00 | 0.00 | 606.20 | 2830.00 | 616.71 | .07 | .00 | .00 | 1233.94 | 10.51 | 390.29 |
| 21836.00 | 75.00 | 0.00 | 0.00 | 606.00 | 1240.00 | 614.48 | .13 | .03 | .02 | 857.05 | 8.48 | 282.99 |
| 21836.00 | 75.00 | 0.00 | 0.00 | 606.00 | 1810.00 | 615.58 | .08 | .02 | .01 | 874.14 | 9.58 | 341.90 |
| 21836.00 | 75.00 | 0.00 | 0.00 | 606.00 | 2070.00 | 615.97 | .08 | .02 | .01 | 891.86 | 9.97 | 353.99 |
| 21836.00 | 75.00 | 0.00 | 0.00 | 606.00 | 2830.00 | 616.72 | .09 | .02 | .01 | 1009.03 | 10.72 | 376.98 |
| 22628.00 | 792.00 | 0.00 | 0.00 | 606.20 | 1240.00 | 614.93 | .18 | .48 | .03 | 985.23 | 8.73 | 333.05 |
| 22628.00 | 792.00 | 0.00 | 0.00 | 606.20 | 1810.00 | 615.89 | .13 | .34 | .02 | 1086.74 | 9.69 | 380.95 |
| 22628.00 | 792.00 | 0.00 | 0.00 | 606.20 | 2070.00 | 616.26 | .12 | .31 | .02 | 1125.03 | 10.06 | 398.88 |
| 22628.00 | 792.00 | 0.00 | 0.00 | 606.20 | 2830.00 | 617.01 | .12 | .30 | .02 | 1274.62 | 10.81 | 496.00 |
| 22952.00 | 324.00 | 0.00 | 0.00 | 606.20 | 1240.00 | 615.11 | .30 | .24 | .06 | 1160.38 | 8.91 | 184.31 |
| 22952.00 | 324.00 | 0.00 | 0.00 | 606.20 | 1810.00 | 616.03 | .30 | .21 | .08 | 1436.67 | 9.83 | 253.00 |
| 22952.00 | 324.00 | 0.00 | 0.00 | 606.20 | 2070.00 | 616.38 | .29 | .20 | .08 | 1524.88 | 10.18 | 253.00 |
| 22952.00 | 324.00 | 0.00 | 0.00 | 606.20 | 2830.00 | 617.11 | .30 | .20 | .09 | 1797.41 | 10.91 | 253.00 |
| 23202.00 | 250.00 | 0.00 | 0.00 | 606.20 | 1240.00 | 615.33 | .33 | .24 | .02 | 1199.45 | 9.13 | 128.00 |
| 23202.00 | 250.00 | 0.00 | 0.00 | 606.20 | 1810.00 | 616.23 | .42 | .26 | .06 | 1612.74 | 10.03 | 128.00 |
| 23202.00 | 250.00 | 0.00 | 0.00 | 606.20 | 2070.00 | 616.55 | .46 | .26 | .08 | 1784.59 | 10.36 | 128.00 |
| 23202.00 | 250.00 | 0.00 | 0.00 | 606.20 | 2830.00 | 617.27 | .59 | .29 | .14 | 2282.22 | 11.07 | 128.00 |
| 23275.00 | 73.00 | 0.00 | 0.00 | 606.20 | 1240.00 | 615.40 | .36 | .09 | .01 | 1221.34 | 9.20 | 92.00 |
| 23275.00 | 73.00 | 0.00 | 0.00 | 606.20 | 1810.00 | 616.28 | .51 | .11 | .03 | 1713.71 | 10.08 | 92.00 |
| 23275.00 | 73.00 | 0.00 | 0.00 | 606.20 | 2070.00 | 616.59 | .58 | .12 | .04 | 1930.29 | 10.39 | 92.00 |
| 23275.00 | 73.00 | 0.00 | 0.00 | 606.20 | 2830.00 | 617.25 | .83 | .16 | .07 | 2553.81 | 11.05 | 92.00 |
| 23384.00 | 109.00 | 0.00 | 0.00 | 608.50 | 1240.00 | 615.63 | .54 | .23 | .19 | 1240.00 | 7.13 | 42.00 |
| 23384.00 | 109.00 | 0.00 | 0.00 | 608.50 | 1810.00 | 616.58 | .82 | .30 | .31 | 1810.00 | 8.08 | 42.00 |
| 23384.00 | 109.00 | 0.00 | 0.00 | 608.50 | 2070.00 | 616.93 | .96 | .34 | .37 | 2070.00 | 8.43 | 42.00 |
| 23384.00 | 109.00 | 0.00 | 0.00 | 608.50 | 2830.00 | 617.71 | 1.41 | .45 | .59 | 2830.00 | 9.21 | 44.00 |
| 23410.00 | 26.00 | 621.80 | 617.80 | 608.50 | 1240.00 | 615.74 | .52 | .07 | .01 | 1240.00 | 7.24 | 42.00 |
| 23410.00 | 26.00 | 621.80 | 617.80 | 608.50 | 1810.00 | 616.74 | .78 | .10 | .02 | 1810.00 | 8.24 | 42.00 |
| 23410.00 | 26.00 | 621.80 | 617.80 | 608.50 | 2070.00 | 617.54 | .79 | .45 | 0.00 | 2070.00 | 9.04 | 42.00 |
| 23410.00 | 26.00 | 621.80 | 617.80 | 608.50 | 2830.00 | 619.44 | .89 | 1.21 | 0.00 | 2830.00 | 10.94 | 44.00 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23583.00 | 173.00 | 0.00 | 0.00 | 608.50 | 1240.00 | 616.64 | .05 | .19 | .24 | 433.79 | 8.14 | 349.41 |
| 23583.00 | 173.00 | 0.00 | 0.00 | 608.50 | 1810.00 | 618.00 | .04 | .15 | .37 | 492.12 | 9.50 | 375.38 |
| 23583.00 | 173.00 | 0.00 | 0.00 | 608.50 | 2070.00 | 618.80 | .03 | .12 | .38 | 503.10 | 10.30 | 390.85 |
| 23583.00 | 173.00 | 0.00 | 0.00 | 608.50 | 2830.00 | 620.82 | .03 | .07 | .43 | 559.05 | 12.32 | 429.63 |
| 24050.00 | 467.00 | 0.00 | 0.00 | 609.00 | 1240.00 | 616.97 | .05 | .33 | .00 | 427.99 | 7.97 | 346.12 |
| 24050.00 | 467.00 | 0.00 | 0.00 | 609.00 | 1810.00 | 618.22 | .04 | .22 | .00 | 483.95 | 9.22 | 370.13 |
| 24050.00 | 467.00 | 0.00 | 0.00 | 609.00 | 2070.00 | 618.97 | .03 | .17 | .00 | 495.24 | 9.97 | 384.52 |
| 24050.00 | 467.00 | 0.00 | 0.00 | 609.00 | 2830.00 | 620.92 | .02 | .10 | .00 | 550.86 | 11.92 | 421.98 |
| 24665.00 | 615.00 | 0.00 | 0.00 | 609.40 | 1240.00 | 617.48 | .33 | .65 | .14 | 1237.45 | 8.08 | 59.00 |
| 24665.00 | 615.00 | 0.00 | 0.00 | 609.40 | 1810.00 | 618.50 | .47 | .49 | .22 | 1798.24 | 9.10 | 59.00 |
| 24665.00 | 615.00 | 0.00 | 0.00 | 609.40 | 2070.00 | 619.12 | .50 | .38 | .24 | 2050.53 | 9.72 | 59.00 |
| 24665.00 | 615.00 | 0.00 | 0.00 | 609.40 | 2830.00 | 620.88 | .57 | .23 | .27 | 2782.25 | 11.48 | 59.00 |
| 24693.00 | 28.00 | 0.00 | 0.00 | 609.00 | 1240.00 | 617.70 | .20 | .02 | .06 | 1240.00 | 8.70 | 45.00 |
| 24693.00 | 28.00 | 0.00 | 0.00 | 609.00 | 1810.00 | 618.74 | .33 | .03 | .07 | 1810.00 | 9.74 | 45.00 |
| 24693.00 | 28.00 | 0.00 | 0.00 | 609.00 | 2070.00 | 619.34 | .38 | .03 | .06 | 2070.00 | 10.34 | 45.00 |
| 24693.00 | 28.00 | 0.00 | 0.00 | 609.00 | 2830.00 | 621.01 | .51 | .03 | .03 | 2830.00 | 12.01 | 45.00 |
| 24757.00 | 64.00 | 621.30 | 618.90 | 609.00 | 1240.00 | 617.72 | .20 | .02 | .00 | 1240.00 | 8.72 | 45.00 |
| 24757.00 | 64.00 | 621.30 | 618.90 | 609.00 | 1810.00 | 618.97 | .31 | .21 | 0.00 | 1810.00 | 9.97 | 45.00 |
| 24757.00 | 64.00 | 621.30 | 618.90 | 609.00 | 2070.00 | 619.69 | .35 | .33 | 0.00 | 2070.00 | 10.69 | 45.00 |
| 24757.00 | 64.00 | 621.30 | 618.90 | 609.00 | 2830.00 | 621.71 | .45 | .64 | 0.00 | 2830.00 | 12.71 | 45.00 |
| 24832.00 | 75.00 | 0.00 | 0.00 | 609.30 | 1200.00 | 617.90 | .10 | .04 | .05 | 1020.70 | 8.60 | 182.06 |
| 24832.00 | 75.00 | 0.00 | 0.00 | 609.30 | 1750.00 | 619.33 | .10 | .04 | .10 | 1299.64 | 10.03 | 200.60 |
| 24832.00 | 75.00 | 0.00 | 0.00 | 609.30 | 2000.00 | 620.12 | .09 | .04 | .13 | 1378.20 | 10.82 | 210.73 |
| 24832.00 | 75.00 | 0.00 | 0.00 | 609.30 | 2750.00 | 622.30 | .06 | .03 | .19 | 1620.58 | 13.00 | 238.71 |
| 25435.00 | 603.00 | 0.00 | 0.00 | 611.20 | 1200.00 | 618.55 | .21 | .70 | .06 | 1141.17 | 7.35 | 165.34 |
| 25435.00 | 603.00 | 0.00 | 0.00 | 611.20 | 1760.00 | 619.88 | .18 | .60 | .04 | 1398.83 | 8.68 | 183.12 |
| 25435.00 | 603.00 | 0.00 | 0.00 | 611.20 | 2000.00 | 620.58 | .15 | .49 | .03 | 1452.98 | 9.38 | 192.28 |
| 25435.00 | 603.00 | 0.00 | 0.00 | 611.20 | 2750.00 | 622.60 | .11 | .32 | .02 | 1605.97 | 11.40 | 218.06 |
| 25560.00 | 125.00 | 0.00 | 0.00 | 612.20 | 1140.00 | 618.78 | .12 | .11 | .03 | 1080.11 | 6.58 | 202.67 |
| 25560.00 | 125.00 | 0.00 | 0.00 | 612.20 | 1660.00 | 620.05 | .12 | .09 | .02 | 1383.92 | 7.85 | 227.50 |
| 25560.00 | 125.00 | 0.00 | 0.00 | 612.20 | 1890.00 | 620.71 | .11 | .07 | .01 | 1468.44 | 8.51 | 229.69 |
| 25560.00 | 125.00 | 0.00 | 0.00 | 612.20 | 2600.00 | 622.67 | .09 | .05 | .01 | 1694.03 | 10.47 | 237.71 |
| 25565.00 | 5.00 | 0.00 | 0.00 | 612.20 | 1140.00 | 618.66 | .36 | .00 | .12 | 1044.75 | 6.46 | 191.49 |
| 25565.00 | 5.00 | 0.00 | 0.00 | 612.20 | 1660.00 | 620.01 | .21 | .00 | .04 | 1199.77 | 7.81 | 227.37 |
| 25565.00 | 5.00 | 0.00 | 0.00 | 612.20 | 1890.00 | 620.69 | .16 | .00 | .02 | 1229.74 | 8.49 | 229.62 |
| 25565.00 | 5.00 | 0.00 | 0.00 | 612.20 | 2600.00 | 622.67 | .10 | .00 | .01 | 1368.19 | 10.47 | 237.76 |
| 25570.00 | 5.00 | 0.00 | 0.00 | 613.30 | 1140.00 | 618.91 | .18 | .01 | .06 | 1107.78 | 5.61 | 67.57 |
| 25570.00 | 5.00 | 0.00 | 0.00 | 613.30 | 1660.00 | 620.00 | .23 | .01 | .01 | 1558.13 | 6.70 | 215.23 |
| 25570.00 | 5.00 | 0.00 | 0.00 | 613.30 | 1890.00 | 620.67 | .21 | .00 | .03 | 1661.99 | 7.37 | 225.89 |
| 25570.00 | 5.00 | 0.00 | 0.00 | 613.30 | 2600.00 | 622.65 | .14 | .00 | .02 | 1860.60 | 9.35 | 232.50 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26765.00 | 1195.00 | 0.00 | 0.00 | 612.60 | 1140.00 | 620.27 | .33 | 1.44 | .08 | 1140.00 | 7.67 | 50.35 |
| 26765.00 | 1195.00 | 0.00 | 0.00 | 612.60 | 1660.00 | 621.50 | .43 | 1.59 | .10 | 1653.34 | 8.90 | 85.63 |
| 26765.00 | 1195.00 | 0.00 | 0.00 | 612.60 | 1890.00 | 621.97 | .46 | 1.44 | .13 | 1864.59 | 9.37 | 97.80 |
| 26765.00 | 1195.00 | 0.00 | 0.00 | 612.60 | 2600.00 | 623.44 | .48 | .96 | .17 | 2415.52 | 10.84 | 167.55 |
| 26891.00 | 126.00 | 0.00 | 0.00 | 612.40 | 1140.00 | 620.46 | .78 | .42 | .23 | 1140.00 | 8.06 | 22.10 |
| 26891.00 | 126.00 | 0.00 | 0.00 | 612.40 | 1660.00 | 621.59 | 1.24 | .50 | .40 | 1660.00 | 9.19 | 22.10 |
| 26891.00 | 126.00 | 0.00 | 0.00 | 612.40 | 1890.00 | 622.00 | 1.46 | .52 | .50 | 1890.00 | 9.60 | 22.10 |
| 26891.00 | 126.00 | 0.00 | 0.00 | 612.40 | 2600.00 | 623.64 | 1.03 | .47 | .27 | 2067.17 | 11.24 | 122.22 |
| 26947.00 | 56.00 | 625.50 | 622.30 | 612.40 | 1140.00 | 620.95 | .69 | .38 | .03 | 1140.00 | 8.55 | 22.10 |
| 26947.00 | 56.00 | 625.50 | 622.30 | 612.40 | 1660.00 | 622.03 | 1.12 | .32 | 0.00 | 1660.00 | 9.63 | 22.10 |
| 26947.00 | 56.00 | 625.50 | 622.30 | 612.40 | 1890.00 | 622.78 | 1.23 | .56 | 0.00 | 1890.00 | 10.38 | 22.10 |
| 26947.00 | 56.00 | 625.50 | 622.30 | 612.40 | 2600.00 | 626.04 | .20 | 1.58 | 0.00 | 1294.99 | 13.64 | 408.24 |
| 27267.00 | 320.00 | 0.00 | 0.00 | 612.40 | 1140.00 | 622.28 | .07 | .51 | .19 | 610.95 | 9.88 | 368.27 |
| 27267.00 | 320.00 | 0.00 | 0.00 | 612.40 | 1660.00 | 623.77 | .04 | .34 | .33 | 631.55 | 11.37 | 574.87 |
| 27267.00 | 320.00 | 0.00 | 0.00 | 612.40 | 1890.00 | 624.59 | .02 | .24 | .36 | 604.91 | 12.19 | 617.58 |
| 27267.00 | 320.00 | 0.00 | 0.00 | 612.40 | 2600.00 | 626.39 | .02 | .11 | .06 | 609.07 | 13.99 | 703.29 |
| 27975.00 | 880.00 | 0.00 | 0.00 | 612.50 | 1140.00 | 622.71 | .03 | .38 | .01 | 430.98 | 10.21 | 386.22 |
| 27975.00 | 880.00 | 0.00 | 0.00 | 612.50 | 1660.00 | 624.00 | .02 | .21 | .00 | 459.56 | 11.50 | 581.49 |
| 27975.00 | 880.00 | 0.00 | 0.00 | 612.50 | 1890.00 | 624.74 | .02 | .14 | .00 | 446.18 | 12.24 | 620.05 |
| 27975.00 | 880.00 | 0.00 | 0.00 | 612.50 | 2600.00 | 626.47 | .01 | .07 | .00 | 456.54 | 13.97 | 702.53 |
| 29270.00 | 1295.00 | 0.00 | 0.00 | 615.10 | 1140.00 | 623.44 | .48 | .96 | .22 | 1077.27 | 8.34 | 109.00 |
| 29270.00 | 1295.00 | 0.00 | 0.00 | 615.10 | 1660.00 | 624.46 | .31 | .61 | .15 | 1171.70 | 9.36 | 331.72 |
| 29270.00 | 1295.00 | 0.00 | 0.00 | 615.10 | 1890.00 | 625.06 | .21 | .42 | .10 | 1126.43 | 9.96 | 377.36 |
| 29270.00 | 1295.00 | 0.00 | 0.00 | 615.10 | 2600.00 | 626.65 | .10 | .22 | .04 | 1048.19 | 11.55 | 456.26 |
| 29440.00 | 170.00 | 0.00 | 0.00 | 617.50 | 1140.00 | 623.91 | 1.28 | .47 | .80 | 1140.00 | 6.41 | 21.00 |
| 29440.00 | 170.00 | 0.00 | 0.00 | 617.50 | 1660.00 | 624.87 | .18 | .21 | .07 | 683.53 | 7.37 | 317.09 |
| 29440.00 | 170.00 | 0.00 | 0.00 | 617.50 | 1890.00 | 625.33 | .13 | .15 | .04 | 648.29 | 7.83 | 348.04 |
| 29440.00 | 170.00 | 0.00 | 0.00 | 617.50 | 2600.00 | 626.75 | .07 | .07 | .01 | 575.01 | 9.25 | 401.07 |
| 29460.00 | 20.00 | 626.10 | 624.70 | 617.50 | 1140.00 | 624.09 | 1.21 | .10 | 0.00 | 1140.00 | 6.59 | 21.00 |
| 29460.00 | 20.00 | 626.10 | 624.70 | 617.50 | 1660.00 | 627.07 | .02 | 2.05 | 0.00 | 339.77 | 9.57 | 409.78 |
| 29460.00 | 20.00 | 626.10 | 624.70 | 617.50 | 1890.00 | 627.38 | .03 | 1.95 | 0.00 | 360.93 | 9.88 | 418.41 |
| 29460.00 | 20.00 | 626.10 | 624.70 | 617.50 | 2600.00 | 627.99 | .03 | 1.20 | 0.00 | 439.69 | 10.49 | 436.14 |
| 30470.00 | 1010.00 | 0.00 | 0.00 | 615.10 | 1140.00 | 626.52 | .06 | .71 | .57 | 791.48 | 11.42 | 147.65 |
| 30470.00 | 1010.00 | 0.00 | 0.00 | 615.10 | 1660.00 | 627.23 | .09 | .16 | .07 | 1081.00 | 12.13 | 148.79 |
| 30470.00 | 1010.00 | 0.00 | 0.00 | 615.10 | 1890.00 | 627.55 | .10 | .16 | .08 | 1199.68 | 12.45 | 149.29 |
| 30470.00 | 1010.00 | 0.00 | 0.00 | 615.10 | 2600.00 | 628.20 | .15 | .21 | .12 | 1573.85 | 13.10 | 154.02 |
| 31350.00 | 880.00 | 0.00 | 0.00 | 617.30 | 1110.00 | 627.02 | .16 | .50 | .10 | 635.70 | 9.72 | 227.10 |
| 31350.00 | 880.00 | 0.00 | 0.00 | 617.30 | 1620.00 | 627.87 | .15 | .64 | .06 | 747.14 | 10.57 | 252.59 |
| 31350.00 | 880.00 | 0.00 | 0.00 | 617.30 | 1850.00 | 628.23 | .15 | .68 | .04 | 787.04 | 10.93 | 262.41 |
| 31350.00 | 880.00 | 0.00 | 0.00 | 617.30 | 2540.00 | 629.05 | .15 | .85 | .00 | 914.46 | 11.75 | 281.76 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33025.00 | 1675.00 | 0.00 | 0.00 | 619.80 | 1080.00 | 629.22 | .27 | 2.20 | .11 | 894.39 | 9.42 | 72.00 |
| 33025.00 | 1675.00 | 0.00 | 0.00 | 619.80 | 1570.00 | 629.39 | .07 | 1.40 | .04 | 624.46 | 9.59 | 427.11 |
| 33025.00 | 1675.00 | 0.00 | 0.00 | 619.80 | 1740.00 | 629.63 | .07 | 1.33 | .04 | 631.51 | 9.88 | 440.74 |
| 33025.00 | 1675.00 | 0.00 | 0.00 | 619.80 | 2460.00 | 630.47 | .06 | 1.29 | .04 | 712.29 | 10.67 | 463.30 |
| 33109.00 | 84.00 | 0.00 | 0.00 | 621.00 | 1080.00 | 629.32 | .41 | .10 | .14 | 1080.00 | 8.32 | 30.00 |
| 33109.00 | 84.00 | 0.00 | 0.00 | 621.00 | 1570.00 | 629.44 | .07 | .04 | .00 | 632.68 | 8.44 | 429.07 |
| 33109.00 | 84.00 | 0.00 | 0.00 | 621.00 | 1740.00 | 629.72 | .06 | .03 | .00 | 647.30 | 8.72 | 442.12 |
| 33109.00 | 84.00 | 0.00 | 0.00 | 621.00 | 2460.00 | 630.51 | .07 | .04 | .00 | 750.38 | 9.51 | 463.83 |
| 33143.00 | 34.00 | 630.90 | 629.30 | 621.00 | 1080.00 | 629.91 | .35 | .53 | 0.00 | 1080.00 | 8.91 | 30.00 |
| 33143.00 | 34.00 | 630.90 | 629.30 | 621.00 | 1570.00 | 631.28 | .02 | 1.79 | 0.00 | 408.97 | 10.28 | 486.52 |
| 33143.00 | 34.00 | 630.90 | 629.30 | 621.00 | 1740.00 | 631.61 | .02 | 1.84 | 0.00 | 427.22 | 10.61 | 497.12 |
| 33143.00 | 34.00 | 630.90 | 629.30 | 621.00 | 2460.00 | 632.36 | .02 | 1.81 | 0.00 | 537.55 | 11.36 | 521.03 |
| 33675.00 | 532.00 | 0.00 | 0.00 | 621.30 | 1070.00 | 630.61 | .04 | .24 | .15 | 442.87 | 9.31 | 413.67 |
| 33675.00 | 532.00 | 0.00 | 0.00 | 621.30 | 1560.00 | 631.34 | .04 | .07 | .02 | 509.29 | 10.04 | 445.77 |
| 33675.00 | 532.00 | 0.00 | 0.00 | 621.30 | 1740.00 | 631.67 | .04 | .06 | .02 | 517.18 | 10.37 | 454.98 |
| 33675.00 | 532.00 | 0.00 | 0.00 | 621.30 | 2450.00 | 632.44 | .04 | .07 | .02 | 603.66 | 11.14 | 476.48 |
| 33835.00 | 160.00 | 0.00 | 0.00 | 620.60 | 910.00 | 630.67 | .03 | .04 | .00 | 337.01 | 10.07 | 208.71 |
| 33835.00 | 160.00 | 0.00 | 0.00 | 620.60 | 1320.00 | 631.39 | .04 | .05 | .00 | 439.29 | 10.79 | 213.61 |
| 33835.00 | 160.00 | 0.00 | 0.00 | 620.60 | 1470.00 | 631.71 | .04 | .04 | .00 | 469.04 | 11.11 | 215.83 |
| 33835.00 | 160.00 | 0.00 | 0.00 | 620.60 | 2070.00 | 632.48 | .06 | .05 | .01 | 605.20 | 11.88 | 221.09 |
| 35279.00 | 1444.00 | 0.00 | 0.00 | 622.80 | 910.00 | 630.84 | .01 | .15 | .01 | 112.69 | 8.04 | 457.08 |
| 35279.00 | 1444.00 | 0.00 | 0.00 | 622.80 | 1320.00 | 631.60 | .01 | .17 | .01 | 135.95 | 8.80 | 476.45 |
| 35279.00 | 1444.00 | 0.00 | 0.00 | 622.80 | 1470.00 | 631.92 | .01 | .16 | .01 | 141.79 | 9.12 | 484.64 |
| 35279.00 | 1444.00 | 0.00 | 0.00 | 622.80 | 2070.00 | 632.72 | .01 | .19 | .01 | 173.27 | 9.92 | 505.38 |
| 35290.00 | 11.00 | 629.40 | 629.20 | 622.80 | 910.00 | 631.89 | .00 | 1.04 | 0.00 | 88.29 | 9.08 | 483.88 |
| 35290.00 | 11.00 | 629.40 | 629.20 | 622.80 | 1320.00 | 632.72 | .01 | 1.12 | 0.00 | 110.42 | 9.92 | 505.49 |
| 35290.00 | 11.00 | 629.40 | 629.20 | 622.80 | 1470.00 | 632.99 | .01 | 1.07 | 0.00 | 118.08 | 10.19 | 512.33 |
| 35290.00 | 11.00 | 629.40 | 629.20 | 622.80 | 2070.00 | 633.76 | .01 | 1.03 | 0.00 | 149.80 | 10.96 | 532.97 |
| 35725.00 | 435.00 | 0.00 | 0.00 | 623.40 | 910.00 | 631.88 | .10 | .04 | .05 | 499.55 | 8.48 | 256.11 |
| 35725.00 | 435.00 | 0.00 | 0.00 | 623.40 | 1320.00 | 632.73 | .08 | .05 | .04 | 554.16 | 9.33 | 288.54 |
| 35725.00 | 435.00 | 0.00 | 0.00 | 623.40 | 1470.00 | 633.00 | .08 | .05 | .04 | 574.38 | 9.60 | 298.58 |
| 35725.00 | 435.00 | 0.00 | 0.00 | 623.40 | 2070.00 | 633.78 | .08 | .05 | .04 | 675.55 | 10.38 | 327.53 |
| 36925.00 | 1200.00 | 0.00 | 0.00 | 624.50 | 910.00 | 632.80 | .15 | .95 | .03 | 571.20 | 8.30 | 293.77 |
| 36925.00 | 1200.00 | 0.00 | 0.00 | 624.50 | 1320.00 | 633.53 | .13 | .82 | .03 | 662.34 | 9.03 | 311.09 |
| 36925.00 | 1200.00 | 0.00 | 0.00 | 624.50 | 1470.00 | 633.76 | .13 | .79 | .03 | 691.58 | 9.26 | 316.78 |
| 36925.00 | 1200.00 | 0.00 | 0.00 | 624.50 | 2070.00 | 634.53 | .13 | .77 | .02 | 812.83 | 10.03 | 335.13 |
| 37253.00 | 328.00 | 0.00 | 0.00 | 625.50 | 910.00 | 633.17 | .25 | .37 | .11 | 631.62 | 7.67 | 261.40 |
| 37253.00 | 328.00 | 0.00 | 0.00 | 625.50 | 1320.00 | 633.85 | .20 | .32 | .07 | 693.30 | 8.35 | 294.94 |
| 37253.00 | 328.00 | 0.00 | 0.00 | 625.50 | 1470.00 | 634.07 | .18 | .31 | .05 | 709.64 | 8.57 | 300.24 |
| 37253.00 | 328.00 | 0.00 | 0.00 | 625.50 | 2070.00 | 634.81 | .16 | .28 | .03 | 787.73 | 9.31 | 317.93 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 37819.00 | 566.00 | 0.00 | 0.00 | 627.20 | 910.00 | 634.25 | .28 | 1.07 | .02 | 910.00 | 7.05 | 33.62 |
| 37819.00 | 566.00 | 0.00 | 0.00 | 627.20 | 1320.00 | 635.00 | .47 | 1.15 | .27 | 1320.00 | 7.80 | 33.62 |
| 37819.00 | 566.00 | 0.00 | 0.00 | 627.20 | 1470.00 | 635.22 | .55 | 1.15 | .36 | 1470.00 | 8.02 | 33.62 |
| 37819.00 | 566.00 | 0.00 | 0.00 | 627.20 | 2070.00 | 635.98 | .89 | 1.17 | .73 | 2070.00 | 8.78 | 33.62 |
| 37851.00 | 32.00 | 636.20 | 635.40 | 627.20 | 910.00 | 634.30 | .27 | .05 | .00 | 910.00 | 7.10 | 33.62 |
| 37851.00 | 32.00 | 636.20 | 635.40 | 627.20 | 1320.00 | 635.25 | .44 | .22 | 0.00 | 1320.00 | 8.05 | 33.62 |
| 37851.00 | 32.00 | 636.20 | 635.40 | 627.20 | 1470.00 | 635.58 | .50 | .30 | 0.00 | 1470.00 | 8.38 | 33.62 |
| 37851.00 | 32.00 | 636.20 | 635.40 | 627.20 | 2070.00 | 636.62 | .76 | .51 | 0.00 | 2070.00 | 9.42 | 33.62 |
| 38084.00 | 233.00 | 0.00 | 0.00 | 627.70 | 910.00 | 634.78 | .01 | .08 | .13 | 157.22 | 7.08 | 510.55 |
| 38084.00 | 233.00 | 0.00 | 0.00 | 627.70 | 1320.00 | 635.96 | .01 | .06 | .21 | 174.19 | 8.26 | 543.21 |
| 38084.00 | 233.00 | 0.00 | 0.00 | 627.70 | 1470.00 | 636.37 | .01 | .06 | .24 | 180.30 | 8.67 | 568.77 |
| 38084.00 | 233.00 | 0.00 | 0.00 | 627.70 | 2070.00 | 637.80 | .01 | .05 | .38 | 205.78 | 10.10 | 650.00 |
| 39285.00 | 1201.00 | 0.00 | 0.00 | 630.50 | 910.00 | 635.28 | .39 | .49 | 0.00 | 466.91 | 4.78 | 404.48 |
| 39285.00 | 1201.00 | 0.00 | 0.00 | 630.50 | 1320.00 | 636.20 | .09 | .28 | .04 | 334.44 | 5.70 | 472.47 |
| 39285.00 | 1201.00 | 0.00 | 0.00 | 630.50 | 1470.00 | 636.58 | .06 | .24 | .03 | 306.46 | 6.08 | 482.86 |
| 39285.00 | 1201.00 | 0.00 | 0.00 | 630.50 | 2070.00 | 637.93 | .03 | .15 | .01 | 274.05 | 7.43 | 520.34 |
| 39335.00 | 50.00 | 0.00 | 0.00 | 630.70 | 910.00 | 635.98 | .40 | .30 | 0.00 | 550.87 | 5.28 | 480.84 |
| 39335.00 | 50.00 | 0.00 | 0.00 | 630.70 | 1320.00 | 636.24 | .41 | .15 | 0.00 | 651.65 | 5.54 | 566.27 |
| 39335.00 | 50.00 | 0.00 | 0.00 | 630.70 | 1470.00 | 636.61 | .20 | .09 | .07 | 549.15 | 5.91 | 584.95 |
| 39335.00 | 50.00 | 0.00 | 0.00 | 630.70 | 2070.00 | 637.96 | .05 | .03 | .01 | 401.43 | 7.26 | 638.59 |
| 39385.00 | 50.00 | 0.00 | 0.00 | 630.90 | 910.00 | 636.40 | .22 | .18 | .05 | 464.81 | 5.50 | 563.06 |
| 39385.00 | 50.00 | 0.00 | 0.00 | 630.90 | 1320.00 | 636.71 | .21 | .21 | .06 | 531.00 | 5.81 | 580.33 |
| 39385.00 | 50.00 | 0.00 | 0.00 | 630.90 | 1470.00 | 636.76 | .23 | .17 | .01 | 571.15 | 5.86 | 582.47 |
| 39385.00 | 50.00 | 0.00 | 0.00 | 630.90 | 2070.00 | 637.99 | .06 | .04 | .00 | 425.89 | 7.09 | 631.50 |
| 39485.00 | 100.00 | 0.00 | 0.00 | 631.30 | 910.00 | 636.69 | .29 | .33 | .04 | 504.44 | 5.39 | 524.37 |
| 39485.00 | 100.00 | 0.00 | 0.00 | 631.30 | 1320.00 | 637.03 | .25 | .34 | .02 | 562.22 | 5.73 | 576.92 |
| 39485.00 | 100.00 | 0.00 | 0.00 | 631.30 | 1470.00 | 637.11 | .25 | .37 | .01 | 588.97 | 5.81 | 580.57 |
| 39485.00 | 100.00 | 0.00 | 0.00 | 631.30 | 2070.00 | 638.10 | .08 | .12 | .01 | 478.44 | 6.80 | 618.98 |
| 39585.00 | 100.00 | 0.00 | 0.00 | 631.60 | 910.00 | 637.13 | .20 | .31 | .03 | 449.04 | 5.53 | 566.30 |
| 39585.00 | 100.00 | 0.00 | 0.00 | 631.60 | 1320.00 | 637.44 | .19 | .33 | .02 | 520.19 | 5.84 | 581.59 |
| 39585.00 | 100.00 | 0.00 | 0.00 | 631.60 | 1470.00 | 637.53 | .19 | .34 | .02 | 541.59 | 5.93 | 585.85 |
| 39585.00 | 100.00 | 0.00 | 0.00 | 631.60 | 2070.00 | 638.25 | .10 | .16 | .01 | 511.91 | 6.65 | 612.43 |
| 39885.00 | 300.00 | 0.00 | 0.00 | 632.70 | 910.00 | 637.99 | .41 | .97 | .11 | 578.11 | 5.29 | 211.90 |
| 39885.00 | 300.00 | 0.00 | 0.00 | 632.70 | 1320.00 | 638.39 | .45 | 1.09 | .13 | 711.18 | 5.69 | 416.29 |
| 39885.00 | 300.00 | 0.00 | 0.00 | 632.70 | 1470.00 | 638.51 | .45 | 1.11 | .13 | 746.82 | 5.81 | 536.41 |
| 39885.00 | 300.00 | 0.00 | 0.00 | 632.70 | 2070.00 | 638.91 | .40 | .81 | .15 | 842.04 | 6.21 | 661.91 |
| 40185.00 | 300.00 | 0.00 | 0.00 | 633.70 | 910.00 | 639.14 | .22 | .90 | .06 | 474.28 | 5.44 | 248.60 |
| 40185.00 | 300.00 | 0.00 | 0.00 | 633.70 | 1320.00 | 639.65 | .23 | .97 | .07 | 580.48 | 5.95 | 271.47 |
| 40185.00 | 300.00 | 0.00 | 0.00 | 633.70 | 1470.00 | 639.79 | .24 | 1.00 | .06 | 621.07 | 6.09 | 277.57 |
| 40185.00 | 300.00 | 0.00 | 0.00 | 633.70 | 2070.00 | 640.17 | .31 | 1.14 | .03 | 788.80 | 6.47 | 372.91 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 41175.00 | 990.00 | 0.00 | 0.00 | 634.10 | 820.00 | 640.83 | .06 | 1.48 | .05 | 369.62 | 6.73 | 667.51 |
| 41175.00 | 990.00 | 0.00 | 0.00 | 634.10 | 1200.00 | 641.29 | .05 | 1.41 | .05 | 401.97 | 7.19 | 856.41 |
| 41175.00 | 990.00 | 0.00 | 0.00 | 634.10 | 1330.00 | 641.42 | .04 | 1.38 | .06 | 407.59 | 7.32 | 865.03 |
| 41175.00 | 990.00 | 0.00 | 0.00 | 634.10 | 1890.00 | 641.90 | .04 | 1.39 | .08 | 441.92 | 7.80 | 892.14 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH Q | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 20.000 | 1540.000 | 598.800 | 0.000 | 0.000 | 0.000 | 477.230 | 0.000 | 0.000 |
| 20.000 | 2240.000 | 601.900 | 3.100 | 0.000 | 0.000 | 1307.826 | -830.596 | 0.000 |
| 20.000 | 2560.000 | 602.600 | .700 | 0.000 | 0.000 | 1316.348 | -839.113 | 0.000 |
| 20.000 | 3500.000 | 603.200 | .600 | 0.000 | 0.000 | 1320.000 | -842.770 | 0.000 |
| 875.000 | 1540.000 | 598.875 | 0.000 | .075 | 0.000 | 361.068 | 0.000 | 855.000 |
| 875.000 | 2240.000 | 601.933 | 3.058 | .033 | 0.000 | 1152.610 | -791.542 | 855.000 |
| 875.000 | 2560.000 | 602.630 | .697 | .030 | 0.000 | 1308.146 | -947.078 | 855.000 |
| 875.000 | 3500.000 | 603.240 | .611 | .040 | 0.000 | 1315.563 | -954.500 | 855.000 |
| 3080.000 | 1470.000 | 599.113 | 0.000 | .238 | 0.000 | 389.857 | 0.000 | 2205.000 |
| 3080.000 | 2150.000 | 602.041 | 2.928 | .108 | 0.000 | 1052.364 | -662.507 | 2205.000 |
| 3080.000 | 2450.000 | 602.725 | .683 | .095 | 0.000 | 1065.607 | -675.750 | 2205.000 |
| 3080.000 | 3350.000 | 603.366 | .641 | .126 | 0.000 | 1078.034 | -688.177 | 2205.000 |
| 4680.000 | 1460.000 | 599.273 | 0.000 | .160 | 0.000 | 311.903 | 0.000 | 1600.000 |
| 4680.000 | 2130.000 | 602.105 | 2.832 | .064 | 0.000 | 445.310 | -133.407 | 1600.000 |
| 4680.000 | 2430.000 | 602.781 | .676 | .056 | 0.000 | 484.526 | -172.624 | 1600.000 |
| 4680.000 | 3330.000 | 603.440 | .659 | .074 | 0.000 | 517.007 | -205.104 | 1600.000 |
| 6200.000 | 1460.000 | 599.506 | 0.000 | .233 | 0.000 | 495.750 | 0.000 | 1520.000 |
| 6200.000 | 2130.000 | 602.188 | 2.682 | .083 | 0.000 | 1002.149 | -506.399 | 1520.000 |
| 6200.000 | 2430.000 | 602.854 | .666 | .074 | 0.000 | 1164.059 | -668.310 | 1520.000 |
| 6200.000 | 3330.000 | 603.540 | .686 | .100 | 0.000 | 1373.268 | -877.519 | 1520.000 |
| 6254.000 | 1460.000 | 599.553 | 0.000 | .052 | 0.000 | 498.827 | 0.000 | 54.000 |
| 6254.000 | 2130.000 | 602.193 | 2.635 | .005 | 0.000 | 1022.939 | -524.113 | 54.000 |
| 6254.000 | 2430.000 | 602.858 | .665 | .004 | 0.000 | 1170.062 | -671.235 | 54.000 |
| 6254.000 | 3330.000 | 603.545 | .687 | .005 | 0.000 | 1375.916 | -877.089 | 54.000 |
| 6279.000 | 1460.000 | 599.791 | 0.000 | .233 | 0.000 | 512.204 | 0.000 | 25.000 |
| 6279.000 | 2130.000 | 602.258 | 2.467 | .065 | 0.000 | 1048.404 | -536.200 | 25.000 |
| 6279.000 | 2430.000 | 602.911 | .652 | .052 | 0.000 | 1177.516 | -665.312 | 25.000 |
| 6279.000 | 3330.000 | 603.600 | .689 | .055 | 0.000 | 1422.414 | -910.209 | 25.000 |
| 6420.000 | 1460.000 | 599.847 | 0.000 | .055 | 0.000 | 515.181 | 0.000 | 141.000 |
| 6420.000 | 2130.000 | 602.279 | 2.432 | .021 | 0.000 | 1035.205 | -520.024 | 141.000 |
| 6420.000 | 2430.000 | 602.927 | .648 | .016 | 0.000 | 1174.589 | -659.408 | 141.000 |
| 6420.000 | 3330.000 | 603.617 | .691 | .018 | 0.000 | 1428.704 | -913.523 | 141.000 |
| 6421.000 | 1460.000 | 599.847 | 0.000 | .000 | 0.000 | 477.699 | 0.000 | 1.000 |
| 6421.000 | 2130.000 | 602.279 | 2.432 | .000 | 0.000 | 1031.046 | -553.346 | 1.000 |
| 6421.000 | 2430.000 | 602.927 | .648 | .000 | 0.000 | 1173.193 | -695.493 | 1.000 |
| 6421.000 | 3330.000 | 603.617 | .691 | .000 | 0.000 | 1423.553 | -945.853 | 1.000 |
| 6447.000 | 1460.000 | 599.867 | 0.000 | .020 | 0.000 | 480.028 | 0.000 | 26.000 |
| 6447.000 | 2130.000 | 602.329 | 2.462 | .050 | 0.000 | 1050.976 | -570.949 | 26.000 |
| 6447.000 | 2430.000 | 602.973 | .643 | .046 | 0.000 | 1181.151 | -701.124 | 26.000 |
| 6447.000 | 3330.000 | 603.670 | .698 | .053 | 0.000 | 1460.862 | -980.835 | 26.000 |
| 6448.000 | 1460.000 | 599.930 | 0.000 | .063 | 0.000 | 519.921 | 0.000 | 1.000 |
| 6448.000 | 2130.000 | 602.336 | 2.407 | .007 | 0.000 | 1055.351 | -535.430 | 1.000 |
| 6448.000 | 2430.000 | 602.977 | .641 | .005 | 0.000 | 1182.144 | -662.222 | 1.000 |

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| 7325.000 | 1460.000 | 600.066 | 0.000 | .136 | 0.000 | 450.155 | 0.000 | 877.000 |
| 7325.000 | 2130.000 | 602.371 | 2.305 | .035 | 0.000 | 557.510 | -107.355 | 877.000 |
| 7325.000 | 2430.000 | 603.005 | .634 | .028 | 0.000 | 577.861 | -127.706 | 877.000 |
| 7325.000 | 3330.000 | 603.707 | .701 | .032 | 0.000 | 605.203 | -155.048 | 877.000 |
| 8475.000 | 1460.000 | 600.494 | 0.000 | .432 | 0.000 | 405.833 | 0.000 | 1150.000 |
| 8475.000 | 2130.000 | 602.472 | 1.974 | .101 | 0.000 | 530.044 | -124.210 | 1150.000 |
| 8475.000 | 2430.000 | 603.087 | .615 | .091 | 0.000 | 555.564 | -149.731 | 1150.000 |
| 8475.000 | 3330.000 | 603.801 | .714 | .094 | 0.000 | 615.095 | -209.262 | 1150.000 |
| 8858.000 | 1460.000 | 600.629 | 0.000 | .132 | 0.000 | 277.981 | 0.000 | 383.000 |
| 8858.000 | 2130.000 | 602.514 | 1.884 | .042 | 0.000 | 384.484 | -106.503 | 383.000 |
| 8858.000 | 2430.000 | 603.121 | .607 | .034 | 0.000 | 455.860 | -177.879 | 383.000 |
| 8858.000 | 3330.000 | 603.841 | .720 | .040 | 0.000 | 662.179 | -384.199 | 383.000 |
| 9240.000 | 1460.000 | 600.968 | 0.000 | .339 | 0.000 | 110.978 | 0.000 | 382.000 |
| 9240.000 | 2130.000 | 602.595 | 1.628 | .082 | 0.000 | 257.665 | -146.687 | 382.000 |
| 9240.000 | 2430.000 | 603.184 | .588 | .063 | 0.000 | 304.334 | -193.356 | 382.000 |
| 9240.000 | 3330.000 | 603.909 | .726 | .068 | 0.000 | 349.584 | -238.607 | 382.000 |
| 10875.000 | 1460.000 | 602.792 | 0.000 | 1.824 | 0.000 | 262.401 | 0.000 | 1635.000 |
| 10875.000 | 2130.000 | 604.020 | 1.229 | 1.424 | 0.000 | 306.632 | -44.231 | 1635.000 |
| 10875.000 | 2430.000 | 604.457 | .437 | 1.273 | 0.000 | 322.233 | -59.832 | 1635.000 |
| 10875.000 | 3330.000 | 605.307 | .850 | 1.396 | 0.000 | 353.521 | -91.120 | 1635.000 |
| 12280.000 | 1460.000 | 604.185 | 0.000 | 1.393 | 0.000 | 113.999 | 0.000 | 1405.000 |
| 12280.000 | 2130.000 | 605.431 | 1.246 | 1.411 | 0.000 | 113.999 | -.000 | 1405.000 |
| 12280.000 | 2430.000 | 605.895 | .464 | 1.439 | 0.000 | 113.999 | -.000 | 1405.000 |
| 12280.000 | 3330.000 | 606.973 | 1.078 | 1.666 | 0.000 | 113.999 | -.000 | 1405.000 |
| 12308.000 | 1460.000 | 604.837 | 0.000 | .651 | 0.000 | 89.999 | 0.000 | 28.000 |
| 12308.000 | 2130.000 | 606.147 | 1.310 | .715 | 0.000 | 92.999 | -3.000 | 28.000 |
| 12308.000 | 2430.000 | 606.639 | .492 | .743 | 0.000 | 92.999 | -3.000 | 28.000 |
| 12308.000 | 3330.000 | 607.841 | 1.202 | .867 | 0.000 | 92.999 | -3.000 | 28.000 |
| 12356.000 | 1460.000 | 604.843 | 0.000 | .011 | 0.000 | 89.999 | 0.000 | 48.000 |
| 12356.000 | 2130.000 | 606.219 | 1.371 | .072 | 0.000 | 92.999 | -3.000 | 48.000 |
| 12356.000 | 2430.000 | 606.748 | .530 | .109 | 0.000 | 92.999 | -3.000 | 48.000 |
| 12356.000 | 3330.000 | 607.918 | 1.170 | .078 | 0.000 | 92.999 | -3.000 | 48.000 |
| 12556.000 | 1460.000 | 604.887 | 0.000 | .039 | 0.000 | 381.191 | 0.000 | 200.000 |
| 12556.000 | 2130.000 | 606.324 | 1.437 | .105 | 0.000 | 470.229 | -89.038 | 200.000 |
| 12556.000 | 2430.000 | 606.895 | .571 | .146 | 0.000 | 503.829 | -122.638 | 200.000 |
| 12556.000 | 3330.000 | 608.167 | 1.272 | .248 | 0.000 | 565.580 | -184.388 | 200.000 |
| 13470.000 | 1460.000 | 605.893 | 0.000 | 1.006 | 0.000 | 421.304 | 0.000 | 914.000 |
| 13470.000 | 2130.000 | 606.995 | 1.102 | .671 | 0.000 | 486.183 | -64.879 | 914.000 |
| 13470.000 | 2430.000 | 607.475 | .480 | .580 | 0.000 | 513.579 | -92.275 | 914.000 |
| 13470.000 | 3330.000 | 608.643 | 1.168 | .476 | 0.000 | 569.180 | -147.876 | 914.000 |
| 14920.000 | 1460.000 | 606.678 | 0.000 | .785 | 0.000 | 167.247 | 0.000 | 1450.000 |
| 14920.000 | 2130.000 | 607.751 | 1.073 | .756 | 0.000 | 188.109 | -20.861 | 1450.000 |
| 14920.000 | 2430.000 | 608.202 | .451 | .727 | 0.000 | 229.560 | -62.312 | 1450.000 |
| 14920.000 | 3330.000 | 609.330 | 1.128 | .687 | 0.000 | 251.953 | -84.706 | 1450.000 |
| 17000.000 | 1350.000 | 607.891 | 0.000 | 1.213 | 0.000 | 100.924 | 0.000 | 2080.000 |
| 17000.000 | 1970.000 | 609.116 | 1.225 | 1.365 | 0.000 | 143.580 | -42.656 | 2080.000 |
| 17000.000 | 2250.000 | 609.592 | .475 | 1.389 | 0.000 | 165.988 | -65.064 | 2080.000 |
| 17000.000 | 3080.000 | 610.784 | 1.192 | 1.454 | 0.000 | 223.877 | -122.953 | 2080.000 |
| 19025.000 | 1240.000 | 612.100 | 0.000 | 4.209 | 0.000 | 56.477 | 0.000 | 2025.000 |
| 19025.000 | 1810.000 | 613.375 | 1.278 | 4.262 | 0.000 | 143.285 | -86.810 | 2025.000 |
| 19025.000 | 2070.000 | 613.784 | .408 | 4.192 | 0.000 | 176.032 | -119.555 | 2025.000 |
| 19025.000 | 2830.000 | 614.689 | .905 | 3.905 | 0.000 | 247.944 | -191.468 | 2025.000 |

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| 19046.000 | 1240.000 | 612.375 | 0.000 | .275 | 0.000 | 79.524 | 0.000 | 21.000 |
| 19046.000 | 1810.000 | 613.673 | 1.298 | .295 | 0.000 | 165.832 | -86.308 | 21.000 |
| 19046.000 | 2070.000 | 614.061 | .338 | .277 | 0.000 | 197.086 | -117.563 | 21.000 |
| 19046.000 | 2830.000 | 614.899 | .839 | .210 | 0.000 | 264.605 | -185.081 | 21.000 |
| 19149.000 | 1240.000 | 612.645 | 0.000 | .270 | 0.000 | 51.999 | 0.000 | 103.000 |
| 19149.000 | 1810.000 | 614.403 | 1.758 | .730 | 0.000 | 224.931 | -172.932 | 103.000 |
| 19149.000 | 2070.000 | 614.845 | .442 | .784 | 0.000 | 260.361 | -208.362 | 103.000 |
| 19149.000 | 2830.000 | 615.441 | .596 | .542 | 0.000 | 507.588 | -455.589 | 103.000 |
| 19549.000 | 1240.000 | 612.883 | 0.000 | .239 | 0.000 | 211.680 | 0.000 | 400.000 |
| 19549.000 | 1810.000 | 614.661 | 1.778 | .258 | 0.000 | 264.249 | -52.569 | 400.000 |
| 19549.000 | 2070.000 | 615.104 | .442 | .259 | 0.000 | 277.331 | -65.651 | 400.000 |
| 19549.000 | 2830.000 | 615.753 | .649 | .312 | 0.000 | 296.528 | -84.848 | 400.000 |
| 19571.000 | 1240.000 | 612.949 | 0.000 | .066 | 0.000 | 213.671 | 0.000 | 22.000 |
| 19571.000 | 1810.000 | 614.758 | 1.809 | .097 | 0.000 | 267.103 | -53.433 | 22.000 |
| 19571.000 | 2070.000 | 615.209 | .451 | .105 | 0.000 | 280.442 | -66.771 | 22.000 |
| 19571.000 | 2830.000 | 615.875 | .666 | .122 | 0.000 | 300.125 | -86.454 | 22.000 |
| 19641.000 | 1240.000 | 613.062 | 0.000 | .113 | 0.000 | 290.025 | 0.000 | 70.000 |
| 19641.000 | 1810.000 | 614.811 | 1.749 | .053 | 0.000 | 370.002 | -79.977 | 70.000 |
| 19641.000 | 2070.000 | 615.263 | .452 | .054 | 0.000 | 385.352 | -95.327 | 70.000 |
| 19641.000 | 2830.000 | 615.946 | .684 | .072 | 0.000 | 413.698 | -123.673 | 70.000 |
| 20325.000 | 1240.000 | 613.750 | 0.000 | .688 | 0.000 | 354.701 | 0.000 | 684.000 |
| 20325.000 | 1810.000 | 615.136 | 1.386 | .325 | 0.000 | 404.984 | -50.283 | 684.000 |
| 20325.000 | 2070.000 | 615.564 | .428 | .301 | 0.000 | 422.713 | -68.012 | 684.000 |
| 20325.000 | 2830.000 | 616.286 | .723 | .340 | 0.000 | 453.013 | -98.313 | 684.000 |
| 21759.000 | 1240.000 | 614.424 | 0.000 | .674 | 0.000 | 320.179 | 0.000 | 1434.000 |
| 21759.000 | 1810.000 | 615.555 | 1.131 | .419 | 0.000 | 355.006 | -34.827 | 1434.000 |
| 21759.000 | 2070.000 | 615.951 | .396 | .388 | 0.000 | 367.230 | -47.052 | 1434.000 |
| 21759.000 | 2830.000 | 616.699 | .747 | .412 | 0.000 | 390.267 | -70.088 | 1434.000 |
| 21760.000 | 1240.000 | 614.414 | 0.000 | -.010 | 0.000 | 320.033 | 0.000 | 1.000 |
| 21760.000 | 1810.000 | 615.553 | 1.138 | -.002 | 0.000 | 355.015 | -34.982 | 1.000 |
| 21760.000 | 2070.000 | 615.949 | .396 | -.002 | 0.000 | 367.239 | -47.206 | 1.000 |
| 21760.000 | 2830.000 | 616.695 | .747 | -.002 | 0.000 | 390.276 | -70.243 | 1.000 |
| 21761.000 | 1240.000 | 614.473 | 0.000 | .059 | 0.000 | 321.668 | 0.000 | 1.000 |
| 21761.000 | 1810.000 | 615.565 | 1.092 | .012 | 0.000 | 355.028 | -33.360 | 1.000 |
| 21761.000 | 2070.000 | 615.959 | .394 | .010 | 0.000 | 367.250 | -45.582 | 1.000 |
| 21761.000 | 2830.000 | 616.705 | .747 | .010 | 0.000 | 390.286 | -68.618 | 1.000 |
| 21836.000 | 1240.000 | 614.480 | 0.000 | .007 | 0.000 | 282.987 | 0.000 | 75.000 |
| 21836.000 | 1810.000 | 615.576 | 1.096 | .011 | 0.000 | 341.905 | -58.918 | 75.000 |
| 21836.000 | 2070.000 | 615.970 | .394 | .011 | 0.000 | 353.995 | -71.007 | 75.000 |
| 21836.000 | 2830.000 | 616.718 | .748 | .012 | 0.000 | 376.979 | -93.992 | 75.000 |
| 22628.000 | 1240.000 | 614.930 | 0.000 | .450 | 0.000 | 333.045 | 0.000 | 792.000 |
| 22628.000 | 1810.000 | 615.895 | .965 | .319 | 0.000 | 380.954 | -47.908 | 792.000 |
| 22628.000 | 2070.000 | 616.261 | .366 | .290 | 0.000 | 398.884 | -65.838 | 792.000 |
| 22628.000 | 2830.000 | 617.005 | .745 | .287 | 0.000 | 495.999 | -162.952 | 792.000 |
| 22952.000 | 1240.000 | 615.113 | 0.000 | .183 | 0.000 | 184.308 | 0.000 | 324.000 |
| 22952.000 | 1810.000 | 616.026 | .913 | .131 | 0.000 | 252.999 | -68.691 | 324.000 |
| 22952.000 | 2070.000 | 616.379 | .353 | .118 | 0.000 | 252.999 | -68.691 | 324.000 |
| 22952.000 | 2830.000 | 617.115 | .736 | .110 | 0.000 | 252.999 | -68.691 | 324.000 |
| 23202.000 | 1240.000 | 615.332 | 0.000 | .219 | 0.000 | 127.999 | 0.000 | 250.000 |
| 23202.000 | 1810.000 | 616.225 | .894 | .200 | 0.000 | 127.999 | -.000 | 250.000 |
| 23202.000 | 2070.000 | 616.559 | .334 | .180 | 0.000 | 127.999 | -.000 | 250.000 |
| 23202.000 | 2830.000 | 617.267 | .708 | .152 | 0.000 | 127.999 | -.000 | 250.000 |

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| 23275.000 | 1810.000 | 616.276 | .873 | .051 | 0.000 | 91.999 | -.000 | 73.000 |
| 23275.000 | 2070.000 | 616.593 | .416 | .034 | 0.000 | 91.999 | -.000 | 73.000 |
| 23275.000 | 2830.000 | 617.255 | .662 | -.012 | 0.000 | 91.999 | -.000 | 73.000 |
| 23384.000 | 1240.000 | 615.632 | 0.000 | .229 | 0.000 | 41.999 | 0.000 | 109.000 |
| 23384.000 | 1810.000 | 616.579 | .947 | .303 | 0.000 | 41.999 | -.000 | 109.000 |
| 23384.000 | 2070.000 | 616.930 | .351 | .337 | 0.000 | 41.999 | -.000 | 109.000 |
| 23384.000 | 2830.000 | 617.708 | .778 | .453 | 0.000 | 43.999 | -2.000 | 109.000 |
| 23410.000 | 1240.000 | 615.741 | 0.000 | .109 | 0.000 | 41.999 | 0.000 | 26.000 |
| 23410.000 | 1810.000 | 616.738 | .997 | .159 | 0.000 | 41.999 | -.000 | 26.000 |
| 23410.000 | 2070.000 | 617.543 | .805 | .613 | 0.000 | 41.999 | -.000 | 26.000 |
| 23410.000 | 2830.000 | 619.442 | 1.899 | 1.734 | 0.000 | 43.999 | -2.000 | 26.000 |
| 23583.000 | 1240.000 | 616.643 | 0.000 | .902 | 0.000 | 349.414 | 0.000 | 173.000 |
| 23583.000 | 1810.000 | 617.997 | 1.354 | 1.259 | 0.000 | 375.382 | -25.968 | 173.000 |
| 23583.000 | 2070.000 | 618.802 | .804 | 1.259 | 0.000 | 390.849 | -41.436 | 173.000 |
| 23583.000 | 2830.000 | 620.820 | 2.018 | 1.378 | 0.000 | 429.633 | -80.219 | 173.000 |
| 24050.000 | 1240.000 | 616.973 | 0.000 | .330 | 0.000 | 346.118 | 0.000 | 467.000 |
| 24050.000 | 1810.000 | 618.223 | 1.250 | .226 | 0.000 | 370.128 | -24.010 | 467.000 |
| 24050.000 | 2070.000 | 618.971 | .748 | .170 | 0.000 | 384.515 | -38.398 | 467.000 |
| 24050.000 | 2830.000 | 620.921 | 1.950 | .101 | 0.000 | 421.979 | -75.861 | 467.000 |
| 24665.000 | 1240.000 | 617.483 | 0.000 | .510 | 0.000 | 58.999 | 0.000 | 615.000 |
| 24665.000 | 1810.000 | 618.499 | 1.015 | .275 | 0.000 | 58.999 | -.000 | 615.000 |
| 24665.000 | 2070.000 | 619.119 | .620 | .148 | 0.000 | 58.999 | -.000 | 615.000 |
| 24665.000 | 2830.000 | 620.881 | 1.763 | -.039 | 0.000 | 58.999 | -.000 | 615.000 |
| 24693.000 | 1240.000 | 617.698 | 0.000 | .214 | 0.000 | 44.999 | 0.000 | 28.000 |
| 24693.000 | 1810.000 | 618.744 | 1.046 | .245 | 0.000 | 44.999 | -.000 | 28.000 |
| 24693.000 | 2070.000 | 619.337 | .593 | .215 | 0.000 | 44.999 | -.000 | 28.000 |
| 24693.000 | 2830.000 | 621.008 | 1.671 | .126 | 0.000 | 44.999 | -.000 | 28.000 |
| 24757.000 | 1240.000 | 617.724 | 0.000 | .026 | 0.000 | 44.999 | 0.000 | 64.000 |
| 24757.000 | 1810.000 | 618.969 | 1.245 | .225 | 0.000 | 44.999 | -.000 | 64.000 |
| 24757.000 | 2070.000 | 619.690 | .720 | .353 | 0.000 | 44.999 | -.000 | 64.000 |
| 24757.000 | 2830.000 | 621.709 | 2.019 | .701 | 0.000 | 44.999 | -.000 | 64.000 |
| 24832.000 | 1200.000 | 617.904 | 0.000 | .180 | 0.000 | 182.063 | 0.000 | 75.000 |
| 24832.000 | 1760.000 | 619.326 | 1.421 | .356 | 0.000 | 200.602 | -18.540 | 75.000 |
| 24832.000 | 2000.000 | 620.115 | .790 | .425 | 0.000 | 210.727 | -28.664 | 75.000 |
| 24832.000 | 2750.000 | 622.298 | 2.183 | .589 | 0.000 | 238.713 | -56.650 | 75.000 |
| 25435.000 | 1200.000 | 618.550 | 0.000 | .646 | 0.000 | 165.340 | 0.000 | 603.000 |
| 25435.000 | 1760.000 | 619.884 | 1.334 | .558 | 0.000 | 183.120 | -17.779 | 603.000 |
| 25435.000 | 2000.000 | 620.578 | .694 | .463 | 0.000 | 192.283 | -26.942 | 603.000 |
| 25435.000 | 2750.000 | 622.598 | 2.020 | .299 | 0.000 | 218.058 | -52.718 | 603.000 |
| 25560.000 | 1140.000 | 618.779 | 0.000 | .229 | 0.000 | 202.673 | 0.000 | 125.000 |
| 25560.000 | 1660.000 | 620.050 | 1.271 | .166 | 0.000 | 227.500 | -24.827 | 125.000 |
| 25560.000 | 1890.000 | 620.708 | .658 | .130 | 0.000 | 229.692 | -27.019 | 125.000 |
| 25560.000 | 2600.000 | 622.672 | 1.965 | .075 | 0.000 | 237.711 | -35.038 | 125.000 |
| 25565.000 | 1140.000 | 618.663 | 0.000 | -.116 | 0.000 | 191.486 | 0.000 | 5.000 |
| 25565.000 | 1660.000 | 620.011 | 1.347 | -.039 | 0.000 | 227.369 | -35.882 | 5.000 |
| 25565.000 | 1890.000 | 620.686 | .676 | -.021 | 0.000 | 229.621 | -38.135 | 5.000 |
| 25565.000 | 2600.000 | 622.668 | 1.981 | -.004 | 0.000 | 237.760 | -46.273 | 5.000 |
| 25570.000 | 1140.000 | 618.910 | 0.000 | .247 | 0.000 | 67.566 | 0.000 | 5.000 |
| 25570.000 | 1660.000 | 620.003 | 1.093 | -.008 | 0.000 | 215.228 | -147.662 | 5.000 |
| 25570.000 | 1890.000 | 620.665 | .663 | -.021 | 0.000 | 225.885 | -158.320 | 5.000 |
| 25570.000 | 2600.000 | 622.650 | 1.984 | -.018 | 0.000 | 232.500 | -164.934 | 5.000 |
| 26765.000 | 1140.000 | 620.270 | 0.000 | 1.360 | 0.000 | 50.346 | 0.000 | 1195.000 |

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|---|---|---|---|---|---|---|---|---|
| 26765.000 | 1890.000 | 621.973 | .478 | 1.307 | 0.000 | 97.799 | -47.452 | 1195.000 |
| 26765.000 | 2600.000 | 623.442 | 1.469 | .792 | 0.000 | 167.548 | -117.202 | 1195.000 |
| 26891.000 | 1140.000 | 620.461 | 0.000 | .190 | 0.000 | 22.103 | 0.000 | 126.000 |
| 26891.000 | 1660.000 | 621.589 | 1.128 | .094 | 0.000 | 22.103 | -.000 | 126.000 |
| 26891.000 | 1890.000 | 621.996 | .407 | .023 | 0.000 | 22.103 | -.000 | 126.000 |
| 26891.000 | 2600.000 | 623.635 | 1.639 | .193 | 0.000 | 122.221 | -100.118 | 126.000 |
| 26947.000 | 1140.000 | 620.955 | 0.000 | .494 | 0.000 | 22.103 | 0.000 | 56.000 |
| 26947.000 | 1660.000 | 622.025 | 1.070 | .435 | 0.000 | 22.103 | -.000 | 56.000 |
| 26947.000 | 1890.000 | 622.781 | .756 | .785 | 0.000 | 22.103 | -.000 | 56.000 |
| 26947.000 | 2600.000 | 626.035 | 3.254 | 2.400 | 0.000 | 408.240 | -386.137 | 56.000 |
| 27267.000 | 1140.000 | 622.283 | 0.000 | 1.328 | 0.000 | 368.266 | 0.000 | 320.000 |
| 27267.000 | 1660.000 | 623.774 | 1.492 | 1.749 | 0.000 | 574.873 | -206.607 | 320.000 |
| 27267.000 | 1890.000 | 624.593 | .818 | 1.811 | 0.000 | 617.578 | -249.312 | 320.000 |
| 27267.000 | 2600.000 | 626.390 | 1.798 | .355 | 0.000 | 703.294 | -335.027 | 320.000 |
| 27975.000 | 1140.000 | 622.707 | 0.000 | .425 | 0.000 | 386.223 | 0.000 | 880.000 |
| 27975.000 | 1660.000 | 624.001 | 1.293 | .226 | 0.000 | 581.486 | -195.262 | 880.000 |
| 27975.000 | 1890.000 | 624.740 | .739 | .147 | 0.000 | 620.047 | -233.824 | 880.000 |
| 27975.000 | 2600.000 | 626.466 | 1.726 | .076 | 0.000 | 702.530 | -316.307 | 880.000 |
| 29270.000 | 1140.000 | 623.439 | 0.000 | .732 | 0.000 | 108.999 | 0.000 | 1295.000 |
| 29270.000 | 1660.000 | 624.461 | 1.022 | .460 | 0.000 | 331.725 | -222.726 | 1295.000 |
| 29270.000 | 1890.000 | 625.063 | .602 | .323 | 0.000 | 377.358 | -268.359 | 1295.000 |
| 29270.000 | 2600.000 | 626.648 | 1.585 | .182 | 0.000 | 456.265 | -347.266 | 1295.000 |
| 29440.000 | 1140.000 | 623.911 | 0.000 | .472 | 0.000 | 20.999 | 0.000 | 170.000 |
| 29440.000 | 1660.000 | 624.866 | .955 | .405 | 0.000 | 317.086 | -296.087 | 170.000 |
| 29440.000 | 1890.000 | 625.330 | .464 | .267 | 0.000 | 348.038 | -327.039 | 170.000 |
| 29440.000 | 2600.000 | 626.752 | 1.423 | .104 | 0.000 | 401.072 | -380.073 | 170.000 |
| 29460.000 | 1140.000 | 624.087 | 0.000 | .176 | 0.000 | 20.999 | 0.000 | 20.000 |
| 29460.000 | 1660.000 | 627.073 | 2.986 | 2.207 | 0.000 | 409.782 | -388.783 | 20.000 |
| 29460.000 | 1890.000 | 627.385 | .312 | 2.055 | 0.000 | 418.414 | -397.415 | 20.000 |
| 29460.000 | 2600.000 | 627.994 | .609 | 1.242 | 0.000 | 436.136 | -415.137 | 20.000 |
| 30470.000 | 1140.000 | 626.513 | 0.000 | 2.431 | 0.000 | 147.649 | 0.000 | 1010.000 |
| 30470.000 | 1660.000 | 627.232 | .713 | .158 | 0.000 | 148.787 | -1.137 | 1010.000 |
| 30470.000 | 1890.000 | 627.549 | .318 | .165 | 0.000 | 149.288 | -1.639 | 1010.000 |
| 30470.000 | 2600.000 | 628.201 | .652 | .207 | 0.000 | 154.018 | -6.368 | 1010.000 |
| 31350.000 | 1110.000 | 627.017 | 0.000 | .499 | 0.000 | 227.104 | 0.000 | 880.000 |
| 31350.000 | 1620.000 | 627.874 | .856 | .642 | 0.000 | 252.594 | -25.491 | 880.000 |
| 31350.000 | 1850.000 | 628.231 | .357 | .681 | 0.000 | 262.410 | -35.307 | 880.000 |
| 31350.000 | 2540.000 | 629.046 | .816 | .845 | 0.000 | 281.758 | -54.654 | 880.000 |
| 33025.000 | 1080.000 | 629.218 | 0.000 | 2.201 | 0.000 | 71.999 | 0.000 | 1675.000 |
| 33025.000 | 1570.000 | 629.394 | .175 | 1.520 | 0.000 | 427.111 | -355.112 | 1675.000 |
| 33025.000 | 1740.000 | 629.680 | .287 | 1.450 | 0.000 | 440.739 | -368.740 | 1675.000 |
| 33025.000 | 2460.000 | 630.474 | .794 | 1.428 | 0.000 | 463.295 | -391.296 | 1675.000 |
| 33109.000 | 1080.000 | 629.315 | 0.000 | .097 | 0.000 | 29.999 | 0.000 | 84.000 |
| 33109.000 | 1570.000 | 629.437 | .121 | .043 | 0.000 | 429.067 | -399.068 | 84.000 |
| 33109.000 | 1740.000 | 629.713 | .281 | .037 | 0.000 | 442.122 | -412.123 | 84.000 |
| 33109.000 | 2460.000 | 630.507 | .789 | .033 | 0.000 | 463.829 | -433.830 | 84.000 |
| 33143.000 | 1080.000 | 629.911 | 0.000 | .595 | 0.000 | 29.999 | 0.000 | 34.000 |
| 33143.000 | 1570.000 | 631.276 | 1.365 | 1.839 | 0.000 | 486.517 | -456.518 | 34.000 |
| 33143.000 | 1740.000 | 631.607 | .331 | 1.889 | 0.000 | 497.120 | -467.121 | 34.000 |
| 33143.000 | 2460.000 | 632.361 | .754 | 1.854 | 0.000 | 521.025 | -491.026 | 34.000 |
| 33675.000 | 1070.000 | 630.611 | 0.000 | .700 | 0.000 | 413.672 | 0.000 | 532.000 |
| 33675.000 | 1560.000 | 631.343 | .732 | .067 | 0.000 | 445.769 | -32.097 | 532.000 |
| [illegible] | [illegible] | [illegible] | | | [illegible] | [illegible] | [illegible] | 532.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 33675.000 | 2450.000 | 632.435 | .764 | .074 | 0.000 | 476.476 | -62.804 | 532.000 |
| 33835.000 | 910.000 | 630.670 | 0.000 | .059 | 0.000 | 208.714 | 0.000 | 160.000 |
| 33835.000 | 1320.000 | 631.393 | .723 | .050 | 0.000 | 213.613 | -4.899 | 160.000 |
| 33835.000 | 1470.000 | 631.714 | .321 | .043 | 0.000 | 215.831 | -7.117 | 160.000 |
| 33835.000 | 2070.000 | 632.479 | .765 | .044 | 0.000 | 221.088 | -12.373 | 160.000 |
| 35279.000 | 910.000 | 630.844 | 0.000 | .174 | 0.000 | 457.085 | 0.000 | 1444.000 |
| 35279.000 | 1320.000 | 631.593 | .754 | .204 | 0.000 | 476.448 | -19.363 | 1444.000 |
| 35279.000 | 1470.000 | 631.917 | .319 | .202 | 0.000 | 484.639 | -27.555 | 1444.000 |
| 35279.000 | 2070.000 | 632.724 | .807 | .245 | 0.000 | 505.378 | -48.293 | 1444.000 |
| 35290.000 | 910.000 | 631.863 | 0.000 | 1.039 | 0.000 | 483.875 | 0.000 | 11.000 |
| 35290.000 | 1320.000 | 632.723 | .840 | 1.125 | 0.000 | 505.487 | -21.611 | 11.000 |
| 35290.000 | 1470.000 | 632.989 | .266 | 1.072 | 0.000 | 512.332 | -28.456 | 11.000 |
| 35290.000 | 2070.000 | 633.756 | .767 | 1.032 | 0.000 | 532.965 | -49.090 | 11.000 |
| 35725.000 | 910.000 | 631.880 | 0.000 | -.002 | 0.000 | 256.114 | 0.000 | 435.000 |
| 35725.000 | 1320.000 | 632.733 | .852 | .010 | 0.000 | 288.539 | -32.425 | 435.000 |
| 35725.000 | 1470.000 | 633.001 | .268 | .013 | 0.000 | 298.575 | -42.461 | 435.000 |
| 35725.000 | 2070.000 | 633.776 | .775 | .020 | 0.000 | 327.533 | -71.419 | 435.000 |
| 36925.000 | 910.000 | 632.800 | 0.000 | .920 | 0.000 | 293.771 | 0.000 | 1200.000 |
| 36925.000 | 1320.000 | 633.525 | .725 | .793 | 0.000 | 311.092 | -17.321 | 1200.000 |
| 36925.000 | 1470.000 | 633.763 | .237 | .761 | 0.000 | 316.790 | -23.010 | 1200.000 |
| 36925.000 | 2070.000 | 634.528 | .766 | .753 | 0.000 | 335.127 | -41.357 | 1200.000 |
| 37253.000 | 910.000 | 633.172 | 0.000 | .371 | 0.000 | 261.402 | 0.000 | 328.000 |
| 37253.000 | 1320.000 | 633.850 | .678 | .324 | 0.000 | 294.936 | -33.534 | 328.000 |
| 37253.000 | 1470.000 | 634.071 | .221 | .308 | 0.000 | 300.237 | -38.835 | 328.000 |
| 37253.000 | 2070.000 | 634.809 | .738 | .281 | 0.000 | 317.925 | -56.523 | 328.000 |
| 37819.000 | 910.000 | 634.246 | 0.000 | 1.074 | 0.000 | 33.623 | 0.000 | 566.000 |
| 37819.000 | 1320.000 | 634.998 | .753 | 1.149 | 0.000 | 33.623 | -.000 | 566.000 |
| 37819.000 | 1470.000 | 635.221 | .223 | 1.151 | 0.000 | 33.623 | -.000 | 566.000 |
| 37819.000 | 2070.000 | 635.984 | .762 | 1.175 | 0.000 | 33.623 | -.000 | 566.000 |
| 37851.000 | 910.000 | 634.303 | 0.000 | .058 | 0.000 | 33.623 | 0.000 | 32.000 |
| 37851.000 | 1320.000 | 635.248 | .945 | .250 | 0.000 | 33.623 | -.000 | 32.000 |
| 37851.000 | 1470.000 | 635.576 | .328 | .355 | 0.000 | 33.623 | -.000 | 32.000 |
| 37851.000 | 2070.000 | 636.616 | 1.040 | .632 | 0.000 | 33.623 | -.000 | 32.000 |
| 38084.000 | 910.000 | 634.780 | 0.000 | .477 | 0.000 | 510.551 | 0.000 | 233.000 |
| 38084.000 | 1320.000 | 635.956 | 1.176 | .708 | 0.000 | 543.207 | -32.657 | 233.000 |
| 38084.000 | 1470.000 | 636.369 | .414 | .793 | 0.000 | 568.772 | -58.221 | 233.000 |
| 38084.000 | 2070.000 | 637.800 | 1.430 | 1.184 | 0.000 | 650.001 | -139.450 | 233.000 |
| 39285.000 | 910.000 | 635.281 | 0.000 | .501 | 0.000 | 404.484 | 0.000 | 1201.000 |
| 39285.000 | 1320.000 | 636.201 | .920 | .246 | 0.000 | 472.470 | -67.986 | 1201.000 |
| 39285.000 | 1470.000 | 636.581 | .380 | .212 | 0.000 | 482.861 | -78.377 | 1201.000 |
| 39285.000 | 2070.000 | 637.935 | 1.354 | .135 | 0.000 | 520.339 | -115.855 | 1201.000 |
| 39335.000 | 910.000 | 635.983 | 0.000 | .702 | 0.000 | 480.843 | 0.000 | 50.000 |
| 39335.000 | 1320.000 | 636.238 | .255 | .037 | 0.000 | 566.270 | -85.428 | 50.000 |
| 39335.000 | 1470.000 | 636.605 | .357 | .024 | 0.000 | 584.953 | -104.111 | 50.000 |
| 39335.000 | 2070.000 | 637.956 | 1.351 | .021 | 0.000 | 638.588 | -157.745 | 50.000 |
| 39385.000 | 910.000 | 636.397 | 0.000 | .414 | 0.000 | 563.064 | 0.000 | 50.000 |
| 39385.000 | 1320.000 | 636.711 | .314 | .473 | 0.000 | 580.330 | -17.266 | 50.000 |
| 39385.000 | 1470.000 | 636.758 | .046 | .153 | 0.000 | 582.469 | -19.405 | 50.000 |
| 39385.000 | 2070.000 | 637.995 | 1.237 | .039 | 0.000 | 631.502 | -68.438 | 50.000 |
| 39485.000 | 910.000 | 635.691 | 0.000 | .294 | 0.000 | 524.367 | 0.000 | 100.000 |
| 39485.000 | 1320.000 | 637.031 | .339 | .319 | 0.000 | 576.917 | -52.550 | 100.000 |
| 39485.000 | 1470.000 | 637.114 | .084 | .357 | 0.000 | 580.575 | -56.208 | 100.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 39585.000 | 910.000 | 637.130 | 0.000 | .438 | 0.000 | 566.302 | 0.000 | 100.000 |
| 39585.000 | 1320.000 | 637.436 | .306 | .405 | 0.000 | 581.590 | -15.287 | 100.000 |
| 39585.000 | 1470.000 | 637.534 | .099 | .420 | 0.000 | 585.847 | -19.545 | 100.000 |
| 39585.000 | 2070.000 | 638.247 | .713 | .149 | 0.000 | 612.435 | -46.133 | 100.000 |
| 39885.000 | 910.000 | 637.991 | 0.000 | .862 | 0.000 | 211.901 | 0.000 | 300.000 |
| 39885.000 | 1320.000 | 638.393 | .402 | .958 | 0.000 | 416.291 | -204.369 | 300.000 |
| 39885.000 | 1470.000 | 638.514 | .120 | .979 | 0.000 | 536.406 | -324.505 | 300.000 |
| 39885.000 | 2070.000 | 638.905 | .392 | .658 | 0.000 | 661.911 | -450.009 | 300.000 |
| 40185.000 | 910.000 | 639.144 | 0.000 | 1.152 | 0.000 | 248.604 | 0.000 | 300.000 |
| 40185.000 | 1320.000 | 639.653 | .510 | 1.260 | 0.000 | 271.473 | -22.869 | 300.000 |
| 40185.000 | 1470.000 | 639.789 | .136 | 1.275 | 0.000 | 277.565 | -28.961 | 300.000 |
| 40185.000 | 2070.000 | 640.166 | .378 | 1.261 | 0.000 | 372.912 | -124.308 | 300.000 |
| 41175.000 | 820.000 | 640.828 | 0.000 | 1.684 | 0.000 | 667.510 | 0.000 | 990.000 |
| 41175.000 | 1200.000 | 641.290 | .462 | 1.636 | 0.000 | 856.408 | -188.898 | 990.000 |
| 41175.000 | 1330.000 | 641.422 | .132 | 1.633 | 0.000 | 865.030 | -197.520 | 990.000 |
| 41175.000 | 1890.000 | 641.902 | .480 | 1.735 | 0.000 | 892.138 | -224.627 | 990.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 1.000 | 0.000 | 253.253 | 0.000 |
| 2 | 1.000 | 0.000 | 395.203 | 141.940 |
| 3 | 1.000 | 0.000 | 422.406 | 169.143 |
| 4 | 0.000 | 0.000 | 466.669 | 213.406 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St Heights

3) WATERCOURSE: Plumbrook Drain above Gibson Drain

4) DOCUMENT TYPE: 100 year flood

00BREAK00

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************


T1      CITY OF STERLING HEIGHTS  5670-10   PROJECT MANAGER   WILLIAM ROSSOW
T2      100 YEAR FLOOD
T3      PLUM BROOK ABOVE GIBSON DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       4.       0.       0.  0.000000      0.00       0.0       0.   629.980     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

```
CCHV=     .300 CEHV=     .500
1490 NH CARD USED
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      300.0      770.0  TYPE=      1  TARGET=      470.000
    10.00      8.48    629.98      0.00    629.98    629.99       .01      0.00      0.00    627.30
     750.       23.       78.      649.       51.      109.      921.        0.        0.    626.00
     0.00       .39       .71       .70      .030      .040      .030     0.000    621.50    354.58
  .000041      100.      160.      300.         0         0         1      0.00    359.42    714.00

3470 ENCROACHMENT STATIONS=      300.0      770.0  TYPE=      1  TARGET=      470.000
   200.00      8.39    629.99      0.00      0.00    630.00       .01       .01       .00    627.40
     740.       22.       79.      639.       57.      108.      894.        5.        2.    626.10
      .07       .39       .73       .72      .030      .040      .030      .041    621.60    356.14
  .000044      180.      190.      185.         0         0         I      0.00    356.76    712.90

3470 ENCROACHMENT STATIONS=      300.0      770.0  TYPE=      1  TARGET=      470.000
```



```
   640.00      8.21    630.01      0.00      0.00    630.01       .01       .02       .00    627.60
     620.       17.       69.      535.       49.      104.      841.       14.        5.    626.30
      .26       .34       .66       .64      .030      .040      .030      .041    621.80    359.23
  .000037      400.      440.      420.         0         0         1      0.00    351.51    710.74

   740.00      7.61    630.01      0.00      0.00    630.02       .01       .01       .00    628.20
     620.       11.       81.      528.       28.       93.      669.       17.        6.    626.90
      .29       .40       .87       .79      .030      .040      .030      .041    622.40    369.33
  .000075      100.      100.      100.         0         0         1      0.00    334.34    703.67

   840.00      7.12    630.02      0.00      0.00    630.03       .02       .01       .00    628.70
     620.        7.       96.      517.       15.       83.      530.       18.        6.    627.40
      .32       .46      1.15       .98      .030      .040      .030      .041    622.90    377.71
  .000148      100.      100.      100.         0         0         1      0.00    315.18    692.89

   890.00      6.82    630.02      0.00      0.00    630.05       .02       .01       .00    629.00
     620.        4.      108.      508.        9.       78.      451.       19.        7.    627.70
      .33       .48      1.39      1.13      .030      .040      .030      .041    623.20    382.70
  .000233       50.       50.       50.         0         0         1      0.00    298.86    681.56

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

   940.00      6.63    630.03      0.00      0.00    630.06       .03       .01       .00    629.20
     620.        3.      118.      500.        6.       74.      402.       19.        7.    627.90
                                                     [illegible]  [illegible]  030      041    623.40    385.93
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .0 320 | 50. | 50. | 50. | 0 | | 1 | 0.0 | 288.31 | 0 .2 |
| 1040.00 | 6.17 | 630.07 | 0.00 | 0.00 | 630.12 | .05 | .05 | .01 | 629.70 |
| 620. | 1. | 152. | 468. | 1. | 65. | 287. | 20. | 8. | 628.40 |
| .36 | .45 | 2.33 | 1.63 | .030 | .040 | .030 | .041 | 623.90 | 393.83 |
| .000793 | 100. | 100. | 100. | 1 | 0 | 1 | 0.00 | 262.48 | 656.31 |
| 1140.00 | 5.76 | 630.16 | 0.00 | 0.00 | 630.27 | .11 | .12 | .03 | 630.20 |
| 620. | 0. | 205. | 415. | 0. | 58. | 195. | 21. | 8. | 628.90 |
| .37 | 0.00 | 3.56 | 2.13 | .030 | .040 | .030 | .041 | 624.40 | 400.09 |
| .002105 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 240.75 | 640.84 |
| 1240.00 | 5.50 | 630.40 | 0.00 | 0.00 | 630.63 | .23 | .30 | .06 | 630.70 |
| 620. | 0. | 265. | 355. | 0. | 53. | 139. | 22. | 9. | 629.40 |
| .38 | 0.00 | 5.02 | 2.55 | .030 | .040 | .030 | .040 | 624.90 | 400.72 |
| .004468 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 230.27 | 630.99 |
| 1340.00 | 5.46 | 630.86 | 0.00 | 0.00 | 631.12 | .25 | .47 | .01 | 631.20 |
| 620. | 0. | 277. | 343. | 0. | 52. | 131. | 22. | 9. | 629.90 |
| .39 | 0.00 | 5.32 | 2.61 | .030 | .040 | .030 | .040 | 625.40 | 400.81 |
| .005058 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 228.70 | 629.51 |
| 1440.00 | 5.47 | 631.37 | 0.00 | 0.00 | 631.62 | .25 | .51 | .00 | 631.70 |
| 620. | 0. | 277. | 343. | 0. | 52. | 131. | 22. | 10. | 630.40 |
| .39 | 0.00 | 5.32 | 2.61 | .030 | .040 | .030 | .040 | 625.90 | 400.81 |
| .005059 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 228.70 | 629.51 |
| 1540.00 | 5.40 | 631.90 | 0.00 | 0.00 | 632.22 | .32 | .57 | .03 | 632.30 |
| 620. | 0. | 301. | 319. | 0. | 51. | 117. | 23. | 10. | 631.00 |
| .40 | 0.00 | 5.91 | 2.73 | .030 | .040 | .030 | .040 | 626.50 | 400.98 |
| .006357 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 225.90 | 626.88 |

1490 NH CARD USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1585.00 | 5.18 | 632.08 | 0.00 | 0.00 | 632.57 | .48 | .26 | .08 | 633.10 |
| 620. | 0. | 602. | 18. | 0. | 106. | 12. | 23. | 11. | 632.40 |
| .40 | 0.00 | 5.66 | 1.42 | .030 | .040 | .030 | .040 | 626.90 | 288.70 |
| .005464 | 45. | 45. | 45. | 2 | 0 | 1 | 0.00 | 89.78 | 408.05 |

1490 NH CARD USED

3265 DIVIDED FLOW

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 1590.00 | 4.67 | 632.07 | 0.00 | 0.00 | 632.63 | .56 | .03 | .04 | 633.10 |
| 620. | 0. | 605. | 15. | 0. | 100. | 12. | 23. | 11. | 632.40 |
| .40 | 0.00 | 6.07 | 1.29 | .030 | .030 | .030 | .040 | 627.40 | 288.74 |
| .004662 | 5. | 5. | 5. | 2 | 0 | 1 | 0.00 | 88.18 | 407.84 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.22 | 3.09 | 0.00 | 2.00 | 0.00 | 4.00 | 0.00 | 627.40 | 627.40 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | HJ | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 1087.20 | 632.63 | 0.00 | 599. | 25. | 4. | 629.30 | 630.30 | 30.00 |

BRIDGE SECTION AM 2894

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1591.00 | 5.13 | 632.53 | 0.00 | 0.00 | 632.84 | .30 | .21 | 0.00 | 633.10 |
| 620. | 0. | 549. | 71. | 0. | 118. | 46. | 23. | 11. | 632.40 |
| .40 | 0.00 | 4.67 | 1.55 | .030 | .030 | .030 | .040 | 627.40 | 288.40 |
| .002323 | 1. | 1. | 1. | 3 | 0 | 11 | 0.00 | 127.15 | 415.55 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1595.00 | 5.75 | 632.65 | 0.00 | 0.00 | 632.87 | .22 | .01 | .02 | 633.10 |
| 620. | 0. | 522. | 98. | 0. | 129. | 56. | 23. | 11. | 632.40 |
| .40 | 0.00 | 4.06 | 1.75 | .030 | .040 | .030 | .040 | 626.90 | 288.31 |
| .002319 | 4. | 4. | 4. | 2 | 0 | 1 | 0.00 | 129.19 | 417.50 |

1490 NH CARD USED

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1704.00 | 4.30 | 632.80 | 0.00 | 0.00 | 633.51 | .71 | .40 | .24 | 687.90 |
| 620. | 0. | 620. | 0. | 0. | 92. | 0. | 23. | 11. | 633.00 |
| .41 | 0.00 | 6.76 | .03 | .030 | .040 | .045 | .040 | 628.50 | 494.50 |
| .006553 | 109. | 109. | 109. | 2 | 0 | 1 | 0.00 | 31.35 | 639.10 |

1490 NH CARD USED

VALLEY SECTION AN 290

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1815.00 | 5.35 | 633.75 | 0.00 | 0.00 | 634.75 | 1.00 | 1.10 | .15 | 633.80 |
| 620. | 0. | 620. | 0. | 0. | 77. | 0. | 24. | 11. | 633.70 |
| .41 | 0.00 | 8.05 | .53 | .030 | .053 | .030 | .040 | 628.40 | 700.10 |
| .016510 | 111. | 111. | 111. | 3 | 0 | 1 | 0.00 | 29.96 | 730.07 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1840.00 | 5.70 | 634.30 | 633.36 | 0.00 | 635.05 | .76 | .23 | .07 | 633.80 |
| 620. | 3. | 598. | 19. | 3. | 84. | 16. | 24. | 11. | 633.70 |
| .41 | .89 | 7.11 | 1.21 | .050 | .040 | .050 | .040 | 628.60 | 685.86 |
| .005754 | 25. | 25. | 25. | 4 | 12 | 1 | 0.00 | 88.01 | 773.87 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1915.00 | 6.20 | 635.10 | 0.00 | 0.00 | 635.47 | .37 | .30 | .12 | 634.10 |
| 620. | 14. | 510. | 96. | 13. | 96. | 89. | 24. | 11. | 634.00 |
| .42 | 1.06 | 5.34 | 1.08 | .050 | .040 | .050 | .040 | 628.90 | 672.66 |
| .002881 | 75. | 75. | 75. | 2 | 0 | 1 | 0.00 | 249.41 | 922.07 |

1490 NH CARD USED

3265 DIVIDED FLOW

| SECNO | DEPTH | CWSEL | CRIT S | SEL | EG | HV | HL | VLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 2015.00 | 5.85 | 635.35 | 634.29 | 0.00 | 635.92 | .56 | .35 | .10 | 634.50 |
| 620. | 12. | 552. | 56. | 11. | 87. | 36. | 24. | 12. | 634.30 |
| .42 | 1.05 | 6.37 | 1.58 | .055 | .040 | .045 | .040 | 629.50 | 672.91 |
| .004372 | 100. | 100. | 100. | 4 | 16 | 1 | 0.00 | 148.46 | 923.17 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2478.00 | 5.55 | 637.55 | 0.00 | 0.00 | 637.97 | .42 | 2.00 | .04 | 636.30 |
| 520. | 87. | 419. | 114. | 47. | 68. | 51. | 26. | 13. | 635.80 |
| .45 | 1.85 | 6.13 | 2.26 | .045 | .040 | .045 | .040 | 632.00 | 620.53 |
| .004280 | 463. | 463. | 463. | 1 | 0 | 1 | 0.00 | 149.14 | 769.67 |

1490 NH CARD USED

VALLEY SECTION AO 291

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3140.00 | 4.56 | 640.16 | 0.00 | 0.00 | 640.25 | .09 | 2.19 | .10 | 638.80 |
| 620. | 395. | 147. | 78. | 251. | 35. | 58. | 30. | 16. | 638.00 |
| .53 | 1.58 | 4.18 | 1.34 | .060 | .040 | .060 | .040 | 635.60 | 497.91 |
| .002625 | 663. | 663. | 663. | 3 | 0 | 1 | 0.00 | 256.10 | 754.01 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 400.0 800.0 TYPE= 1 TARGET= 400.000

BRIDGE SECTION AP 19 MILE ROAD DOWNSTREAM FACE

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3263.00 | 4.77 | 640.47 | 0.00 | 0.00 | 640.52 | .05 | .25 | .01 | 638.80 |
| 620. | 450. | 70. | 100. | 317. | 21. | 83. | 31. | 17. | 638.00 |
| .55 | 1.42 | 3.31 | 1.21 | .060 | .040 | .060 | .040 | 635.70 | 487.15 |
| .001650 | 123. | 123. | 123. | 2 | 0 | 1 | 0.00 | 274.67 | 761.82 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 2.59 | 3.03 | 0.00 | 5.00 | 0.00 | 19.63 | 0.00 | 635.70 | 635.70 |

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | ELLC | ELTRD | CLASS |
|---|---|---|---|---|---|---|---|---|
| 680.56 | 640.52 | 0.00 | 478. | 147. | 20. | 639.90 | 642.00 | 30.00 |

3470 ENCROACHMENT STATIONS= 400.0 800.0 TYPE= 1 TARGET= 400.000

BRIDGE SECTION AP 19 MILE ROAD UPSTREAM FACE 292

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3314.00 | 7.02 | 642.72 | 0.00 | 0.00 | 642.72 | .00 | 2.20 | 0.00 | 638.80 |
| 620. | 459. | 32. | 129. | 866. | 33. | 284. | 32. | 18. | 638.00 |
| .58 | .53 | .99 | .46 | .060 | .040 | .060 | .040 | 635.70 | 409.59 |
| .000086 | 51. | 51. | 51. | 0 | 0 | 8 | 0.00 | 390.41 | 800.00 |

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 400.0 900.0 TYPE= 1 TARGET= 500.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3414.00 | 6.63 | 642.73 | 0.00 | 0.00 | 642.73 | .01 | .01 | .00 | 639.30 |
| 620. | 440. | 70. | 109. | 714. | 56. | 224. | 34. | 18. | 638.50 |
| .62 | .62 | 1.26 | .49 | .060 | .040 | .060 | .040 | 636.10 | 433.55 |
| .000135 | 100. | 100. | 100. | 2 | 0 | 1 | 0.00 | 376.30 | 809.85 |

3470 ENCROACHMENT STATIONS= 400.0 900.0 TYPE= 1 TARGET= 500.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3514.00 | 6.24 | 642.74 | 0.00 | 0.00 | 642.75 | .01 | .02 | .00 | 639.70 |
| 590. | 419. | 74. | 97. | 616. | 52. | 184. | 36. | 19. | 638.90 |
| .66 | .68 | 1.42 | .52 | .060 | .040 | .060 | .040 | 636.50 | 445.70 |
| .000189 | 100. | 100. | 100. | 0 | 0 | 1 | 0.00 | 350.24 | 795.94 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

3470 ENCROACHMENT STATIONS= 400.0 900.0 TYPE= 1 TARGET= 500.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3614.00 | 5.86 | 642.76 | 0.00 | 0.00 | 642.78 | .01 | .02 | .00 | 640.10 |
| 590. | 416. | 82. | 92. | 525. | 48. | 149. | 38. | 20. | 639.30 |
| .69 | .79 | 1.71 | .62 | .060 | .040 | .060 | .040 | 636.90 | 457.70 |
| .000299 | 100. | 100. | 100. | 0 | 0 | 1 | 0.00 | 328.65 | 786.34 |

3470 ENCROACHMENT STATIONS= 400.0 900.0 TYPE= 1 TARGET= 500.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3714.00 | 5.50 | 642.80 | 0.00 | 0.00 | 642.82 | .02 | .04 | .00 | 640.50 |
| 590. | 410. | 92. | 87. | 442. | 44. | 119. | 40. | 21. | 639.70 |
| .72 | .93 | 2.08 | .73 | .060 | .040 | .060 | .040 | 637.30 | 469.14 |
| .000439 | 100. | 100. | 100. | 1 | 0 | 1 | 0.00 | 308.04 | 777.19 |
| 4064.00 | 4.31 | 643.11 | 0.00 | 0.00 | 643.25 | .13 | .37 | .06 | 642.00 |
| 590. | 360. | 161. | 70. | 205. | 33. | 46. | 43. | 23. | 641.20 |
| .75 | 1.75 | 4.90 | 1.51 | .060 | .040 | .060 | .040 | 638.80 | 509.55 |
| .003938 | 350. | 350. | 350. | 2 | 0 | 1 | 0.00 | 238.42 | 747.97 |

1490 NH CARD USED

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4190.00 | 4.03 | 643.43 | 0.00 | 0.00 | 643.45 | .03 | .17 | .03 | 641.30 |
| 590. | 471. | 119. | 0. | 449. | 58. | 1. | 44. | 24. | 643.20 |
| .78 | 1.05 | 2.04 | .11 | .049 | .042 | .080 | .040 | 639.40 | 447.40 |
| .000682 | 126. | 126. | 126. | 2 | 0 | 1 | 0.00 | 363.36 | 810.76 |
| 4240.00 | 3.86 | 643.46 | 0.00 | 0.00 | 643.50 | .04 | .04 | .00 | 641.50 |
| 590. | 459. | 131. | 0. | 395. | 55. | 0. | 45. | 24. | 643.40 |
| .79 | 1.16 | 2.36 | .01 | .050 | .042 | .080 | .040 | 639.60 | 463.82 |
| .000960 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 339.13 | 802.94 |
| 4290.00 | 3.71 | 643.51 | 0.00 | 0.00 | 643.56 | .05 | .06 | .01 | 641.70 |
| 590. | 445. | 145. | 0. | 346. | 53. | 0. | 45. | 25. | 643.60 |
| .80 | 1.29 | 2.76 | 0.00 | .050 | .042 | .080 | .040 | 639.80 | 479.71 |
| .001372 | 50. | 50. | 50. | 0 | 0 | 1 | 0.00 | 320.14 | 799.85 |
| 4340.00 | 3.58 | 643.58 | 0.00 | 0.00 | 643.65 | .06 | .08 | .01 | 641.90 |
| | | | | | | 0 | 46 | 25. | 643.80 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| .01 | 1.37 | 3.13 | 0. | .000 | .002 | .080 | .00 | 0.0 | 91.6 |
| .001828 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 308.07 | 799.67 |
| 4390.00 | 3.48 | 643.68 | 0.00 | 0.00 | 643.76 | .08 | .10 | .01 | 642.10 |
| 590. | 418. | 172. | 0. | 279. | 48. | 0. | 46. | 25. | 644.00 |
| .81 | 1.50 | 3.54 | 0.00 | .051 | .042 | .080 | .040 | 640.20 | 502.17 |
| .002433 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 297.33 | 799.50 |

| SECNO<br>Q<br>TIME<br>SLOPE | DEPTH<br>QLOB<br>VLOB<br>XLOBL | CWSEL<br>QCH<br>VCH<br>XLCH | CRIWS<br>QROB<br>VROB<br>XLOBR | WSELK<br>ALOB<br>XNL<br>ITRIAL | EG<br>ACH<br>XNCH<br>IDC | HV<br>AROB<br>XNR<br>ICONT | HL<br>VOL<br>WTN<br>CORAR | QLOSS<br>TWA<br>ELMIN<br>TOPWID | BANK ELEV<br>LEFT/RIGHT<br>SSTA<br>ENDST |
|---|---|---|---|---|---|---|---|---|---|
| 4440.00 | 3.40 | 643.80 | 0.00 | 0.00 | 643.90 | .10 | .13 | .01 | 642.30 |
| 590. | 410. | 180. | 0. | 260. | 47. | 0. | 47. | 26. | 644.20 |
| .82 | 1.57 | 3.82 | 0.00 | .051 | .042 | .080 | .040 | 640.40 | 507.34 |
| .002892 | 50. | 50. | 50. | 2 | 0 | 1 | 0.00 | 292.07 | 799.40 |
| 4490.00 | 3.35 | 643.95 | 0.00 | 0.00 | 644.06 | .11 | .16 | .01 | 642.50 |
| 590. | 401. | 189. | 0. | 244. | 46. | 0. | 47. | 26. | 644.40 |
| .83 | 1.64 | 4.09 | 0.00 | .051 | .042 | .040 | .040 | 640.60 | 511.88 |
| .003385 | 50. | 50. | 50. | 1 | 0 | 1 | 0.00 | 287.43 | 799.31 |
| 4515.00 | 3.23 | 644.03 | 0.00 | 0.00 | 644.19 | .16 | .10 | .02 | 642.70 |
| 590. | 380. | 210. | 0. | 212. | 44. | 0. | 47. | 26. | 644.60 |
| .85 | 1.80 | 4.74 | 0.00 | .051 | .041 | .080 | .040 | 640.80 | 521.23 |
| .004764 | 25. | 25. | 25. | 0 | 0 | 1 | 0.00 | 277.90 | 799.13 |

VALLEY SECTION AQ 293

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4540.00 | 3.27 | 644.17 | 0.00 | 0.00 | 644.30 | .14 | .11 | .01 | 642.80 |
| 590. | 388. | 202. | 0. | 223. | 45. | 0. | 47. | 26. | 644.70 |
| .83 | 1.74 | 4.50 | 0.00 | .051 | .042 | .080 | .040 | 640.90 | 517.95 |
| .004213 | 25. | 25. | 25. | 2 | 0 | 1 | 0.00 | 281.24 | 799.19 |

1490 NH CARD USED

VALLEY SECTION AR 294

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5740.00 | 4.14 | 650.14 | 0.00 | 0.00 | 650.33 | .19 | 6.00 | .03 | 649.10 |
| 590. | 40. | 139. | 411. | 22. | 30. | 127. | 53. | 33. | 648.20 |
| .93 | 1.86 | 4.57 | 3.23 | .040 | .051 | .040 | .040 | 646.00 | 458.51 |
| .006027 | 1200. | 1200. | 1200. | 6 | 0 | 1 | 0.00 | 176.89 | 635.40 |

CCHV= .100 CEHV= .300
1490 NH CARD USED

VALLEY SECTION AS 295

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 7440.00 | 4.39 | 658.09 | 0.00 | 0.00 | 658.21 | .12 | 7.87 | .01 | 655.70 |
| 530. | 178. | 204. | 148. | 182. | 48. | 147. | 64. | 43. | 656.70 |
| 1.14 | .98 | 4.25 | 1.00 | .100 | .049 | .100 | .040 | 653.70 | 386.03 |
| .003577 | 1700. | 1700. | 1700. | 6 | 0 | 1 | 0.00 | 344.52 | 730.54 |

1490 NH CARD USED

VALLEY SECTION AT 296

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8940.00 | 1.65 | 666.45 | 666.15 | 0.00 | 666.61 | .16 | 8.39 | .01 | 664.80 |
| 530. | 209. | 138. | 182. | 120. | 25. | 117. | 75. | 52. | 664.80 |
| 1.28 | 1.75 | 5.58 | 1.56 | .100 | .040 | .100 | .040 | 664.80 | 469.53 |
| .011536 | 1200. | 1500. | 1600. | 17 | 17 | 1 | 0.00 | 263.33 | 732.86 |

1490 NH CARD USED

VALLEY SECTION AU 297

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10440.00 | 3.92 | 674.92 | 0.00 | 0.00 | 675.09 | .17 | 8.47 | .00 | 673.90 |
| 435. | 25. | 295. | 116. | 24. | 80. | 46. | 82. | 59. | 672.60 |
| 1.41 | 1.04 | 3.68 | 2.49 | .050 | .042 | .050 | .040 | 671.00 | 353.73 |
| .003028 | 1500. | 1500. | 1500. | 6 | 0 | 1 | 0.00 | 104.98 | 458.72 |

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

PLUM BROOK ABOVE GIBSON

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | 160.00 | 0.00 | 0.00 | 621.50 | 455.00 | 629.48 | .00 | 0.00 | 0.00 | 53.39 | 7.98 | 345.02 |
| 10.00 | 160.00 | 0.00 | 0.00 | 621.50 | 660.00 | 629.83 | .01 | 0.00 | 0.00 | 71.01 | 8.33 | 355.10 |
| 10.00 | 160.00 | 0.00 | 0.00 | 621.50 | 750.00 | 629.98 | .01 | 0.00 | 0.00 | 78.03 | 8.48 | 359.42 |
| 10.00 | 160.00 | 0.00 | 0.00 | 621.50 | 1050.00 | 630.48 | .01 | 0.00 | 0.00 | 98.90 | 8.98 | 373.83 |
| 200.00 | 190.00 | 0.00 | 0.00 | 621.60 | 455.00 | 629.48 | .00 | .01 | .00 | 54.79 | 7.88 | 342.27 |
| 200.00 | 190.00 | 0.00 | 0.00 | 621.60 | 660.00 | 629.84 | .01 | .01 | .00 | 72.58 | 8.24 | 352.42 |
| 200.00 | 190.00 | 0.00 | 0.00 | 621.60 | 740.00 | 629.99 | .01 | .01 | .00 | 78.58 | 8.39 | 356.76 |
| 200.00 | 190.00 | 0.00 | 0.00 | 621.60 | 1050.00 | 630.49 | .01 | .01 | .00 | 100.57 | 8.89 | 371.22 |
| 640.00 | 440.00 | 0.00 | 0.00 | 621.80 | 380.00 | 629.50 | .00 | .01 | .00 | 48.33 | 7.70 | 336.84 |
| 640.00 | 440.00 | 0.00 | 0.00 | 621.80 | 550.00 | 629.85 | .01 | .02 | .00 | 63.31 | 8.05 | 347.13 |
| 640.00 | 440.00 | 0.00 | 0.00 | 621.80 | 620.00 | 630.01 | .01 | .02 | .00 | 68.70 | 8.21 | 351.51 |
| 640.00 | 440.00 | 0.00 | 0.00 | 621.80 | 880.00 | 630.51 | .01 | .02 | .00 | 87.24 | 8.71 | 366.09 |
| 740.00 | 100.00 | 0.00 | 0.00 | 622.40 | 380.00 | 629.50 | .01 | .00 | .00 | 59.23 | 7.10 | 314.28 |
| 740.00 | 100.00 | 0.00 | 0.00 | 622.40 | 550.00 | 629.86 | .01 | .00 | .00 | 75.54 | 7.46 | 329.95 |
| 740.00 | 100.00 | 0.00 | 0.00 | 622.40 | 620.00 | 630.01 | .01 | .01 | .00 | 81.00 | 7.61 | 334.34 |
| 740.00 | 100.00 | 0.00 | 0.00 | 622.40 | 880.00 | 630.52 | .01 | .01 | .00 | 99.68 | 8.12 | 348.94 |
| 840.00 | 100.00 | 0.00 | 0.00 | 622.90 | 380.00 | 629.51 | .01 | .01 | .00 | 72.95 | 6.61 | 286.80 |
| 840.00 | 100.00 | 0.00 | 0.00 | 622.90 | 550.00 | 629.87 | .01 | .01 | .00 | 90.31 | 6.97 | 306.71 |
| 840.00 | 100.00 | 0.00 | 0.00 | 622.90 | 620.00 | 630.02 | .02 | .01 | .00 | 96.06 | 7.12 | 315.18 |
| 840.00 | 100.00 | 0.00 | 0.00 | 622.90 | 880.00 | 630.53 | .02 | .01 | .00 | 114.50 | 7.63 | 334.72 |
| 890.00 | 50.00 | 0.00 | 0.00 | 623.20 | 380.00 | 629.51 | .02 | .01 | .00 | 85.24 | 6.31 | 270.43 |
| 890.00 | 50.00 | 0.00 | 0.00 | 623.20 | 550.00 | 629.87 | .02 | .01 | .00 | 102.42 | 6.67 | 290.39 |
| 890.00 | 50.00 | 0.00 | 0.00 | 623.20 | 620.00 | 630.02 | .02 | .01 | .00 | 107.89 | 6.82 | 298.86 |
| 890.00 | 50.00 | 0.00 | 0.00 | 623.20 | 880.00 | 630.53 | .03 | .01 | .00 | 126.47 | 7.33 | 326.24 |
| 940.00 | 50.00 | 0.00 | 0.00 | 623.40 | 380.00 | 629.52 | .02 | .01 | .00 | 95.94 | 6.12 | 259.83 |
| 940.00 | 50.00 | 0.00 | 0.00 | 623.40 | 550.00 | 629.88 | .03 | .01 | .00 | 112.43 | 6.48 | 279.84 |
| 940.00 | 50.00 | 0.00 | 0.00 | 623.40 | 620.00 | 630.03 | .03 | .01 | .00 | 117.50 | 6.63 | 288.31 |
| 940.00 | 50.00 | 0.00 | 0.00 | 623.40 | 880.00 | 630.54 | .03 | .01 | .00 | 135.23 | 7.14 | 316.43 |
| 1040.00 | 100.00 | 0.00 | 0.00 | 623.90 | 380.00 | 629.56 | .06 | .05 | .02 | 139.51 | 5.66 | 236.24 |
| 1040.00 | 100.00 | 0.00 | 0.00 | 623.90 | 550.00 | 629.92 | .05 | .05 | .01 | 149.07 | 6.02 | 254.10 |
| 1040.00 | 100.00 | 0.00 | 0.00 | 623.90 | 620.00 | 630.07 | .05 | .05 | .01 | 151.75 | 6.17 | 262.48 |
| 1040.00 | 100.00 | 0.00 | 0.00 | 623.90 | 880.00 | 630.57 | .05 | .04 | .01 | 164.22 | 6.67 | 290.14 |
| 1140.00 | 100.00 | 0.00 | 0.00 | 624.40 | 380.00 | 629.67 | .20 | .18 | .07 | 216.43 | 5.27 | 220.76 |
| 1140.00 | 100.00 | 0.00 | 0.00 | 624.40 | 550.00 | 630.02 | .13 | .14 | .04 | 208.13 | 5.62 | 235.00 |
| 1140.00 | 100.00 | 0.00 | 0.00 | 624.40 | 620.00 | 630.16 | .11 | .12 | .03 | 205.08 | 5.76 | 240.75 |
| 1140.00 | 100.00 | 0.00 | 0.00 | 624.40 | 880.00 | 630.64 | .09 | .09 | .02 | 205.64 | 6.24 | 266.60 |
| 1240.00 | 100.00 | 0.00 | 0.00 | 624.90 | 380.00 | 630.07 | .30 | .45 | 0.00 | 248.10 | 5.17 | 216.67 |
| 1240.00 | 100.00 | 0.00 | 0.00 | 624.90 | 550.00 | 630.30 | .26 | .34 | .06 | 267.38 | 5.40 | 225.83 |
| 1240.00 | 100.00 | 0.00 | 0.00 | 624.90 | 620.00 | 630.40 | .23 | .30 | .06 | 265.40 | 5.50 | 230.27 |
| 1240.00 | 100.00 | 0.00 | 0.00 | 624.90 | 880.00 | 630.79 | .17 | .19 | .04 | 260.53 | 5.89 | 247.56 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1340.00 | 100.00 | 0.00 | 0.00 | 625.40 | 380.00 | 630.65 | .21 | .46 | .03 | 221.57 | 5.25 | 220.04 |
| 1340.00 | 100.00 | 0.00 | 0.00 | 625.40 | 550.00 | 630.80 | .25 | .50 | .00 | 265.19 | 5.40 | 226.10 |
| 1340.00 | 100.00 | 0.00 | 0.00 | 625.40 | 620.00 | 630.86 | .25 | .47 | .01 | 277.27 | 5.46 | 228.70 |
| 1340.00 | 100.00 | 0.00 | 0.00 | 625.40 | 880.00 | 631.13 | .25 | .37 | .04 | 300.24 | 5.73 | 239.36 |
| 1440.00 | 100.00 | 0.00 | 0.00 | 625.90 | 380.00 | 631.08 | .30 | .46 | 0.00 | 246.47 | 5.18 | 216.86 |
| 1440.00 | 100.00 | 0.00 | 0.00 | 625.90 | 550.00 | 631.30 | .25 | .49 | .00 | 265.97 | 5.40 | 226.00 |
| 1440.00 | 100.00 | 0.00 | 0.00 | 625.90 | 620.00 | 631.37 | .25 | .51 | .00 | 277.28 | 5.47 | 228.70 |
| 1440.00 | 100.00 | 0.00 | 0.00 | 625.90 | 880.00 | 631.60 | .26 | .48 | .01 | 308.04 | 5.70 | 238.25 |
| 1540.00 | 100.00 | 0.00 | 0.00 | 626.50 | 380.00 | 631.67 | .30 | .54 | 0.00 | 248.19 | 5.17 | 216.66 |
| 1540.00 | 100.00 | 0.00 | 0.00 | 626.50 | 550.00 | 631.83 | .33 | .56 | 0.00 | 291.63 | 5.33 | 222.99 |
| 1540.00 | 100.00 | 0.00 | 0.00 | 626.50 | 620.00 | 631.90 | .32 | .57 | .03 | 300.74 | 5.40 | 225.90 |
| 1540.00 | 100.00 | 0.00 | 0.00 | 626.50 | 880.00 | 632.13 | .32 | .56 | .03 | 330.62 | 5.63 | 235.29 |
| 1585.00 | 45.00 | 0.00 | 0.00 | 626.90 | 380.00 | 631.95 | .21 | .16 | .03 | 374.95 | 5.05 | 75.24 |
| 1585.00 | 45.00 | 0.00 | 0.00 | 626.90 | 550.00 | 632.03 | .40 | .24 | .04 | 537.79 | 5.13 | 84.45 |
| 1585.00 | 45.00 | 0.00 | 0.00 | 626.90 | 620.00 | 632.08 | .48 | .26 | .08 | 602.36 | 5.18 | 89.78 |
| 1585.00 | 45.00 | 0.00 | 0.00 | 626.90 | 880.00 | 632.33 | .72 | .31 | 0.00 | 816.24 | 5.43 | 117.35 |
| 1590.00 | 5.00 | 0.00 | 0.00 | 627.40 | 380.00 | 631.95 | .24 | .01 | .02 | 375.48 | 4.55 | 74.49 |
| 1590.00 | 5.00 | 0.00 | 0.00 | 627.40 | 550.00 | 632.03 | .46 | .02 | .03 | 539.36 | 4.63 | 83.17 |
| 1590.00 | 5.00 | 0.00 | 0.00 | 627.40 | 620.00 | 632.07 | .56 | .03 | .04 | 604.30 | 4.67 | 88.18 |
| 1590.00 | 5.00 | 0.00 | 0.00 | 627.40 | 880.00 | 632.45 | .70 | .03 | 0.00 | 799.16 | 5.05 | 125.67 |
| 1591.00 | 1.00 | 630.30 | 629.30 | 627.40 | 380.00 | 632.25 | .17 | .23 | 0.00 | 360.34 | 4.85 | 108.58 |
| 1591.00 | 1.00 | 630.30 | 629.30 | 627.40 | 550.00 | 632.45 | .27 | .23 | 0.00 | 499.59 | 5.05 | 125.65 |
| 1591.00 | 1.00 | 630.30 | 629.30 | 627.40 | 620.00 | 632.53 | .30 | .21 | 0.00 | 549.37 | 5.13 | 127.15 |
| 1591.00 | 1.00 | 630.30 | 629.30 | 627.40 | 880.00 | 632.84 | .39 | .09 | 0.00 | 712.41 | 5.44 | 132.47 |
| 1595.00 | 4.00 | 0.00 | 0.00 | 626.90 | 380.00 | 632.30 | .14 | .01 | .01 | 355.33 | 5.40 | 113.32 |
| 1595.00 | 4.00 | 0.00 | 0.00 | 626.90 | 550.00 | 632.54 | .21 | .01 | .02 | 479.60 | 5.54 | 127.33 |
| 1595.00 | 4.00 | 0.00 | 0.00 | 626.90 | 620.00 | 632.65 | .22 | .01 | .02 | 521.95 | 5.75 | 129.19 |
| 1595.00 | 4.00 | 0.00 | 0.00 | 626.90 | 880.00 | 633.00 | .27 | .01 | .04 | 660.76 | 6.10 | 135.29 |
| 1704.00 | 109.00 | 0.00 | 0.00 | 628.50 | 380.00 | 632.44 | .34 | .24 | .10 | 380.00 | 3.94 | 29.95 |
| 1704.00 | 109.00 | 0.00 | 0.00 | 628.50 | 550.00 | 632.71 | .59 | .36 | .19 | 550.00 | 4.21 | 30.78 |
| 1704.00 | 109.00 | 0.00 | 0.00 | 628.50 | 620.00 | 632.80 | .71 | .40 | .24 | 620.00 | 4.30 | 31.35 |
| 1704.00 | 109.00 | 0.00 | 0.00 | 628.50 | 880.00 | 633.50 | .63 | .40 | 0.00 | 773.98 | 5.00 | 171.02 |
| 1815.00 | 111.00 | 0.00 | 0.00 | 628.40 | 380.00 | 632.95 | .64 | .66 | .15 | 380.00 | 4.55 | 21.16 |
| 1815.00 | 111.00 | 0.00 | 0.00 | 628.40 | 550.00 | 633.53 | .91 | .97 | .16 | 550.00 | 5.13 | 23.22 |
| 1815.00 | 111.00 | 0.00 | 0.00 | 628.40 | 620.00 | 633.75 | 1.00 | 1.10 | .15 | 619.92 | 5.35 | 29.96 |
| 1815.00 | 111.00 | 0.00 | 0.00 | 628.40 | 880.00 | 634.62 | .42 | .70 | 0.00 | 588.60 | 6.22 | 230.44 |
| 1840.00 | 25.00 | 0.00 | 0.00 | 628.60 | 380.00 | 633.15 | .66 | .21 | .01 | 380.00 | 4.55 | 20.87 |
| 1840.00 | 25.00 | 0.00 | 0.00 | 628.60 | 550.00 | 633.80 | .89 | .26 | .00 | 549.82 | 5.20 | 33.18 |
| 1840.00 | 25.00 | 0.00 | 0.00 | 628.60 | 620.00 | 634.30 | .76 | .23 | .07 | 597.60 | 5.70 | 88.01 |
| 1840.00 | 25.00 | 0.00 | 0.00 | 628.60 | 880.00 | 634.91 | .60 | .15 | 0.00 | 686.51 | 6.31 | 254.74 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1915.00 | 75.00 | 0.00 | 0.00 | 628.90 | 380.00 | 633.72 | .54 | .42 | .03 | 380.00 | 4.82 | 21.76 |
| 1915.00 | 75.00 | 0.00 | 0.00 | 628.90 | 550.00 | 634.62 | .58 | .42 | .09 | 528.16 | 5.72 | 96.58 |
| 1915.00 | 75.00 | 0.00 | 0.00 | 628.90 | 620.00 | 635.10 | .37 | .30 | .12 | 510.18 | 6.20 | 249.41 |
| 1915.00 | 75.00 | 0.00 | 0.00 | 628.90 | 880.00 | 635.55 | .31 | .27 | .09 | 575.07 | 6.65 | 270.99 |
| 2015.00 | 100.00 | 0.00 | 0.00 | 629.50 | 380.00 | 634.21 | .59 | .51 | .02 | 380.00 | 4.71 | 21.21 |
| 2015.00 | 100.00 | 0.00 | 0.00 | 629.50 | 550.00 | 635.07 | .62 | .46 | .02 | 521.29 | 5.57 | 87.95 |
| 2015.00 | 100.00 | 0.00 | 0.00 | 629.50 | 620.00 | 635.35 | .56 | .35 | .10 | 552.19 | 5.85 | 148.46 |
| 2015.00 | 100.00 | 0.00 | 0.00 | 629.50 | 880.00 | 635.77 | .56 | .35 | .12 | 657.32 | 6.27 | 275.16 |
| 2478.00 | 463.00 | 0.00 | 0.00 | 632.00 | 380.00 | 636.78 | .56 | 2.53 | .01 | 346.45 | 4.78 | 78.88 |
| 2478.00 | 463.00 | 0.00 | 0.00 | 632.00 | 550.00 | 637.42 | .41 | 2.09 | .06 | 394.15 | 5.42 | 137.51 |
| 2478.00 | 463.00 | 0.00 | 0.00 | 632.00 | 620.00 | 637.55 | .42 | 2.00 | .04 | 418.59 | 5.55 | 149.14 |
| 2478.00 | 463.00 | 0.00 | 0.00 | 632.00 | 880.00 | 638.00 | .38 | 1.99 | .05 | 480.32 | 6.00 | 189.01 |
| 3140.00 | 663.00 | 0.00 | 0.00 | 635.60 | 380.00 | 639.74 | .08 | 2.34 | .14 | 115.94 | 4.14 | 224.48 |
| 3140.00 | 663.00 | 0.00 | 0.00 | 635.60 | 550.00 | 640.03 | .09 | 2.20 | .10 | 140.11 | 4.43 | 247.47 |
| 3140.00 | 663.00 | 0.00 | 0.00 | 635.60 | 620.00 | 640.16 | .09 | 2.19 | .10 | 147.03 | 4.56 | 256.10 |
| 3140.00 | 663.00 | 0.00 | 0.00 | 635.60 | 880.00 | 640.52 | .10 | 2.16 | .08 | 173.08 | 4.92 | 277.47 |
| 3263.00 | 123.00 | 0.00 | 0.00 | 635.70 | 380.00 | 640.04 | .04 | .23 | .01 | 56.80 | 4.34 | 247.61 |
| 3263.00 | 123.00 | 0.00 | 0.00 | 635.70 | 550.00 | 640.35 | .04 | .25 | .01 | 66.99 | 4.65 | 267.31 |
| 3263.00 | 123.00 | 0.00 | 0.00 | 635.70 | 620.00 | 640.47 | .05 | .25 | .01 | 70.28 | 4.77 | 274.67 |
| 3263.00 | 123.00 | 0.00 | 0.00 | 635.70 | 880.00 | 640.84 | .05 | .26 | .01 | 82.93 | 5.14 | 296.57 |
| 3314.00 | 51.00 | 642.00 | 639.90 | 635.70 | 380.00 | 642.48 | .00 | 2.41 | 0.00 | 20.82 | 6.78 | 382.05 |
| 3314.00 | 51.00 | 642.00 | 639.90 | 635.70 | 550.00 | 642.65 | .00 | 2.26 | 0.00 | 28.84 | 6.95 | 388.21 |
| 3314.00 | 51.00 | 642.00 | 639.90 | 635.70 | 620.00 | 642.72 | .00 | 2.20 | 0.00 | 32.03 | 7.02 | 390.41 |
| 3314.00 | 51.00 | 642.00 | 639.90 | 635.70 | 880.00 | 642.91 | .01 | 2.02 | 0.00 | 43.50 | 7.21 | 397.15 |
| 3414.00 | 100.00 | 0.00 | 0.00 | 636.10 | 380.00 | 642.46 | .00 | .01 | .00 | 45.93 | 6.38 | 358.36 |
| 3414.00 | 100.00 | 0.00 | 0.00 | 636.10 | 550.00 | 642.66 | .01 | .01 | .00 | 63.45 | 6.56 | 371.47 |
| 3414.00 | 100.00 | 0.00 | 0.00 | 636.10 | 620.00 | 642.73 | .01 | .01 | .00 | 70.37 | 6.63 | 376.30 |
| 3414.00 | 100.00 | 0.00 | 0.00 | 636.10 | 880.00 | 642.92 | .01 | .02 | .00 | 95.25 | 6.82 | 391.09 |
| 3514.00 | 100.00 | 0.00 | 0.00 | 636.50 | 365.00 | 642.49 | .00 | .01 | .00 | 48.92 | 5.99 | 336.16 |
| 3514.00 | 100.00 | 0.00 | 0.00 | 636.50 | 520.00 | 642.67 | .01 | .01 | .00 | 66.30 | 6.17 | 346.50 |
| 3514.00 | 100.00 | 0.00 | 0.00 | 636.50 | 590.00 | 642.74 | .01 | .02 | .00 | 73.94 | 6.24 | 350.24 |
| 3514.00 | 100.00 | 0.00 | 0.00 | 636.50 | 840.00 | 642.95 | .02 | .03 | .00 | 99.94 | 6.45 | 362.56 |
| 3614.00 | 100.00 | 0.00 | 0.00 | 636.90 | 365.00 | 642.50 | .01 | .01 | .00 | 55.13 | 5.60 | 314.12 |
| 3614.00 | 100.00 | 0.00 | 0.00 | 636.90 | 520.00 | 642.69 | .01 | .02 | .00 | 73.96 | 5.79 | 324.77 |
| 3614.00 | 100.00 | 0.00 | 0.00 | 636.90 | 590.00 | 642.76 | .01 | .02 | .00 | 82.19 | 5.86 | 328.65 |
| 3614.00 | 100.00 | 0.00 | 0.00 | 636.90 | 840.00 | 642.98 | .02 | .04 | .00 | 109.87 | 6.08 | 341.13 |
| 3714.00 | 100.00 | 0.00 | 0.00 | 637.30 | 365.00 | 642.52 | .01 | .02 | .00 | 63.29 | 5.22 | 292.65 |
| 3714.00 | 100.00 | 0.00 | 0.00 | 637.30 | 520.00 | 642.72 | .02 | .03 | .00 | 83.62 | 5.42 | 303.88 |
| 3714.00 | 100.00 | 0.00 | 0.00 | 637.30 | 590.00 | 642.80 | .02 | .04 | .00 | 92.43 | 5.50 | 308.04 |
| 3714.00 | 100.00 | 0.00 | 0.00 | 637.30 | 840.00 | 643.03 | .03 | .06 | .00 | 121.35 | 5.73 | 321.91 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4064.00 | 350.00 | 0.00 | 0.00 | 638.80 | 365.00 | 642.70 | .14 | .25 | .06 | 131.75 | 3.90 | 206.34 |
| 4064.00 | 350.00 | 0.00 | 0.00 | 638.80 | 520.00 | 643.00 | .13 | .34 | .06 | 152.14 | 4.20 | 229.47 |
| 4064.00 | 350.00 | 0.00 | 0.00 | 638.80 | 590.00 | 643.11 | .13 | .37 | .06 | 160.75 | 4.31 | 238.42 |
| 4064.00 | 350.00 | 0.00 | 0.00 | 638.80 | 840.00 | 643.47 | .14 | .49 | .05 | 187.21 | 4.67 | 262.12 |
| 4190.00 | 126.00 | 0.00 | 0.00 | 639.40 | 365.00 | 643.02 | .02 | .17 | .03 | 95.06 | 3.62 | 311.64 |
| 4190.00 | 126.00 | 0.00 | 0.00 | 639.40 | 520.00 | 643.31 | .03 | .17 | .03 | 112.20 | 3.91 | 346.33 |
| 4190.00 | 126.00 | 0.00 | 0.00 | 639.40 | 590.00 | 643.43 | .03 | .17 | .03 | 119.33 | 4.03 | 363.36 |
| 4190.00 | 126.00 | 0.00 | 0.00 | 639.40 | 840.00 | 643.78 | .03 | .18 | .03 | 142.57 | 4.38 | 415.69 |
| 4240.00 | 50.00 | 0.00 | 0.00 | 639.60 | 365.00 | 643.05 | .03 | .04 | .01 | 107.61 | 3.45 | 295.88 |
| 4240.00 | 50.00 | 0.00 | 0.00 | 639.60 | 520.00 | 643.35 | .03 | .04 | .00 | 124.14 | 3.75 | 324.53 |
| 4240.00 | 50.00 | 0.00 | 0.00 | 639.60 | 590.00 | 643.46 | .04 | .04 | .00 | 131.02 | 3.86 | 339.13 |
| 4240.00 | 50.00 | 0.00 | 0.00 | 639.60 | 840.00 | 643.82 | .04 | .04 | .00 | 153.95 | 4.22 | 391.61 |
| 4290.00 | 50.00 | 0.00 | 0.00 | 639.80 | 365.00 | 643.10 | .05 | .06 | .01 | 121.53 | 3.30 | 283.79 |
| 4290.00 | 50.00 | 0.00 | 0.00 | 639.80 | 520.00 | 643.40 | .05 | .06 | .01 | 138.64 | 3.60 | 308.38 |
| 4290.00 | 50.00 | 0.00 | 0.00 | 639.80 | 590.00 | 643.51 | .05 | .06 | .01 | 144.96 | 3.71 | 320.14 |
| 4290.00 | 50.00 | 0.00 | 0.00 | 639.80 | 840.00 | 643.87 | .05 | .06 | .01 | 166.90 | 4.07 | 368.24 |
| 4340.00 | 50.00 | 0.00 | 0.00 | 640.00 | 365.00 | 643.18 | .07 | .09 | .01 | 134.76 | 3.18 | 274.55 |
| 4340.00 | 50.00 | 0.00 | 0.00 | 640.00 | 520.00 | 643.47 | .06 | .08 | .01 | 151.36 | 3.47 | 297.24 |
| 4340.00 | 50.00 | 0.00 | 0.00 | 640.00 | 590.00 | 643.58 | .06 | .08 | .01 | 157.65 | 3.58 | 308.07 |
| 4340.00 | 50.00 | 0.00 | 0.00 | 640.00 | 840.00 | 643.93 | .06 | .07 | .01 | 179.76 | 3.93 | 348.43 |
| 4390.00 | 50.00 | 0.00 | 0.00 | 640.20 | 365.00 | 643.29 | .09 | .12 | .01 | 148.63 | 3.09 | 266.54 |
| 4390.00 | 50.00 | 0.00 | 0.00 | 640.20 | 520.00 | 643.57 | .08 | .11 | .01 | 164.54 | 3.37 | 288.68 |
| 4390.00 | 50.00 | 0.00 | 0.00 | 640.20 | 590.00 | 643.68 | .08 | .10 | .01 | 171.59 | 3.48 | 297.33 |
| 4390.00 | 50.00 | 0.00 | 0.00 | 640.20 | 840.00 | 644.02 | .08 | .09 | .01 | 191.04 | 3.82 | 333.31 |
| 4440.00 | 50.00 | 0.00 | 0.00 | 640.40 | 365.00 | 643.43 | .11 | .15 | .01 | 155.76 | 3.03 | 262.93 |
| 4440.00 | 50.00 | 0.00 | 0.00 | 640.40 | 520.00 | 643.70 | .10 | .14 | .01 | 173.17 | 3.30 | 283.77 |
| 4440.00 | 50.00 | 0.00 | 0.00 | 640.40 | 590.00 | 643.80 | .10 | .13 | .01 | 180.48 | 3.40 | 292.07 |
| 4440.00 | 50.00 | 0.00 | 0.00 | 640.40 | 840.00 | 644.13 | .09 | .12 | .01 | 203.32 | 3.73 | 322.40 |
| 4490.00 | 50.00 | 0.00 | 0.00 | 640.60 | 365.00 | 643.60 | .13 | .18 | .01 | 162.43 | 3.00 | 259.82 |
| 4490.00 | 50.00 | 0.00 | 0.00 | 640.60 | 520.00 | 643.85 | .11 | .16 | .01 | 181.42 | 3.25 | 279.50 |
| 4490.00 | 50.00 | 0.00 | 0.00 | 640.60 | 590.00 | 643.95 | .11 | .16 | .01 | 189.09 | 3.35 | 287.43 |
| 4490.00 | 50.00 | 0.00 | 0.00 | 640.60 | 840.00 | 644.27 | .11 | .14 | .01 | 211.45 | 3.67 | 316.53 |
| 4515.00 | 25.00 | 0.00 | 0.00 | 640.80 | 365.00 | 643.68 | .20 | .11 | .03 | 184.18 | 2.88 | 251.05 |
| 4515.00 | 25.00 | 0.00 | 0.00 | 640.80 | 520.00 | 643.93 | .16 | .10 | .03 | 202.37 | 3.13 | 270.16 |
| 4515.00 | 25.00 | 0.00 | 0.00 | 640.80 | 590.00 | 644.03 | .16 | .10 | .02 | 209.59 | 3.23 | 277.90 |
| 4515.00 | 25.00 | 0.00 | 0.00 | 640.80 | 840.00 | 644.34 | .14 | .09 | .02 | 232.34 | 3.54 | 303.42 |
| 4540.00 | 25.00 | 0.00 | 0.00 | 640.90 | 365.00 | 643.87 | .14 | .12 | .02 | 166.88 | 2.97 | 257.87 |
| 4540.00 | 25.00 | 0.00 | 0.00 | 640.90 | 520.00 | 644.08 | .14 | .11 | .01 | 192.17 | 3.18 | 274.47 |
| 4540.00 | 25.00 | 0.00 | 0.00 | 640.90 | 590.00 | 644.17 | .14 | .11 | .01 | 201.93 | 3.27 | 281.24 |
| 4540.00 | 25.00 | 0.00 | 0.00 | 640.90 | 840.00 | 644.44 | .14 | .10 | .00 | 232.94 | 3.54 | 303.07 |

| SECTION NUMBER | CHANNEL LENGTH | MIN EL OF ROADWAY | MAX EL OF LOW CHORD | MIN EL GROUND | DISCHARGE (CFS) | CWSEL | HV | HL | OLOSS | QCH | DEPTH | TOPWID |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5740.00 | 1200.00 | 0.00 | 0.00 | 646.00 | 365.00 | 649.78 | .17 | 5.93 | .01 | 116.71 | 3.78 | 143.25 |
| 5740.00 | 1200.00 | 0.00 | 0.00 | 646.00 | 520.00 | 650.04 | .18 | 5.99 | .02 | 132.62 | 4.04 | 167.72 |
| 5740.00 | 1200.00 | 0.00 | 0.00 | 646.00 | 590.00 | 650.14 | .19 | 6.00 | .03 | 139.41 | 4.14 | 176.89 |
| 5740.00 | 1200.00 | 0.00 | 0.00 | 646.00 | 840.00 | 650.43 | .22 | 6.03 | .04 | 161.07 | 4.43 | 204.70 |
| 7440.00 | 1700.00 | 0.00 | 0.00 | 653.70 | 325.00 | 657.66 | .13 | 7.84 | .00 | 167.57 | 3.96 | 299.55 |
| 7440.00 | 1700.00 | 0.00 | 0.00 | 653.70 | 465.00 | 657.97 | .12 | 7.86 | .01 | 193.74 | 4.27 | 336.99 |
| 7440.00 | 1700.00 | 0.00 | 0.00 | 653.70 | 530.00 | 658.09 | .12 | 7.87 | .01 | 204.02 | 4.39 | 344.52 |
| 7440.00 | 1700.00 | 0.00 | 0.00 | 653.70 | 750.00 | 658.45 | .11 | 7.90 | .01 | 234.57 | 4.75 | 366.65 |
| 8940.00 | 1500.00 | 0.00 | 0.00 | 664.80 | 325.00 | 666.13 | .14 | 8.48 | .00 | 99.06 | 1.33 | 240.89 |
| 8940.00 | 1500.00 | 0.00 | 0.00 | 664.80 | 465.00 | 666.36 | .15 | 8.41 | .01 | 126.16 | 1.56 | 256.92 |
| 8940.00 | 1500.00 | 0.00 | 0.00 | 664.80 | 530.00 | 666.45 | .16 | 8.39 | .01 | 138.32 | 1.65 | 263.33 |
| 8940.00 | 1500.00 | 0.00 | 0.00 | 664.80 | 750.00 | 666.72 | .18 | 8.32 | .02 | 177.71 | 1.92 | 282.27 |
| 10440.00 | 1500.00 | 0.00 | 0.00 | 671.00 | 265.00 | 674.38 | .13 | 8.23 | .00 | 195.88 | 3.38 | 78.13 |
| 10440.00 | 1500.00 | 0.00 | 0.00 | 671.00 | 375.00 | 674.75 | .16 | 8.39 | .00 | 261.31 | 3.75 | 96.69 |
| 10440.00 | 1500.00 | 0.00 | 0.00 | 671.00 | 435.00 | 674.92 | .17 | 8.47 | .00 | 294.57 | 3.92 | 104.98 |
| 10440.00 | 1500.00 | 0.00 | 0.00 | 671.00 | 610.00 | 675.34 | .20 | 8.63 | .00 | 382.23 | 4.34 | 126.38 |

| SECTION NUMBER | DISCHARGE CFS | CWSEL | CWSEL DIFF EACH U | CWSEL DIFF EACH SECTION | CWSEL-WSELK | TOPWID | T.W. DIFF | LENGTH |
|---|---|---|---|---|---|---|---|---|
| 10.000 | 455.000 | 629.480 | 0.000 | 0.000 | 0.000 | 345.017 | 0.000 | 160.000 |
| 10.000 | 660.000 | 629.830 | .350 | 0.000 | 0.000 | 355.102 | -10.085 | 160.000 |
| 10.000 | 750.000 | 629.980 | .150 | 0.000 | 0.000 | 359.424 | -14.407 | 160.000 |
| 10.000 | 1050.000 | 630.480 | .500 | 0.000 | 0.000 | 373.830 | -28.813 | 160.000 |
| 200.000 | 455.000 | 629.485 | 0.000 | .005 | 0.000 | 342.273 | 0.000 | 190.000 |
| 200.000 | 660.000 | 629.837 | .352 | .007 | 0.000 | 352.417 | -10.145 | 190.000 |
| 200.000 | 740.000 | 629.988 | .151 | .008 | 0.000 | 356.761 | -14.488 | 190.000 |
| 200.000 | 1050.000 | 630.489 | .502 | .009 | 0.000 | 371.217 | -28.944 | 190.000 |
| 640.000 | 380.000 | 629.497 | 0.000 | .012 | 0.000 | 336.840 | 0.000 | 440.000 |
| 640.000 | 550.000 | 629.855 | .357 | .018 | 0.000 | 347.126 | -10.286 | 440.000 |
| 640.000 | 620.000 | 630.007 | .152 | .019 | 0.000 | 351.512 | -14.672 | 440.000 |
| 640.000 | 880.000 | 630.514 | .507 | .024 | 0.000 | 366.088 | -29.248 | 440.000 |
| 740.000 | 380.000 | 629.500 | 0.000 | .002 | 0.000 | 314.281 | 0.000 | 100.000 |
| 740.000 | 550.000 | 629.858 | .358 | .003 | 0.000 | 329.946 | -15.665 | 100.000 |
| 740.000 | 620.000 | 630.010 | .152 | .003 | 0.000 | 334.340 | -20.059 | 100.000 |
| 740.000 | 880.000 | 630.517 | .507 | .004 | 0.000 | 348.944 | -34.663 | 100.000 |
| 840.000 | 380.000 | 629.506 | 0.000 | .006 | 0.000 | 286.804 | 0.000 | 100.000 |
| 840.000 | 550.000 | 629.865 | .359 | .007 | 0.000 | 306.711 | -19.908 | 100.000 |
| 840.000 | 620.000 | 630.018 | .152 | .007 | 0.000 | 315.177 | -28.373 | 100.000 |
| 840.000 | 880.000 | 630.525 | .508 | .008 | 0.000 | 334.721 | -47.917 | 100.000 |
| 890.000 | 380.000 | 629.511 | 0.000 | .006 | 0.000 | 270.434 | 0.000 | 50.000 |
| 890.000 | 550.000 | 629.871 | .360 | .006 | 0.000 | 290.391 | -19.957 | 50.000 |
| 890.000 | 620.000 | 630.024 | .152 | .006 | 0.000 | 298.863 | -28.428 | 50.000 |
| 890.000 | 880.000 | 630.531 | .507 | .006 | 0.000 | 326.244 | -55.809 | 50.000 |
| 940.000 | 380.000 | 629.522 | 0.000 | .011 | 0.000 | 259.833 | 0.000 | 50.000 |
| 940.000 | 550.000 | 629.883 | .361 | .011 | 0.000 | 279.839 | -20.007 | 50.000 |
| 940.000 | 620.000 | 630.035 | .152 | .011 | 0.000 | 288.308 | -28.475 | 50.000 |
| 940.000 | 880.000 | 630.541 | .506 | .010 | 0.000 | 316.430 | -56.598 | 50.000 |
| 1040.000 | 380.000 | 629.559 | 0.000 | .038 | 0.000 | 236.237 | 0.000 | 100.000 |
| 1040.000 | 550.000 | 629.920 | .361 | .037 | 0.000 | 254.103 | -17.866 | 100.000 |
| 1040.000 | 620.000 | 630.070 | .150 | .035 | 0.000 | 262.479 | -26.242 | 100.000 |
| 1040.000 | 880.000 | 630.571 | .501 | .030 | 0.000 | 290.137 | -53.90 | 100.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1140.000 | 380.000 | 629.671 | 0.000 | .112 | 0.000 | 220.757 | 0.000 | 100.000 |
| 1140.000 | 550.000 | 630.021 | .350 | .101 | 0.000 | 235.003 | -14.246 | 100.000 |
| 1140.000 | 620.000 | 630.162 | .141 | .091 | 0.000 | 240.750 | -19.992 | 100.000 |
| 1140.000 | 880.000 | 630.638 | .477 | .067 | 0.000 | 266.602 | -45.844 | 100.000 |
| 1240.000 | 380.000 | 630.073 | 0.000 | .402 | 0.000 | 216.670 | 0.000 | 100.000 |
| 1240.000 | 550.000 | 630.298 | .224 | .277 | 0.000 | 225.826 | -9.156 | 100.000 |
| 1240.000 | 620.000 | 630.401 | .104 | .240 | 0.000 | 230.274 | -13.604 | 100.000 |
| 1240.000 | 880.000 | 630.794 | .393 | .156 | 0.000 | 247.556 | -30.886 | 100.000 |
| 1340.000 | 380.000 | 630.652 | 0.000 | .579 | 0.000 | 220.040 | 0.000 | 100.000 |
| 1340.000 | 550.000 | 630.803 | .151 | .506 | 0.000 | 226.102 | -6.062 | 100.000 |
| 1340.000 | 620.000 | 630.861 | .058 | .460 | 0.000 | 228.700 | -8.660 | 100.000 |
| 1340.000 | 880.000 | 631.125 | .264 | .331 | 0.000 | 239.364 | -19.324 | 100.000 |
| 1440.000 | 380.000 | 631.078 | 0.000 | .425 | 0.000 | 216.864 | 0.000 | 100.000 |
| 1440.000 | 550.000 | 631.296 | .218 | .493 | 0.000 | 226.004 | -9.140 | 100.000 |
| 1440.000 | 620.000 | 631.367 | .071 | .506 | 0.000 | 228.699 | -11.836 | 100.000 |
| 1440.000 | 880.000 | 631.600 | .233 | .475 | 0.000 | 238.247 | -21.383 | 100.000 |
| 1540.000 | 380.000 | 631.673 | 0.000 | .595 | 0.000 | 216.660 | 0.000 | 100.000 |
| 1540.000 | 550.000 | 631.828 | .155 | .532 | 0.000 | 222.993 | -6.333 | 100.000 |
| 1540.000 | 620.000 | 631.899 | .071 | .531 | 0.000 | 225.901 | -9.241 | 100.000 |
| 1540.000 | 880.000 | 632.128 | .230 | .528 | 0.000 | 235.292 | -18.633 | 100.000 |
| 1585.000 | 380.000 | 631.951 | 0.000 | .278 | 0.000 | 75.237 | 0.000 | 45.000 |
| 1585.000 | 550.000 | 632.034 | .083 | .207 | 0.000 | 84.447 | -9.210 | 45.000 |
| 1585.000 | 620.000 | 632.083 | .048 | .184 | 0.000 | 89.776 | -14.538 | 45.000 |
| 1585.000 | 880.000 | 632.332 | .250 | .204 | 0.000 | 117.346 | -42.109 | 45.000 |
| 1590.000 | 380.000 | 631.947 | 0.000 | -.004 | 0.000 | 74.489 | 0.000 | 5.000 |
| 1590.000 | 550.000 | 632.025 | .078 | -.009 | 0.000 | 83.167 | -8.678 | 5.000 |
| 1590.000 | 620.000 | 632.070 | .045 | -.012 | 0.000 | 88.183 | -13.693 | 5.000 |
| 1590.000 | 880.000 | 632.448 | .378 | .116 | 0.000 | 125.667 | -51.178 | 5.000 |
| 1591.000 | 380.000 | 632.253 | 0.000 | .306 | 0.000 | 108.583 | 0.000 | 1.000 |
| 1591.000 | 550.000 | 632.446 | .193 | .421 | 0.000 | 125.653 | -17.070 | 1.000 |
| 1591.000 | 620.000 | 632.531 | .085 | .461 | 0.000 | 127.146 | -18.563 | 1.000 |
| 1591.000 | 880.000 | 632.835 | .304 | .387 | 0.000 | 132.471 | -23.888 | 1.000 |
| 1595.000 | 380.000 | 632.296 | 0.000 | .043 | 0.000 | 113.316 | 0.000 | 4.000 |
| 1595.000 | 550.000 | 632.541 | .246 | .095 | 0.000 | 127.334 | -14.018 | 4.000 |
| 1595.000 | 620.000 | 632.647 | .106 | .115 | 0.000 | 129.192 | -15.876 | 4.000 |
| 1595.000 | 880.000 | 633.003 | .356 | .168 | 0.000 | 135.294 | -21.978 | 4.000 |
| 1704.000 | 380.000 | 632.437 | 0.000 | .141 | 0.000 | 29.951 | 0.000 | 109.000 |
| 1704.000 | 550.000 | 632.707 | .271 | .166 | 0.000 | 30.780 | -.829 | 109.000 |
| 1704.000 | 620.000 | 632.801 | .094 | .154 | 0.000 | 31.352 | -1.401 | 109.000 |
| 1704.000 | 880.000 | 633.504 | .703 | .501 | 0.000 | 171.017 | -141.066 | 109.000 |
| 1815.000 | 380.000 | 632.949 | 0.000 | .513 | 0.000 | 21.164 | 0.000 | 111.000 |
| 1815.000 | 550.000 | 633.526 | .577 | .819 | 0.000 | 23.223 | -2.059 | 111.000 |
| 1815.000 | 620.000 | 633.748 | .222 | .947 | 0.000 | 29.965 | -8.801 | 111.000 |
| 1815.000 | 880.000 | 634.616 | .868 | 1.112 | 0.000 | 230.436 | -209.272 | 111.000 |
| 1840.000 | 380.000 | 633.154 | 0.000 | .205 | 0.000 | 20.874 | 0.000 | 25.000 |
| 1840.000 | 550.000 | 633.801 | .647 | .275 | 0.000 | 33.177 | -12.303 | 25.000 |
| 1840.000 | 620.000 | 634.297 | .495 | .548 | 0.000 | 88.011 | -67.136 | 25.000 |
| 1840.000 | 880.000 | 634.908 | .611 | .292 | 0.000 | 254.743 | -233.869 | 25.000 |
| 1915.000 | 380.000 | 633.722 | 0.000 | .568 | 0.000 | 21.759 | 0.000 | 75.000 |
| 1915.000 | 550.000 | 634.623 | .901 | .821 | 0.000 | 96.577 | -74.818 | 75.000 |
| 1915.000 | 620.000 | 635.101 | .478 | .804 | 0.000 | 249.413 | -227.654 | 75.000 |
| 1915.000 | 880.000 | 635.552 | .451 | .644 | 0.000 | 270.990 | -249.231 | 75.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2015.000 | 38 .000 | 634.215 | 0. 0 | .93 | 0. | 21.210 | 0. 0 | 10 .0 0 |
| 2015.000 | 550.000 | 635.067 | .852 | .444 | 0.000 | 87.952 | -66.742 | 100.000 |
| 2015.000 | 620.000 | 635.353 | .287 | .253 | 0.000 | 148.464 | -127.254 | 100.000 |
| 2015.000 | 880.000 | 635.775 | .422 | .223 | 0.000 | 275.160 | -253.450 | 100.000 |
| 2478.000 | 380.000 | 636.781 | 0.000 | 2.566 | 0.000 | 78.879 | 0.000 | 463.000 |
| 2478.000 | 550.000 | 637.418 | .638 | 2.351 | 0.000 | 137.513 | -58.634 | 463.000 |
| 2478.000 | 620.000 | 637.549 | .131 | 2.196 | 0.000 | 149.142 | -70.263 | 463.000 |
| 2478.000 | 880.000 | 637.995 | .446 | 2.220 | 0.000 | 189.013 | -110.134 | 463.000 |
| 3140.000 | 380.000 | 639.743 | 0.000 | 2.962 | 0.000 | 224.481 | 0.000 | 663.000 |
| 3140.000 | 550.000 | 640.031 | .288 | 2.613 | 0.000 | 247.466 | -22.984 | 663.000 |
| 3140.000 | 620.000 | 640.160 | .129 | 2.610 | 0.000 | 256.099 | -31.618 | 663.000 |
| 3140.000 | 880.000 | 640.519 | .359 | 2.524 | 0.000 | 277.473 | -52.992 | 663.000 |
| 3263.000 | 380.000 | 640.037 | 0.000 | .294 | 0.000 | 247.610 | 0.000 | 123.000 |
| 3263.000 | 550.000 | 640.349 | .312 | .318 | 0.000 | 267.310 | -19.700 | 123.000 |
| 3263.000 | 620.000 | 640.473 | .124 | .313 | 0.000 | 274.673 | -27.063 | 123.000 |
| 3263.000 | 880.000 | 640.841 | .368 | .322 | 0.000 | 296.570 | -48.961 | 123.000 |
| 3314.000 | 380.000 | 642.477 | 0.000 | 2.440 | 0.000 | 382.053 | 0.000 | 51.000 |
| 3314.000 | 550.000 | 642.654 | .177 | 2.305 | 0.000 | 388.207 | -6.154 | 51.000 |
| 3314.000 | 620.000 | 642.717 | .063 | 2.244 | 0.000 | 390.412 | -8.359 | 51.000 |
| 3314.000 | 880.000 | 642.909 | .192 | 2.068 | 0.000 | 397.153 | -15.100 | 51.000 |
| 3414.000 | 380.000 | 642.482 | 0.000 | .004 | 0.000 | 358.357 | 0.000 | 100.000 |
| 3414.000 | 550.000 | 642.662 | .180 | .008 | 0.000 | 371.470 | -13.114 | 100.000 |
| 3414.000 | 620.000 | 642.726 | .065 | .009 | 0.000 | 376.298 | -17.942 | 100.000 |
| 3414.000 | 880.000 | 642.924 | .198 | .015 | 0.000 | 391.093 | -32.736 | 100.000 |
| 3514.000 | 365.000 | 642.489 | 0.000 | .007 | 0.000 | 336.160 | 0.000 | 100.000 |
| 3514.000 | 520.000 | 642.674 | .185 | .012 | 0.000 | 346.503 | -10.343 | 100.000 |
| 3514.000 | 590.000 | 642.741 | .067 | .015 | 0.000 | 350.235 | -14.076 | 100.000 |
| 3514.000 | 840.000 | 642.948 | .207 | .024 | 0.000 | 362.564 | -26.404 | 100.000 |
| 3614.000 | 365.000 | 642.500 | 0.000 | .011 | 0.000 | 314.119 | 0.000 | 100.000 |
| 3614.000 | 520.000 | 642.692 | .192 | .018 | 0.000 | 324.768 | -10.648 | 100.000 |
| 3614.000 | 590.000 | 642.762 | .070 | .021 | 0.000 | 328.645 | -14.526 | 100.000 |
| 3614.000 | 840.000 | 642.982 | .220 | .034 | 0.000 | 341.125 | -27.006 | 100.000 |
| 3714.000 | 365.000 | 642.519 | 0.000 | .019 | 0.000 | 292.648 | 0.000 | 100.000 |
| 3714.000 | 520.000 | 642.721 | .202 | .029 | 0.000 | 303.878 | -11.230 | 100.000 |
| 3714.000 | 590.000 | 642.797 | .075 | .034 | 0.000 | 308.042 | -15.394 | 100.000 |
| 3714.000 | 840.000 | 643.034 | .237 | .052 | 0.000 | 321.910 | -29.262 | 100.000 |
| 4064.000 | 365.000 | 642.702 | 0.000 | .183 | 0.000 | 206.336 | 0.000 | 350.000 |
| 4064.000 | 520.000 | 642.999 | .297 | .278 | 0.000 | 229.470 | -23.134 | 350.000 |
| 4064.000 | 590.000 | 643.114 | .115 | .317 | 0.000 | 238.420 | -32.084 | 350.000 |
| 4064.000 | 840.000 | 643.467 | .353 | .433 | 0.000 | 262.119 | -55.783 | 350.000 |
| 4190.000 | 365.000 | 643.019 | 0.000 | .317 | 0.000 | 311.638 | 0.000 | 126.000 |
| 4190.000 | 520.000 | 643.311 | .291 | .312 | 0.000 | 346.333 | -34.695 | 126.000 |
| 4190.000 | 590.000 | 643.426 | .115 | .312 | 0.000 | 363.361 | -51.723 | 126.000 |
| 4190.000 | 840.000 | 643.780 | .354 | .314 | 0.000 | 415.689 | -104.051 | 126.000 |
| 4240.000 | 365.000 | 643.053 | 0.000 | .034 | 0.000 | 295.882 | 0.000 | 50.000 |
| 4240.000 | 520.000 | 643.346 | .293 | .035 | 0.000 | 324.529 | -28.647 | 50.000 |
| 4240.000 | 590.000 | 643.462 | .116 | .036 | 0.000 | 339.128 | -43.246 | 50.000 |
| 4240.000 | 840.000 | 643.817 | .356 | .037 | 0.000 | 391.610 | -95.728 | 50.000 |
| 4290.000 | 365.000 | 643.105 | 0.000 | .051 | 0.000 | 283.792 | 0.000 | 50.000 |
| 4290.000 | 520.000 | 643.397 | .292 | .051 | 0.000 | 308.377 | -24.585 | 50.000 |
| 4290.000 | 590.000 | 643.512 | .115 | .050 | 0.000 | 320.140 | -36.348 | 50.000 |
| 4290.000 | 840.000 | 643.867 | .355 | .050 | 0.000 | 368.241 | -84.450 | 50.000 |
| [illegible] | 365.000 | 643.181 | 0.000 | .077 | 0.000 | 274.551 | 0.000 | 50.000 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 4340.000 | 520.000 | 643.471 | .287 | .077 | .0 | 297.201 | -22.889 | 50.000 |
| 4340.000 | 590.000 | 643.584 | .113 | .072 | 0.000 | 308.070 | -33.518 | 50.000 |
| 4340.000 | 840.000 | 643.934 | .350 | .067 | 0.000 | 348.433 | -73.882 | 50.000 |
| 4390.000 | 365.000 | 643.289 | 0.000 | .107 | 0.000 | 266.543 | 0.000 | 50.000 |
| 4390.000 | 520.000 | 643.569 | .281 | .099 | 0.000 | 288.678 | -22.135 | 50.000 |
| 4390.000 | 590.000 | 643.679 | .110 | .095 | 0.000 | 297.334 | -30.791 | 50.000 |
| 4390.000 | 840.000 | 644.022 | .343 | .088 | 0.000 | 333.305 | -66.762 | 50.000 |
| 4440.000 | 365.000 | 643.433 | 0.000 | .145 | 0.000 | 262.929 | 0.000 | 50.000 |
| 4440.000 | 520.000 | 643.699 | .266 | .129 | 0.000 | 283.770 | -20.842 | 50.000 |
| 4440.000 | 590.000 | 643.805 | .106 | .125 | 0.000 | 292.066 | -29.137 | 50.000 |
| 4440.000 | 840.000 | 644.132 | .328 | .110 | 0.000 | 322.404 | -59.476 | 50.000 |
| 4490.000 | 365.000 | 643.600 | 0.000 | .167 | 0.000 | 259.822 | 0.000 | 50.000 |
| 4490.000 | 520.000 | 643.852 | .252 | .153 | 0.000 | 279.502 | -19.679 | 50.000 |
| 4490.000 | 590.000 | 643.953 | .101 | .148 | 0.000 | 287.431 | -27.609 | 50.000 |
| 4490.000 | 840.000 | 644.267 | .314 | .135 | 0.000 | 316.535 | -56.712 | 50.000 |
| 4515.000 | 365.000 | 643.679 | 0.000 | .079 | 0.000 | 251.049 | 0.000 | 25.000 |
| 4515.000 | 520.000 | 643.930 | .251 | .078 | 0.000 | 270.164 | -19.115 | 25.000 |
| 4515.000 | 590.000 | 644.030 | .100 | .077 | 0.000 | 277.897 | -26.849 | 25.000 |
| 4515.000 | 840.000 | 644.338 | .308 | .070 | 0.000 | 303.417 | -52.368 | 25.000 |
| 4540.000 | 365.000 | 643.871 | 0.000 | .192 | 0.000 | 257.871 | 0.000 | 25.000 |
| 4540.000 | 520.000 | 644.078 | .207 | .148 | 0.000 | 274.469 | -16.598 | 25.000 |
| 4540.000 | 590.000 | 644.166 | .087 | .135 | 0.000 | 281.243 | -23.372 | 25.000 |
| 4540.000 | 840.000 | 644.442 | .276 | .104 | 0.000 | 303.071 | -45.199 | 25.000 |
| 5740.000 | 365.000 | 649.784 | 0.000 | 5.913 | 0.000 | 143.251 | 0.000 | 1200.000 |
| 5740.000 | 520.000 | 650.041 | .257 | 5.963 | 0.000 | 167.715 | -24.465 | 1200.000 |
| 5740.000 | 590.000 | 650.137 | .096 | 5.972 | 0.000 | 176.891 | -33.640 | 1200.000 |
| 5740.000 | 840.000 | 650.428 | .291 | 5.986 | 0.000 | 204.704 | -61.453 | 1200.000 |
| 7440.000 | 325.000 | 657.662 | 0.000 | 7.878 | 0.000 | 299.547 | 0.000 | 1700.000 |
| 7440.000 | 465.000 | 657.968 | .306 | 7.927 | 0.000 | 336.992 | -37.446 | 1700.000 |
| 7440.000 | 530.000 | 658.090 | .122 | 7.953 | 0.000 | 344.515 | -44.969 | 1700.000 |
| 7440.000 | 750.000 | 658.452 | .362 | 8.024 | 0.000 | 366.652 | -67.105 | 1700.000 |
| 8940.000 | 325.000 | 666.133 | 0.000 | 8.471 | 0.000 | 240.892 | 0.000 | 1500.000 |
| 8940.000 | 465.000 | 666.361 | .228 | 8.393 | 0.000 | 256.922 | -16.030 | 1500.000 |
| 8940.000 | 530.000 | 666.452 | .091 | 8.362 | 0.000 | 263.331 | -22.439 | 1500.000 |
| 8940.000 | 750.000 | 666.723 | .270 | 8.270 | 0.000 | 282.273 | -41.381 | 1500.000 |
| 10440.000 | 265.000 | 674.380 | 0.000 | 8.246 | 0.000 | 78.127 | 0.000 | 1500.000 |
| 10440.000 | 375.000 | 674.752 | .372 | 8.391 | 0.000 | 96.693 | -18.566 | 1500.000 |
| 10440.000 | 435.000 | 674.917 | .165 | 8.465 | 0.000 | 104.983 | -26.856 | 1500.000 |
| 10440.000 | 610.000 | 675.344 | .427 | 8.621 | 0.000 | 126.376 | -48.249 | 1500.000 |

DATA FOR LAST CROSS SECTION

| PROFILE | TYPE ENC | TARGET | TOP WIDTH AREA-ACRES | TOP WIDTH AREA-DIFF |
|---|---|---|---|---|
| 1 | 0.000 | 0.000 | 50.632 | 0.000 |
| 2 | 0.000 | 0.000 | 56.371 | 5.739 |
| 3 | 0.000 | 0.000 | 58.797 | 8.166 |
| 4 | 0.000 | 0.000 | 65.577 | 14.945 |

CITY OF STERLING HEIGHTS
PLUM BROOK
PROJECT MANAGER

FLOOD INSURANCE STUDY
J@A JOB NUMBER 5670-10
WILLIAM ROSSOW

PLUM BROOK ABOVE GIBSON DRAIN

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 10 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND<br>SEE TEXT FOR STARTING WATER SURFACE<br>ELEVATIONS |
| | 200 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| AL | 640 | VALLEY SECTION AL<br>INVERT READJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| | 740 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 840 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 890 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 940 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1040 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1140 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1240 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1340 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1440 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1540 | VALLEY SECTION AL<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |

| | | |
|---|---|---|
| | 1585 | BRIDGE SECTION AM<br>GROUND POINTS RELOCATED |
| | 1590 | BRIDGE SECTION AM<br>DOWNSTREAM FACE |
| AM | 1591 | BRIDGE SECTION AM<br>UPSTREAM FACE |
| | 1595 | BRIDGE SECTION AM<br>GROUND POINTS RELOCATED |
| | 1704 | AVSEC DEVELOPED FROM GROUND POINTS OF<br>BRIDGE SECTION AM AND VALLEY SECTION AN |
| AN | 1815 | VALLEY SECTION AN |
| | 1840 | AVSEC DEVELOPED FROM VALLEY SECTION AN<br>AND VALLEY SECTION AO<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED |
| | 1915 | AVSEC DEVELOPED FROM VALLEY SECTION AN<br>AND VALLEY SECTION AO<br>INVERT READJUSTED |
| | 2015 | AVSEC DEVELOPED FROM VALLEY SECTION AN<br>AND VALLEY SECTION AO |
| | 2478 | AVSEC DEVELOPED FROM VALLEY SECTION AN<br>AND VALLEY SECTION AO |
| AO | 3140 | VALLEY SECTION AO<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| | 3263 | BRIDGE SECTION AP<br>19 MILE ROAD DOWNSTREAM FACE<br>ENCROACHMENTS USED TO ELIMINATE NON<br>EFFECTIVE FLOW AREA |
| AP | 3314 | BRIDGE SECTION AP<br>19 MILE ROAD UPSTREAM FACE<br>ENCROACHMENTS USED TO ELIMINATE NON<br>EFFECTIVE FLOW AREA |
| | 3414 | VALLEY SECTION AO<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| | 3514 | VALLEY SECTION AO<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| | 3614 | VALLEY SECTION AO<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |
| | 3714 | VALLEY SECTION AO<br>GROUND POINTS RELOCATED<br>INVERT ADJUSTED<br>ENCROACHMENTS USED TO DEFINE HIGH GROUND |

| | | |
|---|---|---|
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4190 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4240 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4290 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4340 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4390 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4440 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4490 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| | 4515 | VALLEY SECTION AQ |
| | | GROUND POINTS RELOCATED |
| | | INVERT ADJUSTED |
| AQ | 4540 | VALLEY SECTION AQ |
| | | INVERT READJUSTED |
| AR | 5740 | VALLEY SECTION AR |
| AS | 7440 | VALLEY SECTION AS |
| AT | 8940 | VALLEY SECTION AT |
| AU | 10440 | VALLEY SECTION AU |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Plum Brook Drain

4) DOCUMENT TYPE: Revised 10, 50, 100, 500 year flood Above Gibson Drain

00BREAK00

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 %$$$$$   $$$$$$$$  $$    $$  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$$
$$    $$     $$     $$    $$     $$     $$    $   $$    $$  $$    $$
$$           $$     $$    $$     $$     $$   $$$         $$  $$    $$
 $$$$$$      $$     $$$$$$$$     $$     $$  $ $$     $$$$   $$    $$
      $$     $$     $$    $$     $$     $$ $$ $$         $$  $$    $$
      $$     $$     $$    $$     $$     $$ $  $$         $$  $$$$$$$
      $$     $$     $$    $$     $$     $$$   $$         $$  $$  $$
$$    $$     $$     $$    $$  $$ $$      $    $$  $$    $$  $$   $$
 $$$$$$       $$     $$    $$   $$$      $ $$$$$    $$$$$$   $$    $$
-5THJ03R--JA-DA              12/01/77  13.29.58  7600   J0
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PLUM BROOK ABOVE GIBSON DAM

Dec 77

Revised

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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C
1       CITY OF STERLING HEIGHTS   5670-10   PROJECT MANAGER   WILLIAM ROSSOW
T2       10 YEAR FLOOD
T3       PLUM BROOK ABOVE GIBSON DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        2.        0.        0.  0.000000     0.00       0.0        0.   629.480     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      1.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J3      1.000    10.000    11.000    12.000    14.000     8.000     4.000     0.000     0.000     0.000
QT      4.000   455.000   660.000   750.000  1050.000     0.000     0.000     0.000     0.000     0.000
NC       .030      .030      .040      .300      .500     0.000     0.000     0.000     0.000     0.000
NH      3.000      .030   400.000      .040   419.000      .030  1100.000     0.000     0.000     0.000

X1    -10.000    18.000   400.000   419.000   100.000   300.000   160.000     0.000     -.300     0.000
X3      0.000     0.000     0.000   300.000     0.000   770.000     0.000     0.000     0.000     0.000
GR    635.200     0.000   634.800   100.000   634.200   200.000   633.500   300.000   627.600   400.000
GR    623.500   410.000   622.500   411.000   621.800   413.000   622.200   414.000   626.300   419.000
GR    626.800   500.000   626.500   600.000   629.100   700.000   635.000   770.000   635.100   800.000
GR    634.800   900.000   634.600  1000.000   634.100  1100.000     0.000     0.000     0.000     0.000
QT      4.000   455.000   660.000   740.000  1050.000     0.000     0.000     0.000     0.000     0.000

X1    200.000     0.000     0.000     0.000   180.000   185.000   190.000     0.000      .100     0.000
X3      0.000     0.000     0.000   300.000     0.000   770.000     0.000     0.000     0.000     0.000
QT      4.000   380.000   550.000   620.000   880.000     0.000     0.000     0.000     0.000     0.000

X1    640.000     0.000     0.000     0.000   400.000   420.000   440.000     0.000      .200     0.000
X3      0.000     0.000     0.000   300.000     0.000   770.000     0.000     0.000     0.000     0.000

X1    740.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .600     0.000

X1    840.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1    890.000     0.000     0.000     0.000    50.000    50.000    50.000     0.000      .300     0.000

X1    940.000     0.000     0.000     0.000    50.000    50.000    50.000     0.000      .200     0.000

X1   1040.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1   1140.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1   1240.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1   1340.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1   1440.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .500     0.000

X1   1540.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000      .600     0.000
NH      3.000      .030   288.000      .040   328.000      .030   600.000     0.000     0.000     0.000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 1585.000 | 19.000 | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| GR | 638.600 | 0.000 | 638.100 | 100.000 | 634.700 | 200.000 | 633.100 | 288.000 | 630.200 | 290.000 |
| GR | 628.000 | 298.000 | 626.900 | 299.000 | 627.400 | 300.000 | 628.100 | 302.000 | 629.900 | 320.000 |
| GR | 632.400 | 328.000 | 631.600 | 400.000 | 637.600 | 500.000 | 637.700 | 600.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 288.000 | .030 | 328.000 | .030 | 600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1590.000 | 16.000 | 288.000 | 328.000 | 5.000 | 5.000 | 5.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.600 | 0.000 | 638.100 | 100.000 | 634.700 | 200.000 | 633.100 | 288.000 | 630.300 | 290.000 |
| GR | 627.400 | 300.000 | 629.300 | 300.000 | 627.400 | 300.000 | 628.100 | 302.000 | 629.300 | 302.000 |
| GR | 628.100 | 302.000 | 630.300 | 320.000 | 632.400 | 328.000 | 631.600 | 400.000 | 637.600 | 500.000 |
| GR | 637.700 | 600.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| SB | 0.000 | 1.220 | 3.090 | 0.000 | 2.000 | 0.000 | 4.000 | 0.000 | 627.400 | 627.400 |
| X1 | 1591.000 | 0.000 | 0.000 | 0.000 | 1.000 | 1.000 | 1.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 629.300 | 630.300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 12.000 | 0.000 | 638.600 | 0.000 | 100.000 | 638.100 | 0.000 | 200.000 | 634.700 | 0.000 |
| BT | 288.000 | 633.100 | 0.000 | 290.000 | 630.300 | 0.000 | 300.000 | 630.300 | 629.300 | 302.000 |
| BT | 630.300 | 629.300 | 320.000 | 630.300 | 0.000 | 328.000 | 632.400 | 0.000 | 400.000 | 631.600 |
| BT | 0.000 | 500.000 | 637.600 | 0.000 | 600.000 | 637.700 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .030 | 288.000 | .040 | 328.000 | .030 | 600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1595.000 | 14.000 | 288.000 | 328.000 | 4.000 | 4.000 | 4.000 | 0.000 | 0.000 | 0.000 |
| GR | 638.600 | 0.000 | 638.100 | 100.000 | 634.700 | 200.000 | 633.100 | 288.000 | 630.200 | 290.000 |
| GR | 628.000 | 298.000 | 626.900 | 299.000 | 627.400 | 300.000 | 628.100 | 302.000 | 629.900 | 320.000 |
| GR | 632.400 | 328.000 | 631.600 | 400.000 | 637.600 | 500.000 | 637.700 | 600.000 | 0.000 | 0.000 |
| NH | 3.000 | .045 | 494.000 | .040 | 526.000 | .045 | 950.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1704.000 | 90.000 | 494.500 | 526.000 | 109.000 | 109.000 | 109.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.900 | 0.000 | 637.800 | 17.000 | 637.700 | 34.000 | 637.700 | 51.100 | 637.600 | 68.100 |
| GR | 637.700 | 65.100 | 637.800 | 102.200 | 638.000 | 119.200 | 638.100 | 136.200 | 638.200 | 153.300 |
| GR | 638.200 | 170.300 | 638.000 | 187.300 | 637.900 | 204.400 | 637.800 | 221.400 | 637.600 | 238.400 |
| GR | 637.400 | 255.500 | 637.200 | 272.500 | 637.100 | 289.500 | 636.900 | 306.600 | 636.700 | 323.600 |
| GR | 636.400 | 340.600 | 636.300 | 357.700 | 636.200 | 374.700 | 636.100 | 391.700 | 636.000 | 408.800 |
| GR | 635.800 | 425.800 | 635.200 | 442.800 | 634.600 | 459.900 | 634.000 | 476.900 | 633.400 | 494.000 |
| GR | 632.200 | 495.000 | 631.500 | 496.100 | 631.100 | 497.100 | 630.700 | 498.200 | 630.300 | 499.300 |
| GR | 629.900 | 500.300 | 629.500 | 501.400 | 628.900 | 502.500 | 628.700 | 503.500 | 628.700 | 504.600 |
| GR | 628.700 | 505.700 | 628.600 | 506.700 | 628.500 | 507.800 | 628.500 | 508.900 | 628.600 | 509.900 |
| GR | 628.600 | 511.000 | 628.600 | 512.100 | 628.700 | 513.100 | 628.800 | 514.200 | 628.900 | 515.300 |
| GR | 629.300 | 516.300 | 629.600 | 517.400 | 629.900 | 518.500 | 630.200 | 519.500 | 630.700 | 520.600 |
| GR | 631.100 | 521.700 | 631.600 | 522.700 | 632.100 | 523.800 | 632.500 | 524.900 | 633.000 | 526.000 |
| GR | 633.000 | 540.100 | 633.100 | 554.200 | 633.100 | 568.400 | 633.100 | 582.500 | 633.000 | 596.600 |
| GR | 632.900 | 610.700 | 632.900 | 624.900 | 632.800 | 639.000 | 633.000 | 653.100 | 633.800 | 667.300 |
| GR | 634.600 | 681.400 | 635.400 | 695.500 | 636.200 | 709.700 | 637.000 | 723.800 | 637.500 | 737.900 |
| GR | 637.800 | 752.100 | 638.000 | 766.200 | 638.300 | 780.300 | 638.600 | 794.500 | 638.600 | 808.600 |
| GR | 638.600 | 822.700 | 638.700 | 836.900 | 638.700 | 851.000 | 638.700 | 865.100 | 638.700 | 879.300 |
| GR | 638.700 | 893.400 | 638.800 | 907.500 | 638.800 | 921.700 | 638.800 | 935.800 | 638.800 | 950.000 |
| NH | 5.000 | .030 | 700.000 | .070 | 710.000 | .044 | 716.000 | .070 | 724.000 | .030 |
| NH | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 1815.000 | 18.000 | 700.000 | 724.000 | 111.000 | 111.000 | 111.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.200 | 0.000 | 636.900 | 100.000 | 638.200 | 200.000 | 638.500 | 300.000 | 638.500 | 400.000 |
| GR | 638.200 | 500.000 | 638.000 | 600.000 | 633.800 | 700.000 | 628.700 | 710.000 | 628.400 | 714.000 |
| GR | 628.600 | 716.000 | 633.700 | 724.000 | 634.300 | 800.000 | 634.000 | 900.000 | 639.600 | 1000.000 |
| GR | 639.700 | 1100.000 | 639.900 | 1200.000 | 640.000 | 1300.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 699.200 | .040 | 722.100 | .050 | 1345.300 | 0.000 | 0.000 | 0.000 |
| X1 | 1840.000 | 90.000 | 699.200 | 722.100 | 25.000 | 25.000 | 25.000 | 0.000 | -.300 | 0.000 |
| GR | 637.500 | 0.000 | 637.400 | 24.100 | 637.300 | 48.200 | 637.300 | 72.300 | 637.200 | 96.400 |
| GR | 637.500 | 120.500 | 637.800 | 144.600 | 638.000 | 168.700 | 638.300 | 192.800 | 638.500 | 217.000 |
| GR | 638.500 | 241.100 | 638.600 | 265.200 | 638.700 | 289.300 | 638.800 | 313.400 | 638.800 | 337.500 |
| GR | 638.800 | 361.600 | 638.800 | 385.700 | 638.700 | 409.900 | 638.600 | 434.000 | 638.500 | 458.100 |
| GR | 638.400 | 482.200 | 638.300 | 506.300 | 638.200 | 530.400 | 638.100 | 554.500 | 638.000 | 578.600 |
| GR | 637.800 | 602.700 | 636.900 | 626.900 | 636.000 | 651.000 | 635.000 | 675.100 | 634.100 | 699.200 |
| GR | 633.700 | 700.000 | 633.300 | 700.700 | 632.900 | 701.500 | 632.500 | 702.300 | 632.100 | 703.000 |
| GR | 631.700 | 703.800 | 631.300 | 704.500 | 630.900 | 705.300 | 630.500 | 706.100 | 630.100 | 706.800 |
| GR | 629.700 | 707.600 | 629.400 | 708.400 | 629.200 | 709.100 | 629.100 | 709.900 | 629.000 | 710.700 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 629.000 | 711.[illegible] | 62[illegible].900 | 712.20 | 62[illegible].700 | 713.[illegible] | 62[illegible].00 | 713.700 | 62[illegible].100 | 71[illegible].50 |
| GR | 629.600 | 715.300 | 630.100 | 716.000 | 630.500 | 716.800 | 631.000 | 717.500 | 631.500 | 718.300 |
| GR | 632.000 | 719.100 | 632.500 | 719.800 | 633.000 | 720.600 | 633.500 | 721.400 | 634.000 | 722.100 |
| GR | 634.200 | 742.900 | 634.500 | 763.700 | 634.700 | 784.400 | 634.900 | 805.200 | 634.900 | 826.000 |
| GR | 634.800 | 846.800 | 634.800 | 867.500 | 634.700 | 888.300 | 634.600 | 909.100 | 635.400 | 929.800 |
| GR | 636.400 | 950.600 | 637.400 | 971.400 | 638.500 | 992.200 | 639.500 | 1012.900 | 639.900 | 1033.700 |
| GR | 639.900 | 1054.500 | 640.000 | 1075.200 | 640.000 | 1096.000 | 640.000 | 1116.800 | 640.100 | 1137.500 |
| GR | 640.100 | 1158.300 | 640.200 | 1179.100 | 640.200 | 1199.900 | 640.200 | 1220.600 | 640.300 | 1241.400 |
| GR | 640.300 | 1262.200 | 640.300 | 1282.900 | 640.400 | 1303.700 | 640.400 | 1324.500 | 640.400 | 1345.300 |
| X1 | 1915.000 | 0.000 | 0.000 | 0.000 | 75.000 | 75.000 | 75.000 | 0.000 | .300 | 0.000 |
| NH | 3.000 | .055 | 698.400 | .040 | 720.300 | .045 | 1390.600 | 0.000 | 0.000 | 0.000 |
| X1 | 2015.000 | 90.000 | 698.400 | 720.300 | 100.000 | 100.000 | 100.000 | 0.000 | 0.000 | 0.000 |
| GR | 637.800 | 0.000 | 637.700 | 24.000 | 637.700 | 48.100 | 637.600 | 72.200 | 637.600 | 96.300 |
| GR | 637.800 | 120.400 | 638.100 | 144.500 | 638.300 | 168.600 | 638.600 | 192.600 | 638.700 | 216.700 |
| GR | 638.800 | 240.800 | 638.900 | 264.900 | 639.000 | 289.000 | 639.100 | 313.100 | 639.100 | 337.200 |
| GR | 639.100 | 361.200 | 639.100 | 385.300 | 639.100 | 409.400 | 638.900 | 433.500 | 638.700 | 457.600 |
| GR | 638.600 | 481.700 | 638.400 | 505.800 | 638.300 | 529.800 | 638.200 | 553.900 | 638.100 | 578.000 |
| GR | 637.800 | 602.100 | 637.000 | 626.200 | 636.200 | 650.300 | 635.300 | 674.400 | 634.500 | 698.400 |
| GR | 634.100 | 699.200 | 633.700 | 699.900 | 633.300 | 700.600 | 632.900 | 701.400 | 632.500 | 702.100 |
| GR | 632.100 | 702.800 | 631.700 | 703.500 | 631.300 | 704.300 | 630.900 | 705.000 | 630.600 | 705.700 |
| GR | 630.200 | 706.500 | 629.900 | 707.200 | 629.700 | 707.900 | 629.600 | 708.700 | 629.500 | 709.400 |
| GR | 629.500 | 710.100 | 629.500 | 710.800 | 629.500 | 711.600 | 629.600 | 712.300 | 629.600 | 713.000 |
| GR | 630.100 | 713.800 | 630.600 | 714.500 | 631.000 | 715.200 | 631.500 | 715.900 | 632.000 | 716.700 |
| GR | 632.400 | 717.400 | 632.900 | 718.100 | 633.400 | 718.900 | 633.800 | 719.600 | 634.300 | 720.300 |
| GR | 634.700 | 742.700 | 635.000 | 765.000 | 635.400 | 787.300 | 635.600 | 809.700 | 635.700 | 832.000 |
| GR | 635.600 | 854.400 | 635.400 | 876.700 | 635.300 | 899.100 | 635.300 | 921.400 | 636.000 | 943.700 |
| GR | 636.900 | 966.100 | 637.900 | 988.400 | 638.900 | 1010.800 | 639.800 | 1033.100 | 640.200 | 1055.400 |
| GR | 640.300 | 1077.800 | 640.300 | 1100.100 | 640.400 | 1122.500 | 640.400 | 1144.800 | 640.400 | 1167.100 |
| GR | 640.500 | 1189.500 | 640.600 | 1211.800 | 640.600 | 1234.200 | 640.600 | 1256.500 | 640.700 | 1278.800 |
| GR | 640.700 | 1301.200 | 640.700 | 1323.500 | 640.800 | 1345.900 | 640.800 | 1368.200 | 640.900 | 1390.600 |
| NH | 3.000 | .045 | 695.000 | .040 | 712.000 | .045 | 1600.000 | 0.000 | 0.000 | 0.000 |
| X1 | 2478.000 | 90.000 | 695.000 | 712.000 | 463.000 | 463.000 | 463.000 | 0.000 | 0.000 | 0.000 |
| GR | 639.300 | 0.000 | 639.300 | 23.900 | 639.300 | 47.900 | 639.300 | 71.800 | 639.300 | 95.800 |
| GR | 639.500 | 119.800 | 639.600 | 143.700 | 639.700 | 167.700 | 639.800 | 191.700 | 640.000 | 215.600 |
| GR | 640.100 | 239.600 | 640.300 | 263.600 | 640.500 | 287.500 | 640.600 | 311.500 | 640.600 | 335.500 |
| GR | 640.700 | 359.400 | 640.700 | 383.400 | 640.600 | 407.400 | 640.200 | 431.300 | 639.900 | 455.300 |
| GR | 639.500 | 479.300 | 639.100 | 503.200 | 638.800 | 527.200 | 638.600 | 551.200 | 638.300 | 575.100 |
| GR | 638.000 | 599.100 | 637.500 | 623.100 | 637.100 | 647.000 | 636.700 | 671.000 | 636.300 | 695.000 |
| GR | 635.900 | 695.500 | 635.500 | 696.100 | 635.200 | 696.600 | 634.800 | 697.200 | 634.500 | 697.800 |
| GR | 634.100 | 698.300 | 633.700 | 698.900 | 633.400 | 699.500 | 633.000 | 700.000 | 632.800 | 700.600 |
| GR | 632.500 | 701.200 | 632.300 | 701.700 | 632.200 | 702.300 | 632.100 | 702.900 | 632.000 | 703.400 |
| GR | 632.000 | 704.000 | 632.000 | 704.600 | 632.100 | 705.100 | 632.100 | 705.700 | 632.200 | 706.300 |
| GR | 632.500 | 706.800 | 632.900 | 707.400 | 633.200 | 708.000 | 633.600 | 708.500 | 634.000 | 709.100 |
| GR | 634.300 | 709.700 | 634.700 | 710.200 | 635.100 | 710.800 | 635.400 | 711.400 | 635.800 | 712.000 |
| GR | 636.700 | 741.600 | 637.600 | 771.200 | 638.300 | 800.800 | 638.800 | 830.400 | 639.200 | 860.000 |
| GR | 638.900 | 889.500 | 638.600 | 919.100 | 638.400 | 948.700 | 638.300 | 978.300 | 638.600 | 1007.900 |
| GR | 639.300 | 1037.500 | 640.000 | 1067.100 | 640.700 | 1096.700 | 641.400 | 1126.300 | 641.800 | 1155.900 |
| GR | 641.900 | 1185.500 | 642.100 | 1215.100 | 642.200 | 1244.700 | 642.200 | 1274.300 | 642.300 | 1303.900 |
| GR | 642.400 | 1333.500 | 642.500 | 1363.100 | 642.500 | 1392.700 | 642.600 | 1422.300 | 642.600 | 1451.900 |
| GR | 642.700 | 1481.500 | 642.700 | 1511.100 | 642.900 | 1540.700 | 643.000 | 1570.300 | 643.200 | 1600.000 |
| NH | 3.000 | .060 | 690.000 | .040 | 700.000 | .060 | 1900.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3140.000 | 24.000 | 690.000 | 700.000 | 663.000 | 663.000 | 663.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.400 | 0.000 | 641.900 | 100.000 | 641.600 | 200.000 | 642.800 | 300.000 | 643.000 | 400.000 |
| GR | 640.100 | 500.000 | 638.200 | 600.000 | 638.800 | 690.000 | 636.000 | 693.000 | 635.600 | 695.000 |
| GR | 636.000 | 697.000 | 638.000 | 700.000 | 642.000 | 800.000 | 644.300 | 900.000 | 642.900 | 1000.000 |
| GR | 642.500 | 1100.000 | 643.300 | 1200.000 | 644.000 | 1300.000 | 644.800 | 1400.000 | 644.900 | 1500.000 |
| GR | 645.300 | 1600.000 | 645.400 | 1700.000 | 645.700 | 1800.000 | 646.400 | 1900.000 | 0.000 | 0.000 |
| NH | 3.000 | .060 | 692.500 | .040 | 697.500 | .060 | 1900.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3263.000 | 29.000 | 692.500 | 697.500 | 123.000 | 123.000 | 123.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.400 | 0.000 | 641.900 | 100.000 | 6[illegible].600 | 200.000 | 6[illegible].800 | 300.000 | 643.000 | 400.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 635.700 | 695.000 | 636.100 | 696.500 | 637.300 | 697.500 | 638.000 | 697.500 | 638.000 | 700.000 |
| GR | 642.000 | 800.000 | 642.200 | 810.000 | 644.300 | 900.000 | 643.300 | 970.000 | 642.900 | 1000.000 |
| GR | 642.500 | 1100.000 | 643.300 | 1200.000 | 644.000 | 1300.000 | 644.800 | 1400.000 | 644.900 | 1500.000 |
| GR | 645.300 | 1600.000 | 645.400 | 1700.000 | 645.700 | 1800.000 | 646.400 | 1900.000 | 0.000 | 0.000 |
| SB | 0.000 | 2.588 | 3.030 | 0.000 | 5.000 | 0.000 | 19.630 | 0.000 | 635.700 | 635.700 |
| X1 | 3314.000 | 0.000 | 0.000 | 0.000 | 51.000 | 51.000 | 51.000 | 0.000 | 0.000 | 0.000 |
| X2 | 0.000 | 0.000 | 1.000 | 639.900 | 642.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 800.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| BT | 13.000 | 400.000 | 643.000 | 0.000 | 500.000 | 642.500 | 0.000 | 600.000 | 642.000 | 0.000 |
| BT | 692.500 | 642.000 | 638.800 | 692.500 | 642.000 | 639.100 | 693.500 | 642.000 | 640.300 | 695.000 |
| BT | 642.000 | 640.700 | 696.500 | 642.000 | 640.300 | 697.500 | 642.000 | 639.100 | 697.500 | 642.000 |
| BT | 638.000 | 800.000 | 642.100 | 0.000 | 810.000 | 642.200 | 0.000 | 900.000 | 644.300 | 0.000 |
| NH | 3.000 | .060 | 690.000 | .040 | 700.000 | .060 | 1900.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3414.000 | 24.000 | 690.000 | 700.000 | 100.000 | 100.000 | 100.000 | 0.000 | .500 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 641.400 | 0.000 | 641.900 | 100.000 | 641.600 | 200.000 | 642.800 | 300.000 | 643.300 | 400.000 |
| GR | 640.100 | 500.000 | 638.200 | 600.000 | 638.800 | 690.000 | 636.000 | 693.000 | 635.600 | 695.000 |
| GR | 636.000 | 697.000 | 638.000 | 700.000 | 642.000 | 800.000 | 644.300 | 900.000 | 642.900 | 1000.000 |
| GR | 642.500 | 1100.000 | 643.300 | 1200.000 | 644.000 | 1300.000 | 644.800 | 1400.000 | 644.900 | 1500.000 |
| GR | 645.300 | 1600.000 | 645.400 | 1700.000 | 645.700 | 1800.000 | 646.400 | 1900.000 | 0.000 | 0.000 |
| QT | 4.000 | 365.000 | 520.000 | 590.000 | 840.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3514.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3614.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 3714.000 | 0.000 | 0.000 | 0.000 | 100.000 | 100.000 | 100.000 | 0.000 | .400 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 400.000 | 0.000 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4064.000 | 0.000 | 0.000 | 0.000 | 350.000 | 350.000 | 350.000 | 0.000 | 1.500 | 0.000 |
| NH | 5.000 | .040 | 700.000 | .080 | 782.000 | .040 | 795.000 | .080 | 900.000 | .040 |
| NH | 1301.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4190.000 | 18.000 | 782.000 | 800.000 | 126.000 | 126.000 | 126.000 | 0.000 | -1.500 | 0.000 |
| GR | 646.700 | 0.000 | 646.800 | 100.000 | 646.400 | 200.000 | 646.400 | 300.000 | 645.400 | 400.000 |
| GR | 644.400 | 500.000 | 643.100 | 600.000 | 643.400 | 700.000 | 642.800 | 782.000 | 641.000 | 784.000 |
| GR | 640.900 | 791.000 | 641.400 | 795.000 | 644.700 | 800.000 | 646.800 | 900.000 | 647.400 | 1000.000 |
| GR | 647.700 | 1100.000 | 647.500 | 1200.000 | 647.500 | 1301.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 4240.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4290.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4340.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4390.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4440.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4490.000 | 0.000 | 0.000 | 0.000 | 50.000 | 50.000 | 50.000 | 0.000 | .200 | 0.000 |
| X1 | 4515.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | .200 | 0.000 |
| X1 | 4540.000 | 0.000 | 0.000 | 0.000 | 25.000 | 25.000 | 25.000 | 0.000 | .100 | 0.000 |
| NH | 5.000 | .040 | 500.000 | .070 | 506.000 | .040 | 509.000 | .070 | 510.000 | .040 |
| NH | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| X1 | 5740.000 | 17.000 | 500.000 | 510.000 | 1200.000 | 1200.000 | 1200.000 | 0.000 | 0.000 | 0.000 |
| GR | 654.400 | 0.000 | 654.500 | 100.000 | 655.100 | 200.000 | 654.500 | 300.000 | 651.600 | 400.000 |
| GR | 649.100 | 500.000 | 646.100 | 506.000 | 646.000 | 508.000 | 646.100 | 509.000 | 648.200 | 510.000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 652.000 | 1100.000 | 652.000 | 120[illegible] | 0.000 | .00[illegible] | 0.000 | 0.[illegible] | .00[illegible] | .00[illegible] |
| QT | 4.000 | 325.000 | 465.000 | 530.000 | 750.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NC | 0.000 | 0.000 | 0.000 | .100 | .300 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .100 | 590.000 | .040 | 597.000 | .100 | 1000.000 | 0.000 | 0.000 | 0.000 |
| X1 | 7440.000 | 15.000 | 587.000 | 600.000 | 1700.000 | 1700.000 | 1700.000 | 0.000 | 0.000 | 0.000 |
| GR | 660.600 | 0.000 | 660.700 | 100.000 | 661.900 | 200.000 | 660.500 | 300.000 | 657.700 | 400.000 |
| GR | 657.500 | 500.000 | 655.700 | 587.000 | 654.100 | 590.000 | 653.700 | 593.000 | 653.800 | 597.000 |
| GR | 656.700 | 600.000 | 656.900 | 700.000 | 660.800 | 800.000 | 660.000 | 900.000 | 660.500 | 1000.000 |
| NH | 3.000 | .100 | 585.000 | .040 | 600.000 | .100 | 1200.000 | 0.000 | 0.000 | 0.000 |
| X1 | 8940.000 | 17.000 | 585.000 | 600.000 | 1200.000 | 1600.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 667.900 | 0.000 | 667.300 | 100.000 | 666.800 | 200.000 | 668.200 | 300.000 | 668.400 | 400.000 |
| GR | 665.600 | 500.000 | 664.800 | 585.000 | 664.800 | 600.000 | 665.700 | 625.000 | 664.900 | 650.000 |
| GR | 666.000 | 675.000 | 665.500 | 700.000 | 668.400 | 800.000 | 668.800 | 900.000 | 669.200 | 1000.000 |
| GR | 670.100 | 1100.000 | 670.700 | 1200.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| QT | 4.000 | 265.000 | 375.000 | 435.000 | 610.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| NH | 3.000 | .050 | 415.000 | .040 | 432.000 | .050 | 900.000 | 0.000 | 0.000 | 0.000 |
| X1 | 10440.000 | 17.000 | 400.000 | 432.000 | 1500.000 | 1500.000 | 1500.000 | 0.000 | 0.000 | 0.000 |
| GR | 684.300 | 0.000 | 684.300 | 100.000 | 683.000 | 200.000 | 680.000 | 225.000 | 676.100 | 300.000 |
| GR | 673.900 | 400.000 | 672.300 | 415.000 | 671.000 | 422.000 | 671.900 | 426.000 | 672.600 | 432.000 |
| GR | 673.000 | 450.000 | 677.400 | 470.000 | 678.800 | 500.000 | 682.100 | 600.000 | 682.000 | 700.000 |
| GR | 680.100 | 800.000 | 679.800 | 900.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| EJ | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Hyd. Analysis

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

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APR 20 1977
WATER MANAGEMENT

# LETTER OF TRANSMITTAL

| DATE | JOB NO |
|---|---|
| April 18, 1977 | 5670-02 & 10 5555-70 |

RE: Clinton Twp., Warren & Sterling Heights

Flood Insurance Studies

Red Run Drain - Hydraulic Computations

*If enclosures are not as noted, kindly notify us at once.*

TO: Mr. Dan Morgan, Acting Chief
Flood Insurance Unit
MDNR-Water Management Division
P. O. Box 30028
Lansing, Michigan 48909

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☒ Prints ☐ Plans ☐ Samples ☐ Specifications

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| 1 | 4-11-77 | | Plan & Profile |
| 1 | 4-14-77 | | HEC-2 Input, Output, and J&A IPLOT |
| 1 | 4-14-77 | | Hydraulic Analysis Book |
| | | | |
| | | | |

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

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REMARKS:

SIGNED:

William C. Rossow

William C. Rossow, P.E.
Project Manager

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FORM GU-030 (11-72) WCR/dp

# CLINTON TOWNSHIP, FIS
# STERLING HEIGHTS, FIS
# AND
# CITY OF WARREN, FIS
# HYDRAULIC ANALYSIS
# RED RUN DRAIN

J & A File No. 5670-02
5670-10, 5555-70

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Highway - P. O. Box 1166
Pontiac, Michigan 48056

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Variables and coefficients

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# HYDRAULIC ANALYSIS

## Introduction

The watercourse being studied is the Red Run Drain. It is in Macomb County, Michigan and flows through the communities of Clinton Township, Sterling Heights, and the City of Warren. The study limits included the entire Red Run Drain, from the confluence with the Clinton River to the enclosure at Dequindre Road, a distance of 8.0 river miles. The field survey was taken between December 1975 and October 1976.

The 10-, 50-, 100- and 500-year flood frequency flows used in this study have been approved by the Michigan Department of Natural Resources (Letter dated: April 5, 1977).

The project manager for this analysis is William C. Rossow, P.E.

## Method of Analysis

Water surface profiles were computed by the HEC-2 standard step-backwater computer program developed by the U. S. Army Corps of Engineers.[1]

The hydraulic model was developed for the 100-year flood flow. The 100-year discharge caused all the bridges in this study to flow by pressure and weir flow. With this consideration, bridge computations used the "Special Bridge Routine" or in the case of high submergence, the "Normal Bridge Routine."[2]

## Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions found on Pages 101 to 123 in Open-Channel Hydraulics by Ven Te Chow, with photographs and field inspection trips taken at every cross section. Because of recent channel improvements, the "n" values in the channel range from 0.025 to 0.03. The overbank "n" values range from 0.025 where there is mowed lawn or smooth bare earth, to 0.07 for an area of medium-dense brush. A consideration in the "n" value selections is that the 100-year flood is expected during the summer season.

The contraction and expansion coefficients used between cross sections were 0.1 and 0.3, respectively, which reflect gentle transition. The contraction and expansion coefficients used at bridges range from 0.3 and 0.5 to 0.5 and 1.0, depending on the sharpness of transition.

The total loss coefficient (XKOR) used in the HEC-2 "Special Bridge Routine" was determined as outlined in Exhibit 2 of the HEC-2 Users Manual. The individual coefficients were taken from tables published by the Bureau of Public Roads.

## Starting Point

Profile computations for the Red Run began at its confluence with the Clinton River. * A stage-discharge relationship was determined for this area of the Clinton River. The flow in the Clinton River, corresponding to the time when the Red Run is at peak discharge, was used as a determination of starting elevation of the Red Run.

* using TR-20 program, hydrology consider reasonable. JA/SAM 6/19/77

## Synthetic Cross Sections

Synthetic cross sections utilized in the hydraulic analysis were developed (in conjunction with USGS topographic information) in two ways. The two methods used were; repetition of a field-surveyed cross section or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc. AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two field-surveyed cross sections. All cross sections and their origins are listed in the SECNO Table (Appendix A). Since inverts are known only at field surveyed sections, a straight line is assumed between these known points, with the inverts of synthetic cross sections adjusted accordingly.

## High Water Mark Evaluation

The high water marks from the June 1968 post flood report[5] by the U. S. Army Corps of Engineers (COE) along with the existing channel invert taken from the 1970 Interm Survey Report[6] by the COE are shown on the profile sheet for informational purposes. The value of the highwater marks are somewhat questionable ? due to continual changes in the basin geomorphology. These changes include construction of the Schoenherr Relief Drain, Sterling Relief Drain, Henry Graham

How do [illegible]

Drain, the extension of the Twelve Towns Drain to Dequindre Road, the Fourteen Mile Road Bridge replacement, and various channel improvements. These modifications would tend to contribute to the instability of channel geometrics and to the changing hydraulic characteristics of the Red Run Drain.

# REFERENCES


1. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile Users Manual, 1973.

2. U. S. Army Corps of Engineers, Hydrologic Engineering Center, Training Document No. 6, Applications of the HEC-2 Bridge Routines, P. 26-27.

3. Ibid. P. 29.

4. Hydraulic Charts for the Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Circular No. 5 (1965).

5. Post Flood Report of Southeast Michigan Flood, U. S. Army Corps of Engineers, 1969, P. D-32 to D-34.

6. U. S. Army Corps of Engineers, Detroit Engineering District, Southeast Michigan Water Resources Study, Interim Survey Report on Flood Control, Clinton River Basin, Michigan Red Run Drain and Lower Clinton River, Volume 1.

# APPENDIX A - SECNO TABLE

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 193 | BRIDGE SECTION @ UTICA ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS A & B<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| A | 194 | BRIDGE SECTION A @ UTICA ROAD UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 300 & ENDS @ STA. 1100<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 594 | RELOCATED VALLEY SECTION B<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| B | 1039 | VALLEY SECTION B<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 1100 | BRIDGE SECTION @ 16-MILE ROAD WB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS B & C<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| C | 1143 | BRIDGE SECTION C @ 16-MILE ROAD WB UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 450 & ENDS @ STA. 1100<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 1150 | RELOCATED VALLEY SECTION B<br>INVERT ADJUSTED<br>ELIMINATED NON-TYPICAL AREA IN LEFT OVERBANK<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 1180 | BRIDGE SECTION @ 16-MILE ROAD EB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS B & D<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |

| | | |
|---|---|---|
| I | 1223 | BRIDGE SECTION H I [illegible] FACE<br>BRIDGE TABLE STATS STA. 459 & ENDS ST. [illegible]<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 1323 | RELOCATED VALLEY SECTION H<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 2223 | RELOCATED VALLEY SECTION E<br>INVERT ADJUSTED<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW |
| | 3140 | VALLEY SECTION E<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW |
| | 5720 | VALLEY SECTION F<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW |
| | 8270 | VALLEY SECTION G<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 8340 | BRIDGE SECTION [illegible] 15- TLE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS G & H<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 8394 | BRIDGE SECTION H @ 15-MILE ROAD UPSTREAM FACE<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 8494 | RELOCATED VALLEY SECTION G<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>INVERT ADJUSTED |
| I | 9594 | VALLEY SECTION I |
| | 9653 | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED<br>ENCROACHED TO TOP WIDTH OF BRIDGE SECTION J |
| J | 9654 | BRIDGE SECTION J @ SCHOENHERR ROAD DOWNSTREAM FACE<br>NORMAL BRIDGE ROUTINE |
| J | 9676 | BRIDGE SECTION J @ SCHOENHERR ROAD UPSTREAM FACE<br>NORMAL BRIDGE ROUTINE |
| | 9677 | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED<br>ENCROACHED TO TOP WIDTH OF BRIDGE SECTION J |

| | | |
|---|---|---|
| | [illegible] | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED |
| K | 11596 | VALLEY SECTION K |
| L | 13145 | VALLEY SECTION L<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| M | 14796 | VALLEY SECTION M |
| N | 16096 | VALLEY SECTION N |
| | 16396 | BRIDGE SECTION MAPLELANE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>SLEEVED OF SECTIONS N & O |
| O | 16418 | BRIDGE SECTION O MAPLELANE ROAD UPSTREAM FACE |
| P | 16769 | VALLEY SECTION P |
| Q | 17168 | VALLEY SECTION Q<br>LEFT AND RIGHT OVERBANKS SKEWED 0.25<br>CHANNEL SKEWED 0.7 |
| | 17268 | BRIDGE SECTION 14-MILE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY: FROM BRIDGE SECTION A<br>LEFT AND RIGHT OVERBANKS SKEWED 0.25<br>CHANNEL SKEWED 0.7 |
| A | 17369 | BRIDGE SECTION A 14-MILE ROAD UPSTREAM FACE<br>LEFT AND RIGHT OVERBANKS SKEWED 0.25<br>CHANNEL SKEWED 0.7 |
| | 18244 | INTERPOLATED FROM SECTIONS Q & B 1/2 WAY POINT<br>INVERT ADJUSTED |
| B | 19119 | VALLEY SECTION B |
| C | 20219 | VALLEY SECTION C |
| D | 21119 | VALLEY SECTION D |
| E | 22069 | VALLEY SECTION E |
| F | 22414 | VALLEY SECTION F |
| G | 23314 | VALLEY SECTION G |

| | | |
|---|---|---|
| H | 23559 | VALLEY SECTION H<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW |
| I | 24369 | VALLEY SECTION I<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| J | 25819 | VALLEY SECTION J<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 25919 | BRIDGE SECTION VAN DYKE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS J & K<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| K | 26025 | BRIDGE SECTION K @ VAN DYKE ROAD UPSTREAM FACE<br>BRIDGE TABLE START @ STA.287; END @ STA.750<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 26125 | RELOCATED SECTION J<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| L | 26900 | VALLEY SECTION L |
| M | 27150 | VALLEY SECTION M<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| N | 27900 | VALLEY SECTION N |
| | 28000 | BRIDGE SECTION @ DENTON CONST. BRIDGE DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS N & O<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| O | 28031 | BRIDGE SECTION O @ DENTON CONST. BRIDGE UPSTREAM FACE<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| P | 28331 | VALLEY SECTION P |
| | 28431 | BRIDGE SECTION @ PENN CENTRAL CROSSING DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS P & Q |
| Q | 28449 | BRIDGE SECTION Q @ PENN CENTRAL UPSTREAM FACE |
| | 28549 | RELOCATED SECTION Q<br>INVERT ADJUSTED |

| | | |
|---|---|---|
| R | 29759 | VALLEY SECTION R<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 30474 | INTERPOLATED SECTION<br>FROM SECTION R & S 1/2 WAY POINT |
| S | 31199 | VALLEY SECTION S<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31299 | BRIDGE SECTION - MOUND ROAD NB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS S & T<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| T | 31350 | BRIDGE SECTION T - MOUND ROAD NB UPSTREAM FACE<br>BRIDGE TABLE STARTS STA. 50 ; ENDS - STA. 500<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31430 | BRIDGE SECTION - MOUND ROAD SB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS S & U<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| U | 31483 | BRIDGE SECTION U - MOUND ROAD SB UPSTREAM FACE<br>BRIDGE TABLE STARTS - STA. 50 ; ENDS - STA. 500<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31583 | RELOCATED SECTION S<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| V | 33333 | VALLEY SECTION V |
| | 33433 | BRIDGE SECTION - PEDESTRIAN BRIDGE DOWNSTREAM<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS V & W |
| W | 33438 | BRIDGE SECTION - PEDESTRIAN BRIDGE UPSTREAM FACE |
| | 33538 | RELOCATED SECTION V<br>INVERT ADJUSTED |
| X | 34888 | VALLEY SECTION X |
| Y | 37038 | VALLEY SECTION Y |

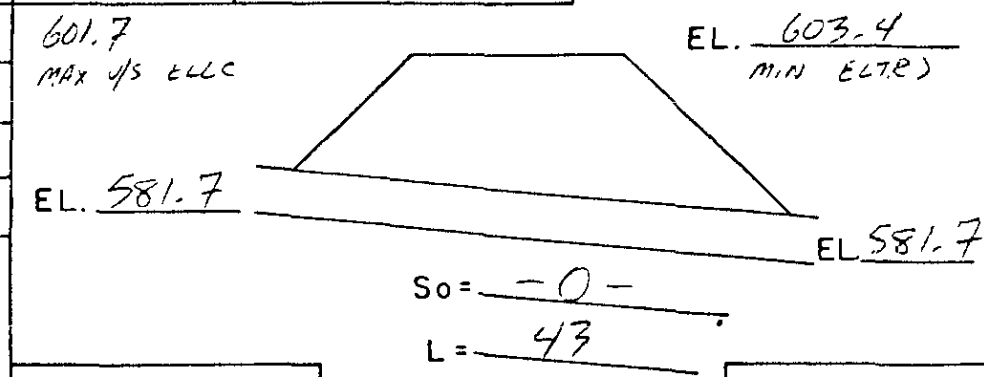
| | | |
|---|---|---|
| | 37122 | BRIDGE SECTION [illegible] ROAD UPSTREAM FACE<br>GROUND POINTS ONLY -<br>BLEND OF SECTIONS Y & Z<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| Z | 37121 | BRIDGE SECTION Z [illegible] ROAD UPSTREAM FACE<br>BRIDGE TABLE STARTS STA. 50 ; ENDS STA. 450<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| | 37221 | RELOCATED SECTION Y<br>INVERT ADJUSTED |
| AA | 39121 | VALLEY SECTION AA |
| AB | 41121 | VALLEY SECTION AB<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| AC | 42521 | VALLEY SECTION AC<br>SKEWED FOR PERPENDICULARITY TO FLOW |

| | | | | |
|---|---|---|---|---|
| JOB NAME: Sterling Heights, F15 | JOB NO. 5670 | 10 | 1 | 207.1 |
| WATERCOURSE: Red Run Drain | CULVERT LOCATION: West Bound 16 Mile Road | | | |

CULVERT DESCRIPTION: Box culvert with 3 piers (pointed edge)

BY RFH DATE 8-4-77

WEIR DESCRIPTION: Paved roadway with 43 foot breadth




A = 2318.4 D = 20.0

WP = 457.7 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.3532 n = .02

CALCULATIONS AND COMMENTS:

- Manning's n -

$$n = \left(\frac{\sum P n^2}{\sum P}\right)^{1/2}$$

$$n = \left(\frac{280 \times .015^2 + 180 \times .025^2}{460}\right)^{1/2}$$

$$n = .01953 \approx .02$$

- XKOR -

$$XKOR = 1 + 0.5 + (3.3532)(.01953)^2(43)$$

$$XKOR = 1.555$$

- COFQ -

Ave $h \approx 0.5'$

then $h/L = 0.5/43 = .01 < .15'$

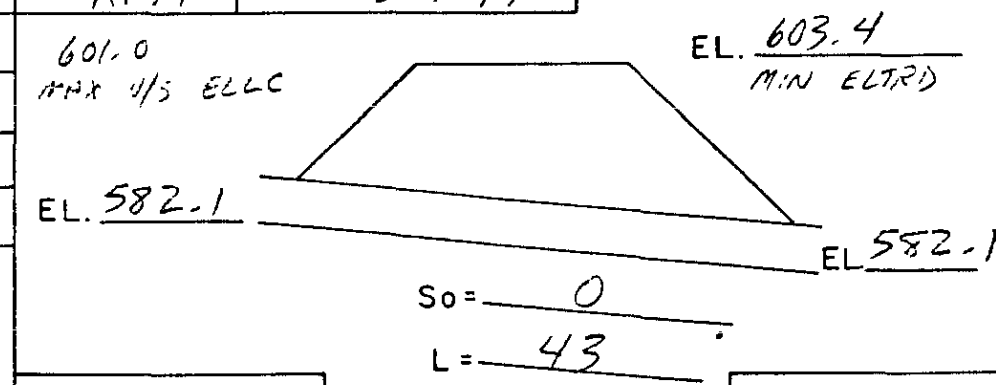
therefore use

$h \approx 0.5$

$COFQ = 3.02$

| | | | |
|---|---|---|---|
| JOB NAME: Sterling Heights, FIS | JOB NO. 5670 | 10 | 1 |
| WATERCOURSE: Red Run Drain | CULVERT LOCATION: East Bound 16 Mile Road | | |
| CULVERT DESCRIPTION: Box culvert with 3 piers (pointed edge). | BY RFH | DATE 8-4-77 | |

WEIR DESCRIPTION: Paved roadway with 43 foot breadth




A = 2121.1 D = 18.9

WP = 447.7 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.6654 n = 0.02

CALCULATIONS AND COMMENTS:

- Manning's n -

$$n = \left(\frac{\Sigma P n^2}{\Sigma P}\right)^{1/2}$$

$$n = \left(\frac{270 \times .015^2 + 180 \times .025^2}{450}\right)^{1/2}$$

$$n = .01962 \approx .02$$

- XKOR -

$$XKOR = 1 + 0.5 + (3.6654)(.01962)^2(43)$$

$$XKOR = 1.561$$

- COFQ -

Ave $h \approx 2'$

then $h/L = 2/43 = .05 < .15$

therefore use

$h = 2$

COFQ = 3.04

# APPENDIX B - FIELD SKETCHES AND CALCULATIONS FOR "XKOR"

Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

CODED 10/11/76
BEH

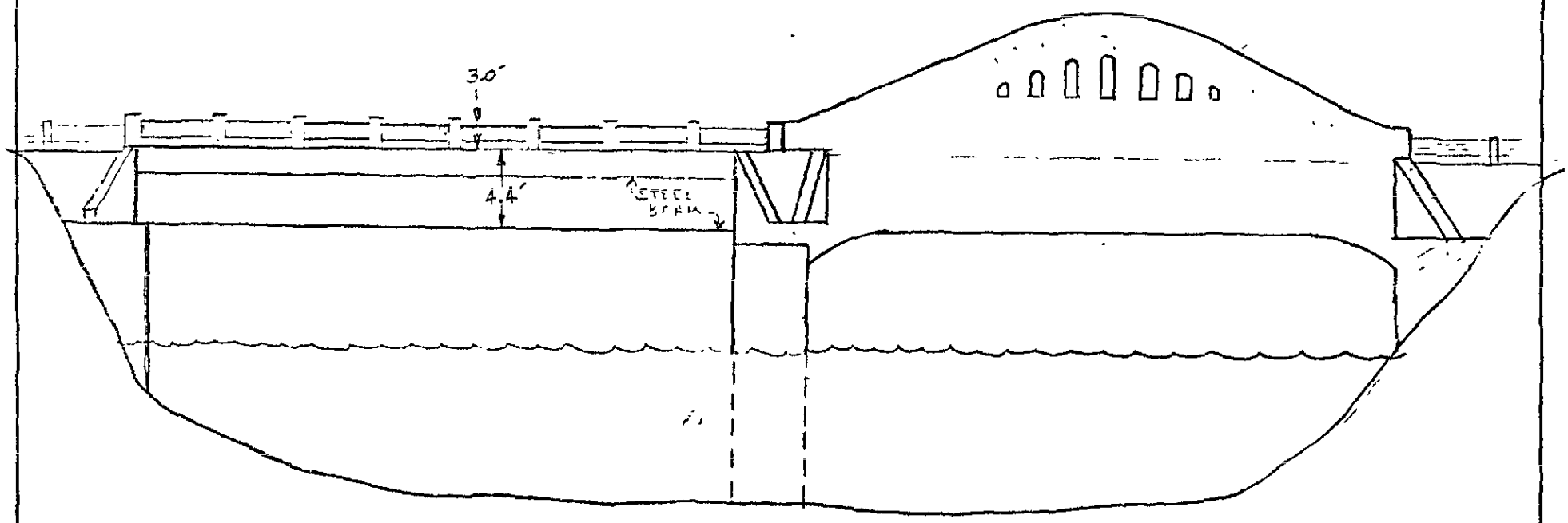
Code No. 02-206

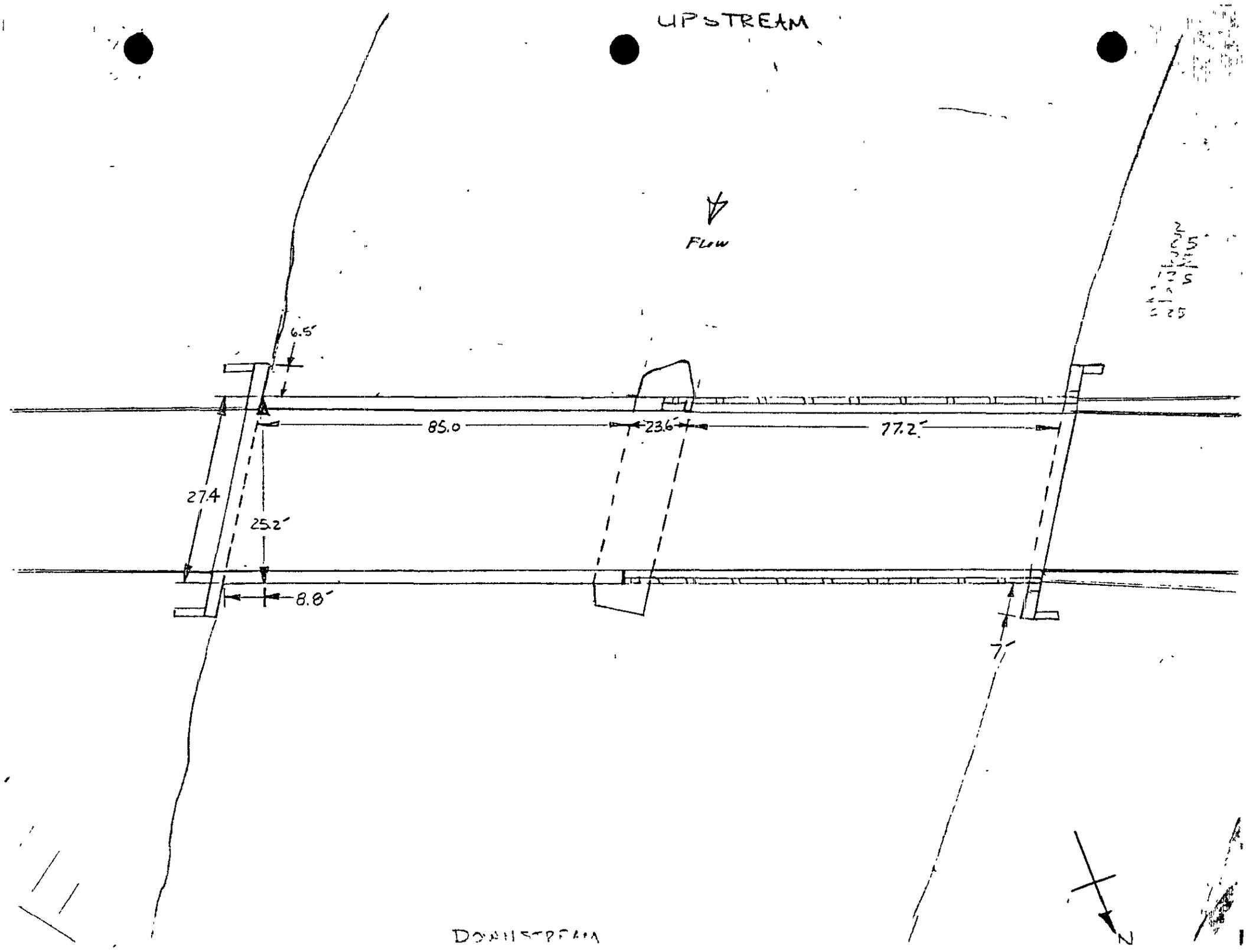
| | | | |
|---|---|---|---|
| Job Name: CLINTON TWP F.I.S. | | | By: T.R PRUYT |
| Date: DRAWN. 10-6-76 | Feature: UTICA Rd. BRIDGE | | Water Course: RED RUN DRAIN |
| Remarks: BOTTOM: SOFT CLAY w/ SOME DEBRIS | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: NONE | Area: — |
| Water Elevation: 587.3 | Length: SEE SKETCH | Width of Deck: 25.2' | Skew: SEE SKETCH |

FIELD SKETCH

Profile View

~~Plan View~~ SEE BACK




UPSTREAM
FLOW
6.5'
85.0
23.6'
77.2'
27.4
25.2'
8.8'
7'
DOWNSTREAM
N

| | | | | |
|---|---|---|---|---|
| JOB NAME: STERLING HTS. FIS | JOB NO. 5670 | 10 | 1 | 206 |

WATERCOURSE: RED RUN

CULVERT LOCATION: UTICA ROAD

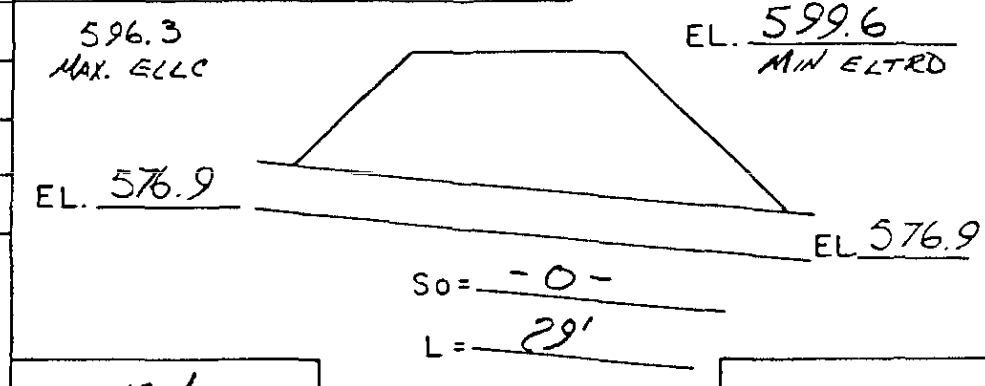
CULVERT DESCRIPTION: COMBINATION BEAM & ARCH WITH LARGE CONNECTING PIER

-NO WINGWALLS-

WEIR DESCRIPTION: PAVED ROADWAY

29 FOOT BREADTH

BY DCM DATE JAN. 7, 1977




A = 1699.9 D = 19.4'

WP = 339.4 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.4043 n = 0.02

CALCULATIONS AND COMMENTS:

-MANNING'S 'n'-

$$n \approx \left[\frac{\Sigma n^2 P}{\Sigma P}\right]^{1/2}$$

$$n \approx \left(\frac{195 \times 0.015^2 + 145 \times 0.025^2}{340}\right)^{\frac{1}{2}}$$

$$n \approx 0.01989$$

-XKOR-

$$XKOR = 1 + Ke + \frac{29.1\, n^2 L}{R^{4/3}}$$

$$XKOR = 1 + (0.5) + 3.4043(0.01989)^2(29)$$

$$XKOR = 1.539$$

-COFQ-

AVE. $h \approx 3'$

THEN $\frac{h}{L} = \frac{3}{29} = 0.1 < 0.15$

THEREFORE USE

$H = 3$

$\underline{CofQ = 3.04}$

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 206.00 | 53 | 800.00 | 985.80 | 29.00 | 29.00 | 29.00 | 0.920 | | |
| BT | 42.00 | 0.00 | 602.90 | 0.00 | 100.00 | 601.80 | 0.00 | 200.00 | 602.80 | 0.00 |
| BT | 300.00 | 603.10 | 0.00 | 350.00 | 601.60 | 0.00 | 380.00 | 601.60 | 0.00 | 400.00 |
| BT | 601.40 | 0.00 | 500.00 | 601.00 | 0.00 | 600.30 | 600.70 | 0.00 | 700.00 | 600.10 |
| BT | 0.00 | 797.00 | 599.70 | 0.00 | 797.10 | 603.30 | 0.00 | 800.00 | 603.30 | 593.00 |
| BT | 800.00 | 603.30 | 595.90 | 820.00 | 603.30 | 595.90 | 830.00 | 603.40 | 595.90 | 850.00 |
| BT | 603.40 | 595.90 | 870.00 | 603.20 | 595.90 | 875.00 | 603.10 | 595.90 | 877.20 | 603.10 |
| BT | 595.90 | 897.00 | 603.30 | 592.40 | 900.80 | 603.30 | 591.70 | 913.00 | 605.00 | 596.30 |
| BT | 925.00 | 608.00 | 596.30 | 936.00 | 609.80 | 596.30 | 943.00 | 610.30 | 596.30 | 953.00 |
| BT | 609.40 | 596.30 | 973.00 | 605.00 | 596.30 | 985.80 | 603.30 | 591.70 | 988.00 | 603.30 |
| BT | 0.00 | 988.10 | 599.60 | 0.00 | 1000.00 | 600.20 | 0.00 | 1080.00 | 600.70 | 0.00 |
| BT | 1088.00 | 604.10 | 0.00 | 1100.00 | 605.30 | 0.00 | 1200.00 | 605.40 | 0.00 | 1300.00 |
| BT | 605.70 | 0.00 | 1400.00 | 605.60 | 0.00 | 1500.00 | 603.30 | 0.00 | 1600.00 | 603.10 |
| BT | 0.00 | 1700.00 | 605.40 | 0.00 | 1800.00 | 603.70 | 0.00 | | | |
| GR | 602.90 | 0.00 | 601.80 | 100.00 | 602.80 | 200.00 | 603.10 | 300.00 | 601.60 | 350.00 |
| GR | 601.60 | 380.00 | 600.30 | 400.00 | 598.00 | 500.00 | 597.60 | 565.00 | 597.30 | 600.00 |
| GR | 596.40 | 700.00 | 596.10 | 740.00 | 593.20 | 797.00 | 593.10 | 797.10 | 593.00 | 800.00 |
| GR | 592.20 | 600.00 | 591.00 | 806.00 | 590.30 | 810.00 | 585.30 | 816.00 | 582.70 | 820.00 |
| GR | 577.80 | 830.00 | 578.40 | 840.00 | 580.10 | 850.00 | 577.30 | 860.00 | 576.90 | 870.00 |
| GR | 577.10 | 875.00 | 577.50 | 877.20 | 595.90 | 877.20 | 592.40 | 897.00 | 591.70 | 900.80 |
| GR | 581.60 | 900.80 | 582.30 | 913.00 | 583.10 | 925.00 | 584.60 | 936.00 | 589.70 | 943.00 |
| GR | 590.90 | 953.00 | 591.30 | 973.00 | 591.50 | 985.80 | 591.70 | 985.80 | 592.10 | 988.00 |
| GR | 592.10 | 988.10 | 594.30 | 1000.00 | 595.00 | 1045.00 | 600.70 | 1080.00 | 604.10 | 1088.00 |
| GR | 605.30 | 1100.00 | 605.40 | 1200.00 | 605.70 | 1300.00 | 605.60 | 1400.00 | 603.30 | 1500.00 |
| GR | 603.10 | 1600.00 | 605.40 | 1700.00 | 603.70 | 1800.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 593.00 | 800.00 | 595.90 | 820.00 | 595.90 | 830.00 | 595.90 | 850.00 | 595.90 |
| 870.00 | 595.90 | 875.00 | 595.90 | 877.20 | 595.90 | 897.00 | 592.40 | 900.80 | 591.70 |
| 913.00 | 596.30 | 925.00 | 596.30 | 936.00 | 596.30 | 943.00 | 596.30 | 953.00 | 596.30 |
| 973.00 | 596.30 | 985.80 | 591.70 | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 593.00 | 800.00 | 592.20 | 806.00 | 591.00 | 810.00 | 590.30 | 816.00 | 585.30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 820.00 | [illegible].70 | 830.00 | 577.80 | 840.00 | 578.40 | 850.[illegible] | 580.10 | 860.00 | 577.30 |
| 870.00 | [illegible].90 | 875.00 | 577.10 | 877.20 | 577.50 | 877.[illegible] | 595.90 | 897.00 | 592.40 |
| 900.80 | 591.70 | 900.80 | 581.60 | 913.00 | 582.30 | 925.00 | 583.10 | 936.00 | 584.60 |
| 943.00 | 589.70 | 953.00 | 590.90 | 973.00 | 591.30 | 985.80 | 591.50 | 985.80 | 591.70 |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 800.00 | 593.00 | 800.00 | 595.90 | 820.00 | 595.90 | 830.00 | 595.90 | 850.00 | 595.90 |
| 870.00 | 595.90 | 875.00 | 595.90 | 877.20 | 595.90 | 897.00 | 592.40 | 900.80 | 591.70 |
| 913.00 | 596.30 | 925.00 | 596.30 | 936.00 | 596.30 | 943.00 | 596.30 | 953.00 | 596.30 |
| 973.00 | 596.30 | 985.80 | 591.70 | 985.80 | 591.50 | 973.00 | 591.30 | 953.00 | 590.90 |
| 943.00 | 589.70 | 936.00 | 584.60 | 925.00 | 583.10 | 913.00 | 582.30 | 900.80 | 581.60 |
| 900.80 | 591.70 | 897.00 | 592.40 | 877.20 | 595.90 | 877.20 | 577.50 | 875.00 | 577.10 |
| 870.00 | 576.90 | 860.00 | 577.30 | 850.00 | 580.10 | 840.00 | 578.40 | 830.00 | 577.80 |
| 820.00 | 582.70 | 816.00 | 585.30 | 810.00 | 590.30 | 806.00 | 591.00 | 800.00 | 592.20 |
| 800.00 | 593.00 | | | | | | | | |

ORIFICE AREA 1699.9 WETTED PERIMETER 339.4 29.1/R**1.333 3.4043

Johnson & Anderson
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

CODED 10/8/76 BEH

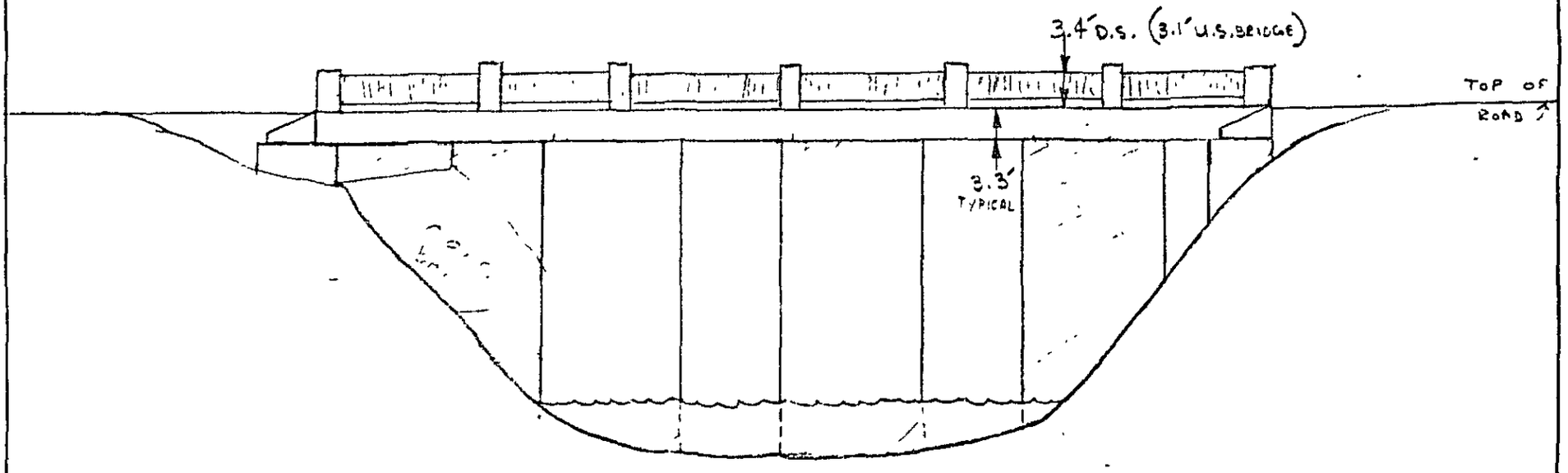
Code No. ~~02~~ 10-207.14 208

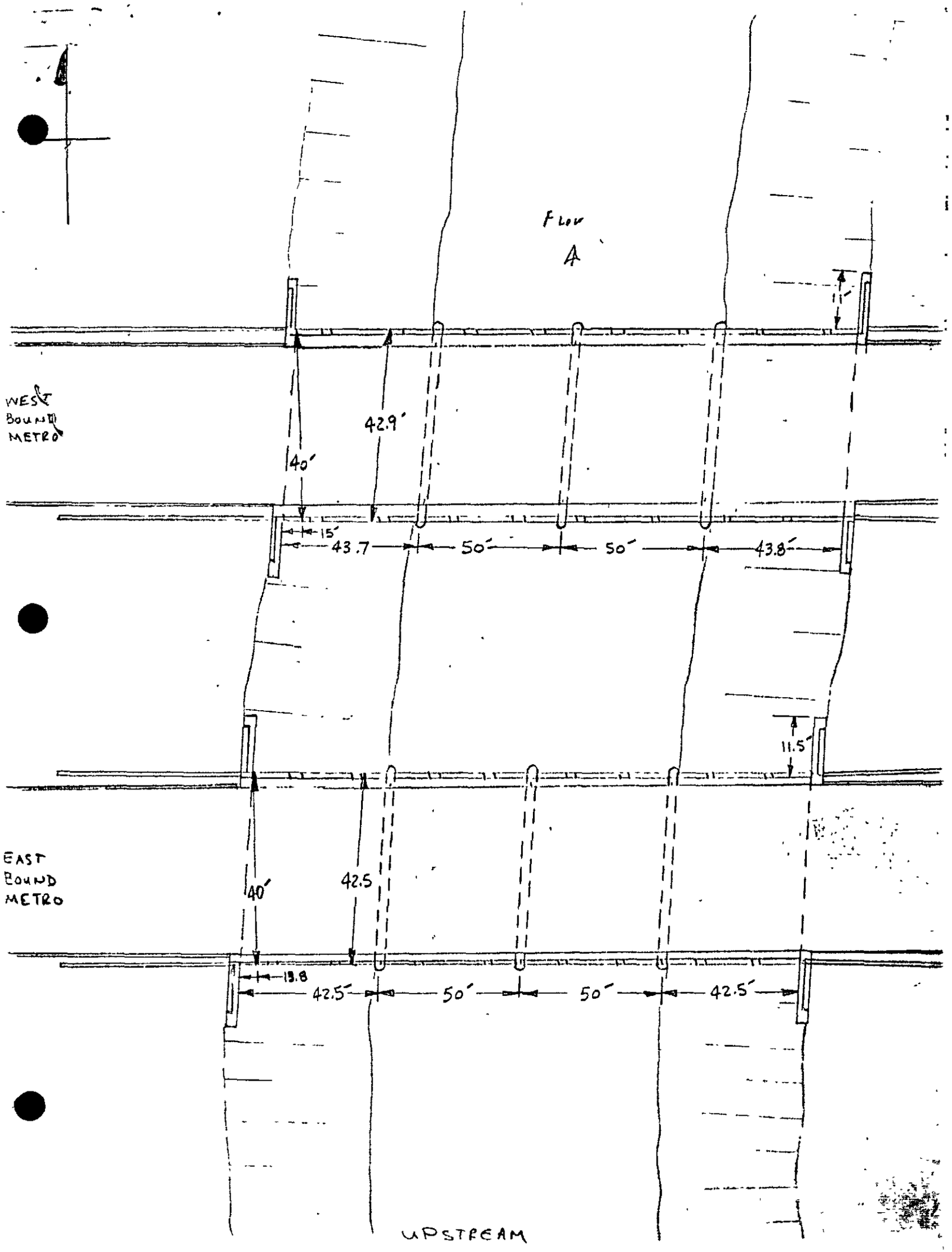
| | | | |
|---|---|---|---|
| Job Name: ~~CLINTON~~ STERLING HEIGHTS TWP. F.I.S. | | | By: T.R. PRUYT |
| Date: DRAWN. 10-6-76 | Feature: METRO PRKWY. BRIDGE | | Water Course: RED RUN DRAIN. |
| Remarks: A. PRINN.: SOFT CLAY | | DEDICATION PLATE 'MACOMB CO. S-1702(1) 1959 & 1969 | |
| WEST BOUND PHOTO: F-3 D.S.F.; F-4 D.S.; F-5 Left; F-6 Right; F-7 U.S.; F-8 U.S.F from Rt.; F-9 U.S.F from Lt. | | | |
| EAST BOUND PHOTO: F-10 D.S.F from Lt.; F-11 DS F. from Rt.; F-12 D.S.; F-13 Left; F-14 Right; F-15 U.S.; F-16 U.S.F. | | | |
| Width of Piers: 2.5' | Pier Shape: POINTED | No. of Piers: 3 EACH BRIDGE | Area: |
| Water Elevation: 688.6 | Length: 187.5' W. BOUND. 185' E. BOUND | Width of Deck: 40' BOTH | Skew: SEE SKETCH |

FIELD SKETCH

Profile View

~~Plan View~~ SEE BACK




FLOW
A
WEST BOUND METRO
42.9'
40'
15'
43.7
50'
50'
43.8'
11.5'
EAST BOUND METRO
40'
42.5
13.8
42.5'
50'
50'
42.5'
UPSTREAM

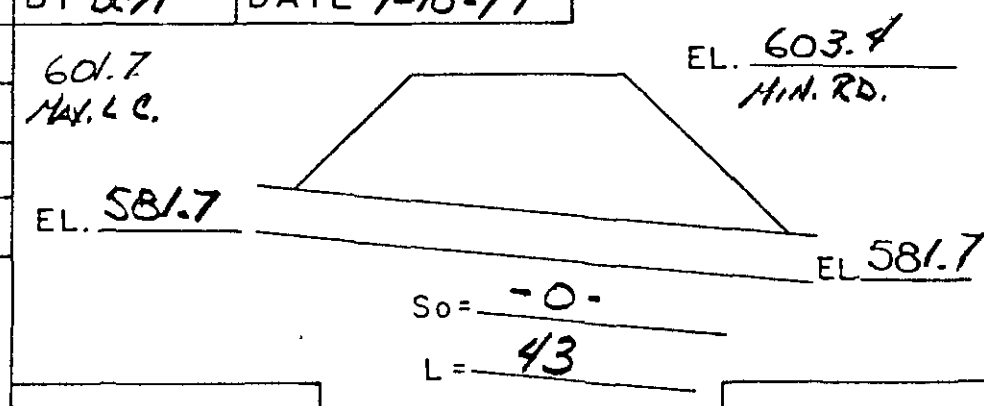
JOB NAME: STERLING HTS., FIS | JOB NO. 5670 | 10 | 1 | 207.1

WATERCOURSE: RED RUN | CULVERT LOCATION: WEST BOUND 16 MILE ROAD

CULVERT DESCRIPTION: BOX CULVERT WITH PARALLEL WINGWALLS AND 3 PIERS (POINTED EDGE)

BY DCM | DATE 1-10-77

WEIR DESCRIPTION: PAVED ROADWAY WITH 43 FOOT BREADTH




A = 2318.4 | D = 20.0

WP = 457.7 | Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 3.3532 | n = 0.02

So = -0-

L = 43

CALCULATIONS AND COMMENTS:

- MANNING'S "n" -

$$n \approx \left(\frac{\Sigma P n^2}{\Sigma P}\right)^{\frac{1}{2}}$$

$$n \approx \left(\frac{280 \times 0.015^2 + 180 \times 0.025^2}{460}\right)^{\frac{1}{2}}$$

$n \approx 0.01953$

- XKOR -

? high

$$XKOR = 1 + 0.7 + (3.3532)(0.01953)^2(43)$$

XKOR = 1.755

- COFQ -

AVE. $h \approx 0.5'$

THEN $\frac{h}{L} = \frac{0.5}{43} = 0.01 < 0.15$

THEREFORE USE

$h \approx 0.5$

COFQ = 3.02

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 207.10 | 66 | 781.50 | 969.00 | 0.00 | 0.00 | 0.00 | 0.930 | | |
| BT | 28.00 | 0.00 | 603.40 | 0.00 | 69.00 | 603.70 | 0.00 | 169.00 | 604.00 | 0.00 |
| BT | 269.00 | 604.30 | 0.00 | 369.00 | 604.50 | 0.00 | 469.00 | 604.60 | 0.00 | 569.00 |
| BT | 604.70 | 0.00 | 669.00 | 604.60 | 0.00 | 769.00 | 604.30 | 0.00 | 780.00 | 604.30 |
| BT | 0.00 | 780.00 | 608.10 | 0.00 | 780.00 | 608.10 | 0.00 | 781.50 | 608.10 | 601.70 |
| BT | 825.20 | 608.00 | 601.60 | 875.20 | 607.00 | 601.40 | 925.20 | 607.50 | 601.10 | 969.00 |
| BT | 607.40 | 601.00 | 970.00 | 607.40 | 0.00 | 970.00 | 604.30 | 0.00 | 1069.00 | 603.10 |
| BT | 0.00 | 1089.00 | 604.10 | 0.00 | 1100.00 | 605.30 | 0.00 | 1200.00 | 605.40 | 0.00 |
| BT | 1300.00 | 605.70 | 0.00 | 1400.00 | 605.60 | 0.00 | 1500.00 | 603.30 | 0.00 | 1600.00 |
| BT | 603.10 | 0.00 | 1700.00 | 605.10 | 0.00 | | | | | |
| GR | 602.90 | 0.00 | 602.10 | 69.00 | 601.80 | 100.00 | 602.50 | 169.00 | 602.80 | 200.00 |
| GR | 603.00 | 269.00 | 603.10 | 300.00 | 601.20 | 369.00 | 600.30 | 400.00 | 598.70 | 469.00 |
| GR | 598.00 | 500.00 | 597.60 | 565.00 | 597.60 | 569.00 | 596.70 | 669.00 | 596.10 | 740.00 |
| GR | 594.60 | 769.00 | 593.80 | 780.00 | 601.70 | 781.50 | 598.60 | 782.50 | 597.90 | 788.00 |
| GR | 592.90 | 800.00 | 591.20 | 805.00 | 586.40 | 808.00 | 586.40 | 819.00 | 585.80 | 823.90 |
| GR | 601.60 | 823.90 | 601.60 | 825.20 | 601.60 | 826.50 | 584.80 | 826.50 | 584.70 | 829.00 |
| GR | 584.70 | 839.00 | 584.20 | 849.00 | 584.40 | 859.00 | 584.60 | 869.00 | 584.80 | 873.90 |
| GR | 601.40 | 873.90 | 601.40 | 875.20 | 601.40 | 876.50 | 582.80 | 876.50 | 582.60 | 879.00 |
| GR | 581.70 | 889.00 | 582.10 | 899.00 | 583.50 | 909.00 | 584.60 | 919.00 | 585.40 | 923.90 |
| GR | 601.10 | 923.90 | 601.10 | 925.20 | 601.10 | 926.50 | 586.90 | 926.50 | 586.60 | 930.00 |
| GR | 588.80 | 941.00 | 596.10 | 960.00 | 597.60 | 968.00 | 601.00 | 969.00 | 593.30 | 970.00 |
| GR | 594.30 | 1000.00 | 595.00 | 1045.00 | 600.10 | 1069.00 | 604.00 | 1089.00 | 605.30 | 1100.00 |
| GR | 605.40 | 1200.00 | 605.70 | 1300.00 | 605.60 | 1400.00 | 603.30 | 1500.00 | 603.10 | 1600.00 |
| GR | 605.10 | 1700.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 761.50 | 601.70 | 825.20 | 601.60 | 875.20 | 601.40 | 925.20 | 601.10 | 969.00 | 601.00 |
| 761.50 | 601.70 | 782.50 | 598.60 | 788.00 | 597.90 | 800.00 | 592.90 | 805.00 | 591.20 |
| 808.00 | 586.40 | 819.00 | 586.40 | 823.90 | 585.80 | 823.90 | 601.60 | 825.20 | 601.60 |
| 826.50 | 601.60 | 826.50 | 584.80 | 829.00 | 584.70 | 839.00 | 584.70 | 849.00 | 584.20 |
| 859.00 | 584.40 | 869.00 | 584.60 | 873.90 | 584.80 | 873.90 | 601.40 | 875.20 | 601.40 |
| 876.50 | 601.40 | 876.50 | 582.80 | 879.00 | 582.60 | 889.00 | 581.70 | 899.00 | 582.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 909.00 | 583.50 | 919.00 | 584.60 | 923.90 | 585.40 | 923.90 | 601.10 | 925.20 | 601.10 |
| 926.50 | 601.10 | 926.50 | 586.90 | 930.00 | 586.60 | 941.00 | 588.80 | 960.00 | 596.10 |
| 968.00 | 597.60 | 969.00 | 601.00 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 781.50 | 601.70 | 825.20 | 601.60 | 875.20 | 601.40 | 925.20 | 601.10 | 969.00 | 601.00 |
| 968.00 | 597.60 | 960.00 | 596.10 | 941.00 | 588.80 | 930.00 | 586.60 | 926.50 | 586.90 |
| 926.50 | 601.10 | 925.20 | 601.10 | 923.90 | 601.10 | 923.90 | 585.40 | 919.00 | 584.60 |
| 909.00 | 583.50 | 899.00 | 582.10 | 889.00 | 581.70 | 879.00 | 582.60 | 876.50 | 582.80 |
| 876.50 | 601.40 | 875.20 | 601.40 | 873.90 | 601.40 | 873.90 | 584.80 | 869.00 | 584.60 |
| 859.00 | 584.40 | 849.00 | 584.20 | 839.00 | 584.70 | 829.00 | 584.70 | 826.50 | 584.80 |
| 826.50 | 601.60 | 825.20 | 601.60 | 823.90 | 601.60 | 823.90 | 585.80 | 819.00 | 586.40 |
| 808.00 | 586.40 | 805.00 | 591.20 | 800.00 | 592.90 | 788.00 | 597.90 | 782.50 | 598.60 |
| 781.50 | 601.70 | | | | | | | | |

ORIFICE AREA 2318.4 WETTED PERIMETER 457.7 29.1/R**1.333 3.3532

| | | | | |
|---|---|---|---|---|
| JOB NAME: STERLING HTS. | JOB NO. 5670 | 10 | 1 | 208 |
| WATERCOURSE: RED RUN | CULVERT LOCATION: EAST BOUND 16-MILE ROAD | | | |

CULVERT DESCRIPTION: BOX CULVERT WITH PARALLEL WINGWALLS AND 3 PIERS (POINTED EDGE)

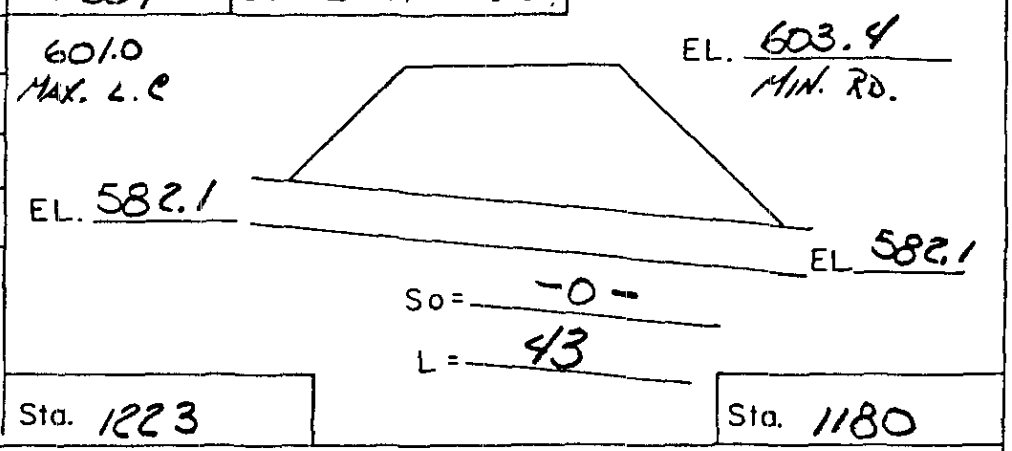
BY DCM DATE 1-10-77

WEIR DESCRIPTION: PAVED ROADWAY WITH 43 FOOT BREADTH

A = 2121.1 D = 18.9

WP = 447.7 Ke = 0.7

$\frac{29.1}{R^{4/3}}$ = 3.6654 n = 0.02




CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left(\frac{\Sigma P n^2}{\Sigma P}\right)^{1/2}$$

$$n \approx \left(\frac{270 \times 0.015^2 + 180 \times 0.025^2}{450}\right)^{\frac{1}{2}}$$

$n \approx 0.01962$

-XKOR- ? high

$XKOR = 1 + (0.7)(3.6654)(0.01962)^2(43)$

$XKOR = 1.761$

-COFQ-

AVE. $h \approx 2'$

THEN $\frac{h}{L} = \frac{2}{43} = 0.05 < 0.15$

THEREFORE USE:

$h = 2$

COFQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible].00 | 62 | 782.00 | 967.00 | [illegible]00 | 0.00 | 0.00 | 0.940 | | |
| BT | 27.00 | 0.00 | 604.20 | 0.00 | 82.00 | 604.00 | 0.00 | 182.00 | 603.90 | 0.0[illegible] |
| BT | 282.00 | 603.60 | 0.00 | 382.00 | 603.50 | 0.00 | 482.00 | 603.60 | 0.00 | 582.0[illegible] |
| BT | 603.60 | 0.00 | 682.00 | 603.50 | 0.00 | 780.00 | 603.50 | 0.00 | 780.00 | 607.7[illegible] |
| BT | 0.00 | 782.00 | 607.70 | 601.00 | 824.70 | 607.60 | 600.90 | 874.70 | 607.60 | 600.9[illegible] |
| BT | 924.50 | 607.60 | 600.90 | 967.00 | 607.60 | 600.90 | 970.00 | 607.60 | 0.00 | 970.0[illegible] |
| BT | 603.40 | 0.00 | 982.00 | 603.50 | 0.00 | 1082.00 | 603.30 | 0.00 | 1088.00 | 604.1[illegible] |
| BT | 0.00 | 1100.00 | 605.30 | 0.00 | 1200.00 | 605.40 | 0.00 | 1300.00 | 605.70 | 0.0[illegible] |
| BT | 1400.00 | 605.60 | 0.00 | 1500.00 | 603.60 | 0.00 | 1600.00 | 603.60 | 0.00 | 1700.0[illegible] |
| BT | 605.10 | 0.00 | | | | | | | | |
| GR | 602.90 | 0.00 | 602.00 | 82.00 | 601.80 | 100.00 | 602.60 | 182.00 | 602.80 | 200.0[illegible] |
| GR | 603.00 | 282.00 | 603.10 | 300.00 | 600.80 | 382.00 | 600.30 | 400.00 | 598.40 | 482.0[illegible] |
| GR | 598.00 | 500.00 | 597.60 | 565.00 | 597.40 | 582.00 | 596.60 | 682.00 | 596.10 | 740.0[illegible] |
| GR | 594.00 | 780.00 | 601.00 | 782.00 | 597.10 | 783.00 | 596.40 | 769.00 | 591.70 | 809.0[illegible] |
| GR | 590.90 | 819.00 | 588.40 | 823.40 | 600.90 | 823.40 | 600.90 | 824.70 | 600.90 | 826.0[illegible] |
| GR | 587.50 | 826.00 | 587.20 | 832.00 | 584.30 | 842.00 | 584.10 | 852.00 | 583.80 | 862.0[illegible] |
| GR | 583.60 | 873.40 | 600.90 | 873.40 | 600.90 | 874.70 | 600.90 | 876.00 | 583.90 | 876.0[illegible] |
| GR | 582.90 | 882.00 | 582.70 | 892.00 | 582.70 | 902.00 | 582.10 | 912.00 | 583.40 | 923.2[illegible] |
| GR | 600.90 | 923.20 | 600.90 | 924.50 | 600.90 | 925.80 | 587.30 | 925.80 | 588.90 | 931.0[illegible] |
| GR | 591.30 | 939.00 | 596.70 | 961.00 | 598.10 | 966.00 | 600.90 | 967.00 | 593.30 | 970.0[illegible] |
| GR | 593.70 | 982.00 | 594.30 | 1000.00 | 595.00 | 1045.00 | 602.80 | 1082.00 | 604.10 | 1088.0[illegible] |
| GR | 605.30 | 1100.00 | 605.40 | 1200.00 | 605.70 | 1300.00 | 605.60 | 1400.00 | 603.30 | 1500.0[illegible] |
| GR | 603.10 | 1600.00 | 605.10 | 1700.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 782.00 | 601.00 | 824.70 | 600.90 | 874.70 | 600.90 | 924.50 | 600.90 | 967.00 | 600.90 |
| 782.00 | 601.00 | 783.00 | 597.10 | 789.00 | 596.40 | 809.00 | 591.70 | 819.00 | 590.90 |
| 823.40 | 588.40 | 823.40 | 600.90 | 824.70 | 600.90 | 826.00 | 600.90 | 826.00 | 587.50 |
| 832.00 | 587.20 | 842.00 | 584.30 | 852.00 | 584.10 | 862.00 | 583.80 | 873.40 | 583.60 |
| 873.40 | 600.90 | 874.70 | 600.90 | 876.00 | 600.90 | 876.00 | 583.90 | 882.00 | 582.90 |
| 892.00 | 582.70 | 902.00 | 582.70 | 912.00 | 582.10 | 923.20 | 583.40 | 923.20 | 600.90 |
| 924.50 | 600.90 | 925.80 | 600.90 | 925.80 | 587.30 | 931.00 | 588.90 | 939.00 | 591.30 |

961.00 596.70 966.00 598.10 967.00 600.90

****** LISTING OF COORDINATES OF ORIFICE ******

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 782.00 | 601.00 | 824.70 | 600.90 | 874.70 | 600.90 | 924.50 | 600.90 | 967.00 | 600.90 |
| 966.00 | 598.10 | 961.00 | 596.70 | 939.00 | 591.30 | 931.00 | 588.90 | 925.80 | 587.30 |
| 925.80 | 600.90 | 924.50 | 600.90 | 923.20 | 600.90 | 923.20 | 563.40 | 912.00 | 582.10 |
| 902.00 | 582.70 | 892.00 | 582.70 | 882.00 | 582.90 | 876.00 | 583.90 | 876.00 | 600.90 |
| 874.70 | 600.90 | 873.40 | 600.90 | 873.40 | 583.60 | 862.00 | 583.80 | 852.00 | 584.10 |
| 842.00 | 584.30 | 832.00 | 587.20 | 826.00 | 587.50 | 826.00 | 600.90 | 824.70 | 600.90 |
| 823.40 | 600.90 | 823.40 | 583.40 | 819.00 | 580.60 | 809.00 | 591.70 | 789.00 | 596.40 |
| 783.00 | 597.10 | 782.00 | 601.00 | | | | | | |

ORIFICE AREA 2121.1 WETTED PERIMETER 447.7 29.1/P**1.333 3.6654

Johnson & Anderson, Inc.
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

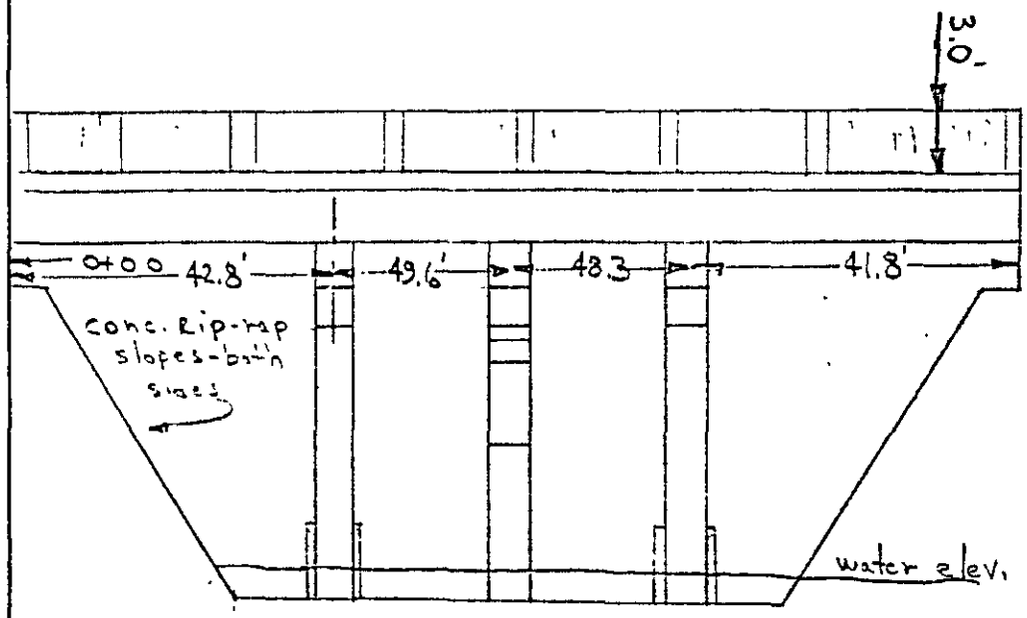
VWCR

Code No. 5555-70-01-B

| | | | |
|---|---|---|---|
| Job Name: City of Warren - FIS - Red Run | | | By: C. Mapley, J. Kaspar, E. Walker |
| Date: 12-9-75 | Feature: 15 mi Rd. bridge | | Water Course: Red Run |
| Remarks: Roll "J" 24 US 25 DS 26 USF 27 DSF 28 RB 29 LB | | | |
| | | | |
| | | | |
| Width of Piers: (over) | Pier Shape: (over) See sketch & photos | No. of Piers: 3 | Area: |
| Water Elevation: 587.81 | Length: 184.9' | Width of Deck: 46.8 | Skew: See sketch |

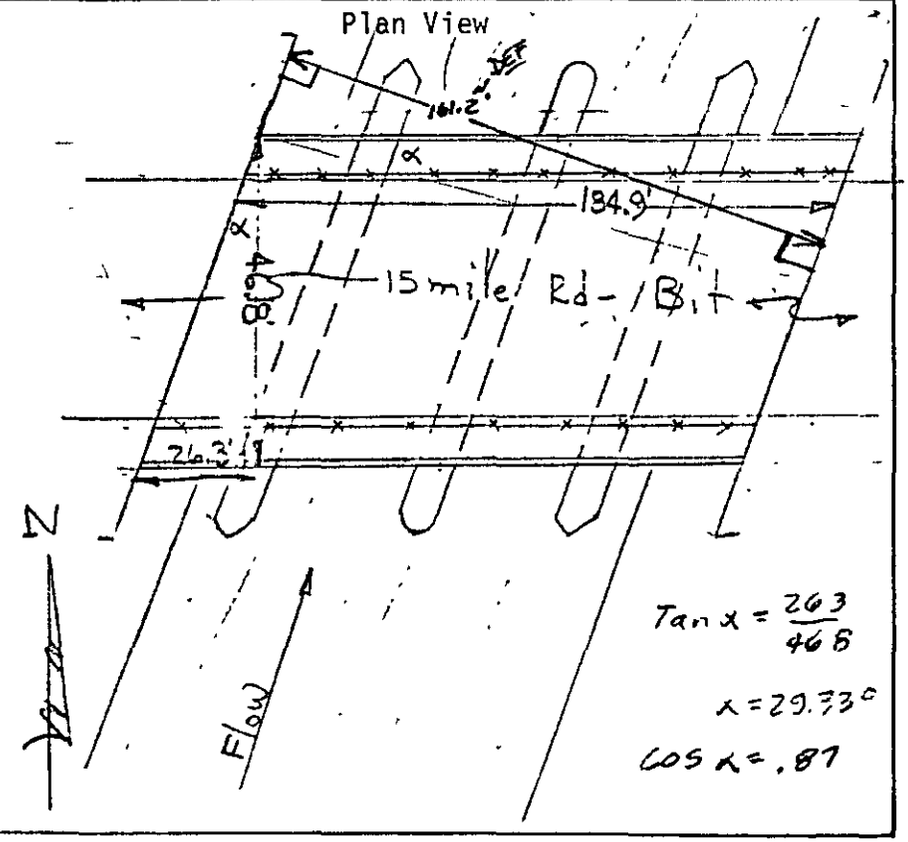
## FIELD SKETCH

Profile View




USF

Plan View




$\tan \alpha = \frac{26.3}{46.8}$

$\alpha = 29.73°$

$\cos \alpha = .87$

| | | | | |
|---|---|---|---|---|
| JOB NAME: STERLING HTS. | JOB NO. | 5670 | 10 | 1 | 2 |

WATERCOURSE: KEL RUN

CULVERT LOCATION: 15-MILE ROAD

CULVERT DESCRIPTION:

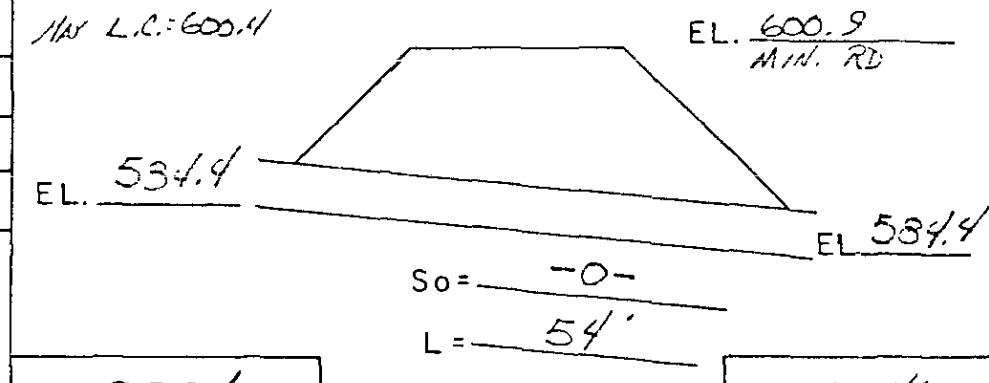
WINGWALLS PARALLEL (EXTENSION OF SIDES)

WITH 3 PIERS (POINTED EDGE)

WEIR DESCRIPTION: PAVED ROADWAY

@ 54' BREADTH

BY DCM | DATE 1-18-77




A = 1676 □'

WP = 387.3'

$\frac{29.1}{R^{4/3}}$ = 4.1369

D = 16.0'

Ke = 0.7

n = 0.02

CALCULATIONS AND COMMENTS:

- MANNING'S "n" -

$$n \approx \left(\frac{\Sigma P n^2}{\Sigma P}\right)^{1/2}$$

$$n \approx \left(\frac{255 \times 0.015^2 + 140 \times 0.025^2}{390}\right)^{1/2}$$

n ≈ 0.01920

- XKOR -

high

XKOR = 1 + 0.7 - (4.1369)(0.01920)²(54)

XKOR = 1.782

- COFQ -

AVE h ≈ 5'

THEN $\frac{h}{L} = \frac{5}{54} = 0.09 < 0.15$

THEREFORE USE:

h = 5

COFQ = 305

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible].00 | 59 | [illegible]25.00 | 1010.00 | 54.[illegible] | 54.00 | 54.00 | 0.870 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 27.00 | 0.00 | 604.60 | 0.00 | 48.00 | 604.70 | 0.00 | 148.00 | 603.90 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 248.00 | 603.90 | 0.00 | 348.00 | 603.90 | 0.00 | 448.00 | 601.90 | 0.00 | 473.00 |
| BT | 601.20 | 0.00 | 525.00 | 600.90 | 0.00 | 625.00 | 601.10 | 0.00 | 725.00 | 602.30 |
| BT | 0.00 | 825.00 | 603.70 | 0.00 | 825.00 | 607.30 | 600.40 | 864.30 | 607.30 | 600.40 |
| BT | 871.30 | 607.30 | 600.20 | 915.00 | 607.30 | 600.20 | 919.80 | 607.30 | 600.20 | 964.80 |
| BT | 607.30 | 600.20 | 971.40 | 607.30 | 600.40 | 1010.00 | 607.30 | 600.50 | 1010.00 | 603.70 |
| BT | 0.00 | 1025.00 | 603.90 | 0.00 | 1036.00 | 604.00 | 0.00 | 1048.00 | 604.60 | 0.00 |
| BT | 1148.00 | 606.70 | 0.00 | 1248.00 | 608.00 | 0.00 | 1348.00 | 608.80 | 0.00 | 1440.00 |
| BT | 609.30 | 0.00 | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 604.60 | 0.00 | 604.70 | 25.00 | 604.70 | 48.00 | 604.10 | 125.00 | 603.90 | 148.00 |
| GR | 603.90 | 225.00 | 603.90 | 248.00 | 603.90 | 325.00 | 603.90 | 348.00 | 602.40 | 425.00 |
| GR | 601.90 | 448.00 | 600.20 | 473.00 | 599.60 | 525.00 | 598.90 | 548.00 | 597.10 | 625.00 |
| GR | 596.60 | 648.00 | 595.30 | 725.00 | 594.90 | 748.00 | 595.80 | 825.00 | 600.40 | 825.00 |
| GR | 598.10 | 825.00 | 598.10 | 830.70 | 587.70 | 856.00 | 585.40 | 857.50 | 584.40 | 864.30 |
| GR | 600.40 | 864.30 | 600.20 | 871.30 | 586.20 | 871.30 | 585.90 | 875.00 | 584.90 | 885.00 |
| GR | 585.00 | 895.00 | 585.20 | 905.00 | 584.90 | 915.00 | 600.20 | 915.00 | 600.20 | 919.80 |
| GR | 585.10 | 919.80 | 585.70 | 925.00 | 585.50 | 935.00 | 585.70 | 945.00 | 585.90 | 955.00 |
| GR | 586.30 | 964.80 | 600.20 | 964.80 | 600.40 | 971.40 | 588.10 | 971.40 | 588.10 | 978.60 |
| GR | 597.80 | 1003.20 | 597.90 | 1010.00 | 602.50 | 1010.00 | 603.30 | 1025.00 | 604.00 | 1036.00 |
| GR | 604.60 | 1048.00 | 606.20 | 1125.00 | 606.70 | 1148.00 | 607.70 | 1225.00 | 608.00 | 1248.00 |
| GR | 608.60 | 1325.00 | 608.80 | 1348.00 | 609.20 | 1425.00 | 609.30 | 1440.00 | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 825.00 | 600.40 | 864.30 | 600.40 | 871.30 | 600.20 | 915.00 | 600.20 | 919.80 | 600.20 |
| 964.80 | 600.20 | 971.40 | 600.40 | 1010.00 | 600.50 | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 825.00 | 595.80 | 825.00 | 600.40 | 825.00 | 598.10 | 830.70 | 598.10 | 856.00 | 587.70 |
| 857.50 | 585.40 | 864.30 | 588.40 | 864.30 | 600.40 | 871.30 | 600.20 | 871.30 | 586.20 |
| 875.00 | 585.90 | 885.00 | 584.90 | 895.00 | 585.00 | 905.00 | 585.20 | 915.00 | 584.90 |
| 915.00 | 600.20 | 919.80 | 600.20 | 919.80 | 585.10 | 925.00 | 585.70 | 935.00 | 585.50 |
| 945.00 | 585.70 | 955.00 | 585.90 | 964.80 | 586.30 | 964.30 | 600.20 | 971.40 | 600.40 |
| 971.40 | 588.10 | 978.60 | 588.10 | 1003.20 | 597.80 | 1010.00 | 597.90 | 1010.00 | 602.50 |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 825.00 | 600.40 | 864.30 | 600.40 | 871.30 | 600.20 | 915.00 | 600.20 | 919.80 | 600.20 |
| 964.80 | 600.20 | 971.40 | 600.40 | 1010.00 | 600.50 | 1010.00 | 597.90 | 1003.20 | 597.80 |
| 978.60 | 588.10 | 971.40 | 588.10 | 971.40 | 600.40 | 964.80 | 600.20 | 964.80 | 586.30 |
| 955.00 | 585.90 | 945.00 | 585.70 | 935.00 | 585.50 | 925.00 | 585.70 | 919.80 | 585.10 |
| 919.80 | 600.20 | 915.00 | 600.20 | 915.00 | 584.90 | 905.00 | 585.20 | 895.00 | 585.00 |
| 885.00 | 584.90 | 875.00 | 585.90 | 871.30 | 586.20 | 871.30 | 600.20 | 864.30 | 600.40 |
| 864.30 | 584.40 | 857.50 | 585.40 | 856.00 | 587.70 | 830.70 | 598.10 | 825.00 | 598.10 |
| 825.00 | 600.40 | 825.00 | 600.40 | | | | | | |

ORIFICE AREA 1676.0 WETTED PERIMETER 387.3 29.1/R**1.333 4.1369

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

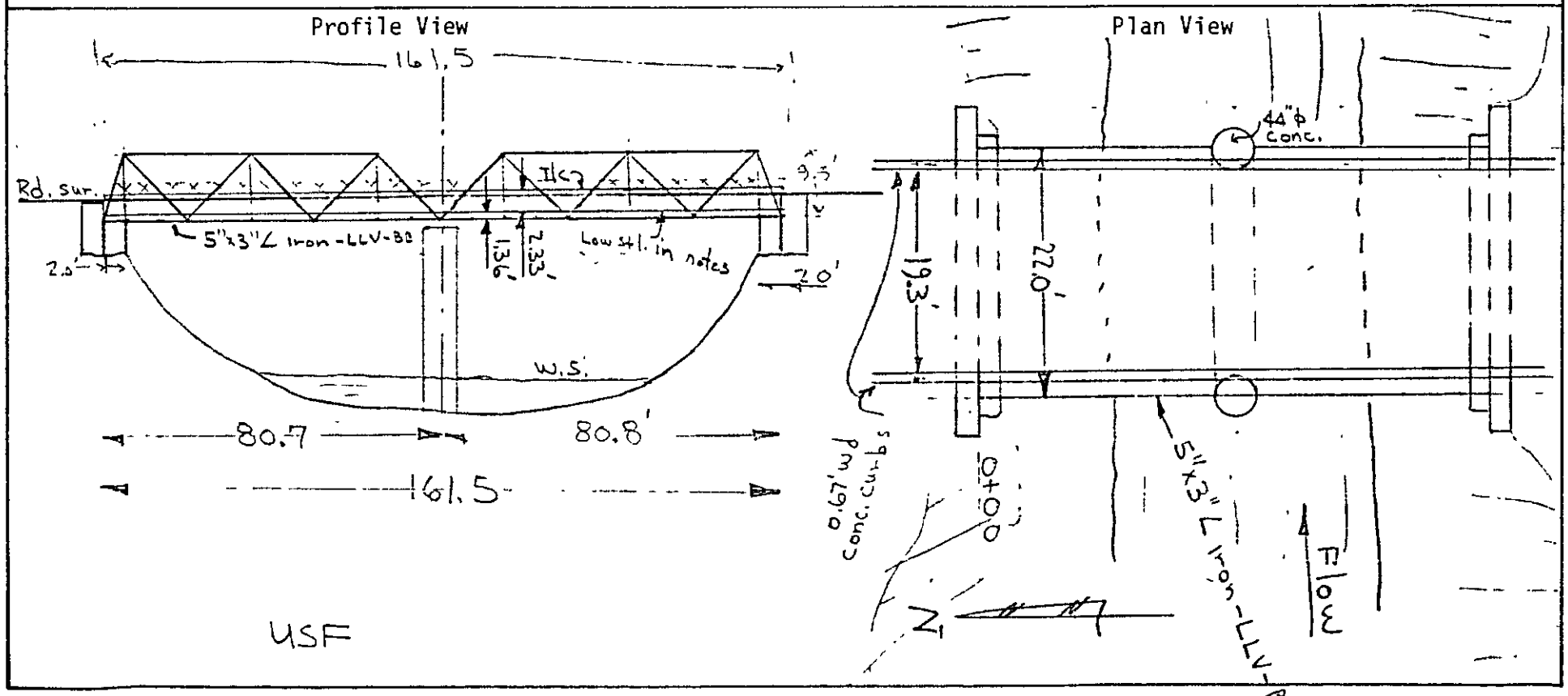
v WCR

# HYDRAULIC STRUCTURAL DATA

Code No. ~~5555-70-01-BS#4~~

| | | | |
|---|---|---|---|
| Job Name: City of Warren - FIS | | | By: S. Mapley, J. Kospar, E. Walker |
| Date: 1-6-76 | Feature: Schoenherr Rd. Bridge | | Water Course: Red Run |
| Remarks: Photos: Roll "Q" DS 7, US 8, USF 9, DSF 10, RB 11, LB 12 | | | |
| | | | |
| | | | |
| Width of Piers: 44" ϕ | Pier Shape: ○ | No. of Piers: 2 | Area: |
| Water Elevation: 586.76 | Length: 161.5' | Width of Deck: 19.3' | Skew: ——— |

FIELD SKETCH



| | | | | |
|---|---|---|---|---|
| JOB NAME: STERLING HTS. | JOB NO. 5670 | 10 | 1 | 4 |
| WATERCOURSE: RED RUN | CULVERT LOCATION: SCHOENHERR ROAD | | | |

CULVERT DESCRIPTION:

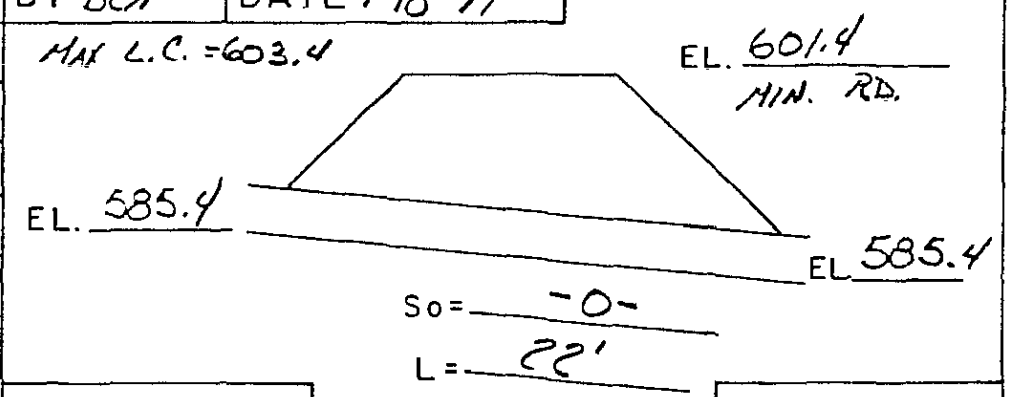
NO WINGWALLS

1 PIER (TWIN CYLINDERS)

WEIR DESCRIPTION: PAVED ROADWAY

@ 22' BREATH

BY DCH | DATE 1-18-77




A = 2142.3 □'  D = 16.0'

WP = 364.0'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 2.7455  n = 0.02

CALCULATIONS AND COMMENTS:

- MANNING'S "n" -

$$n \approx \left(\frac{E P n^2}{E P}\right)^{\frac{1}{2}}$$

$$n \approx \left(\frac{195 \times 0.015^2 + 170 \times 0.025^2}{365}\right)^{1/2}$$

$n \approx 0.02028$

- XKOR -

$$XKOR = 1 + 0.5 + (2.7455)(0.02028)^2(22)$$

$XKOR = 1.525$

- COFQ -

ASSUME H = 1.0' FOR INITIAL RUN

THEN: $\frac{H}{L} = \frac{1.0'}{22'} = 0.045 < 0.15$

THEREFORE USE:

H = 1.0'

COFQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 4.00 | 42 | 802.00 | 959.50 | 2[illegible].00 | 22.00 | 22.00 | 1.000 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 21.00 | 0.00 | 604.20 | 0.00 | 33.00 | 604.10 | 0.00 | 100.00 | 604.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 200.00 | 603.60 | 0.00 | 219.00 | 603.20 | 0.00 | 300.00 | 602.90 | 0.00 | 400.00 |
| BT | 601.80 | 0.00 | 500.00 | 601.40 | 0.00 | 600.00 | 601.50 | 0.00 | 700.00 | 603.00 |
| BT | 0.00 | 800.00 | 604.90 | 0.00 | 800.00 | 605.60 | 0.00 | 802.00 | 605.60 | 603.30 |
| BT | 880.70 | 605.70 | 603.40 | 959.50 | 605.70 | 603.40 | 961.50 | 605.70 | 0.00 | 961.50 |
| BT | 605.20 | 0.00 | 1000.00 | 604.90 | 0.00 | 1038.00 | 604.90 | 0.00 | 1100.00 | 606.90 |
| BT | 0.00 | 1150.00 | 607.70 | 0.00 | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 604.20 | 0.00 | 604.10 | 33.00 | 604.00 | 100.00 | 603.60 | 200.00 | 603.20 | 219.00 |
| GR | 601.60 | 300.00 | 599.50 | 400.00 | 598.30 | 500.00 | 599.10 | 600.00 | 599.20 | 700.00 |
| GR | 598.10 | 800.00 | 603.30 | 802.00 | 598.80 | 802.00 | 598.80 | 808.00 | 597.90 | 810.00 |
| GR | 593.40 | 820.00 | 589.50 | 828.00 | 589.30 | 830.00 | 587.20 | 840.00 | 586.80 | 850.00 |
| GR | 586.20 | 860.00 | 585.90 | 870.00 | 585.60 | 878.90 | 603.40 | 878.90 | 603.40 | 880.70 |
| GR | 603.40 | 882.50 | 585.60 | 882.50 | 585.40 | 890.00 | 586.20 | 900.00 | 586.20 | 910.00 |
| GR | 586.30 | 920.00 | 587.10 | 930.00 | 591.70 | 940.00 | 597.70 | 950.00 | 599.70 | 959.50 |
| GR | 603.40 | 959.50 | 599.60 | 961.50 | 602.50 | 970.00 | 603.70 | 1000.00 | 604.90 | 1038.00 |
| GR | 606.90 | 1100.00 | 607.70 | 1150.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | |
|---|---|---|---|---|---|
| 802.00 | 603.30 | 880.70 | 603.40 | 959.50 | 603.40 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 802.00 | 603.30 | 802.00 | 598.80 | 808.00 | 598.80 | 810.00 | 597.90 | 820.00 | 593.40 |
| 828.00 | 589.50 | 830.00 | 589.30 | 840.00 | 587.20 | 850.00 | 586.80 | 860.00 | 586.20 |
| 870.00 | 585.90 | 878.90 | 585.60 | 878.90 | 603.40 | 880.70 | 603.40 | 882.50 | 603.40 |
| 882.50 | 585.60 | 890.00 | 585.40 | 900.00 | 586.20 | 910.00 | 586.20 | 920.00 | 586.30 |
| 930.00 | 587.10 | 940.00 | 591.70 | 950.00 | 597.70 | 959.50 | 599.70 | 959.50 | 603.40 |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 802.00 | 603.30 | 880.70 | 603.40 | 959.50 | 603.40 | 959.50 | 599.70 | 950.00 | 597.70 |
| 940.00 | 591.70 | 930.00 | 587.10 | 920.00 | 586.30 | 910.00 | 586.20 | 900.00 | 586.20 |
| 890.00 | 585.40 | 882.50 | 585.60 | 882.50 | 603.40 | 880.70 | 603.40 | 878.90 | 603.40 |
| 878.90 | 585.60 | 870.00 | 585.90 | 860.00 | 586.20 | 850.00 | 586.80 | 840.00 | 587.20 |

830.00 589.30 828.00 589.50 820.00 593.40 810.00 597.90 808.00 598.80
802.[illegible] 598.80 802.00 603.30

ORIFICE AREA 2142.3 WETTED PERIMETER 364.0 29.1/R**1.333 2.7455

2.14 mi to S.

BS-9 VWCR

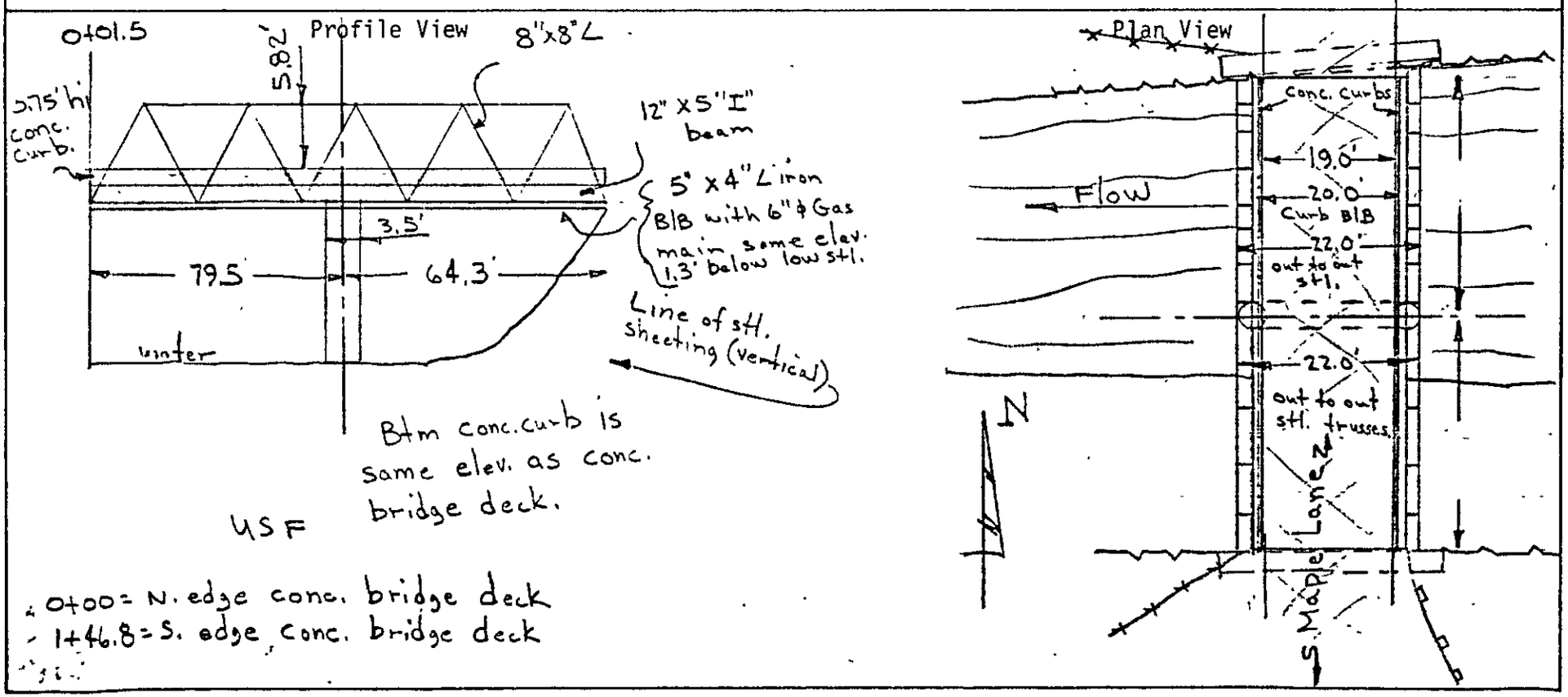
**Johnson & Anderson, Inc.**
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-85-9

| | | | |
|---|---|---|---|
| Job Name: City of Warren- FIS | | | By: C. Mapley, J. Kaspar, D. Nett |
| Date: 12-15-75 | Feature: Stl. Truss Bridge-Maple Lane Rd. | | Water Course: Red Run |
| Remarks: Roll "K" 21 US 22 DS 23 USF 24 DSF 25 RB 26 LB | | | |
| | | | |
| | | | |
| Width of Piers: | Pier Shape: ○ 3.5' ϕ | No. of Piers: 1 | Area: |
| Water Elevation: 588.80 | Length: 143.8 (opening) | Width of Deck: 20.0 | Skew: None |

## FIELD SKETCH




0+00 = N. edge conc. bridge deck
1+46.8 = S. edge conc. bridge deck

| | | | | | |
|---|---|---|---|---|---|
| JOB NAME: STERLING HTS. | | JOB NO. | 5670 | 10 | 1 | 9 |
| WATERCOURSE: RED RUN | | CULVERT LOCATION: HARPLELANE ROAD | | | |
| CULVERT DESCRIPTION: | | BY DCM | DATE 1-20-77 | | |

ONE WINGWALL, EXTENSION OF SIDE

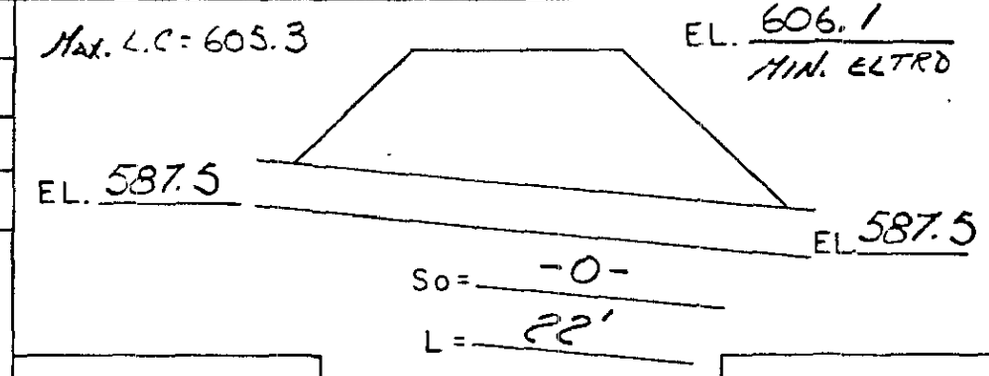
WEIR DESCRIPTION: PAVED ROADWAY

@ 22' BREADTH

A = 2032.8 □'  D = 17.8'

WP = 346.9'  Ke = 0.6

$\frac{29.1}{R^{4/3}}$ = 2.7610  n = 0.02




CALCULATIONS AND COMMENTS:

- MANNING'S "n" —

$$n \approx \left(\frac{\Sigma P n^2}{\Sigma P}\right)^{\frac{1}{2}}$$

$$n \approx \left(\frac{220 \times 0.015^2 + 125 \times 0.025^2}{345}\right)^{\frac{1}{2}}$$

$n \approx 0.01923$

- XKOR -

$XKOR = 1 + 0.6 + (2.7610)(0.01923)^2(22)$

$XKOR = 1.622$

- COFQ -

AVE. $h \approx 4'$

THEN $\frac{h}{L} = \frac{4}{22} = 0.18 > 0.15$

THEREFORE USE:

COFQ = 3.07 @ $\frac{h}{L} = 0.18$

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9.00 | 35 | 177.00 | 323.80 | 22.00 | 22.00 | 22.00 | 1.000 | | |
| B1 | 15.00 | 0.00 | 616.10 | 0.00 | 100.00 | 613.40 | 0.00 | 124.00 | 607.90 | 0.00 |
| BT | 177.00 | 606.70 | 0.00 | 177.00 | 607.50 | 605.10 | 256.20 | 607.60 | 605.30 | 259.70 |
| BT | 607.50 | 605.20 | 323.80 | 607.60 | 605.10 | 323.80 | 606.80 | 0.00 | 327.00 | 606.80 |
| BT | 0.00 | 377.00 | 606.40 | 0.00 | 392.00 | 606.30 | 0.00 | 400.00 | 606.50 | 0.00 |
| BT | 500.00 | 606.10 | 0.00 | 600.00 | 607.20 | 0.00 | | | | |
| GR | 616.10 | 0.00 | 613.40 | 100.00 | 607.90 | 124.00 | 606.70 | 177.00 | 605.10 | 177.00 |
| GR | 589.20 | 178.50 | 588.50 | 182.00 | 587.80 | 187.00 | 587.50 | 192.00 | 587.70 | 197.00 |
| GR | 586.00 | 202.00 | 587.80 | 207.00 | 587.60 | 217.00 | 587.60 | 227.00 | 588.00 | 237.00 |
| GR | 588.80 | 247.00 | 588.00 | 256.25 | 605.30 | 256.25 | 605.30 | 259.75 | 587.60 | 259.75 |
| GR | 588.40 | 262.00 | 589.60 | 267.00 | 592.40 | 277.00 | 593.20 | 287.00 | 592.10 | 291.00 |
| GR | 593.80 | 297.00 | 600.90 | 317.00 | 602.50 | 321.00 | 605.10 | 323.80 | 604.90 | 327.00 |
| GR | 606.00 | 377.00 | 606.30 | 392.00 | 606.50 | 400.00 | 606.10 | 500.00 | 607.20 | 600.00 |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 177.00 | 605.10 | 256.20 | 605.30 | 259.70 | 605.20 | 323.80 | 605.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 177.00 | 606.70 | 177.00 | 605.10 | 178.50 | 589.20 | 182.00 | 588.50 | 187.00 | 587.80 |
| 192.00 | 587.50 | 197.00 | 587.70 | 202.00 | 588.00 | 207.00 | 587.80 | 217.00 | 587.60 |
| 227.00 | 587.60 | 237.00 | 588.00 | 247.00 | 588.80 | 256.25 | 588.00 | 256.25 | 605.30 |
| 259.75 | 605.30 | 259.75 | 587.60 | 262.00 | 588.40 | 267.00 | 589.60 | 277.00 | 592.40 |
| 287.00 | 593.20 | 291.00 | 592.10 | 297.00 | 593.80 | 317.00 | 600.90 | 321.00 | 602.50 |
| 323.80 | 605.10 | | | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 177.00 | 605.10 | 256.20 | 605.30 | 259.70 | 605.20 | 323.80 | 605.10 | 321.00 | 602.50 |
| 317.00 | 600.90 | 297.00 | 593.80 | 291.00 | 592.10 | 287.00 | 593.20 | 277.00 | 592.40 |
| 267.00 | 589.60 | 262.00 | 588.40 | 259.75 | 587.60 | 259.75 | 605.30 | 256.25 | 605.30 |
| 256.25 | 588.00 | 247.00 | 588.80 | 237.00 | 588.00 | 227.00 | 587.60 | 217.00 | 587.60 |
| 207.00 | 587.80 | 202.00 | 588.00 | 197.00 | 587.70 | 192.00 | 587.50 | 187.00 | 587.80 |
| 182.00 | 588.50 | 178.50 | 589.20 | 177.00 | 605.10 | 177.00 | 605.10 | | |

ORIFICE AREA 2032.8 WETTED PERIMETER 346.9 29.1/R**1.333 2.7610

BS #12

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

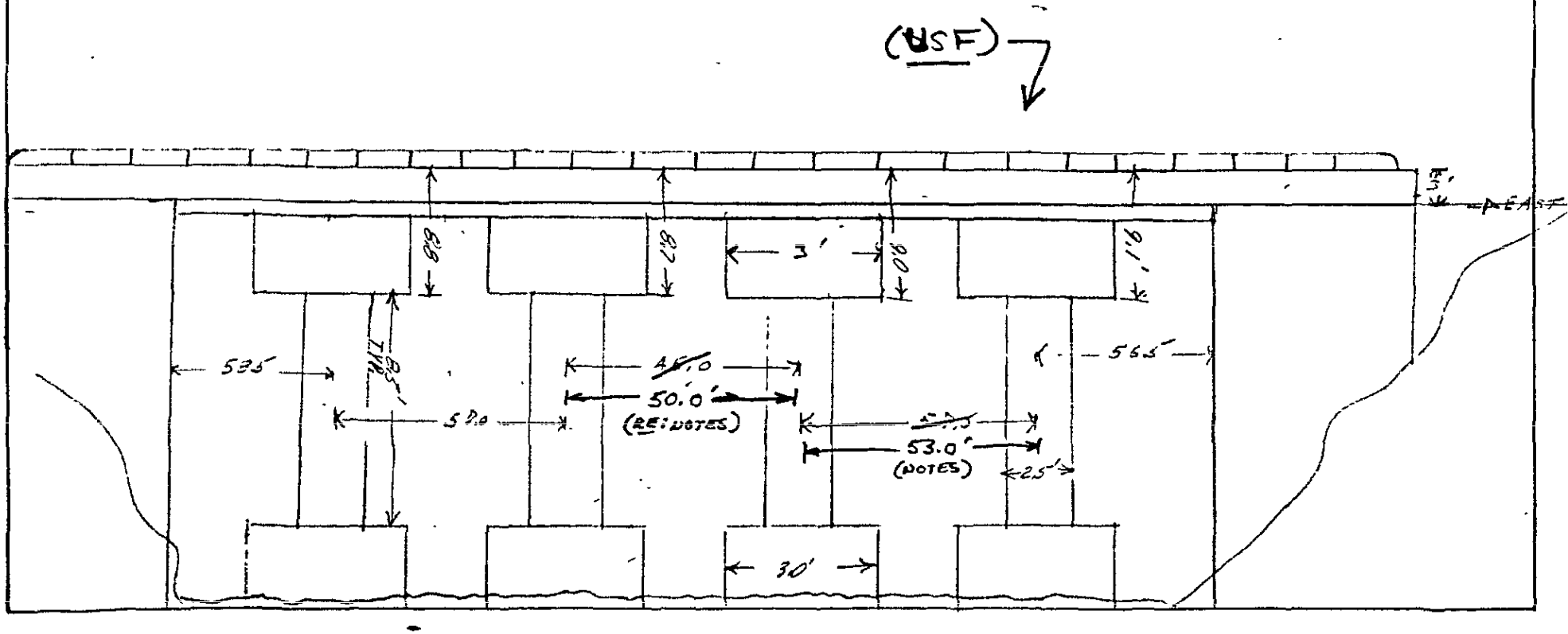
Code No. 5555-70

| | | | |
|---|---|---|---|
| Job Name: CITY OF WARREN FIS (RED RUN) | | | By: JOHN H. BENNETT |
| Date: 5-10-76 | Feature: 14 MILE RD BRIDGE | | Water Course: RED RUN |
| Remarks: | | | |
| | | | |
| | | | |
| Width of Piers: 3' | Pier Shape: Round | No. of Piers: 4 | Area: |
| Water Elevation: | Length: 224.0 | Width of Deck: 71.0 | Skew: 45° |

FIELD SKETCH

Profile View

Plan View



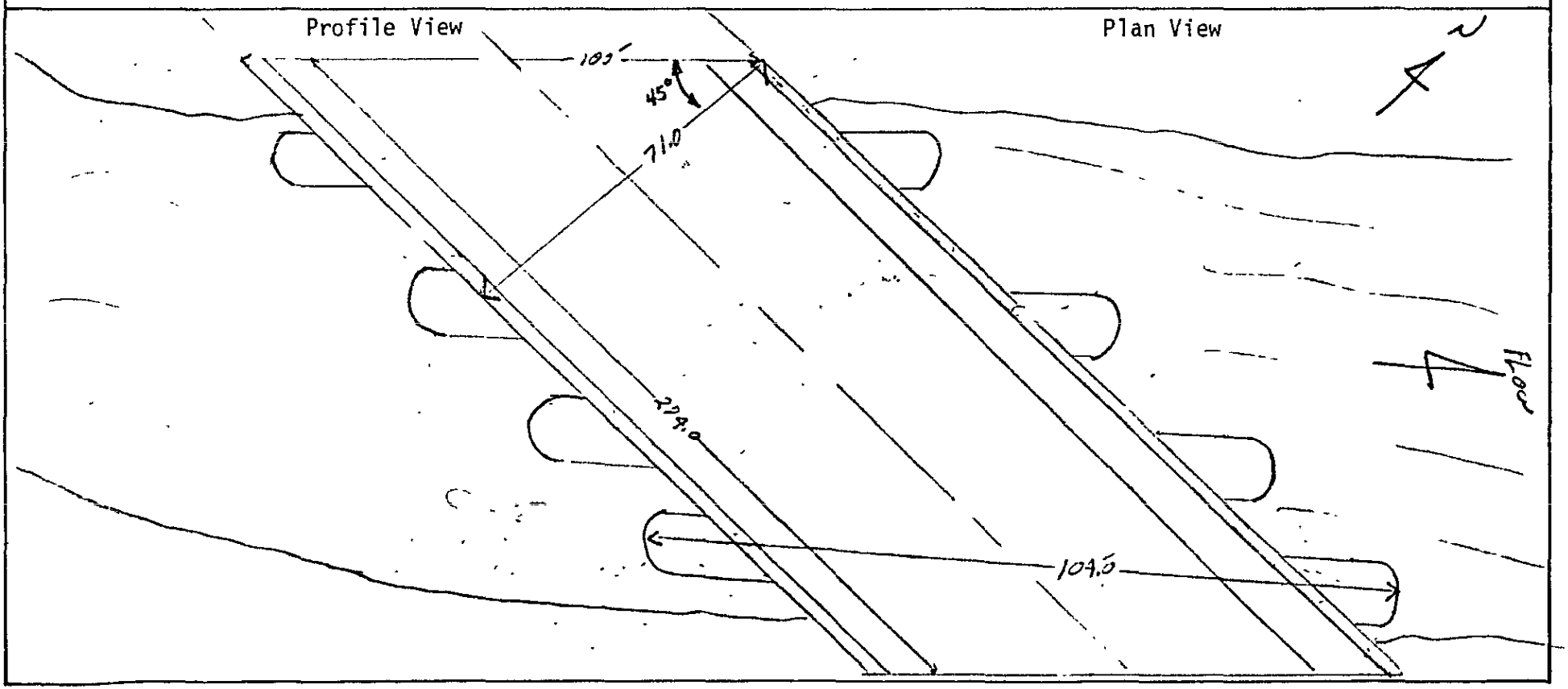
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70

| | | | |
|---|---|---|---|
| Job Name: CITY OF WARREN FIS. (RED RUN) | | By: JOHN H. BENNETT | |
| Date: 5-10-76 | Feature: 14 MILE RD BRIDGE | Water Course: RED RUN | |
| Remarks: | | | |
| Width of Piers: 3' | Pier Shape: ⬭ ROUND | No. of Piers: 4 | Area: |
| Water Elevation: | Length: 274.0 | Width of Deck: 71.0 | Skew: 45° |

FIELD SKETCH



| | | | | |
|---|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. | 5555 | 70 | 1 | 12 |

WATERCOURSE: RED RUN

CULVERT LOCATION: 14-MILE ROAD

CULVERT DESCRIPTION:

NO WINGWALLS

BY DCM DATE 1-26-77

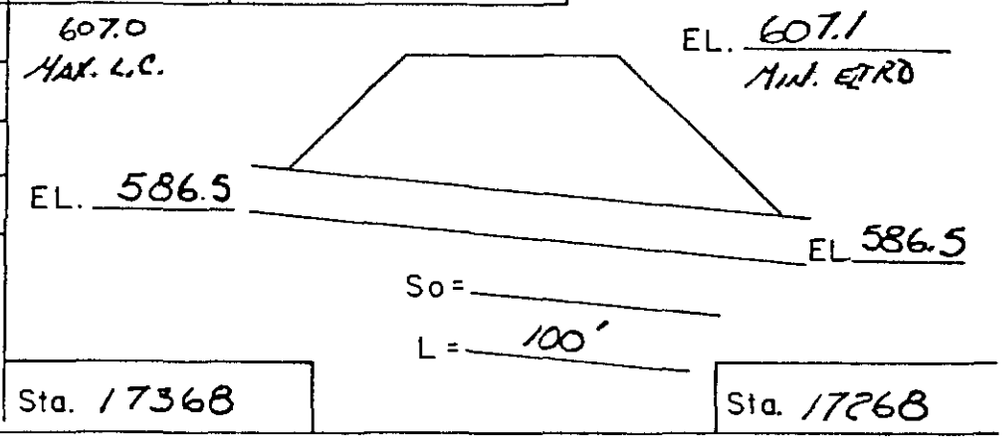
WEIR DESCRIPTION: PAVED ROADWAY

100 FT. BREADTH

A = 3233.7 □'  D = 20.5'

WP = 562.9  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 2.8351  n =




CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left[\frac{365 \times 0.015^2 + 195 \times 0.025^2}{560}\right]^{1/2}$$

$n \approx 0.01909$

-XKOR-

$XKOR = 1. + 0.5 + (2.8351)(0.01909)^2(100)$

$XKOR = 1.603$

-COFQ-

AVE. $h \approx 3$

THEN $\frac{h}{L} = \frac{3}{100} = 0.03 < 0.15$

THEREFORE USE:

$h \approx 3$

COFQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 12.00 | 61 | 400.00 | 591.80 | 100.00 | 100.00 | 100.00 | 1.000 | | |
| BT | 21.00 | 0.00 | 613.30 | 0.00 | 90.00 | 607.90 | 0.00 | 275.00 | 606.40 | 0.00 |
| BT | 300.00 | 607.10 | 0.00 | 325.00 | 607.60 | 0.00 | 350.00 | 608.20 | 0.00 | 375.00 |
| BT | 608.80 | 0.00 | 400.00 | 608.80 | 0.00 | 400.00 | 611.80 | 606.10 | 438.50 | 612.10 |
| BT | 606.40 | 478.40 | 612.40 | 606.80 | 513.40 | 612.70 | 607.00 | 550.50 | 612.50 | 606.90 |
| BT | 591.80 | 612.20 | 606.50 | 591.80 | 609.20 | 0.00 | 600.80 | 609.30 | 0.00 | 623.30 |
| BT | 608.60 | 0.00 | 648.30 | 608.20 | 0.00 | 673.30 | 607.60 | 0.00 | 698.30 | 607.20 |
| BT | 0.00 | 723.30 | 606.40 | 0.00 | | | | | | |
| GR | 613.30 | 0.00 | 607.90 | 90.00 | 606.40 | 275.00 | 607.10 | 300.00 | 607.60 | 325.00 |
| GR | 608.20 | 350.00 | 608.80 | 375.00 | 608.80 | 400.00 | 596.80 | 400.00 | 589.20 | 414.00 |
| GR | 589.20 | 421.00 | 587.90 | 428.00 | 587.90 | 435.00 | 588.00 | 437.00 | 606.40 | 437.00 |
| GR | 606.40 | 438.50 | 606.40 | 440.00 | 588.10 | 440.00 | 588.00 | 441.90 | 588.10 | 449.00 |
| GR | 588.30 | 456.00 | 588.30 | 463.00 | 588.20 | 470.00 | 588.30 | 476.90 | 606.80 | 476.90 |
| GR | 606.80 | 478.40 | 606.80 | 479.90 | 588.00 | 479.90 | 588.20 | 491.00 | 587.60 | 498.00 |
| GR | 587.00 | 505.00 | 586.50 | 509.90 | 586.50 | 511.90 | 607.00 | 511.90 | 607.00 | 513.40 |
| GR | 607.00 | 514.90 | 586.60 | 514.90 | 586.70 | 519.00 | 587.70 | 526.00 | 587.70 | 533.00 |
| GR | 588.00 | 540.00 | 588.00 | 544.00 | 586.50 | 549.00 | 606.90 | 549.00 | 606.90 | 550.50 |
| GR | 606.90 | 550.50 | 606.90 | 552.00 | 586.70 | 552.00 | 586.80 | 553.30 | 588.00 | 561.00 |
| GR | 587.40 | 568.00 | 588.10 | 575.00 | 591.90 | 582.00 | 596.60 | 591.80 | 609.20 | 591.80 |
| GR | 609.30 | 600.80 | 608.60 | 623.30 | 608.20 | 648.30 | 607.60 | 673.30 | 607.20 | 698.30 |
| GR | 606.40 | 723.30 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 400.00 | 606.10 | 438.50 | 606.40 | 478.40 | 606.80 | 513.40 | 607.00 | 550.50 | 606.90 |
| 591.80 | 606.50 | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 400.00 | 608.80 | 400.00 | 596.80 | 414.00 | 589.20 | 421.00 | 589.20 | 428.00 | 587.90 |
| 435.00 | 587.90 | 437.00 | 588.00 | 437.00 | 606.40 | 438.50 | 606.40 | 440.00 | 606.40 |
| 440.00 | 588.10 | 441.90 | 588.00 | 449.00 | 588.10 | 456.00 | 588.30 | 463.00 | 588.30 |
| 470.00 | 588.20 | 476.90 | 588.30 | 476.90 | 606.80 | 478.40 | 606.80 | 479.90 | 606.80 |
| 479.90 | 588.00 | 491.00 | 588.20 | 498.00 | 587.60 | 505.00 | 587.00 | 509.90 | 586.50 |
| 511.90 | 586.50 | 511.90 | 607.00 | 513.40 | 607.00 | 514.90 | 607.00 | 514.90 | 586.60 |
| 519.00 | 586.70 | 526.00 | 587.70 | 533.00 | 587.70 | 540.00 | 588.00 | 544.00 | 588.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 549.00 | 586.50 | 549.00 | 606.90 | 550.50 | 606.90 | 550.50 | 606.90 | 552.00 | 606.90 |
| 552.00 | 586.70 | 553.30 | 586.80 | 561.00 | 588.00 | 568.00 | 587.40 | 575.00 | 588.10 |
| 582.00 | 591.90 | 591.80 | 596.60 | 591.80 | 609.20 | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 400.00 | 606.10 | 438.50 | 606.40 | 478.40 | 606.80 | 513.40 | 607.00 | 550.50 | 606.90 |
| 591.80 | 606.50 | 591.80 | 596.60 | 582.00 | 591.90 | 575.00 | 588.10 | 568.00 | 587.40 |
| 561.00 | 588.00 | 553.30 | 586.80 | 552.00 | 586.70 | 552.00 | 606.90 | 550.50 | 606.90 |
| 550.50 | 606.90 | 549.00 | 606.90 | 549.00 | 586.50 | 544.00 | 588.00 | 540.00 | 588.00 |
| 533.00 | 587.70 | 526.00 | 587.70 | 519.00 | 586.70 | 514.90 | 586.60 | 514.90 | 607.00 |
| 513.40 | 607.00 | 511.90 | 607.00 | 511.90 | 586.50 | 509.90 | 586.50 | 505.00 | 587.00 |
| 498.00 | 587.60 | 491.00 | 588.20 | 479.90 | 588.00 | 479.90 | 606.80 | 478.40 | 606.80 |
| 476.90 | 606.80 | 476.90 | 588.30 | 470.00 | 588.20 | 463.00 | 588.30 | 456.00 | 588.30 |
| 449.00 | 588.10 | 441.90 | 588.00 | 440.00 | 588.10 | 440.00 | 606.40 | 438.50 | 606.40 |
| 437.00 | 606.40 | 437.00 | 588.00 | 435.00 | 587.90 | 428.00 | 587.90 | 421.00 | 589.20 |
| 414.00 | 589.20 | 400.00 | 596.80 | 400.00 | 606.10 | | | | |

ORIFICE AREA 3233.7 WETTED PERIMETER 562.9 29.1/R**1.333 2.8351

10-22 VWCK

**Johnson & Anderson, Inc.**
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

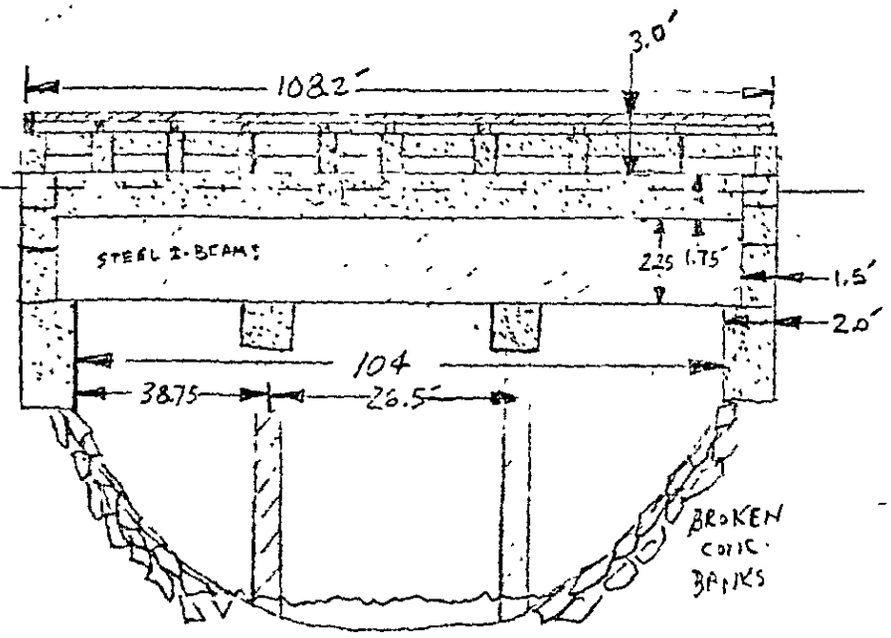
# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-#22

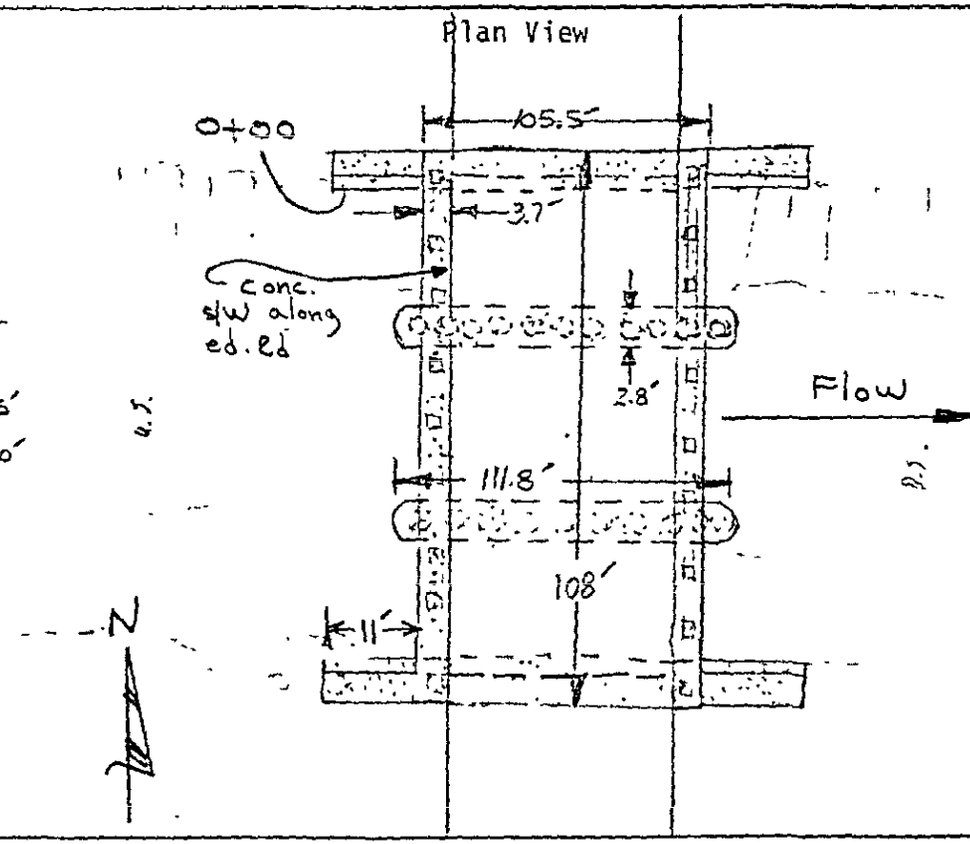
| | | | |
|---|---|---|---|
| Job Name: City of WARREN F.I.S. | | By: Sketch by: PRUYT – NETT; Inspection by: SM SY EW | |
| Date: 12-16-75 | Feature: VAN DYKE BRIDGE | Water Course: RED RUN | |
| Remarks: L" US, D.S., D.S.F., U.S.F. R.B., L.B. L 5, 6, 7, 8, 9, 10 | | | |
| Width of Piers: 1' DIA. | Pier Shape: | No. of Piers: 38 EA. | Area: |
| Water Elevation: 593.07 | Length: 103' | Width of Deck: 105.5 | Skew: None |

FIELD SKETCH

Profile View




Plan View



| | | | |
|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. 5555 | 70 | 1 | 22 |

WATERCOURSE: RED RUN

CULVERT LOCATION: VAN DYKE ROAD

CULVERT DESCRIPTION:

BY DCM DATE 1-20-77

NO WINGWALLS

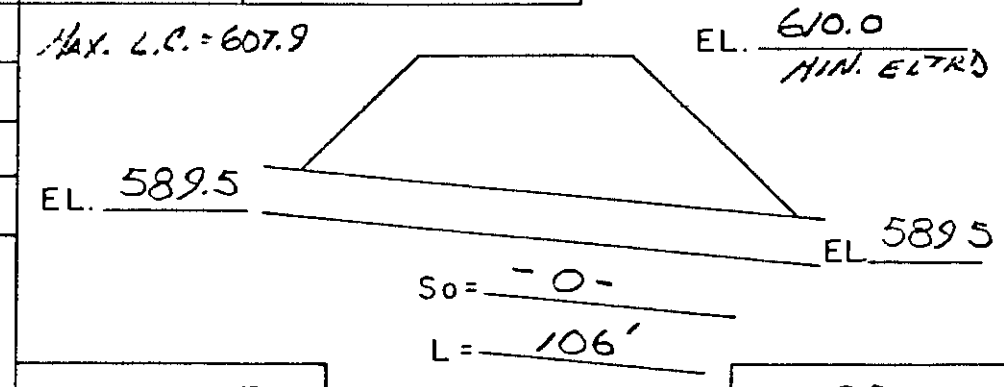
WEIR DESCRIPTION: PAVED ROADWAY

@ 106' BREADTH

A = 1217 □'  D = 20.5'

WP = 289.8'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 4.3063  n = 0.02




CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left( \frac{175 \times 0.015^2 + 115 \times 0.025^2}{290} \right)^{\frac{1}{2}}$$

$n \approx 0.01959$

-XKOR-

$$XKOR = 1 + 0.5 + (4.3063)(0.01959)^2(106)$$

$XKOR = 1.675$

-CofQ-

AVE. $h \approx 2.5'$

THEN $\frac{h}{L} = \frac{2.5}{106} = 0.02 < 0.15$

THEREFORE USE:

$h \approx 2.5$

CofQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 22.00 | 38 | 500.00 | 604.00 | 106.00 | 106.00 | 106.00 | 1.000 | | |
| BT | 16.00 | 0.00 | 610.70 | 0.00 | 87.00 | 610.40 | 0.00 | 187.00 | 610.10 | 0.00 |
| BT | 287.00 | 610.00 | 0.00 | 387.00 | 610.70 | 0.00 | 404.00 | 610.40 | 0.00 | 500.00 |
| BT | 611.50 | 0.00 | 500.00 | 614.70 | 607.80 | 538.80 | 614.80 | 607.90 | 565.20 | 614.80 |
| BT | 607.90 | 604.00 | 614.70 | 607.80 | 604.00 | 611.70 | 0.00 | 675.00 | 610.70 | 0.00 |
| BT | 687.00 | 611.00 | 0.00 | 723.00 | 610.40 | 0.00 | 800.00 | 610.20 | 0.00 | |
| GR | 610.70 | 0.00 | 610.40 | 87.00 | 610.10 | 187.00 | 610.00 | 287.00 | 610.70 | 387.00 |
| GR | 610.40 | 404.00 | 609.20 | 487.00 | 604.90 | 500.00 | 607.80 | 500.00 | 605.50 | 500.00 |
| GR | 604.60 | 507.00 | 593.30 | 527.00 | 590.70 | 535.00 | 590.80 | 537.40 | 607.90 | 537.40 |
| GR | 607.90 | 538.80 | 607.90 | 540.20 | 590.40 | 540.20 | 589.50 | 545.00 | 589.80 | 550.00 |
| GR | 589.90 | 555.00 | 590.00 | 560.00 | 590.20 | 563.80 | 607.90 | 563.80 | 607.90 | 565.20 |
| GR | 607.90 | 566.60 | 590.10 | 566.60 | 590.30 | 570.00 | 591.20 | 575.00 | 605.10 | 604.00 |
| GR | 607.60 | 604.00 | 604.00 | 604.00 | 609.30 | 614.00 | 610.70 | 675.00 | 611.00 | 687.00 |
| GR | 610.40 | 723.00 | 609.20 | 787.00 | 609.60 | 800.00 | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 500.00 | 607.80 | 538.80 | 607.90 | 565.20 | 607.90 | 604.00 | 607.80 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 500.00 | 604.90 | 500.00 | 607.80 | 500.00 | 605.50 | 507.00 | 604.60 | 527.00 | 593.30 |
| 535.00 | 590.70 | 537.40 | 590.80 | 537.40 | 607.90 | 538.80 | 607.90 | 540.20 | 607.90 |
| 540.20 | 590.40 | 545.00 | 589.50 | 550.00 | 589.80 | 555.00 | 589.90 | 560.00 | 590.00 |
| 563.80 | 590.20 | 563.80 | 607.90 | 565.20 | 607.90 | 566.60 | 607.90 | 566.60 | 590.10 |
| 570.00 | 590.30 | 575.00 | 591.20 | 604.00 | 605.10 | 604.00 | 607.80 | 604.00 | 604.00 |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 500.00 | 607.80 | 538.80 | 607.90 | 565.20 | 607.90 | 604.00 | 607.80 | 604.00 | 607.80 |
| 604.00 | 605.10 | 575.00 | 591.20 | 570.00 | 590.30 | 566.60 | 590.10 | 566.60 | 607.90 |
| 565.20 | 607.90 | 563.80 | 607.90 | 563.80 | 590.20 | 560.00 | 590.00 | 555.00 | 589.90 |
| 550.00 | 589.80 | 545.00 | 589.50 | 540.20 | 590.40 | 540.20 | 607.90 | 538.80 | 607.90 |
| 537.40 | 607.90 | 537.40 | 590.80 | 535.00 | 590.70 | 527.00 | 593.30 | 507.00 | 604.60 |
| 500.00 | 605.50 | 500.00 | 607.80 | 500.00 | 607.80 | | | | |

ORIFICE AREA 1217.0 WETTED PERIMETER 289.8 29.1/R**1.333 4.3063

BS#26 V WCR

**Johnson & Anderson, Inc.**
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

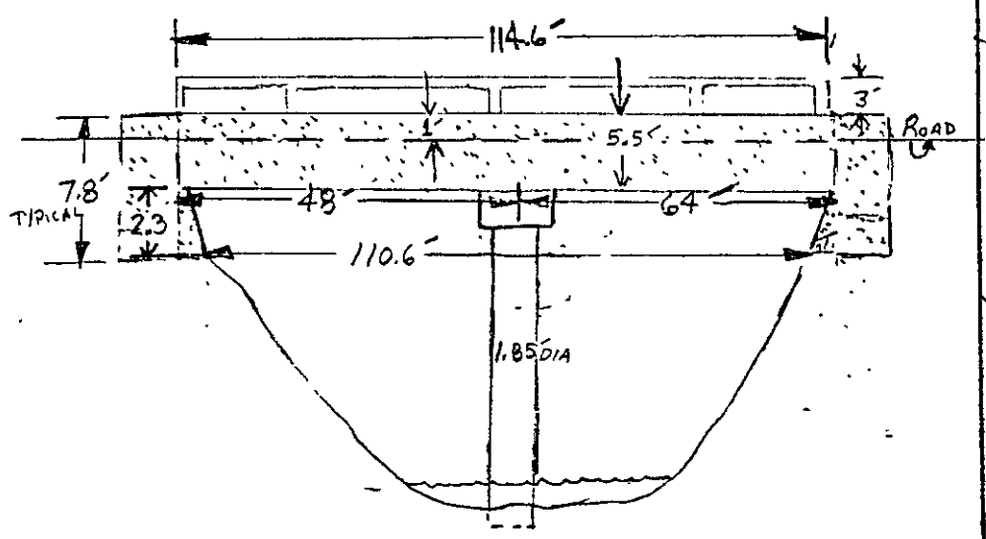
# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-11-#26

| | | | |
|---|---|---|---|
| Job Name: CITY OF WARREN F.I.S. RED RUN | | By: Sketch by: PRUYT, NETT; x-section by: CM JK EW | |
| Date: 12-17-75 | Feature: BRIDGE N. of CHICAGO & E. of TRACKS | Water Course: Red Run. | |
| Remarks: Roll "L" | US 11 / DS 12 / USF 13 / DSF 14 / RB 15 / LB 16 | | |
| Width of Piers: 1.85' | Pier Shape: | No. of Piers: 8 ea. | Area: |
| Water Elevation: 592.91 | Length: 114.6 | Width of Deck: 28' | Skew: SEE SKETCH Below |

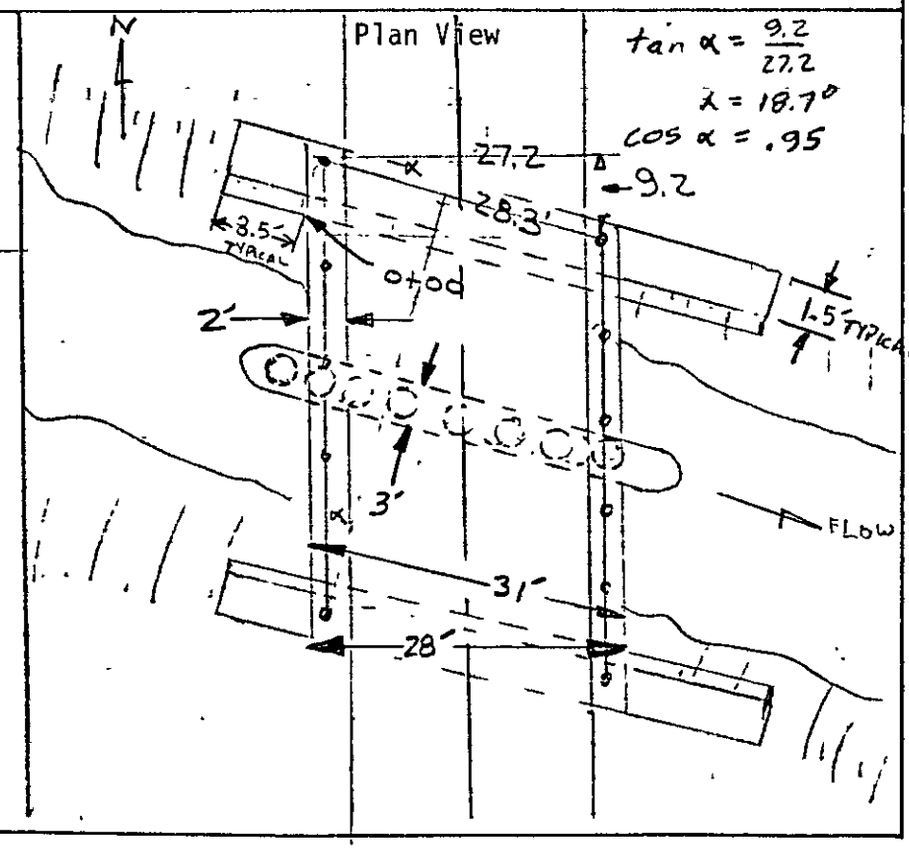
## FIELD SKETCH

Profile View




DSF

Plan View




112 113

| | | | | |
|---|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. | 5555 | 70 | 1 | 26 |
| WATERCOURSE: RED RUN | CULVERT LOCATION: DENTON CONST. ROAD | | | |

CULVERT DESCRIPTION: BY DCH DATE 1-20-77

NO WINGWALLS

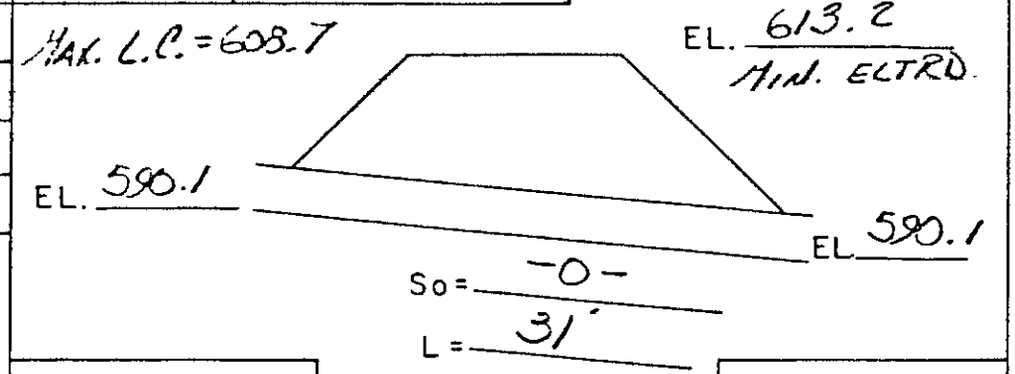
WEIR DESCRIPTION: PAVED ROADWAY

@ 31' BREADTH

A = 1317.9 □' D = 18.6'

WP = 263.5 Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.4113 n = 0.02




CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left(\frac{160 \times 0.015^2 + 105 \times 0.025^2}{265}\right)^{\frac{1}{2}}$$

$n \approx 0.01958$

-XKOR-

$XKOR = 1. + 0.5 + (3.4113)(0.01958)^2(31')$

$XKOR = 1.540$

-COFQ-

AVE $h \approx 1'$

THEN $\frac{h}{L} = \frac{1}{31} = 0.03 < 0.15$

THEREFORE USE:

$h \approx 1$

COFQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 26.00 | 30 | 179.00 | 291.00 | 31.00 | 31.00 | 31.00 | 0.950 | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 10.00 | 0.00 | 614.00 | 0.00 | 79.00 | 613.60 | 0.00 | 179.00 | 613.20 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 179.00 | 614.10 | 608.70 | 243.00 | 614.10 | 608.60 | 291.00 | 614.00 | 608.60 | 291.00 |
| BT | 613.20 | 0.00 | 373.00 | 613.40 | 0.00 | 400.00 | 614.70 | 0.00 | 464.00 | 615.50 |
| BT | 0.00 | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 612.30 | 0.00 | 611.80 | 79.00 | 611.90 | 100.00 | 612.00 | 112.00 | 605.00 | 157.00 |
| GR | 605.60 | 179.00 | 608.70 | 179.00 | 605.00 | 179.00 | 593.10 | 210.00 | 591.30 | 216.00 |
| GR | 590.60 | 219.00 | 590.10 | 224.00 | 590.20 | 229.00 | 590.40 | 234.00 | 590.10 | 241.50 |
| GR | 608.60 | 241.50 | 608.60 | 243.00 | 608.60 | 244.50 | 590.10 | 244.50 | 590.40 | 249.00 |
| GR | 590.80 | 254.00 | 591.50 | 259.00 | 605.30 | 282.00 | 605.30 | 291.00 | 608.60 | 291.00 |
| GR | 606.50 | 291.00 | 609.80 | 300.00 | 613.40 | 373.00 | 614.70 | 400.00 | 615.50 | 464.00 |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | |
|---|---|---|---|---|---|
| 179.00 | 608.70 | 243.00 | 608.60 | 291.00 | 608.60 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 179.00 | 605.60 | 179.00 | 608.70 | 179.00 | 605.00 | 210.00 | 593.10 | 216.00 | 591.30 |
| 219.00 | 590.60 | 224.00 | 590.10 | 229.00 | 590.20 | 234.00 | 590.40 | 241.50 | 590.10 |
| 241.50 | 608.60 | 243.00 | 608.60 | 244.50 | 608.60 | 244.50 | 590.10 | 249.00 | 590.40 |
| 254.00 | 590.80 | 259.00 | 591.50 | 282.00 | 605.30 | 291.00 | 605.30 | 291.00 | 608.60 |
| 291.00 | 606.50 | | | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 179.00 | 608.70 | 243.00 | 608.60 | 291.00 | 608.60 | 291.00 | 608.60 | 291.00 | 605.30 |
| 282.00 | 605.30 | 259.00 | 591.50 | 254.00 | 590.80 | 249.00 | 590.40 | 244.50 | 590.10 |
| 244.50 | 608.60 | 243.00 | 608.60 | 241.50 | 608.60 | 241.50 | 590.10 | 234.00 | 590.40 |
| 229.00 | 590.20 | 224.00 | 590.10 | 219.00 | 590.60 | 216.00 | 591.30 | 210.00 | 593.10 |
| 179.00 | 605.00 | 179.00 | 608.70 | 179.00 | 608.70 | | | | |

ORIFICE AREA 1317.9 WETTED PERIMETER 263.5 29.1/R**1.333 3.4113

Dist. 25 VWCR

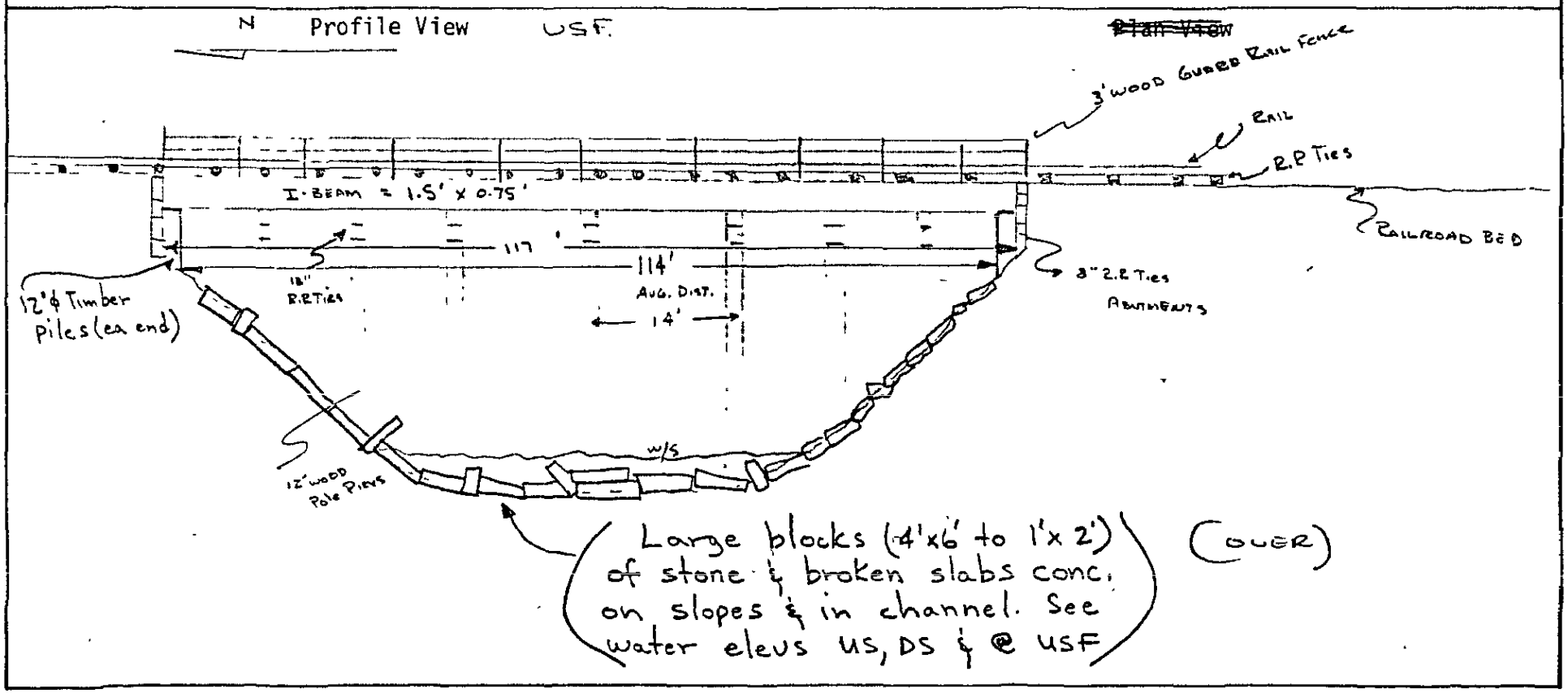
**Johnson & Anderson, Inc.**
Consulting Engineers
P.O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

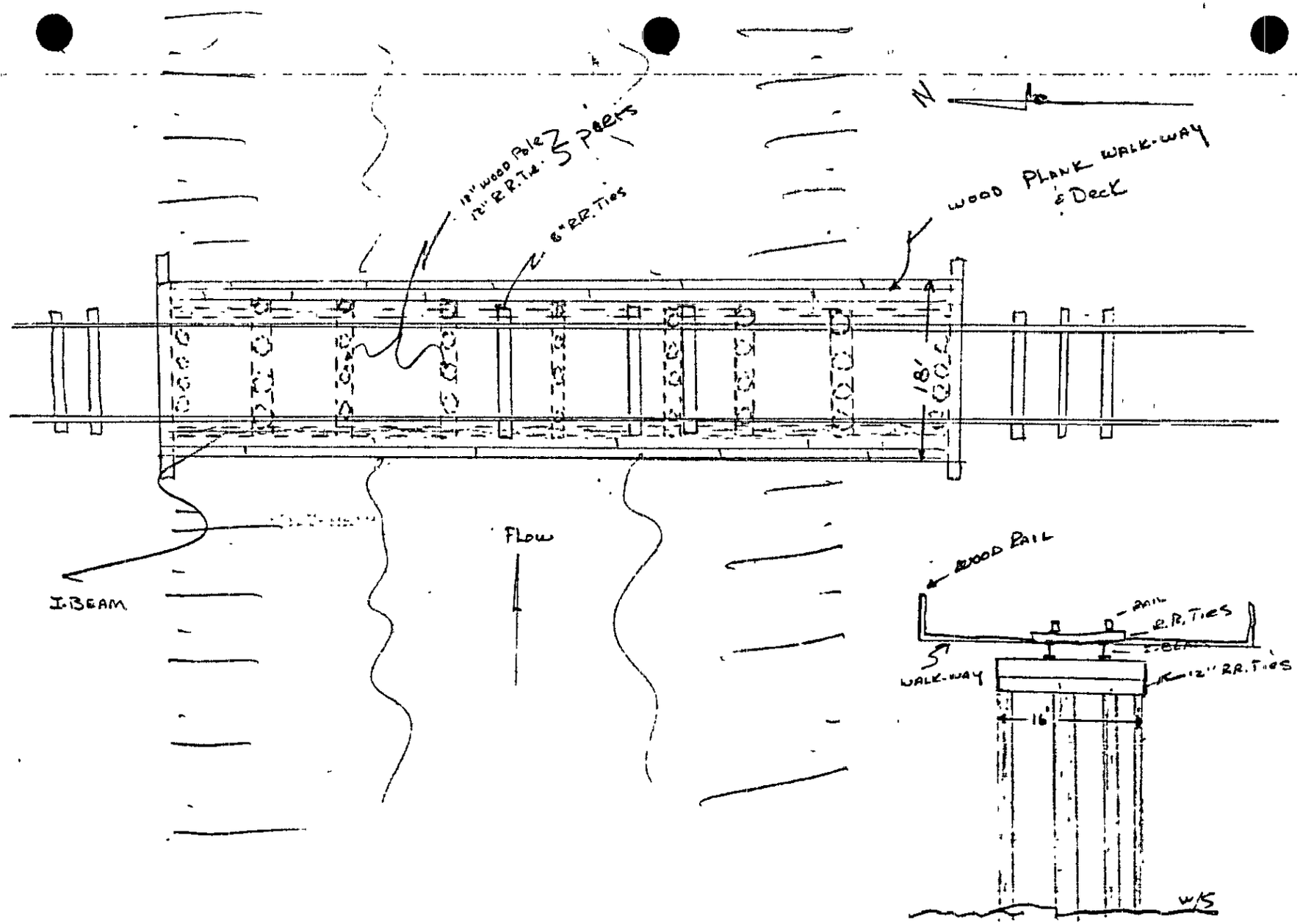
# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-[illegible]

| | | | |
|---|---|---|---|
| Job Name: City of Warren F.I.S. | | By: Sketch by: Pruyt; X-Section by: C. Mapley, T. Kaiser | |
| Date: 12-18-75 | Feature: Wood R.R. Bridge | Water Course: Red Run | |
| Remarks: Bridge is 1560'± east & Downstream of Mound Rd (Behind Warren Co-op) | | | |
| Photos: Roll "L" US 17, DS 18, USF 19, DSF 20, RB 21, LB 22 | | | |
| | 12"x16' Wood Piers | | |
| Width of Piers: 12" | Pier Shape: 12" wood poles, 12" R.R. Ties | No. of Piers: 7 | Area: |
| Water Elevation: See notes | Length: 117' | Width of Deck: 18' | Skew: — |

FIELD SKETCH




N
18" wood Pole
12" R.R. Ties
3 Piers
6" R.R. Ties
Wood Plank Walk-way & Deck
18'
Flow
I-Beam
Wood Rail
Rail
R.R. Ties
I-Beam
Walk-way
12" R.R. Ties
16'
W/S

Plan View

| | | | | |
|---|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. 5555 | 70 | 1 | 28 |

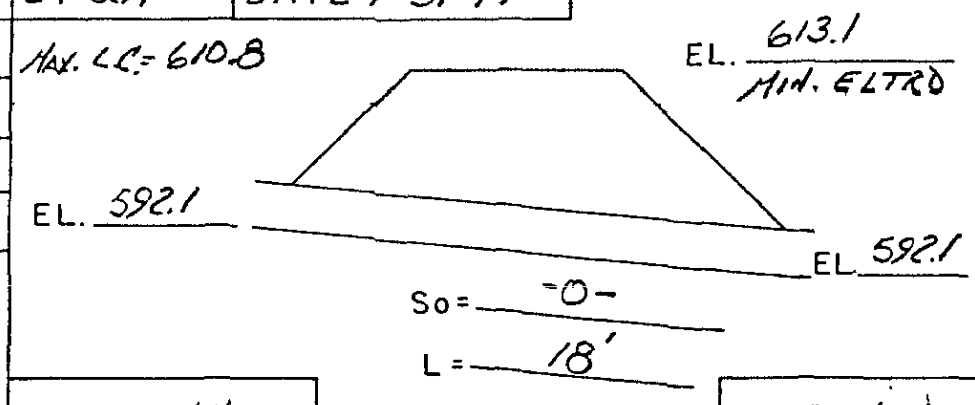
WATERCOURSE: RED RUN

CULVERT LOCATION: PENN CENTRAL CROSSING

CULVERT DESCRIPTION: RAILROAD BRIDGE

BY DCA | DATE 1-31-77

NO WINGWALLS




WEIR DESCRIPTION: GRAVEL RAILROAD BALLAST

18 FOOT BREADTH

A = 1438.9 □'  D = 18.7'

WP = 452.8'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 6.2434  n = 0.018

CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left[\frac{320 \times 0.015^2 + 130 \times 0.025^2}{450}\right]^{1/2}$$

$n \approx 0.01845$

-XKOR-

$XKOR = 1. + 0.5 + (6.2424)(0.01845)^2(18)$

$XKOR = 1.538$

-COFQ-

AVE $h \approx 1'$

THEN $\frac{h}{L} = \frac{1}{18} = 0.06 < 0.15$

THEREFORE USE

$h = 1$

$COFQ = 3.04$

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 28.00 | 57 | 300.00 | 417.00 | 0.00 | 0.00 | 0.00 | 1.000 | | |
| BT | 8.00 | 0.00 | 615.00 | 0.00 | 100.00 | 614.40 | 0.00 | 200.00 | 613.90 | 0.00 |
| BT | 300.00 | 613.40 | 610.80 | 343.00 | 613.40 | 610.70 | 417.00 | 613.20 | 610.60 | 500.00 |
| BT | 613.10 | 0.00 | 600.00 | 613.40 | 0.00 | | | | | |
| GR | 614.50 | 0.00 | 614.10 | 28.00 | 613.20 | 100.00 | 612.80 | 128.00 | 612.20 | 200.00 |
| GR | 611.90 | 228.00 | 610.10 | 294.00 | 607.60 | 300.00 | 610.80 | 300.00 | 609.20 | 300.00 |
| GR | 602.20 | 314.00 | 610.80 | 314.00 | 610.80 | 315.00 | 601.70 | 315.00 | 594.70 | 329.00 |
| GR | 610.70 | 329.00 | 610.70 | 330.00 | 593.90 | 330.00 | 593.10 | 334.00 | 593.10 | 337.00 |
| GR | 593.00 | 340.00 | 592.40 | 343.00 | 610.70 | 343.00 | 610.70 | 344.00 | 592.50 | 344.00 |
| GR | 592.80 | 350.00 | 592.60 | 358.00 | 610.70 | 358.00 | 610.70 | 359.00 | 592.50 | 359.00 |
| GR | 592.50 | 360.00 | 592.10 | 370.00 | 592.20 | 373.00 | 610.70 | 373.00 | 610.70 | 374.00 |
| GR | 592.30 | 374.00 | 592.60 | 380.00 | 592.30 | 385.00 | 593.80 | 387.00 | 610.60 | 387.00 |
| GR | 610.60 | 388.00 | 594.60 | 388.00 | 597.60 | 392.00 | 602.80 | 402.00 | 610.60 | 402.00 |
| GR | 610.60 | 403.00 | 603.30 | 403.00 | 607.50 | 411.00 | 608.90 | 417.00 | 610.60 | 417.00 |
| GR | 606.80 | 417.00 | 611.10 | 428.00 | 611.60 | 477.00 | 611.20 | 500.00 | 610.70 | 528.00 |
| GR | 610.70 | 528.00 | 608.50 | 600.00 | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | |
|---|---|---|---|---|---|
| 300.00 | 610.80 | 343.00 | 610.70 | 417.00 | 610.60 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 607.60 | 300.00 | 610.80 | 300.00 | 609.20 | 314.00 | 602.20 | 314.00 | 610.80 |
| 315.00 | 610.80 | 315.00 | 601.70 | 329.00 | 594.70 | 329.00 | 610.70 | 330.00 | 610.70 |
| 330.00 | 593.90 | 334.00 | 593.10 | 337.00 | 593.10 | 340.00 | 593.00 | 343.00 | 592.40 |
| 343.00 | 610.70 | 344.00 | 610.70 | 344.00 | 592.50 | 350.00 | 592.80 | 358.00 | 592.60 |
| 358.00 | 610.70 | 359.00 | 610.70 | 359.00 | 592.50 | 360.00 | 592.50 | 370.00 | 592.10 |
| 373.00 | 592.20 | 373.00 | 610.70 | 374.00 | 610.70 | 374.00 | 592.30 | 380.00 | 592.60 |
| 385.00 | 592.30 | 387.00 | 593.80 | 387.00 | 610.60 | 388.00 | 610.60 | 388.00 | 594.60 |
| 392.00 | 597.60 | 402.00 | 602.80 | 402.00 | 610.60 | 403.00 | 610.60 | 403.00 | 603.30 |
| 411.00 | 607.50 | 417.00 | 608.90 | 417.00 | 610.60 | 417.00 | 606.80 | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 610.80 | 343.00 | 610.70 | 417.00 | 610.60 | 417.00 | 610.60 | 417.00 | 608.90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 411.00 | 607.50 | 403.00 | 603.30 | 403.00 | 610.60 | 4[illegible].00 | 610.60 | 402.00 | 602.80 |
| 392.00 | 597.60 | 388.00 | 594.60 | 388.00 | 610.60 | 3[illegible].00 | 610.60 | 387.00 | 593.80 |
| 385.00 | 592.30 | 380.00 | 592.60 | 374.00 | 592.30 | 374.00 | 610.70 | 373.00 | 610.70 |
| 373.00 | 592.20 | 370.00 | 592.10 | 360.00 | 592.50 | 359.00 | 592.50 | 359.00 | 610.70 |
| 358.00 | 610.70 | 358.00 | 592.60 | 350.00 | 592.80 | 344.00 | 592.50 | 344.00 | 610.70 |
| 343.00 | 610.70 | 343.00 | 592.40 | 340.00 | 593.00 | 337.00 | 593.10 | 334.00 | 593.10 |
| 330.00 | 593.90 | 330.00 | 610.70 | 329.00 | 610.70 | 329.00 | 594.70 | 315.00 | 601.70 |
| 315.00 | 610.80 | 314.00 | 610.00 | 314.00 | 602.20 | 300.00 | 609.20 | 300.00 | 610.00 |
| 300.00 | 610.80 | | | | | | | | |

ORIFICE AREA 1438.9 WETTED PERIMETER 452.8 29.1/R**1.333 6.2434

DS 51 ✓ WCR

Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

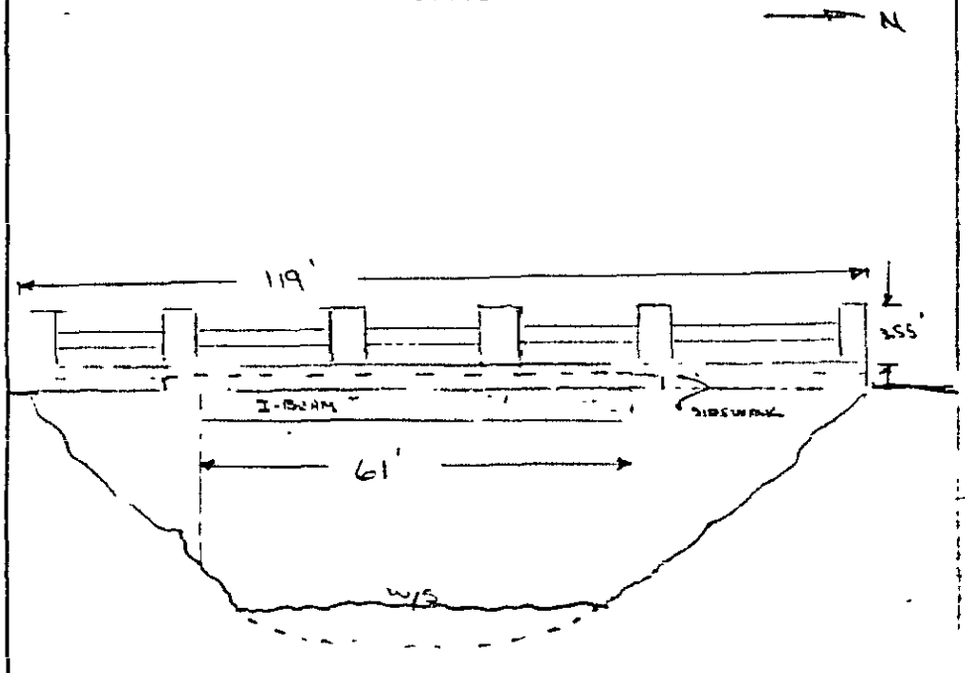
# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-BS 31

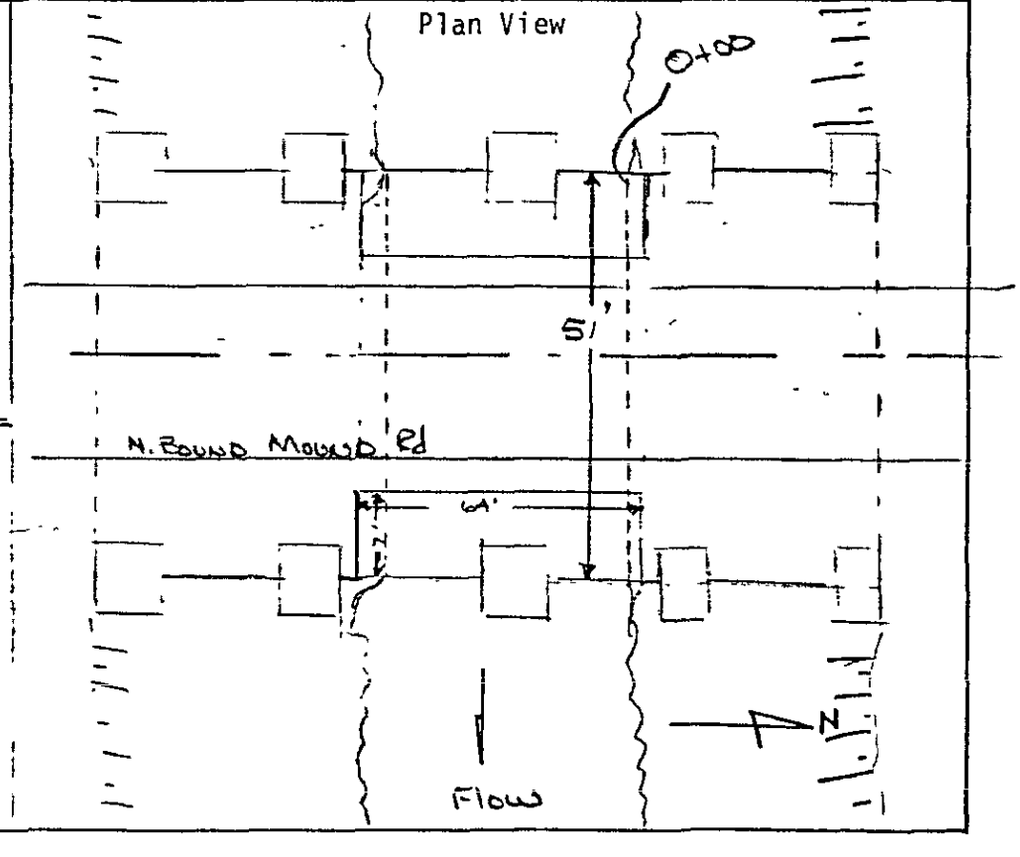
| | | | |
|---|---|---|---|
| Job Name: City of Warren F.I.S. | | By: Sketch by: Pruyt X-section by: CM WT JK | |
| Date: 12-18-75 | Feature: N. Bnd Mound Rd. Bridge | Water Course: Red Run | |
| Remarks: On Mound Rd over Red Run Drain | | | |
| Photos Roll "L" | US 23 DS 24 USF 25 DSF 26 RB 27 LB 28 | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 593.56 | Length: 61' | Width of Deck: 51' | Skew: — |

FIELD SKETCH

Profile View




Plan View



| | | | |
|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. 5555 | 70 | 1 | 31 |
| WATERCOURSE: RED RUN | CULVERT LOCATION: MOUND ROAD - NORTH BOUND | | |

CULVERT DESCRIPTION:

NO WINGWALLS

BY DCM DATE 1-31-77

MAX. L.C = 609.6

EL. 613.7 MIN. ELTRD

WEIR DESCRIPTION: PAVED ROADWAY

51' BREADTH

EL. 592.4

EL. 592.4

A = 954.1 □'  D = 17.2'

WP = 147.3'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 2.4173  n = 0.02

So = -0-

L = 51'

Sta. 31350  Sta. 31299

CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left[\frac{80 \times 0.015^2 + 70 \times 0.025^2}{150}\right]^{1/2}$$

$n \approx 0.02029$

-XKOR-

$XKOR = 1. + \quad + (2.4173)(0.02029)^2(51')$

$XKOR = 1.551$

-COFQ-

AVE. $h \approx 2'$

THEN $\frac{h}{L} = \frac{2}{51} = 0.04 < 0.15$

THEREFORE USE:

$h \approx 2$

COFQ = 3.04

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 31.00 | 31 | 300.00 | 361.00 | 100.00 | 100.00 | 100.00 | 1.000 | | |
| BT | 13.00 | 50.00 | 616.60 | 0.00 | 63.00 | 616.60 | 0.00 | 163.00 | 616.50 | 0.00 |
| BT | 263.00 | 615.00 | 0.00 | 266.00 | 613.70 | 0.00 | 300.00 | 613.60 | 0.00 | 300.00 |
| BT | 614.10 | 609.60 | 361.00 | 614.10 | 609.70 | 361.00 | 613.70 | 0.00 | 400.00 | 613.70 |
| BT | 0.00 | 440.00 | 613.80 | 0.00 | 463.00 | 614.10 | 0.00 | 500.00 | 614.20 | 0.00 |
| GR | 616.80 | 0.00 | 616.60 | 50.00 | 616.60 | 63.00 | 616.50 | 163.00 | 615.00 | 263.00 |
| GR | 613.70 | 266.00 | 598.90 | 300.00 | 609.60 | 300.00 | 597.50 | 300.00 | 594.00 | 310.00 |
| GR | 592.60 | 313.00 | 592.60 | 315.00 | 592.60 | 320.00 | 592.40 | 325.00 | 592.40 | 330.00 |
| GR | 592.40 | 335.00 | 592.60 | 340.00 | 592.90 | 345.00 | 593.90 | 347.00 | 595.40 | 350.00 |
| GR | 598.30 | 361.00 | 609.70 | 361.00 | 595.90 | 361.00 | 613.30 | 398.00 | 613.30 | 400.00 |
| GR | 613.80 | 440.00 | 614.10 | 463.00 | 614.20 | 500.00 | 614.20 | 523.00 | 614.20 | 533.00 |
| GR | 614.20 | 600.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | |
|---|---|---|---|
| 300.00 | 609.60 | 361.00 | 609.70 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 598.90 | 300.00 | 609.60 | 300.00 | 597.50 | 310.00 | 594.00 | 313.00 | 592.60 |
| 315.00 | 592.60 | 320.00 | 592.60 | 325.00 | 592.40 | 330.00 | 592.40 | 335.00 | 592.40 |
| 340.00 | 592.60 | 345.00 | 592.90 | 347.00 | 593.90 | 350.00 | 595.40 | 361.00 | 598.30 |
| 361.00 | 609.70 | 361.00 | 595.90 | | | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 300.00 | 609.60 | 361.00 | 609.70 | 361.00 | 609.70 | 361.00 | 598.30 | 350.00 | 595.40 |
| 347.00 | 593.90 | 345.00 | 592.90 | 340.00 | 592.60 | 335.00 | 592.40 | 330.00 | 592.40 |
| 325.00 | 592.40 | 320.00 | 592.60 | 315.00 | 592.60 | 313.00 | 592.60 | 310.00 | 594.00 |
| 300.00 | 597.50 | 300.00 | 609.60 | 300.00 | 609.60 | | | | |

ORIFICE AREA 954.1 WETTED PERIMETER 147.3 29.1/R**1.333 2.4173

BS# 32 VWCR

# HYDRAULIC STRUCTURAL DATA

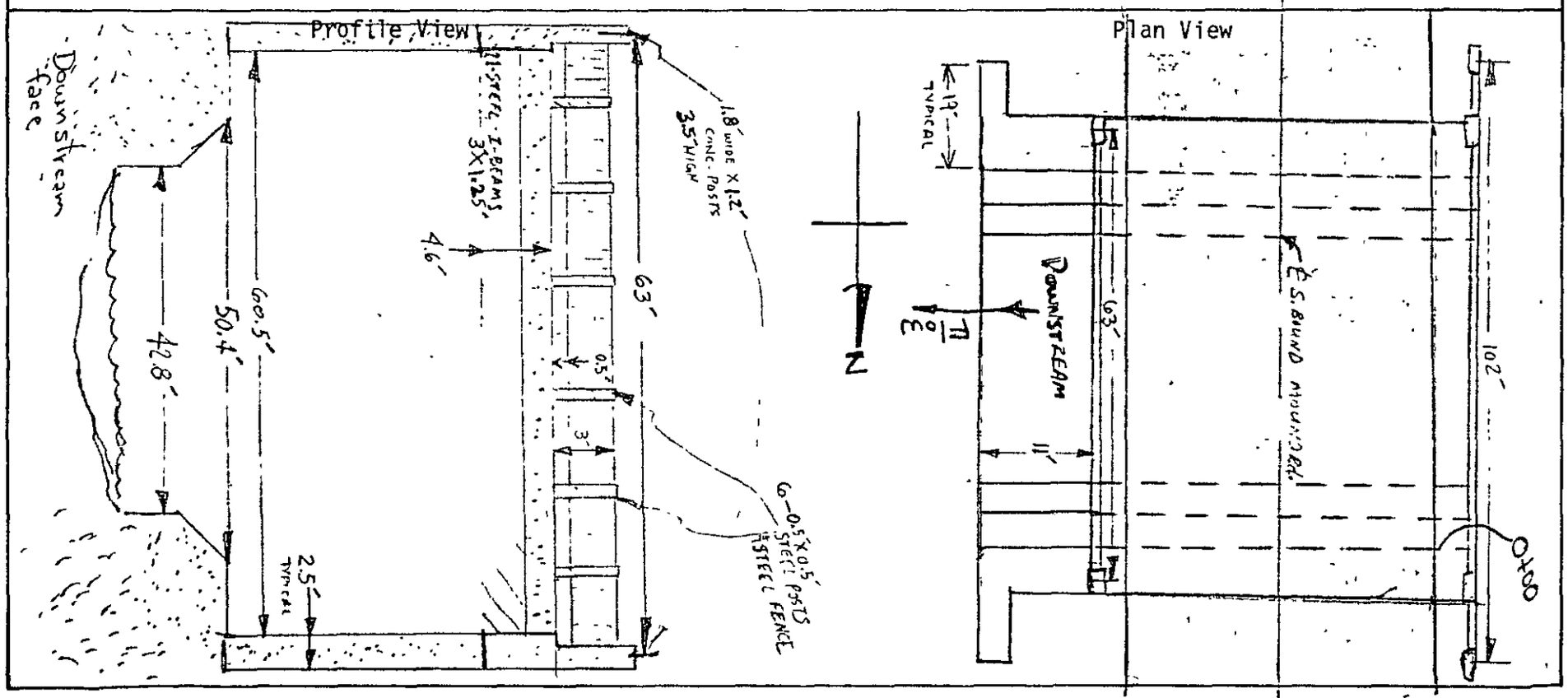
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1116 2300 Dixie Highway Pontiac, Michigan 48056

BS#

Code No. 5555-70-01-32

| | | | |
|---|---|---|---|
| Job Name: City of Warren F.I.S. | | By: T.R. PRUNT | |
| Date: 12-18-75 | Feature: South bound Mound Bridge | Water Course: RED RUN | |
| Remarks: UPSTREAM RAILING 59' LONGER THAN DOWNSTREAM 11 - I BEAMS PARALELL TO RD., SUPPORT BRIDGE | | | |
| Photos: "L" 29, 30, 31, 32, 33, 34 | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 593.56 | Length: 68' | Width of Deck: 52.5' | Skew: — |

FIELD SKETCH



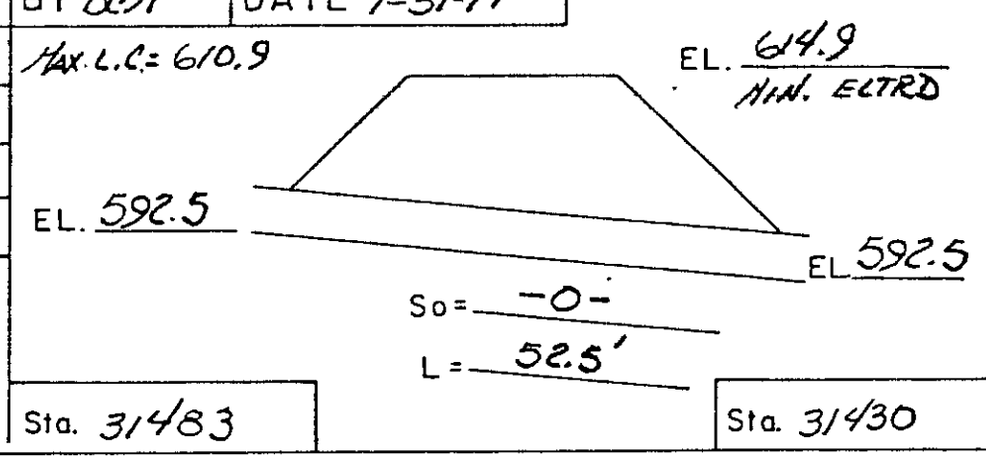
| JOB NAME: CITY OF WARREN | JOB NO. 5555 | 70 | 1 | 32 |
|---|---|---|---|---|
| WATERCOURSE: RED RUN | CULVERT LOCATION: MOUND ROAD - SOUTH BOUND | | | |

CULVERT DESCRIPTION:

NO WINGWALLS

WEIR DESCRIPTION: PAVED ROADWAY

BY DCM DATE 1-31-77




A = 976.8 □'  D = 18.4'

WP = 150.9'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 2.4196  n = 0.02

CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left[\frac{80 \times 0.015^2 + 70 \times 0.025^2}{150}\right]^{1/2}$$

$n \approx 0.02029$

-XKOR-

$XKOR = 1. + 0.5 + (2.4196)(0.02029)^2(52.5)$

$XKOR = 1.552$

-COFQ-

AVE. $h \approx 3'$

THEN $\frac{h}{L} = 0.06 < 0.15$

THEREFORE USE:

$h \approx 3$

$COFQ = 3.04$

```
X1      32.00       32     300.00     360.50       0.00       0.00       0.00       1.000

BT      10.00      50.00     616.60       0.00      63.00     616.60       0.00     163.00     616.50       0.00

BT     263.00     615.00       0.00     300.00     615.00       0.00     300.00     615.30     610.90     360.50
BT     615.30     610.70     360.50     615.00       0.00     400.00     614.90       0.00     500.00     614.90
BT       0.00

GR     616.80       0.00     616.60      50.00     616.60      63.00     616.50     163.00     615.00     263.00
GR     598.90     300.00     610.90     300.00     599.40     300.00     599.30     305.00     596.90     308.80
GR     594.30     308.80     593.00     313.00     592.60     315.00     592.60     320.00     592.50     325.00
GR     592.80     330.00     592.80     335.00     593.00     340.00     593.20     345.00     593.30     349.00
GR     594.20     351.60     596.80     351.60     599.20     355.40     599.20     360.50     610.70     360.50
GR     595.60     360.50     613.30     398.00     613.30     400.00     614.10     463.00     614.10     500.00
GR     614.20     563.00     614.20     600.00
*******************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*******************

 300.00  610.90  360.50  610.70

 300.00  598.90  300.00  610.90  300.00  599.40  305.00  599.30  308.80  596.90
 308.80  594.30  313.00  593.00  315.00  592.60  320.00  592.60  325.00  592.50
 330.00  592.80  335.00  592.80  340.00  593.00  345.00  593.20  349.00  593.30
 351.60  594.20  351.60  596.80  355.40  599.20  360.50  599.20  360.50  610.70
 360.50  595.60
*************LISTING OF COORDINATES OF ORIFICE*******************

 300.00  610.90  360.50  610.70  360.50  610.70  360.50  599.20  355.40  599.20
 351.60  596.80  351.60  594.20  349.00  593.30  345.00  593.20  340.00  593.00
 335.00  592.80  330.00  592.80  325.00  592.50  320.00  592.60  315.00  592.60
 313.00  593.00  308.80  594.30  308.80  596.90  305.00  599.30  300.00  599.40
 300.00  610.90  300.00  610.90
```

ORIFICE AREA 976.8 WETTED PERIMETER 150.9 29.1/R**1.333 2.4196

BS#04 VWCR

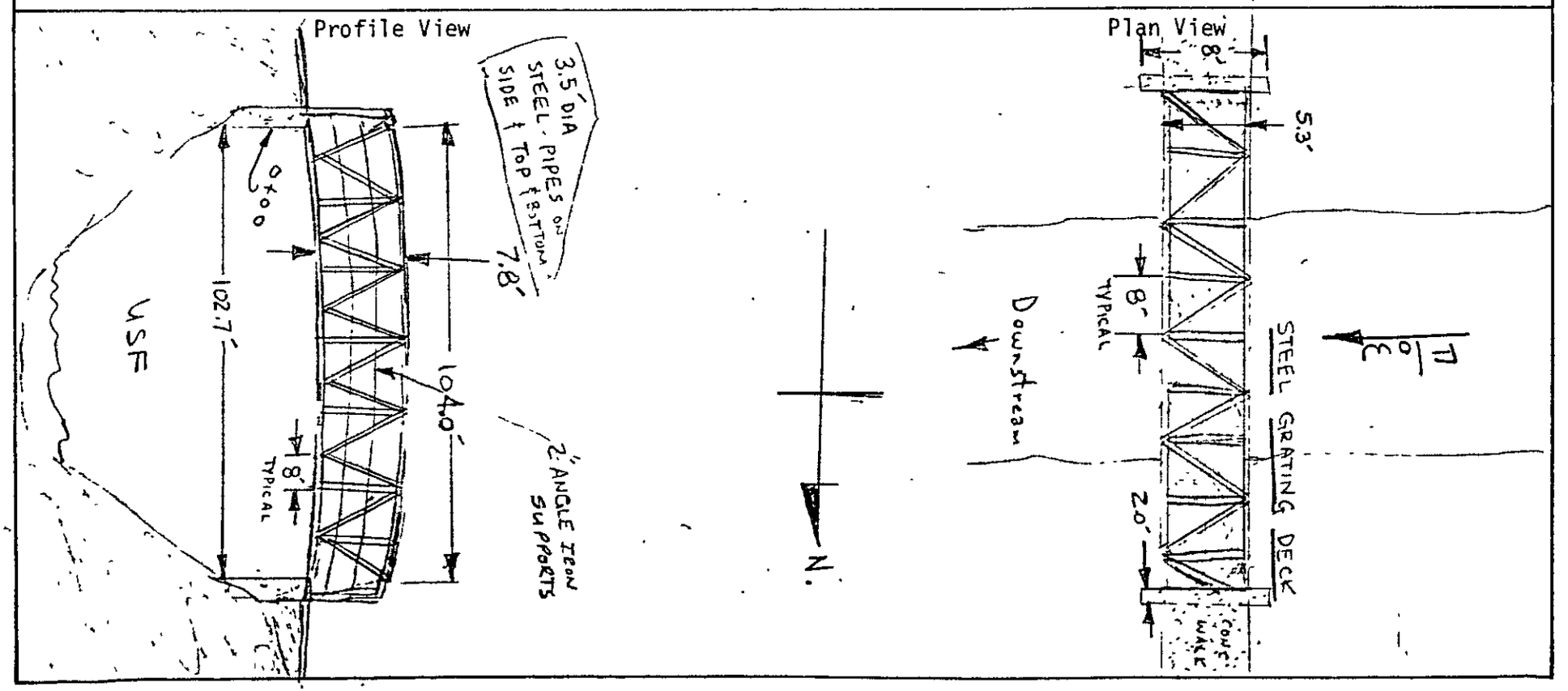
**Johnson & Anderson, Inc.**
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-#34

| | | | |
|---|---|---|---|
| Job Name: City of Harrison F.I.S.-Red Run Drain | | By: Sketch by: T.R. DRIV X-Section by: SM JK EW | |
| Date: 1-6-76 | Feature: Footbridge | Water Course: RED RUN | |
| Remarks: Photos: Roll "P" 1; 2; 3; 4; 5; 6. | | | |
| | | | |
| | | | |
| Width of Piers: — | Pier Shape: — | No. of Piers: — | Area: — |
| Water Elevation: 594.02 | Length: 102.7' | Width of Deck: 5.3' | Skew: — |

FIELD SKETCH



| | | | | |
|---|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. | 5555 | 70 | 1 | 34 |

WATERCOURSE: RED RUN

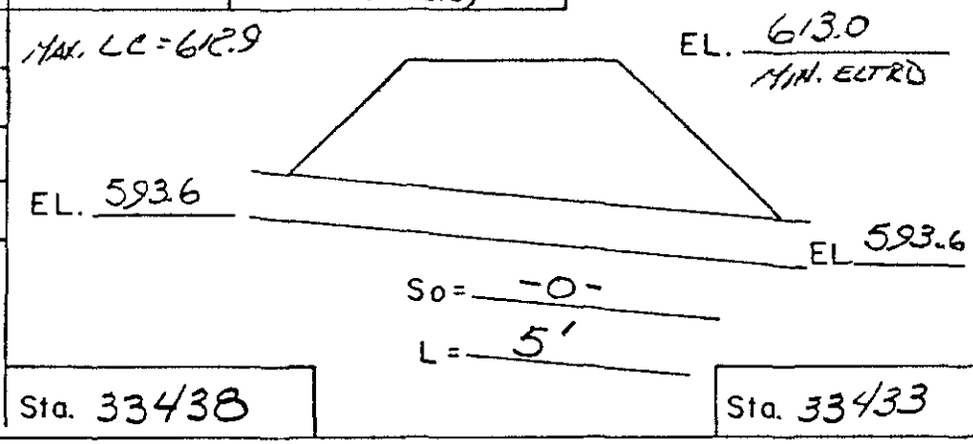
CULVERT LOCATION: FOOT BRIDGE

CULVERT DESCRIPTION:

BY DCM DATE FEB. 2, 1977

NO WINGWALLS

WEIR DESCRIPTION:




A = 1515.70'  D = 19.4'

WP = 223.6'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 2.2742  n = 0.02

CALCULATIONS AND COMMENTS:

- MANNING'S "n" -

$$n \approx \left[\frac{110 \times 0.015^2 + 110 \times 0.025^2}{220}\right]^{1/2}$$

$$n \approx 0.02062$$

- XKOR -

$$XKOR = 1. + 0.5 + (2.2742)(0.02062)^2(5)$$

$$XKOR = 1.505$$

- COFQ -

AVE. $h \approx 3'$

THEN $\frac{h}{L} = \frac{3}{5} = 0.67 > 0.15$

THEREFORE USE:

$$\frac{h}{L} = 0.67$$

$$COFQ = 3.09$$

```
X1      34.00        31     372.00     474.70       0.00       0.00       0.00      1.000

BT      11.00      0.00     618.90       0.00      55.00     618.60       0.00     155.00     617.20       0.00

BT     220.00     616.40       0.00     273.00     615.90       0.00     372.00     613.10     612.50     424.00
BT     613.50     612.90     474.70     613.00     612.40     572.00     613.80       0.00     583.00     613.90
BT       0.00     655.00     616.80       0.00

GR     618.90       0.00     618.60      55.00     617.20     155.00     616.40     220.00     616.00     255.00
GR     615.90     273.00     614.70     308.00     613.50     355.00     613.00     356.00     606.70     372.00
GR     612.50     372.00     610.30     372.00     607.60     378.00     600.00     378.50     593.90     402.00
GR     593.60     412.00     593.70     422.00     593.70     424.00     593.90     432.00     593.90     442.00
GR     594.00     443.00     595.30     445.00     596.80     449.00     598.70     450.00     608.10     474.40
GR     612.40     474.70     604.60     474.70     610.80     491.00     612.80     572.00     613.90     583.00
GR     616.80     655.00
*****************LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE*****************

372.00  612.50  424.00  612.90  474.70  612.40

372.00  606.70  372.00  612.50  372.00  610.30  378.00  607.60  378.50  600.00
402.00  593.90  412.00  593.60  422.00  593.70  424.00  593.70  432.00  593.90
442.00  593.90  443.00  594.00  445.00  595.30  449.00  596.80  450.00  598.70
474.40  608.10  474.70  612.40  474.70  604.60
************* LISTING OF COORDINATES OF ORIFICE*******************

372.00  612.50  424.00  612.90  474.70  612.40  474.70  612.40  474.40  608.10
450.00  598.70  449.00  596.80  445.00  595.30  443.00  594.00  442.00  593.90
432.00  593.90  424.00  593.70  422.00  593.70  412.00  593.60  402.00  593.90
378.50  600.00  378.00  607.60  372.00  610.30  372.00  612.50  372.00  612.50

ORIFICE AREA      1515.7 WETTED PERIMETER     223.6  29.1/R**1.333       2.2742
```

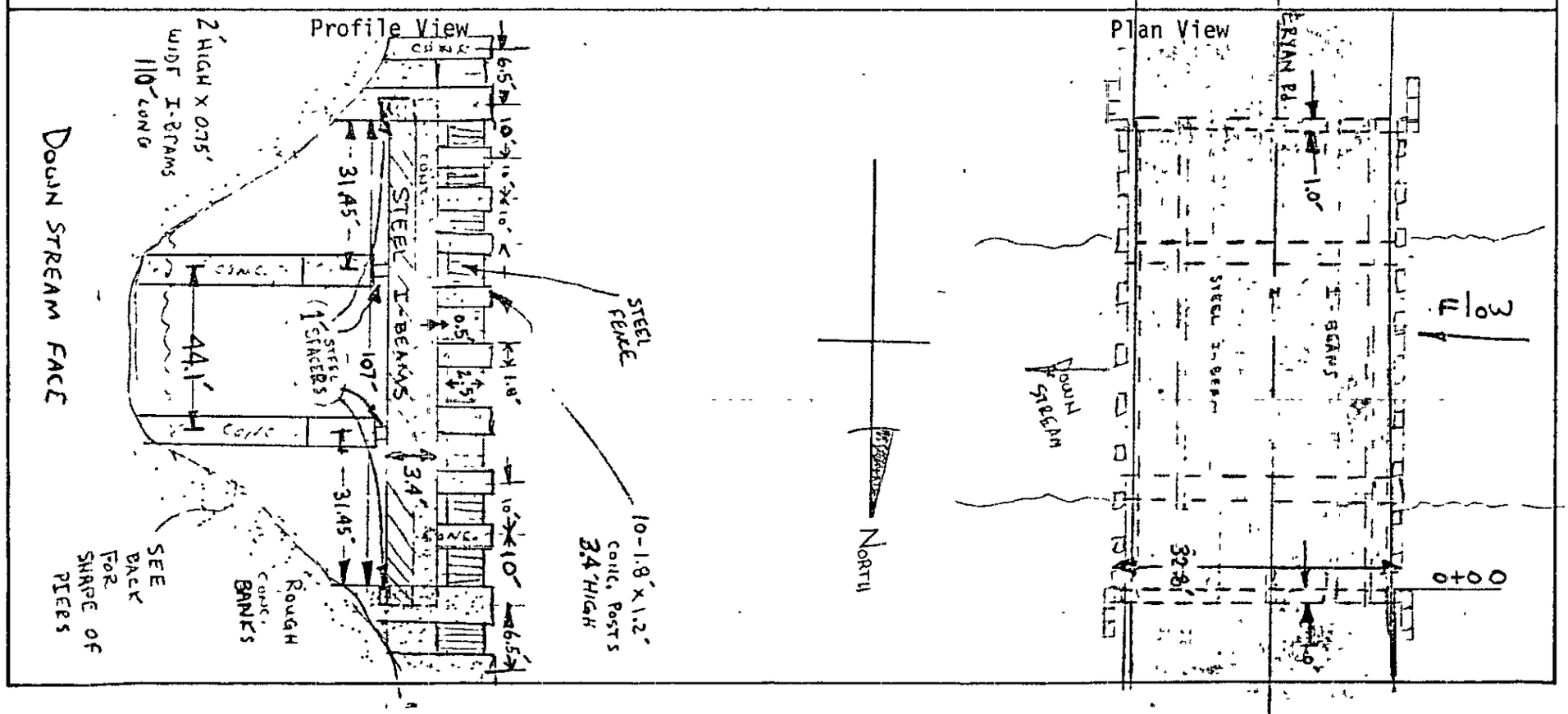
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

# HYDRAULIC STRUCTURAL DATA

Code No. 5555-70-01-#37

| | | | |
|---|---|---|---|
| Job Name: Ct. of Warren F.I.S | | By: Drawn by: T. Pruyt; Levels by: C. Marley, T. Kaiser; R. Moses, E. [illegible] | |
| Date: 1-8-7. | Feature: RYAN Rd. BRIDGE | Water Course: RED RUN | |
| Remarks: Roll "P" 7 US 8 DS 9 USF 10 DSF 11 RB 12 LB | | | |
| Width of Piers: 3' | Pier Shape: 3' SQUARE | No. of Piers: 4 | Area: — |
| Water Elevation: 595.46 | Length: 110' | Width of Deck: 32.8' | Skew: — |

## FIELD SKETCH



| | | | | |
|---|---|---|---|---|
| JOB NAME: CITY OF WARREN | JOB NO. | 5555 | 70 | 1 | 37 |

WATERCOURSE: RED RUN

CULVERT LOCATION: RYAN ROAD

CULVERT DESCRIPTION:

NO WINGWALLS

BY DCM DATE 2-4-77

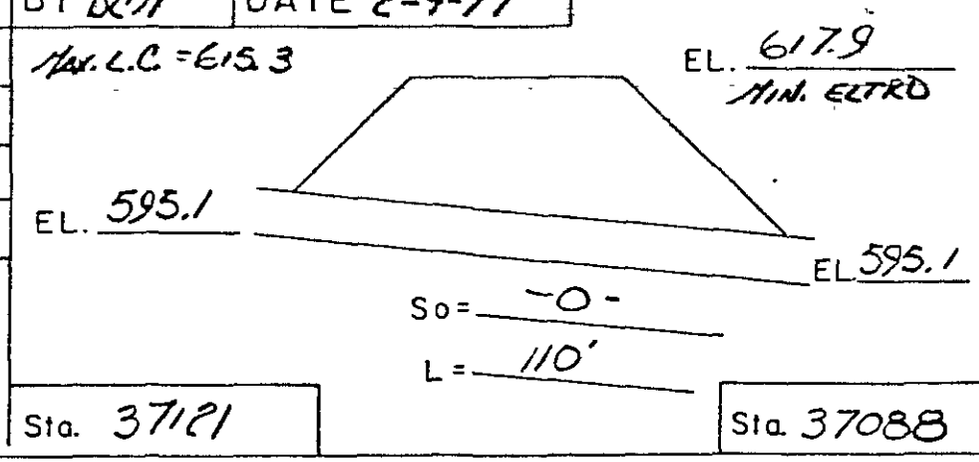
WEIR DESCRIPTION: PAVED ROADWAY

110 FOOT BREADTH

A = 1411.50'  D = 20.2'

WP = 302.0'  Ke = 0.5

$\frac{29.1}{R^{4/3}}$ = 3.7336  n = 0.02




CALCULATIONS AND COMMENTS:

-MANNING'S "n"-

$$n \approx \left[\frac{170 \times 0.015^2 + 130 \times 0.025^2}{300}\right]^{1/2}$$

$n \approx 0.01996$

-XKOR-

$XKOR = 1 + 0.5 + (3.7336)(0.01996)^2(110')$

$XKOR = 1.664$

-COFQ-

Ave. $h \approx 1'$

THEN $\frac{h}{L} = \frac{1}{110} = 0.01 < 0.15$

THEREFORE USE:

$h \approx 1$

$COFQ = 3.04$

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | [illegible].00 | 36 | 200.00 | 307.10 | 0.[illegible] | 0.00 | 0.00 | 1.000 | [illegible] | |
| 12 | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 10.00 | 50.00 | 618.30 | 0.00 | 100.00 | 617.90 | 0.00 | 200.00 | 618.00 | 0.00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 200.00 | 618.70 | 615.30 | 233.00 | 618.70 | 615.30 | 277.10 | 618.70 | 615.30 | 307.10 |
| BT | 618.70 | 615.30 | 307.10 | 618.00 | 0.00 | 379.00 | 618.40 | 0.00 | 450.00 | 618.60 |
| BT | 0.00 | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 617.50 | 0.00 | 616.90 | 44.00 | 616.80 | 50.00 | 616.40 | 79.00 | 616.60 | 100.00 |
| GR | 617.50 | 179.00 | 608.80 | 200.00 | 615.30 | 200.00 | 611.50 | 200.00 | 611.30 | 204.00 |
| GR | 599.00 | 230.00 | 615.30 | 230.00 | 615.30 | 233.00 | 597.50 | 233.00 | 595.50 | 240.00 |
| GR | 595.50 | 245.00 | 595.40 | 250.00 | 595.10 | 255.00 | 595.40 | 260.00 | 595.10 | 265.00 |
| GR | 595.60 | 270.00 | 596.20 | 274.10 | 615.30 | 274.10 | 615.30 | 277.10 | 595.80 | 277.10 |
| GR | 610.70 | 302.00 | 611.20 | 307.10 | 615.30 | 307.10 | 608.70 | 307.10 | 617.80 | 329.00 |
| GR | 618.40 | 379.00 | 618.60 | 450.00 | 618.70 | 479.00 | 619.30 | 532.00 | 619.80 | 579.00 |
| GR | 620.00 | 600.00 | | | | | | | | |

**********LISTING OF TOP AND BOTTOM SECTIONS OF ORIFICE**********

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 200.00 | 615.30 | 233.00 | 615.30 | 277.10 | 615.30 | 307.10 | 615.30 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200.00 | 608.80 | 200.00 | 615.30 | 200.00 | 611.50 | 204.00 | 611.30 | 230.00 | 599.00 |
| 230.00 | 615.30 | 233.00 | 615.30 | 233.00 | 597.50 | 240.00 | 595.50 | 245.00 | 595.50 |
| 250.00 | 595.40 | 255.00 | 595.10 | 260.00 | 595.40 | 265.00 | 595.10 | 270.00 | 595.60 |
| 274.10 | 596.20 | 274.10 | 615.30 | 277.10 | 615.30 | 277.10 | 595.80 | 302.00 | 610.70 |
| 307.10 | 611.20 | 307.10 | 615.30 | 307.10 | 608.70 | | | | |

********** LISTING OF COORDINATES OF ORIFICE**********

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 200.00 | 615.30 | 233.00 | 615.30 | 277.10 | 615.30 | 307.10 | 615.30 | 307.10 | 615.30 |
| 307.10 | 611.20 | 302.00 | 610.70 | 277.10 | 595.80 | 277.10 | 615.30 | 274.10 | 615.30 |
| 274.10 | 596.20 | 270.00 | 595.60 | 265.00 | 595.10 | 260.00 | 595.40 | 255.00 | 595.10 |
| 250.00 | 595.40 | 245.00 | 595.50 | 240.00 | 595.50 | 233.00 | 597.50 | 233.00 | 615.30 |
| 230.00 | 615.30 | 230.00 | 599.00 | 204.00 | 611.30 | 200.00 | 611.50 | 200.00 | 615.30 |
| 200.00 | 615.30 | | | | | | | | |

ORIFICE AREA 1411.5 WETTED PERIMETER 302.0 29.1/R**1.333 3.7336

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Hec2 print out

00BREAK00

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 603 300 | 0 000 | 988 100 | 599 600 | 0 000 | 1000 000 | 600.200 | 0 000 | 1080 000 | 600 700 |
| BT | 0.000 | 1088.000 | 604 100 | 0 000 | 1100 000 | 605 300 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602.900 | 0.000 | 601.800 | 100.000 | 602.800 | 200 000 | 603 100 | 300 000 | 601 600 | 350 000 |
| GR | 601.600 | 380.000 | 600 300 | 400.000 | 598 000 | 500 000 | 597.600 | 565 000 | 597 300 | 600 000 |
| GR | 596.400 | 700 000 | 596 100 | 740 000 | 593 200 | 797.000 | 593 100 | 797 100 | 593 000 | 800 000 |
| GR | 592.200 | 800.000 | 591 000 | 806 000 | 590.300 | 810 000 | 585 300 | 816 000 | 582 700 | 820 000 |
| GR | 577.800 | 830 000 | 578 400 | 840.000 | 580.100 | 850 000 | 577.300 | 860 000 | 576 900 | 870 000 |
| GR | 577.100 | 875.000 | 577 500 | 877 200 | 595 900 | 877 200 | 592 400 | 897 000 | 591 700 | 900 800 |
| GR | 581.600 | 900.800 | 582.300 | 913 000 | 583.100 | 925 000 | 584 600 | 936 000 | 589 700 | 943 000 |
| GR | 590.900 | 953 000 | 591 300 | 973 000 | 591 500 | 985 800 | 591.700 | 985 800 | 592.100 | 988 000 |
| GR | 592.100 | 988 100 | 594 300 | 1000 000 | 595 000 | 1045 000 | 600 700 | 1080 000 | 604 100 | 1088 000 |
| GR | 605 300 | 1100.000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600 000 | 605.400 | 1700 000 | 603 700 | 1800.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.150 | 0 150 | 0 030 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 |
| ET | 0.000 | 6.100 | 8 100 | 8 100 | 8 100 | 600 000 | 1100 000 | 350 000 | 1100 000 | 0 000 |
| X1 | 594 000 | 34 000 | 800 000 | 944.000 | 420 000 | 385 000 | 400 000 | 0 930 | -2 930 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598.000 | 500 000 | 597 600 | 565.000 | 590 300 | 587 000 | 590 100 | 694 000 | 595 300 | 708.000 |
| GR | 596.100 | 740.000 | 593 000 | 800 000 | 586 400 | 820 000 | 584.400 | 830.000 | 583.900 | 840 000 |
| GR | 583.700 | 860.000 | 583 100 | 880 000 | 583.400 | 900.000 | 583 700 | 910.000 | 586 500 | 921 000 |
| GR | 588 800 | 926 000 | 589 300 | 938 000 | 592 500 | 944 000 | 594 300 | 1000 000 | 595 000 | 1045.000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605.600 | 1400 000 |
| GR | 603.300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 | 603 700 | 1800 000 | 0.000 | 0 000 |
| QT | 4 000 | 10060 000 | 14650 000 | 16040 000 | 21540 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 400 | 0 400 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 1039 000 | 34.000 | 800 000 | 944 000 | 465 000 | 430 000 | 445 000 | 0 930 | 0.000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 760 000 | 0.000 | 1000 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602.800 | 200 000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598.000 | 500.000 | 597 600 | 565 000 | 590 300 | 587 000 | 590 100 | 694 000 | 595 300 | 708 000 |
| GR | 596.100 | 740.000 | 593.000 | 800 000 | 586.400 | 820 000 | 584 400 | 830 000 | 583.900 | 840 000 |
| GR | 583.700 | 860 000 | 583 100 | 880.000 | 583.400 | 900 000 | 583 700 | 910 000 | 586 500 | 921 000 |
| GR | 588 800 | 926.000 | 589 300 | 938 000 | 592.500 | 944.000 | 594 300 | 1000 000 | 595 000 | 1045 000 |
| GR | 604.100 | 1088 000 | 605.300 | 1100 000 | 605.400 | 1200 000 | 605 700 | 1300.000 | 605 600 | 1400 000 |
| GR | 603.300 | 1500.000 | 603.100 | 1600.000 | 605 400 | 1700 000 | 603.700 | 1800.000 | 0 000 | 0 000 |
| | | 16 MILE RD DS | | | | | | | | |
| X1 | 1100.000 | 66.000 | 781.500 | 969 000 | 61 000 | 61.000 | 61 000 | 0 930 | 0 000 | 0 000 |
| X3 | 10.000 | 0.000 | 0 000 | 450 000 | 0 000 | 1100 000 | 0 000 | 602.400 | 602 400 | 0 000 |
| GR | 602 900 | 0.000 | 602 100 | 69 000 | 601 800 | 100 000 | 602 500 | 169 000 | 602 800 | 200 000 |
| GR | 603.000 | 269 000 | 603 100 | 300 000 | 601.200 | 369 000 | 600 300 | 400 000 | 598 700 | 469 000 |
| GR | 598.000 | 500 000 | 597 600 | 565.000 | 597.600 | 569 000 | 596 700 | 669 000 | 596 100 | 740 000 |
| GR | 594 600 | 769.000 | 593 800 | 780 000 | 601 700 | 781 500 | 598 600 | 782 500 | 597 900 | 788 000 |
| GR | 592 900 | 800 000 | 591 200 | 805 000 | 586 400 | 808 000 | 586 400 | 819 000 | 585 800 | 823 900 |
| GR | 601.600 | 823.900 | 601 600 | 825.200 | 601.600 | 826 500 | 584 800 | 826.500 | 584 700 | 829 000 |
| GR | 584 700 | 839.000 | 584 200 | 849.000 | 584.400 | 859.000 | 584 600 | 869.000 | 584.800 | 873 900 |
| GR | 601.400 | 873 900 | 601.400 | 875.200 | 601.400 | 876 500 | 582 800 | 876.500 | 582 600 | 879.000 |
| GR | 581.700 | 889.000 | 582.100 | 899 000 | 583.500 | 909 000 | 584 600 | 919 000 | 585 400 | 923.900 |
| GR | 601.100 | 923.900 | 601 100 | 925.200 | 601 100 | 926.500 | 586 900 | 926 500 | 586 600 | 930.000 |
| GR | 588.800 | 941 000 | 596 100 | 960.000 | 597 600 | 968 000 | 601 000 | 969.000 | 593.300 | 970.000 |
| GR | 594.300 | 1000 000 | 595 000 | 1045.000 | 600.100 | 1069.000 | 604.000 | 1089.000 | 605.300 | 1100 000 |
| GR | 605.400 | 1200 000 | 605 700 | 1300 000 | 605.600 | 1400 000 | 603.300 | 1500.000 | 603 100 | 1600 000 |
| GR | 605 100 | 1700.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

DNR Q's 10, 50, 100, 500

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************

C
T1    REVISED PROFILES FOR RED RUN DRAIN BY MDNR
T2    DISCHARGES COMPUTED BY MDNR USING SAM MODEL
T3          RED RUN DRAIN    10 YEAR

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0   0.000000     0.00      0 0       0     597 800     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    0 000     0 000    -1 000     0 000     0 000     0.000     0 000     0 000     0 000     0 000

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

    0 000     0 000     0 000     0 000     0 000     0.000     0 000     0 000     0 000     0 000

QT      4 000  10780 000  15910.000  17390.000  23340 000      0 000      0 000      0 000      0 000      0 000
NC      0 040      0 040      0.030      0.300      0 500      0 000      0 000      0 000      0 000      0 000
X1    165.000     53.000    800 000    985.800      0 000      0 000      0 000      0 920      0 000      0 000
X3      0 000      0 000      0.000    300.000      0 000   1100 000      0 000      0 000      0 000      0.000
GR    602 900      0 000    601 800    100.000    602 800    200 000    603 100    300 000    601 600    350.000
GR    601 600    380 000    600 300    400.000    598 000    500 000    597 600    565 000    597 300    600 000
GR    596 400    700 000    596.100    740.000    593 200    797 000    593 100    797.100    593 000    800 000
GR    592 200    800 000    591.000    806.000    590 300    810 000    585 300    816 000    582 700    820 000
GR    577.800    830 000    578.400    840.000    580 100    850 000    577 300    860 000    576 900    870 000
GR    577 100    875 000    577 500    877 200    595 900    877.200    592 400    897 000    591 700    900 800
GR    581.600    900 800    582.300    913 000    583 100    925 000    584 600    936.000    589 700    948 000
GR    590 900    953 000    591 300    973 000    591 500    985 800    591 700    985 800    592 100    988 000
GR    592 100    988 100    594.300   1000.000    595 000   1045 000    600 700   1080 000    604 100   1088 000
GR    605 300   1100 000    605.400   1200.000    605 700   1300 000    605 600   1400 000    603 300   1500 000
GR    603.100   1600 000    605 400   1700 000    603 700   1800 000      0 000      0 000      0 000      0 000

SB      0.000      1 540      2 800      0.000    170.000      0 000   1389 000      0.000    576 900    576 900
              UTICA ROAD US FACE    USGS STAGE GAGE    1981 HWM IS 601.7
X1    194 000     53 000    800.000    985.800     29.000     29 000     29 000      0.920      0 000      0 000
X2      0.000      0 000      1.000    596.300    599 600      0.000      0.000      0.000      0 920      0 000
X3      0 000      0 000      0.000    300.000      0.000   1100.000      0 000      0 000      0 000      0 000
BT     32 000    300 000    603.100      0.000    350 000    601 200      0 000    380 000    601 200      0 000
BT    400 000    601.400      0 000    500 000    601.000      0.000    600.000    600.700      0 000    700 000
BT    600 100      0.000    797 000    599.700      0 000    797.100    603 300      0 000    800 000    603 300
BT    593 000    800.000    603 300    595.900    820.000    603.300    595 900    830.000    603 400    595.900
BT    850 000    603.400    595.900    870.000    603 200    595 900    875 000    603.100    595 900    877.200
BT    603 100    595.900    897 000    603 300    592.400    900 800    603 300    591 700    913 000    605.000
BT    596 300    925.000    608 000    596 300    936 000    609.800    596 300    943 000    610 300    596 300
BT    953.000    609.400    596 300    973 000    605.000    596 300    985 800    603 300    591 700    988 000
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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0.000 | 1 561 | 3 040 | 0.000 | 173 900 | 0 000 | 2121.100 | 0.000 | 582.100 | 582 100 |
| | | 16 MILE RD US | | | | | | | | |
| X1 | 1223.000 | 63.000 | 782.000 | 967.000 | 43 000 | 43 000 | 43 000 | 0.940 | 0 000 | 0.000 |
| X2 | 0.000 | 0.000 | 1 000 | 601 000 | 603 400 | 0.000 | 0 000 | 0 000 | 0 940 | 0.000 |
| X3 | 10.000 | 0.000 | 0.000 | 450.000 | 0.000 | 1100.000 | 0 000 | 603 400 | 603 400 | 0.000 |
| BT | 17.000 | 0 000 | 603 300 | 0.000 | 482.000 | 603 400 | 0.000 | 582 000 | 603 600 | 0 000 |
| BT | 682.000 | 603 500 | 0 000 | 780 000 | 603.500 | 0 000 | 780.000 | 607 700 | 0 000 | 782 000 |
| BT | 607.700 | 601.000 | 824 700 | 607 600 | 600 900 | 847.700 | 607 600 | 600 900 | 924 500 | 607 600 |
| BT | 600 900 | 967.000 | 607 600 | 600 900 | 970 000 | 607 600 | 0 000 | 970 000 | 603 400 | 0 000 |
| BT | 982 000 | 603 500 | 0 000 | 1082 000 | 603 300 | 0 000 | 1088 000 | 604 100 | 0 000 | 1100 000 |
| BT | 605.300 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602.900 | 0.000 | 602.000 | 82 000 | 601 800 | 100 000 | 602 600 | 182.000 | 602 800 | 200 000 |
| GR | 603.000 | 282.000 | 603.100 | 300 000 | 600.800 | 382 000 | 600.300 | 400 000 | 599 100 | 450 000 |
| GR | 598.400 | 482.000 | 598 000 | 500 000 | 597.600 | 565 000 | 597.400 | 582.000 | 596 600 | 682 000 |
| GR | 596.100 | 740 000 | 594 000 | 780 000 | 601.000 | 782 000 | 597.100 | 783 000 | 596 400 | 789 000 |
| GR | 591.700 | 809 000 | 590.900 | 819 000 | 588 400 | 823 400 | 600 900 | 823 400 | 600 900 | 824.700 |
| GR | 600.900 | 826 000 | 587 500 | 826 000 | 587 200 | 832 000 | 584 300 | 842 000 | 584 100 | 852 000 |
| GR | 583.800 | 862 000 | 583 600 | 873 400 | 600 900 | 873 400 | 600.900 | 874 700 | 600 900 | 876 000 |
| GR | 583 900 | 876 000 | 582.900 | 882 000 | 582 700 | 892 000 | 582 700 | 902 000 | 582 100 | 912 000 |
| GR | 583 400 | 923 200 | 600 900 | 923.200 | 600 900 | 924 500 | 600 900 | 925.800 | 587 300 | 925 800 |
| GR | 588 900 | 931.000 | 591.300 | 939 000 | 596 700 | 961 000 | 598 100 | 966 000 | 600 900 | 967.000 |
| GR | 593 300 | 970 000 | 593 700 | 982.000 | 594 300 | 1000 000 | 595 000 | 1045 000 | 602 800 | 1082 000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400.000 |
| GR | 603.300 | 1500 000 | 603 100 | 1600.000 | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.040 | 0 040 | 0 025 | 0 300 | 0 500 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 1323.000 | 31 000 | 800 000 | 944 000 | 100 000 | 100 000 | 100 000 | 0 940 | -0 950 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 350.000 | 0 000 | 1000 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603 100 | 300 000 | 600 300 | 400.000 |
| GR | 598 000 | 500.000 | 597 600 | 565.000 | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 584.400 | 830.000 | 583.900 | 840 000 | 583 700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 |
| GR | 583.700 | 910.000 | 586.500 | 921 000 | 588 800 | 926.000 | 589.300 | 938 000 | 592.500 | 944.000 |
| GR | 594.300 | 1000 000 | 595 000 | 1045 000 | 604 100 | 1088 000 | 605 300 | 1100.000 | 605 400 | 1200.000 |
| GR | 605.700 | 1300 000 | 605 600 | 1400.000 | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 |
| GR | 603 700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0.110 | 0 060 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 2223.000 | 23 000 | 300.000 | 446 000 | 870 000 | 940 000 | 900 000 | 0 000 | -0 440 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 615 500 | 0.000 | 615 300 | 100.000 | 613 000 | 200 000 | 611 500 | 222.000 | 601 200 | 252 000 |
| GR | 598 900 | 300.000 | 586 000 | 323.000 | 585 200 | 330 000 | 584 600 | 340.000 | 584 800 | 360 000 |
| GR | 584.200 | 380.000 | 583 000 | 400 000 | 583 600 | 420 000 | 583 900 | 430 000 | 586 600 | 437.000 |
| GR | 593.700 | 446 000 | 594.600 | 463 000 | 607 000 | 503 000 | 607.700 | 600.000 | 608.200 | 700 000 |
| GR | 608.200 | 800 000 | 607 500 | 900 000 | 606 400 | 1000 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0.040 | 0 040 | 0 025 | 0.100 | 0 300 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 3180.000 | 0.000 | 0 000 | 0.000 | 925 000 | 995 000 | 957.000 | 0.000 | 0 440 | 0.000 |
| X3 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 600 000 | 0.000 | 0 000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0.000 | 1.555 | 3 020 | 0 000 | 174 400 | 0 000 | 2318 400 | 0 000 | 581 700 | 581 700 |
| X1 | 1143 000 | 67 000 | 781 500 | 969 000 | 43.000 | 43 000 | 43 000 | 0 930 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 601 700 | 603 100 | 0 000 | 0 000 | 0 000 | 0 930 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0.000 | 970 000 | 603 100 | 603 100 | 0 000 | 0 000 |
| BT | 17 000 | 450 000 | 604 600 | 0.000 | 469 000 | 604 600 | 0 000 | 569 000 | 604 700 | 0 000 |
| BT | 669.000 | 604.600 | 0 000 | 769 000 | 604 300 | 0.000 | 780 000 | 604 300 | 0 000 | 780 000 |
| BT | 608 100 | 0 000 | 781 500 | 608 100 | 601.700 | 825.200 | 608 000 | 601 600 | 875 200 | 607 800 |
| BT | 601 400 | 925 200 | 607 500 | 601 100 | 969 000 | 607 400 | 601 000 | 970 000 | 607 400 | 0 000 |
| BT | 970.000 | 604 300 | 0 000 | 1069 000 | 603 100 | 0 000 | 1089.000 | 604 100 | 0 000 | 1100 000 |
| BT | 605 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0.000 | 602 100 | 69.000 | 601 800 | 100 000 | 602 500 | 169 000 | 602 800 | 200 000 |
| GR | 603.000 | 269 000 | 603.100 | 300 000 | 601 200 | 369 000 | 600 300 | 400 000 | 599 100 | 450 000 |
| GR | 598 700 | 469 000 | 598.000 | 500.000 | 597 600 | 565 000 | 597 600 | 569 000 | 596 700 | 669 000 |
| GR | 596 100 | 740 000 | 594.600 | 769 000 | 593.800 | 780 000 | 601 700 | 781 500 | 598 600 | 782 500 |
| GR | 597.900 | 783 000 | 592.900 | 800 000 | 591 200 | 805 000 | 586 400 | 808 000 | 586 400 | 819 000 |
| GR | 585 800 | 823 900 | 601.600 | 823 900 | 601 600 | 825 200 | 601 600 | 826.500 | 584 800 | 826 500 |
| GR | 584 700 | 829 000 | 584.700 | 839 000 | 584 200 | 849 000 | 584 400 | 859 000 | 584 600 | 869 000 |
| GR | 584.800 | 873.900 | 601 400 | 873 900 | 601 400 | 875.200 | 601 400 | 876 500 | 582 800 | 876 500 |
| GR | 582 600 | 879.000 | 581 700 | 889 000 | 582 100 | 899 000 | 583 500 | 909 000 | 584 600 | 919 000 |
| GR | 585.400 | 923.900 | 601 100 | 923 900 | 601 100 | 925 200 | 601 100 | 926 500 | 586 900 | 926 500 |
| GR | 586 600 | 930 000 | 588 800 | 941 000 | 596 100 | 960 000 | 597 600 | 968 000 | 601 000 | 969 000 |
| GR | 593.300 | 970.000 | 594 300 | 1000 000 | 595 000 | 1045 000 | 600 100 | 1069 000 | 604 000 | 1089 000 |
| GR | 605 300 | 1100 000 | 605 400 | 1200.000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600.000 | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1150 000 | 31 000 | 800 000 | 944.000 | 7 000 | 7 000 | 7 000 | 0 930 | -1 320 | 0 000 |
| X3 | 0 000 | 0 000 | 0.000 | 780.000 | 0 000 | 980 000 | 0 000 | 603.400 | 603 400 | 0 000 |
| GR | 602 900 | 0 000 | 601.800 | 100 000 | 602 800 | 200.000 | 603 100 | 300 000 | 600 300 | 400 000 |
| GR | 598.000 | 500 000 | 597 600 | 565 000 | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 584 400 | 830 000 | 583 900 | 840 000 | 583 700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 |
| GR | 583 700 | 910.000 | 586 500 | 921 000 | 588 800 | 926 000 | 589 300 | 938 000 | 592 500 | 944 000 |
| GR | 594.300 | 1000.000 | 595 000 | 1045 000 | 604 100 | 1088.000 | 605.300 | 1100 000 | 605 400 | 1200 000 |
| GR | 605 700 | 1300.000 | 605 600 | 1400.000 | 603.300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 |
| GR | 603 700 | 1800 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 150 | 0 150 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1180.000 | 62.000 | 782 000 | 967.000 | 30 000 | 30 000 | 30 000 | 0 940 | 0 000 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 1100 000 | 0 000 | 603 400 | 603 400 | 0 000 |
| GR | 602.900 | 0.000 | 602.000 | 82.000 | 601.800 | 100 000 | 602 600 | 182 000 | 602 800 | 200 000 |
| GR | 603 000 | 282 000 | 603 100 | 300 000 | 600 800 | 382 000 | 600 300 | 400 000 | 598 400 | 482 000 |
| GR | 598.000 | 500.000 | 597.600 | 565 000 | 597.400 | 582 000 | 596 600 | 682 000 | 596 100 | 740 000 |
| GR | 594.000 | 780.000 | 601 000 | 782.000 | 597 100 | 783 000 | 596 400 | 789.000 | 591 700 | 809 000 |
| GR | 590.900 | 819 000 | 588 400 | 823.400 | 600 900 | 823.400 | 600 900 | 824 700 | 600 900 | 826 000 |
| GR | 587 500 | 826 000 | 587 200 | 832.000 | 584 300 | 842 000 | 584 100 | 852 000 | 583 800 | 862 000 |
| GR | 583.600 | 873 400 | 600.900 | 873.400 | 600.900 | 874.700 | 600.900 | 876 000 | 583 900 | 876 000 |
| GR | 582.900 | 882.000 | 582 700 | 892 000 | 582.700 | 902.000 | 582 100 | 912 000 | 583 400 | 923 200 |
| GR | 600 900 | 923 200 | 600 900 | 924.500 | 600.900 | 925.800 | 587.300 | 925 800 | 588.900 | 930 000 |
| GR | 591 300 | 939 000 | 596.700 | 961 000 | 598 100 | 966 000 | 600 900 | 967 000 | 593 300 | 970.000 |
| GR | 593.700 | 982 000 | 594 300 | 1000.000 | 595 000 | 1045 000 | 602 800 | 1082.000 | 604 100 | 1088 000 |
| GR | 605 300 | 1100.000 | 605 400 | 1200.000 | 605 700 | 1300.000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600.000 | 605 100 | 1700.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| BT | 871.300 | 607.300 | 600.200 | 915.000 | 607.300 | 600 200 | 919 800 | 607 300 | 600 200 | 964 800 |
| BT | 607 300 | 600.200 | 971 400 | 607.300 | 600 400 | 1010 000 | 607 300 | 600 500 | 1010 000 | 603 700 |
| BT | 0 000 | 1025 000 | 603 900 | 0 000 | 1036 000 | 604.000 | 0 000 | 1048.000 | 604 600 | 0 000 |
| BT | 1148 000 | 606 700 | 0 000 | 1248 000 | 608 000 | 0 000 | 1348 000 | 608 800 | 0 000 | 1440.000 |
| BT | 609 300 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 600 | 0 000 | 604 700 | 25 000 | 604 700 | 48 000 | 604 100 | 125 000 | 603 900 | 148 000 |
| GR | 603 900 | 225.000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601 900 | 448 000 | 600 200 | 473.000 | 599 600 | 525 000 | 598 900 | 548.000 | 597 100 | 625 000 |
| GR | 596.600 | 648 000 | 595.300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 600 400 | 825 000 |
| GR | 598.100 | 825.000 | 598 100 | 830 700 | 587 700 | 856 000 | 585 400 | 857 500 | 584 400 | 864 300 |
| GR | 600.400 | 864.300 | 600 200 | 871 300 | 586 200 | 871 300 | 585 900 | 875 000 | 584 900 | 885 000 |
| GR | 585 000 | 895 000 | 585 200 | 905.000 | 584 900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585 100 | 919.800 | 585 700 | 925 000 | 585 500 | 935.000 | 585 700 | 945 000 | 585 900 | 955 000 |
| GR | 586 300 | 964.800 | 600 200 | 964 800 | 600 400 | 971 400 | 588 100 | 971 400 | 588 100 | 978 600 |
| GR | 597.800 | 1003.200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025 000 | 604 000 | 1036 000 |
| GR | 604 600 | 1048 000 | 606.200 | 1125.000 | 606 700 | 1148 000 | 607 700 | 1225.000 | 608 000 | 1248 000 |
| GR | 608 600 | 1325.000 | 608.800 | 1348 000 | 609 200 | 1425 000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| NC | 0.035 | 0.030 | 0 025 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| QT | 4.000 | 10440.000 | 15320 000 | 16560 000 | 21140.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 8494 000 | 28 000 | 900 000 | 1059.000 | 100.000 | 100 000 | 100 000 | 0 870 | 0 400 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 160 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 300 | 0.000 | 604 400 | 100 000 | 603.600 | 200 000 | 603 600 | 300.000 | 603 600 | 400 000 |
| GR | 601.600 | 500 000 | 598 600 | 600 000 | 596.300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584.700 | 935 000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 584 500 | 1015.000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| X1 | 9594.000 | 28 000 | 860 000 | 1030 000 | 630 000 | 1520 000 | 1100 000 | 0 000 | 0 300 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 260 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| GR | 604.500 | 0.000 | 603 900 | 60.000 | 603 700 | 160 000 | 603 300 | 260.000 | 601.300 | 360 000 |
| GR | 599 200 | 460 000 | 598 000 | 560.000 | 598 800 | 660 000 | 598.900 | 760.000 | 597.800 | 860 000 |
| GR | 594 000 | 871.000 | 590 300 | 878.000 | 588.900 | 889 000 | 586 900 | 893.000 | 586 400 | 900 000 |
| GR | 585.800 | 910.000 | 585 400 | 920.000 | 585.500 | 930 000 | 585.400 | 940.000 | 585.400 | 950.000 |
| GR | 585 800 | 960.000 | 586 000 | 970.000 | 585 500 | 980 000 | 587.600 | 990.000 | 602 200 | 1030 000 |
| GR | 603 400 | 1060.000 | 606 600 | 1160 000 | 608.200 | 1260 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 9653.000 | 0.000 | 0 000 | 0 000 | 59 000 | 59 000 | 59 000 | 0 000 | -0 300 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 260 000 | 0 000 | 1210 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0.025 | 0.025 | 0 020 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9654 000 | 42.000 | 802.000 | 959 500 | 1 000 | 1 000 | 1 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 200 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 21.000 | 0 000 | 604 200 | 0 000 | 33 000 | 604 100 | 0 000 | 100.000 | 604 000 | 0 000 |
| BT | 200 000 | 603.600 | 0.000 | 219.000 | 603 200 | 0 000 | 300 000 | 602.900 | 0.000 | 400 000 |
| BT | 601 800 | 0.000 | 500.000 | 601.400 | 0.000 | 600 000 | 601.500 | 0.000 | 700 000 | 603.000 |
| BT | 0.000 | 800.000 | 604 900 | 0 000 | 800.000 | 605 600 | 0 000 | 802.000 | 605 600 | 603 300 |
| BT | 880 700 | 605 700 | 603 400 | 959 500 | 605.700 | 603 400 | 961.500 | 605.700 | 0 000 | 961.500 |
| BT | 605.200 | 0.000 | 1000 000 | 604 900 | 0.000 | 1038.000 | 604.900 | 0.000 | 1100 000 | 606.900 |
| BT | 0.000 | 1150 000 | 607 700 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 604.200 | 0.000 | 604 100 | 33.000 | 604 000 | 100 000 | 603 600 | 200.000 | 603.200 | 219 000 |
| GR | 601.600 | 300.000 | 599 500 | 400.000 | 598 300 | 500 000 | 599.100 | 600 000 | 599 200 | 700 000 |
| GR | 598.100 | 800 000 | 603 300 | 802.000 | 598 800 | 802 000 | 598 800 | 808.000 | 597.900 | 810 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| QT | 4 000 | 9360 000 | 13680.000 | 14820 000 | 19310.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 5720 000 | 22 000 | 400 000 | 556 000 | 2600 000 | 2500 000 | 2540 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 800 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 700 | 0.000 | 604 500 | 100 000 | 604 500 | 200 000 | 602 000 | 300.000 | 599 300 | 400 000 |
| GR | 586.500 | 422 000 | 585 000 | 430 000 | 584.900 | 440 000 | 584 900 | 460 000 | 585 000 | 480 000 |
| GR | 584 200 | 500 000 | 585.500 | 520 000 | 586 400 | 530.000 | 600 900 | 556 000 | 601 700 | 570 000 |
| GR | 604.300 | 575 000 | 604.100 | 600.000 | 604 300 | 700.000 | 606 700 | 700 000 | 608 100 | 800 000 |
| GR | 606 800 | 900 000 | 606.300 | 920.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 030 | 0.025 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 7470 000 | 28 000 | 900 000 | 1059 000 | 1830 000 | 1750.000 | 1710 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0.000 | 420.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 300 | 0.000 | 604 400 | 100 000 | 603.600 | 200 000 | 603 600 | 300.000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598.600 | 600 000 | 596.300 | 700.000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586.800 | 919.000 | 585.100 | 925.000 | 584 700 | 935 000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 584.500 | 1015.000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 8270 000 | 28 000 | 900 000 | 1059 000 | 800 000 | 840 000 | 760 000 | 0 870 | 0 300 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 150 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 300 | 0 000 | 604.400 | 100.000 | 603 600 | 200 000 | 603 600 | 300 000 | 603 600 | 400 000 |
| GR | 601 600 | 500.000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935 000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584.500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300.000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| NC | 0 000 | 0 000 | 0.000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 8340.000 | 59 000 | 825 000 | 1010.000 | 70 000 | 70 000 | 70 000 | 0 870 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 110.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604.600 | 0 000 | 604 700 | 25 000 | 604 700 | 48 000 | 604 100 | 125 000 | 603 900 | 148 000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601.900 | 448 000 | 600 200 | 473 000 | 599 600 | 525 000 | 598 900 | 548 000 | 597 100 | 625 000 |
| GR | 596.600 | 648.000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 607 300 | 825 000 |
| GR | 598 100 | 825.000 | 598 100 | 830.700 | 587 700 | 856 000 | 585.400 | 857 500 | 584 400 | 864 300 |
| GR | 600.400 | 864.300 | 600 200 | 871 300 | 586.200 | 871 300 | 585 900 | 875 000 | 584 900 | 885 000 |
| GR | 585.000 | 895.000 | 585 200 | 905 000 | 584 900 | 915 000 | 600 200 | 915 000 | 600.200 | 919 800 |
| GR | 585.100 | 919.800 | 585 700 | 925.000 | 585 500 | 935 000 | 585 700 | 945 000 | 585.900 | 955 000 |
| GR | 586 300 | 964 800 | 600 200 | 964 800 | 600 400 | 971 400 | 588 100 | 971.400 | 588 100 | 978 600 |
| GR | 597 800 | 1003 200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025.000 | 604 000 | 1036 000 |
| GR | 604 600 | 1048.000 | 606 200 | 1125.000 | 606 700 | 1148 000 | 607.700 | 1225 000 | 608 000 | 1248 000 |
| GR | 608.600 | 1325 000 | 608.800 | 1348.000 | 609 200 | 1425.000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| SB | 0.000 | 1 790 | 2 800 | 0.000 | 161 000 | 0 000 | 1680 000 | 0 000 | 584 400 | 584.400 |
| | | 15 MILE RD US | | | | | | | | |
| X1 | 8394.000 | 59 000 | 825 000 | 1010 000 | 54 000 | 54 000 | 54 000 | 0 870 | 0 000 | 0 000 |
| X2 | 0.000 | 0 000 | 1.000 | 600 400 | 600 900 | 0 000 | 0 000 | 0 000 | 0 870 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 120 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 27.000 | 0 000 | 604.600 | 0 000 | 48 000 | 604 700 | 0 000 | 148 000 | 603 900 | 0 000 |
| BT | 248 000 | 603.900 | 0 000 | 348 000 | 603 900 | 0 000 | 448 000 | 601 900 | 0 000 | 473 000 |
| BT | 601.200 | 0 000 | 525.000 | 600 900 | 0 000 | 625.000 | 601 100 | 0 000 | 725 000 | 602 300 |
| BT | 0 000 | 825 000 | 603.700 | 0 000 | 825 000 | 607.300 | 600 400 | 864 300 | 607 300 | 600 400 |

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| NC | 0.035 | 0.040 | 0.025 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| QT | 5 000 | 9210.000 | 13320 000 | 14260.000 | 17650.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 16096.000 | 22 000 | 100 000 | 314 000 | 1200.000 | 1600 000 | 1300 000 | 0 000 | 0 300 | 0.000 |
| GR | 615 800 | 0 000 | 613 100 | 100 000 | 599 300 | 133 000 | 598 000 | 160 000 | 594 000 | 188.000 |
| GR | 588.200 | 195 000 | 587 500 | 200 000 | 586.800 | 210 000 | 586 500 | 220 000 | 586 700 | 230 000 |
| GR | 587.200 | 240 000 | 587 200 | 250 000 | 587 400 | 260 000 | 588 400 | 270.000 | 594 400 | 285 000 |
| GR | 596.700 | 295 000 | 604 300 | 314 000 | 606 200 | 400 000 | 605.800 | 500 000 | 606 900 | 600 000 |
| GR | 605.900 | 660.000 | 630 000 | 660 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0.000 | 0.000 | 0 000 | 0.300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 16396.000 | 35 000 | 177 000 | 323.800 | 300.000 | 300.000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 100 | 0.000 | 613 400 | 100 000 | 607.900 | 124 000 | 606 700 | 177 000 | 605 100 | 177 000 |
| GR | 589 200 | 178.500 | 588 500 | 182 000 | 587.800 | 187 000 | 587 500 | 192 000 | 587 700 | 197 000 |
| GR | 588 000 | 202 000 | 587 800 | 207 000 | 587.600 | 217.000 | 587 600 | 227 000 | 588 000 | 237 000 |
| GR | 588 800 | 247 000 | 588 000 | 256 250 | 605 300 | 256 250 | 605 300 | 259 750 | 587 600 | 259 750 |
| GR | 588.400 | 262 000 | 589 600 | 267.000 | 592 400 | 277 000 | 593 200 | 287.000 | 592.100 | 291 000 |
| GR | 593.800 | 297.000 | 600 900 | 317.000 | 602 500 | 321 000 | 605 100 | 323 800 | 604 900 | 327 000 |
| GR | 606.000 | 377.000 | 606 300 | 392.000 | 606 500 | 400 000 | 606.100 | 500.000 | 607 200 | 600 000 |
| SB | 0.000 | 1.620 | 3 070 | 0 000 | 290.000 | 0 000 | 2030 000 | 0 000 | 587 500 | 587.500 |
| X1 | 16418 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22 000 | 22 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 605.300 | 606.100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 16 000 | 0 000 | 616 100 | 0 000 | 100 000 | 613 400 | 0 000 | 124 000 | 607 900 | 0 000 |
| BT | 177 000 | 606.700 | 0 000 | 177.000 | 607 500 | 605 100 | 256 200 | 607 600 | 605 300 | 259 700 |
| BT | 607.500 | 605.200 | 323 800 | 607 600 | 605 100 | 323 800 | 606 800 | 0 000 | 327 000 | 606 800 |
| BT | 0.000 | 377.000 | 606 400 | 0 000 | 392 000 | 606 300 | 0 000 | 400.000 | 606 500 | 0 000 |
| BT | 500.000 | 606.100 | 0.000 | 600.000 | 607 200 | 0 000 | 750 000 | 607 200 | 0 000 | 0 000 |
| NC | 0 028 | 0 030 | 0 025 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 16768 000 | 23.000 | 204 000 | 332 000 | 400.000 | 300 000 | 350 000 | 0 000 | 0 300 | 0.000 |
| GR | 609.600 | 0 000 | 607 400 | 55.000 | 601.300 | 155 000 | 597 400 | 204 000 | 588 800 | 227 000 |
| GR | 587.700 | 235.000 | 587 900 | 245.000 | 588 000 | 255 000 | 588 100 | 265 000 | 588 200 | 275 000 |
| GR | 588.300 | 285.000 | 588 400 | 295 000 | 588 500 | 305 000 | 588.600 | 315 000 | 588 300 | 325 000 |
| GR | 589.800 | 328 000 | 590.800 | 332.000 | 599.600 | 355 000 | 602 000 | 455 000 | 604 900 | 552.000 |
| GR | 607.700 | 560.000 | 607.400 | 573.000 | 630.000 | 573.000 | 0 000 | 0 000 | 0.000 | 0 000 |
| NC | 0 025 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 17168 000 | 41.000 | 375 000 | 474 400 | 600 000 | 100 000 | 400 000 | 0 000 | 0 000 | 0 000 |
| GR | 610.400 | 0 000 | 609 600 | 25 000 | 607 000 | 50 000 | 598 100 | 75 000 | 596 600 | 100 000 |
| GR | 596 500 | 125 000 | 595 300 | 150.000 | 596 600 | 175 000 | 597.000 | 200 000 | 597 900 | 225 000 |
| GR | 596.300 | 236.500 | 601.800 | 246.000 | 601 800 | 250 000 | 602 000 | 275.000 | 601 400 | 300 000 |
| GR | 600.900 | 325 000 | 599 200 | 350.000 | 598 200 | 375 000 | 592.700 | 382 000 | 590 700 | 383 400 |
| GR | 589.400 | 385.500 | 588.900 | 389 000 | 588.800 | 396 000 | 588.600 | 403.000 | 589.200 | 410 000 |
| GR | 588.700 | 417.000 | 588.800 | 424 000 | 588 700 | 431 000 | 588 500 | 438.000 | 588 000 | 445 000 |
| GR | 588 600 | 452.000 | 588 800 | 458 300 | 590.100 | 459 700 | 591 000 | 460 400 | 593 500 | 464.600 |
| GR | 597 100 | 468 100 | 599 100 | 474 400 | 600 900 | 488 900 | 602 400 | 513 900 | 604 000 | 533 500 |
| GR | 606.000 | 588 900 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 |

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| GR | 593.400 | 820 000 | 589 500 | 828 000 | 589 300 | 830 000 | 587 200 | 840 000 | 586 800 | 850 000 |
| GR | 586 200 | 860 000 | 585 900 | 870 000 | 585 600 | 878 900 | 603 400 | 878 900 | 603 400 | 880 700 |
| GR | 603 400 | 882 500 | 585 600 | 882 500 | 585 400 | 890 000 | 586 200 | 900 000 | 586 200 | 910 000 |
| GR | 586.300 | 920.000 | 587 100 | 930.000 | 591.700 | 940.000 | 597 700 | 950 000 | 599 700 | 959 500 |
| GR | 603 400 | 959.500 | 599 600 | 961 500 | 602 500 | 970 000 | 603 700 | 1000 000 | 604 900 | 1038 000 |
| GR | 606.900 | 1100 000 | 607 700 | 1150 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9676 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22 000 | 22 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 | 1 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 200 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0.035 | 0.040 | 0 025 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9677 000 | 28.000 | 860 000 | 1030.000 | 1.000 | 1 000 | 1 000 | 0 000 | 0 000 | 0.000 |
| X3 | 0 000 | 0.000 | 0 000 | 280 000 | 0 000 | 1210 000 | 0.000 | 0 000 | 0.000 | 0 000 |
| GR | 604 500 | 0.000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260 000 | 601 300 | 360.000 |
| GR | 599 200 | 460 000 | 598 000 | 560 000 | 598 800 | 660 000 | 598 900 | 760 000 | 597 800 | 860 000 |
| GR | 594.000 | 871 000 | 590.300 | 878 000 | 588.900 | 889 000 | 586 900 | 893 000 | 586 400 | 900 000 |
| GR | 585 800 | 910 000 | 585 400 | 920 000 | 585 500 | 930 000 | 585 400 | 940 000 | 585 400 | 950 000 |
| GR | 585 800 | 960 000 | 586 000 | 970 000 | 585 800 | 980 000 | 587 600 | 990 000 | 602 200 | 1030 000 |
| GR | 603.400 | 1060.000 | 606.600 | 1160 000 | 608 200 | 1260 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9777 000 | 0 000 | 0 000 | 0 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 050 | 0 000 |
| X3 | 0.000 | 0.000 | 0.000 | 250.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0.100 | 0.300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 11596 000 | 34 000 | 812 000 | 1000 000 | 1975 000 | 1660 000 | 1819.000 | 0.000 | 0 300 | 0 000 |
| GR | 612.500 | 0 000 | 612 100 | 100 000 | 611 600 | 200 000 | 611 000 | 300 000 | 609 900 | 400.000 |
| GR | 609.600 | 500 000 | 609 800 | 600 000 | 608 300 | 700 000 | 607 700 | 800 000 | 607 300 | 812 000 |
| GR | 593 300 | 844 000 | 587 200 | 852 000 | 586 900 | 860 000 | 587 100 | 870 000 | 587 100 | 880 000 |
| GR | 587 000 | 890 000 | 587 000 | 900.000 | 586 900 | 910 000 | 586 800 | 920 000 | 586 800 | 930 000 |
| GR | 586 100 | 940 000 | 586 400 | 950 000 | 586 700 | 957 000 | 589 400 | 960 000 | 597 000 | 975 000 |
| GR | 600.400 | 1000 000 | 603 600 | 1050 000 | 602 600 | 1100 000 | 602 300 | 1200 000 | 603 100 | 1300 000 |
| GR | 603 500 | 1400 000 | 604 500 | 1428 000 | 606 900 | 1441 000 | 607 900 | 1500 000 | 0 000 | 0 000 |
| NC | 0.045 | 0 045 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 13196 000 | 27 000 | 0.000 | 238.000 | 1320 000 | 1760 000 | 1600 000 | 0 000 | 0 300 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 538 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 600 | 0.000 | 604 300 | 22.000 | 602 500 | 67.000 | 596 300 | 78 000 | 595 400 | 108.000 |
| GR | 590.500 | 123 000 | 589 700 | 132.000 | 587 500 | 138.000 | 587 000 | 148 000 | 586.500 | 158 000 |
| GR | 586 200 | 168 000 | 585 900 | 178 000 | 585 900 | 188 000 | 585 400 | 198 000 | 585 200 | 208 000 |
| GR | 587.000 | 219 000 | 593 100 | 229.000 | 595 600 | 238 000 | 598 000 | 263 000 | 604 400 | 329 000 |
| GR | 604.500 | 338 000 | 604 100 | 438.000 | 605 200 | 538 000 | 605 500 | 638 000 | 605 900 | 738 000 |
| GR | 606 700 | 838.000 | 607 500 | 938 000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| NC | 0 040 | 0.040 | 0 025 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 14796 000 | 33 000 | 0 000 | 300 000 | 1600 000 | 1600 000 | 1600 000 | 0 000 | 0 300 | 0 000 |
| GR | 621 400 | 0 000 | 619 400 | 20.000 | 618 800 | 26.000 | 611.900 | 76 000 | 610 100 | 96 000 |
| GR | 600 100 | 114.000 | 598 600 | 125.000 | 591.300 | 142 000 | 587 700 | 146.000 | 587 400 | 150 000 |
| GR | 587 000 | 160 000 | 587 000 | 170 000 | 587 100 | 180 000 | 587 000 | 190 000 | 587 300 | 200.000 |
| GR | 587.300 | 210 000 | 587 400 | 220 000 | 587 600 | 230 000 | 587 900 | 236 000 | 589 800 | 240 000 |
| GR | 590 800 | 245 000 | 595 000 | 258 000 | 598 200 | 263 000 | 603.900 | 272 000 | 612 800 | 300.000 |
| GR | 616 300 | 380 000 | 615 200 | 400 000 | 614.400 | 500 000 | 613 300 | 600 000 | 613 300 | 700 000 |
| GR | 610 800 | 800.000 | 611 200 | 900 000 | 608 700 | 960.000 | 0 000 | 0 000 | 0 000 | 0 000 |

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| GR | 610 300 | 600 000 | 613 000 | 700.000 | 612 800 | 800 000 | 612 700 | 900 000 | 0 000 | 0.000 |
| NC | 0.030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 20219 000 | 32 000 | 0 000 | 328 000 | 1100 000 | 1000 000 | 1100 000 | 0.000 | 0 000 | 0 000 |
| GR | 620.700 | 0.000 | 605.600 | 41 000 | 600 700 | 128 000 | 593 300 | 166 000 | 592 400 | 184 000 |
| GR | 589.900 | 188.000 | 588 300 | 194 000 | 588 500 | 198 000 | 588 100 | 208 000 | 588 200 | 218 000 |
| GR | 587 800 | 228.000 | 588 000 | 238 000 | 587 700 | 248 000 | 588 800 | 258 000 | 589 600 | 268 000 |
| GR | 590.100 | 271 000 | 590 800 | 288 000 | 606.900 | 328 000 | 609 500 | 428 000 | 608 600 | 462 000 |
| GR | 598.700 | 488 000 | 607 200 | 528 000 | 603 500 | 589.000 | 600 600 | 593 000 | 605 800 | 628 000 |
| GR | 609 200 | 728.000 | 607 200 | 828 000 | 609 400 | 928.000 | 610 400 | 1028.000 | 611 700 | 1078 000 |
| GR | 612 600 | 1128.000 | 6130 000 | 1228.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0.025 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 21119 000 | 25.000 | 526 000 | 700.000 | 800.000 | 900.000 | 900.000 | 0 000 | 0.000 | 0 000 |
| GR | 610 400 | 0.000 | 608 400 | 100.000 | 607 100 | 200 000 | 603 300 | 300.000 | 600 800 | 360 000 |
| GR | 605 200 | 398 000 | 609 600 | 412 000 | 609 500 | 500 000 | 607 300 | 526 000 | 589 500 | 582 000 |
| GR | 589 100 | 590 000 | 589 200 | 600 000 | 588 800 | 610.000 | 588 900 | 620 000 | 588 700 | 630 000 |
| GR | 588 700 | 640 000 | 589.400 | 650 000 | 589 200 | 660 000 | 589 500 | 663.000 | 599 000 | 679 000 |
| GR | 600 300 | 680 000 | 609 300 | 700 000 | 611 800 | 800 000 | 613 300 | 900.000 | 615 800 | 975 000 |
| NC | 0.028 | 0.035 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 22069.000 | 22 000 | 99 000 | 300.000 | 800 000 | 900 000 | 950 000 | 0 000 | 0 000 | 0 000 |
| GR | 630.300 | 0 000 | 607 400 | 0 000 | 609 500 | 99 000 | 604 600 | 120 000 | 602 800 | 144 000 |
| GR | 599.600 | 149.000 | 599.400 | 156.000 | 592 300 | 175 000 | 590 000 | 176 000 | 589 200 | 180 000 |
| GR | 588.800 | 190 000 | 588 200 | 200 000 | 588 400 | 210 000 | 588 600 | 220 000 | 589 500 | 230 000 |
| GR | 590.200 | 239.000 | 591 400 | 245.000 | 594 000 | 249 000 | 596 000 | 268 000 | 608 300 | 300 000 |
| GR | 611 600 | 400.000 | 612 900 | 470 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 4 000 | 8580.000 | 12280 000 | 13000 000 | 15610 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0.028 | 0.025 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 22419 000 | 21.000 | 374 000 | 500 000 | 400 000 | 250 000 | 350.000 | 0 000 | 0 000 | 0 000 |
| GR | 599 900 | 0 000 | 599 300 | 100 000 | 599 200 | 180 000 | 601.300 | 200 000 | 604 500 | 300 000 |
| GR | 601 800 | 374.000 | 589 700 | 391 000 | 588 200 | 400 000 | 588.200 | 410 000 | 588.500 | 420 000 |
| GR | 588 700 | 430 000 | 589 200 | 440.000 | 589.700 | 450.000 | 590.000 | 460.000 | 589 800 | 464.000 |
| GR | 591.700 | 467 000 | 603 800 | 500 000 | 604.300 | 521 000 | 608 900 | 541 000 | 611 500 | 600 000 |
| GR | 613 900 | 700.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0.000 |
| NC | 0 028 | 0.028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 23319.000 | 24 000 | 567 000 | 700 000 | 800 000 | 875 000 | 900 000 | 0 000 | 0 000 | 0 000 |
| GR | 610.200 | 0 000 | 610 400 | 100 000 | 607 200 | 200 000 | 606.500 | 300 000 | 609.800 | 400.000 |
| GR | 612.300 | 488.000 | 611 800 | 500 000 | 607 500 | 541 000 | 606 600 | 567 000 | 602 200 | 587 000 |
| GR | 589.900 | 601.000 | 588.900 | 610 000 | 588.500 | 620.000 | 588 900 | 630 000 | 588 800 | 640 000 |
| GR | 589.100 | 650.000 | 589 200 | 660.000 | 588 900 | 670.000 | 591 800 | 678 000 | 602 200 | 700 000 |
| GR | 602.400 | 726 000 | 606.600 | 750.000 | 608 900 | 800 000 | 610 500 | 900 000 | 0 000 | 0 000 |
| QT | 4 000 | 6510 000 | 8680.000 | 8680.000 | 8680 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.030 | 0.028 | 0.025 | 0.000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 23569.000 | 22.000 | 526 000 | 700.000 | 150 000 | 300.000 | 250 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 750.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| GR | 609.600 | 0 000 | 609.900 | 100 000 | 608 300 | 200 000 | 607 100 | 300 000 | 608.800 | 400 000 |
| GR | 610 000 | 500 000 | 610 000 | 526 000 | 589 800 | 580.000 | 588 400 | 590 000 | 588 400 | 600 000 |
| GR | 588.600 | 610 000 | 588 700 | 620.000 | 589.100 | 630 000 | 589 400 | 640 000 | 589 600 | 645 000 |
| GR | 590 300 | 647 000 | 600 800 | 669.000 | 602.300 | 681.000 | 610 400 | 700 000 | 613 800 | 750 000 |
| GR | 609.700 | 800.000 | 613 600 | 875.000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 17268 000 | 61 000 | 400 000 | 591 800 | 100.000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 300 | 0.000 | 607 900 | 90 000 | 606 400 | 275 000 | 607 100 | 300 000 | 607 600 | 325 000 |
| GR | 608 200 | 350 000 | 608 800 | 375 000 | 608 800 | 400 000 | 596 800 | 400 000 | 589 200 | 414 000 |
| GR | 589 200 | 421 000 | 587 900 | 428.000 | 587.900 | 435 000 | 588 000 | 437 000 | 606 400 | 437 000 |
| GR | 606 400 | 438.500 | 606 400 | 440 000 | 588 100 | 440 000 | 588 000 | 441 900 | 588 100 | 449 000 |
| GR | 588 300 | 456 000 | 588 300 | 463.000 | 588 200 | 470 000 | 588 300 | 476.900 | 606 800 | 476 900 |
| GR | 606.800 | 478 400 | 606 800 | 479 900 | 588 000 | 479 900 | 588 200 | 491 000 | 587.600 | 498 000 |
| GR | 587 000 | 505 000 | 586.500 | 509 900 | 586.500 | 511 900 | 607 000 | 511 900 | 607.000 | 513 400 |
| GR | 607 000 | 514 900 | 586 600 | 514.900 | 586 700 | 519 000 | 587 700 | 526.000 | 587 700 | 533 000 |
| GR | 588 000 | 540 000 | 588 000 | 544 000 | 586.500 | 549 000 | 606 900 | 549 000 | 606 900 | 550 500 |
| GR | 606.900 | 550 500 | 606 900 | 552.000 | 586 700 | 552 000 | 586.800 | 553 300 | 588 000 | 561 000 |
| GR | 587 400 | 568 000 | 588 100 | 575.000 | 591 900 | 582 000 | 596 600 | 591.800 | 609 200 | 591 800 |
| GR | 609.300 | 600 800 | 608.600 | 623 300 | 608 200 | 648 300 | 607 600 | 673 000 | 607.200 | 698.300 |
| GR | 606 400 | 723 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1.600 | 3 040 | 0 000 | 191 800 | 0 000 | 3230 000 | 0 000 | 586 500 | 586 500 |
| X1 | 17368.000 | 0.000 | 0.000 | 0 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0 000 | 1 000 | 607 000 | 607 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 21.000 | 0 000 | 613 300 | 0 000 | 90 000 | 607 900 | 0 000 | 275 000 | 606 400 | 0 000 |
| BT | 300 000 | 607.100 | 0.000 | 325 000 | 607 600 | 0 000 | 350 000 | 608 200 | 0 000 | 375 000 |
| BT | 608 800 | 0.000 | 400 000 | 608 800 | 0 000 | 400 000 | 611 800 | 606 100 | 438 500 | 612 100 |
| BT | 606.400 | 478.400 | 612.400 | 606 800 | 513 400 | 612 700 | 607 000 | 550 500 | 612 500 | 606 900 |
| BT | 591.800 | 612.200 | 606.500 | 591 800 | 609 200 | 0 000 | 600 800 | 609 300 | 0 000 | 623 000 |
| BT | 608 600 | 0 000 | 648 300 | 608 200 | 0 000 | 673 300 | 607 600 | 0 000 | 698 300 | 607 200 |
| BT | 0 000 | 723 300 | 606 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.025 | 0.028 | 0.025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 18244.000 | 90 000 | 249.000 | 387 200 | 150 000 | 1400 000 | 876 000 | 0 000 | -0 900 | 0 000 |
| GR | 612 300 | 0 000 | 612.000 | 8 500 | 611 600 | 17 100 | 610 900 | 25 700 | 609 900 | 34 300 |
| GR | 607 500 | 42 900 | 605 500 | 51.500 | 605 100 | 60 100 | 604 700 | 68.600 | 604.600 | 77 200 |
| GR | 604 400 | 85 800 | 604 000 | 94 400 | 603 800 | 103 000 | 604 100 | 111 600 | 604 200 | 120 200 |
| GR | 604 300 | 128.700 | 604 400 | 137 300 | 604 500 | 145 900 | 604 000 | 154 500 | 606.300 | 163.100 |
| GR | 606.300 | 171 700 | 606 300 | 180 300 | 606 100 | 188 800 | 605 900 | 197 400 | 605 700 | 206 000 |
| GR | 605 400 | 214 600 | 604 900 | 223 200 | 604 400 | 231 800 | 604 000 | 240 400 | 603 700 | 249 000 |
| GR | 601 500 | 253.600 | 599 300 | 258 200 | 596 900 | 262 800 | 595 600 | 267 400 | 594 700 | 272 000 |
| GR | 593.800 | 276.600 | 593 000 | 281.200 | 592 200 | 285 800 | 591 800 | 290 400 | 591.500 | 295 000 |
| GR | 591.000 | 299.600 | 589 400 | 304 200 | 588 400 | 308 800 | 588 500 | 313.400 | 588 500 | 318 000 |
| GR | 588.500 | 322 700 | 588.500 | 327 300 | 588 400 | 331 900 | 588 400 | 336 500 | 588 200 | 341 100 |
| GR | 588.200 | 345 700 | 588 300 | 350.300 | 588.400 | 354 900 | 588.500 | 359.500 | 588 500 | 364 100 |
| GR | 590.200 | 368 700 | 592 400 | 373 300 | 595.900 | 377.900 | 597 800 | 382 500 | 599 300 | 387 200 |
| GR | 600.300 | 399 100 | 601.200 | 411 000 | 602.200 | 422 900 | 602.700 | 434 800 | 603.000 | 446 700 |
| GR | 603 300 | 458 600 | 603.700 | 470.500 | 604 000 | 482 400 | 604 300 | 494 300 | 604 700 | 506 200 |
| GR | 605 100 | 518 100 | 605 600 | 530 000 | 606 100 | 542.000 | 606 500 | 553 900 | 607 000 | 565 800 |
| GR | 607.400 | 577 700 | 607 700 | 589 600 | 608.100 | 601 500 | 608 400 | 613 400 | 608.800 | 625 300 |
| GR | 608.800 | 637.200 | 608 900 | 649 100 | 608 900 | 661 000 | 609 000 | 672 900 | 609 000 | 684 900 |
| GR | 609 100 | 696.800 | 609.100 | 708.700 | 609 200 | 720.600 | 609 200 | 732 500 | 609 300 | 744 400 |
| NC | 0.030 | 0 045 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 19119.000 | 24.000 | 123 000 | 300 000 | 850 000 | 800.000 | 875 000 | 0 000 | 0.000 | 0 000 |
| GR | 614 200 | 0 000 | 610 300 | 100 000 | 609 200 | 123 000 | 596 200 | 168.000 | 592 400 | 192 000 |
| GR | 588 600 | 195 000 | 588.100 | 200 000 | 588 400 | 210.000 | 588 400 | 220 000 | 588.400 | 230 000 |
| GR | 588.300 | 240 000 | 588.500 | 250.000 | 588 400 | 260.000 | 588.300 | 270.000 | 589.300 | 279 000 |
| GR | 596.300 | 290.000 | 599.600 | 300.000 | 604.300 | 364.000 | 604 900 | 400 000 | 607 100 | 500 000 |

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| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 27150.000 | 22.000 | 149 000 | 243 000 | 200 000 | 300 000 | 250 000 | 0 000 | 0.000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 375.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 615 200 | 0.000 | 614 500 | 43 000 | 610 500 | 121 000 | 605 900 | 129 000 | 604 700 | 149 000 |
| GR | 596.900 | 163.000 | 590 900 | 174 000 | 590 600 | 178 000 | 590 500 | 183 000 | 590 500 | 193 000 |
| GR | 590.600 | 203.000 | 590 500 | 213.000 | 590.800 | 216 000 | 604 600 | 243 000 | 608 900 | 294 000 |
| GR | 610.700 | 304.000 | 605 100 | 325 000 | 604 500 | 333 000 | 605 300 | 337 000 | 611 500 | 352 000 |
| GR | 611.200 | 410.000 | 630.300 | 410 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 27900.000 | 17.000 | 181.000 | 300.000 | 800.000 | 700 000 | 750.000 | 0 000 | 0 000 | 0.000 |
| GR | 612 300 | 0.000 | 611 600 | 100 000 | 612 000 | 112.000 | 605.900 | 157 000 | 605 700 | 181 000 |
| GR | 597 600 | 203 000 | 594 300 | 204 000 | 590 700 | 212 000 | 589.900 | 220 000 | 590 300 | 230 000 |
| GR | 590 500 | 240 000 | 591 000 | 250 000 | 591.200 | 255 000 | 595 800 | 262.000 | 609 800 | 300 000 |
| GR | 614 700 | 400 000 | 615 500 | 464 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 28000 000 | 30 000 | 179 000 | 291 000 | 100 000 | 100 000 | 100 000 | 0 950 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 800 | 79 000 | 611 900 | 100 000 | 612 000 | 112 000 | 605.000 | 157 000 |
| GR | 605 600 | 179.000 | 608.700 | 179 000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216 000 |
| GR | 590 600 | 219 000 | 590 100 | 224 000 | 590 200 | 229 000 | 590 400 | 234 000 | 591 100 | 241 500 |
| GR | 608 600 | 241.500 | 608 600 | 243 000 | 608 600 | 244 500 | 590 100 | 244 500 | 590 400 | 249 000 |
| GR | 590.800 | 254.000 | 591 500 | 259 000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606.500 | 291 000 | 609 800 | 300 000 | 613 400 | 373 000 | 61407 000 | 400 000 | 615 500 | 464 000 |
| SB | 0.000 | 1 540 | 3 040 | 0.000 | 116 000 | 0 000 | 1320.000 | 0.000 | 590 100 | 590 100 |
| X1 | 28031.000 | 30.000 | 179 000 | 291 000 | 31 000 | 31 000 | 31.000 | 0 950 | 0 000 | 0 000 |
| X2 | 0.000 | 0 000 | 1 000 | 608 700 | 613.200 | 0.000 | 0.000 | 0 000 | 0 950 | 0 000 |
| BT | 10.000 | 0 000 | 614.000 | 0 000 | 79 000 | 613.600 | 0 000 | 179 000 | 613.200 | 0 000 |
| BT | 179.000 | 614.100 | 608.700 | 243.000 | 614 100 | 608 600 | 291.000 | 614 000 | 608 600 | 291 000 |
| BT | 613 200 | 0 000 | 373 000 | 613.400 | 0 000 | 400 000 | 614 700 | 0 000 | 464 000 | 615 500 |
| BT | 0 000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 612 300 | 0.000 | 611 800 | 79.000 | 611 900 | 100 000 | 612 000 | 112.000 | 605 000 | 157.000 |
| GR | 605 600 | 179.000 | 608.700 | 179.000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216 000 |
| GR | 590 600 | 219.000 | 590 100 | 224.000 | 590.200 | 229 000 | 590 400 | 234 000 | 590 100 | 241 500 |
| GR | 608 600 | 241.500 | 608 600 | 243 000 | 608.600 | 244 500 | 590 100 | 244.500 | 590 400 | 249 000 |
| GR | 590.800 | 254 000 | 591.500 | 259.000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606 500 | 291.000 | 609 800 | 300 000 | 613.400 | 373 000 | 614 700 | 400 000 | 615 500 | 464 000 |
| NC | 0.028 | 0 040 | 0.025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 28331.000 | 19.000 | 266.000 | 400 000 | 300 000 | 300 000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 614.100 | 0.000 | 612 800 | 100 000 | 611.900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592 900 | 305 000 | 590 700 | 308 000 | 590 700 | 310 000 | 590 900 | 320.000 | 591 000 | 330 000 |
| GR | 591.000 | 340 000 | 591 000 | 350.000 | 591.100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611.100 | 400 000 | 611.600 | 449.000 | 610 700 | 500 000 | 607 600 | 600 000 | 0 000 | 0 000 |
| X1 | 28431.000 | 57 000 | 300.000 | 417 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 614.500 | 0.000 | 614 100 | 28 000 | 613 200 | 100.000 | 612 800 | 128 000 | 612 200 | 200 000 |
| GR | 611.900 | 228.000 | 610 100 | 294.000 | 607 600 | 300.000 | 610 800 | 300 000 | 609 200 | 300.000 |
| GR | 602 200 | 314 000 | 610.800 | 314.000 | 610.800 | 315 000 | 601 700 | 315 000 | 594 700 | 329.000 |
| GR | 610 700 | 329 000 | 610 700 | 330.000 | 593.900 | 330 000 | 593 100 | 334 000 | 593 100 | 337 000 |
| GR | 593 000 | 340.000 | 592 400 | 343 000 | 610 700 | 343 000 | 610 700 | 344 000 | 592 500 | 344 000 |
| GR | 592 800 | 350 000 | 592.600 | 358 000 | 610 700 | 358 000 | 610 700 | 359 000 | 592 500 | 359.000 |

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| NC | 0.028 | 0 025 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 24369.000 | 18.000 | 344 000 | 472 000 | 850 000 | 900 000 | 800 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 613.900 | 0 000 | 610 600 | 72 000 | 610 000 | 172.000 | 609 100 | 272 000 | 605.500 | 344 000 |
| GR | 594 900 | 366 000 | 590 400 | 371.000 | 589 400 | 381 000 | 588 900 | 391 000 | 588 900 | 401 000 |
| GR | 589 000 | 411 000 | 589.600 | 421 000 | 589 800 | 431 000 | 590 400 | 435 000 | 593 600 | 438 000 |
| GR | 609 500 | 472 000 | 613 700 | 572 000 | 614 900 | 646 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 25819.000 | 17.000 | 500.000 | 627 000 | 1350.000 | 1500 000 | 1450 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 260.000 | 0 000 | 775 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 630.300 | 0 000 | 610 700 | 0.000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610.700 | 400 000 | 609 200 | 500 000 | 598.200 | 539 000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589.000 | 570 000 | 588.800 | 580.000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612 100 | 850 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0.000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 25919 000 | 38.000 | 500 000 | 604 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 610.700 | 0 000 | 610 400 | 87.000 | 610.100 | 187 000 | 610 000 | 287 000 | 610 700 | 387 000 |
| GR | 610 400 | 404 000 | 609 200 | 487.000 | 604.900 | 500 000 | 607 800 | 500 000 | 605.500 | 500 000 |
| GR | 604 600 | 507 000 | 593 300 | 527 000 | 590 700 | 535 000 | 590 800 | 537 400 | 607 900 | 537 400 |
| GR | 607.900 | 538.800 | 607 900 | 540 200 | 590 400 | 540 200 | 589 500 | 545 000 | 589 800 | 550 000 |
| GR | 589.900 | 555.000 | 590 000 | 560 000 | 590 200 | 563 800 | 607 900 | 563 800 | 607 900 | 565 200 |
| GR | 607.900 | 566.600 | 590 100 | 566 600 | 590 300 | 570.000 | 591 200 | 575 000 | 605 100 | 604 000 |
| GR | 607.800 | 604.000 | 604 000 | 604.000 | 609 300 | 614.000 | 610 700 | 675 000 | 611 000 | 687 000 |
| GR | 610 400 | 723 000 | 609 200 | 787 000 | 609 600 | 800 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0.000 | 1 680 | 3 040 | 0 000 | 104 000 | 0 000 | 1220 000 | 0 000 | 589 500 | 589 500 |
| X1 | 26025.000 | 0 000 | 0 000 | 0 000 | 106 000 | 106 000 | 106 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 607 900 | 610 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287.000 | 0 000 | 750.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 14 000 | 287 000 | 610 000 | 0.000 | 387 000 | 610 700 | 0 000 | 404 000 | 610.400 | 0 000 |
| BT | 500 000 | 611 500 | 0 000 | 500 000 | 614 700 | 607 800 | 538 800 | 614 800 | 607 900 | 565 200 |
| BT | 614.800 | 607.900 | 604 000 | 614 700 | 607 800 | 604 000 | 611 700 | 0 000 | 675 000 | 610 700 |
| BT | 0.000 | 687.000 | 611 000 | 0 000 | 723 000 | 610.400 | 0 000 | 750 000 | 610 300 | 0 000 |
| BT | 800.000 | 610.300 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 26125.000 | 17 000 | 500 000 | 627 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 690 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 260 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| GR | 630.300 | 0.000 | 610.700 | 0 000 | 610 400 | 100 000 | 610.100 | 200.000 | 610 000 | 300 000 |
| GR | 610 700 | 400.000 | 609 200 | 500.000 | 598.200 | 539 000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589.000 | 570.000 | 588.800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612 100 | 850.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0.030 | 0 040 | 0 028 | 0 100 | 0 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 26900.000 | 17.000 | 178.000 | 292 000 | 800 000 | 725 000 | 775 000 | 0 000 | 0 000 | 0 000 |
| GR | 615.400 | 0.000 | 614 000 | 92 000 | 613 000 | 138.000 | 610 000 | 178 000 | 590 900 | 217 000 |
| GR | 590 500 | 222.000 | 589 900 | 232.000 | 589.600 | 242 000 | 589 400 | 252 000 | 589 900 | 257 000 |
| GR | 590.500 | 262.000 | 590 800 | 263.000 | 608 800 | 292 000 | 609 700 | 392.000 | 610 700 | 492 000 |
| GR | 610.900 | 552 000 | 630 300 | 552 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

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| X1 | 31199.000 | 14 000 | 300 000 | 435 000 | 700 000 | 700 000 | 725 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 480 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100.000 | 616 500 | 200.000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592 500 | 355.000 | 592 500 | 360.000 | 592 200 | 370.000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393 000 | 613 300 | 435 000 | 614 100 | 500 000 | 614 200 | 600 000 | 0 000 | 0 000 |
| NC | 0.000 | 0.000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 31299.000 | 31.000 | 300 000 | 361 000 | 100 000 | 100.000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0.000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 800 | 0.000 | 616.600 | 50 000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 613 700 | 266 000 | 598 900 | 300 000 | 609 600 | 300 000 | 597 500 | 300.000 | 594 000 | 310 000 |
| GR | 592 600 | 313 000 | 592 600 | 315 000 | 592 600 | 320 000 | 592 400 | 325.000 | 592 400 | 330 000 |
| GR | 592 400 | 335.000 | 592 600 | 340 000 | 592 900 | 345.000 | 593.900 | 347 000 | 595 400 | 350 000 |
| GR | 598 300 | 361 000 | 609.700 | 361 000 | 595 900 | 361 000 | 613 300 | 398 000 | 613 300 | 400 000 |
| GR | 613.800 | 440 000 | 614.100 | 463 000 | 614.200 | 500 000 | 614 200 | 523 000 | 614 200 | 533 000 |
| GR | 614.200 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1.550 | 3 040 | 0 000 | 61.000 | 0 000 | 954 000 | 0.000 | 592 400 | 592 400 |
| X1 | 31350 000 | 0 000 | 0 000 | 0 000 | 51 000 | 51 000 | 51 000 | 0.000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 609 600 | 613 700 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 13 000 | 50 000 | 616 600 | 0.000 | 63 000 | 616.600 | 0 000 | 163.000 | 616 500 | 0 000 |
| BT | 263 000 | 615 000 | 0.000 | 266.000 | 613 700 | 0 000 | 300 000 | 613.600 | 0 000 | 300 000 |
| BT | 614.100 | 609.600 | 361 000 | 614.100 | 609.700 | 361 000 | 613 700 | 0 000 | 400 000 | 613 700 |
| BT | 0.000 | 440 000 | 613.800 | 0 000 | 463 000 | 614.100 | 0 000 | 500.000 | 614 200 | 0 000 |
| X1 | 31430 000 | 32 000 | 300.000 | 360 500 | 80 000 | 80 000 | 80 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 50.000 | 0 000 | 500 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| GR | 616 800 | 0.000 | 616.600 | 50.000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 598 900 | 300.000 | 610 900 | 300 000 | 599 400 | 300 000 | 599 300 | 305 000 | 596 900 | 308 800 |
| GR | 594 300 | 308 800 | 593 000 | 313 000 | 592 600 | 315 000 | 592 600 | 320.000 | 592 500 | 325 000 |
| GR | 592 800 | 330 000 | 592 800 | 335.000 | 593 000 | 340.000 | 593 200 | 345 000 | 593 300 | 349 000 |
| GR | 594 200 | 351.600 | 596 800 | 351.600 | 599 200 | 355 400 | 599 200 | 360.500 | 610 700 | 360 500 |
| GR | 595.600 | 360.500 | 613.300 | 398 000 | 613 300 | 400 000 | 614.100 | 463 000 | 614 100 | 500 000 |
| GR | 614.200 | 563.000 | 614.200 | 600 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| SB | 0.000 | 1.550 | 3 040 | 0 000 | 61.000 | 0 000 | 977 000 | 0 000 | 592 500 | 592 500 |
| X1 | 31483 000 | 0 000 | 0 000 | 0 000 | 53 000 | 53 000 | 53 000 | 0 000 | 0.000 | 0 000 |
| X2 | 0 000 | 0.000 | 1 000 | 610 900 | 614 900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 50.000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 11.000 | 50 000 | 616 600 | 0 000 | 63 000 | 616 600 | 0 000 | 163.000 | 616.500 | 0 000 |
| BT | 263 000 | 615.000 | 0 000 | 300 000 | 615 000 | 0.000 | 300 000 | 615 300 | 610 900 | 360 500 |
| BT | 615 300 | 610.700 | 360 500 | 615 000 | 0.000 | 400.000 | 614 900 | 0 000 | 500 000 | 614 900 |
| BT | 0.000 | 700.000 | 615 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 |
| NC | 0 025 | 0.035 | 0 025 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 31583.000 | 14 000 | 300 000 | 435.000 | 100.000 | 100.000 | 100 000 | 0.000 | 0 350 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 50 000 | 0.000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100.000 | 616 500 | 200 000 | 615 000 | 300.000 | 593 300 | 350 000 |
| GR | 592 500 | 355.000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393 000 | 613.300 | 435 000 | 614.100 | 500 000 | 614 200 | 600.000 | 0 000 | 0 000 |

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| GR | 592 500 | 360 000 | 592 100 | 370 000 | 592 200 | 373 000 | 610 700 | 373 000 | 610 700 | 374 000 |
| GR | 592 300 | 374 000 | 592 600 | 380.000 | 592 300 | 385 000 | 593.800 | 387 000 | 610 600 | 387 000 |
| GR | 610.600 | 388 000 | 594.600 | 388 000 | 597 600 | 392.000 | 602 800 | 402 000 | 610 600 | 402 000 |
| GR | 610.600 | 403 000 | 603.300 | 403 000 | 607.500 | 411.000 | 608 900 | 417.000 | 610 600 | 417.000 |
| GR | 606.800 | 417.000 | 611 100 | 428 000 | 611 600 | 477.000 | 611.200 | 500 000 | 610 700 | 528 000 |
| GR | 610 700 | 528.000 | 608 500 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| SB | 0 000 | 1.540 | 3.040 | 0 000 | 117.000 | 0 000 | 1440 000 | 0.000 | 592 100 | 592 100 |
| X1 | 28449 000 | 0.000 | 0 000 | 0 000 | 18.000 | 18 000 | 18 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0.000 | 1 000 | 610 800 | 613 100 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| BT | 8 000 | 0.000 | 615 000 | 0 000 | 100 000 | 614 400 | 0 000 | 200.000 | 613 900 | 0 000 |
| BT | 300 000 | 613 400 | 610 800 | 343.000 | 613 400 | 610 700 | 417 000 | 613.200 | 610.600 | 500 000 |
| BT | 613.100 | 0 000 | 600 000 | 613 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0.025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 28549.000 | 19 000 | 266.000 | 400 000 | 100 000 | 100 000 | 100 000 | 0 000 | 1 340 | 0 000 |
| GR | 614.100 | 0 000 | 612.800 | 100 000 | 611 900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592.900 | 305.000 | 590.700 | 308.000 | 590.700 | 310 000 | 590 900 | 320 000 | 591.000 | 330 000 |
| GR | 591.000 | 340 000 | 591 000 | 350 000 | 591 100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611 100 | 400.000 | 611.600 | 449 000 | 610.700 | 500 000 | 607 600 | 600.000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 29749 000 | 20 000 | 494 000 | 700 000 | 1100 000 | 1150 000 | 1200 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 750 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| GR | 619 000 | 0.000 | 618 400 | 100 000 | 618 100 | 200 000 | 616 500 | 300 000 | 614 600 | 400 000 |
| GR | 612.400 | 494.000 | 599 200 | 580 000 | 593 400 | 588 000 | 592 800 | 590 000 | 592 400 | 600 000 |
| GR | 591.400 | 610 000 | 591 600 | 620.000 | 591 300 | 630 000 | 592 100 | 640 000 | 592 800 | 645 000 |
| GR | 596.300 | 650 000 | 600 200 | 663 000 | 609 700 | 700 000 | 612 400 | 800 000 | 612 700 | 900 000 |
| X1 | 30474 000 | 90 000 | 397 000 | 567 500 | 700 000 | 700 000 | 725 000 | 0 000 | -0 150 | 0 000 |
| GR | 617.900 | 0 000 | 617 800 | 13 600 | 617 800 | 27 300 | 617 700 | 41 000 | 617 600 | 54 700 |
| GR | 617.600 | 68 400 | 617 500 | 82 100 | 617.500 | 95 800 | 617 400 | 109.500 | 617 400 | 123 200 |
| GR | 617.300 | 136 800 | 617 300 | 150 500 | 617.300 | 164 200 | 617 100 | 177 900 | 617 000 | 191 600 |
| GR | 616 800 | 205 300 | 616.700 | 219 000 | 616 500 | 232 700 | 616 400 | 246 000 | 616 200 | 260 100 |
| GR | 616 000 | 273.700 | 615 800 | 287.400 | 615 500 | 301 100 | 615 300 | 314 800 | 615 000 | 328 500 |
| GR | 614 800 | 342.200 | 614 500 | 355.900 | 614.200 | 369 600 | 613 900 | 383 300 | 613 700 | 397 000 |
| GR | 612.100 | 402 600 | 610 600 | 408 300 | 609 100 | 414 000 | 607 600 | 419 700 | 606.100 | 425 400 |
| GR | 604 600 | 431.000 | 603 100 | 436 700 | 601 600 | 442 400 | 600 100 | 448.100 | 598 600 | 453 000 |
| GR | 597.100 | 459.500 | 596 200 | 465 100 | 594 600 | 470 800 | 592 600 | 476.500 | 592 300 | 482 200 |
| GR | 592.100 | 487.900 | 591 900 | 493.600 | 592 000 | 499 200 | 592 100 | 504 900 | 592.300 | 510 600 |
| GR | 593.000 | 516.300 | 594 500 | 522 000 | 597 600 | 527 700 | 599 700 | 533 300 | 601 700 | 539 000 |
| GR | 603.700 | 544.700 | 605.600 | 550 400 | 607 600 | 556 100 | 609 500 | 561 800 | 611.500 | 567 500 |
| GR | 611.600 | 573 500 | 611.700 | 579 600 | 611 800 | 585 700 | 611 900 | 591 800 | 612 100 | 597 900 |
| GR | 612 200 | 604 000 | 612 300 | 610 000 | 612 400 | 616.100 | 612 600 | 622 200 | 612 700 | 628 300 |
| GR | 612 800 | 634 400 | 612 900 | 640 400 | 613.000 | 646 500 | 613 100 | 652 600 | 613 200 | 658 700 |
| GR | 613 200 | 664.800 | 613 200 | 670 900 | 613 200 | 676 900 | 613 300 | 683 000 | 613 300 | 689 100 |
| GR | 613.300 | 695 200 | 613 300 | 701.300 | 613 300 | 707.400 | 613 300 | 713.400 | 613.300 | 719 500 |
| GR | 613 300 | 725.600 | 613 400 | 731 700 | 613 400 | 737 800 | 613 400 | 743 900 | 613 400 | 750 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 620 000 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0.000 | 1 660 | 2.800 | 0 000 | 107.000 | 0 000 | 1410.000 | 0.000 | 595 100 | 595 100 |
| X1 | 37121 000 | 0 000 | 0.000 | 0 000 | 33.000 | 33 000 | 33 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 615 300 | 617.900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 50 000 | 0 000 | 450 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| BT | 10.000 | 50.000 | 618 300 | 0.000 | 100 000 | 617 900 | 0 000 | 200 000 | 618 000 | 0 000 |
| BT | 200.000 | 618.700 | 615 300 | 233 000 | 618 700 | 615 300 | 277 100 | 618 700 | 615 300 | 307 100 |
| BT | 618.700 | 615 300 | 307 100 | 618.000 | 0.000 | 379 000 | 618 400 | 0 000 | 450 000 | 618 600 |
| BT | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37221.000 | 16 000 | 135 000 | 285.000 | 100.000 | 100.000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 10 000 | 595 100 | 0.000 | 50.000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616.900 | 0 000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190.000 | 594 400 | 195 000 |
| GR | 594.300 | 205.000 | 594 200 | 215 000 | 594.600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617 800 | 285 000 | 618 400 | 335.000 | 618 700 | 435 000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621.500 | 735 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0.035 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 39121.000 | 14 000 | 150 000 | 300 000 | 1900 000 | 1900 000 | 1900 000 | 0 000 | 0 000 | 0 000 |
| GR | 625 500 | 0.000 | 623 600 | 100 000 | 620 400 | 150 000 | 595 700 | 216 000 | 595 200 | 230 000 |
| GR | 595 500 | 240.000 | 596 000 | 250 000 | 599 000 | 253 000 | 616 100 | 300 000 | 617 400 | 325 000 |
| GR | 623 700 | 340 000 | 625 000 | 400 000 | 625.200 | 500 000 | 626 400 | 600 000 | 0 000 | 0 000 |
| NC | 0 025 | 0.025 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 41121 000 | 17.000 | 245 000 | 475 000 | 2000 000 | 2000 000 | 2000 000 | 0 850 | 0 000 | 0 000 |
| GR | 640 300 | 0.000 | 638 600 | 75.000 | 638 200 | 175 000 | 638 000 | 245 000 | 599 300 | 323 000 |
| GR | 596.000 | 339.000 | 595 600 | 349 000 | 595 800 | 359 000 | 595 900 | 369 000 | 632 300 | 437 000 |
| GR | 636 200 | 475 000 | 630 100 | 515.000 | 630.100 | 575 000 | 629 200 | 675 000 | 628 500 | 775 000 |
| GR | 626 600 | 875.000 | 626 900 | 910 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 025 | 0 025 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 42521 000 | 26.000 | 360 000 | 600 000 | 1300.000 | 1550 000 | 1400 000 | 0 800 | 0 000 | 0 000 |
| GR | 630 800 | 0 000 | 631 600 | 100 000 | 633 700 | 200 000 | 628 000 | 300 000 | 625 900 | 360 000 |
| GR | 613 100 | 400 000 | 597 700 | 436.000 | 597 400 | 442 000 | 595 400 | 450 000 | 595 700 | 455.000 |
| GR | 595.500 | 460.000 | 595 700 | 465 000 | 596.100 | 470 000 | 596 300 | 475 000 | 596 300 | 480 000 |
| GR | 596.300 | 485.000 | 596 800 | 492.000 | 622 300 | 600 000 | 623 800 | 653 000 | 635 900 | 700 000 |
| GR | 641.000 | 750.000 | 640 100 | 781 000 | 628 700 | 819 000 | 628 300 | 900 000 | 628 600 | 1000 000 |
| GR | 629.800 | 1058.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| EJ | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0.000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| X1 | 33333 000 | 15 000 | 355.000 | 491 000 | 1700 000 | 1800 000 | 1750 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 415.000 | 593 600 | 425.000 | 593.500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 447 000 | 610 800 | 491.000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0.000 | 0.000 | 0 300 | 0.500 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| X1 | 33433.000 | 31 000 | 372 000 | 474 700 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617.200 | 155.000 | 616 400 | 220 000 | 616 000 | 255 000 |
| GR | 615 900 | 273 000 | 614 700 | 308 000 | 613 500 | 355 000 | 613 000 | 356 000 | 606 700 | 372 000 |
| GR | 612 500 | 372 000 | 610 300 | 372 000 | 607 600 | 378 000 | 600 000 | 378 500 | 593 900 | 402 000 |
| GR | 593.600 | 412.000 | 593 700 | 422 000 | 593 700 | 424 000 | 593 900 | 432 000 | 593 900 | 442 000 |
| GR | 594.000 | 443 000 | 595 300 | 445.000 | 596 800 | 449 000 | 598 700 | 450 000 | 608 100 | 474 400 |
| GR | 612.400 | 474 700 | 604 600 | 474.700 | 610 800 | 491 000 | 612 800 | 572 000 | 613 900 | 583 000 |
| GR | 616 800 | 655 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 500 | 3.090 | 0 000 | 103.000 | 0 000 | 1520 000 | 0 000 | 593 600 | 593 600 |
| X1 | 33438 000 | 0.000 | 0.000 | 0 000 | 5 000 | 5 000 | 5 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 612.900 | 613 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 11.000 | 0 000 | 618 900 | 0 000 | 55.000 | 618 600 | 0 000 | 155.000 | 617 200 | 0 000 |
| BT | 220 000 | 616 400 | 0 000 | 273 000 | 615 900 | 0.000 | 372 000 | 613 100 | 612 500 | 424 000 |
| BT | 613 500 | 612 900 | 474 700 | 613 000 | 612 400 | 572 000 | 613 800 | 0 000 | 583 000 | 613 900 |
| BT | 0 000 | 655 000 | 616 800 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.025 | 0.035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 33538 000 | 15.000 | 355 000 | 491 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 190 | 0 000 |
| GR | 618.900 | 0 000 | 618 600 | 55 000 | 617.200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 415 000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 447 000 | 610 800 | 491.000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0 000 | 0 000 | 0.100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 34888.000 | 15.000 | 114 000 | 265 000 | 1400 000 | 1300 000 | 1350 000 | 0.000 | 0.000 | 0 000 |
| GR | 614 700 | 0 000 | 614.800 | 65.000 | 614 000 | 114.000 | 593 800 | 153.000 | 593 500 | 155.000 |
| GR | 593 800 | 165.000 | 594.000 | 175 000 | 594.300 | 185.000 | 594.500 | 195 000 | 601 400 | 208.000 |
| GR | 616.000 | 265.000 | 617.300 | 365.000 | 621 300 | 465.000 | 620 600 | 490 000 | 621 200 | 515 000 |
| NC | 0 025 | 0.035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37038 000 | 16 000 | 135.000 | 285.000 | 2100 000 | 2200 000 | 2150 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0.000 | 616.400 | 35.000 | 617.500 | 135 000 | 594 700 | 190.000 | 594 400 | 195 000 |
| GR | 594.300 | 205.000 | 594.200 | 215 000 | 594.600 | 225.000 | 594.900 | 228.000 | 597 100 | 235.000 |
| GR | 617.800 | 285.000 | 618 400 | 335.000 | 618 700 | 435.000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621 500 | 735 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0.000 | 0 300 | 0.500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37088.000 | 36.000 | 200.000 | 307 100 | 50.000 | 50 000 | 50 000 | 0 000 | 0.000 | 0 000 |
| X3 | 0 000 | 0.000 | 0.000 | 50 000 | 0.000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 617.500 | 0.000 | 616 900 | 44 000 | 616 800 | 50.000 | 616 400 | 79.000 | 616 600 | 100 000 |
| GR | 617 500 | 179 000 | 608 800 | 200.000 | 615 300 | 200 000 | 611.500 | 200 000 | 611 300 | 204 000 |
| GR | 599.000 | 230 000 | 615 300 | 230 000 | 615.300 | 233 000 | 597 500 | 233 000 | 595 500 | 240 000 |
| GR | 595.500 | 245 000 | 595.400 | 250 000 | 595 100 | 255 000 | 595 400 | 260 000 | 595 100 | 265 000 |
| GR | 595.600 | 270 000 | 596.200 | 274.100 | 615 300 | 274.100 | 615 300 | 277 100 | 595 800 | 277 100 |
| GR | 610 700 | 302.000 | 611.200 | 307 100 | 615 300 | 307 100 | 608 700 | 307 100 | 617 800 | 329 000 |
| GR | 618.400 | 379 000 | 618 600 | 450 000 | 618.700 | 479.000 | 619 300 | 532.000 | 619 800 | 579 000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

*SECNO 1039.000

3470 ENCROACHMENT STATIONS=     706 8     930.0  TYPE=     1  TARGET=     240 000
  1039.00    15 98    599 08    0 00      0.00    599 54    0 47      0.10      0 11    593 00
   10060       32.     9973.     55       188.     1808      296       76         8     592.50
     0.05     0.17      5 51    0 19     0 400    0 025    0 400    0 000    583.10    706 80
 0.000276     465.      445     430.        2        0        0     0.00    223.20    930 00

*SECNO 1100 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     418 5    1023.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602 40 ELREA=      602 40

             16 MILE RO  DS
  1100.00    17.47    599.17    0.00      0.00    599 58    0 41      0 02      0 02    601.70
   10060.       0     10060.     0.        0.     1954.      0.       79.        9      601 00
     0.06     0.00      5 15    0.00     0.000    0.025    0 000    0 000    581 70    727 55
 0.000506      61        61.     61         2        0        0     0 00    165.86    900 67


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      ROLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHO
     0.00      1.56      3.02      0 00    174.40      0.00   2318.40     0 00    581 70    581.70

*SECNO 1143 000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   599.583  ELLC=   601 700  PCWSE=   599.172  ELTRD=   603.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  603 10 MAX ELLC=  601 70

3470 ENCROACHMENT STATIONS=     418.5     902.1  TYPE=     1  TARGET=     520 000
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALDB      ACH       ARDB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

PROF 1

CHV=   0.300 CEHV=   0.500
SECNO 165 000

470 ENCROACHMENT STATIONS=     276.0     1012 0  TYPE=     1  TARGET=     800 000
  165 00    20 90   597 80    0 00    597 80    598 13    0 33     0 00     0.00    593 00
  10780.     423.    9989     368       337      2106      215        0        0     591 70
    0 00    1.26     4 74    1 71     0 040     0 030    0 040    0 000   576.90    489 90
0.000416      0        0       0         0         0        0     0 00   487 32    977 22


SPECIAL BRIDGE

SB  XK        XKOR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0 00      1 54      2 80      0.00    170 00      0 00   1389.00     0 00    576 90    576 90

SECNO 194.000
PRESSURE FLOW

EGPRS       EGLWC       H3        QWEIR       QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                   AREA
   599.24    598 13     0 00        0       10780      1389.     3298       596 30    599 60


470 ENCROACHMENT STATIONS=     276 0     1012.0  TYPE=     1  TARGET=     800 000
            UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601.7
  194.00    22 11   599 01    0 00      0 00    599.24    0 23     1 11     0 00    593 00
  10780      841     9437.    502.      688.     2298     304.       2        0     591.70
    0 00    1 22     4.11    1.65     0 040     0 030    0 040    0 000   576 90    419 69
0.000279     29       29      29         2         0        0     0.00   564.35    984 04

SECNO 594 000

470 ENCROACHMENT STATIONS=     558 0     1023 0  TYPE=     1  TARGET=     500 000
  594 00    18 92   599.09    0 00      0 00    599 33    0 24     0 09     0 00    590 07
  10780     1021     9320.    439      1761      2203     866       40.       5     589 57
    0 03    0.58     4 23    0.51     0.150     0 030    0 150    0 000   580 17    558 00
0.000180    420.     400.     385         2         0        0     0 00   444.71   1002 71
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   599 707  ELLC=   601.000  PCWSE=   599 245  ELTRD=   603 400

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  603 40 MAX ELLC=  601 00


3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 40 ELREA=      603.40

             16 MILE RD  US
  1223.00    17 17   599 27     0 00     0 00   599 73     0 46     0 03     0.00   601 00
   10060       0.    10060       0        0     1849       0       85.       9     600 90
     0.06     0.00     5.44     0 00    0 000    0.025    0.000    0 000   582 10   735 50
 0 000591      43       43       43        2        0        0      -6 62   165 61   908 43


CCHV=   0.300 CEHV=   0 500
*SECNO 1323 000

3470 ENCROACHMENT STATIONS=     329 0     940 0  TYPE=     1  TARGET=     650 000
  1323.00    17.47   599.62     0.00     0.00   599.83     0 21     0 02     0.07   592 05
   10060     1306.    8205      549      1256     2030      378       91       10     591 55
     0 07     1.04     4 04     1.45    0.040    0.025    0.040    0 000   582 15   366 86
 0.000129    100.     100      100        2        0        0     0 00   573 14   940 00


CCHV=   0.100 CEHV=   0 300
*SECNO 2223.000

3470 ENCROACHMENT STATIONS=       0.0     600.0  TYPE=     1  TARGET=     599 999
  2223 00    17.11   599 67     0.00     0 00   600 02     0 35     0.14     0 04   598 46
   10060.       2.    9909      149.      15.    2073.     150      152       18.    593 26
     0 13     0.14     4.78     0.99    0.110    0 025    0 060    0 000   582 56   274.81
 0 000199    870.     900.     940.        2        0        0     0 00   205 96   480.76
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 10 ELREA=      601 00

  1143 00    17 47    599 17     0 00      0 00    599 63     0.46      0.02      0 03    601 70
   10060       0      10060       0         0      1845.       0        81         9      601 00
    0.06     0.00      5.45     0 00     0 000     0 025    0 000     0 000    581 70    727 55
 0.000524     43.       43       43.        0         0        0    -108 91    165 86    900 67

*SECNO 1150 000

3470 ENCROACHMENT STATIONS=     725 4     911 4  TYPE=     1  TARGET=     200.000
  1150.00    17 50    599 28     0 00     0.00    599 66     0 38      0 00      0.02    591.68
   10060      21       9995      44       132      2012      252        81         9      591 18
    0 06     0.16      4 97     0 18     0 400     0 025    0 400     0 000    581 78    725 40
 0 000194      7         7.       7         2         0        0      0.00    186 00    911 40

*SECNO 1180 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 40 ELREA=      603 40

  1180.00    17.14    599.24     0 00     0.00    599 71     0 46      0 01      0 04    601.00
   10060       0      10060       0         0.      1843.       0.       83.         9      600 90
    0.06     0 00      5.46     0 00     0 000     0 025    0 000     0 000    582 10    735 50
 0 000598     30        30       30         2         0        0      0 00    165 59    908.42


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 56      3 04      0 00    173 90     0.00    2121 10     0 00    582 10    582 10

*SECNO 1223 000
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKDR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1 79 | 2.80 | 0 00 | 161 00 | 0 00 | 1680 00 | 0 00 | 584 40 | 584 40 |

*SECND 8394 000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZDID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 601.85 | 601.17 | 0 00 | 288. | 9041 | 1680 | 2576 | 600.40 | 600 90 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCRDACHMENT STATIONS= | | | 104.4 | 1252 8 | TYPE= | 1 | TARGET= | -120 000 | |
| | 15 MILE RD US | | | | | | | | |
| 8394 00 | 17.24 | 601.64 | 0 00 | 0 00 | 601.79 | 0 15 | 0 62 | 0 00 | 595 80 |
| 9360. | 2756 | 6604. | 0 | 1413 | 1891. | 0 | 507 | 59 | 602 50 |
| 0.56 | 1 95 | 3 49 | 0 00 | 0 035 | 0 025 | 0 000 | 0.000 | 584 40 | 393.09 |
| 0 000250 | 54. | 54 | 54 | 2 | 0 | 3 | 0 00 | 485 61 | 878.70 |

*SECNO 8494.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 139.2 | 1305.0 | TYPE= | 1 | TARGET= | -160 000 | |
| 8494.00 | 17.12 | 601 62 | 0 00 | 0 00 | 601 85 | 0.23 | 0 02 | 0 04 | 596 10 |
| 10440. | 2317 | 8123 | 0 | 1458. | 1911. | 0 | 515 | 60. | 602 40 |
| 0.57 | 1 59 | 4.25 | 0 00 | 0 035 | 0.025 | 0.000 | 0 000 | 584 50 | 445 99 |
| 0 000162 | 100. | 100. | 100. | 2 | 0 | 0 | 0 00 | 473 91 | 919 91 |

*SECNO 9594 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 260 0 | 1260.0 | TYPE= | 1 | TARGET= | -260 000 | |
| 9594 00 | 16.09 | 601 79 | 0 00 | 0 00 | 602 03 | 0.25 | 0 18 | 0 01 | 598 10 |
| 10440. | 1480. | 8960 | 0 | 1299. | 2096 | 0 | 585 | 70 | 602.50 |
| 0 64 | 1 14 | 4.28 | 0 00 | 0 035 | 0 025 | 0 000 | 0 000 | 585 70 | 350 65 |
| 0.000186 | 630. | 1100. | 1520. | 2 | 0 | 0 | 0 00 | 677 40 | 1028 05 |

*SECNO 9653.000

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | 260 0 | 1210.0 | TYPE= | 1 | TARGET= | 950.000 | |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARDB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TDPWID      ENDST


CCHV=   0.100 CEHV=   0 300
*SECNO 3180.000

3470 ENCROACHMENT STATIONS=       0 0     600 0  TYPE=     1  TARGET=     599 999
  3180.00    16 86    599 86    0 00      0.00    600 21    0 36      0 20      0 00    598 90
   10060.       3.      9847     210        10      2037     142       201        23     593 70
     0.18     0 33      4 83    1 48     0 040     0 025   0 040     0 000    583 00    280 01
 0.000209     925.      957.     995         2         0       0      0 00    199 95    479 96


*SECNO 5720.000

3470 ENCROACHMENT STATIONS=       0 0     800.0  TYPE=     1  TARGET=     799 999
  5720.00    16 22    600 42    0 00      0 00    600 75    0 34      0 54      0 00    599 30
    9360.       9.      9351       0        23     2005.      0       323        34     600 90
     0 33     0 37      4 66    0 00     0 040     0 025   0 000     0 000    584 20    358 66
 0 000216    2600      2540    2500         2         0       0      0 00    196 48    555 13


*SECNO 7470.000

3470 ENCROACHMENT STATIONS=     420 0    1500 0  TYPE=     1  TARGET=    -420 000
  7470.00    16.78    600.88    0.00      0 00    601 03    0 15      0 26      0.02    595.70
     9360     1941.     7419       0     1544.     2142.      0       438        49     602.00
     0.49     1.26      3.46    0.00     0 035     0 025   C 000    0.000    584.10    524 14
 0.000109    1830.     1710.    1750         2         0       0      0 00    532 50   1056.64


*SECNO 8270 000

3470 ENCROACHMENT STATIONS=     130 5    1305 0  TYPE=     1  TARGET=    -150 000
  8270.00    16.53    600 93    0.00      0 00    601 15    0.22      0.10      0 02    596.00
     9360     1861     7499.      0.     1264      1830      0       498        58     602 30
     0 55     1.47      4.10    0.00     0 035     0 025   0 000    0.000    584.40    463 08
 0 000158      800       760     840         2         0       0      0 00    455 75    918 83


CCHV=   0 300 CEHV=   0 500
*SECNO 8340.000

3470 ENCROACHMENT STATIONS=      95 7    1252 8  TYPE=     1  TARGET=    -110 000
  8340 00    16 59    600.99    0.00      0 00    601.17    0.19      0.02      0 01    595 80
    9360.    2494.     6866.       0     1203.      1786      0       503        59     602 50
     0.56     2.07      3 84    0.00     0 035     0 025   0 000    0 000    584 40    401 46
 0.000328       70        70     70.         2         0       0      0 00    477 24    878.70
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 9777.000

3470 ENCROACHMENT STATIONS=     250.0     1260 0  TYPE=     1  TARGET=     -250.000
  9777.00    16 63    602.08    0 00      0 00    602.28    0 20      0 02      0 00    597 85
   10440.    1820.     8620       0.     1588.     2186       0       600        73     602.25
     0 66     1 15      3.94    0 00     0.035    0 025    0.000    0 000    585.45    323 04
 0.000151     100       100     100         0        0        0     0 00    706 52   1029 56

CCHV=   0 100 CEHV=   0 300
*SECNO 11596.000
 11596 00    15.92    602.32    0.00      0 00    602 73    0 41      0 38      0 06    607 60
   10440       0.     10429.     11.        0.     2033      20.      724.       93.     600 70
     0 76    0.00      5 13    0.56     0 000    0 025    0 040    0 000    586 40    824 07
 0.000300    1975.     1819.   1660.        2        0        0     0.00    201 20   1025 27

*SECNO 13196 000

3470 ENCROACHMENT STATIONS=       0 0      538.0  TYPE=     1  TARGET=      537 999
 13196.00    17 31    602.81    0 00      0.00    603 16    0 35      0.43      0 01100000.30
   10440       0.     10113     327        0.     2095.     248      805.      101     595 90
     0.85    0 00      4.83    1.32     0 000    0 025    0.045    0 000    585 50     66 71
 0 000243    1320      1600    1760        2        0        0     0.00    242 81    309 52

*SECNO 14796 000
 14796.00    15.88    603 18    0.00      0 00    603 64    0.45      0.44      0.03    621 70
   10440       0.     10440.     0.        0.     1939       0       884       109     613 10
     0.93    0 00      5 38    0 00     0.000    0.025    0 000    0.000    587 30    108 99
 0 000316    1600      1600    1600        2        0        0     0 00    161 41    270.40

*SECNO 16096 000
 16096 00    16 90    603 70    0 00      0 00    604 03    0 34      0 39      0.01    613 40
    9210       0.      9210       0        0.     1974       0.      943       114     604 60
     1 01    0.00      4.67    0 00     0 000    0 025    0.000    0 000    586.80    123.20
 0 000281    1200      1300    1600.        2        0        0     0 00    188 54    311.74

CCHV=   0.300 CEHV=   0.500
*SECNO 16396 000
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 9653.00    16 43     601 83     0 00      0 00     602 05     0.22      0 01      0 01     597 80
  10440     1694       8746       0       1479       2154       0        590        71      602 20
    0 65     1 14      4 06      0 00     0.035      0 025    0 000     0 000    585 40     333 27
0 000163      59        59        59         2          0        0      0 00    695.73    1029 00

*SECNO 9654 000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=     200 0     1150 0  TYPE=     1  TARGET=     -200 000
 9654 00    16 31     601 71     0 00      0 00     602 18     0 47      0.00      0 13     603 30
  10440       14      10426.      0        39        1886       0        590        71      603 40
    0 65     0 35      5 53      0 00     0 025      0 020    0 000     0 000    585 40     294 61
0 000271      1.         1        1.         2          0        0  -1229 91    667 96     967 67

*SECNO 9676 000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601.40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=     200 0     1150 0  TYPE=     1  TARGET=     -200 000
 9676.00    16 31     601 71     0 00      0.00     602 19     0 47      0 01      0.00     603.30
  10440       14      10426.      0        40        1886.      0        591.       72      603.40
    0 65     0 36      5.53      0 00     0 025      0 020    0 000     0.000    585 40     294 36
0 000271      22.        22.      22.         0          0        0  -1231 47    668 23     967 69

*SECNO 9677.000

3470 ENCROACHMENT STATIONS=     280.0     1210 0  TYPE=     1  TARGET=      930 000
 9677.00    16 67     602 07     0 00      0.00     602 27     0 20      0 00      0 08     597 80
  10440.    1838.      8602       0       1605.      2191       0        591        72      602.20
    0 65     1.15      3.93      0 00     0.035      0 025    0.000     0 000    585.40     321 53
0.000149      1          1.       1          2          0        0      0 00    708 12    1029 64
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST

*SECNO 17268 000

3265 DIVIDED FLOW

 17268 00    17.73    604.23     0 00      0 00    604.40     0 17      0 01      0 01    608 80
    9210       0.      9210       0.        0      2797        0      1011.      122      609 20
     1 10    0 00      3 29     0 00     0 000     0 025    0 000     0 000    586 50    400 00
 0.000181     100       100      100         0         0        0      0 00    179 80    591 80


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     S5        ELCHU     ELCHD
     0 00     1 60      3.04      0.00    191 80     0.00    3230 00     0 00    586 50    586 50

*SECNO 17368.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   604 396  ELLC=   607 000  PCWSE=   604 227  ELTRD=   607 100

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  607.10 MAX ELLC=  607 00

 17368.00    17.75    604 25     0 00      0 00    604 41     0 17      0 02      0 00    608 80
    9210       0      9210       0.        0      2797        0      1018      123.      609.20
     1 11    0 00      3 29     0.00     0.000     0 025    0 000     0 000    586 50    400 00
 0.000192     100       100      100         1         0        0      0 00    179 80    591 80


*SECNO 18244.000

3265 DIVIDED FLOW

 18244.00    17.05    604 35     0 00      0 00    604 67     0 32      0 18      0 08    602 80
    9210.     100.     8596      514.      118      1840      311      1069      128      598.40
     1 17    0.85      4.67     1.65     0 025     0 025    0.028     0 000    587.30     56 95
 0.000205     150       876     1400.        2         0        0      0 00    406.55    521 58


CCHV=   0.100 CEHV=   0.300
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3265 DIVIDED FLOW

 16396 00    16.26    603 76     0 00      0.00    604 16     0.39      0 09      0 03    606 70
    9210       0.      9210.      0         0      1831       0        956       115      605 10
     1 03     0 00      5 03     0.00     0.000    0 025    0 000     0.000    587.50    177 13
 0 000349     300.      300      300.        2        0        0      0 00     141 73    322 36


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHO
     0 00      1 62      3 07      0 00    290 00     0 00    2030 00     0 00    587 50    587 50

*SECNO 16418.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   604 156  ELLC=   605 300  PCWSE=   603 763  ELTRD=   606 100

3265 DIVIDED FLOW


3370 NORMAL BRIDGE.NRD= 16 MIN ELTRD=  606.10 MAX ELLC=  605 30

 16418.00    16.27    603 77     0.00      0 00    604 16     0 39      0 01      0.00    606 70
    9210       0       9210       0.        0      1831       0        957.      115      605.10
     1.03     0.00      5.03     0 00     0.000    0 025    0 000     0 000    587 50    177 13
 0.000349      22.       22       22.        0        0        0      0 00     141 73    322 36


*SECNO 16768 000
 16768 00    16.03    604.03     0 00      0 00    604 28     0 25      0 08      0 04    597 70
    9210      407      7942      862.      263      1862      540       974       117      591 10
     1 05     1 54      4 26     1.60     0 028    0 025    0 030     0 000    588 00    115 11
 0 000148     400       350      300.        2        0        0      0 00     397 88    512 98


*SECNO 17168 000
 17168.00    16 22    604 22     0.00      0 00    604 37     0.15      0 06      0.03    598 20
    9210     3961.     5073      176      1767      1389      146.      1004       122      599 10
     1.09     2 24      3.65     1 21     0 025    0.025    0 028     0 000    588 00     57 80
 0.000123     600.      400      100        2        0        0      0 00     481 86    539 66
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 23319.000
 23319.00    17 04    605 54     0 00      0.00    605 95     0 41      0 15      0 08    606 60
    8580        0      8381.     199        0.      1612      113      1341       163      602 20
     1 50     0 00      5 20     1.77     0.000     0 025    0 028     0 000    588 50    571 80
 0 000284     800       900      875         2         0        0      0 00    172 16    743 96

*SECNO 23569.000

3470 ENCROACHMENT STATIONS=        0.0     750 0  TYPE=      1  TARGET=      749 999
 23569 00    17 42    605 82     0 00      0 00    606 03     0 21      0 05      0 02    610 00
    6510.       0.      6510.      0         0.      1769       0.      1351       164      610 40
     1.51     0 00      3.68     0 00     0 000     0 025    0 000     0 000    588 40    537.18
 0 000154     150       250      300         2         0        0      0 00    152 07    689 25

CCHV=   0.100 CEHV=   0 300
*SECNO 24369.000

3470 ENCROACHMENT STATIONS=        0 0     500.0  TYPE=      1  TARGET=      499.999
 24369.00    16.99    605 89     0 00      0 00    606 21     0 31      0 15      0.03    605.50
    6510        0.      6510       0         2      1453.       0      1380       167.     609 50
     1 56     0 27      4.48     0 00     0 028     0 025    0.000     0 000    588 90    336 12
 0 000224     850.      800      900.        2         0        0      0 00    128 17    464 29

*SECNO 25819.000

3470 ENCROACHMENT STATIONS=      260 0     775 0  TYPE=      1  TARGET=      515.000
 25819.00    17.41    606 21     0 00      0 00    606 68     0 47      0 43      0 05    609 20
    6510.       0.      6510       0         0.      1183       0.      1424       171      609 30
     1.64     0.00      5.50     0 00     0 000     0 025    0 000     0 000    588 80    510 61
 0 000399    1350.      1450     1500         2         0        0      0 00    110 59    621 19

CCHV=   0 300 CEHV=   0 500
*SECNO 25919 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      287.0     750 0  TYPE=      1  TARGET=      463.000
 25919.00    16.71    606.21     0 00      0.00    606 80     0 59      0 06      0.06    604.90
    6510.       3.      6501.      6.         3.      1055.       5.      1427.       171      604 00
     1 64     1.00      6 16     1 41     0 028     0 025    0 025     0 000    589 50    496 05
 0.000972     100.      100.     100.        2         0        0      0.00    106 52    608 17
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 19119.000
 19119.00    16 43    604.53      0.00      0 00    604.86     0 33      0 19      0 00    609 20
    9210.       0.      9056      154.        0      1955      166      1113       135     599 60
     1.22     0 00      4 63     0 93     0 000     0 025    0 045     0 000    588 10    139 20
 0 000228     850       875      800          1         0        0      0 00    238 06    377 26


*SECNO 20219.000

3265 DIVIDED FLOW

 20219.00    17 20    604.90      0 00      0 00    605 09     0 18      0 22      0 01    620 70
    9210        0      9002      208         0      2595.     231      1175       142      606 90
     1 31     0 00      3 47     0 90     0 000     0 025    0.040     0 000    587 70     53 37
 0 000170    1100.     1100     1000          2         0        0      0 00    371 26    621 96


*SECNO 21119 000

3265 DIVIDED FLOW

 21119 00    16.28    604.98      0 00      0 00    605 31     0 33      0 18      0 04    607.30
    9210      427      8783        0.      289.     1871.       0      1226       149.     609.30
     1.36     1 48      4 69     0 00     0 028     0 025    0 000     0 000    588 70    255 71
 0.000242     800       900.     900          2         0        0      0 00    297 53    690 41


*SECNO 22069.000
 22069 00    17 00    605.20      0.00      0 00    605 62     0 43      0.28      0 03    609.50
    9210        0.      9210.       0         0      1755        0      1268       154      608.30
     1 41     0 00      5.25     0 00     0 000     0 025    0 000     0 000    588 20    117.45
 0.000378     800       950      900          2         0        0      0 00    174 48    291 92


*SECNO 22419.000
3280 CROSS SECTION  22419 00 EXTENDED      5.68 FEET

 22419.00    17.38    605.58      0 00      0 00    605.72     0 14      0.07      0 03    601.80
    8580.    2728      5826.       26     1660.      1684       36      1290.       157.     603 80
     1 45     1 64      3.46     0.72     0 028     0.025    0 028     0 000    588 20      0 00
 0.000115     400       350      250.          2         0        0      0 00    526 58    526 58
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       0.0      375.0  TYPE=      1  TARGET=      374 999
 27150.00     16 46    606 96     0 00      0 00    607 42     0 46      0 09      0 01    604 70
    6510.       42      6410       59.       34      1168       68.      1460       174      604.60
     1 71      1.23      5 49     0 86     0 030     0.025    0 040     0 000    590 50    127 16
 0.000325      200.      250      300         2         0        0      0 00    166 78    341 01


*SECNO 27900 000
 27900.00     17.36    607 26     0 00      0.00    607 67     0.41      0 25      0.00    605 70
    6510        45      6465        0        42      1249        0      1483       177      609 80
     1.75      1.09      5 18     0 00     0 030     0 025    0 000     0 000    589 90    146 99
 0.000335      800.      750.     700.         2         0        0      0.00    146 11    293 10


CCHV=   0.300 CEHV=   0 500
*SECNO 28000 000

3265 DIVIDED FLOW

 28000.00     17.18    607.28     0 00      0 00    607 73     0 46      0 04      0 02    605 60
    6510.       92      6418        0.       57.      1175.       1      1485       177      606 50
     1 75      1.60      5 46     0.36     0 030     0 025    0 040     0 000    590 10    135 21
 0.000545      100       100      100.         1         0        0      0 00    140 42    278 48


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 54      3 04      0 00    116.00      0 00   1320 00     0 00    590 10    590 10

*SECNO 28031.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   607 732  ELLC=   608.700  PCWSE=   607 277  ELTRD=   613.200

3265 DIVIDED FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.68      3 04      0 00    104.00      0.00   1220 00      0 00    589 50    589 50

*SECNO 26025.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   606 797  ELLC=   607.900  PCWSE=   606.208  ELTRD=   610 000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  610 00 MAX ELLC=  607 90


3470 ENCROACHMENT STATIONS=     287.0     750.0  TYPE=     1  TARGET=     463 000
 26025 00    16 82   606 32    0 00      0.00   606 90    0 58      0 10      0 00   604 90
    6510.        0    6510.       0        0.     1066       0      1429       171    604 00
     1.65     0.00     6 11    0 00     0.000    0.025   0 000    0 000    589 50   495 71
 0 000953     106.      106     106         2        0       0     -8 13    107 07   608 38


*SECNO 26125.000

3470 ENCROACHMENT STATIONS=     260.0     750 0  TYPE=     1  TARGET=     490.000
 26125 00    16.99   606.48    0 00      0 00   606 99    0 51      0 06      0 02   609.89
    6510        0.    6510.       0.        0     1137       0.      1432       172    609 99
     1 65    0 00     5 72    0 00     0 000    0 025   0 000    0 000    589 49   512 10
 0.000443     100.      100     100         2        0       0     0 00    108 30   620 40


CCHV=   0.100 CEHV=   0 300
*SECNO 26900.000
 26900 00    17.50   606.90    0 00      0.00   607 32    0 42      0 32      0 01   610 00
    6510        0.    6510.       0.        0     1249       0      1453       174    608.80
     1 69    0 00     5 21    0.00     0 000    0 028   0.000    0 000    589 40   184.34
 0 000392     800      775.     725         2        0       0     0 00    104 59   288 93


*SECNO 27150 000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 28449 00    15 44     607 54     0 00      0 00     608 08     0 54      0 03      0 00    607 60
    6510       0.       6510       0         0        1100       1        1498       179      606 80
     1 77     0 00      5 92      0 58     0 000     0 025     0 040     0 000     592 10    303 32
 0 001544      18.       18        18        2         0         0       0 00      102 73    418.89

*SECNO 28549 000
 28549.00    15.67     607.71     0 00      0.00     608.18     0 47      0 07      0 02    611.44
    6510.       0       6510.      0.        0.       1187       0        1501       179      612 44
     1.78     0 00      5 49      0 00     0.000     0.025     0 000     0 000     592 04    275.00
 0 000402     100.       100       100        1         0         0       0 00      112 98    387.98

CCHV=   0 100 CEHV=   0 300
*SECNO 29749.000

3470 ENCROACHMENT STATIONS=      0 0     750.0  TYPE=     1  TARGET=     749 999
 29749 00    17 02     608 32     0 00      0 00     608 56     0 25      0 37      0.02    612 40
    6510.       0       6510.      0         0.       1629       0        1540       183      609 70
     1 86     0 00      4 00      0.00     0 000     0 025     0 000     0 000     591 30    520 61
 0 000239    1100.      1200      1150        2         0         0       0 00      174.00    694 61

*SECNO 30474.000
 30474 00    16.71     608 46     0 00      0 00     608 77     0 31      0 18      0 02    613 55
    6510       0.       6510.      0         0        1459.      0        1565       186      611.35
     1.91     0.00      4 46      0.00     0 000     0 025     0 000     0 000     591.75    415 88
 0.000267     700.       725.      700        2         0         0       0 00      143 24    559 12

*SECNO 31199.000

3470 ENCROACHMENT STATIONS=      0 0     480 0  TYPE=     1  TARGET=     479 999
 31199.00    16 38     608.58     0 00      0.00     609 04     0 46      0.23      0 05    615 00
    6510       0       6510       0.        0        1196       0        1587       188      613 30
     1 95     0 00      5 44      0 00     0 000     0 025     0.000     0 000     592.20    314 79
 0.000377     700.       725.      700        2         0         0       0 00      110 19    424.99

CCHV=   0.300 CEHV=   0.500
*SECNO 31299.000

3470 ENCROACHMENT STATIONS=     50 0     500.0  TYPE=     1  TARGET=     450 000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  613.20 MAX ELLC=  608 70

 28031.00    17 19    607.29     0 00      0 00    607 76     0 47      0 02      0 01    605.60
    6510       0.      6510       0         0.      1178       0.       1486       178      606 50
     1 75     0 00      5 53     0 00     0.000     0 025    0.000     0 000    590.10    135 25
 0.000573      31.       31       31        . 0        0        0     -57 93    140 37    278 46


*SECNO 28331.000
 28331 00    16 83    607 53     0 00      0.00    607 91     0 38      0 12      0 03    610 10
    6510.       0      6510       0         0      1323.       0       1495       178      611 10
     1.77     0 00      4 92     0 00     0 000     0 025    0 000     0 000    590 70    272 17
 0 000299     300       300      300         2         0        0      0 00    118 78    390 96


*SECNO 28431 000

3265 DIVIDED FLOW

 28431 00    15 41    607 51     0 00      0 00    608 05     0 55      0 06      0.09    607 60
    6510.       0.      6510.      0         0      1096        1       1498       179      606 80
     1.77     0.00      5.94    0.57     0 000     0 025    0 040     0.000    592 10    303 39
 0 001554     100.      100      100.        2         0        0      0 00    102 45    418 81


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.54      3 04      0 00    117.00      0.00   1440 00     0 00    592 10    592 10

*SECNO 28449 000

3070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   608 054  ELLC=   610 800  PCWSE=   607 506  ELTRD=   613.100

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  613.10 MAX ELLC=  610 80


4677 BRIDGE DECK DEFINITION ERROR AT STATIONS    417 00    428 00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 28449 00    15 44     607 54    0 00      0 00      608 08    0 54      0 03      0 00      607 60
    6510.      0        6510      0         0         1100      1.        1498      179        606.80
     1 77    0 00       5 92     0 58      0 000     0 025     0.040     0 000     592.10    303 32
 0 001544      18         18      18          2         0         0       0 00     102.73    418 89


*SECNO 28549.000
 28549 00    15 67     607 71    0 00      0 00      608 18    0 47      0 07      0 02      611 44
    6510.      0        6510.     0         0         1187      0         1501      179        612 44
     1 78    0 00       5 49     0 00      0 000     0 025     0 000     0 000     592 04    275 00
 0.000402     100        100.    100         1         0         0       0 00     112 98    387 98


CCHV=   0.100 CEHV=   0.300
*SECNO 29749.000

3470 ENCROACHMENT STATIONS=      0 0     750 0  TYPE=     1  TARGET=     749 999
 29749.00    17.02     608 32    0.00      0 00      608 56    0.25      0 37      0 02      612 40
    6510       0        6510      0         0         1629      0         1540      183.       609 70
     1.86    0 00       4 00     0.00      0.000     0 025     0 000     0.000     591 30    520 61
 0.000239    1100.      1200     1150         2         0         0       0 00     174 00    694 61


*SECNO 30474 000
 30474.00    16 71     608 46    0 00      0 00      608 77    0 31      0 18      0 02      613 55
    6510       0        6510      0         0         1459      0         1565      186.       611 35
     1 91    0 00       4 46     0 00      0.000     0 025     0 000     0 000     591.75    415 88
 0 000267     700.       725      700         2         0         0       0 00     143 24    559 12


*SECNO 31199.000

3470 ENCROACHMENT STATIONS=      0.0     480 0  TYPE=     1  TARGET=     479 999
 31199 00    16 38     608 58    0 00      0 00      609 04    0 46      0 23      0 05      615 00
    6510.      0        6510      0         0         1196      0         1587.     188.       613 30
     1 95    0 00       5 44     0 00      0 000     0 025     0.000     0 000     592 20    314 79
 0 000377     700        725.    700         2         0         0       0 00     110 19    424.99


CCHV=   0.300 CEHV=   0 500
*SECNO 31299 000

3470 ENCROACHMENT STATIONS=     50 0     500 0  TYPE=     1  TARGET=     450 000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  613 20 MAX ELLC=  608 70

 28031 00    17.19    607 29     0 00      0 00    607 76     0 47      0 02      0 01    605 60
    6510        0      6510        0         0      1178        0      1486       178      606 50
     1.75     0 00     5 53     0 00     0 000     0 025    0 000     0 000    590 10    135 25
 0 000573      31        31       31         0         0        0    -57 93    140 37    278 46


*SECNO 28331 000
 28331 00    16 83    607 53     0 00      0 00    607 91     0.38      0 12      0 03    610 10
    6510.       0.      6510        0         0      1323        0      1495       178      611 10
     1.77     0.00     4.92     0 00     0.000     0 025    0.000     0 000    590 70    272 17
 0.000299     300.     300.     300.         2         0        0     0 00    118 78    390 96


*SECNO 28431.000

3265 DIVIDED FLDW

 28431.00    15 41   607.51     0 00      0.00    608 05     0 55      0 06      0 09    607 60
    6510        0.      6510        0         0      1096        1     1498.       179      606 80
     1 77     0 00     5 94     0 57     0 000     0 025    0 040     0 000    592 10    303 39
 0 001554      100      100      100         2         0        0     0 00    102 45    418 81


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      3.04      0.00    117 00     0 00    1440 00     0 00    592 10    592 10

*SECNO 28449 000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   608 054  ELLC=   610 800  PCWSE=   607 506  ELTRD=   613 100

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  613 10 MAX ELLC=  610 80


4677 BRIDGE DECK DEFINITION ERROR AT STATIONS    417 00    428 00
```

```
SECNO     OEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   609 472  ELLC=   610.900  PCWSE=   608 879  ELTRD=   614 900

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  614 90 MAX ELLC=  610 90


3470 ENCROACHMENT STATIONS=      50 0     500 0  TYPE=     1  TARGET=     450 000
 31483.00    16 27   608 77     0.00     0 00   609 68     0 90     0 05     0 15   598 90
    6510        0     6510        0.        0     854.       0     1594      188     595.60
     1 96     0 00     7 62     0 00    0 000    0.025    0 000    0.000   592 50   277 31
 0 001181      53.       53      53.        2        0        0  -295 92   111 11   388.41


*SECNO 31583.000

3470 ENCROACHMENT STATIONS=      50 0     500 0  TYPE=     1  TARGET=     450 000
 31583 00    16 91   609 46     0 00     0 00   609 88     0 42     0 06     0 15   615 35
    6510        0.     6510.       0        0     1256       0     1597      189     613 65
     1 96     0 00     5 18     0.00    0 000    0 025    0 000    0 000   592 55   313 56
 0 000330     100.      100      100        2        0        0     0 00   112 55   426 12


CCHV=   0 100 CEHV=   0 300
*SECNO 33333 000
 33333 00    16 67   610 07     0 00     0 00   610 41     0 35     0 53     0 01   613 50
    6510.       0.     6510        0        0     1376.      0.     1650      193.     610 80
     2 07     0.00     4 73     0.00    0.000    0 025    0 000    0.000   593 40   363 58
 0.000277    1700.     1750     1800        2        0        0     0 00   125 50   489 08


CCHV=   0 300 CEHV=   0 500
*SECNO 33433 000

3265 DIVIDED FLOW

 33433 00    16.47   610 07     0 00     0 00   610 48     0 41     0 03     0 03   606 70
    6510.      18     6445       48       14     1248       39     1653      194     604 60
     2 07     1.22     5.16     1.21    0.025    0 025    0 035    0.000   593.60   363 45
 0.000350     100      100      100        2        0        0     0 00   124 93   489 07
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICDNT     CORAR     TOPWID      ENDST

 31299 00    16.16     608 56     0.00      0 00    609.15     0 59      0 05      0 07    598 90
    6510.     326      5759      425       107       888       171      1590       188      595 90
     1.95     3 04      6 49     2 49     0 028     0.025    0 040     0 000    592 40    277 80
 0 000705     100       100      100.        2         0        0      0 00    110 13    387 93


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 55      3 04      0 00     61 00      0 00    954 00      0 00    592 40    592 40

*SECNO 31350.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   609 155  ELLC=   609 600  PCWSE=   608.563  ELTRD=   613 700

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  613 70 MAX ELLC=  609 60


3470 ENCROACHMENT STATIONS=      50 0     500 0  TYPE=     1  TARGET=     450 000
 31350 00    16 08    608 48    0 00      0 00    609 32    0 84      0 04      0 13    598 90
    6510        0      6510       0         0       883       0      1591       188      595.90
     1.95     0.00      7 37    0 00     0 000    0 025    0 000     0 000    592 40    277 99
 0.001049      51        51.      51.        2         0        0   -273.70    109 76    387 75


*SECNO 31430.000

3470 ENCROACHMENT STATIONS=      50.0     500 0  TYPE=     1  TARGET=     450 000
 31430.00    16 38    608 88    0 00      0 00    609 47    0 59      0 07      0 08    598 90
    6510      374      5631.    505       114       861       187      1593       188      595 60
     1 96     3 26      6 54    2 70     0 028    0 025    0 040     0 000    592 50    277 07
 0 000779      80.       80       80        2         0        0      0 00    111 57    388 63


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.55      3.04      0 00     61.00      0 00    977 00      0 00    592 50    592 50

*SECNO 31483.000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0 300 CEHV=   0.500
*SECNO 37088.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      50.0      450 0  TYPE=      1  TARGET=      400 000
 37088 00     16 04    611 14     0.00      0 00    611.80     0 66      0 03      0 14    608 80
    6510        11.      6490       9         7       992.       7.      1763       204      608.70
     2 27      1 67      6.54     1.23     0.025     0 025    0 035     0 000    595 10    194 35
 0 001101       50.       50       50         2         0        0      0.00    107 67    312.97


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0 00       1.66       2 80       0 00     107 00      0 00     1410 00      0 00     595 10     595 10

*SECNO 37121 000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   611.803  ELLC=   615 300  PCWSE=   611 140  ELTRD=   617 900

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  617 90 MAX ELLC=  615 30


3470 ENCROACHMENT STATIONS=      50 0      450 0  TYPE=      1  TARGET=      400 000
 37121 00     16 08    611.18     0 00      0.00    611 84     0.66      0.04      0 00    608 80
    6510         0      6510       0         0.       996        0      1764       204      608 70
     2.28      0 00      6 54     0 00     0 000     0 025    0 000     0.000    595 10    194 27
 0 001080       33        33      33.         2         0        0    -14.18    108 27    313 06


*SECNO 37221 000

3470 ENCROACHMENT STATIONS=      50.0      450.0  TYPE=      1  TARGET=      400 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617 50 ELREA=      617 80

 37221.00     16 50    611.60     0 00      0.00    611 98     0.38      0 05      0 09    617.50
    6510.         0      6510       0         0.      1324       0.      1766       204      617.80
     2.28      0 00      4.92     0.00     0.000     0 025    0 000     0.000    595 10    149 48
 0 000300      100       100.     100         2         0        0      0 00    120 55    270 03
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK      XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.50      3 09      0.00    103 00      0.00   1520 00      0 00    593 60    593 60

*SECNO 33438.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=     0 000  EGLWC=   610 476  ELLC=   612 900  PCWSE=   610 066  ELTRD=   613 000

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  613 00 MAX ELLC=  612 90


4677 BRIDGE DECK DEFINITION ERROR AT STATIONS    474 70    491 00
 33438.00    16 47   610 07     0.00      0.00   610 48     0 41      0 00      0 00   606 70
    6510       18     6445       48        14     1248       39      1653       194     604 60
     2 07     1.22     5.16     1.21     0 025    0 025    0 035     0 000    593 60   363 45
 0 000350       5        5        5         0        0        0      0 00    124 93   489 07


*SECNO 33538 000
 33538 00    16.58   610 17     0 00      0 00   610 53     0 35      0 03      0 02   613 69
    6510        0     6510        0         0     1365        0      1656      194.     610 99
     2 08     0.00     4.77     0 00     0 000    0 025    0 000     0 000    593.59   363 79
 0.000283     100      100.     100         2        0        0      0 00    125.07   488 86


CCHV=   0 100 CEHV=   0 300
*SECNO 34888 000
 34888 00    17.06   610 56     0 00      0.00   610 95     0.39      0 41      0 01   614.00
    6510        0     6510.       0.         0     1294.       0      1697       198     616.00
     2 15     0 00     5 03     0 00     0 000    0 025    0 000     0 000    593 50   120.64
 0 000335    1400.    1350.    1300.         2        0        0      0 00    123 12   243.76


*SECNO 37038.000
 37038.00    17.06   611.26     0.00      0.00   611.63     0 38      0.68      0 00   617 50
    6510.       0     6510       0.         0.     1320        0      1762      204.     617 80
     2 27     0.00     4.93     0 00     0.000    0 025    0.000     0 000    594 20   150 06
 0.000299    2100.    2150     2200.         2        0        0      0 00    119.13   269 19
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************
```

T1
T2
T3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IOIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | 0. | 3 | 0 | 0 | 0 000000 | 0 00 | 0 0 | 0 | 599 300 | 0 000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 2 000 | 0 000 | -1 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VDL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

CCHV=    0 100 CEHV=    0 300
*SECNO 39121 000
 39121 00     17 00     612 20      0 00       0 00     612 64      0 45       0 65       0 02     620 40
    6510         0       6510         0          0       1215         0       1822        210      616 10
     2 38      0 00       5 36      0 00      0 000      0 025      0 000      0 000     595 20     171 91
 0 000388     1900       1900      1900          2          0          0      0 00      117 36     289 28

*SECNO 41121 000
 41121 00     17 35     612 95      0 00       0 00     613.56      0 61       0 86       0 05     638 00
    6510.        0       6510         0          0       1036         0       1873        214      636 20
     2 47      0 00       6 28      0 00      0 000      0.025      0 000      0 000     595.60     251.17
 0 000486     2000       2000.     2000          2          0          0      0 00       89 55     340 72

*SECNO 42521 000
 42521 00     18 34     613.74      0 00       0.00     614 03      0 29       0 44       0 03     625 90
    6510         0       6510         0          0       1511         0       1914        218      622 30
     2 56      0.00       4.31      0 00      0 000      0 025      0 000      0 000     595 40     318 39
 0 000219     1300       1400      1550          2          0          0      0 00      132 61     451 00
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 1039 000

3470 ENCROACHMENT STATIONS=     706 8     930 0  TYPE=     1  TARGET=     240 000
  1039.00    18.38   601 48    0 00    599 08   602.19    0 71     0 12     0 20   593 00
   14650       65    14479.    106      277.    2130      421      113       11     592 50
    0 05     0 23      6.80    0 25    0 400    0 025   0 400    0 000   583 10   706 80
 0.000337     465       445     430        2        0       0     0 00   223 20   930 00


*SECNO 1100.000

3470 ENCROACHMENT STATIONS=     418.5    1023 0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.40 ELREA=      602 40

             16 MILE RD  DS
  1100.00    19 96   601 66    0 00    599 17   602 25    0.59     0.03     0 03   601 70
   14650        0    14650       0         0     2370       0      116       12     601.00
    0 05     0.00      6 18    0 00    0 000    0 025   0 000    0 000   581 70   726 81
 0.000637      61        61     61.         2        0       0     0.00   174 36   901 17


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0 00      1 56      3 02      0.00    174 40      0 00   2318 40      0.00    581 70    581 70

*SECNO 1143.000
PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   602.62   602 25      0 00        0     14650      2318      3488       601 70    603 10


3470 ENCROACHMENT STATIONS=     418.5     902 1  TYPE=     1  TARGET=     520 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 10 ELREA=      601 00

  1143.00    20.36   602.06    0.00    599.17   602.62    0.56     0.37     0 00   601 70
   14650.       0    14650       0         0     2440.       5      119       12     601 00
    0 05     0.00      6.00    0 04    0.000    0.025   0.400    0.000   581.70   726 80
 0 000578      43       43.     43.         2        0       0     0 00   175.30   902 10
```

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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 2

CCHV=   0.300 CEHV=   0 500
*SECNO 165.000

3470 ENCROACHMENT STATIONS=     276 0     1012 0  TYPE=      1  TARGET=      800 000
   165.00    22.40    599 30    0 00    599.30    599.76    0.46      0 00      0 00    593.00
   15910.    1390     13744     776.      782      2363     327         0        0.     591.70
     0 00     1 78      5.82    2.37    0.040     0 030    0 040    0 000    576 90    408 00
 0 000537       0        0.       0.        0         0        0     0.00    577 69    985 69


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.54      2 80      0.00    170 00     0 00    1389 00     0 00    576 90    576 90

*SECNO 194 000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    602 44    399 77      0 00     1791.    14054      1389      3298      596 30    599 60


3470 ENCROACHMENT STATIONS=     276.0     1012 0  TYPE=      1  TARGET=      800 000
              UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194 00    24 60    601 50    0 00      0 00    601 75    0 25      1 99      0 00    593 00
   15910     2662.    12188     1060      1581     2724     513        3         0      591 70
     0 00     1 68      4.47    2 07    0 040     0 030    0 040    0 000    576 90    351 04
 0 000264     29.       29       29        2         0        2     0 00    644 29    995 33

*SECNO 594.000
3280 CROSS SECTION    594 00 EXTENDED      0 79 FEET

3470 ENCROACHMENT STATIONS=     325 5     1023.0  TYPE=      1  TARGET=      750 000
   594.00    21 39    601 56    0.00    599.09    601 87    0 31      0 09      0 03    590.07
   15910.    2453.    12693.    763.     3671.     2534    1188        60        7.      589.57
     0.03     0.67      5 01    0 64    0.150     0.030    0 150    0 000    580 17    325 50
 0.000209     420.      400     385        2         0        0     0 00    689 98   1015 48
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CHV=   0.300 CEHV=   0.500
SECNO 1323.000
280 CROSS SECTION   1323 00 EXTENDED      0.40 FEET

470 ENCROACHMENT STATIONS=     329 0     940.0  TYPE=     1  TARGET=     650 000
 1323.00    21.00    603.15    0 00    599 62    603 33    0 18      0 02      0.12    592 05
  14650     3612.    10144.    894.     2727.     2508     563       133        13      591 55
   0.06     1 32      4 04     1.59     0.040     0 025    0 040     0 000    582.15    329 00
0 000097    100.      100.     100        2         0        0      0 00    611 00    940 00

CHV=   0.100 CEHV=   0 300
SECNO 2223.000

470 ENCROACHMENT STATIONS=       0 0     600 0  TYPE=     1  TARGET=     599 999
 2223 00    20 52    603.08    0 00    599 67    603 54    0.46      0 12      0 08    598 46
  14650       74     14210     366      174.     2571.     288       223        22      593 26
   0.11     0.43      5.53     1 27     0 110     0 025    0 060     0 000    582 56    245 25
0 000200    870       900      940        2         0        0      0 00    246 52    491 77

CHV=   0 100 CEHV=   0 300
SECNO 3180.000

470 ENCROACHMENT STATIONS=       0 0     600 0  TYPE=     1  TARGET=     599 999
 3180 00    20 28    603.28    0 00    599.86    603.73    0 45      0 19      0.00    598 90
  14650      182     13945     523      161.     2537      277       289        27      593 70
   0.16     1 13      5.50     1 89     0 040     0 025    0 040     0 000    583 00    245 93
0.000201    925.      957      995        2         0        0      0 00    245.08    491.01

SECNO 5720 000

470 ENCROACHMENT STATIONS=       0.0     800 0  TYPE=     1  TARGET=     799 999
 5720.00    19 63    603 83    0 00    600 42    604 24    0 41      0 51      0 00    599.30
  13680.     394     13249      37      386      2538      40.       463.       45.     600 90
   0 30     1 02      5.22     0 92     0 040     0 025    0 040     0 000    584 20    226 65
0 000199    2600      2540    2500.        2         0        0      0.00    347 45    574.10

SECNO 7470.000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

*SECNO 1150 000

3470 ENCROACHMENT STATIONS=     725 4     911 4  TYPE=     1  TARGET=     200 000
  1150.00    20 28   602.06     0.00    599 28   602 63     0 57      0 00      0 01    591 68
   14650       36.   14535.      78       184      2386      345       119        12      591 18
     0.05    0 20     6 09     0 23     0 400     0 025    0 400     0 000    581 78    725 40
 0.000233      7.        7        7         0         0        0     0 00    186 00    911.40

*SECNO 1180 000

3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 40 ELREA=      603 40

  1180 00    19.94   602 04     0 00    599 24   602 66     0 62      0 01      0 02    601 00
   14650        0    14650       0.        0     2316        0      121.        12      600 90
     0 05    0 00     6 32     0.00    0 000    0.025    0 000     0 000    582 10    735 08
 0.000657      30       30       30         2         0        0     0 00    173 90    908 98


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 56      3 04      0 00    173.90      0 00   2121 10      0 00    582 10    582 10

*SECNO 1223 000
PRESSURE FLOW


 EGPRS      EGLWC      H3       QWEIR  ,   QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                             AREA
    603.20    602 66     0 00        0     14650     2121.     3287.      601 00    603 40


3470 ENCROACHMENT STATIONS=     423 0    1034.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603.40 ELREA=      603 40

             16 MILE RD  US
  1223 00    20.53   602.63     0.00    599.27   603.20     0.57      0 54      0 00    601.00
   14650        0.   14650        0        0.     2421        0      123.        12      600 90
     0 06    0 00     6.05     0.00    0 000    0 025    0.000    0 000    582 10    735 08
 0.000567      43       43       43         2         0        0     0 00    173 90    908 98
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST

  8394 00    20 52     604 92     0 00     601 64    605.04     0 13      0 45      0 00     595 80
   13680     5601.      8040      39.      2861      2419       47       752        82      602.50
     0 55     1 96      3 32     0 83     0.035     0 025     0 030     0.000    584 40     104 40
 0 000164      54        54       54         2         0         4      0 00    820 72     925 12

*SECNO 8494.000

3470 ENCROACHMENT STATIONS=      139 2     1305.0  TYPE=      1  TARGET=     -160 000
  8494 00    20 39     604 89     0.00     601 62    605.10     0 21      0.01      0 04     596.10
   15320.    5124      10164      33       2940      2363       49.       764        84      602 40
     0.56     1 74      4 30     0.67     0 035     0 025     0 030     0 000    584 50     139.20
 0 000127     100.       100      100         2         0         0      0.00    825 78     964 98

*SECNO 9594 000

3470 ENCROACHMENT STATIONS=      260 0     1260 0  TYPE=      1  TARGET=     -260 000
  9594 00    19.34     605.04     0 00     601 79    605 22     0 18      0 12      0 01     598 10
   15320     4679      10580      62       3175      2650       87       874        99      602 50
     0 64     1.47      3 99     0 71     0.035     0 025     0.030     0 000    585 70     260 00
 0.000120     630       1100     1520         0         0         0      0 00    842.19    1102 19

*SECNO 9653.000

3470 ENCROACHMENT STATIONS=      260.0     1210 0  TYPE=      1  TARGET=      950.000
  9653.00    19 67     605.07     0 00     601.83    605.24     0.16      0 01      0 00     597.80
   15320     4867.     10372      81       3367.     2704      112       882       100      602 20
     0.65     1 45      3 84     0 72     0 035     0 025     0 030     0 000    585 40     260.00
 0.000108      59        59.      59         2         0         0      0 00    852 21    1112 21

*SECNO 9654.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=      200.0     1150 0  TYPE=      1  TARGET=     -200 000
  9654 00    19.57     604.97     0.00     601.71    605.33     0.36      0 00      0 10     603 30
   15320     3871      11448       1.      1513.     2142        3.       882       100      603 40
     0.65     2.56      5 34     0 21     0.025     0 020     0.025     0.000    585 40     200.00
 0 000474       1.        1.       1         2         0         0 -1997.18    840.32    1040 32
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST
                                  .

3470 ENCROACHMENT STATIONS=     420.0     1500 0  TYPE=     1  TARGET=    -420 000
  7470 00    20 25    604.35    0 00    600 88    604 48    0 13      0 21      0 03    595 70
   13680.    4446.     9210      24      3079      2693      49       640        66     602 00
     0 47     1.44      3.42    0 50    0 035     0.025    0 030    0 000    584 10    420 00
 0 000080    1830.     1710     1750        2         0        0     0 00    682 20   1102 20

*SECNO 8270 000

3470 ENCROACHMENT STATIONS=     130.5     1305 0  TYPE=     1  TARGET=    -150 000
  8270.00    19.98    604 38    0 00    600.93    604 57    0.18      0 07      0.02    596 00
   13680     4383      9278      18      2678      2306      34       737        79     602 30
     0.54     1 64      4.02    0 54    0 035    0 025    0 030    0 000    584 40    130 50
 0.000115     800       760     840        2         0        0     0 00    823 15    953 65

CCHV=   0 300 CEHV=   0.500
*SECNO 8340 000

3470 ENCROACHMENT STATIONS=      95.7     1252 8  TYPE=     1  TARGET=    -110 000
  8340 00    20 05    604 45    0.00    600.99    604.59    0 14      0.01      0 01    595 80
   13680     5413      8243      24      2574      2343      30       745        81     602 50
     0.55     2 10      3.52    0.81    0 035    0 025    0 030    0 000    584 40     95 70
 0 000199      70.       70      70        2         0        0     0 00    813 41    909 11


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.79      2 80      0 00    161 00      0 00    1680 00     0 00    584 40    584 40

*SECNO 8394.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
   606.29    604 59     0 00     5898      7784.     1680      2576       600 40    600 90


3470 ENCROACHMENT STATIONS=     104 4     1252 8  TYPE=     1  TARGET=    -120 000
             15 MILE RD  US
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 14796 000
 14796 00    18 90    606 20     0 00    603 18    606.81     0 61      0 50      0 06    621 70
   15320        0     15320        0        0.     2444        0      1347       168      613 10
     0 92    0.00      6 27     0.00    0 000     0.025    0 000     0 000    587 30     103 56
 0 000352    1600      1600     1600         2         0        0      0 00    174.73     278 29


*SECNO 16096.000

3265 DIVIDED FLOW

 16096.00    20 02    606.82     0 00    603 70    607 22     0 40      0 39      0 02    613 40
   13320        0     13215      105        0      2580      195      1426       179      604 60
     0 99    0.00      5 12     0 54    0.000     0 025    0 040     0 000    586.80     115 74
 0 000254    1200      1300.    1600         2         0        0      0 00    486 30     660 00


CCHV=   0 300 CEHV=   0 500
*SECNO 16396 000
 16396 00    19.35    606 85     0 00    603 76    607 37     0.52      0 09      0 06    606 70
   13320        0     13207      113        1      2278      171      1444.      182      605 10
     1 00    0.15      5 80     0 66    0 035     0 025    0 040     0 000    587.50     170 33
 0 000375     300       300      300         2         0        0      0.00    397 96     568 28


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 62      3 07      0.00    290.00     0.00    2030 00     0.00    587 50    587 50

*SECNO 16418 000
3280 CRDSS SECTIDN  16418 00 EXTENDED      0 04 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                               AREA
   607.93    607.37     0.00     1397     11915      2030      5162       605 30    606 10


 16418.00    19 74    607.24     0.00    603.77    607.72     0 48      0.35      0.00    606 70
   13320.       2     13114.     204.        6      2335.     272      1445       182.     605.10
     1.00    0 33      5 62     0.75    0 035     0 025    0 040     0 000    587 50     153 34
 0 000341      22       22.      22         2         0        3      0 00    446 66     600 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 9676.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603.40

3470 ENCROACHMENT STATIONS=     200 0     1150.0  TYPE=     1  TARGET=     -200.000
  9676.00     19 59    604.99    0 00    601 71    605 34    0 36      0.01      0 00    603 30
   15320      3882     11437       1      1517      2142       4       884       100     603 40
     0 65     2 56      5 34    0 23     0 025     0.020   0.025     0 000    585 40    200 00
 0 000473       22        22      22         0         0       0  -1998 39    840 52   1040 52

*SECNO 9677 000

3470 ENCROACHMENT STATIONS=     280.0     1210 0  TYPE=     1  TARGET=     930 000
  9677 00     19 84    605.24    0.00    602 07    605 40    0 16      0 00      0.06    597 80
   15320      4958     10293      69      3428.     2731     126       884       100     602 20
     0.65     1.45      3 77    0 55     0 035     0 025   0 040     0.000    585 40    280 00
 0.000103        1         1      1.         2         0       0      0 00    837 61   1117 61

*SECNO 9777.000

3470 ENCROACHMENT STATIONS=     250 0     1260 0  TYPE=     1  TARGET=     -250 000
  9777.00     19.80    605 25    0 00    602.08    605 41    0 16      0 01      0 00    597.85
   15320      4970     10283      67      3472      2726     124       898       102     602 25
     0 66     1 43      3.77    0 54     0 035     0 025   0 040     0 000    585 45    250 00
 0.000103     100.       100     100         1         0       0      0 00    866 66   1116 66

CCHV=   0 100 CEHV=   0.300
*SECNO 11596.000
 11596 00     18.94    605 34    0 00    602 32    605 79    0.45      0 29      0.09    607 60
   15320         0     14308    1012         0      2576     947      1108       133     600 70
     0.75     0.00      5.56    1 07     0 000     0 025   0 040     0.000    586 40    817.16
 0.000271     1975      1819   1660.         2         0       0      0 00    613 77   1430 93

*SECNO 13196 000

3470 ENCROACHMENT STATIONS=       0.0      538 0  TYPE=     1  TARGET=     537.999
 13196.00     20 34    605.84    0 00    602.81    606.24    0 40      0 45      0 00100000.30
   15320         0     14251    1069         0      2712     728      1239.       155     595 90
     0 84     0 00      5 26    1 47     0 000     0 025   0.045     0 000    585.50     17 67
 0.000284     1320.     1600    1760         2         0       0      0 00    520.33    538 00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CDRAR     TOPWID      ENDST


 EGPRS      EGLWC       H3       QWEIR       QPR       BAREA   TRAPEZDID      ELLC      ELTRD
                                                                  AREA
   608 19    607.99      0.00      858      12473      3230.     3932.      607 00    607 10


 17368 00    21.41    607.91     0 00    604.25    608 13     0 22      0 14     0 00    608 80
   13320      138     13153.      29       187.     3472       43      1537      193      609 20
     1 09    0.74      3 79     0 67     0 025     0 025    0 028     0 000   586 50     89 76
 0 000208     100.      100.     100         2         0        4     0 00    503 38    723 30


*SECNO 18244.000
 18244 00    20 75    608 05     0.00    604 35    608.28     0 23      0 14     0 00    602 80
   13320     1418     10071     1831      831      2352      999      1614      203      598 40
     1 15     1 71      4 28     1 83     0 025     0 025    0 028     0 000   587 30     37 71
 0 000124     150       876     1400.        2         0        0     0 00    629 08    666 79


CCHV=   0 100 CEHV=   0.300
*SECNO 19119 000
 19119 00    20 00    608.10     0 00    604 53    608 44     0 34      0.13     0 04    609.20
   13320        0.    12415.     905.        0     2552.     745      1687      212      599 60
     1 21     0 00      4 86     1 21    0.000     0 025    0 045     0 000   588.10    126 81
 0.000195     850.      875.     800         2         0        0     0 00    404 44    531.25


*SECNO 20219 000

3265 DIVIDED FLOW

 20219 00    20 76    608 46     0 00    604 90    608.63     0 17      0 17     0 02    620 70
   13320        0     12394      926.        0     3616      970      1785      226      606.90
     1 30    0.00      3.43     0 96    0.000     0 025    0 040     0 000   587.70     33 25
 0.000120    1100      1100.    1000         2         0      . 0      0.00    718 17    885.08


*SECNO 21119 000

3265 DIVIDED FLOW

 21119.00    19.81    608 51     0 00    604.98    608.79     0 29      0 13     0 04    607.30
   13320.    2026.    11294.       0      1029.     2456        0      1867.     238.     609 30
     1 36     1 97      4 60     0 00     0 028     0.025    0.000     0 000   588 70     94.75
 0 000184     800.      900.     900.         2         0        0     0 00    500.25    698.23
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 16768 000
 16768.00    19 65    607 65     0.00    604.03    607 86     0.21      0 06      0 08    597.70
   13320     1199      9746     2375      692      2325      1321      1472       186     591 10
     1.03     1 73      4.19     1.80     0 028     0 025     0 030     0.000    588.00    55.87
 0 000106     400       350      300        2         0         0      0 00    503 12    558.99

*SECNO 17168.000
3280 CROSS SECTION  17168.00 EXTENDED      1 80 FEET

 17168 00    19 80    607 80     0 00    604.22    607 93     0 12      0 04      0 03    598 20
   13320     6771.     5849.     700      2924      1745      513.      1518       191     599.10
     1 07     2 32      3 35     1 37     0 025     0 025     0 028     0 000    588 00     42 26
 0.000076     600       400      100        2         0         0      0 00    546 64    588 90

*SECNO 17268 000

3265 DIVIOED FLOW

9280 CROSS SECTION  17268 00 EXTENDED      1 36 FEET

 17268 00    21 26    607.76     0.00    604 23    607 99     0 23      0 01      0 05    608 80
   13320.     105     13194      21       151      3443       34      1528       192     609 20
     1.08     0.70      3.83     0 63     0 025     0.025     0 028     0 000    586 50    106 76
 0 000215     100       100      100        2         0         0      0 00    473 93    723 30


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 60      3 04      0.00    191.80     0.00    3230 00     0 00    586 50    586 50

*SECND 17368 000

9265 DIVIDED FLDW

3280 CROSS SECTION  17368 00 EXTENDED      1 51 FEET

PRESSURE AND WEIR FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 24369 000

3470 ENCROACHMENT STATIONS=       0 0      500 0  TYPE=      1  TARGET=      499 999
 24369.00     20 35    609.25     0 00    605 89    609 57     0 32      0 12      0 03    605 50
    8680.      157      8523       0.      142.      1869       0.      2099       268     609 50
     1.56     1 10      4 56     0 00    0 028     0.025    0 000     0 000    588.90    254 87
 0 000180     850       800      900.         2         0        0     0 00    216 60    471 47

*SECNO 25819.000

3470 ENCROACHMENT STATIONS=     260 0      775 0  TYPE=      1  TARGET=      515 000
 25819 00     20.69    609 49     0 00    606 21    609 96     0 47      0 34      0 05    609 20
    8680         1      8679       0.         3     1574        1      2158       274     609 30
     1.63     0.26      5.51     0 22    0 028     0 025    0 025     0 000    588 80    481 27
 0.000329    1350      1450     1500         1         0        0     0 00    153 50    634 77

CCHV=   0.300 CEHV=   0 500
*SECNO 25919.000

3470 ENCROACHMENT STATIONS=     287 0      750 0  TYPE=      1  TARGET=      463 000
 25919 00     19.99    609.49     0 00   606.21    610 06     0 58      0.05      0 05    604 90
    8680.      73.      8526.      81       34      1386       29      2162       274     604 00
     1 64     2 11      6 15     2 80    0 028     0.025    0.025     0 000    589 50    467 25
 0 000771     100.      100.     100         2         0        0     0 00    154 83    622 08


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.68      3 04      0.00    104.00      0 00   1220 00      0 00    589.50    589 50

*SECNO 26025.000

3265 DIVIDED FLOW

3280 CROSS SECTION  26025 00 EXTENDED      0 65 FEET

PRESSURE AND WEIR FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENOST

*SECNO 22069 000

3265 DIVIDED FLOW

 22069.00    20.40    608 60     0.00    605.20    609 08     0 48      0.23      0 06    609 50
   13320.      23     13297       0        34      2388       1       1929       246      608 30
     1.40     0.68      5.57     0.22    0 028     0 025    0 035    0 000    588 20      0 00
 0.000332     800       950      900        2         0        0     0 00    262 54    308 99

*SECNO 22419.000
3280 CROSS SECTION  22419 00 EXTENDED      9 15 FEET

 22419 00    20.85    609 05     0 00    605 58    609.16     0 11      0 05      0 04    601 80
   12280     5320.     6782      178.     2958      2121      154      1962       249      603 80
     1 44     1.80      3 20     1 15    0.028     0 025    0.028    0 000    588 20      0 00
 0 000072     400       350      250        2         0        0     0 00    544 51    544 51

*SECNO 23319 000

3265 DIVIDED FLOW

 23319.00    20 45    608 95     0 00    605 54    609 36     0 41      0.10      0 09    606.60
   12280      461.    11047      772       408      2062      340      2041       259      602 20
     1 49     1 13      5 36     2 27    0.028     0 025    0 028    0 000    588 50    145 32
 0 000227     800.      900      875        2         0        0     0 00    504 87    803 12

*SECNO 23569 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      0 0      750.0  TYPE=     1  TARGET=     749 999
 23569.00    20.82    609.22     0.00    605.82    609.42     0 20      0.04      0.02    610 00
    8680      201.     8479       0        312      2315       0.      2056.       261      610 40
     1.51     0.65      3.66     0.00    0.030     0.025    0 000    0 000    588 40    142 77
 0 000123     150       250      300        2         0        0     0 00    461 00    697 22

CCHV=   0.100 CEHV=   0 300
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0 300 CEHV=   0 500
*SECNO 28000 000
 28000 00    20 82    610 92     0.00    607 28    611 32     0 40     0.03     0 02    605 60
    8680.     535     8107.      38       225      1560       36      2249      286      606 50
     1 75    2 37      5.20     1.06     0 030     0 025    0 040    0 000    590.10    112 92
 0.000372    100.      100.     100         0         0        0     0 00    193 91    306.83


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.54      3.04      0 00    116 00     0 00    1320 00     0 00    590 10    590 10

*SECNO 28031 000
PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
    611.96    611.32     0.00        0      8680      1320      2158      608 70    613 20


 28031.00    21 51    611 61     0.00    607 29    611 96     0.35     0 64     0 00    605 60
    8680      615     8003.      62       265      1635       61      2251.     286      606.50
     1 76    2 32      4 89     1 01     0 030     0.025    0.040    0 000    590.10    108.79
 0 000312     31        31       31         2         0        0     0.00    211 05    319 84


*SECNO 28331.000
3280 CROSS SECTION  28331 00 EXTENDED      4 14 FEET

 28331 00    21.04    611 74     0 00    607 53    612.04     0 31     0 07     0 01    610 10
    8680      31      8392      257        49      1862      308      2265      288      611 10
     1.78    0 64      4.51     0 84     0 028     0.025    0.040    0 000    590 70    205 99
 0 000187    300.      300      300.        2         0        0     0 00    394 01    600 00


*SECNO 28431 000
3280 CROSS SECTION  28431.00 EXTENDED      3 22 FEET

 28431 00    19.62    611 72     0.00    607.51    612.13     0.40     0.04     0 05    607.60
    8680.     115     8174      391.       66      1560      231      2270      289.     606 80
     1 78    1 75      5 24     1.69     0 028     0.025    0 040    0 000    592.10    234 45
 0 001029    100.      100      100         2         0        0     0 00    365 55    600 00
```

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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


EGPRS     EGLWC     H3        QWEIR     QPR       BAREA   TRAPEZOID     ELLC      ELTRD
                                                              AREA
  610.81    610.06    0 00      163.      8511      1220      1914      607 90    610.00


3470 ENCROACHMENT STATIONS=     287 0     750 0  TYPE=     1  TARGET=     463 000
 26025.00    20.76   610 26    0.00    606 32   610 76    0 50     0 69     0.00    604 90
    8680      137.    8415.    128       85      1466      59.     2165      275     604.00
     1.64     1.61     5.74    2.16    0 028    0 025    0 025    0 000   589 50   287 00
 0 000623     106.     106.    106        2        0        2     0 00   297 01   750 00


*SECNO 26125 000

3470 ENCROACHMENT STATIONS=     260 0     750 0  TYPE=     1  TARGET=     490 000
 26125.00    20.86   610 35    0 00    606.48   610.81    0 46     0.04     0 01   609.89
    8680.       3     8677      1.        7.      1597       3     2169      275     609 99
     1.65    0 35     5 43    0 34    0 028    0 025    0.025    0 000   589 49   469 22
 0 000314     100      100    100        2        0        0     0 00   173 31   642 53


CCHV=   0 100 CEHV=   0 300
*SECNO 26900 000
 26900.00    21.25   610 65    0 00    606 90   611 05    0 40     0.23     0 01   610 00
    8680.       1     8551     128        3      1664     184     2200      280     608 80
     1 69    0 40     5 14    0 70    0 030    0 028    0 040    0 000   589.40   169 39
 0.000293     800.     775     725        2        0        0     0 00   317.21   486 60


*SECNO 27150.000

3470 ENCROACHMENT STATIONS=       0.0     375 0  TYPE=     1  TARGET=     374 999
 27150 00    20 23   610 73    0 00    606.96   611 11    0 39     0 06     0 00   604 70
    8680      262.    7925     493      129.     1522     377     2211.     281     604 60
     1.71    2 03     5.21    1.31    0.030    0 025    0 040    0 000   590 50   116.67
 0 000206     200      250     300        0        0        0     0 00   233 44   350 12


*SECNO 27900 000
 27900.00    21 01   610.91    0 00    607 26   611.28    0 36     0 16     0 00   605 70
    8680      395    8280.       5      215     1675      13     2245      285     609.80
     1 75    1.84     4.94    0 38    0.030    0 025    0.040    0 000   589 90   120 03
 0.000223     800      750.    700        0        0        0     0 00   202 67   322.70
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 30474.000
 30474.00    20 99    612 74     0 00    608.46    612 99     0 26      0 11      0 02    613.55
    8680        0      8657.      23        0      2130.      51      2377       301      611.35
     1 93     0 00      4.06     0 45    0 000     0 025    0 040     0 000    591 75    399.85
 0.000165     700.      725      700.        2         0        0      0 00    239 70    639 55


*SECNO 31199 000

3470 ENCROACHMENT STATIONS=       0 0      480 0  TYPE=      1  TARGET=      479 999
 31199.00    20 58    612 78     0 00    608 58    613 18     0 41      0.15      0 04    615 00
    8680.       0.      8680        0         0      1698        0      2409       304      613 30
     1 97     0 00      5.11     0 00    0 000     0 025    0 000     0 000    592 20    305 12
 0 000258     700       725      700         2         0        0      0.00    128 78    433 89


CCHV=   0 300 CEHV=   0 500
*SECNO 31299 000

3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=      1  TARGET=      450 000
 31299.00    20.36    612 76     0 00    608.56    613.27     0 50      0 03      0 05    598.90
    8680.      733      7033      913       221      1144      302      2413       304      595 90
     1.98     3 32      6 15     3.02     0.028     0 025    0.040     0 000    592 40    268 15
 0 000476     100       100      100         2         0        0      0 00    128.71    396 86


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 55      3 04      0 00     61 00      0 00    954 00      0 00    592 40    592 40

*SECNO 31350 000
PRESSURE AND WEIR FLOW


 EGPRS       EGLWC       H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRO
                                                                  AREA
    614 76    613 27      0 00      405      8267.      954       1049       609 60    613.70


3470 ENCROACHMENT STATIONS=      50.0      500 0  TYPE=      1  TARGET=      450 000
 31350 00    21.77    614 17     0 00    608.48    614.57     0.40      1 30      0 00    598.90
    8680.      840      6823     1017      268.      1230      386      2415       305      595 90
     1 98     3.14      5 55     2 63    0 028     0 025    0.040     0 000    592 40    264 92
 0.000352      51        51.      51.        2         0        2      0 00    223 39    488 31
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      3 04      0 00    117 00      0 00   1440 00      0 00    592 10    592 10

*SECNO 28449.000
3280 CROSS SECTION  28449 00 EXTENDED      3 75 FEET

PRESSURE FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
   612.59    612.13     0 00        0      8680      1440      2188       610 80    613 10


 28449 00    20 15   612.25     0 00   607.54   612.59     0.34     0 46     0 00   607 60
    8680      203     7909      568      109     1622      328     2270      289     606 80
     1 78     1.87     4 87     1.73    0 028    0 025    0 040    0 000   592 10   193 63
 0.000847     18.      18       18        2        0        0     0 00   406 37   600 00


*SECNO 28549 000

3265 DIVIDED FLOW

3280 CROSS SECTION  28549.00 EXTENDED      3 34 FEET

 28549.00    20.24   612.28     0.00   607.71   612 64     0.36     0 04     0 01   611 44
    8680        6.     8527.     147       13     1755.     181     2275      290     612 44
     1 79     0.46     4.86     0 81    0.028    0 025    0 040    0.000   592 04   235 09
 0 000234     100      100      100.        2        0        0     0 00   278 27   600 00


CCHV=   0 100 CEHV=   0 300
*SECNO 29749.000

3470 ENCROACHMENT STATIONS=       0 0     750.0  TYPE=      1  TARGET=     749 999
 29749 00    21 38   612 68     0.00   608 32   612 87     0.19     0 20     0 02   612.40
    8680        0     8596.      83.        2     2469.     115     2337      297     609 70
     1 88     0 16     3 48     0 72    0 028    0 025    0 040    0 000   591 30   482 09
 0.000130    1100     1200     1150        2        0        0     0 00   267 90   750 00
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0 100 CEHV=   0 300
*SECNO 33333.000
 33333 00    22.37    615 77     0 00    610 07    615 99     0.22      0 23      0.01    613.50
    8680       71      8254      355.      103      2136      364      2521       318     610 80
     2.13     0.69      3 86     0 97    0 025     0 025    0 035     0.000    593 40    264 30
 0.000115    1700      1750.    1800        2         0        0      0 00    364 90    629 19

CCHV=   0 300 CEHV=   0 500
*SECNO 33433 000
 33433.00    22 17    615 77     0 00    610 07    616.01     0 25      0.01      0 01    606 70
    8680      272.      7700      707      193      1834      524      2527.       318     604 60
     2.13     1 41      4 20     1 35    0 025     0 025    0 035     0 000    593 60    276 65
 0.000153     100.      100      100.        1         0        0      0.00    352.90    629 55


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.50      3.09      0 00    103 00     0 00    1520 00     0 00    593.60    593 60

*SECNO 33438.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
    616 53    616 01     0 00      2804      5933      1520.     1988.      612 90    613 00


 33438.00    22 28    615 88     0 00    610 07    616.12     0 24      0 11      0 00    606 70
    8680      285.      7668.     727.      203      1845.     541      2527       318     604 60
     2.13     1 40      4.16     1 34    0 025     0 025    0 035     0 000    593 60    273.49
 0.000149       5        5.        5.        2         0        3      0 00    358 75    632 24


*SECNO 33538 000
 33538 00    22.33    615.92     0.00    610 17    616 14     0 22      0 01      0 01    613 69
    8680       68.      8262     349        99.     2130      359      2533.       319     610.99
     2 14     0 69      3.88     0 97    0 025     0 025    0 035     0.000    593 59    265.86
 0.000116     100       100.     100        2         0        0      0 00    362 36    628.21
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CDRAR     TOPWID      ENOST

*SECND 31430 000
3280 CROSS SECTIDN  31430.00 EXTENDED      0 00 FEET

3470 ENCROACHMENT STATIONS=      50.0     500 0  TYPE=     1  TARGET=     450 000
 31430 00    21.69   614 19     0 00   608 88   614 61    0.41     0 03     0 00   598 90
    8680      887    6660     1132.     269     1183     403     2419      305     595 60
     1 99     3 30    5 63     2.81    0 028    0 025   0 040    0 000   592 50   264 84
 0 000413     80.      80       80        0        0       0     0 00   235 16   500 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 55      3 04      0.00     61 00     0.00    977 00     0 00    592.50    592 50

*SECNO 31483.000
3280 CROSS SECTION  31483 00 EXTENDED      1 19 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    616.09    614.61     0 00      860      7768       977      1122      610 90    614 90


3470 ENCROACHMENT STATIONS=      50 0     500 0  TYPE=     1  TARGET=     450 000
 31483 00    22.89   615.39     0 00   608 77   615 72    0 33     1.11     0 00   598 90
    8680.     966     6397     1316.     317     1255     569     2421.     305     595 60
     1 99     3 05    5 10     2 32    0.028    0 025   0 040    0 000   592.50   237 02
 0.000313     53.      53       53.        2        0       2     0 00   262 98   500 00

*SECNO 31583.000
3280 CROSS SECTION  31583.00 EXTENDED      0 92 FEET

3470 ENCROACHMENT STATIONS=      50.0     500.0  TYPE=     1  TARGET=     450.000
 31583.00    22 92   615 47     0.00   609 46   615.75    0 28     0 02     0 01   615 35
    8680.       0     8619       61        0.     2008      92     2426      306     613 65
     2 00     0 11    4 29     0.66    0 025    0 025   0 035    0 000   592 55   292 29
 0 000155     100.    100.     100        2        0       0     0 00   207.71   500 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST


 EGPRS      EGLWC       H3        QWEIR       QPR       BAREA   TRAPEZOID       ELLC      ELTRD
                                                                   AREA
    617 32    616 80      0 00        0.      8680      1410      2161       615 30    617 90


3470 ENCROACHMENT STATIONS=      50 0     450 0  TYPE=     1  TARGET=     400 000
 37121.00    21 82   616 92     0.00   611 18   617 32     0 41     0 53     0 00   608 80
    8680      231.    8273      177      102.     1585      81.     2715      340     608 70
     2 37     2.26     5.22     2 18    0 025    0 025    0 035    0 000   595 10    50 00
 0.000515      33       33       33        2        0        0     0 00   224 20   326.87


*SECNO 37221 000

3470 ENCROACHMENT STATIONS=      50 0     450 0  TYPE=     1  TARGET=     400 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617 50 ELREA=      617 80

 37221 00    22 01   617 11     0 00   611 60   617.39     0 28     0.03     0 04   617 50
    8680        0     8680        0       0.     2062        0     2719.     340     617 80
     2.38     0 00     4 21     0 00    0 000    0 025    0.000    0 000   595 10   135 95
 0 000160     100.     100.     100        2        0        0     0 00   147 40   283 34


CCHV=   0 100 CEHV=   0.300
*SECNO 39121.000
 39121 00    22.22   617 42     0 00   612 20   617 74     0.32     0 34     0 01   620.40
    8680.       0     8672        8       0     1899       17     2806      347.    616 10
     2.50     0.00     4 57     0.46    0.000    0 025    0 035    0 000   595.20   157.96
 0.000201    1900.    1900     1900        2        0        0     0 00   167 08   325 05


*SECNO 41121 000
 41121 00    22 18   617.78     0 00   612.95   618.29     0 51     0 49     0.06   638 00
    8680.       0.     8680        0       0     1507        0     2885.     353     636 20
     2 59     0 00     5 76     0 00    0 000    0.025    0 000    0.000   595 60   242 89
 0 000312    2000     2000     2000        0        0        0     0 00   105 50   348 39


*SECNO 42521 000
 42521.00    22 96   618 36     0.00   613 74   618 61     0 24     0 29     0.03   625.90
    8680.       0     8680        0.       0     2187        0     2944.     357.    622.30
     2 69     0.00     3 97     0 00    0 000    0 025    0.000    0 000   595 40   306.84
 0 000146    1300.    1400.    1550        2        0        0     0 00   159 83   466 67
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENOST


CCHV=   0 100 CEHV=   0 300
*SECNO 34888.000
3280 CRDSS SECTION  34888 00 EXTENDED      1 37 FEET

 34888.00    22 57   616 07     0 00   610 56   616 34     0 26     0 18     0 01   614 00
    8680.     164     8516        0.     168     2058        0.     2607      329     616 00
     2.23    0.98     4.14     0 06   0 025    0 025    0 035    0 000   593.50     0 00
 0 000160   1400.     1350     1300        2        0        0     0 00   270 74   270 74


*SECNO 37038 000

3265 DIVIDED FLOW

 37038 00   22.21   616 41     0 00   611 26   616 70     0 29     0 36     0 01   617 50
    8680        0     8680        0        0     1998        0     2711      339     617 80
     2 37    0.01     4.34     0 00   0 000    0 025    0 000    0.000   594 20    34 29
 0 000173   2100     2150.    2200        2        0        0     0 00   145 64   281.64


CCHV=   0 300 CEHV=   0.500
*SECNO 37088 000

3470 ENCROACHMENT STATIONS=      50 0     450 0  TYPE=     1  TARGET=     400 000
 37088 00   21 25   616 35     0.00   611 14   616 80     0 45     0 01     0 08   608 80
    8680.     190     8334      156      69.     1524       70     2714      339     608 70
     2 37    2 76     5 47     2 22   0 025    0 025    0 035    0 000   595 10   181 79
 0.000595      50       50       50        2        0        0     0 00   143 72   325 50


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.66      2 80      0 00    107 00      0 00   1410 00     0.00    595 10    595 10

*SECNO 37121.000

3265 DIVIDED FLOW

PRESSURE FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 3

CCHV=   0.300 CEHV=   0 500
*SECNO 165.000

3470 ENCROACHMENT STATIONS=     276 0     1012 0  TYPE=      1  TARGET=     800 000
   165.00    22.80   599 70    0.00    599.70   600 19    0 49     0 00     0 00   593 00
   17390     1767.   14715     908      916     2431      359       0        0     591 70
     0 00     1 93     6 05    2 53    0 040    0 030    0 040    0 000   576 90   392 00
 0.000560      0        0       0        0        0        0     0 00   595.95   987 95


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      2 80      0 00    170 00      0 00   1389 00     0 00    576 90    576 90

*SECNO 194 000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    603 45    600.19      0 00      3015     14333      1389      3298       596 30    599 60


3470 ENCROACHMENT STATIONS=     276.0     1012 0  TYPE=      1  TARGET=     800.000
             UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194.00    25 08   601 98    0.00     0 00   602.25    0.26     2 05     0 00   593 00
   17390     3199.   12976    1215     1782     2807     556.       3        0     591 70
     0 00     1.80     4.62    2 19    0 040    0 030    0 040    0 000   576 90   310 21
 0.000270     29.      29       29        2        0        2     0 00   686 17   996 38


*SECNO 594 000
3280 CROSS SECTION    594.00 EXTENDED      1 27 FEET


3470 ENCROACHMENT STATIONS=     325 5     1023 0  TYPE=      1  TARGET=     750 000
   594 00    21 87   602 04    0 00    599 09   602.39    0.35     0 10     0 04   590.07
   17390.    2762    13765     863.    3872     2598.    1255      63        7     589 57
     0 03     0 71     5.30    0 69    0.150    0 030    0.150    0.000   580 17   325 50
 0.000226     420.     400.    385.       2        0        0     0 00   694.44  1019.94
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************
```

T1
T2
T3

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 4 | 0. | 0. | 0 000000 | 0 00 | 0.0 | 0 | 599 700 | 0 000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | 0 000 | -1 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 1150 000
3280 CROSS SECTION   1150 00 EXTENDED      0 32 FEET


3470 ENCROACHMENT STATIONS=     725 4     911 4  TYPE=     1  TARGET=     200 000
  1150.00    20 92   602 70    0 00   599.28   603.34    0 64     0 00     0 01   591 68
   16040       41    15911      88      195     2471      366      125       12    591 18
     0 05     0.21     6 44    0.24    0 400    0 025    0.400    0.000   581 78   725 40
 0.000248       7        7       7        1        0        0     0 00   186 00   911.40


*SECNO 1180.000

3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603.40 ELREA=      603.40

  1180 00    20 59   602 69    0.00   599.24   603 37    0 68     0.01     0 02   601 00
   16040        0    16040       0        0    2429.       0      127       12    600 90
     0.05     0.00     6 60    0 00    0.000    0 025    0 000    0 000   582 10   735 08
 0.000672      30       30      30        2        0        0     0 00   173 90   908 98


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.56      3 04      0 00    173 90     0 00   2121.10     0 00    582 10    582 10

*SECNO 1223.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    604 08    603.37     0.00      923     15093.     2121.     3287       601 00    603 40


3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000
             16 MILE RD  US
  1223 00    21.42   603.52    0 00   599.27   603 92    0 40     0 55     0 00   601.00
   16040.    1421.   13946.    674.    2013.    2575     829      131.       13    600 90
     0.05     0 71     5.42    0.81    0 150    0 025    0 150    0 000   582 10   423 00
 0 000418     43.       43      43        2        0        2     0 00   597 21  1020 21
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 1039 000

3470 ENCROACHMENT STATIONS=     706 8     930 0  TYPE=     1  TARGET=     240 000
  1039.00    18 84    601.94    0 00    599 08    602 74    0 80      0 13      0 23    593.00
   16040       74      15845     121.      294      2192      445       118       12      592 50
     0.05    0 25      7 23     0 27    0 400     0 025    0 400     0 000    583 10    706 80
 0.000367     465.      445      430.        2         0        0      0.00    223 20    930.00

*SECNO 1100 000

3470 ENCROACHMENT STATIONS=     418 5    1023.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602 40 ELREA=      602 40

             16 MILE RD  DS
  1100 00    20 45    602 15    0 00    599 17    602 81    0 66      0 03      0 04    601 70
   16040.      0      16040       0         0      2456       0       122       12      601 00
     0.05    0.00      6 53    0 00    0.000     0 025    0 000     0 000    581 70    726 80
 0 00067B      61        61       61         2         0        0     0 00    174 38    901 17


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 56      3 02      0 00    174 40     0.00    2318 40     0 00    581 70    581.70

*SECNO 1143 000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
    603.31    602 81     0 00        2     16143      2318      3488       601 70    603 10


3470 ENCROACHMENT STATIONS=     418 5     902 1  TYPE=     1  TARGET=     520.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 10 ELREA=      601 00

  1143.00    21.01    602.71    0 00    599.17    603.32    0 61      0 51      0 00    601 70
   16040.      0.      16040       0.        0.      2553       5       124       12      601.00
     0 05    0.00      6 28    0.04    0.000     0 025    0 400     0 000    581.70    726 80
 0.000596     43.       43.      43.        3         0        2     0 00    175 30    902.10
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     420.0     1500 0  TYPE=     1  TARGET=    -420 000
  7470 00    20 95    605.05    0 00    600.88    605.18    0 13      0 20      0 03    595 70
   14820.    5094.     9671      55.     3416      2804      91       690.      81      602 00
     0.46     1 49     3.45    0 60     0.035     0 025    0 030     0 000    584 10    420 00
 0 000077    1830      1710     1750        2         0        0      0 00    715 58   1135 58


*SECNO 8270 000

3470 ENCROACHMENT STATIONS=     130,5     1305.0  TYPE=     1  TARGET=    -150.000
  8270.00    20.69    605 09    0 00    600 93    605 26    0 18      0.07      0 01    596 00
   14820.    5106      9672      43      3135      2403      63       797       95      602 30
     0 53     1.63     4 02    0 68     0 035     0 025    0 030    0.000    584.40    130 50
 0.000109    800.      760      840        2         0        0     0.00    846.61    977 11


CCHV=   0.300 CEHV=   0 500
*SECNO 8340 000

3470 ENCROACHMENT STATIONS=      95 7     1252 8  TYPE=     1  TARGET=    -110 000
  8340 00    20 75    605 15    0.00    600 99    605 29    0 14      0 01      0 01    595 80
   14820     6229.     8538.     54      3011      2456      59       806       96      602.50
     0 54     2 07     3.48    0.91     0 035     0 025    0 030    0 000    584 40     95.70
 0 000184     70        70.      70        2         0        0      0 00    839 09    934 79


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 79      2.80      0.00    161 00      0.00   1680.00     0 00    584 40    584 40

*SECNO 8394 000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    607 31    605 29     0 00     7632      7222      1680     2576.      600 40    600 90


3470 ENCROACHMENT STATIONS=     104.4     1252.8  TYPE=     1  TARGET=    -120.000
             15 MILE RO  US
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST


CCHV=   0 300 CEHV=   0.500
*SECNO 1323.000
3280 CROSS SECTION   1323 00 EXTENDED      1 05 FEET


3470 ENCROACHMENT STATIONS=     329.0     940.0  TYPE=     1  TARGET=     650.000
  1323.00    21.65   603.80    0 00   599 62   604 00    0.19     0 02     0.06   592 05
   16040.    4236.   10817     987     3004     2596     598      144.      14.    591 55
     0 06     1 41     4 17    1 65    0 040    0.025   0 040    0 000   582 15   329 00
 0 000099    100.     100      100        2        0       0     0 00   611 00   940 00


CCHV=   0 100 CEHV=   0 300
*SECNO 2223.000

3470 ENCROACHMENT STATIONS=       0.0     600 0  TYPE=     1  TARGET=     599 999
  2223 00    21.15   603 71    0 00   599 67   604 22    0 51     0 13     0 10   598 46
   16040.     102    15508     430      209     2663     317      240       23     593 26
     0.11    0.49     5 82    1 36    0 110    0 025   0 060    0 000   582 56   243 42
 0.000212    870      900     940        2        0       0     0.00   250 38   493 80


CCHV=   0 100 CEHV=   0 300
*SECNO 3180.000

3470 ENCROACHMENT STATIONS=       0.0     600 0  TYPE=     1  TARGET=     599.999
  3180 00    20.93   603 93    0.00   599.86   604 42    0 49     0 20     0 00   598.90
   16040      255.   15170     615      197     2632     307.     310       28     593 70
     0.15    1.29     5 76    2.00    0 040    0 025   0.040    0 000   583 00   244 05
 0 000211    925.     957     995        2        0       0     0 00   249 05   493 10


*SECNO 5720 000

3470 ENCROACHMENT STATIONS=       0 0     800 0  TYPE=     1  TARGET=     799 999
  5720.00    20 32   604 52    0 00   600.42   604 95    0 43     0 52     0 01   599.30
   14820      577    14177.     66      516     2645      93.     496       54     600 90
     0 29    1.12     5 36    0 71    0.040    0 025   0 040    0 000   584 20    90 08
 0.000199    2600     2540    2500        2        0       0     0 00   609 92   700 00


*SECNO 7470 000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

*SECNO 9676.000

3370 NORMAL BRIDGE,NRO= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=     200.0     1150 0  TYPE=     1  TARGET=     -200 000
  9676 00    20 22    605 62    0 00    601 71    605 94    0 32      0 01      0 00    603 30
   16560     5425.    11084      52      1896      2142      57       957       117      603 40
     0.64    2 86      5.17    0 91    0 025     0.020    0 025    0 000    585.40    200.00
 0 000461     22        22      22        0         0        0  -2103 34    860 09   1060 09

*SECNO 9677.000

3470 ENCROACHMENT STATIONS=     280.0     1210 0  TYPE=     1  TARGET=     930 000
  9677 00    20.43    605.83    0 00    602 07    605.99    0 16      0 00      0.05    597 80
   16560     5688     10762     110.     3768      2830     183       957       117      602 20
     0 64    1 51      3.80    0.60    0 035     0 025    0 040    0 000    585 40    280 00
 0.000100      1         1       1        2         0        0      0 00    855 94   1135 94

*SECNO 9777.000

3470 ENCROACHMENT STATIONS=     250 0     1260 0  TYPE=     1  TARGET=     -250 000
  9777 00    20 39    605 84    0 00    602 08    606 00    0.16      0 01      0 00    597 85
   16560.    5715     10738     107     3830      2825     180       972       119      602 25
     0.65    1 49      3 80    0 60    0 035     0 025    0 040    0 000    585 45    250 00
 0 000100     100       100     100        1         0        0      0 00    884 99   1134 99

CCHV=   0 100 CEHV=   0 300
*SECNO 11596 000
 11596 00    19 52    605.92    0.00    602 32    606 37    0 45      0 28      0 09    607 60
   16560.      0.     15099.   1461        0      2681    1196      1200       150.     600 70
     0 75    0 00      5.63    1.22    0.000     0 025    0 040    0 000    586 40    815 84
 0 000267    1975.     1819    1660        2         0        0      0 00    618 21   1434 06

*SECNO 13196.000

3470 ENCROACHMENT STATIONS=       0.0      538.0  TYPE=     1  TARGET=     537 999
 13196.00    20.90    606.40    0.00    602 81    606 82    0 41      0.44      0 00100000 30
   16560        0     15213   1347.       0.      2836     896.     1344.      172      595 90
     0.84    0.00      5.36    1 50    0 000     0.025   0.045    0.000    585 50     15 71
 0 000282    1320      1600   1760.        2         0        0      0 00    522 29    538 00
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  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CDRAR     TOPWID     ENDST

 8394 00    21.14     605 54     0 00    601.64    605 66     0 12      0 38      0 00    595 80
  14820.    6369       8378.     74.      3242      2519.     84.       813       97      602 50
   0 54      1 96      3 33      0.88     0 035     0.025    0 030     0 000    584 40    104 40
0 000155     54.        54       54         2         0        4      0 00    846 75    951 15


*SECNO 8494 000

3470 ENCROACHMENT STATIONS=      139.2     1305 0  TYPE=      1  TARGET=     -160 000
  8494.00   21 01    605 51     0 00    601 62    605 72    0 20      0 01      0 04    596 10
  16560     5884      10612      64      3340      2449      84        826       99      602 40
   0 55      1 76      4 33      0.77     0.035    0 025    0 030     0 000    584 50    139.20
0.000123     100        100     100.        2         0        0      0 00    851 52    990 72


*SECNO 9594 000

3470 ENCROACHMENT STATIONS=      260.0     1260 0  TYPE=      1  TARGET=     -260 000
  9594.00   19 96    605 66     0.00    601 79    605 84    0.18      0 11      0 01    598 10
  16560.    5438      11014     108      3544.     2754.     137       945.      115      602 50
   0 63      1 53      4 00      0.79     0 035    0 025    0 030     0 000    585 70    260.00
0.000115     630       1100.    1520         0         0        0      0 00    861 39   1121 39


*SECNO 9653 000

3470 ENCROACHMENT STATIONS=      260.0     1210 0  TYPE=      1  TARGET=      950 000
  9653 00   20 29    605.69     0 00    601 83    605 85    0 16      0 01      0.00    597.80
  16560.    5615.     10812     133.     3731      2807     167       954.      116      602 20
   0.64      1 51      3.85     0 79     0 035    0 025    0 030     0 000    585 40    260 00
0.000104     59.        59       59         1         0        0      0 00    871 14   1131 14


*SECNO 9654 000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601.40 MAX ELLC=  603 40


3470 ENCROACHMENT STATIONS=      200 0     1150 0  TYPE=      1  TARGET=     -200.000
  9654 00   20 21    605 61     0 00    601 71    605 93    0.32      0 00      0.08    603 30
  16560.    5388      11121      51.     1893      2142      56.       954      116      603.40
   0 64      2 85      5 19     0 90     0 025    0.020    0 025     0 000    585 40    200 00
0 000457      1.         1        1         2         0        0 -2102 55    859 93   1059 93
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


*SECNO 16768 000
 16768 00    20.17    608.17     0 00    604 03    608 39     0 22      0 06      0 09    597 70
   14260     1393.    10173.    2694      773      2392      1445      1595       205      591 10
     1 02     1 80      4 25     1 86    0.028     0 025     0 030     0 000    588 00     43 12
 0 000105     400.      350      300        2         0         0      0 00    529.88    573 00


*SECNO 17168.000
3280 CROSS SECTION  17168.00 EXTENDED      2.33 FEET

 17168.00    20 33    608 33     0.00    604 22    608 46     0 12      0 04      0 03    598 20
   14260     7351.     6090.     819      3100      1798.     573.      1643      210.      599 10
     1 06     2.37      3.39     1 43    0.025     0 025     0 028     0.000    588 00     37 19
 0.000075     600.      400.     100        2         0         0      0.00    551.71    588 90


*SECNO 17268.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17268.00 EXTENDED      1 89 FEET

 17268.00    21.79    608.29     0.00    604.23    608 52     0 23      0 01      0.06    608.80
   14260.     272.    13932       57.      284      3544.      70      1654      211.      609.20
     1 07     0.96      3.93     0 81    0.025     0 025     0 028     0.000    586 50     83 53
 0.000219     100       100      100.        2         0         0      0 00    542.48    723 30


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.60      3 04      0 00    191 80     0 00    3230 00     0 00    586 50    586 50

*SECNO 17368 000

3265 DIVIDED FLOW

3280 CROSS SECTION  17368.00 EXTENDED      2.04 FEET

PRESSURE AND WEIR FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECND 14796 000
 14796 00    19 44    606.74     0 00    603 18    607 40     0.66      0 51      0.07    621 70
   16560.      0.     16560        0         0     2540.        0     1459.      185      613.10
     0 91    0 00      6 52     0 00    0 000     0 025    0.000     0.000    587 30    102 58
 0.000369   1600.     1600      1600         2         0        0      0.00    177 42    280 00


*SECNO 16096.000
 16096 00    20.61    607.41     0 00    603.70    607 82    0 41      0.40      0 03    613 40
   14260.      0.     13991      269         0      2699     391      1544       197      604 60
     0 98    0 00      5 18     0 69    0 000     0 025    0 040     0 000    586 80    114 31
 0.000247    1200      1300     1600         2         0        0      0 00    545 69    660 00


CCHV=   0.300 CEHV=   0.500
*SECNO 16396 000
3280 CROSS SECTION  16396 00 EXTENDED      0 24 FEET

 16396.00    19 94    607 44     0 00    603.76    607.97    0 53      0.09      0 06    606 70
   14260.       5     13971.     284        12      2365     329      1564       201      605 10
     0.99    0 42      5.91     0 86    0 035     0 025    0 040     0 000    587 50    144 14
 0.000371     300.      300      300         2         0        0      0 00    455 86    600 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 62      3 07      0 00    290 00     0 00    2030 00     0 00    587 50    587 50

*SECNO 16418 000
3280 CROSS SECTION  16418 00 EXTENDED      0 55 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGI.WC      H3        QWEIR     QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                               AREA
    608.69    607.97     0 00      2796     11450     2030.     5162      605 30    606.10


 16418 00    20.24    607 74     0 00    603.77    608 24    0 50      0 27      0 00    606 70
   14260.      12     13860.     388        24      2410     412      1566       201      605 10
     0 99    0 51      5 75     0.94    0 035     0 025    0 040     0 000    587 50    130 83
 0 000343      22        22       22         2         0        3      0 00    469 17    600 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICDNT     CORAR     TOPWID      ENDST

 21119 00    20.33     609 03     0 00     604.98    609 32     0 29      0 13      0 03    607 30
   14260     2443.     11817       0       1211      2547       0       2019       263      609 30
     1 35     2 02      4 64     0.00      0 028     0 025    0 000     0 000    588 70     68 34
 0.000180     800       900      900          2         0        0      0 00    535 75    699 41


*SECNO 22069.000

3265 DIVIDED FLOW

 22069.00    20.91     609.11     0.00     605 20    609.61     0 50      0.22      0 06    609 50
   14260.      59      14197.      4          69.     2489      10       2086      271.     608.30
     1.39     0.86      5 70     0.42      0 028     0.025    0 035     0.000    588 20      0.00
 0 000334     800       950      900.          2         0        0      0 00    304 24    324 45


*SECNO 22419.000
3280 CROSS SECTION  22419 00 EXTENDED      9 69 FEET

 22419.00    21 39     609 59     0 00     605 58    609 70     0 11      0 05      0 04    601 80
   13000.    5787.      6998.     215.      3158      2188      181       2120       275      603 80
     1.43     1.83      3.20     1 19      0 028     0 025    0 028     0 000    588 20      0.00
 0.000069     400.      350      250.          2         0        0      0 00    556 64    556 64


*SECNO 23319.000

3265 DIVIDED FLOW

 23319.00    20 99     609.49     0.00     605 54    609 88     0 39      0.10      0 09    606 60
   13000.     703      11384      913        563      2134      404       2204       286      602 20
     1 48     1.25      5 33     2 26      0 028     0 025    0 028     0 000    588 50    128 50
 0.000215     800       900      875          2         0        0      0 00    576 76    836 75


*SECNO 23569 000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       0.0      750.0  TYPE=      1  TARGET=      749.999
 23569.00    21.36     609.76     0 00     605 82    609 94     0.18      0 04      0 02    610.00
    8680.     349.      8331.       0        498      2408.      0.       2221.      288.     610.40
     1.50     0 70      3.46     0.00      0 030     0 025    0 000     0 000    588.40      0.00
 0 000106     150       250.     300          2         0        0      0.00    598 08    698 51
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLDSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 608 77 | 608 52 | 0 00 | 1622 | 12648 | 3230 | 3932. | 607 00 | 607.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17368 00 | 21 94 | 608 44 | 0.00 | 604 25 | 608 67 | 0 23 | 0 15 | 0 00 | 608 80 |
| 14260 | 331 | 13860 | 70 | 326. | 3573. | 83 | 1663 | 212 | 609 20 |
| 1.08 | 1 01 | 3.88 | 0 85 | 0 025 | 0 025 | 0 028 | 0 000 | 586 50 | 80 97 |
| 0 000211 | 100 | 100 | 100 | 2 | 0 | 4 | 0 00 | 561 02 | 723 30 |

*SECNO 18244.000
3280 CROSS SECTION 18244.00 EXTENDED 0 18 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18244 00 | 21 28 | 608.58 | 0 00 | 604 35 | 608 81 | 0 22 | 0.13 | 0 00 | 602 80 |
| 14260 | 1708. | 10415 | 2137. | 944 | 2426. | 1177 | 1746 | 224 | 598 40 |
| 1 14 | 1.81 | 4.29 | 1 82 | 0 025 | 0 025 | 0 028 | 0 000 | 587 30 | 35 79 |
| 0.000120 | 150. | 876 | 1400 | 2 | 0 | 0 | 0 00 | 708 61 | 744.40 |

CCHV= 0.100 CEHV= 0 300
*SECNO 19119.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19119 00 | 20.52 | 608 62 | 0.00 | 604.53 | 608 98 | 0 36 | 0 13 | 0 04 | 609 20 |
| 14260 | 0 | 13146 | 1114 | 0. | 2643 | 870 | 1825 | 234 | 599 60 |
| 1 19 | 0 00 | 4.97 | 1 28 | 0 000 | 0 025 | 0 045 | 0 000 | 588 10 | 125 01 |
| 0 000197 | 850 | 875. | 800. | 2 | 0 | 0 | 0 00 | 422 51 | 547.52 |

*SECNO 20219 000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20219.00 | 21 29 | 608.99 | 0 00 | 604 90 | 609 16 | 0 17 | 0 16 | 0.02 | 620.70 |
| 14260 | 0. | 13098 | 1162 | 0 | 3773. | 1220. | 1930 | 249 | 606 90 |
| 1.29 | 0.00 | 3 47 | 0.95 | 0 000 | 0 025 | 0.040 | 0 000 | 587 70 | 31.81 |
| 0.000118 | 1100. | 1100 | 1000. | 2 | 0 | 0 | 0 00 | 821 07 | 909 15 |

*SECNO 21119.000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

| SB | XK | XKOR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1 68 | 3 04 | 0 00 | 104.00 | 0 00 | 1220 00 | 0 00 | 589 50 | 589 50 |

*SECNO 26025.000

3265 DIVIDED FLOW

3280 CROSS SECTION 26025 00 EXTENDED 1 12 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 611 31 | 610.51 | 0 00 | 528 | 8195. | 1220 | 1914 | 607 90 | 610 00 |

3470 ENCROACHMENT STATIONS= 287.0 750.0 TYPE= 1 TARGET= 463 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26025 00 | 21 22 | 610 72 | 0.00 | 606 32 | 611 16 | 0.44 | 0 65 | 0 00 | 604 90 |
| 8680. | 232 | 8259 | 188 | 164. | 1514 | 103 | 2338 | 306 | 604 00 |
| 1 64 | 1 42 | 5 45 | 1.82 | 0 028 | 0 025 | 0 025 | 0 000 | 589 50 | 287 00 |
| 0 000538 | 106 | 106 | 106 | 2 | 0 | 2 | 0 00 | 435 04 | 750.00 |

*SECNO 26125 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 260 0 750.0 TYPE= 1 TARGET= 490 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26125 00 | 21.29 | 610 78 | 0 00 | 606 48 | 611.20 | 0 43 | 0 04 | 0 00 | 609 89 |
| 8680. | 14 | 8659. | 7. | 30 | 1652 | 13 | 2342 | 307 | 609 99 |
| 1.64 | 0.47 | 5 24 | 0 54 | 0.028 | 0 025 | 0 025 | 0 000 | 589 49 | 260 00 |
| 0 000279 | 100 | 100 | 100 | 0 | 0 | 0 | 0 00 | 273 36 | 660 96 |

CCHV= 0.100 CEHV= 0.300
*SECNO 26900.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26900.00 | 21.65 | 611 05 | 0.00 | 606 90 | 611.42 | 0 37 | 0 21 | 0.01 | 610 00 |
| 8680. | 4. | 8467 | 209. | 7. | 1710. | 279 | 2375 | 313 | 608 80 |
| 1.69 | 0.52 | 4 95 | 0 75 | 0 030 | 0.028 | 0.040 | 0.000 | 589 40 | 164 03 |
| 0 000262 | 800. | 775 | 725. | 2 | 0 | 0 | 0 00 | 387 97 | 552.00 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0 100 CEHV=   0 300
*SECNO 24369 000

3470 ENCROACHMENT STATIONS=       0 0      500 0  TYPE=      1  TARGET=      499 999
 24369.00    20 89    609.79    0 00    605.89    610 08    0 29     0 10     0 03    605 50
    8680      228.     8452       0       206      1937.     1.      2268      297     609 50
     1 55     1 11     4 36    0 21     0 028     0 025   0 025    0 000    588 90    195 38
 0.000158     850      800      900         2         0       0     0 00    283.51    478 89


*SECNO 25819 000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     260 0      775 0  TYPE=      1  TARGET=      515 000
 25819.00    21.19    609.99    0 00    606 21    610 42    0 43     0 30     0.04    609 20
    8680       10      8664      6.       20      1638      13      2331.     305     609 30
     1 63     0.48     5.29    0 45     0 028     0 025   0 025    0 000    588.80    447 73
 0 000287    1350     1450.    1500         1         0       0     0 00    227 21    775 00


CCHV=   0 300 CEHV=   0 500
*SECNO 25919 000

3265 DIVIDED FLOW

3280 CROSS SECTION  25919.00 EXTENDED      0 38 FEET


3470 ENCROACHMENT STATIONS=     287 0      750 0  TYPE=      1  TARGET=      463 000
 25919 00    20.48    609 98    0 00    606 21    610 51    0 53     0 04     0 05    604 90
    8680.     107.     8466     107.       59      1438      44      2334      306     604 00
     1.63     1.80     5.89    2 44     0.028     0 025   0 025    0 000    589 50    432 71
 0.000672     100      100      100         2         0       0     0 00    216.00    750 00


SPECIAL BRIDGE
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 28331.000
3280 CROSS SECTION  28331 00 EXTENDED      4 52 FEET

 28331 00    21.42    612.12     0.00    607 53    612.40     0 28      0.06      0 01    610 10
    8680       56      8299     326.       77      1914      385      2444.      322      611.10
     1.78     0.72      4 34     0 85    0.028     0.025    0 040     0.000    590 70    175 02
 0 000167     300       300.     300         2         0        0      0 00    424 99    600 00


*SECNO 28431 000
3280 CROSS SECTION  28431 00 EXTENDED      3.62 FEET

 28431.00    20.02    612 12     0.00    607.51    612 48     0 36      0 03      0 04    607 60
    8680.     177      7982.     522        96      1607      303      2449       323      606 80
     1.78     1 84      4 97     1 72    0.028     0 025    0 040     0 000    592 10    207 55
 0.000891     100       100      100         2         0        0      0 00    392 45    600 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      3.04      0.00    117 00      0.00   1440.00     0.00    592 10    592 10

*SECNO 28449.000
3280 CROSS SECTION  28449 00 EXTENDED      4 20 FEET

PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    612.99    612 48     0.00         0     8680.     1440      2188      610 80    613 10


 28449 00    20.60    612.70     0 00    607.54    612.99     0 29      0 51      0.00    607 60
    8680      312      7646     722.      168      1674.      409      2450       323      606 80
     1 78     1 85      4.57     1 77    0 028     0 025    0.040     0 000    592.10    140.33
 0 000712      18        18       18         2         0        0      0 00    459 67    600 00


*SECNO 28549 000

3265 DIVIDED FLOW
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLDBL     XLCH      XLDBR     ITRIAL    IDC       ICDNT     CDRAR     TOPWID      ENDST

'SECNO 27150 000

3470 ENCROACHMENT STATIONS=      0 0     375 0  TYPE=     1  TARGET=     374 999
27150.00    20 62    611.12    0 00    606 96    611.48    0 36      0 06      0 00    604 70
  8680.      284      7845     551      143.      1559      420      2387       315     604 60
   1.70     1 98      5.03    1.31    0 030     0 025    0 040     0 000    590 50    109 00
0.000186     200       250     300        0         0        0     0 00    242 07    351 07

'SECNO 27900 000
27900 00    21 38    611 28    0 00    607 26    611 62    0 34      0 15      0 00    605 70
  8680       434      8237      10      239       1719      23       2423       319      609.80
   1 75     1 82      4 79    0.43    0 030     0 025    0 040     0 000    589 90    117 27
0.000203     800       750     700        0         0        0     0 00    213 03    330 31

CHV=   0 300 CEHV=   0 500
'SECND 28000 000
28000 00    21 19    611.29    0.00    607 28    611 66    0 37      0 03      0 02    605.60
  8680.      579      8051      50      247.      1599      49       2427       319.     606 50
   1 75     2.35      5 04    1.03    0 030     0 025    0 040     0 000    590 10    110 66
0 000337    100.       100     100        0         0        0     0 00    203 27    313 93

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      ROLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 54      3 04      0.00    116 00     0 00    1320 00     0 00    590 10    590 10

'SECNO 28031.000
PRESSURE FLOW

EGPRS       EGLWC       H3        QWEIR     QPR       BAREA    TRAPEZDID    ELLC      ELTRO
                                                                  AREA
  612 33    611.66      0 00        0      8680.      1320      2158      608 70    613 20

28031 00    21.90     612 00    0 00    607.29    612.33    0 32      0.66      0 00    605 60
  8680.      664      7937      79      297.      1677.      80       2428       319.     606 50
   1 76     2 24      4 73    0 99    0.030     0 025    0 040     0 000    590 10     44 58
0 000282     31        31      31         2         0        0     0 00    282 86    327 44
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLDBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1 55 | 3.04 | 0 00 | 61.00 | 0 00 | 954 00 | 0 00 | 592 40 | 592 40 |

*SECNO 31350 000
3280 CROSS SECTION 31350.00 EXTENDED 0.26 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 615 13 | 613 61 | 0 00 | 662 | 8028 | 954 | 1049 | 609.60 | 613 70 |

3470 ENCROACHMENT STATIONS= 50 0 500.0 TYPE= 1 TARGET= 450 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31350 00 | 22.06 | 614 46 | 0.00 | 608 48 | 614 84 | 0 38 | 1.23 | 0 00 | 598 90 |
| 8680. | 864 | 6763 | 1053 | 278 | 1248. | 427 | 2601 | 341 | 595 90 |
| 1.99 | 3.11 | 5 42 | 2 47 | 0 028 | 0 025 | 0 040 | 0 000 | 592 40 | 264 25 |
| 0 000330 | 51 | 51 | 51 | 2 | 0 | 2 | 0.00 | 235 75 | 500 00 |

*SECNO 31430 000
3280 CROSS SECTION 31430 00 EXTENDED 0 29 FEET

3470 ENCROACHMENT STATIONS= 50 0 500.0 TYPE= 1 TARGET= 450 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31430 00 | 21.98 | 614 48 | 0 00 | 608 88 | 614 87 | 0 39 | 0.03 | 0 00 | 598 90 |
| 8680. | 905 | 6603 | 1172 | 279. | 1200 | 443 | 2605 | 341 | 595 60 |
| 1 99 | 3.24 | 5 50 | 2 64 | 0 028 | 0 025 | 0 040 | 0 000 | 592 50 | 264 17 |
| 0.000387 | 80. | 80 | 80 | 0 | 0 | 0 | 0 00 | 235 83 | 500 00 |

SPECIAL BRIDGE

| SB | XK | XKOR | CDFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1.55 | 3 04 | 0.00 | 61 00 | 0 00 | 977.00 | 0 00 | 592 50 | 592 50 |

*SECNO 31483.000
3280 CROSS SECTION 31483.00 EXTENDED 1 37 FEET

```
   SECND     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3280 CROSS SECTION  28549 00 EXTENDED      3 77 FEET

 28549 00    20.67    612.71     0 00    607 71    613 04     0 33      0 04      0 02    611.44
    8680.      17      8462      202       30.      1813      239      2455       324      612.44
     1.79     0.57     4 67     0 84     0 028     0 025    0.040     0 000    592 04    219 35
 0 000208     100      100      100         2         0        0      0 00    345 45    600 00

CCHV=   0 100 CEHV=   0 300
*SECNO 29749 000
3280 CROSS SECTION  29749 00 EXTENDED      0.37 FEET

3470 ENCROACHMENT STATIONS=       0 0     750 0  TYPE=     1  TARGET=     749 999
 29749 00    21.77    613 07    0.00    608 32    613 24    0 17      0 18      0 02    612 40
    8680        3      8576     102.       10      2549     135      2520       332      609 70
     1 89     0 28     3 36     0 75    0.028     0.025   0 040     0 000    591 30    465 50
 0 000116    1100     1200.    1150.        2         0        0      0 00    284 49    750 00

*SECNO 30474.000
 30474 00    21 37    613.12    0 00    608 46    613 36    0 24      0.10      0 02    613 55
    8680        0      8638.     42         0      2194      84      2561       337      611 35
     1 94     0 00     3 94    0.50    0 000     0 025   0 040     0 000    591.75    398 52
 0 000151     700      725      700         2         0        0      0 00    282 43    680 95

*SECNO 31199 000

3470 ENCROACHMENT STATIONS=       0 0     480 0  TYPE=     1  TARGET=     479 999
 31199.00    20 95    613 15    0 00    608 58    613 53    0 38      0 14      0 04    615 00
    8680.       0.      8680       0         0      1747       0      2595       340      613 30
     1.98     0 00     4.97    0.00    0 000     0 025   0 000     0 000    592 20    304 26
 0 000239     700.      725     700.         2         0        0     0.00    130.43    434.68

CCHV=   0.300 CEHV=   0 500
*SECNO 31299.000

3470 ENCROACHMENT STATIONS=      50 0     500 0  TYPE=     1  TARGET=     450 000
 31299.00    20.74    613 14    0 00    608 56    613.61    0 48      0 03      0 05    598 90
    8680.     760.      6988     932       233      1167     316      2599       341      595 90
     1.99     3.26     5.99    2 95    0.028     0 025   0 040     0 000    592 40    267 30
 0 000440     100      100     100.         2         0        0      0 00    130 36    397 65
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1 50 | 3 09 | 0 00 | 103 00 | 0.00 | 1520 00 | 0.00 | 593 60 | 593 60 |

*SECNO 33438 000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 616 69 | 616 17 | 0 00 | 2935 | 5746 | 1520 | 1988 | 612 90 | 613.00 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33438 00 | 22 43 | 616 03 | 0 00 | 610 07 | 616 27 | 0 23 | 0 10 | 0 00 | 606 70 |
| 8680. | 305. | 7621. | 754 | 220 | 1861 | 565 | 2715 | 355 | 604 60 |
| 2 14 | 1.39 | 4.10 | 1 34 | 0.025 | 0 025 | 0 035 | 0 000 | 593 60 | 252 11 |
| 0 000143 | 5. | 5 | 5 | 2 | 0 | 4 | 0 00 | 383 85 | 635 96 |

*SECNO 33538 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 33538.00 | 22.48 | 616 07 | 0.00 | 610.17 | 616 28 | 0 22 | 0 01 | 0 00 | 613 69 |
| 8680 | 79 | 8233. | 368 | 112 | 2149 | 378 | 2721 | 356 | 610 99 |
| 2.15 | 0.70 | 3 83 | 0 97 | 0 025 | 0 025 | 0 035 | 0 000 | 593 59 | 260 35 |
| 0 000112 | 100. | 100. | 100 | 1 | 0 | 0 | 0 00 | 371 30 | 631 65 |

CCHV= 0 100 CEHV= 0 300
*SECNO 34888.000
3280 CROSS SECTION 34888 00 EXTENDED 1 52 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 34888 00 | 22 72 | 616 22 | 0 00 | 610 56 | 616 47 | 0 25 | 0 18 | 0 01 | 614 00 |
| 8680 | 187 | 8493 | 0. | 184 | 2079 | 2. | 2797 | 366. | 616 00 |
| 2.25 | 1 01 | 4 09 | 0 12 | 0 025 | 0 025 | 0 035 | 0 000 | 593 50 | 0 00 |
| 0 000154 | 1400 | 1350 | 1300 | 2 | 0 | 0 | 0 00 | 281 59 | 281 59 |

*SECND 37038 000

3265 DIVIDED FLOW

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 37038.00 | 22.34 | 616.54 | 0 00 | 611.26 | 616.83 | 0.29 | 0.35 | 0 01 | 617 50 |
| 8680. | 0 | 8680. | 0 | 2 | 2017 | 0. | 2903. | 377 | 617.80 |
| 2 38 | 0.13 | 4.30 | 0.00 | 0 025 | 0 025 | 0 000 | 0 000 | 594.20 | 25.32 |
| 0 000169 | 2100 | 2150 | 2200 | 2 | 0 | 0 | 0 00 | 166.88 | 281.95 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC       H3        QWEIR       QPR        BAREA   TRAPEZOID      ELLC      ELTRD
                                                                    AREA
    616 38    614 87      0 00      1182       7453.       977      1122       610 90    614.90


3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=     1  TARGET=     450 000
 31483 00    23.07   615.57     0 00   608 77   615 88     0 31     1 01     0 00   598 90
    8680.     982.    6351      1347      330     1265.     594     2607      342     595.60
     2 00     2 98     5 02     2 27    0.028     0 025    C.040    0 000   592.50   224 98
 0 000300      53       53       53.        2         0        2     0 00   275 01   500 00


*SECNO 31583.000
3280 CROSS SECTION  31583 00 EXTENDED      1.09 FEET


3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=     1  TARGET=     450.000
 31583 00    23.09   615.64     0 00   609 46   615.92     0 28     0 02     0 01   615 35
    8680.       1     8607.      72.        3.     2031      103     2612.      342     613.65
     2 00     0 20     4 24     0 70    0.025     0 025    0 035    0 000   592 55   280 71
 0 000149     100      100.     100.        2         0        0     0 00   219 29   500 00


CCHV=   0.100 CEHV=   0.300
*SECNO 33333 000
 33333 00    22 53   615 93     0.00   610.07   616 15     0.21     0 22     0 01   613 50
    8680.      84     8219.     377.      118     2158      387     2709.      354     610 80
     2.14     0 71     3.81     0 97    0.025     0 025    0 035    0.000   593 40   257 75
 0.000110    1700     1750     1800        2         0        0     0 00   375 53   633.28


CCHV=   0.300 CEHV=   0 500
*SECNO 33433 000
 33433 00    22.33   615.93     0 00   610 07   616 17     0 24     0.01     0 01   606.70
    8680.     292     7651.     737      209     1851      550.    2715      355     604.60
     2.14     1.40     4 13     1 34    0 025     0 025    0 035    0 000   593 60   266 10
 0.000147     100      100.     100.        1         0        0     0 00   367 51   633 61
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     241.0      795.9  TYPE=     4  TARGET=      0 016
 23569.00    21.71   610 11    0.00    610 06   610 28    0 17      0 04     0 02    610 00
    8680.     351.    8329.     0.       447     2468.     0.      2144      211      610 40
     1.49     0.79     3.37    0.01    0 030    0 025   0 028     0.000   588 40    241.02
 0.000099     150.     250     300        2        0       0      0 00   459.26    795 92


CCHV=   0 100 CEHV=   0.300
*SECNO 24369.000

3470 ENCROACHMENT STATIONS=       0 0      500.0  TYPE=     1  TARGET=     499 999
 24369.00    21.24   610.14    0.00   610.08   610 41    0 27      0 10     0 03    605.50
    8680      287.    8391.     2.      265.     1982.     5      2192      218      609 50
     1.55     1.09     4.23    0 33    0.028    0.025   0 025    0.000   588 90    149 03
 0 000144     850.     800     900        2        0       0      0 00   338 16    487 19


*SECNO 25819.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     260.0      775.0  TYPE=     1  TARGET=     515.000
 25819.00    21 52   610.32    0.00   610.26   610 72    0 41      0.28     0 04    609 20
    8680       30.    8631.     19.      60.     1680     34      2259.     230      609 30
     1 63     0.50     5.14    0.56    0 028    0.025   0.025    0 000   588.80    260 00
 0.000262    1350.    1450.   1500.        0        0       0      0.00   365 99    775.00


CCHV=   0 300 CEHV=   0.500
*SECNO 25919 000

3265 DIVIDED FLOW

3280 CROSS SECTION  25919.00 EXTENDED      0 71 FEET


3470 ENCROACHMENT STATIONS=     287.0      750 0  TYPE=     1  TARGET=     463.000
 25919.00    20.81   610.31    0.00   610.26   610.80    0.49      0.04     0.04    604 90
    8680.     145.    8401.    134        92     1472     64      2263.     231      604.00
     1.63     1.57     5.71    2.11    0 028    0.025   0 025    0.000   589.50    287 00
 0.000612     100.     100     100.       2        0       0      0 00   315.27    750 00
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TDPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1.68 | 3.04 | 0.00 | 104 00 | 0 00 | 1220 00 | 0 00 | 589 50 | 589 50 |

*SECND 26025 000
3280 CROSS SECTION 26025 00 EXTENDED 1.40 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZDID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 611.63 | 611.55 | 0.00 | 842 | 7890. | 1220 | 1914. | 607 90 | 610.00 |

3470 ENCROACHMENT STATIONS= 287.0 750.0 TYPE= 1 TARGET= 463 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26025.00 | 21.50 | 611.00 | 0.00 | 610 95 | 611 40 | 0 40 | 0 60 | 0.00 | 604 90 |
| 8680 | 322. | 8112 | 246. | 224 | 1544. | 140 | 2267 | 231 | 604 00 |
| 1 64 | 1.44 | 5 25 | 1 75 | 0.028 | 0.025 | 0 025 | 0 000 | 589.50 | 287 00 |
| 0.000487 | 106. | 106 | 106. | 2 | 0 | 2 | 0 00 | 463 00 | 750 00 |

*SECNO 26125 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 260 0 750 0 TYPE= 1 TARGET= 490.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26125.00 | 21.54 | 611.03 | 0.00 | 610 99 | 611 44 | 0 41 | 0 03 | 0 00 | 609.89 |
| 8680. | 33 | 8632. | 15 | 65 | 1684. | 25 | 2271 | 232 | 609 99 |
| 1.64 | 0.51 | 5.13 | 0.60 | 0.028 | 0.025 | 0 025 | 0.000 | 589 49 | 260.00 |
| 0.000260 | 100 | 100. | 100. | 2 | 0 | 0 | 0 00 | 350 99 | 750.00 |

CCHV= 0.100 CEHV= 0.300
*SECNO 26900.000
2800 NAT Q1= 5509 87 WSEL= 611.25 ENC Q1= 5509 87 WSEL= 611.35 RATIO= 0 0000
NAT Q1= 5588. RATIOS LOB,CH,ROB= 0 0008 0 9665 0.0326 WSEL= 611 35

3470 ENCROACHMENT STATIONS= 178.0 372 8 TYPE= 4 TARGET= 0 014

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 26900 00 | 21.88 | 611 28 | 0 00 | 611.25 | 611 64 | 0 37 | 0 20 | 0 00 | 610 00 |
| 8680 | 0. | 8515 | 165 | 0. | 1736. | 171 | 2304 | 237 | 608.80 |
| 1.69 | 0.00 | 4.91 | 0.96 | 0.000 | 0 028 | 0.040 | 0 000 | 589 40 | 178 00 |
| 0.000256 | 800. | 775 | 725. | 2 | 0 | 0 | 0 00 | 194 84 | 372 84 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


CCHV=   0.100 CEHV=   0.300
*SECNO 19119.000
 2800 NAT Q1=  10644.51  WSEL=    609 01  ENC Q1=  10644.51  WSEL=    609.11  RATIO=  0 0000
 NAT Q1=  10770   RATIOS LOB,CH,ROB=  0 0000  0 9119  0.0881  WSEL=    609.11

3470 ENCROACHMENT STATIONS=     123.0     439 8  TYPE=     4  TARGET=       0 012
 19119.00    20.95   609 05    0 00   609 01   609.39    0 34     0 12     0.04   609.20
   14265.       0.   13176    1089.       0     2718     762.    1748      169     599.60
     1 18     0 00     4.85    1 43   0 000    0.025   0 045   0.000   588.10   123 53
 0 000182     850.     875     800        2        0       0    0.00   316.28   439.80


*SECNO 20219.000
 2800 NAT Q1=  13892.94  WSEL=    609 35  ENC Q1=  13892 94  WSEL=    609 45  RATIO=  0 0000
 NAT Q1=  14106.  RATIOS LOB,CH,ROB=  0.0000  0 9062  0 0938  WSEL=    609 45

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=       0 0     628.2  TYPE=     4  TARGET=       0 015
 20219.00    21 69   609.39    0 00   609.35   609.55    0.16     0 15     0 02   620 70
   14265        0.   13139.   1126.       0.     3893    1031     1852      180.    606.90
     1.27     0.00     3 38    1 09   0 000    0 025   0 040   0 000   587 70    30 71
 0.000107    1100     1100    1000.        2        0       0    0.00   589 07   628.16


*SECNO 21119.000
 2800 NAT Q1=  11223.46  WSEL=    609 39  ENC Q1=  11223.46  WSEL=    609 49  RATIO=  0 0000
 NAT Q1=  11399   RATIOS LOB,CH,ROB=  0.1880  0.8120  0.0000  WSEL=    609 49

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     209 5     700.0  TYPE=     4  TARGET=       0 015
 21119.00    20.73   609.43    0.00   609 39   609 70    0 27     0.12     0 03   607 30
   14265.    2481.   11784       0     1142     2616       0     1941      190.    609 30
     1 33     2.17     4.50    0 00   0 028    0.025   0 000   0.000   588 70   209 46
 0.000164     800.     900     900.        2        0       0    0 00   401 19   700 00


*SECNO 22069.000
 2800 NAT Q1=   8141.97  WSEL=    609.45  ENC Q1=   8183 69  WSEL=    609.55  RATIO= -0 0051
 NAT Q1=   8252.  RATIOS LOB,CH,ROB=  0 0073  0.9918  0 0009  WSEL=    609.55
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      99 0      300 0  TYPE=     4  TARGET=       0 008
 22069.00    21.29   609.49     0 00    609.45   609.97     0 48      0 21     0 06    609 50
   14265.       0.   14265.       0.        0.     2566       0.      2008      196     608.30
     1 38     0.00     5 56     0.00     0.000    0 025    0 000     0 000   588.20     99 03
 0 000311     800.      950     900.         2        0        0      0.00   200 97    300.00

*SECNO 22419 000
 2800 NAT Q1=  16358.19  WSEL=    609.90  ENC Q1=  16358.19  WSEL=    610.00  RATIO=  0 0000
 NAT Q1=  16587.  RATIOS LOB,CH,ROB=  0.4535  0.5282  0 0183  WSEL=    610 00
3280 CROSS SECTION  22419 00 EXTENDED      10 05 FEET


3470 ENCROACHMENT STATIONS=       4 3      521.3  TYPE=     4  TARGET=       0 014
 22419 00    21.75   609.95     0 00    609.90   610 06     0 10      0 05     0 04    601 80
   13000     5866.     6963      172      3250     2234      125      2042      200     603.80
     1.42     1.80     3 12     1.37     0.028    0.025    0 028     0.000   588.20      4 32
 0 000064     400      350      250         2        0        0      0 00   516 95    521 27


*SECNO 23319.000
 2800 NAT Q1=   9322.09  WSEL=    609 81  ENC Q1=   9322 09  WSEL=    609 91  RATIO=  0.0000
 NAT Q1=   9473   RATIOS LOB,CH,ROB=  0 0685  0.8552  0 0763  WSEL=    609.91

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     198.3      759.7  TYPE=     4  TARGET=       0.016
 23319.00    21.35   609 85     0.00    609 81   610 23     0 37      0.09     0 08    606 60
   13000      781    11325      893       575     2182      354     2128.      209     602 20
     1.47     1.36     5.19     2 52     0 028    0 025    0 028     0.000   588 50    198 26
 0 000198     800.      900      875         2        0        0      0 00   444 79    759 71

*SECNO 23569.000
 2800 NAT Q1=   8774 70  WSEL=    610.06  ENC Q1=   8774.70  WSEL=    610 16  RATIO=  0.0000
 NAT Q1=   8914   RATIOS LOB,CH,ROB=  0.0566  0 9433  0 0001  WSEL=    610 16

3265 DIVIDED FLOW

3280 CROSS SECTION  23569.00 EXTENDED      0.51 FEET
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 16418.00    20.76    608.26      0.00    608.23    608 69     0 43      0.69      0.00    606.70
   14265.       0.    13610.      655        51.     2536.     554.     1486.      143.     605.10
     0.97     0.00      5.37     1.18     0 035     0.025    0.040     0 000    587 50    122.43
 0.000381      22.        22      22.         2         0        3      0.00    477 57    600 00


     3700    BRIDGE STENCL=     177 00     STENCR=     385.74
*SECNO 16768.000
 2800 NAT Q1=  14745.70  WSEL=     608.62  ENC Q1=  14745 70  WSEL=     608.72  RATIO=  0 0000
 NAT Q1=  14944   RATIOS LOB,CH,ROB=  0.1055  0 6953  0 1992  WSEL=     608 72

3470 ENCROACHMENT STATIONS=      102.9      537 8  TYPE=      4  TARGET=        0 013
 16768.00    20.61    608 61     0.00    608.62    608 81     0.20      0 06      0.07    597.70
   14265.    1415.    10090.    2760       722.     2448     1473      1517.      147      591 10
     1.00     1.96      4.12     1.87     0.028     0.025    0 030     0 000    588 00    102 89
 0.000096     400.       350      300         2         0        0      0.00    434 89    537.78


*SECNO 17168.000
 2800 NAT Q1=  17508 48  WSEL=     608.76  ENC Q1=  17508.48  WSEL=     608 86  RATIO=  0 0000
 NAT Q1=  17754.  RATIOS LOB,CH,ROB=  0 5220  0.4159  0 0621  WSEL=     608.86
3280 CROSS SECTION  17168.00 EXTENDED       2 76 FEET


3470 ENCROACHMENT STATIONS=       62 7      559 3  TYPE=      4  TARGET=        0.014
 17168.00    20 76    608.76     0 00    608 76    608 87     0 12      0 03      0 03    598 20
   14265     7433.     6043.     789      3179.     1840      524.     1566       151      599.10
     1.04     2.34      3.28     1.50     0 025     0.025    0.028     0 000    588 00     62 67
 0.000068     600.       400      100         2         0        0      0 00    496.58    559 25


*SECNO 17268.000
 2800 NAT Q1=  10151.29  WSEL=     608.72  ENC Q1=  10151.29  WSEL=     608 82  RATIO=  0 0000
 NAT Q1=  10280.  RATIOS LOB,CH,ROB=  0 0343  0 9580  0.0076  WSEL=     608 82

3265 DIVIDED FLOW

3280 CROSS SECTION  17268.00 EXTENDED       2.32 FEET


3470 ENCROACHMENT STATIONS=      169 2      673 5  TYPE=      4  TARGET=        0 012
 17268.00    22 22    608.72     0 00    608.72    608.94     0 22      0.01      0 05    608 80
   14265.     373.    13876.      16       309      3625.      29      1577       152.     609 20
     1.05     1.21      3.83     0.56     0 025     0 025    0.028     0 000    586 50    169 20
 0.000202     100.       100.     100         2         0        0      0 00    447 98    673 52
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALDB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKOR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.60      3 04      0.00    191 80      0.00   3230 00      0.00    586 50    586 50

*SECNO 17368.000
     3700.   BRIDGE STENCL=    169.20    STENCR=    673 52
 2800 NAT Q1=  10334.44  WSEL=    608 86  ENC Q1=  10334 44  WSEL=    608 96  RATIO=  0 0000
 NAT Q1=  10469.  RATIOS LOB,CH,ROB=  0.0390  0 9522  0.0088  WSEL=    608.96

3265 DIVIDED FLOW

3280 CROSS SECTION  17368 00 EXTENDED      2 49 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                               AREA
    609 20    608.94      0 00     1509     12769      3230      3932       607.00    607 10


3470 ENCROACHMENT STATIONS=     169.2     673 5  TYPE=     4  TARGET=       0 013
 17368 00    22.39   608 89     0.00   608 86   609 10     0 21     0 17     0.00   608.80
   14265.     430    13811.     24.     346     3659.      39     1586      153     609 20
     1 06     1.24     3 77     0 62    0 025    0 025    0 028    0 000   586 50   169 20
 0 000194     100.     100      100        2        0        4     0 00   482 09   673 52


*SECNO 18244 000
 2800 NAT Q1=  13896.28  WSEL=    608 99  ENC Q1=  13896 28  WSEL=    609 09  RATIO=  0.0000
 NAT Q1=  14120.  RATIOS LOB,CH,ROB=  0 1314  0 7061  0 1625  WSEL=    609.09
3280 CROSS SECTION  18244.00 EXTENDED      0 61 FEET


3470 ENCROACHMENT STATIONS=      59.3     589 6  TYPE=     4  TARGET=       0 016
 18244.00    21 72   609.02     0 00   608 99   609 23     0 21     0.12     0 00   602 80
   14265.    1765.   10275.    2224.     961     2486.    1166     1669      161.    598.40
     1.13     1 84     4 13     1 91    0.025    0 025    0 028    0.000   587 30    59 27
 0 000108     150.     876      1400        1        0        0     0 00   530 33   589 60
```

```
 SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
 Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
 TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
 SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST

*SECNO 9777.000
 2800 NAT Q1=  16532.49  WSEL=    605.83  ENC Q1=  16532.49  WSEL=    605 93  RATIO=  0 0000
 NAT Q1=  17139.  RATIOS LOB,CH,ROB=  0.3619  0.6315  0.0067  WSEL=    605.93
3280 CROSS SECTION   9777 00 EXTENDED      1.27 FEET

3470 ENCROACHMENT STATIONS=     298 9     1030 0  TYPE=     4  TARGET=       0 035
  9777 00    20 37    605 82    0 00    605.83    605.98    0 16      0.01     0 00    597 85
   16560.    5706.    10854       0      3674.     2820       0       931.      85     602.25
     0 64     1.55      3.85    0.00     0.035     0.025   0.000     0.000   585 45   298.93
 0.000106    100.      100.     100         0         0       0      0 00   731.07  1030 00

CCHV=   0.100 CEHV=   0.300
*SECNO 11596.000
 2800 NAT Q1=  10132.62  WSEL=    605.91  ENC Q1=  10132 62  WSEL=    606 01  RATIO=  0 0000
 NAT Q1=  10284.  RATIOS LOB,CH,ROB=  0.0000  0 9081  0 0919  WSEL=    606 01

3470 ENCROACHMENT STATIONS=     812.0     1321.4  TYPE=     4  TARGET=       0 015
 11596 00    19.50    605 90    0.00    605 91    606.37    0 47      0.30     0.09    607.60
   16560.       0.    15323    1237.       0.      2678     961      1148      111.     600 70
     0 73     0.00      5.72    1.29    0 000     0.025   0 040     0 000   586.40   815 89
 0.000276    1975      1819    1660         2         0       0      0 00   505 48  1321.38

*SECNO 13196 000
 2800 NAT Q1=   9782 09  WSEL=    606.39  ENC Q1=   9782 09  WSEL=    606.49  RATIO=  0.0000
 NAT Q1=  10021.  RATIOS LOB,CH,ROB=  0 0000  0 9135  0.0865  WSEL=    606 49

3470 ENCROACHMENT STATIONS=       0.0      310.8  TYPE=     4  TARGET=       0.024
 13196.00    20.89    606.39    0 00    606 39    606 83    0.44      0 46     0.00    610.90
   16560.       0    15502.    1058         0      2833.    508.     1278      126.     595 90
     0.82     0.00      5.47    2 08     0.000     0 025   0 045     0 000   585 50    15 74
 0 000294    1320      1600    1760.        2         0       0      0.00   295 06   310 80

*SECNO 14796.000
 2800 NAT Q1=   8615.92  WSEL=    606.74  ENC Q1=   8699 92  WSEL=    606 84  RATIO= -0 0097
 NAT Q1=   8700   RATIOS LOB,CH,ROB=  0 0000  1 0000  0.0000  WSEL=    606.84
 14796 00    19.46    606.76    0 00    606.74    607 42    0.66      0.52     0.07    621 70
   16560.       0.    16560       0         0.      2543       0.     1387      135     613 10
     0.89     0.00      6 51    0 00     0 000     0.025   0 000     0.000   587 30   102 55
 0.000368    1600.     1600    1600.        2         0       0      0.00   177.51   280 06
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 16096 000
 2800 NAT Q1=    9065 94  WSEL=     607 41  ENC Q1=    9065 94  WSEL=     607.51  RATIO=  0.0000
 NAT Q1=    9192.  RATIOS LOB,CH,ROB=  0.0000  0.9789  0 0211  WSEL=     607 51

3470 ENCROACHMENT STATIONS=      100.0      357 0  TYPE=      4  TARGET=        0 014
 16096.00     20 62    607.42      0 00    607.41    607.84      0 42      0.40      0 02    613 40
   14265.        0     14163.      102.        0.      2700       101      1467.      141      604 60
     0.96      0 00      5.25      1.01     0 000     0.025     0 040     0 000    586 80    114 30
 0 000253     1200      1300.     1600.         2         0         0      0.00    242 67    356 97


CCHV=    0.300 CEHV=    0 500
*SECNO 16396.000
 2800 NAT Q1=    7406.33  WSEL=     607.44  ENC Q1=    7406 33  WSEL=     607 54  RATIO=  0 0000
 NAT Q1=    7502.  RATIOS LOB,CH,ROB=  0.0005  0 9773  0.0222  WSEL=     607 54
3280 CROSS SECTION  16396.00 EXTENDED      0 25 FEET


3470 ENCROACHMENT STATIONS=      177 0      385.7  TYPE=      4  TARGET=        0.013
 16396 00     19.95    607 45      0.00    607.44    608 00      0 55      0.09      0 06    606 70
   14265.        0.     14130.      135         0      2366       120.     1485       143      605.10
     0 97      0.00      5 97      1 13     0.000     0.025     0 040     0 000    587 50    177.00
 0.000381      300.      300       300          2         0         0      0 00    208 74    385.74


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       ROLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0 00       1.62       3.07       0 00     290.00       0 00    2030 00      0.00     587 50     587 50

*SECNO 16418.000
3280 CROSS SECTION  16418 00 EXTENDED      1 06 FEET

PRESSURE AND WEIR FLOW


 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                      AREA
    608.69     608 00      0 00        0.     14244.      2030      5162.      605 30     606.10


3470 ENCROACHMENT STATIONS=      177 0      385 7  TYPE=      4  TARGET=        1 000
 ELENCL=       0 00  ELENCR=      0 00
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IOC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.79 | 2 80 | 0 00 | 161.00 | 0 00 | 1680.00 | 0.00 | 584 40 | 584 40 |

*SECNO 8394.000
PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 607.34 | 605.87 | 0 00 | 7690 | 7180 | 1680 | 2576. | 600 40 | 600.90 |

3470 ENCROACHMENT STATIONS= 121.8 852 6 TYPE= 1 TARGET= 840 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 15 MILE RD US | | | | | | | | |
| 8394.00 | 21 15 | 605.55 | 0 00 | 605.53 | 605.69 | 0 14 | 0.36 | 0 00 | 595.80 |
| 14820. | 7006. | 7814. | 0. | 3224. | 2227 | 0 | 779 | 68. | 100000.00 |
| 0.53 | 2 17 | 3.51 | 0 00 | 0.035 | 0 025 | 0 000 | 0 000 | 584.40 | 121 80 |
| 0 000188 | 54. | 54. | 54. | 2 | 0 | 4 | 0 00 | 730 80 | 852.60 |

*SECNO 8494.000
2800 NAT Q1= 14972.58 WSEL= 605 51 ENC Q1= 14972 58 WSEL= 605 61 RATIO= 0 0000
NAT Q1= 15208. RATIOS LOB,CH,ROB= 0 3606 0.6352 0 0042 WSEL= 605 61
3280 CROSS SECTION 8494 00 EXTENDED 0 83 FEET

3470 ENCROACHMENT STATIONS= 271.5 921.3 TYPE= 4 TARGET= 0.015

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8494.00 | 21 03 | 605.53 | 0 00 | 605 51 | 605.74 | 0.21 | 0.02 | 0.04 | 596.10 |
| 16560 | 5893. | 10667 | 0 | 3155 | 2451 | 0 | 792 | 70 | 602 40 |
| 0.54 | 1 87 | 4.35 | 0 00 | 0 035 | 0 025 | 0 000 | 0 000 | 584 50 | 271 46 |
| 0 000127 | 100. | 100 | 100 | 2 | 0 | 0 | 0 00 | 649 87 | 921 33 |

*SECNO 9594 000
2800 NAT Q1= 15427.24 WSEL= 605 65 ENC Q1= 15427 24 WSEL= 605 75 RATIO= 0.0000
NAT Q1= 15948. RATIOS LOB,CH,ROB= 0 3426 0.6506 0 0068 WSEL= 605 75
3280 CROSS SECTION 9594.00 EXTENDED 0 88 FEET

3470 ENCROACHMENT STATIONS= 322.3 1030 0 TYPE= 4 TARGET= 0.033

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 9594.00 | 19 98 | 605.68 | 0 00 | 605.65 | 605 86 | 0 18 | 0 12 | 0 01 | 598 10 |
| 16560. | 5427. | 11133 | 0. | 3385. | 2757 | 0 | 905. | 81. | 602.50 |
| 0.62 | 1.60 | 4.04 | 0 00 | 0 035 | 0.025 | 0.000 | 0 000 | 585 70 | 322 33 |
| 0.000120 | 630. | 1100. | 1520 | 2 | 0 | 0 | 0 00 | 707 67 | 1030.00 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 9653.000
3280 CROSS SECTION   9653.00 EXTENDED      1.22 FEET

3470 ENCROACHMENT STATIONS=     260.0    1210.0  TYPE=     1  TARGET=     950 000
  9653.00    20.32   605.72     0.00   605.68   605 88     0.16     0 01     0 01   597.80
   16560.    5638.   10786      136     3756.    2814      171      913       82.    602 20
     0 63     1.50     3.83     0 79    0.035    0 025    0 030    0.000   585 40   260 00
 0 000102     59.      59.      59.        2        0        0     0 00   872 42  1132 42

*SECNO 9654.000
     3700.   BRIDGE STENCL=    260.00    STENCR=   1210 00
3280 CROSS SECTION   9654 00 EXTENDED      1 47 FEET

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

  9654.00    20 27   605 67     0 00   605.60   605.93     0 26     0 00     0 05   603 30
   16560.    6363    10138       59.    2329.    2144       62      913.      82.    603 40
     0.63    2 73     4.73     0 94    0 025    0 020    0 025    0.000   585 40     0 00
 0.000448       1        1        1        2        0        0 -2057 93  1061 86  1061 86

*SECNO 9676.000
3280 CROSS SECTION   9676.00 EXTENDED      1 51 FEET

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

  9676 00    20 31   605.71     0 00   605 61   605 94     0 23     0 01     0 01   603 30
   16560     7018.    9472.      70     2359.    2147.      66      916       83     603 40
     0.63    2 98     4.41     1 05    0 025    0 020    0 025    0 000   585 40     0 00
 0.000524     22.      22.      22         0        0        0 -2060 75  1063 03  1063 03

*SECNO 9677.000

3470 ENCROACHMENT STATIONS=     280.0    1210.0  TYPE=     1  TARGET=     930 000
  9677 00    20 41   605 81     0 00   605.82   605.97     0 16     0 00     0 02   597 80
   16560.    5676    10776.     108.    3756     2827.     181.      916       83.    602 20
     0.63    1.51     3.81     0 60    0.035    0.025    0 040    0 000   585 40   280 00
 0.000101      1.       1.       1.        2        0        0     0 00   855.24  1135.24
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VDL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLDBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.300 CEHV=   0.500
*SECNO 1323.000
3280 CROSS SECTION   1323.00 EXTENDED      1.05 FEET

3470 ENCROACHMENT STATIONS=     329.0     940 0  TYPE=     1  TARGET=     650.000
  1323.00    21.65   603.80    0 00      0 00   604 00    0 19      0 02      0 06   592 05
   16040.    4236.   10817.    987.     3004.    2596     598.      144        14     591 55
     0 06     1.41     4.17    1.65     0.040    0 025   0.040    0.000   582 15   329.00
 0 000099     100      100.    100        2        0       0      0.00   611.00   940.00

CCHV=   0.100 CEHV=   0 300
*SECNO 2223 000
 2800 NAT Q1=   11024.13  WSEL=    603 71  ENC Q1=  11024 13  WSEL=    603.81  RATIO=  0.0000
 NAT Q1=  11131.  RATIOS LOB,CH,ROB=  0 0066  0 9664  0.0271  WSEL=    603 81

3470 ENCROACHMENT STATIONS=     288 7     470.6  TYPE=     4  TARGET=       0 010
  2223.00    21.14   603.70    0 00    603.71   604 22    0.53      0.13      0 10   598 46
   16040       26.   15668.    346.       56     2662.    233       238.       22.    593 26
     0 11     0.46     5 89    1.49     0 110    0 025   0 060    0.000   582 56   288.71
 0 000216     870.     900.    940        2        0       0      0 00   181 84   470 55

CCHV=   0.100 CEHV=   0.300
*SECNO 3180.000
 2800 NAT Q1=   11047 32  WSEL=    603 93  ENC Q1=  11047 32  WSEL=    604.03  RATIO=  0 0000
 NAT Q1=  11161.  RATIOS LOB,CH,ROB=  0.0164  0 9448  0 0387  WSEL=    604 03

3470 ENCROACHMENT STATIONS=     268.3     472 8  TYPE=     4  TARGET=       0 010
  3180 00    20 92   603.92    0 00    603 93   604 43    0 51      0.21      0 00   598 90
   16040.     181    15329.    530.      135     2631     243       303        26     593 70
     0 15     1.34     5 83    2.18     0 040    0 025   0 040    0 000   583 00   268.32
 0.000215     925.     957.    995.        2        0       0      0 00   204.52   472.84

*SECNO 5720.000
 2800 NAT Q1=   10517.95  WSEL=    604.52  ENC Q1=  10517.95  WSEL=    604.62  RATIO=  0 0000
 NAT Q1=  10647.  RATIOS LOB,CH,ROB=  0.0407  0.9543  0 0050  WSEL=    604.62

3470 ENCROACHMENT STATIONS=     303.2     556 0  TYPE=     4  TARGET=       0 012
  5720.00    20.34   604 54    0 00    604.52   604.98    0.44      0.54      0.01   599 30
   14820      498    14322.      0.      380     2648       0       480.       40     600.90
     0.29     1.31     5 41    0.00     0.040    0 025   0 000    0.000   584 20   303.25
 0 000208    2600     2540.   2500        2        0       0      0.00   252 75   556.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLDSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VDL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 7470 000
 2800 NAT Q1=  16881.93  WSEL=    605 05  ENC Q1=  16881.93  WSEL=    605.15  RATIO=  0 0000
 NAT Q1=  17396   RATIOS LOB,CH,ROB=  0 3567  0 6393  0 0040  WSEL=    605 15
3280 CROSS SECTION   7470.00 EXTENDED      0 78 FEET

3470 ENCROACHMENT STATIONS=     495.4    1059 0  TYPE=     4  TARGET=       0 030
  7470.00    20.98   605.08    0.00   605 05   605 22    0.14     0 21     0.03   595 70
   14820     5073.    9747.      0.    3233.    2809.      0.      663       56     602 00
     0.46     1.57     3 47    0.00    0 035    0 025   0 000   0.000   584 10   495 43
 0.000080    1830     1710.   1750        2        0       0     0 00   563 57  1059 00

*SECNO 8270.000
 2800 NAT Q1=  14220.82  WSEL=    605.09  ENC Q1=  14220.82  WSEL=    605.19  RATIO=  0.0000
 NAT Q1=  14461.  RATIOS LOB,CH,ROB=  0 3489  0.6479  0.0032  WSEL=    605 19
3280 CROSS SECTION   8270 00 EXTENDED      0 52 FEET

3470 ENCROACHMENT STATIONS=     385 7     921.3  TYPE=     4  TARGET=       0 017
  8270.00    20.72   605.12    0.00   605 09   605 30    0 18     0 07     0 01   596 00
   14820.    5073.    9747.      0.    2839.    2408.      0      764.      66     602.30
     0.52     1.79     4 05    0 00    0 035    0.025   0 000   0 000   584.40   385.75
 0 000112     800      760.    840        2        0       0     0.00   535 58   921 33

CCHV=   0 300 CEHV=   0.500
*SECND 8340.000
 2800 NAT Q1=  10904.25  WSEL=    605 15  ENC Q1=  10904 25  WSEL=    605 25  RATIO=  0 0000
 NAT Q1=  11131.  RATIOS LOB,CH,ROB=  0.4248  0 5712  0.0039  WSEL=    605 25
3280 CROSS SECTION   8340 00 EXTENDED      0 58 FEET

3470 ENCROACHMENT STATIONS=     323 7     878 7  TYPE=     4  TARGET=       0 020
  8340.00    20.78   605 18    0 00   605 15   605 33    0 14     0 01     0 01   595.80
   14820.    6175     8645.      0     2739     2462.      0      772       67     602 50
     0.53     2.25     3 51    0 00    0 035    0.025   0 000   0 000   584.40   323.66
 0 000190      70       70.     70        2        0       0     0 00   555 04   878 70
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 1039.000

3470 ENCROACHMENT STATIONS=     706 8     930 0  TYPE=     1  TARGET=     240 000
  1039 00    18.84    601 94    0.00      0 00    602.74    0 80      0 13      0 23    593.00
   16040       74.    15845.    121.      294.    2192.     445.      118       12      592 50
     0.05     0.25      7.23    0.27     0.400    0 025    0 400     0 000    583 10   706.80
 0 000367     465.      445     430          2        0        0      0.00    223.20   930.00

*SECNO 1100.000

3470 ENCROACHMENT STATIONS=     418.5    1023.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.40 ELREA=    .  602.40

              16 MILE RD  DS
  1100.00    20 45    602 15    0.00      0.00    602.81    0.66      0.03      0.04    601 70
   16040        0.    16040.      0.        0.     2456       0.      122.       12      601 00
     0 05     0.00      6 53    0 00     0.000    0.025    0.000     0.000    581 70   726.80
 0 000678      61.       61      61          2        0        0      0 00    174 38   901 17


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.56      3 02      0.00    174 40     0 00    2318 40     0 00    581 70    581 70

*SECNO 1143.000
PRESSURE AND WEIR FLOW


 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA   TRAPEZOID     ELLC      ELTRD
                                                             AREA
    603.31    602.81    0.00        2.    16143     2318      3488      601 70    603 10


3470 ENCROACHMENT STATIONS=     418.5     902 1  TYPE=     1  TARGET=     520 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603.10 ELREA=     601.00

  1143 00    21 01    602.71    0.00      0.00    603 32    0.61      0 51      0 00    601 70
   16040.       0     16040.      0.        0      2553       5      124.       12.     601.00
     0 05     0.00      6.28    0.04     0 000    0 025    0 400    0.000    581.70   726.80
 0.000596      43.       43      43          3        0        2      0 00    175.30   902 10
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 1150.000
3280 CROSS SECTION   1150.00 EXTENDED      0 32 FEET

3470 ENCROACHMENT STATIONS=     725.4     911 4  TYPE=     1  TARGET=     200 000
  1150 00    20 92   602.70     0 00     0 00   603 34     0.64     0.00     0 01   591.68
   16040       41.   15911.      88       195     2471.     366      125.      12     591 18
     0.05     0.21     6.44     0 24    0.400    0 025    0.400    0.000   581.78   725.40
 0.000248       7        7.       7.        1        0        0     0 00   186 00   911 40


*SECNO 1180.000

3470 ENCROACHMENT STATIONS=     423.0    1034.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 40 ELREA=      603 40

  1180 00    20 59   602 69     0 00     0.00   603.37     0 68     0 01     0.02   601 00
   16040.       0    16040        0.        0     2429        0      127      12.    600 90
     0.05     0 00     6 60     0.00    0 000    0 025    0.000    0 000   582.10   735 08
 0 000672      30       30.      30.        2        0        0     0 00   173.90   908 98


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 56      3 04      0 00    173.90      0 00   2121 10     0 00    582 10    582 10

*SECND 1223.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                             AREA
    604 08    603 37      0 00      923     15093      2121      3287      601 00    603 40


3470 ENCROACHMENT STATIONS=     423.0    1034 0  TYPE=     1  TARGET=     650.000
            16 MILE RD  US
  1223 00    21.42   603.52     0 00     0 00   603.92     0.40     0 55     0 00   601 00
   16040     1421.   13946      674     2013     2575      829      131       13     600 90
     0.05     0.71     5 42     0 81    0 150    0 025    0 150    0 000   582.10   423.00
 0.000418     43.      43       43        2        0        2     0 00   597 21  1020 21
```

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************
```

T1 100YR WITH FLOODWAY
T2
T3

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0. | 7. | 0 | 0 | 0 000000 | 0 00 | 0.0 | 0. | 599 700 | 0.000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15 000 | 0 000 | -1.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CDRAR     TOPWID      ENDST


*PROF 2

CCHV=   0.300 CEHV=   0.500
*SECNO 165.000

3470 ENCROACHMENT STATIONS=     276 0    1012.0  TYPE=     1  TARGET=     800 000
   165 00    22 80   599.70    0 00   599 70   600 19    0 49     0 00     0.00   593.00
   17390.    1767    14715.    908      916.    2431      359       0.       0     591 70
     0 00    1 93     6 05    2 53    0 040    0 030    0 040    0 000   576 90   392 00
 0.000560     0.       0.       0        0        0        0     0 00   595 95   987 95


SPECIAL BRIDGE

SB  XK        XKOR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.54      2 80      0.00    170 00      0 00   1389 00     0 00    576 90    576 90

*SECNO 194 000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZDID      ELLC      ELTRD
                                                              AREA
    603 45    600.19     0 00      3015     14333      1389      3298       596 30    599 60


3470 ENCROACHMENT STATIONS=     276 0    1012.0  TYPE=     1  TARGET=     800 000
            UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194 00    25.08   601.98    0 00     0 00   602.25    0 26     2 05     0 00   593 00
   17390.    3199.   12976    1215     1782.    2807      556       3.       0.     591 70
     0 00    1.80     4 62    2 19    0 040    0 030    0 040    0 000   576 90   310 21
 0.000270     29.      29       29        2        0        2     0.00   686 17   996 38


*SECNO 594.000
3280 CROSS SECTION    594.00 EXTENDED      1.27 FEET


3470 ENCROACHMENT STATIONS=     325 5    1023.0  TYPE=     1  TARGET=     750 000
   594 00    21.87   602 04    0.00     0 00   602 39    0 35     0.10     0 04   590 07
   17390.    2762.   13765     863     3872    2598     1255      63        7.     589.57
     0.03    0.71     5.30    0.69    0.150    0.030    0 150    0 000   580 17   325 50
 0.000226     420.     400     385.       2        0        0     0 00   694 44  1019 94
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.66      2.80      0.00    107.00      0.00   1410.00      0.00    594.90    595 10

*SECND 37121 000

3265 DIVIDED FLOW

PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    617 52    616.79     0 00        0.      8680      1410.    2183       615 30    617.90


3470 ENCROACHMENT STATIONS=     120 0     450.0  TYPE=     1  TARGET=     330.000
 37121 00    22.02    617.12    0 00      0.00    617.52     0 40      0.54     0 00    608.80
    8680.      228     8267.     185.       87     1607.      85.     2949.      387.    608 70
     2 42     2 61      5 15     2 16    0 025     0 025    0.035     0 000    595 10    120.00
 0 000491      33        33       33        2         0        0      0.00    173 10    327.36


*SECND 37221 000

3470 ENCROACHMENT STATIONS=      50 0     450.0  TYPE=     1  TARGET=     400.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617.50 ELREA=      617 80

 37221.00    22.21    617 31    0 00      0.00    617.58     0.27      0 03     0 04    617.50
    8680.       0     8680.      0.         0     2092.       0      2954      387     617.80
     2.43     0.00      4 15    0.00    0.000     0 025    0 000     0.000    595 10    135 46
 0 000154     100.      100      100        2         0        0      0 00    148 36    283 82


CCHV=   0.100 CEHV=   0.300
*SECND 39121.000
 39121.00    22.41    617.61    0.00      0.00    617.92     0 31      0.33     0 01    620.40
    8680        0     8669      11.        0.      1925       21      3042      394     616 10
     2.55     0.00      4.50    0 53    0.000     0 025    0 035     0 000    595.20    157.47
 0.000192    1900     1900.    1900        2         0        0      0 00    168 02    325.49
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 41121.000
 41121 00    22 35    617 95     0 00      0.00    618 45     0.50      0 48      0 06    638 00
    8680        0.     8680.       0.        0      1526        0      3121.      400.     636.20
     2.65     0.00      5.69     0.00    0 000    0 025    0.000     0 000    595 60    242 60
 0.000302    2000      2000     2000         0        0        0      0 00    106 07    348 67

*SECNO 42521 000
 42521.00    23.12    618 52     0.00      0.00    618 76     0 24      0.28      0.03    625 90
    8680.        0.     8680        0        0.     2212        0      3182       405     622.30
     2.74     0 00      3.92     0 00    0.000    0 025    0.000     0.000    595 40    306 45
 0.000142    1300.     1400     1550.        2        0        0      0 00    160 73    467 19
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 31583.000
3280 CROSS SECTION  31583.00 EXTENDED      1.17 FEET

3470 ENCROACHMENT STATIONS=      50.0     500 0  TYPE=     1  TARGET=     450 000
 31583 00.    23.17   615.72     0.00      0.00   615.99     0.27      0.02     0 01   615.35
    8680.       1.     8601.      78        5.     2042      109.      2653      351     613 65
     2 04     0.23      4.21    0 71     0.025     0.025    0.035     0.000   592 55   275.27
 0.000146     100.      100     100.        2         0        0      0 00   224 73   500 00

CCHV=   0 100 CEHV=   0 300
*SECNO 33333.000
 33333.00    22 61   616.01     0.00      0.00   616.22     0 21      0.22     0 01   613.50
    8680.       91     8202     387.      126     2168      398      2750      363     610.80
     2.17     0.72      3.78    0 97     0.025    0 025    0.035     0.000   593.40   254 32
 0.000108    1700.     1750     1800        2         0        0      0 00   380 89   635 21

CCHV=   0.300 CEHV=   0.500
*SECNO 33433.000
 33433 00    22 41   616.01     0 00      0.00   616.24     0.23      0.01     0.01   606.70
    8680.      302.     7627     751.      218.     1859     562.      2756      364     604.60
     2.18     1.39      4.10    1.34     0.025    0 025    0 035     0 000   593 60   253.67
 0.000144     10C.      100     100.        1         0        0      0 00   381 85   635.52


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 50      3.09      0.00    103.00     0 00   1520 00      0 00    593.60    593 60

*SECNO 33438.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
    616 77    616.24     0.00      3008     5673.     1520     1988.      612 90    613 00


 33438 00    22.51   616.11     0.00      0.00   616.33     0 23      0 09     0 00   606.70
    8680.      315     7598.     767.      229.     1868     576      2757.      364     604.60
     2.18     1 38      4.07    1 33     0 025    0 025    0.035     0.000   593 60   245 77
 0.000140       5         5       5.        2         0        4      0 00   391 99   637 76
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLDPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENOST


*SECNO 33538.000
 33538.00    22.55    616 14     0.00      0.00    616.35     0 21      0 01      0.00    613 69
    8680       85.     8218.     378.      119      2159.     388      2763.      365      610 99
     2.19     0.71      3 81     0.97    0 025     0.025    0 035     0.000    593 59    257 48
 0 000110     100.      100      100.        1        0        0      0.00    375 97    633 45


CCHV=   0.100 CEHV=   0 300
*SECNO 34888 000
3280 CROSS SECTION  34888 00 EXTENDED      1.58 FEET

 34888.00    22.78    616 28     0 00      0 00    616.53     0 25      0 17      0.01    614 00
    8680.     198     8481.       0       192      2089        3      2839       375      616 00
     2.28     1 03      4.06     0 14    0 025     0.025    0.035     0 000    593 50      0.00
 0.000151    1400.     1350.    1300         2        0        0      0 00    286 84    286 84


*SECNO 37038.000

3265 DIVIDED FLOW

 37038.00    22.40    616 60     0 00      0 00    616 89     0 29      0 34      0 01    617.50
    8680.       1.     8679.       0.        3      2026        0      2946       386.     617 80
     2.42     0 17      4 28     0 00    0 025     0 025    0 000     0.000    594 20     20 97
 0 000167    2100      2150.    2200         2        0        0      0 00    177 19    282.10


CCHV=   0.300 CEHV=   0 500
*SECNO 37088.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      50 0     450 0  TYPE=     1  TARGET=     400.000
 37088 00    21 44    616 54     0 00      0.00    616.97     0 44      0 01      0 08    608.80
    8680.     199      8318.     163        74      1544       74.     2948       387.     608.70
     2.42     2.69      5.39     2 21    0.025     0.025    0 035     0 000    595 10     68 91
 0 000567      50.       50       50.        2        0        0      0 00    169 35    325 97
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 30474.000
3280 CROSS SECTION  30474 00 EXTENDED      0.06 FEET

 30474 00    21 56    613 31     0.00      0.00    613 54     0 23      0.09      0 02    613 55
    8680.       0.     8625       55.        0      2226      114.      2601      345.     611 35
     1.97     0 00      3.87     0.48     0.000     0 025    0 040     0.000    591.75    397 86
 0 000144     700.      725      700.         2         0        0      0.00    352.14    750.00


*SECNO 31199.000

3470 ENCROACHMENT STATIONS=       0.0     480.0  TYPE=     1  TARGET=     479.999
 31199.00    21 14   613.34     0.00      0.00    613 71     0 37      0.13      0 04    615 00
    8680.       0.     8680       0.         0      1771.      0.      2635.      349      613.30
     2.01     0 00      4 90     0.01     0 000     0.025    0 040     0.000    592 20    303 83
 0.000230     700.      725      700.         2         0        0      0.00    134.15    437 98


CCHV=   0.300 CEHV=   0 500
*SECNO 31299.000

3470 ENCROACHMENT STATIONS=      50 0     500.0  TYPE=     1  TARGET=     450 000
 31299 00    20.92   613.32     0 00      0.00    613 79     0 46      0 03      0 05    598 90
    8680      773.     6965.     941      239.     1178.     323.      2639      349.     595 90
     2.02     3 24      5.91     2.92     0 028     0.025    0 040     0 000    592 40    266 87
 0.000423     100.      100.     100.         2         0        0      0 00    134 86    401.73


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.55      3 04      0 00     61 00     0 00     954 00     0.00     592.40    592 40

*SECNO 31350.000
3280 CROSS SECTION  31350 00 EXTENDED      0 40 FEET

PRESSURE AND WEIR FLOW


 EGPRS       EGLWC       H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    615.31    613.79     0 00       801      7897      954      1049       609 60    613.70
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VDL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CDRAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=      1  TARGET=      450.000
 31350 00    22 20    614.60     0.00      0.00    614 97     0 37      1 18      0 00    598.90
    8680.     875.     6733.    1072.      283      1256      446      2641       349      595 90
     2.02     3.09      5 36     2 40     0 028     0 025    0.040     0 000    592 40    263 93
 0 000320      51.       51       51         2         0        2      0.00    236 07    500 00


*SECNO 31430.000
3280 CROSS SECTION  31430 00 EXTENDED      0.43 FEET


3470 ENCROACHMENT STATIONS=      50.0      500.0  TYPE=      1  TARGET=      450 000
 31430 00    22 12    614 62    0 00      0 00    615 00     0.38      0 03      0 00    598 90
    8680      913      6575     1192      284.      1208      462      2645       350      595 60
     2.03     3 21      5 44     2.58    0.028     0.025    0.040     0 000    592.50    263.85
 0.000375      80        80       80         0         0        0      0 00    236.14    500 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 55      3 04      0 00     61.00      0 00    977 00     0.00    592 50    592 50

*SECNO 31483 000
3280 CROSS SECTION  31483.00 EXTENDED      1 45 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                               AREA
    616 52    615.00     0.00      1347      7292      977      1122       610 90    614.90


3470 ENCROACHMENT STATIONS=      50.0      500 0  TYPE=      1  TARGET=      450 000
 31483.00    23.15    615.65    0 00      0.00    615.96     0 31      0 96      0 00    598 90
    8680.     990.     6329.    1361.     336      1271.     606      2648       350      595.60
     2.03     2.94      4 98     2.25    0.028     0.025    0.040     0 000    592 50    219 34
 0 000294      53        53       53.        2         0        2      0 00    280 66    500 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.300 CEHV=   0.500
*SECNO 28000.000
 28000.00    21.38   611.48     0 00      0.00   611 84     0.36      0 02      0 01   605.60
    8680.     601.    8023       57       258.     1618      56.     2463       326     606 50
     1.78     2.33     4.96     1.02     0 030    0.025    0 040    0.000    590 10   109 55
 0.000322     100.     100.     100.         0        0        0     0 00    207 91   317.46


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      3.04      0.00    116.00      0 00   1320 00      0 00    590 10    590 10

*SECNO 28031.000
PRESSURE FLOW

 EGPRS       EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    612.51    611.83     0.00         0.      8680      1320.     2158       608 70    613 20


 28031.00    22.10   612 20     0 00      0.00   612 51     0.31      0 68      0 00   605 60
    8680.     697.    7894,      89       324.     1698      90      2464       326     606 50
     1 78     2.15     4.65     0 99     0 030    0 025    0 040    0.000    590.10    15 10
 0.000268      31.      31.      31         2        0        0     0 00    316.12   331.22


*SECNO 28331 000
3280 CROSS SECTION  28331.00 EXTENDED      4.72 FEET

 28331.00    21.62   612 32     0.00      0.00   612.58     0 27      0 06      0 01   610 10
    8680.      72     8247      361        97     1939      424     2480       328     611 10
     1 80     0.74     4.25     0 85     0 028    0.025    0 040    0.000    590 70   153 67
 0.000158     300.     300      300.         2        0        0     0.00    446.33   600 00


*SECNO 28431 000
3280 CROSS SECTION  28431 00 EXTENDED      3 81 FEET

 28431.00    20.21   612 31     0.00      0.00   612.65     0.33      0 03      0 03   607 60
    8680.     216.    7875.     589.      116     1630.     339.     2485       329.    606 80
     1.81     1.87     4.83     1 74     0 028    0 025    0.040    0 000    592 10   186 27
 0.000827     100.     100      100.         2        0        0     0 00    413 73   600 00
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWIO      ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
    0.00      1.54      3 04      0.00      117 00    0 00      1440 00   0.00      592 10    592 10

*SECNO 28449.000
3280 CROSS SECTION  28449.00 EXTENDED      4.42 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                                AREA
   613.18   612.65     0 00      3.        8682      1440      2188      610 80    613 10


 28449.00   20 82     612 92    0.00      0.00      613 18    0 27      0 54      0.00      607 60
   8680.    378.      7505.     797       205       1700      449       2486      330       606 80
    1.81    1.84      4.42      1 77      0.028     0 025     0 040     0 000     592 10    119.90
 0.000653   18        18.       18        2         0         2         0 00      480 10    600.00


*SECNO 28549.000

3265 DIVIDED FLOW

3280 CROSS SECTION  28549.00 EXTENDED      3 98 FEET

 28549 00   20.88     612 92    0 00      0.00      613 24    0.32      0 03      0 02      611 44
   8680     25.       8423      232       40.       1841      277.      2492      331.      612 44
    1 82    0.61      4 57      0.84      0 028     0 025     0 040     0.000     592 04    211 58
 0 000196   100.      100       100       2         0         0         0 00      386.00    600 00


CCHV=   0 100 CEHV=  , 0.300
*SECNO 29749.000
3280 CROSS SECTION  29749.00 EXTENDED      0 56 FEET


3470 ENCROACHMENT STATIONS=      0 0     750 0  TYPE=     1  TARGET=     749.999
 29749.00   21 96    613.26    0.00      0 00      613.43    0.17      0 17      0 01      612.40
   8680.    5         8564.     111       16.       2589.     144       2559.     340       609.70
    1.92    0.32      3.31      0 77      0.028     0 025     0.040     0.000     591 30    457.28
 0.000110   1100.     1200.     1150      2         0         0         0 00      292 72    750.00
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SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     260.0     775.0  TYPE=     1  TARGET=     515 000
 25819.00    21.46   610 26     0.00     0 00   610 67     0 41     0 28     0 04   609 20
    8680.      25.    8639.      16.      51     1672.      30.    2364      310     609.30
     1.65     0.49     5.17     0.54    0.028    0.025    0 025    0.000   588 80   260.00
 0.000267    1350.    1450.    1500        0        0        0     0 00   347.87   775 00


CCHV=   0.300 CEHV=   0 500
*SECNO 25919.000

3265 DIVIDED FLOW

3280 CROSS SECTION  25919.00 EXTENDED      0 66 FEET


3470 ENCROACHMENT STATIONS=     287.0     750 0  TYPE=     1  TARGET=     463.000
 25919.00    20 76   610 26     0.00     0.00   610.75     0 50     0 04     0.04   604 90
    8680.     137     8414     129.      85     1466       60     2368.     311.    604.00
     1.66     1 61     5 74    2.16    0 028    0.025    0.025    0 000   589 50   287 00
 0 000622     100.     100      100        2        0        0     0 00   297 88   750.00


SPECIAL BRIDGE

SB  *XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.68      3.04      0 00    104.00      0 00   1220 00     0 00    589.50    589 50

*SECNO 26025.000

3265 DIVIDED FLOW

3280 CROSS SECTION  26025 00 EXTENDEO      1.35 FEET

PRESSURE AND WEIR FLOW


 EGPRS     EGLWC      H3       QWEIR     QPR       BAREA   TRAPEZDID     ELLC      ELTRD
                                                            AREA
   611.58    610.75     0 00      784.     7946      1220.     1914      607 90    610.00


3470 ENCROACHMENT STATIONS=     287 0     750.0  TYPE=     1  TARGET=     463.000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 26025 00    21.45     610 95     0 00      0.00     611 36     0 41      0 61      0 00     604 90
    8680.     306.      8138.     235.      214.      1539      134      2372.      312.      604 00
     1 66     1.43      5.29      1.76     0 028     0 025     0 025     0.000     589 50    287.00
 0 000496     106.      106.      106.        2         0         2      0 00     458 48    750.00

*SECNO 26125.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      260 0      750 0  TYPE=      1  TARGET=      490 000
 26125 00    21.50     610 99     0 00      0 00     611 40     0 41      0.04      0.00     609.89
    8680       29       8638.      13        58       1678       23      2376.      313.      609.99
     1 67     0.50      5.15      0 59     0.028     0 025     0 025     0.000     589.49    260.00
 0 000264     100       100.      100.        2         0         0      0 00     337.07    750 00

CCHV=   0 100 CEHV=   0 300
*SECNO 26900 000
 26900.00    21.85     611.25     0 00      0.00     611.60     0.36      0 20      0.01     610 00
    8680.       6.      8417.     258.       10.      1732      331      2410      319.      608.80
     1 72     0.57      4.86      0 78     0 030     0 028     0.040     0.000     589 40    161 38
 0.000248     800       775       725         2         0         0      0 00     390 62    552 00

*SECNO 27150.000

3470 ENCROACHMENT STATIONS=        0.0      375 0  TYPE=      1  TARGET=      374 999
 27150.00    20 81     611 31     0.00      0.00     611.66     0 35      0 05      0.00     604 70
    8680.     296       7805      579       152       1578      441.      2422      321       604 60
     1.73     1.95      4 95      1.31     0 030     0 025     0 040     0 000     590 50    105 19
 0.000177     200.      250       300         0         0         0      0.00     246 35    351 54

*SECNO 27900.000
 27900 00    21.57     611 47     0.00      0 00     611 80     0.33      0 14      0 00     605.70
    8680.     453       8214.      13.      250       1741       28.      2458      325       609 80
     1.78     1 81      4 72      0.46     0 030     0 025     0 040     0 000     589.90    115 91
 0.000193     800.      750.      700         0         0         0      0.00     218 16    334.07
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 18244.000
3280 CROSS SECTION  18244.00 EXTENDED      0.59 FEET

 18244 00    21.69    608.99     0 00      0.00    609 19     0.20      0.12      0 00    602 80
   14260.    1842.    10136.    2281.     1031      2482     1323      1750.      221     598 40
     1.15     1.79      4 08     1 73     0 025     0.025    0 028     0 000    587 30     34.34
 0.000105     150       876.    1400         2         0        0      0 00    710 06    744 40


CCHV=   0.100 CEHV=   0.300
*SECNO 19119.000
 19119.00    20.91    609 01     0.00      0.00    609.34     0.33      0.12      0 04    609.20
   14260.       0.    13033     1227.        0      2712      970.     1833.      232     599 60
     1.20     0.00      4 81     1.27     0.000     0.025    0.045     0.000    588.10    123 64
 0.000179     850.      875.     800.         2         0        0      0.00    436 18    559.82


*SECNO 20219.000

3265 DIVIDED FLOW

 20219 00    21.65    609 35     0 00      0 00    609.51     0 16      0 15      0 02    620 70
   14260.       0     12963.    1297         0.     3881     1424.     1944.      248.     606 90
     1.30     0.00      3.34     0.91     0 000     0 025    0 040     0 000    587 70     30.82
 0.000105    1100      1100     1000         2         0        0      0 00    883 46    925 72


*SECNO 21119.000

3265 DIVIDED FLOW

 21119 00    20.69    609 39     0 00      0 00    609.65     0 26      0.11      0.03    607 30
   14260.    2630.    11630        0     1345      2609        0.     2038      262.     609.30
     1.36     1.96      4.46     0 06     0.028     0.025    0 040     0.000    588 70     50 40
 0.000161     800.      900.     900.         2         0        0      0 00    563 35    703.68


*SECNO 22069.000

3265 DIVIDED FLDW

 22069.00    21.25    609.45     0 00      0.00    609 92     0.47      0 20      0 06    609 50
   14260.      92.    14158       10.       99.     2557.      20      2108       271     608.30
     1 41    0 93       5.54     0 51     0.028     0.025    0.035     0.000    588 20      0.00
 0.000307     800       950.     900         2         0        0      0 00    332.11    334.79
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 22419.000
3280 CROSS SECTION  22419.00 EXTENDED      10 00 FEET

 22419 00    21 70    609 90     0.00      0 00    610.00     0 10      0.04      0 04    601 80
   13000     5870.     6898      232.     3275.     2228      200      2143.      275     603.80
     1 45     1.79     3 10      1.16     0 028     0 025    0.028     0 000    588 20     0 00
 0 000063     400.     350.      250.        2         0        0      0 00    563 70    563 70

*SECNO 23319 000

3265 DIVIDED FLOW

 23319 00    21.31    609 81     0 00      0.00    610 17     0 36      0 09      0.08    606.60
   13000      843     11184.     973.      665     2177.     452.      2231.      287     602 20
     1 50     1.27      5 14     2 15     0.028     0.025    0 028     0 000    588 50    118.45
 0.000194     800.      900      875         2         0        0      0 00    619.75    856.85

*SECNO 23569 000
3280 CROSS SECTION  23569 00 EXTENDED      0.46 FEET

 23569 00    21 66    610 06     0 00      0 00    610 22     0.17      0 04      0 02    610 00
    8680.     452.     8228        0      641      2459        0      2248.      289.     610 40
     1.52     0 70     3.35     0 00     0 030     0.025    0 000     0 000    588 40     0 00
 0.000098     150.      250      300         2         0        0      0 00    699.20    699.20

CCHV=   0 100 CEHV=   0 300
*SECNO 24369.000

3470 ENCROACHMENT STATIONS=       0.0      500 0  TYPE=      1  TARGET=      499 999
 24369.00    21.18    610.08     0 00      0 00    610 35     0.27      0 10      0 03    605.50
    8680.     276.     8403.       1.      253      1974.       4.      2298.      299     609 50
     1 58     1.09     4.26     0 31     0 028     0 025    0 025     0 000    588 90    158 95
 0.000146     850.      800.      900         2         0        0      0 00    326 81    485 77

*SECNO 25819.000

3265 DIVIDED FLOW
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


*SECNO 16096.000
 16096 00    20.61    607.41      0.00      0.00    607.82      0 41      0.40      0 03    613 40
   14260.       0.    13991       269.         0      2699       391      1538       194     604 60
     0.97     0 00     5 18      0 69     0 000     0 025     0.040     0 000    586 80    114 31
 0.000247     1200     1300.     1600.         2         0         0     0 00    545.69    660.00


CCHV=   0 300 CEHV=   0.500
*SECNO 16396.000
3280 CROSS SECTION  16396 00 EXTENDED      0.24 FEET

 16396.00    19.94    607 44      0.00     0 00    607.97      0 53      0.09      0 06    606 70
   14260.       5.    13971       284       12.      2365       329     1558.       198     605 10
     0.99     0 42     5.91      0 86    0.035     0 025     0.040     0 000    587 50    144.18
 0.000371     300.     300.       300         2         0         0     0 00    455 82    600 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.62      3.07      0.00    290.00      0 00   2030 00      0 00    587 50    587 50

*SECNO 16418.000
3280 CROSS SECTION  16418 00 EXTENDED      1 03 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    608.68    607 97     0 00         0.    14239.     2030.     5162       605 30    606.10


 16418.00    20 73    608.23      0 00      0.00    608 68      0 45      0 71      0 00    606 70
   14260.      35.    13656.      570.       50      2481       546.     1560       198     605 10
     0.99     0 70     5.50      1 04    0 035     0 025     0 040     0 000    587 50    122 56
 0.000302      22       22.       22.         2         0         3     0 00    477.44    600.00


*SECNO 16768.000
 16768.00    20.62    608.62      0 00      0.00    608 81      0.19      0.05      0.08    597 70
   14260.     1484     9961.     2815.      847.     2449.      1552      1591       202     591.10
     1.02     1.75     4 07      1.81    0.028     0 025     0 030     0 000    588 00     32 07
 0.000094     400.      350       300         2         0         0     0 00    540 93    573 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 17168.000
3280 CROSS SECTION  17168.00 EXTENDED      2 76 FEET

 17168.00    20 76   608.76     0 00      0 00    608 87     0 11      0.03      0 02   598 20
   14260.    7426.    5960.     873.     3245.     1840.     622.     1641.      207.    599.10
     1.06     2 29     3.24     1 40     0 025     0 025    0.028    0 000    588 00    33 11
 0.000066    600.     400      100.        2         0        0     0 00    555 79   588 90


*SECNO 17268.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17268 00 EXTENDED      2 32 FEET

 17268 00    22.22   608.72     0 00      0 00    608 93     0.21      0 01      0 05   608.80
   14260     445.    13717       98.     405.     3626.     109.     1653       208     609 20
     1.07    1.10     3.78     0.89     0.025     0.025    0 028    0.000    586 50    76.40
 0.Q00197    100      100      100.        2         0        0     0 00    590 65   723 30


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.60      3.04      0.00    191 80      0 00   3230 00      0 00    586 50    586 50

*SECNO 17368.000

3265 DIVIDED FLOW

3280 CROSS SECTION  17368.00 EXTENDED      2.46 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    609 20   608.93     0 00      2158     12112.     3230.    3932.      607 00    607 10


 17368.00    22.36   608 86     0 00      0 00    609 07     0 21      0 13      0 00   608 80
   14260.    509.    13637.     114       448      3653.     125.     1662.      210     609.20
     1 08    1.13     3.73     0.92     0.025     0 025    0.028    0.000    586 50    74 04
 0 000190    100.     100      100         2         0        4     0 00    626.05   723.30
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLDPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3280 CRDSS SECTION   8494.00 EXTENDED      0 81 FEET

  8494 00    21 01    605.51     0.00      0.00    605.71     0 20      0.01      0.03    596 10
   16560     5912.    10584.     64       3452.     2448      83.       825       99      602.40
     0.55     1.71      4.32    0 77      0.035    0 025    0 030     0.000    584.50     0 00
 0.000122    100       100.    100          2        0        0      0 00    990.48    990 48

*SECNO 9594.000

3470 ENCROACHMENT STATIONS=      260.0     1260.0  TYPE=      1  TARGET=     -260 000
  9594.00    19.95    605 65     0.00      0 00    605.83    0 18      0 11      0 01    598.10
   16560     5430     11023.    107       3536.     2752     136.       945      116      602 50
     0 63     1.54      4.01    0 79      0 035    0 025    0 030     0.000    585 70    260 00
 0.000115    630       1100.   1520          2        0        0      0 00    860 97   1120.97

*SECNO 9653.000

3470 ENCROACHMENT STATIONS=      260.0     1210.0  TYPE=      1  TARGET=      950 000
  9653 00    20.28    605 68     0.00      0 00    605 84    0 16      0.01      0 00    597.80
   16560.    5610.    10818.     132.     3725.     2806.    166.       954      117.     602 20
     0 64     1.51      3 86    0.79      0 035    0.025    0 030     0 000    585.40    260 00
 0.000104     59.       59.     59.          1        0        0      0.00    870.85   1130 85

*SECNO 9654.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=      200.0     1150 0  TYPE=      1  TARGET=     -200.000
  9654.00    20.20    605 60     0 00      0 00    605 92    0 33      0.00      0 08    603 30
   16560.    5329.    11182.      49      1886.     2142      55       954      117      603 40
     0.64     2 83      5.22    0 89      0.025    0 020    0 025     0.000    585 40    200.00
 0 000452      1.        1        1          2        0        0 -2100 80    859.59   1059 59

*SECNO 9676.000

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601.40 MAX ELLC=  603 40
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARDB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICDNT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     200.0     1150 0  TYPE=     1  TARGET=     -200 000
  9676 00    20.21    605 61    0 00      0.00    605 93    0.32      0 01      0 00    603 30
   16560.    5350.    11161      50.     1890      2142      56.      957.      118      603 40
     0 64    2.83      5 21    0.89     0 025     0 020    0.025     0 000    585 40    200 00
 0 000453     22        22.      22         0         0        0 -2101 70    859 76   1059 76


*SECNO 9677.000

3470 ENCROACHMENT STATIONS=     280.0     1210 0  TYPE=     1  TARGET=     930.000
  9677.00    20.42    605 82    0 00      0.00    605 98    0 16      0 00      0 05    597.80
   16560.    5685.    10766.    109      3765      2829     182.      957.      118      602 20
     0 64    1.51      3 81    0 60     0 035     0 025    0.040     0 000    585 40    280 00
 0 000100      1         1       1         2         0        0      0 00    855 74   1135 74


*SECNO 9777.000

3470 ENCROACHMENT STATIONS=     250.0     1260.0  TYPE=     1  TARGET=     -250.000
  9777.00    20.38    605.83    0 00      0.00    605 99    0.16      0.01      0.00    597.85
   16560.    5711     10742.    107      3825.     2824.    179       972       120.     602 25
     0.65    1.49      3 80    0 60     0.035     0 025    0 040     0 000    585 45    250 00
 0 000100    100.      100.     100         1         0        0      0 00    884 78   1134.78


CCHV=   0.100 CEHV=   0 300
*SECNO 11596.000
 11596 00    19 51    605 91    0 00      0.00    606 36    0 45      0 28      0 09    607 60
   16560.       0     15103.   1457.       0.      2680     1193      1200      151.      600 70
     0 75    0.00      5 63    1.22     0 000     0 025    0 040     0 000    586 40    815 86
 0.000267    1975     1819.    1660         2         0        0      0 00    618 17   1434 02


*SECNO 13196.000
 13196 00    20 89    606.39    0 00      0 00    606 81    0 42      0 45      0 00    610 90
   16560.       0.    15313.   1247        0.      2833     749      1341       171      595 90
     0.84    0 00      5.40    1 67     0.000     0 025    0 045     0 000    585 50     15 75
 0 000287    1320     1600.    1760.        2         0        0      0 00    422 25    438 00


*SECNO 14796.000
 14796.00    19.44    606.74    0.00      0 00    607 40    0 66      0.52      0 07    621 70
   16560       0.     16560       0.        0      2540       0      1453       182.      613.10
     0 90    0.00      6.52    0 00     0.000     0 025    0 000     0.000    587 30    102 58
 0 000369    1600     1600.    1600         2         0        0      0 00    177 41    280 00
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

CCHV=   0 300 CEHV=   0.500
*SECNO 1323 000
3280 CRDSS SECTION   1323.00 EXTENDED      1 05 FEET

3470 ENCROACHMENT STATIONS=     329.0     940.0  TYPE=     1  TARGET=     650 000
  1323 00     21 65    603.80     0.00      0.00    604 00     0 19      0.02      0 06    592 05
   16040      4236.    10817.     987.     3004.     2596      598       144.       14.     591 55
     0.06      1.41      4.17     1.65     0 040     0.025    0 040     0 000    582 15    329 00
 0.000099      100.      100.     100         2         0        0      0 00    611.00    940 00

CCHV=   0.100 CEHV=   0 300
*SECNO 2223.000
  2223 00     21 15    603.71     0 00      0 00    604.22     0 51      0 13      0.10    598 46
   16040       102.    15508      430      209.     2663      317       240.       23      593 26
     0.11      0 49      5.82     1 36     0 110     0.025    0 060     0 000    582.56    243.42
 0 000212      870       900.     940         2         0        0      0 00    250.38    493.80

CCHV=   0.100 CEHV=   0.300
*SECNO 3180 000
  3180.00     20.93    603.93     0 00      0.00    604 42     0.49      0.20      0.00    598.90
   16040.      255     15170.     615      197.     2632      307       310.       28      593.70
     0 15      1.29      5.76     2.00     0.040     0.025    0 040     0 000    583 00    244.05
 0.000211      925.      957      995.        2         0        0      0 00    249 05    493.10

*SECNO 5720.000
  5720.00     20.32    604 52     0.00      0 00    604.95     0.43      0 52      0 01    599.30
   14820.      577.    14177       66      516.     2645.      93.       496        54.     600 90
     0.29      1.12      5 36     0.71     0 040     0.025    0 040     0 000    584 20     90 08
 0 000199     2600      2540.    2500         2         0        0      0.00    609.92    700 00

*SECNO 7470 000

3470 ENCROACHMENT STATIONS=     420.0    1500.0  TYPE=     1  TARGET=    -420 000
  7470.00     20.95    605 05     0.00      0.00    605.18     0.13      0 20      0 03    595 70
   14820.     5094      9671.      55.     3416.     2804.      91       690.       81      602 00
     0.46      1.49      3 45     0.60     0 035     0 025    0 030     0 000    584.10    420 00
 0.000077     1830.     1710     1750         2         0        0      0.00    715.58   1135 58
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TDPWID      ENDST

*SECNO 8270 000

3470 ENCROACHMENT STATIONS=     130 5     1305.0  TYPE=     1  TARGET=     -150 000
  8270.00    20 69    605 09    0.00      0 00    605 26    0 18      0.07      0 01    596 00
   14820     5106.     9672.     43       3135     2403.     63       797.       95      602 30
     0 53     1.63      4.02    0.68      0.035    0.025   0 030     0.000    584 40    130 50
 0.000109    800.      760.     840.        2        0        0      0 00    846.61    977 11

CCHV=   0.300 CEHV=   0.500
*SECNO 8340.000

3470 ENCROACHMENT STATIONS=     130.5     1252.8  TYPE=     1  TARGET=     -150.000
  8340.00    20 75    605 15    0 00      0 00    605 29    0.14      0.01      0.01    595 80
   14820.    6214.     8552      54       2972     2456      59       806        96.     602 50
     0.54    2 09      3 48    0 91      0 035    0 025   0 030     0 000    584 40    130 50
 0 000185     70        70      70.         2        0        0      0.00    804 23    934 73


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      ROLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 79      2.80      0 00    161.00     0 00    1680 00     0.00    584 40    584 40

*SECNO 8394.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
    607 31    605 29     0 00      7630      7223      1680      2576       600 40    600 90


3470 ENCROACHMENT STATIONS=     121 8      852 6  TYPE=     1  TARGET=     840 000
             15 MILE RD  US
  8394.00    21.13    605.53    0 00      0 00    605 66    0 14      0 38      0 00    595 80
   14820     6991.     7829      0.       3208     2223.     0        812        97. 100000 00
     0.54    2.18      3.52    0 00      0 035    0 025   0 000     0 000    584 40    121.80
 0.000190     54.       54      54          2        0        4      0.00    730 80    852 60

*SECNO 8494 000
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECND 1039.000

3470 ENCROACHMENT STATIONS=     706.8     930.0  TYPE=     1  TARGET=     240 000
  1039 00    18.84    601.94    0 00      0.00    602.74    0.80      0 13      0.23    593.00
   16040.      74.    15845.    121.      294.     2192     445       118       12.      592 50
     0.05    0 25      7.23    0.27     0.400    0.025    0 400     0.000    583.10    706 80
 0.000367     465      445.     430         2        0        0     0 00     223 20    930 00

*SECND 1100.000

3470 ENCROACHMENT STATIONS=     418 5    1023.0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      602.40 ELREA=      602 40

             16 MILE RD  DS
  1100.00    20.45    602.15    0.00      0.00    602.81    0.66      0 03      0.04    601.70
   16040.       0.    16040       0         0.     2456       0       122        12      601.00
     0.05    0 00      6.53    0 00     0.000    0.025    0.000     0.000    581.70    726 80
 0 000678      61        61     61.         2        0        0     0 00     174 38    901 17


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 56      3.02      0 00    174 40      0 00   2318 40      0 00    581.70    581 70

*SECNO 1143.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRO
                                                              AREA
    603.31    602.81     0 00        2.    16143      2318      3488       601 70    603 10


3470 ENCROACHMENT STATIONS=     418 5     902 1  TYPE=     1  TARGET=     520 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603 10 ELREA=      601 00

  1143.00    21 01    602.71    0.00      0 00    603.32    0.61      0 51      0 00    601 70
   16040.       0    16040       0         0      2553.      5.       124        12      601 00
     0.05    0.00      6.28    0.04     0 000    0.025    0.400     0 000    581.70    726 80
 0.000596     43.       43     43.         3        0        2      0.00     175.30    902 10
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 1150.000
3280 CROSS SECTION   1150 00 EXTENDED      0.32 FEET

3470 ENCROACHMENT STATIONS=     725 4     911.4  TYPE=     1  TARGET=     200.000
  1150.00    20 92   602 70    0 00      0 00   603 34    0.64      0.00      0.01   591.68
   16040       41.   15911      88       195.    2471      366       125.       12.    591.18
     0.05     0 21     6.44    0.24     0.400    0.025   0 400     0.000   581 78   725.40
 0.000248       7.        7       7         1        0       0      0.00   186 00   911 40

*SECNO 1180.000

3470 ENCROACHMENT STATIONS=     423.0    1034 0  TYPE=     1  TARGET=     650 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      603.40 ELREA=      603 40

  1180 00    20.59   602 69    0.00      0 00   603 37    0 68      0 01      0.02   601 00
   16040.       0    16040       0        0.    2429.      0       127.       12.    600 90
     0 05     0.00     6 60   0 00     0 000    0 025   0 000     0 000   582 10   735 08
 0 000672      30       30     30.        2        0       0      0 00   173 90   908 98


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.56      3.04      0 00    173 90     0 00   2121 10     0 00    582 10    582 10

*SECNO 1223 000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZDID      ELLC      ELTRD
                                                              AREA
    604 08    603 37     0 00      923     15093      2121     3287       601 00    603 40


3470 ENCROACHMENT STATIONS=     423 0    1034.0  TYPE=     1  TARGET=     650 000
            16 MILE RD  US
  1223.00    21.42   603 52    0 00      0.00   603 92    0 40      0 55      0 00   601 00
   16040     1421    13946     674.     2013.    2575     829       131.       13.    600.90
     0.05     0.71     5 42    0 81     0.150    0.025   0 150     0 000   582 10   423 00
 0 000418      43       43.     43.        2        0       2      0 00   597 21  1020 21
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 37221 000 | 16 000 | 135.000 | 285 000 | 100 000 | 100.000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 10.000 | 595 100 | 0.000 | 50 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616.900 | 0.000 | 616 400 | 35.000 | 617 500 | 135.000 | 594 700 | 190 000 | 594.400 | 195 000 |
| GR | 594 300 | 205.000 | 594 200 | 215.000 | 594 600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617.800 | 285.000 | 618.400 | 335.000 | 618 700 | 435.000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621.500 | 735.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| NC | 0 025 | 0.035 | 0.025 | 0 100 | 0 300 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 39121 000 | 14 000 | 150.000 | 300.000 | 1900.000 | 1900.000 | 1900.000 | 0 000 | 0 000 | 0 000 |
| GR | 625 500 | 0.000 | 623.600 | 100 000 | 620 400 | 150.000 | 595 700 | 216 000 | 595 200 | 230 000 |
| GR | 595.500 | 240 000 | 596 000 | 250.000 | 599 000 | 253 000 | 616 100 | 300.000 | 617 400 | 325.000 |
| GR | 623 700 | 340.000 | 625 000 | 400.000 | 625 200 | 500 000 | 626 400 | 600.000 | 0.000 | 0.000 |
| NC | 0.025 | 0.025 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 41121 000 | 17.000 | 245.000 | 475 000 | 2000 000 | 2000.000 | 2000 000 | 0 850 | 0 000 | 0.000 |
| GR | 640 300 | 0.000 | 638.600 | 75 000 | 638 200 | 175 000 | 638 000 | 245 000 | 599 300 | 323 000 |
| GR | 596.000 | 339.000 | 595 600 | 349.000 | 595 800 | 359 000 | 595.900 | 369.000 | 632.300 | 437 000 |
| GR | 636 200 | 475 000 | 630 100 | 515 000 | 630 100 | 575 000 | 629.200 | 675 000 | 628 500 | 775.000 |
| GR | 626 600 | 875 000 | 626 900 | 910.000 | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 0.000 |
| NC | 0.025 | 0 025 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 42521.000 | 26.000 | 360.000 | 600 000 | 1300.000 | 1550.000 | 1400 000 | 0 800 | 0.000 | 0 000 |
| GR | 630 800 | 0 000 | 631.600 | 100 000 | 633 700 | 200.000 | 628 000 | 300.000 | 625.900 | 360 000 |
| GR | 613.100 | 400.000 | 597.700 | 436 000 | 597 400 | 442 000 | 595 400 | 450.000 | 595 700 | 455.000 |
| GR | 595 500 | 460 000 | 595 700 | 465.000 | 596 100 | 470 000 | 596 300 | 475.000 | 596 300 | 480 000 |
| GR | 596.300 | 485 000 | 596.800 | 492 000 | 622 300 | 600 000 | 623 800 | 653 000 | 635 900 | 700 000 |
| GR | 641.000 | 750 000 | 640 100 | 781 000 | 628 700 | 819.000 | 628 300 | 900 000 | 628 600 | 1000.000 |
| GR | 629.800 | 1058 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| EJ | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLDBL     XLCH      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*PROF 1

CCHV=   0.300 CEHV=   0.500
*SECNO 165.000

3470 ENCROACHMENT STATIONS=     276.0    1012 0  TYPE=     1  TARGET=     800 000
   165.00    22.80   599.70    0 00   599.70   600 19    0 49     0 00     0 00   593.00
   17390.    1767.   14715.    908      916.    2431.    359.       0.       0     591.70
     0 00    1.93     6 05    2 53    0 040    0 030   0 040    0 000   576 90   392 00
 0.000560      0.       0.      0.        0        0       0     0 00   595.95   987 95


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 54      2 80      0 00    170 00     0 00    1389 00    0 00    576 90    576 90

*SECNO 194 000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                               AREA
    603 45   600.19     0 00      3015     14333.    1389      3298      596 30    599 60


3470 ENCROACHMENT STATIONS=     276.0    1012 0  TYPE=     1  TARGET=     800 000
             UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194 00    25.08   601 98    0.00      0.00   602.25    0 26     2 05     0.00   593 00
   17390.    3199.   12976.    1215     1782     2807     556       3.       0.     591.70
     0 00    1 80     4 62    2 19    0.040    0 030   0.040    0 000   576 90   310 21
 0 000270     29       29      29.        2        0       2     0.00   686.17   996 38

*SECNO 594.000
3280 CRDSS SECTION    594.00 EXTENDED      1.27 FEET


3470 ENCROACHMENT STATIONS=     325.5    1023 0  TYPE=     1  TARGET=     750.000
   594.00    21 87   602.04    0.00      0.00   602.39    0 35     0.10     0 04   590.07
   17390.    2762.   13765.    863.     3872     2598.   1255.      63.       7.     589.57
     0.03    0 71     5 30    0 69    0.150    0 030   0 150    0.000   580.17   325 50
 0.000226    420      400     385.        2        0       0     0 00   694 44  1019 94
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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0.000 | 1 550 | 3.040 | 0 000 | 61 000 | 0 000 | 954.000 | 0 000 | 592 400 | 592 400 |
| X1 | 31350.000 | 0 000 | 0 000 | 0 000 | 51.000 | 51 000 | 51.000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 609 600 | 613 700 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X3 | 0.000 | 0.000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| BT | 13 000 | 50.000 | 616 600 | 0 000 | 63 000 | 616.600 | 0 000 | 163 000 | 616.500 | 0 000 |
| BT | 263 000 | 615.000 | 0 000 | 266.000 | 613.700 | 0 000 | 300 000 | 613.600 | 0 000 | 300 000 |
| BT | 614.100 | 609.600 | 361.000 | 614.100 | 609.700 | 361.000 | 613.700 | 0.000 | 400 000 | 613 700 |
| BT | 0.000 | 440.000 | 613 800 | 0 000 | 463 000 | 614 100 | 0.000 | 500 000 | 614 200 | 0 000 |
| X1 | 31430.000 | 32 000 | 300.000 | 360 500 | 80 000 | 80 000 | 80 000 | 0 000 | 0.000 | 0.000 |
| X3 | 0.000 | 0.000 | 0 000 | 50 000 | 0 000 | 500.000 | 0 000 | 0.000 | 0.000 | 0.000 |
| GR | 616.800 | 0 000 | 616 600 | 50 000 | 616 600 | 63 000 | 616 500 | 163.000 | 615 000 | 263 000 |
| GR | 598.900 | 300.000 | 610.900 | 300.000 | 599.400 | 300 000 | 599 300 | 305 000 | 596 900 | 308 800 |
| GR | 594.300 | 308 800 | 593 000 | 313.000 | 592.600 | 315 000 | 592.600 | 320 000 | 592 500 | 325.000 |
| GR | 592 800 | 330.000 | 592.800 | 335 000 | 593.000 | 340 000 | 593 200 | 345 000 | 593 300 | 349 000 |
| GR | 594.200 | 351.600 | 596 800 | 351.600 | 599.200 | 355 400 | 599.200 | 360 500 | 610 700 | 360.500 |
| GR | 595.600 | 360 500 | 613 300 | 398 000 | 613 300 | 400.000 | 614 100 | 463 000 | 614.100 | 500 000 |
| GR | 614.200 | 563.000 | 614.200 | 600.000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| SB | 0 000 | 1.550 | 3 040 | 0 000 | 61 000 | 0 000 | 977.000 | 0.000 | 592 500 | 592 500 |
| X1 | 31483 000 | 0.000 | 0.000 | 0 000 | 53 000 | 53 000 | 53 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 610 900 | 614.900 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 50.000 | 0.000 | 500.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| BT | 11.000 | 50 000 | 616 600 | 0.000 | 63 000 | 616 600 | 0 000 | 163 000 | 616.500 | 0 000 |
| BT | 263.000 | 615.000 | 0.000 | 300 000 | 615 000 | 0 000 | 300.000 | 615 300 | 610 900 | 360.500 |
| BT | 615.300 | 610 700 | 360 500 | 615 000 | 0 000 | 400 000 | 614 900 | 0 000 | 500 000 | 614 900 |
| BT | 0 000 | 700.000 | 615.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 |
| NC | 0 025 | 0.035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 31583.000 | 14.000 | 300 000 | 435 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 350 | 0 000 |
| X3 | 0.000 | 0.000 | 0.000 | 50 000 | 0.000 | 500 000 | 0.000 | 0.000 | 0 000 | 0.000 |
| GR | 616.900 | 0 000 | 616 600 | 100 000 | 616 500 | 200 000 | 615 000 | 300 000 | 593.300 | 350.000 |
| GR | 592.500 | 355.000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380.000 | 593.200 | 390 000 |
| GR | 593.500 | 393.000 | 613 300 | 435.000 | 614.100 | 500.000 | 614 200 | 600 000 | 0.000 | 0 000 |
| NC | 0.000 | 0.000 | 0 000 | 0.100 | 0.300 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 1.400 | 0 000 | 0 000 | 0.000 |
| X1 | 33333.000 | 15.000 | 355.000 | 491 000 | 1700.000 | 1800 000 | 1750.000 | 0 000 | 0 000 | 0.000 |
| GR | 618.900 | 0 000 | 618.600 | 55.000 | 617 200 | 155 000 | 616 000 | 255.000 | 613 500 | 355.000 |
| GR | 594.300 | 403 000 | 593.600 | 405 000 | 593 400 | 415 000 | 593 600 | 425 000 | 593.500 | 435 000 |
| GR | 593.500 | 445.000 | 594 000 | 447.000 | 610.800 | 491 000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0.000 | 0 000 | 0 300 | 0.500 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 | 1 400 | 0.000 | 0.000 | 0 000 |
| X1 | 33433 000 | 31.000 | 372.000 | 474 700 | 100 000 | 100 000 | 100 000 | 0 000 | 0.000 | 0.000 |
| GR | 618.900 | 0 000 | 618.600 | 55.000 | 617 200 | 155 000 | 616 400 | 220.000 | 616 000 | 255 000 |
| GR | 615.900 | 273.000 | 614.700 | 308 000 | 613 500 | 355 000 | 613.000 | 356 000 | 606 700 | 372 000 |
| GR | 612.500 | 372.000 | 610.300 | 372.000 | 607 600 | 378 000 | 600 000 | 378 500 | 593 900 | 402 000 |
| GR | 593.600 | 412.000 | 593 700 | 422.000 | 593 700 | 424 000 | 593.900 | 432.000 | 593.900 | 442.000 |
| GR | 594.000 | 443.000 | 595.300 | 445.000 | 596.800 | 449 000 | 598 700 | 450.000 | 608.100 | 474 400 |
| GR | 612 400 | 474.700 | 604 600 | 474.700 | 610.800 | 491 000 | 612 800 | 572.000 | 613.900 | 583.000 |
| GR | 616.800 | 655.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0.000 | 1.500 | 3 090 | 0.000 | 103 000 | 0 000 | 1520 000 | 0 000 | 593.600 | 593 600 |
| ET | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0.000 |
| X1 | 33438.000 | 0.000 | 0 000 | 0 000 | 5.000 | 5.000 | 5 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1.000 | 612 900 | 613 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 11.000 | 0.000 | 618 900 | 0 000 | 55.000 | 618 600 | 0 000 | 155 000 | 617 200 | 0 000 |
| BT | 220 000 | 616.400 | 0.000 | 273.000 | 615 900 | 0 000 | 372 000 | 613 100 | 612 500 | 424.000 |
| BT | 613 500 | 612.900 | 474 700 | 613 000 | 612 400 | 572 000 | 613.800 | 0 000 | 583 000 | 613.900 |
| BT | 0 000 | 655.000 | 616.800 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 |
| NC | 0.025 | 0.035 | 0.025 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 1.400 | 0.000 | 0.000 | 0.000 |
| X1 | 33538.000 | 15.000 | 355.000 | 491 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0.190 | 0 000 |
| GR | 618.900 | 0.000 | 618.600 | 55.000 | 617 200 | 155 000 | 616 000 | 255 000 | 613.500 | 355 000 |
| GR | 594.300 | 403.000 | 593.600 | 405 000 | 593.400 | 415.000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593.500 | 445.000 | 594 000 | 447 000 | 610 800 | 491.000 | 612 800 | 555.000 | 616 800 | 655.000 |
| NC | 0.000 | 0.000 | 0.000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 34888 000 | 15.000 | 114 000 | 265 000 | 1400.000 | 1300 000 | 1350 000 | 0.000 | 0.000 | 0.000 |
| GR | 614.700 | 0.000 | 614 800 | 65 000 | 614 000 | 114.000 | 593.800 | 153 000 | 593.500 | 155.000 |
| GR | 593.800 | 165.000 | 594 000 | 175 000 | 594.300 | 185 000 | 594.500 | 195 000 | 601.400 | 208.000 |
| GR | 616 000 | 265 000 | 617 300 | 365 000 | 621 300 | 465 000 | 620 600 | 490 000 | 621 200 | 515.000 |
| NC | 0.025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 37038.000 | 16.000 | 135 000 | 285 000 | 2100 000 | 2200 000 | 2150 000 | 0 000 | 0 000 | 0 000 |
| GR | 616.900 | 0.000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190 000 | 594 400 | 195.000 |
| GR | 594.300 | 205.000 | 594 200 | 215 000 | 594 600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617.800 | 285 000 | 618 400 | 335 000 | 618 700 | 435 000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621.500 | 735.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0.000 | 0.000 | 0 000 | 0 300 | 0.500 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 37088 000 | 36.000 | 200 000 | 307 100 | 50 000 | 50 000 | 50 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 50.000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| GR | 617.500 | 0.000 | 616 900 | 44 000 | 616 800 | 50 000 | 616.400 | 79 000 | 616 600 | 100 000 |
| GR | 617 500 | 179 000 | 608 800 | 200 000 | 615 300 | 200 000 | 611 500 | 200 000 | 611 300 | 204 000 |
| GR | 599 000 | 230.000 | 615 300 | 230 000 | 615 300 | 233 000 | 597 500 | 233 000 | 595 500 | 240 000 |
| GR | 595.500 | 245.000 | 595 400 | 250 000 | 595.100 | 255 000 | 595 400 | 260 000 | 595 100 | 265 000 |
| GR | 595 600 | 270 000 | 596 200 | 274 100 | 615 300 | 274 100 | 615 300 | 277 100 | 595 800 | 277 100 |
| GR | 610.700 | 302.000 | 611 200 | 307 100 | 615.300 | 307 100 | 608 700 | 307 100 | 617 800 | 329 000 |
| GR | 618 400 | 379 000 | 618 600 | 450.000 | 618 700 | 479 000 | 619 300 | 532 000 | 619 800 | 579 000 |
| GR | 620.000 | 600.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0.000 | 1 660 | 2 800 | 0 000 | 107 000 | 0.000 | 1410 000 | 0 000 | 594 900 | 595 100 |
| X1 | 37121.000 | 0.000 | 0 000 | 0 000 | 33 000 | 33.000 | 33 000 | 0 000 | 0 000 | 0.000 |
| X2 | 0.000 | 0.000 | 1 000 | 615 300 | 617 900 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 120.000 | 0 000 | 450 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| BT | 10.000 | 50.000 | 618 300 | 0 000 | 100 000 | 617 900 | 0 000 | 200.000 | 618 000 | 0 000 |
| BT | 200.000 | 618.700 | 615 300 | 233.000 | 618.700 | 615.300 | 277 100 | 618.700 | 615.300 | 307 100 |
| BT | 618.700 | 615.300 | 307 100 | 618.000 | 0 000 | 379 000 | 618.400 | 0.000 | 450.000 | 618.600 |
| BT | 0.000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0 000 | 1.540 | 3 040 | 0 000 | 116 000 | 0 000 | 1320 000 | 0.000 | 590 100 | 590 100 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 1 410 | 0.000 | 0 000 | 0 000 |
| X1 | 28031 000 | 30 000 | 179 000 | 291.000 | 31 000 | 31 000 | 31 000 | 0.950 | 0.000 | 0 000 |
| X2 | 0.000 | 0.000 | 1.000 | 608 700 | 613 200 | 0.000 | 0 000 | 0.000 | 0 950 | 0.000 |
| BT | 10.000 | 0.000 | 614 000 | 0 000 | 79.000 | 613.600 | 0 000 | 179.000 | 613 200 | 0 000 |
| BT | 179.000 | 614.100 | 608.700 | 243.000 | 614 100 | 608.600 | 291 000 | 614 000 | 608 600 | 291 000 |
| BT | 613.200 | 0.000 | 373 000 | 613.400 | 0 000 | 400.000 | 614 700 | 0 000 | 464.000 | 615 500 |
| BT | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 612.300 | 0.000 | 611 800 | 79.000 | 611.900 | 100.000 | 612.000 | 112 000 | 605.000 | 157 000 |
| GR | 605.600 | 179.000 | 608.700 | 179.000 | 605.000 | 179.000 | 593.100 | 210 000 | 591 300 | 216 000 |
| GR | 590.600 | 219.000 | 590.100 | 224.000 | 590.200 | 229.000 | 590.400 | 234 000 | 590 100 | 241 500 |
| GR | 608.600 | 241 500 | 608.600 | 243.000 | 608.600 | 244 500 | 590.100 | 244.500 | 590.400 | 249.000 |
| GR | 590.800 | 254 000 | 591.500 | 259.000 | 605 300 | 282 000 | 605 300 | 291.000 | 608 600 | 291.000 |
| GR | 606.500 | 291 000 | 609 800 | 300 000 | 613.400 | 373 000 | 614 700 | 400.000 | 615 500 | 464 000 |
| NC | 0.028 | 0.040 | 0.025 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 28331.000 | 19.000 | 266.000 | 400 000 | 300.000 | 300 000 | 300.000 | 0.000 | 0 000 | 0 000 |
| GR | 614.100 | 0.000 | 612 800 | 100.000 | 611.900 | 200 000 | 610 100 | 266 000 | 596.800 | 298.000 |
| GR | 592 900 | 305.000 | 590 700 | 308 000 | 590.700 | 310 000 | 590 900 | 320 000 | 591 000 | 330 000 |
| GR | 591 000 | 340 000 | 591.000 | 350 000 | 591.100 | 354.000 | 593.000 | 359.000 | 597.300 | 365.000 |
| GR | 611.100 | 400.000 | 611 600 | 449.000 | 610 700 | 500 000 | 607.600 | 600 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 1.400 | 0 000 | 0.000 | 0.000 |
| X1 | 28431.000 | 57.000 | 300 000 | 417.000 | 100 000 | 100.000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 614.500 | 0.000 | 614.100 | 28.000 | 613 200 | 100.000 | 612 800 | 128.000 | 612 200 | 200 000 |
| GR | 611.900 | 228.000 | 610.100 | 294.000 | 607 600 | 300.000 | 610 800 | 300.000 | 609 200 | 300 000 |
| GR | 602.200 | 314.000 | 610 800 | 314.000 | 610.800 | 315 000 | 601 700 | 315.000 | 594.700 | 329 000 |
| GR | 610.700 | 329.000 | 610 700 | 330.000 | 593.900 | 330 000 | 593 100 | 334.000 | 593 100 | 337.000 |
| GR | 593.000 | 340.000 | 592 400 | 343.000 | 610 700 | 343 000 | 610 700 | 344 000 | 592 500 | 344 000 |
| GR | 592.800 | 350 000 | 592.600 | 358.000 | 610 700 | 358 000 | 610 700 | 359.000 | 592 500 | 359 000 |
| GR | 592.500 | 360 000 | 592.100 | 370 000 | 592 200 | 373 000 | 610.700 | 373 000 | 610 700 | 374 000 |
| GR | 592.300 | 374.000 | 592.600 | 380.000 | 592 300 | 385 000 | 593 800 | 387 000 | 610 600 | 387 000 |
| GR | 610 600 | 388 000 | 594 600 | 388.000 | 597 600 | 392 000 | 602 800 | 402 000 | 610 600 | 402 000 |
| GR | 610 600 | 403 000 | 603.300 | 403 000 | 607 500 | 411 000 | 608 900 | 417 000 | 610 600 | 417 000 |
| GR | 606.800 | 417.000 | 611.100 | 428.000 | 611.600 | 477 000 | 611 200 | 500 000 | 610 700 | 528 000 |
| GR | 610 700 | 528.000 | 608 500 | 600.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| SB | 0.000 | 1.540 | 3.040 | 0.000 | 117 000 | 0.000 | 1440 000 | 0 000 | 592 100 | 592 100 |
| ET | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 28449 000 | 0.000 | 0 000 | 0.000 | 18.000 | 18.000 | 18 000 | 0 000 | 0 000 | 0.000 |
| X2 | 0 000 | 0.000 | 1 000 | 610.800 | 613 100 | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 |
| BT | 8 000 | 0.000 | 615 000 | 0.000 | 100 000 | 614 400 | 0 000 | 200 000 | 613 900 | 0 000 |
| BT | 300 000 | 613.400 | 610.800 | 343 000 | 613.400 | 610 700 | 417.000 | 613 200 | 610 600 | 500.000 |
| BT | 613 100 | 0.000 | 600.000 | 613.400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.028 | 0.040 | 0.025 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1.400 | 0.000 | 0 000 | 0 000 |
| X1 | 28549.000 | 19.000 | 266 000 | 400.000 | 100.000 | 100.000 | 100.000 | 0.000 | 1 340 | 0 000 |
| GR | 614.100 | 0.000 | 612 800 | 100.000 | 611.900 | 200 000 | 610 100 | 266 000 | 596.800 | 298.000 |
| GR | 592.900 | 305.000 | 590 700 | 308.000 | 590.700 | 310.000 | 590 900 | 320 000 | 591 000 | 330 000 |
| GR | 591.000 | 340.000 | 591 000 | 350.000 | 591.100 | 354 000 | 593 000 | 359 000 | 597.300 | 365 000 |
| GR | 611 100 | 400 000 | 611 600 | 449.000 | 610.700 | 500 000 | 607 600 | 600 000 | 0 000 | 0.000 |

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| NC | 0.000 | 0 000 | 0 000 | 0.100 | 0.300 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 29749.000 | 20.000 | 494 000 | 700.000 | 1100 000 | 1150 000 | 1200 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 619 000 | 0.000 | 618 400 | 100 000 | 618 100 | 200 000 | 616 500 | 300 000 | 614 600 | 400 000 |
| GR | 612.400 | 494.000 | 599 200 | 580 000 | 593.400 | 588.000 | 592 800 | 590 000 | 592 400 | 600 000 |
| GR | 591 400 | 610.000 | 591.600 | 620 000 | 591 300 | 630 000 | 592.100 | 640 000 | 592 800 | 645 000 |
| GR | 596 300 | 650.000 | 600 200 | 663.000 | 609.700 | 700 000 | 612.400 | 800 000 | 612 700 | 900.000 |
| ET | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 1 400 | 0.000 | 0 000 | 0.000 |
| X1 | 30474.000 | 90 000 | 397 000 | 567 500 | 700 000 | 700.000 | 725 000 | 0.000 | -0 150 | 0 000 |
| GR | 617.900 | 0.000 | 617 800 | 13 600 | 617 800 | 27 300 | 617 700 | 41 000 | 617 600 | 54.700 |
| GR | 617.600 | 68.400 | 617 500 | 82 100 | 617 500 | 95 800 | 617 400 | 109 500 | 617 400 | 123 200 |
| GR | 617 300 | 136.800 | 617 300 | 150 500 | 617 300 | 164 200 | 617 100 | 177 900 | 617.000 | 191.600 |
| GR | 616 800 | 205.300 | 616 700 | 219 000 | 616.500 | 232 700 | 616 400 | 246 000 | 616.200 | 260 100 |
| GR | 616.000 | 273.700 | 615.800 | 287 400 | 615.500 | 301 100 | 615 300 | 314 800 | 615 000 | 328.500 |
| GR | 614.800 | 342 200 | 614 500 | 355.900 | 614 200 | 369 600 | 613 900 | 383 300 | 613 700 | 397 000 |
| GR | 612.100 | 402 600 | 610 600 | 408.300 | 609.100 | 414 000 | 607.600 | 419.700 | 606 100 | 425 400 |
| GR | 604.600 | 431.000 | 603 100 | 436.700 | 601.600 | 442.400 | 600 100 | 448 100 | 598 600 | 453.000 |
| GR | 597.100 | 459 500 | 596 200 | 465 100 | 594 600 | 470 800 | 592 600 | 476 500 | 592 300 | 482 200 |
| GR | 592.100 | 487.900 | 591.900 | 493 600 | 592 000 | 499 200 | 592.100 | 504 900 | 592 300 | 510.600 |
| GR | 593.000 | 516.300 | 594 500 | 522.000 | 597.600 | 527.700 | 599 700 | 533 300 | 601 700 | 539.000 |
| GR | 603.700 | 544.700 | 605.600 | 550 400 | 607 600 | 556 100 | 609 500 | 561 800 | 611 500 | 567.500 |
| GR | 611 600 | 573 500 | 611.700 | 579.600 | 611.800 | 585.700 | 611.900 | 591 800 | 612 100 | 597.900 |
| GR | 612 200 | 604.000 | 612 300 | 610.000 | 612.400 | 616 100 | 612 600 | 622 200 | 612 700 | 628 300 |
| GR | 612.800 | 634.400 | 612 900 | 640.400 | 613 000 | 646 500 | 613.100 | 652 600 | 613 200 | 658.700 |
| GR | 613.200 | 664.800 | 613 200 | 670.900 | 613 200 | 676.900 | 613 300 | 683 000 | 613.300 | 689 100 |
| GR | 613.300 | 695.200 | 613 300 | 701.300 | 613.300 | 707 400 | 613 300 | 713 400 | 613.300 | 719 500 |
| GR | 613.300 | 725.600 | 613.400 | 731.700 | 613.400 | 737.800 | 613 400 | 743.900 | 613 400 | 750.000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 31199.000 | 14.000 | 300 000 | 435 000 | 700 000 | 700 000 | 725.000 | 0 000 | 0.000 | 0 000 |
| X3 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 480 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| GR | 616.900 | 0 000 | 616 600 | 100.000 | 616 500 | 200 000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592.500 | 355.000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593.200 | 390 000 |
| GR | 593 500 | 393.000 | 613 300 | 435 000 | 614.100 | 500 000 | 614.200 | 600.000 | 0.000 | 0.000 |
| NC | 0 000 | 0.000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| X1 | 31299.000 | 31.000 | 300 000 | 361 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0.000 | 50 000 | 0 000 | 500 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| GR | 616.800 | 0.000 | 616 600 | 50 000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 613 700 | 266 000 | 598 900 | 300.000 | 609.600 | 300.000 | 597 500 | 300 000 | 594 000 | 310 000 |
| GR | 592.600 | 313.000 | 592 600 | 315.000 | 592 600 | 320 000 | 592 400 | 325 000 | 592 400 | 330 000 |
| GR | 592 400 | 335.000 | 592 600 | 340.000 | 592 900 | 345.000 | 593 900 | 347 000 | 595 400 | 350 000 |
| GR | 598.300 | 361.000 | 609 700 | 361.000 | 595 900 | 361.000 | 613 300 | 398 000 | 613 300 | 400.000 |
| GR | 613.800 | 440.000 | 614 100 | 463.000 | 614.200 | 500 000 | 614 200 | 523 000 | 614 200 | 533.000 |
| GR | 614.200 | 600.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

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| NC | 0.028 | 0 028 | 0 025 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0.000 | 0 000 |
| X1 | 23319.000 | 24.000 | 567 000 | 700 000 | 800.000 | 875 000 | 900 000 | 0 000 | 0.000 | 0.000 |
| GR | 610.200 | 0.000 | 610 400 | 100 000 | 607.200 | 200 000 | 606 500 | 300 000 | 609.800 | 400 000 |
| GR | 612 300 | 488.000 | 611.800 | 500.000 | 607 500 | 541.000 | 606 600 | 567.000 | 602 200 | 587.000 |
| GR | 589 900 | 601 000 | 588 900 | 610 000 | 588 500 | 620 000 | 588.900 | 630 000 | 588 800 | 640 000 |
| GR | 589.100 | 650 000 | 589.200 | 660.000 | 588 900 | 670 000 | 591.800 | 678 000 | 602.200 | 700.000 |
| GR | 602 400 | 726.000 | 606 600 | 750.000 | 608.900 | 800.000 | 610 500 | 900 000 | 0.000 | 0.000 |
| QT | 5.000 | 6510.000 | 8680.000 | 8680.000 | 8680.000 | 0.000 | 8680 000 | 0 000 | 0 000 | 0.000 |
| NC | 0 030 | 0.028 | 0 025 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 8.100 | 0 000 | 0 000 | 1.400 | 0 000 | 750 000 | 0.000 |
| X1 | 23569.000 | 22.000 | 526 000 | 700 000 | 150 000 | 300 000 | 250.000 | 0 000 | 0 000 | 0.000 |
| GR | 609.600 | 0 000 | 609 900 | 100 000 | 608 300 | 200.000 | 607.100 | 300.000 | 608.800 | 400.000 |
| GR | 610 000 | 500.000 | 610 000 | 526.000 | 589 800 | 580 000 | 588 400 | 590 000 | 588.400 | 600 000 |
| GR | 588.600 | 610 000 | 588.700 | 620 000 | 589.100 | 630 000 | 589 400 | 640 000 | 589.600 | 645 000 |
| GR | 590.300 | 647 000 | 600 800 | 669.000 | 602 300 | 681.000 | 610 400 | 700.000 | 613 800 | 750 000 |
| GR | 609 700 | 800 000 | 613 600 | 875.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 025 | 0 025 | 0.100 | 0.300 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0.000 | 0 000 | 8.100 | 0.000 | 0 000 | 1 400 | 0 000 | 500 000 | 0.000 |
| X1 | 24369.000 | 18 000 | 344.000 | 472 000 | 850 000 | 900 000 | 800 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 500.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| GR | 613.900 | 0.000 | 610 600 | 72 000 | 610 000 | 172 000 | 609 100 | 272 000 | 605 500 | 344 000 |
| GR | 594.900 | 366.000 | 590 400 | 371 000 | 589.400 | 381 000 | 588 900 | 391.000 | 588 900 | 401 000 |
| GR | 589 000 | 411.000 | 589 600 | 421 000 | 589.800 | 431 000 | 590 400 | 435.000 | 593 600 | 438 000 |
| GR | 609.500 | 472 000 | 613 700 | 572 000 | 614 900 | 646 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 1 400 | 0 000 | 0.000 | 0.000 |
| X1 | 25819 000 | 17 000 | 500 000 | 627.000 | 1350 000 | 1500.000 | 1450 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 260.000 | 0.000 | 775 000 | 0 000 | 0 000 | 0.000 | 0.000 |
| GR | 630.300 | 0.000 | 610 700 | 0.000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610.700 | 400.000 | 609.200 | 500 000 | 598 200 | 539.000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589.000 | 570.000 | 588 800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800.000 | 612 100 | 850 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0.000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 25919 000 | 38 000 | 500.000 | 604.000 | 100 000 | 100 000 | 100 000 | 0.000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287 000 | 0.000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 700 | 0.000 | 610 400 | 87.000 | 610.100 | 187 000 | 610 000 | 287 000 | 610 700 | 387.000 |
| GR | 610 400 | 404.000 | 609 200 | 487 000 | 604 900 | 500 000 | 607 800 | 500 000 | 605 500 | 500.000 |
| GR | 604 600 | 507.000 | 593 300 | 527 000 | 590 700 | 535 000 | 590 800 | 537 400 | 607 900 | 537.400 |
| GR | 607.900 | 538.800 | 607 900 | 540.200 | 590 400 | 540.200 | 589 500 | 545.000 | 589 800 | 550 000 |
| GR | 589.900 | 555.000 | 590 000 | 560.000 | 590.200 | 563 800 | 607.900 | 563 800 | 607.900 | 565.200 |
| GR | 607.900 | 566.600 | 590 100 | 566 600 | 590.300 | 570.000 | 591.200 | 575 000 | 605.100 | 604 000 |
| GR | 607.800 | 604.000 | 604.000 | 604 000 | 609 300 | 614 000 | 610 700 | 675 000 | 611 000 | 687 000 |
| GR | 610.400 | 723.000 | 609.200 | 787 000 | 609.600 | 800 000 | 0.000 | 0 000 | 0 000 | 0.000 |

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| SB | 0.000 | 1 680 | 3 040 | 0 000 | 104 000 | 0 000 | 1220 000 | 0 000 | 589 500 | 589 500 |
| X1 | 26025 000 | 0.000 | 0 000 | 0 000 | 106.000 | 106 000 | 106.000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1.000 | 607.900 | 610.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| X3 | 0.000 | 0.000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 14.000 | 287.000 | 610 000 | 0 000 | 387 000 | 610 700 | 0 000 | 404 000 | 610 400 | 0 000 |
| BT | 500.000 | 611.500 | 0.000 | 500 000 | 614 700 | 607 800 | 538 800 | 614 800 | 607.900 | 565 200 |
| BT | 614 800 | 607 900 | 604.000 | 614 700 | 607 800 | 604 000 | 611 700 | 0 000 | 675 000 | 610 700 |
| BT | 0 000 | 687 000 | 611.000 | 0 000 | 723 000 | 610 400 | 0 000 | 750 000 | 610 300 | 0 000 |
| BT | 800 000 | 610.300 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| X1 | 26125 000 | 17 000 | 500 000 | 627 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 690 | 0 000 |
| X3 | 0.000 | 0.000 | 0.000 | 260.000 | 0.000 | 750.000 | 0 000 | 0 000 | 0.000 | 0.000 |
| GR | 630.300 | 0.000 | 610 700 | 0.000 | 610.400 | 100.000 | 610.100 | 200.000 | 610.000 | 300 000 |
| GR | 610 700 | 400 000 | 609.200 | 500 000 | 598 200 | 539 000 | 590 000 | 550.000 | 589 500 | 560 000 |
| GR | 589 000 | 570 000 | 588.800 | 580 000 | 589 600 | 590 000 | 609 300 | 627.000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612.100 | 850.000 | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| NC | 0.030 | 0 040 | 0.028 | 0.100 | 0 300 | 0.000 | 0 000 | 0.000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 26900.000 | 17.000 | 178.000 | 292.000 | 800 000 | 725 000 | 775 000 | 0 000 | 0 000 | 0 000 |
| GR | 615.400 | 0.000 | 614 000 | 92.000 | 613 000 | 138 000 | 610 000 | 178 000 | 590 900 | 217 000 |
| GR | 590.500 | 222.000 | 589 900 | 232 000 | 589.600 | 242.000 | 589 400 | 252 000 | 589 900 | 257.000 |
| GR | 590 500 | 262 000 | 590 800 | 263 000 | 608 800 | 292 000 | 609 700 | 392 000 | 610 700 | 492.000 |
| GR | 610.900 | 552.000 | 630.300 | 552.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| NC | 0.030 | 0 040 | 0.025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0.000 | 0 000 | 0.000 | 0.000 | 1.400 | 0 000 | 0 000 | 0 000 |
| X1 | 27150.000 | 22.000 | 149 000 | 243.000 | 200 000 | 300 000 | 250 000 | 0.000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 375 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 615.200 | 0.000 | 614 500 | 43 000 | 610 500 | 121 000 | 605 900 | 129 000 | 604.700 | 149 000 |
| GR | 596.900 | 163.000 | 590 900 | 174.000 | 590 600 | 178 000 | 590 500 | 183 000 | 590 500 | 193 000 |
| GR | 590.600 | 203.000 | 590.500 | 213 000 | 590 800 | 216 000 | 604 600 | 243 000 | 608 900 | 294.000 |
| GR | 610 700 | 304 000 | 605 100 | 325 000 | 604 500 | 333 000 | 605 300 | 337 000 | 611 500 | 352 000 |
| GR | 611 200 | 410.000 | 630.300 | 410 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 030 | 0.040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 27900.000 | 17.000 | 181 000 | 300.000 | 800 000 | 700 000 | 750.000 | 0 000 | 0 000 | 0 000 |
| GR | 612.300 | 0.000 | 611 600 | 100.000 | 612.000 | 112.000 | 605 900 | 157 000 | 605.700 | 181.000 |
| GR | 597.600 | 203.000 | 594 300 | 204 000 | 590 700 | 212.000 | 589 900 | 220.000 | 590 300 | 230 000 |
| GR | 590 500 | 240.000 | 591.000 | 250 000 | 591 200 | 255 000 | 595 800 | 262 000 | 609 800 | 300.000 |
| GR | 614.700 | 400.000 | 615.500 | 464 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0.000 | 0 000 | 0.300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 28000.000 | 30.000 | 179.000 | 291.000 | 100.000 | 100 000 | 100 000 | 0 950 | 0 000 | 0 000 |
| GR | 612.300 | 0.000 | 611 800 | 79 000 | 611 900 | 100 000 | 612 000 | 112 000 | 605 000 | 157 000 |
| GR | 605.600 | 179.000 | 608.700 | 179.000 | 605.000 | 179 000 | 593 100 | 210.000 | 591.300 | 216 000 |
| GR | 590.600 | 219.000 | 590 100 | 224 000 | 590 200 | 229 000 | 590.400 | 234 000 | 591.100 | 241 500 |
| GR | 608.600 | 241.500 | 608.600 | 243.000 | 608.600 | 244 500 | 590.100 | 244 500 | 590 400 | 249 000 |
| GR | 590.800 | 254.000 | 591.500 | 259 000 | 605 300 | 282.000 | 605 300 | 291.000 | 608 600 | 291 000 |
| GR | 606.500 | 291.000 | 609.800 | 300.000 | 613.400 | 373.000 | 61407.000 | 400 000 | 615 500 | 464.000 |

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| GR | 588.600 | 452 000 | 588.800 | 458 300 | 590 100 | 459 700 | 591.000 | 460 400 | 593 500 | 464 600 |
| GR | 597.100 | 468 100 | 599.100 | 474.400 | 600 900 | 488.900 | 602 400 | 513 900 | 604.000 | 533.500 |
| GR | 606.000 | 588.900 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 1.400 | 0 000 | 0 000 | 0.000 |
| X1 | 17268.000 | 61 000 | 400.000 | 591.800 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 300 | 0.000 | 607.900 | 90 000 | 606 400 | 275.000 | 607.100 | 300.000 | 607.600 | 325.000 |
| GR | 608 200 | 350.000 | 608 800 | 375 000 | 608.800 | 400 000 | 596 800 | 400 000 | 589 200 | 414.000 |
| GR | 589.200 | 421.000 | 587 900 | 428.000 | 587 900 | 435.000 | 588 000 | 437.000 | 606 400 | 437 000 |
| GR | 606 400 | 438.500 | 606 400 | 440 000 | 588 100 | 440.000 | 588 000 | 441.900 | 588 100 | 449.000 |
| GR | 588.300 | 456 000 | 588 300 | 463 000 | 588.200 | 470 000 | 588 300 | 476 900 | 606 800 | 476.900 |
| GR | 606 800 | 478 400 | 606.800 | 479.900 | 588 000 | 479.900 | 588 200 | 491.000 | 587 600 | 498.000 |
| GR | 587.000 | 505 000 | 586.500 | 509 900 | 586 500 | 511.900 | 607 000 | 511 900 | 607 000 | 513.400 |
| GR | 607 000 | 514 900 | 586 600 | 514.900 | 586 700 | 519 000 | 587.700 | 526.000 | 587 700 | 533 000 |
| GR | 588 000 | 540.000 | 588.000 | 544.000 | 586.500 | 549 000 | 606 900 | 549 000 | 606.900 | 550.500 |
| GR | 606 900 | 550.500 | 606 900 | 552 000 | 586 700 | 552 000 | 586.800 | 553.300 | 588 000 | 561 000 |
| GR | 587.400 | 568 000 | 588 100 | 575 000 | 591.900 | 582.000 | 596.600 | 591 800 | 609 200 | 591.800 |
| GR | 609 300 | 600.800 | 608.600 | 623 300 | 608.200 | 648 300 | 607 600 | 673 000 | 607 200 | 698 300 |
| GR | 606.400 | 723.300 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0.000 | 1 600 | 3.040 | 0.000 | 191 800 | 0.000 | 3230 000 | 0.000 | 586 500 | 586 500 |
| ET | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 17368.000 | 0 000 | 0.000 | 0.000 | 100 000 | 100 000 | 100 000 | 0 000 | 0.000 | 0 000 |
| X2 | 0.000 | 0 000 | 1 000 | 607.000 | 607 100 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 |
| BT | 21 000 | 0.000 | 613 300 | 0.000 | 90.000 | 607 900 | 0 000 | 275.000 | 606 400 | 0 000 |
| BT | 300 000 | 607.100 | 0 000 | 325.000 | 607 600 | 0 000 | 350 000 | 608 200 | 0 000 | 375.000 |
| BT | 608 800 | 0.000 | 400 000 | 608.800 | 0 000 | 400 000 | 611 800 | 606 100 | 438 500 | 612.100 |
| BT | 606.400 | 478 400 | 612 400 | 606 800 | 513 400 | 612.700 | 607 000 | 550 500 | 612 500 | 606.900 |
| BT | 591.800 | 612.200 | 606 500 | 591 800 | 609 200 | 0 000 | 600.800 | 609 300 | 0 000 | 623.000 |
| BT | 608.600 | 0 000 | 648 300 | 608 200 | 0.000 | 673.300 | 607 600 | 0 000 | 698 300 | 607 200 |
| BT | 0 000 | 723 300 | 606 400 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.025 | 0.028 | 0 025 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 18244.000 | 90 000 | 249 000 | 387.200 | 150 000 | 1400 000 | 876 000 | 0.000 | -0 900 | 0.000 |
| GR | 612.300 | 0 000 | 612 000 | 8.500 | 611.600 | 17 100 | 610 900 | 25.700 | 609 900 | 34.300 |
| GR | 607.500 | 42.900 | 605 500 | 51 500 | 605 100 | 60 100 | 604 700 | 68 600 | 604.600 | 77.200 |
| GR | 604 400 | 85.800 | 604 000 | 94 400 | 603.800 | 103.000 | 604 100 | 111 600 | 604 200 | 120.200 |
| GR | 604 300 | 128.700 | 604 400 | 137 300 | 604 500 | 145 900 | 604 000 | 154 500 | 606 300 | 163 100 |
| GR | 606 300 | 171 700 | 606 300 | 180 300 | 606.100 | 188 800 | 605 900 | 197 400 | 605 700 | 206.000 |
| GR | 605.400 | 214 600 | 604 900 | 223 200 | 604.400 | 231 800 | 604 000 | 240 400 | 603.700 | 249 000 |
| GR | 601.500 | 253 600 | 599.300 | 258 200 | 596 900 | 262 800 | 595.600 | 267 400 | 594 700 | 272 000 |
| GR | 593.800 | 276.600 | 593 000 | 281.200 | 592 200 | 285 800 | 591 800 | 290.400 | 591 500 | 295 000 |
| GR | 591 000 | 299 600 | 589 400 | 304.200 | 588 400 | 308 800 | 588 500 | 313.400 | 588 500 | 318 000 |
| GR | 588 500 | 322.700 | 588 500 | 327.300 | 588 400 | 331 900 | 588.400 | 336.500 | 588 200 | 341.100 |
| GR | 588 200 | 345 700 | 588 300 | 350.300 | 588 400 | 354 900 | 588.500 | 359.500 | 588 500 | 364.100 |
| GR | 590 200 | 368 700 | 592.400 | 373.300 | 595 900 | 377 900 | 597.800 | 382 500 | 599 300 | 387 200 |
| GR | 600 300 | 399 100 | 601 200 | 411.000 | 602 200 | 422.900 | 602.700 | 434 800 | 603.000 | 446 700 |
| GR | 603.300 | 458.600 | 603.700 | 470 500 | 604 000 | 482.400 | 604 300 | 494 300 | 604.700 | 506.200 |
| GR | 605 100 | 518.100 | 605.600 | 530.000 | 606.100 | 542.000 | 606 500 | 553 900 | 607 000 | 565.800 |
| GR | 607 400 | 577 700 | 607 700 | 589.600 | 608.100 | 601.500 | 608.400 | 613.400 | 608 800 | 625 300 |
| GR | 608.800 | 637 200 | 608 900 | 649.100 | 608 900 | 661.000 | 609.000 | 672.900 | 609 000 | 684 900 |
| GR | 609.100 | 696.800 | 609 100 | 708.700 | 609.200 | 720 600 | 609 200 | 732 500 | 609 300 | 744 400 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 030 | 0 045 | 0.025 | 0.100 | 0.300 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 19119.000 | 24 000 | 123 000 | 300 000 | 850 000 | 800 000 | 875 000 | 0 000 | 0 000 | 0.000 |
| GR | 614.200 | 0 000 | 610.300 | 100 000 | 609 200 | 123 000 | 596 200 | 168 000 | 592.400 | 192.000 |
| GR | 588.600 | 195 000 | 588.100 | 200 000 | 588 400 | 210 000 | 588.400 | 220 000 | 588 400 | 230 000 |
| GR | 588 300 | 240 000 | 588.500 | 250 000 | 588 400 | 260 000 | 588.300 | 270 000 | 589 300 | 279 000 |
| GR | 596.300 | 290.000 | 599 600 | 300.000 | 604 300 | 364 000 | 604.900 | 400 000 | 607.100 | 500 000 |
| GR | 610.300 | 600.000 | 613 000 | 700.000 | 612 800 | 800 000 | 612 700 | 900.000 | 0 000 | 0 000 |
| NC | 0 030 | 0.040 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 1.400 | 0.000 | 0 000 | 0.000 |
| X1 | 20219.000 | 32 000 | 0 000 | 328 000 | 1100.000 | 1000 000 | 1100 000 | 0.000 | 0 000 | 0 000 |
| GR | 620.700 | 0.000 | 605.600 | 41 000 | 600 700 | 128 000 | 593 300 | 166 000 | 592.400 | 184.000 |
| GR | 589 900 | 188.000 | 588.300 | 194.000 | 588 500 | 198 000 | 588.100 | 208 000 | 588 200 | 218 000 |
| GR | 587.800 | 228.000 | 588.000 | 238 000 | 587 700 | 248 000 | 588 800 | 258 000 | 589 600 | 268.000 |
| GR | 590.100 | 271.000 | 590.800 | 288 000 | 606.900 | 328 000 | 609 500 | 428.000 | 608 600 | 462.000 |
| GR | 598 700 | 488.000 | 607.200 | 528.000 | 603 500 | 589 000 | 600 600 | 593 000 | 605 800 | 628.000 |
| GR | 609.200 | 728.000 | 607.200 | 828 000 | 609 400 | 928 000 | 610.400 | 1028 000 | 611 700 | 1078.000 |
| GR | 612.600 | 1128 000 | 6130.000 | 1228.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| NC | 0.028 | 0.040 | 0.025 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 21119.000 | 25.000 | 526 000 | 700.000 | 800 000 | 900.000 | 900 000 | 0 000 | 0.000 | 0 000 |
| GR | 610 400 | 0.000 | 608.400 | 100 000 | 607.100 | 200 000 | 603 300 | 300 000 | 600 800 | 360 000 |
| GR | 605.200 | 398.000 | 609.600 | 412.000 | 609 500 | 500 000 | 607 300 | 526.000 | 589 500 | 582 000 |
| GR | 589.100 | 590.000 | 589 200 | 600 000 | 588 800 | 610 000 | 588 900 | 620.000 | 588 700 | 630 000 |
| GR | 588.700 | 640.000 | 589.400 | 650.000 | 589.200 | 660 000 | 589.500 | 663 000 | 599 000 | 679 000 |
| GR | 600.300 | 680.000 | 609.300 | 700.000 | 611.800 | 800.000 | 613 300 | 900.000 | 615.800 | 975.000 |
| NC | 0.028 | 0 035 | 0.025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 22069 000 | 22.000 | 99 000 | 300.000 | 800 000 | 900 000 | 950.000 | 0 000 | 0 000 | 0.000 |
| GR | 630 300 | 0.000 | 607 400 | 0.000 | 609 500 | 99.000 | 604.600 | 120 000 | 602 800 | 144.000 |
| GR | 599.600 | 149.000 | 599 400 | 156.000 | 592 300 | 175 000 | 590.000 | 176 000 | 589 200 | 180 000 |
| GR | 588.800 | 190.000 | 588 200 | 200.000 | 588 400 | 210 000 | 588 600 | 220 000 | 589 500 | 230 000 |
| GR | 590.200 | 239.000 | 591 400 | 245 000 | 594 000 | 249 000 | 596 000 | 268 000 | 608 300 | 300 000 |
| GR | 611.600 | 400.000 | 612.900 | 470 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 5.000 | 8580 000 | 12280.000 | 13000 000 | 15610.000 | 0 000 | 13000 000 | 0.000 | 0 000 | 0 000 |
| NC | 0.028 | 0.028 | 0.025 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 22419.000 | 21 000 | 374 000 | 500.000 | 400.000 | 250 000 | 350 000 | 0.000 | 0 000 | 0 000 |
| GR | 599 900 | 0.000 | 599 300 | 100 000 | 599 200 | 180 000 | 601 300 | 200 000 | 604 500 | 300 000 |
| GR | 601.800 | 374.000 | 589 700 | 391.000 | 588 200 | 400 000 | 588.200 | 410 000 | 588 500 | 420.000 |
| GR | 588 700 | 430.000 | 589.200 | 440.000 | 589 700 | 450.000 | 590.000 | 460 000 | 589 800 | 464 000 |
| GR | 591 700 | 467.000 | 603 800 | 500.000 | 604 300 | 521 000 | 608.900 | 541 000 | 611.500 | 600.000 |
| GR | 613 900 | 700.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 |

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| GR | 598.100 | 800.000 | 603 300 | 802.000 | 598 800 | 802.000 | 598 800 | 808 000 | 597.900 | 810.000 |
| GR | 593 400 | 820 000 | 589.500 | 828.000 | 589.300 | 830 000 | 587 200 | 840 000 | 586 800 | 850.000 |
| GR | 586.200 | 860 000 | 585.900 | 870.000 | 585.600 | 878 900 | 603.400 | 878 900 | 603 400 | 880.700 |
| GR | 603.400 | 882 500 | 585.600 | 882 500 | 585 400 | 890 000 | 586 200 | 900 000 | 586 200 | 910.000 |
| GR | 586.300 | 920 000 | 587.100 | 930 000 | 591.700 | 940.000 | 597.700 | 950 000 | 599 700 | 959 500 |
| GR | 603.400 | 959.500 | 599.600 | 961 500 | 602 500 | 970 000 | 603 700 | 1000.000 | 604 900 | 1038 000 |
| GR | 606.900 | 1100.000 | 607 700 | 1150 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0 000 | 8 100 | 0.000 | 0.000 | 1.400 | 200 000 | 0 000 | 0 000 |
| X1 | 9676 000 | 0 000 | 0.000 | 0.000 | 22.000 | 22.000 | 22.000 | 0 000 | 0.000 | 0.000 |
| X2 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 1 000 | 0 000 | 0.000 | 0.000 |
| NC | 0.035 | 0.040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9677.000 | 28 000 | 860 000 | 1030 000 | 1 000 | 1 000 | 1.000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 280 000 | 0 000 | 1210.000 | 0.000 | 0.000 | 0 000 | 0.000 |
| GR | 604 500 | 0.000 | 603.900 | 60 000 | 603 700 | 160.000 | 603 300 | 260.000 | 601 300 | 360.000 |
| GR | 599 200 | 460 000 | 598 000 | 560 000 | 598 800 | 660 000 | 598 900 | 760 000 | 597.800 | 860.000 |
| GR | 594.000 | 871 000 | 590.300 | 878.000 | 588.900 | 889.000 | 586 900 | 893.000 | 586 400 | 900.000 |
| GR | 585.800 | 910 000 | 585.400 | 920.000 | 585 500 | 930 000 | 585 400 | 940 000 | 585 400 | 950 000 |
| GR | 585.800 | 960.000 | 586 000 | 970.000 | 585 800 | 980 000 | 587 600 | 990 000 | 602 200 | 1030 000 |
| GR | 603.400 | 1060 000 | 606 600 | 1160 000 | 608.200 | 1260.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0.000 | 0.000 | 0 000 | 8 100 | 0.000 | 0 000 | 1.400 | 250 000 | 0 000 | 0 000 |
| X1 | 9777.000 | 0.000 | 0 000 | 0.000 | 100 000 | 100 000 | 100 000 | 0.000 | 0 050 | 0.000 |
| NC | 0 000 | 0 000 | 0.000 | 0.100 | 0.300 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 11596.000 | 34 000 | 812 000 | 1000.000 | 1975.000 | 1660.000 | 1819 000 | 0 000 | 0 300 | 0 000 |
| GR | 612.500 | 0 000 | 612.100 | 100.000 | 611 600 | 200 000 | 611.000 | 300 000 | 609.900 | 400 000 |
| GR | 609.600 | 500.000 | 609.800 | 600 000 | 608.300 | 700.000 | 607 700 | 800 000 | 607 300 | 812 000 |
| GR | 593.300 | 844.000 | 587 200 | 852 000 | 586 900 | 860.000 | 587.100 | 870.000 | 587 100 | 880.000 |
| GR | 587 000 | 890.000 | 587 000 | 900.000 | 586 900 | 910 000 | 586 800 | 920 000 | 586 800 | 930.000 |
| GR | 586 100 | 940.000 | 586 400 | 950.000 | 586 700 | 957 000 | 589 400 | 960 000 | 597.000 | 975.000 |
| GR | 600.400 | 1000.000 | 603.600 | 1050.000 | 602 600 | 1100 000 | 602 300 | 1200 000 | 603.100 | 1300 000 |
| GR | 603.500 | 1400.000 | 604 500 | 1428 000 | 606 900 | 1441 000 | 607 900 | 1500 000 | 0.000 | 0.000 |
| NC | 0.045 | 0.045 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 8.100 | 0.000 | 0.000 | 1.400 | 0 000 | 538 000 | 0.000 |
| X1 | 13196 000 | 27.000 | 0 000 | 238.000 | 1320.000 | 1760.000 | 1600.000 | 0.000 | 0 300 | 0 000 |
| GR | 610.600 | 0.000 | 604 300 | 22 000 | 602 500 | 67.000 | 596.300 | 78 000 | 595 400 | 108.000 |
| GR | 590 500 | 123 000 | 589.700 | 132.000 | 587.500 | 138 000 | 587.000 | 148 000 | 586 500 | 158.000 |
| GR | 586.200 | 168 000 | 585 900 | 178.000 | 585 900 | 188 000 | 585 400 | 198 000 | 585 200 | 208.000 |
| GR | 587 000 | 219.000 | 593.100 | 229 000 | 595 600 | 238 000 | 598 000 | 263 000 | 604.400 | 329.000 |
| GR | 604 500 | 338 000 | 604 100 | 438 000 | 605 200 | 538 000 | 605 500 | 638 000 | 605.900 | 738.000 |
| GR | 606.700 | 838 000 | 607 500 | 938 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 |
| NC | 0 040 | 0 040 | 0.025 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 1 400 | 0.000 | 0 000 | 0 000 |
| X1 | 14796 000 | 33 000 | 0.000 | 300 000 | 1600 000 | 1600 000 | 1600 000 | 0 000 | 0.300 | 0 000 |
| GR | 621.400 | 0 000 | 619.400 | 20.000 | 618 800 | 26 000 | 611 900 | 76.000 | 610.100 | 96.000 |
| GR | 600 100 | 114 000 | 598 600 | 125 000 | 591 300 | 142 000 | 587 700 | 146 000 | 587 400 | 150.000 |
| GR | 587.000 | 160.000 | 587.000 | 170.000 | 587.100 | 180 000 | 587 000 | 190 000 | 587 300 | 200.000 |
| GR | 587 300 | 210.000 | 587 400 | 220 000 | 587.600 | 230 000 | 587 900 | 236 000 | 589 800 | 240 000 |
| GR | 590.800 | 245.000 | 595 000 | 258.000 | 598 200 | 263 000 | 603 900 | 272 000 | 612 800 | 300.000 |

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| GR | 616.300 | 380.000 | 615.200 | 400.000 | 614 400 | 500 000 | 613 300 | 600.000 | 613 300 | 700 000 |
| GR | 610.800 | 800.000 | 611 200 | 900.000 | 608 700 | 960 000 | 0 000 | 0 000 | 0 000 | 0.000 |
| NC | 0.035 | 0 040 | 0 025 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| QT | 5.000 | 9210 000 | 13320.000 | 14260.000 | 17650.000 | 0.000 | 14265 000 | 0 000 | 0 000 | 0.000 |
| X1 | 16096 000 | 22 000 | 100.000 | 314.000 | 1200.000 | 1600.000 | 1300 000 | 0 000 | 0 300 | 0 000 |
| GR | 615 800 | 0.000 | 613.100 | 100 000 | 599.300 | 133 000 | 598.000 | 160.000 | 594 000 | 188 000 |
| GR | 588 200 | 195.000 | 587 500 | 200 000 | 586 800 | 210 000 | 586 500 | 220 000 | 586 700 | 230.000 |
| GR | 587.200 | 240.000 | 587 200 | 250.000 | 587 400 | 260.000 | 588 400 | 270.000 | 594 400 | 285 000 |
| GR | 596.700 | 295.000 | 604.300 | 314 000 | 606.200 | 400 000 | 605 800 | 500.000 | 606 900 | 600 000 |
| GR | 605 900 | 660.000 | 630.000 | 660 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 |
| NC | 0.000 | 0.000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 16396 000 | 35.000 | 177.000 | 323 800 | 300 000 | 300 000 | 300.000 | 0 000 | 0 000 | 0.000 |
| GR | 616.100 | 0 000 | 613 400 | 100 000 | 607 900 | 124.000 | 606 700 | 177 000 | 605 100 | 177 000 |
| GR | 589.200 | 178 500 | 588 500 | 182.000 | 587 800 | 187 000 | 587.500 | 192 000 | 587 700 | 197 000 |
| GR | 588 000 | 202 000 | 587 800 | 207.000 | 587 600 | 217.000 | 587.600 | 227 000 | 588 000 | 237.000 |
| GR | 588.800 | 247.000 | 588.000 | 256 250 | 605 300 | 256.250 | 605 300 | 259 750 | 587 600 | 259.750 |
| GR | 588 400 | 262 000 | 589 600 | 267.000 | 592 400 | 277 000 | 593 200 | 287 000 | 592 100 | 291 000 |
| GR | 593.800 | 297.000 | 600.900 | 317.000 | 602 500 | 321 000 | 605.100 | 323 800 | 604 900 | 327.000 |
| GR | 606.000 | 377.000 | 606.300 | 392.000 | 606 500 | 400.000 | 606 100 | 500 000 | 607 200 | 600.000 |
| SB | 0 000 | 1.620 | 3.070 | 0 000 | 290.000 | 0 000 | 2030 000 | 0.000 | 587 500 | 587.500 |
| ET | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.410 | 0.000 | 0 000 | 0 000 |
| X1 | 16418 000 | 0.000 | 0 000 | 0 000 | 22.000 | 22 000 | 22 000 | 0.000 | 0.000 | 0 000 |
| X2 | 0 000 | 0.000 | 1 000 | 605 300 | 606 100 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| BT | 16 000 | 0 000 | 616 100 | 0 000 | 100 000 | 613 400 | 0.000 | 124 000 | 607.900 | 0.000 |
| BT | 177 000 | 606 700 | 0 000 | 177.000 | 607 500 | 605 100 | 256 200 | 607 600 | 605 300 | 259.700 |
| BT | 607 500 | 605.200 | 323 800 | 607.600 | 605 100 | 323 800 | 606 800 | 0 000 | 327 000 | 606.800 |
| BT | 0 000 | 377 000 | 606.400 | 0.000 | 392 000 | 606.300 | 0 000 | 400 000 | 606.500 | 0.000 |
| BT | 500.000 | 606 100 | 0 000 | 600 000 | 607 200 | 0 000 | 750 000 | 607 200 | 0 000 | 0 000 |
| NC | 0 028 | 0.030 | 0.025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0.000 |
| X1 | 16768 000 | 23 000 | 204.000 | 332 000 | 400 000 | 300 000 | 350 000 | 0 000 | 0 300 | 0.000 |
| ET | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| GR | 609 600 | 0.000 | 607 400 | 55.000 | 601.300 | 155 000 | 597 400 | 204 000 | 588 800 | 227 000 |
| GR | 587 700 | 235.000 | 587.900 | 245 000 | 588 000 | 255 000 | 588 100 | 265.000 | 588 200 | 275 000 |
| GR | 588 300 | 285.000 | 588 400 | 295 000 | 588 500 | 305 000 | 588 600 | 315.000 | 588 300 | 325 000 |
| GR | 589.800 | 328.000 | 590 800 | 332 000 | 599 600 | 355 000 | 602 000 | 455.000 | 604 900 | 552 000 |
| GR | 607 700 | 560 000 | 607 400 | 573 000 | 630 000 | 573 000 | 0.000 | 0.000 | 0.000 | 0 000 |
| NC | 0.025 | 0.028 | 0.025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1.400 | 0.000 | 0 000 | 0 000 |
| X1 | 17168.000 | 41.000 | 375 000 | 474 400 | 600 000 | 100 000 | 400 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 400 | 0.000 | 609 600 | 25 000 | 607 000 | 50.000 | 598 100 | 75 000 | 596 600 | 100 000 |
| GR | 596 500 | 125.000 | 595 300 | 150 000 | 596.600 | 175.000 | 597 000 | 200 000 | 597 900 | 225.000 |
| GR | 596.300 | 236 500 | 601 800 | 246.000 | 601 800 | 250 000 | 602.000 | 275 000 | 601 400 | 300.000 |
| GR | 600.900 | 325.000 | 599.200 | 350.000 | 598 200 | 375 000 | 592 700 | 382 000 | 590.700 | 383.400 |
| GR | 589.400 | 385.500 | 588 900 | 389.000 | 588 800 | 396 000 | 588 600 | 403 000 | 589.200 | 410 000 |
| GR | 588.700 | 417.000 | 588 800 | 424.000 | 588 700 | 431 000 | 588.500 | 438 000 | 588 000 | 445.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3180 000 | 0 000 | 0.000 | 0 000 | 925 000 | 995.000 | 957.000 | 0 000 | 0 440 | 0.000 |
| QT | 5.000 | 9360.000 | 13680.000 | 14820.000 | 19310.000 | 0.000 | 14820 000 | 0 000 | 0.000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 8.100 | 0 000 | 0.000 | 1 400 | 0.000 | 800 000 | 0 000 |
| X1 | 5720.000 | 22 000 | 400.000 | 556.000 | 2600 000 | 2500 000 | 2540 000 | 0 000 | 0 000 | 0 000 |
| GR | 604.700 | 0.000 | 604.500 | 100.000 | 604.500 | 200 000 | 602 000 | 300 000 | 599 300 | 400 000 |
| GR | 586.500 | 422.000 | 585.000 | 430.000 | 584.900 | 440 000 | 584 900 | 460 000 | 585.000 | 480.000 |
| GR | 584.200 | 500 000 | 585.500 | 520.000 | 586.400 | 530.000 | 600.900 | 556 000 | 601.700 | 570 000 |
| GR | 604.300 | 575.000 | 604.100 | 600.000 | 604.300 | 700 000 | 606.700 | 700 000 | 608.100 | 800.000 |
| GR | 606.800 | 900.000 | 606 300 | 920.000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 035 | 0.030 | 0 025 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0.000 | 0 000 | 0 000 | 8 100 | 0.000 | 0.000 | 1 400 | 420.000 | 0 000 | 0.000 |
| X1 | 7470.000 | 28 000 | 900 000 | 1059.000 | 1830 000 | 1750.000 | 1710 000 | 0.000 | 0.000 | 0 000 |
| GR | 604.300 | 0.000 | 604 400 | 100.000 | 603 600 | 200 000 | 603.600 | 300 000 | 603 600 | 400.000 |
| GR | 601.600 | 500.000 | 598 600 | 600.000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586.800 | 919 000 | 585.100 | 925 000 | 584 700 | 935 000 | 584.600 | 945.000 | 584.600 | 955.000 |
| GR | 584.100 | 965 000 | 584 500 | 975.000 | 584.600 | 985 000 | 584.100 | 995 000 | 584.500 | 1005.000 |
| GR | 584.500 | 1015.000 | 585 800 | 1025 000 | 602 000 | 1059.000 | 604.300 | 1100 000 | 606 400 | 1200.000 |
| GR | 607.700 | 1300.000 | 608.500 | 1400.000 | 609.000 | 1500 000 | 0.000 | 0.000 | 0 000 | 0.000 |
| ET | 0 000 | 0.000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 400 | 150.000 | 0 000 | 0.000 |
| X1 | 8270 000 | 28.000 | 900 000 | 1059.000 | 800 000 | 840.000 | 760.000 | 0 870 | 0 300 | 0 000 |
| GR | 604 300 | 0.000 | 604 400 | 100.000 | 603.600 | 200.000 | 603 600 | 300 000 | 603.600 | 400 000 |
| GR | 601.600 | 500.000 | 598 600 | 600 000 | 596 300 | 700.000 | 594 600 | 800.000 | 595.700 | 900.000 |
| GR | 586 800 | 919.000 | 585 100 | 925.000 | 584 700 | 935 000 | 584.600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965.000 | 584.500 | 975.000 | 584 600 | 985.000 | 584 100 | 995 000 | 584.500 | 1005 000 |
| GR | 584.500 | 1015.000 | 585.800 | 1025.000 | 602.000 | 1059 000 | 604 300 | 1100.000 | 606 400 | 1200.000 |
| GR | 607.700 | 1300.000 | 608 500 | 1400.000 | 609.000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.000 | 0 000 | 0 000 | 0 300 | 0.500 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150.000 | 0 000 | 0 000 |
| X1 | 8340.000 | 59.000 | 825 000 | 1010 000 | 70 000 | 70.000 | 70 000 | 0.870 | 0 000 | 0.000 |
| GR | 604.600 | 0 000 | 604 700 | 25 000 | 604 700 | 48.000 | 604 100 | 125 000 | 603 900 | 148.000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325.000 | 603 900 | 348 000 | 602.400 | 425 000 |
| GR | 601.900 | 448.000 | 600 200 | 473 000 | 599 600 | 525.000 | 598 900 | 548 000 | 597.100 | 625 000 |
| GR | 596.600 | 648 000 | 595 300 | 725 000 | 594 900 | 748.000 | 595 800 | 825 000 | 607.300 | 825.000 |
| GR | 598.100 | 825.000 | 598 100 | 830.700 | 587.700 | 856 000 | 585 400 | 857 500 | 584 400 | 864.300 |
| GR | 600.400 | 864 300 | 600 200 | 871.300 | 586.200 | 871 300 | 585 900 | 875.000 | 584 900 | 885.000 |
| GR | 585 000 | 895 000 | 585.200 | 905.000 | 584.900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585 100 | 919 800 | 585 700 | 925.000 | 585.500 | 935 000 | 585 700 | 945.000 | 585 900 | 955 000 |
| GR | 586.300 | 964.800 | 600 200 | 964.800 | 600 400 | 971.400 | 588 100 | 971.400 | 588 100 | 978.600 |
| GR | 597.800 | 1003.200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025 000 | 604 000 | 1036 000 |
| GR | 604.600 | 1048.000 | 606 200 | 1125 000 | 606 700 | 1148.000 | 607 700 | 1225 000 | 608 000 | 1248 000 |
| GR | 608.600 | 1325.000 | 608 800 | 1348 000 | 609 200 | 1425.000 | 609 300 | 1440 000 | 0.000 | 0 000 |
| SB | 0 000 | 1.790 | 2 800 | 0 000 | 161 000 | 0.000 | 1680 000 | 0 000 | 584 400 | 584 400 |
| | | 15 MILE RD US | | | | | | | | |
| X1 | 8394 000 | 59.000 | 825 000 | 1010.000 | 54.000 | 54 000 | 54 000 | 0 870 | 0 000 | 0.000 |
| X2 | 0.000 | 0 000 | 1 000 | 600 400 | 600 900 | 0.000 | 0 000 | 0.000 | 0 870 | 0.000 |
| X3 | 0 000 | 0.000 | 0 000 | 140 000 | 0 000 | 980 000 | 0.000 | 0.000 | 0 000 | 0.000 |
| BT | 27.000 | 0 000 | 604 600 | 0 000 | 48.000 | 604 700 | 0 000 | 148.000 | 603 900 | 0 000 |
| BT | 248.000 | 603 900 | 0 000 | 348 000 | 603.900 | 0 000 | 448 000 | 601.900 | 0.000 | 473 000 |
| BT | 601.200 | 0 000 | 525.000 | 600.900 | 0.000 | 625 000 | 601 100 | 0 000 | 725.000 | 602 300 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 0.000 | 825 000 | 603.700 | 0.000 | 825 000 | 607.300 | 600.400 | 864.300 | 607 300 | 600.400 |
| BT | 871.300 | 607 300 | 600.200 | 915.000 | 607 300 | 600 200 | 919.800 | 607.300 | 600 200 | 964.800 |
| BT | 607 300 | 600.200 | 971.400 | 607.300 | 600 400 | 1010 000 | 607 300 | 600 500 | 1010 000 | 603 700 |
| BT | 0.000 | 1025.000 | 603 900 | 0 000 | 1036 000 | 604.000 | 0 000 | 1048.000 | 604 600 | 0.000 |
| BT | 1148.000 | 606 700 | 0.000 | 1248.000 | 608 000 | 0 000 | 1348 000 | 608 800 | 0 000 | 1440.000 |
| BT | 609 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 600 | 0.000 | 604 700 | 25.000 | 604.700 | 48 000 | 604 100 | 125 000 | 603.900 | 148 000 |
| GR | 603 900 | 225.000 | 603 900 | 248 000 | 603.900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601.900 | 448.000 | 600 200 | 473 000 | 599 600 | 525.000 | 598 900 | 548.000 | 597 100 | 625 000 |
| GR | 596 600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825.000 | 600 400 | 825 000 |
| GR | 598.100 | 825 000 | 598.100 | 830 700 | 587 700 | 856.000 | 585 400 | 857.500 | 584 400 | 864 300 |
| GR | 600.400 | 864 300 | 600.200 | 871.300 | 586 200 | 871.300 | 585.900 | 875.000 | 584 900 | 885 000 |
| GR | 585.000 | 895 000 | 585 200 | 905.000 | 584 900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585.100 | 919.800 | 585.700 | 925.000 | 585.500 | 935 000 | 585 700 | 945 000 | 585.900 | 955.000 |
| GR | 586 300 | 964.800 | 600 200 | 964.800 | 600 400 | 971 400 | 588 100 | 971 400 | 588 100 | 978 600 |
| GR | 597 800 | 1003 200 | 597 900 | 1010.000 | 602 500 | 1010 000 | 603 300 | 1025 000 | 604 000 | 1036 000 |
| GR | 604 600 | 1048 000 | 606 200 | 1125 000 | 606 700 | 1148 000 | 607 700 | 1225 000 | 608 000 | 1248.000 |
| GR | 608.600 | 1325.000 | 608 800 | 1348 000 | 609 200 | 1425.000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| NC | 0 035 | 0.030 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 10440.000 | 15320 000 | 16560.000 | 21140 000 | 0 000 | 16560.000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 8 100 | 1 400 | 160 000 | 0 000 | 0.000 |
| X1 | 8494.000 | 28.000 | 900 000 | 1059.000 | 100.000 | 100.000 | 100 000 | 0 870 | 0 400 | 0.000 |
| GR | 604.300 | 0 000 | 604.400 | 100 000 | 603 600 | 200.000 | 603 600 | 300 000 | 603 600 | 400.000 |
| GR | 601.600 | 500 000 | 598.600 | 600.000 | 596 300 | 700.000 | 594 600 | 800.000 | 595 700 | 900.000 |
| GR | 586 800 | 919 000 | 585.100 | 925 000 | 584.700 | 935 000 | 584 600 | 945.000 | 584 600 | 955.000 |
| GR | 584.100 | 965 .000 | 584.500 | 975.000 | 584.600 | 985.000 | 584 100 | 995 000 | 584 500 | 1005.000 |
| GR | 584.500 | 1015 000 | 585.800 | 1025.000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300.000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 8.100 | 0 000 | 0 000 | 1.400 | 260 000 | 0 000 | 0 000 |
| X1 | 9594 000 | 28.000 | 860.000 | 1030 000 | 630 000 | 1520.000 | 1100 000 | 0 000 | 0 300 | 0 000 |
| GR | 604 500 | 0.000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260.000 | 601.300 | 360 000 |
| GR | 599 200 | 460.000 | 598 000 | 560 000 | 598 800 | 660 000 | 598 900 | 760 000 | 597 800 | 860 000 |
| GR | 594.000 | 871.000 | 590 300 | 878 000 | 588 900 | 889.000 | 586 900 | 893 000 | 586.400 | 900 000 |
| GR | 585 800 | 910.000 | 585 400 | 920 000 | 585.500 | 930 000 | 585 400 | 940 000 | 585 400 | 950 000 |
| GR | 585.800 | 960.000 | 586 000 | 970.000 | 585 500 | 980 000 | 587.600 | 990 000 | 602 200 | 1030 000 |
| GR | 603 400 | 1060.000 | 606 600 | 1160.000 | 608 200 | 1260 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9653.000 | 0 000 | 0.000 | 0.000 | 59 000 | 59.000 | 59 000 | 0 000 | -0 300 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 260.000 | 0 000 | 1210 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0.025 | 0 020 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 8.100 | 0 000 | 0 000 | 1.410 | 200 000 | 0 000 | 0 000 |
| X1 | 9654 000 | 42.000 | 802 000 | 959.500 | 1 000 | 1 000 | 1 000 | 0 000 | 0 000 | 0 000 |
| BT | 21.000 | 0.000 | 604 200 | 0 000 | 33 000 | 604 100 | 0 000 | 100.000 | 604 000 | 0 000 |
| BT | 200 000 | 603.600 | 0.000 | 219 000 | 603 200 | 0 000 | 300 000 | 602.900 | 0 000 | 400.000 |
| BT | 601 800 | 0.000 | 500 000 | 601 400 | 0 000 | 600 000 | 601 500 | 0 000 | 700 000 | 603 000 |
| BT | 0 000 | 800.000 | 604 900 | 0 000 | 800 000 | 605 600 | 0 000 | 802 000 | 605 600 | 603.300 |
| BT | 880.700 | 605.700 | 603 400 | 959 500 | 605 700 | 603 400 | 961 500 | 605.700 | 0 000 | 961.500 |
| BT | 605 200 | 0.000 | 1000 000 | 604 900 | 0 000 | 1038 000 | 604 900 | 0 000 | 1100 000 | 606.900 |
| BT | 0 000 | 1150.000 | 607.700 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 604 200 | 0 000 | 604.100 | 33.000 | 604 000 | 100.000 | 603 600 | 200.000 | 603 200 | 219 000 |
| GR | 601.600 | 300.000 | 599.500 | 400.000 | 598.300 | 500 000 | 599 100 | 600 000 | 599 200 | 700 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 588.800 | 941.000 | 596.100 | 960 000 | 597.600 | 968.000 | 601 000 | 969 000 | 593 300 | 970 000 |
| GR | 594.300 | 1000.000 | 595 000 | 1045.000 | 600 100 | 1069.000 | 604 000 | 1089 000 | 605 300 | 1100.000 |
| GR | 605.400 | 1200.000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500.000 | 603 100 | 1600 000 |
| GR | 605.100 | 1700 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 |
| SB | 0 000 | 1.555 | 3.020 | 0.000 | 174.400 | 0 000 | 2318.400 | 0.000 | 581 700 | 581.700 |
| X1 | 1143.000 | 67 000 | 781 500 | 969.000 | 43 000 | 43.000 | 43 000 | 0.930 | 0 000 | 0.000 |
| X2 | 0 000 | 0 000 | 1.000 | 601 700 | 603.100 | 0 000 | 0 000 | 0 000 | 0 930 | 0 000 |
| X3 | 10 000 | 0.000 | 0 000 | 450.000 | 0.000 | 970.000 | 603.100 | 603 100 | 0 000 | 0 000 |
| BT | 17 000 | 450.000 | 604.600 | 0 000 | 469.000 | 604 600 | 0 000 | 569 000 | 604 700 | 0 000 |
| BT | 669.000 | 604.600 | 0 000 | 769 000 | 604 300 | 0 000 | 780.000 | 604 300 | 0 000 | 780.000 |
| BT | 608.100 | 0.000 | 781.500 | 608.100 | 601 700 | 825 200 | 608.000 | 601 600 | 875 200 | 607 800 |
| BT | 601.400 | 925.200 | 607 500 | 601.100 | 969 000 | 607 400 | 601.000 | 970 000 | 607 400 | 0 000 |
| BT | 970.000 | 604.300 | 0.000 | 1069.000 | 603 100 | 0 000 | 1089 000 | 604 100 | 0.000 | 1100.000 |
| BT | 605.300 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| GR | 602.900 | 0 000 | 602 100 | 69.000 | 601 800 | 100.000 | 602 500 | 169.000 | 602 800 | 200.000 |
| GR | 603.000 | 269.000 | 603 100 | 300 000 | 601 200 | 369 000 | 600 300 | 400.000 | 599 100 | 450.000 |
| GR | 598.700 | 469 000 | 598 000 | 500 000 | 597 600 | 565 000 | 597 600 | 569.000 | 596 700 | 669 000 |
| GR | 596.100 | 740 000 | 594 600 | 769.000 | 593 800 | 780 000 | 601 700 | 781.500 | 598 600 | 782 500 |
| GR | 597.900 | 788 000 | 592.900 | 800 000 | 591 200 | 805 000 | 586 400 | 808.000 | 586 400 | 819.000 |
| GR | 585 800 | 823.900 | 601 600 | 823 900 | 601 600 | 825 200 | 601 600 | 826 500 | 584 800 | 826 500 |
| GR | 584 700 | 829 000 | 584.700 | 839 000 | 584 200 | 849 000 | 584.400 | 859 000 | 584 600 | 869 000 |
| GR | 584 800 | 873.900 | 601.400 | 873 900 | 601.400 | 875 200 | 601 400 | 876 500 | 582 800 | 876 500 |
| GR | 582 600 | 879.000 | 581.700 | 889 000 | 582 100 | 899 000 | 583 500 | 909 000 | 584.600 | 919 000 |
| GR | 585.400 | 923.900 | 601 100 | 923.900 | 601 100 | 925 200 | 601 100 | 926 500 | 586.900 | 926 500 |
| GR | 586.600 | 930.000 | 588 800 | 941 000 | 596.100 | 960 000 | 597 600 | 968.000 | 601 000 | 969.000 |
| GR | 593.300 | 970.000 | 594.300 | 1000.000 | 595.000 | 1045 000 | 600 100 | 1069 000 | 604 000 | 1089.000 |
| GR | 605.300 | 1100 000 | 605.400 | 1200.000 | 605.700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600.000 | 605 100 | 1700.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 |
| X1 | 1150.000 | 31.000 | 800 000 | 944.000 | 7.000 | 7.000 | 7 000 | 0 930 | -1 320 | 0.000 |
| X3 | 0.000 | 0.000 | 0.000 | 780 000 | 0 000 | 980 000 | 0 000 | 603 400 | 603 400 | 0 000 |
| GR | 602.900 | 0 000 | 601 800 | 100 000 | 602.800 | 200 000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598.000 | 500 000 | 597 600 | 565 000 | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 584.400 | 830.000 | 583.900 | 840.000 | 583 700 | 860.000 | 583.100 | 880.000 | 583.400 | 900.000 |
| GR | 583.700 | 910.000 | 586 500 | 921 000 | 588 800 | 926 000 | 589 300 | 938 000 | 592 500 | 944.000 |
| GR | 594 300 | 1000 000 | 595.000 | 1045 000 | 604 100 | 1088 000 | 605.300 | 1100.000 | 605 400 | 1200.000 |
| GR | 605.700 | 1300 000 | 605.600 | 1400 000 | 603 300 | 1500.000 | 603 100 | 1600 000 | 605 400 | 1700.000 |
| GR | 603.700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 150 | 0.150 | 0.025 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 1180.000 | 62.000 | 782.000 | 967.000 | 30 000 | 30.000 | 30 000 | 0 940 | 0 000 | 0.000 |
| X3 | 10 000 | 0 000 | 0.000 | 450.000 | 0.000 | 1100 000 | 0 000 | 603 400 | 603 400 | 0 000 |
| GR | 602 900 | 0.000 | 602.000 | 82.000 | 601.800 | 100 000 | 602.600 | 182 000 | 602 800 | 200.000 |
| GR | 603 000 | 282.000 | 603.100 | 300.000 | 600.800 | 382.000 | 600 300 | 400 000 | 598 400 | 482.000 |
| GR | 598.000 | 500.000 | 597 600 | 565.000 | 597 400 | 582 000 | 596 600 | 682 000 | 596 100 | 740 000 |
| GR | 594 000 | 780.000 | 601 000 | 782.000 | 597 100 | 783 000 | 596 400 | 789 000 | 591 700 | 809 000 |
| GR | 590.900 | 819.000 | 588 400 | 823.400 | 600 900 | 823 400 | 600 900 | 824 700 | 600 900 | 826 000 |
| GR | 587 500 | 826 000 | 587 200 | 832 000 | 584 300 | 842 000 | 584 100 | 852 000 | 583 800 | 862 000 |
| GR | 583 600 | 873.400 | 600 900 | 873 400 | 600 900 | 874.700 | 600 900 | 876.000 | 583 900 | 876 000 |
| GR | 582.900 | 882 000 | 582 700 | 892.000 | 582 700 | 902 000 | 582 100 | 912.000 | 583 400 | 923 200 |
| GR | 600 900 | 923 200 | 600 900 | 924 500 | 600 900 | 925 800 | 587 300 | 925 800 | 588 900 | 930 000 |
| GR | 591.300 | 939.000 | 596.700 | 961 000 | 598 100 | 966 000 | 600 900 | 967.000 | 593 300 | 970 000 |
| GR | 593.700 | 982 000 | 594 300 | 1000 000 | 595.000 | 1045 000 | 602.800 | 1082 000 | 604 100 | 1088 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 605.300 | 1100 000 | 605.400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603.100 | 1600 000 | 605.100 | 1700.000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 |
| SB | 0.000 | 1.561 | 3 040 | 0.000 | 173 900 | 0 000 | 2121.100 | 0 000 | 582 100 | 582.100 |
| | | 16 MILE RD US | | | | | | | | |
| X1 | 1223 000 | 63.000 | 782 000 | 967.000 | 43 000 | 43 000 | 43 000 | 0 940 | 0 000 | 0 000 |
| X2 | 0.000 | 0.000 | 1 000 | 601 000 | 603 400 | 0 000 | 0.000 | 0 000 | 0.940 | 0 000 |
| X3 | 10.000 | 0.000 | 0 000 | 450.000 | 0 000 | 1100 000 | 0.000 | 603 400 | 603.400 | 0.000 |
| BT | 17.000 | 0.000 | 603.300 | 0.000 | 482 000 | 603.400 | 0 000 | 582 000 | 603 600 | 0 000 |
| BT | 682.000 | 603.500 | 0 000 | 780 000 | 603.500 | 0.000 | 780 000 | 607.700 | 0.000 | 782.000 |
| BT | 607.700 | 601.000 | 824 700 | 607.600 | 600 900 | 847.700 | 607 600 | 600 900 | 924 500 | 607.600 |
| BT | 600.900 | 967.000 | 607.600 | 600 900 | 970 000 | 607 600 | 0 000 | 970 000 | 603 400 | 0 000 |
| BT | 982.000 | 603.500 | 0.000 | 1082 000 | 603 300 | 0 000 | 1088 000 | 604 100 | 0 000 | 1100 000 |
| BT | 605.300 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| GR | 602 900 | 0 000 | 602 000 | 82 000 | 601 800 | 100 000 | 602 600 | 182 000 | 602 800 | 200 000 |
| GR | 603 000 | 282 000 | 603 100 | 300 000 | 600.800 | 382 000 | 600 300 | 400 000 | 599 100 | 450.000 |
| GR | 598 400 | 482.000 | 598 000 | 500.000 | 597 600 | 565.000 | 597 400 | 582 000 | 596.600 | 682.000 |
| GR | 596.100 | 740 000 | 594 000 | 780 000 | 601 000 | 782 000 | 597 100 | 783 000 | 596 400 | 789 000 |
| GR | 591.700 | 809.000 | 590 900 | 819 000 | 588.400 | 823 400 | 600.900 | 823 400 | 600 900 | 824 700 |
| GR | 600 900 | 826 000 | 587 500 | 826 000 | 587 200 | 832 000 | 584.300 | 842 000 | 584 100 | 852 000 |
| GR | 583.800 | 862 000 | 583 600 | 873 400 | 600 900 | 873 400 | 600 900 | 874 700 | 600 900 | 876.000 |
| GR | 583 900 | 876 000 | 582 900 | 882.000 | 582 700 | 892 000 | 582 700 | 902 000 | 582 100 | 912.000 |
| GR | 583.400 | 923.200 | 600 900 | 923.200 | 600 900 | 924 500 | 600.900 | 925 800 | 587 300 | 925.800 |
| GR | 588.900 | 931.000 | 591 300 | 939.000 | 596 700 | 961.000 | 598.100 | 966 000 | 600 900 | 967.000 |
| GR | 593.300 | 970.000 | 593 700 | 982.000 | 594 300 | 1000 000 | 595.000 | 1045 000 | 602 800 | 1082.000 |
| GR | 604.100 | 1088.000 | 605.300 | 1100 000 | 605.400 | 1200 000 | 605 700 | 1300 000 | 605.600 | 1400 000 |
| GR | 603.300 | 1500.000 | 603 100 | 1600 000 | 605 100 | 1700.000 | 0.000 | 0.000 | 0.000 | 0 000 |
| NC | 0.040 | 0.040 | 0 025 | 0 300 | 0 500 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 |
| X1 | 1323 000 | 31.000 | 800 000 | 944 000 | 100.000 | 100.000 | 100 000 | 0 940 | -0 950 | 0 000 |
| X3 | 0.000 | 0.000 | 0.000 | 350 000 | 0 000 | 1000.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602.900 | 0.000 | 601 800 | 100 000 | 602.800 | 200.000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598.000 | 500.000 | 597 600 | 565.000 | 596.100 | 740.000 | 593.000 | 800 000 | 586.400 | 820.000 |
| GR | 584.400 | 830 000 | 583 900 | 840 000 | 583.700 | 860 000 | 583 100 | 880 000 | 583 400 | 900.000 |
| GR | 583 700 | 910 000 | 586 500 | 921 000 | 588 800 | 926.000 | 589 300 | 938 000 | 592 500 | 944 000 |
| GR | 594 300 | 1000 000 | 595.000 | 1045 000 | 604.100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200.000 |
| GR | 605 700 | 1300.000 | 605 600 | 1400.000 | 603 300 | 1500 000 | 603 100 | 1600 000 | 605.400 | 1700 000 |
| GR | 603 700 | 1800.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.110 | 0.060 | 0 025 | 0 100 | 0.300 | 0.000 | 0 000 | 0.000 | 0 000 | 0.000 |
| ET | 0.000 | 0.000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 600.000 | 0 000 |
| X1 | 2223.000 | 23.000 | 300 000 | 446.000 | 870 000 | 940 000 | 900 000 | 0 000 | -0 440 | 0 000 |
| GR | 615 500 | 0.000 | 615 300 | 100 000 | 613 000 | 200.000 | 611 500 | 222 000 | 601 200 | 252 000 |
| GR | 598.900 | 300.000 | 586 000 | 323.000 | 585 200 | 330 000 | 584.600 | 340 000 | 584 800 | 360 000 |
| GR | 584.200 | 380.000 | 583 000 | 400.000 | 583 600 | 420 000 | 583.900 | 430 000 | 586 600 | 437 000 |
| GR | 593.700 | 446.000 | 594 600 | 463 000 | 607 000 | 503 000 | 607 700 | 600 000 | 608 200 | 700 000 |
| GR | 608.200 | 800.000 | 607.500 | 900 000 | 606.400 | 1000 000 | 0.000 | 0 000 | 0.000 | 0 000 |
| NC | 0.040 | 0.040 | 0.025 | 0 100 | 0 300 | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 |
| ET | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 8 100 | 1.400 | 0.000 | 600.000 | 0 000 |

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************


C
T1    REVISED PROFILES FOR RED RUN DRAIN BY MDNR
T2    DISCHARGES COMPUTED BY MDNR USING SAM MODEL
T3       RED RUN DRAIN  100-YEAR NATURAL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4         0.        0.   0 000000    0 00      0.0       0     599 700     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    0 000     0.000    -1.000     0 000     0 000     0 000     0 000     0 000     0.000     0 000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   200 000   0 000     0.000     0 000     0 000     0.000     0 000     0.000     0 000

J5  LPRNT     NUMSEC                      ********REQUESTED SECTION NUMBERS********

    0.000     0.000     0.000     0 000     0 000     0.000     0 000     0 000     0 000     0.000

QT      5.000  10780.000  15910 000  17390.000  23340 000     0 000  17390 000     0 000     0 000     0.000
NC      0 040      0 040      0.030      0 300      0 500     0 000      0 000     0 000     0 000     0 000
X1    165 000     53 000    800 000    985 800      0 000     0 000      0 000     0 920     0 000     0.000
X3      0.000      0.000      0 000    300 000      0.000  1100 000      0.000     0.000     0 000     0 000
GR    602 900      0.000    601 800    100 000    602 800    200 000    603 100   300 000   601 600   350 000
GR    601 600    380 000    600 300    400 000    598 000    500.000    597 600   565 000   597.300   600.000
GR    596 400    700 000    596.100    740 000    593 200    797.000    593 100   797 100   593 000   800 000
GR    592.200    800 000    591.000    806.000    590 300    810.000    585.300   816.000   582 700   820.000
GR    577 800    830 000    578.400    840.000    580 100    850 000    577 300   860.000   576.900   870.000
GR    577 100    875 000    577.500    877 200    595 900    877 200    592 400   897.000   591 700   900 800
GR    581.600    900 800    582.300    913.000    583 100    925 000    584 600   936.000   589.700   948.000
GR    590.900    953 000    591 300    973 000    591 500    985 800    591 700   985.800   592.100   988 000
GR    592.100    988 100    594.300   1000.000    595 000   1045 000    600 700  1080 000   604 100  1088.000
GR    605.300   1100 000    605 400   1200.000    605.700   1300 000    605.600  1400 000   603 300  1500 000
GR    603.100   1600.000    605.400   1700.000    603.700   1800.000      0 000      0 000     0 000     0 000

SB      0.000      1.540      2 800      0.000    170 000      0.000   1389.000      0.000   576.900   576.900
              UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601.7
X1    194 000     53.000    800 000    985 800     29 000     29 000     29 000     0.920     0.000     0.000
X2      0.000      0.000      1 000    596.300    599 600      0 000      0 000     0.000     0 920     0.000
X3      0 000      0.000      0 000    300 000      0 000  1100 000      0 000     0 000     0 000     0.000
BT     32 000    300.000    603 100      0.000    350 000    601.200      0 000   380 000   601 200     0.000
BT    400 000    601.400      0 000    500 000    601 000      0 000    600 000   600.700     0 000   700.000
BT    600.100      0.000    797 000    599.700      0.000    797 100    603 300     0 000   800.000   603.300
BT    593.000    800.000    603 300    595 900    820.000    603.300    595 900   830 000   603.400   595 900
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 850.000 | 603.400 | 595 900 | 870.000 | 603 200 | 595 900 | 875 000 | 603.100 | 595 900 | 877 200 |
| BT | 603.100 | 595.900 | 897 000 | 603 300 | 592 400 | 900.800 | 603.300 | 591.700 | 913 000 | 605.000 |
| BT | 596.300 | 925.000 | 608.000 | 596.300 | 936.000 | 609 800 | 596 300 | 943.000 | 610 300 | 596.300 |
| BT | 953.000 | 609 400 | 596 300 | 973 000 | 605.000 | 596 300 | 985 800 | 603.300 | 591 700 | 988.000 |
| BT | 603 300 | 0 000 | 988 100 | 599.600 | 0 000 | 1000 000 | 600 200 | 0.000 | 1080.000 | 600 700 |
| BT | 0.000 | 1088 000 | 604.100 | 0 000 | 1100 000 | 605 300 | 0 000 | 0.000 | 0.000 | 0 000 |
| GR | 602 900 | 0.000 | 601 800 | 100 000 | 602.800 | 200 000 | 603 100 | 300.000 | 601 600 | 350.000 |
| GR | 601 600 | 380.000 | 600 300 | 400 000 | 598.000 | 500 000 | 597.600 | 565 000 | 597 300 | 600.000 |
| GR | 596 400 | 700.000 | 596 100 | 740 000 | 593 200 | 797.000 | 593 100 | 797.100 | 593.000 | 800.000 |
| GR | 592.200 | 800.000 | 591.000 | 806 000 | 590 300 | 810.000 | 585.300 | 816.000 | 582 700 | 820.000 |
| GR | 577 800 | 830.000 | 578.400 | 840 000 | 580 100 | 850.000 | 577 300 | 860.000 | 576 900 | 870.000 |
| GR | 577.100 | 875.000 | 577.500 | 877.200 | 595 900 | 877.200 | 592 400 | 897.000 | 591 700 | 900 800 |
| GR | 581.600 | 900.800 | 582.300 | 913 000 | 583 100 | 925.000 | 584 600 | 936 000 | 589 700 | 943.000 |
| GR | 590 900 | 953.000 | 591 300 | 973 000 | 591 500 | 985 800 | 591 700 | 985 800 | 592 100 | 988 000 |
| GR | 592.100 | 988.100 | 594 300 | 1000 000 | 595.000 | 1045 000 | 600.700 | 1080 000 | 604 100 | 1088.000 |
| GR | 605 300 | 1100.000 | 605.400 | 1200 000 | 605 700 | 1300.000 | 605.600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603.100 | 1600.000 | 605.400 | 1700.000 | 603.700 | 1800 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0.150 | 0.150 | 0 030 | 0.000 | 0.000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| X1 | 594.000 | 34.000 | 800 000 | 944.000 | 420 000 | 385 000 | 400.000 | 0 930 | -2 930 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 350.000 | 0 000 | 1100 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602.900 | 0.000 | 601.800 | 100.000 | 602 800 | 200 000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 590 300 | 587.000 | 590 100 | 694 000 | 595 300 | 708.000 |
| GR | 596.100 | 740 000 | 593 000 | 800.000 | 586 400 | 820.000 | 584 400 | 830 000 | 583 900 | 840.000 |
| GR | 583.700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 | 583 700 | 910 000 | 586.500 | 921 000 |
| GR | 588 800 | 926.000 | 589 300 | 938 000 | 592 500 | 944 000 | 594 300 | 1000 000 | 595 000 | 1045.000 |
| GR | 604 100 | 1088.000 | 605 300 | 1100.000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605 600 | 1400 000 |
| GR | 603 300 | 1500.000 | 603 100 | 1600 000 | 605 400 | 1700 000 | 603 700 | 1800 000 | 0.000 | 0 000 |
| QT | 5 000 | 10060.000 | 14650 000 | 16040 000 | 21540 000 | 0 000 | 16040 000 | 0.000 | 0.000 | 0 000 |
| NC | 0 400 | 0.400 | 0 025 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 1039 000 | 34.000 | 800 000 | 944 000 | 465 000 | 430.000 | 445 000 | 0 930 | 0 000 | 0.000 |
| X3 | 0 000 | 0.000 | 0 000 | 760 000 | 0 000 | 1000.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0.000 | 601.800 | 100.000 | 602 800 | 200.000 | 603 100 | 300.000 | 600 300 | 400 000 |
| GR | 598.000 | 500 000 | 597.600 | 565.000 | 590 300 | 587 000 | 590 100 | 694 000 | 595 300 | 708 000 |
| GR | 596.100 | 740.000 | 593 000 | 800 000 | 586 400 | 820.000 | 584 400 | 830 000 | 583 900 | 840 000 |
| GR | 583.700 | 860.000 | 583.100 | 880.000 | 583 400 | 900.000 | 583 700 | 910 000 | 586 500 | 921 000 |
| GR | 588.800 | 926 000 | 589.300 | 938.000 | 592 500 | 944 000 | 594 300 | 1000 000 | 595 000 | 1045 000 |
| GR | 604.100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605.700 | 1300 000 | 605 600 | 1400 000 |
| GR | 603.300 | 1500.000 | 603 100 | 1600.000 | 605 400 | 1700 000 | 603 700 | 1800 000 | 0 000 | 0 000 |
| | | 16 MILE RD DS | | | | | | | | |
| X1 | 1100.000 | 66.000 | 781.500 | 969.000 | 61 000 | 61.000 | 61.000 | 0 930 | 0 000 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450.000 | 0 000 | 1100 000 | 0 000 | 602.400 | 602 400 | 0 000 |
| GR | 602 900 | 0.000 | 602 100 | 69 000 | 601 800 | 100 000 | 602.500 | 169 000 | 602 800 | 200 000 |
| GR | 603 000 | 269.000 | 603 100 | 300 000 | 601.200 | 369 000 | 600 300 | 400 000 | 598 700 | 469 000 |
| GR | 598 000 | 500 000 | 597 600 | 565.000 | 597 600 | 569 000 | 596 700 | 669 000 | 596.100 | 740 000 |
| GR | 594 600 | 769.000 | 593 800 | 780 000 | 601 700 | 781.500 | 598 600 | 782 500 | 597 900 | 788 000 |
| GR | 592.900 | 800 000 | 591 200 | 805 000 | 586.400 | 808 000 | 586 400 | 819 000 | 585 800 | 823 900 |
| GR | 601 600 | 823.900 | 601 600 | 825.200 | 601 600 | 826 500 | 584.800 | 826 500 | 584 700 | 829 000 |
| GR | 584 700 | 839.000 | 584 200 | 849.000 | 584 400 | 859 000 | 584 600 | 869.000 | 584 800 | 873 900 |
| GR | 601.400 | 873.900 | 601.400 | 875 200 | 601.400 | 876 500 | 582.800 | 876 500 | 582 600 | 879 000 |
| GR | 581.700 | 889.000 | 582.100 | 899 000 | 583 500 | 909.000 | 584 600 | 919 000 | 585 400 | 923 900 |
| GR | 601.100 | 923.900 | 601.100 | 925.200 | 601 100 | 926 500 | 586 900 | 926 500 | 586 600 | 930 000 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 31299 000 | 6510.00 | 608 56 | 0.00 | -0 02 | 0 00 | 110 13 | 100 00 |
| 31299 000 | 8680 00 | 612.76 | 4 20 | -0.02 | 4 20 | 128.71 | 100 00 |
| 31299 000 | 8680 00 | 613 14 | 0 37 | -0 02 | 4.57 | 130.36 | 100 00 |
| 31299 000 | 8680 00 | 614 16 | 1.03 | -0 01 | 5 60 | 221 41 | 100 00 |
| 31350.000 | 6510 00 | 608.48 | 0.00 | -0 08 | 0 00 | 109 76 | 51 00 |
| 31350 000 | 8680 00 | 614 17 | 5 69 | 1.40 | 5 69 | 223 39 | 51 00 |
| 31350 000 | 8680 00 | 614 46 | 0 29 | 1 32 | 5 98 | 235 75 | 51.00 |
| 31350 000 | 8680 00 | 615 20 | 0.74 | 1 04 | 6 72 | 250 47 | 51 00 |
| 31430 000 | 6510.00 | 608 88 | 0.00 | 0 40 | 0 00 | 111.57 | 80 00 |
| 31430.000 | 8680 00 | 614.19 | 5 32 | 0.03 | 5 32 | 235 16 | 80 00 |
| 31430.000 | 8680.00 | 614.48 | 0 29 | 0 02 | 5 60 | 235 83 | 80 00 |
| 31430 000 | 8680 00 | 615 22 | 0 74 | 0 02 | 6 34 | 252 15 | 80 00 |
| 31483 000 | 6510 00 | 608 77 | 0 00 | -0 10 | 0 00 | 111 11 | 53 00 |
| 31483 000 | 8680 00 | 615 39 | 6 61 | 1 20 | 6 61 | 262.98 | 53 00 |
| 31483 000 | 8680.00 | 615 57 | 0 18 | 1 09 | 6 80 | 275 01 | 53 00 |
| 31483.000 | 8680 00 | 616 01 | 0.44 | 0.79 | 7 24 | 304 57 | 53 00 |
| 31583 000 | 6510.00 | 609 46 | 0 00 | 0 69 | 0 00 | 112 55 | 100 00 |
| 31583.000 | 8680.00 | 615 47 | 6 00 | 0 08 | 6 00 | 207 71 | 100 00 |
| 31583.000 | 8680 00 | 615 64 | 0 17 | 0.07 | 6 18 | 219 29 | 100 00 |
| 31583 000 | 8680.00 | 616 07 | 0 43 | 0.05 | 6 61 | 247 79 | 100 00 |
| 33333 000 | 6510 00 | 610.07 | 0.00 | 0 61 | 0.00 | 125 50 | 1750 00 |
| 33333.000 | 8680.00 | 615 77 | 5 70 | 0.30 | 5.70 | 364.90 | 1750.00 |
| 33333.000 | 8680.00 | 615 93 | 0 16 | 0.29 | 5.87 | 375.53 | 1750 00 |
| 33333 000 | 8680.00 | 616.34 | 0.40 | 0.27 | 6.27 | 416 39 | 1750 00 |
| 33433.000 | 6510 00 | 610.07 | 0 00 | -0 00 | 0 00 | 124.93 | 100 00 |
| 33433.000 | 8680 00 | 615 77 | 5.70 | 0 00 | 5 70 | 352 90 | 100.00 |
| 33433 000 | 8680.00 | 615 93 | 0 16 | 0 00 | 5 87 | 367.51 | 100 00 |
| 33433 000 | 8680 00 | 616 34 | 0 41 | 0.00 | 6 27 | 418 62 | 100 00 |
| * 33438.000 | 6510 00 | 610 07 | 0.00 | 0 00 | 0 00 | 124 93 | 5 00 |
| 33438 000 | 8680 00 | 615 88 | 5 82 | 0 11 | 5 82 | 358.75 | 5 00 |
| 33438 000 | 8680.00 | 616 03 | 0.15 | 0 10 | 5 97 | 383 85 | 5.00 |
| 33438.000 | 8680 00 | 616.42 | 0.38 | 0 08 | 6 35 | 426 80 | 5 00 |
| 33538 000 | 6510 00 | 610 17 | 0.00 | 0.11 | 0.00 | 125 07 | 100 00 |
| 33538 000 | 8680.00 | 615.92 | 5.75 | 0 04 | 5.75 | 362 36 | 100 00 |
| 33538.000 | 8680.00 | 616 07 | 0 15 | 0 03 | 5.89 | 371 30 | 100 00 |
| 33538.000 | 8680 00 | 616 44 | 0 38 | 0 03 | 6 27 | 406 66 | 100 00 |
| 34888 000 | 6510 00 | 610 56 | 0 00 | 0 39 | 0 00 | 123 12 | 1350 00 |
| 34888.000 | 8680 00 | 616 07 | 5 51 | 0 16 | 5 51 | 270 74 | 1350 00 |
| 34888 000 | 8680 00 | 616 22 | 0 14 | 0 15 | 5 66 | 281 59 | 1350 00 |
| 34888 000 | 8680 00 | 616 58 | 0 36 | 0 13 | 6 02 | 309.42 | 1350 00 |

| SECND | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 37038.000 | 6510.00 | 611 26 | 0 00 | 0 70 | 0.00 | 119.13 | 2150 00 |
| 37038 000 | 8680.00 | 616 41 | 5 15 | 0.34 | 5 15 | 145 64 | 2150 00 |
| 37038 000 | 8680 00 | 616 54 | 0 13 | 0 32 | 5 28 | 166 88 | 2150 00 |
| 37038.000 | 8680 00 | 616 87 | 0.33 | 0 29 | 5 61 | 221 74 | 2150 00 |
| 37088 000 | 6510 00 | 611 14 | 0 00 | -0 12 | 0 00 | 107 67 | 50 00 |
| 37088 000 | 8680 00 | 616 35 | 5 21 | -0 06 | 5 21 | 143 72 | 50 00 |
| 37088 000 | 8680 00 | 616 48 | 0 13 | -0 06 | 5 34 | 157 84 | 50 00 |
| 37088 000 | 8680.00 | 616 81 | 0 34 | -0 06 | 5 67 | 214 57 | 50 00 |
| 37121.000 | 6510.00 | 611 18 | 0 00 | 0 04 | 0 00 | 108.27 | 33 00 |
| 37121.000 | 8680.00 | 616.92 | 5 74 | 0.57 | 5 74 | 224 20 | 33 00 |
| 37121.000 | 8680 00 | 617 06 | 0 14 | 0 58 | 5 88 | 237 24 | 33 00 |
| 37121 000 | 8680 00 | 617.42 | 0 36 | 0 61 | 6 25 | 270 97 | 33 00 |
| 37221.000 | 6510.00 | 611 60 | 0 00 | 0.43 | 0 00 | 120 55 | 100 00 |
| 37221 000 | 8680 00 | 617.11 | 5 51 | 0 20 | 5 51 | 147 40 | 100 00 |
| 37221 000 | 8680.00 | 617 25 | 0.13 | 0 19 | 5 64 | 148.04 | 100.00 |
| 37221.000 | 8680.00 | 617 59 | 0 34 | 0.17 | 5.99 | 234.50 | 100 00 |
| 39121.000 | 6510.00 | 612 20 | 0 00 | 0 60 | 0 00 | 117 36 | 1900 00 |
| 39121.000 | 8680.00 | 617 42 | 5 22 | 0 31 | 5 22 | 167 08 | 1900 00 |
| 39121.000 | 8680.00 | 617 54 | 0.12 | 0 30 | 5 35 | 167.71 | 1900 00 |
| 39121.000 | 8680 00 | 617 87 | 0 32 | 0 27 | 5 67 | 169.34 | 1900 00 |
| 41121 000 | 6510 00 | 612 95 | 0.00 | 0 75 | 0 00 | 89.55 | 2000 00 |
| 41121 000 | 8680 00 | 617 78 | 4.83 | 0 36 | 4 83 | 105 50 | 2000 00 |
| 41121 000 | 8680.00 | 617 89 | 0.11 | 0 35 | 4 95 | 105.88 | 2000 00 |
| 41121 000 | 8680.00 | 618 19 | 0 29 | 0 32 | 5 24 | 106 86 | 2000 00 |
| 42521.000 | 6510.00 | 613 74 | 0.00 | 0.80 | 0 00 | 132 61 | 1400 00 |
| 42521.000 | 8680 00 | 618.36 | 4.62 | 0.59 | 4 62 | 159 83 | 1400.00 |
| 42521.000 | 8680.00 | 618 47 | 0.10 | 0 57 | 4 72 | 160 43 | 1400 00 |
| 42521.000 | 8680 00 | 618 74 | 0 27 | 0.55 | 4 99 | 162 01 | 1400 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 22419 000 | 8580.00 | 605 58 | 0 00 | 0 39 | 0 00 | 526.58 | 350 00 |
| 22419 000 | 12280.00 | 609 05 | 3 47 | 0 46 | 3 47 | 544.51 | 350 00 |
| 22419.000 | 13000.00 | 609 59 | 0.53 | 0 48 | 4 01 | 556 64 | 350 00 |
| 22419 000 | 15610.00 | 611 42 | 1.83 | 0 53 | 5 83 | 598 09 | 350 00 |
| 23319 000 | 8580.00 | 605 54 | 0.00 | -0 04 | 0 00 | 172.16 | 900 00 |
| 23319.000 | 12280 00 | 608 95 | 3.41 | -0.10 | 3 41 | 504 87 | 900 00 |
| 23319.000 | 13000.00 | 609 49 | 0 54 | -0 10 | 3.94 | 576 76 | 900.00 |
| 23319.000 | 15610.00 | 611 35 | 1 86 | -0 06 | 5 81 | 850 35 | 900 00 |
| 23569.000 | 6510.00 | 605 82 | 0 00 | 0 27 | 0 00 | 152 07 | 250 00 |
| 23569.000 | 8680.00 | 609.22 | 3 40 | 0.27 | 3 40 | 461.00 | 250 00 |
| 23569.000 | 8680 00 | 609 76 | 0 55 | 0 28 | 3.95 | 598 08 | 250 00 |
| 23569 000 | 8680 00 | 611 61 | 1.85 | 0.26 | 5.79 | 717 82 | 250 00 |
| 24369 000 | 6510.00 | 605 89 | 0 00 | 0 08 | 0 00 | 128 17 | 800 00 |
| 24369 000 | 8680 00 | 609 25 | 3 36 | 0 04 | 3 36 | 216 60 | 800 00 |
| 24369 000 | 8680 00 | 609 79 | 0 54 | 0 03 | 3 90 | 283 51 | 800 00 |
| 24369 000 | 8680.00 | 611 61 | 1 82 | -0 00 | 5 71 | 450 00 | 800 00 |
| 25819 000 | 6510 00 | 606 21 | 0 00 | 0 31 | 0 00 | 110 59 | 1450 00 |
| 25819 000 | 8680 00 | 609 49 | 3.28 | 0 24 | 3 28 | 153.50 | 1450 00 |
| 25819.000 | 8680.00 | 609.99 | 0.50 | 0 20 | 3 78 | 227.21 | 1450 00 |
| 25819.000 | 8680.00 | 611 73 | 1.74 | 0 12 | 5.52 | 515.00 | 1450 00 |
| 25919 000 | 6510.00 | 606 21 | 0.00 | -0 00 | 0 00 | 106.52 | 100 00 |
| 25919 000 | 8680.00 | 609 49 | 3.28 | -0 01 | 3 28 | 154.83 | 100 00 |
| 25919 000 | 8680.00 | 609 98 | 0.50 | -0.00 | 3 78 | 216.00 | 100.00 |
| 25919 000 | 8680 00 | 611 74 | 1.75 | 0 01 | 5 53 | 463.00 | 100 00 |
| 26025 000 | 6510 00 | 606 32 | 0 00 | 0.11 | 0 00 | 107 07 | 106 00 |
| 26025.000 | 8680 00 | 610 26 | 3 93 | 0 77 | 3.93 | 297 01 | 106 00 |
| 26025.000 | 8680 00 | 610 72 | 0 46 | 0 74 | 4.40 | 435 04 | 106 00 |
| 26025.000 | 8680 00 | 612 11 | 1 39 | 0 37 | 5.79 | 463 00 | 106 00 |
| 26125.000 | 6510.00 | 606 48 | 0 00 | 0.15 | 0 00 | 108.30 | 100 00 |
| 26125.000 | 8680.00 | 610 35 | 3 87 | 0.09 | 3 87 | 173 31 | 100 00 |
| 26125.000 | 8680.00 | 610 78 | 0.43 | 0 06 | 4 30 | 273 36 | 100 00 |
| 26125 000 | 8680.00 | 612.11 | 1.33 | 0 00 | 5 64 | 490 00 | 100 00 |
| 26900.000 | 6510.00 | 606.90 | 0 00 | 0.42 | 0 00 | 104 59 | 775 00 |
| 26900 000 | 8680.00 | 610 65 | 3 75 | 0 29 | 3.75 | 317 21 | 775 00 |
| 26900 000 | 8680.00 | 611 05 | 0 40 | 0 27 | 4 15 | 387.97 | 775 00 |
| 26900.000 | 8680.00 | 612 29 | 1.24 | 0 18 | 5 39 | 404 62 | 775 00 |
| 27150.000 | 6510.00 | 606 96 | 0.00 | 0 06 | 0 00 | 166 78 | 250.00 |
| 27150 000 | 8680 00 | 610 73 | 3 77 | 0.08 | 3.77 | 233 44 | 250 00 |
| 27150.000 | 8680 00 | 611 12 | 0.39 | 0 07 | 4 16 | 242 07 | 250 00 |
| 27150.000 | 8680 00 | 612 32 | 1.21 | 0 04 | 5 37 | 289 77 | 250.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 27900 000 | 6510 00 | 607 26 | 0 00 | 0 30 | 0 00 | 146.11 | 750 00 |
| 27900 000 | 8680.00 | 610 91 | 3 65 | 0.19 | 3.65 | 202 67 | 750 00 |
| 27900 000 | 8680.00 | 611 28 | 0 37 | 0 17 | 4 03 | 213.03 | 750 00 |
| 27900 000 | 8680.00 | 612 44 | 1 16 | 0 12 | 5 19 | 353.99 | 750 00 |
| 28000 000 | 6510 00 | 607 28 | 0 00 | 0 02 | 0 00 | 140 42 | 100 00 |
| 28000 000 | 8680 00 | 610 92 | 3.65 | 0 01 | 3 65 | 193 91 | 100 00 |
| 28000 000 | 8680 00 | 611 29 | 0 37 | 0 01 | 4 02 | 203 27 | 100 00 |
| 28000 000 | 8680.00 | 612 45 | 1 16 | 0 01 | 5 17 | 336 17 | 100 00 |
| 28031 000 | 6510.00 | 607 29 | 0.00 | 0 01 | 0 00 | 140 37 | 31 00 |
| 28031.000 | 8680 00 | 611 61 | 4 32 | 0 68 | 4 32 | 211 05 | 31.00 |
| 28031.000 | 8680 00 | 612 00 | 0 39 | 0 71 | 4 72 | 282 86 | 31 00 |
| 28031 000 | 8680.00 | 613 24 | 1 23 | 0 79 | 5 95 | 351 21 | 31 00 |
| 28331.000 | 6510 00 | 607 53 | 0 00 | 0 25 | 0 00 | 118 78 | 300 00 |
| 28331.000 | 8680 00 | 611 74 | 4 20 | 0 13 | 4 20 | 394 01 | 300 00 |
| 28331 000 | 8680.00 | 612 12 | 0.39 | 0 12 | 4.59 | 424 99 | 300 00 |
| 28331 000 | 8680 00 | 613 33 | 1.21 | 0 10 | 5 80 | 541 04 | 300 00 |
| 28431.000 | 6510.00 | 607 51 | 0 00 | -0 03 | 0 00 | 102 45 | 100 00 |
| 28431 000 | 8680 00 | 611 72 | 4 22 | -0 01 | 4 22 | 365 55 | 100.00 |
| 28431 000 | 8680 00 | 612 12 | 0 39 | -0.01 | 4 61 | 392 45 | 100 00 |
| 28431 000 | 8680 00 | 613 35 | 1 23 | 0 01 | 5 84 | 511 95 | 100 00 |
| * 28449.000 | 6510 00 | 607.54 | 0 00 | 0 03 | 0 00 | 102 73 | 18.00 |
| 28449 000 | 8680.00 | 612 25 | 4 71 | 0 53 | 4 71 | 406 37 | 18 00 |
| 28449.000 | 8680.00 | 612 70 | 0 44 | 0 58 | 5 16 | 459 67 | 18 00 |
| 28449 000 | 8680 00 | 613 88 | 1 19 | 0 54 | 6 35 | 554 75 | 18 00 |
| 28549 000 | 6510.00 | 607 71 | 0 00 | 0.17 | 0 00 | 112 98 | 100 00 |
| 28549.000 | 8680.00 | 612 28 | 4 57 | 0 03 | 4 57 | 278.27 | 100 00 |
| 28549.000 | 8680.00 | 612.71 | 0 43 | 0 02 | 5 00 | 345 45 | 100 00 |
| 28549.000 | 8680.00 | 613 87 | 1 16 | -0 01 | 6 16 | 470 31 | 100 00 |
| 29749 000 | 6510 00 | 608 32 | 0 00 | 0 61 | 0 00 | 174 00 | 1200 00 |
| 29749.000 | 8680.00 | 612 68 | 4.36 | 0 40 | 4 36 | 267 90 | 1200 00 |
| 29749.000 | 8680.00 | 613 07 | 0 39 | 0 35 | 4 75 | 284 49 | 1200 00 |
| 29749.000 | 8680 00 | 614 13 | 1 06 | 0 25 | 5 81 | 329 80 | 1200 00 |
| 30474 000 | 6510.00 | 608 46 | 0 00 | 0.14 | 0 00 | 143 24 | 725 00 |
| 30474 000 | 8680 00 | 612 74 | 4 28 | 0 06 | 4 28 | 239 70 | 725 00 |
| 30474 000 | 8680 00 | 613 12 | 0 38 | 0 05 | 4 66 | 282 43 | 725 00 |
| 30474.000 | 8680.00 | 614 16 | 1 05 | 0 03 | 5.71 | 385 50 | 725 00 |
| 31199.000 | 6510.00 | 608 58 | 0 00 | 0.12 | 0 00 | 110 19 | 725 00 |
| 31199 000 | 8680 00 | 612 78 | 4 20 | 0.04 | 4 20 | 128.78 | 725 00 |
| 31199 000 | 8680.00 | 613 15 | 0 37 | 0.04 | 4 57 | 130 43 | 725.00 |
| 31199.000 | 8680.00 | 614.17 | 1.02 | 0.01 | 5 60 | 178.10 | 725 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 9653 000 | 10440.00 | 601.83 | 0.00 | 0 05 | 0 00 | 695 73 | 59 00 |
| 9653 000 | 15320.00 | 605.07 | 3.24 | 0.03 | 3.24 | 852 21 | 59 00 |
| 9653.000 | 16560 00 | 605.69 | 0.62 | 0 03 | 3 85 | 871.14 | 59 00 |
| 9653.000 | 21140 00 | 607.95 | 2.26 | 0.02 | 6.11 | 950 00 | 59 00 |
| 9654.000 | 10440 00 | 601.71 | 0 00 | -0 13 | 0 00 | 667 96 | 1 00 |
| 9654.000 | 15320 00 | 604 97 | 3.27 | -0.10 | 3 27 | 840 32 | 1 00 |
| 9654 000 | 16560 00 | 605 61 | 0.63 | -0 08 | 3 90 | 859 93 | 1 00 |
| 9654.000 | 21140 00 | 607 93 | 2 32 | -0 02 | 6 22 | 950 00 | 1 00 |
| 9676.000 | 10440.00 | 601 71 | 0.00 | 0.01 | 0 00 | 668.23 | 22 00 |
| 9676.000 | 15320 00 | 604 99 | 3.27 | 0 01 | 3 27 | 840.52 | 22 00 |
| 9676 000 | 16560 00 | 605 62 | 0 63 | 0 01 | 3 91 | 860.09 | 22 00 |
| 9676.000 | 21140 00 | 607 93 | 2.32 | 0.01 | 6 22 | 950 00 | 22 00 |
| 9677 000 | 10440.00 | 602.07 | 0 00 | 0 36 | 0 00 | 708 12 | 1 00 |
| 9677 000 | 15320.00 | 605 24 | 3 18 | 0 26 | 3 18 | 837 61 | 1 00 |
| 9677 000 | 16560 00 | 605 83 | 0 59 | 0 21 | 3 76 | 855 94 | 1 00 |
| 9677 000 | 21140.00 | 607 99 | 2 16 | 0 05 | 5.92 | 930 00 | 1 00 |
| 9777.000 | 10440 00 | 602 08 | 0.00 | 0 01 | 0 00 | 706 52 | 100 00 |
| 9777 000 | 15320 00 | 605 25 | 3.17 | 0 01 | 3 17 | 866.66 | 100 00 |
| 9777 000 | 16560.00 | 605 84 | 0.59 | 0 01 | 3.76 | 884.99 | 100 00 |
| 9777 000 | 21140 00 | 608 00 | 2 16 | 0 01 | 5 92 | 994 75 | 100 00 |
| 11596.000 | 10440 00 | 602 32 | 0.00 | 0 24 | 0 00 | 201 20 | 1819 00 |
| 11596.000 | 15320 00 | 605 34 | 3.02 | 0 09 | 3 02 | 613.77 | 1819 00 |
| 11596 000 | 16560.00 | 605 92 | 0.58 | 0 08 | 3 60 | 618.21 | 1819 00 |
| 11596.000 | 21140 00 | 608 05 | 2 13 | 0 05 | 5 73 | 698 63 | 1819 00 |
| 13196 000 | 10440 00 | 602 81 | 0 00 | 0.49 | 0 00 | 242 81 | 1600 00 |
| 13196.000 | 15320.00 | 605 84 | 3 03 | 0 50 | 3.03 | 520 33 | 1600 00 |
| 13196 000 | 16560 00 | 606 40 | 0 56 | 0 48 | 3.59 | 522 29 | 1600 00 |
| 13196 000 | 21140 00 | 608.45 | 2 05 | 0 40 | 5 64 | 529.44 | 1600 00 |
| 14796 000 | 10440 00 | 603 18 | 0 00 | 0 37 | 0 00 | 161 41 | 1600 00 |
| 14796.000 | 15320.00 | 606 20 | 3.01 | 0 36 | 3 01 | 174 73 | 1600 00 |
| 14796 000 | 16560 00 | 606 74 | 0 54 | 0 34 | 3.56 | 177 42 | 1600 00 |
| 14796 000 | 21140.00 | 608 70 | 1.95 | 0 25 | 5.51 | 187 08 | 1600 00 |
| 16096 000 | 9210 00 | 603 70 | 0.00 | 0 51 | 0 00 | 188 54 | 1300 00 |
| 16096 000 | 13320 00 | 606 82 | 3.12 | 0 62 | 3 12 | 486.30 | 1300 00 |
| 16096 000 | 14260 00 | 607 41 | 0 60 | 0 67 | 3 72 | 545 69 | 1300 00 |
| 16096.000 | 17650 00 | 609 57 | 2.16 | 0.87 | 5 87 | 550 84 | 1300 00 |
| 16396 000 | 9210 00 | 603 76 | 0.00 | 0 07 | 0.00 | 141 73 | 300 00 |
| 16396 000 | 13320 00 | 606 85 | 3.09 | 0 04 | 3 09 | 397 96 | 300 00 |
| 16396 000 | 14260 00 | 607 44 | 0 59 | 0 03 | 3 68 | 455 86 | 300 00 |
| 16396 000 | 17650 00 | 609 58 | 2.14 | 0 01 | 5 82 | 483 35 | 300 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 16418.000 | 9210 00 | 603.77 | 0.00 | 0 01 | 0 00 | 141 73 | 22 00 |
| 16418.000 | 13320 00 | 607.24 | 3 46 | 0.38 | 3 46 | 446 66 | 22 00 |
| 16418.000 | 14260 00 | 607 74 | 0 51 | 0 30 | 3 97 | 469 17 | 22 00 |
| 16418 000 | 17650 00 | 609.61 | 1.86 | 0.02 | 5 83 | 483 45 | 22 00 |
| 16768 000 | 9210.00 | 604 03 | 0 00 | 0.26 | 0 00 | 397 88 | 350 00 |
| 16768 000 | 13320.00 | 607.65 | 3 61 | 0.41 | 3 61 | 503 12 | 350 00 |
| 16768 000 | 14260 00 | 608 17 | 0.53 | 0 43 | 4 14 | 529 88 | 350 00 |
| 16768.000 | 17650 00 | 610 04 | 1.87 | 0 44 | 6 01 | 573 00 | 350 00 |
| 17168.000 | 9210.00 | 604 22 | 0 00 | 0 19 | 0 00 | 481 86 | 400.00 |
| 17168 000 | 13320 00 | 607 80 | 3.58 | 0 16 | 3 58 | 546 64 | 400 00 |
| 17168 000 | 14260.00 | 608 33 | 0 53 | 0 16 | 4.11 | 551 71 | 400 00 |
| 17168 000 | 17650 00 | 610 19 | 1 86 | 0.15 | 5.97 | 582 46 | 400 00 |
| 17268.000 | 9210.00 | 604.23 | 0.00 | 0.00 | 0.00 | 179 80 | 100 00 |
| 17268.000 | 13320.00 | 607 76 | 3.54 | -0 04 | 3 54 | 473 93 | 100 00 |
| 17268.000 | 14260 00 | 608 29 | 0.52 | -0 04 | 4 06 | 542 48 | 100.00 |
| 17268 000 | 17650 00 | 610 15 | 1 87 | -0 04 | 5 93 | 670 87 | 100 00 |
| 17368 000 | 9210 00 | 604 25 | 0 00 | 0 02 | 0 00 | 179 80 | 100 00 |
| 17368 000 | 13320.00 | 607.91 | 3 67 | 0.15 | 3 67 | 503 38 | 100.00 |
| 17368 000 | 14260 00 | 608 44 | 0.53 | 0 15 | 4 20 | 561 02 | 100.00 |
| 17368 000 | 17650.00 | 610 32 | 1 88 | 0 17 | 6 08 | 673 67 | 100 00 |
| 18244.000 | 9210 00 | 604 35 | 0 00 | 0 10 | 0.00 | 406 55 | 876 00 |
| 18244.000 | 13320 00 | 608.05 | 3 70 | 0 13 | 3 70 | 629 08 | 876 00 |
| 18244 000 | 14260 00 | 608 58 | 0 53 | 0 14 | 4 24 | 708 61 | 876 00 |
| 18244 000 | 17650 00 | 610 47 | 1 88 | 0 14 | 6 12 | 724 54 | 876 00 |
| 19119 000 | 9210.00 | 604 53 | 0 00 | 0 18 | 0 00 | 238 06 | 875 00 |
| 19119 000 | 13320 00 | 608 10 | 3.57 | 0.05 | 3.57 | 404 44 | 875.00 |
| 19119 000 | 14260 00 | 608 62 | 0.52 | 0 04 | 4 09 | 422 51 | 875.00 |
| 19119.000 | 17650.00 | 610 45 | 1 83 | -0 01 | 5 93 | 509 68 | 875 00 |
| 20219.000 | 9210 00 | 604 90 | 0 00 | 0 37 | 0 00 | 371 26 | 1100 00 |
| 20219 000 | 13320 00 | 608 46 | 3 55 | 0.36 | 3 55 | 718 17 | 1100 00 |
| 20219 000 | 14260 00 | 608 99 | 0 53 | 0 36 | 4 08 | 821 07 | 1100 00 |
| 20219 000 | 17650 00 | 610 84 | 1 86 | 0 39 | 5 94 | 1018 28 | 1100 00 |
| 21119 000 | 9210 00 | 604 98 | 0.00 | 0 08 | 0 00 | 297 53 | 900 00 |
| 21119 000 | 13320 00 | 608 51 | 3 52 | 0.05 | 3 52 | 500 25 | 900.00 |
| 21119 000 | 14260.00 | 609 03 | 0 53 | 0 05 | 4 05 | 535 75 | 900.00 |
| 21119 000 | 17650 00 | 610 88 | 1.85 | 0.04 | 5.90 | 763 27 | 900 00 |
| 22069.000 | 9210.00 | 605 20 | 0 00 | 0 21 | 0.00 | 174 48 | 950 00 |
| 22069 000 | 13320.00 | 608 60 | 3 40 | 0 09 | 3 40 | 262.54 | 950 00 |
| 22069 000 | 14260 00 | 609 11 | 0 51 | 0 07 | 3 91 | 304.24 | 950 00 |
| 22069 000 | 17650 00 | 610 89 | 1.78 | 0.00 | 5.69 | 378 35 | 950 00 |

RED RUN DRAIN 10

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 165.000 | 10780 00 | 597 80 | 0.00 | 0 00 | 0 00 | 487 32 | 0 00 |
| 165.000 | 15910 00 | 599.30 | 1.50 | 0 00 | 0 00 | 577 69 | 0 00 |
| 165.000 | 17390 00 | 599.70 | 0.40 | 0 00 | 0.00 | 595 95 | 0 00 |
| 165.000 | 23340.00 | 601 60 | 1.90 | 0 00 | 0 00 | 645 95 | 0 00 |
| 194 000 | 10780 00 | 599 01 | 0 00 | 1 21 | 0 00 | 564 35 | 29 00 |
| 194.000 | 15910.00 | 601 50 | 2.49 | 2.20 | 0 00 | 644 29 | 29.00 |
| 194 000 | 17390 00 | 601.98 | 0 49 | 2.28 | 0.00 | 686 17 | 29 00 |
| 194 000 | 23340 00 | 603 74 | 1.75 | 2.14 | 0 00 | 724.18 | 29 00 |
| 594 000 | 10780 00 | 599 09 | 0.00 | 0 08 | 0 00 | 444 71 | 400 00 |
| 594.000 | 15910.00 | 601 56 | 2.47 | 0 06 | 2 47 | 689 98 | 400 00 |
| 594 000 | 17390 00 | 602 04 | 0 48 | 0.06 | 2 95 | 694.44 | 400 00 |
| 594 000 | 23340 00 | 603.76 | 1 72 | 0 02 | 4.67 | 697.50 | 400 00 |
| 1039 000 | 10060 00 | 599 08 | 0 00 | -0 02 | 0 00 | 223 20 | 445 00 |
| 1039 000 | 14650 00 | 601 48 | 2 40 | -0 08 | 2 40 | 223 20 | 445 00 |
| 1039.000 | 16040 00 | 601.94 | 0.46 | -0 10 | 2 86 | 223 20 | 445 00 |
| 1039.000 | 21540 00 | 603 58 | 1 64 | -0 19 | 4 50 | 223 20 | 445 00 |
| 1100.000 | 10060 00 | 599 17 | 0.00 | 0 10 | 0 00 | 165 86 | 61 00 |
| 1100.000 | 14650.00 | 601.66 | 2.48 | 0.18 | 2 48 | 174 36 | 61.00 |
| 1100 000 | 16040 00 | 602.15 | 0.49 | 0 21 | 2 98 | 174 38 | 61.00 |
| 1100.000 | 21540 00 | 604.15 | 2.00 | 0 57 | 4 98 | 595 45 | 61 00 |
| 1143.000 | 10060 00 | 599.17 | 0.00 | -0.00 | 0.00 | 165.86 | 43 00 |
| 1143.000 | 14650.00 | 602 06 | 2 89 | 0.40 | 2 89 | 175.30 | 43 00 |
| 1143 000 | 16040 00 | 602 71 | 0 65 | 0 56 | 3.54 | 175 30 | 43 00 |
| 1143 000 | 21540.00 | 605 11 | 2 40 | 0 96 | 5 94 | 862.27 | 43 00 |
| 1150 000 | 10060 00 | 599 28 | 0 00 | 0 11 | 0 00 | 186 00 | 7 00 |
| 1150 000 | 14650 00 | 602 06 | 2.78 | -0 00 | 2 78 | 186 00 | 7.00 |
| 1150 000 | 16040.00 | 602 70 | 0 64 | -0 01 | 3 42 | 186 00 | 7 00 |
| 1150 000 | 21540 00 | 605 01 | 2.32 | -0 10 | 5 74 | 186 00 | 7.00 |
| 1180 000 | 10060.00 | 599 24 | 0.00 | -0 03 | 0.00 | 165 59 | 30.00 |
| 1180.000 | 14650.00 | 602 04 | 2 80 | -0 01 | 2.80 | 173 90 | 30 00 |
| 1180 000 | 16040 00 | 602 69 | 0 65 | -0 01 | 3.45 | 173 90 | 30 00 |
| 1180 000 | 21540 00 | 605 55 | 2 86 | 0.53 | 6.30 | 611 00 | 30 00 |
| 1223 000 | 10060.00 | 599 27 | 0.00 | 0 03 | 0 00 | 165 61 | 43 00 |
| 1223.000 | 14650 00 | 602 63 | 3 36 | 0 59 | 3.36 | 173 90 | 43 00 |
| 1223.000 | 16040.00 | 603 52 | 0 89 | 0 83 | 4 25 | 597 21 | 43 00 |
| 1223 000 | 21540.00 | 605 69 | 2 17 | 0 15 | 6 42 | 611 00 | 43 00 |

| SECND | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 1323 000 | 10060.00 | 599 62 | 0.00 | 0 35 | 0 00 | 573 14 | 100 00 |
| 1323 000 | 14650.00 | 603.15 | 3.53 | 0 52 | 3 53 | 611 00 | 100 00 |
| 1323 000 | 16040 00 | 603 80 | 0 65 | 0 28 | 4 18 | 611 00 | 100 00 |
| 1323.000 | 21540.00 | 606.06 | 2 26 | 0 37 | 6 44 | 611 00 | 100 00 |
| 2223.000 | 10060 00 | 599.67 | 0 00 | 0 05 | 0 00 | 205.96 | 900 00 |
| 2223.000 | 14650.00 | 603 08 | 3 41 | -0.07 | 3 41 | 246.52 | 900 00 |
| 2223 000 | 16040 00 | 603 71 | 0 63 | -0 10 | 4 04 | 250 38 | 900 00 |
| 2223.000 | 21540 00 | 605 86 | 2 16 | -0 20 | 6 20 | 263 62 | 900 00 |
| 3180 000 | 10060 00 | 599 86 | 0 00 | 0 19 | 0 00 | 199 95 | 957 00 |
| 3180.000 | 14650.00 | 603 28 | 3.43 | 0.21 | 3.43 | 245.08 | 957 00 |
| 3180 000 | 16040 00 | 603 93 | 0 65 | 0.22 | 4 07 | 249 05 | 957 00 |
| 3180.000 | 21540 00 | 606 16 | 2 23 | 0.30 | 6 31 | 262.76 | 957.00 |
| 5720.000 | 9360 00 | 600.42 | 0.00 | 0 56 | 0 00 | 196.48 | 2540.00 |
| 5720.000 | 13680 00 | 603 83 | 3 42 | 0 55 | 3 42 | 347 45 | 2540 00 |
| 5720.000 | 14820 00 | 604.52 | 0 69 | 0 59 | 4 10 | 609 92 | 2540 00 |
| 5720.000 | 19310 00 | 606 95 | 2 43 | 0 79 | 6 54 | 718 15 | 2540 00 |
| 7470.000 | 9360 00 | 600.88 | 0.00 | 0 46 | 0 00 | 532.50 | 1710 00 |
| 7470 000 | 13680 00 | 604 35 | 3 47 | 0 51 | 3 47 | 682 20 | 1710 00 |
| 7470 000 | 14820.00 | 605 05 | 0.70 | 0.53 | 4.17 | 715 58 | 1710.00 |
| 7470 000 | 19310 00 | 607 46 | 2 41 | 0 51 | 6 58 | 861 56 | 1710 00 |
| 8270 000 | 9360 00 | 600 93 | 0 00 | 0 06 | 0 00 | 455 75 | 760 00 |
| 8270 000 | 13680.00 | 604 38 | 3 45 | 0.04 | 3 45 | 823 15 | 760 00 |
| 8270 000 | 14820.00 | 605.09 | 0 70 | 0.04 | 4 15 | 846 61 | 760 00 |
| 8270.000 | 19310.00 | 607 50 | 2.42 | 0.04 | 6.57 | 967 19 | 760.00 |
| 8340.000 | 9360.00 | 600 99 | 0 00 | 0 05 | 0 00 | 477.24 | 70 00 |
| 8340.000 | 13680 00 | 604 45 | 3 46 | 0.06 | 3 46 | 813 41 | 70 00 |
| 8340.000 | 14820 00 | 605 15 | 0 70 | 0 06 | 4 16 | 839 09 | 70 00 |
| 8340 000 | 19310.00 | 607 57 | 2 42 | 0 06 | 6 58 | 961 01 | 70 00 |
| 8394 000 | 9360 00 | 601.64 | 0 00 | 0 65 | 0 00 | 485 61 | 54 00 |
| 8394 000 | 13680 00 | 604.92 | 3 28 | 0 47 | 3 28 | 820.72 | 54 00 |
| 8394 000 | 14820 00 | 605.54 | 0 62 | 0 39 | 3 90 | 846.75 | 54 00 |
| 8394 000 | 19310 00 | 607 83 | 2 29 | 0 26 | 6.19 | 970 01 | 54 00 |
| 8494 000 | 10440 00 | 601 62 | 0 00 | -0 02 | 0 00 | 473 91 | 100 00 |
| 8494 000 | 15320 00 | 604 89 | 3 27 | -0.03 | 3 27 | 825.78 | 100.00 |
| 8494 000 | 16560.00 | 605 51 | 0 62 | -0 03 | 3 89 | 851 52 | 100 00 |
| 8494.000 | 21140 00 | 607 81 | 2 29 | -0 02 | 6.18 | 972 10 | 100 00 |
| 9594.000 | 10440.00 | 601 79 | 0 00 | 0 17 | 0 00 | 677.40 | 1100 00 |
| 9594.000 | 15320.00 | 605 04 | 3 26 | 0 15 | 3 26 | 842 19 | 1100 00 |
| 9594 000 | 16560 00 | 605 66 | 0 62 | 0 15 | 3.87 | 861.39 | 1100 00 |
| 9594 000 | 21140 00 | 607 93 | 2 27 | 0 12 | 6 14 | 964.36 | 1100 00 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30474 000 | 725.00 | 0 00 | 0.00 | 591.75 | 6510 00 | 608.46 | 0 00 | 608 77 | 2 67 | 4.46 | 1458 75 | 3981 09 |
| 30474 000 | 725 00 | 0 00 | 0.00 | 591 75 | 8680 00 | 612 74 | 0 00 | 612.99 | 1 65 | 4 06 | 2181 04 | 6751 84 |
| 30474 000 | 725.00 | 0 00 | 0.00 | 591 75 | 8680 00 | 613 12 | 0 00 | 613 36 | 1 51 | 3 94 | 2278.11 | 7071 19 |
| 30474 000 | 725.00 | 0 00 | 0 00 | 591 75 | 8680.00 | 614 16 | 0 00 | 614 36 | 1 15 | 3 59 | 2653.26 | 8110 49 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 6510 00 | 608 58 | 0 00 | 609 04 | 3 77 | 5 44 | 1196 45 | 3353 63 |
| 31199 000 | 725.00 | 0 00 | 0 00 | 592 20 | 8680 00 | 612.78 | 0 00 | 613.18 | 2 58 | 5 11 | 1698 27 | 5400 74 |
| 31199 000 | 725.00 | 0 00 | 0.00 | 592.20 | 8680 00 | 613 15 | 0 00 | 613 53 | 2 39 | 4 97 | 1746 55 | 5609 84 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 8680 00 | 614 17 | 0 00 | 614 50 | 1 92 | 4 61 | 1908 42 | 6270 57 |
| 31299.000 | 100.00 | 0 00 | 0.00 | 592 40 | 6510 00 | 608 56 | 0.00 | 609 15 | 7 05 | 6 49 | 1165 68 | 2452 51 |
| 31299 000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 612 76 | 0 00 | 613 27 | 4 76 | 6 15 | 1667 25 | 3978 17 |
| 31299.000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 613 14 | 0 00 | 613 61 | 4 40 | 5 99 | 1715 52 | 4137 22 |
| 31299 000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680.00 | 614 16 | 0 00 | 614 57 | 3 53 | 5 55 | 1882 81 | 4622 66 |
| 31350 000 | 51 00 | 613 70 | 609.60 | 592 40 | 6510 00 | 608 48 | 0 00 | 609.32 | 10 49 | 7 37 | 882 86 | 2009 94 |
| 31350 000 | 51 00 | 613 70 | 609 60 | 592 40 | 8680 00 | 614.17 | 0 00 | 614 57 | 3 52 | 5 55 | 1883 99 | 4625 39 |
| 31350 000 | 51 00 | 613 70 | 609 60 | 592.40 | 8680.00 | 614 46 | 0 00 | 614 84 | 3 30 | 5 42 | 1952 24 | 4778.87 |
| 31350 000 | 51 00 | 613 70 | 609 60 | 592 40 | 8680.00 | 615.20 | 0 00 | 615 53 | 2 79 | 5 10 | 2129 37 | 5200 11 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592.50 | 6510 00 | 608.88 | 0 00 | 609 47 | 7 79 | 6 54 | 1161 94 | 2332 23 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592 50 | 8680 00 | 614 19 | 0 00 | 614.61 | 4 13 | 5 63 | 1854.44 | 4268 71 |
| 31430 000 | 80.00 | 0 00 | 0.00 | 592 50 | 8680 00 | 614 48 | 0 00 | 614 87 | 3 87 | 5 50 | 1922 34 | 4411 83 |
| 31430 000 | 80 00 | 0.00 | 0 00 | 592 50 | 8680 00 | 615 22 | 0 00 | 615 56 | 3 26 | 5 17 | 2098 62 | 4809 11 |
| 31483.000 | 53 00 | 614 90 | 610 90 | 592 50 | 6510 00 | 608 77 | 0 00 | 609 68 | 11 81 | 7 62 | 854 34 | 1894 57 |
| 31483.000 | 53 00 | 614 90 | 610 90 | 592 50 | 8680 00 | 615 39 | 0 00 | 615 72 | 3 13 | 5 10 | 2140.48 | 4903 74 |
| 31483 000 | 53.00 | 614 90 | 610.90 | 592 50 | 8680 00 | 615.57 | 0 00 | 615 88 | 3 00 | 5 02 | 2189 03 | 5011 48 |
| 31483 000 | 53 00 | 614.90 | 610.90 | 592 50 | 8680 00 | 616.01 | 0 00 | 616.30 | 2 69 | 4 82 | 2317 50 | 5289.22 |
| 31583 000 | 100 00 | 0.00 | 0 00 | 592 55 | 6510 00 | 609.46 | 0.00 | 609.88 | 3 30 | 5 18 | 1255 94 | 3583 27 |
| 31583 000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615.47 | 0.00 | 615.75 | 1 55 | 4 29 | 2100 22 | 6961 12 |
| 31583.000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615 64 | 0 00 | 615 92 | 1 49 | 4 24 | 2137 32 | 7106 95 |
| 31583 000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 616 07 | 0 00 | 616.33 | 1 35 | 4 10 | 2237.16 | 7476 92 |
| 33333 000 | 1750 00 | 0.00 | 0 00 | 593 40 | 6510 00 | 610.07 | 0 00 | 610 41 | 2 77 | 4 73 | 1375 82 | 3908 71 |
| 33333.000 | 1750.00 | 0.00 | 0 00 | 593 40 | 8680.00 | 615.77 | 0 00 | 615.99 | 1 15 | 3 86 | 2602 55 | 8097.49 |
| 33333 000 | 1750 00 | 0 00 | 0 00 | 593 40 | 8680 00 | 615 93 | 0 00 | 616 15 | 1 10 | 3.81 | 2663 12 | 8273 40 |
| 33333 000 | 1750.00 | 0 00 | 0 00 | 593.40 | 8680.00 | 616 34 | 0 00 | 616.53 | 0 99 | 3 67 | 2822 85 | 8733 76 |
| 33433.000 | 100 00 | 0 00 | 0 00 | 593.60 | 6510 00 | 610 07 | 0 00 | 610 48 | 3 50 | 5 16 | 1301 70 | 3480 82 |
| 33433.000 | 100 00 | 0 00 | 0.00 | 593 60 | 8680 00 | 615 77 | 0 00 | 616 01 | 1 53 | 4 20 | 2550 89 | 7013 09 |
| 33433.000 | 100 00 | 0 00 | 0 00 | 593 60 | 8680 00 | 615.93 | 0 00 | 616 17 | 1 47 | 4.13 | 2609 42 | 7166 70 |
| 33433.000 | 100 00 | 0.00 | 0 00 | 593.60 | 8680 00 | 616 34 | 0 00 | 616 55 | 1 32 | 3 97 | 2769 28 | 7566 35 |
| * 33438.000 | 5.00 | 613 00 | 612 90 | 593 60 | 6510 00 | 610.07 | 0.00 | 610.48 | 3 50 | 5 16 | 1301 70 | 3480 82 |
| 33438 000 | 5 00 | 613 00 | 612 90 | 593.60 | 8680 00 | 615 88 | 0 00 | 616.12 | 1 49 | 4 16 | 2589 43 | 7114 33 |
| 33438.000 | 5 00 | 613 00 | 612 90 | 593 60 | 8680 00 | 616 03 | 0 00 | 616.27 | 1 43 | 4 10 | 2645 09 | 7257.82 |
| 33438 000 | 5 00 | 613.00 | 612 90 | 593 60 | 8680 00 | 616 42 | 0 00 | 616 63 | 1.29 | 3 94 | 2800 48 | 7642 45 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33538.000 | 100.00 | 0 00 | 0.00 | 593.59 | 6510 00 | 610 17 | 0 00 | 610 53 | 2 83 | 4 77 | 1365 35 | 3868 26 |
| 33538 000 | 100 00 | 0 00 | 0 00 | 593 59 | 8680 00 | 615 92 | 0 00 | 616 14 | 1.16 | 3 88 | 2588 36 | 8056 08 |
| 33538 000 | 100.00 | 0 00 | 0.00 | 593 59 | 8680 00 | 616 07 | 0 00 | 616 28 | 1 12 | 3 83 | 2638 83 | 8203 00 |
| 33538 000 | 100.00 | 0.00 | 0 00 | 593.59 | 8680 00 | 616 44 | 0 00 | 616 64 | 1 01 | 3.70 | 2785 89 | 8628 90 |
| 34888 000 | 1350.00 | 0 00 | 0 00 | 593.50 | 6510 00 | 610 56 | 0 00 | 610 95 | 3 35 | 5 03 | 1294 13 | 3557 93 |
| 34888 000 | 1350.00 | 0 00 | 0 00 | 593.50 | 8680.00 | 616 07 | 0 00 | 616 34 | 1 60 | 4.14 | 2226 01 | 6857 28 |
| 34888 000 | 1350.00 | 0 00 | 0 00 | 593.50 | 8680 00 | 616.22 | 0 00 | 616 47 | 1 54 | 4 09 | 2264 93 | 6994 80 |
| 34888.000 | 1350 00 | 0.00 | 0 00 | 593.50 | 8680 00 | 616 58 | 0 00 | 616 81 | 1 39 | 3 95 | 2371 84 | 7358 84 |
| 37038 000 | 2150.00 | 0 00 | 0 00 | 594.20 | 6510 00 | 611 26 | 0 00 | 611.63 | 2 99 | 4 93 | 1320 23 | 3765 58 |
| 37038.000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 41 | 0 00 | 616 70 | 1 73 | 4 34 | 1998 29 | 6601 03 |
| 37038.000 | 2150 00 | 0 00 | 0 00 | 594.20 | 8680 00 | 616 54 | 0 00 | 616 83 | 1 69 | 4 30 | 2018 31 | 6683 77 |
| 37038.000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 87 | 0 00 | 617 14 | 1 58 | 4 20 | 2082 63 | 6903 80 |
| 37088.000 | 50.00 | 0 00 | 0.00 | 595 10 | 6510 00 | 611 14 | 0 00 | 611 80 | 11 01 | 6 54 | 1005 92 | 1962 21 |
| 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616.35 | 0 00 | 616 80 | 5 95 | 5 47 | 1662 74 | 3556 97 |
| 37088.000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 48 | 0 00 | 616 92 | 5 76 | 5 41 | 1681 96 | 3616 00 |
| 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 81 | 0 00 | 617 23 | 5 29 | 5 27 | 1744 87 | 3774 30 |
| 37121 000 | 33.00 | 617 90 | 615 30 | 595 10 | 6510 00 | 611.18 | 0 00 | 611 84 | 10 80 | 6 54 | 995 53 | 1981 24 |
| 37121 000 | 33.00 | 617 90 | 615 30 | 595.10 | 8680 00 | 616 92 | 0 00 | 617 32 | 5 15 | 5 22 | 1767 71 | 3825 86 |
| 37121 000 | 33 00 | 617.90 | 615 30 | 595.10 | 8680 00 | 617 06 | 0 00 | 617 45 | 4 96 | 5 16 | 1800 20 | 3897 55 |
| 37121 000 | 33.00 | 617 90 | 615 30 | 595.10 | 8680 00 | 617 42 | 0 00 | 617 79 | 4 50 | 4 99 | 1892 76 | 4093 85 |
| 37221 000 | 100.00 | 0 00 | 0 00 | 595.10 | 6510 00 | 611 60 | 0 00 | 611.98 | 3 00 | 4 92 | 1323 96 | 3756 87 |
| 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 11 | 0 00 | 617 39 | 1 60 | 4 21 | 2062 35 | 6855 42 |
| 37221.000 | 100.00 | 0 00 | 0 00 | 595.10 | 8680 00 | 617 25 | 0 00 | 617 52 | 1 56 | 4 17 | 2081 93 | 6943 53 |
| 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 59 | 0 00 | 617 85 | 1 45 | 4 06 | 2181 22 | 7203 77 |
| 39121.000 | 1900.00 | 0 00 | 0 00 | 595 20 | 6510 00 | 612.20 | 0 00 | 612 64 | 3 88 | 5 36 | 1214 63 | 3306 52 |
| 39121.000 | 1900 00 | 0 00 | 0 00 | 595 20 | 8680 00 | 617 42 | 0 00 | 617 74 | 2 01 | 4 57 | 1915 60 | 6129 80 |
| 39121.000 | 1900.00 | 0 00 | 0 00 | 595.20 | 8680 00 | 617 54 | 0 00 | 617 86 | 1 95 | 4 52 | 1936 40 | 6217 11 |
| 39121.000 | 1900 00 | 0 00 | 0.00 | 595 20 | 8680.00 | 617 87 | 0 00 | 618 17 | 1 81 | 4 41 | 1990 63 | 6446 66 |
| 41121.000 | 2000 00 | 0 00 | 0 00 | 595 60 | 6510 00 | 612.95 | 0 00 | 613 56 | 4 86 | 6 28 | 1035 87 | 2954 45 |
| 41121.000 | 2000 00 | 0 00 | 0 00 | 595 60 | 8680 00 | 617 78 | 0 00 | 618.29 | 3 12 | 5 76 | 1507 35 | 4918 00 |
| 41121.000 | 2000 00 | 0 00 | 0 00 | 595.60 | 8680 00 | 617 89 | 0 00 | 618 40 | 3 05 | 5 71 | 1519 46 | 4971 57 |
| 41121.000 | 2000 00 | 0 00 | 0 00 | 595.60 | 8680 00 | 618 19 | 0 00 | 618.67 | 2 88 | 5 60 | 1551 06 | 5111 93 |
| 42521.000 | 1400 00 | 0 00 | 0 00 | 595.40 | 6510 00 | 613 74 | 0 00 | 614 03 | 2 19 | 4.31 | 1511 04 | 4398 96 |
| 42521.000 | 1400 00 | 0 00 | 0.00 | 595 40 | 8680 00 | 618 36 | 0 00 | 618 61 | 1 46 | 3 97 | 2186 91 | 7188 18 |
| 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 47 | 0 00 | 618 71 | 1 43 | 3 94 | 2203 32 | 7259 92 |
| 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 74 | 0 00 | 618 97 | 1 36 | 3 86 | 2246 52 | 7449 73 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21119 000 | 900 00 | 0 00 | 0.00 | 588 70 | 9210 00 | 604.98 | 0.00 | 605 31 | 2 42 | 4 69 | 2159 98 | 5915 37 |
| 21119 000 | 900 00 | 0.00 | 0 00 | 588 70 | 13320 00 | 608.51 | 0 00 | 608 79 | 1 84 | 4 60 | 3484 34 | 9826.96 |
| 21119.000 | 900 00 | 0 00 | 0 00 | 588.70 | 14260.00 | 609 03 | 0 00 | 609 32 | 1 80 | 4 64 | 3757 89 | 10634 14 |
| 21119.000 | 900 00 | 0 00 | 0 00 | 588.70 | 17650 00 | 610 88 | 0.00 | 611 15 | 1 55 | 4 65 | 5007 89 | 14175 23 |
| 22069.000 | 950.00 | 0 00 | 0 00 | 588 20 | 9210.00 | 605 20 | 0.00 | 605 62 | 3.78 | 5 25 | 1755 01 | 4739 9 |
| 22069.000 | 950 00 | 0 00 | 0 00 | 588 20 | 13320 00 | 608 60 | 0 00 | 609 08 | 3 32 | 5 57 | 2423 19 | 7311 59 |
| 22069.000 | 950 00 | 0 00 | 0 00 | 588 20 | 14260 00 | 609 11 | 0 00 | 609 61 | 3 34 | 5 70 | 2567 76 | 7799 24 |
| 22069.000 | 950 00 | 0 00 | 0 00 | 588.20 | 17650.00 | 610 89 | 0 00 | 611 44 | 3 16 | 6 03 | 3188.81 | 9932 70 |
| 22419 000 | 350.00 | 0 00 | 0 00 | 588 20 | 8580 00 | 605 58 | 0 00 | 605.72 | 1 15 | 3 46 | 3379 12 | 8015 63 |
| 22419 000 | 350 00 | 0 00 | 0.00 | 588.20 | 12280.00 | 609 05 | 0 00 | 609 16 | 0 72 | 3.20 | 5233 77 | 14483 20 |
| 22419 000 | 350 00 | 0 00 | 0 00 | 588 20 | 13000 00 | 609.59 | 0 00 | 609 70 | 0 69 | 3 20 | 5528 04 | 15654 44 |
| 22419 000 | 350.00 | 0 00 | 0 00 | 588.20 | 15610.00 | 611 42 | 0 00 | 611 52 | 0 61 | 3 21 | 6582 71 | 20012.03 |
| 23319 000 | 900 00 | 0.00 | 0 00 | 588 50 | 8580 00 | 605.54 | 0 00 | 605.95 | 2 84 | 5 20 | 1724 33 | 5095.40 |
| 23319.000 | 900 00 | 0 00 | 0.00 | 588 50 | 12280.00 | 608 95 | 0 00 | 609 36 | 2 27 | 5 36 | 2810 20 | 8148 22 |
| 23319 000 | 900 00 | 0 00 | 0 00 | 588.50 | 13000 00 | 609.49 | 0 00 | 609 88 | 2 15 | 5 33 | 3101 23 | 8860.84 |
| 23319 000 | 900.00 | 0 00 | 0 00 | 588 50 | 15610 00 | 611 35 | 0.00 | 611 67 | 1 67 | 5.05 | 4482 36 | 12083 62 |
| 23569.000 | 250 00 | 0 00 | 0 00 | 588 40 | 6510 00 | 605 82 | 0 00 | 606 03 | 1 54 | 3 68 | 1768 98 | 5254 03 |
| 23569 000 | 250 00 | 0 00 | 0.00 | 588 40 | 8680 00 | 609 22 | 0 00 | 609 42 | 1 23 | 3 66 | 2626 21 | 7825 77 |
| 23569.000 | 250 00 | 0.00 | 0 00 | 588 40 | 8680 00 | 609 76 | 0 00 | 609 94 | 1 06 | 3 46 | 2905.75 | 8413 66 |
| 23569 000 | 250 00 | 0 00 | 0 00 | 588 40 | 8680 00 | 611 61 | 0 00 | 611 72 | 0 58 | 2 76 | 4197 58 | 11362.43 |
| 24369 000 | 800.00 | 0 00 | 0.00 | 588 90 | 6510 00 | 605 89 | 0 00 | 606 21 | 2 24 | 4 48 | 1454 14 | 4345 42 |
| 24369.000 | 800.00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 25 | 0 00 | 609 57 | 1 80 | 4 56 | 2010 86 | 6471 12 |
| 24369 000 | 800 00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 79 | 0 00 | 610 08 | 1 58 | 4 36 | 2143 97 | 6909 72 |
| 24369.000 | 800.00 | 0 00 | 0 00 | 588 90 | 8680.00 | 611 61 | 0 00 | 611 80 | 0 96 | 3 67 | 2870 69 | 8860 83 |
| 25819.000 | 1450.00 | 0 00 | 0 00 | 588 80 | 6510.00 | 606.21 | 0 00 | 606 68 | 3 99 | 5 50 | 1183 25 | 3259 37 |
| 25819.000 | 1450.00 | 0 00 | 0.00 | 588 80 | 8680.00 | 609 49 | 0 00 | 609 96 | 3.29 | 5 51 | 1577 36 | 4782 84 |
| 25819 000 | 1450 00 | 0 00 | 0.00 | 588 80 | 8680 00 | 609 99 | 0 00 | 610 42 | 2 87 | 5 29 | 1671 58 | 5119 66 |
| 25819 000 | 1450 00 | 0 00 | 0 00 | 588 80 | 8680.00 | 611.73 | 0 00 | 612 01 | 1.65 | 4 36 | 2459 12 | 6751 67 |
| 25919 000 | 100.00 | 0 00 | 0 00 | 589.50 | 6510 00 | 606.21 | 0 00 | 606.80 | 9 72 | 6 16 | 1061 72 | 2087.84 |
| 25919 000 | 100 00 | 0 00 | 0 00 | 589.50 | 8680 00 | 609.49 | 0 00 | 610.06 | 7 71 | 6 15 | 1449 52 | 3126 42 |
| 25919 000 | 100 00 | 0 00 | 0.00 | 589 50 | 8680 00 | 609 98 | 0 00 | 610 51 | 6 72 | 5 89 | 1541 13 | 3347.68 |
| 25919.000 | 100 00 | 0 00 | 0 00 | 589 50 | 8680 00 | 611 74 | 0 00 | 612 04 | 3 67 | 4 71 | 2250 43 | 4529 60 |
| 26025.000 | 106.00 | 610.00 | 607 90 | 589 50 | 6510 00 | 606 32 | 0 00 | 606 90 | 9 53 | 6 11 | 1065 61 | 2109 26 |
| 26025 000 | 106 00 | 610.00 | 607 90 | 589 50 | 8680 00 | 610 26 | 0 00 | 610.76 | 6 23 | 5.74 | 1609 91 | 3477 89 |
| 26025.000 | 106.00 | 610 00 | 607 90 | 589 50 | 8680 00 | 610 72 | 0 00 | 611 16 | 5 38 | 5 45 | 1781 61 | 3740 88 |
| 26025.000 | 106 00 | 610.00 | 607.90 | 589 50 | 8680.00 | 612 11 | 0 00 | 612 38 | 3 18 | 4 45 | 2420 60 | 4869 28 |
| 26125.000 | 100 00 | 0 00 | 0 00 | 589 49 | 6510.00 | 606 48 | 0 00 | 606 99 | 4 43 | 5 72 | 1137 15 | 3093 22 |
| 26125.000 | 100.00 | 0.00 | 0 00 | 589 49 | 8680.00 | 610 35 | 0 00 | 610 81 | 3 14 | 5 43 | 1606 89 | 4901.14 |
| 26125.000 | 100.00 | 0 00 | 0 00 | 589 49 | 8680.00 | 610 78 | 0 00 | 611.20 | 2 79 | 5 24 | 1694 82 | 5193 90 |
| 26125.000 | 100.00 | 0 00 | 0 00 | 589 49 | 8680.00 | 612.11 | 0 00 | 612.42 | 1 85 | 4.55 | 2267 57 | 6380.18 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26900.000 | 775 00 | 0 00 | 0.00 | 589 40 | 6510 00 | 606 90 | 0 00 | 607 32 | 3 92 | 5 21 | 1249 20 | 3289 62 |
| 26900.000 | 775.00 | 0 00 | 0 00 | 589 40 | 8680 00 | 610 65 | 0 00 | 611 05 | 2 93 | 5 14 | 1851 11 | 5070 82 |
| 26900.000 | 775 00 | 0 00 | 0.00 | 589 40 | 8680 00 | 611 05 | 0.00 | 611 42 | 2 62 | 4 95 | 1996 52 | 5358 04 |
| 26900.000 | 775 00 | 0 00 | 0 00 | 589 40 | 8680 00 | 612 29 | 0 00 | 612.57 | 1 84 | 4.37 | 2491 51 | 6399 53 |
| 27150.000 | 250 00 | 0 00 | 0.00 | 590 50 | 6510.00 | 606.96 | 0 00 | 607 42 | 3 25 | 5 49 | 1270 66 | 3610 07 |
| 27150 000 | 250 00 | 0 00 | 0 00 | 590.50 | 8680 00 | 610 73 | 0 00 | 611.11 | 2 06 | 5 21 | 2028 50 | 6050 62 |
| 27150 000 | 250 00 | 0 00 | 0 00 | 590.50 | 8680.00 | 611 12 | 0 00 | 611 48 | 1 86 | 5 03 | 2122 09 | 6362 00 |
| 27150 000 | 250 00 | 0 00 | 0 00 | 590.50 | 8680.00 | 612 32 | 0 00 | 612 61 | 1 37 | 4 53 | 2453 14 | 7407 39 |
| 27900 000 | 750 00 | 0 00 | 0 00 | 589.90 | 6510 00 | 607 26 | 0 00 | 607 67 | 3 35 | 5 18 | 1290 52 | 3558.31 |
| 27900 000 | 750 00 | 0 00 | 0 00 | 589.90 | 8680 00 | 610 91 | 0 00 | 611 28 | 2 23 | 4 94 | 1902 97 | 5808 37 |
| 27900 000 | 750.00 | 0 00 | 0 00 | 589 90 | 8680 00 | 611 28 | 0 00 | 611 62 | 2 03 | 4 79 | 1980 48 | 6099 06 |
| 27900.000 | 750.00 | 0 00 | 0.00 | 589 90 | 8680 00 | 612 44 | 0 00 | 612 72 | 1 50 | 4 34 | 2302 92 | 7090 44 |
| 28000.000 | 100 00 | 0 00 | 0 00 | 590 10 | 6510 00 | 607 28 | 0 00 | 607 73 | 5 45 | 5 46 | 1233 21 | 2788.88 |
| 28000.000 | 100 00 | 0 00 | 0 00 | 590 10 | 8680 00 | 610 92 | 0 00 | 611 32 | 3 72 | 5 20 | 1821 01 | 4502 96 |
| 28000.000 | 100.00 | 0 00 | 0 00 | 590 10 | 8680 00 | 611 29 | 0 00 | 611.66 | 3 37 | 5 04 | 1894 27 | 4726 03 |
| 28000.000 | 100.00 | 0 00 | 0 00 | 590 10 | 8680 00 | 612 45 | 0 00 | 612 75 | 2 49 | 4 55 | 2193 58 | 5497 32 |
| 28031.000 | 31.00 | 613.20 | 608 70 | 590 10 | 6510 00 | 607 29 | 0.00 | 607.76 | 5 73 | 5 53 | 1177 93 | 2718 58 |
| 28031.000 | 31.00 | 613 20 | 608 70 | 590 10 | 8680.00 | 611 61 | 0 00 | 611 96 | 3 12 | 4 89 | 1961 34 | 4915 63 |
| 28031.000 | 31 00 | 613 20 | 608.70 | 590 10 | 8680 00 | 612 00 | 0 00 | 612.33 | 2 82 | 4 73 | 2053 31 | 5170 23 |
| 28031.000 | 31 00 | 613 20 | 608.70 | 590 10 | 8680 00 | 613 24 | 0 00 | 613 48 | 2 01 | 4 20 | 2465 46 | 6120 14 |
| 28331 000 | 300.00 | 0 00 | 0 00 | 590.70 | 6510 00 | 607 53 | 0 00 | 607.91 | 2 99 | 4.92 | 1322 63 | 3762 62 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590.70 | 8680 00 | 611 74 | 0 00 | 612.04 | 1 87 | 4 51 | 2218 30 | 6342 35 |
| 28331.000 | 300 00 | 0 00 | 0.00 | 590.70 | 8680.00 | 612 12 | 0 00 | 612 40 | 1 67 | 4 34 | 2375 95 | 6715.07 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590 70 | 8680 00 | 613 33 | 0 00 | 613 54 | 1 16 | 3 81 | 2965 93 | 8064 23 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 6510 00 | 607 51 | 0 00 | 608 05 | 15 54 | 5 94 | 1096 93 | 1651 21 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680.00 | 611 72 | 0 00 | 612 13 | 10 29 | 5 24 | 1856 98 | 2705 25 |
| 28431.000 | 100 00 | 0.00 | 0.00 | 592.10 | 8680 00 | 612 12 | 0 00 | 612.48 | 8 91 | 4 97 | 2005 60 | 2908 48 |
| 28431 000 | 100 00 | 0.00 | 0 00 | 592 10 | 8680 00 | 613 35 | 0 00 | 613 57 | 5 46 | 4 12 | 2569 25 | 3715 69 |
| * 28449 000 | 18.00 | 613 10 | 610 80 | 592 10 | 6510 00 | 607 54 | 0 00 | 608 08 | 15 44 | 5 92 | 1100 22 | 1656 53 |
| 28449 000 | 18.00 | 613.10 | 610.80 | 592 10 | 8680 00 | 612.25 | 0 00 | 612 59 | 8 47 | 4 87 | 2059 05 | 2983 16 |
| 28449.000 | 18.00 | 613 10 | 610 80 | 592 10 | 8680 00 | 612 70 | 0 00 | 612.99 | 7 12 | 4 57 | 2251 37 | 3252 05 |
| 28449 000 | 18.00 | 613 10 | 610 80 | 592 10 | 8680 00 | 613 88 | 0 00 | 614 07 | 4 35 | 3.77 | 2854 59 | 4159 47 |
| 28549 000 | 100.00 | 0.00 | 0 00 | 592 04 | 6510 00 | 607 71 | 0 00 | 608 18 | 4 02 | 5 49 | 1186 65 | 3248 38 |
| 28549.000 | 100 00 | 0 00 | 0.00 | 592 04 | 8680 00 | 612 28 | 0 00 | 612 64 | 2 34 | 4 86 | 1949 36 | 5670 72 |
| 28549 000 | 100 00 | 0 00 | 0 00 | 592 04 | 8680 00 | 612 71 | 0 00 | 613 04 | 2 08 | 4 67 | 2081 27 | 6017 79 |
| 28549 000 | 100 00 | 0.00 | 0 00 | 592 04 | 8680 00 | 613 87 | 0 00 | 614 13 | 1 48 | 4 16 | 2558 54 | 7136 27 |
| 29749 000 | 1200.00 | 0 00 | 0 00 | 591 30 | 6510 00 | 608 32 | 0 00 | 608 56 | 2 39 | 4 00 | 1628 87 | 4212 33 |
| 29749 000 | 1200 00 | 0 00 | 0.00 | 591 30 | 8680.00 | 612 68 | 0 00 | 612 87 | 1 30 | 3 48 | 2586 34 | 7616 82 |
| 29749.000 | 1200.00 | 0 00 | 0 00 | 591 30 | 8680.00 | 613 07 | 0 00 | 613 24 | 1 16 | 3.36 | 2693 58 | 8051 81 |
| 29749.000 | 1200 00 | 0 00 | 0.00 | 591.30 | 8680 00 | 614 13 | 0.00 | 614.27 | 0.87 | 3.07 | 3019 25 | 9315.60 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8494.000 | 100 00 | 0.00 | 0.00 | 584 50 | 10440.00 | 601 62 | 0 00 | 601.85 | 1 62 | 4 25 | 3368 60 | 8200 13 |
| 8494.000 | 100 00 | 0.00 | 0.00 | 584.50 | 15320 00 | 604 89 | 0 00 | 605 10 | 1 27 | 4 30 | 5351 21 | 13598.25 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584.50 | 16560 00 | 605 51 | 0.00 | 605 72 | 1 23 | 4 33 | 5872.20 | 14942 20 |
| 8494.000 | 100 00 | 0 00 | 0.00 | 584.50 | 21140.00 | 607.81 | 0.00 | 607 99 | 1 03 | 4 31 | 7945 41 | 20823 06 |
| 9594.000 | 1100 00 | 0 00 | 0 00 | 585 70 | 10440 00 | 601 79 | 0 00 | 602.03 | 1 86 | 4 28 | 3395 19 | 7660 08 |
| 9594 000 | 1100.00 | 0 00 | 0.00 | 585.70 | 15320 00 | 605 04 | 0 00 | 605 22 | 1 20 | 3 99 | 5911 83 | 13961 27 |
| 9594.000 | 1100 00 | 0 00 | 0 00 | 585 70 | 16560 00 | 605 66 | 0 00 | 605 84 | 1 15 | 4 00 | 6435 21 | 15461 30 |
| 9594.000 | 1100 00 | 0 00 | 0 00 | 585 70 | 21140 00 | 607 93 | 0 00 | 608 09 | 0 94 | 3 95 | 8483 22 | 21825 25 |
| 9653.000 | 59 00 | 0 00 | 0 00 | 585 40 | 10440 00 | 601.83 | 0 00 | 602 05 | 1 63 | 4 06 | 3633 82 | 8184 00 |
| 9653 000 | 59 00 | 0 00 | 0 00 | 585 40 | 15320 00 | 605.07 | 0 00 | 605 24 | 1 08 | 3 84 | 6183 47 | 14732 35 |
| 9653 000 | 59 00 | 0.00 | 0.00 | 585 40 | 16560 00 | 605 69 | 0 00 | 605 85 | 1 04 | 3 85 | 6705 47 | 16258 61 |
| 9653.000 | 59 00 | 0.00 | 0.00 | 585 40 | 21140 00 | 607 95 | 0 00 | 608 10 | 0 86 | 3 82 | 8777 41 | 22809 63 |
| 9654.000 | 1.00 | 601 40 | 603 40 | 585 40 | 10440 00 | 601 71 | 0.00 | 602.18 | 2 71 | 5 53 | 1924 48 | 6340 09 |
| 9654 000 | 1.00 | 601 40 | 603 40 | 585 40 | 15320 00 | 604 97 | 0.00 | 605 33 | 4 74 | 5 34 | 3658 95 | 7036 26 |
| 9654 000 | 1.00 | 601.40 | 603 40 | 585 40 | 16560 00 | 605.61 | 0 00 | 605.93 | 4 57 | 5 19 | 4091 33 | 7744 88 |
| 9654 000 | 1 00 | 601 40 | 603.40 | 585.40 | 21140 00 | 607 93 | 0 00 | 608.12 | 3 17 | 3 80 | 6173 82 | 11866 92 |
| 9676.000 | 22 00 | 601 40 | 603 40 | 585 40 | 10440 00 | 601 71 | 0 00 | 602 19 | 2 71 | 5 53 | 1926 15 | 6344 14 |
| 9676.000 | 22 00 | 601 40 | 603 40 | 585 40 | 15320 00 | 604 99 | 0 00 | 605 34 | 4 73 | 5 34 | 3663 08 | 7043 20 |
| 9676.000 | 22 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 62 | 0 00 | 605 94 | 4 61 | 5 17 | 4095 01 | 7713 24 |
| 9676.000 | 22.00 | 601 40 | 603 40 | 585 40 | 21140 00 | 607 93 | 0 00 | 608 13 | 3 17 | 3 79 | 6178 03 | 11878 83 |
| 9677 000 | 1 00 | 0.00 | 0 00 | 585 40 | 10440 00 | 602.07 | 0 00 | 602 27 | 1 49 | 3 93 | 3795 68 | 8539 57 |
| 9677 000 | 1 00 | 0.00 | 0 00 | 585 40 | 15320 00 | 605 24 | 0 00 | 605 40 | 1 03 | 3 77 | 6285 43 | 15091 49 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 83 | 0.00 | 605 99 | 1 00 | 3 80 | 6782.02 | 16562.87 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 21140 00 | 607 99 | 0 00 | 608 14 | 0 87 | 3 85 | 8719 05 | 22674 48 |
| 9777.000 | 100 00 | 0 00 | 0 00 | 585 45 | 10440 00 | 602.08 | 0 00 | 602.28 | 1 51 | 3 94 | 3774 22 | 8491 11 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585.45 | 15320 00 | 605 25 | 0 00 | 605 41 | 1 03 | 3 77 | 6321 08 | 15059 13 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 84 | 0 00 | 606 00 | 1 00 | 3 80 | 6834 68 | 16549 92 |
| 9777.000 | 100 00 | 0.00 | 0.00 | 585 45 | 21140 00 | 608 00 | 0 00 | 608.15 | 0 86 | 3 83 | 8844 44 | 22766 05 |
| 11596 000 | 1819 00 | 0 00 | 0.00 | 586.40 | 10440 00 | 602.32 | 0 00 | 602 73 | 3 00 | 5.13 | 2053 64 | 6025 88 |
| 11596.000 | 1819.00 | 0.00 | 0 00 | 586.40 | 15320.00 | 605 34 | 0 00 | 605 79 | 2 71 | 5.56 | 3522 18 | 9304 53 |
| 11596 000 | 1819.00 | 0 00 | 0 00 | 586 40 | 16560 00 | 605.92 | 0 00 | 606.37 | 2 67 | 5 63 | 3877 55 | 10141 97 |
| 11596.000 | 1819 00 | 0 00 | 0.00 | 586 40 | 21140 00 | 608 05 | 0 00 | 608 48 | 2 36 | 5 72 | 5232 54 | 13764 65 |
| 13196.000 | 1600 00 | 0 00 | 0 00 | 585 50 | 10440 00 | 602 81 | 0 00 | 603 16 | 2 43 | 4 83 | 2342 30 | 6690 49 |
| 13196.000 | 1600 00 | 0.00 | 0 00 | 585 50 | 15320 00 | 605 84 | 0 00 | 606 24 | 2 84 | 5 26 | 3439 51 | 9090 95 |
| 13196 000 | 1600 00 | 0 00 | 0 00 | 585 50 | 16560.00 | 606 40 | 0 00 | 606.82 | 2 82 | 5 36 | 3732 27 | 9860 32 |
| 13196 000 | 1600.00 | 0 00 | 0 00 | 585 50 | 21140 00 | 608 45 | 0 00 | 608 88 | 2 63 | 5 61 | 4808 25 | 13023 97 |
| 14796 000 | 1600.00 | 0.00 | 0 00 | 587 30 | 10440 00 | 603.18 | 0 00 | 603 64 | 3 16 | 5 38 | 1938 85 | 5871 15 |
| 14796.000 | 1600 00 | 0.00 | 0 00 | 587 30 | 15320 00 | 606 20 | 0.00 | 606 81 | 3 52 | 6 27 | 2443 77 | 8166 83 |
| 14796 000 | 1600 00 | 0.00 | 0.00 | 587 30 | 16560 00 | 606 74 | 0 00 | 607 40 | 3 69 | 6 52 | 2539 69 | 8616 77 |
| 14796 000 | 1600 00 | 0 00 | 0.00 | 587 30 | 21140 00 | 608 70 | 0 00 | 609 52 | 4 18 | 7 30 | 2895 72 | 10338.81 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16096 000 | 1300 00 | 0 00 | 0.00 | 586 80 | 9210 00 | 603 70 | 0 00 | 604 03 | 2 81 | 4 67 | 1973 87 | 5497 84 |
| 16096 000 | 1300 00 | 0 00 | 0 00 | 586 80 | 13320 00 | 606.82 | 0 00 | 607 22 | 2 54 | 5 12 | 2774 78 | 8358 49 |
| 16096.000 | 1300 00 | 0 00 | 0 00 | 586.80 | 14260 00 | 607 41 | 0 00 | 607 82 | 2 47 | 5 18 | 3090.03 | 9067 08 |
| 16096.000 | 1300.00 | 0 00 | 0 00 | 586 80 | 17650 00 | 609 57 | 0 00 | 609 96 | 2 11 | 5 20 | 4272 00 | 12155 92 |
| 16396.000 | 300 00 | 0 00 | 0 00 | 587.50 | 9210 00 | 603 76 | 0 00 | 604 16 | 3 49 | 5 03 | 1831 38 | 4926 51 |
| 16396.000 | 300.00 | 0 00 | 0 00 | 587 50 | 13320.00 | 606 85 | 0 00 | 607 37 | 3 75 | 5 80 | 2449 67 | 6876 08 |
| 16396 000 | 300.00 | 0 00 | 0 00 | 587 50 | 14260.00 | 607 44 | 0 00 | 607 97 | 3 71 | 5 91 | 2706 62 | 7407 18 |
| 16396 000 | 300.00 | 0 00 | 0.00 | 587.50 | 17650.00 | 609 58 | 0 00 | 610.10 | 3 25 | 6 01 | 3727 06 | 9791 87 |
| 16418 000 | 22 00 | 606 10 | 605 30 | 587 50 | 9210 00 | 603 77 | 0 00 | 604 16 | 3 49 | 5 03 | 1831 38 | 4926 51 |
| 16418.000 | 22.00 | 606 10 | 605 30 | 587 50 | 13320 00 | 607 24 | 0 00 | 607 72 | 3 41 | 5 62 | 2612 65 | 7212 98 |
| 16418 000 | 22.00 | 606 10 | 605 30 | 587 50 | 14260 00 | 607 74 | 0 00 | 608 24 | 3 43 | 5 75 | 2845 99 | 7700 63 |
| 16418 000 | 22 00 | 606 10 | 605 30 | 587 50 | 17650 00 | 609 61 | 0 00 | 610 12 | 3 23 | 6 00 | 3738 04 | 9820 55 |
| 16768.000 | 350 00 | 0 00 | 0 00 | 588 00 | 9210 00 | 604 03 | 0 00 | 604.28 | 1 48 | 4 26 | 2665 47 | 7567 92 |
| 16768.000 | 350.00 | 0.00 | 0 00 | 588 00 | 13320.00 | 607 65 | 0 00 | 607 86 | 1 06 | 4 19 | 4337 04 | 12908 96 |
| 16768.000 | 350 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 17 | 0.00 | 608.39 | 1 05 | 4 25 | 4610 53 | 13887 24 |
| 16768 000 | 350 00 | 0 00 | 0 00 | 588 00 | 17650.00 | 610 04 | 0 00 | 610 26 | 0 99 | 4 39 | 5644 97 | 17755 57 |
| 17168.000 | 400 00 | 0 00 | 0 00 | 588 00 | 9210.00 | 604.22 | 0 00 | 604 37 | 1 23 | 3 65 | 3302 57 | 8318 31 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588.00 | 13320 00 | 607 80 | 0 00 | 607.93 | 0 76 | 3 35 | 5181 64 | 15261 19 |
| 17168.000 | 400.00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608.33 | 0 00 | 608.46 | 0.75 | 3 39 | 5471 36 | 16487 31 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588 00 | 17650 00 | 610 19 | 0 00 | 610.32 | 0 69 | 3 48 | 6518 83 | 21201 03 |
| 17268.000 | 100.00 | 0 00 | 0 00 | 586 50 | 9210 00 | 604.23 | 0 00 | 604.40 | 1 81 | 3 29 | 2796 84 | 6846 40 |
| 17268 000 | 100 00 | 0 00 | 0.00 | 586.50 | 13320 00 | 607 76 | 0 00 | 607.99 | 2 15 | 3 83 | 3627 95 | 9075 51 |
| 17268.000 | 100.00 | 0 00 | 0 00 | 586 50 | 14260 00 | 608 29 | 0 00 | 608 52 | 2 19 | 3 93 | 3896 79 | 9635 50 |
| 17268 000 | 100 00 | 0 00 | 0 00 | 586 50 | 17650 00 | 610 15 | 0 00 | 610.39 | 2 05 | 4 05 | 5074 47 | 12319 79 |
| 17368.000 | 100 00 | 607 10 | 607 00 | 586 50 | 9210 00 | 604 25 | 0 00 | 604 41 | 1 92 | 3.29 | 2796 90 | 6648 44 |
| 17368.000 | 100.00 | 607 10 | 607 00 | 586 50 | 13320 00 | 607 91 | 0 00 | 608 13 | 2 08 | 3 79 | 3701 47 | 9225 76 |
| 17368.000 | 100 00 | 607 10 | 607 00 | 586 50 | 14260 00 | 608 44 | 0 00 | 608 67 | 2 11 | 3 88 | 3981 46 | 9814 69 |
| 17368 000 | 100 00 | 607 10 | 607 00 | 586 50 | 17650 00 | 610 32 | 0 00 | 610.54 | 1 96 | 3 98 | 5187 70 | 12612 55 |
| 18244.000 | 876 00 | 0 00 | 0 00 | 587 30 | 9210 00 | 604 35 | 0.00 | 604 67 | 2 05 | 4 67 | 2268 99 | 6428 14 |
| 18244.000 | 876 00 | 0 00 | 0 00 | 587 30 | 13320 00 | 608 05 | 0.00 | 608.28 | 1 24 | 4 28 | 4181 72 | 11943 08 |
| 18244.000 | 876.00 | 0 00 | 0 00 | 587 30 | 14260 00 | 608 58 | 0 00 | 608 81 | 1 20 | 4 29 | 4547 00 | 13017 84 |
| 18244.000 | 876 00 | 0 00 | 0 00 | 587 30 | 17650 00 | 610 47 | 0 00 | 610 67 | 1 02 | 4 24 | 5900 26 | 17486 62 |
| 19119 000 | 875.00 | 0 00 | 0 00 | 588.10 | 9210 00 | 604 53 | 0 00 | 604 86 | 2 28 | 4 63 | 2120 65 | 6097 08 |
| 19119 000 | 875 00 | 0 00 | 0 00 | 588.10 | 13320 00 | 608 10 | 0 00 | 608 44 | 1 95 | 4 86 | 3297 56 | 9547 74 |
| 19119.000 | 875.00 | 0 00 | 0 00 | 588 10 | 14260.00 | 608 62 | 0 00 | 608 98 | 1 97 | 4 97 | 3512 78 | 10160 99 |
| 19119 000 | 875.00 | 0 00 | 0 00 | 588 10 | 17650 00 | 610 45 | 0.00 | 610 84 | 1 92 | 5 27 | 4359 89 | 12734 61 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 9210 00 | 604 90 | 0 00 | 605 09 | 1 70 | 3 47 | 2825 72 | 7056 81 |
| 20219.000 | 1100 00 | 0 00 | 0 00 | 587 70 | 13320 00 | 608 46 | 0 00 | 608 63 | 1 20 | 3 43 | 4585 72 | 12134 98 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 14260 00 | 608.99 | 0 00 | 609 16 | 1 18 | 3 47 | 4992 41 | 13147 68 |
| 20219 000 | 1100.00 | 0 00 | 0.00 | 587 70 | 17650 00 | 610.84 | 0 00 | 611 01 | 1 03 | 3 51 | 6744 24 | 17422 89 |

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED RUN DRAIN 10

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | 01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 000 | 0 00 | 0 00 | 0 00 | 576.90 | 10780.00 | 597 80 | 0 00 | 598 13 | 4 16 | 4 74 | 2658 67 | 5285 7 |
| 165.000 | 0 00 | 0 00 | 0.00 | 576 90 | 15910.00 | 599 30 | 0 00 | 599 76 | 5 37 | 5 82 | 3471 66 | 6866 2 |
| 165 000 | 0 00 | 0.00 | 0.00 | 576 90 | 17390 00 | 599 70 | 0.00 | 600.19 | 5 60 | 6 05 | 3706 39 | 7351 1 |
| 165 000 | 0 00 | 0 00 | 0 00 | 576 90 | 23340 00 | 601 60 | 0 00 | 602 12 | 5 41 | 6 47 | 4897 84 | 10037 1 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576 90 | 10780 00 | 599 01 | 0 00 | 599 24 | 2 79 | 4 11 | 3290 24 | 6458 4 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576 90 | 15910 00 | 601 50 | 0 00 | 601 75 | 2 64 | 4 47 | 4817 83 | 9797 1 |
| 194.000 | 29 00 | 599 60 | 596 30 | 576 90 | 17390.00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144 80 | 10574 7 |
| 194.000 | 29 00 | 599 60 | 596 30 | 576 90 | 23340 00 | 603 74 | 0.00 | 604 04 | 2 89 | 5 11 | 6393 28 | 13730 9 |
| 594.000 | 400 00 | 0 00 | 0 00 | 580 17 | 10780 00 | 599.09 | 0 00 | 599 33 | 1 80 | 4 23 | 4829 94 | 8038 7 |
| 594.000 | 400.00 | 0 00 | 0 00 | 580 17 | 15910 00 | 601 56 | 0 00 | 601 87 | 2 09 | 5 01 | 7392 65 | 10997 8 |
| 594.000 | 400.00 | 0 00 | 0 00 | 580 17 | 17390.00 | 602 04 | 0 00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 5 |
| 594 000 | 400.00 | 0 00 | 0 00 | 580 17 | 23340 00 | 603 76 | 0 00 | 604 25 | 2 91 | 6 36 | 8925 69 | 13672 7 |
| 1039.000 | 445.00 | 0 00 | 0 00 | 583 10 | 10060.00 | 599 08 | 0 00 | 599.54 | 2 76 | 5 51 | 2291 65 | 6054 4 |
| 1039 000 | 445.00 | 0 00 | 0.00 | 583.10 | 14650.00 | 601 48 | 0 00 | 602.19 | 3 37 | 6 80 | 2827.91 | 7978 8 |
| 1039 000 | 445.00 | 0 00 | 0.00 | 583.10 | 16040.00 | 601 94 | 0 00 | 602 74 | 3.67 | 7 23 | 2930.77 | 8372 0 |
| 1039 000 | 445 00 | 0 00 | 0.00 | 583.10 | 21540 00 | 603 58 | 0 00 | 604.76 | 4.80 | 8.81 | 3295 95 | 9828 1 |
| 1100.000 | 61.00 | 0.00 | 0.00 | 581.70 | 10060 00 | 599.17 | 0 00 | 599.58 | 5 06 | 5 15 | 1953.73 | 4473 8 |
| 1100 000 | 61.00 | 0.00 | 0 00 | 581 70 | 14650 00 | 601.66 | 0 00 | 602.25 | 6 37 | 6 18 | 2369 62 | 5803 9 |
| 1100 000 | 61.00 | 0.00 | 0 00 | 581.70 | 16040 00 | 602.15 | 0 00 | 602 81 | 6 78 | 6.53 | 2455 77 | 6159 2 |
| 1100 000 | 61 00 | 0 00 | 0 00 | 581 70 | 21540 00 | 604 15 | 0 00 | 604 92 | 7 03 | 7 27 | 5862 76 | 8123 2 |
| 1143 000 | 43 00 | 603 10 | 601 70 | 581 70 | 10060 00 | 599.17 | 0 00 | 599 63 | 5 24 | 5 45 | 1844 81 | 4395 2 |
| 1143.000 | 43 00 | 603.10 | 601 70 | 581.70 | 14650 00 | 602.06 | 0 00 | 602 62 | 5 78 | 6 00 | 2444 98 | 6095 2 |
| 1143.000 | 43 00 | 603 10 | 601 70 | 581 70 | 16040 00 | 602 71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 7 |
| 1143 000 | 43 00 | 603 10 | 601.70 | 581 70 | 21540 00 | 605 11 | 0 00 | 605 82 | 5 91 | 6 92 | 6012.36 | 8863 1 |
| 1150 000 | 7 00 | 0 00 | 0 00 | 581.78 | 10060 00 | 599 28 | 0 00 | 599 66 | 1 94 | 4 97 | 2395 42 | 7216 7 |
| 1150 000 | 7 00 | 0 00 | 0.00 | 581.78 | 14650 00 | 602 06 | 0.00 | 602 63 | 2 33 | 6 09 | 2914 15 | 9598 4 |
| 1150 000 | 7.00 | 0 00 | 0 00 | 581.78 | 16040.00 | 602.70 | 0 00 | 603 34 | 2 48 | 6 44 | 3033 16 | 10182 4 |
| 1150 000 | 7.00 | 0 00 | 0 00 | 581.78 | 21540 00 | 605 01 | 0 00 | 605 92 | 3 02 | 7 68 | 3462 70 | 12402 8 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | 01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1180.000 | 30.00 | 0 00 | 0 00 | 582.10 | 10060 00 | 599 24 | 0 00 | 599 71 | 5 98 | 5 46 | 1842 50 | 4114 95 |
| 1180.000 | 30 00 | 0 00 | 0.00 | 582 10 | 14650 00 | 602 04 | 0 00 | 602 66 | 6 57 | 6 32 | 2316 26 | 5716 20 |
| 1180.000 | 30 00 | 0.00 | 0 00 | 582.10 | 16040 00 | 602 69 | 0 00 | 603 37 | 6 72 | 6 60 | 2428 63 | 6185 81 |
| 1180.000 | 30.00 | 0.00 | 0.00 | 582 10 | 21540 00 | 605 55 | 0 00 | 606 05 | 4 64 | 6 21 | 6639 51 | 10003 88 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582 10 | 10060 00 | 599 27 | 0 00 | 599 73 | 5 91 | 5 44 | 1849 35 | 4138 02 |
| 1223.000 | 43 00 | 603.40 | 601.00 | 582.10 | 14650 00 | 602 63 | 0 00 | 603.20 | 5 67 | 6 05 | 2420 55 | 6151 81 |
| 1223.000 | 43 00 | 603.40 | 601.00 | 582.10 | 16040 00 | 603 52 | 0 00 | 603.92 | 4 18 | 5 42 | 5417 17 | 7844 07 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582.10 | 21540 00 | 605 69 | 0 00 | 606 19 | 4 48 | 6 14 | 6731 19 | 10178 83 |
| 1323.000 | 100 00 | 0.00 | 0 00 | 582 15 | 10060 00 | 599 62 | 0 00 | 599 83 | 1 29 | 4 04 | 3664 30 | 8865 04 |
| 1323.000 | 100 00 | 0.00 | 0 00 | 582 15 | 14650 00 | 603 15 | 0 00 | 603 33 | 0 97 | 4 04 | 5798 54 | 14849 07 |
| 1323 000 | 100 00 | 0 00 | 0 00 | 582 15 | 16040 00 | 603 80 | 0 00 | 604 00 | 0 99 | 4 17 | 6197 82 | 16152 42 |
| 1323 000 | 100.00 | 0 00 | 0.00 | 582 15 | 21540 00 | 606 06 | 0 00 | 606 29 | 1 04 | 4 62 | 7579 19 | 21076 10 |
| 2223 000 | 900.00 | 0.00 | 0 00 | 582 56 | 10060 00 | 599 67 | 0 00 | 600 02 | 1 99 | 4 78 | 2238 88 | 7129 78 |
| 2223 000 | 900 00 | 0 00 | 0.00 | 582 56 | 14650 00 | 603 08 | 0 00 | 603 54 | 2 00 | 5 53 | 3033 28 | 10364 71 |
| 2223 000 | 900 00 | 0 00 | 0 00 | 582.56 | 16040 00 | 603 71 | 0 00 | 604.22 | 2 12 | 5 82 | 3189 49 | 11024 13 |
| 2223.000 | 900 00 | 0 00 | 0 00 | 582 56 | 21540 00 | 605 86 | 0 00 | 606 57 | 2 57 | 6 92 | 3743 70 | 13429 95 |
| 3180.000 | 957 00 | 0 00 | 0 00 | 583 00 | 10060 00 | 599 86 | 0 00 | 600 21 | 2 09 | 4 83 | 2188 26 | 6966 34 |
| 3180 000 | 957 00 | 0 00 | 0 00 | 583 00 | 14650 00 | 603 28 | 0 00 | 603 73 | 2 01 | 5 50 | 2975 47 | 10327 42 |
| 3180 000 | 957 00 | 0.00 | 0 00 | 583 00 | 16040 00 | 603 93 | 0 00 | 604 42 | 2 11 | 5 76 | 3135 33 | 11047 32 |
| 3180 000 | 957 00 | 0.00 | 0.00 | 583 00 | 21540 00 | 606 16 | 0 00 | 606 82 | 2 46 | 6 73 | 3707 11 | 13731 00 |
| 5720 000 | 2540.00 | 0 00 | 0 00 | 584.20 | 9360 00 | 600 42 | 0 00 | 600 75 | 2 16 | 4 66 | 2028 53 | 6373 13 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584.20 | 13680 00 | 603 83 | 0 00 | 604 24 | 1 99 | 5 22 | 2963 80 | 9697 55 |
| 5720.000 | 2540 00 | 0 00 | 0 00 | 584.20 | 14820 00 | 604 52 | 0 00 | 604.95 | 1 99 | 5 36 | 3254 10 | 10517 95 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584.20 | 19310 00 | 606 95 | 0 00 | 607.38 | 1 80 | 5 58 | 4952 31 | 14387 56 |
| 7470.000 | 1710 00 | 0 00 | 0 00 | 584 10 | 9360 00 | 600 88 | 0.00 | 601 03 | 1 09 | 3 46 | 3686 11 | 8968 17 |
| 7470.000 | 1710 00 | 0 00 | 0 00 | 584 10 | 13680 00 | 604 35 | 0 00 | 604 48 | 0 80 | 3 42 | 5820 81 | 15295 03 |
| 7470 000 | 1710 00 | 0 00 | 0.00 | 584.10 | 14820 00 | 605 05 | 0 00 | 605 18 | 0 77 | 3 45 | 6310 65 | 16881 93 |
| 7470 000 | 1710.00 | 0 00 | 0 00 | 584.10 | 19310 00 | 607 46 | 0 00 | 607 59 | 0 69 | 3 57 | 8192 61 | 23166 37 |
| 8270 000 | 760 00 | 0 00 | 0.00 | 584 40 | 9360 00 | 600 93 | 0 00 | 601 15 | 1 58 | 4 10 | 3094 73 | 7455 76 |
| 8270 000 | 760.00 | 0 00 | 0 00 | 584.40 | 13680 00 | 604.38 | 0 00 | 604 57 | 1 15 | 4 02 | 5017.75 | 12775 11 |
| 8270.000 | 760.00 | 0 00 | 0 00 | 584.40 | 14820.00 | 605 09 | 0 00 | 605 26 | 1 09 | 4 02 | 5601 88 | 14220 82 |
| 8270.000 | 760 00 | 0.00 | 0.00 | 584 40 | 19310 00 | 607 50 | 0 00 | 607.66 | 0 91 | 4 01 | 7777 34 | 20267 18 |
| 8340.000 | 70 00 | 0 00 | 0.00 | 584 40 | 9360 00 | 600.99 | 0 00 | 601 17 | 3 28 | 3 84 | 2989 25 | 5168 74 |
| 8340.000 | 70 00 | 0.00 | 0.00 | 584 40 | 13680 00 | 604.45 | 0 00 | 604.59 | 1 99 | 3 52 | 4947 15 | 9688 96 |
| 8340.000 | 70 00 | 0 00 | 0 00 | 584.40 | 14820.00 | 605 15 | 0 00 | 605 29 | 1 84 | 3 48 | 5526 58 | 10924 37 |
| 8340 000 | 70 00 | 0 00 | 0.00 | 584 40 | 19310.00 | 607 57 | 0 00 | 607 68 | 1 43 | 3.34 | 7683 53 | 16155 01 |
| 8394 000 | 54.00 | 600 90 | 600 40 | 584 40 | 9360.00 | 601 64 | 0 00 | 601 79 | 2 50 | 3.49 | 3304 11 | 5919 10 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 13680 00 | 604 92 | 0 00 | 605 04 | 1 64 | 3 32 | 5327 38 | 10687 27 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 14820 00 | 605 54 | 0 00 | 605 66 | 1 55 | 3 33 | 5845 78 | 11887 87 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 19310 00 | 607 83 | 0 00 | 607 94 | 1 26 | 3 28 | 7908 46 | 17194 11 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 37088 000

3265 DIVIDED FLOW


3470 ENCRDACHMENT STATIDNS=      50 0      450 0  TYPE=      1  TARGET=      400 000
 37088.00     21 71    616.81     0.00    611 14    617.23     0 41      0 01      0 07    608 80
    8680       219.     8288.     173.       92.      1574       79.     3676       446      608 70
     2.49      2.38      5.27     2.19     0 025     0 025    0 035    0.000    595 10     50 00
 0 000529       50        50      50.         2         0        0     0 00    214 57    326 62


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 66      2 80      0.00    107 00      0 00    1410 00     0 00    595.10    595.10

*SECNO 37121 000

3265 DIVIDED FLOW

PRESSURE FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    617 79    617.23      0.00        0.      8680      1410      2161       615 30    617 90


3470 ENCROACHMENT STATIONS=      50.0      450 0  TYPE=      1  TARGET=      400.000
 37121.00     22 32    617.42     0.00    611 18    617 79     0 37      0.56      0 00    608 80
    8680       309.     8176.     195       162.     1639.       92      3677       446      608 70
     2.49      1.91      4.99     2.13     0 025     0 025    0 035    0 000    595 10     50 00
 0.000450       33        33       33         2         0        0     0 00    270 97    328.09


*SECNO 37221.000

3470 ENCROACHMENT STATIONS=      50 0      450 0  TYPE=      1  TARGET=      400 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617 50 ELREA=      617 80

 37221.00     22 49    617.59     0 00    611.60    617 85     0.25      0 02      0 03    617 50
    8680       23      8657        0        48.     2134       0.      3682       446      617 80
     2.50      0 48      4.06     0 00     0 025     0 025    0 000    0 000    595 10     50 00
 0.000145      100.      100      100.        2         0        0     0 00    234 50    284 50
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWIO      ENDST

CCHV=   0 100 CEHV=   0 300
*SECNO 39121 000
 39121.00    22.67    617.87     0.00    612.20    618.17     0 30      0.31     0 01    620.40
    8680.       0      8663.      17         0      1962       28      3773      455      616 10
     2 62     0 00      4.41    0 61     0.000    0 025    0.035     0.000   595 20    156.77
 0 000181    1900      1900     1900         2        0        0     0 00    169 34    326 11

*SECNO 41121 000
 41121 00    22 59    618.19     0.00    612.95    618 67     0 49      0 45     0 06    638 00
    8680.       0      8680        0         0      1551        0      3854      461      636 20
     2 72     0 00      5.60    0 00     0 000    0 025    0 000     0 000   595 60    242 18
 0.000288    2000.     2000     2000.         0        0        0     0 00    106 86    349 05

*SECNO 42521 000
 42521 00    23.34    618 74     0.00    613 74    618 97     0.23      0 27     0 03    625.90
    8680.       0.      8680        0         0.     2247        0      3915      466.      622 30
     2 82     0.00      3.86    0 00     0 000    0 025    0.000     0.000   595 40    305 91
 0.000136    1300      1400     1550         2        0        0     0 00    162 01    467 92
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=      1  TARGET=      450.000
 31483.00    23 51    616.01     0.00    608 77    616.30     0 29      0 74      0.00    598 90
    8680.    1026.     6231     1422      370.      1292      656      3364.      405.     595 60
     2 08     2 78      4.82     2.17    0 028     0 025    0 040     0 000    592 50    195.43
 0 000269      53        53.      53         2         0        2      0 00    304 57    500.00


*SECNO 31583 000
3280 CROSS SECTION  31583 00 EXTENDED      1 52 FEET


3470 ENCROACHMENT STATIONS=      50.0      500.0  TYPE=      1  TARGET=      450 000
 31583 00    23.52    616.07     0 00    609.46    616 33     0 26      0 02      0 01    615 35
    8680.       6      8573      101       17.      2089.      131      3369      406      613.65
     2.09     0.35      4.10     0.77    0.025     0 025    0 035     0.000    592 55    252 21
 0.000135     100.      100      100.        2         0        0      0 00    247.79    500 00


CCHV=   0 100 CEHV=   0.300
*SECNO 33333 000
 33333 00    22 94    616.34     0.00    610.07    616 53     0 20      0 20      0.01    613 50
    8680      128      8120.     432       163      2213      447.     3471      419      610 80
     2 23     0.79      3 67     0.97    0.025     0 025    0 035     0 000    593 40    227.01
 0 000099    1700      1750     1800        2         0        0      0.00    416 39    643 40


CCHV=   0 300 CEHV=   0.500
*SECNO 33433 000
 33433 00    22.74    616 34     0 00    610 07    616.55     0 22      0 01      0 01    606 70
    8680      350      7520      810.      261.      1892.     616      3477      420.      604 60
     2 24     1.34      3 97     1 32    0 025     0 025    0.035     0 000    593.60    225.03
 0.000132     100       100.     100         1         0        0      0 00    418.62    643 64


SPECIAL BRIDGE

SB  XK        XKOR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.50      3 09      0 00    103.00     0 00    1520 00     0.00    593 60    593 60

*SECNO 33438.000
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
   617 10    616 55     0 00      3349      5374      1520      1988       612.90    613 00

 33438 00    22 82    616.42     0 00    610 07    616.63     0 21      0 08      0 00    606 70
    8680      362.     7494      824.      272      1900      628      3478       420      604 60
     2.24     1 33     3 94      1 31    0 025     0 025    0 035     0.000     593 60    218 67
 0 000129       5        5.        5         2         0        4      0 00     426 80    645 47

*SECNO 33538 000
 33538 00    22 85    616 44     0 00    610.17    616.64     0 20      0 01      0 00    613 69
    8680      117.     8143      420       152      2201      433.     3484       421      610 99
     2 25     0 77     3 70     0.97    0 025     0 025    0 035     0 000     593 59    234 49
 0.000101      100      100      100         1         0        0      0 00     406 66    641 15

CCHV=   0.100 CEHV=   0 300
*SECNO 34888.000
3280 CROSS SECTION  34888 00 EXTENDED      1.88 FEET

 34888.00    23.08    616 58     0.00    610 56    616.81     0 24      0 16      0 01    614 00
    8680.     248      8429.      3.       225      2134       13      3564       432      616.00
     2.34     1 10     3 95     0 22    0 025     0 025    0 035     0.000     593 50      0.00
 0.000139    1400      1350     1300         2         0        0      0 00     309 42    309 42

*SECNO 37038 000

3265 DIVIDED FLOW

 37038.00    22.67    616 87     0 00    611 26    617 14     0.27      0.32      0 01    617 50
    8680.       5      8675       0.        18      2065        0      3674       445      617 80
     2.49     0 28     4.20     0 00     0.025     0 025    0 000     0 000     594 20      2 15
 0.000158    2100     2150.     2200         2         0        0      0 00     221.74    282.75

CCHV=   0 300 CEHV=   0 500
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       0 0      750 0  TYPE=      1  TARGET=      749.999
 29749.00    22 83    614 13    0 00    608 32    614 27    0 14      0 13      0 01    612.40
    8680       29      8501.     151       64      2768      188      3266       393      609 70
     1.97     0.45      3 07    0.80    0 028     0 025    0 040     0 000    591 30    420 20
 0.000087     1100      1200.   1150.        2         0        0     0 00    329 80    750.00


*SECNO 30474 000
3280 CROSS SECTION  30474.00 EXTENDED      0.91 FEET

 30474.00    22.41    614.16    0 00    608 46    614 36    0 20      0 07      0 02    613 55
    8680.        3      8525     151.       11.     2372.     270      3313       399      611 35
     2 02     0 31      3 59    0.56    0 028     0 025    0 040     0.000    591.75    364 50
 0 000115     700.      725     700.        2         0        0     0.00    385.50    750 00


*SECNO 31199 000

3470 ENCROACHMENT STATIONS=       0 0      480.0  TYPE=      1  TARGET=      479.999
 31199 00    21.97    614.17    0 00    608 58    614 50    0 33      0 11      0 04    615 00
    8680.        0      8670      10         0     1882.      27.     3351.      404      613 30
     2 07     0 00      4 61    0 36    0 000     0 025    0 040     0 000    592 20    301 90
 0 000192     700       725     700.        2         0        0     0 00    178 10    480 00


CCHV=   0 300 CEHV=   0 500
*SECNO 31299.000

3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=      1  TARGET=      450 000
 31299.00    21.76    614.16    0.00    608.56    614 57    0 40      0 03      0 04    598.90
    8680.     840.      6824    1016       268.     1229     386.     3355       404      595.90
     2 07     3.14      5 55    2 63    0 028     0 025    0.040     0 000    592.40    264 93
 0 000353     100       100.    100.        2         0        0     0 00    221 41    486 34


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.55      3 04      0.00     61 00      0 00    954.00      0 00    592 40    592.40

*SECNO 31350.000
3280 CROSS SECTION  31350 00 EXTENDED      1 00 FEET
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALDB      ACH       ARDB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

PRESSURE AND WEIR FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                      AREA
    616 16     614 57      0 00      1513       7200        954       1049        609.60     613 70


3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=     1  TARGET=     450 000
 31350 00     22 80    615 20     0 00    608 48    615 53     0 33      0 97      0 00    598 90
    8680       920.      6596     1164       307      1293      530.     3357.      404      595 90
     2 08      3.00      5.10     2 20     0 028     0 025    0 040     0 000    592 40    249 52
 0 000279       51.        51       51         2         0        2      0 00    250 47    500 00

*SECNO 31430 000
3280 CROSS SECTION  31430 00 EXTENDED      1 03 FEET

3470 ENCROACHMENT STATIONS=      50.0      500 0  TYPE=     1  TARGET=     450 000
 31430.00     22 72    615 22     0 00    608 88    615.56     0 34      0 02      0 00    598 90
    8680       953.      6438     1289       308      1245      546      3361      405      595 60
     2 08      3 09      5 17     2 36     0.028     0 025    0.040     0 000    592 50    247 85
 0.000326       80        80       80         0         0        0      0 00    252 15    500 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      ROLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHO
     0 00      1.55      3 04      0.00     61 00      0 00    977 00      0 00    592 50    592 50

*SECNO 31483 000
3280 CROSS SECTION  31483 00 EXTENDED      1 81 FEET

PRESSURE AND WEIR FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                      AREA
    617.12     615 56      0 00      2124       6530.       977       1122        610 90     614 90
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLDB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 27900.00 | 22 54 | 612.44 | 0 00 | 607.26 | 612.72 | 0 27 | 0.11 | 0 00 | 605 70 |
| 8680. | 582. | 8058. | 39 | 374 | 1857. | 71 | 3150 | 376 | 609 80 |
| 1.81 | 1.56 | 4.34 | 0.55 | 0.030 | 0 025 | 0.040 | 0 000 | 589.90 | 0 00 |
| 0.000150 | 800. | 750 | 700 | 0 | 0 | 0 | 0 00 | 353 99 | 353 99 |

CCHV= 0.300 CEHV= 0 500
*SECNO 28000 000
3280 CROSS SECTION 28000 00 EXTENDED 0 16 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28000 00 | 22 35 | 612.45 | 0.00 | 607 28 | 612 75 | 0 30 | 0 02 | 0.01 | 605 60 |
| 8680 | 747. | 7830 | 103 | 367. | 1722. | 105 | 3155 | 377 | 606 50 |
| 1.82 | 2 03 | 4 55 | 0 98 | 0 030 | 0 025 | 0 040 | 0 000 | 590 10 | 0 00 |
| 0.000249 | 100. | 100 | 100 | 0 | 0 | 0 | 0 00 | 336 17 | 336 17 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1 54 | 3 04 | 0.00 | 116.00 | 0 00 | 1320 00 | 0 00 | 590 10 | 590.10 |

*SECNO 28031 000
3280 CROSS SECTION 28031 00 EXTENDED 0.94 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZDID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 613.48 | 612.74 | 0 00 | 30 | 8676 | 1320. | 2158 | 608 70 | 613.20 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28031 00 | 23 14 | 613 24 | 0 00 | 607.29 | 613 48 | 0 25 | 0 74 | 0 00 | 605 60 |
| 8680 | 927 | 7603 | 151 | 500. | 1808. | 157 | 3157 | 377 | 606.50 |
| 1.82 | 1 85 | 4.20 | 0 96 | 0 030 | 0.025 | 0 040 | 0 000 | 590 10 | 0 00 |
| 0.000201 | 31. | 31 | 31. | 2 | 0 | 2 | 0 00 | 351 21 | 351 21 |

*SECNO 28331.000
3280 CROSS SECTION 28331.00 EXTENDED 5 73 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 28331 00 | 22.63 | 613.33 | 0 00 | 607.53 | 613 54 | 0.21 | 0 04 | 0 01 | 610 10 |
| 8680 | 213. | 7912 | 555. | 263 | 2076 | 627 | 3176 | 380 | 611 10 |
| 1 84 | 0.81 | 3 81 | 0 88 | 0 028 | 0.025 | 0 040 | 0.000 | 590 70 | 58 96 |
| 0.000116 | 300 | 300 | 300. | 2 | 0 | 0 | 0 00 | 541 04 | 600 00 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 28431.000
3280 CROSS SECTION  28431.00 EXTENDED      4 85 FEET

 28431 00    21 25   613 35     0.00    607 51   613 57     0 23     0 02     0 01   607 60
    8680      534     7208.     938      290     1751      528     3182.     381     606 80
     1 85     1 84     4 12     1 78    0 028    0.025    0.040    0 000   592 10    88 05
 0 000546     100      100      100        0        0        0     0 00   511 95   600 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 54      3.04      0.00    117 00     0 00   1440 00     0 00    592 10    592 10

*SECNO 28449 000
3280 CROSS SECTIDN  28449 00 EXTENDED      5 38 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    614.21    613 57     0 00      753      7917      1440     2188       610 80    613.10


 28449.00    21.78   613.88     0 00    607.54   614.07     0.18     0 50     0 00   607 60
    8680.     756     6828     1096.     415     1813      626     3183.     381     606 80
     1.85     1.82     3 77     1.75    0 028    0 025    0.040    0.000   592.10    45.25
 0 000435      18       18       18        2        0        3     0.00   554 75   600 00


*SECNO 28549 000
3280 CROSS SECTION  28549.00 EXTENDED      4 93 FEET

 28549.00    21 83   613.87     0 00    607 71   614 13     0 25     0 02     0 04   611 44
    8680.      93     8184      402.     123     1968      467     3190     383     612 44
     1.86     0.76     4 16     0.86    0 028    0 025    0 040    0 000   592 04   129 70
 0 000148     100      100      100        2        0        0     0 00   470 31   600 00


CCHV=   0.100 CEHV=   0.300
*SECNO 29749 000
3280 CROSS SECTION  29749.00 EXTENDED      1 43 FEET
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


CCHV=   0 100 CEHV=   0 300
*SECNO 24369 000

3470 ENCROACHMENT STATIONS=       0 0     500 0  TYPE=     1  TARGET=     499 999
 24369 00    22.71   611.61    0 00   605.89   611.80    0.19     0 06     0 03   605 50
    8680.     685.     7963      32      658     2170.     43     2949      341    609 50
     1.57     1 04     3.67    0 75    0.028    0 025   0 025    0 000   588 90    50 00
 0 000096     850      800     900        2        0       0     0.00   450 00   500.00


*SECNO 25819 000

3470 ENCROACHMENT STATIONS=     260.0     775 0  TYPE=     1  TARGET=     515 000
 25819 00    22.93   611 73    0 00   606 21   612.01    0 28     0.18     0 03   609 20
    8680      356     8108     216      382     1858     219.    3036      357    609 30
     1.67     0.93     4 36    0 99    0 028    0 025   0 025    0 000   588 80   260 00
 0 000165    1350     1450    1500        0        0       0     0 00   515 00   775 00


CCHV=   0 300 CEHV=   0 500
*SECNO 25919 000
3280 CROSS SECTION  25919 00 EXTENDED      2 14 FEET


3470 ENCROACHMENT STATIONS=     287 0     750 0  TYPE=     1  TARGET=     463 000
 25919 00    22.24   611 74    0 00   606 21   612.04    0 31     0.02     0.02   604 90
    8680.     600.     7637     443      382     1621     248.    3042      358    604 00
     1 68     1.57     4 71    1 78    0.028    0 025   0 025    0 000   589 50   287 00
 0 000367     100      100     100        0        0       0     0 00   463.00   750 00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.68      3 04      0 00    104 00     0 00    1220 00     0 00    589.50    589 50

*SECNO 26025.000
3280 CROSS SECTION  26025.00 EXTENDED      2.51 FEET

PRESSURE AND WEIR FLOW
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
   613 06    612 04     0 00      2618.      6046      1220      1914       607 90    610 00


3470 ENCROACHMENT STATIONS=      287.0      750 0  TYPE=      1  TARGET=      463 000
 26025 00    22.61    612 11    0.00     606.32    612 38    0 27      0 33      0 00    604 90
    8680.     745      7386.    549       460      1659.     302      3047      359      604 00
     1 68     1 62      4 45    1 82     0 028     0 025    0.025     0 000    589.50    287 00
 0.000318     106       106     106         2         0        2      0 00    463 00    750 00


*SECNO 26125 000

3470 ENCROACHMENT STATIONS=      260 0      750 0  TYPE=      1  TARGET=      490 000
 26125 00    22 62    612.11    0 00     606 48    612 42    0 31      0 02      0 02    609 89
    8680.     268.     8292     120       311      1821      136      3053.     360      609 99
     1 69     0 86      4 55    0 88     0 028     0 025    0 025     0 000    589 49    260 00
 0 000185     100.      100     100.        2         0        0      0 00    490 00    750 00


CCHV=   0 100 CEHV=   0 300
*SECNO 26900.000
 26900 00    22.89    612 29    0.00     606.90    612.57    0.28      0 14      0 00    610 00
    8680.      26      8100     554        35      1852      604      3095      368      608 80
     1 74     0.74      4 37    0.92     0.030     0 028    0 040     0 000    589 40    147.38
 0.000184     800       775     725         1         0        0      0.00    404 62    552.00


*SECNO 27150 000

3470 ENCROACHMENT STATIONS=        0.0      375 0  TYPE=      1  TARGET=      374 999
 27150 00    21 82    612 32    0 00     606 96    612 61    0 28      0 04      0 00    604.70
    8680      362      7583     735.      207.      1674.    ·573      3109      370      604 60
     1 76     1.75      4.53    1 28     0 030     0 025    0 040     0 000    590.50     85 23
 0 000137     200       250     300         0         0        0      0.00    289 77    375 00


*SECNO 27900.000
3280 CROSS SECTION  27900 00 EXTENDED      0 15 FEET
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLDBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1 60 | 3.04 | 0 00 | 191.80 | 0 00 | 3230 00 | 0 00 | 586 50 | 586.50 |

*SECNO 17368.000
3280 CROSS SECTION 17368 00 EXTENDED 3.92 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 610.90 | 610 39 | 0.00 | 4966 | 12803. | 3230. | 3932 | 607 00 | 607 10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17368.00 | 23.82 | 610.32 | 0 00 | 604 25 | 610.54 | 0 22 | 0 16 | 0 00 | 608 80 |
| 17650 | 1591 | 15639 | 421. | 944. | 3934 | 310. | 2166. | 238 | 609 20 |
| 1.07 | 1.69 | 3.98 | 1 36 | 0 025 | 0 025 | 0 028 | 0 000 | 586 50 | 49 63 |
| 0.000196 | 100 | 100 | 100. | 2 | 0 | 2 | 0 00 | 673 67 | 723 30 |

*SECNO 18244.000
3280 CROSS SECTION 18244 00 EXTENDED 2 08 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 18244 00 | 23 17 | 610 47 | 0 00 | 604 35 | 610 67 | 0 20 | 0 12 | 0 01 | 602.80 |
| 17650 | 2808 | 11382 | 3460. | 1360 | 2687 | 1853 | 2271 | 250 | 598 40 |
| 1 14 | 2.07 | 4 24 | 1 87 | 0 025 | 0.025 | 0 028 | 0 000 | 587 30 | 19 86 |
| 0 000102 | 150 | 876 | 1400 | 1 | 0 | 0 | 0 00 | 724 54 | 744.40 |

CCHV= 0 100 CEHV= 0 300
*SECNO 19119 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 19119.00 | 22.35 | 610 45 | 0.00 | 604 53 | 610.84 | 0 38 | 0.12 | 0 06 | 609.20 |
| 17650 | 9 | 15623 | 2018. | 17. | 2967 | 1376. | 2371 | 262. | 599 60 |
| 1.19 | 0.54 | 5 27 | 1.47 | 0 030 | 0 025 | 0.045 | 0 000 | 588 10 | 96 04 |
| 0.000192 | 850 | 875. | 800 | 2 | 0 | 0 | 0 00 | 509 68 | 605 72 |

*SECNO 20219 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 20219.00 | 23 14 | 610.84 | 0.00 | 604.90 | 611 01 | 0.17 | 0 15 | 0 02 | 620 70 |
| 17650 | 0. | 15198 | 2452 | 0. | 4327 | 2417 | 2507. | 280. | 606 90 |
| 1 28 | 0 00 | 3.51 | 1 01 | 0 000 | 0 025 | 0 040 | 0 000 | 587 70 | 26 76 |
| 0 000103 | 1100 | 1100 | 1000 | 2 | 0 | 0 | 0 00 | 1018 28 | 1045.04 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 21119 000
3280 CROSS SECTION  21119.00 EXTENDED      0 48 FEET

 21119 00    22 18    610 88     0 00    604 98    611 15     0 27      0 11      0 03    607 30
   17650     4284     13346.      20      2089.     2868       50.     2626       298      609 30
     1.34     2.05      4.65     0 40     0 028     0 025    0 040     0 000    588 70      0.00
 0 000155     800       900.     900         2         0        0      0 00    763 27    763 27


*SECNO 22069 000
 22069 00    22.69    610 89     0 00    605 20    611.44     0 55      0 20      0 08    609.50
   17650.     402     17157.      91.      241.     2846      101      2711       309      608.30
     1.39     1.67      6.03     0.90     0 028     0 025    0 035     0.000    588 20      0.00
 0 000316     800       950      900         2         0        0      0 00    378 35    378.35


*SECNO 22419.000
3280 CROSS SECTION  22419 00 EXTENDED     11 52 FEET

 22419 00    23.22    611 42     0 00    605 58    611 52     0 11      0 04      0 04    601.80
   15610     7456      7765      389      3841      2418      323      2752       313      603 80
     1 42     1.94      3.21     1 20     0 028     0 025    0 028     0 000    588 20      0 00
 0 000061     400       350      250         2         0        0      0 00    598 09    598 09


*SECNO 23319.000

3265 DIVIDED FLOW

3280 CROSS SECTION  23319.00 EXTENDED      1.15 FEET

 23319 00    22.85    611 35     0 00    605 54    611 67     0 32      0 08      0 06    606 60
   15610     2021     12038.    1551.     1356.     2382.     745      2860       327      602 20
     1 48     1 49      5 05     2 08     0 028     0 025    0 028     0 000    588 50      0 00
 0 000167     800       900.     875         2         0        0      0 00    850 35    900.00


*SECNO 23569 000

3470 ENCROACHMENT STATIONS=       0 0     750 0  TYPE=     1  TARGET=     749 999
 23569 00    23.21    611.61     0 00    605 82    611.72    0.10      0 03      0 02    610.00
    8680.    1141      7536        3      1458.     2729       11      2882       330      610 40
     1.51     0.78      2.76     0 29     0.030     0 025    0 028     0.000    588 40      0 00
 0 000058     150       250      300         2         0        0      0 00    717 82    717 82
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       0 0     538 0  TYPE=     1  TARGET=     537 999
 13196.00    22 95    608 45     0 00    602 81    608.88     0.43      0.40     0 00100000 30
   21140       0.     18509.    2631        0.     3298      1510      1764       196     595.90
     0 83     0.00      5 61     1 74     0.000    0.025     0 045     0 000    585 50      8.56
 0.000263    1320      1600     1760         2        0         0      0 00    529 44    538.00


*SECNO 14796 000
 14796 00    21.40    608.70     0 00    603.18    609 52     0 83      0.52     0 12    621.70
   21140       0.     21140        0.        0     2896.        0      1906       209     613 10
     0.89     0.00      7.30     0 00    0.000    0 025     0 000     0.000   587.30     99.07
 0.000418    1600      1600     1600.         2        0         0      0 00    187.08    286 15


*SECNO 16096 000
 16096.00    22 77    609 57     0 00    603 70    609 96     0 39      0 39     0 04    613.40
   17650        0     16287     1363        0     3135.     1137.     2017.       221     604 60
     0.97     0.00      5 20     1 20    0.000    0 025     0 040     0.000   586 80    109 16
 0.000211    1200.     1300     1600         2        0         0      0 00    550 84    660 00


CCHV=   0 300 CEHV=   0.500
*SECNO 16396 000
3280 CROSS SECTION  16396 00 EXTENDED      2 38 FEET

 16396 00    22 08    609 58     0.00    603 76    610 10     0 51      0 08     0 06    606 70
   17650.     165.    16104.    1381       127.     2680      920.     2044       225     605 10
     0 98     1 30      6.01     1.50    0 035    0 025     0 040     0 000    587 50    116.65
 0 000325     300       300      300         2        0         0      0 00    483 35    600 00


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.62      3 07      0 00    290.00     0 00    2030 00     0 00    587.50    587 50

*SECNO 16418.000
3280 CROSS SECTIDN  16418 00 EXTENDED      2 41 FEET

PRESSURE AND WEIR FLOW
```

| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 611 49 | 610.10 | 0.00 | 8339. | 9345 | 2030 | 5162 | 605 30 | 606 10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16418 00 | 22.11 | 609 61 | 0 00 | 603 77 | 610 12 | 0 51 | 0 02 | 0 00 | 606 70 |
| 17650. | 167. | 16090 | 1393 | 129. | 2683. | 927 | 2046 | 225 | 605.10 |
| 0 98 | 1 30 | 6 00 | 1 50 | 0 035 | 0 025 | 0.040 | 0 000 | 587 50 | 116.55 |
| 0.000323 | 22. | 22. | 22 | 2 | 0 | 4 | 0 00 | 483 45 | 600 00 |

*SECNO 16768.000
3280 CRDSS SECTION 16768 00 EXTENDED 0.15 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 16768.00 | 22.04 | 610.04 | 0 00 | 604 03 | 610 26 | 0.22 | 0.06 | 0.09 | 597.70 |
| 17650 | 2194. | 11545 | 3912 | 1117 | 2632 | 1896 | 2083 | 229 | 591 10 |
| 1.01 | 1.96 | 4 39 | 2 06 | 0 028 | 0 025 | 0 030 | 0 000 | 588 00 | 0 00 |
| 0.000099 | 400 | 350 | 300 | 2 | 0 | 0 | 0 00 | 573 00 | 573.00 |

*SECNO 17168.000
3280 CROSS SECTION 17168 00 EXTENDED 4 19 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17168 00 | 22 19 | 610 19 | 0 00 | 604 22 | 610 32 | 0 13 | 0 03 | 0 03 | 598 20 |
| 17650. | 9465 | 6901 | 1284. | 3750 | 1983 | 786 | 2141 | 235. | 599 10 |
| 1 05 | 2.52 | 3.48 | 1.63 | 0.025 | 0 025 | 0 028 | 0 000 | 588 00 | 6 44 |
| 0 000069 | 600. | 400 | 100. | 2 | 0 | 0 | 0 00 | 582.46 | 588 90 |

*SECNO 17268.000
3280 CROSS SECTION 17268.00 EXTENDED 3 75 FEET

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 17268 00 | 23 65 | 610.15 | 0 00 | 604.23 | 610 39 | 0 23 | 0 01 | 0 05 | 608 80 |
| 17650 | 1474. | 15792 | 384 | 885. | 3901 | 288. | 2154 | 236 | 609 20 |
| 1 06 | 1.67 | 4 05 | 1 33 | 0 025 | 0 025 | 0.028 | 0 000 | 586 50 | 52 44 |
| 0 000205 | 100 | 100 | 100 | 2 | 0 | 0 | 0 00 | 670 87 | 723 30 |

```
                15 MILE RD  US
  8394.00     23.43    607 83      0 00    601.64    607 94      0 11      0.26      0 00    595 80
   19310.     9427.     9475       409.     4646      2888       374      1063       111.     602 50
     0 53      2 03      3.28      1 09     0.035     0 025     0 030     0.000    584 40    104 40
 0 000126       54        54        54         2         0         6      0 00    970 01   1074 41

*SECNO 8494 000

3470 ENCROACHMENT STATIONS=      139 2     1305.0  TYPE=      1  TARGET=     -160 000
  8494 00     23.31    607 81      0 00    601 62    607 99      0 18      0 01      0 04    596.10
   21140      8876.    11908       356      4815      2766       364      1081.      113.     602 40
     0.54      1.84      4.31      0 98     0 035     0.025     0 030     0 000    584 50    139.20
 0.000103      100.      100       100.        2         0         0      0 00    972 10   1111 30

*SECNO 9594 000

3470 ENCROACHMENT STATIONS=      260 0     1260.0  TYPE=      1  TARGET=     -260 000
  9594 00     22.23    607 93      0 00    601 79    608 09      0 16      0.09      0 01    598.10
   21140.     8303.    12388       449      4903      3139       441      1240       133      602 50
     0 63      1 69      3.95      1 02     0 035     0 025     0 030     0 000    585 70    260 00
 0.000094      630.      1100     1520         0         0         0      0 00    964 36   1224 36

*SECNO 9653 000

3470 ENCROACHMENT STATIONS=      260 0     1210.0  TYPE=      1  TARGET=      950 000
  9653 00     22 55    607 95      0 00    601 83    608 10      0 15      0 01      0 00    597 80
   21140      8443.    12188       509      5090      3192       495      1251.      134      602 20
     0 63      1.66      3.82      1 03     0 035     0 025     0 030     0 000    585 40    260 00
 0 000086       59.       59        59         1         0         0      0 00    950 00   1210 00

*SECNO 9654 000
3280 CROSS SECTION   9654 00 EXTENDED      0 23 FEET

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601.40 MAX ELLC=  603.40

3470 ENCROACHMENT STATIONS=      200 0     1150 0  TYPE=      1  TARGET=     -200 000
  9654 00     22 53    607 93      0.00    601 71    608.12      0 19      0.00      0 02    603 30
   21140.    10927.     9477.      736.     3289.     2497.      387      1251       134      603 40
     0.63      3 32      3 80      1 90     0.025     0.020     0 025     0.000    585 40    200.00
 0.000317        1         1        1.         2         0         0 -2113.40    950 00   1150 00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QRDB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLDB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 9676 000
3280 CROSS SECTION   9676.00 EXTENDED      0 23 FEET

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  601 40 MAX ELLC=  603 40

3470 ENCROACHMENT STATIONS=     200 0    1150 0  TYPE=     1  TARGET=    -200 000
  9676 00    22 53    607 93    0 00    601 71    608 13    0 19     0 01     0 00    603 30
   21140    10931     9472.    737.     3292      2498     388      1255      135     603 40
     0.63     3.32     3 79    1 90     0.025     0 020   0 025    0 000    585 40    200 00
 0.000317     22        22      22        0         0       0   -2113.40    950 00   1150 00

*SECNO 9677.000

3470 ENCROACHMENT STATIONS=     280 0    1210 0  TYPE=     1  TARGET=     930 000
  9677.00    22 59    607 99    0 00    602 07    608.14    0 15     0 00     0 01    597 80
   21140.    8454     12294     392.     5019      3197     503      1255      135     602 20
     0 63     1.68     3.85     0.78     0 035     0.025   0 040    0 000    585 40    280.00
 0 000087      1.        1        1        2         0       0      0 00    930 00   1210 00

*SECNO 9777.000

3470 ENCROACHMENT STATIONS=     250 0    1260 0  TYPE=     1  TARGET=    -250 000
  9777 00    22.55    608 00    0 00    602 08    608 15    0 15     0.01     0 00    597 85
   21140.    8544.    12212     384.     5145      3192     508      1275      137     602.25
     0.64     1 66     3.83     0.76     0 035     0 025   0 040    0.000    585 45    250 00
 0.000086     100       100      100        0         0       0      0 00    994 75   1244 75

CCHV=   0 100 CEHV=   0 300
*SECNO 11596 000
 11596.00    21.65    608 05     0.00    602 32    608 48    0 43     0 25     0.08    607 60
   21140        1.    17618     3521        3      3078.   2151      1573.     172     600 70
     0 74     0.24     5.72     1 64     0.035     0.025   0.040    0 000    586.40    792 29
 0 000236    1975.     1819.    1660.        2         0       0      0 00    698 63   1490 93

*SECNO 13196 000
3280 CROSS SECTION  13196.00 EXTENDED      0 65 FEET
```

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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLDSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0.300 CEHV=   0 500
*SECNO 1323 000
3280 CROSS SECTION   1323 00 EXTENDED      3.31 FEET

3470 ENCROACHMENT STATIONS=     329.0     940 0  TYPE=     1  TARGET=     650 000
  1323 00    23 91    606 06    0.00    599 62    606 29    0.22     0 02     0 08    592.05
   21540.    6793.    13405     1343     3960.     2902     717      178       16.     591 55
     0.05     1 72     4 62     1.87    0.040     0 025    0 040    0.000    582 15    329 00
 0.000104    100.     100.     100.        2         0        0     0 00    611 00    940.00

CCHV=   0.100 CEHV=   0.300
*SECNO 2223 000

3470 ENCROACHMENT STATIONS=       0.0     600.0  TYPE=     1  TARGET=     599 999
  2223 00    23.30    605 86    0 00    599 67    606 57    0.71     0 14     0.15    598 46
   21540.     235.    20595     710.      338      2978     428      294       24      593.26
     0 09     0.70     6 92     1.66    0 110     0 025    0 060    0 000    582 56    237 14
 0 000257     870      900.     940.        2         0        0     0 00    263 62    500 75

CCHV=   0 100 CEHV=   0 300
*SECNO 3180 000

3470 ENCROACHMENT STATIONS=       0.0     600 0  TYPE=     1  TARGET=     599.999
  3180 00    23 16    606 16    0 00    599.86    606 82    0 66     0 24     0 01    598 90
   21540.     608     19915     1017      329.     2958.     420      376       30.     593 70
     0 13     1.85     6 73     2 42    0.040     0.025    0 040    0 000    583 00    237 54
 0.000246     925      957      995         2         0        0     0 00    262 76    500 30

*SECNO 5720.000
3280 CROSS SECTION   5720 00 EXTENDED      0 65 FEET

3470 ENCROACHMENT STATIONS=       0 0     800 0  TYPE=     1  TARGET=     799.999
  5720 00    22.75    606 95    0.00    600 42    607 38    0.43     0 54     0 02    599 30
   19310.    1942.    16887     481      1482      3025     446      629       59      600 90
     0.27     1.31     5.58     1.08    0.040     0 025    0 040    0 000    584 20     0 00
 0 000180    2600.    2540     2500.        2         0        0     0.00    718 15    718 15
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 7470.000

3470 ENCROACHMENT STATIONS=      420.0     1500 0  TYPE=      1  TARGET=     -420 000
  7470 00    23 36    607 46    0 00    600.88    607 59    0 13      0 18      0.03    595 70
   19310     7590     11371.     348     4574      3188      431       896       91      602.00
     0.45    1 66      3.57     0.81    0 035     0.025    0.030     0.000    584 10    420 00
 0 000069    1830      1710.    1750        2         0        0      0 00    861 56   1281 56


*SECNO 8270 000

3470 ENCROACHMENT STATIONS=      130.5     1305 0  TYPE=      1  TARGET=     -150 000
  8270.00    23.10    607 50    0 00    600 93    607 66    0 16      0 06      0 01    596 00
   19310     8030.    10986     293     4713      2738.     327      1040       108      602 30
     0 52    1 70      4.01    0 90    0.035     0 025    0 030     0 000    584.40    130 50
 0.000091     800       760     840.        2         0        0      0 00    967 19   1097 69


CCHV=   0 300 CEHV=   0 500
*SECNO 8340 000

3470 ENCROACHMENT STATIONS=       95 7     1252 8  TYPE=      1  TARGET=     -110 000
  8340.00    23.17    607.57    0 00    600 99    607 68    0 12      0 01      0 01    595.80
   19310     9433      9510     366     4514      2845      325      1053       110      602 50
     0 53    2 09      3 34    1 13    0 035     0 025    0 030     0 000    584 40     95 70
 0 000143      70        70      70        2         0        0      0 00    961 01   1056 71


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00     1 79      2 80      0 00    161 00     0 00    1680 00     0 00    584 40    584 40

*SECNO 8394.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
   611.24   607.68     0.00     13301      6198      1680     2576        600 40    600 90


3470 ENCROACHMENT STATIONS=      104 4     1252 8  TYPE=      1  TARGET=     -120 000
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLDBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

*SECNO 1039 000

3301 HV CHANGED MORE THAN HVINS

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 706.8 | 930.0 | TYPE= | 1 | TARGET= | 240 000 | |
| 1039.00 | 20 48 | 603.58 | 0 00 | 599.08 | 604 76 | 1 19 | 0 16 | 0 35 | 593 00 |
| 21540 | 113. | 21245 | 182. | 355 | 2411 | 530. | 139. | 12 | 592.50 |
| 0 04 | 0.32 | 8.81 | 0 34 | 0 400 | 0 025 | 0 400 | 0 000 | 583 10 | 706.80 |
| 0.000480 | 465. | 445 | 430 | 2 | 0 | 0 | 0 00 | 223 20 | 930 00 |

*SECNO 1100 000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 418 5 | 1023 0 | TYPE= | 1 | TARGET= | 650.000 | |
| | 16 MILE RO DS | | | | | | | | |
| 1100.00 | 22.45 | 604 15 | 0 00 | 599 17 | 604 92 | 0.78 | 0.04 | 0.12 | 601.70 |
| 21540 | 793 | 20379 | 368. | 2179 | 2805 | 879 | 145 | 12 | 601 00 |
| 0 04 | 0.36 | 7 27 | 0.42 | 0.400 | 0 025 | 0 400 | 0 000 | 581 70 | 418 50 |
| 0.000703 | 61 | 61 | 61 | 2 | 0 | 0 | 0 00 | 595 45 | 1013 95 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1.56 | 3.02 | 0 00 | 174 40 | 0 00 | 2318 40 | 0 00 | 581 70 | 581.70 |

*SECNO 1143 000

3265 DIVIDED FLOW

3280 CROSS SECTION 1143 00 EXTENDED 0 01 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 606 23 | 604.92 | 0 00 | 2368 | 19297 | 2318 | 3488 | 601 70 | 603.10 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 3470 ENCROACHMENT STATIONS= | | | 418 5 | 902 1 | TYPE= | 1 | TARGET= | 520 000 | |
| 1143.00 | 23.41 | 605.11 | 0.00 | 599 17 | 605 82 | 0 71 | 0.90 | 0.00 | 601 70 |
| 21540 | 896 | 20574. | 70 | 2475 | 2972 | 565. | 151 | 13 | 601.00 |
| 0 04 | 0.36 | 6.92 | 0.12 | 0.400 | 0 025 | 0 400 | 0 000 | 581 70 | 418.50 |
| 0 000591 | 43. | 43 | 43. | 2 | 0 | 2 | 0 00 | 862 27 | 1581.00 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*SECNO 1150.000
3280 CROSS SECTION   1150 00 EXTENDED      2 63 FEET


3470 ENCROACHMENT STATIONS=     725 4     911 4  TYPE=     1  TARGET=     200 000
  1150 00    23 23   605 01    0 00   599 28   605 92    0 91     0 00     0 10   591.68
   21540       60    21351     129      238     2781     444     152.       13     591 18
     0 04     0.25     7.68    0.29    0 400    0 025   0 400    0 000   581 78   725 40
 0 000302       7        7       7        2        0       0     0 00   186 00   911.40


*SECNO 1180.000
3280 CROSS SECTION   1180 00 EXTENDED      0 45 FEET


3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000
  1180 00    23.45   605 55    0 00   599 24   606 05    0.51     0 01     0.12   601 00
   21540.    2337    18166    1036     2645     2926    1069      155       14     600 90
     0 04     0.88     6 21    0 97    0 150    0 025   0.150    0 000   582 10   423 00
 0 000464      30       30      30        2        0       0     0 00   611 00  1034 00


SPECIAL BRIDGE

SB  XK        XKDR      CDFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1 56      3 04      0.00    173 90     0 00   2121 10     0 00    582 10    582 10

*SECNO 1223 000
3280 CROSS SECTION   1223 00 EXTENDED      0.59 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    608 05    606 05      0 00    10691     10913.    2121      3287       601 00    603 40


3470 ENCROACHMENT STATIONS=     423 0    1034 0  TYPE=     1  TARGET=     650 000
            16 MILE RD  US
  1223.00    23.59   605.69    0 00   599.27   606 19    0 49     0 13     0 00   601 00
   21540     2363.   18133    1044     2691     2953    1087.     162       14     600 90
     0 05     0.88     6.14    0.96    0.150    0 025   0 150    0 000   582 10   423 00
 0 000448      43       43      43        2        0       4     0 00   611 00  1034 00
```

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************************
```

T1
T2
T3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | 0 | 5 | 0 | 0 | 0 000000 | 0 00 | 0 0 | 0 | 601 600 | 0 000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 15 000 | 0.000 | -1 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


*PROF 4

CCHV=   0.300 CEHV=   0 500
*SECNO 165.000

3470 ENCROACHMENT STATIONS=     276.0     1012.0  TYPE=     1  TARGET=     800.000
   165.00    24.70   601 60     0.00    601.60   602 12     0.52     0 00     0 00   593 00
   23340     3955.   17827     1558.     1620     2756.     522        0        0.    591 70
     0.00     2 44     6 47     2 99    0 040    0 030    0 040    0 000   576 90   349 60
 0.000541      0        0        0        0        0        0     0 00   645 95   995 55


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.54      2 80      0 00    170.00      0 00   1389.00     0 00    576 90    576 90

*SECNO 194 000
3280 CROSS SECTION    194.00 EXTENDED      0 04 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    608.35    602 12      0 00     9327.    14034      1389     3298       596 30    599 60


3470 ENCROACHMENT STATIONS=     276 0     1012.0  TYPE=     1  TARGET=     800 000
             UTICA ROAD US FACE    USGS STAGE GAGE   1981 HWM IS 601 7
   194 00    26.84   603.74     0.00     0.00   604 04     0.30     1 92     0 00   593 00
   23340.    5598    15886.    1856.    2570     3107      716        4        0.    591.70
     0.00     2.18     5.11     2 59    0 040    0 030    0 040    0.000   576 90   276.00
 0 000289     29       29       29.        2        0        3     0 00   724 18  1000 18

*SECNO 594.000
3280 CROSS SECTION    594 00 EXTENDED      2 99 FEET


3470 ENCROACHMENT STATIONS=     325 5     1023 0  TYPE=     1  TARGET=     750 000
   594.00    23.59   603.76     0.00    599.09   604 25     0 49     0 12     0 09   590.07
   23340.    4058    17995     1286     4593     2829     1504.      75        7     589 57
     0.02     0.88     6 36     0.86    0 150    0.030    0 150    0 000   580 17   325.50
 0.000291     420      400.     385.        2        0        0     0 00   697.50  1023 00
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```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLDB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLDB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

CCHV=   0 300 CEHV=   0.500
*SECNO 37088 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      50 0      450.0  TYPE=      1  TARGET=      400 000
 37088 00     21 38    616 48     0 00    611 14    616.92     0 44      0.01      0 08    608 80
    8680.      196      8323.     161.      72.      1538.      73      2905       377      608 70
     2.39     2.73      5.41     2.21    0 025     0 025    0 035     0 000    595 10     73 49
 0.000576      50        50       50        2         0        0      0 00    157 84    325 81


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 66      2.80      0 00    107 00      0 00   1410.00     0.00    595 10    595 10

*SECNO 37121 000

3265 DIVIDED FLOW

PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    617.45    616 92     0.00        0      8680      1410      2161       615 30    617 90


3470 ENCROACHMENT STATIONS=      50 0      450 0  TYPE=      1  TARGET=      400 000
 37121.00     21 96    617 06     0 00    611 18    617 45     0 40      0 54      0 00    608 80
    8680      248      8250.     182      116.      1600       84      2906       377      608 70
     2.39     2.13      5 16     2.16    0.025     0.025    0 035     0 000    595 10     50 00
 0 000496      33.       33       33.        2         0        0      0 00    237 24    327 21


*SECNO 37221.000

3470 ENCROACHMENT STATIONS=      50.0      450.0  TYPE=      1  TARGET=      400.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617 50 ELREA=      617 80
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```
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

 37221 00    22.15    617 25     0.00    611 60    617 52     0 27      0 03      0 04    617 50
    8680        0      8680       0.        0      2082        0      2910       378     617 80
     2.40     0 00      4 17     0 00     0 000     0 025    0.000     0.000    595 10    135 62
 0.000156     100       100      100.        2         0        0     0 00    148 04    283.66

CCHV=   0.100 CEHV=   0 300
*SECNO 39121 000
 39121 00    22 34    617 54     0 00    612 20    617 86     0 32      0 33      0 01    620 40
    8680.       0      8670.      10        0      1917       20      2998       385     616.10
     2.51     0 00      4.52     0 51     0 000     0 025    0 035     0.000    595 20    157 63
 0.000195    1900      1900.    1900        2         0        0     0 00    167 71    325 34

*SECNO 41121.000
 41121 00    22.29    617 89     0 00    612 95    618 40     0 51      0 48      0 06    638 00
    8680        0      8680.       0.        0.     1519.        0     3077.       391     636 20
     2 61     0 00      5 71     0 00     0 000     0 025    0 000     0 000    595 60    242 69
 0 000305    2000      2000     2000        0         0        0     0 00    105 88    348 58

*SECNO 42521.000
 42521 00    23 07    618 47     0 00    613 74    618.71     0 24      0.28      0 03    625 90
    8680        0      8680       0.        0      2203        0     3137.       395     622.30
     2.71     0.00      3.94     0 00    0.000     0 025    0.000     0 000    595.40    306 58
 0 000143    1300      1400     1550.        2         0        0     0 00    160 43    467 01
```

```
   SECND     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWIO      ENDST


*SECNO 27150 000

3470 ENCROACHMENT STATIONS=       0 0      375.0  TYPE=      1  TARGET=      374.999
 27150.00     20 86    611.36     0.00    611.31    611 70     0 34      0.05      0.00    604 70
    8680.      298      7797      585       153.      1581      445      2316       239.     604 60
     1 70      1.95      4 93     1.31     0 030     0.025    0 040     0 000    590 50    104 45
 0.000176      200.      250.     300.         1         0        0      0.00    247 19    351.63


*SECNO 27900.000
 2800 NAT Q1=    6246.41  WSEL=     611.47  ENC Q1=    6246 41  WSEL=     611.57  RATIO=  0.0000
 NAT Q1=    6325   RATIOS LOB,CH,ROB=  0 0533  0.9450  0 0017  WSEL=     611.57

3470 ENCROACHMENT STATIONS=      149 4      300 0  TYPE=      4  TARGET=        0.012
 27900.00     21.60   ,611 50     0.00    611.47    611 84     0.34      0.14      0.00    605 70
    8680.      364      8316.       0       175.      1744.       0      2351.      242.     609 80
     1.75      2.08      4 77     0.00     0.030     0 025    0 000     0.000    589 90    149.37
 0.000200      800.      750.     700.         0         0        0      0 00    150.63    300 00


CCHV=    0.300 CEHV=    0.500
*SECNO 28000 000
 2800 NAT Q1=    4839.49  WSEL=     611.48  ENC Q1=    4839.49  WSEL=     611.58  RATIO=  0.0000
 NAT Q1=    4897.  RATIOS LOB,CH,ROB=  0.0704  0 9226  0 0070  WSEL=     611 58

3470 ENCROACHMENT STATIONS=      132.3      278.3  TYPE=      4  TARGET=        0.012
 28000.00     21.41    611 51     0.00    611.48    611.88     0 37      0 03      0 01    605.60
    8680.      559      8114.       7       217      1622        9      2355       242     606 50
     1.75      2.58      5 00     0.83     0.030     0.025    0.040     0 000    590 10    132.28
 0.000327      100.      100.     100.         1         0        0      0.00    146 01    278.29


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.54      3 04      0.00    116 00      0.00    1320 00     0.00    590 10    590.10

*SECNO 28031.000
     3700    BRIDGE STENCL=     132.28     STENCR=     278 29
 2800 NAT Q1=    5306 73  WSEL=     612 20  ENC Q1=    5306.73  WSEL=     612 30  RATIO=  0 0000
 NAT Q1=    5378.  RATIOS LOB,CH,ROB=  0.0824  0.9067  0 0109  WSEL=     612 30
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENOST

PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   612.54    611 87     0 00        0       8680      1320.     2158       608 70    613 20


3470 ENCROACHMENT STATIONS=     125.7     264 4  TYPE=     4  TARGET=       0 013
 28031.00    22 08   612 18    0 00    612.20   612.54    0 36     0 66     0 00   605 60
    8680.     702.    7978.     0.      267.     1609.     0       2357.     242  100000.00
     1 75     2.62     4.96    0 00    0.030    0 025    0 000    0.000   590 10   125 66
 0.000303      31.      31.     31        2        0        0     0 00   138 71   264 37

*SECNO 28331 000
 2800 NAT Q1=   6909.63  WSEL=    612 32  ENC Q1=   6909 63  WSEL=    612 42  RATIO=  0.0000
 NAT Q1=   7014.  RATIOS LOB,CH,ROB=  0.0094  0.9468  0 0438  WSEL=    612 42
3280 CROSS SECTION  28331.00 EXTENDED      4.76 FEET


3470 ENCROACHMENT STATIONS=     258 6     587.8  TYPE=     4  TARGET=       0 015
 28331.00    21 66   612 36    0 00    612.32   612 63    0 28     0 06     0.02   610 10
    8680      15.    8356     308        16      1945     376      2371     244.    611.10
     1 77     0.95     4 30    0 82    0.028    0 025    0 040    0.000   590 70   258 57
 0.000161     300.     300     300        2        0        0     0 00   329.27   587 84

*SECNO 28431 000
 2800 NAT Q1=   3018 30  WSEL=    612.31  ENC Q1=   3018.30  WSEL=    612 41  RATIO=  0.0000
 NAT Q1=   3077   RATIOS LOB,CH,ROB=  0.0275  0 9006  0 0719  WSEL=    612 41
3280 CROSS SECTION  28431 00 EXTENDED      3 85 FEET


3470 ENCROACHMENT STATIONS=     271 7     590 6  TYPE=     4  TARGET=       0 019
 28431.00    20.25   612 35    0 00    612.31   612 70    0.35     0 03     0.04   607 60
    8680.     154.    7997.     529        64      1634     311      2376.    245     606.80
     1 78     2.39     4 89    1 70    0.028    0 025    0 040    0 000   592 10   271 74
 0.000845     100.     100     100        2        0        0     0 00   318 84   590 57
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLDSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


SPECIAL BRIDGE

SB  XK        XKDR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1 54      3 04      0 00    117.00      0.00   1440 00      0.00    592.10    592 10

*SECNO 28449.000
     3700.   BRIDGE STENCL=    271.74    STENCR=    590 57
 2800 NAT Q1=   3397 94  WSEL=    612.92  ENC Q1=   3397.94  WSEL=    613.02  RATIO=  0.0000
 NAT Q1=   3468.  RATIOS LOB,CH,ROB=  0 0474  0.8570  0.0956  WSEL=    613.02
3280 CROSS SECTION  28449 00 EXTENDED      4.43 FEET

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    613 22    612 68      0 00        7      8686.     1440      2188.      610 80    613 10


3470 ENCROACHMENT STATIONS=     271.7     590 6  TYPE=     4  TARGET=       0 020
 28449.00    20.83   612.93     0 00   612 92   613.22     0 29     0 52     0 00   607.60
    8680.     200.    7750.     730       81.     1701.     411     2377      245     606.80
     1.78     2.48     4 55     1.78    0 028    0 025    0.040    0 000   592 10   271.74
 0 000694      18.      18       18         2        0        2     0 00   318 84   590 57


*SECNO 28549.000
 2800 NAT Q1=   6203.69  WSEL=    612 92  ENC Q1=   6203 69  WSEL=    613.02  RATIO=  0 0000
 NAT Q1=   6294.  RATIOS LOB,CH,ROB=  0.0033  0 9681  0 0286  WSEL=    613 02
3280 CROSS SECTION  28549 00 EXTENDED      4.01 FEET


3470 ENCROACHMENT STATIONS=     266.0     575 9  TYPE=     4  TARGET=       0 014
 28549.00    20 91   612.95     0 00   612 92   613.27     0 33     0 03     0 02   611.44
    8680.       0.    8538      142        0     1844      194     2382      246.    612 44
     1 79     0 00     4 63     0.74    0 000    0 025    0 040    0 000   592 04   266 00
 0.000203     100.     100      100         2        0        0     0 00   309.87   575.87


CCHV=   0.100 CEHV=   0.300
*SECNO 29749.000
3280 CROSS SECTION  29749.00 EXTENDED      0.60 FEET
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=       0.0      750 0  TYPE=     1  TARGET=     749 999
 29749.00    22.00    613 30    0.00    613 26    613 46    0.17      0 17     0.02    612 40
    8680.       6.     8562.    112.       17.     2597     146.     2448      254      609 70
     1 89     0.32      3 30    0 77     0 028    0 025    0 040    0 000    591 30    455 66
 0 000109    1100      1200    1150.        2        0        0     0 00    294.34    750 00


*SECNO 30474 000
 2800 NAT Q1=    7236.29  WSEL=     613 31  ENC Q1=    7272 17  WSEL=     613 41  RATIO= -0.0050
 NAT Q1=    7326.  RATIOS LOB,CH,ROB=  0 0000  0.9927  0 0073  WSEL=     613 41
3280 CROSS SECTION  30474.00 EXTENDED      0 09 FEET


3470 ENCROACHMENT STATIONS=     397 0      567 5  TYPE=     4  TARGET=       0 007
 30474.00    21.59    613.34    0 00    613 31    613 58    0 23      0.09     0.02    613 55
    8680        0.     8680.      0        0.     2232       0.     2489      258.     611 35
     1.94     0.00      3 89    0 00    0 000    0 025    0 000    0 000    591.75    397 73
 0 000147     700.      725     700.        2        0        0     0.00    169 77    567.50


*SECNO 31199.000

3470 ENCROACHMENT STATIONS=       0.0      480.0  TYPE=     1  TARGET=     479 999
 31199.00    21.18    613 38    0 00    613 34    613.75    0.37      0 13     0 04    615 00
    8680.       0      8680      0.        0      1776       0     2523      260      613 30
     1.98     0.00      4 89    0.06    0 000    0 025    0.040    0 000    592 20    303 74
 0.000228     700.      725.    700         2        0        0     0 00    137 48    441.22


CCHV=   0.300 CEHV=   0 500
*SECNO 31299.000

3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=     1  TARGET=     450 000
 31299.00    20.96    613.36    0 00    613 32    613.82    0 46      0.03     0 05    598 90
    8680.     776.     6959     945      240      1181     324     2527      260.     595 90
     1.99     3.23      5 89    2 91    0.028    0 025    0.040    0 000    592.40    266 78
 0 000420     100.      100     100         2        0        0     0 00    138.15    404 92
```

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0 00 | 1.55 | 3 04 | 0 00 | 61 00 | 0 00 | 954.00 | 0 00 | 592 40 | 592 40 |

*SECNO 31350 000
3280 CRDSS SECTION 31350 00 EXTENDED 0.43 FEET

PRESSURE AND WEIR FLOW

| EGPRS | EGLWC | H3 | QWEIR | QPR | BAREA | TRAPEZOID AREA | ELLC | ELTRD |
|---|---|---|---|---|---|---|---|---|
| 615.35 | 615.16 | 0 00 | 832. | 7867. | 954 | 1049 | 609.60 | 613 70 |

MOUND

3470 ENCROACHMENT STATIONS= 50.0 500.0 TYPE= 1 TARGET= 450.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31350 00 | 22.23 | 614.63 | 0 00 | 614.60 | 615 00 | 0.37 | 1 18 | 0 00 | 598.90 |
| 8680. | 878. | 6726. | 1076. | 284 | 1258 | 450 | 2529. | 261. | 595 90 |
| 1.99 | 3.09 | 5.35 | 2.39 | 0 028 | 0 025 | 0 040 | 0 000 | 592 40 | 263 86 |
| 0 000317 | 51. | 51. | 51. | 2 | 0 | 2 | 0 00 | 236 14 | 500 00 |

*SECNO 31430.000
3280 CROSS SECTION 31430.00 EXTENDED 0 46 FEET

3470 ENCROACHMENT STATIONS= 50 0 500 0 TYPE= 1 TARGET= 450.000

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 31430 00 | 22.15 | 614.65 | 0 00 | 614.62 | 615 03 | 0 38 | 0.03 | 0 00 | 598.90 |
| 8680. | 915. | 6568 | 1197. | 285 | 1210. | 466 | 2533. | 261. | 595 60 |
| 2.00 | 3.21 | 5 43 | 2.57 | 0 028 | 0.025 | 0 040 | 0 000 | 592 50 | 263.79 |
| 0 000372 | 80. | 80 | 80. | 0 | 0 | 0 | 0 00 | 236 21 | 500 00 |

SPECIAL BRIDGE

| SB | XK | XKOR | COFQ | RDLEN | BWC | BWP | BAREA | SS | ELCHU | ELCHD |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 1.55 | 3.04 | 0.00 | 61.00 | 0 00 | 977 00 | 0.00 | 592 50 | 592 50 |

*SECNO 31483.000
3280 CROSS SECTION 31483.00 EXTENDED 1.47 FEET

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TDPWID      ENDST

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
   616 55    616.13     0.00      1382.      7256      977      1122        610 90    614 90
```

Mound

```
3470 ENCROACHMENT STATIONS=      50 0      500 0  TYPE=     1  TARGET=     450 000
 31483 00    23 17    615 67     0.00    615 65    615.98    0 31      0 95      0 00    598 90
    8680.     992.     6324      1364      338.      1272     608.     2535.      261     595 60
     2.00     2 94     4 97      2.24     0.028     0.025    0.040    0.000    592 50    218 15
 0 000293      53.      53        53         2         0        2     0.00    281 85    500 00

*SECNO 31583.000
3280 CROSS SECTION  31583.00 EXTENDED      1.19 FEET

3470 ENCROACHMENT STATIONS=      50.0      500 0  TYPE=     1  TARGET=     450 000
 31583.00    23.19    615.74     0.00    615.72    616 01    0 27      0.02      0 01    615 35
    8680        1.     8600       79        5.      2045.     110      2540       262     613 65
     2.01     0.24     4 21      0.72    0 025     0 025    0 035    0.000    592 55    274 12
 0.000146     100      100       100         2         0        0     0 00    225 88    500 00

CCHV=   0.100 CEHV=   0 300
*SECNO 33333 000
 2800 NAT Q1=   8357 69  WSEL=    616.01  ENC Q1=   8357.69  WSEL=    616 11  RATIO=  0.0000
 NAT Q1=   8471   RATIOS LOB,CH,ROB=  0 0117  0 9421  0 0462  WSEL=    616 11

3470 ENCROACHMENT STATIONS=     337 0      564.6  TYPE=     4  TARGET=       0 013
 33333.00    22.62    616.02     0.00    616 01    616 24    0 22      0 22      0 01    613.50
    8680.      42      8301      337        41      2170      299      2634       271     610 80
     2.14     1.01     3 83      1.13    0.025     0.025    0 035    0.000    593 40    336.98
 0.000110    1700.     1750     1800.        2         0        0     0 00    227 66    564.64

CCHV=   0 300 CEHV=   0.500
*SECNO 33433.000
 2800 NAT Q1=   7240.56  WSEL=    616.01  ENC Q1=   7240 56  WSEL=    616.11  RATIO=  0 0000
 NAT Q1=   7332   RATIOS LOB,CH,ROB=  0 0363  0.8752  0 0885  WSEL=    616 11
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWIO      ENOST


3470 ENCROACHMENT STATIONS=     328.6     575 3  TYPE=     4  TARGET=       0.013
 33433 00    22.42   616 02    0 00   616 01   616 26    0 24     0 01     0 01   606 70
    8680.     259.    7712.    710.     159.    1860.    488     2640.     272     604.60
     2.14     1.62     4.15    1.45    0.025    0.025   0.035    0 000   593 60   328.59
 0.000147     100      100.    100.        1        0       0     0 00   246 72   575.31


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.50      3.09      0 00    103 00      0.00   1520 00     0 00    593.60    593.60

*SECNO 33438.000
     3700.   BRIDGE STENCL=    328.59    STENCR=    575 31
 2800 NAT Q1=   7328.61  WSEL=    616.11  ENC Q1=   7328.61  WSEL=    616 21  RATIO=  0 0000
 NAT Q1=   7428.  RATIOS LOB,CH,ROB=  0.0379  0 8716  0 0905  WSEL=    616.21
PRESSURE AND WEIR FLOW


 EGPRS     EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    616 78    616 26      0 00     2633.     5984      1520     1988.      612.90    613 00


3470 ENCROACHMENT STATIONS=     328.6     575 3  TYPE=     4  TARGET=       0.013
 33438 00    22.54   616 14    0 00   616 11   616.38    0 24     0 12     0.00   606.70
    8680.     267.    7686.    727.     165     1872     500.    2640      272     604.60
     2.14     1.62     4.11    1.45    0.025    0 025   0 035    0.000   593.60   328.59
 0 000143       5        5.       5        2        0       2     0 00   246.72   575 31


*SECNO 33538.000
 2800 NAT Q1=   8280 74  WSEL=    616.14  ENC Q1=   8280.74  WSEL=    616 24  RATIO=  0 0000
 NAT Q1=   8401   RATIOS LOB,CH,ROB=  0.0109  0.9439  0 0452  WSEL=    616 24

3470 ENCROACHMENT STATIONS=     341 5     561.7  TYPE=     4  TARGET=       0.014
 33538.00    22.59   616.18    0.00   616.14   616 40    0.22     0.01     0.00   613.69
    8680.      31.    8323     326       31.    2164.    288.    2646      272     610.99
     2.15     0.99     3.85    1.13    0 025    0 025   0 035    0 000   593.59   341 51
 0.000112     100      100     100        1        0       0     0 00   220.19   561.70
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWIO      ENOST

CCHV=   0.100 CEHV=   0.300
*SECNO 34888.000
 2800 NAT Q1=   7062.26  WSEL=    616.28  ENC Q1=   7062.26  WSEL=    616.38  RATIO=  0 0000
 NAT Q1=   7162.  RATIOS LOB,CH,ROB=  0 0248  0 9751  0 0001  WSEL=    616 38
3280 CROSS SECTION  34888 00 EXTENDED      1 63 FEET

3470 ENCROACHMENT STATIONS=      72.9      265 0  TYPE=     4  TARGET=       0.014
 34888.00    22.83   616.33     0 00   616.28   616 58     0.26     0.18     0 01   614.00
    8680       93.    8587.       0.      82.    2096.       0     2718      279.    616.00
     2.24     1.14     4.10     0.00    0 025    0 025    0.000    0.000   593.50    72 87
 0 000154    1400.    1350     1300.        2        0        0     0 00   192 13   265.00

*SECNO 37038 000
 2800 NAT Q1=   6724 36  WSEL=    616 60  ENC Q1=   6789 06  WSEL=    616 70  RATIO= -0 0096
 NAT Q1=   6790.  RATIOS LOB,CH,ROB=  0 0002  0 9998  0 0000  WSEL=    616 70

3470 ENCROACHMENT STATIONS=     135 0      285.0  TYPE=     4  TARGET=       0.000
 37038.00    22 45   616.65     0 00   616 60   616 93     0 28     0.34     0 01   617 50
    8680        0    8680.       0        0.    2034       0     2822      287     617 80
     2.38     0.00     4 27     0.00    0 000    0 025    0 000    0 000   594 20   137 03
 0.000165    2100     2150     2200        1        0        0     0 00   145 22   282.24

CCHV=   0.300 CEHV=   0.500
*SECNO 37088 000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      50 0      450.0  TYPE=     1  TARGET=     400.000
 37088 00    21.49   616.59     0.00   616 54   617 02     0.43     0.01     0.07   608 80
    8680.      202     8313     165.      76.    1550       75     2824.     287     608.70
     2 39     2.64     5 36     2 20    0.025    0 025    0.035    0 000   595 10    65 19
 0.000560      50.       50       50        2        0        0     0.00   178 71   326.09
```

```
SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS   BANK ELEV
Q         QLOB      QCH       QROB      ALDB      ACH       AROB      VOL       TWA   LEFT/RIGHT
TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0 00      1.66      2 80      0.00    107 00      0 00   1410 00      0 00    594.90    595 10

*SECNO 37121.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   617.567  EGLWC=   617 607  ELLC=   615.300  PCWSE=   616.591  ELTRD=   617.900

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  617.90 MAX ELLC=  615 30


3470 ENCROACHMENT STATIONS=      120.0      450 0  TYPE=      1  TARGET=      330.000
 37121.00    21.44   616 54     0.00   617 12   617 13     0 59     0.03     0 08   608 80
    8680.       0     8680.       0.       0     1412.       0     2825      287     608 70
     2.39     0 00     6 15     0 00    0 000    0 025    0 000    0 000    595 10   181 32
 0.001385      33       33       33.        2        0        0  -279 14   144 65   325 97


*SECNO 37221.000

3470 ENCROACHMENT STATIONS=       50 0      450 0  TYPE=      1  TARGET=      400 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      617.50 ELREA=      617 80

 37221.00    21.88   616 98     0.00   617.31   617 26     0.28     0 04     0.09   617.50
    8680.       0.     8680.       0.       0     2042.       0.     2829      288     617.80
     2 39     0.00     4.25     0.00    0 000    0 025    0 000    0 000    595 10   136 29
 0 000165     100.     100.     100         2        0        0     0.00   146 72   283 01


CCHV=   0.100 CEHV=   0.300
*SECNO 39121.000
 2800 NAT Q1=   6260.99  WSEL=    617 61  ENC Q1=   6322.20  WSEL=    617.71  RATIO= -0.0098
 NAT Q1=   6332.  RATIOS LOB,CH,ROB=  0.0000  0 9984  0 0016  WSEL=    617 71

3470 ENCROACHMENT STATIONS=      150 0      300.0  TYPE=      4  TARGET=        0 002
 39121.00    22.09   617 29     0 00   617.61   617 62     0.33     0.35     0 01   620 40
    8680.       0.     8680       0.       0.     1882       0.     2915.     294.    616 10
     2 51     0.00     4 61     0 00    0.000    0.025    0 000    0.000    595 20   158 28
 0.000209    1900.     1900     1900.        1        0        0     0 00   141.72   300.00
```

```
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

*SECNO 41121.000
 2800 NAT Q1=   4998.50  WSEL=    617.95  ENC Q1=   5044.29  WSEL=    618 05  RATIO= -0.0092
 NAT Q1=   5044.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0 0000  WSEL=    618.05

3470 ENCROACHMENT STATIONS=     208 3     403.8  TYPE=     4  TARGET=       0.000
 41121 00    22.07   617.67     0 00   617 95   618.19     0.52     0.51     0 06   638.00
    8680        0     8680        0.        0     1495        0     2992.     300.    636.20
     2.60     0.00     5.80     0.00    0 000    0 025    0.000    0 000   595 60   243 09
 0 000318    2000.    2000.    2000         2        0        0     0 00   105 13   348.21


*SECNO 42521.000
 2800 NAT Q1=   7296 07  WSEL=    618.52  ENC Q1=   7366 73  WSEL=    618 62  RATIO= -0 0097
 NAT Q1=   7367   RATIOS LOB,CH,ROB=  0.0000  1 0000  0 0000  WSEL=    618.62

3470 ENCROACHMENT STATIONS=     288 0     480.0  TYPE=     4  TARGET=       0 000
 42521.00    22.86   618.26     0 00   618 52   618.51     0 25     0 29     0 03   625.90
    8680.       0.    8680.        0        0     2171        0     3051      304    622 30
     2.70     0.00     4.00     0 00    0 000    0.025    0 000    0 000   595 40   307.09
 0.000149    1300.    1400     1550         2        0        0     0 00   159.23   466 32
```

```
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED RUN DRAIN  100-YEAR

SUMMARY PRINTOUT TABLE  150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 000 | 0.00 | 0 00 | 0.00 | 576 90 | 17390.00 | 599.70 | 0 00 | 600 19 | 5.60 | 6 05 | 3706 39 | 7351 12 |
| 165.000 | 0.00 | 0 00 | 0.00 | 576.90 | 17390 00 | 599 70 | 0.00 | 600 19 | 5 60 | 6 05 | 3706 39 | 7351.12 |
| 194.000 | 29.00 | 599 60 | 596.30 | 576 90 | 17390 00 | 601 98 | 0 00 | 602.25 | 2 70 | 4 62 | 5144 80 | 10574.75 |
| 194.000 | 29.00 | 599.60 | 596 30 | 576 90 | 17390 00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144.80 | 10574.75 |
| 594.000 | 400 00 | 0 00 | 0.00 | 580 17 | 17390 00 | 602 04 | 0.00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 51 |
| 594.000 | 400 00 | 0 00 | 0 00 | 580 17 | 17390.00 | 602.04 | 0 00 | 602 39 | 2 26 | 5.30 | 7724.97 | 11557.51 |
| 1039 000 | 445.00 | 0 00 | 0.00 | 583.10 | 16040 00 | 601.94 | 0 00 | 602 74 | 3 67 | 7.23 | 2930 77 | 8372.00 |
| 1039 000 | 445.00 | 0.00 | 0.00 | 583.10 | 16040 00 | 601.94 | 0 00 | 602 74 | 3 67 | 7.23 | 2930 77 | 8372 00 |
| 1100 000 | 61.00 | 0 00 | 0 00 | 581 70 | 16040 00 | 602 15 | 0 00 | 602 81 | 6 78 | 6 53 | 2455 77 | 6159 20 |
| 1100.000 | 61.00 | 0 00 | 0 00 | 581.70 | 16040.00 | 602 15 | 0.00 | 602 81 | 6 78 | 6 53 | 2455 77 | 6159 20 |
| 1143.000 | 43.00 | 603 10 | 601.70 | 581.70 | 16040.00 | 602.71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 74 |
| 1143 000 | 43.00 | 603 10 | 601.70 | 581.70 | 16040.00 | 602.71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 74 |
| 1150 000 | 7.00 | 0 00 | 0.00 | 581.78 | 16040.00 | 602 70 | 0 00 | 603.34 | 2 48 | 6 44 | 3033 16 | 10182 45 |
| 1150 000 | 7.00 | 0 00 | 0 00 | 581 78 | 16040 00 | 602 70 | 0.00 | 603 34 | 2.48 | 6 44 | 3033 16 | 10182 45 |
| 1180 000 | 30 00 | 0 00 | 0.00 | 582 10 | 16040 00 | 602 69 | 0 00 | 603 37 | 6 72 | 6 60 | 2428 63 | 6185.81 |
| 1180.000 | 30.00 | 0 00 | 0.00 | 582.10 | 16040.00 | 602 69 | 0 00 | 603 37 | 6 72 | 6 60 | 2428 63 | 6185 81 |
| 1223.000 | 43.00 | 603 40 | 601.00 | 582 10 | 16040.00 | 603.52 | 0 00 | 603 92 | 4 18 | 5 42 | 5417 17 | 7844 07 |
| 1223.000 | 43.00 | 603 40 | 601.00 | 582.10 | 16040.00 | 603.52 | 0 00 | 603 92 | 4 18 | 5 42 | 5417.17 | 7844 07 |
| 1323 000 | 100.00 | 0.00 | 0 00 | 582.15 | 16040.00 | 603 80 | 0.00 | 604.00 | 0.99 | 4 17 | 6197 82 | 16152.42 |
| 1323.000 | 100 00 | 0 00 | 0 00 | 582.15 | 16040.00 | 603 80 | 0 00 | 604.00 | 0 99 | 4.17 | 6197 82 | 16152.42 |
| 2223.000 | 900.00 | 0 00 | 0.00 | 582.56 | 16040 00 | 603 71 | 0.00 | 604.22 | 2 12 | 5 82 | 3189 49 | 11024.13 |
| 2223.000 | 900.00 | 0 00 | 0.00 | 582 56 | 16040 00 | 603.70 | 0 00 | 604.22 | 2 16 | 5.89 | 2950.74 | 10901.51 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | 01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3180.000 | 957.00 | 0 00 | 0.00 | 583 00 | 16040 00 | 603 93 | 0 00 | 604.42 | 2 11 | 5.76 | 3135 33 | 11047.32 |
| 3180.000 | 957 00 | 0 00 | 0.00 | 583 00 | 16040 00 | 603 92 | 0 00 | 604 43 | 2 15 | 5.83 | 3008 89 | 10927 63 |
| 5720.000 | 2540.00 | 0 00 | 0.00 | 584 20 | 14820 00 | 604 52 | 0 00 | 604.95 | 1 99 | 5 36 | 3254.10 | 10517 95 |
| 5720 000 | 2540.00 | 0 00 | 0.00 | 584.20 | 14820 00 | 604.54 | 0 00 | 604 98 | 2 08 | 5.41 | 3028 19 | 10276 41 |
| 7470.000 | 1710.00 | 0.00 | 0.00 | 584.10 | 14820.00 | 605 05 | 0 00 | 605 18 | 0 77 | 3 45 | 6310.65 | 16881 93 |
| 7470.000 | 1710.00 | 0 00 | 0 00 | 584.10 | 14820 00 | 605 08 | 0 00 | 605 22 | 0 80 | 3 47 | 6042.56 | 16599.04 |
| 8270 000 | 760.00 | 0.00 | 0 00 | 584 40 | 14820 00 | 605 09 | 0.00 | 605 26 | 1 09 | 4 02 | 5601.88 | 14220 82 |
| 8270.000 | 760.00 | 0.00 | 0 00 | 584 40 | 14820 00 | 605 12 | 0.00 | 605.30 | 1 12 | 4 05 | 5247.08 | 13977.11 |
| 8340 000 | 70.00 | 0.00 | 0 00 | 584 40 | 14820 00 | 605.15 | 0.00 | 605.29 | 1.85 | 3 48 | 5487.30 | 10904.25 |
| 8340.000 | 70 00 | 0.00 | 0 00 | 584 40 | 14820 00 | 605 18 | 0 00 | 605 33 | 1 90 | 3 51 | 5200.79 | 10755 03 |
| 8394.000 | 54 00 | 600 90 | 600.40 | 584 40 | 14820 00 | 605.53 | 0 00 | 605 66 | 1 90 | 3 52 | 5431.03 | 10760 38 |
| 8394.000 | 54 00 | 600 90 | 600.40 | 584 40 | 14820.00 | 605.55 | 0 00 | 605 69 | 1 88 | 3 51 | 5451 57 | 10810 45 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584 50 | 16560 00 | 605 51 | 0 00 | 605.71 | 1 22 | 4 32 | 5982 80 | 14972 58 |
| 8494 000 | 100.00 | 0.00 | 0 00 | 584.50 | 16560 00 | 605 53 | 0.00 | 605.74 | 1.27 | 4.35 | 5605 96 | 14679 98 |
| 9594.000 | 1100.00 | 0.00 | 0 00 | 585 70 | 16560 00 | 605 65 | 0 00 | 605 83 | 1 15 | 4 01 | 6423 55 | 15427.24 |
| 9594 000 | 1100.00 | 0.00 | 0.00 | 585 70 | 16560 00 | 605 68 | 0 00 | 605.86 | 1 20 | 4 04 | 6142 46 | 15139 53 |
| 9653.000 | 59 00 | 0.00 | 0.00 | 585 40 | 16560 00 | 605 68 | 0 00 | 605.84 | 1 04 | 3 86 | 6697.41 | 16234.62 |
| 9653.000 | 59 00 | 0.00 | 0.00 | 585 40 | 16560 00 | 605 72 | 0 00 | 605.88 | 1 02 | 3 83 | 6741 26 | 16365 29 |
| 9654.000 | 1 00 | 601 40 | 603.40 | 585 40 | 16560 00 | 605 60 | 0 00 | 605.92 | 4 52 | 5 22 | 4083 56 | 7787 15 |
| 9654.000 | 1 00 | 601 40 | 603 40 | 585 40 | 16560.00 | 605 67 | 0 00 | 605 93 | 4 48 | 4.73 | 4535 11 | 7820 22 |
| 9676 000 | 22.00 | 601.40 | 603 40 | 585 40 | 16560.00 | 605 61 | 0.00 | 605 93 | 4 53 | 5.21 | 4087.46 | 7779 31 |
| 9676 000 | 22.00 | 601 40 | 603 40 | 585.40 | 16560 00 | 605 71 | 0 00 | 605 94 | 5 24 | 4 41 | 4572 51 | 7233 19 |
| 9677 000 | 1.00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 82 | 0.00 | 605 98 | 1 00 | 3 81 | 6776 49 | 16546 21 |
| 9677 000 | 1.00 | 0 00 | 0.00 | 585 40 | 16560.00 | 605 81 | 0 00 | 605 97 | 1 01 | 3.81 | 6762 99 | 16505.63 |
| 9777.000 | 100.00 | 0.00 | 0 00 | 585 45 | 16560.00 | 605 83 | 0 00 | 605.99 | 1 00 | 3 80 | 6828 78 | 16532 49 |
| 9777 000 | 100.00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 82 | 0 00 | 605.98 | 1 06 | 3.85 | 6494.04 | 16102 63 |
| 11596.000 | 1819 00 | 0 00 | 0.00 | 586.40 | 16560 00 | 605.91 | 0 00 | 606 36 | 2 67 | 5.63 | 3873.70 | 10132 62 |
| 11596.000 | 1819 00 | 0.00 | 0.00 | 586.40 | 16560.00 | 605 90 | 0 00 | 606 37 | 2 76 | 5.72 | 3639.01 | 9970 54 |
| 13196.000 | 1600.00 | 0.00 | 0.00 | 585 50 | 16560 00 | 606.39 | 0.00 | 606 81 | 2 87 | 5 40 | 3582 01 | 9782 09 |
| 13196 000 | 1600.00 | 0.00 | 0 00 | 585 50 | 16560 00 | 606 39 | 0 00 | 606.83 | 2 94 | 5 47 | 3341 70 | 9663 48 |
| 14796 000 | 1600.00 | 0.00 | 0 00 | 587 30 | 16560 00 | 606 74 | 0 00 | 607 40 | 3.69 | 6 52 | 2539 51 | 8615 92 |
| 14796 000 | 1600 00 | 0.00 | 0 00 | 587 30 | 16560.00 | 606 76 | 0 00 | 607.42 | 3 68 | 6.51 | 2543.06 | 8632 70 |
| 16096.000 | 1300.00 | 0 00 | 0 00 | 586 80 | 14260.00 | 607.41 | 0 00 | 607 82 | 2 47 | 5 18 | 3089 53 | 9065 94 |
| 16096.000 | 1300.00 | 0 00 | 0.00 | 586 80 | 14265 00 | 607 42 | 0 00 | 607.84 | 2 53 | 5 25 | 2800 40 | 8964 54 |

| SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16396 000 | 300.00 | 0 00 | 0.00 | 587 50 | 14260.00 | 607.44 | 0 00 | 607 97 | 3 71 | 5 91 | 2706 21 | 7406 33 |
| 16396 000 | 300.00 | 0.00 | 0 00 | 587 50 | 14265 00 | 607 45 | 0 00 | 608.00 | 3 81 | 5.97 | 2485.75 | 7312.09 |
| 16418.000 | 22.00 | 606.10 | 605 30 | 587.50 | 14260 00 | 608 23 | 0.00 | 608 68 | 3 02 | 5 50 | 3076.61 | 8204 78 |
| 16418.000 | 22.00 | 606.10 | 605 30 | 587.50 | 14265 00 | 608 26 | 0.00 | 608.69 | 3 81 | 5 37 | 3141.08 | 7311 00 |
| 16768.000 | 350 00 | 0.00 | 0.00 | 588.00 | 14260.00 | 608.62 | 0 00 | 608 81 | 0.94 | 4.07 | 4847.13 | 14745 70 |
| 16768.000 | 350.00 | 0 00 | 0 00 | 588.00 | 14265 00 | 608.61 | 0.00 | 608 81 | 0 96 | 4.12 | 4642.45 | 14555.64 |
| 17168 000 | 400 00 | 0.00 | 0 00 | 588.00 | 14260.00 | 608 76 | 0.00 | 608 87 | 0.66 | 3.24 | 5706 30 | 17508 48 |
| 17168.000 | 400.00 | 0 00 | 0.00 | 588 00 | 14265.00 | 608.76 | 0 00 | 608 87 | 0 68 | 3 28 | 5543.00 | 17274.48 |
| 17268.000 | 100.00 | 0 00 | 0 00 | 586.50 | 14260 00 | 608.72 | 0 00 | 608.93 | 1 97 | 3 78 | 4139 77 | 10151.29 |
| 17268.000 | 100.00 | 0 00 | 0.00 | 586.50 | 14265 00 | 608.72 | 0 00 | 608.94 | 2 02 | 3 83 | 3963 03 | 10037.60 |
| 17368.000 | 100 00 | 607 10 | 607.00 | 586 50 | 14260 00 | 608.86 | 0.00 | 609 07 | 1 90 | 3 73 | 4225 67 | 10334 44 |
| 17368 000 | 100 00 | 607.10 | 607 00 | 586 50 | 14265 00 | 608 89 | 0.00 | 609 10 | 1 94 | 3 77 | 4043 86 | 10235 13 |
| 18244 000 | 876.00 | 0 00 | 0 00 | 587 30 | 14260.00 | 608.99 | 0 00 | 609 19 | 1 05 | 4 08 | 4835 70 | 13896.28 |
| 18244 000 | 876 00 | 0.00 | 0 00 | 587 30 | 14265.00 | 609 02 | 0 00 | 609 23 | 1 08 | 4 13 | 4612 47 | 13744.69 |
| 19119.000 | 875 00 | 0.00 | 0.00 | 588.10 | 14260 00 | 609.01 | 0 00 | 609.34 | 1 79 | 4 81 | 3681 81 | 10644.51 |
| 19119.000 | 875 00 | 0 00 | 0.00 | 588.10 | 14265 00 | 609.05 | 0 00 | 609.39 | 1 82 | 4.85 | 3480.01 | 10566.35 |
| 20219.000 | 1100 00 | 0 00 | 0 00 | 587.70 | 14260 00 | 609 35 | 0 00 | 609 51 | 1 05 | 3 34 | 5304 37 | 13892 94 |
| 20219.000 | 1100 00 | 0 00 | 0 00 | 587.70 | 14265 00 | 609 39 | 0 00 | 609 55 | 1 07 | 3 38 | 4923 53 | 13778 19 |
| 21119 000 | 900.00 | 0 00 | 0 00 | 588 70 | 14260.00 | 609 39 | 0 00 | 609 65 | 1 61 | 4 46 | 3954 64 | 11223.46 |
| 21119 000 | 900 00 | 0 00 | 0 00 | 588 70 | 14265 00 | 609 43 | 0 00 | 609.70 | 1 64 | 4 50 | 3757.92 | 11123.41 |
| 22069.000 | 950.00 | 0 00 | 0.00 | 588.20 | 14260 00 | 609 45 | 0 00 | 609 92 | 3 07 | 5.54 | 2676 28 | 8141 97 |
| 22069 000 | 950 00 | 0 00 | 0.00 | 588 20 | 14265 00 | 609.49 | 0.00 | 609 97 | 3.11 | 5.56 | 2566.47 | 8095 17 |
| 22419.000 | 350 00 | 0.00 | 0 00 | 588 20 | 13000 00 | 609 90 | 0.00 | 610 00 | 0 63 | 3 10 | 5702 48 | 16358 19 |
| 22419.000 | 350 00 | 0 00 | 0.00 | 588 20 | 13000 00 | 609 95 | 0 00 | 610.06 | 0 64 | 3.12 | 5609 67 | 16284.77 |
| 23319.000 | 900 00 | 0 00 | 0 00 | 588 50 | 13000.00 | 609 81 | 0 00 | 610.17 | 1 94 | 5.14 | 3293 58 | 9322.09 |
| 23319 000 | 900.00 | 0 00 | 0 00 | 588 50 | 13000 00 | 609 85 | 0 00 | 610.23 | 1 98 | 5.19 | 3111 48 | 9247.62 |
| 23569 000 | 250.00 | 0 00 | 0 00 | 588.40 | 8680 00 | 610 06 | 0 00 | 610 22 | 0 98 | 3.35 | 3099.76 | 8774.70 |
| 23569 000 | 250 00 | 0 00 | 0.00 | 588 40 | 8680 00 | 610.11 | 0 00 | 610 28 | 0 99 | 3 37 | 2915 65 | 8719.68 |
| 24369.000 | 800.00 | 0 00 | 0 00 | 588.90 | 8680 00 | 610.08 | 0.00 | 610 35 | 1 46 | 4 26 | 2231 62 | 7172 36 |
| 24369.000 | 800.00 | 0 00 | 0.00 | 588 90 | 8680 00 | 610 14 | 0.00 | 610.41 | 1 44 | 4 23 | 2251 43 | 7228.64 |
| 25819.000 | 1450 00 | 0 00 | 0.00 | 588 80 | 8680 00 | 610 26 | 0 00 | 610.67 | 2 67 | 5 17 | 1752 65 | 5314.43 |
| 25819 000 | 1450 00 | 0.00 | 0 00 | 588 80 | 8680.00 | 610 32 | 0 00 | 610 72 | 2 62 | 5.14 | 1773 65 | 5359.15 |
| 25919 000 | 100 00 | 0 00 | 0 00 | 589.50 | 8680.00 | 610 26 | 0 00 | 610 75 | 6 22 | 5.74 | 1610 74 | 3479.30 |
| 25919 000 | 100 00 | 0.00 | 0 00 | 589.50 | 8680 00 | 610 31 | 0 00 | 610 80 | 6 12 | 5 71 | 1628 00 | 3508 06 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26025 000 | 106.00 | 610.00 | 607.90 | 589.50 | 8680.00 | 610 95 | 0 00 | 611 36 | 4 96 | 5 29 | 1886 37 | 3898 91 |
| 26025.000 | 106 00 | 610 00 | 607.90 | 589 50 | 8680 00 | 611 00 | 0.00 | 611 40 | 4 87 | 5.25 | 1908 22 | 3932 62 |
| 26125.000 | 100 00 | 0.00 | 0.00 | 589 49 | 8680 00 | 610.99 | 0 00 | 611.40 | 2 64 | 5 15 | 1758.41 | 5346 30 |
| 26125.000 | 100 00 | 0.00 | 0 00 | 589.49 | 8680 00 | 611.03 | 0 00 | 611 44 | 2 60 | 5 13 | 1773 95 | 5380.54 |
| 26900.000 | 775 00 | 0 00 | 0.00 | 589.40 | 8680 00 | 611.25 | 0 00 | 611 60 | 2 48 | 4 86 | 2073 97 | 5509 87 |
| 26900 000 | 775.00 | 0 00 | 0 00 | 589.40 | 8680 00 | 611 28 | 0.00 | 611 64 | 2 56 | 4 91 | 1906 86 | 5427 16 |
| 27150.000 | 250 00 | 0.00 | 0 00 | 590.50 | 8680 00 | 611 31 | 0.00 | 611 66 | 1 77 | 4 95 | 2169.76 | 6520 46 |
| 27150.000 | 250.00 | 0 00 | 0 00 | 590 50 | 8680 00 | 611 36 | 0 00 | 611 70 | 1 76 | 4 93 | 2179 21 | 6551 86 |
| 27900 000 | 750.00 | 0.00 | 0 00 | 589 90 | 8680 00 | 611 47 | 0 00 | 611 80 | 1 93 | 4 72 | 2020 27 | 6246 41 |
| 27900 000 | 750.00 | 0 00 | 0 00 | 589.90 | 8680 00 | 611 50 | 0 00 | 611 84 | 2 00 | 4 77 | 1919 44 | 6132 07 |
| 28000.000 | 100 00 | 0 00 | 0 00 | 590.10 | 8680.00 | 611 48 | 0 00 | 611.84 | 3 22 | 4 96 | 1931.88 | 4839.49 |
| 28000.000 | 100.00 | 0 00 | 0.00 | 590 10 | 8680.00 | 611 51 | 0.00 | 611.88 | 3 27 | 5 00 | 1846.97 | 4802.28 |
| 28031.000 | 31 00 | 613 20 | 608.70 | 590 10 | 8680.00 | 612 20 | 0.00 | 612 51 | 2 68 | 4 65 | 2112.12 | 5306.73 |
| 28031.000 | 31 00 | 613.20 | 608.70 | 590.10 | 8680 00 | 612 18 | 0 00 | 612 54 | 3 03 | 4 96 | 1876.72 | 4988.09 |
| 28331 000 | 300 00 | 0 00 | 0.00 | 590 70 | 8680 00 | 612 32 | 0 00 | 612.58 | 1 58 | 4.25 | 2459.63 | 6909.63 |
| 28331 000 | 300 00 | 0.00 | 0 00 | 590 70 | 8680 00 | 612.36 | 0 00 | 612 63 | 1 61 | 4 30 | 2336.87 | 6850.48 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680 00 | 612.31 | 0 00 | 612 65 | 8 27 | 4 83 | 2084 19 | 3018 30 |
| 28431.000 | 100 00 | 0.00 | 0 00 | 592 10 | 8680 00 | 612.35 | 0.00 | 612 70 | 8 45 | 4.89 | 2009 44 | 2985.85 |
| 28449.000 | 18.00 | 613 10 | 610.80 | 592 10 | 8680.00 | 612 92 | 0.00 | 613 18 | 6 53 | 4.42 | 2354 36 | 3397 94 |
| 28449.000 | 18.00 | 613 10 | 610 80 | 592.10 | 8680.00 | 612 93 | 0 00 | 613.22 | 6 94 | 4.55 | 2193 14 | 3295 77 |
| 28549.000 | 100.00 | 0 00 | 0.00 | 592 04 | 8680 00 | 612 92 | 0 00 | 613 24 | 1.96 | 4 57 | 2158 77 | 6203 69 |
| 28549.000 | 100 00 | 0 00 | 0 00 | 592.04 | 8680 00 | 612 95 | 0 00 | 613.27 | 2 03 | 4 63 | 2038 07 | 6094.33 |
| 29749.000 | 1200 00 | 0 00 | 0 00 | 591.30 | 8680.00 | 613 26 | 0 00 | 613 43 | 1 10 | 3 31 | 2749 14 | 8272 69 |
| 29749.000 | 1200 00 | 0 00 | 0.00 | 591.30 | 8680 00 | 613.30 | 0 00 | 613 46 | 1 09 | 3 30 | 2760 26 | 8316 57 |
| 30474 000 | 725 00 | 0 00 | 0.00 | 591 75 | 8680 00 | 613 31 | 0 00 | 613 54 | 1 44 | 3 87 | 2340 24 | 7236 29 |
| 30474 000 | 725 00 | 0 00 | 0.00 | 591 75 | 8680.00 | 613.34 | 0 00 | 613 58 | 1 47 | 3 89 | 2232.46 | 7165 27 |
| 31199 000 | 725 00 | 0.00 | 0.00 | 592 20 | 8680.00 | 613.34 | 0 00 | 613 71 | 2 30 | 4 90 | 1770.84 | 5717 91 |
| 31199.000 | 725.00 | 0 00 | 0 00 | 592 20 | 8680 00 | 613.38 | 0 00 | 613 75 | 2 28 | 4 89 | 1776.26 | 5743 36 |
| 31299.000 | 100.00 | 0 00 | 0.00 | 592 40 | 8680 00 | 613.32 | 0 00 | 613.79 | 4 23 | 5.91 | 1739.82 | 4218 04 |
| 31299.000 | 100.00 | 0 00 | 0.00 | 592 40 | 8680.00 | 613 36 | 0 00 | 613 82 | 4 20 | 5 89 | 1745 28 | 4236 18 |
| 31350.000 | 51.00 | 613 70 | 609.60 | 592 40 | 8680 00 | 614 60 | 0 00 | 614.97 | 3 20 | 5.36 | 1985.22 | 4855.14 |
| 31350.000 | 51.00 | 613.70 | 609 60 | 592.40 | 8680.00 | 614 63 | 0.00 | 615 00 | 3 17 | 5 35 | 1992.26 | 4871.58 |
| 31430.000 | 80 00 | 0 00 | 0 00 | 592.50 | 8680 00 | 614 62 | 0.00 | 615 00 | 3 75 | 5 44 | 1955 08 | 4482 98 |
| 31430.000 | 80 00 | 0 00 | 0.00 | 592.50 | 8680 00 | 614 65 | 0 00 | 615 03 | 3 72 | 5.43 | 1962 06 | 4498.32 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31483.000 | 53 00 | 614.90 | 610.90 | 592 50 | 8680 00 | 615.65 | 0 00 | 615 96 | 2 94 | 4.98 | 2212.54 | 5063 03 |
| 31483 000 | 53.00 | 614.90 | 610.90 | 592.50 | 8680.00 | 615 67 | 0 00 | 615 98 | 2 93 | 4.97 | 2217 58 | 5074.02 |
| 31583.000 | 100 00 | 0.00 | 0 00 | 592.55 | 8680.00 | 615.72 | 0.00 | 615 99 | 1 46 | 4 21 | 2155 42 | 7176.23 |
| 31583 000 | 100 00 | 0.00 | 0 00 | 592.55 | 8680.00 | 615 74 | 0 00 | 616.01 | 1 46 | 4.21 | 2159.31 | 7190 96 |
| 33333.000 | 1750.00 | 0 00 | 0.00 | 593.40 | 8680.00 | 616 01 | 0 00 | 616 22 | 1.08 | 3 78 | 2692 22 | 8357 69 |
| 33333 000 | 1750.00 | 0.00 | 0 00 | 593.40 | 8680.00 | 616 02 | 0 00 | 616 24 | 1.10 | 3.83 | 2510.29 | 8267 00 |
| 33433.000 | 100 00 | 0 00 | 0.00 | 593 60 | 8680.00 | 616.01 | 0 00 | 616 24 | 1 44 | 4 10 | 2638.27 | 7240 56 |
| 33433.000 | 100.00 | 0 00 | 0.00 | 593 60 | 8680 00 | 616 02 | 0 00 | 616.26 | 1 47 | 4 15 | 2507 32 | 7167 41 |
| 33438 000 | 5.00 | 613 00 | 612.90 | 593.60 | 8680.00 | 616.11 | 0.00 | 616.33 | 1 40 | 4 07 | 2673 22 | 7328 61 |
| 33438.000 | 5 00 | 613 00 | 612 90 | 593 60 | 8680 00 | 616.14 | 0 00 | 616 38 | 1 43 | 4 11 | 2536.81 | 7271.02 |
| 33538 000 | 100 00 | 0 00 | 0.00 | 593 59 | 8680 00 | 616.14 | 0 00 | 616 35 | 1 10 | 3 81 | 2665 66 | 8280 74 |
| 33538.000 | 100.00 | 0.00 | 0.00 | 593.59 | 8680 00 | 616 18 | 0 00 | 616 40 | 1 12 | 3 85 | 2483 00 | 8209 74 |
| 34888.000 | 1350.00 | 0 00 | 0.00 | 593 50 | 8680 00 | 616.28 | 0 00 | 616 53 | 1 51 | 4 06 | 2284.33 | 7062 26 |
| 34888 000 | 1350 00 | 0.00 | 0 00 | 593 50 | 8680.00 | 616.33 | 0 00 | 616.58 | 1 54 | 4 10 | 2177 52 | 7001.59 |
| 37038 000 | 2150 00 | 0 00 | 0.00 | 594 20 | 8680.00 | 616.60 | 0 00 | 616 89 | 1 67 | 4.28 | 2029 02 | 6724 36 |
| 37038 000 | 2150.00 | 0 00 | 0.00 | 594.20 | 8680.00 | 616.65 | 0 00 | 616 93 | 1 65 | 4.27 | 2034.31 | 6762.16 |
| 37088.000 | 50.00 | 0 00 | 0 00 | 595.10 | 8680.00 | 616 54 | 0 00 | 616.97 | 5 67 | 5 39 | 1692 29 | 3644 99 |
| 37088.000 | 50 00 | 0 00 | 0.00 | 595.10 | 8680 00 | 616.59 | 0 00 | 617 02 | 5 60 | 5 36 | 1701 22 | 3668.78 |
| 37121.000 | 33.00 | 617 90 | 615.30 | 595.10 | 8680 00 | 617.12 | 0 00 | 617.52 | 4 91 | 5.15 | 1779.16 | 3916.83 |
| 37121 000 | 33 00 | 617 90 | 615 30 | 595.10 | 8680.00 | 616.54 | 0 00 | 617.13 | 13 85 | 6 15 | 1411 62 | 2332 51 |
| 37221.000 | 100.00 | 0.00 | 0 00 | 595.10 | 8680 00 | 617 31 | 0 00 | 617 58 | 1 54 | 4 15 | 2091 72 | 6987 71 |
| 37221.000 | 100.00 | 0 00 | 0.00 | 595.10 | 8680 00 | 616 98 | 0 00 | 617 26 | 1 65 | 4 25 | 2042 01 | 6764.18 |
| 39121.000 | 1900.00 | 0 00 | 0.00 | 595 20 | 8680.00 | 617 61 | 0 00 | 617 92 | 1 92 | 4 50 | 1946.82 | 6260 99 |
| 39121 000 | 1900.00 | 0 00 | 0 00 | 595 20 | 8680.00 | 617 29 | 0.00 | 617.62 | 2 09 | 4.61 | 1882.01 | 6011.07 |
| 41121.000 | 2000.00 | 0.00 | 0.00 | 595.60 | 8680 00 | 617 95 | 0 00 | 618 45 | 3 02 | 5 69 | 1525 54 | 4998 50 |
| 41121.000 | 2000.00 | 0 00 | 0.00 | 595.60 | 8680 00 | 617 67 | 0 00 | 618 19 | 3 18 | 5.80 | 1495.30 | 4864.90 |
| 42521.000 | 1400.00 | 0 00 | 0.00 | 595 40 | 8680.00 | 618 52 | 0 00 | 618 76 | 1 42 | 3 92 | 2211 57 | 7296 07 |
| 42521 000 | 1400.00 | 0.00 | 0 00 | 595 40 | 8680 00 | 618 26 | 0 00 | 618.51 | 1 49 | 4 00 | 2170.58 | 7116 91 |

RED RUN DRAIN 100-YEAR

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 165.000 | 17390.00 | 599 70 | 0 00 | 0.00 | 0.00 | 595 95 | 0.00 |
| 165 000 | 17390.00 | 599 70 | 0 00 | 0 00 | 0 00 | 595 95 | 0 00 |
| 194.000 | 17390.00 | 601.98 | 0.00 | 2 28 | 0.00 | 686.17 | 29 00 |
| 194 000 | 17390.00 | 601 98 | 0 00 | 2 28 | 0.00 | 686 17 | 29 00 |
| 594.000 | 17390.00 | 602 04 | 0.00 | 0.06 | 0.00 | 694 44 | 400 00 |
| 594 000 | 17390.00 | 602 04 | 0.00 | 0 06 | 0.00 | 694.44 | 400 00 |
| 1039.000 | 16040.00 | 601 94 | 0 00 | -0 10 | 0 00 | 223.20 | 445 00 |
| 1039.000 | 16040.00 | 601 94 | 0 00 | -0.10 | 0 00 | 223 20 | 445 00 |
| 1100.000 | 16040.00 | 602 15 | 0 00 | 0 21 | 0 00 | 174.38 | 61.00 |
| 1100.000 | 16040.00 | 602 15 | 0 00 | 0.21 | 0 00 | 174 38 | 61 00 |
| 1143.000 | 16040.00 | 602 71 | 0.00 | 0 56 | 0 00 | 175 30 | 43 00 |
| 1143.000 | 16040.00 | 602.71 | 0 00 | 0.56 | 0.00 | 175 30 | 43 00 |
| 1150.000 | 16040.00 | 602.70 | 0.00 | -0.01 | 0 00 | 186 00 | 7 00 |
| 1150.000 | 16040.00 | 602.70 | 0.00 | -0 01 | 0 00 | 186 00 | 7 00 |
| 1180.000 | 16040 00 | 602 69 | 0 00 | -0 01 | 0 00 | 173 90 | 30 00 |
| 1180.000 | 16040.00 | 602 69 | 0 00 | -0 01 | 0 00 | 173 90 | 30.00 |
| 1223.000 | 16040 00 | 603 52 | 0 00 | 0.83 | 0 00 | 597 21 | 43 00 |
| 1223.000 | 16040 00 | 603 52 | 0 00 | 0 83 | 0 00 | 597 21 | 43 00 |
| 1323 000 | 16040.00 | 603.80 | 0 00 | 0 28 | 0 00 | 611 00 | 100 00 |
| 1323 000 | 16040.00 | 603 80 | 0 00 | 0 28 | 0 00 | 611 00 | 100 00 |
| 2223.000 | 16040 00 | 603 71 | 0.00 | -0 10 | 0 00 | 250 38 | 900 00 |
| 2223 000 | 16040.00 | 603 70 | -0 01 | -0 11 | -0 01 | 181 84 | 900 00 |
| 3180 000 | 16040.00 | 603 93 | 0 00 | 0 22 | 0 00 | 249 05 | 957 00 |
| 3180.000 | 16040.00 | 603 92 | -0 01 | 0 23 | -0.01 | 204 52 | 957.00 |
| 5720 000 | 14820.00 | 604 52 | 0.00 | 0.59 | 0.00 | 609.92 | 2540.00 |
| 5720 000 | 14820.00 | 604.54 | 0 02 | 0.61 | 0 02 | 252.75 | 2540 00 |
| 7470.000 | 14820.00 | 605.05 | 0 00 | 0.53 | 0 00 | 715.58 | 1710 00 |
| 7470.000 | 14820.00 | 605.08 | 0 03 | 0 54 | 0 03 | 563.57 | 1710.00 |
| 8270.000 | 14820.00 | 605 09 | 0 00 | 0 04 | 0 00 | 846.61 | 760 00 |
| 8270.000 | 14820.00 | 605.12 | 0.03 | 0.04 | 0 03 | 535.58 | 760 00 |
| 8340.000 | 14820.00 | 605.15 | 0.00 | 0.06 | 0.00 | 804 23 | 70 00 |
| 8340.000 | 14820.00 | 605.18 | 0.03 | 0.06 | 0 03 | 555.04 | 70 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 8394.000 | 14820 00 | 605 53 | 0.00 | 0.38 | 0.00 | 730 80 | 54 00 |
| 8394.000 | 14820.00 | 605.55 | 0.03 | 0 37 | 0.03 | 730 80 | 54 00 |
| 8494.000 | 16560.00 | 605 51 | 0.00 | -0 02 | 0 00 | 990 48 | 100.00 |
| 8494.000 | 16560 00 | 605 53 | 0 02 | -0.02 | 0 02 | 649 87 | 100.00 |
| 9594 000 | 16560 00 | 605.65 | 0.00 | 0.14 | 0 00 | 860.97 | 1100 00 |
| 9594 000 | 16560 00 | 605 68 | 0.03 | 0 15 | 0 03 | 707.67 | 1100.00 |
| 9653.000 | 16560.00 | 605 68 | 0 00 | 0 03 | 0 00 | 870.85 | 59 00 |
| 9653.000 | 16560.00 | 605 72 | 0 04 | 0 04 | 0 04 | 872 42 | 59 00 |
| 9654.000 | 16560 00 | 605 60 | 0 00 | -0.08 | 0.00 | 859 59 | 1 00 |
| 9654 000 | 16560.00 | 605 67 | 0 07 | -0.05 | 0.07 | 1061 86 | 1.00 |
| 9676.000 | 16560 00 | 605 61 | 0.00 | 0 01 | 0 00 | 859 76 | 22.00 |
| 9676 000 | 16560.00 | 605.71 | 0.11 | 0.04 | 0.11 | 1063 03 | 22 00 |
| 9677.000 | 16560.00 | 605.82 | 0.00 | 0 22 | 0 00 | 855 74 | 1 00 |
| 9677 000 | 16560.00 | 605 81 | -0 02 | 0.09 | -0 02 | 855 24 | 1 00 |
| 9777 000 | 16560.00 | 605 83 | 0.00 | 0 01 | 0.00 | 884 78 | 100 00 |
| 9777 000 | 16560 00 | 605 82 | -0.02 | 0.01 | -0.02 | 731 07 | 100.00 |
| 11596.000 | 16560 00 | 605 91 | 0.00 | 0 08 | 0 00 | 618.17 | 1819 00 |
| 11596.000 | 16560.00 | 605.90 | -0 02 | 0 08 | -0.02 | 505 48 | 1819 00 |
| 13196.000 | 16560.00 | 606 39 | 0.00 | 0 48 | 0.00 | 422 25 | 1600 00 |
| 13196.000 | 16560.00 | 606 39 | 0.00 | 0.49 | 0 00 | 295 06 | 1600 00 |
| 14796.000 | 16560.00 | 606 74 | 0.00 | 0.35 | 0.00 | 177.41 | 1600 00 |
| 14796 000 | 16560 00 | 606 76 | 0.02 | 0 37 | 0 02 | 177 51 | 1600.00 |
| 16096.000 | 14260.00 | 607 41 | 0.00 | 0 67 | 0 00 | 545 69 | 1300 00 |
| 16096.000 | 14265.00 | 607 42 | 0 01 | 0 66 | 0 01 | 242 67 | 1300 00 |
| 16396.000 | 14260 00 | 607 44 | 0.00 | 0 03 | 0 00 | 455 82 | 300 00 |
| 16396.000 | 14265.00 | 607 45 | 0.01 | 0 03 | 0.01 | 208 74 | 300 00 |
| 16418.000 | 14260 00 | 608 23 | 0 00 | 0 79 | 0 00 | 477.44 | 22.00 |
| 16418 000 | 14265 00 | 608 26 | 0 03 | 0 81 | 0 03 | 477 57 | 22 00 |
| 16768.000 | 14260 00 | 608 62 | 0.00 | 0 39 | 0 00 | 540 93 | 350 00 |
| 16768.000 | 14265 00 | 608 61 | -0.01 | 0 35 | -0 01 | 434 89 | 350 00 |
| 17168.000 | 14260.00 | 608.76 | 0.00 | 0 14 | 0 00 | 555 79 | 400.00 |
| 17168.000 | 14265.00 | 608 76 | -0.00 | 0 15 | -0 00 | 496.58 | 400.00 |
| 17268 000 | 14260.00 | 608 72 | 0.00 | -0.04 | 0 00 | 590.65 | 100 00 |
| 17268.000 | 14265.00 | 608.72 | -0 00 | -0 04 | -0.00 | 447.98 | 100 00 |

| SECND | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 17368.000 | 14260.00 | 608 86 | 0 00 | 0 14 | 0 00 | 626.05 | 100 00 |
| 17368.000 | 14265 00 | 608 89 | 0.03 | 0 17 | 0 03 | 482 09 | 100 00 |
| 18244.000 | 14260 00 | 608 99 | 0.00 | 0.13 | 0 00 | 710 06 | 876.00 |
| 18244.000 | 14265 00 | 609 02 | 0 03 | 0 13 | 0 03 | 530 33 | 876 00 |
| 19119.000 | 14260.00 | 609.01 | 0 00 | 0 02 | 0 00 | 436.18 | 875 00 |
| 19119.000 | 14265.00 | 609 05 | 0 03 | 0 03 | 0.03 | 316 28 | 875 00 |
| 20219.000 | 14260 00 | 609.35 | 0 00 | 0 34 | 0 00 | 883 46 | 1100 00 |
| 20219.000 | 14265 00 | 609.39 | 0 04 | 0.34 | 0 04 | 589 07 | 1100 00 |
| 21119.000 | 14260.00 | 609.39 | 0 00 | 0.04 | 0 00 | 563 35 | 900.00 |
| 21119.000 | 14265.00 | 609 43 | 0 04 | 0.04 | 0.04 | 401 19 | 900 00 |
| 22069 000 | 14260.00 | 609 45 | 0.00 | 0.06 | 0 00 | 332 11 | 950 00 |
| 22069.000 | 14265 00 | 609 49 | 0 04 | 0 06 | 0 04 | 200 97 | 950 00 |
| 22419.000 | 13000 00 | 609 90 | 0 00 | 0.45 | 0 00 | 563 70 | 350 00 |
| 22419.000 | 13000 00 | 609.95 | 0 05 | 0.46 | 0 05 | 516 95 | 350 00 |
| 23319.000 | 13000 00 | 609.81 | 0 00 | -0 09 | 0.00 | 619.75 | 900 00 |
| 23319.000 | 13000 00 | 609.85 | 0 04 | -0 10 | 0.04 | 444 79 | 900 00 |
| 23569 000 | 8680.00 | 610 06 | 0.00 | 0 25 | 0.00 | 699.20 | 250 00 |
| 23569.000 | 8680.00 | 610 11 | 0.05 | 0.26 | 0.05 | 459 26 | 250 00 |
| 24369.000 | 8680.00 | 610 08 | 0.00 | 0.02 | 0.00 | 326 81 | 800 00 |
| 24369.000 | 8680.00 | 610.14 | 0 06 | 0 03 | 0 06 | 338 16 | 800 00 |
| 25819.000 | 8680.00 | 610.26 | 0 00 | 0 18 | 0 00 | 347 87 | 1450.00 |
| 25819.000 | 8680 00 | 610 32 | 0 06 | 0 18 | 0 06 | 365 99 | 1450 00 |
| 25919.000 | 8680 00 | 610 26 | 0 00 | -0.00 | 0.00 | 297.88 | 100 00 |
| 25919.000 | 8680.00 | 610 31 | 0 06 | -0.00 | 0 06 | 315 27 | 100 00 |
| 26025.000 | 8680.00 | 610 95 | 0.00 | 0.70 | 0 00 | 458.48 | 106 00 |
| 26025.000 | 8680 00 | 611 00 | 0.05 | 0 69 | 0 05 | 463 00 | 106 00 |
| 26125.000 | 8680.00 | 610.99 | 0.00 | 0 04 | 0 00 | 337 07 | 100 00 |
| 26125.000 | 8680 00 | 611.03 | 0 05 | 0 03 | 0 05 | 350 99 | 100 00 |
| 26900.000 | 8680 00 | 611.25 | 0 00 | 0 26 | 0 00 | 390 62 | 775 00 |
| 26900 000 | 8680 00 | 611 28 | 0 03 | 0.24 | 0 03 | 194 84 | 775 00 |
| 27150.000 | 8680 00 | 611 31 | 0 00 | 0 06 | 0 00 | 246.35 | 250 00 |
| 27150.000 | 8680 00 | 611 36 | 0 05 | 0.08 | 0 05 | 247 19 | 250 00 |
| 27900.000 | 8680.00 | 611.47 | 0 00 | 0.16 | 0 00 | 218.16 | 750 00 |
| 27900.000 | 8680.00 | 611.50 | 0.03 | 0.14 | 0 03 | 150.63 | 750 00 |

| SECND | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 28000 000 | 8680.00 | 611.48 | 0 00 | 0.01 | 0 00 | 207.91 | 100 00 |
| 28000.000 | 8680.00 | 611.51 | 0 03 | 0.01 | 0 03 | 146 01 | 100 00 |
| 28031.000 | 8680.00 | 612 20 | 0.00 | 0.72 | 0 00 | 316.12 | 31 00 |
| 28031.000 | 8680 00 | 612.18 | -0.01 | 0.67 | -0 01 | 138.71 | 31 00 |
| 28331.000 | 8680.00 | 612 32 | 0.00 | 0.12 | 0 00 | 446.33 | 300 00 |
| 28331 000 | 8680 00 | 612 36 | 0.04 | 0.17 | 0 04 | 329 27 | 300 00 |
| 28431 000 | 8680 00 | 612.31 | 0 00 | -0.00 | 0 00 | 413 73 | 100 00 |
| 28431.000 | 8680.00 | 612 35 | 0.04 | -0 00 | 0 04 | 318 84 | 100.00 |
| 28449.000 | 8680.00 | 612 92 | 0.00 | 0.60 | 0 00 | 480 10 | 18 00 |
| 28449.000 | 8680.00 | 612 93 | 0.01 | 0 58 | 0 01 | 318 84 | 18 00 |
| 28549.000 | 8680.00 | 612.92 | 0 00 | 0.01 | 0.00 | 386 00 | 100 00 |
| 28549 000 | 8680.00 | 612 95 | 0 02 | 0.02 | 0.02 | 309 87 | 100.00 |
| 29749.000 | 8680.00 | 613 26 | 0.00 | 0 34 | -0 00 | 292 72 | 1200 00 |
| 29749 000 | 8680.00 | 613.30 | 0.04 | 0 35 | 0 04 | 294 34 | 1200.00 |
| 30474.000 | 8680 00 | 613.31 | 0.00 | 0.05 | 0 00 | 352 14 | 725 00 |
| 30474.000 | 8680.00 | 613 34 | 0.04 | 0 04 | 0 04 | 169 77 | 725 00 |
| 31199.000 | 8680.00 | 613.34 | 0 00 | 0 03 | 0 00 | 134 15 | 725 00 |
| 31199 000 | 8680.00 | 613.38 | 0 04 | 0.04 | 0 04 | 137 48 | 725.00 |
| 31299 000 | 8680.00 | 613 32 | 0.00 | -0 02 | 0 00 | 134 86 | 100.00 |
| 31299.000 | 8680 00 | 613.36 | 0.04 | -0 02 | 0 04 | 138 15 | 100 00 |
| 31350 000 | 8680.00 | 614 60 | 0.00 | 1 28 | 0 00 | 236 07 | 51.00 |
| 31350.000 | 8680 00 | 614 63 | 0.03 | 1 27 | 0 03 | 236.14 | 51 00 |
| 31430.000 | 8680 00 | 614.62 | 0 00 | 0 02 | 0 00 | 236 14 | 80 00 |
| 31430.000 | 8680.00 | 614 65 | 0 03 | 0 02 | 0 03 | 236 21 | 80 00 |
| 31483.000 | 8680 00 | 615 65 | 0 00 | 1 03 | 0.00 | 280 66 | 53 00 |
| 31483 000 | 8680 00 | 615.67 | 0 02 | 1 02 | 0.02 | 281 85 | 53 00 |
| 31583 000 | 8680.00 | 615 72 | 0.00 | 0 07 | 0 00 | 224 73 | 100.00 |
| 31583 000 | 8680 00 | 615 74 | 0.02 | 0 07 | 0 02 | 225 88 | 100 00 |
| 33333.000 | 8680 00 | 616 01 | 0.00 | 0 29 | 0 00 | 380 89 | 1750 00 |
| 33333 000 | 8680.00 | 616.02 | 0 01 | 0 28 | 0.01 | 227.66 | 1750 00 |
| 33433.000 | 8680.00 | 616 01 | 0.00 | 0.00 | 0.00 | 381 85 | 100.00 |
| 33433 000 | 8680 00 | 616.02 | 0.01 | 0 00 | 0.01 | 246 72 | 100 00 |
| 33438 000 | 8680 00 | 616.11 | 0.00 | 0 10 | 0.00 | 391 99 | 5 00 |
| 33438 000 | 8680.00 | 616 14 | 0.04 | 0.13 | 0 04 | 246 72 | 5 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 33538 000 | 8680.00 | 616 14 | 0.00 | 0.03 | 0.00 | 375 97 | 100.00 |
| 33538 000 | 8680 00 | 616.18 | 0.04 | 0.03 | 0 04 | 220 19 | 100 00 |
| 34888 000 | 8680 00 | 616 28 | 0.00 | 0 15 | 0.00 | 286 84 | 1350 00 |
| 34888.000 | 8680.00 | 616.33 | 0 04 | 0.15 | 0 04 | 192 13 | 1350 00 |
| 37038 000 | 8680 00 | 616.60 | 0 00 | 0 32 | 0 00 | 177 19 | 2150 00 |
| 37038 000 | 8680.00 | 616.65 | 0.05 | 0.32 | 0 05 | 145 22 | 2150.00 |
| 37088.000 | 8680.00 | 616 54 | 0 00 | -0.06 | 0.00 | 169 35 | 50 00 |
| 37088 000 | 8680 00 | 616.59 | 0 05 | -0 06 | 0 05 | 178 71 | 50 00 |
| 37121 000 | 8680 00 | 617 12 | 0.00 | 0 58 | 0 00 | 173 10 | 33.00 |
| 37121.000 | 8680 00 | 616 54 | -0 58 | -0 05 | -0 58 | 144 65 | 33 00 |
| 37221.000 | 8680 00 | 617 31 | 0 00 | 0 19 | 0 00 | 148 36 | 100 00 |
| 37221.000 | 8680 00 | 616.98 | -0 34 | 0 43 | -0.34 | 146 72 | 100 00 |
| 39121.000 | 8680.00 | 617 61 | 0.00 | 0.29 | 0 00 | 168 02 | 1900 00 |
| 39121.000 | 8680.00 | 617 29 | -0 31 | 0 32 | -0 31 | 141.72 | 1900 00 |
| 41121.000 | 8680.00 | 617.95 | 0.00 | 0.34 | 0 00 | 106.07 | 2000 00 |
| 41121.000 | 8680.00 | 617 67 | -0.28 | 0.37 | -0 28 | 105 13 | 2000 00 |
| 42521.000 | 8680.00 | 618.52 | 0 00 | 0 57 | 0 00 | 160 73 | 1400 00 |
| 42521.000 | 8680.00 | 618.26 | -0 26 | 0.60 | -0.26 | 159.23 | 1400 00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

FLOODWAY DATA,  RED RUN DRAIN  100-YEAR
PROFILE NO  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 165.000 | 596. | 3706 | 4 7 | 599.7 | 599 7 | 0 0 |
| 194.000 | 686 | 5145 | 3 4 | 602 0 | 602 0 | 0 0 |
| 594.000 | 694 | 7725 | 2 3 | 602.0 | 602 0 | 0 0 |
| 1039.000 | 223. | 2931. | 5 5 | 601.9 | 601.9 | 0 0 |
| 1100.000 | 174 | 2456 | 6 5 | 602 1 | 602.1 | 0 0 |
| 1143.000 | 175 | 2558 | 6.3 | 602.7 | 602.7 | 0 0 |
| 1150 000 | 186. | 3033 | 5 3 | 602.7 | 602.7 | 0.0 |
| 1180 000 | 174. | 2429. | 6.6 | 602.7 | 602.7 | 0.0 |
| 1223.000 | 597. | 5417 | 3.0 | 603.5 | 603.5 | 0.0 |
| 1323.000 | 611. | 6198 | 2 6 | 603.8 | 603 8 | 0 0 |
| 2223 000 | 182. | 2951 | 5.4 | 603.7 | 603 7 | 0.0 |
| 3180.000 | 205. | 3009 | 5.3 | 603.9 | 603 9 | 0.0 |
| 5720.000 | 253. | 3028 | 4 9 | 604.5 | 604 5 | 0 0 |
| 7470 000 | 564. | 6043. | 2 5 | 605 0 | 605 0 | 0 0 |
| 8270.000 | 536. | 5247 | 2 8 | 605.1 | 605 1 | 0.0 |
| 8340 000 | 555. | 5201 | 2 8 | 605 1 | 605 1 | 0 0 |
| 8394.000 | 731 | 5452 | 2 7 | 605 5 | 605 5 | 0 0 |
| 8494.000 | 650 | 5606 | 3.0 | 605 5 | 605 5 | 0 0 |
| 9594.000 | 708 | 6142 | 2 7 | 605 7 | 605.7 | 0 0 |
| 9653.000 | 872 | 6741. | 2 5 | 605 7 | 605 7 | 0 0 |
| 9654 000 | 1062. | 4535 | 3 7 | 605 7 | 605 6 | 0 1 |
| 9676.000 | 1063. | 4573 | 3 6 | 605.7 | 605 6 | 0 1 |
| 9677 000 | 855. | 6763. | 2 4 | 605.8 | 605 8 | 0 0 |
| 9777 000 | 731. | 6494 | 2 6 | 605 8 | 605 8 | 0.0 |
| 11596 000 | 505 | 3639 | 4 6 | 605.9 | 605.9 | 0 0 |
| 13196 000 | 295. | 3342. | 5 0 | 606.4 | 606.4 | 0 0 |
| 14796 000 | 178. | 2543 | 6.5 | 606 7 | 606 7 | 0.0 |
| 16096.000 | 243. | 2800. | 5 1 | 607.4 | 607 4 | 0 0 |
| 16396 000 | 209. | 2486 | 5 7 | 607.4 | 607 4 | 0 0 |
| 16418 000 | 478. | 3141 | 4.5 | 608 2 | 608 2 | 0 0 |
| 16768 000 | 435. | 4642 | 3 1 | 608 6 | 608 6 | 0 0 |
| 17168 000 | 497 | 5543 | 2 6 | 608 8 | 608 8 | 0 0 |
| 17268 000 | 504 | 3963 | 3 6 | 608 7 | 608 7 | 0 0 |
| 17368 000 | 504. | 4044 | 3 5 | 608 9 | 608 9 | 0.0 |
| 18244.000 | 530 | 4612 | 3 1 | 609.0 | 609 0 | 0 0 |
| 19119.000 | 316. | 3480 | 4 1 | 609.0 | 609 0 | 0 0 |
| 20219.000 | 597 | 4924 | 2 9 | 609 3 | 609 3 | 0 0 |
| 21119.000 | 491. | 3758 | 3 8 | 609.4 | 609.4 | 0 0 |
| 22069.000 | 201. | 2566 | 5.6 | 609.4 | 609.4 | 0.0 |
| 22419.000 | 517. | 5610. | 2 3 | 610.0 | 609.9 | 0 1 |
| 23319.000 | 561. | 3111. | 4.2 | 609.8 | 609.8 | 0 0 |
| 23569.000 | 555. | 2916. | 3.0 | 610.2 | 610.1 | 0 1 |

FLOODWAY DATA, RED RUN DRAIN 100-YEAR
PROFILE NO 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 24369.000 | 338. | 2251 | 3.9 | 610.2 | 610.1 | 0 1 |
| 25819.000 | 515. | 1774. | 4.9 | 610 4 | 610.3 | 0 1 |
| 25919.000 | 463. | 1628 | 5.3 | 610 4 | 610 3 | 0 1 |
| 26025.000 | 463 | 1908. | 4.5 | 611.0 | 611.0 | 0.0 |
| 26125.000 | 490. | 1774. | 4 9 | 611 0 | 611 0 | 0 0 |
| 26900.000 | 195. | 1907 | 4.6 | 611.2 | 611 2 | 0.0 |
| 27150.000 | 247 | 2179 | 4.0 | 611.3 | 611.3 | 0.0 |
| 27900.000 | 151. | 1919 | 4 5 | 611.5 | 611.5 | 0 0 |
| 28000.000 | 146. | 1847. | 4 7 | 611 5 | 611 5 | 0 0 |
| 28031 000 | 139. | 1877. | 4 6 | 612 2 | 612 2 | 0 0 |
| 28331.000 | 329 | 2337 | 3.7 | 612.3 | 612.3 | 0 0 |
| 28431.000 | 319 | 2009. | 4 3 | 612.3 | 612.3 | 0 0 |
| 28449 000 | 319. | 2193 | 4.0 | 612.9 | 612.9 | 0 0 |
| 28549.000 | 310. | 2038 | 4.3 | 612.9 | 612.9 | 0 0 |
| 29749.000 | 294. | 2760. | 3.1 | 613 3 | 613.3 | 0 0 |
| 30474.000 | 170. | 2232. | 3 9 | 613 3 | 613 3 | 0 0 |
| 31199 000 | 137. | 1776. | 4 9 | 613 3 | 613 3 | 0 0 |
| 31299.000 | 138 | 1745 | 5 0 | 613 3 | 613 3 | 0 0 |
| 31350 000 | 236. | 1992 | 4 4 | 614.6 | 614 6 | 0 0 |
| 31430 000 | 236. | 1962 | 4 4 | 614 6 | 614 6 | 0 0 |
| 31483 000 | 282. | 2218. | 3 9 | 615 7 | 615 7 | 0 0 |
| 31583 000 | 226 | 2159. | 4 0 | 615 7 | 615.7 | 0 0 |
| 33333.000 | 228. | 2510. | 3 5 | 616 0 | 616 0 | 0 0 |
| 33433.000 | 247. | 2507 | 3 5 | 616 0 | 616.0 | 0 0 |
| 33438.000 | 247 | 2537 | 3 4 | 616.1 | 616.1 | 0 0 |
| 33538 000 | 220. | 2483. | 3.5 | 616 1 | 616 1 | 0 0 |
| 34888 000 | 192. | 2178. | 4 0 | 616 3 | 616 3 | 0 0 |
| 37038 000 | 145 | 2034. | 4 3 | 616 7 | 616 6 | 0 1 |
| 37088 000 | 261. | 1701 | 5 1 | 616 6 | 616 5 | 0.1 |
| 37121.000 | 145 | 1412 | 6 1 | 616.6 | 617.1 | -0 5 |
| 37221 000 | 147 | 2042 | 4.3 | 617.1 | 617.3 | -0 2 |
| 39121.000 | 142. | 1882. | 4.6 | 617.4 | 617.6 | -0.2 |
| 41121.000 | 105. | 1495. | 5 8 | 617 7 | 617.9 | -0.2 |
| 42521 000 | 159. | 2171. | 4 0 | 618 3 | 618 5 | -0 2 |

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  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Hydraulic Analysis

00BREAK00

# WORKING PAPER ON
# CLINTON RIVER WATERSHED STUDY
# AND HEC-SAM MODEL

MAY 1983

DETROIT DISTRICT
U.S. ARMY CORPS OF ENGINEERS

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## Introduction

This paper provides background information on the Clinton River Watershed Study that was undertaken by the Detroit District, Corps of Engineers, and the watershed computer model (HEC-SAM) that was developed for use in the study. Presented herein is a summary of the study purpose and findings, a discussion of the study model development and analytical capabilities, and suggested revisions likely to be required for adaptation of the model for local government stormwater management planning activities.

The Clinton River watershed model was developed as an analytical tool for use in a feasibility study of water resources needs. The study was requested by the Clinton River Watershed Council, Michigan Department of Natural Resources, and the Southeast Michigan Council of Governments. A specific concern that the study was to address was the impact of future watershed urbanization on flood flows, stages and damages. Also, the study was to address alternative measures for reduction of flood losses and management of future stormwater runoff.

## Summary of Study Process and Findings

The study procedure followed the established planning process for Federal water resources planning, including problem identification, determining goals and objectives, development of alternative plans, evaluation of alternatives and plan recommendation. To assist in this effort, the Corps developed a computer model consisting of a data base of geographically referenced resource information and the analytical software (programs) required to perform flood frequency and flood damage assessments. The model was a tool used to store and develop hydrologic, economic and environmental data. This data was then analyzed to develop a profile of existing conditions, evaluate the likely range of future conditions, and to assess the effectiveness of alternative measures required to bring about the desired goals and objectives. Traditional flood damage reduction measures, both structural and non-structural, were evaluated as to their effectiveness in reducing existing

flood damage problems. An important constraint of the study was that, while the Corps can generally study a wider range of problems and issues than it has the authority to solve, a major thrust of Federal water resource planning is to identify alternative projects that can be implemented by a Federal agency. Hence, the Corps was somewhat limited by its project planning orientation in its ability to directly address the specific issues raised by the Watershed Council in its letter requesting the study.

The Preliminary Feasibility Report (PFR), which is the formal documentation of the study process, contains the results of the study analyses - economic, social, institutional, environmental, hydrologic and hydraulic, and plan formulation. Copies of the complete report are available on request from the Detroit District, Corps of Engineers.

The PFR effort included an investigation of possible future watershed land use scenarios and their impacts on future runoff and flood damage conditions. Two alternative future scenarios were adapted from previous SEMCOG studies and represented allocations of future land use change to 21 subbasins that were delineated in the study area. No attempt was made to forecast the specific location of the land use change within the individual subbasins, as this would have had no impact on the change in tributary flow as represented in the study computer model. That is, the land use alternatives are essentially numerical totals reflecting possible land use changes, without geographical reference except by subbasins. Refinement of this data would be required for more site specific planning evaluations that may be undertaken by local governments, if a long term arrangement for local use of the study is developed. This is discussed in greater detail in a subsequent portion of this working paper.

The two alternative land use futures were derived from SEMCOG'S "Small Area Forecasts". The forecasts represented policy alternatives, with variances in such areas as sewer extension, zoning, density, retention of sensitive lands, transportation availability and redevelopment of existing urban areas. The SEMCOG report considered six alternatives of which two were referenced for evaluation in the study and are discussed below:

a. Alternative Five: Local Plans, Unmodified

This alternative allows for the development levels as specified by existing plans adopted by local units of government. Generally, the maximum allowed densities in specified zoning categories and master plans were used. The alternative also adheres to projected sewer service extensions and to local redevelopment plans. Local plans are generally supportive of extensive growth and, as such, tend to continue or accelerate current patterns of urban sprawl.

b. Alternative Six: Local Plans Modified by Adopted SEMCOG Policy Recommendations

This alternative reflects the adopted comprehensive regional plan. The policies specified in this alternative attempt to preserve the existing urban infrastructure and to conserve environmentally sensitive land areas. The intent of these policies is to decelerate urban sprawl, revitalize existing urban areas, and increase utilization of existing and proposed transit systems, thereby reducing public service costs.

The implementation of either future land use scenario would result in future changes in flows and flood damages. Under the "most probable" alternative development pattern (Alternative Six), 10-year event flows would increase by a range of 19%, 25%, 41%, and 54% for the following reaches - Red Run Outlet, Clinton River at the Middle and North Branches, Clinton River at the Spillway and Clinton River above Red Run, respectively. One hundred-year event flows would increase by a range of 22%, 29%, 34% and 36% for the same areas.

Generally, future watershed development would result in greater increases in peak flows on a percentage basis for smaller, more frequent events, i.e., 10-year, than for larger events, i.e., 100-year. As a result of upper watershed urbanization, existing structures in the flood plain would be subjected to greater flood damage in the future as a result of greater runoff volumes and increased flood stages. Also, existing and new structures

presently not experiencing flood damage would be affected by increased flood stages. At some locations within the watershed, future damages caused by a present day 20-year event would approximate those caused by a future 10-year flood event.

The changes associated with future flood levels were estimated at $7 million on an average annual basis, representing a 46% increase above the present day $4.8 million dollar average annual value. Flood damages in the upper watershed, excluding the area drained by Red Run and adjacent to the lower Clinton River, could increase by as much as 27%, from $2.9 million to $3.8 million dollars, even if a downstream flood damage reduction project had been eventually constructed.

Given the conclusions regarding the potential for increased flood stages and damages, the Corps planning process focused on development of alternative plans to solve the recognized problems. Again, the emphasis was oriented toward Federally implementable projects for flood damage reduction, including structural and non-structural measures to remedy the existing problems. Traditional structural approaches, such as channel modifications or levees, were found not to be appropriate, given the broad nature and relatively low magnitude of the flood problem in the upper watershed. A non-structural alternative, consisting of floodproofing of individual structures, was found to be economically infeasible based on the low level of existing flood damage and the high cost of protecting individual structures.

Another alternative, which appeared to more directly address the expressed needs, was the development of a stormwater management plan. The management plan alternative was defined as an ongoing process for development, evaluation and implementation of sound policies and practices aimed at effective stormwater management. The management plan was intended to provide a comprehensive framework for local water resources decision-making, through which resolution could be achieved on the following issues:

1. Long-term impacts of future land use change in the watershed;
2. Evaluation of stormwater management policies and practices on a subbasin level, i.e., wetland preservation, flood plain filling,

on-site retention, discharge design standards, lake level management, etc;

3. Local establishment of small area (subbasin or political subdivision) discharge standards;
4. Long term local use, maintenance and updating of the analytical model consisting of the data base and analytical programs, to be used in local decision making;
5. Institutional arrangements for watershed coordination and setting of objectives among the 60 political subdivisions and other agencies responsible for aspects of water resources management.

As the stormwater management alternative was not a Federal project, in the traditional sense, and could be implemented only by non-Federal interests, it was determined that the Corps' feasibility report process was not the appropriate mechanism and activity on this phase of study was terminated.

## Clinton River Watershed Data Base and Model Description

The watershed model, known as HEC-SAM, is comprised of a computerized data base and selected analytical software required to perform hydrologic, economic, and environmental assessments. As the basic objectives of model usage were for flood damage assessment and project formulation, the data base was oriented toward those functions as opposed to more general planning capabilities.

Development and use of the model proceeded in several basic steps, including data map assembly, encoding, processing into a central data base, adaptation of analytical software and, finally, the analysis phase. By this procedure, data management techniques were used to develop a working data base from which individual data variables could be extracted, interpreted and reformatted for subsequent analysis of hydrologic, economic or environmental conditions.

Figure 1 displays the data management and modeling process used in the Clinton River Watershed Study. Significant elements of this process are

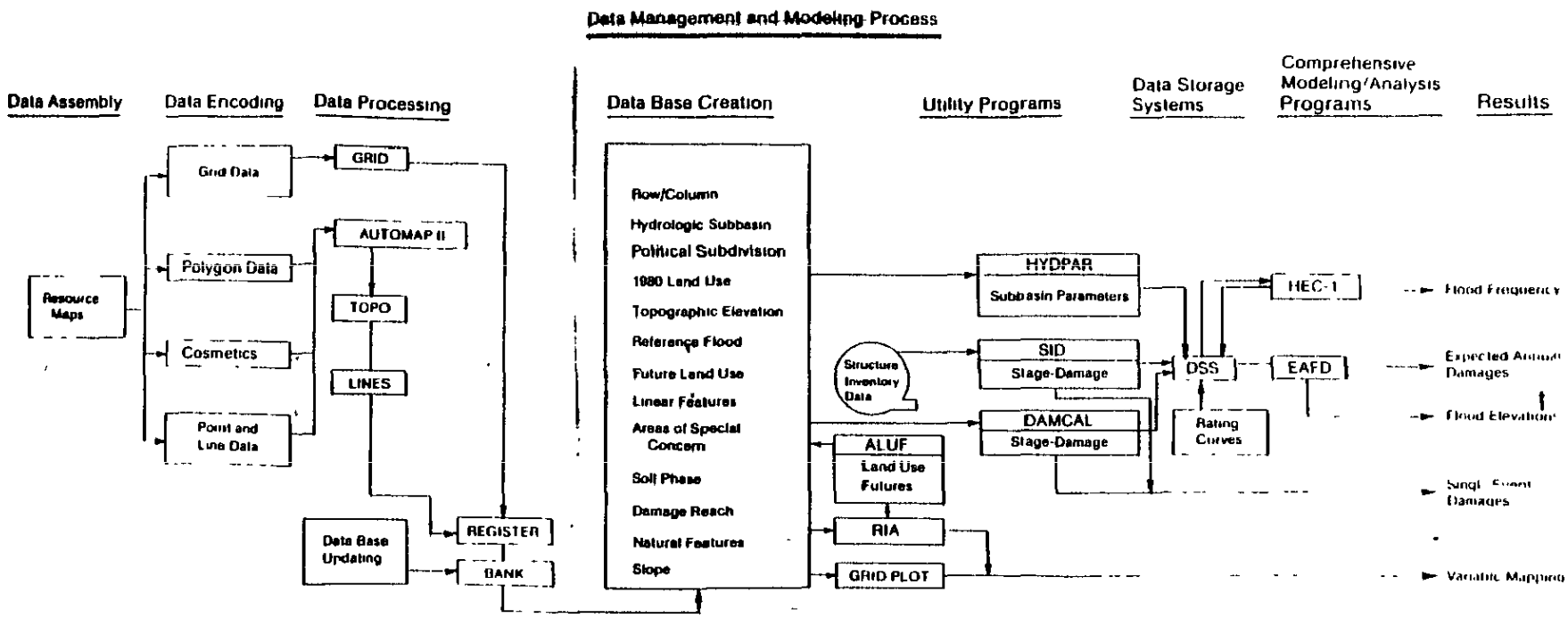

Data Management and Modeling Process
Data Assembly
Data Encoding
Data Processing
Data Base Creation
Utility Programs
Data Storage Systems
Comprehensive Modeling/Analysis Programs
Results
Resource Maps
Grid Data
Polygon Data
Cosmetics
Point and Line Data
GRID
AUTOMAP II
TOPO
LINES
Data Base Updating
REGISTER
BANK
Row/Column
Hydrologic Subbasin
Political Subdivision
1980 Land Use
Topographic Elevation
Reference Flood
Future Land Use
Linear Features
Areas of Special Concern
Soil Phase
Damage Reach
Natural Features
Slope
Structure Inventory Data
HYDPAR
Subbasin Parameters
SID
Stage-Damage
DAMCAL
Stage-Damage
ALUF
Land Use Futures
RIA
GRID PLOT
DSS
Rating Curves
HEC-1
EAFD
Flood Frequency
Expected Annual Damages
Flood Elevation
Single Event Damages
Variable Mapping

FIGURE 2

discussed in this paper. Additional information may be obtained from the Detroit District Corps of Engineers or from the Hydrologic Engineering Center.

A basic element of the model is the computerized data base of resource information. The data base consists of mapped resource information, in digital format, which represents the physical characteristics of 10-acre grid cell increments. A total of 49,010 cells was required to cover the 760 square mile watershed. The cells are identified by row and column value, covering an area of 660 feet by 660 feet. Individual attributes of the 10-acre cell are digitally "stacked" onto the computer storage device, so that the numerous resource variables (soil, slope, land use) are consistently represented. Figure 2 provides a display of the concept of the multi-variable data base.

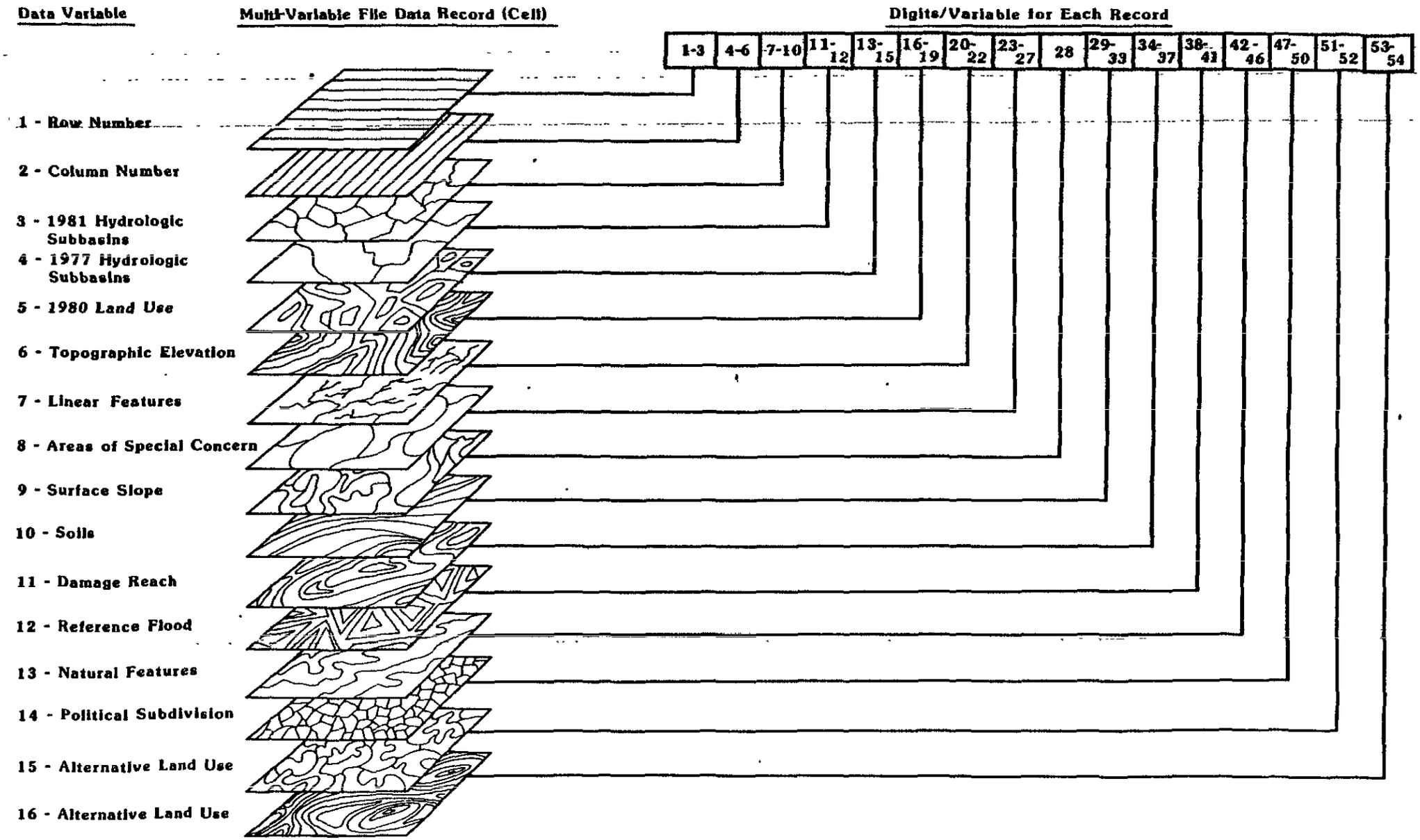
The initial concept of the HEC-SAM model envisioned a central data base which could be accessed for all types of analyses - hydrologic, economic, and environmental. This results in a tremendous amount of data being stored and manipulated for each separate analysis. In practice, several individual data bases were developed, containing only those variables required for a specific type of analysis. Also, by a concept known as "windowing", discrete parts of the watershed could be established as individual data bases, thus avoiding the need to process data covering the entire watershed.

The core data base consists of 12 individual resource variables, taken from existing map sources and registered to the orientation of the base map. In this case, the base map consisted of a mylar set of 1: 24,000 USGS 7.5' quadrangle maps. Data variables include: (a) 1980 land use; (b) future land use 5; (c) future land use 6; (d) hydrologic subbasins; (e) political subdivisions; (f) topographic elevation; (g) reference flood; (h) linear features; (i) areas of special concern; (j) damage reach; (k) natural features; and (l) percent slope. A description of the purpose and source of the data variables follows:

Existing and Future Land Use

Existing land use information was provided from Southeast Michigan Council of Governments' (SEMCOG) mapping. This data was acquired from 1980 black and white aerial photographs at 1: 24,000 scale. Because of the extreme

# Concept of Multi-Variable Data Base Record



level of detail captured by the SEMCOG mapping, 1980 land use data was reformatted by the study team for subsequent encoding to accommodate the relatively coarse "data capture" ability inherent in a 10-acre grid cell size.

The two alternative land use futures were derived from SEMCOG'S "Small Area Forecasts," (1978). The SAF's represent policy alternatives, with variances in such areas as sewage extensions, zoning, density, protection of sensitive lands, transportation availability and redevelopment of existing urban areas.

SEMCOG projections are not site-specific. As such, a method was developed to allocate the general alternative projections by traffic analysis zone to specific grid cell locations. The Institute for Water Resources (IWR) Alternative Land Use Forecast (ALUF) program incorporates the HEC-RIA attractiveness and distance determination features to identify and weigh geographic parameters or land use determinants. The ALUF program then allocates future land uses to the grid cell data base.

Hydrologic Subbasins

Two levels of details were mapped from 1: 24,000 scale USGS quad maps. Twenty-one separate subbasins were defined as the basic hydrologic units to be used in subsequent analyses. These units corresponded to those used in previous Red Run Drain - Lower Clinton River hydrology studies.

Political Subdivisions

Political subdivision boundaries within the watershed were furnished from the Buffalo District's Land Resource Information System (LRIS). The addition of this variable made possible the reporting of more site-specific hydrologic, flood damage and environmental analyses by geographic areas that are easily recognized by local users.

Topography and Slope

Topographic elevation and slope were determined based on 5 and 10 foot contour interval USGS quad maps. The elevation variable is significant in performing flood damage assessments, while the percent slope is useful as general physiographic resource data.

## Reference Flood

The elevation of the water surface of any given flood event varies depending on the location of the measurement along the flood plain. A representative flood elevation was thus assigned to each grid cell within the damage reach area. The frequency of the flood event elevation chosen was generally a 10-year flood.

## Linear Features

Linear features, defined as water courses, railroads, and roads, were mapped from USGS quads and entered as a data base variable. This variable was intended to be used in distance determination and attractiveness mapping programs and in subsequent land use and environmental assessments. Delineation of roads was limited to Federal and state highways and major local thoroughfares.

## Areas of Special Concern

The areas of special concern mapping effort included recreational facilities, public facilities, important agricultural lands and significant historical and archaeological sites.

## Damage Reaches

Damage reach identification was based on 1: 24,000 USGS quad maps and a knowledge of the watershed's hydrologic and hydraulic characteristics. A damage reach is defined as a segment of a flood plain in which relatively uniform flood hazard conditions exist and is, therefore, a workable area for hydrologic and flood damage analyses. Damage reach boundaries were delineated initially on the basis of existing flood insurance and flood plain information reports. This delineation resulted in an area slightly larger than the existing Standard Project Flood (SPF) outline. Damage reaches were further delineated along the flood plain based on hydraulic characteristics. A total of 96 reaches is located within the study area, comprised of 79 reaches in the upper basin and 17 reaches along the Lower Clinton River in Macomb County.

## Natural Features

Mapping of significant natural features was accomplished with the assistance of the Michigan Department of Natural Resources and The Nature Conservancy, as part of their ongoing statewide natural features inventory program. Resource features that were mapped include endangered, threatened or rare plants and animals, unique ecological elements, champion trees and unique geologic features. Data sources included existing reports and staff field surveys. This data provides valuable resource information for comprehensive planning and environmental assessments.

## Data Base Creation

As defined for this study, data encoding is the process by which mapped data were converted to a grid cell format for subsequent processing into a computerized data base. Two basic data encoding techniques were adopted for use in this study.

The first is known as grid cell-encoding. It uses a base map having a grid cell network as an overlay on a mapped data variable. By visual inspection, each grid cell is manually assigned a numerical value representing individual categories of the data variables being encoded. This method was appropriate for several data variables used in the study, particularly where the area being encoded was relatively small and where the nature of the data required site-specific judgments on a cell by cell basis.

Grid cell encoding was time consuming and too costly to be used for every variable to be entered to the grid cell data base. Therefore, a more efficient and sophisticated procedure for data encoding, digitization, was also used.

Digitization is an automated technique for converting mapped data to a form that can be stored and manipulated by a computer. This is accomplished by redefining the irregularly shaped area (polygon) of data, such as land use, by a series of straight-line segments that closely approximate the original

coordinate values to record the spatial extent of each category of the variable being encoded. This procedure can be accomplished manually but is more suitable for automatic digitizing equipment which can readily record and store coordinate values as an operator traces the outline of the area to be digitized. Further processing is then required to convert the computerized data to a grid cell format.

Data processing includes those tasks necessary to convert raw encoded data to a clean set of grid files for insertion to the data base. This task includes editing of encoding data to remove encoding errors, processing of point and line data, and registration to a common base. Registering each data variable in the grid cell data file to a common base is essential to assure that, for a specific cell, an accurate set of data exist for that location. Registration is needed to adjust all data variables to a common origin, scale and orientation and to remove distortion.

The data base in its final form is constructed by stacking the individual grid representations of each data variable onto a computer storage device in a systematic fashion so that efficient access and manipulation are possible. The storage device could be magnetic tape or disc. The grid cell data storage system consists of storing all data variables for a given cell sequentially from the upper left coordinates of the watershed to the lower right coordinates. This method permits efficient retrieval of multiple data variables for a given cell so that, regardless of the number of variables to be used in an operation or the number of grid cells to be searched, only one scan of the data base is necessary and only computer storage capacity to process the number of variables involved is required.

## Available Analytical Procedures

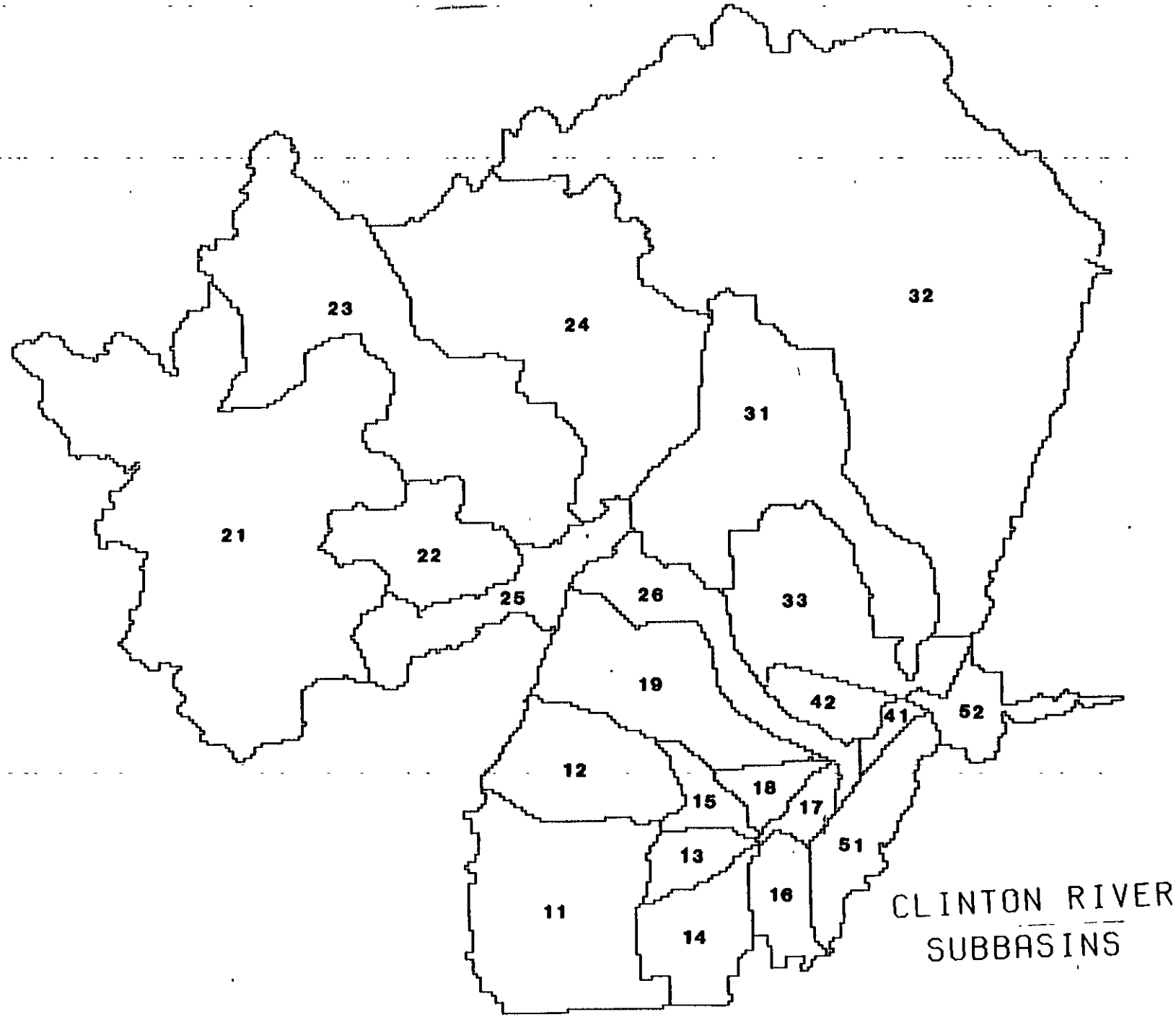
The primary objectives of the watershed model relate to flood hazard and flood damage assessments. The system provides capabilities for evaluation of existing flow-frequency, stage-frequency and stage-damage relationships. The model also provides the potential to evalute hydrologic changes created by alternative development patterns within the watershed. Although not developed

for this study, general planning capabilities also exist within the model framework. These features include analyses of location attractiveness (weighted potential for a selected use), distance determination, impact assessment, and coincident tabulations (component change).

Hydrologic Studies

A basic objective of the hydrologic analysis portion of the model is to develop flood hazard evaluations involving computation of flow rates for events of interest for designated control points, and the corresponding water surface elevations and flood area mapping. The modeling programs that perform the analysis are the traditional Corps of Engineers hydrologic engineering programs. The hydrologic portion of the model was further refined to test the sensitivity of the watershed to changes in land use and to examine the effectiveness of flood control project designs for the Lower Clinton River system. The hydrologic modeling program input data are determined automatically from the computerized data file. The spatial data is accessed by a handling program called HYDPAR (Hydrologic Parameters) for insertion in the HEC-1 (The Flood Hydrograph Package), which is the primary program for analysis in the HEC-SAM model. HYDPAR interrogates the spatial data file and converts information about the subbasins into unit hydrograph, percent imperviousness factors and loss rate characteristics. The subbasin configuration, the basic unit for hydrologic information, is illustrated in Figure 3 and described in Table 1.

The HYDPAR output is stored in the data storage system (HEC-DSS), which loads the hydrologic parameters on to the HEC-1. HEC-1 develops hydrographs from the HYDPAR data, precipitation information and a drainage network which is encoded into the model. Figure 4 depicts a typical hydrograph showing changes in runoff as a result of watershed urbanization. The output from HEC-1 is passed on to the HEC-DSS System for storage and access by other flood damage analysis programs. Future conditions hydrology is developed by generating a file of future hydrologic parameters with HYDPAR into a HEC-1 framework similar to the one used with the existing conditions. This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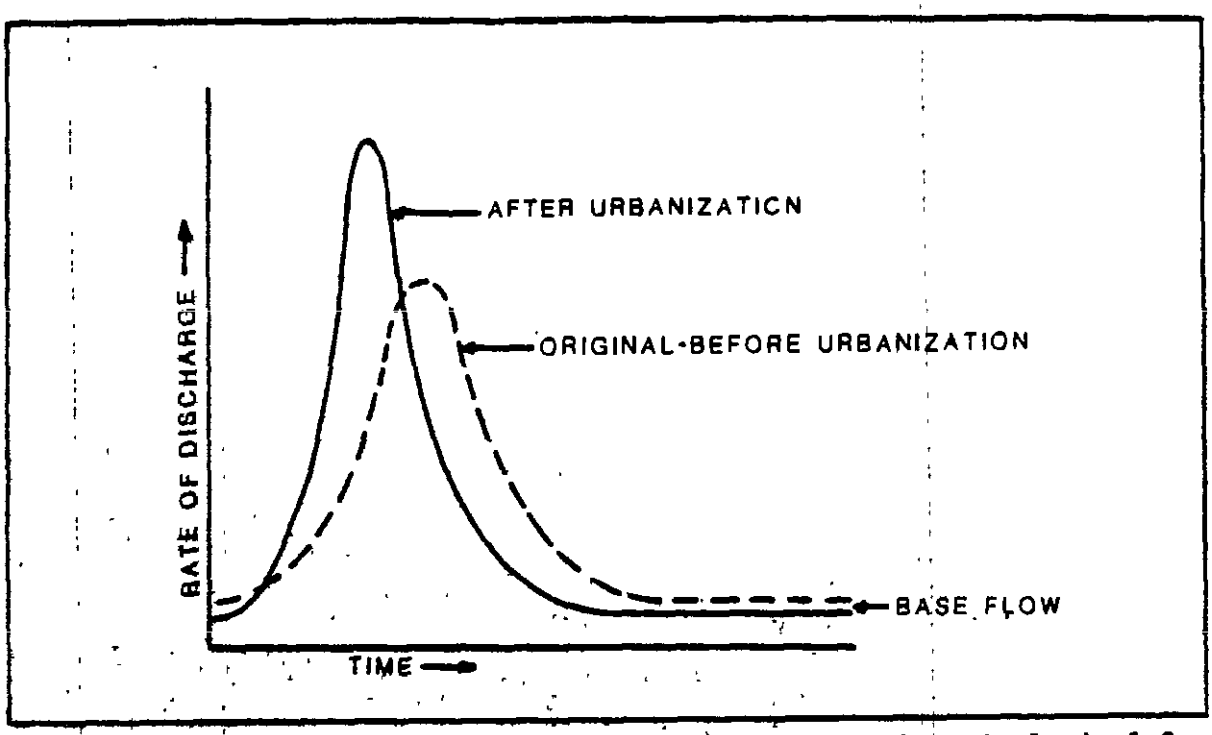
11
14
CLINTON RIVER
SUBBASINS

FIGURE 3

TABLE 1
HYDROLOGY SUBBASINS

| Number | Drainage Area (Sq. Miles) | Location |
|---|---|---|
| 11 | 40.63 | Twelve-Towns |
| 12 | 20.78 | Henry Gramm |
| 13 | 6.00 | Local along Red Run at Bear Creek |
| 14 | 14.41 | Bear Creek |
| 15 | 5.3 | Big Beaver |
| 16 | 8.45 | Schoenherr Drain |
| 17 | 3.73 | Sterling Relief Drain Local Inflow |
| 18 | 4.72 | Sterling Relief Drain |
| 19 | 27.67 | Plum Brook |
| 21 | 118.53 | Clinton River at Auburn |
| 22 | 18.50 | Galloway Creek |
| 23 | 71.48 | Paint Creek |
| 24 | 73.34 | Stony Creek |
| 25 | 18.36 | Clinton River Local Inflow at Stony Creek |
| 26 | 17.16 | Clinton River Local Inflow at Red Run |
| 31 | 53.69 | Middle Branch Clinton River at Gloede Ditch |
| 32 | 201.06 | North Branch Clinton River at Hall Road |
| 33 | 29.75 | North and Middle Branches Local Inflow at Forks Area |
| 41 | 2.10 | Clinton River Local Inflow at Fraser |
| 42 | 6.95 | Clinton River Local Inflow at Forks |
| 51 | 14.27 | Harrington Drain |

Figure 4: Hydrograph showing effect of urbanization on runoff.




Source: L. B. Leopold, Hydrology for Urban Land Planning, Geological Survey Circular 554.

procedure results in an alternative set of frequency curves representative of the hydrologic conditions for the future land use scenario.

Economic Studies

The objective of the economic analysis portion of the Clinton River watershed model is to provide information on potential flood damages under existing conditions and the potential effects of (1) alternative watershed development patterns, (2) flood plain management policies, and (3) flood damage reduction projects. The economic analysis employs the results of hydrologic and hydraulic studies that have determined flows and exceedance frequencies, stage-flow relationships, water surface profiles and flood area outlines. The primary areas under study consist of land and structures within defined damage reaches, shown in Figure 5. These areas were delineated during the early study phases, based on flood hazard areas as determined by flood insurance studies that had been completed in the watershed. Generally, the outer boundaries of the reaches correspond to the 500-year flood frequency outline.

The economic analysis relies on two methods for determining stage-damage relationships, used in calculating average annual damages and single-event damages. The first method involved the development of a unique stage-damage relationship for each 10-acre grid cell located within the identified flood plain. The stage-damage relationship is a function of ground elevation, land use and damage potential (structure type, density, market value, content value, average first floor elevation, depth-percent damage, and reference flood elevation). Using this method, the grid cell becomes the primary method of identifying flood damage potential.

The second method is a more traditional approach and relies on a field survey of flood plain structures to develop a stage-damage relationship. In this case, individual structures are the basic identifiers of flood damage susceptibility. This method was used in 17 reaches along Red Run Drain and the Lower Clinton River in Macomb County.

Two separate analytical programs are used to create stage damage relationships, determine single event damages, structures affected, acres flooded and evaluate possible non-structural flood damage reduction measures. DAMCAL is the stage-damage program applied to the spatially referenced (grid cell) data, whereas SID is the analytical program applied to hydraulic and hydrologic data to determine average annual damages by damage reaches.

The combination of stage-damage, stage-flow and flow-frequency data to compute average annual damages is accomplished by use of HEC-DSS, a data storage system. The output of SID, DAMCAL, and HEC-1 is stored in HEC-DSS and linked to the Expected Annual Flood Damage (EAFD) program used to compute average annual damages and benefits of alternative plan measures. Table 2 summarizes the data parameters used in the spatial and structure based damage analysis.

Environmental Assessment Capabilities

The objectives of the environmental assessment portion of the model are to provide a general description of the environmental status in the watershed for existing and alternative land use conditions. The primary environmental analysis program (RIA - Resource Information and Analysis) performs four major types of assessments and generates computer printer graphics or tabulations of analysis results. The major options discussed in the following section are: distance determination, impact assessment, locational attractiveness, coincident tabulation and mapping.

The distance determination package calculates the linear distance of each grid cell from the nearest cell containing a data variable category of interest, such as the distance of each grid cell from the adjacent cells that are categorized as industrial land use. Calculations may be performed for categories of a single data variable, or the combination of one or more categories of two or more data variables.

The impact assessment package is designed to determine locations of high environmental impact potential resulting from an activity of interest. The

TABLE 2

FLOOD DAMAGE ANALYSIS PARAMETERS

RED RUN/LOWER CLINTON - LOWER 17 REACHES

I. STRUCTURE INVENTORY FILE

A. Structure attributes

1. Type (residential, nonresidential, etc.)

2. First floor elevation

3. Reference flood

4. Market value of structure and contents

5. Damage reach identification

II. COMPUTER PROGRAMS

A. SID

1. Structure attribute

a. Depth-percent damage function

2. Reach attribute

a. Reference flood at reach index location

B. HEC-I

1. Reach attribute

a. Flow-frequency

C. HEC-II

1. Reach attribute

a. Flow-elevation (rating curve)

Table 2 (con't)

FLOOD DAMAGE ANALYSIS PARAMETERS
CLINTON RIVER WATERSHED - UPPER 79 REACHES

I. MULTIVARIABLE GRID CELL DATA BASE

A. Cell attributes

1. Land use

2. Topographic elevation

3. Reference flood

4. Damage reach identification

II. COMPUTER PROGRAMS

A. DAMCAL

1. Land use attributes - determines damage per cell

a. Depth-percent damage function

b. Market value of structures and contents

c. First floor elevation

d. Density

e. Vacancy factor

2. Reach attribute

a. Refernce flood at reach index location

B. HEC-I

1. Reach attribute

a. Flow-frequency

C. Flood Insurance Studies/HEC-I

1. Reach attribute

a. Flow-elevation (rating curve)

analysis is based on the combination of the effects of specific groupings of categories of two or three data variables which will impact upon or will reflect impact potential. The analysis is designed to answer such questions as: In what areas is the potential for ground water pollution highest, or what area would be most impacted by visual blight from major construction. The impact potential to be analyzed is completely flexible and definable by the user.

Locational attractiveness modeling is an environmental and land use analysis technique that emphasizes identifying the combination of locational characteristics that would be attractive for a particular activity. The technique is a computerized extension of McHarg's resource map overlay system. The computational procedure develops numerical attractiveness index values for each grid cell for the desired activity, based on subjective judgments as to attractive locational characteristics for a particular use. The results are printer graphics displayed by the mapping package.

The coincident tabulation package accounts for the coincidence of categories between two data variables within the categories of a third data variable. The third variable is usually one which denotes a geographic boundary for the tabulation, such as political boundaries, sub-basins, etc. An example of the coincident analysis would be the tabulation of land use categories between existing and an alternative land use pattern for a particular area. The tabulation would display the quantitative changes in land use between the two patterns.

The mapping package provides computer line printer graphic displays of the variables from a data base, distance determination, impact assessment and locational attractiveness modeling results. The mapping package includes several user options, such as text description of the results, levels of displays, and selection of display symbolism. Graphics are produced by controlling overprinting of the line printer characters.

Limited use was made of the assessment capabilities of the RIA program in the Clinton River Watershed Study. These uses included distance determinations for the purpose of developing basin-wide future land use

distributions, coincident tabulations of land use change and mapping of data base variables.

Mapping capabilities are also provided by the GRIDPLOT program, developed by Environmental Systems Research Institute. GRIDPLOT graphics are produced by a pen-plotter, utilizing gray tone shadings to represent data. This program was used to prepare topographic perspective maps of the watershed.

Plan Formulation Capabilities

Model capabilities exist for evaluation of non-structural flood damage reduction measures under existing development conditions and under alternative future land use patterns. These measures typically can be implemented by local governments using regulatory powers or as part of smaller scale flood control projects.

Potential alternative measures that can be evaluated include:

1. Flood plain management policies
2. Floodproofing alternatives
3. Permanent evacuation of structures
4. Temporary structure protection and content removal
5. A combination of the above

These alternatives may be evaluated in terms of providing a target protection level (e.g., 10-year event) or providing a uniform level of protection. Measures may be selectively applied to individual reaches or applied comprehensively to the entire study area. The general procedures for the analysis include the comparison of expected annual damages with and without each alternative to determine the average annual benefits associated with each plan.

The implementation of non-structural flood loss reduction measures typically modify the stage-damage relationship of the damage reach and have

little effect on the hydrologic character of the flood event. Thus, the non-structural alternatives are evaluated by modifying the stage damage function assigned to the particular land use category experiencing damage and comparing the average annual damage to without project conditions.

The evaluation of non-structural storage policies is also possible with the Clinton River watershed model. These storage devices could take various forms, including retention, limitations on catch basin inflow capacity, parking lot storage or a reservoir system. The alternatives represent potential alternative management approaches or policy plans to reduce the potential for future flood damages.

The analysis is performed by comparing average annual damages resulting from storage policies against the without project condition. Storage volume requirements for each subbasin are computed using the HEC-1 program, with the results integrated through the HEC-DSS to produce average annual damages.

Applications of HEC-SAM by Local Users

Several aspects of the Clinton River Watershed HEC-SAM Model would appear to be of interest to local agencies having responsibilities for stormwater management. The capabilities of the model for local planning analysis are considerably broader than were exercised during the conduct of the Clinton River Watershed Feasibility Study. Perhaps the most basic function of the model is the systematic display of the geographic resource variables: land use, slope, significant natural features, etc., that have been mapped and entered to the data base. This is accomplished by use of the RIA mapping options and the GRIDPLOT mapping program.

A second major planning capability exists in the RIA program packages for environmental assessments. Although not used extensively for the Clinton River Watershed Study, the RIA program provides capabilities for site selection evaluations and assessments of impacts of specific land use activities. Examples would include use of the distance determination function to evaluate the potential locations of future industrial sites based on

distances from existing industrial facilities or from adjacent residential uses. Similarly, the locational attractiveness options could be used to "score" various geographic areas for their relative attractiveness for future uses. For example, if it were necessary to locate areas most attractive for future park locations, the data base could be accessed and various weighting values assigned and priority given to those criteria considered to be desirable for park locations. The program will then calculate the scores assigned to each grid cell and generate mapped output displaying those cells having the highest relative score.

The impact assessment package performs types of analyses similar to that provided by the distance determination and location attractiveness options. The package is designed to be more flexible in its application and is generally aimed at determining specific locations and magnitudes of environmental impacts. The analysis is based on the combination of the effects of specific groupings of categories of two or three data variables that would be impacted upon or will reflect impact potential. Relative impacts are categorized from slight to severe based on weighted scores of sensitivity to the particular set of criteria under consideration. In combination with the locational attractiveness and mapping options, computer maps could be produced to display impacts of a given activity.

The fourth feature of the RIA program, coincidence tabulation, is available for inventory type identification of the coincidence occurrence of two or more data variables. This resource management tool can be used to monitor physical changes in the watershed, such as increases or decreases in acreages of a particular land use category from existing to future conditions. Figure 6 provides a typical output of a coincident tabulation. The values displayed are the number of acres which are coincident with the row (existing land use) and column (1990 land use) categories. The diagonal values in matrix are the number of acres which have the same value for both data variables. Since both data variables are land use conditions, the diagonal values are the number of acres which have remained unchanged from the existing to the 1990 alternative future condition. The horizontal values are the number of acres which have changed from the row category to the column category.

COINCIDENTS TEST

EXISTING AND 1990 LAND USES WITHIN DAMAGE REACHES

DAMAGE REACH 2
COINCIDENTS MATRIX

| ROW | COLUMN 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | ROW TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 105.6 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 | 41.3 | 27.5 | 91.8 | 0.0 | 272.3 |
| 3 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 3.1 |
| 6 | 6.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 6.1 | 0.0 | 7.7 | 0.0 | 19.9 |
| 7 | 4.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 0.0 | 4.6 | 0.0 | 23.0 |
| 9 | 24.5 | 0.0 | 0.0 | 1.5 | 0.0 | 0.0 | 10.7 | 9.2 | 24.5 | 0.0 | 70.4 |
| TOTAL | 140.8 | 0.0 | 0.0 | 10.7 | 0.0 | 0.0 | 71.9 | 36.7 | 128.5 | 0.0 | 388.6 |

ROW CATEGORIES ARE EXISTING LAND USE

1 NATURAL VEGETATION
2 DEVELOPED OPEN SPACE
3 LOW DENSITY HOUSING
4 MEDIUM DENSITY HOUSING
5 HIGH DENSITY HOUSING
6 AGRICULTURAL
7 INDUSTRY
8 COMMERCIAL
9 PASTURE
10 WATER BODIES

COLUMN CATEGORIES ARE 1990 LAND USE

1 NATURAL VEGETATION
2 DEVELOPED OPEN SPACE
3 LOW DENSITY HOUSING
4 MEDIUM DENSITY HOUSING
5 HIGH DENSITY HOUSING
6 AGRICULTURAL
7 INDUSTRY
8 COMMERCIAL
9 PASTURE
10 WATER BODIES

** NOTE ** AREA UNITS

FIGURE 6

Use of the watershed data base and analytical capabilities is also encouraged for the purposes of formulating local policies and programs for flood damage reduction and prevention. These objectives could be accomplished by use of the hydrologic and economical and analytical programs HEC-1, SID, DAMCAL, and EAFD. The analyses are performed by manipulating the various parameters of the programs to reflect desired simulations, with results reflected by changes in flow-frequency, stage-frequency, single event damages and average annual damages.

Principal parameters that could be manipulated include land use (both within the flood plain and across the watershed), topographic elevation, structure first floor elevation, structure density and the stage discharge relationship (a rating curve to reflect channel conditions). Logically, a non-structural plan could be represented by changing through the model the damage characteristics of the flood hazard area. This type plan typically does not change the hydrologic character of the river system itself. For analysis of non-structural flood damage protection projects, such as floodproofing, house-raising, relocation, and land use regulation, the basic element of the analysis is the change of the damage function by varying its composite parameters.

Application of the non-structural plan formulation capabilities of the model could best be achieved on a site specific (damage reach) basis, as required by individual communities. Detail on specific procedures for this analysis are contained in program user manuals and in "Spatial Data Analysis of Non-structural Measures " (Technical Paper No. 46, Hydrologic Engineering Center, 1976).

Another significant local planning capability lies in the use of the model to generate selected area runoff standards. The objective of this procedure would be to develop recommended levels of future runoff from the various subbasins, consistent with watershed requirements for peak flow timing and routing. Such standards for runoff could then be translated into more concise specific drainage practices, such as on-site retention or natural drainage modifications. An example of the application of this capability was

the development of future watershed storage (STO-1, 2, and 3), as presented in the June 1982 preliminary feasibility report. The basic factor used in developing the flow-frequency relationships, which could be considered as runoff standards, is the type of land use within the various subbasins. Generally, the capability of the model, as presently established, is limited to generating hydrologic conditions for areas no smaller than the 21 subbasins of the watershed, which range in area from 2 square miles to 201 square miles, the average size being 35 square miles.

The development of selected runoff standards is performed using the HYDPAR and HEC-1 Programs. HYDPAR accesses the grid cell data base to determine subbasin delineation and land use, which is then used by the HEC-1 program to produce hydrographs depicting timing and concentration of flows. The effects of subbasin performance standards could then be reflected in changes in stage-frequency or damage-frequency relationships. The central factor in the analysis is the proportional distribution of land use in the subbasin. This is the major element of the data base that would be changed by the user to generate alternative runoff conditions.

Potential Modifications Required for Local Use.

Revisions to the Clinton River Watershed HEC-SAM data base may be necessary in order to allow the types of analyses required by local users. In general, the data base and software were developed for specific study objectives, the most significant being the analysis of basin wide development impacts on downstream flows and flood damage. In order to accommodate future user needs for local stormwater management, it is likely that major modifications would be required to the model and data bases. These revisions are totally dependent on specific local uses of the model, yet to be determined, and also, to a degree, on the type of computer facility which will be available.

At least three areas of modification appear likely:

1. Subbasin delineation - At present, the basin is divided into 21 subbasins, which correspond generally to the units developed for previous studies of hydrology for the Red Run Drain - Lower Clinton River Project. Although the smallest subbasin is 2 square miles, most are considerably larger, averaging 35 square miles. As local users are likely to require hydrologic information at a greater level of detail, additional subbasins would need to be delineated and entered into the data base, from which the HYDPAR and HEC-1 programs could then be calibrated.

2. Land use - The land use variables entered into the existing data base were used for the specific objective of defining basin-wide impacts on flood stages and damages. For this reason, the distribution of land use within a particular subbasin was not a consideration. The land use configuration was not considered to be a site specific projection, but was a representation of a possible future level of development. Similarly, given the basin wide emphasis of the study, the future land use distribution within damage reach areas was not a consideration. Thus, it is likely that a potential user would need to modify the future land use variables to reflect additional levels of watershed development or site specific flood plain uses as required for individual applications.

3. Environmental features - Various features were mapped to provide an overview of significant resource characteristics of the watershed. Features mapped included recreational areas, public facilities, prime agricultural areas, historical and archeological sites, and unique ecological and geological areas. Site-specific applications of the model may require that additional categories of data be added in order to display impacts of individual actions.

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St Heights

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: Revised profiles HEC2 Print out Floodway

00BREAK00

Floodway

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*****************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*****************************************

C
T1    REVISED PROFILES FOR RED RUN DRAIN BY MDNR
T2    DISCHARGES COMPUTED BY MDNR USING SAM MODEL
T3          RED RUN DRAIN    100-YEAR NATURAL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0        4         0         0   0 000000      0 00      0.0       0       599 700     0 000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    0 000     0 000    -1 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150 000   200 000   0 000     0 000     0 000     0 000     0 000     0.000     0 000     0 000

J5  LPRNT     NUMSEC                     ********REQUESTED SECTION NUMBERS********

    0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000     0 000

QT      5 000  10780 000  15910 000  17390 000  23340 000      0 000  17390.000      0 000      0 000      0 000
NC      0 040      0 040      0 030      0 300      0 500      0 000      0 000      0 000      0 000      0 000
X1    165 000     53 000    800 000    985.800      0 000      0.000      0 000      0 920      0 000      0 000
X3      0 000      0 000      0 000    300.000      0 000   1100 000      0 000      0 000      0 000      0 000
GR    602 900      0 000    601 800    100 000    602 800    200 000    603 100    300.000    601 600    350 000
GR    601 600    380 000    600 300    400 000    598 000    500 000    597 600    565 000    597 300    600 000
GR    596 400    700 000    596 100    740 000    593 200    797 000    593 100    797.100    593 000    800 000
GR    592 200    800 000    591 000    806 000    590 300    810 000    585 300    816 000    582 700    820 000
GR    577 800    830 000    578 400    840 000    580 100    850 000    577 300    860 000    576 900    870 000
GR    577 100    875 000    577 500    877 200    595 900    877 200    592.400    897 000    591 700    900.800
GR    581 600    900 800    582 300    913 000    583 100    925 000    584 600    936 000    589 700    948 000
GR    590 900    953 000    591 300    973 000    591 500    985 800    591.700    985 800    592 100    988 000
GR    592 100    988 100    594 300   1000 000    595 000   1045 000    600 700   1080 000    604 100   1088 000
GR    605 300   1100 000    605 400   1200 000    605 700   1300 000    605 600   1400 000    603 300   1500 000
GR    603 100   1600 000    605 400   1700.000    603 700   1800 000      0 000      0 000      0 000      0 000

SB      0.000      1.540      2 800      0.000    170.000      0.000   1389.000      0.000    576.900    576 900
            UTICA ROAD US FACE    USGS STAGE GAGE  1981 HWM IS 601.7
X1    194.000     53.000    800.000    985.800     29.000     29.000     29 000      0 920     0.000      0 000
X2      0 000      0 000      1 000    596 300    599 600      0 000      0 000      0 000      0 920      0 000
X3      0.000      0 000      0.000    300.000      0 000   1100 000      0.000      0.000      0 000      0 000
BT     32 000    300 000    603 100      0 000    350 000    601 200      0 000    380 000    601.200      0 000
BT    400 000    601.400      0 000    500 000    601 000      0 000    600 000    600 700      0 000    700 000
BT    600 100      0 000    797 000    599 700      0 000    797 100    603.300      0 000    800 000    603 300
BT    593 000    800 000    603 300    595 900    820 000    603 300    595 900    830.000    603 400    595 900
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| BT | 850 000 | 603 400 | 595 900 | 870 000 | 603 200 | 595 900 | 875.000 | 603 100 | 595 900 | 877 200 |
| BT | 603 100 | 595.900 | 897 000 | 603 300 | 592 400 | 900 800 | 603 300 | 591 700 | 913 000 | 605 000 |
| BT | 596 300 | 925 000 | 608 000 | 596 300 | 936 000 | 609 800 | 596.300 | 943 000 | 610.300 | 596 300 |
| BT | 953 000 | 609 400 | 596 300 | 973.000 | 605 000 | 596.300 | 985.800 | 603 300 | 591 700 | 988.000 |
| BT | 603 300 | 0 000 | 988 100 | 599.600 | 0 000 | 1000.000 | 600.200 | 0.000 | 1080 000 | 600.700 |
| BT | 0 000 | 1088 000 | 604 100 | 0 000 | 1100 000 | 605 300 | 0 000 | 0.000 | 0 000 | 0.000 |
| GR | 602 900 | 0 000 | 601 800 | 100.000 | 602 800 | 200 000 | 603.100 | 300 000 | 601 600 | 350 000 |
| GR | 601 600 | 380 000 | 600 300 | 400 000 | 598.000 | 500 000 | 597.600 | 565 000 | 597 300 | 600 000 |
| GR | 596 400 | 700 000 | 596 100 | 740 000 | 593 200 | 797.000 | 593.100 | 797 100 | 593 000 | 800 000 |
| GR | 592 200 | 800 000 | 591 000 | 806.000 | 590 300 | 810 000 | 585.300 | 816.000 | 582 700 | 820 000 |
| GR | 577 800 | 830 000 | 578 400 | 840 000 | 580 100 | 850 000 | 577 300 | 860 000 | 576 900 | 870 000 |
| GR | 577 100 | 875 000 | 577 500 | 877 200 | 595 900 | 877 200 | 592 400 | 897.000 | 591 700 | 900 800 |
| GR | 581 600 | 900 800 | 582 300 | 913 000 | 583 100 | 925.000 | 584 600 | 936.000 | 589 700 | 943 000 |
| GR | 590 900 | 953 000 | 591 300 | 973.000 | 591 500 | 985 800 | 591 700 | 985.800 | 592.100 | 988 000 |
| GR | 592 100 | 988.100 | 594 300 | 1000 000 | 595 000 | 1045.000 | 600 700 | 1080 000 | 604 100 | 1088 000 |
| GR | 605 300 | 1100 000 | 605 400 | 1200.000 | 605 700 | 1300.000 | 605.600 | 1400.000 | 603 300 | 1500 000 |
| GR | 603.100 | 1600 000 | 605 400 | 1700 000 | 603 700 | 1800.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 150 | 0 150 | 0 030 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| X1 | 594 000 | 34 000 | 800 000 | 944 000 | 420.000 | 385 000 | 400 000 | 0 930 | -2 930 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 350 000 | 0 000 | 1100 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200.000 | 603 100 | 300 000 | 600 300 | 400 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 590 300 | 587.000 | 590 100 | 694 000 | 595 300 | 708 000 |
| GR | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 | 584 400 | 830 000 | 583 900 | 840 000 |
| GR | 583 700 | 860 000 | 583 100 | 880 000 | 583.400 | 900 000 | 583 700 | 910.000 | 586 500 | 921 000 |
| GR | 588 800 | 926 000 | 589 300 | 938 000 | 592 500 | 944.000 | 594.300 | 1000 000 | 595 000 | 1045 000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300.000 | 605 600 | 1400 000 |
| GR | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 | 603 700 | 1800 000 | 0 000 | 0 000 |
| QT | 5 000 | 10060 000 | 14650 000 | 16040 000 | 21540 000 | 0 000 | 16040 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 400 | 0 400 | 0 025 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1039 000 | 34 000 | 800 000 | 944 000 | 465 000 | 430 000 | 445 000 | 0.930 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 760.000 | 0 000 | 1000.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603.100 | 300 000 | 600 300 | 400 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 590 300 | 587.000 | 590 100 | 694 000 | 595 300 | 708 000 |
| GR | 596 100 | 740 000 | 593 000 | 800 000 | 586 400 | 820 000 | 584 400 | 830.000 | 583 900 | 840 000 |
| GR | 583 700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 | 583 700 | 910 000 | 586 500 | 921 000 |
| GR | 588 800 | 926 000 | 589.300 | 938 000 | 592 500 | 944 000 | 594 300 | 1000 000 | 595 000 | 1045 000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 | 605.700 | 1300 000 | 605 600 | 1400 000 |
| GR | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 | 603 700 | 1800 000 | 0 000 | 0 000 |
| | 16 MILE RD DS | | | | | | | | | |
| X1 | 1100 000 | 66 000 | 781 500 | 969.000 | 61 000 | 61 000 | 61 000 | 0 930 | 0 000 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 1100 000 | 0 000 | 602 400 | 602 400 | 0 000 |
| GR | 602 900 | 0 000 | 602 100 | 69.000 | 601.800 | 100.000 | 602.500 | 169.000 | 602 800 | 200 000 |
| GR | 603 000 | 269 000 | 603 100 | 300.000 | 601.200 | 369 000 | 600 300 | 400 000 | 598 700 | 469 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 597 600 | 569.000 | 596 700 | 669 000 | 596.100 | 740.000 |
| GR | 594 600 | 769 000 | 593 800 | 780 000 | 601 700 | 781.500 | 598.600 | 782 500 | 597.900 | 788 000 |
| GR | 592 900 | 800.000 | 591 200 | 805.000 | 586.400 | 808 000 | 586.400 | 819 000 | 585 800 | 823.900 |
| GR | 601 600 | 823 900 | 601 600 | 825 200 | 601 600 | 826.500 | 584 800 | 826 500 | 584 700 | 829.000 |
| GR | 584 700 | 839.000 | 584 200 | 849.000 | 584.400 | 859.000 | 584.600 | 869 000 | 584 800 | 873 900 |
| GR | 601.400 | 873 900 | 601 400 | 875 200 | 601.400 | 876.500 | 582.800 | 876.500 | 582.600 | 879 000 |
| GR | 581 700 | 889 000 | 582 100 | 899 000 | 583 500 | 909.000 | 584.600 | 919.000 | 585.400 | 923 900 |
| GR | 601 100 | 923 900 | 601.100 | 925 200 | 601 100 | 926.500 | 586 900 | 926 500 | 586 600 | 930 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| GR | 588 800 | 941 000 | 596 100 | 960 000 | 597 600 | 968 000 | 601 000 | 969 000 | 593 300 | 970 000 |
| GR | 594 300 | 1000 000 | 595 000 | 1045.000 | 600.100 | 1069 000 | 604 000 | 1089 000 | 605 300 | 1100 000 |
| GR | 605 400 | 1200 000 | 605 700 | 1300.000 | 605 600 | 1400 000 | 603 300 | 1500 000 | 603 100 | 1600 000 |
| GR | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 555 | 3 020 | 0.000 | 174 400 | 0.000 | 2318 400 | 0 000 | 581 700 | 581 700 |
| X1 | 1143 000 | 67 000 | 781 500 | 969 000 | 43 000 | 43 000 | 43 000 | 0 930 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 601 700 | 603 100 | 0 000 | 0.000 | 0 000 | 0 930 | 0 000 |
| X3 | 10 000 | 0 000 | 0 000 | 450 000 | 0 000 | 970.000 | 603.100 | 603 100 | 0 000 | 0 000 |
| BT | 17 000 | 450 000 | 604 600 | 0 000 | 469 000 | 604 600 | 0 000 | 569 000 | 604 700 | 0 000 |
| BT | 669 000 | 604 600 | 0 000 | 769 000 | 604 300 | 0.000 | 780 000 | 604 300 | 0 000 | 780 000 |
| BT | 608 100 | 0 000 | 781 500 | 608 100 | 601.700 | 825 200 | 608 000 | 601.600 | 875 200 | 607 800 |
| BT | 601 400 | 925 200 | 607 500 | 601 100 | 969 000 | 607 400 | 601.000 | 970 000 | 607 400 | 0 000 |
| BT | 970 000 | 604 300 | 0 000 | 1069 000 | 603.100 | 0.000 | 1089.000 | 604.100 | 0.000 | 1100 000 |
| BT | 605.300 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0.000 | 602 100 | 69.000 | 601.800 | 100 000 | 602.500 | 169 000 | 602 800 | 200 000 |
| GR | 603 000 | 269 000 | 603 100 | 300 000 | 601 200 | 369 000 | 600 300 | 400.000 | 599 100 | 450 000 |
| GR | 598 700 | 469 000 | 598 000 | 500 000 | 597 600 | 565.000 | 597 600 | 569 000 | 596 700 | 669 000 |
| GR | 596 100 | 740 000 | 594 600 | 769 000 | 593 800 | 780 000 | 601 700 | 781 500 | 598 600 | 782 500 |
| GR | 597 900 | 788 000 | 592 900 | 800 000 | 591 200 | 805 000 | 586 400 | 808 000 | 586 400 | 819 000 |
| GR | 585 800 | 823 900 | 601 600 | 823 900 | 601 600 | 825 200 | 601 600 | 826 500 | 584 800 | 826 500 |
| GR | 584 700 | 829 000 | 584 700 | 839 000 | 584 200 | 849 000 | 584 400 | 859 000 | 584 600 | 869 000 |
| GR | 584 800 | 873 900 | 601 400 | 873 900 | 601 400 | 875 200 | 601 400 | 876 500 | 582 800 | 876 500 |
| GR | 582 600 | 879 000 | 581 700 | 889 000 | 582 100 | 899 000 | 583 500 | 909 000 | 584 600 | 919 000 |
| GR | 585 400 | 923 900 | 601 100 | 923 900 | 601 100 | 925.200 | 601 100 | 926 500 | 586 900 | 926 500 |
| GR | 586 600 | 930 000 | 588.800 | 941 000 | 596.100 | 960.000 | 597.600 | 968 000 | 601 000 | 969 000 |
| GR | 593 300 | 970 000 | 594 300 | 1000 000 | 595.000 | 1045 000 | 600.100 | 1069 000 | 604 000 | 1089 000 |
| GR | 605 300 | 1100 000 | 605 400 | 1200 000 | 605.700 | 1300 000 | 605.600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600 000 | 605 100 | 1700 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X1 | 1150 000 | 31 000 | 800 000 | 944 000 | 7 000 | 7 000 | 7 000 | 0 930 | -1 320 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 780 000 | 0 000 | 980 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200 000 | 603 100 | 300 000 | 600 300 | 400 000 |
| GR | 598 000 | 500 000 | 597 600 | 565 000 | 596.100 | 740.000 | 593 000 | 800 000 | 586 400 | 820 000 |
| GR | 584 400 | 830 000 | 583 900 | 840 000 | 583.700 | 860 000 | 583 100 | 880 000 | 583 400 | 900 000 |
| GR | 583 700 | 910 000 | 586 500 | 921 000 | 588.800 | 926 000 | 589 300 | 938 000 | 592 500 | 944 000 |
| GR | 594 300 | 1000 000 | 595 000 | 1045 000 | 604 100 | 1088 000 | 605 300 | 1100 000 | 605 400 | 1200 000 |
| GR | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500 000 | 603 100 | 1600 000 | 605 400 | 1700 000 |
| GR | 603 700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 150 | 0 150 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1180 000 | 62 000 | 782.000 | 967 000 | 30 000 | 30 000 | 30 000 | 0 940 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 750 000 | 0 000 | 1000 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 602 000 | 82 000 | 601.800 | 100.000 | 602 600 | 182 000 | 602 800 | 200 000 |
| GR | 603.000 | 282 000 | 603 100 | 300.000 | 600.800 | 382 000 | 600 300 | 400 000 | 598 400 | 482 000 |
| GR | 598 000 | 500 000 | 597 600 | 565.000 | 597.400 | 582.000 | 596.600 | 682.000 | 596 100 | 740 000 |
| GR | 594 000 | 780 000 | 601 000 | 782.000 | 597 100 | 783 000 | 596.400 | 789.000 | 591.700 | 809.000 |
| GR | 590 900 | 819 000 | 588 400 | 823.400 | 600.900 | 823.400 | 600 900 | 824 700 | 600.900 | 826 000 |
| GR | 587.500 | 826 000 | 587.200 | 832.000 | 584.300 | 842.000 | 584.100 | 852 000 | 583 800 | 862 000 |
| GR | 583.600 | 873 400 | 600.900 | 873 400 | 600.900 | 874 700 | 600.900 | 876 000 | 583 900 | 876 000 |
| GR | 582 900 | 882.000 | 582 700 | 892 000 | 582.700 | 902.000 | 582.100 | 912 000 | 583.400 | 923 200 |
| GR | 600 900 | 923 200 | 600.900 | 924.500 | 600 900 | 925.800 | 587 300 | 925 800 | 588 900 | 930 000 |
| GR | 591 300 | 939 000 | 596 700 | 961 000 | 598 100 | 966.000 | 600 900 | 967 000 | 593.300 | 970 000 |
| GR | 593 700 | 982 000 | 594 300 | 1000 000 | 595 000 | 1045.000 | 602 800 | 1082 000 | 604 100 | 1088 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 3180 000 | 0 000 | 0 000 | 0 000 | 925 000 | 995 000 | 957 000 | 0 000 | 0 440 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| OT | 4 000 | 9360 000 | 13680 000 | 14820.000 | 19310 000 | 0 000 | 14820 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8.100 | 0 000 | 0.000 | 1 400 | 0 000 | 800 000 | 0 000 |
| X1 | 5720 000 | 22 000 | 400 000 | 556 000 | 2600 000 | 2500 000 | 2540 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 700 | 0 000 | 604 500 | 100 000 | 604 500 | 200 000 | 602 000 | 300 000 | 599 300 | 400 000 |
| GR | 586.500 | 422 000 | 585 000 | 430 000 | 584 900 | 440 000 | 584 900 | 460 000 | 585 000 | 480 000 |
| GR | 584 200 | 500 000 | 585 500 | 520 000 | 586 400 | 530 000 | 600 900 | 556 000 | 601 700 | 570 000 |
| GR | 604 300 | 575 000 | 604 100 | 600 000 | 604 300 | 700 000 | 606 700 | 700 000 | 608 100 | 800 000 |
| GR | 606.800 | 900 000 | 606 300 | 920 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 030 | 0 025 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 400 | 420 000 | 0 000 | 0 000 |
| X1 | 7470.000 | 28.000 | 900.000 | 1059.000 | 1830.000 | 1750.000 | 1710 000 | 0 000 | 0.000 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 |
| GR | 604 300 | 0 000 | 604 400 | 100 000 | 603.600 | 200 000 | 603 600 | 300 000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935.000 | 584 600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584.600 | 985 000 | 584 100 | 995.000 | 584 500 | 1005 000 |
| GR | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0 000 | 0 000 |
| X1 | 8270 000 | 28 000 | 900 000 | 1059 000 | 800 000 | 840 000 | 760 000 | 0 870 | 0 300 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 300 | 0 000 | 604 400 | 100 000 | 603 600 | 200 000 | 603.600 | 300 000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594.600 | 800 000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935 000 | 584 600 | 945.000 | 584 600 | 955 000 |
| GR | 584 100 | 965.000 | 584 500 | 975.000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| GR | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0.000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0 000 | 0 000 |
| X1 | 8340 000 | 59 000 | 825 000 | 1010 000 | 70 000 | 70 000 | 70.000 | 0 870 | 0 000 | 0 000 |
| GR | 604 600 | 0 000 | 604 700 | 25 000 | 604 700 | 48 000 | 604 100 | 125 000 | 603 900 | 148 000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| GR | 601 900 | 448 000 | 600.200 | 473 000 | 599 600 | 525 000 | 598 900 | 548 000 | 597 100 | 625 000 |
| GR | 596 600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 607 300 | 825 000 |
| GR | 598 100 | 825 000 | 598.100 | 830.700 | 587.700 | 856 000 | 585.400 | 857 500 | 584 400 | 864 300 |
| GR | 600 400 | 864 300 | 600 200 | 871 300 | 586.200 | 871 300 | 585 900 | 875.000 | 584 900 | 885 000 |
| GR | 585 000 | 895 000 | 585 200 | 905 000 | 584 900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| GR | 585 100 | 919 800 | 585 700 | 925 000 | 585 500 | 935 000 | 585.700 | 945.000 | 585 900 | 955 000 |
| GR | 586 300 | 964 800 | 600 200 | 964.800 | 600 400 | 971 400 | 588.100 | 971 400 | 588 100 | 978 600 |
| GR | 597.800 | 1003 200 | 597 900 | 1010 000 | 602 500 | 1010 000 | 603.300 | 1025 000 | 604 000 | 1036 000 |
| GR | 604.600 | 1048.000 | 606.200 | 1125.000 | 606 700 | 1148.000 | 607.700 | 1225.000 | 608 000 | 1248.000 |
| GR | 608 600 | 1325.000 | 608 800 | 1348.000 | 609 200 | 1425 000 | 609 300 | 1440 000 | 0.000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| GR | 605 300 | 1100 000 | 605 400 | 1200 000 | 605 700 | 1300 000 | 605.600 | 1400 000 | 603 300 | 1500 000 |
| GR | 603 100 | 1600 000 | 605 100 | 1700.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 561 | 3 040 | 0 000 | 173.900 | 0 000 | 2121.100 | 0.000 | 582 100 | 582 100 |
| | | 16 MILE RD US | | | | | | | | |
| X1 | 1223 000 | 63 000 | 782 000 | 967.000 | 43.000 | 43.000 | 43.000 | 0 940 | 0 000 | 0 000 |
| X2 | 0 000 | 0.000 | 1 000 | 601 000 | 603 400 | 0.000 | 0.000 | 0 000 | 0 940 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 698 000 | 0 000 | 1064.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| BT | 17 000 | 0 000 | 603 300 | 0 000 | 482.000 | 603.400 | 0.000 | 582 000 | 603 600 | 0 000 |
| BT | 682 000 | 603 500 | 0 000 | 780 000 | 603 500 | 0.000 | 780.000 | 607 700 | 0 000 | 782 000 |
| BT | 607 700 | 601 000 | 824 700 | 607 600 | 600 900 | 847.700 | 607.600 | 600 900 | 924 500 | 607 600 |
| BT | 600 900 | 967 000 | 607 600 | 600 900 | 970 000 | 607.600 | 0.000 | 970 000 | 603 400 | 0 000 |
| BT | 982 000 | 603 500 | 0 000 | 1082 000 | 603.300 | 0.000 | 1088.000 | 604.100 | 0 000 | 1100 000 |
| BT | 605 300 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 602 000 | 82 000 | 601 800 | 100.000 | 602.600 | 182 000 | 602 800 | 200 000 |
| GR | 603 000 | 282.000 | 603.100 | 300.000 | 600.800 | 382.000 | 600.300 | 400.000 | 599.100 | 450 000 |
| GR | 598 400 | 482.000 | 598 000 | 500 000 | 597 600 | 565 000 | 597.400 | 582 000 | 596 600 | 682 000 |
| GR | 596 100 | 740 000 | 594 000 | 780.000 | 601.000 | 782 000 | 597 100 | 783 000 | 596 400 | 789 000 |
| GR | 591 700 | 809 000 | 590 900 | 819 000 | 588.400 | 823 400 | 600 900 | 823 400 | 600 900 | 824 700 |
| GR | 600 900 | 826 000 | 587 500 | 826 000 | 587.200 | 832 000 | 584 300 | 842 000 | 584 100 | 852 000 |
| GR | 583 800 | 862 000 | 583 600 | 873 400 | 600.900 | 873 400 | 600 900 | 874 700 | 600 900 | 876 000 |
| GR | 583 900 | 876 000 | 582 900 | 882 000 | 582.700 | 892 000 | 582 700 | 902 000 | 582 100 | 912 000 |
| GR | 583 400 | 923 200 | 600 900 | 923 200 | 600 900 | 924.500 | 600 900 | 925 800 | 587 300 | 925 800 |
| GR | 588 900 | 931 000 | 591 300 | 939 000 | 596.700 | 961 000 | 598 100 | 966 000 | 600 900 | 967 000 |
| GR | 593 300 | 970 000 | 593.700 | 982 000 | 594 300 | 1000.000 | 595.000 | 1045 000 | 602 800 | 1082 000 |
| GR | 604 100 | 1088 000 | 605 300 | 1100.000 | 605 400 | 1200.000 | 605.700 | 1300 000 | 605.600 | 1400.000 |
| GR | 603 300 | 1500 000 | 603 100 | 1600.000 | 605 100 | 1700 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0 040 | 0 040 | 0 025 | 0 300 | 0 500 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 1323 000 | 31 000 | 800 000 | 944 000 | 100 000 | 100 000 | 100 000 | 0 940 | -0 950 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 450 000 | 0.000 | 1000.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 602 900 | 0 000 | 601 800 | 100 000 | 602 800 | 200.000 | 603.100 | 300.000 | 600 300 | 400 000 |
| GR | 598 000 | 500.000 | 597 600 | 565 000 | 596 100 | 740.000 | 593.000 | 800.000 | 586 400 | 820 000 |
| GR | 584 400 | 830 000 | 583.900 | 840 000 | 583 700 | 860.000 | 583.100 | 880 000 | 583 400 | 900 000 |
| GR | 583 700 | 910 000 | 586 500 | 921 000 | 588.800 | 926.000 | 589.300 | 938 000 | 592 500 | 944 000 |
| GR | 594 300 | 1000.000 | 595.000 | 1045.000 | 604 100 | 1088.000 | 605 300 | 1100 000 | 605 400 | 1200 000 |
| GR | 605 700 | 1300 000 | 605 600 | 1400 000 | 603 300 | 1500.000 | 603 100 | 1600 000 | 605 400 | 1700 000 |
| GR | 603 700 | 1800 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0 000 |
| NC | 0 110 | 0 060 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 1 400 | 0 000 | 0 000 | 600 000 | 0 000 |
| X1 | 2223 000 | 23 000 | 300.000 | 446 000 | 870 000 | 940 000 | 900 000 | 0 000 | -0.440 | 0 000 |
| GR | 615 500 | 0 000 | 615 300 | 100.000 | 613 000 | 200 000 | 611 500 | 222 000 | 601 200 | 252 000 |
| GR | 598 900 | 300 000 | 586 000 | 323 000 | 585 200 | 330 000 | 584.600 | 340 000 | 584 800 | 360 000 |
| GR | 584 200 | 380 000 | 583 000 | 400 000 | 583 600 | 420 000 | 583.900 | 430.000 | 586 600 | 437.000 |
| GR | 593.700 | 446 000 | 594.600 | 463 000 | 607 000 | 503.000 | 607 700 | 600 000 | 608 200 | 700 000 |
| GR | 608 200 | 800 000 | 607 500 | 900.000 | 606.400 | 1000 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0.040 | 0.040 | 0.025 | 0.100 | 0 300 | 0 000 | 0.000 | 0.000 | 0.000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3180 000 | 0 000 | 0 000 | 0 000 | 925 000 | 995 000 | 957 000 | 0 000 | 0 440 | 0 000 |
| 3 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| T | 4 000 | 9360 000 | 13680 000 | 14820 000 | 19310 000 | 0 000 | 14820 000 | 0 000 | 0 000 | 0 000 |
| T | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 800 000 | 0 000 |
| 1 | 5720 000 | 22 000 | 400 000 | 556 000 | 2600 000 | 2500 000 | 2540 000 | 0 000 | 0 000 | 0 000 |
| R | 604 700 | 0 000 | 604 500 | 100 000 | 604 500 | 200 000 | 602 000 | 300 000 | 599 300 | 400 000 |
| R | 586 500 | 422 000 | 585 000 | 430.000 | 584.900 | 440 000 | 584.900 | 460 000 | 585 000 | 480 000 |
| R | 584 200 | 500 000 | 585 500 | 520 000 | 586 400 | 530 000 | 600.900 | 556 000 | 601 700 | 570 000 |
| R | 604 300 | 575 000 | 604 100 | 600 000 | 604.300 | 700 000 | 606 700 | 700 000 | 608 100 | 800 000 |
| R | 606 800 | 900 000 | 606 300 | 920 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| C | 0 035 | 0 030 | 0 025 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| T | 0 000 | 0 000 | 0 000 | 8 100 | 0.000 | 0 000 | 1 400 | 420 000 | 0 000 | 0 000 |
| 1 | 7470 000 | 28 000 | 900 000 | 1059 000 | 1830 000 | 1750.000 | 1710 000 | 0 000 | 0 000 | 0 000 |
| 3 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| R | 604 300 | 0 000 | 604 400 | 100 000 | 603 600 | 200 000 | 603 600 | 300.000 | 603 600 | 400 000 |
| R | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900 000 |
| R | 586 800 | 919 000 | 585 100 | 925 000 | 584 700 | 935.000 | 584 600 | 945 000 | 584 600 | 955 000 |
| R | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995 000 | 584 500 | 1005 000 |
| R | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| R | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| T | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0 000 | 0 000 |
| 1 | 8270 000 | 28 000 | 900 000 | 1059 000 | 800 000 | 840 000 | 760 000 | 0.870 | 0 300 | 0 000 |
| 3 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 |
| R | 604 300 | 0 000 | 604 400 | 100 000 | 603 600 | 200 000 | 603.600 | 300.000 | 603 600 | 400 000 |
| R | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594 600 | 800 000 | 595 700 | 900.000 |
| R | 586 800 | 919 000 | 585 100 | 925.000 | 584 700 | 935 000 | 584 600 | 945.000 | 584 600 | 955 000 |
| R | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584.100 | 995 000 | 584 500 | 1005 000 |
| R | 584 500 | 1015 000 | 585 800 | 1025 000 | 602 000 | 1059.000 | 604.300 | 1100 000 | 606 400 | 1200 000 |
| R | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| C | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| T | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 150 000 | 0 000 | 0 000 |
| 1 | 8340 000 | 59 000 | 825 000 | 1010 000 | 70 000 | 70.000 | 70 000 | 0 870 | 0 000 | 0 000 |
| R | 604 600 | 0 000 | 604 700 | 25 000 | 604 700 | 48.000 | 604 100 | 125 000 | 603 900 | 148 000 |
| R | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325 000 | 603 900 | 348 000 | 602 400 | 425 000 |
| R | 601 900 | 448.000 | 600 200 | 473 000 | 599 600 | 525.000 | 598 900 | 548 000 | 597 100 | 625 000 |
| R | 596 600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 607 300 | 825 000 |
| R | 598 100 | 825 000 | 598.100 | 830 700 | 587 700 | 856.000 | 585 400 | 857 500 | 584 400 | 864 300 |
| R | 600 400 | 864 300 | 600 200 | 871 300 | 586 200 | 871 300 | 585.900 | 875 000 | 584 900 | 885 000 |
| R | 585 000 | 895 000 | 585 200 | 905 000 | 584 900 | 915 000 | 600 200 | 915 000 | 600 200 | 919 800 |
| R | 585 100 | 919 800 | 585 700 | 925 000 | 585 500 | 935.000 | 585 700 | 945 000 | 585 900 | 955 000 |
| R | 586 300 | 964 800 | 600 200 | 964 800 | 600 400 | 971 400 | 588 100 | 971 400 | 588 100 | 978 600 |
| R | 597 800 | 1003.200 | 597.900 | 1010 000 | 602 500 | 1010.000 | 603 300 | 1025 000 | 604 000 | 1036 000 |
| R | 604 600 | 1048.000 | 606.200 | 1125 000 | 606 700 | 1148.000 | 607 700 | 1225 000 | 608 000 | 1248 000 |
| R | 608 600 | 1325 000 | 608 800 | 1348 000 | 609 200 | 1425.000 | 609 300 | 1440 000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| SB | 0 000 | 1 790 | 2 800 | 0 000 | 161 000 | 0.000 | 1680.000 | 0.000 | 584 400 | 584 400 |
| | | 15 MILE RD US | | | | | | | | |
| X1 | 8394 000 | 59 000 | 825 000 | 1010 000 | 54.000 | 54.000 | 54.000 | 0.870 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 600 400 | 600 900 | 0 000 | 0.000 | 0 000 | 0 870 | 0 000 |
| X3 | 0.000 | 0 000 | 0 000 | 140 000 | 0.000 | 980.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 27 000 | 0 000 | 604 600 | 0 000 | 48 000 | 604.700 | 0.000 | 148 000 | 603 900 | 0 000 |
| BT | 248 000 | 603 900 | 0.000 | 348 000 | 603 900 | 0.000 | 448 000 | 601 900 | 0 000 | 473 000 |
| BT | 601 200 | 0 000 | 525 000 | 600 900 | 0 000 | 625 000 | 601.100 | 0 000 | 725 000 | 602 300 |
| BT | 0 000 | 825 000 | 603 700 | 0.000 | 825 000 | 607.300 | 600 400 | 864.300 | 607 300 | 600 400 |
| BT | 871 300 | 607.300 | 600 200 | 915 000 | 607.300 | 600 200 | 919.800 | 607.300 | 600 200 | 964 800 |
| BT | 607 300 | 600 200 | 971 400 | 607 300 | 600 400 | 1010.000 | 607.300 | 600.500 | 1010 000 | 603.700 |
| BT | 0 000 | 1025 000 | 603 900 | 0.000 | 1036.000 | 604 000 | 0.000 | 1048.000 | 604 600 | 0.000 |
| BT | 1148 000 | 606 700 | 0.000 | 1248 000 | 608.000 | 0.000 | 1348.000 | 608.800 | 0 000 | 1440 000 |
| BT | 609 300 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 |
| GR | 604 600 | 0 000 | 604.700 | 25.000 | 604.700 | 48 000 | 604.100 | 125.000 | 603 900 | 148 000 |
| GR | 603 900 | 225 000 | 603 900 | 248 000 | 603 900 | 325.000 | 603 900 | 348.000 | 602 400 | 425 000 |
| GR | 601 900 | 448 000 | 600 200 | 473 000 | 599 600 | 525 000 | 598 900 | 548 000 | 597 100 | 625 000 |
| GR | 596 600 | 648 000 | 595 300 | 725 000 | 594 900 | 748 000 | 595 800 | 825 000 | 600 400 | 825 000 |
| GR | 598 100 | 825 000 | 598 100 | 830.700 | 587 700 | 856 000 | 585 400 | 857.500 | 584 400 | 864 300 |
| GR | 600 400 | 864 300 | 600 200 | 871 300 | 586 200 | 871 300 | 585.900 | 875 000 | 584 900 | 885 000 |
| GR | 585 000 | 895 000 | 585.200 | 905 000 | 584.900 | 915 000 | 600.200 | 915 000 | 600 200 | 919 800 |
| GR | 585.100 | 919 800 | 585 700 | 925 000 | 585 500 | 935 000 | 585 700 | 945 000 | 585 900 | 955 000 |
| GR | 586 300 | 964 800 | 600 200 | 964 800 | 600.400 | 971.400 | 588 100 | 971 400 | 588 100 | 978 600 |
| GR | 597 800 | 1003 200 | 597.900 | 1010 000 | 602 500 | 1010 000 | 603 300 | 1025.000 | 604 000 | 1036 000 |
| GR | 604 600 | 1048 000 | 606 200 | 1125 000 | 606.700 | 1148 000 | 607.700 | 1225 000 | 608 000 | 1248 000 |
| GR | 608 600 | 1325 000 | 608 800 | 1348 000 | 609 200 | 1425 000 | 609 300 | 1440 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 030 | 0 025 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 10440 000 | 15320 000 | 16560 000 | 21140 000 | 0.000 | 16560 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 160 000 | 0 000 | 0 000 |
| X1 | 8494 000 | 28 000 | 900 000 | 1059 000 | 100 000 | 100.000 | 100.000 | 0 870 | 0 400 | 0 000 |
| GR | 604 300 | 0 000 | 604.400 | 100 000 | 603 600 | 200 000 | 603.600 | 300.000 | 603 600 | 400 000 |
| GR | 601 600 | 500 000 | 598 600 | 600 000 | 596 300 | 700 000 | 594.600 | 800.000 | 595 700 | 900 000 |
| GR | 586 800 | 919 000 | 585 100 | 925.000 | 584 700 | 935.000 | 584.600 | 945 000 | 584 600 | 955 000 |
| GR | 584 100 | 965 000 | 584 500 | 975 000 | 584 600 | 985 000 | 584 100 | 995.000 | 584 500 | 1005 000 |
| GR | 584.500 | 1015.000 | 585 800 | 1025 000 | 602 000 | 1059 000 | 604 300 | 1100 000 | 606 400 | 1200 000 |
| GR | 607 700 | 1300 000 | 608 500 | 1400 000 | 609 000 | 1500 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 400 | 260 000 | 0 000 | 0 000 |
| X1 | 9594 000 | 28 000 | 860 000 | 1030 000 | 630 000 | 1520 000 | 1100 000 | 0 000 | 0.300 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 500 | 0 000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260 000 | 601 300 | 360 000 |
| GR | 599.200 | 460 000 | 598 000 | 560 000 | 598 800 | 660.000 | 598 900 | 760 000 | 597 800 | 860 000 |
| GR | 594.000 | 871 000 | 590 300 | 878 000 | 588 900 | 889 000 | 586 900 | 893.000 | 586 400 | 900 000 |
| GR | 585 800 | 910 000 | 585 400 | 920.000 | 585.500 | 930.000 | 585.400 | 940 000 | 585.400 | 950 000 |
| GR | 585 800 | 960 000 | 586 000 | 970 000 | 585 500 | 980 000 | 587 600 | 990 000 | 602 200 | 1030 000 |
| GR | 603.400 | 1060 000 | 606 600 | 1160.000 | 608.200 | 1260 000 | 0.000 | 0 000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 9653 000 | 0 000 | 0 000 | 0 000 | 59 000 | 59 000 | 59 000 | 0 000 | -0 300 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 320 000 | 0 000 | 1140 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| | | | | | | 1150. | | | | |
| NC | 0 025 | 0 025 | 0 020 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9654 000 | 42 000 | 802 000 | 959 500 | 1 000 | 1 000 | 1 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 320 000 | 0 000 | (1140 000) | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 21 000 | 0 000 | 604 200 | 0 000 | 33 000 | 604.100 | 0.000 | 100 000 | 604 000 | 0 000 |
| BT | 200 000 | 603 600 | 0 000 | 219 000 | 603 200 | 0 000 | 300 000 | 602.900 | 0 000 | 400 000 |
| BT | 601 800 | 0 000 | 500 000 | 601 400 | 0.000 | 600 000 | 601 500 | 0 000 | 700 000 | 603 000 |
| BT | 0.000 | 800 000 | 604 900 | 0 000 | 800 000 | 605 600 | 0 000 | 802 000 | 605 600 | 603 300 |
| BT | 880 700 | 605 700 | 603 400 | 959 500 | 605 700 | 603.400 | 961.500 | 605 700 | 0 000 | 961 500 |
| BT | 605 200 | 0 000 | 1000 000 | 604 900 | 0 000 | 1038 000 | 604 900 | 0 000 | 1100 000 | 606 900 |
| BT | 0 000 | 1150 000 | 607 700 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 |
| GR | 604 200 | 0 000 | 604.100 | 33 000 | 604 000 | 100.000 | 603 600 | 200 000 | 603 200 | 219 000 |
| GR | 601 600 | 300.000 | 599.500 | 400 000 | 598.300 | 500.000 | 599.100 | 600 000 | 599 200 | 700.000 |
| GR | 598 100 | 800 000 | 603 300 | 802 000 | 598 800 | 802 000 | 598 800 | 808 000 | 597 900 | 810 000 |
| GR | 593 400 | 820 000 | 589 500 | 828 000 | 589 300 | 830 000 | 587 200 | 840 000 | 586 800 | 850 000 |
| GR | 586.200 | 860 000 | 585 900 | 870 000 | 585 600 | 878 900 | 603 400 | 878 900 | 603 400 | 880 700 |
| GR | 603 400 | 882 500 | 585 600 | 882 500 | 585 400 | 890 000 | 586 200 | 900 000 | 586 200 | 910 000 |
| GR | 586 300 | 920 000 | 587 100 | 930 000 | 591 700 | 940 000 | 597 700 | 950 000 | 599 700 | 959 500 |
| GR | 603 400 | 959 500 | 599 600 | 961 500 | 602 500 | 970 000 | 603 700 | 1000 000 | 604 900 | 1038 000 |
| GR | 606 900 | 1100 000 | 607 700 | 1150 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 9676 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22.000 | 22.000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0 000 | 1130 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0 040 | 0.025 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X1 | 9677 000 | 28 000 | 860 000 | 1030 000 | 1 000 | 1.000 | 1.000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 280 000 | 0 000 | 1080 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 604 500 | 0 000 | 603 900 | 60 000 | 603 700 | 160 000 | 603 300 | 260 000 | 601 300 | 360 000 |
| GR | 599 200 | 460 000 | 598 000 | 560 000 | 598 800 | 660.000 | 598.900 | 760 000 | 597 800 | 860 000 |
| GR | 594 000 | 871 000 | 590 300 | 878 000 | 588 900 | 889.000 | 586.900 | 893 000 | 586 400 | 900 000 |
| GR | 585 800 | 910 000 | 585 400 | 920 000 | 585 500 | 930.000 | 585 400 | 940 000 | 585 400 | 950 000 |
| GR | 585 800 | 960 000 | 586 000 | 970 000 | 585 800 | 980 000 | 587 600 | 990 000 | 602 200 | 1030 000 |
| GR | 603 400 | 1060 000 | 606 600 | 1160 000 | 608 200 | 1260 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 400 | 250 000 | 0 000 | 0 000 |
| X1 | 9777 000 | 0 000 | 0.000 | 0 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 050 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 11596 000 | 34 000 | 812 000 | 1000 000 | 1975 000 | 1660.000 | 1819 000 | 0 000 | 0 300 | 0 000 |
| GR | 612.500 | 0 000 | 612 100 | 100 000 | 611.600 | 200.000 | 611 000 | 300.000 | 609 900 | 400 000 |
| GR | 609.600 | 500.000 | 609.800 | 600.000 | 608.300 | 700.000 | 607 700 | 800 000 | 607 300 | 812.000 |
| GR | 593 300 | 844 000 | 587.200 | 852.000 | 586.900 | 860.000 | 587 100 | 870 000 | 587.100 | 880.000 |
| GR | 587 000 | 890 000 | 587 000 | 900.000 | 586 900 | 910 000 | 586 800 | 920.000 | 586 800 | 930 000 |
| GR | 586.100 | 940.000 | 586.400 | 950 000 | 586.700 | 957.000 | 589.400 | 960 000 | 597.000 | 975.000 |
| GR | 600 400 | 1000 000 | 603 600 | 1050.000 | 602 600 | 1100 000 | 602 300 | 1200 000 | 603.100 | 1300.000 |
| GR | 603 500 | 1400 000 | 604.500 | 1428 000 | 606 900 | 1441 000 | 607 900 | 1500 000 | 0 000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 045 | 0 045 | 0 025 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1 400 | 0 000 | 538 000 | 0 000 |
| X1 | 13196 000 | 27 000 | 0 000 | 238 000 | 1320.000 | 1760.000 | 1600.000 | 0 000 | 0 300 | 0 000 |
| GR | 610 600 | 0 000 | 604 300 | 22 000 | 602 500 | 67 000 | 596 300 | 78 000 | 595 400 | 108 000 |
| GR | 590 500 | 123 000 | 589 700 | 132 000 | 587 500 | 138 000 | 587 000 | 148 000 | 586 500 | 158 000 |
| GR | 586 200 | 168 000 | 585 900 | 178 000 | 585 900 | 188.000 | 585.400 | 198.000 | 585 200 | 208.000 |
| GR | 587 000 | 219.000 | 593 100 | 229 000 | 595.600 | 238.000 | 598.000 | 263 000 | 604 400 | 329 000 |
| GR | 604 500 | 338 000 | 604 100 | 438 000 | 605 200 | 538 000 | 605 500 | 638 000 | 605 900 | 738 000 |
| GR | 606 700 | 838 000 | 607 500 | 938.000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 040 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 1.400 | 0.000 | 0.000 | 0 000 |
| X1 | 14796 000 | 33 000 | 0 000 | 300.000 | 1600 000 | 1600.000 | 1600.000 | 0 000 | 0 300 | 0 000 |
| GR | 621 400 | 0 000 | 619 400 | 20.000 | 618 800 | 26.000 | 611 900 | 76.000 | 610 100 | 96 000 |
| GR | 600 100 | 114 000 | 598.600 | 125.000 | 591.300 | 142.000 | 587.700 | 146 000 | 587 400 | 150 000 |
| GR | 587 000 | 160 000 | 587 000 | 170 000 | 587 100 | 180 000 | 587.000 | 190 000 | 587 300 | 200 000 |
| GR | 587 300 | 210 000 | 587 400 | 220 000 | 587 600 | 230.000 | 587 900 | 236 000 | 589 800 | 240 000 |
| GR | 590 800 | 245 000 | 595 000 | 258 000 | 598 200 | 263 000 | 603 900 | 272 000 | 612 800 | 300 000 |
| GR | 616.300 | 380.000 | 615 200 | 400 000 | 614 400 | 500.000 | 613.300 | 600 000 | 613 300 | 700 000 |
| GR | 610 800 | 800 000 | 611 200 | 900 000 | 608 700 | 960 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 035 | 0.040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 9210 000 | 13320.000 | 14260 000 | 17650 000 | 0 000 | 14260 000 | 0 000 | 0 000 | 0 000 |
| X1 | 16096 000 | 22 000 | 100 000 | 314 000 | 1200 000 | 1600 000 | 1300 000 | 0 000 | 0 300 | 0 000 |
| GR | 615 800 | 0 000 | 613 100 | 100 000 | 599 300 | 133 000 | 598 000 | 160 000 | 594 000 | 188 000 |
| GR | 588 200 | 195 000 | 587 500 | 200 000 | 586 800 | 210 000 | 586 500 | 220.000 | 586 700 | 230 000 |
| GR | 587 200 | 240 000 | 587 200 | 250 000 | 587 400 | 260.000 | 588 400 | 270 000 | 594 400 | 285 000 |
| GR | 596 700 | 295 000 | 604 300 | 314.000 | 606 200 | 400 000 | 605 800 | 500.000 | 606 900 | 600 000 |
| GR | 605 900 | 660 000 | 630 000 | 660 000 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 16396 000 | 35 000 | 177 000 | 323.800 | 300 000 | 300.000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 100 | 0.000 | 613 400 | 100 000 | 607.900 | 124 000 | 606 700 | 177 000 | 605 100 | 177 000 |
| GR | 589 200 | 178 500 | 588 500 | 182 000 | 587 800 | 187 000 | 587.500 | 192 000 | 587 700 | 197 000 |
| GR | 588 000 | 202 000 | 587 800 | 207 000 | 587 600 | 217 000 | 587 600 | 227 000 | 588.000 | 237 000 |
| GR | 588 800 | 247 000 | 588 000 | 256 250 | 605 300 | 256 250 | 605 300 | 259 750 | 587.600 | 259 750 |
| GR | 588 400 | 262 000 | 589 600 | 267 000 | 592.400 | 277 000 | 593 200 | 287 000 | 592 100 | 291 000 |
| GR | 593 800 | 297 000 | 600 900 | 317 000 | 602.500 | 321 000 | 605.100 | 323.800 | 604 900 | 327 000 |
| GR | 606 000 | 377 000 | 606 300 | 392.000 | 606 500 | 400 000 | 606 100 | 500 000 | 607 200 | 600.000 |
| SB | 0 000 | 1 620 | 3 070 | 0 000 | 290 000 | 0 000 | 2030 000 | 0.000 | 587 500 | 587 500 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 16418 000 | 0 000 | 0 000 | 0 000 | 22 000 | 22 000 | 22 000 | 0.000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 605.300 | 606 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 16 000 | 0 000 | 616.100 | 0.000 | 100 000 | 613.400 | 0.000 | 124 000 | 607 900 | 0 000 |
| BT | 177 000 | 606.700 | 0.000 | 177.000 | 607 500 | 605.100 | 256.200 | 607.600 | 605 300 | 259 700 |
| BT | 607 500 | 605.200 | 323 800 | 607 600 | 605 100 | 323 800 | 606.800 | 0 000 | 327 000 | 606.800 |
| BT | 0 000 | 377 000 | 606 400 | 0.000 | 392.000 | 606.300 | 0.000 | 400.000 | 606 500 | 0.000 |
| BT | 500 000 | 606 100 | 0 000 | 600 000 | 607.200 | 0.000 | 750.000 | 607 200 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 028 | 0 030 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 16768 000 | 23 000 | 204 000 | 332 000 | 400 000 | 300.000 | 350 000 | 0.000 | 0 300 | 0 000 |
| GR | 609 600 | 0 000 | 607 400 | 55 000 | 601 300 | 155 000 | 597 400 | 204.000 | 588 800 | 227 000 |
| GR | 587 700 | 235 000 | 587 900 | 245 000 | 588 000 | 255 000 | 588 100 | 265 000 | 588 200 | 275 000 |
| GR | 588 300 | 285 000 | 588 400 | 295 000 | 588 500 | 305 000 | 588 600 | 315 000 | 588 300 | 325 000 |
| GR | 589 800 | 328 000 | 590 800 | 332 000 | 599 600 | 355 000 | 602 000 | 455.000 | 604 900 | 552 000 |
| GR | 607 700 | 560 000 | 607 400 | 573 000 | 630 000 | 573.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| NC | 0 025 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 17168 000 | 41 000 | 375 000 | 474 400 | 600 000 | 100.000 | 400 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 400 | 0 000 | 609.600 | 25.000 | 607 000 | 50.000 | 598.100 | 75 000 | 596 600 | 100 000 |
| GR | 596.500 | 125.000 | 595.300 | 150.000 | 596 600 | 175.000 | 597 000 | 200 000 | 597 900 | 225 000 |
| GR | 596.300 | 236.500 | 601.800 | 246.000 | 601.800 | 250.000 | 602 000 | 275.000 | 601 400 | 300 000 |
| GR | 600 900 | 325 000 | 599 200 | 350 000 | 598 200 | 375 000 | 592 700 | 382 000 | 590 700 | 383 400 |
| GR | 589 400 | 385 500 | 588 900 | 389.000 | 588 800 | 396 000 | 588 600 | 403 000 | 589 200 | 410 000 |
| GR | 588 700 | 417 000 | 588 800 | 424 000 | 588 700 | 431 000 | 588.500 | 438 000 | 588 000 | 445 000 |
| GR | 588 600 | 452 000 | 588 800 | 458 300 | 590 100 | 459.700 | 591 000 | 460 400 | 593 500 | 464 600 |
| GR | 597 100 | 468 100 | 599 100 | 474 400 | 600.900 | 488 900 | 602 400 | 513 900 | 604 000 | 533 500 |
| GR | 606 000 | 588.900 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 17268 000 | 61 000 | 400 000 | 591 800 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 300 | 0 000 | 607 900 | 90 000 | 606.400 | 275 000 | 607 100 | 300 000 | 607 600 | 325 000 |
| GR | 608 200 | 350 000 | 608 800 | 375 000 | 608 800 | 400 000 | 596 800 | 400.000 | 589 200 | 414.000 |
| GR | 589.200 | 421 000 | 587 900 | 428 000 | 587 900 | 435 000 | 588 000 | 437 000 | 606 400 | 437 000 |
| GR | 606.400 | 438 500 | 606 400 | 440 000 | 588 100 | 440.000 | 588 000 | 441 900 | 588 100 | 449 000 |
| GR | 588 300 | 456 000 | 588 300 | 463 000 | 588 200 | 470.000 | 588 300 | 476 900 | 606 800 | 476 900 |
| GR | 606 800 | 478 400 | 606 800 | 479 900 | 588 000 | 479.900 | 588 200 | 491 000 | 587 600 | 498 000 |
| GR | 587 000 | 505 000 | 586 500 | 509.900 | 586 500 | 511.900 | 607.000 | 511 900 | 607 000 | 513 400 |
| GR | 607 000 | 514 900 | 586 600 | 514 900 | 586 700 | 519 000 | 587 700 | 526 000 | 587 700 | 533 000 |
| GR | 588 000 | 540 000 | 588 000 | 544 000 | 586 500 | 549 000 | 606 900 | 549 000 | 606 900 | 550 500 |
| GR | 606.900 | 550 500 | 606 900 | 552 000 | 586 700 | 552 000 | 586 800 | 553 300 | 588.000 | 561.000 |
| GR | 587 400 | 568 000 | 588 100 | 575 000 | 591 900 | 582.000 | 596 600 | 591 800 | 609 200 | 591 800 |
| GR | 609 300 | 600 800 | 608 600 | 623 300 | 608 200 | 648.300 | 607 600 | 673 000 | 607 200 | 698 300 |
| GR | 606 400 | 723 300 | 0 000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 600 | 3 040 | 0 000 | 191 800 | 0 000 | 3230 000 | 0 000 | 586 500 | 586 500 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 17368 000 | 0 000 | 0 000 | 0.000 | 100 000 | 100.000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 607 000 | 607 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 21 000 | 0.000 | 613 300 | 0.000 | 90 000 | 607 900 | 0 000 | 275 000 | 606 400 | 0 000 |
| BT | 300.000 | 607.100 | 0.000 | 325.000 | 607.600 | 0.000 | 350 000 | 608 200 | 0.000 | 375 000 |
| BT | 608 800 | 0 000 | 400.000 | 608.800 | 0 000 | 400.000 | 611.800 | 606.100 | 438 500 | 612 100 |
| BT | 606 400 | 478 400 | 612.400 | 606 800 | 513.400 | 612.700 | 607 000 | 550 500 | 612.500 | 606 900 |
| BT | 591 800 | 612.200 | 606 500 | 591.800 | 609.200 | 0.000 | 600 800 | 609.300 | 0 000 | 623 000 |
| BT | 608 600 | 0 000 | 648 300 | 608.200 | 0.000 | 673.300 | 607.600 | 0 000 | 698 300 | 607.200 |
| BT | 0 000 | 723 300 | 606 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0.000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 025 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0.000 | 0 000 | 0 000 |
| X1 | 18244 000 | 90 000 | 249 000 | 387 200 | 150 000 | 1400.000 | 876 000 | 0 000 | -0 900 | 0 000 |
| GR | 612 300 | 0 000 | 612 000 | 8.500 | 611 600 | 17 100 | 610.900 | 25 700 | 609 900 | 34 300 |
| GR | 607 500 | 42 900 | 605 500 | 51 500 | 605 100 | 60.100 | 604 700 | 68 600 | 604 600 | 77 200 |
| GR | 604 400 | 85 800 | 604 000 | 94 400 | 603 800 | 103 000 | 604 100 | 111 600 | 604 200 | 120 200 |
| GR | 604.300 | 128 700 | 604.400 | 137 300 | 604 500 | 145.900 | 604 000 | 154.500 | 606 300 | 163 100 |
| GR | 606 300 | 171 700 | 606 300 | 180 300 | 606 100 | 188 800 | 605 900 | 197 400 | 605 700 | 206.000 |
| GR | 605 400 | 214 600 | 604.900 | 223 200 | 604 400 | 231.800 | 604 000 | 240.400 | 603 700 | 249 000 |
| GR | 601 500 | 253 600 | 599 300 | 258 200 | 596 900 | 262.800 | 595.600 | 267 400 | 594 700 | 272 000 |
| GR | 593 800 | 276 600 | 593 000 | 281 200 | 592 200 | 285.800 | 591 800 | 290 400 | 591 500 | 295 000 |
| GR | 591 000 | 299 600 | 589 400 | 304 200 | 588.400 | 308.800 | 588.500 | 313 400 | 588.500 | 318 000 |
| GR | 588.500 | 322 700 | 588 500 | 327.300 | 588 400 | 331 900 | 588 400 | 336.500 | 588 200 | 341 100 |
| GR | 588 200 | 345.700 | 588 300 | 350.300 | 588 400 | 354.900 | 588.500 | 359 500 | 588 500 | 364 100 |
| GR | 590 200 | 368 700 | 592 400 | 373 300 | 595 900 | 377 900 | 597 800 | 382 500 | 599 300 | 387 200 |
| GR | 600.300 | 399 100 | 601 200 | 411 000 | 602.200 | 422.900 | 602 700 | 434 800 | 603 000 | 446 700 |
| GR | 603 300 | 458 600 | 603 700 | 470.500 | 604 000 | 482.400 | 604 300 | 494 300 | 604 700 | 506 200 |
| GR | 605 100 | 518 100 | 605 600 | 530 000 | 606.100 | 542.000 | 606 500 | 553 900 | 607 000 | 565 800 |
| GR | 607 400 | 577 700 | 607 700 | 589 600 | 608.100 | 601 500 | 608 400 | 613 400 | 608 800 | 625 300 |
| GR | 608 800 | 637 200 | 608 900 | 649 100 | 608 900 | 661 000 | 609 000 | 672 900 | 609 000 | 684 900 |
| GR | 609 100 | 696 800 | 609 100 | 708.700 | 609 200 | 720 600 | 609 200 | 732.500 | 609 300 | 744 400 |
| NC | 0 030 | 0 045 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 19119 000 | 24 000 | 123 000 | 300 000 | 850.000 | 800 000 | 875 000 | 0.000 | 0 000 | 0 000 |
| GR | 614 200 | 0 000 | 610 300 | 100 000 | 609.200 | 123.000 | 596 200 | 168.000 | 592 400 | 192 000 |
| GR | 588 600 | 195 000 | 588 100 | 200 000 | 588 400 | 210 000 | 588 400 | 220 000 | 588 400 | 230 000 |
| GR | 588 300 | 240 000 | 588 500 | 250.000 | 588 400 | 260.000 | 588 300 | 270 000 | 589 300 | 279 000 |
| GR | 596 300 | 290 000 | 599 600 | 300 000 | 604 300 | 364.000 | 604 900 | 400 000 | 607 100 | 500 000 |
| GR | 610 300 | 600 000 | 613 000 | 700 000 | 612 800 | 800 000 | 612 700 | 900 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 20219 000 | 32 000 | 0 000 | 328 000 | 1100 000 | 1000 000 | 1100 000 | 0 000 | 0 000 | 0 000 |
| GR | 620 700 | 0 000 | 605 600 | 41 000 | 600 700 | 128 000 | 593.300 | 166 000 | 592 400 | 184 000 |
| GR | 589 900 | 188.000 | 588 300 | 194 000 | 588 500 | 198 000 | 588.100 | 208 000 | 588 200 | 218 000 |
| GR | 587 800 | 228 000 | 588 000 | 238 000 | 587 700 | 248 000 | 588.800 | 258 000 | 589 600 | 268 000 |
| GR | 590 100 | 271 000 | 590 800 | 288 000 | 606 900 | 328 000 | 609 500 | 428.000 | 608 600 | 462 000 |
| GR | 598 700 | 488.000 | 607 200 | 528 000 | 603.500 | 589.000 | 600 600 | 593 000 | 605 800 | 628 000 |
| GR | 609 200 | 728 000 | 607 200 | 828 000 | 609 400 | 928.000 | 610 400 | 1028 000 | 611 700 | 1078 000 |
| GR | 612 600 | 1128 000 | 6130 000 | 1228 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 21119 000 | 25 000 | 526 000 | 700 000 | 800 000 | 900.000 | 900.000 | 0.000 | 0 000 | 0 000 |
| GR | 610 400 | 0.000 | 608.400 | 100 000 | 607.100 | 200 000 | 603 300 | 300 000 | 600.800 | 360.000 |
| GR | 605 200 | 398 000 | 609.600 | 412.000 | 609 500 | 500 000 | 607.300 | 526.000 | 589 500 | 582 000 |
| GR | 589 100 | 590.000 | 589.200 | 600.000 | 588 800 | 610.000 | 588.900 | 620 000 | 588 700 | 630.000 |
| GR | 588 700 | 640 000 | 589 400 | 650 000 | 589 200 | 660.000 | 589 500 | 663 000 | 599 000 | 679 000 |
| GR | 600 300 | 680 000 | 609 300 | 700.000 | 611.800 | 800.000 | 613.300 | 900.000 | 615 800 | 975 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 028 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0.000 | 0 000 | 0 000 |
| X1 | 22069 000 | 22 000 | 99 000 | 300 000 | 800 000 | 900.000 | 950.000 | 0 000 | 0 000 | 0 000 |
| GR | 630 300 | 0 000 | 607 400 | 0 000 | 609.500 | 99.000 | 604 600 | 120 000 | 602 800 | 144 000 |
| GR | 599 600 | 149 000 | 599 400 | 156 000 | 592 300 | 175.000 | 590 000 | 176.000 | 589 200 | 180 000 |
| GR | 588 800 | 190 000 | 588 200 | 200 000 | 588 400 | 210 000 | 588 600 | 220 000 | 589 500 | 230 000 |
| GR | 590 200 | 239 000 | 591 400 | 245 000 | 594.000 | 249 000 | 596 000 | 268 000 | 608 300 | 300 000 |
| GR | 611 600 | 400 000 | 612 900 | 470 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| QT | 5 000 | 8580 000 | 12280 000 | 13000.000 | 15610 000 | 0.000 | 13000 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 0.000 | 1 400 | 0 000 | 0.000 | 0 000 |
| X1 | 22419.000 | 21 000 | 374 000 | 500.000 | 400 000 | 250.000 | 350.000 | 0.000 | 0.000 | 0 000 |
| GR | 599 900 | 0 000 | 599 300 | 100.000 | 599 200 | 180.000 | 601.300 | 200.000 | 604 500 | 300 000 |
| GR | 601 800 | 374.000 | 589 700 | 391.000 | 588.200 | 400 000 | 588.200 | 410.000 | 588 500 | 420 000 |
| GR | 588 700 | 430 000 | 589 200 | 440 000 | 589 700 | 450 000 | 590 000 | 460 000 | 589 800 | 464 000 |
| GR | 591 700 | 467 000 | 603 800 | 500 000 | 604 300 | 521 000 | 608 900 | 541 000 | 611 500 | 600 000 |
| GR | 613 900 | 700 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 028 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 23319 000 | 24 000 | 567 000 | 700 000 | 800 000 | 875 000 | 900 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 200 | 0 000 | 610 400 | 100 000 | 607 200 | 200 000 | 606 500 | 300 000 | 609 800 | 400.000 |
| GR | 612 300 | 488 000 | 611 800 | 500 000 | 607.500 | 541 000 | 606 600 | 567 000 | 602 200 | 587 000 |
| GR | 589 900 | 601 000 | 588 900 | 610 000 | 588 500 | 620.000 | 588 900 | 630 000 | 588 800 | 640 000 |
| GR | 589 100 | 650 000 | 589 200 | 660 000 | 588 900 | 670 000 | 591 800 | 678 000 | 602 200 | 700 000 |
| GR | 602 400 | 726 000 | 606 600 | 750 000 | 608 900 | 800 000 | 610 500 | 900 000 | 0 000 | 0 000 |
| QT | 5 000 | 6510.000 | 8680 000 | 8680 000 | 8680 000 | 0 000 | 8680.000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 028 | 0 025 | 0 000 | 0 000 | 0.000 | 0.000 | 0 000 | 0.000 | 0 000 |
| ET | 0.000 | 0.000 | 0 000 | 8 100 | 0 000 | 0.000 | 1 400 | 0 000 | 750 000 | 0 000 |
| X1 | 23569 000 | 22 000 | 526 000 | 700 000 | 150 000 | 300.000 | 250 000 | 0 000 | 0.000 | 0 000 |
| X3 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| GR | 609 600 | 0 000 | 609 900 | 100 000 | 608 300 | 200.000 | 607.100 | 300 000 | 608 800 | 400 000 |
| GR | 610 000 | 500 000 | 610.000 | 526 000 | 589 800 | 580 000 | 588 400 | 590 000 | 588 400 | 600 000 |
| GR | 588 600 | 610 000 | 588.700 | 620 000 | 589.100 | 630 000 | 589 400 | 640 000 | 589 600 | 645 000 |
| GR | 590 300 | 647 000 | 600 800 | 669 000 | 602.300 | 681 000 | 610 400 | 700.000 | 613 800 | 750 000 |
| GR | 609 700 | 800 000 | 613 600 | 875 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0.000 | 0 000 |
| NC | 0 028 | 0 025 | 0.025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 8 100 | 0 000 | 0 000 | 1.400 | 0 000 | 500.000 | 0 000 |
| X1 | 24369 000 | 18 000 | 344 000 | 472 000 | 850 000 | 900.000 | 800 000 | 0 000 | 0 000 | 0 000 |
| GR | 613 900 | 0 000 | 610 600 | 72 000 | 610.000 | 172 000 | 609.100 | 272 000 | 605 500 | 344 000 |
| GR | 594 900 | 366 000 | 590 400 | 371 000 | 589 400 | 381.000 | 588 900 | 391 000 | 588 900 | 401 000 |
| GR | 589.000 | 411.000 | 589 600 | 421 000 | 589 800 | 431.000 | 590 400 | 435 000 | 593 600 | 438 000 |
| GR | 609 500 | 472 000 | 613 700 | 572 000 | 614 900 | 646.000 | 0.000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0.000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 25819 000 | 17 000 | 500 000 | 627 000 | 1350 000 | 1500 000 | 1450 000 | 0.000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0.000 | 775 000 | 0.000 | 0.000 | 0.000 | 0 000 |
| GR | 630 300 | 0 000 | 610 700 | 0 000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610 700 | 400 000 | 609 200 | 500 000 | 598 200 | 539.000 | 590 000 | 550.000 | 589.500 | 560 000 |
| GR | 589 000 | 570 000 | 588 800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |

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| GR | 609 200 | 800 000 | 612 100 | 850 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 25919 000 | 38 000 | 500 000 | 604 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 610 700 | 0 000 | 610 400 | 87 000 | 610 100 | 187 000 | 610 000 | 287 000 | 610 700 | 387 000 |
| GR | 610 400 | 404 000 | 609 200 | 487 000 | 604 900 | 500 000 | 607 800 | 500 000 | 605 500 | 500 000 |
| GR | 604 600 | 507 000 | 593.300 | 527 000 | 590 700 | 535 000 | 590 800 | 537 400 | 607 900 | 537 400 |
| GR | 607 900 | 538.800 | 607 900 | 540 200 | 590 400 | 540 200 | 589 500 | 545 000 | 589 800 | 550 000 |
| GR | 589 900 | 555 000 | 590 000 | 560 000 | 590 200 | 563 800 | 607 900 | 563 800 | 607 900 | 565 200 |
| GR | 607 900 | 566 600 | 590 100 | 566 600 | 590 300 | 570 000 | 591 200 | 575 000 | 605 100 | 604 000 |
| GR | 607 800 | 604 000 | 604 000 | 604 000 | 609 300 | 614 000 | 610 700 | 675 000 | 611 000 | 687 000 |
| GR | 610 400 | 723 000 | 609 200 | 787 000 | 609 600 | 800 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 680 | 3 040 | 0 000 | 104 000 | 0 000 | 1220 000 | 0 000 | 589 500 | 589 500 |
| X1 | 26025 000 | 0 000 | 0 000 | 0 000 | 106 000 | 106 000 | 106 000 | 0 000 | 0.000 | 0.000 |
| X2 | 0 000 | 0.000 | 1 000 | 607 900 | 610 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 287 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 14 000 | 287 000 | 610 000 | 0 000 | 387 000 | 610 700 | 0 000 | 404 000 | 610 400 | 0 000 |
| BT | 500 000 | 611 500 | 0 000 | 500 000 | 614 700 | 607 800 | 538 800 | 614 800 | 607 900 | 565 200 |
| BT | 614 800 | 607 900 | 604 000 | 614 700 | 607 800 | 604 000 | 611 700 | 0 000 | 675 000 | 610 700 |
| BT | 0 000 | 687 000 | 611 000 | 0 000 | 723 000 | 610 400 | 0 000 | 750 000 | 610 300 | 0 000 |
| BT | 800 000 | 610 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 26125 000 | 17 000 | 500 000 | 627 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 690 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 260 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 630 300 | 0 000 | 610 700 | 0 000 | 610 400 | 100 000 | 610 100 | 200 000 | 610 000 | 300 000 |
| GR | 610 700 | 400 000 | 609 200 | 500 000 | 598 200 | 539 000 | 590 000 | 550 000 | 589 500 | 560 000 |
| GR | 589 000 | 570 000 | 588 800 | 580 000 | 589 600 | 590 000 | 609 300 | 627 000 | 611 000 | 700 000 |
| GR | 609 200 | 800 000 | 612 100 | 850 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 028 | 0 100 | 0 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 26900 000 | 17 000 | 178 000 | 292 000 | 800 000 | 725 000 | 775 000 | 0 000 | 0 000 | 0 000 |
| GR | 615 400 | 0 000 | 614 000 | 92 000 | 613 000 | 138 000 | 610 000 | 178 000 | 590 900 | 217 000 |
| GR | 590 500 | 222 000 | 589 900 | 232 000 | 589 600 | 242.000 | 589 400 | 252 000 | 589.900 | 257 000 |
| GR | 590 500 | 262 000 | 590 800 | 263 000 | 608.800 | 292 000 | 609 700 | 392 000 | 610 700 | 492 000 |
| GR | 610 900 | 552 000 | 630 300 | 552 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 27150 000 | 22 000 | 149 000 | 243 000 | 200 000 | 300 000 | 250 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 375 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 615 200 | 0 000 | 614 500 | 43 000 | 610 500 | 121 000 | 605 900 | 129 000 | 604 700 | 149 000 |
| GR | 596 900 | 163 000 | 590 900 | 174 000 | 590 600 | 178 000 | 590 500 | 183 000 | 590 500 | 193 000 |
| GR | 590 600 | 203.000 | 590 500 | 213 000 | 590 800 | 216 000 | 604 600 | 243 000 | 608 900 | 294 000 |
| GR | 610.700 | 304 000 | 605 100 | 325.000 | 604 500 | 333 000 | 605.300 | 337 000 | 611.500 | 352 000 |
| GR | 611.200 | 410.000 | 630.300 | 410.000 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |

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| NC | 0 030 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 27900 000 | 17 000 | 181 000 | 300 000 | 800 000 | 700 000 | 750 000 | 0 000 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 600 | 100 000 | 612 000 | 112 000 | 605 900 | 157 000 | 605 700 | 181 000 |
| GR | 597 600 | 203 000 | 594 300 | 204 000 | 590 700 | 212 000 | 589 900 | 220 000 | 590 300 | 230 000 |
| GR | 590 500 | 240 000 | 591 000 | 250 000 | 591 200 | 255 000 | 595 800 | 262 000 | 609 800 | 300 000 |
| GR | 614 700 | 400 000 | 615 500 | 464 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28000 000 | 30 000 | 179 000 | 291 000 | 100 000 | 100 000 | 100 000 | 0 950 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 800 | 79 000 | 611 900 | 100.000 | 612 000 | 112 000 | 605 000 | 157 000 |
| GR | 605 600 | 179.000 | 608 700 | 179 000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216 000 |
| GR | 590 600 | 219 000 | 590 100 | 224.000 | 590 200 | 229 000 | 590 400 | 234 000 | 591 100 | 241 500 |
| GR | 608 600 | 241 500 | 608 600 | 243.000 | 608.600 | 244.500 | 590 100 | 244 500 | 590.400 | 249 000 |
| GR | 590.800 | 254.000 | 591.500 | 259 000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606 500 | 291 000 | 609 800 | 300 000 | 613 400 | 373 000 | 614 700 | 400 000 | 615 500 | 464 000 |
| SB | 0 000 | 1 540 | 3 040 | 0 000 | 116 000 | 0 000 | 1320 000 | 0 000 | 590 100 | 590 100 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 28031 000 | 30 000 | 179 000 | 291 000 | 31 000 | 31 000 | 31 000 | 0 950 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 608 700 | 613 200 | 0 000 | 0 000 | 0 000 | 0 950 | 0 000 |
| BT | 10 000 | 0 000 | 614 000 | 0 000 | 79 000 | 613 600 | 0 000 | 179 000 | 613 200 | 0 000 |
| BT | 179 000 | 614 100 | 608 700 | 243 000 | 614 100 | 608 600 | 291 000 | 614.000 | 608 600 | 291.000 |
| BT | 613 200 | 0 000 | 373 000 | 613 400 | 0 000 | 400 000 | 614 700 | 0 000 | 464 000 | 615 500 |
| BT | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 612 300 | 0 000 | 611 800 | 79 000 | 611.900 | 100 000 | 612 000 | 112 000 | 605 000 | 157 000 |
| GR | 605 600 | 179 000 | 608 700 | 179 000 | 605 000 | 179 000 | 593 100 | 210 000 | 591 300 | 216 000 |
| GR | 590 600 | 219 000 | 590 100 | 224 000 | 590 200 | 229 000 | 590 400 | 234 000 | 590 100 | 241 500 |
| GR | 608 600 | 241 500 | 608 600 | 243 000 | 608 600 | 244 500 | 590 100 | 244 500 | 590 400 | 249 000 |
| GR | 590 800 | 254 000 | 591 500 | 259 000 | 605 300 | 282 000 | 605 300 | 291 000 | 608 600 | 291 000 |
| GR | 606 500 | 291 000 | 609 800 | 300 000 | 613 400 | 373 000 | 614 700 | 400 000 | 615 500 | 464 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28331 000 | 19 000 | 266 000 | 400 000 | 300 000 | 300 000 | 300 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 100 | 0 000 | 612 800 | 100 000 | 611 900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592 900 | 305 000 | 590 700 | 308 000 | 590 700 | 310 000 | 590 900 | 320 000 | 591 000 | 330 000 |
| GR | 591 000 | 340 000 | 591 000 | 350 000 | 591 100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611 100 | 400 000 | 611 600 | 449 000 | 610 700 | 500 000 | 607 600 | 600 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 28431 000 | 57 000 | 300 000 | 417 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0.000 | 0 000 |
| GR | 614 500 | 0 000 | 614 100 | 28.000 | 613.200 | 100.000 | 612.800 | 128 000 | 612.200 | 200 000 |
| GR | 611 900 | 228 000 | 610.100 | 294 000 | 607 600 | 300.000 | 610.800 | 300 000 | 609.200 | 300 000 |
| GR | 602 200 | 314 000 | 610 800 | 314 000 | 610 800 | 315.000 | 601 700 | 315.000 | 594.700 | 329 000 |
| GR | 610 700 | 329 000 | 610 700 | 330 000 | 593 900 | 330.000 | 593 100 | 334 000 | 593 100 | 337 000 |
| GR | 593 000 | 340 000 | 592 400 | 343.000 | 610.700 | 343.000 | 610.700 | 344.000 | 592.500 | 344 000 |
| GR | 592.800 | 350 000 | 592.600 | 358 000 | 610 700 | 358 000 | 610 700 | 359 000 | 592.500 | 359 000 |
| GR | 592 500 | 360 000 | 592 100 | 370 000 | 592 200 | 373.000 | 610 700 | 373 000 | 610.700 | 374 000 |
| GR | 592.300 | 374 000 | 592.600 | 380 000 | 592 300 | 385 000 | 593 800 | 387 000 | 610 600 | 387 000 |
| GR | 610.600 | 388 000 | 594 600 | 388 000 | 597.600 | 392.000 | 602 800 | 402 000 | 610.600 | 402.000 |
| GR | 610 600 | 403 000 | 603 300 | 403 000 | 607 500 | 411 000 | 608 900 | 417 000 | 610 600 | 417 000 |

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| GR | 606 800 | 417 000 | 611 100 | 428 000 | 611 600 | 477 000 | 611 200 | 500 000 | 610 700 | 528 000 |
| GR | -610 700 | 528 000 | 608 500 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 540 | 3 040 | 0 000 | 117 000 | 0 000 | 1440 000 | 0 000 | 592 100 | 592 100 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 28449 000 | 0 000 | 0 000 | 0 000 | 18 000 | 18 000 | 18 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 610 800 | 613 100 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 8 000 | 0 000 | 615 000 | 0 000 | 100 000 | 614 400 | 0 000 | 200 000 | 613 900 | 0 000 |
| BT | 300 000 | 613 400 | 610 800 | 343 000 | 613 400 | 610 700 | 417 000 | 613 200 | 610 600 | 500 000 |
| BT | 613 100 | 0 000 | 600 000 | 613 400 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 028 | 0 040 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1.410 | 0 000 | 0 000 | 0 000 |
| X1 | 28549 000 | 19 000 | 266 000 | 400 000 | 100 000 | 100 000 | 100 000 | 0 000 | 1 340 | 0 000 |
| GR | 614 100 | 0 000 | 612 800 | 100 000 | 611 900 | 200 000 | 610 100 | 266 000 | 596 800 | 298 000 |
| GR | 592 900 | 305 000 | 590 700 | 308 000 | 590 700 | 310 000 | 590.900 | 320.000 | 591 000 | 330 000 |
| GR | 591 000 | 340 000 | 591 000 | 350 000 | 591 100 | 354 000 | 593 000 | 359 000 | 597 300 | 365 000 |
| GR | 611 100 | 400 000 | 611 600 | 449 000 | 610 700 | 500 000 | 607 600 | 600 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 29749 000 | 20 000 | 494 000 | 700 000 | 1100 000 | 1150 000 | 1200 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 750 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 619 000 | 0 000 | 618 400 | 100 000 | 618 100 | 200 000 | 616 500 | 300 000 | 614 600 | 400 000 |
| GR | 612 400 | 494 000 | 599 200 | 580 000 | 593 400 | 588 000 | 592 800 | 590 000 | 592 400 | 600 000 |
| GR | 591 400 | 610 000 | 591 600 | 620 000 | 591 300 | 630 000 | 592 100 | 640 000 | 592 800 | 645 000 |
| GR | 596 300 | 650 000 | 600 200 | 663 000 | 609 700 | 700 000 | 612 400 | 800 000 | 612 700 | 900 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 30474 000 | 90 000 | 397 000 | 567 500 | 700 000 | 700 000 | 725 000 | 0 000 | -0 150 | 0 000 |
| GR | 617 900 | 0 000 | 617 800 | 13 600 | 617 800 | 27 300 | 617 700 | 41 000 | 617 600 | 54 700 |
| GR | 617 600 | 68 400 | 617 500 | 82 100 | 617 500 | 95 800 | 617 400 | 109 500 | 617 400 | 123 200 |
| GR | 617 300 | 136 800 | 617 300 | 150 500 | 617 300 | 164 200 | 617 100 | 177 900 | 617 000 | 191 600 |
| GR | 616 800 | 205 300 | 616 700 | 219 000 | 616 500 | 232 700 | 616 400 | 246 000 | 616 200 | 260 100 |
| GR | 616 000 | 273 700 | 615 800 | 287 400 | 615 500 | 301 100 | 615 300 | 314.800 | 615 000 | 328 500 |
| GR | 614 800 | 342 200 | 614 500 | 355 900 | 614 200 | 369 600 | 613 900 | 383 300 | 613 700 | 397 000 |
| GR | 612 100 | 402 600 | 610 600 | 408 300 | 609 100 | 414 000 | 607 600 | 419 700 | 606 100 | 425 400 |
| GR | 604 600 | 431 000 | 603 100 | 436 700 | 601 600 | 442 400 | 600 100 | 448 100 | 598 600 | 453 000 |
| GR | 597 100 | 459 500 | 596 200 | 465 100 | 594 600 | 470 800 | 592 600 | 476 500 | 592 300 | 482 200 |
| GR | 592 100 | 487 900 | 591 900 | 493 600 | 592 000 | 499 200 | 592 100 | 504 900 | 592 300 | 510 600 |
| GR | 593 000 | 516 300 | 594 500 | 522 000 | 597 600 | 527 700 | 599 700 | 533 300 | 601 700 | 539 000 |
| GR | 603 700 | 544 700 | 605 600 | 550 400 | 607 600 | 556 100 | 609 500 | 561 800 | 611 500 | 567 500 |
| GR | 611 600 | 573 500 | 611 700 | 579 600 | 611 800 | 585 700 | 611 900 | 591 800 | 612 100 | 597 900 |
| GR | 612 200 | 604 000 | 612 300 | 610 000 | 612 400 | 616 100 | 612 600 | 622 200 | 612 700 | 628 300 |
| GR | 612 800 | 634 400 | 612 900 | 640 400 | 613 000 | 646 500 | 613 100 | 652 600 | 613 200 | 658 700 |
| GR | 613 200 | 664 800 | 613 200 | 670 900 | 613 200 | 676 900 | 613 300 | 683 000 | 613 300 | 689 100 |
| GR | 613 300 | 695 200 | 613 300 | 701 300 | 613 300 | 707 400 | 613 300 | 713 400 | 613 300 | 719.500 |
| GR | 613 300 | 725 600 | 613 400 | 731 700 | 613 400 | 737 800 | 613 400 | 743 900 | 613 400 | 750 000 |

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| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 31199 000 | 14 000 | 300 000 | 435 000 | 700.000 | 700 000 | 725 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 480 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100 000 | 616 500 | 200 000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592 500 | 355 000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393 000 | 613 300 | 435 000 | 614 100 | 500 000 | 614 200 | 600 000 | 0 000 | 0 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 31299 000 | 31 000 | 300 000 | 361 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 800 | 0 000 | 616 600 | 50 000 | 616 600 | 63 000 | 616.500 | 163 000 | 615 000 | 263 000 |
| GR | 613 700 | 266 000 | 598.900 | 300 000 | 609 600 | 300 000 | 597 500 | 300 000 | 594 000 | 310 000 |
| GR | 592 600 | 313 000 | 592.600 | 315.000 | 592 600 | 320 000 | 592 400 | 325 000 | 592 400 | 330 000 |
| GR | 592.400 | 335 000 | 592.600 | 340 000 | 592.900 | 345 000 | 593 900 | 347.000 | 595 400 | 350 000 |
| GR | 598 300 | 361 000 | 609.700 | 361 000 | 595 900 | 361 000 | 613 300 | 398 000 | 613 300 | 400 000 |
| GR | 613 800 | 440 000 | 614 100 | 463 000 | 614 200 | 500 000 | 614 200 | 523 000 | 614 200 | 533 000 |
| GR | 614 200 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 550 | 3 040 | 0 000 | 61 000 | 0 000 | 954 000 | 0 000 | 592 400 | 592 400 |
| X1 | 31350 000 | 0 000 | 0 000 | 0 000 | 51 000 | 51 000 | 51 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 609 600 | 613 700 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 13 000 | 50 000 | 616 600 | 0 000 | 63 000 | 616 600 | 0 000 | 163 000 | 616 500 | 0 000 |
| BT | 263 000 | 615 000 | 0 000 | 266 000 | 613 700 | 0 000 | 300 000 | 613 600 | 0 000 | 300 000 |
| BT | 614 100 | 609 600 | 361 000 | 614 100 | 609 700 | 361 000 | 613.700 | 0 000 | 400 000 | 613 700 |
| BT | 0 000 | 440 000 | 613 800 | 0 000 | 463 000 | 614 100 | 0 000 | 500 000 | 614 200 | 0 000 |
| X1 | 31430 000 | 32 000 | 300 000 | 360 500 | 80 000 | 80 000 | 80 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 800 | 0 000 | 616 600 | 50 000 | 616 600 | 63 000 | 616 500 | 163 000 | 615 000 | 263 000 |
| GR | 598 900 | 300 000 | 610 900 | 300 000 | 599 400 | 300 000 | 599 300 | 305 000 | 596 900 | 308 800 |
| GR | 594 300 | 308 800 | 593 000 | 313 000 | 592 600 | 315 000 | 592 600 | 320 000 | 592 500 | 325 000 |
| GR | 592 800 | 330 000 | 592 800 | 335 000 | 593 000 | 340 000 | 593 200 | 345 000 | 593 300 | 349 000 |
| GR | 594 200 | 351 600 | 596 800 | 351 600 | 599 200 | 355 400 | 599 200 | 360 500 | 610 700 | 360 500 |
| GR | 595 600 | 360 500 | 613 300 | 398 000 | 613 300 | 400 000 | 614 100 | 463 000 | 614 100 | 500 000 |
| GR | 614 200 | 563 000 | 614 200 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 550 | 3 040 | 0 000 | 61 000 | 0 000 | 977 000 | 0 000 | 592 500 | 592 500 |
| X1 | 31483 000 | 0 000 | 0 000 | 0 000 | 53 000 | 53 000 | 53 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 610 900 | 614 900 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 11 000 | 50 000 | 616 600 | 0 000 | 63 000 | 616 600 | 0 000 | 163 000 | 616 500 | 0 000 |
| BT | 263 000 | 615 000 | 0 000 | 300 000 | 615 000 | 0 000 | 300 000 | 615 300 | 610 900 | 360 500 |
| BT | 615.300 | 610 700 | 360.500 | 615 000 | 0 000 | 400 000 | 614 900 | 0 000 | 500.000 | 614 900 |
| BT | 0 000 | 700 000 | 615.000 | 0.000 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 31583.000 | 14.000 | 300.000 | 435.000 | 400.000 | 100.000 | 100 000 | 0 000 | 0 350 | 0.000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 500 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 600 | 100 000 | 616 500 | 200 000 | 615 000 | 300 000 | 593 300 | 350 000 |
| GR | 592 500 | 355 000 | 592 500 | 360 000 | 592 200 | 370 000 | 592 500 | 380 000 | 593 200 | 390 000 |
| GR | 593 500 | 393 000 | 613 300 | 435 000 | 614 100 | 500 000 | 614 200 | 600.000 | 0 000 | 0 000 |

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|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33333 000 | 15 000 | 355 000 | 491 000 | 1700 000 | 1800 000 | 1750 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 415 000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 447 000 | 610 800 | 491 000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0 000 | 0.000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33433 000 | 31 000 | 372 000 | 474 700 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 400 | 220 000 | 616 000 | 255 000 |
| GR | 615 900 | 273 000 | 614 700 | 308 000 | 613 500 | 355 000 | 613 000 | 356 000 | 606 700 | 372 000 |
| GR | 612 500 | 372 000 | 610 300 | 372 000 | 607 600 | 378 000 | 600 000 | 378 500 | 593 900 | 402 000 |
| GR | 593 600 | 412 000 | 593 700 | 422 000 | 593 700 | 424 000 | 593 900 | 432 000 | 593 900 | 442 000 |
| GR | 594 000 | 443 000 | 595.300 | 445.000 | 596 800 | 449 000 | 598.700 | 450 000 | 608 100 | 474.400 |
| GR | 612 400 | 474 700 | 604 600 | 474 700 | 610 800 | 491 000 | 612 800 | 572 000 | 613 900 | 583 000 |
| GR | 616 800 | 655 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| SB | 0 000 | 1 500 | 3 090 | 0 000 | 103 000 | 0 000 | 1520 000 | 0 000 | 593 600 | 593 600 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 410 | 0 000 | 0 000 | 0 000 |
| X1 | 33438 000 | 0 000 | 0 000 | 0 000 | 5 000 | 5 000 | 5 000 | 0 000 | 0 000 | 0 000 |
| X2 | 0 000 | 0 000 | 1 000 | 612 900 | 613 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| BT | 11 000 | 0 000 | 618 900 | 0 000 | 55 000 | 618 600 | 0 000 | 155 000 | 617 200 | 0 000 |
| BT | 220 000 | 616 400 | 0 000 | 273 000 | 615 900 | 0 000 | 372 000 | 613 100 | 612 500 | 424 000 |
| BT | 613 500 | 612 900 | 474 700 | 613 000 | 612 400 | 572 000 | 613 800 | 0 000 | 583 000 | 613 900 |
| BT | 0 000 | 655 000 | 616 800 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 33538 000 | 15 000 | 355 000 | 491 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 190 | 0 000 |
| GR | 618 900 | 0 000 | 618 600 | 55 000 | 617 200 | 155 000 | 616 000 | 255 000 | 613 500 | 355 000 |
| GR | 594 300 | 403 000 | 593 600 | 405 000 | 593 400 | 415 000 | 593 600 | 425 000 | 593 500 | 435 000 |
| GR | 593 500 | 445 000 | 594 000 | 447 000 | 610 800 | 491 000 | 612 800 | 555 000 | 616 800 | 655 000 |
| NC | 0 000 | 0 000 | 0 000 | 0 100 | 0 300 | 0.000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 34888 000 | 15 000 | 114 000 | 265 000 | 1400 000 | 1300 000 | 1350 000 | 0 000 | 0 000 | 0 000 |
| GR | 614 700 | 0 000 | 614 800 | 65 000 | 614 000 | 114 000 | 593 800 | 153 000 | 593 500 | 155 000 |
| GR | 593 800 | 165 000 | 594 000 | 175 000 | 594 300 | 185 000 | 594 500 | 195 000 | 601 400 | 208 000 |
| GR | 616 000 | 265 000 | 617 300 | 365 000 | 621 300 | 465 000 | 620 600 | 490 000 | 621 200 | 515 000 |
| NC | 0 025 | 0 035 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37038 000 | 16 000 | 135 000 | 285 000 | 2100 000 | 2200 000 | 2150 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 135 000 | 0 000 | 285 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190 000 | 594 400 | 195 000 |
| GR | 594 300 | 205 000 | 594 200 | 215 000 | 594.600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617 800 | 285 000 | 618 400 | 335 000 | 618.700 | 435 000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621.500 | 735.000 | 0 000 | 0 000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| NC | 0 000 | 0 000 | 0 000 | 0 300 | 0 500 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| X1 | 37088 000 | 36 000 | 200 000 | 307 100 | 50 000 | 50 000 | 50 000 | 0 000 | 0 000 | 0 000 |
| X3 | 0 000 | 0 000 | 0 000 | 50 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 617 500 | 0 000 | 616 900 | 44 000 | 616 800 | 50 000 | 616 400 | 79 000 | 616 600 | 100 000 |
| GR | 617 500 | 179 000 | 608 800 | 200 000 | 615 300 | 200 000 | 611 500 | 200 000 | 611 300 | 204 000 |
| GR | 599 000 | 230 000 | 615 300 | 230 000 | 615 300 | 233 000 | 597 500 | 233 000 | 595 500 | 240 000 |
| GR | 595 500 | 245 000 | 595 400 | 250 000 | 595 100 | 255 000 | 595 400 | 260 000 | 595 100 | 265 000 |
| GR | 595 600 | 270 000 | 596 200 | 274 100 | 615 300 | 274 100 | 615 300 | 277 100 | 595 800 | 277 100 |
| GR | 610 700 | 302 000 | 611 200 | 307 100 | 615 300 | 307 100 | 608 700 | 307 100 | 617 800 | 329 000 |
| GR | 618 400 | 379 000 | 618 600 | 450 000 | 618 700 | 479 000 | 619 300 | 532 000 | 619 800 | 579 000 |
| GR | 620 000 | 600 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| SB | 0.000 | 1 660 | 2 800 | 0 000 | 107 000 | 0 000 | 1410 000 | 0 000 | 595 100 | 595 100 |
| X1 | 37121 000 | 0 000 | 0.000 | 0.000 | 33.000 | 33 000 | 33 000 | 0.000 | 0.000 | 0.000 |
| X2 | 0 000 | 0 000 | 1 000 | 615.300 | 617 900 | 0 000 | 0.000 | 0 000 | 0 000 | 0 000 |
| X3 | 0.000 | 0.000 | 0 000 | 120 000 | 0 000 | 450 000 | 0 000 | 0.000 | 0 000 | 0 000 |
| X5 | 7 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 617 130 | 0 000 | 0 000 | 0 000 |
| BT | 10 000 | 50.000 | 618 300 | 0 000 | 100 000 | 617 900 | 0 000 | 200 000 | 618 000 | 0 000 |
| BT | 200 000 | 618 700 | 615 300 | 233 000 | 618 700 | 615 300 | 277 100 | 618 700 | 615 300 | 307 100 |
| BT | 618 700 | 615 300 | 307 100 | 618 000 | 0 000 | 379 000 | 618 400 | 0 000 | 450 000 | 618 600 |
| BT | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| X1 | 37221 000 | 16 000 | 135 000 | 285 000 | 100 000 | 100 000 | 100 000 | 0 000 | 0 000 | 0 000 |
| X3 | 10 000 | 595 100 | 0 000 | 50 000 | 0 000 | 450 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| GR | 616 900 | 0 000 | 616 400 | 35 000 | 617 500 | 135 000 | 594 700 | 190 000 | 594 400 | 195 000 |
| GR | 594 300 | 205 000 | 594 200 | 215 000 | 594 600 | 225 000 | 594 900 | 228 000 | 597 100 | 235 000 |
| GR | 617 800 | 285 000 | 618 400 | 335 000 | 618 700 | 435 000 | 619 800 | 535 000 | 621 000 | 635 000 |
| GR | 621 500 | 735 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| NC | 0 025 | 0 035 | 0 025 | 0 100 | 0 300 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0.000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 39121 000 | 14 000 | 150 000 | 300 000 | 1900 000 | 1900 000 | 1900 000 | 0 000 | 0 000 | 0 000 |
| GR | 625 500 | 0 000 | 623 600 | 100 000 | 620 400 | 150 000 | 595 700 | 216 000 | 595 200 | 230 000 |
| GR | 595 500 | 240 000 | 596 000 | 250 000 | 599 000 | 253 000 | 616 100 | 300 000 | 617 400 | 325 000 |
| GR | 623 700 | 340 000 | 625 000 | 400 000 | 625 200 | 500 000 | 626 400 | 600 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| NC | 0 025 | 0 025 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 41121 000 | 17 000 | 245 000 | 475 000 | 2000 000 | 2000 000 | 2000 000 | 0 850 | 0 000 | 0 000 |
| GR | 640 300 | 0 000 | 638 600 | 75 000 | 638 200 | 175 000 | 638 000 | 245 000 | 599 300 | 323 000 |
| GR | 596 000 | 339 000 | 595 600 | 349 000 | 595 800 | 359 000 | 595 900 | 369 000 | 632 300 | 437 000 |
| GR | 636 200 | 475 000 | 630 100 | 515 000 | 630 100 | 575 000 | 629 200 | 675 000 | 628 500 | 775 000 |
| GR | 626 600 | 875 000 | 626 900 | 910 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| | | | | | | | | | | |
| NC | 0 025 | 0 025 | 0 025 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |
| ET | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 1 400 | 0 000 | 0 000 | 0 000 |
| X1 | 42521 000 | 26 000 | 360 000 | 600 000 | 1300.000 | 1550 000 | 1400 000 | 0.800 | 0 000 | 0 000 |
| GR | 630 800 | 0 000 | 631 600 | 100 000 | 633.700 | 200.000 | 628.000 | 300.000 | 625.900 | 360 000 |
| GR | 613.100 | 400.000 | 597.700 | 436.000 | 597 400 | 442 000 | 595 400 | 450 000 | 595 700 | 455 000 |
| GR | 595 500 | 460 000 | 595 700 | 465 000 | 596 100 | 470 000 | 596 300 | 475 000 | 596.300 | 480 000 |
| GR | 596 300 | 485 000 | 596 800 | 492 000 | 622 300 | 600 000 | 623 800 | 653.000 | 635 900 | 700 000 |
| GR | 641 000 | 750 000 | 640 100 | 781 000 | 628 700 | 819 000 | 628 300 | 900 000 | 628 600 | 1000 000 |
| GR | 629 800 | 1058 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| EJ | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 | 0 000 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| SECNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |

```
*SECNO 42521 000
 2800 NAT Q1=    7263 14  WSEL=    618 47  ENC Q1=    7333.60  WSEL=    618 57  RATIO= -0 0097
 NAT Q1=    7334    RATIOS LOB,CH,ROB=  0 0000  1 0000  0 0000  WSEL=    618 57

3470 ENCROACHMENT STATIONS=     288 0     480 0  TYPE=     4  TARGET=       0 000
 42521 00    23 13   618.53    0 00   618 47   618 77    0 24     0 28     0 03   625 90
    8680        0     8680       0        0     2214       0     3022     291.    622 30
     2 68    0 00     3.92    0 00    0 000    0 025   0 000    0 000   595 40   306 42
 0 000141    1300     1400    1550        2        0       0    0 00   160 81   467 23
```

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
*************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED RUN DRAIN 100

SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | IOK'S | VCH | AREA | QIK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 165 000 | 0 00 | 0 00 | 0 00 | 576 90 | 17390 00 | 599 70 | 0 00 | 600 19 | 5 60 | 6 05 | 3706 39 | 7351 12 |
| 165 000 | 0 00 | 0 00 | 0 00 | 576 90 | 17390 00 | 599 70 | 0 00 | 600 19 | 5 60 | 6 05 | 3706 39 | 7351 12 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576 90 | 17390 00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144 80 | 10574 75 |
| 194 000 | 29 00 | 599 60 | 596 30 | 576.90 | 17390 00 | 601 98 | 0 00 | 602 25 | 2 70 | 4 62 | 5144 80 | 10574 75 |
| 594 000 | 400 00 | 0 00 | 0 00 | 580 17 | 17390 00 | 602 04 | 0 00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 51 |
| 594 000 | 400 00 | 0 00 | 0 00 | 580 17 | 17390 00 | 602 04 | 0 00 | 602 39 | 2 26 | 5 30 | 7724 97 | 11557 51 |
| 1039 000 | 445 00 | 0 00 | 0 00 | 583 10 | 16040 00 | 601 94 | 0 00 | 602 74 | 3 67 | 7 23 | 2930 77 | 8372 00 |
| 1039 000 | 445 00 | 0 00 | 0 00 | 583 10 | 16040 00 | 601 94 | 0 00 | 602 74 | 3 67 | 7 23 | 2930 77 | 8372 00 |
| 1100 000 | 61 00 | 0 00 | 0 00 | 581 70 | 16040 00 | 602 15 | 0 00 | 602 81 | 6 78 | 6 53 | 2455 77 | 6159 20 |
| 1100 000 | 61 00 | 0 00 | 0 00 | 581 70 | 16040 00 | 602 15 | 0 00 | 602 81 | 6 78 | 6 53 | 2455 77 | 6159 20 |
| 1143 000 | 43 00 | 603 10 | 601 70 | 581 70 | 16040 00 | 602 71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 74 |
| 1143 000 | 43 00 | 603 10 | 601 70 | 581 70 | 16040 00 | 602 71 | 0 00 | 603 32 | 5 96 | 6 28 | 2558 09 | 6570 74 |
| 1150 000 | 7 00 | 0 00 | 0 00 | 581 78 | 16040 00 | 602 70 | 0 00 | 603 34 | 2 48 | 6 44 | 3033 16 | 10182 45 |
| 1150 000 | 7 00 | 0 00 | 0 00 | 581 78 | 16040 00 | 602 70 | 0 00 | 603 34 | 2 48 | 6 44 | 3033 16 | 10182 45 |
| 1180 000 | 30 00 | 0 00 | 0 00 | 582 10 | 16040 00 | 602 73 | 0 00 | 603 35 | 6 30 | 6 41 | 2937 65 | 6389 59 |
| 1180 000 | 30 00 | 0 00 | 0 00 | 582 10 | 16040 00 | 602 73 | 0 00 | 603 35 | 6 30 | 6 41 | 2937 65 | 6389 59 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582 10 | 16040 00 | 603 46 | 0 00 | 603 95 | 4 80 | 5 79 | 3955 37 | 7319 07 |
| 1223 000 | 43 00 | 603 40 | 601 00 | 582 10 | 16040 00 | 603 46 | 0 00 | 603 95 | 4 80 | 5 79 | 3955 37 | 7319 07 |
| 1323 000 | 100 00 | 0 00 | 0 00 | 582 15 | 16040 00 | 603 84 | 0 00 | 604 05 | 1 03 | 4 27 | 5804 87 | 15792 25 |
| 1323 000 | 100 00 | 0 00 | 0 00 | 582 15 | 16040 00 | 603 84 | 0 00 | 604 05 | 1 03 | 4 27 | 5804 87 | 15792 25 |
| 2223 000 | 900 00 | 0 00 | 0 00 | 582 56 | 16040 00 | 603 76 | 0 00 | 604 27 | 2 10 | 5 80 | 3202 93 | 11081 28 |
| 2223 000 | 900 00 | 0 00 | 0 00 | 582 56 | 16040 00 | 603 76 | 0 00 | 604 27 | 2.10 | 5 80 | 3202 93 | 11081.28 |

| SECNO | XLCH | ELTRO | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | OIK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3180 000 | 957 00 | 0 00 | 0 00 | 583 00 | 16040 00 | 603 98 | 0 00 | 604 47 | 2 09 | 5 75 | 3148 21 | 11105 92 |
| 3180 000 | 957 00 | 0 00 | 0 00 | 583 00 | 16040 00 | 603 97 | 0 00 | 604 47 | 2 14 | 5 81 | 3018 51 | 10966 88 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584 20 | 14820 00 | 604 57 | 0 00 | 604 99 | 1 96 | 5 34 | 3282 84 | 10577 40 |
| 5720 000 | 2540 00 | 0 00 | 0 00 | 584 20 | 14820 00 | 604 57 | 0 00 | 605 01 | 2 06 | 5 39 | 3047 09 | 10329 02 |
| 7470 000 | 1710 00 | 0 00 | 0 00 | 584 10 | 14820 00 | 605 09 | 0 00 | 605 22 | 0 76 | 3 43 | 6340 19 | 16978 38 |
| 7470 000 | 1710 00 | 0 00 | 0 00 | 584 10 | 14820 00 | 605 11 | 0 00 | 605 25 | 0 79 | 3 46 | 6067 60 | 16674.22 |
| 8270 000 | 760 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 13 | 0 00 | 605 30 | 1 07 | 4 01 | 5636 55 | 14309 60 |
| 8270 000 | 760 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 15 | 0 00 | 605 34 | 1 11 | 4 03 | 5278 43 | 14047 10 |
| 8340.000 | 70 00 | 0 00 | 0 00 | 584 40 | 14820 00 | 605 19 | 0 00 | 605 32 | 1 82 | 3 46 | 5519 73 | 10977 89 |
| 8340 000 | 70 00 | 0 00 | 0 00 | 584.40 | 14820 00 | 605 21 | 0 00 | 605 36 | 1.88 | 3.50 | 5230 85 | 10813.74 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 14820 00 | 605 56 | 0 00 | 605 70 | 1 88 | 3 51 | 5455 97 | 10821 20 |
| 8394 000 | 54 00 | 600 90 | 600 40 | 584 40 | 14820 00 | 605 58 | 0 00 | 605 72 | 1 86 | 3 50 | 5471 44 | 10859 05 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584 50 | 16560 00 | 605 54 | 0 00 | 605 74 | 1 22 | 4 32 | 5895 49 | 15003 77 |
| 8494 000 | 100 00 | 0 00 | 0 00 | 584 50 | 16560 00 | 605 56 | 0 00 | 605 77 | 1 27 | 4 35 | 5561 99 | 14698 32 |
| 9594 000 | 1100.00 | 0 00 | 0 00 | 585 70 | 16560 00 | 605 69 | 0 00 | 605 86 | 1 14 | 3 99 | 6454 01 | 15516 28 |
| 9594 000 | 1100 00 | 0 00 | 0 00 | 585 70 | 16560 00 | 605 71 | 0 00 | 605 89 | 1 19 | 4 02 | 6168 24 | 15210 18 |
| 9653 000 | 59 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 71 | 0 00 | 605 87 | 1 05 | 3 88 | 6545 33 | 16158 06 |
| 9653 000 | 59 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 74 | 0 00 | 605 90 | 1 04 | 3 86 | 6577 34 | 16257 11 |
| 9654 000 | 1 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 61 | 0 00 | 605 97 | 5 01 | 5 43 | 3785 79 | 7401 83 |
| 9654 000 | 1 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 65 | 0 00 | 606 00 | 5 30 | 5 32 | 3806 72 | 7196 17 |
| 9676 000 | 22 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 69 | 0 00 | 606 00 | 5 37 | 5 02 | 4006 36 | 7146 30 |
| 9676.000 | 22 00 | 601 40 | 603 40 | 585 40 | 16560 00 | 605 74 | 0 00 | 606 03 | 6.09 | 4 76 | 4045 08 | 6711 07 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 89 | 0 00 | 606 05 | 0.98 | 3 78 | 6779 79 | 16701 11 |
| 9677 000 | 1 00 | 0 00 | 0 00 | 585 40 | 16560 00 | 605 91 | 0 00 | 606 07 | 0 98 | 3 77 | 6798 64 | 16761 55 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 90 | 0 00 | 606 06 | 0 99 | 3 78 | 6879 80 | 16683 55 |
| 9777 000 | 100 00 | 0 00 | 0 00 | 585 45 | 16560 00 | 605 92 | 0 00 | 606 08 | 1 03 | 3 81 | 6557 40 | 16342 97 |
| 11596 000 | 1819 00 | 0 00 | 0 00 | 586 40 | 16560 00 | 605 98 | 0 00 | 606 42 | 2 62 | 5 59 | 3913 69 | 10230 08 |
| 11596 000 | 1819 00 | 0 00 | 0 00 | 586 40 | 16560 00 | 606 00 | 0 00 | 606 46 | 2 68 | 5 66 | 3699 83 | 10119 21 |
| 13196 000 | 1600.00 | 0 00 | 0 00 | 585 50 | 16560 00 | 606 44 | 0 00 | 606 86 | 2.82 | 5 38 | 3604 83 | 9854 50 |
| 13196 000 | 1600 00 | 0 00 | 0 00 | 585 50 | 16560 00 | 606 48 | 0 00 | 606 91 | 2 87 | 5 43 | 3374.54 | 9773.60 |
| 14796 000 | 1600 00 | 0.00 | 0 00 | 587 30 | 16560 00 | 606 79 | 0 00 | 607 45 | 3 66 | 6 50 | 2547 95 | 8655 82 |
| 14796.000 | 1600 00 | 0 00 | 0 00 | 587 30 | 16560 00 | 606 84 | 0 00 | 607 49 | 3 53 | 6.48 | 2556.41 | 8695 84 |
| 16096 000 | 1300 00 | 0 00 | 0 00 | 586 80 | 14260 00 | 607 46 | 0 00 | 607 86 | 2 45 | 5 16 | 3112 90 | 9119 68 |
| 16096 000 | 1300 00 | 0 00 | 0 00 | 586 80 | 14260 00 | 607.49 | 0 00 | 607.91 | 2.49 | 5.21 | 2829 86 | 9044 09 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K'S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16396 000 | 300 00 | 0 00 | 0 00 | 587 50 | 14260 00 | 607 49 | 0 00 | 608 01 | 3 67 | 5 89 | 2725 44 | 7446 44 |
| 16396 000 | 300 00 | 0 00 | 0 00 | 587 50 | 14260 00 | 607 52 | 0 00 | 608 06 | 3 74 | 5 94 | 2511 21 | 7369 46 |
| 16418 000 | 22 00 | 606 10 | 605 30 | 587 50 | 14260 00 | 607 78 | 0 00 | 608 27 | 3 40 | 5 74 | 2861 33 | 7733 28 |
| 16418 000 | 22 00 | 999999 00 | 0 00 | 587 50 | 14260 00 | 607 81 | 0 00 | 608 32 | 3 48 | 5 79 | 2662 34 | 7644 07 |
| 16768 000 | 350 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 20 | 0 00 | 608 42 | 1 05 | 4 24 | 4626 27 | 13943 85 |
| 16768 000 | 350 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 25 | 0 00 | 608 47 | 1 06 | 4 28 | 4439 12 | 13842 72 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 36 | 0 00 | 608 48 | 0 74 | 3 38 | 5487 04 | 16554 76 |
| 17168 000 | 400 00 | 0 00 | 0 00 | 588 00 | 14260 00 | 608 41 | 0.00 | 608 53 | 0 75 | 3 41 | 5341 68 | 16424 24 |
| 17268 000 | 100 00 | 0 00 | 0 00 | 586 50 | 14260 00 | 608 32 | 0 00 | 608 55 | 2 18 | 3 92 | 3912 38 | 9668 47 |
| 17268 000 | 100 00 | 0 00 | 0 00 | 586 50 | 14260.00 | 608 36 | 0 00 | 608 60 | 2 20 | 3 95 | 3741 87 | 9615 12 |
| 17368 000 | 100 00 | 607 10 | 607 00 | 586 50 | 14260 00 | 608 47 | 0 00 | 608 70 | 2 10 | 3 87 | 3996 96 | 9847 53 |
| 17368 000 | 100 00 | 607 10 | 607 00 | 586 50 | 14260 00 | 608 56 | 0 00 | 608 79 | 2 11 | 3 89 | 3811 62 | 9814 59 |
| 18244 000 | 876 00 | 0 00 | 0 00 | 587 30 | 14260 00 | 608 61 | 0 00 | 608 83 | 1 19 | 4 28 | 4566 16 | 13074 68 |
| 18244 000 | 876 00 | 0 00 | 0 00 | 587 30 | 14260 00 | 608 70 | 0 00 | 608 92 | 1 19 | 4 30 | 4389 07 | 13045 04 |
| 19119 000 | 875 00 | 0 00 | 0 00 | 588 10 | 14260 00 | 608 65 | 0 00 | 609 00 | 1 96 | 4 96 | 3523 80 | 10192 48 |
| 19119 000 | 875 00 | 0 00 | 0 00 | 588 10 | 14260 00 | 608 73 | 0 00 | 609 10 | 1 96 | 4 98 | 3339 87 | 10177 51 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 14260 00 | 609 01 | 0 00 | 609 18 | 1 17 | 3 46 | 5012 20 | 13195 40 |
| 20219 000 | 1100 00 | 0 00 | 0 00 | 587 70 | 14260 00 | 609 10 | 0 00 | 609 28 | 1 17 | 3 48 | 4721 50 | 13184 71 |
| 21119 000 | 900 00 | 0 00 | 0 00 | 588 70 | 14260 00 | 609 06 | 0 00 | 609 34 | 1 79 | 4 63 | 3770 58 | 10671 65 |
| 21119 000 | 900 00 | 0 00 | 0 00 | 588 70 | 14260 00 | 609 15 | 0 00 | 609 44 | 1 79 | 4 65 | 3603 17 | 10658 12 |
| 22069 000 | 950 00 | 0 00 | 0 00 | 588 20 | 14260 00 | 609 13 | 0 00 | 609 63 | 3 32 | 5 69 | 2574 60 | 7821 31 |
| 22069 000 | 950 00 | 0 00 | 0 00 | 588 20 | 14260 00 | 609 22 | 0 00 | 609 72 | 3 30 | 5 68 | 2512 70 | 7850 65 |
| 22419 000 | 350 00 | 0 00 | 0 00 | 588 20 | 13000 00 | 609 61 | 0 00 | 609 72 | 0.69 | 3 19 | 5539 40 | 15700 09 |
| 22419 000 | 350 00 | 0 00 | 0 00 | 588 20 | 13000 00 | 609 70 | 0 00 | 609 81 | 0 69 | 3 20 | 5471 09 | 15690 89 |
| 23319 000 | 900 00 | 0 00 | 0 00 | 588 50 | 13000 00 | 609 51 | 0 00 | 609 90 | 2 14 | 5 32 | 3113 42 | 8890 23 |
| 23319 000 | 900 00 | 0 00 | 0 00 | 588 50 | 13000 00 | 609 60 | 0 00 | 610 00 | 2 15 | 5 35 | 2964 05 | 8871 36 |
| 23569 000 | 250 00 | 0 00 | 0 00 | 588 40 | 8680 00 | 609 78 | 0 00 | 609 96 | 1 06 | 3 45 | 2917 36 | 8435 74 |
| 23569 000 | 250 00 | 0 00 | 0 00 | 588 40 | 8680 00 | 609 88 | 0 00 | 610 06 | 1 06 | 3 46 | 2781 62 | 8430 48 |
| 24369 000 | 800 00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 81 | 0 00 | 610 10 | 1 57 | 4 36 | 2148 20 | 6926 24 |
| 24369 000 | 800 00 | 0 00 | 0 00 | 588 90 | 8680 00 | 609 90 | 0 00 | 610 19 | 1 58 | 4 38 | 2042 43 | 6905 75 |
| 25819.000 | 1450 00 | 0 00 | 0 00 | 588.80 | 8680 00 | 610 01 | 0 00 | 610 44 | 2 86 | 5 28 | 1675 64 | 5132.04 |
| 25819 000 | 1450 00 | 0.00 | 0 00 | 588 80 | 8680 00 | 610 11 | 0 00 | 610 53 | 2 79 | 5 24 | 1702 58 | 5200 73 |
| 25919 000 | 100 00 | 0 00 | 0.00 | 589 50 | 8680 00 | 610 00 | 0.00 | 610 53 | 6 69 | 5.88 | 1544.98 | 3355 93 |
| 25919 000 | 100 00 | 0 00 | 0 00 | 589 50 | 8680 00 | 610 10 | 0 00 | 610 62 | 6 50 | 5 82 | 1568.64 | 3403 66 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*5 | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26025 000 | 106 00 | 610 00 | 607 90 | 589 50 | 8680 00 | 610 74 | 0 00 | 611 18 | 5 35 | 5 44 | 1788 54 | 3751 14 |
| 26025 000 | 106 00 | 610 00 | 607 90 | 589 50 | 8680 00 | 610 82 | 0 00 | 611 25 | 5 19 | 5 38 | 1827 17 | 3808 85 |
| 26125 000 | 100 00 | 0 00 | 0 00 | 589 49 | 8680 00 | 610 79 | 0 00 | 611 22 | 2 78 | 5 24 | 1699 10 | 5204 96 |
| 26125 000 | 100 00 | 0 00 | 0 00 | 589 49 | 8680 00 | 610 87 | 0 00 | 611 29 | 2 72 | 5 20 | 1723 95 | 5266 62 |
| 26900 000 | 775 00 | 0 00 | 0 00 | 589 40 | 8680 00 | 611 06 | 0 00 | 611 43 | 2 61 | 4 95 | 2001 75 | 5368 15 |
| 26900 000 | 775 00 | 0 00 | 0 00 | 589 40 | 8680 00 | 611 12 | 0 00 | 611 50 | 2 67 | 4 98 | 1843.05 | 5311 79 |
| 27150 000 | 250 00 | 0 00 | 0 00 | 590 50 | 8680 00 | 611 13 | 0 00 | 611 49 | 1 86 | 5 03 | 2125 29 | 6372 64 |
| 27150 000 | 250 00 | 0 00 | 0.00 | 590 50 | 8680 00 | 611 21 | 0 00 | 611 56 | 1 82 | 5 00 | 2142 21 | 6428 90 |
| 27900 000 | 750 00 | 0 00 | 0 00 | 589 90 | 8680 00 | 611 30 | 0 00 | 611 63 | 2 02 | 4 79 | 1983 14 | 6108 97 |
| 27900 000 | 750 00 | 0 00 | 0.00 | 589.90 | 8680.00 | 611 36 | 0 00 | 611 71 | 2 08 | 4 83 | 1890.81 | 6020.98 |
| 28000 000 | 100 00 | 0 00 | 0 00 | 590 10 | 8680 00 | 611 31 | 0 00 | 611 68 | 3 36 | 5 03 | 1896 79 | 4733 65 |
| 28000 000 | 100 00 | 0 00 | 0 00 | 590 10 | 8680 00 | 611 37 | 0 00 | 611 75 | 3 39 | 5 07 | 1817 58 | 4713 65 |
| 28031 000 | 31 00 | 613 20 | 608 70 | 590 10 | 8680 00 | 612 02 | 0 00 | 612 34 | 2 81 | 4 73 | 2057 08 | 5179 30 |
| 28031 000 | 31 00 | 613 20 | 608 70 | 590 10 | 8680 00 | 612 03 | 0 00 | 612 40 | 3 19 | 5 05 | 1840 91 | 4860 16 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590 70 | 8680 00 | 612 14 | 0 00 | 612 42 | 1 66 | 4 33 | 2381 50 | 6728 04 |
| 28331 000 | 300 00 | 0 00 | 0 00 | 590 70 | 8680 00 | 612 21 | 0 00 | 612 50 | 1 68 | 4 36 | 2271 67 | 6699 65 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680 00 | 612 13 | 0 00 | 612 49 | 8 86 | 4 96 | 2010 80 | 2915 73 |
| 28431 000 | 100 00 | 0 00 | 0 00 | 592 10 | 8680 00 | 612 20 | 0 00 | 612 57 | 8 96 | 5 00 | 1948 76 | 2899 96 |
| 28449 000 | 18 00 | 613 10 | 610 80 | 592 10 | 8680 00 | 612 71 | 0 00 | 613 00 | 7 08 | 4 56 | 2258 20 | 3261 62 |
| 28449 000 | 18 00 | 613 10 | 610 80 | 592 10 | 8680 00 | 612 76 | 0 00 | 613 07 | 7 42 | 4 67 | 2121 94 | 3186 12 |
| 28549 000 | 100 00 | 0 00 | 0 00 | 592 04 | 8680 00 | 612 73 | 0 00 | 613 06 | 2 07 | 4 66 | 2086 25 | 6030 17 |
| 28549 000 | 100 00 | 0 00 | 0 00 | 592 04 | 8680 00 | 612 78 | 0 00 | 613 12 | 2 12 | 4 70 | 1975 39 | 5954 74 |
| 29749 000 | 1200 00 | 0 00 | 0 00 | 591 30 | 8680 00 | 613 08 | 0 00 | 613 25 | 1 16 | 3 36 | 2697 29 | 8066 63 |
| 29749 000 | 1200 00 | 0 00 | 0 00 | 591 30 | 8680 00 | 613 15 | 0 00 | 613 32 | 1 14 | 3 34 | 2716 71 | 8144 07 |
| 30474 000 | 725 00 | 0.00 | 0 00 | 591 75 | 8680 00 | 613 13 | 0 00 | 613 37 | 1 50 | 3 93 | 2281 72 | 7082 16 |
| 30474 000 | 725 00 | 0 00 | 0 00 | 591 75 | 8680 00 | 613 19 | 0 00 | 613 43 | 1 52 | 3 93 | 2207 60 | 7050 78 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 8680 00 | 613 16 | 0 00 | 613 55 | 2 39 | 4 97 | 1748 18 | 5616 94 |
| 31199 000 | 725 00 | 0 00 | 0 00 | 592 20 | 8680 00 | 613 23 | 0 00 | 613 61 | 2 36 | 4 94 | 1757 10 | 5655 81 |
| 31299.000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 613 15 | 0 00 | 613 63 | 4 39 | 5 98 | 1717.15 | 4142 62 |
| 31299 000 | 100 00 | 0 00 | 0 00 | 592 40 | 8680 00 | 613.22 | 0 00 | 613 69 | 4 33 | 5 96 | 1726 07 | 4172 20 |
| 31350 000 | 51.00 | 613.70 | 609 60 | 592 40 | 8680 00 | 614 47 | 0 00 | 614 85 | 3 29 | 5 42 | 1954 48 | 4784 03 |
| 31350.000 | 51.00 | 613 70 | 609 60 | 592 40 | 8680 00 | 614 52 | 0 00 | 614 90 | 3 25 | 5 39 | 1966.69 | 4812.14 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592 50 | 8680.00 | 614.49 | 0 00 | 614 88 | 3 86 | 5 50 | 1924 57 | 4416 63 |
| 31430 000 | 80 00 | 0 00 | 0 00 | 592 50 | 8680 00 | 614 54 | 0 00 | 614 93 | 3 82 | 5.48 | 1936.69 | 4442 85 |

| SECND | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | IOK*S | VCH | AREA | O1K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31483 000 | 53 00 | 614 90 | 610 90 | 592 50 | 8680 00 | 615 58 | 0 00 | 615 89 | 3 00 | 5 02 | 2190 62 | 5015 00 |
| 31483 000 | 53 00 | 614 90 | 610 90 | 592 50 | 8680 00 | 615 61 | 0 00 | 615 92 | 2 97 | 5 00 | 2199 32 | 5034 09 |
| 31583 000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615 64 | 0 00 | 615 92 | 1 49 | 4 24 | 2138 55 | 7111 68 |
| 31583 000 | 100 00 | 0 00 | 0 00 | 592 55 | 8680 00 | 615 68 | 0 00 | 615 95 | 1 48 | 4 23 | 2145 23 | 7137 37 |
| 33333 000 | 1750 00 | 0 00 | 0 00 | 593 40 | 8680 00 | 615 94 | 0 00 | 616 15 | 1 10 | 3 81 | 2665 10 | 8279 12 |
| 33333 000 | 1750 00 | 0 00 | 0 00 | 593 40 | 8680 00 | 615 96 | 0 00 | 616 18 | 1 12 | 3.85 | 2488 49 | 8201 00 |
| 33433 000 | 100 00 | 0 00 | 0 00 | 593 60 | 8680 00 | 615 94 | 0 00 | 616 17 | 1 46 | 4 13 | 2611 36 | 7171 73 |
| 33433 000 | 100 00 | 0 00 | 0 00 | 593 60 | 8680 00 | 615 96 | 0 00 | 616 20 | 1.49 | 4 17 | 2484 57 | 7109 52 |
| 33438 000 | 5 00 | 613 00 | 612 90 | 593 60 | 8680 00 | 616 04 | 0 00 | 616 27 | 1 43 | 4 09 | 2647 00 | 7262 64 |
| 33438 000 | 5 00 | 613 00 | 612.90 | 593.60 | 8680 00 | 616 10 | 0 00 | 616 34 | 1 44 | 4 12 | 2517 50 | 7225 86 |
| 33538 000 | 100 00 | 0 00 | 0 00 | 593 59 | 8680 00 | 616 07 | 0 00 | 616 29 | 1 12 | 3 83 | 2640 66 | 8208 31 |
| 33538 000 | 100 00 | 0 00 | 0 00 | 593 59 | 8680 00 | 616 13 | 0 00 | 616 36 | 1 13 | 3 86 | 2467 39 | 8170 52 |
| 34888 000 | 1350 00 | 0 00 | 0 00 | 593 50 | 8680 00 | 616 22 | 0 00 | 616 47 | 1 54 | 4 08 | 2266 24 | 6999 40 |
| 34888 000 | 1350 00 | 0 00 | 0 00 | 593 50 | 8680 00 | 616 29 | 0 00 | 616 55 | 1 55 | 4 11 | 2162 90 | 6960 76 |
| 37038 000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 54 | 0 00 | 616 83 | 1 69 | 4 30 | 2017 38 | 6686 34 |
| 37038 000 | 2150 00 | 0 00 | 0 00 | 594 20 | 8680 00 | 616 61 | 0 00 | 616 90 | 1 66 | 4 28 | 2027 79 | .6732 95 |
| 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 48 | 0 00 | 616 92 | 5 76 | 5 41 | 1682 65 | 3617 98 |
| 37088 000 | 50 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 616 55 | 0 00 | 616 99 | 5 65 | 5 38 | 1694 70 | 3651 52 |
| 37121 000 | 33 00 | 617 90 | 615 30 | 595 10 | 8680 00 | 617 06 | 0 00 | 617 46 | 4 99 | 5 17 | 1768 45 | 3886 63 |
| 37121 000 | 33 00 | 100000 00 | 100000 00 | 595 10 | 8680 00 | 617 13 | 0 00 | 617 53 | 4 90 | 5 14 | 1780 88 | 3921 61 |
| 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 25 | 0 00 | 617 52 | 1 56 | 4 17 | 2082 80 | 6947 47 |
| 37221 000 | 100 00 | 0 00 | 0 00 | 595 10 | 8680 00 | 617 32 | 0 00 | 617 59 | 1 54 | 4 15 | 2093 13 | 6994 07 |
| 39121 000 | 1900 00 | 0 00 | 0 00 | 595 20 | 8680 00 | 617 55 | 0 00 | 617 87 | 1 95 | 4 52 | 1937 33 | 6221 02 |
| 39121 000 | 1900 00 | 0 00 | 0 00 | 595 20 | 8680 00 | 617 62 | 0 00 | 617 93 | 1 95 | 4 50 | 1926 87 | 6218 41 |
| 41121 000 | 2000 00 | 0 00 | 0 00 | 595 60 | 8680 00 | 617 90 | 0 00 | 618 40 | 3 05 | 5 71 | 1520 01 | 4973 97 |
| 41121 000 | 2000 00 | 0 00 | 0 00 | 595 60 | 8680 00 | 617 96 | 0 00 | 618 47 | 3 01 | 5 69 | 1526 81 | 5004 11 |
| 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 47 | 0 00 | 618 71 | 1 43 | 3 94 | 2204 05 | 7263 14 |
| 42521 000 | 1400 00 | 0 00 | 0 00 | 595 40 | 8680 00 | 618 53 | 0 00 | 618 77 | 1 41 | 3 92 | 2213 77 | 7305 72 |

RED RUN DRAIN 100

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 165 000 | 17390 00 | 599 70 | 0 00 | 0 00 | 0 00 | 595 95 | 0 00 |
| 165 000 | 17390 00 | 599 70 | 0 00 | 0 00 | 0 00 | 595 95 | 0 00 |
| 194 000 | 17390 00 | 601 98 | 0 00 | 2 28 | 0 00 | 686 17 | 29 00 |
| 194 000 | 17390 00 | 601 98 | 0 00 | 2 28 | 0 00 | 686 17 | 29 00 |
| 594 000 | 17390 00 | 602 04 | 0 00 | 0 06 | 0 00 | 694 44 | 400 00 |
| 594 000 | 17390 00 | 602 04 | 0 00 | 0 06 | 0 00 | 694 44 | 400 00 |
| 1039 000 | 16040 00 | 601 94 | 0 00 | -0 10 | 0 00 | 223 20 | 445 00 |
| 1039 000 | 16040 00 | 601 94 | 0 00 | -0 10 | 0 00 | 223 20 | 445 00 |
| 1100 000 | 16040 00 | 602 15 | 0 00 | 0 21 | 0 00 | 174 38 | 61 00 |
| 1100 000 | 16040 00 | 602 15 | 0 00 | 0 21 | 0 00 | 174 38 | 61 00 |
| 1143 000 | 16040 00 | 602 71 | 0 00 | 0 56 | 0 00 | 175 30 | 43 00 |
| 1143 000 | 16040 00 | 602 71 | 0 00 | 0 56 | 0 00 | 175 30 | 43 00 |
| 1150 000 | 16040 00 | 602 70 | 0 00 | -0 01 | 0 00 | 186 00 | 7 00 |
| 1150 000 | 16040 00 | 602 70 | 0 00 | -0 01 | 0 00 | 186 00 | 7 00 |
| 1180 000 | 16040 00 | 602 73 | 0 00 | 0 03 | 0 00 | 235 00 | 30 00 |
| 1180 000 | 16040 00 | 602 73 | 0 00 | 0 03 | 0 00 | 235 00 | 30 00 |
| 1223 000 | 16040 00 | 603 46 | 0 00 | 0 73 | 0 00 | 344 04 | 43 00 |
| 1223 000 | 16040 00 | 603 46 | 0 00 | 0 73 | 0 00 | 344 04 | 43 00 |
| 1323 000 | 16040 00 | 603 84 | 0 00 | 0 38 | 0 00 | 517 00 | 100 00 |
| 1323 000 | 16040 00 | 603 84 | 0 00 | 0 38 | 0 00 | 517 00 | 100 00 |
| 2223 000 | 16040 00 | 603 76 | 0 00 | -0 08 | 0 00 | 250 71 | 900 00 |
| 2223 000 | 16040 00 | 603 76 | 0 00 | -0 08 | 0 00 | 250 71 | 900 00 |
| 3180 000 | 16040 00 | 603 98 | 0 00 | 0 22 | 0 00 | 249 36 | 957 00 |
| 3180 000 | 16040 00 | 603 97 | -0 02 | 0 21 | -0 02 | 205 17 | 957 00 |
| 5720 000 | 14820 00 | 604 57 | 0 00 | 0 58 | 0 00 | 633 04 | 2540 00 |
| 5720 000 | 14820 00 | 604 57 | 0 01 | 0.61 | 0.01 | 756 33 | 2540 00 |
| 7470 000 | 14820 00 | 605 09 | 0 00 | 0 52 | 0 00 | 717 54 | 1710.00 |
| 7470 000 | 14820 00 | 605 11 | 0 03 | 0.54 | 0 03 | 565 51 | 1710 00 |
| 8270.000 | 14820.00 | 605 13 | 0 00 | 0 04 | 0 00 | 848 30 | 760 00 |
| 8270 000 | 14820 00 | 605 15 | 0 03 | 0 04 | 0 03 | 542 41 | 760 00 |
| 8340.000 | 14820 00 | 605 19 | 0 00 | 0.06 | 0 00 | 805.92 | 70 00 |
| 8340 000 | 14820 00 | 605 21 | 0 02 | 0 06 | 0 02 | 562 25 | 70 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 8394 000 | 14820 00 | 605 56 | 0 00 | 0 37 | 0 00 | 730 80 | 54 00 |
| 8394 000 | 14820 00 | 605 58 | 0 02 | 0 37 | 0 02 | 730 80 | 54 00 |
| 8494 000 | 16560 00 | 605 54 | 0 00 | -0 02 | 0 00 | 852 65 | 100 00 |
| 8494 000 | 16560 00 | 605 56 | 0 02 | -0 02 | 0 02 | 610 68 | 100 00 |
| 9594 000 | 16560 00 | 605 69 | 0 00 | 0 15 | 0 00 | 862 07 | 1100 00 |
| 9594 000 | 16560 00 | 605 71 | 0 02 | 0 15 | 0 02 | 709 39 | 1100 00 |
| 9653 000 | 16560 00 | 605 71 | 0 00 | 0 02 | 0 00 | 811 85 | 59 00 |
| 9653 000 | 16560 00 | 605 74 | 0 03 | 0 03 | 0 03 | 813 08 | 59 00 |
| 9654 000 | 16560 00 | 605 61 | 0 00 | -0 10 | 0 00 | 739.93 | 1 00 |
| 9654 000 | 16560.00 | 605 65 | 0 04 | -0 09 | 0.04 | 741 01 | 1 00 |
| 9676 000 | 16560 00 | 605 69 | 0 00 | 0 08 | 0 00 | 802 61 | 22 00 |
| 9676 000 | 16560 00 | 605 74 | 0 05 | 0 10 | 0 05 | 804 12 | 22 00 |
| 9677 000 | 16560 00 | 605 89 | 0 00 | 0 20 | 0 00 | 800 00 | 1 00 |
| 9677 000 | 16560 00 | 605 91 | 0 02 | 0 17 | 0 02 | 800 00 | 1 00 |
| 9777 000 | 16560 00 | 605 90 | 0 00 | 0 01 | 0 00 | 886 58 | 100 00 |
| 9777 000 | 16560 00 | 605 92 | 0 02 | 0 01 | 0 02 | 727 06 | 100 00 |
| 11596 000 | 16560 00 | 605 98 | 0 00 | 0 08 | 0 00 | 618 66 | 1819 00 |
| 11596 000 | 16560 00 | 606 00 | 0 02 | 0 08 | 0 02 | 509 38 | 1819 00 |
| 13196 000 | 16560 00 | 606 44 | 0 00 | 0 47 | 0 00 | 422 44 | 1600 00 |
| 13196 000 | 16560 00 | 606 48 | 0 03 | 0 48 | 0 03 | 297 60 | 1600 00 |
| 14796 000 | 16560 00 | 606 79 | 0 00 | 0 35 | 0 00 | 177 65 | 1600 00 |
| 14796 000 | 16560 00 | 606 84 | 0 05 | 0 36 | 0 05 | 177 89 | 1600 00 |
| 16096 000 | 14260 00 | 607 46 | 0 00 | 0 67 | 0 00 | 545 79 | 1300 00 |
| 16096 000 | 14260 00 | 607 49 | 0 03 | 0 65 | 0 03 | 249 85 | 1300 00 |
| 16396 000 | 14260 00 | 607 49 | 0 00 | 0 03 | 0 00 | 457 68 | 300 00 |
| 16396 000 | 14260 00 | 607 52 | 0 03 | 0 03 | 0 03 | 218 05 | 300 00 |
| 16418 000 | 14260 00 | 607 78 | 0 00 | 0 29 | 0 00 | 470 61 | 22 00 |
| 16418 000 | 14260 00 | 607 81 | 0 03 | 0 29 | 0 03 | 279 79 | 22 00 |
| 16768 000 | 14260 00 | 608 20 | 0 00 | 0 43 | 0 00 | 530 62 | 350 00 |
| 16768 000 | 14260 00 | 608 25 | 0 04 | 0 44 | 0 04 | 422 67 | 350 00 |
| 17168 000 | 14260 00 | 608 36 | 0 00 | 0 16 | 0 00 | 551 99 | 400 00 |
| 17168 000 | 14260 00 | 608 41 | 0 05 | 0 16 | 0.05 | 490.22 | 400.00 |
| 17268 000 | 14260 00 | 608.32 | 0 00 | -0.04 | 0 00 | 545 94 | 100 00 |
| 17268 000 | 14260.00 | 608 36 | 0 05 | -0 04 | 0 05 | 336 03 | 100 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 17368 000 | 14260 00 | 608 47 | 0 00 | 0 15 | 0 00 | 564 35 | 100 00 |
| 17368 000 | 14260 00 | 608 56 | 0 09 | 0 20 | 0 09 | 357 00 | 100 00 |
| 18244 000 | 14260 00 | 608 61 | 0 00 | 0 14 | 0 00 | 708 70 | 876 00 |
| 18244 000 | 14260 00 | 608 70 | 0 09 | 0 14 | 0 09 | 507 31 | 876 00 |
| 19119 000 | 14260 00 | 608 65 | 0 00 | 0 04 | 0 00 | 423 41 | 875 00 |
| 19119 000 | 14260 00 | 608 73 | 0 09 | 0 04 | 0 09 | 301 87 | 875 00 |
| 20219 000 | 14260 00 | 609 01 | 0 00 | 0 36 | 0 00 | 825 96 | 1100 00 |
| 20219 000 | 14260 00 | 609 10 | 0 09 | 0 37 | 0 09 | 557 35 | 1100 00 |
| 21119 000 | 14260.00 | 609 06 | 0 00 | 0 05 | 0 00 | 537 34 | 900 00 |
| 21119 000 | 14260 00 | 609 15 | 0 09 | 0.05 | 0.09 | 381.29 | 900.00 |
| 22069 000 | 14260 00 | 609 13 | 0 00 | 0 07 | 0 00 | 306 07 | 950 00 |
| 22069 000 | 14260 00 | 609 22 | 0 10 | 0 08 | 0 10 | 199 82 | 950 00 |
| 22419 000 | 13000 00 | 609 61 | 0 00 | 0 48 | 0 00 | 557 10 | 350 00 |
| 22419 000 | 13000 00 | 609 70 | 0 09 | 0 48 | 0 09 | 515 27 | 350 00 |
| 23319 000 | 13000 00 | 609 51 | 0 00 | -0 10 | 0 00 | 579 57 | 900 00 |
| 23319 000 | 13000 00 | 609 60 | 0 09 | -0 11 | 0 09 | 420 94 | 900 00 |
| 23569 000 | 8680 00 | 609 78 | 0 00 | 0 27 | 0 00 | 607 41 | 250 00 |
| 23569 000 | 8680 00 | 609 88 | 0 10 | 0 28 | 0 10 | 407 77 | 250 00 |
| 24369 000 | 8680 00 | 609 81 | 0 00 | 0 03 | 0 00 | 278 71 | 800 00 |
| 24369 000 | 8680 00 | 609 90 | 0 09 | 0 02 | 0 09 | 151 87 | 800 00 |
| 25819 000 | 8680 00 | 610 01 | 0 00 | 0 20 | 0 00 | 232 30 | 1450 00 |
| 25819 000 | 8680 00 | 610 11 | 0 10 | 0 21 | 0 10 | 300 28 | 1450 00 |
| 25919 000 | 8680 00 | 610 00 | 0 00 | -0 00 | 0 00 | 219 31 | 100 00 |
| 25919 000 | 8680 00 | 610 10 | 0 10 | -0 00 | 0 10 | 250 44 | 100 00 |
| 26025 000 | 8680 00 | 610 74 | 0 00 | 0 73 | 0 00 | 436 63 | 106 00 |
| 26025 000 | 8680 00 | 610 82 | 0 09 | 0 72 | 0 09 | 445 39 | 106 00 |
| 26125 000 | 8680 00 | 610 79 | 0 00 | 0 06 | 0 00 | 277 64 | 100 00 |
| 26125 000 | 8680 00 | 610 87 | 0 08 | 0 05 | 0 08 | 303 96 | 100 00 |
| 26900.000 | 8680 00 | 611 06 | 0 00 | 0 27 | 0 00 | 388 15 | 775 00 |
| 26900 000 | 8680 00 | 611 12 | 0 06 | 0 25 | 0 06 | 174 89 | 775 00 |
| 27150 000 | 8680 00 | 611 13 | 0 00 | 0 07 | 0 00 | 242 36 | 250 00 |
| 27150.000 | 8680.00 | 611-21 | 0.08 | 0.08 | 0 08 | 243 89 | 250.00 |
| 27900 000 | 8680 00 | 611 30 | 0.00 | 0 17 | 0.00 | 213 38 | 750.00 |
| 27900 000 | 8680 00 | 611 36 | 0.06 | 0 15 | 0 06 | 149 08 | 750 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 28000 000 | 8680 00 | 611 31 | 0 00 | 0 01 | 0 00 | 203 59 | 100 00 |
| 28000 000 | 8680 00 | 611 37 | 0 06 | 0 01 | 0 06 | 143 93 | 100 00 |
| 28031 000 | 8680 00 | 612 02 | 0 00 | 0 71 | 0 00 | 285 11 | 31 00 |
| 28031 000 | 8680 00 | 612 03 | 0 01 | 0 66 | 0 01 | 136 73 | 31 00 |
| 28331 000 | 8680 00 | 612 14 | 0 00 | 0 12 | 0 00 | 426 43 | 300 00 |
| 28331 000 | 8680 00 | 612 21 | 0 07 | 0 18 | 0 07 | 321 66 | 300 00 |
| 28431 000 | 8680 00 | 612 13 | 0 00 | -0 01 | 0 00 | 393 69 | 100 00 |
| 28431 000 | 8680 00 | 612 20 | 0 07 | -0 01 | 0 07 | 311 35 | 100 00 |
| 28449 000 | 8680 00 | 612 71 | 0 00 | 0 58 | 0 00 | 461 45 | 18 00 |
| 28449 000 | 8680 00 | 612 76 | 0 05 | 0 56 | 0 05 | 311.35 | 18 00 |
| 28549 000 | 8680 00 | 612 73 | 0 00 | 0 02 | 0 00 | 348 20 | 100 00 |
| 28549 000 | 8680 00 | 612 78 | 0 05 | 0 02 | 0 05 | 280 84 | 100 00 |
| 29749 000 | 8680 00 | 613 08 | 0 00 | 0 35 | 0 00 | 285 05 | 1200 00 |
| 29749 000 | 8680 00 | 613 15 | 0 07 | 0 37 | 0 07 | 287 95 | 1200 00 |
| 30474 000 | 8680 00 | 613 13 | 0 00 | 0 05 | 0 00 | 283 25 | 725 00 |
| 30474 000 | 8680 00 | 613 19 | 0 06 | 0 05 | 0 06 | 169 26 | 725 00 |
| 31199 000 | 8680 00 | 613 16 | 0 00 | 0 03 | 0 00 | 130 48 | 725 00 |
| 31199 000 | 8680 00 | 613 23 | 0 07 | 0 04 | 0 07 | 130 78 | 725 00 |
| 31299 000 | 8680 00 | 613 15 | 0 00 | -0 02 | 0 00 | 130 41 | 100 00 |
| 31299 000 | 8680 00 | 613 22 | 0 07 | -0 02 | 0 07 | 130 71 | 100 00 |
| 31350 000 | 8680 00 | 614 47 | 0 00 | 1 32 | 0 00 | 235 77 | 51 00 |
| 31350 000 | 8680 00 | 614 52 | 0 05 | 1 30 | 0 05 | 235 89 | 51 00 |
| 31430 000 | 8680 00 | 614 49 | 0 00 | 0 02 | 0 00 | 235 85 | 80 00 |
| 31430 000 | 8680 00 | 614 54 | 0 05 | 0 02 | 0 05 | 235 97 | 80 00 |
| 31483 000 | 8680 00 | 615 58 | 0 00 | 1 08 | 0 00 | 275 40 | 53 00 |
| 31483 000 | 8680 00 | 615 61 | 0 03 | 1 06 | 0 03 | 277 50 | 53 00 |
| 31583 000 | 8680 00 | 615 64 | 0 00 | 0 07 | 0 00 | 219 66 | 100 00 |
| 31583 000 | 8680 00 | 615 68 | 0 03 | 0 07 | 0 03 | 221 68 | 100 00 |
| 33333 000 | 8680 00 | 615 94 | 0 00 | 0 29 | 0 00 | 375 87 | 1750 00 |
| 33333 000 | 8680 00 | 615 96 | 0 02 | 0 28 | 0 02 | 224 00 | 1750 00 |
| 33433 000 | 8680 00 | 615 94 | 0 00 | 0 00 | 0 00 | 368 59 | 100 00 |
| 33433 000 | 8680 00 | 615 96 | 0.02 | 0 00 | 0 02 | 243.03 | 100.00 |
| 33438 000 | 8680 00 | 616 04 | 0.00 | 0 10 | 0.00 | 384 41 | 5.00 |
| 33438.000 | 8680 00 | 616 10 | 0.06 | 0 14 | 0 06 | 243 03 | 5 00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 33538 000 | 8680 00 | 616 07 | 0 00 | 0 03 | 0 00 | 371 62 | 100 00 |
| 33538 000 | 8680 00 | 616 13 | 0 06 | 0 03 | 0 06 | 216 64 | 100 00 |
| 34888 000 | 8680 00 | 616 22 | 0 00 | 0 15 | 0 00 | 281 95 | 1350 00 |
| 34888 000 | 8680 00 | 616 29 | 0 07 | 0 15 | 0 07 | 188 01 | 1350 00 |
| 37038 000 | 8680 00 | 616 54 | 0 00 | 0 32 | 0 00 | 144 65 | 2150 00 |
| 37038 000 | 8680 00 | 616 61 | 0 07 | 0 33 | 0 07 | 145 00 | 2150 00 |
| 37088 000 | 8680 00 | 616 48 | 0 00 | -0 06 | 0 00 | 158 63 | 50 00 |
| 37088 000 | 8680 00 | 616 55 | 0 07 | -0 06 | 0 07 | 171 93 | 50 00 |
| 37121 000 | 8680 00 | 617 06 | 0 00 | 0 58 | 0 00 | 167.27 | 33 00 |
| 37121 000 | 8680 00 | 617.13 | 0.07 | 0 58 | 0 07 | 174 02 | 33 00 |
| 37221 000 | 8680 00 | 617 25 | 0 00 | 0 20 | 0 00 | 148 07 | 100 00 |
| 37221 000 | 8680 00 | 617 32 | 0 07 | 0 19 | 0 07 | 148 41 | 100 00 |
| 39121 000 | 8680 00 | 617 55 | 0 00 | 0 30 | 0 00 | 167 74 | 1900 00 |
| 39121 000 | 8680 00 | 617 62 | 0 07 | 0 29 | 0 07 | 142 56 | 1900 00 |
| 41121 000 | 8680 00 | 617 90 | 0 00 | 0 35 | 0 00 | 105 90 | 2000 00 |
| 41121 000 | 8680 00 | 617 96 | 0 07 | 0 35 | 0 07 | 106 11 | 2000 00 |
| 42521 000 | 8680 00 | 618 47 | 0 00 | 0 57 | 0 00 | 160 46 | 1400 00 |
| 42521 000 | 8680 00 | 618 53 | 0 06 | 0 57 | 0 06 | 160 81 | 1400 00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

NOTE  SECNO= 37121 000  PROFILE= 2  WSEL BASED ON X5 CARD

FLOODWAY DATA.  RED RUN DRAIN  100
PROFILE NO  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 165 000 | 596 | 3706 | 4 7 | 599 7 | 599 7 | 0 0 |
| 194 000 | 686 | 5145 | 3 4 | 602 0 | 602 0 | 0 0 |
| 594 000 | 694 | 7725 | 2 3 | 602 0 | 602 0 | 0 0 |
| 1039.000 | 223 | 2931 | 5 5 | 601 9 | 601 9 | 0 0 |
| 1100.000 | 174 | 2456 | 6 5 | 602 1 | 602 1 | 0 0 |
| 1143.000 | 175 | 2558 | 6.3 | 602 7 | 602.7 | 0 0 |
| 1150 000 | 186 | 3033 | 5 3 | 602 7 | 602 7 | 0 0 |
| 1180 000 | 235 | 2938 | 5 5 | 602 7 | 602 7 | 0 0 |
| 1223 000 | 344 | 3955 | 4 1 | 603 5 | 603 5 | 0 0 |
| 1323 000 | 517 | 5805 | 2 8 | 603 8 | 603 8 | 0 0 |
| 2223 000 | 251 | 3203 | 5 0 | 603 8 | 603 8 | 0 0 |
| 3180 000 | 205 | 3019 | 5 3 | 604 0 | 604 0 | 0 0 |
| 5720 000 | 256 | 3047 | 4 9 | 604 6 | 604 6 | 0 0 |
| 7470 000 | 566 | 6068 | 2 4 | 605 1 | 605 1 | 0 0 |
| 8270 000 | 542 | 5278 | 2 8 | 605 1 | 605 1 | 0 0 |
| 8340 000 | 562 | 5231 | 2 8 | 605 2 | 605 2 | 0 0 |
| 8394 000 | 731 | 5471 | 2 7 | 605 6 | 605 6 | 0 0 |
| 8494 000 | 611 | 5562 | 3 0 | 605 5 | 605 5 | 0 0 |
| 9594 000 | 709 | 6168 | 2 7 | 605 7 | 605 7 | 0 0 |
| 9653 000 | 813 | 6577 | 2 5 | 605 7 | 605 7 | 0 0 |
| 9654 000 | 741 | 3807 | 4 4 | 605 6 | 605 6 | 0 0 |
| 9676 000 | 804 | 4045 | 4 1 | 605 8 | 605 7 | 0 1 |
| 9677 000 | 800 | 6799 | 2 4 | 605 9 | 605 9 | 0 0 |
| 9777 000 | 727 | 6557 | 2 5 | 605 9 | 605 9 | 0 0 |
| 11596 000 | 509 | 3700 | 4 5 | 606 0 | 606 0 | 0 0 |
| 13196 000 | 298 | 3375 | 4 9 | 606 4 | 606 4 | 0 0 |
| 14796 000 | 178 | 2556 | 6 5 | 606 8 | 606 8 | 0 0 |
| 16096 000 | 250 | 2830 | 5 0 | 607 5 | 607 5 | 0 0 |
| 16396 000 | 218 | 2511 | 5 7 | 607 5 | 607 5 | 0 0 |
| 16418 000 | 280 | 2662 | 5 4 | 607 8 | 607 8 | 0 0 |
| 16768 000 | 423 | 4439 | 3 2 | 608 2 | 608 2 | 0 0 |
| 17168 000 | 490 | 5342 | 2 7 | 608 4 | 608 4 | 0 0 |
| 17268 000 | 426 | 3742 | 3 8 | 608 3 | 608 3 | 0 0 |
| 17368 000 | 426 | 3812 | 3 7 | 608 6 | 608 5 | 0 1 |
| 18244.000 | 507 | 4389. | 3 2 | 608 7 | 608 6 | 0 1 |
| 19119 000 | 302 | 3340 | 4 3 | 608 7 | 608 6 | 0.1 |
| 20219 000 | 588 | 4721 | 3 0 | 609 1 | 609 0 | 0 1 |
| 21119 000 | 475 | 3603. | 4.0 | 609 2 | 609 1 | 0 1 |
| 22069.000 | 200. | 2513 | 5 7 | 609 2 | 609.1 | 0 1 |
| 22419 000 | 515 | 5471 | 2 4 | 609 7 | 609 6 | 0 1 |
| 23319 000 | 548 | 2964 | 4 4 | 609 6 | 609 5 | 0 1 |
| 23569 000 | 543 | 2782. | 3.1 | 609 9 | 609 8 | 0 1 |

FLOODWAY DATA.  RED RUN DRAIN  100
PROFILE NO  2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 24369 000 | 152 | 2042 | 4 2 | 609 9 | 609 8 | 0 1 |
| 25819 000 | 515 | 1703 | 5 1 | 610 1 | 610 0 | 0 1 |
| 25919 000 | 463 | 1569. | 5 5 | 610 1 | 610 0 | 0 1 |
| 26025 000 | 463 | 1827 | 4 8 | 610 8 | 610 7 | 0 1 |
| 26125 000 | 490 | 1724 | 5 0 | 610 9 | 610 8 | 0 1 |
| 26900 000 | 175 | 1843 | 4 7 | 611 2 | 611.1 | 0 1 |
| 27150 000 | 244 | 2142 | 4 1 | 611 2 | 611 1 | 0 1 |
| 27900 000 | 149 | 1891 | 4 6 | 611 4 | 611 3 | 0 1 |
| 28000 000 | 144 | 1818 | 4 8 | 611 4 | 611 3 | 0 1 |
| 28031 000 | 137 | 1841 | 4 7 | 612 0 | 612 0 | 0 0 |
| 28331 000 | 322 | 2272 | 3 8 | 612 2 | 612 1 | 0 1 |
| 28431 000 | 311 | 1949 | 4 5 | 612 2 | 612 1 | 0 1 |
| 28449 000 | 311 | 2122 | 4 1 | 612 7 | 612 7 | 0 0 |
| 28549 000 | 305 | 1975 | 4 4 | 612 8 | 612 7 | 0 1 |
| 29749 000 | 288 | 2717 | 3 2 | 613 2 | 613 1 | 0 1 |
| 30474 000 | 169 | 2208 | 3 9 | 613 2 | 613 1 | 0 1 |
| 31199 000 | 131 | 1757 | 4 9 | 613 3 | 613 2 | 0 1 |
| 31299 000 | 131 | 1726 | 5 0 | 613 2 | 613 1 | 0 1 |
| 31350 000 | 236 | 1967 | 4 4 | 614 6 | 614 5 | 0 1 |
| 31430 000 | 236 | 1937 | 4 5 | 614 6 | 614 5 | 0 1 |
| 31483 000 | 277 | 2199 | 3 9 | 615 6 | 615 6 | 0 0 |
| 31583 000 | 222 | 2145 | 4 0 | 615 6 | 615 6 | 0 0 |
| 33333 000 | 224 | 2488 | 3 5 | 615 9 | 615 9 | 0 0 |
| 33433 000 | 243 | 2485 | 3 5 | 615 9 | 615 9 | 0 0 |
| 33438 000 | 243 | 2517 | 3 4 | 616 1 | 616 0 | 0 1 |
| 33538 000 | 217 | 2467 | 3 5 | 616 2 | 616 1 | 0 1 |
| 34888 000 | 188 | 2163 | 4 0 | 616 3 | 616 2 | 0 1 |
| 37038 000 | 145 | 2028 | 4 3 | 616 6 | 616 5 | 0 1 |
| 37088 000 | 258 | 1695 | 5 1 | 616 6 | 616 5 | 0 1 |
| 37121 000 | 207 | 1781 | 4 9 | 617 2 | 617 1 | 0 1 |
| 37221 000 | 148 | 2093 | 4 1 | 617 4 | 617 3 | 0 1 |
| 39121 000 | 143 | 1927 | 4 5 | 617 6 | 617 5 | 0 1 |
| 41121 000 | 106 | 1527 | 5 7 | 618 0 | 617 9 | 0 1 |
| 42521 000 | 161 | 2214 | 3 9 | 618 6 | 618 5 | 0 1 |

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*****************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55 56
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00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: St. Heights

3) WATERCOURSE: Red Run Drain

4) DOCUMENT TYPE: x-section descriptions
Comments
assumptions

00BREAK00

| FIELD SECTION | SECNO | DESCRIPTION |
|---|---|---|
| | 165 | ~~BRIDGE SECTION @ UTICA ROAD DOWNSTREAM FACE~~<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS A & B<br>~~LEFT ENCROACHMENT DUE TO EXPANSION~~<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| A | 194 | BRIDGE SECTION A @ UTICA ROAD UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 300 : ENDS @ STA. 1100<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 594 | ~~RELOCATED VALLEY SECTION B~~<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY |
| B | 1039 | VALLEY SECTION B<br>~~LEFT ENCROACHMENT DUE TO EXPANSION~~<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>~~N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY~~ |
| | 1100 | ~~BRIDGE SECTION @ 16-MILE ROAD WB DOWNSTREAM FACE~~<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS B & C<br>~~LEFT ENCROACHMENT DUE TO EXPANSION~~<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>~~N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY~~ |
| C | 1143 | ~~BRIDGE SECTION C @ 16-MILE ROAD WB UPSTREAM FACE~~<br>BRIDGE TABLE STARTS @ STA. 450 : ENDS @ STA. 1100<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY |
| | 1150 | RELOCATED VALLEY SECTION B<br>INVERT ADJUSTED<br>ELIMINATED NON-TYPICAL AREA IN LEFT OVERBANK<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY |
| | 1180 | BRIDGE SECTION @ 16-MILE ROAD EB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS B & D<br>LEFT ENCROACHMENT DUE TO EXPANSION |

See revised hydraulics in with Maps & hydraulic booklet

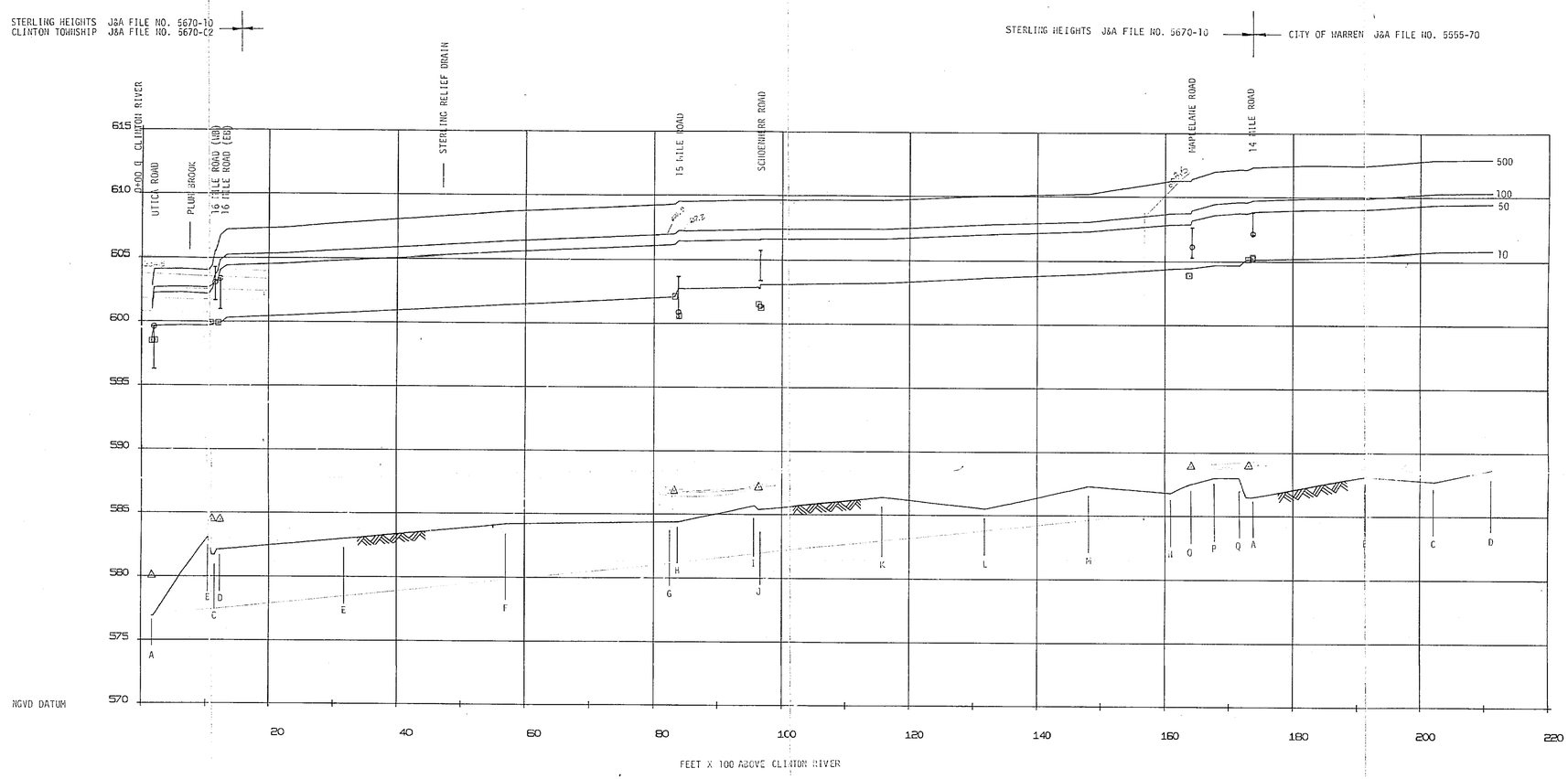
| | | |
|---|---|---|
| | | SKEWED FOR PERPENDICULARITY TO FLOW<br>N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY |
| D | 1223 | BRIDGE SECTION D @ 16-MILE ROAD EB UPSTREAM FACE<br>~~BRIDGE TABLE STARTS @ STA. 450 : ENDS @ STA. 1100~~<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW<br>N VALUES RAISED SIGNIFICANTLY TO IMPROVE CONTINUITY |
| | 1323 | RELOCATED VALLEY SECTION B<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 2223 | RELOCATED VALLEY SECTION E<br>INVERT ADJUSTED<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~ |
| E | 3180 | VALLEY SECTION E<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~ |
| F | 5720 | VALLEY SECTION F<br>~~RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW~~ |
| G | 8270 | VALLEY SECTION G<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 8340 | BRIDGE SECTION @ 15-MILE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>~~BLEND OF SECTIONS G & H~~<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| H | 8394 | BRIDGE SECTION H @ 15-MILE ROAD UPSTREAM FACE<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| | 8494 | RELOCATED VALLEY SECTION G<br>~~SKEWED FOR PERPENDICULARITY TO FLOW~~<br>INVERT ADJUSTED |
| I | 9594 | VALLEY SECTION I |
| | 9653 | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED<br>~~ENCROACHED TO TOP WIDTH OF BRIDGE SECTION J~~ |
| J | 9654 | BRIDGE SECTION J @ SCHOENHERR ~~ROAD~~ ~~DOWNSTREAM~~ FACE<br>NORMAL BRIDGE ROUTINE |
| J | 9676 | BRIDGE SECTION J @ SCHOENHERR ROAD UPSTREAM FACE<br>NORMAL BRIDGE ROUTINE |

| | | |
|---|---|---|
| | 9677 | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED<br>ENCROACHED TO TOP WIDTH OF BRIDGE SECTION J |
| | 9777 | RELOCATED VALLEY SECTION I<br>INVERT ADJUSTED |
| K | 11596 | VALLEY SECTION K |
| L | 13196 | VALLEY SECTION L<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| M | 14796 | VALLEY SECTION M |
| N | 16096 | VALLEY SECTION N |
| | 16396 | BRIDGE SECTION @ MAPLELANE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS N & O |
| O | 16418 | BRIDGE SECTION O @ MAPLELANE ROAD UPSTREAM FACE |
| P | 16768 | VALLEY SECTION P |
| Q | 17168 | VALLEY SECTION Q<br>LEFT AND RIGHT OVERBANKS SKEWED @ 0.25<br>CHANNEL SKEWED @ 0.7 |
| | 17268 | BRIDGE SECTION @ 14-MILE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY: FROM BRIDGE SECTION A<br>LEFT AND RIGHT OVERBANKS SKEWED @ 0.25<br>CHANNEL SKEWED @ 0.7 |
| A | 17368 | BRIDGE SECTION A @ 14-MILE ROAD UPSTREAM FACE<br>LEFT AND RIGHT OVERBANKS SKEWED @ 0.25<br>CHANNEL SKEWED @ 0.7 |
| | 18244 | INTERPOLATED FROM SECTIONS Q & B 1/2 WAY POINT<br>INVERT ADJUSTED |
| B | 19119 | VALLEY SECTION B |
| C | 20219 | VALLEY SECTION C |
| D | 21119 | VALLEY SECTION D |
| E | 22069 | VALLEY SECTION E |

| | | |
|---|---|---|
| F | 22419 | VALLEY SECTION F |
| G | 23319 | VALLEY SECTION G |
| H | 23569 | VALLEY SECTION H<br>RIGHT ENCROACHMENT TO RETAIN DIVIDED FLOW |
| I | 24369 | VALLEY SECTION I<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| J | 25819 | VALLEY SECTION J<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 25919 | BRIDGE SECTION @ VAN DYKE ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS J & K<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| K | 26025 | BRIDGE SECTION K @ VAN DYKE ROAD UPSTREAM FACE<br>BRIDGE TABLE START @ STA.287; END @ STA.750<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 26125 | RELOCATED SECTION J<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| L | 26900 | VALLEY SECTION L |
| M | 27150 | VALLEY SECTION M<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| N | 27900 | VALLEY SECTION N |
| | 28000 | BRIDGE SECTION @ DENTON CONST. BRIDGE DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS N & O<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| O | 28031 | BRIDGE SECTION O @ DENTON CONST. BRIDGE UPSTREAM FACE<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| P | 28331 | VALLEY SECTION P |
| | 28431 | BRIDGE SECTION @ PENN CENTRAL CROSSING DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS P & Q |

| | | |
|---|---|---|
| Q | 28449 | BRIDGE SECTION Q @ PENN CENTRAL UPSTREAM FACE |
| | 28549 | RELOCATED SECTION Q<br>INVERT ADJUSTED |
| R | 29749 | VALLEY SECTION R<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 30474 | INTERPOLATED SECTION<br>FROM SECTION R & S 1/2 WAY POINT |
| S | 31199 | VALLEY SECTION S<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31299 | BRIDGE SECTION @ MOUND ROAD NB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS S & T<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| T | 31350 | BRIDGE SECTION T @ MOUND ROAD NB UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 50 ; ENDS @ STA. 500<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31430 | BRIDGE SECTION @ MOUND ROAD SB DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS S & U<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| U | 31483 | BRIDGE SECTION U @ MOUND ROAD SB UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 50 ; ENDS @ STA. 500<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| | 31583 | RELOCATED SECTION S<br>INVERT ADJUSTED<br>LEFT ENCROACHMENT DUE TO BUILDING LINE<br>RIGHT ENCROACHMENT DUE TO BUILDING LINE |
| V | 33333 | VALLEY SECTION V |
| | 33433 | BRIDGE SECTION @ PEDESTRIAN BRIDGE DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS V & W |
| W | 33438 | BRIDGE SECTION W @ PEDESTRIAN BRIDGE UPSTREAM FACE |
| | 33538 | RELOCATED SECTION V<br>INVERT ADJUSTED |

| | | |
|---|---|---|
| X | 34888 | VALLEY SECTION X |
| Y | 37038 | VALLEY SECTION Y |
| | 37088 | BRIDGE SECTION @ RYAN ROAD DOWNSTREAM FACE<br>GROUND POINTS ONLY<br>BLEND OF SECTIONS Y & Z<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| Z | 37121 | BRIDGE SECTION Z @ RYAN ROAD UPSTREAM FACE<br>BRIDGE TABLE STARTS @ STA. 50 ; ENDS @ STA. 450<br>LEFT ENCROACHMENT DUE TO EXPANSION<br>RIGHT ENCROACHMENT DUE TO EXPANSION |
| | 37221 | RELOCATED SECTION Y<br>INVERT ADJUSTED |
| AA | 39121 | VALLEY SECTION AA |
| AB | 41121 | VALLEY SECTION AB<br>SKEWED FOR PERPENDICULARITY TO FLOW |
| AC | 42521 | VALLEY SECTION AC<br>SKEWED FOR PERPENDICULARITY TO FLOW |




LEGEND

- ⊙ MINIMUM ROADWAY ELEVATION
- ⊡ JUNE 1968 HIGH-WATER MARKS
- △ INVERT FROM 1970 INTERIM SURVEY REPORT

Confl w/ Clinton R. & X-sec DD - City of Warren

DRAWN:
DESIGN:
CHECKED:
FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 1000'

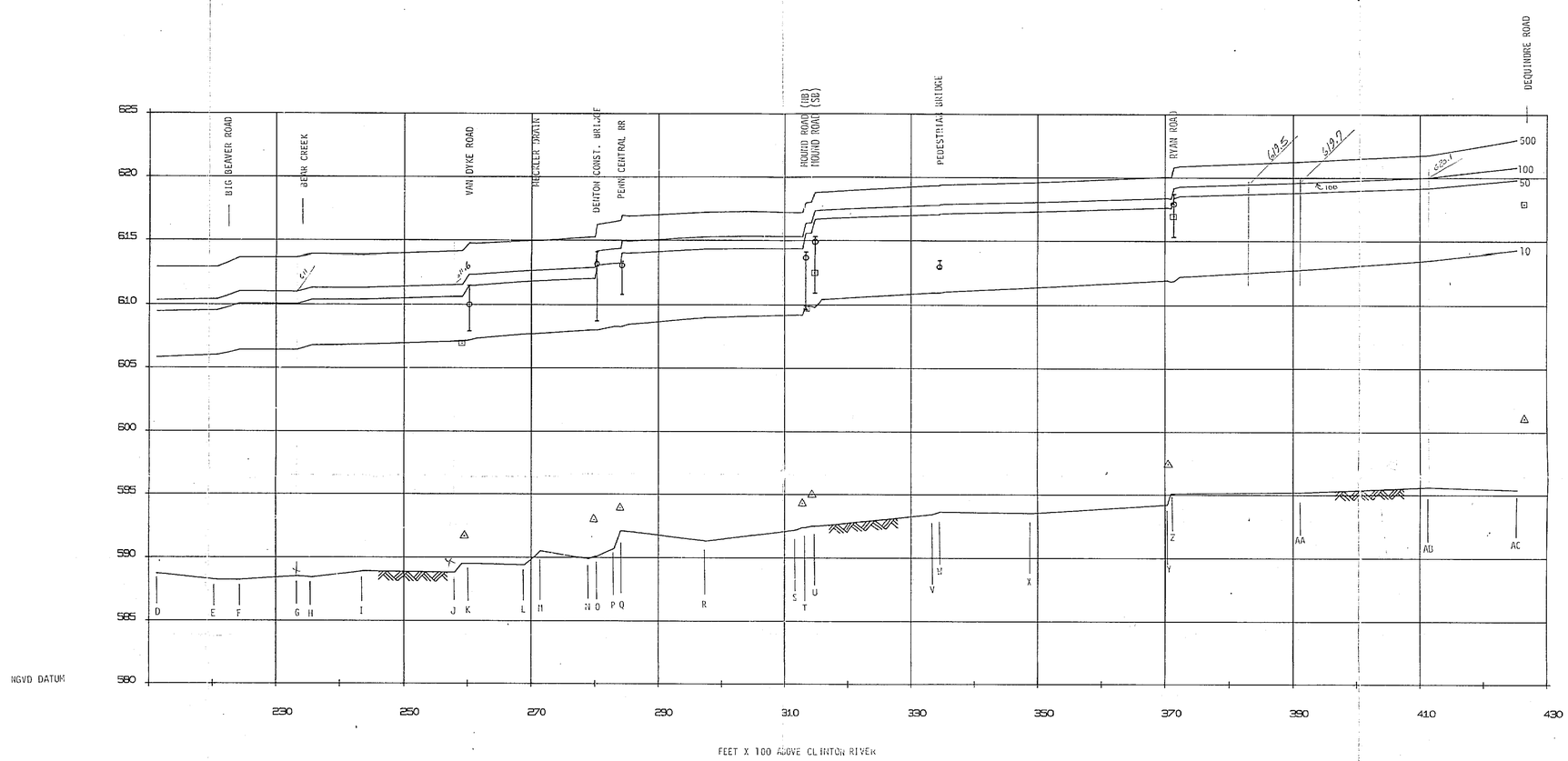
| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

# RED RUN DRAIN

CITY OF WARREN & STERLING HEIGHTS
& CLINTON TOWNSHIP, MI. FIS
PROJECT MANAGER - WILLIAM C. ROSSOW, P.E.

JOB NO. 5555 - 70-1
5670-C2.10-1
DATE ISSUED 8-23-77
SHEET NO. 1 OF 2




LEGEND

⊙ MINIMUM ROADWAY ELEVATION

⊡ JUNE 1968 HIGH-WATER MARKS

△ INVERT FROM 1970 INTERIM SURVEY REPORT

| Job No. | Contr. No. | Const. Tab No. | Type of Job No. | Sheet No. of Sheets | At Built | Section | City No. in County | Twp. No. in County | Village No. in County | County No. in State | State | Construction Contract | Job Code No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | |

DRAWN:
DESIGN:
CHECKED:
DATE COMPLETED:
FINAL:
PRELIMINARY:

REVISIONS

| MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

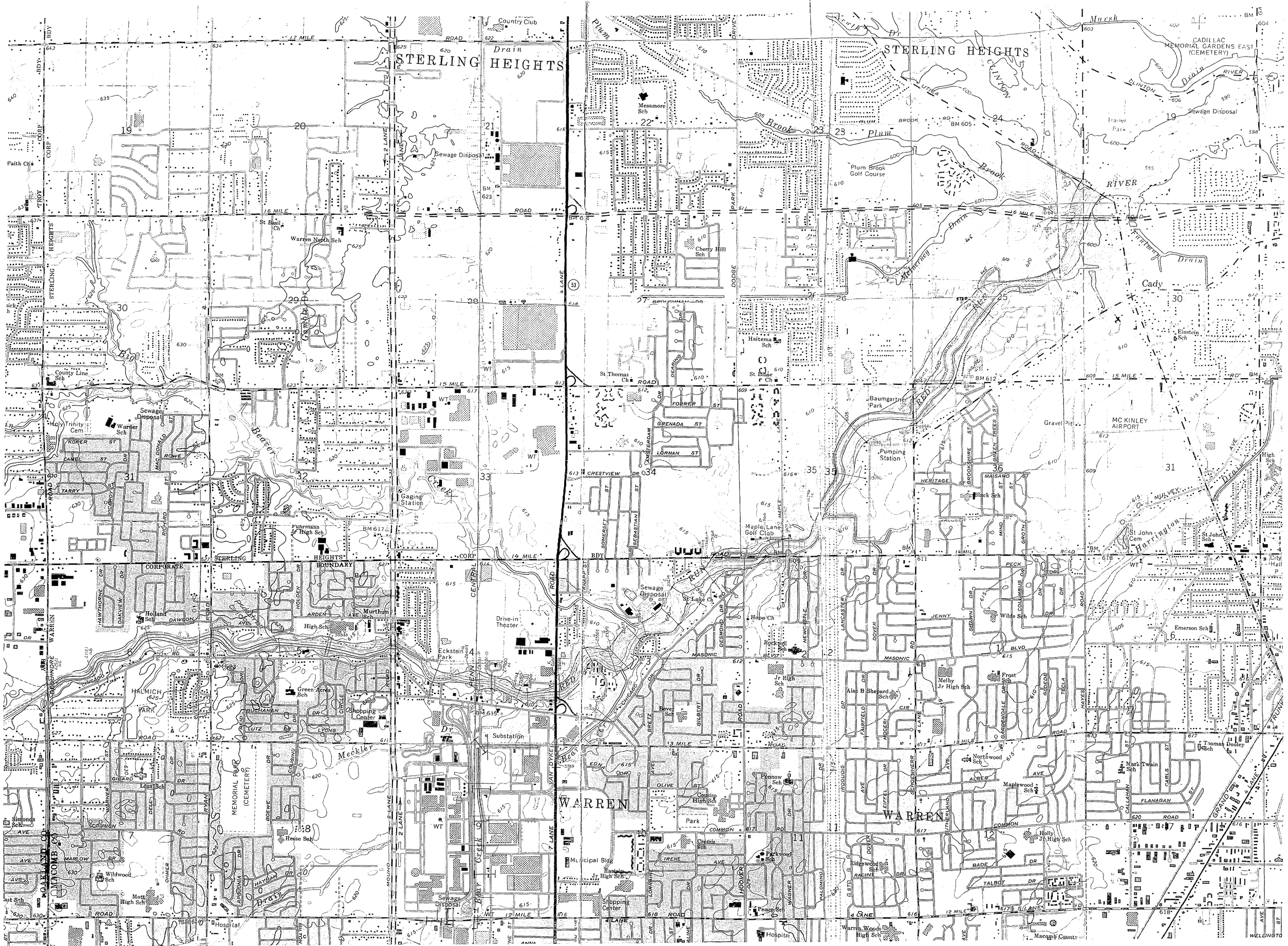
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

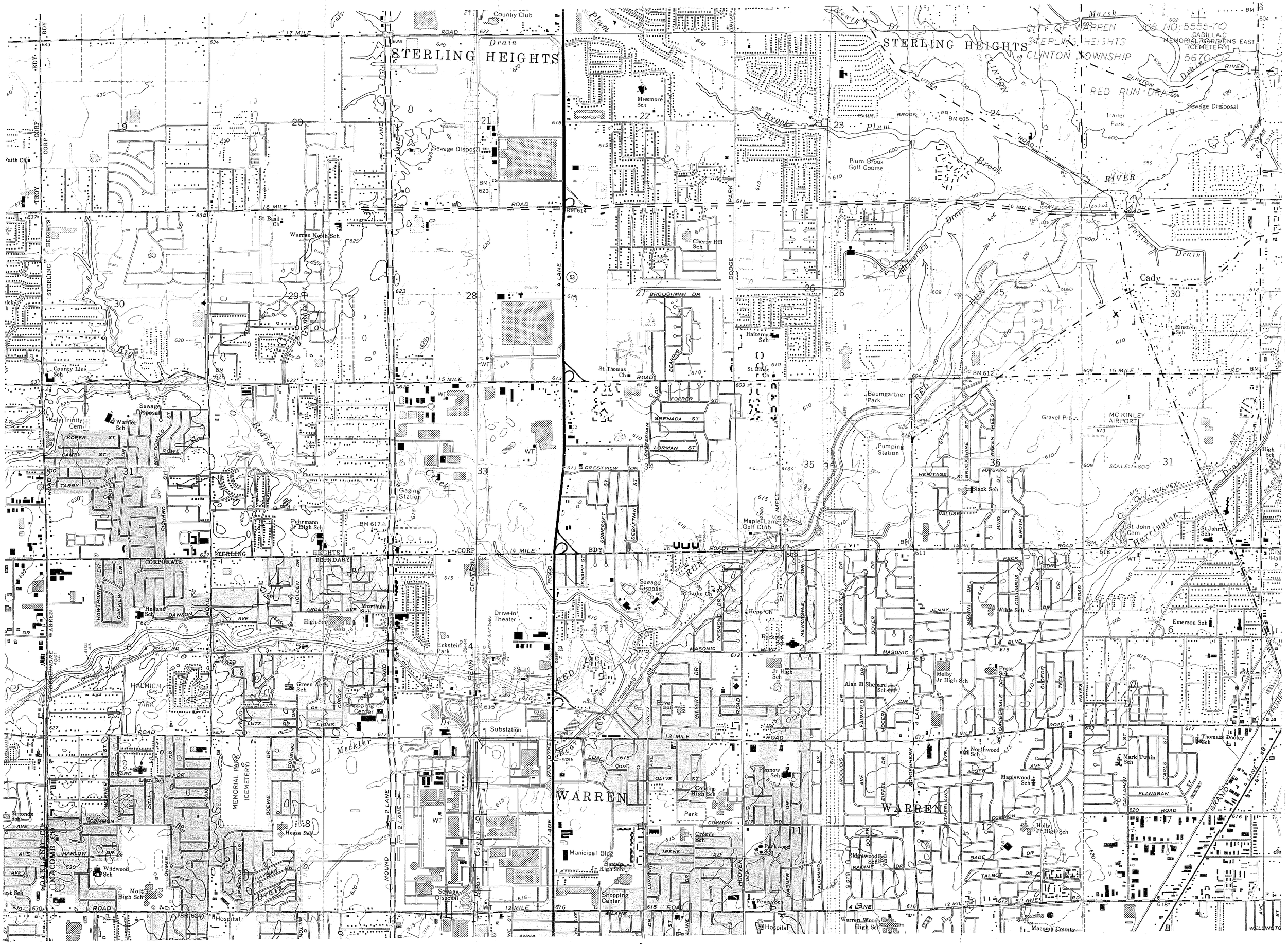
# RED RUN DRAIN

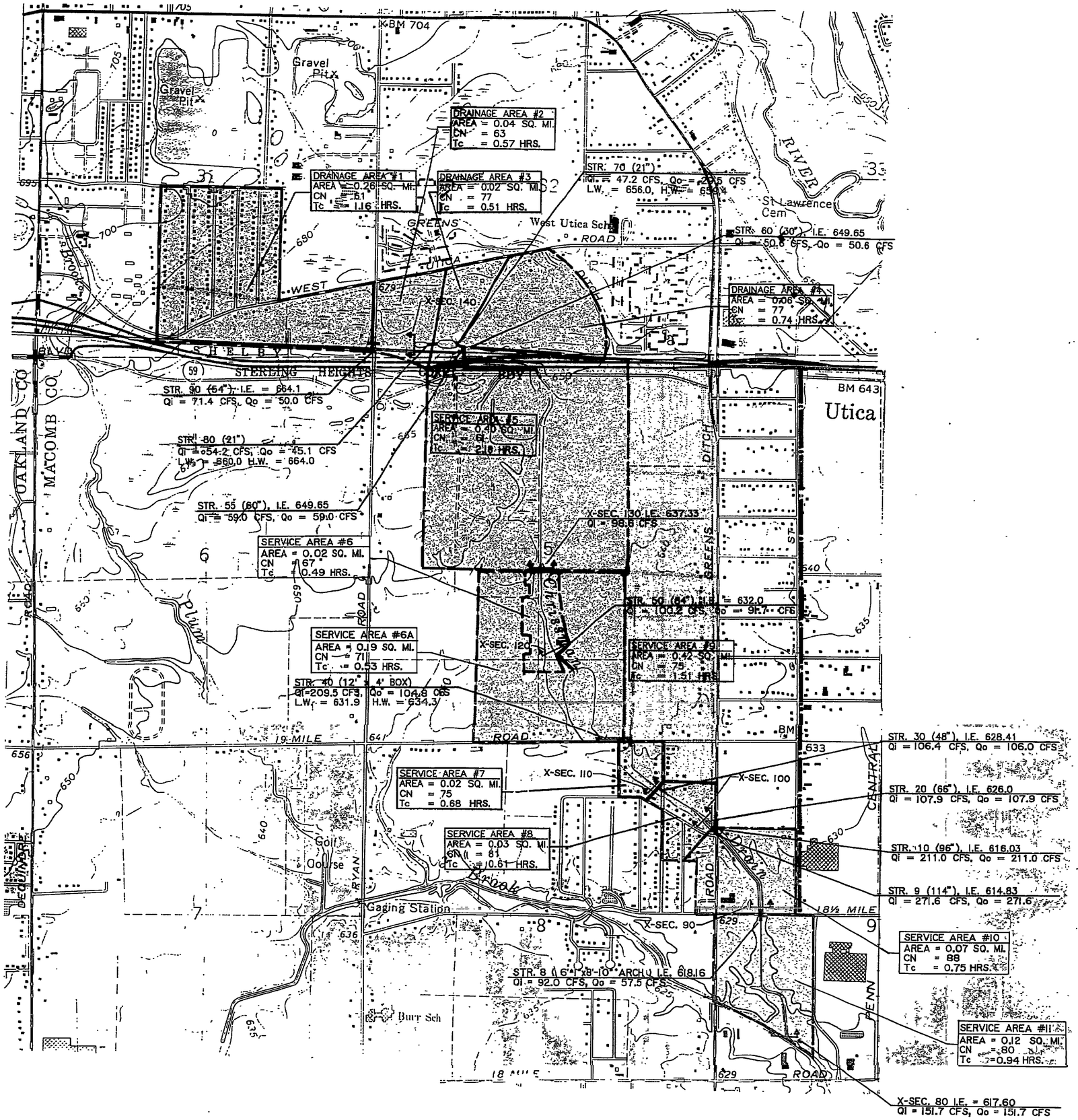
CITY OF WARREN & STERLING HEIGHTS & CLINTON TOWNSHIP, MI. FIS
PROJECT MANAGER - WILLIAM C. ROSSOW, P.E.

SCALE: VERT. 1" = 5' HORIZ. 1" = 1000'

5555-70-1
JOB NO. 567'0-02.10-1
DATE ISSUED 8-23-77
SHEET NO. 2 OF 2

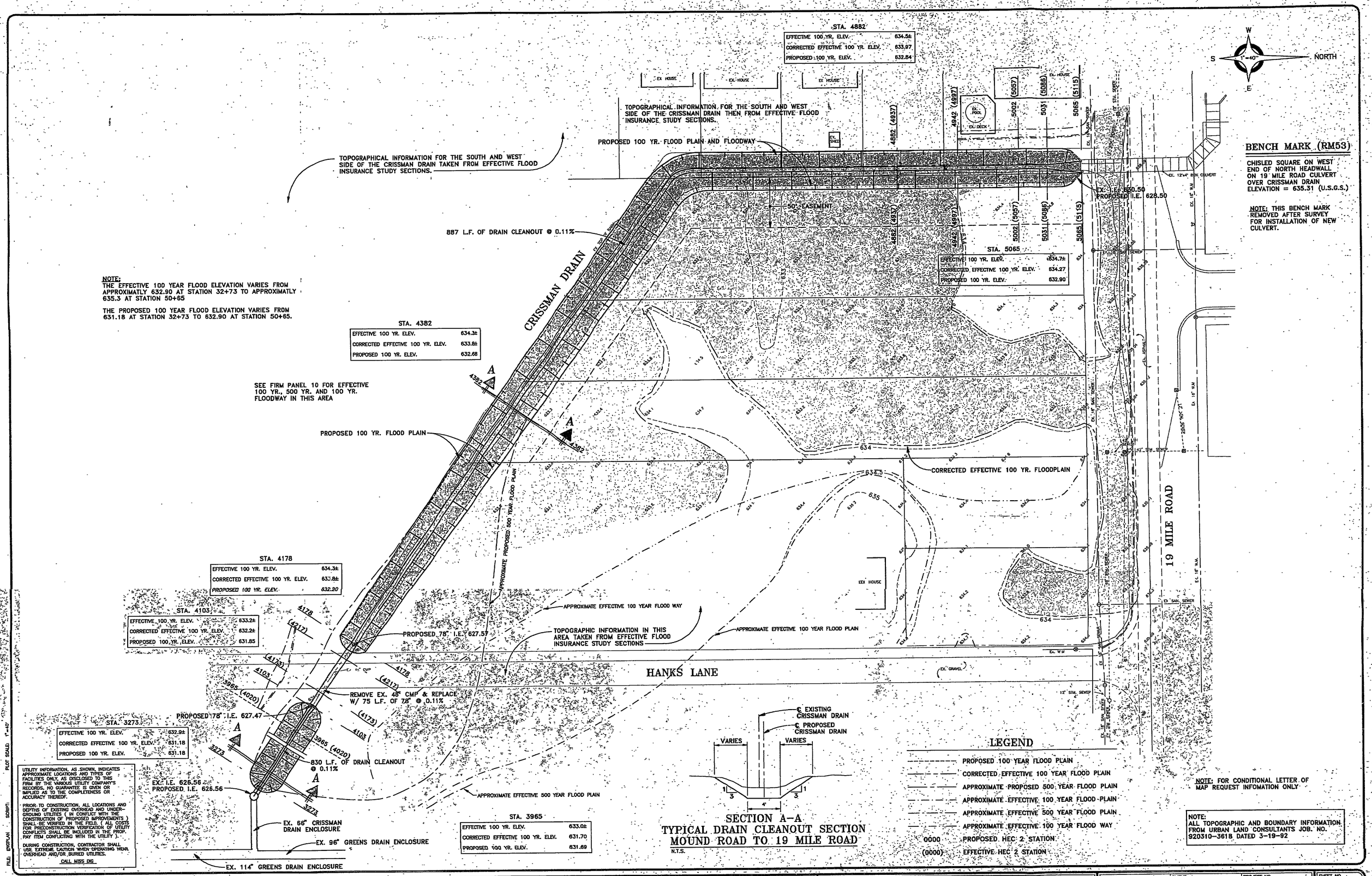

STERLING HEIGHTS
WARREN
17 MILE ROAD
16 MILE ROAD
15 MILE ROAD
14 MILE ROAD
13 MILE ROAD
12 MILE ROAD
Country Club
Messmore Sch
Sewage Disposal
Plum Brook Golf Course
Plum Brook Drain
Clinton River
Cady Drain
CADILLAC MEMORIAL GARDENS EAST (CEMETERY)
Trailer Park
Faith Ch
St Basil Ch
Warren North Sch
Cherry Hill Sch
Haitema Sch
St Thomas Ch
St Blase Ch
County Line Sch
Holy Trinity Cem
Warner Sch
Baumgartner Park
Pumping Station
Gravel Pit
MC KINLEY AIRPORT
Einstein Sch
Gaging Station
Fuhrmann Jr High Sch
Maple Lane Golf Club
Black Sch
St John Cem
St John Sch
High Sch
City Hall
Holland Sch
Murthum Sch
Drive-in Theater
Eckstein Park
Green Acres Sch
Shopping Center
Substation
Sewage Disposal
St Luke Ch
Hope Ch
Rockwell Sch
Jr High Sch
Wilde Sch
Emerson Sch
Melby Jr High Sch
Frost Sch
Alan B Shepard Sch
Beve Sch
Northwood Sch
Thomas Dooley Sch
Mark Twain Sch
Maplewood Sch
Pennow Sch
Cousino High Sch
Park
Cromie Sch
Parkwood Sch
Holly Jr High Sch
Ridgewood Sch
Municipal Bldg
Hanson Jr High Sch
Peace Sch
Hospital
Warren Woods High Sch
Macomb County
Meckler Drain
Red Run
Chicago
Beaver Creek
Mound
Van Dyke
Dodge Park
Gratiot
Harrington
Mulvey
Grand
Hayman
Bethuy
Hoover
Wagner
Lorraine
Irene
Ardmore
Fenn
Central
Kenny
Dawson
Arden
Holden
Hawthorne
Darview
Richard
Mac Donald
Korer
Canel
Rowe
Tarry
Forrer
Grenada
Lorman
Crestview
Heritage
Masano
Brookshire
Green Trees
Somerset
Sebastian
Maple
Valley
Mind
Groth
Peck
Jenny
Sewan
Columbus
Dover
Lancaster
Newcastle
Desmond
Masonic
Fairfield
Mocery
Schoenherr
Iroquois
Eiffel
Sutherland
Alger
Gardendale
Gilbert
Bretz
Edna
Olive
Irene
Lorraine
Hoover
Wagner
Palomino
Racine
Talbot
Bade
Flanagan
Carls
Callahan
Hayes
Tecla
Gilbert
Lutz
Lyons
Buchanan
Cousino
Girard
Warner
Delt
Irman
Boewe
Mott
Lenox
Wildwood Sch
Hesse Sch
Simonds Sch
Hospital
MEMORIAL PARK (CEMETERY)
HALMICH PARK
MACOMB CO
OAKLAND CO
WATER MANAGEMENT


STERLING HEIGHTS
WARREN
CITY OF WARREN
STERLING HEIGHTS
CLINTON TOWNSHIP
JOB NO. 5555-70
5670-02
RED RUN DRAIN
Plum Brook
Plum Brook Golf Course
Trailer Park
Sewage Disposal
Cady
MC KINLEY AIRPORT
SCALE: 1:800
Baumgartner Park
Gravel Pit
Pumping Station
Maple Lane Golf Club
Gaging Station
Drive-in Theater
Substation
Municipal Bldg
Shopping Center
Hospital
Macomb County
Cherry Hill Sch
Messmore Sch
Warren North Sch
St Basil Ch
County Line Sch
Holy Trinity Cem
Warner Sch
Fuhrmann High Sch
Holland Sch
Murthum Sch
High Sch
Eckstein Park
Green Acres Sch
Lean Sch
Hesse Sch
Wildwood Sch
Mott High Sch
Simonds Sch
Hospital
St Thomas Ch
Haiterna Sch
St Blase Ch
Black Sch
St Luke Ch
Hope Ch
Rockwell Sch
Jr High Sch
Beyer Sch
Pannow Sch
Causing High Sch
Crowie Sch
Parkwood Sch
Peace Sch
Hartigan Jr High Sch
Ridgewood Sch
Warren Woods High Sch
Einstein Sch
St John Cem
St John Sch
Wilde Sch
Emerson Sch
Melby Jr High Sch
Frost Sch
Alan B Shepard Sch
Northwood Sch
Maplewood Sch
Holly Jr High Sch
Thomas Dooley Sch
Mark Twain Sch
High Sch
City Hall
Faith Ch
Country Club
Beaver Creek
Meckler Drain
Memorial Park (Cemetery)
Cadillac Memorial Gardens East (Cemetery)
Harrington Drain
Grand Trunk Western
17 MILE ROAD
16 MILE ROAD
15 MILE ROAD
14 MILE ROAD
13 MILE ROAD
12 MILE ROAD
DODGE PARK
VAN DYKE
MACOMB CO
ROAMOUNT CO




# CRISSMAN / GREENS DRAIN HYDROLOGY ( 100-YEAR EVENT )
## UPSTREAM OF CONFLUENCE WITH PLUM BROOK

NOTE:
HYDROLOGY WAS MODELED ON SCS TR-20
FOR A 100-YEAR, 24-HOUR, TYPE II RAINFALL
EVENT UNDER AN AMC OF II




| REVISIONS | DATE | REMARKS | DATE | REMARKS |
|---|---|---|---|---|
| | | | | |

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

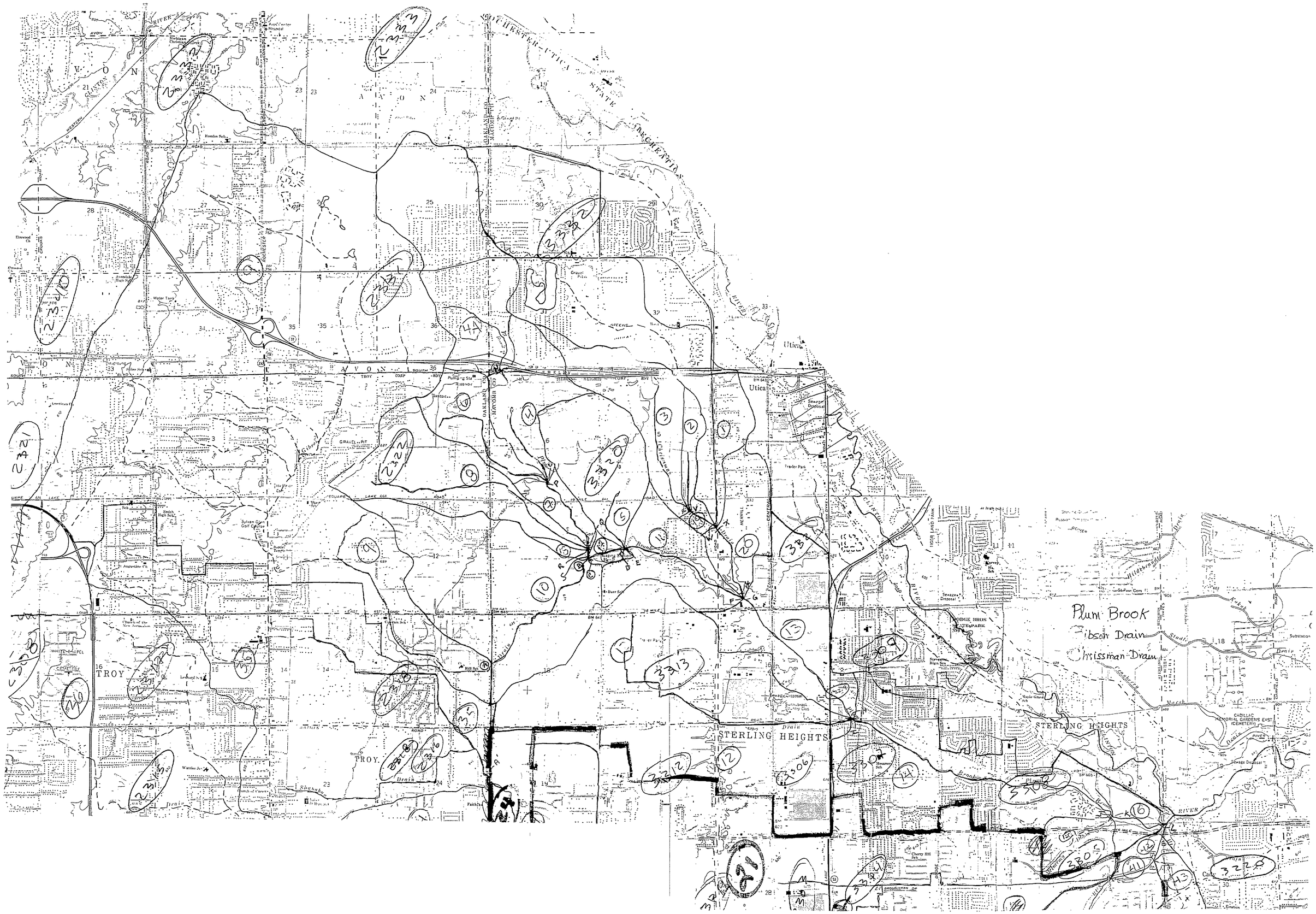
# CRISSMAN DRAIN
CITY OF STERLING HEIGHTS

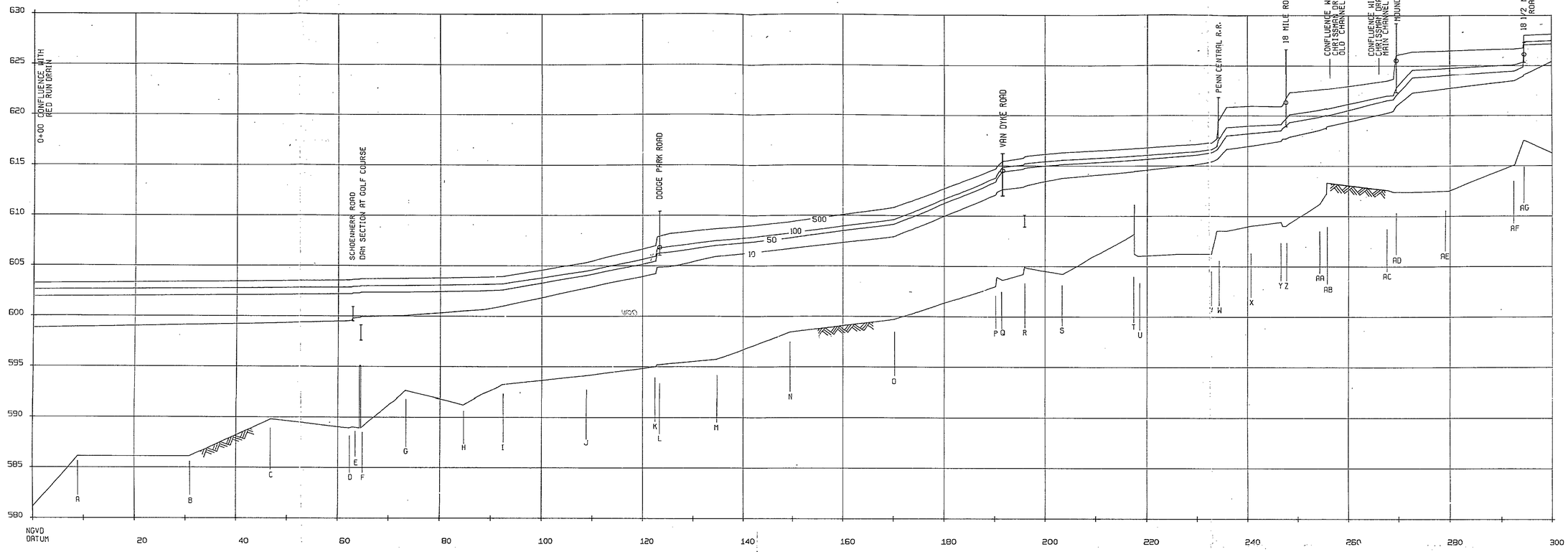
ANDERSON, ECKSTEIN AND WESTRICK, INC.
51301 SCHOENHERR ROAD • SHELBY TOWNSHIP • MICHIGAN • 48315
PHONE (810) 726-1234
CIVIL ENGINEERS • SURVEYORS • ARCHITECTS

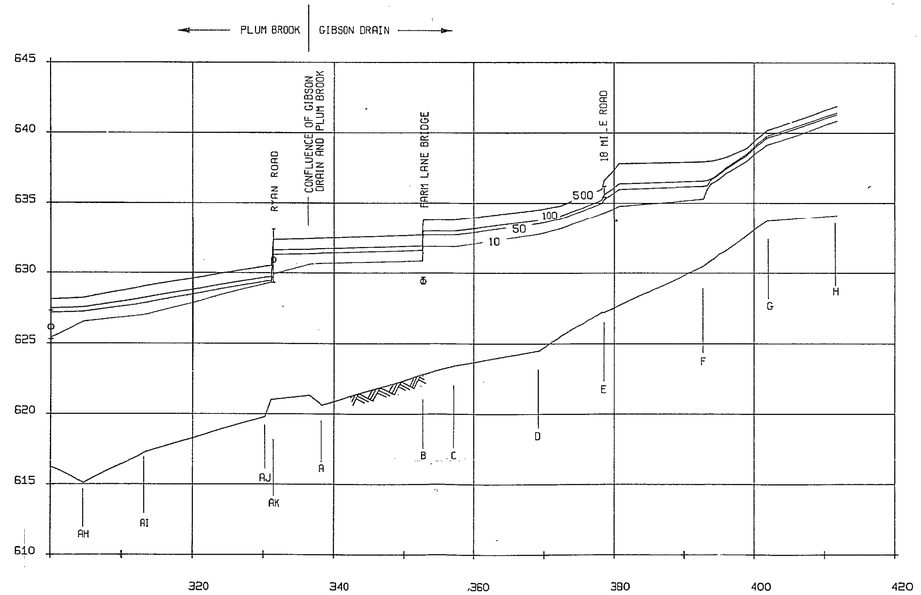
C.L.O.M.R.
MOUND ROAD TO 19 MILE ROAD
CLEAN-OUT

| | | | |
|---|---|---|---|
| ■ PRELIMINARY | CLIENT MCOPWC | PROJECT NO. 211-029 | SHEET NO. 1 OF 1 |
| ☐ CONSTRUCTION | SCALE 1" - 40' | DATE JANUARY 1996 | |
| ☐ AS-BUILT | | DRAWN BY DMS. / CHECKED BY SVP | |

FILE: ENGPLAN SCRIPT: PLOT SCALE: 1"=40' 02-28-96


Utica
TROY
STERLING HEIGHTS
Plum Brook
Gibson Drain
Chrissman Drain




NOTE - IN THE FINAL REPORT, RED RUN DRAIN ELEVATIONS WILL BE EXTENDED HORIZONTALLY UNTIL THE CORRESPONDING PLUM BROOK PROFILES ARE INTERSECTED.

Job No. | Contr. No. | Orig. Trace No. | Type of Job No. | Sheet No. | Sheet No. of Sheets | As Built | Section | City No. in County | Town No. in County | Village No. in County | Country | State | Construction Contract | Job Code No.

DRAWN:
DESIGN:
CHECKED:
DATE COMPLETED:
FINAL:
PRELIMINARY:

REVISIONS

| MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

PLUM BROOK
GIBSON DRAIN

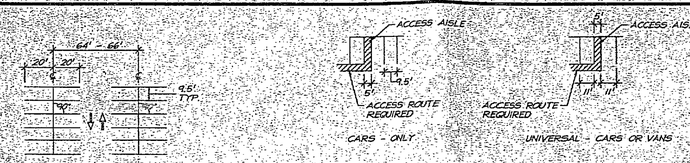
CITY OF STERLING HEIGHTS, MI, FIS

PROJECT MANAGER - WILLIAM C. ROSSOW

SCALE: VERT. 1" = 5'
HORIZ. 1" = 1000'

JOB NO. 5670-10-1
DATE ISSUED
SHEET NO.

Dec 77




METHOD No. 1 — TWO WAY DRIVE

(MAXIMUM CARS IN MOST CASES.)

## ACCESSIBLE PARKING SPACES DESIGNS

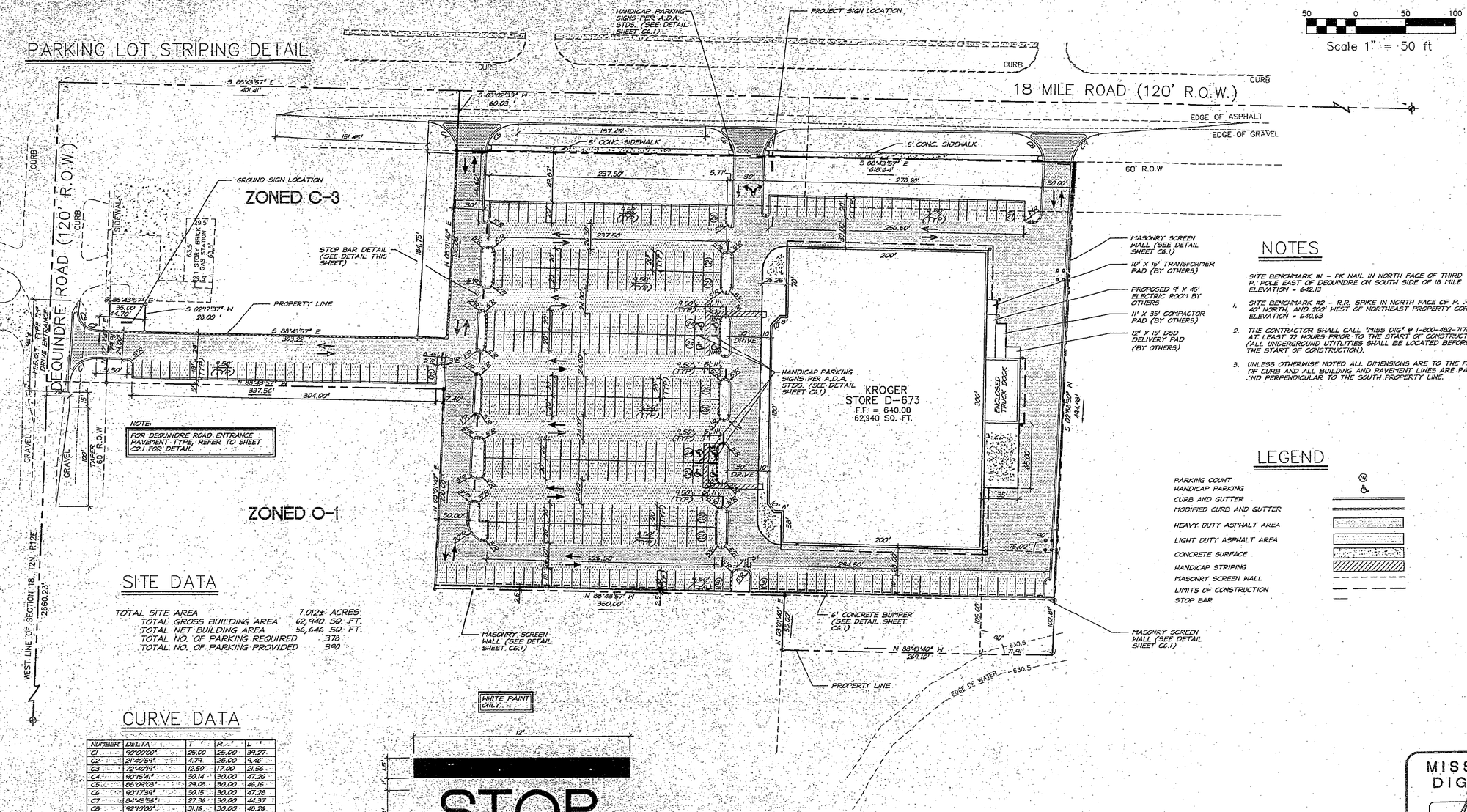
- VEHICLE STANDING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 2% IN ALL DIRECTIONS.

NOTES:

1. ACCESSIBLE PARKING SPACES PER ACCESSIBILITY GUIDELINES - SECTION 28, IN SPECS.
2. ACCESSIBLE PARKING SPACES TO BE SIGNED WITH THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. VAN SPACES SHALL HAVE ADDITIONAL VAN ACCESSIBLE SIGN MOUNTED BELOW THE SYMBOL.

NOTE:
FOR 18 MILE ROAD WIDENING AND PAVEMENT TYPE, REFER TO SHEET C2.1 FOR PLAN AND PROFILE.

## PARKING LOT STRIPING DETAIL



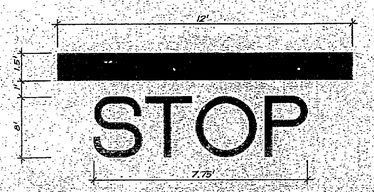

## SITE DATA

| | |
|---|---|
| TOTAL SITE AREA | 7.012± ACRES |
| TOTAL GROSS BUILDING AREA | 62,940 SQ. FT. |
| TOTAL NET BUILDING AREA | 56,646 SQ. FT. |
| TOTAL NO. OF PARKING REQUIRED | 378 |
| TOTAL NO. OF PARKING PROVIDED | 390 |

## CURVE DATA

| NUMBER | DELTA | T | R | L |
|---|---|---|---|---|
| C1 | 90°00'00" | 25.00 | 25.00 | 39.27 |
| C2 | 21°40'54" | 4.79 | 25.00 | 9.46 |
| C3 | 72°40'19" | 12.50 | 17.00 | 21.56 |
| C4 | 90°15'41" | 30.14 | 30.00 | 47.26 |
| C5 | 88°09'03" | 24.05 | 30.00 | 46.16 |
| C6 | 90°17'59" | 30.15 | 30.00 | 47.28 |
| C7 | 84°43'56" | 27.36 | 30.00 | 44.37 |
| C8 | 92°10'00" | 31.16 | 30.00 | 48.26 |
| C9 | 82°32'37" | 26.35 | 30.00 | 43.22 |

WHITE PAINT ONLY




STOP BAR DETAIL

NOT TO SCALE

## NOTES

SITE BENCHMARK #1 - PK NAIL IN NORTH FACE OF THIRD P. POLE EAST OF DEQUINDRE ON SOUTH SIDE OF 18 MILE ELEVATION = 642.13

1. SITE BENCHMARK #2 - R.R. SPIKE IN NORTH FACE OF P. POLE 40' NORTH, AND 200' WEST OF NORTHEAST PROPERTY COR. ELEVATION = 640.63
2. THE CONTRACTOR SHALL CALL "MISS DIG" @ 1-800-482-7171 AT LEAST 72 HOURS PRIOR TO THE START OF CONSTRUCTION (ALL UNDERGROUND UTILITIES SHALL BE LOCATED BEFORE THE START OF CONSTRUCTION).
3. UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE TO THE FACE OF CURB AND ALL BUILDING AND PAVEMENT LINES ARE PARALLEL AND PERPENDICULAR TO THE SOUTH PROPERTY LINE.

## LEGEND

- PARKING COUNT
- HANDICAP PARKING
- CURB AND GUTTER
- MODIFIED CURB AND GUTTER
- HEAVY DUTY ASPHALT AREA
- LIGHT DUTY ASPHALT AREA
- CONCRETE SURFACE
- HANDICAP STRIPING
- MASONRY SCREEN WALL
- LIMITS OF CONSTRUCTION
- STOP BAR

| NO. | DATE | DESCRIPTION |
|---|---|---|
| | 7/22/96 | ISSUED FOR BID |
| | 8/14/96 | PER OWNER REVIEW |

REVISIONS

50 0 50 100

Scale 1" = 50 ft


LEDY DESIGN GROUP
3135 PINE TREE ROAD
SUITE C
LANSING, MI 48911
PH.# (517) 393-3773
FAX (517) 393-9450


PREPARED FOR:

Kroger


THE KROGER COMPANY
17390 LAUREL PARK DR. N.
SUITE 400
LIVONIA, MI 48152


# PLOT PLAN FOR KROGER D-673

LOCATED IN PART OF THE NW 1/4 OF SEC 18, T2N, R12E, CITY OF STERLING HEIGHTS, MACOMB COUNTY, MICHIGAN

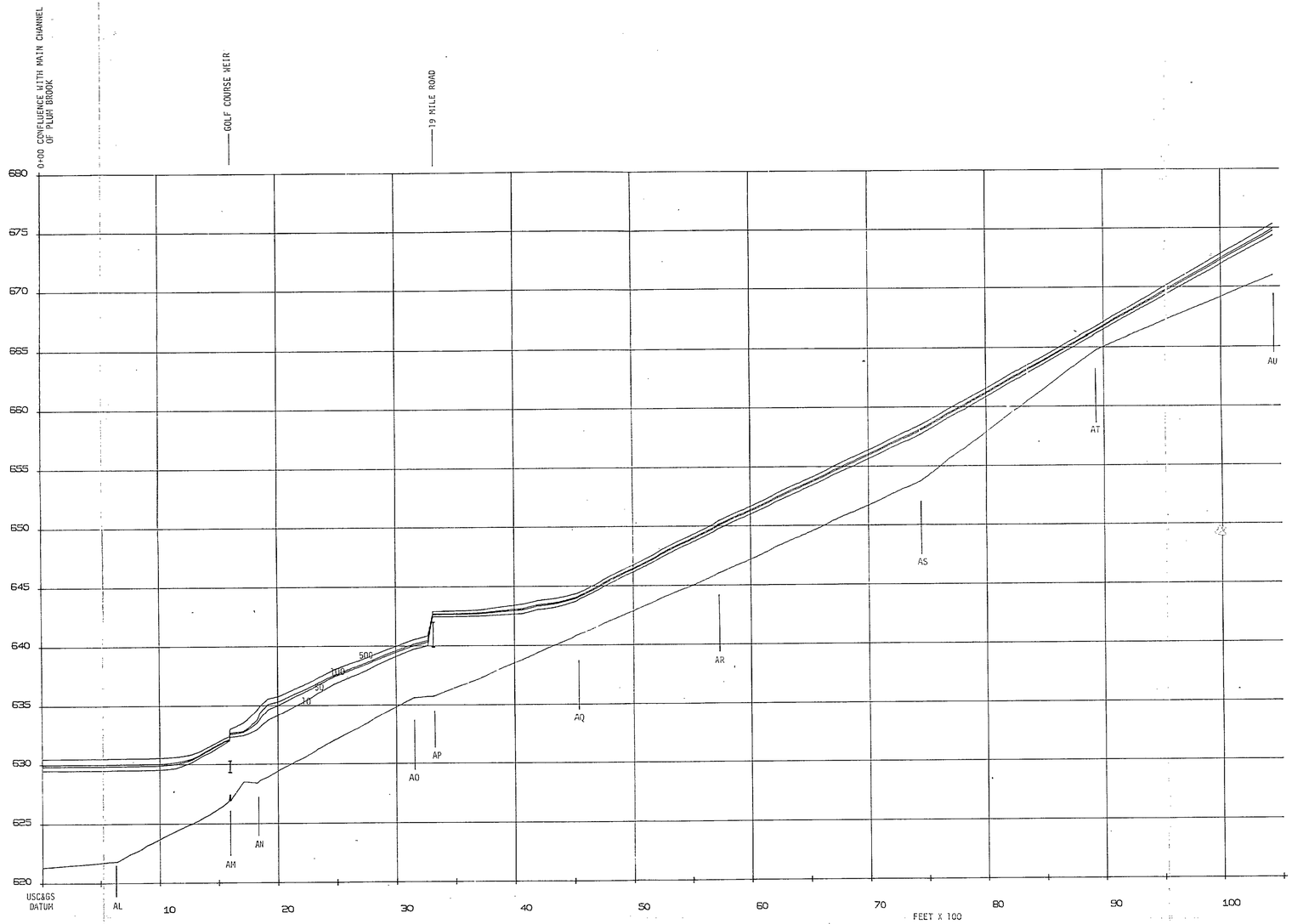
MISS DIG

3 WORKING DAYS

BEFORE YOU DIG OR DRILL CALL 1-800-482-7171 (TOLL FREE)

| | |
|---|---|
| FILE | 166-0010.DWG |
| DESIGNED BY | MDP |
| DRAWN BY | DHB |
| CHECKED BY | ADB |
| DATE | MAY 31, 1996 |
| SCALE HOR. | 1" = 50' |
| VERT. | N/A |
| PROJECT NO. | 166.0010 |
| SHEET NO. | C2.0 |

KROGER STORE D-673




NOTE: IN THE FINAL REPORT, PLUM BROOK ELEVATIONS WILL BE EXTENDED HORIZONTALLY UNTIL THE CORRESPONDING PLUM BROOK ABOVE CONFLUENCE WITH GIBSON DRAIN PROFILES ARE INTERSECTED.

PLUM BROOK ABOVE CONFLUENCE WITH GIBSON DRAIN

DRAWN:
DESIGN:
CHECKED:
FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 500'

| REVISIONS | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE | MARK | BULLETIN | DATE |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

PLUM BROOK

CITY OF STERLING HEIGHTS, MI, FIS
PROJECT MANAGER - WILLIAM C. ROSSOW, P.E.

JOB NO. 5670-10
DATE ISSUED
SHEET NO.

Dec 77

LEGAL DESCRIPTION: (PARCEL "A") Part of the Northwest 1/4 of Section 18, T.2N., R.12E., City of Sterling Heights, Macomb County, Michigan, being more particularly described as follows: Beginning at a point which is S88°43'57"E 401.41 ft. along the North line of Section 18 and S03°01'40"W 60.03 ft. from the Northwest corner of Section 18, T.2N., R.12E.; thence, along a line parallel with and 60 ft. South of the North line of Section 18, S88°43'57"E 618.64 ft.; thence S02°58'30"W 494.98 ft.; thence N88°43'40"W 269.10 ft.; thence N03°01'40"E 55.00 ft.; thence N88°43'57"W 350.00 ft.; thence N03°01'40"E 200.00 ft.; thence N88°43'57"W 337.56 ft.; thence, along a line parallel with and 60 ft. East of the West line of Section 18, N02°17'37"E 79.91 ft.; thence S88°43'57"E 35.00 ft.; thence, along a line parallel with and 95 ft. East of the West line of Section 18, S02°17'37"W 28.00 ft.; thence S88°43'57"E 303.22 ft.; thence N03°01'40"E 188.05 ft. to the point of beginning. Containing 305,457 Square Feet --- 7.012 Acres (Net)

NOTE 1: In order to obtain N.G.V.D. datum, subtract 0.20 from all spot elevations, contours, and benchmarks.

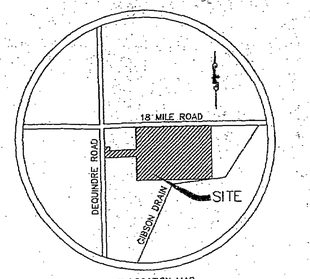
NOTE 2: Underground utility line locations were obtained from existing plans and above ground markings. Field verification has been performed where possible. Actual below ground locations are approximate.

NOTE 3: Easements recorded in Liber 3257, Page 228 and Liber 3257, Page 231 do not affect this parcel.

## BENCHMARKS (SEE NOTE 1)

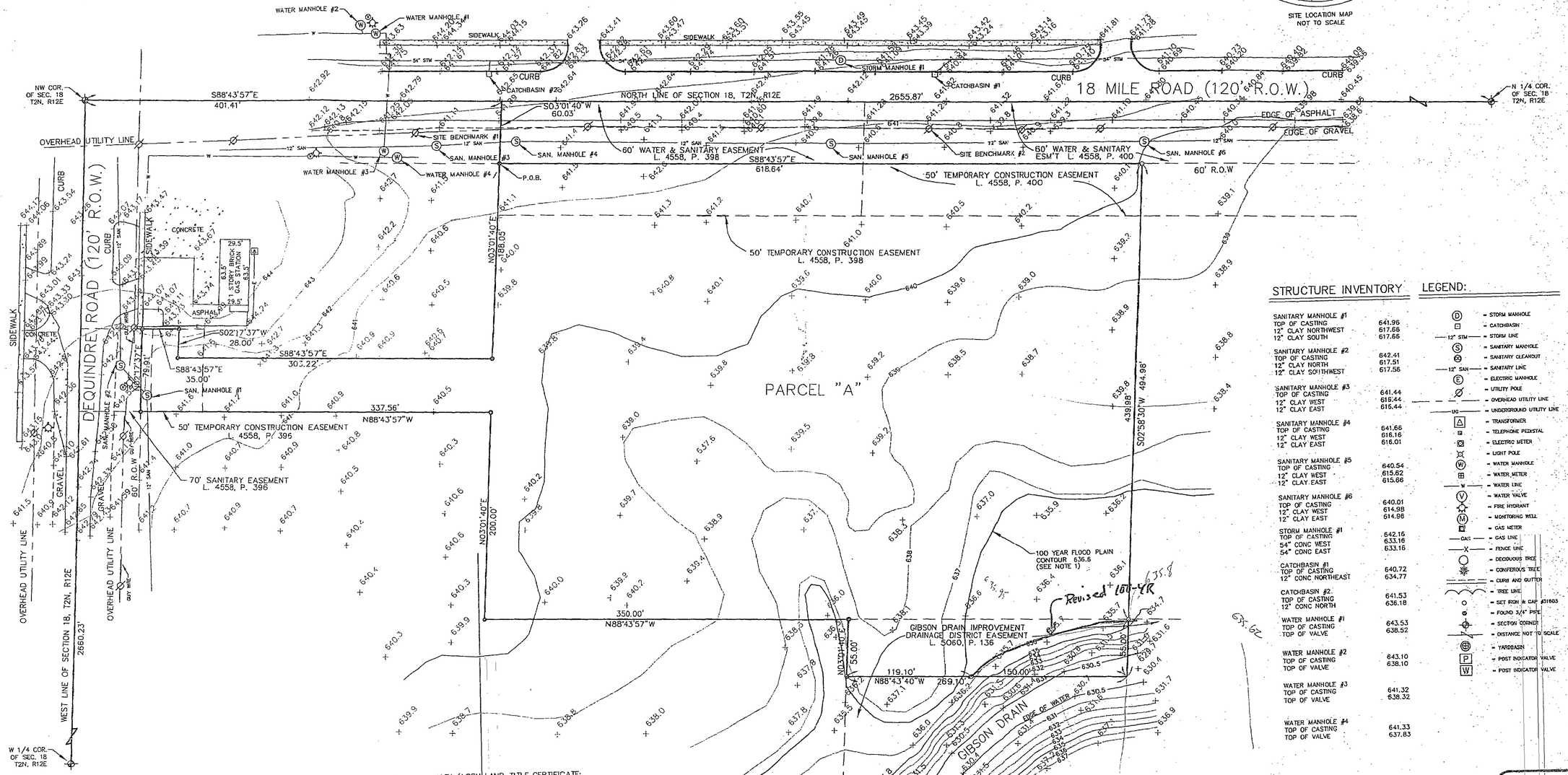
SITE BENCHMARK #1 – PK NAIL IN NORTH FACE OF THIRD P. POLE EAST OF DEQUINDRE ON SOUTH SIDE OF 18 MILE ELEVATION = 642.13 (PER HUBBELL, ROTH, & CLARK, INC., DEQUINDRE RD. SANITARY, JOB # 870054, SHEET 5, 7/8/89)

SITE BENCHMARK #2 – RR SPIKE IN NORTH FACE OF P. POLE 40' NORTH, AND 200' WEST OF NORTHEAST PROPERTY COR. ELEVATION = 640.63




SITE LOCATION MAP
NOT TO SCALE

Scale 1" = 50' ft




## STRUCTURE INVENTORY

| | |
|---|---|
| SANITARY MANHOLE #1 | |
| TOP OF CASTING | 641.95 |
| 12" CLAY NORTHWEST | 617.66 |
| 12" CLAY SOUTH | 617.66 |
| SANITARY MANHOLE #2 | |
| TOP OF CASTING | 642.41 |
| 12" CLAY NORTH | 617.51 |
| 12" CLAY SOUTHWEST | 617.56 |
| SANITARY MANHOLE #3 | |
| TOP OF CASTING | 641.44 |
| 12" CLAY WEST | 615.44 |
| 12" CLAY EAST | 615.44 |
| SANITARY MANHOLE #4 | |
| TOP OF CASTING | 641.66 |
| 12" CLAY WEST | 616.16 |
| 12" CLAY EAST | 616.01 |
| SANITARY MANHOLE #5 | |
| TOP OF CASTING | 640.54 |
| 12" CLAY WEST | 615.62 |
| 12" CLAY EAST | 615.66 |
| SANITARY MANHOLE #6 | |
| TOP OF CASTING | 640.01 |
| 12" CLAY WEST | 614.98 |
| 12" CLAY EAST | 614.98 |
| STORM MANHOLE #1 | |
| TOP OF CASTING | 642.16 |
| 54" CONC WEST | 633.16 |
| 54" CONC EAST | 633.16 |
| CATCHBASIN #1 | |
| TOP OF CASTING | 640.72 |
| 12" CONC NORTHEAST | 634.77 |
| CATCHBASIN #2 | |
| TOP OF CASTING | 641.53 |
| 12" CONC NORTH | 636.18 |
| WATER MANHOLE #1 | |
| TOP OF CASTING | 643.53 |
| TOP OF VALVE | 638.52 |
| WATER MANHOLE #2 | |
| TOP OF CASTING | 643.10 |
| TOP OF VALVE | 638.10 |
| WATER MANHOLE #3 | |
| TOP OF CASTING | 641.32 |
| TOP OF VALVE | 638.32 |
| WATER MANHOLE #4 | |
| TOP OF CASTING | 641.33 |
| TOP OF VALVE | 637.83 |

## LEGEND:

- STORM MANHOLE
- CATCHBASIN
- 12" STM — STORM LINE
- SANITARY MANHOLE
- SANITARY CLEANOUT
- 12" SAN — SANITARY LINE
- ELECTRIC MANHOLE
- UTILITY POLE
- OVERHEAD UTILITY LINE
- UG — UNDERGROUND UTILITY LINE
- TRANSFORMER
- TELEPHONE PEDESTAL
- ELECTRIC METER
- LIGHT POLE
- WATER MANHOLE
- WATER METER
- W — WATER LINE
- WATER VALVE
- FIRE HYDRANT
- MONITORING WELL
- GAS METER
- GAS — GAS LINE
- FENCE LINE
- DECIDUOUS TREE
- CONIFEROUS TREE
- CURB AND GUTTER
- TREE LINE
- SET IRON & CAP #31603
- FOUND 3/4" PIPE
- SECTION CORNER
- DISTANCE NOT TO SCALE
- YARDBASIN
- P — POST INDICATOR VALVE
- W — POST INDICATOR VALVE

## C-1 ZONING REQUIREMENTS

FRONT YARD IS 35' GREENBELT
BACK YARD IS 50' ABUTTING RESIDENTIAL
SIDE YARD IS 0' WITHOUT DOORS OR WINDOWS
SIDE YARD IS 15' WITH DOORS OR WINDOWS

The undersigned, as of this 1st day of May, 1996 certifies to The Kroger Co., an Ohio corporation, and Chicago Title Insurance Company that: he is a duly registered surveyor in the State of Michigan; this survey is made in accordance with the standards established by the American Title Association and the State of Michigan; the information, courses and distances shown herein are correct; this survey accurately shows the location and dimensions of all buildings, utilities and other improvements situated on the premises; the premises are contiguous with the public dedicated rights of way of 18 Mile and Dequindre Roads and there are no gaps, strips or gores between the premises and said rights-of-way encumbering the premises, encroachments of buildings or other improvements from adjoining property onto the premises or encroachments of buildings or other improvements from the premises onto adjoining property, other than as shown herein.

Douglas K. Richardson
Professional Surveyor No. 31603

ALTA/ACSM LAND TITLE CERTIFICATE:

To The Kroger Co. and Chicago Insurance Title Company

This is to certify that this map or plat and the survey on which it is based were made (1) in accordance with "Minimum Standard Detail requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and ACSM in 1992, and includes items 1, 2, 3, 4, 5, 6, 8, 10, 11 and 13 of Table A thereof, and (II) pursuant to the Accuracy Standards (as adopted by ALTA and ACSM and in effect on the date of this certification of an Urban Survey.

Douglas K. Richardson
Professional Surveyor No. 31603
Date: May 1, 1996

| S/V/A/R | DATE | DESCRIPTION |
|---|---|---|
| | | EASEMENT AND ELEVATION NOTES |

REVISIONS


LEDY SURVEY GROUP
3135 PINE TREE ROAD
SUITE C
LANSING, MI 48911
PH.# (517) 393-2902
FAX (517) 393-2608


PREPARED FOR:
Kroger


KROGER CO.
17930 LAUREL PARK DR. N.
SUITE 400
LIVONIA, MI 48152-2696


# ALTA/ACSM LAND TITLE SURVEY

FOR

KROGER D-673

18 MILE ROAD
STERLING HEIGHTS, MI 48311

MISS DIG
3 WORKING DAYS
BEFORE YOU DIG OR DRILL CALL
1-800-482-7171
( TOLL FREE )

| | |
|---|---|
| FILE | 960266.DWG |
| FIELD WORK | JH JS |
| DRAWN BY | DJV |
| CHECKED BY | DKR |
| DATE | MAY 1, 1996 |
| SCALE | |
| HOR. | 1" = 50' |
| VERT. | N/A |
| PROJECT NO. | 960266 |
| SHEET NO. | 1 OF 2 |

LEGAL DESCRIPTION: (PARCEL "A") Part of the Northwest 1/4 of Section 18, T.2N., R.12E., City of Sterling Heights, Macomb County, Michigan, being more particularly described as follows: Beginning at a point which is S88°43'57"E 401.41 ft. along the North line of Section 18 and S03°01'40"W 60.03 ft. from the Northwest corner of Section 18, T.2N., R.12E.; thence, along a line parallel with and 60 ft. south of the North line of Section 18, S88°43'57"E 618.64 ft.; thence S02°58'30"W 494.98 ft.; thence N88°43'40"W 269.10 ft.; thence N03°01'40"E 55.00 ft.; thence N88°43'57"W 350.00 ft.; thence N03°01'40"E 200.00 ft.; thence N88°43'57"W 337.56 ft.; thence, along a line parallel with and 60 ft. East of the West line of Section 18, N02°17'37"E 79.91 ft.; thence S88°43'57"E 35.00 ft.; thence, along a line parallel with and 95 ft. East of the West line of Section 18, S02°17'37"W 28.00 ft.; thence S88°43'57"E 303.22 ft.; thence N03°01'40"E 188.05 ft. to the point of beginning.
Containing 305,457 Square Feet --- 7.012 Acres (Net)

NOTE 1: In order to obtain N.G.V.D. datum, subtract 0.20 from all spot elevations, contours, and benchmarks.

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## BENCHMARKS (SEE NOTE 1)

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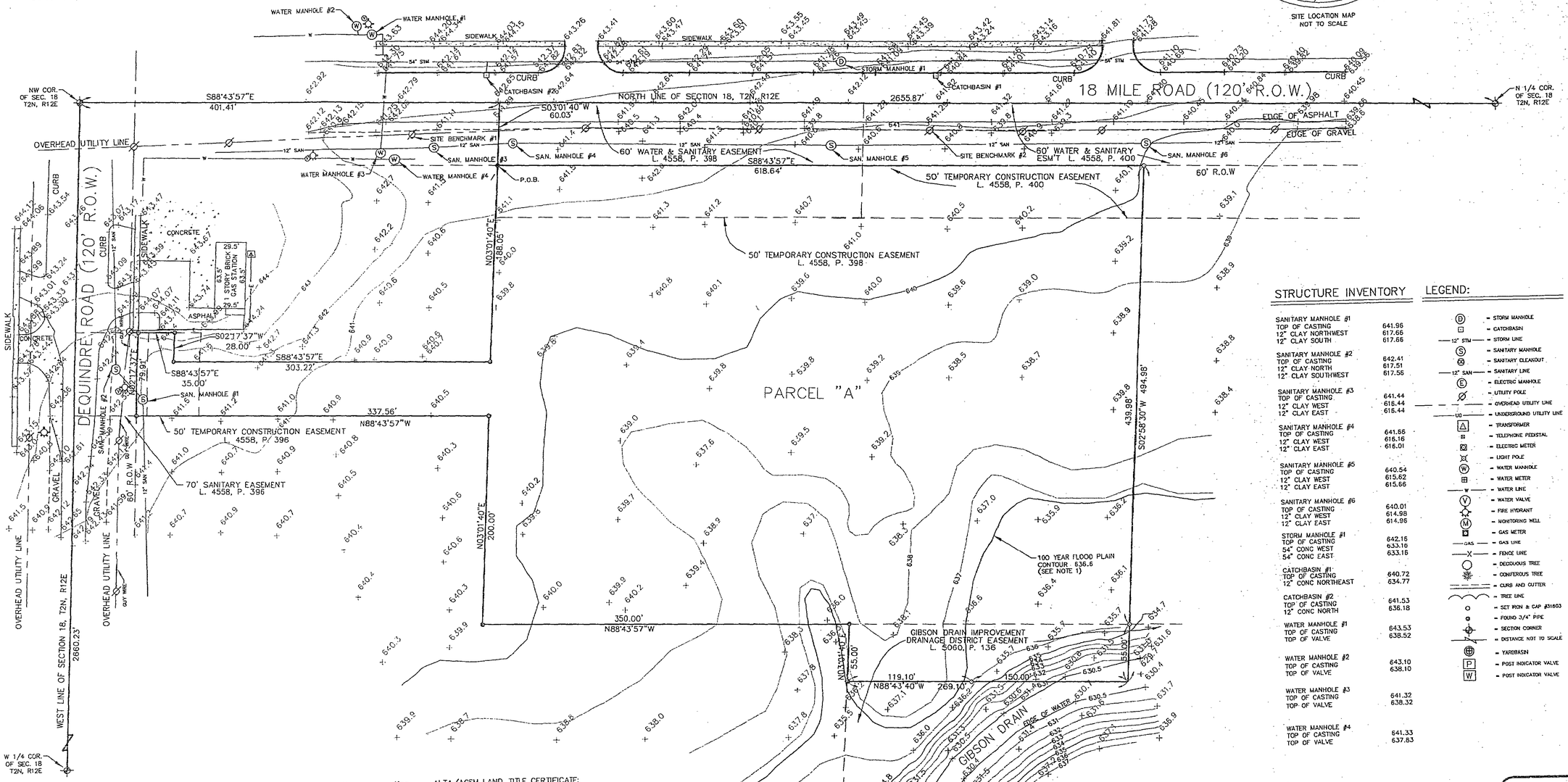
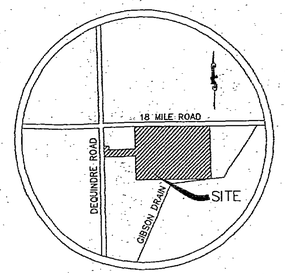
ELEVATION = 642.13 (PER HUBBELL, ROTH, & CLARK, INC., DEQUINDRE RD. SANITARY, JOB # 870054, SHEET 5, 7/8/89)

SITE BENCHMARK #2 - RR SPIKE IN NORTH FACE OF P. POLE 40' NORTH, AND 200' WEST OF NORTHEAST PROPERTY COR.
ELEVATION = 640.63




SITE LOCATION MAP
NOT TO SCALE

Scale 1" = 50 ft

## STRUCTURE INVENTORY

| | |
|---|---|
| **SANITARY MANHOLE #1** | |
| TOP OF CASTING | 641.96 |
| 12" CLAY NORTHWEST | 617.66 |
| 12" CLAY SOUTH | 617.66 |
| **SANITARY MANHOLE #2** | |
| TOP OF CASTING | 642.41 |
| 12" CLAY NORTH | 617.51 |
| 12" CLAY SOUTHWEST | 617.56 |
| **SANITARY MANHOLE #3** | |
| TOP OF CASTING | 641.44 |
| 12" CLAY WEST | 616.44 |
| 12" CLAY EAST | 616.44 |
| **SANITARY MANHOLE #4** | |
| TOP OF CASTING | 641.66 |
| 12" CLAY WEST | 616.16 |
| 12" CLAY EAST | 616.01 |
| **SANITARY MANHOLE #5** | |
| TOP OF CASTING | 640.54 |
| 12" CLAY WEST | 615.62 |
| 12" CLAY EAST | 615.66 |
| **SANITARY MANHOLE #6** | |
| TOP OF CASTING | 640.01 |
| 12" CLAY WEST | 614.98 |
| 12" CLAY EAST | 614.96 |
| **STORM MANHOLE #1** | |
| TOP OF CASTING | 642.16 |
| 54" CONC WEST | 633.16 |
| 54" CONC EAST | 633.16 |
| **CATCHBASIN #1** | |
| TOP OF CASTING | 640.72 |
| 12" CONC NORTHEAST | 634.77 |
| **CATCHBASIN #2** | |
| TOP OF CASTING | 641.53 |
| 12" CONC NORTH | 636.18 |
| **WATER MANHOLE #1** | |
| TOP OF CASTING | 643.53 |
| TOP OF VALVE | 638.52 |
| **WATER MANHOLE #2** | |
| TOP OF CASTING | 643.10 |
| TOP OF VALVE | 638.10 |
| **WATER MANHOLE #3** | |
| TOP OF CASTING | 641.32 |
| TOP OF VALVE | 638.32 |
| **WATER MANHOLE #4** | |
| TOP OF CASTING | 641.33 |
| TOP OF VALVE | 637.83 |

## LEGEND:

- STORM MANHOLE
- CATCHBASIN
- 12" STM — STORM LINE
- SANITARY MANHOLE
- SANITARY CLEANOUT
- 12" SAN — SANITARY LINE
- ELECTRIC MANHOLE
- UTILITY POLE
- OVERHEAD UTILITY LINE
- UG — UNDERGROUND UTILITY LINE
- TRANSFORMER
- TELEPHONE PEDESTAL
- ELECTRIC METER
- LIGHT POLE
- WATER MANHOLE
- WATER METER
- W — WATER LINE
- WATER VALVE
- FIRE HYDRANT
- MONITORING WELL
- GAS METER
- GAS — GAS LINE
- FENCE LINE
- DECIDUOUS TREE
- CONIFEROUS TREE
- CURB AND GUTTER
- TREE LINE
- SET IRON & CAP #31603
- FOUND 3/4" PIPE
- SECTION CORNER
- DISTANCE NOT TO SCALE
- YARDBASIN
- P — POST INDICATOR VALVE
- W — POST INDICATOR VALVE

The undersigned, as of this 1st day of May, 1996 certifies to The Kroger Co., an Ohio corporation, and Chicago Title Insurance Company that: he is a duly registered surveyor in the State of Michigan; this survey is made in accordance with the standards established by the American Title Association and the State of Michigan; the information, courses and distances shown herein are correct; this survey accurately shows the location and dimensions of all buildings, utilities and other improvements situated on the premises; the premises are contiguous with the public dedicated rights of way of 18 Mile and Dequindre Roads and there are no gaps, strips or gores between the premises and said rights-of-way encumbering the premises, encroachments of buildings or other improvements from adjoining property onto the premises or encroachments of buildings or other improvements from the premises onto adjoining property, other than as shown herein.

Douglas K. Richardson
Professional Surveyor No. 31603

ALTA/ACSM LAND TITLE CERTIFICATE:

To The Kroger Co. and Chicago Insurance Title Company

This is to certify that this map or plat and the survey on which it is based were made (1) in accordance with "Minimum Standard Detail requirements for ALTA/ACSM Land Title Surveys," jointly established and adopted by ALTA and ACSM in 1992, and includes items 1, 2, 3, 4, 5, 6, 8, 10, 11 and 13 of Table A thereof, and (ii) pursuant to the Accuracy Standards (as adopted by ALTA and ACSM and in effect on the date of this certification of an Urban Survey.

Douglas K. Richardson
Professional Surveyor No. 31603
Date: May 1, 1996

C-1 ZONING REQUIREMENTS

FRONT YARD IS 35' GREENBELT
BACK YARD IS 50' ABUTTING RESIDENTIAL
SIDE YARD IS 0' WITHOUT DOORS OR WINDOWS
SIDE YARD IS 15' WITH DOORS OR WINDOWS

| DATE | DESCRIPTION | |
|---|---|---|
| 5/13/96 | EASEMENT AND ELEVATION NOTES | |

REVISIONS


L.E.D.Y. SURVEY GROUP
3135 PINE TREE ROAD
SUITE C
LANSING, MI 48911
PH.# (517) 393-2902
FAX (517) 393-2608


PREPARED FOR:
Kroger

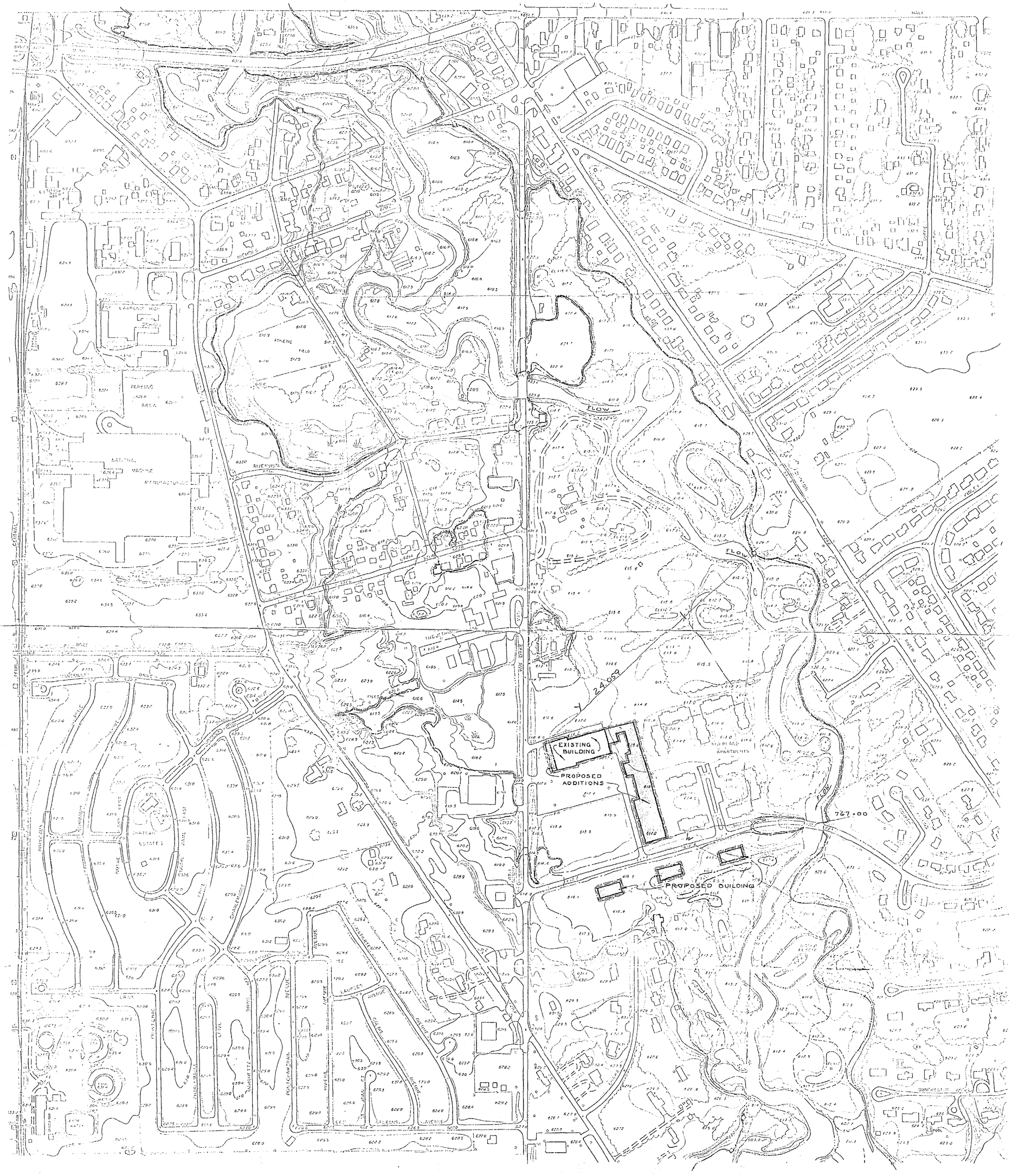
KROGER CO.
17930 LAUREL PARK DR. N.
SUITE 400
LIVONIA, MI 48152-2696

# ALTA/ACSM LAND TITLE SURVEY
FOR
KROGER D-673
18 MILE ROAD
STERLING HEIGHTS, MI 48311

MISS DIG
3 WORKING DAYS
BEFORE YOU DIG OR DRILL CALL
1-800-482-7171
( TOLL FREE )

| | |
|---|---|
| FILE | 960266.DWG |
| FIELD WORK | JH JS |
| DRAWN BY | DJV |
| CHECKED BY | DKR |
| DATE | MAY 1, 1996 |
| SCALE HOR. | 1" = 50' |
| VERT. | N/A |
| PROJECT NO. | 960266 |
| SHEET NO. | 1 OF 2 |

Packet 1




NOTE

1. Elevations Based On U.S.G.S. Datum (Mean Sea Level)
2. Date Of Photography April 1969, Compiled By Photogrammetric Methods By Abrams Aerial Survey Corp Lansing, Michigan

LEGEND

—·— 1964 REPORT 100 YEAR FLOOD
— — — ADJUSTED 100 YEAR FLOOD

RECEIVED
NOV 3 1969
WATER RESOURCES COMMISSION

| | | | |
|---|---|---|---|
| JOHNSON & ANDERSON, INC.<br>CONSULTING ENGINEERS<br>PONTIAC, MICHIGAN | TOPOGRAPHIC MAP OF<br>CITY OF STERLING HEIGHTS<br>SECTION 4, T.2N, R.12E., MACOMB COUNTY MICHIGAN | RIVERLAND FLOOD STUDY | JOB NO. 4292<br>DATE ISSUED<br>SHEET NO. FIG. 1 |

Map # 2c.

1) COUNTY: Macomb

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: CRISSMAN

4) DOCUMENT TYPE: CLOMR - Effective Floodway

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CITY OF STERLING HEIGHTS  CRISSMAN DRAIN
T3 DUPLICATE EFFECTIVE-FLOOWWAY  (FILE:CDDEFLWY) REVISED 10-31-94 PER FEMA

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       2.       0.       0.   .000000     .00      .0       0.   630.040    .000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1.000     .000   -1.000     .000     .000     .000     .000     .000     .000     .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
GR
   110.000  200.000     .000     .000     .000     .000     .000     .000     .000     .000

J5  LPRNT    NUMSEC                  ********REQUESTED SECTION NUMBERS********

   -10.000  -10.000     .000     .000     .000     .000     .000     .000     .000     .000

NC      .060      .060      .040      .500     1.000      .000      .000      .000      .000      .000
NH     5.000      .050   300.000      .050   309.000      .040   315.000      .050   330.000      .060
NH   600.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
QT     2.000   360.000   360.000      .000      .000      .000      .000      .000      .000      .000
X1  2810.000    10.000   300.000   330.000   170.000   170.000   170.000      .000      .000      .000
GR   631.600      .000   630.900   100.000   630.600   200.000   628.500   300.000   622.900   309.000
GR   624.800   315.000   630.000   330.000   631.600   400.000   633.400   500.000   633.400   600.000

NH     3.000      .050   400.000      .035   416.000      .045   800.000      .000      .000      .000
X1  3091.000    17.000   400.000   416.000   350.000   200.000   281.000      .636      .000      .000
GR   632.100      .000   631.600   100.000   630.900   200.000   630.600   300.000   628.500   398.000
GR   628.500   400.000   629.500   400.000   626.200   400.000   625.700   416.000   629.500   416.000
GR   628.300   416.000   628.300   422.000   630.000   436.000   631.600   506.000   633.400   606.000
GR   633.400   706.000   633.300   806.000      .000      .000      .000      .000      .000      .000

SB      .000     2.338     3.030      .000    16.000      .000    22.500      .000   625.700   625.700
X1  3168.000      .000      .000      .000    77.000    77.000    77.000      .000      .000      .000
X2      .000      .000     1.000   629.500   632.100      .000      .000      .000      .636      .000
PX1   14.000      .000   632.100      .000   100.000   632.300      .000   200.000   632.600      .000
LX3  300.000   632.800      .000   398.000   633.100      .000   398.000   634.800      .000   400.000
BT   634.800   629.500   416.000   634.800   629.500   422.000   634.800      .000   422.000   633.000
BT      .000   506.000   633.100      .000   606.000   633.400      .000   706.000   633.400      .000
BT   806.000   633.300      .000      .000      .000      .000      .000      .000      .000      .000
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X1   5115.000      .000      .000      .000    25.000    35.000    29.000      .000      .100      .000
X3       .000      .000      .000    90.000      .000   550.000      .000      .000      .000      .000

NH      3.000      .050   695.500      .040   704.500      .050  1700.000      .000      .000      .000
X1   5165.000    36.000   688.000   712.000    50.000    50.000    50.000      .000      .000      .000
X3       .000      .000      .000   400.000      .000   800.000      .000      .000      .000      .000
GR     633.900      .000   633.900   100.000   633.900   200.000   633.900   300.000   634.300   400.000
GR     633.900   500.000   634.700   600.000   634.300   688.000   632.000   695.400   634.300   695.500
GR     632.000   695.500   630.900   696.500   630.700   697.500   630.900   698.500   632.000   699.500
GR     633.700   699.500   633.700   700.500   632.600   700.500   631.500   701.500   631.300   702.500
GR     631.500   703.500   633.700   704.500   632.000   704.600   634.800   712.000   636.000   753.000
GR     637.200   800.000   635.500   851.000   634.600   900.000   635.300  1000.000   635.000  1100.000
GR     634.500  1200.000   634.900  1300.000   634.500  1400.000   636.000  1500.000   637.700  1600.000
GR     638.700  1700.000      .000      .000      .000      .000      .000      .000      .000      .000

SB       .000     2.227     3.030      .000    24.000      .000    25.100      .000   630.700   630.700
         SECTION "J"
X1   5205.000      .000      .000      .000    40.000    40.000    40.000      .000      .000      .000
X2       .000      .000     1.000   634.500   634.900      .000      .000      .000      .000      .000
X3       .000      .000      .000   400.000      .000   800.000      .000      .000      .000      .000
BT      17.000   400.000   634.900      .000   500.000   634.900      .000   600.000   635.300      .000
BT     688.000   636.200      .000   695.500   636.300   634.300   696.500   636.300   634.600   697.500
BT     636.300   634.800   698.500   636.300   634.600   699.500   636.300   633.500   700.500   636.300
BT     633.700   701.500   636.300   634.800   702.500   636.300   635.000   703.500   636.300   634.800
       704.500   636.300   633.700   712.000   636.300      .000   753.000   636.000      .000   800.000
BT     637.200      .000      .000      .000      .000      .000      .000      .000      .000      .000

NH      3.000      .070    85.000      .045   110.000      .060   200.000      .000      .000      .000
X1   5286.000     6.000    85.000   110.000   320.000    75.000    81.000      .000     -.200      .000
X3       .000      .000      .000      .000      .000   130.000      .000      .000      .000      .000
GR     636.100      .000   635.600    85.000   631.000   100.000   635.200   110.000   636.400   130.000
GR     634.900   200.000      .000      .000      .000      .000      .000      .000      .000      .000

NC       .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
         BEGINNING OF DRAIN IMPROVEMENTS
X1   5324.000     7.000    49.000    70.000    38.000    38.000    38.000      .000      .000      .000
GR     636.300      .000   635.080    20.000   634.630    49.000   631.380    59.000   635.500    70.000
GR     635.560    72.000   635.730    84.000      .000      .000      .000      .000      .000      .000

QT      2.000   163.000   163.000      .000      .000      .000      .000      .000      .000      .000
X1   5435.000     9.000    40.000    80.000   105.000   120.000   111.000      .000      .000      .000
GR     635.900    36.000   635.280    40.000   631.370    56.000   630.930    60.000   631.370    64.000
GR     634.380    80.000   634.380   110.000   635.770   132.000   635.910   143.000      .000      .000

X1   5502.000     8.000      .000    52.000    85.000    45.000    67.000      .000      .000      .000
GR     636.000      .000   631.540    22.000   631.440    28.000   631.540    34.000   634.830    52.000
GR     635.080    93.000   635.750   115.000   635.920   126.000      .000      .000      .000      .000
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NC      .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
        DOWNSTREAM OF 12'X4' BOX CULVERT
X1   5545.000     7.000    25.000    37.000    43.000    43.000    43.000      .000      .000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
GR    636.580      .000   635.660    25.000   631.660    25.000   631.660    37.000   635.660    37.000
GR    634.780    60.000   635.940   130.000      .000      .000      .000      .000      .000      .000

SB      .000     1.750     2.500      .000    12.000      .000    48.000      .000   631.680   631.660
        UPSTREAM OF 12'X4' BOX CULVERT
        SECTION "K1"
X1   5633.000     7.000      .000    55.000    88.000    88.000    88.000      .000      .000      .000
X2      .000      .000     1.000   635.630   637.500      .000      .000      .000      .000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
BT      4.000      .000   637.500   637.000    25.000   637.500   635.680    37.000   637.500   635.680
BT     60.000   637.500   637.000      .000      .000      .000      .000      .000      .000      .000
GR    636.030      .000   631.530    25.000   631.430    32.000   631.530    37.000   635.230    55.000
GR    635.700    60.000   636.100    67.000      .000      .000      .000      .000      .000      .000

NC      .060      .060      .040      .000      .000      .000      .000      .000      .000      .000
X1   5737.000     8.000      .000    52.000   104.000   104.000   104.000      .000      .000      .000
GR    636.300      .000   631.880    22.000   631.780    28.000   631.880    34.000   635.100    52.000
GR    635.530    93.000   636.300   112.000   636.400   123.000      .000      .000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
        CONC CTRL STRUCT FOR 10 YEAR EVENT AND DOWNSTREAM END OF STORAGE BASIN
X1   5792.000    14.000    35.000    52.000    55.000    55.000    55.000      .000      .000      .000
GR    637.000      .000   636.000    20.000   635.970    30.000   636.000    35.000   635.000    35.000
GR    635.000    39.000   632.000    39.750   632.000    47.250   635.000    48.000   635.000    52.000
GR    636.950    52.000   635.680    57.000   635.180    67.000   636.350   130.000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
QT     2.000   217.000   217.000      .000      .000      .000      .000      .000      .000      .000
        SECTION THRU PROPOSED POND
X1   5965.000     7.000      .000   459.000   120.000   330.000   173.000      .000      .000      .000
GR    636.400      .000   636.300    12.000   635.000    18.000   632.000    42.000   632.000   356.000
GR    637.800   427.000   638.400   459.000      .000      .000      .000      .000      .000      .000

        SECTION THRU PROPOSED POND
X1   6130.000     7.000      .000   415.000   130.000   235.000   165.000      .000      .000      .000
GR    637.000      .000   636.300    12.000   632.000    36.000   632.000   300.000   636.400   334.000
GR    637.200   367.000   639.900   415.000      .000      .000      .000      .000      .000      .000

        SECTION THRU PROPOSED POND
        SECTION "L1"
X1   6250.000     6.000      .000   245.000   120.000   120.000   120.000      .000      .000      .000
GR    636.400      .000   635.000    12.000   632.000    30.000   632.000   198.000   636.300   228.000
GR    637.000   245.000      .000      .000      .000      .000      .000      .000      .000      .000
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        SECTION THRU PROPOSED POND
X1   6500.000     7.000      .000   232.000   250.000   250.000   250.000      .000      .000      .000
GR    637.300      .000   636.900    20.000   632.000    45.000   632.000   176.000   636.400   203.000
GR    637.400   214.000   638.900   232.000      .000      .000      .000      .000      .000      .000

        SECTION THRU PROPOSED POND
X1   6685.000     7.000      .000   365.000   250.000   155.000   185.000      .000      .000      .000
GR    639.200      .000   637.000    21.000   632.000    58.000   632.000   306.000   636.400   332.000
GR    636.500   345.000   638.700   365.000      .000      .000      .000      .000      .000      .000

        SECTION THRU PROPOSED POND
        UPSTREAM END OF STORAGE BASIN AND DOWNSTREAM END OF 84" CONC CULVERT
X1   6920.000    12.000      .000   157.000   310.000   175.000   235.000      .000      .000      .000
GR    637.000      .000   636.000    20.000   635.000    30.000   634.000    40.000   633.000    46.000
GR    632.000    51.000   632.000   129.000   633.000   134.000   634.000   139.000   635.000   143.000
GR    636.000   148.000   637.000   157.000      .000      .000      .000      .000      .000      .000

        UPSTREAM END OF 84" CONCRETE CULVERT
        SECTION "M1"
X1   7259.000     4.000      .000    17.130   344.000   334.000   339.000      .000      .000      .000
X5     -2.000     1.090     1.090      .000      .000      .000      .000      .000      .000      .000
GR    639.000      .000   630.770      .000   630.770    17.130   639.000    17.130      .000      .000

        CHECK DAM AT UPSTREAM END OF 84" CONCRETE CULVERT
     7260.000     4.000      .000    19.130     1.000     1.000     1.000      .000      .000      .000
GR    639.000      .000   632.300      .000   632.300    19.130   639.000    19.130      .000      .000

X1   7367.000     9.000   245.000   280.000   107.000   107.000   107.000      .000      .000      .000
GR    638.700      .000   637.500   230.000   637.000   245.000   632.800   260.000   632.800   265.000
GR    635.500   273.000   637.800   280.000   638.000   314.000   638.700   420.000      .000      .000

X1   7977.000     9.000   333.000   370.000   595.000   620.000   610.000      .000      .000      .000
GR    639.200      .000   638.100   255.000   637.900   310.000   637.900   333.000   633.500   353.000
GR    633.500   357.000   638.200   370.000   638.200   390.000   743.000   445.000      .000      .000

X1   8632.000     8.000   202.000   242.000   650.000   660.000   655.000      .000      .000      .000
GR    640.000      .000   639.300   100.000   638.500   202.000   634.600   223.000   634.600   227.000
GR    639.000   242.000   639.400   265.000   643.900   400.000      .000      .000      .000      .000

X1   8832.000     4.000      .000    36.300   200.000   200.000   200.000      .000      .000      .000
GR    639.800      .000   634.760    17.500   634.760    21.500   639.700    36.300      .000      .000

        SECTION "N1"
X1   9000.000     4.000      .000    47.000   168.000   168.000   168.000      .000      .000      .000
GR    640.100      .000   635.690    19.500   635.690    26.500   640.500    47.000      .000      .000

X1   9600.000     4.000      .000    42.000   600.000   600.000   600.000      .000      .000      .000
GR    642.000      .000   637.330    17.000   637.330    25.000   642.300    42.000      .000      .000
```

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10000.000 | 4.000 | .000 | 40.000 | 400.000 | 400.000 | 400.000 | .000 | .000 | .000 |
| GR | 642.800 | .000 | 638.130 | 16.600 | 638.130 | 23.600 | 642.700 | 40.000 | .000 | .000 |
| X1 | 10400.000 | 5.000 | 10.000 | 44.000 | 400.000 | 400.000 | 400.000 | .000 | .000 | .000 |
| GR | 643.500 | .000 | 643.100 | 10.000 | 639.130 | 26.600 | 639.130 | 33.600 | 643.400 | 44.000 |
| X1 | 10800.000 | 5.000 | .000 | 35.000 | 400.000 | 400.000 | 400.000 | .000 | .000 | .000 |
| GR | 644.400 | .000 | 640.190 | 13.500 | 640.190 | 21.500 | 644.000 | 35.000 | 645.000 | 130.000 |

CHECK DAM
SECTION "O1"

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11110.000 | 4.000 | .000 | 50.000 | 311.000 | 311.000 | 311.000 | .000 | .000 | .000 |
| GR | 647.000 | .000 | 639.330 | 23.000 | 639.330 | 27.000 | 647.000 | 50.000 | .000 | .000 |
| X1 | 11111.000 | 6.000 | .000 | 50.000 | 1.000 | 1.000 | 1.000 | .000 | .000 | .000 |
| GR | 647.000 | .000 | 645.530 | 12.000 | 641.870 | 23.000 | 641.870 | 27.000 | 645.530 | 38.000 |
| GR | 647.000 | 50.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

CHECK DAM
SECTION "P1"

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11591.000 | 4.000 | .000 | 50.000 | 481.000 | 481.000 | 481.000 | .000 | .000 | .000 |
| GR | 648.000 | .000 | 642.370 | 23.000 | 642.370 | 27.000 | 648.000 | 50.000 | .000 | .000 |
| X1 | 11592.000 | 6.000 | .000 | 50.000 | 1.000 | 1.000 | 1.000 | .000 | .000 | .000 |
| GR | 650.000 | .000 | 650.000 | 2.500 | 643.500 | 22.000 | 643.500 | 28.000 | 650.000 | 47.500 |
| | 650.000 | 50.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

SOUTH R.O.W LINE OF M-59

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11662.000 | 4.000 | .000 | 50.000 | 70.000 | 70.000 | 70.000 | .000 | .000 | .000 |
| GR | 648.000 | .000 | 645.200 | 20.000 | 645.200 | 30.000 | 648.000 | 50.000 | .000 | .000 |

SECTION "Q1" DOWNSTREAM END OF EXISTING 60" CULVERT UNDER DOBRY RD
AND M-59

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| X1 | 11760.000 | 13.000 | 220.000 | 275.000 | 98.000 | 98.000 | 98.000 | .000 | .000 | .000 |
| GR | 650.100 | .000 | 649.600 | 50.000 | 649.300 | 100.000 | 651.500 | 150.000 | 652.000 | 200.000 |
| GR | 651.500 | 220.000 | 645.600 | 240.000 | 645.700 | 258.000 | 651.600 | 275.000 | 653.200 | 300.000 |
| GR | 653.800 | 350.000 | 654.300 | 400.000 | 654.100 | 450.000 | .000 | .000 | .000 | .000 |
| EJ | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

T1
T2
T3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 630.040 | .000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CATE EFFECTIVE-FLOOWWAY

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2810.000 | 630.04 | .00 | 630.14 | 105.08 | 46.77 | 313.23 | .00 | .00 | .00 | 300.00 | 330.00 | .00 |
| 2810.000 | 630.04 | .00 | 630.14 | 105.08 | 46.77 | 313.23 | .00 | .00 | .00 | 300.00 | 330.00 | .00 |
| 3091.000 | 630.60 | .00 | 630.72 | 102.95 | 133.51 | 162.36 | 64.13 | .00 | .00 | 254.40 | 264.58 | .00 |
| `091.000 | 630.60 | .00 | 630.72 | 102.95 | 133.51 | 162.36 | 64.13 | .00 | .00 | 254.40 | 264.58 | .00 |
| 3168.000 | 632.89 | .00 | 632.89 | 367.41 | 238.01 | 43.40 | 78.59 | .00 | .00 | 254.40 | 264.58 | .00 |
| 3168.000 | 632.89 | .00 | 632.89 | 367.41 | 238.01 | 43.40 | 78.59 | .00 | .00 | 254.40 | 264.58 | .00 |
| 4020.000 | 633.01 | .00 | 633.07 | 129.68 | 84.69 | 176.20 | 4.11 | 200.00 | 200.00 | 292.00 | 312.00 | 400.00 |
| 4020.000 | 633.01 | .00 | 633.07 | 129.68 | 84.69 | 176.20 | 4.11 | 200.00 | 200.00 | 292.00 | 312.00 | 400.00 |
| 4173.000 | 633.26 | .00 | 633.31 | 108.57 | 167.41 | 24.73 | 57.85 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4173.000 | 633.26 | .00 | 633.31 | 108.57 | 167.41 | 24.73 | 57.85 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4217.000 | 634.26 | .00 | 634.27 | 124.64 | 175.32 | 14.45 | 60.23 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4217.000 | 634.26 | .00 | 634.27 | 124.64 | 175.32 | 14.45 | 60.23 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4937.000 | 634.52 | .00 | 634.54 | 368.62 | 147.28 | 69.36 | .36 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4937.000 | 634.52 | .00 | 634.54 | 368.62 | 147.28 | 69.36 | .36 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4997.000 | 634.56 | .00 | 634.58 | 362.83 | 130.82 | 86.12 | .06 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4997.000 | 634.56 | .00 | 634.58 | 362.83 | 130.82 | 86.12 | .06 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5057.000 | 634.61 | .00 | 634.63 | 361.39 | 94.27 | 68.71 | .02 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5057.000 | 634.61 | .00 | 634.63 | 361.39 | 94.27 | 68.71 | .02 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5086.000 | 634.63 | .00 | 634.65 | 359.04 | 86.71 | 76.29 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5086.000 | 634.63 | .00 | 634.65 | 359.04 | 86.71 | 76.29 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 115.000 | 634.66 | .00 | 634.69 | 308.67 | 76.86 | 86.14 | .00 | 460.00 | 90.00 | 400.00 | 418.00 | 550.00 |
| 5115.000 | 634.66 | .00 | 634.69 | 308.67 | 76.86 | 86.14 | .00 | 460.00 | 90.00 | 400.00 | 418.00 | 550.00 |

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5165.000 | 634.75 | .00 | 634.77 | 311.87 | 88.78 | 74.22 | .00 | 400.00 | 400.00 | 688.00 | 712.00 | 800.00 |
| 5165.000 | 634.75 | .00 | 634.77 | 311.87 | 88.78 | 74.22 | .00 | 400.00 | 400.00 | 688.00 | 712.00 | 800.00 |
| 5205.000 | 635.22 | .00 | 635.22 | 326.40 | 118.21 | 44.30 | .49 | 400.00 | 400.00 | 688.00 | 712.00 | 800.00 |
| 5205.000 | 635.22 | .00 | 635.22 | 326.40 | 118.21 | 44.30 | .49 | 400.00 | 400.00 | 688.00 | 712.00 | 800.00 |
| 5286.000 | 635.31 | .00 | 635.44 | 29.89 | .00 | 162.71 | .29 | 130.00 | .00 | 85.00 | 110.00 | 130.00 |
| 5286.000 | 635.31 | .00 | 635.44 | 29.89 | .00 | 162.71 | .29 | 130.00 | .00 | 85.00 | 110.00 | 130.00 |
| 5324.000 | 635.40 | .00 | 635.55 | 54.92 | 14.34 | 148.66 | .00 | .00 | .00 | 49.00 | 70.00 | .00 |
| 5324.000 | 635.40 | .00 | 635.55 | 54.92 | 14.34 | 148.66 | .00 | .00 | .00 | 49.00 | 70.00 | .00 |
| 5435.000 | 635.61 | .00 | 635.63 | 91.64 | .04 | 142.15 | 20.80 | .00 | .00 | 40.00 | 80.00 | .00 |
| 5435.000 | 635.61 | .00 | 635.63 | 91.64 | .04 | 142.15 | 20.80 | .00 | .00 | 40.00 | 80.00 | .00 |
| 5502.000 | 635.63 | .00 | 635.65 | 109.28 | .00 | 153.71 | 9.29 | .00 | .00 | .00 | 52.00 | .00 |
| 5502.000 | 635.63 | .00 | 635.65 | 109.28 | .00 | 153.71 | 9.29 | .00 | .00 | .00 | 52.00 | .00 |
| 5545.000 | 635.57 | .00 | 635.76 | 12.00 | .00 | 163.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| 5545.000 | 635.57 | .00 | 635.76 | 12.00 | .00 | 163.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| 5633.000 | 635.86 | .00 | 635.88 | 54.05 | .00 | 163.00 | .00 | .00 | .00 | .00 | 55.00 | .00 |
| 5633.000 | 635.86 | .00 | 635.88 | 54.05 | .00 | 163.00 | .00 | .00 | .00 | .00 | 55.00 | .00 |
| 5737.000 | 635.89 | .00 | 635.91 | 99.85 | .00 | 156.00 | 7.00 | .00 | .00 | .00 | 52.00 | .00 |
| 5737.000 | 635.89 | .00 | 635.91 | 99.85 | .00 | 156.00 | 7.00 | .00 | .00 | .00 | 52.00 | .00 |
| 5792.000 | 635.79 | .00 | 636.02 | 60.36 | .00 | 150.89 | 12.11 | .00 | .00 | 35.00 | 52.00 | .00 |
| 5792.000 | 635.79 | .00 | 636.02 | 60.36 | .00 | 150.89 | 12.11 | .00 | .00 | 35.00 | 52.00 | .00 |
| 5965.000 | 636.04 | .00 | 636.04 | 392.23 | .00 | 217.00 | .00 | .00 | .00 | .00 | 459.00 | .00 |
| 5965.000 | 636.04 | .00 | 636.04 | 392.23 | .00 | 217.00 | .00 | .00 | .00 | .00 | 459.00 | .00 |
| 6130.000 | 636.04 | .00 | 636.04 | 317.76 | .00 | 217.00 | .00 | .00 | .00 | .00 | 415.00 | .00 |
| 6130.000 | 636.04 | .00 | 636.04 | 317.76 | .00 | 217.00 | .00 | .00 | .00 | .00 | 415.00 | .00 |
| 6250.000 | 636.04 | .00 | 636.04 | 223.09 | .00 | 217.00 | .00 | .00 | .00 | .00 | 245.00 | .00 |
| 6250.000 | 636.04 | .00 | 636.04 | 223.09 | .00 | 217.00 | .00 | .00 | .00 | .00 | 245.00 | .00 |
| 6500.000 | 636.04 | .00 | 636.04 | 176.42 | .00 | 217.00 | .00 | .00 | .00 | .00 | 232.00 | .00 |
| 6500.000 | 636.04 | .00 | 636.04 | 176.42 | .00 | 217.00 | .00 | .00 | .00 | .00 | 232.00 | .00 |
| 6685.000 | 636.05 | .00 | 636.05 | 301.83 | .00 | 217.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| 6685.000 | 636.05 | .00 | 636.05 | 301.83 | .00 | 217.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| 6920.000 | 636.05 | .00 | 636.05 | 129.38 | .00 | 217.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| 6920.000 | 636.05 | .00 | 636.05 | 129.38 | .00 | 217.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| * 7259.000 | 637.14 | .00 | 637.20 | 17.13 | .00 | 217.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |
| 259.000 | 637.14 | .00 | 637.20 | 17.13 | .00 | 217.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 7260.000 | 637.12 | .00 | 637.20 | 19.13 | .00 | 217.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7260.000 | 637.12 | .00 | 637.20 | 19.13 | .00 | 217.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7367.000 | 637.22 | .00 | 637.32 | 39.94 | .16 | 216.84 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7367.000 | 637.22 | .00 | 637.32 | 39.94 | .16 | 216.84 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7977.000 | 638.02 | .00 | 638.10 | 91.39 | .78 | 216.22 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 7977.000 | 638.02 | .00 | 638.10 | 91.39 | .78 | 216.22 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 8632.000 | 638.81 | .00 | 638.89 | 78.68 | 1.50 | 215.50 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |
| | 8632.000 | 638.81 | .00 | 638.89 | 78.68 | 1.50 | 215.50 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |
| | 8832.000 | 639.07 | .00 | 639.20 | 31.91 | .00 | 217.00 | .00 | .00 | .00 | .00 | 36.30 | .00 |
| | 8832.000 | 639.07 | .00 | 639.20 | 31.91 | .00 | 217.00 | .00 | .00 | .00 | .00 | 36.30 | .00 |
| | 9000.000 | 639.40 | .00 | 639.50 | 39.18 | .00 | 217.00 | .00 | .00 | .00 | .00 | 47.00 | .00 |
| | 9000.000 | 639.40 | .00 | 639.50 | 39.18 | .00 | 217.00 | .00 | .00 | .00 | .00 | 47.00 | .00 |
| | 9600.000 | 640.68 | .00 | 640.84 | 31.62 | .00 | 217.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 9600.000 | 640.68 | .00 | 640.84 | 31.62 | .00 | 217.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 10000.000 | 641.77 | .00 | 641.90 | 32.97 | .00 | 217.00 | .00 | .00 | .00 | .00 | 40.00 | .00 |
| | 10000.000 | 641.77 | .00 | 641.90 | 32.97 | .00 | 217.00 | .00 | .00 | .00 | .00 | 40.00 | .00 |
| | 10400.000 | 642.75 | .00 | 642.90 | 30.93 | .00 | 217.00 | .00 | .00 | .00 | 10.00 | 44.00 | .00 |
| | 10400.000 | 642.75 | .00 | 642.90 | 30.93 | .00 | 217.00 | .00 | .00 | .00 | 10.00 | 44.00 | .00 |
| | 10800.000 | 643.76 | .00 | 643.91 | 32.07 | .00 | 217.00 | .00 | .00 | .00 | .00 | 35.00 | .00 |
| | 10800.000 | 643.76 | .00 | 643.91 | 32.07 | .00 | 217.00 | .00 | .00 | .00 | .00 | 35.00 | .00 |
| | 11110.000 | 644.30 | .00 | 644.39 | 33.82 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11110.000 | 644.30 | .00 | 644.39 | 33.82 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| * | 11111.000 | 644.45 | .00 | 645.25 | 19.52 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| * | 11111.000 | 644.45 | .00 | 645.25 | 19.52 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 646.75 | .00 | 646.83 | 39.75 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 646.75 | .00 | 646.83 | 39.75 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 646.57 | .00 | 646.90 | 24.43 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 646.57 | .00 | 646.90 | 24.43 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 647.19 | .00 | 647.50 | 38.58 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 647.19 | .00 | 647.50 | 38.58 | .00 | 217.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11760.000 | 647.97 | .00 | 648.18 | 32.54 | .00 | 217.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |
| | 11760.000 | 647.97 | .00 | 648.18 | 32.54 | .00 | 217.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

FLOODWAY DATA, CATE EFFECTIVE-FLOOWWAY
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 2810.000 | 105. | 172. | 2.1 | 630.0 | 630.0 | .0 |
| 3091.000 | 103. | 142. | 2.5 | 630.6 | 630.6 | .0 |
| 3168.000 | 367. | 764. | .5 | 632.9 | 632.9 | .0 |
| 4020.000 | 130. | 185. | 1.4 | 633.0 | 633.0 | .0 |
| 4173.000 | 109. | 149. | 1.7 | 633.3 | 633.3 | .0 |
| 4217.000 | 125. | 266. | .9 | 634.3 | 634.3 | .0 |
| 4937.000 | 369. | 300. | .7 | 634.5 | 634.5 | .0 |
| 4997.000 | 363. | 235. | .9 | 634.6 | 634.6 | .0 |
| 5057.000 | 361. | 219. | .7 | 634.6 | 634.6 | .0 |
| 5086.000 | 359. | 193. | .8 | 634.6 | 634.6 | .0 |
| 5115.000 | 328. | 151. | 1.1 | 634.7 | 634.7 | .0 |
| 5165.000 | 312. | 182. | .9 | 634.8 | 634.8 | .0 |
| 5205.000 | 326. | 331. | .5 | 635.2 | 635.2 | .0 |
| 5286.000 | 30. | 58. | 2.8 | 635.3 | 635.3 | .0 |
| 5324.000 | 55. | 62. | 2.6 | 635.4 | 635.4 | .0 |
| [illegible].000 | 92. | 165. | 1.0 | 635.6 | 635.6 | .0 |
| [illegible]2.000 | 109. | 168. | 1.0 | 635.6 | 635.6 | .0 |
| 5545.000 | 12. | 47. | 3.5 | 635.6 | 635.6 | .0 |
| 5633.000 | 54. | 147. | 1.1 | 635.9 | 635.9 | .0 |
| 5737.000 | 100. | 157. | 1.0 | 635.9 | 635.9 | .0 |
| 5792.000 | 65. | 52. | 3.1 | 635.8 | 635.8 | .0 |
| 5965.000 | 392. | 1431. | .2 | 636.0 | 636.0 | .0 |
| 6130.000 | 318. | 1175. | .2 | 636.0 | 636.0 | .0 |
| 6250.000 | 223. | 786. | .3 | 636.0 | 636.0 | .0 |
| 6500.000 | 176. | 621. | .3 | 636.0 | 636.0 | .0 |
| 6685.000 | 302. | 1112. | .2 | 636.0 | 636.0 | .0 |
| 6920.000 | 129. | 409. | .5 | 636.0 | 636.0 | .0 |
| 7259.000 | 17. | 109. | 2.0 | 637.1 | 637.1 | .0 |
| 7260.000 | 19. | 92. | 2.3 | 637.1 | 637.1 | .0 |
| 7367.000 | 40. | 87. | 2.5 | 637.2 | 637.2 | .0 |
| 7977.000 | 91. | 97. | 2.2 | 638.0 | 638.0 | .0 |
| 8632.000 | 79. | 101. | 2.2 | 638.8 | 638.8 | .0 |
| 8832.000 | 32. | 77. | 2.8 | 639.1 | 639.1 | .0 |
| 9000.000 | 39. | 86. | 2.5 | 639.4 | 639.4 | .0 |
| 9600.000 | 32. | 66. | 3.3 | 640.7 | 640.7 | .0 |
| 10000.000 | 33. | 73. | 3.0 | 641.8 | 641.8 | .0 |
| 10400.000 | 31. | 69. | 3.2 | 642.7 | 642.7 | .0 |
| 10800.000 | 32. | 71. | 3.0 | 643.8 | 643.8 | .0 |
| 11110.000 | 34. | 94. | 2.3 | 644.3 | 644.3 | .0 |
| 11111.000 | 20. | 30. | 7.1 | 644.5 | 644.5 | .0 |
| [illegible]1.000 | 40. | 96. | 2.3 | 646.7 | 646.7 | .0 |
| [illegible].000 | 24. | 47. | 4.6 | 646.6 | 646.6 | .0 |

FLOODWAY DATA, CATE EFFECTIVE-FLOOWWAY
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 11662.000 | 39. | 49. | 4.5 | 647.2 | 647.2 | .0 |
| 11760.000 | 33. | 59. | 3.7 | 648.0 | 648.0 | .0 |

1) COUNTY: Macomb County

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Cross Mac Drain

4) DOCUMENT TYPE: CLOMR- Existing w/ New Flows

THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CITY OF STERLING HEIGHTS  CHRISSMAN DRAIN
T3 EXISTING CONDITIONS MODEL WITH NEW FLOWS (FILE NAME CDEXNF.1)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   .000000       .00        .0        0.   630.200      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000      .000      .000      .000      .000      .000      .000      .000      .000

NC      .060      .060      .040      .500     1.000      .000      .000      .000      .000      .000
QT     4.000    51.000    94.000   108.000   159.000      .000      .000      .000      .000      .000
          UPSTREAM OF EX. 66" CONFLUENCE WITH 114" GREENS DRAIN ENCLOSURE
          STARTING WATER SURFACES BY NORMAL DEPTH
X1  3273.000     7.000    50.000    80.000   692.000   692.000   692.000      .000      .000      .000
GR   631.980      .000   631.960    50.000   626.970    62.000   626.560    65.000   627.200    68.000
GR   631.220    80.000   633.930   130.000      .000      .000      .000      .000      .000      .000

QT     4.000    51.000    94.000   108.000   159.000      .000      .000      .000      .000      .000
NH     5.000      .050   292.000      .050   296.000      .040   305.000      .040   312.000      .045
NH   500.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
X1  3965.000    10.000   292.000   312.000   692.000   692.000   692.000      .000      .000      .000
X3      .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
GR   634.600      .000   634.400   100.000   631.800   200.000   632.000   292.000   627.900   296.000
GR   628.100   302.000   628.400   305.000   632.100   312.000   636.600   400.000   636.700   500.000

QT     4.000    50.000    92.000   106.000   156.000      .000      .000      .000      .000      .000
NH     3.000      .050   298.000      .070   302.000      .055   545.000      .000      .000      .000
          DOWNSTREAM OF EX. 48" CULVERT AT HANKS ROAD
X1  4118.000    18.000   298.000   302.000   250.000   200.000   153.000      .795      .000      .000
X3      .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
GR   634.600      .000   634.400   100.000   633.500   126.000   631.800   200.000   632.200   292.000
GR   629.500   298.000   630.900   298.000   628.400   299.000   628.200   300.000   628.400   301.000
G    629.500   302.000   630.900   302.000   629.500   302.000   632.100   312.000   633.900   350.000
GR   636.600   400.000   636.700   500.000   636.900   545.000      .000      .000      .000      .000
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NH      3.000      .050   298.000      .070   302.000      .055   545.000      .000      .000      .000
SB       .000     2.700     2.710      .000     4.000      .000    12.560      .000   628.200   628.200
         UPSTREAM OF EX. 48" CULVERT AT HANKS ROAD
X1   4162.000    18.000   298.000   302.000    44.000    44.000    44.000      .795      .000      .000
X2       .000      .000     1.000   632.200   633.400      .000      .000      .000      .795      .000
X3       .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
BT      8.000   200.000   633.400      .000   298.000   633.600   630.900   299.000   633.600   632.000
BT    300.000   633.600   632.200   301.000   633.600   632.000   302.000   633.600   630.900   350.000
BT    633.900      .000   400.000   636.600      .000      .000      .000      .000      .000      .000
GR    634.600      .000   634.400   100.000   633.500   126.000   631.800   200.000   632.200   292.000
GR    629.500   298.000   630.900   298.000   628.400   299.000   628.200   300.000   628.400   301.000
GR    629.500   302.000   630.900   302.000   629.500   302.000   632.100   312.000   633.900   350.000
GR    636.600   400.000   636.700   500.000   636.900   545.000      .000      .000      .000      .000

NH      5.000      .045   400.000      .045   409.000      .040   413.000      .045   418.000      .045
NH   1300.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
QT      4.000    50.000    93.000   107.000   157.000      .000      .000      .000      .000      .000
         "FEMA" STATION 4937
X1   4882.000    18.000   400.000   418.000   600.000   800.000   720.000      .000     -.500      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000
GR    633.900      .000   634.300   100.000   633.900   200.000   634.700   300.000   634.300   400.000
GR    631.800   405.000   630.900   409.000   631.700   413.000   634.700   418.000   637.200   500.000
GR    634.600   600.000   635.300   700.000   635.000   800.000   634.500   900.000   634.900  1000.000
GR    634.500  1100.000   636.000  1200.000   637.700  1300.000      .000      .000      .000      .000

         "FEMA" STATION 4997
X1   4942.000      .000      .000      .000    55.000    70.000    60.000      .000      .200      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

         "FEMA" STATION 5057
X1   5002.000      .000      .000      .000    50.000    70.000    60.000      .000      .100      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

         "FEMA" STATION 5086
X1   5031.000      .000      .000      .000    25.000    35.000    29.000      .000      .100      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

NC       .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
OT      4.000    49.000    92.000   105.000   155.000      .000      .000      .000      .000      .000
         DOWNSTREAM OF EX. 12'X 4' BOX CULVERT AT 19 MILE ROAD
X1   5065.000     8.000    80.000    92.000    34.000    34.000    34.000      .000      .000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   635.390   635.390      .000
GR    634.500      .000   634.500    50.000   632.500    80.000   630.500    80.000   630.500    92.000
GR    632.500    92.000   637.100   155.000   637.400   185.000      .000      .000      .000      .000

SB       .000     1.750     2.500      .000    12.000      .000    24.000      .000   630.680   630.500
         UPSTREAM OF 12'X 4' BOX CULVERT AT 19 MILE ROAD
X1   5241.000     8.000    80.000    92.000   176.000   176.000   176.000      .000      .000      .000
X2       .000      .000     1.000   632.680   635.390      .000      .000      .000      .000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   635.390   635.390      .000
BT      6.000      .000   635.390   634.500    50.000   636.390   634.500    80.000   636.390   632.680
BT     92.000   636.390   632.680   155.000   637.100      .000   185.000   637.400      .000      .000
GR    634.500      .000   634.500    50.000   632.680    80.000   630.680    80.000   630.680    92.000
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     632.680     92.000    637.100    155.000    637.400    185.000       .000       .000       .000       .000

X1  5269.000      4.000       .000     43.000     28.000     28.000     28.000       .000       .000       .000
GR   636.000       .000    631.220     19.000    631.220     25.000    635.650     43.000       .000       .000

X1  5502.000      8.000       .000     52.000    233.000    233.000    233.000       .000       .000       .000
GR   636.000       .000    631.540     22.000    631.440     28.000    631.540     34.000    634.830     52.000
GR   635.080     93.000    635.750    115.000    635.920    126.000       .000       .000       .000       .000

         DOWNSTREAM OF 12'X4' BOX CULVERT
X1  5545.000      7.000     25.000     37.000     43.000     43.000     43.000       .000       .000       .000
X3    10.000       .000       .000       .000       .000       .000       .000    637.500    637.500       .000
GR   636.580       .000    635.660     25.000    631.660     25.000    631.660     37.000    635.660     37.000
GR   634.780     60.000    635.940    130.000       .000       .000       .000       .000       .000       .000

SB      .000      1.750      2.500       .000     12.000       .000     48.000       .000    631.680    631.660
         UPSTREAM OF 12'X4' BOX CULVERT
         SECTION "K1"
X1  5633.000      7.000       .000     55.000     88.000     88.000     88.000       .000       .000       .000
X2      .000       .000      1.000    635.630    637.500       .000       .000       .000       .000       .000
X3    10.000       .000       .000       .000       .000       .000       .000    637.500    637.500       .000
BT     4.000       .000    637.500    637.000     25.000    637.500    635.680     37.000    637.500    635.680
BT    60.000    637.500    637.000       .000       .000       .000       .000       .000       .000       .000
GR   636.030       .000    631.530     25.000    631.430     32.000    631.530     37.000    635.230     55.000
GR   635.700     60.000    636.100     67.000       .000       .000       .000       .000       .000       .000

      .060       .060       .040       .000       .000       .000       .000       .000       .000       .000
X1  5737.000      8.000       .000     52.000    104.000    104.000    104.000       .000       .000       .000
GR   636.300       .000    631.880     22.000    631.780     28.000    631.880     34.000    635.100     52.000
GR   635.530     93.000    636.300    112.000    636.400    123.000       .000       .000       .000       .000

NC      .060       .060       .040       .300       .500       .000       .000       .000       .000       .000
         CONC CTRL STRUCT FOR 10 YEAR EVENT AND DOWNSTREAM END OF STORAGE BASIN
X1  5792.000     14.000     35.000     52.000     55.000     55.000     55.000       .000       .000       .000
GR   637.000       .000    636.000     20.000    635.970     30.000    636.000     35.000    635.000     35.000
GR   635.000     39.000    632.000     39.750    632.000     47.250    635.000     48.000    635.000     52.000
GR   636.950     52.000    635.680     57.000    635.180     67.000    636.350    130.000       .000       .000

NC      .060       .060       .040       .100       .300       .000       .000       .000       .000       .000
QT     4.000    109.000    183.000    210.000    294.000       .000       .000       .000       .000       .000
         SECTION THRU EXISTING POND
X1  5965.000      7.000       .000    459.000    120.000    330.000    173.000       .000       .000       .000
GR   637.000       .000    636.300     12.000    635.000     18.000    632.000     42.000    632.000    356.000
GR   637.800    427.000    638.400    459.000       .000       .000       .000       .000       .000       .000

         SECTION THRU EXISTING POND
X1  6130.000      7.000       .000    415.000    130.000    235.000    165.000       .000       .000       .000
GR   637.000       .000    636.300     12.000    632.000     36.000    632.000    300.000    636.400    334.000
GR   637.200    367.000    639.900    415.000       .000       .000       .000       .000       .000       .000
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          SECTION THRU EXISTING POND
          SECTION "L1"
X1   6250.000     6.000      .000   245.000   120.000   120.000   120.000      .000      .000      .000
GR    637.000      .000   635.000    12.000   632.000    30.000   632.000   198.000   636.300   228.000
GR    637.000   245.000      .000      .000      .000      .000      .000      .000      .000      .000

          SECTION THRU EXISTING POND
X1   6500.000     7.000      .000   232.000   250.000   250.000   250.000      .000      .000      .000
GR    637.300      .000   636.900    20.000   632.000    45.000   632.000   176.000   636.400   203.000
GR    637.400   214.000   638.900   232.000      .000      .000      .000      .000      .000      .000

          SECTION THRU EXISTING POND
X1   6685.000     7.000      .000   365.000   250.000   155.000   185.000      .000      .000      .000
GR    639.200      .000   637.000    21.000   632.000    58.000   632.000   306.000   636.400   332.000
GR    636.500   345.000   638.700   365.000      .000      .000      .000      .000      .000      .000

OT      4.000    44.000    84.000    92.000   151.000      .000      .000      .000      .000      .000
          SECTION THRU EXISTING POND
          UPSTREAM END OF STORAGE BASIN AND DOWNSTREAM END OF 84" CONC CULVERT
X1   6920.000    12.000      .000   157.000   310.000   175.000   235.000      .000      .000      .000
GR    637.000      .000   636.000    20.000   635.000    30.000   634.000    40.000   633.000    46.000
GR    632.000    51.000   632.000   129.000   633.000   134.000   634.000   139.000   635.000   143.000
GR    636.000   148.000   637.000   157.000      .000      .000      .000      .000      .000      .000

      4.000    44.000    85.000   100.000   152.000      .000      .000      .000      .000      .000
          UPSTREAM END OF 84" CONCRETE CULVERT
          SECTION "M1"
X1   7259.000     4.000      .000    17.130   344.000   334.000   339.000      .000      .000      .000
X5     -4.000      .050      .170      .230      .530      .000      .000      .000      .000      .000
GR    639.000      .000   630.770      .000   630.770    17.130   639.000    17.130      .000      .000

          CHECK DAM AT UPSTREAM END OF 84" CONCRETE CULVERT
X1   7260.000     4.000      .000    19.130     1.000     1.000     1.000      .000      .000      .000
GR    639.000      .000   632.300      .000   632.300    19.130   639.000    19.130      .000      .000

X1   7367.000     9.000   245.000   280.000   107.000   107.000   107.000      .000      .000      .000
GR    638.700      .000   637.500   230.000   637.000   245.000   632.800   260.000   632.800   265.000
GR    635.500   273.000   637.800   280.000   638.000   314.000   638.700   420.000      .000      .000

X1   7977.000     9.000   333.000   370.000   595.000   620.000   610.000      .000      .000      .000
GR    639.200      .000   638.100   255.000   637.900   310.000   637.900   333.000   633.500   353.000
GR    633.500   357.000   638.200   370.000   638.200   390.000   743.000   445.000      .000      .000

OT      4.000    43.000    83.000    99.000   150.000      .000      .000      .000      .000      .000
X1   8632.000     8.000   202.000   242.000   650.000   660.000   655.000      .000      .000      .000
GR    640.000      .000   639.300   100.000   638.500   202.000   634.600   223.000   634.600   227.000
GR    639.000   242.000   639.400   265.000   643.900   400.000      .000      .000      .000      .000
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 8832.000      4.000       .000     36.300    200.000    200.000    200.000       .000       .000       .000
GR   639.800       .000    634.760     17.500    634.760     21.500    639.700     36.300       .000       .000

         SECTION "N1"
X1  9000.000      4.000       .000     47.000    168.000    168.000    168.000       .000       .000       .000
GR   640.100       .000    635.690     19.500    635.690     26.500    640.500     47.000       .000       .000

X1  9600.000      4.000       .000     42.000    600.000    600.000    600.000       .000       .000       .000
GR   642.000       .000    637.330     17.000    637.330     25.000    642.300     42.000       .000       .000

QT     4.000     38.000     68.000     79.000    115.000       .000       .000       .000       .000       .000
X1 10000.000      4.000       .000     40.000    400.000    400.000    400.000       .000       .000       .000
GR   642.800       .000    638.130     16.600    638.130     23.600    642.700     40.000       .000       .000

X1 10400.000      5.000     10.000     44.000    400.000    400.000    400.000       .000       .000       .000
GR   643.500       .000    643.100     10.000    639.130     26.600    639.130     33.600    643.400     44.000

X1 10800.000      5.000       .000     35.000    400.000    400.000    400.000       .000       .000       .000
GR   644.400       .000    640.190     13.500    640.190     21.500    644.000     35.000    645.000    130.000

         CHECK DAM
         SECTION "O1"
X1 11110.000      4.000       .000     50.000    311.000    311.000    311.000       .000       .000       .000
GR   647.000       .000    639.330     23.000    639.330     27.000    647.000     50.000       .000       .000

   11111.000      6.000       .000     50.000      1.000      1.000      1.000       .000       .000       .000
GR   647.000       .000    645.530     12.000    641.870     23.000    641.870     27.000    645.530     38.000
GR   647.000     50.000       .000       .000       .000       .000       .000       .000       .000       .000

         CHECK DAM
         SECTION "P1"
X1 11591.000      4.000       .000     50.000    481.000    481.000    481.000       .000       .000       .000
GR   648.000       .000    642.370     23.000    642.370     27.000    648.000     50.000       .000       .000

X1 11592.000      6.000       .000     50.000      1.000      1.000      1.000       .000       .000       .000
GR   650.000       .000    650.000      2.500    643.500     22.000    643.500     28.000    650.000     47.500
GR   650.000     50.000       .000       .000       .000       .000       .000       .000       .000       .000

OT     4.000     33.000     53.000     59.000     80.000       .000       .000       .000       .000       .000
         SOUTH R.O.W LINE OF M-59
X1 11662.000      4.000       .000     50.000     70.000     70.000     70.000       .000       .000       .000
GR   648.000       .000    645.200     20.000    645.200     30.000    648.000     50.000       .000       .000

         SECTION "Q1" DOWNSTREAM END OF EXISTING 60" CULVERT UNDER DOBRY RD
         AND M-59
X1 11760.000     13.000    220.000    275.000     98.000     98.000     98.000       .000       .000       .000
GR   650.100       .000    649.600     50.000    649.300    100.000    651.500    150.000    652.000    200.000
GR   651.500    220.000    645.600    240.000    645.700    258.000    651.600    275.000    653.200    300.000
GR   653.800    350.000    654.300    400.000    654.100    450.000       .000       .000       .000       .000
FT      .000       .000       .000       .000       .000       .000       .000       .000       .000       .000
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THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3 50 YEAR EVENT  EXIST CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.100 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3 100 YEAR EVENT  EXIST CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 4. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.180 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3 500 YEAR EVENT  EXIST CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 5. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.220 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK ( * ) AT LEFT OF CROSS SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ING CONDITIONS MODEL WIT

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3273.000 | .00 | .00 | .00 | 626.56 | 51.00 | 630.20 | .00 | 630.22 | 3.67 | 1.10 | 46.24 | 26.64 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 94.00 | 631.10 | .00 | 631.13 | 4.28 | 1.36 | 68.88 | 45.41 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 108.00 | 631.18 | .00 | 631.22 | 5.19 | 1.52 | 71.10 | 47.39 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 159.00 | 631.22 | .00 | 631.30 | 10.80 | 2.20 | 72.22 | 48.39 |
| | 3965.000 | 692.00 | .00 | .00 | 627.90 | 51.00 | 630.59 | .00 | 630.63 | 9.64 | 1.67 | 30.59 | 16.43 |
| | 3965.000 | 692.00 | .00 | .00 | 627.90 | 94.00 | 631.55 | .00 | 631.61 | 10.72 | 2.00 | 46.99 | 28.71 |
| | 3965.000 | 692.00 | .00 | .00 | 627.90 | 108.00 | 631.70 | .00 | 631.78 | 12.10 | 2.16 | 49.98 | 31.05 |
| * | 3965.000 | 692.00 | .00 | .00 | 627.90 | 159.00 | 632.10 | 630.03 | 632.20 | 16.54 | 2.62 | 76.07 | 39.10 |
| | 4118.000 | 153.00 | .00 | .00 | 628.20 | 50.00 | 631.04 | .00 | 631.28 | 286.38 | 4.06 | 12.84 | 2.95 |
| | 4118.000 | 153.00 | .00 | .00 | 628.20 | 92.00 | 631.99 | .00 | 632.17 | 134.68 | 3.53 | 28.57 | 7.93 |
| | 4118.000 | 153.00 | .00 | .00 | 628.20 | 106.00 | 632.18 | .00 | 632.32 | 105.57 | 3.24 | 40.98 | 10.32 |
| | 4118.000 | 153.00 | .00 | .00 | 628.20 | 156.00 | 632.63 | .00 | 632.70 | 43.55 | 2.26 | 83.73 | 23.64 |
| | 4162.000 | 44.00 | 633.40 | 632.20 | 628.20 | 50.00 | 632.35 | .00 | 632.41 | 198.38 | .00 | 24.73 | 3.55 |
| | 4162.000 | 44.00 | 633.40 | 632.20 | 628.20 | 92.00 | 632.63 | .00 | 632.69 | 83.32 | .00 | 46.33 | 10.08 |
| | 4162.000 | 44.00 | 633.40 | 632.20 | 628.20 | 106.00 | 633.75 | .00 | 633.76 | 1.46 | .49 | 204.79 | 87.65 |
| | 4162.000 | 44.00 | 633.40 | 632.20 | 628.20 | 156.00 | 633.98 | .00 | 633.98 | 2.18 | .62 | 231.69 | 105.65 |
| | 4882.000 | 720.00 | .00 | .00 | 630.40 | 50.00 | 633.71 | .00 | 633.73 | 7.03 | 1.33 | 52.42 | 18.86 |
| | 4882.000 | 720.00 | .00 | .00 | 630.40 | 93.00 | 633.97 | .00 | 634.00 | 8.93 | 1.57 | 109.65 | 31.12 |
| | 4882.000 | 720.00 | .00 | .00 | 630.40 | 107.00 | 633.97 | .00 | 634.00 | 11.93 | 1.82 | 109.10 | 30.99 |
| | 4882.000 | 720.00 | .00 | .00 | 630.40 | 157.00 | 634.22 | .00 | 634.25 | 7.72 | 1.73 | 190.04 | 56.52 |
| | 4942.000 | 60.00 | .00 | .00 | 630.60 | 50.00 | 633.76 | .00 | 633.79 | 9.94 | 1.55 | 36.29 | 15.86 |
| | 4942.000 | 60.00 | .00 | .00 | 630.60 | 93.00 | 634.04 | .00 | 634.09 | 15.45 | 2.02 | 77.82 | 23.66 |
| | 4942.000 | 60.00 | .00 | .00 | 630.60 | 107.00 | 634.06 | .00 | 634.12 | 19.25 | 2.26 | 81.10 | 24.39 |
| | 4942.000 | 60.00 | .00 | .00 | 630.60 | 157.00 | 634.28 | .00 | 634.32 | 15.64 | 2.13 | 142.57 | 39.70 |
| | 5002.000 | 60.00 | .00 | .00 | 630.70 | 50.00 | 633.82 | .00 | 633.86 | 10.77 | 1.61 | 33.32 | 15.24 |
| | 5002.000 | 60.00 | .00 | .00 | 630.70 | 93.00 | 634.13 | .00 | 634.19 | 16.50 | 2.08 | 74.26 | 22.89 |
| | 5002.000 | 60.00 | .00 | .00 | 630.70 | 107.00 | 634.17 | .00 | 634.23 | 19.00 | 2.25 | 81.81 | 24.54 |
| | 5002.000 | 60.00 | .00 | .00 | 630.70 | 157.00 | 634.37 | .00 | 634.42 | 16.93 | 2.21 | 136.83 | 38.15 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5031.000 | 29.00 | .00 | .00 | 630.80 | 50.00 | 633.85 | .00 | 633.90 | 11.91 | 1.67 | 30.32 | 14.49 |
| 5031.000 | 29.00 | .00 | .00 | 630.80 | 93.00 | 634.18 | .00 | 634.25 | 19.43 | 2.24 | 65.15 | 21.10 |
| 5031.000 | 29.00 | .00 | .00 | 630.80 | 107.00 | 634.23 | .00 | 634.30 | 21.90 | 2.40 | 74.13 | 22.87 |
| 5031.000 | 29.00 | .00 | .00 | 630.80 | 157.00 | 634.42 | .00 | 634.48 | 20.36 | 2.40 | 124.09 | 34.79 |
| 5065.000 | 34.00 | .00 | .00 | 630.50 | 49.00 | 633.90 | .00 | 633.92 | 3.03 | 1.20 | 40.69 | 28.17 |
| 5065.000 | 34.00 | .00 | .00 | 630.50 | 92.00 | 634.23 | .00 | 634.29 | 7.72 | 2.05 | 44.83 | 33.10 |
| 5065.000 | 34.00 | .00 | .00 | 630.50 | 105.00 | 634.27 | .00 | 634.35 | 9.78 | 2.32 | 45.22 | 33.58 |
| 5065.000 | 34.00 | .00 | .00 | 630.50 | 155.00 | 634.43 | .00 | 634.60 | 18.44 | 3.28 | 47.22 | 36.09 |
| 5241.000 | 176.00 | 635.39 | 632.68 | 630.68 | 49.00 | 633.99 | .00 | 634.01 | 3.29 | 1.23 | 39.69 | 27.02 |
| 5241.000 | 176.00 | 635.39 | 632.68 | 630.68 | 92.00 | 634.57 | .00 | 634.63 | 6.78 | 1.97 | 46.62 | 35.34 |
| 5241.000 | 176.00 | 635.39 | 632.68 | 630.68 | 105.00 | 634.72 | .00 | 634.79 | 7.78 | 2.17 | 48.42 | 37.64 |
| 5241.000 | 176.00 | 635.39 | 632.68 | 630.68 | 155.00 | 635.54 | .00 | 635.55 | 2.16 | 1.29 | 227.42 | 105.41 |
| 5269.000 | 28.00 | .00 | .00 | 631.22 | 49.00 | 634.01 | .00 | 634.02 | 3.92 | 1.03 | 47.79 | 24.74 |
| 5269.000 | 28.00 | .00 | .00 | 631.22 | 92.00 | 634.62 | .00 | 634.65 | 5.58 | 1.37 | 66.95 | 38.94 |
| 5269.000 | 28.00 | .00 | .00 | 631.22 | 105.00 | 634.79 | .00 | 634.82 | 5.87 | 1.45 | 72.52 | 43.34 |
| 5269.000 | 28.00 | .00 | .00 | 631.22 | 155.00 | 635.53 | .00 | 635.57 | 5.31 | 1.54 | 100.64 | 67.24 |
| 5502.000 | 233.00 | .00 | .00 | 631.44 | 49.00 | 634.08 | .00 | 634.09 | 2.08 | .75 | 65.07 | 33.99 |
| 5502.000 | 233.00 | .00 | .00 | 631.44 | 92.00 | 634.73 | .00 | 634.75 | 2.87 | 1.00 | 91.88 | 54.28 |
| 5502.000 | 233.00 | .00 | .00 | 631.44 | 105.00 | 634.90 | .00 | 634.92 | 2.97 | 1.05 | 100.08 | 60.94 |
| 5502.000 | 233.00 | .00 | .00 | 631.44 | 155.00 | 635.64 | .00 | 635.65 | 2.32 | 1.08 | 167.42 | 101.74 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 49.00 | 634.08 | .00 | 634.12 | 9.88 | 1.68 | 29.13 | 15.59 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 92.00 | 634.72 | .00 | 634.81 | 17.81 | 2.51 | 36.67 | 21.80 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 105.00 | 634.88 | .00 | 634.99 | 19.98 | 2.72 | 38.62 | 23.49 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 155.00 | 635.58 | .00 | 635.75 | 24.80 | 3.29 | 47.09 | 31.12 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 49.00 | 634.16 | .00 | 634.17 | 1.83 | .72 | 68.17 | 36.19 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 92.00 | 634.87 | .00 | 634.88 | 2.36 | .93 | 98.79 | 59.85 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 105.00 | 635.06 | .00 | 635.07 | 2.44 | .98 | 107.67 | 67.23 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 155.00 | 635.84 | .00 | 635.86 | 3.23 | 1.06 | 145.88 | 86.29 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 49.00 | 634.18 | .00 | 634.19 | 3.13 | .87 | 56.21 | 27.72 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 92.00 | 634.90 | .00 | 634.92 | 3.59 | 1.08 | 84.91 | 48.56 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 105.00 | 635.08 | .00 | 635.10 | 3.62 | 1.13 | 93.29 | 55.16 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 155.00 | 635.87 | .00 | 635.89 | 2.62 | 1.13 | 155.20 | 95.72 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 49.00 | 634.17 | .00 | 634.29 | 34.71 | 2.81 | 17.43 | 8.32 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 92.00 | 634.84 | .00 | 635.08 | 53.94 | 3.95 | 23.27 | 12.53 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 105.00 | 635.01 | .00 | 635.29 | 106.01 | 4.20 | 24.99 | 10.20 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 155.00 | 635.82 | .00 | 636.02 | 49.67 | 3.67 | 53.83 | 21.99 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 109.00 | 634.30 | .00 | 634.30 | .05 | .14 | 776.97 | 481.30 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 183.00 | 635.10 | .00 | 635.10 | .05 | .17 | 1071.90 | 799.52 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 210.00 | 635.32 | .00 | 635.32 | .05 | .18 | 1152.43 | 896.39 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 294.00 | 636.04 | .00 | 636.04 | .05 | .21 | 1430.40 | 1258.15 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 109.00 | 634.30 | .00 | 634.30 | .07 | .17 | 643.67 | 402.27 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 183.00 | 635.10 | .00 | 635.10 | .08 | .21 | 883.68 | 666.07 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 210.00 | 635.32 | .00 | 635.32 | .08 | .22 | 949.04 | 745.53 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 294.00 | 636.04 | .00 | 636.04 | .08 | .25 | 1174.21 | 1041.41 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 109.00 | 634.31 | .00 | 634.31 | .18 | .26 | 421.72 | 259.13 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 183.00 | 635.11 | .00 | 635.11 | .18 | .31 | 584.22 | 431.00 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 210.00 | 635.32 | .00 | 635.32 | .19 | .33 | 628.91 | 483.04 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 294.00 | 636.04 | .00 | 636.04 | .19 | .37 | 784.13 | 677.65 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 109.00 | 634.31 | .00 | 634.31 | .29 | .33 | 332.33 | 203.23 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 183.00 | 635.11 | .00 | 635.11 | .29 | .40 | 461.46 | 338.29 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 210.00 | 635.32 | .00 | 635.33 | .31 | .42 | 497.11 | 379.27 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 294.00 | 636.04 | .00 | 636.05 | .30 | .47 | 621.11 | 532.59 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 109.00 | 634.31 | .00 | 634.31 | .08 | .18 | 609.75 | 381.35 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 183.00 | 635.11 | .00 | 635.12 | .08 | .22 | 837.00 | 630.46 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 210.00 | 635.33 | .00 | 635.33 | .09 | .23 | 899.12 | 705.71 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 294.00 | 636.05 | .00 | 636.05 | .09 | .26 | 1112.75 | 985.18 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 44.00 | 634.32 | .00 | 634.32 | .13 | .21 | 208.75 | 123.49 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 84.00 | 635.12 | .00 | 635.12 | .17 | .28 | 296.06 | 206.18 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 92.00 | 635.33 | .00 | 635.33 | .16 | .29 | 320.96 | 231.57 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 151.00 | 636.05 | .00 | 636.05 | .21 | .37 | 409.77 | 326.89 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 44.00 | 634.37 | .00 | 634.37 | 1.07 | .71 | 61.60 | 42.52 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 85.00 | 635.29 | .00 | 635.31 | 2.06 | 1.10 | 77.37 | 59.22 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 100.00 | 635.56 | .00 | 635.58 | 2.41 | 1.22 | 82.06 | 64.43 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 152.00 | 636.58 | .00 | 636.62 | 3.23 | 1.53 | 99.52 | 84.61 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 44.00 | 634.36 | .00 | 634.38 | 4.43 | 1.11 | 39.53 | 20.91 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 85.00 | 635.28 | .00 | 635.31 | 5.38 | 1.49 | 57.03 | 36.63 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 100.00 | 635.55 | .00 | 635.59 | 5.73 | 1.61 | 62.26 | 41.79 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 152.00 | 636.57 | .00 | 636.62 | 5.91 | 1.86 | 81.76 | 62.54 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 44.00 | 634.41 | .00 | 634.52 | 51.03 | 2.70 | 16.31 | 6.16 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 85.00 | 635.34 | .00 | 635.44 | 26.44 | 2.52 | 33.79 | 16.53 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 100.00 | 635.62 | .00 | 635.72 | 23.18 | 2.50 | 40.05 | 20.77 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 152.00 | 636.64 | .00 | 636.72 | 13.23 | 2.25 | 67.47 | 41.79 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 44.00 | 635.80 | .00 | 635.84 | 11.77 | 1.54 | 28.55 | 12.83 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 85.00 | 636.49 | .00 | 636.55 | 13.18 | 1.90 | 44.73 | 23.42 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 100.00 | 636.71 | .00 | 636.77 | 13.26 | 1.98 | 50.38 | 27.47 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 152.00 | 637.42 | .00 | 637.49 | 11.92 | 2.12 | 71.69 | 44.03 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 43.00 | 636.65 | .00 | 636.69 | 14.61 | 1.60 | 26.94 | 11.25 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 83.00 | 637.38 | .00 | 637.43 | 13.86 | 1.85 | 44.88 | 22.29 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 99.00 | 637.60 | .00 | 637.65 | 13.78 | 1.93 | 51.31 | 26.67 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 150.00 | 638.22 | .00 | 638.29 | 12.59 | 2.07 | 72.41 | 42.27 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 43.00 | 636.95 | .00 | 637.00 | 16.08 | 1.77 | 24.34 | 10.72 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 83.00 | 637.67 | .00 | 637.74 | 16.79 | 2.12 | 39.09 | 20.26 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 99.00 | 637.89 | .00 | 637.97 | 17.22 | 2.24 | 44.16 | 23.86 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 150.00 | 638.49 | .00 | 638.59 | 17.35 | 2.50 | 60.06 | 36.01 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 43.00 | 637.28 | .00 | 637.34 | 25.64 | 1.94 | 22.18 | 8.49 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 83.00 | 637.98 | .00 | 638.06 | 20.69 | 2.13 | 38.92 | 18.25 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 99.00 | 638.20 | .00 | 638.28 | 19.92 | 2.20 | 44.96 | 22.18 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 150.00 | 638.80 | .00 | 638.89 | 17.77 | 2.35 | 63.84 | 35.59 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 43.00 | 638.88 | .00 | 638.95 | 27.99 | 2.06 | 20.83 | 8.13 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 83.00 | 639.44 | .00 | 639.54 | 29.82 | 2.53 | 32.80 | 15.20 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 99.00 | 639.63 | .00 | 639.74 | 30.13 | 2.66 | 37.18 | 18.04 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 150.00 | 640.14 | .00 | 640.27 | 30.48 | 2.99 | 50.23 | 27.17 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 38.00 | 639.82 | .00 | 639.86 | 18.36 | 1.72 | 22.03 | 8.87 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 68.00 | 640.40 | .00 | 640.46 | 17.23 | 1.97 | 34.52 | 16.38 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 79.00 | 640.59 | .00 | 640.65 | 16.64 | 2.02 | 39.05 | 19.37 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 115.00 | 641.10 | .00 | 641.18 | 15.96 | 2.20 | 52.33 | 28.79 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 38.00 | 640.68 | .00 | 640.75 | 26.82 | 2.01 | 18.95 | 7.34 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 68.00 | 641.22 | .00 | 641.31 | 26.26 | 2.33 | 29.16 | 13.27 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 79.00 | 641.39 | .00 | 641.48 | 25.91 | 2.42 | 32.71 | 15.52 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 115.00 | 641.87 | .00 | 641.97 | 24.69 | 2.62 | 43.89 | 23.14 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 38.00 | 641.71 | .00 | 641.76 | 24.13 | 1.91 | 19.94 | 7.74 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 68.00 | 642.24 | .00 | 642.31 | 24.05 | 2.24 | 30.42 | 13.87 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 79.00 | 642.39 | .00 | 642.48 | 23.93 | 2.32 | 34.00 | 16.15 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 115.00 | 642.84 | .00 | 642.94 | 23.78 | 2.56 | 44.86 | 23.58 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 38.00 | 642.05 | .00 | 642.07 | 5.28 | 1.15 | 33.10 | 16.54 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 68.00 | 642.65 | .00 | 642.68 | 6.92 | 1.47 | 46.17 | 25.86 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 79.00 | 642.82 | .00 | 642.86 | 7.37 | 1.57 | 50.43 | 29.10 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 115.00 | 643.31 | .00 | 643.36 | 8.48 | 1.82 | 63.34 | 39.48 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 38.00 | 642.94 | 642.94 | 643.32 | 274.37 | 4.93 | 7.72 | 2.29 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 68.00 | 643.33 | 643.33 | 643.81 | 250.90 | 5.58 | 12.20 | 4.29 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 79.00 | 643.44 | 643.44 | 643.96 | 247.94 | 5.78 | 13.68 | 5.02 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 115.00 | 643.77 | 643.77 | 644.37 | 231.07 | 6.21 | 18.52 | 7.57 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 38.00 | 644.58 | .00 | 644.61 | 9.11 | 1.32 | 28.82 | 12.59 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 68.00 | 645.16 | .00 | 645.19 | 10.04 | 1.59 | 42.89 | 21.46 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 79.00 | 645.33 | .00 | 645.37 | 10.28 | 1.66 | 47.56 | 24.64 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 115.00 | 645.79 | .00 | 645.84 | 10.91 | 1.87 | 61.57 | 34.81 |
| * | 11592.000 | 1.00 | .00 | .00 | 643.50 | 38.00 | 644.41 | 644.41 | 644.77 | 276.78 | 4.77 | 7.97 | 2.28 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 68.00 | 644.98 | .00 | 645.27 | 137.49 | 4.38 | 15.52 | 5.80 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 79.00 | 645.16 | .00 | 645.45 | 118.53 | 4.33 | 18.26 | 7.26 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 115.00 | 645.62 | .00 | 645.92 | 92.13 | 4.36 | 26.35 | 11.98 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11662.000 | 70.00 | .00 | .00 | 645.20 | 33.00 | 645.96 | .00 | 646.08 | 126.63 | 2.83 | 11.66 | 2.93 |
| 11662.000 | 70.00 | .00 | .00 | 645.20 | 53.00 | 646.11 | 645.98 | 646.31 | 157.45 | 3.50 | 15.12 | 4.22 |
| 11662.000 | 70.00 | .00 | .00 | 645.20 | 59.00 | 646.18 | 646.03 | 646.37 | 150.93 | 3.56 | 16.58 | 4.80 |
| 11662.000 | 70.00 | .00 | .00 | 645.20 | 80.00 | 646.44 | .00 | 646.62 | 109.26 | 3.44 | 23.23 | 7.65 |
| 11760.000 | 98.00 | .00 | .00 | 645.60 | 33.00 | 646.57 | .00 | 646.61 | 29.12 | 1.72 | 19.16 | 6.11 |
| 11760.000 | 98.00 | .00 | .00 | 645.60 | 53.00 | 646.83 | .00 | 646.90 | 30.85 | 2.06 | 25.74 | 9.54 |
| 11760.000 | 98.00 | .00 | .00 | 645.60 | 59.00 | 646.90 | .00 | 646.97 | 31.53 | 2.15 | 27.45 | 10.51 |
| 11760.000 | 98.00 | .00 | .00 | 645.60 | 80.00 | 647.09 | .00 | 647.19 | 34.85 | 2.45 | 32.60 | 13.55 |

'G CONDITIONS MODEL WIT

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 3273.000 | 51.00 | 630.20 | .00 | .00 | .00 | 22.72 | .00 |
| 3273.000 | 94.00 | 631.10 | .90 | .00 | .00 | 27.57 | .00 |
| 3273.000 | 108.00 | 631.18 | .08 | .00 | .00 | 28.00 | .00 |
| 3273.000 | 159.00 | 631.22 | .04 | .00 | .00 | 28.22 | .00 |
| 3965.000 | 51.00 | 630.59 | .00 | .39 | .00 | 15.76 | 692.00 |
| 3965.000 | 94.00 | 631.55 | .96 | .45 | .00 | 18.51 | 692.00 |
| 3965.000 | 108.00 | 631.70 | .16 | .52 | .00 | 18.96 | 692.00 |
| * 3965.000 | 159.00 | 632.10 | .39 | .88 | .00 | 112.00 | 692.00 |
| 4118.000 | 50.00 | 631.04 | .00 | .45 | .00 | 10.61 | 153.00 |
| 4118.000 | 92.00 | 631.99 | .95 | .44 | .00 | 50.57 | 153.00 |
| 4118.000 | 106.00 | 632.18 | .19 | .47 | .00 | 85.89 | 153.00 |
| 4118.000 | 156.00 | 632.63 | .46 | .53 | .00 | 97.95 | 153.00 |
| 4162.000 | 50.00 | 632.35 | .00 | 1.31 | .00 | 93.04 | 44.00 |
| 4162.000 | 92.00 | 632.63 | .29 | .64 | .00 | 97.99 | 44.00 |
| 4162.000 | 106.00 | 633.75 | 1.12 | 1.58 | .00 | 116.86 | 44.00 |
| 4162.000 | 156.00 | 633.98 | .22 | 1.34 | .00 | 120.49 | 44.00 |
| 4882.000 | 50.00 | 633.71 | .00 | 1.36 | .00 | 149.31 | 720.00 |
| 4882.000 | 93.00 | 633.97 | .27 | 1.34 | .00 | 271.47 | 720.00 |
| 4882.000 | 107.00 | 633.97 | -.01 | .21 | .00 | 270.71 | 720.00 |
| 4882.000 | 157.00 | 634.22 | .25 | .24 | .00 | 358.74 | 720.00 |
| 4942.000 | 50.00 | 633.76 | .00 | .05 | .00 | 75.78 | 60.00 |
| 4942.000 | 93.00 | 634.04 | .28 | .07 | .00 | 222.99 | 60.00 |
| 4942.000 | 107.00 | 634.06 | .01 | .09 | .00 | 228.46 | 60.00 |
| 4942.000 | 157.00 | 634.28 | .23 | .06 | .00 | 313.84 | 60.00 |
| 5002.000 | 50.00 | 633.82 | .00 | .06 | .00 | 59.07 | 60.00 |
| 5002.000 | 93.00 | 634.13 | .31 | .09 | .00 | 216.89 | 60.00 |
| 5002.000 | 107.00 | 634.17 | .03 | .11 | .00 | 229.63 | 60.00 |
| 5002.000 | 157.00 | 634.37 | .21 | .09 | .00 | 306.87 | 60.00 |
| 5031.000 | 50.00 | 633.85 | .00 | .03 | .00 | 34.87 | 29.00 |
| 5031.000 | 93.00 | 634.18 | .33 | .05 | .00 | 195.70 | 29.00 |
| 5031.000 | 107.00 | 634.23 | .04 | .06 | .00 | 216.66 | 29.00 |
| 5031.000 | 157.00 | 634.42 | .20 | .05 | .00 | 290.83 | 29.00 |
| 5065.000 | 49.00 | 633.90 | .00 | .05 | .00 | 12.00 | 34.00 |
| 5065.000 | 92.00 | 634.23 | .33 | .04 | .00 | 12.00 | 34.00 |
| 5065.000 | 105.00 | 634.27 | .04 | .04 | .00 | 12.00 | 34.00 |
| 5065.000 | 155.00 | 634.43 | .17 | .01 | .00 | 12.00 | 34.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 5241.000 | 49.00 | 633.99 | .00 | .09 | .00 | 12.00 | 176.00 |
| 5241.000 | 92.00 | 634.57 | .58 | .34 | .00 | 12.00 | 176.00 |
| 5241.000 | 105.00 | 634.72 | .15 | .45 | .00 | 12.00 | 176.00 |
| 5241.000 | 155.00 | 635.54 | .82 | 1.10 | .00 | 132.80 | 176.00 |
| 5269.000 | 49.00 | 634.01 | .00 | .02 | .00 | 28.36 | 28.00 |
| 5269.000 | 92.00 | 634.62 | .62 | .06 | .00 | 33.35 | 28.00 |
| 5269.000 | 105.00 | 634.79 | .16 | .07 | .00 | 34.67 | 28.00 |
| 5269.000 | 155.00 | 635.53 | .75 | .00 | .00 | 40.67 | 28.00 |
| 5502.000 | 49.00 | 634.08 | .00 | .07 | .00 | 38.54 | 233.00 |
| 5502.000 | 92.00 | 634.73 | .65 | .11 | .00 | 45.20 | 233.00 |
| 5502.000 | 105.00 | 634.90 | .17 | .11 | .00 | 58.18 | 233.00 |
| 5502.000 | 155.00 | 635.64 | .74 | .10 | .00 | 109.17 | 233.00 |
| 5545.000 | 49.00 | 634.08 | .00 | .00 | .00 | 12.00 | 43.00 |
| 5545.000 | 92.00 | 634.72 | .63 | -.02 | .00 | 12.00 | 43.00 |
| 5545.000 | 105.00 | 634.88 | .16 | -.02 | .00 | 12.00 | 43.00 |
| 5545.000 | 155.00 | 635.58 | .71 | -.05 | .00 | 12.00 | 43.00 |
| 5633.000 | 49.00 | 634.16 | .00 | .08 | .00 | 39.40 | 88.00 |
| 5633.000 | 92.00 | 634.87 | .71 | .15 | .00 | 46.80 | 88.00 |
| 5633.000 | 105.00 | 635.06 | .19 | .18 | .00 | 48.74 | 88.00 |
| 633.000 | 155.00 | 635.84 | .79 | .26 | .00 | 53.95 | 88.00 |
| 5737.000 | 49.00 | 634.18 | .00 | .02 | .00 | 36.32 | 104.00 |
| 5737.000 | 92.00 | 634.90 | .72 | .03 | .00 | 43.89 | 104.00 |
| 5737.000 | 105.00 | 635.08 | .19 | .03 | .00 | 45.86 | 104.00 |
| 5737.000 | 155.00 | 635.87 | .79 | .03 | .00 | 99.27 | 104.00 |
| 5792.000 | 49.00 | 634.17 | .00 | -.01 | .00 | 8.58 | 55.00 |
| 5792.000 | 92.00 | 634.84 | .67 | -.06 | .00 | 8.92 | 55.00 |
| 5792.000 | 105.00 | 635.01 | .18 | -.07 | .00 | 17.00 | 55.00 |
| 5792.000 | 155.00 | 635.82 | .81 | -.05 | .00 | 62.18 | 55.00 |
| 5965.000 | 109.00 | 634.30 | .00 | .14 | .00 | 360.62 | 173.00 |
| 5965.000 | 183.00 | 635.10 | .80 | .27 | .00 | 376.47 | 173.00 |
| 5965.000 | 210.00 | 635.32 | .21 | .30 | .00 | 380.05 | 173.00 |
| 5965.000 | 294.00 | 636.04 | .72 | .21 | .00 | 392.19 | 173.00 |
| 6130.000 | 109.00 | 634.30 | .00 | .00 | .00 | 294.67 | 165.00 |
| 6130.000 | 183.00 | 635.10 | .80 | .00 | .00 | 305.31 | 165.00 |
| 6130.000 | 210.00 | 635.32 | .21 | .00 | .00 | 308.15 | 165.00 |
| 6130.000 | 294.00 | 636.04 | .72 | .00 | .00 | 317.73 | 165.00 |
| 6250.000 | 109.00 | 634.31 | .00 | .00 | .00 | 197.91 | 120.00 |
| 6250.000 | 183.00 | 635.11 | .80 | .00 | .00 | 208.29 | 120.00 |
| 6250.000 | 210.00 | 635.32 | .21 | .00 | .00 | 211.06 | 120.00 |
| 250.000 | 294.00 | 636.04 | .72 | .00 | .00 | 220.40 | 120.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 6500.000 | 109.00 | 634.31 | .00 | .01 | .00 | 156.94 | 250.00 |
| | 6500.000 | 183.00 | 635.11 | .80 | .01 | .00 | 165.93 | 250.00 |
| | 6500.000 | 210.00 | 635.32 | .21 | .01 | .00 | 168.33 | 250.00 |
| | 6500.000 | 294.00 | 636.04 | .72 | .01 | .00 | 176.41 | 250.00 |
| | 6685.000 | 109.00 | 634.31 | .00 | .00 | .00 | 278.81 | 185.00 |
| | 6685.000 | 183.00 | 635.11 | .80 | .00 | .00 | 289.45 | 185.00 |
| | 6685.000 | 210.00 | 635.33 | .21 | .00 | .00 | 292.30 | 185.00 |
| | 6685.000 | 294.00 | 636.05 | .72 | .01 | .00 | 301.87 | 185.00 |
| | 6920.000 | 44.00 | 634.32 | .00 | .00 | .00 | 103.46 | 235.00 |
| | 6920.000 | 84.00 | 635.12 | .80 | .00 | .00 | 114.79 | 235.00 |
| | 6920.000 | 92.00 | 635.33 | .21 | .00 | .00 | 118.00 | 235.00 |
| | 6920.000 | 151.00 | 636.05 | .72 | .00 | .00 | 129.53 | 235.00 |
| * | 7259.000 | 44.00 | 634.37 | .00 | .05 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 85.00 | 635.29 | .92 | .17 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 100.00 | 635.56 | .27 | .23 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 152.00 | 636.58 | 1.02 | .53 | .00 | 17.13 | 339.00 |
| | 7260.000 | 44.00 | 634.36 | .00 | -.01 | .00 | 19.13 | 1.00 |
| | 7260.000 | 85.00 | 635.28 | .92 | -.01 | .00 | 19.13 | 1.00 |
| | 7260.000 | 100.00 | 635.55 | .27 | -.01 | .00 | 19.13 | 1.00 |
| | 7260.000 | 152.00 | 636.57 | 1.02 | -.01 | .00 | 19.13 | 1.00 |
| | 7367.000 | 44.00 | 634.41 | .00 | .05 | .00 | 15.43 | 107.00 |
| | 7367.000 | 85.00 | 635.34 | .93 | .06 | .00 | 21.60 | 107.00 |
| | 7367.000 | 100.00 | 635.62 | .28 | .07 | .00 | 23.43 | 107.00 |
| | 7367.000 | 152.00 | 636.64 | 1.02 | .07 | .00 | 30.19 | 107.00 |
| | 7977.000 | 44.00 | 635.80 | .00 | 1.39 | .00 | 20.82 | 610.00 |
| | 7977.000 | 85.00 | 636.49 | .69 | 1.15 | .00 | 25.88 | 610.00 |
| | 7977.000 | 100.00 | 636.71 | .21 | 1.09 | .00 | 27.44 | 610.00 |
| | 7977.000 | 152.00 | 637.42 | .71 | .78 | .00 | 32.62 | 610.00 |
| | 8632.000 | 43.00 | 636.65 | .00 | .85 | .00 | 22.13 | 655.00 |
| | 8632.000 | 83.00 | 637.38 | .73 | .89 | .00 | 28.38 | 655.00 |
| | 8632.000 | 99.00 | 637.60 | .22 | .89 | .00 | 30.30 | 655.00 |
| | 8632.000 | 150.00 | 638.22 | .63 | .81 | .00 | 35.91 | 655.00 |
| | 8832.000 | 43.00 | 636.95 | .00 | .30 | .00 | 18.19 | 200.00 |
| | 8832.000 | 83.00 | 637.67 | .72 | .29 | .00 | 22.84 | 200.00 |
| | 8832.000 | 99.00 | 637.89 | .22 | .29 | .00 | 24.23 | 200.00 |
| | 8832.000 | 150.00 | 638.49 | .61 | .27 | .00 | 28.16 | 200.00 |
| | 9000.000 | 43.00 | 637.28 | .00 | .33 | .00 | 20.84 | 168.00 |
| | 9000.000 | 83.00 | 637.98 | .70 | .31 | .00 | 26.92 | 168.00 |
| | 9000.000 | 99.00 | 638.20 | .22 | .31 | .00 | 28.81 | 168.00 |
| | 9000.000 | 150.00 | 638.80 | .60 | .31 | .00 | 34.03 | 168.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 9600.000 | 43.00 | 638.88 | .00 | 1.60 | .00 | 18.93 | 600.00 |
| | 9600.000 | 83.00 | 639.44 | .56 | 1.46 | .00 | 22.96 | 600.00 |
| | 9600.000 | 99.00 | 639.63 | .19 | 1.43 | .00 | 24.27 | 600.00 |
| | 9600.000 | 150.00 | 640.14 | .50 | 1.33 | .00 | 27.81 | 600.00 |
| | 10000.000 | 38.00 | 639.82 | .00 | .93 | .00 | 19.07 | 400.00 |
| | 10000.000 | 68.00 | 640.40 | .58 | .96 | .00 | 23.28 | 400.00 |
| | 10000.000 | 79.00 | 640.59 | .19 | .96 | .00 | 24.63 | 400.00 |
| | 10000.000 | 115.00 | 641.10 | .51 | .97 | .00 | 28.22 | 400.00 |
| | 10400.000 | 38.00 | 640.68 | .00 | .87 | .00 | 17.31 | 400.00 |
| | 10400.000 | 68.00 | 641.22 | .54 | .82 | .00 | 20.86 | 400.00 |
| | 10400.000 | 79.00 | 641.39 | .17 | .80 | .00 | 21.95 | 400.00 |
| | 10400.000 | 115.00 | 641.87 | .48 | .76 | .00 | 25.10 | 400.00 |
| | 10800.000 | 38.00 | 641.71 | .00 | 1.02 | .00 | 18.26 | 400.00 |
| | 10800.000 | 68.00 | 642.24 | .53 | 1.01 | .00 | 21.79 | 400.00 |
| | 10800.000 | 79.00 | 642.39 | .16 | 1.00 | .00 | 22.87 | 400.00 |
| | 10800.000 | 115.00 | 642.84 | .45 | .97 | .00 | 25.88 | 400.00 |
| | 11110.000 | 38.00 | 642.05 | .00 | .34 | .00 | 20.32 | 311.00 |
| | 11110.000 | 68.00 | 642.65 | .60 | .41 | .00 | 23.87 | 311.00 |
| | 11110.000 | 79.00 | 642.82 | .17 | .43 | .00 | 24.92 | 311.00 |
| | 1110.000 | 115.00 | 643.31 | .49 | .47 | .00 | 27.85 | 311.00 |
| * | 11111.000 | 38.00 | 642.94 | .00 | .89 | .00 | 10.43 | 1.00 |
| * | 11111.000 | 68.00 | 643.33 | .39 | .68 | .00 | 12.75 | 1.00 |
| * | 11111.000 | 79.00 | 643.44 | .11 | .62 | .00 | 13.43 | 1.00 |
| * | 11111.000 | 115.00 | 643.77 | .34 | .47 | .00 | 15.45 | 1.00 |
| | 11591.000 | 38.00 | 644.58 | .00 | 1.64 | .00 | 22.07 | 481.00 |
| | 11591.000 | 68.00 | 645.16 | .58 | 1.83 | .00 | 26.78 | 481.00 |
| | 11591.000 | 79.00 | 645.33 | .17 | 1.89 | .00 | 28.16 | 481.00 |
| | 11591.000 | 115.00 | 645.79 | .46 | 2.02 | .00 | 31.97 | 481.00 |
| * | 11592.000 | 38.00 | 644.41 | .00 | -.17 | .00 | 11.47 | 1.00 |
| | 11592.000 | 68.00 | 644.98 | .56 | -.18 | .00 | 14.91 | 1.00 |
| | 11592.000 | 79.00 | 645.16 | .18 | -.17 | .00 | 15.97 | 1.00 |
| | 11592.000 | 115.00 | 645.62 | .47 | -.17 | .00 | 18.77 | 1.00 |
| | 11662.000 | 33.00 | 645.96 | .00 | 1.55 | .00 | 20.81 | 70.00 |
| | 11662.000 | 53.00 | 646.11 | .15 | 1.14 | .00 | 23.07 | 70.00 |
| | 11662.000 | 59.00 | 646.18 | .06 | 1.02 | .00 | 23.95 | 70.00 |
| | 11662.000 | 80.00 | 646.44 | .26 | .81 | .00 | 27.63 | 70.00 |
| | 11760.000 | 33.00 | 646.57 | .00 | .61 | .00 | 23.77 | 98.00 |
| | 11760.000 | 53.00 | 646.83 | .27 | .72 | .00 | 25.45 | 98.00 |
| | 11760.000 | 59.00 | 646.90 | .06 | .72 | .00 | 25.87 | 98.00 |
| | 1760.000 | 80.00 | 647.09 | .20 | .66 | .00 | 27.09 | 98.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=  3965.000  PROFILE= 4  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=  3965.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 4  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROFILE WITHIN SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROFILE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 3  PROFILE WITHIN SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 3  PROFILE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 11592.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11592.000  PROFILE= 1  PROFILE WITHIN SPECIFIC ENERGY
CAUTION  SECNO= 11592.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

THIS RUN EXECUTED 12-26-95

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED [illegible]
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

1) COUNTY: Macomb County

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Clinton Drain

4) DOCUMENT TYPE: Clomr Existing w/ New Flows Floodway

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CITY OF STERLING HEIGHTS  CHRISSMAN DRAIN
T3 EXISTING CONDITIONS MODEL WITH NEW FLOWS-FLOODWAY RUN (FILE NAME CDEXNF.FLY)

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

    -10.       2.       0.       0.   .000000     .00       .0       0.   631.180    .000

J2  NPROF    IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE

     1.000     .000   -1.000     .000     .000     .000     .000     .000     .000     .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.000   200.000     .000     .000     .000     .000     .000     .000     .000     .000

J5  LPRNT    NUMSEC                   ********REQUESTED SECTION NUMBERS********

   -10.000  -10.000     .000     .000     .000     .000     .000     .000     .000     .000
```

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

T1
T2
T3 FLOODWAY RUN EXIST CONDITIONS-NEW FLOWS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.180 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ING CONDITIONS MODEL WIT

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3273.000 | 631.18 | .00 | 631.22 | 28.00 | .00 | 108.00 | .00 | .00 | .00 | 50.00 | 80.00 | .00 |
| 3273.000 | 631.18 | .00 | 631.22 | 28.00 | .00 | 108.00 | .00 | .00 | .00 | 50.00 | 80.00 | .00 |
| 3965.000 | 631.70 | .00 | 631.78 | 18.96 | .00 | 108.00 | .00 | 200.00 | 200.00 | 292.00 | 312.00 | 400.00 |
| 965.000 | 631.70 | .00 | 631.78 | 18.96 | .00 | 108.00 | .00 | 200.00 | 200.00 | 292.00 | 312.00 | 400.00 |
| 4118.000 | 632.18 | .00 | 632.32 | 85.89 | 31.26 | 34.79 | 39.95 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4118.000 | 632.18 | .00 | 632.32 | 85.89 | 31.26 | 34.79 | 39.95 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4162.000 | 633.75 | .00 | 633.76 | 116.86 | 74.09 | 7.77 | 24.14 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4162.000 | 633.75 | .00 | 633.76 | 116.86 | 74.09 | 7.77 | 24.14 | 200.00 | 159.00 | 236.91 | 240.09 | 318.00 |
| 4882.000 | 633.97 | .00 | 634.00 | 270.71 | 36.74 | 70.26 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4882.000 | 633.97 | .00 | 634.00 | 270.71 | 36.74 | 70.26 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4942.000 | 634.06 | .00 | 634.12 | 228.46 | 24.12 | 82.88 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 4942.000 | 634.06 | .00 | 634.12 | 228.46 | 24.12 | 82.88 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5002.000 | 634.17 | .00 | 634.23 | 229.63 | 24.48 | 82.52 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5002.000 | 634.17 | .00 | 634.23 | 229.63 | 24.48 | 82.52 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5031.000 | 634.23 | .00 | 634.30 | 216.66 | 20.48 | 86.52 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5031.000 | 634.23 | .00 | 634.30 | 216.66 | 20.48 | 86.52 | .00 | 490.00 | 60.00 | 400.00 | 418.00 | 550.00 |
| 5065.000 | 634.27 | .00 | 634.35 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5065.000 | 634.27 | .00 | 634.35 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5241.000 | 634.72 | .00 | 634.79 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5241.000 | 634.72 | .00 | 634.79 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 269.000 | 634.79 | .00 | 634.82 | 34.67 | .00 | 105.00 | .00 | .00 | .00 | .00 | 43.00 | .00 |
| 5269.000 | 634.79 | .00 | 634.82 | 34.67 | .00 | 105.00 | .00 | .00 | .00 | .00 | 43.00 | .00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5502.000 | 634.90 | .00 | 634.92 | 58.18 | .00 | 104.98 | .02 | .00 | .00 | .00 | 52.00 | .00 |
| | 5502.000 | 634.90 | .00 | 634.92 | 58.18 | .00 | 104.98 | .02 | .00 | .00 | .00 | 52.00 | .00 |
| | 5545.000 | 634.88 | .00 | 634.99 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| | 5545.000 | 634.88 | .00 | 634.99 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| | 5633.000 | 635.06 | .00 | 635.07 | 48.74 | .00 | 105.00 | .00 | .00 | .00 | .00 | 55.00 | .00 |
| | 5633.000 | 635.06 | .00 | 635.07 | 48.74 | .00 | 105.00 | .00 | .00 | .00 | .00 | 55.00 | .00 |
| | 5737.000 | 635.08 | .00 | 635.10 | 45.86 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5737.000 | 635.08 | .00 | 635.10 | 45.86 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5792.000 | 635.01 | .00 | 635.29 | 17.00 | .00 | 105.00 | .00 | .00 | .00 | 35.00 | 52.00 | .00 |
| | 5792.000 | 635.01 | .00 | 635.29 | 17.00 | .00 | 105.00 | .00 | .00 | .00 | 35.00 | 52.00 | .00 |
| | 5965.000 | 635.32 | .00 | 635.32 | 380.05 | .00 | 210.00 | .00 | .00 | .00 | .00 | 459.00 | .00 |
| | 5965.000 | 635.32 | .00 | 635.32 | 380.05 | .00 | 210.00 | .00 | .00 | .00 | .00 | 459.00 | .00 |
| | 6130.000 | 635.32 | .00 | 635.32 | 308.15 | .00 | 210.00 | .00 | .00 | .00 | .00 | 415.00 | .00 |
| | 6130.000 | 635.32 | .00 | 635.32 | 308.15 | .00 | 210.00 | .00 | .00 | .00 | .00 | 415.00 | .00 |
| | 6250.000 | 635.32 | .00 | 635.32 | 211.06 | .00 | 210.00 | .00 | .00 | .00 | .00 | 245.00 | .00 |
| | 6250.000 | 635.32 | .00 | 635.32 | 211.06 | .00 | 210.00 | .00 | .00 | .00 | .00 | 245.00 | .00 |
| | 6500.000 | 635.32 | .00 | 635.33 | 168.33 | .00 | 210.00 | .00 | .00 | .00 | .00 | 232.00 | .00 |
| | 6500.000 | 635.32 | .00 | 635.33 | 168.33 | .00 | 210.00 | .00 | .00 | .00 | .00 | 232.00 | .00 |
| | 6685.000 | 635.33 | .00 | 635.33 | 292.30 | .00 | 210.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| | 6685.000 | 635.33 | .00 | 635.33 | 292.30 | .00 | 210.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| | 6920.000 | 635.33 | .00 | 635.33 | 118.00 | .00 | 92.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| | 6920.000 | 635.33 | .00 | 635.33 | 118.00 | .00 | 92.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| * | 7259.000 | 635.56 | .00 | 635.58 | 17.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |
| * | 7259.000 | 635.56 | .00 | 635.58 | 17.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |
| | 7260.000 | 635.55 | .00 | 635.59 | 19.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7260.000 | 635.55 | .00 | 635.59 | 19.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7367.000 | 635.62 | .00 | 635.72 | 23.43 | .00 | 100.00 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7367.000 | 635.62 | .00 | 635.72 | 23.43 | .00 | 100.00 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7977.000 | 636.71 | .00 | 636.77 | 27.44 | .00 | 100.00 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 7977.000 | 636.71 | .00 | 636.77 | 27.44 | .00 | 100.00 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 8632.000 | 637.60 | .00 | 637.65 | 30.30 | .00 | 99.00 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |
| | 8632.000 | 637.60 | .00 | 637.65 | 30.30 | .00 | 99.00 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |
| | 8832.000 | 637.89 | .00 | 637.97 | 24.23 | .00 | 99.00 | .00 | .00 | .00 | .00 | 36.30 | .00 |
| | 8832.000 | 637.89 | .00 | 637.97 | 24.23 | .00 | 99.00 | .00 | .00 | .00 | .00 | 36.30 | .00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9000.000 | 638.20 | .00 | 638.28 | 28.81 | .00 | 99.00 | .00 | .00 | .00 | .00 | 47.00 | .00 |
| | 9000.000 | 638.20 | .00 | 638.28 | 28.81 | .00 | 99.00 | .00 | .00 | .00 | .00 | 47.00 | .00 |
| | 9600.000 | 639.63 | .00 | 639.74 | 24.27 | .00 | 99.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 9600.000 | 639.63 | .00 | 639.74 | 24.27 | .00 | 99.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 10000.000 | 640.59 | .00 | 640.65 | 24.63 | .00 | 79.00 | .00 | .00 | .00 | .00 | 40.00 | .00 |
| | 10000.000 | 640.59 | .00 | 640.65 | 24.63 | .00 | 79.00 | .00 | .00 | .00 | .00 | 40.00 | .00 |
| | 10400.000 | 641.39 | .00 | 641.48 | 21.95 | .00 | 79.00 | .00 | .00 | .00 | 10.00 | 44.00 | .00 |
| | 10400.000 | 641.39 | .00 | 641.48 | 21.95 | .00 | 79.00 | .00 | .00 | .00 | 10.00 | 44.00 | .00 |
| | 10800.000 | 642.39 | .00 | 642.48 | 22.87 | .00 | 79.00 | .00 | .00 | .00 | .00 | 35.00 | .00 |
| | 10800.000 | 642.39 | .00 | 642.48 | 22.87 | .00 | 79.00 | .00 | .00 | .00 | .00 | 35.00 | .00 |
| | 11110.000 | 642.82 | .00 | 642.86 | 24.92 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11110.000 | 642.82 | .00 | 642.86 | 24.92 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| * | 11111.000 | 643.44 | .00 | 643.96 | 13.43 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| * | 11111.000 | 643.44 | .00 | 643.96 | 13.43 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 645.33 | .00 | 645.37 | 28.16 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 645.33 | .00 | 645.37 | 28.16 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 645.16 | .00 | 645.45 | 15.97 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 645.16 | .00 | 645.45 | 15.97 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 646.18 | .00 | 646.37 | 23.95 | .00 | 59.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 646.18 | .00 | 646.37 | 23.95 | .00 | 59.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11760.000 | 646.90 | .00 | 646.97 | 25.87 | .00 | 59.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |
| | 11760.000 | 646.90 | .00 | 646.97 | 25.87 | .00 | 59.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

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NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FLOODWAY DATA, ING CONDITIONS MODEL WIT
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WATER SURFACE ELEVATION WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 3273.000 | 28. | 71. | 1.5 | 631.2 | 631.2 | .0 |
| 3965.000 | 19. | 50. | 2.2 | 631.7 | 631.7 | .0 |
| 4118.000 | 90. | 41. | 2.6 | 632.2 | 632.2 | .0 |
| 4162.000 | 117. | 205. | .5 | 633.8 | 633.8 | .0 |
| 4882.000 | 358. | 109. | 1.0 | 634.0 | 634.0 | .0 |
| 4942.000 | 357. | 81. | 1.3 | 634.1 | 634.1 | .0 |
| 5002.000 | 357. | 82. | 1.3 | 634.2 | 634.2 | .0 |
| 5031.000 | 357. | 74. | 1.4 | 634.2 | 634.2 | .0 |
| 5065.000 | 12. | 45. | 2.3 | 634.3 | 634.3 | .0 |
| 5241.000 | 12. | 48. | 2.2 | 634.7 | 634.7 | .0 |
| 5269.000 | 35. | 73. | 1.4 | 634.8 | 634.8 | .0 |
| 5502.000 | 58. | 100. | 1.0 | 634.9 | 634.9 | .0 |
| 5545.000 | 12. | 39. | 2.7 | 634.9 | 634.9 | .0 |
| 5633.000 | 49. | 108. | 1.0 | 635.1 | 635.1 | .0 |
| 5737.000 | 46. | 93. | 1.1 | 635.1 | 635.1 | .0 |
| 2.000 | 17. | 25. | 4.2 | 635.0 | 635.0 | .0 |
| [illegible]65.000 | 380. | 1152. | .2 | 635.3 | 635.3 | .0 |
| 6130.000 | 308. | 949. | .2 | 635.3 | 635.3 | .0 |
| 6250.000 | 211. | 629. | .3 | 635.3 | 635.3 | .0 |
| 6500.000 | 168. | 497. | .4 | 635.3 | 635.3 | .0 |
| 6685.000 | 292. | 899. | .2 | 635.3 | 635.3 | .0 |
| 6920.000 | 118. | 321. | .3 | 635.3 | 635.3 | .0 |
| 7259.000 | 17. | 82. | 1.2 | 635.6 | 635.6 | .0 |
| 7260.000 | 19. | 62. | 1.6 | 635.5 | 635.5 | .0 |
| 7367.000 | 23. | 40. | 2.5 | 635.6 | 635.6 | .0 |
| 7977.000 | 27. | 50. | 2.0 | 636.7 | 636.7 | .0 |
| 8632.000 | 30. | 51. | 1.9 | 637.6 | 637.6 | .0 |
| 8832.000 | 24. | 44. | 2.2 | 637.9 | 637.9 | .0 |
| 9000.000 | 29. | 45. | 2.2 | 638.2 | 638.2 | .0 |
| 9600.000 | 24. | 37. | 2.7 | 639.6 | 639.6 | .0 |
| 10000.000 | 25. | 39. | 2.0 | 640.6 | 640.6 | .0 |
| 10400.000 | 22. | 33. | 2.4 | 641.4 | 641.4 | .0 |
| 10800.000 | 23. | 34. | 2.3 | 642.4 | 642.4 | .0 |
| 11110.000 | 25. | 50. | 1.6 | 642.8 | 642.8 | .0 |
| 11111.000 | 13. | 14. | 5.8 | 643.4 | 643.4 | .0 |
| 11591.000 | 28. | 48. | 1.7 | 645.3 | 645.3 | .0 |
| 11592.000 | 16. | 18. | 4.3 | 645.2 | 645.2 | .0 |
| 11662.000 | 24. | 17. | 3.6 | 646.2 | 646.2 | .0 |
| 11760.000 | 26. | 27. | 2.1 | 646.9 | 646.9 | .0 |

THIS RUN EXECUTED 02-21-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION =  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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1) COUNTY: Macomb [redacted]

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Christian Drain

4) DOCUMENT TYPE: CLOMR - FORMS

FEDERAL EMERGENCY MANAGEMENT AGENCY

**REVISION REQUESTOR AND COMMUNITY OFFICIAL FORM**

O M B Burden No 3067 0148
Expires July 31 1994

FEMA USE ONLY

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 13 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

### 1. OVERVIEW

1 The basis for this revision request is (are) *(check all that apply)*

- ☒ Physical change
  - ☐ Existing
  - ☒ Proposed
- ☒ Improved methodology
- ☒ Improved data
- ☒ Floodway revision
- ☐ Other _____

Explain _____

2 Flooding Source Crissman Drain

3 Project Name/Identifier Mound Road to M-59

4 FEMA zone designations affected. A1, B
(example A, AH, AO, A1-A30, A99, AE, V, V1-30, VE, B, C, D, X)

5 The NFIP map panel(s) affected for all impacted communities is (are):

| Community No. | Community Name | County | State | Map No | Panel No. | Effective Date |
|---|---|---|---|---|---|---|
| X. 480301 | Katy,City | Harris, Fort Bend | TX | 480301 | 0005D | 02/08/83 |
| 480287 | Harris County | Harris | TX | 48201C | 0220G | 09/28/90 |
| 260128 | Sterling Hts., City | Macomb | MI | 260128 | 0010E | 8/3/81 |
| | | | | | | |
| | | | | | | |
| | | | | | | |

6 The area of revision encompasses the following types of flooding, structures, and associated disciplines: *(check all that apply)*

**Types of Flooding**

- ☒ Riverine
- ☐ Coastal
- ☐ Alluvial Fan
- ☒ Shallow Flooding *(e g Zones AO and AH)*
- ☐ Lakes

Affected by wind/wave action
- ☐ Yes
- ☒ No

**Structures**

- ☐ Channelization
- ☐ Levee/Floodwall
- ☒ Bridge/Culvert
- ☐ Dam
- ☐ Coastal
- ☐ Fill
- ☐ Pump Station
- ☐ None
- ☐ Channel Relocation
- ☐ Excavation
- ☐ Other *(describe)*

**Disciplines***

- ☒ Water Resources
  - ☒ Hydrology
  - ☒ Hydraulics
  - ☐ Sediment Transport
  - ☐ Interior Drainage
- ☐ Structural
- ☐ Geotechnical
- ☐ Land Surveying
- ☐ Other *(describe)*

☐ Other(describe) _____

* **Attach completed "Certification by Registered Professional Engineer and/or Land Surveyor" Form for each discipline checked. (Form 2)**

### 2. FLOODWAY INFORMATION

7 Does the affected flooding source have a floodway designated on the effective FIRM or FBFM? ☒ Yes ☐ No

8 Does the revised floodway delineation differ from that shown on the effective FIRM or FBFM ☒ Yes ☐ No

If yes, give reason Channel Modifications, New Culvert & Revised Hydrology Proposed.

Attach copy of either a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions

9 Does the State have jurisdiction over the floodway or its adoption by communities participating in the NFIP?
Drainage area at subject location is less than 2 square miles ☐ Yes ☒ No

If yes, attach a copy of a letter notifying the appropriate State agency of the floodway revision and documentation of the approval of the revised floodway by the appropriate State agency

### 3. PROPOSED ENCROACHMENTS

10 With floodways

1A Does the revision request involve fill, new construction, substantial improvement, or other development in the floodway? ☒ Yes ☐ No

* 1B If yes, does the development cause the 100-year water surface elevation to increase at any location by more than 0.000 feet? ☐ Yes ☒ No

11 Without floodways:

2A Does the revision request involve fill, new construction, substantial improvement, or other development in the 100-year floodplain? ☐ Yes ☐ No

2B. If yes, does the cumulative effect of all development that has occurred since the effective SFHA was originally identified cause the 100-year water surface elevation to increase at any location by more than one foot (*or other surcharge limit if community or state has adopted more stringent criteria*)? ☐ Yes ☐ No

If the answer to either Items 1B or 2B is yes, please provide documentation that all requirements of Section 65.12 of the NFIP regulations have been met, regarding evaluation of alternatives, notice to individual legal property owners, concurrence of CEO, and certification that no insurable structures are impacted

### 4. REVISION REQUESTOR ACKNOWLEDGMENT

12. Having read NFIP Regulations, 44 CFR Ch 1, parts 59, 60, 61, and 72, I believe that the proposed revision ☒ is ☐ is not in compliance with the requirements of the aforementioned NFIP Regulations.

### 5. COMMUNITY OFFICIAL ACKNOWLEDGMENT

13 Was this revision request reviewed by the community for compliance with the community's adopted floodplain management ordinances? ☒ Yes ☐ No

14 Does this revision request have the endorsement of the community? ☒ Yes ☐ No

If no to either of the above questions, please explain: _____

Please note that community acknowledgment and /or notification is required for all requests as outlined in Section 65 4 (b) of the NFIP Regulations.

### 6. OPERATION AND MAINTENANCE

15 Does the physical change involve a flood control structure (e g , levees, floodwalls, channelization, basins, dams)? ☒ Yes ☐ No

If yes, please provide the following information for each of the new flood control structures

A. Inspection of the flood control project will be conducted periodically by The Macomb County Office of the Public Works Commissioner (entity) with a maximum interval of 12 months between inspections

B Based on the results of scheduled periodic inspections, appropriate maintenance of the flood control facilities will be conducted by The Macomb County Office of the Public Works Commissioner (entity) to ensure the integrity and degree of flood protection of the structure

C. A formal plan of operation, including documentation of the flood warning system, specific actions and assignments of responsibility by individual name or title, and provisions for testing the plan at intervals not less than one year, ☐ has ☒ has not been prepared for the flood control structure

D) The community is willing to assume responsibility for ☐ performing ☒ overseeing compliance with the maintenance and operation plans of the Crissman Drain (Name)

flood control structure If not performed promptly by an owner other than the community, the community will provide the necessary services without cost to the Federal government

Attach operation and maintenance plans

**7 REQUESTED RESPONSE FROM FEMA**

16 After examining the pertinent NFIP regulations and reviewing the document entitled "Appeals, Revisions, and Amendments to Flood Insurance Maps: A guide for Community Officials," dated January 1990, this request is for a

| | | |
|---|---|---|
| x a | CLOMR | A letter from FEMA commenting on whether a proposed project, if built as proposed, would justify a map revision *(LOMR or PMR)*, or proposed hydrology changes *(see 44 CFR Ch. I, Parts 60, 65, and 72)* |
| ___ b | LOMR | A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. LOMRs typically depict decreased flood hazards. *(See 44 CFR Ch. I Parts 60 and 65 )* |
| ___ c | PMR | A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects increased flood hazards or large-scope changes *(See 44 CFR Ch I, Parts 60 and 65.)* |
| ___ d | Other. | Describe ___ |

**8. FORMS INCLUDED**

Form 2 entitled, "Certification By Registered Professional Engineer and/or Land Surveyor" must be submitted.

The following forms should be included with this request if (check the included forms):

| | |
|---|---|
| • Hydrologic analysis for flooding source differs from that used to develop FIRM | ☒ Hydrologic Analysis Form (Form 3) |
| • Hydraulic analysis for riverine flooding differs from that used to develop FIRM | ☒ Riverine Hydraulic Analysis Form (Form 4) |
| • The request is based on updated topographic information or a revised floodplain or floodway delineation is requested | ☒ Riverine /Coastal Mapping Form (Form 5) |
| • The request involves any type of channel modification | ☒ Channelization Form (Form 6) |
| • The request involves new bridge or culvert or revised analysis of an existing bridge or culvert | ☒ Bridge/Culvert Form (Form 7) |
| • The request involves a new revised levee/floodwall system | ☐ Levee/Floodwall System Analysis Form (Form 8) |
| • The request involves analysis of coastal flooding | ☐ Coastal Analysis Form (Form 9) |
| • The request involves coastal structures credited as providing protection from the 100-year flood | ☐ Coastal Structures (Form 10) |
| • The request involves an existing, proposed, or modified dam | ☐ Dam Form (Form 11) |
| • The request involves structures credited as providing protection from the 100-year flood on an alluvial fan | ☐ Alluvial Fan Flooding Form (Form 12) |

## 9. INITIAL REVIEW FEE

18 The minimum initial review fee for the appropriate request category has been included ☒ Yes ☐ No

Initial fee amount $ 840.00

METHOD OF PAYMENT (Check one box)

☒ **PAYMENT ENCLOSED** ☐ VISA ☐ MASTERCARD

Check or money order only
Make payable to
National Flood Insurance Program

**CARD NUMBER**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | |

EXP Date

Signature

or

19 This request is for a project that is for public benefit and is intended to reduce the flood hazard to existing development in identified flood hazard areas as opposed to planned floodplain development ☐ Yes ☐ No

or

20 This request is to correct an error or to include the effects of natural changes within the areas of special flood hazards. ☐ Yes ☐ No

**Note:** I understand that my signature indicates that all information submitted in support of this request is correct

Signature of Revision Requester

Stephen V. Pangori, Project Engineer

Printed Name and Title of Revision Requester

Anderson, Eckstein and Westrick, Inc.

Company Name

Date

**Note:** Signature indicates that the community understands, from the revision requester, the impacts of the revision on flooding conditions in the community.

Signature of Community Official

Printed Name and Title of Community Official

Community Name

Date

Does this request impact any other communities? ☐ Yes ☒ No

If yes, attach letters from all affected jurisdictions acknowledging revision request and approving changes to floodway, if applicable

**Note:** Although a photograph of physical changes is not required, it may be helpful for FEMA's review

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM** | *O M B Burden No 3067-0148*<br>*Expires July 31, 1994* | *FEMA USE ONLY* |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 23 hour per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to: Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067- 0148), Washington, DC 20503

1 This certification is in accordance with 44 CFR Ch I, Section 65 2

2 I am licensed with an expertise in Hydrology
[example. water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]

3 I have 10 years experience in the expertise listed above

4 I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise

5. I ☒ have ☐ have not visited and physically viewed the project

6 In my opinion, the following analyses and /or designs, is/are being certified

Hydrologic Analysis of Crissman Drain Upstream of its Confluence with the Plumbrook Drain

7 Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications.

Basis for above statement. (check all that apply)

a. ☐ Viewed all phases of actual construction.

b ☐ Compared plans and specifications with as-built survey information.

c. ☐ Examined plans and specifications and compared with completed projects

d. ☒ Other Project is Proposed

8 All information submitted in support of this request is correct to the best of my knowledge I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001

Name Gordon Bryan Wilson
(please print or type)

Title: Senior Project Engineer
(please print or type)

Registration No. 34055 Expiration Date 10/31/97

State Michigan

Type of License Professional Engineer

Signature

Date

Seal
*(Optional)*

*Specify Subdiscipline

Note Insert not applicable (N/A) when statement does not apply

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CERTIFICATION BY REGISTERED PROFESSIONAL ENGINEER AND/OR LAND SURVEYOR FORM** | *O M B Burden No 3067-0148*<br>*Expires July 31, 1994* | *FEMA USE ONLY* |
|---|---|---|

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1 This certification is in accordance with 44 CFR Ch. I, Section 65.2

2 I am licensed with an expertise in Hydraulics
[example: water resources *(hydrology, hydraulics, sediment transport, interior drainage)** structural, geotechnical, land surveying.]

3 I have 8 years experience in the expertise listed above

4 I have ☒ prepared ☐ reviewed the attached supporting data and analyses related to my expertise

5 I ☒ have ☐ have not visited and physically viewed the project

6. In my opinion, the following analyses and /or designs, is/are being certified:
Analysis of the hydraulics on the Crissman Drain from Sta 32+73 to 117+60 based upon revised hydrology and proposed improvements

7 Base upon the following review, the modifications in place have been constructed in general accordance with plans and specifications

Basis for above statement: (check all that apply)

a. ☐ Viewed all phases of actual construction.

b. ☐ Compared plans and specifications with as-built survey information.

c. ☐ Examined plans and specifications and compared with completed projects

d. ☒ Other Project is Proposed

8 All information submitted in support of this request is correct to the best of my knowledge. I understand that any false statement may be punishable by fine or imprisonment under Title 18 of the United States Code, Section 1001

Name: Stephen V. Pangori
(please print or type)

Title: Senior Project Engineer
(please print or type)

Registration No. 37769 Expiration Date 10/31/96

State Michigan

Type of License Professional Engineer

Signature

Date

Seal
*(Optional)*

*Specify Subdiscipline

Note Insert not applicable (N/A) when statement does not apply

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**HYDROLOGIC ANALYSIS FORM** | *O M B Burden No 3067-0148*<br>*Expires July 31, 1994* | *FEMA USE ONLY* |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

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Community Name. Sterling Heights

Flooding Source: Crissman Drain
*(One form for each flooding source)*

Project Name /Identifier: Mound Road to M-59

### 1. HYDROLOGIC ANALYSIS IN FIS

☐ Approximate study stream (Zone A)
☒ Detailed study stream (briefly explain methodology) Soil Conservation Service's TR-20

### 2. REASON FOR NEW HYDROLOGIC ANALYSIS

☐ No existing analysis
☐ Improved data *(see data revision on page 3)*
☒ Changed physical conditions of watershed *(explain)* Accounts for changed hydrological conditions due to structural and channel modifications, increased development, and changes in drainage area
☐ Alternative methodology *(justify why the revised model is better than model used in the effective FIS)*
☐ Evaluation of proposed conditions (CLOMRs only) (explain)
☐ Other

If a computer program/model was used in revising the hydrologic analysis, please provide a diskette with the input files for the 10-, 50-, 100 - and 500-year recurrence intervals.

Only the 100-year recurrence interval need be included for SFHAs designated as Zone A.

### 3. APPROVAL OF ANALYSIS

☐ Approval of hydrologic analysis, including the resulting peak discharge value (s) has been provided by the appropriate local, state, or Federal Agency (i e., )
Attach evidence of approval.
☒ Approval of the hydrologic analysis is not required by any local, State, or Federal Agency
Drainage area less than 2 square miles

Stream Crissman Drain - Mound Road to M-59

Comparison of 100-year Discharges

| Location | Drainage area (Sq mi.) | FIS (cfs) | Revised (cfs) |
|---|---|---|---|
| Just Upstream of Mound Road | F.I.S. = 0.8<br>Proposed = 0.97 | 265 | 108 |
| Just Upstream of Hanks Lane | F.I.S. =0.7<br>Proposed = 0.95 | 250 | 107 |
| Just Upstream of 19 Mile | F.I.S. = 0.60<br>Proposed = 0.92 | 217 | 210 |
| Just Upstream of Ex. 84" Culvert | F.I.S. = 0.60<br>Proposed = 0.83 | 217 | 100 |
| At F.I.S. Section 8632 | F.I.S. = 0.60<br>Proposed = 0.62 | 217 | 99 |
| Just Downstream of M-59 | F.I.S. = 0.60<br>Proposed = 0.38 | 217 | 59 |

Note: When revised discharges are not significantly different than FIS discharges, FEMA may require a confidence limits analysis on attachment D at a later date to complete the review

As is often the case with revision requests, only a portion of a stream may actually be revised or be affected by a revision Therefore, transition to the unrevised portion is important to maintain the continuity of the study. NFIP regulations stipulate that such a transition must be assured What is the transition from the proposed discharges to the effective discharges? Please explain how the transition was made *(attach separate sheet if necessary)*

Proposed discharges begin at Mound Road where the Crissman Drain currently discharges into an existing 114" storm sewer (Greens Drain enclosure) constructed in 1991. The downstream reach of the Crissman Drain (from the Plumbrook Drain to Mound Road) is being analyzed separately and will be submitted in the near future for a LOMR request based upon new hydrology/hydraulics.

ATTACH A COMPLETED REVIEW OF RESULTS PAGE FOR EACH FLOODING SOURCE

Is the new hydrologic analysis being developed solely to revise the flow values presented in the FIS *(i e no changed hydraulic conditions)*? ☐ Yes ☒ No

If yes, does the 100-year water surface elevation change by 1 0 foot or more? ☐ Yes ☒ No

FEMA does not normally revise NFIP maps solely due to insignificant flow changes where changes in 100-year water surface elevation are less than 1.0 foot.

## 5. HISTORICAL FLOODING INFORMATION

Is historical data available for the flooding source? ☐ Yes ☒ No

If yes, provide the following:

Location along flooding source N/A

Maximum peak discharge. N/A cfs

Second highest peak discharge. N/A cfs

Source of information: N/A

## 6. GAGE RECORD INFORMATION

Location of nearest gage to project site *(along flooding source or similar watershed, specify)*

N/A

Gaging Station N/A

Drainage area at gage: N/A $mi^2$

Number of years of data N/A

## 7. DATA REVISION

Please use the following table to list all the data and/or parameters affected by this request and identify them as new data (*New*) or as revising existing data (*Revised*). *(If necessary, attach a separate sheet )*

| Data Parameter | New | Revised | Data Source |
|---|---|---|---|
| | ☐ | ☐ | |
| | ☐ | ☐ | |
| | ☐ | ☐ | |
| | ☐ | ☐ | |
| | ☐ | ☐ | |

- Data source can be from a Federal, State, or local government agency, or from a private source Some State and local governments may have less strict data requirements than Federal agencies, in which case the hydrologic data may not be accepted by FEMA unless it is demonstrated that the data give a better estimate of the flood discharge
- Attach documentation corroborating each data source *(i.e., certified statement, report, bibliographical reference to a published document)* In the case of a published document or a government report, providing copies of the cover and pertinent pages may be helpful.

## 8. METHODOLOGY FOR NEW ANALYSIS

☐ Statistical Analysis of Gage Records (*use Attachment A*)

☐ Regional Regression Equations *(use Attachment B)*

☒ Precipitation/Runoff Model *(use Attachment C)*

☐ Other *(specify; attach backup computations and supporting data)*

## ATTACHMENT A STATISTICAL ANALYSIS OF GAGE RECORDS

Gaging Station N/A

Gage Location (latitude and longitude) _____

| | FIS | Revised |
|---|---|---|
| 1 Number of years of data | N/A | |
| Systematic | N/A | |
| Historical | N/A | |
| 2. Homogeneous data | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 3. Data adjustments | ☐ Yes ☐ No | ☐ Yes ☐ No |
| 4 Number of high outliers | N/A | |
| Low outliers | N/A | |
| Zero events | N/A | |
| 5 Generalized skew | N/A | |
| 6. Station skew | N/A | |
| 7 Adopted skew | N/A | |
| 8. Probability distribution used (justify if log-Pearson III was not used) | | |
| 9. Transfer equations to ungaged sites | | ☐ Yes ☐ No |

If yes, specify method

_____

_____

_____

| | |
|---|---|
| 10 Expected probability* | ☐ Yes ☐ No |
| 11 Comparison of results with other analyses | ☐ Yes ☐ No |

If yes, describe comparison

_____

_____

_____

*FEMA does not accept expected probability analyses for the purpose of reflecting flood hazard information in a FIS

If any data is not available, indicate by N/A

Attach analysis including plot of flood frequency curve.

1 Bibliographical Reference.

_____

_____

_____

*(Attach a copy of title page, table of contents, and pertinent pages including equations.)*

2 Gaged or ungaged stream _____

3 Hydrologic region(s) _____
Attach backup map.

4 Provide parameters, values, and source of data used to define parameters

_____

_____

_____

| | | FIS | | Revised | |
|---|---|---|---|---|---|
| 5. | Urbanized conditions calculations | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| 6 | Percent of watershed urbanization . . . . . | _____ | | _____ | |
| 7 | Is the watershed controlled? . . . . . | ☐ Yes | ☐ No | ☐ Yes | ☐ No |
| | Comparison with other analyses . . . . . | ☐ Yes | ☐ No | ☐ Yes | ☐ No |

If the answer to 5, 7, or 8 is yes, explain methodology in Comments

If data is not available, indicate by N/A

Comments

_____

_____

_____

_____

Attach computation and supporting maps, delineating the watershed boundary and drainage area divides

| | | FIS | Revised |
|---|---|---|---|
| 1 | Method or model used: | Unknown | SCS TR-20 |
| | Version | | PC 09/83 (.2) |
| | Date | | |
| 2 | Source of rainfall depth: | | MDNR Curves |
| 3. | Source of rainfall distribution: | | SCS - Type II |
| 4 | Rainfall duration: | | 24 - Hour |
| 5. | Areal adjustment to precipitation (%): | | 0 |
| 6 | Hydrograph development method: | | Incremental Unit (NEH-4) |
| 7 | Loss rate method: | | Assumed AMC II |
| | Source of soils information | | Macomb County Soils Survey |
| | Source of land use information | | U.S.G.S. Quadrangles |
| 8 | Channel routing method | | Mod. ATT-KIN |
| 9 | Reservoir routing: | ☐ Yes ☐ No | ☒ Yes ☐ No |
| 10 | Baseflow considerations: | ☐ Yes ☐ No | ☐ Yes ☒ No |

If yes, explain how baseflow was determined.

| | | | |
|---|---|---|---|
| 11 | Snowmelt considerations: | ☐ Yes ☐ No | ☐ Yes ☒ No |
| 12. | Model calibration: | ☐ Yes ☐ No | ☐ Yes ☒ No |

If yes, explain how calibration was performed

| | | |
|---|---|---|
| 13 | Future land use condition: | ☐ Yes ☒ No |

If yes, explain why

NOTE: FEMA policy is to base flooding on existing conditions
If data is not available, indicate by N/A

Attach precipitation/runoff model, hydrologic model schematic, curve number calculations, time of concentration calculations, and supporting maps, delineating the watershed boundary and drainage area divides

Stream: _____

elect one location for Confidence Limits Evaluation (*describe location*): _____

_____

Discharges for selected location·

| Exceedance Probability | | FIS | Revised |
|---|---|---|---|
| 10% | (10-year) | _____ cfs | _____ cfs |
| 2% | (50-year) | _____ cfs | _____ cfs |
| 1% | (100-year) | _____ cfs | _____ cfs |
| 0.2% | (500-year) | _____ cfs | _____ cfs |

1% (100-year) Flood Confidence Intervals

| | | | |
|---|---|---|---|
| 90% Confidence Interval: | 5% limit | _____ | cfs |
| | 95% limit | _____ | cfs |
| 50% Confidence Interval: | 25% limit | _____ | cfs |
| | 75% limit | _____ | cfs |

If the value of the 100-year frequency flood in the FIS is beyond the 50% confidence interval but within the 90% confidence interval, does the 100-year water surface elevation change by 1.0 foot or more? ☐ Yes ☐ No

An example of confidence limits analysis can be found in Appendix 9 of Bulletin 17B.

Attach Confidence Limits Analysis.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE HYDRAULIC ANALYSIS FORM** | O M B Burden No 3067-0148<br>Expires July 31 1994 | FEMA USE ONLY |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 25 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

Community Name City of Sterling Heights

Flooding Source. Crissman Drain
*(One form for each flooding source)*

Project Name/Identifier Mound Road to M-59

### 1. REACH TO BE REVISED

Downstream limit Upstream of Mound Road - Sta 32+73

Upstream limit. Downstream of M-59 - Sta 117+60

### 2. EFFECTIVE FIS

☐ Not studied

☐ Studied by approximate methods

Downstream limit of study _____

Upstream limit of study _____

☒ Studied by detailed methods

Downstream limit of study Mouth of Crissman (at Plumbrook Drain) Sta 40

Upstream limit of study Downstream of M-59 Sta 117+60

☒ Floodway delineated

Downstream limit of Floodway Mouth of Crissman (at Plumbrook Drain) Sta 40

Upstream limit of Floodway Downstream of M-59 Sta 117+60

### 3. HYDRAULIC ANALYSIS

Why is the hydraulic analysis different from that used to develop the FIRM *(Check all that apply)*

☐ Not studied in FIS

☒ Improved hydrologic data/analysis. Explain: Structural and channel modifications, inline retention, increased development and changes in drainage area

☒ Improved hydraulic analysis. Explain. CLOMR request involves channel improvements from Sta 32+73 to Sta 52+69 and a new culvert under Hanks Lane (78" or equivalent area)

☐ Flood control structure Explain _____

☐ Other Explain _____

Full input and output listings along with files on diskette *(if available)* for each of the models listed below and summary of the source of input parameters used in the models must be provided. The summary must include a complete description of any changes made from model to model (*e.g. duplicate effective model to corrected effective model*). Only the Duplicate Effective and the Revised or Post-Project Conditions models must be submitted. See instructions for directions on when other models may be required. Only the 100-year flood profile is required for SFHAs with a Zone A designation For areas which do not have detailed flooding, a hydraulic model is not required, however BFE's may not be added to the revised FIRM

| | Natural | Floodway |
|---|---|---|
| ☒ Duplicate Effective Model | ☒ | ☒ |

Copies of the hydraulic analysis used in the effective FIS, referred to as the effective models *(10-, 50-, 100-, and 500-year multi-profile runs and the floodway run)* must be obtained and then reproduced on the requestor's equipment to produce the duplicate effective model. This is required to assure that the effective model input data has been transferred correctly to the requestor's equipment and to assure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

| | Natural | Floodway |
|---|---|---|
| ☐ Corrected Effective Model | ☐ | ☐ |

The corrected effective model is the model that corrects any errors that occur in the duplicate effective model, adds any additional cross sections to the duplicate effective model, or incorporates more detailed topographic information than that used in the currently effective model The corrected effective model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model

| | Natural | Floodway |
|---|---|---|
| ☒ Existing or Pre-Project Conditions Model | ☒ | ☒ |

The duplicate effective or corrected model is modified to produce the existing or pre-project conditions model to reflect any modifications that have occurred within the floodplain since the date of the effective model but prior to the construction of the project for which the revision is being requested If no modification has occurred since the date of the effective model, then this model would be identical to the corrected effective or duplicate effective model

| | Natural | Floodway |
|---|---|---|
| ☒ Revised or Post-Project Conditions Model | ☒ | ☒ |

The existing or pre-project conditions model *(or duplicate effective or corrected effective model, as appropriate)* is revised to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project When the request is for proposed project this model should reflect proposed conditions.

| | Natural | Floodway |
|---|---|---|
| ☐ Other Please attach a sheet describing all other models or calculations submitted | ☐ | ☐ |

## 4 MODEL PARAMETERS *(from model used to revise 100-year water surface elevation)*

1 Discharges.

| | Upstream Limit | Downstream Limit |
|---|---|---|
| 10-year | 33 | 51 |
| 50-year | 53 | 94 |
| 100-year | 59 | 108 |
| 500-year | 80 | 159 |

Attach diagram showing changes in 100-year discharge

2 Explain how the starting water surface elevations were determined Normal depth method at Section 3273

3 Give range of friction loss coefficients (*Manning's "N"*) Channel 0.04

Overbanks .. 0.045 to 0.06

If friction loss coefficients are different anywhere along the revised reach from those used to develop the FIRM, give location, value used in the effective FIS, and revised values and an explanation as to how the revised values were determined.

| Location | FIS | Revised |
|---|---|---|
| Sta 4103 (Firm Sta 4173) | Channel "N" = 0.70 | 0.04 |
| Sta 4178 (Firm Sta 4217) | Channel "N" = 0.70 | 0.04 |
| Sta 4882 (Firm Sta 4937) | Channel "N" = 0.045 to 0.04 | 0.04 |
| | | |

Explain. Channel N valves were reduced to 0.04 in the drain reach where improvements are proposed. This value was determined from valves recommended by Chow - "Open - Channel Hydraulics".

4 Describe how the cross section geometry data were determined (*e g , field survey, topographic map, taken from previous study*) and list cross sections that were added

Cross section data from Sta 3273 to 4382 taken from previous study. Channel and left over bank data from Sta 4882 to 5065 taken from survey performed by Urban Land Consultants, Inc., dated 9-20-94 (Job No. 920310-3618), right overbank geometry from previous study. Culvert geometry from station 5065 to 5241, taken from Urban Land Consultants, Inc., plan dated 9-23-94 (Job No. 880198-2279).

5 Explain how reach lengths for channel and overbanks were determined

From the same sources described in 4 above

## 5. RESULTS (*from model used to revise 100-year water surface elevations*)

1. Do the results indicate:

a. Water surface elevations higher than end points of cross sections? ☐ Yes ☒ No

b Supercritical depth? ☐ Yes ☒ No

c Critical depth? ☒ Yes ☐ No

d. Other unique situations ☐ Yes ☒ No

If yes to any of the above, attach an explanation that discusses the situation and how it is presented on the profiles, tables, and maps

2. What is the maximum change in energy gradient between cross-sections? 1.47 feet

Specify location 9000 to 9600

3. What is the distance between the cross-sections in 2 above? 600'

Specify location 9000 to 9600

4 What is the maximum distance between cross-sections? 692 feet

Specify location 3273 to 3965

5 Floodway determination

a What is the maximum surcharge allowed by the community or State? 0 foot

b. What is the maximum surcharge for the revised conditions? 0 foot

Specify location

c. What is the maximum velocity? 5.92 fps

Specify location 5792

Explain

d Are there any negeative surcharge values at any cross-section ☐ Yes ☒ No

If yes, the floodway may need to widen If it is not widened, please explain and indicate the maximum negative surcharge

# Explanation of "Critical Depth Assumption" used in Analysis

Critical Depth is assumed at sections 11111 and 11592 which represent the locations of the steel sheet pile bulkhead check dams installed at the north end of the drain in order to transition the drain improvements back to the existing drain section.

At the check dams the drain bottom drops 2.54 feet and 3.34 feet respectively. This represents a free overfall situation at both check dams and the assumption of critical depth to represent the water surface profile is conservative.

6. Is the discharge value used to determine the floodway anywhere different from that used to determine the natural 100-year flood elevations? ... . .. ☐ Yes ☒ No

If Yes, explain

_____

_____

_____

7. Do 100-year water surface elevations increase at any location? .... . . .. ☐ Yes ☒ No

If yes, please attach a list of the locations where the increases occur, state whether or not the increases are located on the requestor's property, and provide an explanation of the reason for the increases

_____

_____

_____

Please attach a completed comparison table entitled: Water Surface Elevation Check (See page 6)

## 6. REVISED FIRM/FBFM AND FLOOD PROFILES

A. The revised water surface elevations tie into those computed by the effective FIS Model *(10-, 50-, 100-, and 500-year)*, downstream of the project at cross-section_____ within_____feet and upstream of the project at cross section_____within_____feet

B The revised floodway elevations tie into those computed by the effective FIS model, dowstream of the project at cross section_____within_____feet and upstream of the project at cross section_____ within_____feet

C Attach profiles, at the same vertical and horizontal scale as the profiles in the effective FIS report, showing stream bed and profiles of all floods studied (without encroachment) Also, label all cross sections, road crossings (including low chord and top-of-road data), culverts, tributaries, corporate limits, and study limits If channel distance has changed, the stationing should be revised for all profile sheets

D Attach a Floodway Data Table showing data for each cross section listed in the published Floodway Data Table in the FIS report

Proceed to Riverine /Coastal Mapping Form

FEDERAL EMERGENCY MANAGMENT AGENCY

# WATER SURFACE ELEVATION CHECK

| COMMUNITY NAME | FLOODIND SOURCE | PROJECT NAME /IDENTIFIER |
|---|---|---|
| Sterling Heights | Crissman Drain | Mound Road to M-59 |

| | EFFECTIVE | | | DUPLICATE EFFECTIVE * | | | CORRECTED EFFECTIVE | | | EXISTING/PRE-PROJECT * | | | REVISED/PROJECT * | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | NCWSEL[1] | FCWSEL[2] | SURC[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC[3] |
| 3168 (3273) | | | | 632.89 | | | | | | 631.18 | 631.2 | 0 | 631.18 | 631.2 | 0 |
| 4020 (3965) | | | | 633.01 | | | | | | 631.69 | 631.7 | 0 | 631.69 | 631.7 | 0 |
| 4173 4217 | | | | 633.26 634.26 | | | | | STA 4118 | 632.18 | 632.2 | 0 | | | |
| 4103 4178 | | | | | | | | | STA 4162 | 633.75 | 633.8 | 0 | 631.85 632.20 | 631.9 632.2 | 0 0 |
| 4937 (4882) | | | | 634.52 | | | | | | 633.97 | 634.0 | 0 | 632.68 | 632.8 | 0 |
| 4997 (4942) | | | | 634.56 | | | | | | 634.06 | 634.1 | 0 | 632.84 | 632.9 | 0 |
| 5057 (5002) | | | | 634.61 | | | | | | 634.17 | 634.2 | 0 | 632.86 | 632.9 | 0 |
| 5086 (5031) | | | | 634.63 | | | | | | 634.23 | 634.2 | 0 | 632.89 | 632.9 | 0 |
| 5115 (5065) | | | | 634.66 | | | | | | 634.27 | 634.3 | 0 | 632.90 | 632.9 | 0 |
| 5165 | | | | 634.75 | | | | | | | | | | | |
| 5205 (5241) | | | | 635.22 | | | | | | 634.72 | 634.7 | 0 | 633.11 | 633.1 | 0 |
| (5269) 5286 | | | | 635.31 | | | | | | 634.79 | 634.8 | 0 | 633.12 | 633.1 | 0 |
| 5324 | | | | 635.40 | 635.4 | 0 | | | | | | | | | |

COMMENTS

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points Any interpolat values should be indicated in parentheses.

FEDERAL EMERGENCY M .GMENT AGENCY

# WATER SURFACE ELEVATION CHECK

| COMMUNITY NAME | FLOODIND SOURCE | PROJECT NAME /IDENTIFIER |
|---|---|---|
| Sterling Heights | Crissman Drain | Mound Road to M-59 |

| | EFFECTIVE | | | DUPLICATE EFFECTIVE * | | | CORRECTED EFFECTIVE | | | EXISTING/PRE-PROJECT * | | | REVISED/PROJECT * | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | NCWSEL[1] | FCWSEL[2] | SURC [3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC [3] | NCWSEL[1] | FCWSEL[2] | SURC [3] |
| 5435 | | | | 635.61 | 635.6 | 0 | | | | | | | | | |
| 5502 | | | | 635.63 | 635.7 | 0 | | | | 634.90 | 634.9 | 0 | 633.95 | 634.0 | 0 |
| 5545 | | | | 635.57 | 635.6 | 0 | | | | 634.88 | 634.9 | 0 | 633.96 | 634.0 | 0 |
| 5633 | | | | 635.86 | 635.7 | 0 | | | | 635.06 | 635.1 | 0 | 634.34 | 634.3 | 0 |
| 5737 | | | | 635.89 | 636.0 | 0 | | | | 635.08 | 635.1 | 0 | 634.41 | 634.4 | 0 |
| 5792 | | | | 635.79 | 635.9 | 0 | | | | 635.01 | 635.0 | 0 | 634.20 | 634.2 | 0 |
| 5965 | | | | 636.04 | 636.1 | 0 | | | | 635.32 | 635.3 | 0 | 634.80 | 634.8 | 0 |
| 6130 | | | | 636.04 | 636.1 | 0 | | | | 635.32 | 635.3 | 0 | 634.80 | 634.8 | 0 |
| 6250 | | | | 636.04 | 636.1 | 0 | | | | 635.32 | 635.3 | 0 | 634.80 | 634.8 | 0 |
| 6500 | | | | 636.04 | 636.1 | 0 | | | | 635.32 | 635.3 | 0 | 634.81 | 634.8 | 0 |
| 6685 | | | | 636.05 | 636.1 | 0 | | | | 635.33 | 635.3 | 0 | 634.82 | 634.8 | 0 |
| 6920 | | | | 636.05 | 636.1 | 0 | | | | 635.33 | 635.3 | 0 | 634.82 | 634.8 | 0 |
| 7259 | | | | 637.14 | 637.2 | 0 | | | | 635.56 | 635.5 | 0.1 | 635.05 | 634.9 | 0 |

COMMENTS

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

FEDERAL EMERGENCY M GMENT AGENCY

# WATER SURFACE ELEVATION CHECK

| COMMUNITY NAME | FLOODIND SOURCE | PROJECT NAME /IDENTIFIER |
|---|---|---|
| Sterling Heights | Crissman Drain | Mound Road to M-59 |

| | EFFECTIVE | | | DUPLICATE EFFECTIVE * | | | CORRECTED EFFECTIVE | | | EXISTING/PRE-PROJECT * | | | REVISED/PROJECT * | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC[3] |
| 7260 | | | | 637.12 | 637.2 | 0 | | | | 635.55 | 635.5 | 0.1 | 635.03 | 634.9 | 0 |
| 7367 | | | | 637.22 | 637.3 | 0 | | | | 635.62 | 635.5 | 0.1 | 635.15 | 635.0 | 0 |
| 7977 | | | | 638.02 | 638.0 | 0 | | | | 636.71 | 636.7 | 0 | 636.70 | 636.7 | 0 |
| 8632 | | | | 638.81 | 638.8 | 0 | | | | 637.60 | 637.6 | 0 | 637.59 | 637.6 | 0 |
| 8832 | | | | 639.07 | 639.1 | 0 | | | | 637.89 | 637.9 | 0 | 637.88 | 637.9 | 0 |
| 9000 | | | | 639.40 | 639.4 | 0 | | | | 638.20 | 638.2 | 0 | 638.20 | 638.2 | 0 |
| 9600 | | | | 640.68 | 640.7 | 0 | | | | 639.63 | 639.6 | 0 | 639.63 | 639.6 | 0 |
| 10000 | | | | 641.77 | 641.8 | 0 | | | | 640.59 | 640.6 | 0 | 640.59 | 640.6 | 0 |
| 10400 | | | | 642.75 | 642.7 | 0 | | | | 641.39 | 641.4 | 0 | 641.40 | 641.4 | 0 |
| 10800 | | | | 643.76 | 643.8 | 0 | | | | 642.39 | 642.4 | 0 | 642.39 | 642.4 | 0 |
| 11110 | | | | 644.30 | 644.3 | 0 | | | | 642.82 | 642.8 | 0 | 642.82 | 642.8 | 0 |
| 11111 | | | | 644.45 | 644.5 | 0 | | | | 643.44 | 643.4 | 0 | 643.44 | 643.4 | 0 |
| 11591 | | | | 646.75 | 647.0 | 0 | | | | 645.33 | 645.3 | 0 | 645.33 | 645.3 | 0 |

COMMENTS

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points Any interpolated values should be indicated in parentheses.

FEDERAL EMERGENCY M GMENT AGENCY

# WATER SURFACE ELEVATION CHECK

| COMMUNITY NAME | FLOODIND SOURCE | PROJECT NAME /IDENTIFIER |
|---|---|---|
| Sterling Heights | Crissman Drain | Mound Road to M-59 |

| | EFFECTIVE | | | DUPLICATE EFFECTIVE * | | | CORRECTED EFFECTIVE | | | EXISTING/PRE-PROJECT * | | | REVISED/PROJECT * | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECNO | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC.[3] | NCWSEL[1] | FCWSEL[2] | SURC[3] |
| 11592 | | | | 646.57 | 646.6 | 0 | | | | 645.16 | 645.2 | 0 | 645.16 | 645.2 | 0 |
| 11662 | | | | 647.19 | 647.2 | 0 | | | | 646.18 | 646.2 | 0 | 646.18 | 646.2 | 0 |
| 11760 | | | | 647.97 | 648.0 | 0 | | | | 646.90 | 646.9 | 0 | 646.90 | 646.9 | 0 |

COMMENTS

1-100-year (natural) Water Surface Elevation 2-Encroachment (floodway) Water Surface Elevation 3-Surcharge Value

Include all cross sections in the models between tie-in points. Any interpolated values should be indicated in parentheses.

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**RIVERINE/COASTAL MAPPING FORM** | O M B Burden No 3067-0148<br>Expires July 31 1994 | FEMA USE ONLY |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 5 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S.W., Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

Community Name: City of Sterling Heights

Flooding Source Crissman Drain

Project Name/Identifier: Mound Road to M-59

### 1. MAPPING CHANGES

1 A topographic work map of suitable scale, contour interval, and planimetric definition must be submitted showing *(indicate N/A when not applicable)*

| | | Included | | |
|---|---|---|---|---|
| A | Revised approximate 100-year floodplain boundaries (Zone A) | ☒ Yes | ☐ No | ☐ N/A |
| B | Revised detailed 100- and 500-year floodplain boundaries | ☒ Yes | ☐ No | ☐ N/A |
| C | Revised 100-year floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| D | Location and alignment of all cross sections used in the revised hydraulic model with stationing control indicated | ☒ Yes | ☐ No | ☐ N/A |
| E. | Stream alignments, road and dam alignments | ☒ Yes | ☐ No | ☐ N/A |
| F. | Current community boundaries | ☐ Yes | ☒ No | ☐ N/A |
| G. | Effective 100- and 500-year floodplain and 100-year floodway boundaries from the FIRM/FBFM reduced or enlarged to the scale of the topographic work map | ☒ Yes | ☐ No | ☐ N/A |
| H. | Tie-ins between the effective and revised 100- and 500-year floodplains and 100-year floodway boundaries | ☒ Yes | ☐ No | ☐ N/A |
| I. | The requestor's property boundaries and community easements | ☐ Yes | ☒ No | ☐ N/A |
| J. | The signed certification of a registered professional engineer | ☒ Yes | ☐ No | ☐ N/A |
| K | Location and description of reference marks | ☒ Yes | ☐ No | ☐ N/A |
| L | Vertical datum (example: NGVD, NAVD etc ) | ☒ Yes | ☐ No | ☐ N/A |
| M. | Coastal zone designations tie into adjacent areas not being revised | ☐ Yes | ☐ No | ☒ N/A |
| N | Location and alignment of all coastal transects used to revise the coastal analyses | ☐ Yes | ☐ No | ☒ N/A |

If any of the items above are marked no or N/A, please explain Items F & I are indicated on current FIRM panels. Coastal zones are not applicable to this request.

2 What is the source and date of the updated topographic information *(example orthophoto maps, July 1985; field survey, May 1979, beach profiles, June 1987, etc )*? Field Survey Nov., 1990

3 What is the scale and contour interval of the following workmaps?

a Effective FIS 1"=800ft scale 1.0' Contour interval

b Revision Request 1"=800ft scale 1.0' Contour interval

NOTE: Revised topographic information must be of equal or greater detail

Attach an annotated FIRM and FBFM at the scale of the effective FIRM and FBFM showing the revised 100-year and 500-year floodplains and the 100-year floodway boundaries and how they tie into those shown on the effective FIRM and FBFM downstream and upstream of the revision or adjacent to the area of revision for coastal studies

Attach additional pages if needed

5 Flood Boundaries and 100-year water surface elevations

Has the 100-year floodplain been shifted or increased or the 100-year water surface elevation increased at any location on property other than the requestor's or community's? ☐ Yes ☒ No

If yes, please give the location of shift or increase and an explanation for the increase

a. Have the affected property owners been notified of this shift or increase and the effect it will have on their property? ☐ Yes ☐ No N/A

If yes, please attach letters from these property owners stating they have no objections to the revised flood boundaries if a LOMR is being requested.

b What is the number of insurable structures that will be impacted by this shift or increase? N/A

6 Have the floodway boundaries shifted or increased at any location compared to those shown on the effective FBFM or FIRM? ☐ Yes ☒ No N/A

If yes, explain

7 If a V- zone has been designated, has it been delineated to extend landward to the heel of the primary frontal dune? ☐ Yes ☒ No

If no, explain.

8 Manual or digital map submission:

☒ Manual

☐ Digital

Digital map submissions may be used to update digital FIRMs (DFIRMs) For updating DFIRMs, these submissions must be coordinated with FEMA Headquarters as far in advance of submission as possible

## 2. EARTH FILL PLACEMENT

1 The fill is ☐ Existing ☒ Proposed

2 Has fill been/will be placed in the regulatory floodway? . ☒ Yes ☐ No
If yes, please attach completed Riverine Hydraulic Analysis Form

3 Has fill been/will be placed in floodway fringe *(area between the floodway and 100-year floodplain boundaries)*? . . . . . ☒ Yes ☐ No

If yes, then complete A, B, C, and D below

A Are fill slopes for granular materials steeper than one vertical on one-and-one-half horizontal? . . . . . ☐ Yes ☒ No

If yes, justify steeper slopes _____

B Is adequate erosion protection provided for fill slopes exposed to moving flood waters? *(Slopes exposed to flows with velocities of up to 5 feet per second (fps) during the 100-year flood must, at a minimum, be protected by a cover of grass, vines, weeds, or similar vegetation; slopes exposed to flows with velocities greater than 5 fps during the 100-year flood must, at a minimum, be protected by stone or rock riprap.)* . . . . . ☒ Yes ☐ No

If no, describe erosion protection provided _____

C. Has all fill placed in revised 100-year floodplain been compacted to 95 percent of the maximum density obtainable with the Standard Proctor Test Method or acceptable equivalent method? ☐ Yes ☒ No

D. Can structures conceivably be constructed on the fill at any time in the future? Conditional Request ☒ Yes ☐ No

If yes, provide certification of fill compaction (item C. above) by the community's NFIP permit official, a registered professional engineer, or an accredited soils engineer.

To be submitted when constructed

4 Has fill been/will be placed in a V-zone? ☐ Yes ☒ No

If yes, is the fill protected from erosion by a flood control structure such as a revetment or seawall? ☐ Yes ☐ No

If yes, attach the coastal structures form

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**CHANNELIZATION FORM** | *O M B Burden No 3067-0148*<br>*Expires July 31 1994* | **FEMA USE ONLY** |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 1 75 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

Community Name: City of Sterling Heights

Flooding Source: Crissman Drain

Project Name/Identifier: Mound Road to M-59

### 1. EXTENT OF CHANNELIZATION

Downstream limit: 3273 (West Side of Mound Road)

Upstream limit: 5269 (upstream side of existing 12'x4' box culvert at 19 Mile Road)

### 2. CHANNEL DESCRIPTION

1 Describe the inlet to the channel: Existing 12'x4' box culvert (Sta 5545 to 5633)

2 Briefly describe the shape of the channel *(both cross sectional and planimetric configuration)* and its lining *(channel bottom and sides)*: Sta 3273 to 4103 - 4' bottom with 1 on 3 side slopes. Sta 4103 to 4178 - replace existing 48" culvert with a 78" culvert. Sta 4178 to 5065 - 8' bottom with 1 on 5 side slopes. Sta 5065 to 5241 - remove 2' high bulkhead in existing 12'x4' box culvert. Sta 5241 to 5269 - 8' bottom with 1 on 5 side slopes all exposed banks to be seeded and mulched.

3. Describe the outlet from the channel: Existing 66" concrete pipe

4 The channelization includes:

- ☐ Levees *(Attach Levee Form)*
- ☐ Drop structures
- ☐ Superelevated sections
- ☒ Transitions in cross sectional geometry
- ☐ Debris basin/detention basin
- ☐ Energy dissipater
- ☐ Other

5. Attach the following:

a. Certified engineering drawings showing channel alignment and locations of inlet, outlet, and items checked in item 4

b. Typical cross sections and profiles of channel banks and invert

## 3. HYDRAULIC CONSIDERATIONS

1 What is the 100-year discharge? . . . . . 105 to 108 cfs

2. Do the cross sections in the hydraulic model match the typical cross sections in the plans? ☒ Yes ☐ No

3 Are the channel banks higher than the 100- year flood elevations everywhere? . . ☒ Yes ☐ No

4 Are the channel banks higher than the 100-year flood energy grade lines everywhere? ☐ Yes ☒ No

5 Is the land on both sides of the channel above the adjacent 100-year flood elevation at all points along the channel? . . . . ☒ Yes ☐ No

6 What is the range of freeboard? . . . . . 0.3' – 4.8' feet

7 What is the range of the 100-year flood velocities? . . . . . 0.22 – 5.92 ft/sec

8. What is the lining type? (both bottom and sides) Proposed to be grass

Explain how the channel lining prevents erosion and maintains channel stability *(attach documentation)*

_____

_____

9 What is the design elevation in the channel based on?

☒ Subcritical flow
☐ Critical flow
☐ Supercritical flow
☐ Energy grade line

Is 100-year flood profile based on the above type of flow? . . . . . ☒ Yes ☐ No

If no, explain: _____

_____

10 Is there the potential for a hydraulic jump at the following locations?

Inlet to channel . . . . . ☐ Yes ☒ No
Outlet of channel . . . . . ☐ Yes ☒ No
At Drop Structures . . . . . ☐ Yes ☐ No N/A
At Transitions . . . . . ☐ Yes ☒ No
Other locations Explain: _____

If the answer to any of the above is yes, please explain how the hydraulic jump is controlled and the effects of the hydraulic jump on the stability of the channel

Explain: _____

_____

_____

_____

_____

_____

_____

## 4. SEDIMENT TRANSPORT CONSIDERATIONS

1 A Is there any indication from historical records that sediment transport (including scour and deposition) can affect the 100-year water surface elevations and/or the capacity of the channel? ☐ Yes ☒ No

B. Based on the conditions of the watershed and stream bed, is there a potential for sediment transport (including scour and deposition) to affect the 100-year water surface elevations and /or the capacity of the channel? ☐ Yes ☒ No

2 If the answer to either 1A or 1B is yes

A What is the estimated sediment (bed) load?
_____cfs (attach gradation curve)

Explain method used to estimate load_____

_____

_____

_____

_____

B Is the 100-year flood velocity anywhere within the channel less than the 100-year flood velocity of the inlet? ☐ Yes ☐ No

C Will sediment accumulate anywhere within the channel? ☐ Yes ☐ No

D. Will deposition or scour occur at or near the inlet? ☐ Yes ☐ No

E. Will deposition or scour occur at or near the outlet? ☐ Yes ☐ No

**Attach documentation showing affects on the Hydrologic and Hydraulic analyses**

| FEDERAL EMERGENCY MANAGEMENT AGENCY<br>**BRIDGE/CULVERT FORM** | *O M B. Burden No 3067-0148*<br>*Expires July 31, 1994* | **FEMA USE ONLY** |
|---|---|---|

## PUBLIC BURDEN DISCLOSURE NOTICE

Public reporting burden for this form is estimated to average 2 hours per response The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the form Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden, to. Information Collections Management, Federal Emergency Management Agency, 500 C Street, S W , Washington, DC 20472, and to the Office of Management and Budget, Paperwork Reduction Project (3067-0148), Washington, DC 20503

Community Name: City of Sterling Heights

Flooding Source: Crissman Drain

Project Name/Identifier Mound Road to M-59

### 1. IDENTIFIER

1. Name of roadway, railroad, etc. Hanks Lane

2 Location of bridge/culvert along flooding source (in terms of stream distance or cross-section identifier):
Sta 4103 to 4178

3 This revision reflects *(check one of the following)*

- ☐ New bridge/culvert not modeled in the FIS
- ☐ Modified bridge/culvert previously modeled in the FIS
- ☒ New analysis of bridge/culvert previously modeled in the FIS

*(Explain why new analysis was performed)* Increase in size and length of culvert 48" to 78" or one of equal area

### 2. BACKGROUND

Provide the following information about the structure:

1 Dimension, material, and shape (e.g. two 10 x 5 feet reinforced concrete box culvert; three 30-foot span bridge with 2 rows of two 3- foot diameter circular piers; 40-foot wide ogee shape spillway)
75 L.F. of 78" concrete culvert including precast end sections

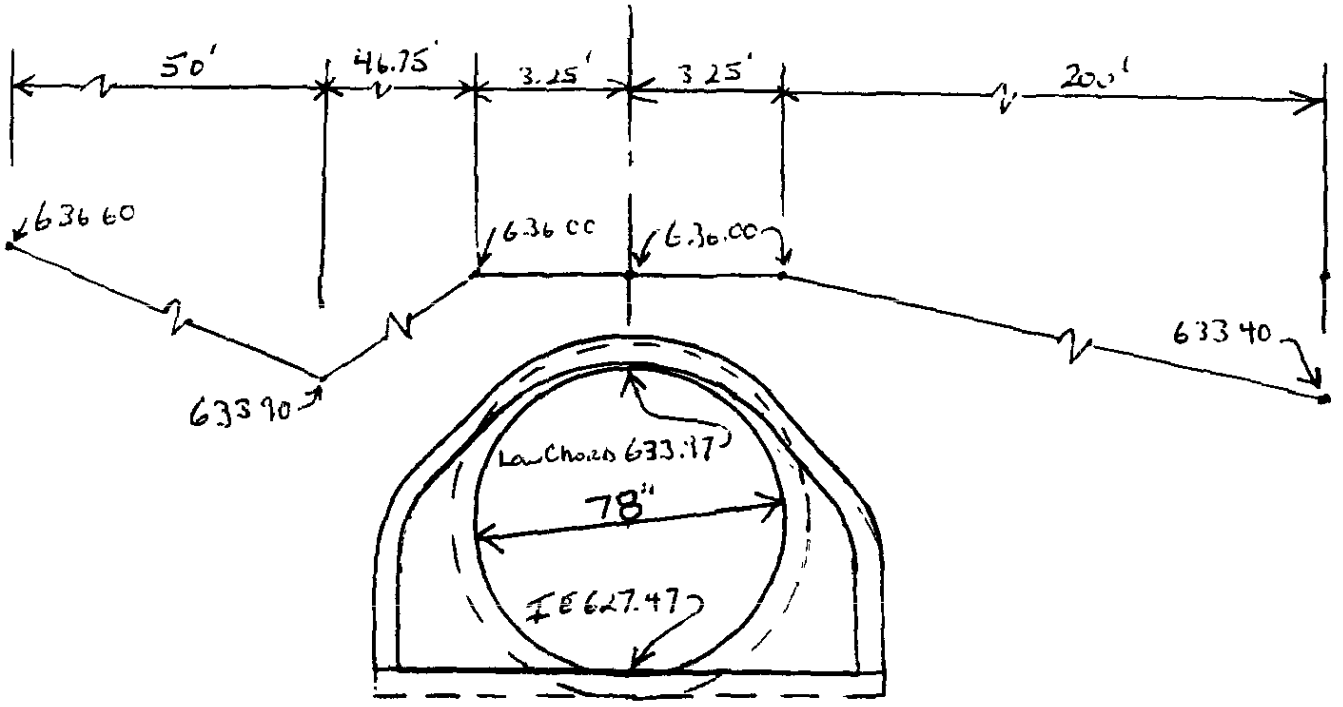
2 Entrance geometry of culvert/type of bridge opening (e.g. 30° - 75° wing walls with square top edge, sloping embankments and vertical abutments) Precast end section

3 Hydraulic model used to analyze the structure (*e.g., HEC-2 with special bridge routine, WSPRO, HY8*)
HEC-2 w/special bridge routine

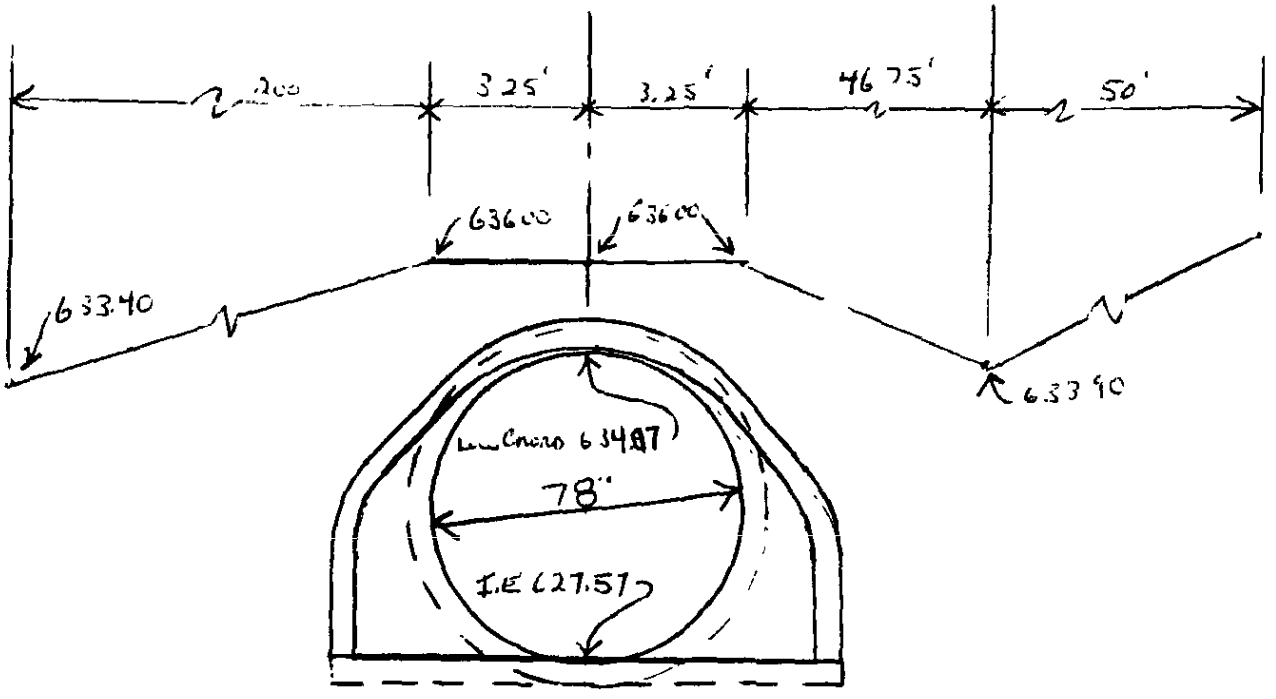
If different than hydraulic analysis for the flooding source, justify why the hydraulic analysis used for the flooding source could not analyze the structure(s) *(Attach justification)*

**Note: If any items do not apply to submitted hydraulic analysis, indicate by N/A**
*** One form per new/revised bridge/culvert**

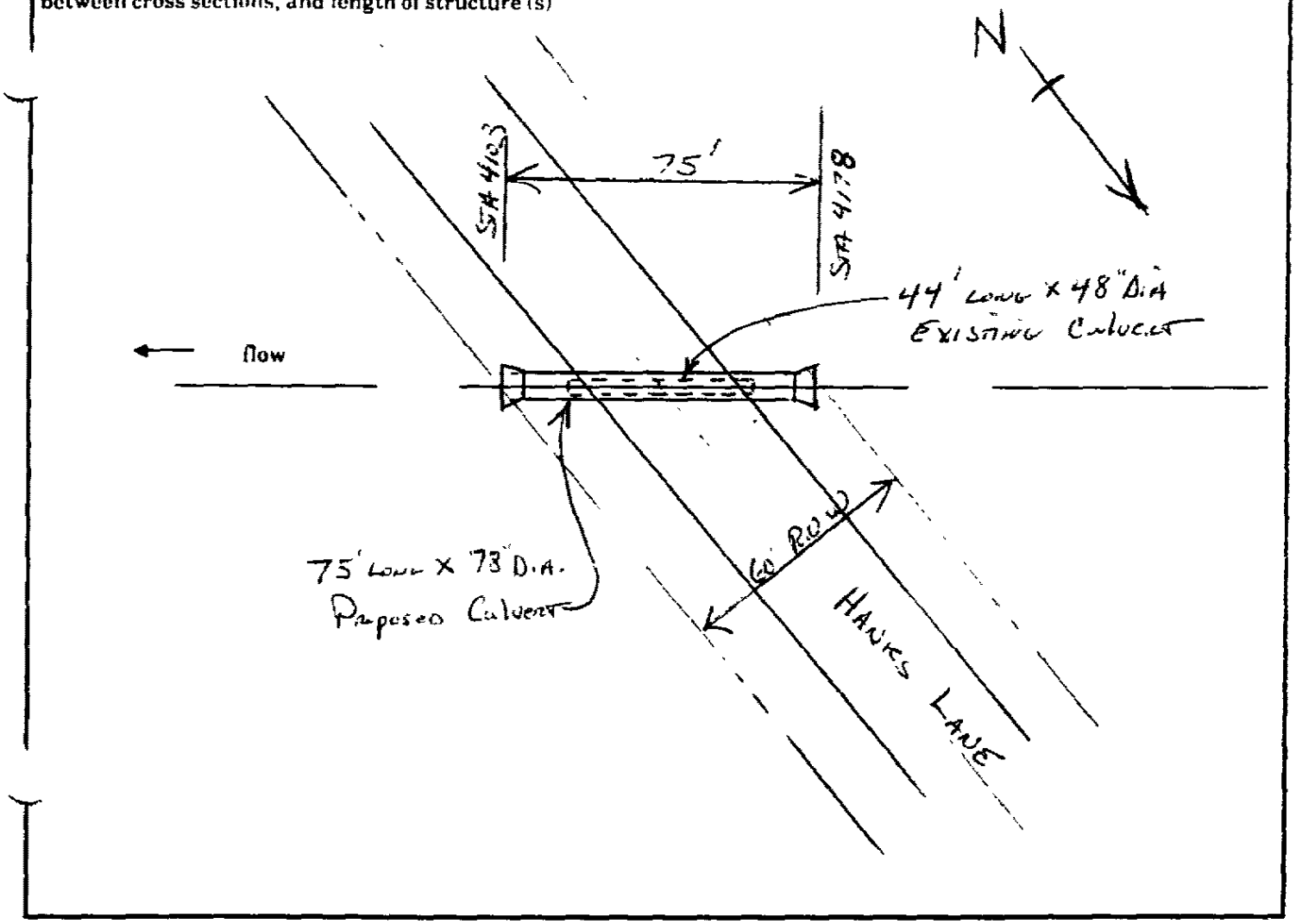
Sketch the downstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, minimum top of road elevation, and ineffective flow widths




Sketch the upstream face of the structure together with the road profile. Show, at a minimum, the maximum low chord elevation, invert elevation, and minimum top of road elevation.



Sketch the plan view of the structure(s) Show, at a minimum, the skew angle, cross-section locations, distances between cross sections, and length of structure (s)




Attach plans of the structure (s) certified by a registered Professional Engineer

| | |
|---|---|
| Culvert length or bridge width (ft) | 75' |
| Calculated culvert/bridge area (ft²) by the hydraulic model, if applicable | 33.18 FT² |
| Total culvert/bridge area (ft²) | 33.18 FT² |

Elevations Above Which Flow is Effective for Overbanks

| | Left Overbank | Right Overbank |
|---|---|---|
| Upstream face | 631.8 | 636.6 |
| Downstream face | 631.8 | 636.6 |

Minimum Top of Road Elevation

| | Left Overbank | Right Overbank |
|---|---|---|
| Upstream face | 633.40 | 632.10 |
| Downstream face | 633.40 | 632.10 |

| 100-Year Elevations | Water Surface Elevations | Energy Gradient Elevations |
|---|---|---|
| Upstream face | 632.20 | 632.48 |
| Downstream face | 631.85 | 632.11 |

| Discharge | Low Flow | Pressure Flow | Weir Flow | Total Flow |
|---|---|---|---|---|
| Amount of flow through/over the structure (s) (cfs) | 106 | | | 106 |

The maximum depth of flow over the roadway/railroad (ft.) ..... 0

Weir length (ft.) ..... 0

Top Widths

| | Floodplain | Floodway |
|---|---|---|
| Upstream face | 112' | 112 |
| Downstream face | 27.4' | 110 |

Top Widths

| | Effective Flow | Effective and Ineffective Flow |
|---|---|---|
| Upstream face | 6.5' | 112' |
| Downstream face | 6.5' | 27.4' |

Loss Coefficients

| | |
|---|---|
| Entrance loss coefficient | 0.50 |
| Manning's "n" value assigned to the structure(s) | 0.013 |
| Friction loss coefficient through structure (s) | 1.2 |
| Other loss coefficients (e.g., bend manhole, etc.) | |
| Total loss coefficient | 2.7 |
| Weir coefficient | 2.71 |
| Pier coefficient | N/A |
| Contraction loss coefficient | 0.30 |
| Expansion loss coefficient | 0.50 |

## 4. SEDIMENT TRANSPORT CONSIDERATIONS

1 A. Is there any indication from historical records that sediment transport *(including scour and deposition)* can affect the 100-year water surface elevations? ☐ Yes ☒ No

B Based on the conditions *(such as geomorphology, vegetative cover and development of the watershed and stream bed, and bank conditions)*, is there a potential for debris and sediment transport *(including scour and deposition)* to affect the 100-year water surface elevations and/or conveyance capacity through the bridge/culvert? ☐ Yes ☒ No

If the answer to either 1A or 1B is yes.

A. What is the estimated sediment *(bed material)* load?
_____cfs *(attach gradation curve)*

Explain method used to estimate the sediment transport and the depth of scour and/or deposition_____

B Will sediment accumulate anywhere through the bridge/culvert? ☐ Yes ☐ No

If yes, explain the impact on the conveyance capacity through the bridge/culvert?_____

## 5. FLOODWAY ANALYSIS

Explain method of bridge encroachment (floodway run) _____

Comments *(explain any unusual situations)*

Attach analysis.

1) COUNTY: Macomb ~~County~~

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Christmas Drain

4) DOCUMENT TYPE: CIOMR - Hec-2 - Proposed

00BREAK00

```
****************************************************
*  WATER SURFACE PROFILES                          *
*  VERSION OF NOVEMBER 1976                        *
*    DATED MAY 1984                                *
*  -PC-XT VERSION AUGUST 1985                      *
*  RUN DATE  02-20-96   TIME  14:29:27               *
****************************************************
```

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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616          *
  *  (916) 440-2105 (FTS) 448-2105
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X         XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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THIS RUN EXECUTED 02-20-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CITY OF STERLING HEIGHTS  CHRISSMAN DRAIN
T3 POST PROJECT CONDITIONS MODEL  (FILE NAME: CDASB1) REVISED 10-31-94 PER FEMA

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   .000000      .00       .0        0.   629.000      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000


V       .060      .060      .040      .500     1.000      .000      .000      .000      .000      .000
NV     5.000      .050   300.000      .050   309.000      .040   315.000      .050   330.000      .060
NH   600.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
QT     4.000   161.000   310.000   360.000   510.000      .000      .000      .000      .000      .000
X1  2810.000    10.000   300.000   330.000   170.000   170.000   170.000      .000      .000      .000
GR   631.600      .000   630.900   100.000   630.600   200.000   628.500   300.000   622.900   309.000
GR   624.800   315.000   630.000   330.000   631.600   400.000   633.400   500.000   633.400   600.000

NH     3.000      .050   400.000      .035   416.000      .045   800.000      .000      .000      .000
X1  3091.000    17.000   400.000   416.000   350.000   200.000   281.000      .636      .000      .000
GR   632.100      .000   631.600   100.000   630.900   200.000   630.600   300.000   628.500   398.000
GR   628.500   400.000   629.500   400.000   626.200   400.000   625.700   416.000   629.500   416.000
GR   628.300   416.000   628.300   422.000   630.000   436.000   631.600   506.000   633.400   606.000
GR   633.400   706.000   633.300   806.000      .000      .000      .000      .000      .000      .000

SB      .000     2.338     3.030      .000    16.000      .000    22.500      .000   625.700   625.700
X1  3168.000      .000      .000      .000    77.000    77.000    77.000      .000      .000      .000
X2      .000      .000     1.000   629.500   632.100      .000      .000      .000      .636      .000
BT    14.000      .000   632.100      .000   100.000   632.300      .000   200.000   632.600      .000
BT   300.000   632.800      .000   398.000   633.100      .000   398.000   634.800      .000   400.000
BT   634.800   629.500   416.000   634.800   629.500   422.000   634.800      .000   422.000   633.000
BT      .000   506.000   633.100      .000   606.000   633.400      .000   706.000   633.400      .000
BT   806.000   633.300      .000      .000      .000      .000      .000      .000      .000      .000

QT     4.000   105.000   227.000   265.000   375.000      .000      .000      .000      .000      .000
NV     5.000      .050   292.000      .050   296.000      .040   305.000      .040   312.000      .045
NH   500.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
X1  4020.000    10.000   292.000   312.000   750.000  1000.000   852.000      .000      .000      .000
X3      .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
GR   634.600      .000   634.400   100.000   631.800   200.000   632.000   292.000   627.900   296.000
GR   628.100   302.000   628.400   305.000   632.100   312.000   636.600   400.000   636.700   500.000
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| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| QT | 4.000 | 98.000 | 217.000 | 250.000 | 355.000 | .000 | .000 | .000 | .000 | .000 |
| NH | 3.000 | .050 | 298.000 | .070 | 302.000 | .055 | 545.000 | .000 | .000 | .000 |
| X1 | 4173.000 | 18.000 | 298.000 | 302.000 | 250.000 | 200.000 | 153.000 | .795 | .000 | .000 |
| X3 | .000 | .000 | .000 | 200.000 | .000 | 400.000 | .000 | .000 | .000 | .000 |
| GR | 634.600 | .000 | 634.400 | 100.000 | 633.500 | 126.000 | 631.800 | 200.000 | 632.200 | 292.000 |
| GR | 629.500 | 298.000 | 630.900 | 298.000 | 628.400 | 299.000 | 628.200 | 300.000 | 628.400 | 301.000 |
| GR | 629.500 | 302.000 | 630.900 | 302.000 | 629.500 | 302.000 | 632.100 | 312.000 | 633.900 | 350.000 |
| GR | 636.600 | 400.000 | 636.700 | 500.000 | 636.900 | 545.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| NH | 3.000 | .050 | 298.000 | .070 | 302.000 | .055 | 545.000 | .000 | .000 | .000 |
| SB | .000 | 2.700 | 2.710 | .000 | 4.000 | .000 | 12.560 | .000 | 628.200 | 628.200 |
| X1 | 4217.000 | 18.000 | 298.000 | 302.000 | 44.000 | 44.000 | 44.000 | .795 | .000 | .000 |
| X2 | .000 | .000 | 1.000 | 632.200 | 633.400 | .000 | .000 | .000 | .795 | .000 |
| X3 | .000 | .000 | .000 | 200.000 | .000 | 400.000 | .000 | .000 | .000 | .000 |
| BT | 8.000 | 200.000 | 633.400 | .000 | 298.000 | 633.600 | 630.900 | 299.000 | 633.600 | 632.000 |
| BT | 300.000 | 633.600 | 632.200 | 301.000 | 633.600 | 632.000 | 302.000 | 633.600 | 630.900 | 350.000 |
| BT | 633.900 | .000 | 400.000 | 636.600 | .000 | .000 | .000 | .000 | .000 | .000 |
| GR | 634.600 | .000 | 634.400 | 100.000 | 633.500 | 126.000 | 631.800 | 200.000 | 632.200 | 292.000 |
| GR | 629.500 | 298.000 | 630.900 | 298.000 | 628.400 | 299.000 | 628.200 | 300.000 | 628.400 | 301.000 |
| GR | 629.500 | 302.000 | 630.900 | 302.000 | 629.500 | 302.000 | 632.100 | 312.000 | 633.900 | 350.000 |
| GR | 636.600 | 400.000 | 636.700 | 500.000 | 636.900 | 545.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| NH | 5.000 | .045 | 400.000 | .045 | 409.000 | .040 | 413.000 | .045 | 418.000 | .045 |
| NH | 1300.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| [illegible] | 4.000 | 77.000 | 187.000 | 217.000 | 305.000 | .000 | .000 | .000 | .000 | .000 |
| [illegible] | 4937.000 | 18.000 | 400.000 | 418.000 | 600.000 | 800.000 | 720.000 | .000 | -.500 | .000 |
| X3 | .000 | .000 | .000 | 60.000 | .000 | 550.000 | .000 | .000 | .000 | .000 |
| GR | 633.900 | .000 | 634.300 | 100.000 | 633.900 | 200.000 | 634.700 | 300.000 | 634.300 | 400.000 |
| GR | 631.800 | 405.000 | 630.900 | 409.000 | 631.700 | 413.000 | 634.700 | 418.000 | 637.200 | 500.000 |
| GR | 634.600 | 600.000 | 635.300 | 700.000 | 635.000 | 800.000 | 634.500 | 900.000 | 634.900 | 1000.000 |
| GR | 634.500 | 1100.000 | 636.000 | 1200.000 | 637.700 | 1300.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| X1 | 4997.000 | .000 | .000 | .000 | 55.000 | 70.000 | 60.000 | .000 | .200 | .000 |
| X3 | .000 | .000 | .000 | 60.000 | .000 | 550.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| QT | 4.000 | 60.000 | 150.000 | 163.000 | 190.000 | .000 | .000 | .000 | .000 | .000 |
| X1 | 5057.000 | .000 | .000 | .000 | 50.000 | 70.000 | 60.000 | .000 | .100 | .000 |
| X3 | .000 | .000 | .000 | 60.000 | .000 | 550.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| X1 | 5086.000 | .000 | .000 | .000 | 25.000 | 35.000 | 29.000 | .000 | .100 | .000 |
| X3 | .000 | .000 | .000 | 60.000 | .000 | 550.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| X1 | 5115.000 | .000 | .000 | .000 | 25.000 | 35.000 | 29.000 | .000 | .100 | .000 |
| X3 | .000 | .000 | .000 | 90.000 | .000 | 550.000 | .000 | .000 | .000 | .000 |
| | | | | | | | | | | |
| NH | 3.000 | .050 | 695.500 | .040 | 704.500 | .050 | 1700.000 | .000 | .000 | .000 |
| X1 | 5165.000 | 36.000 | 688.000 | 712.000 | 50.000 | 50.000 | 50.000 | .000 | .000 | .000 |
| X3 | .000 | .000 | .000 | 400.000 | .000 | 800.000 | .000 | .000 | .000 | .000 |
| GR | 633.900 | .000 | 633.900 | 100.000 | 633.900 | 200.000 | 633.900 | 300.000 | 634.300 | 400.000 |
| [illegible] | 633.900 | 500.000 | 634.700 | 600.000 | 634.300 | 688.000 | 632.000 | 695.400 | 634.300 | 695.500 |
| [illegible] | 632.000 | 695.500 | 630.900 | 696.500 | 630.700 | 697.500 | 630.900 | 698.500 | 632.000 | 699.500 |
| GR | 633.700 | 699.500 | 633.700 | 700.500 | 632.600 | 700.500 | 631.500 | 701.500 | 631.300 | 702.500 |
| GR | 631.500 | 703.500 | 633.700 | 704.500 | 632.000 | 704.600 | 634.800 | 712.000 | 636.000 | 753.000 |

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     637.200   800.000   635.500   851.000   634.600   900.000   635.300  1000.000   635.000  1100.000
GR   634.500  1200.000   634.900  1300.000   634.500  1400.000   636.000  1500.000   637.700  1600.000
GR   638.700  1700.000      .000      .000      .000      .000      .000      .000      .000      .000

SB      .000     2.227     3.030      .000    24.000      .000    25.100      .000   630.700   630.700
         SECTION "J"
X1  5205.000      .000      .000      .000    40.000    40.000    40.000      .000      .000      .000
X2      .000      .000     1.000   634.500   634.900      .000      .000      .000      .000      .000
X3      .000      .000      .000   400.000      .000   800.000      .000      .000      .000      .000
BT    17.000   400.000   634.900      .000   500.000   634.900      .000   600.000   635.300      .000
BT   688.000   636.200      .000   695.500   636.300   634.300   696.500   636.300   634.600   697.500
BT   636.300   634.800   698.500   636.300   634.600   699.500   636.300   633.500   700.500   636.300
BT   633.700   701.500   636.300   634.800   702.500   636.300   635.000   703.500   636.300   634.800
BT   704.500   636.300   633.700   712.000   636.300      .000   753.000   636.000      .000   800.000
BT   637.200      .000      .000      .000      .000      .000      .000      .000      .000      .000

NH     3.000      .070    85.000      .045   110.000      .060   200.000      .000      .000      .000
X1  5286.000     6.000    85.000   110.000   320.000    75.000    81.000      .000     -.200      .000
X3      .000      .000      .000      .000      .000   130.000      .000      .000      .000      .000
GR   636.100      .000   635.600    85.000   631.000   100.000   635.200   110.000   636.400   130.000
GR   634.900   200.000      .000      .000      .000      .000      .000      .000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
         BEGINNING OF DRAIN IMPROVEMENTS
X1  5324.000     7.000    49.000    70.000    38.000    38.000    38.000      .000      .000      .000
     636.300      .000   635.080    20.000   634.630    49.000   631.380    59.000   635.500    70.000
     635.560    72.000   635.730    84.000      .000      .000      .000      .000      .000      .000

QT     4.000    58.000   150.000   163.000   190.000      .000      .000      .000      .000      .000
X1  5435.000     9.000    40.000    80.000   105.000   120.000   111.000      .000      .000      .000
GR   635.900    36.000   635.280    40.000   631.370    56.000   630.930    60.000   631.370    64.000
GR   634.380    80.000   634.380   110.000   635.770   132.000   635.910   143.000      .000      .000

X1  5502.000     8.000      .000    52.000    85.000    45.000    67.000      .000      .000      .000
GR   636.000      .000   631.540    22.000   631.440    28.000   631.540    34.000   634.830    52.000
GR   635.080    93.000   635.750   115.000   635.920   126.000      .000      .000      .000      .000

NC      .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
         DOWNSTREAM OF 12'X4' BOX CULVERT
X1  5545.000     7.000    25.000    37.000    43.000    43.000    43.000      .000      .000      .000
X3    10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
GR   636.580      .000   635.660    25.000   631.660    25.000   631.660    37.000   635.660    37.000
GR   634.780    60.000   635.940   130.000      .000      .000      .000      .000      .000      .000

SB      .000     1.750     2.500      .000    12.000      .000    48.000      .000   631.680   631.660
         UPSTREAM OF 12'X4' BOX CULVERT
         SECTION "K1"
X1  5633.000     7.000      .000    55.000    88.000    88.000    88.000      .000      .000      .000
X2      .000      .000     1.000   635.630   637.500      .000      .000      .000      .000      .000
X3    10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
     4.000      .000   637.500   637.000    25.000   637.500   635.680    37.000   637.500   635.680
    60.000   637.500   637.000      .000      .000      .000      .000      .000      .000      .000
GR   636.030      .000   631.530    25.000   631.430    32.000   631.530    37.000   635.230    55.000
GR   635.700    60.000   636.100    67.000      .000      .000      .000      .000      .000      .000
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NC      .060      .060      .040      .000      .000      .000      .000      .000      .000      .000
X1   5737.000     8.000      .000    52.000   104.000   104.000   104.000      .000      .000      .000
GR    636.300      .000   631.880    22.000   631.780    28.000   631.880    34.000   635.100    52.000
GR    635.530    93.000   636.300   112.000   636.400   123.000      .000      .000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
          CONC CTRL STRUCT FOR 10 YEAR EVENT AND DOWNSTREAM END OF STORAGE BASIN
X1   5792.000    14.000    35.000    52.000    55.000    55.000    55.000      .000      .000      .000
GR    637.000      .000   636.000    20.000   635.970    30.000   636.000    35.000   635.000    35.000
GR    635.000    39.000   632.000    39.750   632.000    47.250   635.000    48.000   635.000    52.000
GR    636.950    52.000   635.680    57.000   635.180    67.000   636.350   130.000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
QT     4.000   133.000   187.000   217.000   305.000      .000      .000      .000      .000      .000
          SECTION THRU PROPOSED POND
X1   5965.000     7.000      .000   459.000   120.000   330.000   173.000      .000      .000      .000
GR    636.400      .000   636.300    12.000   635.000    18.000   632.000    42.000   632.000   356.000
GR    637.800   427.000   638.400   459.000      .000      .000      .000      .000      .000      .000

          SECTION THRU PROPOSED POND
X1   6130.000     7.000      .000   415.000   130.000   235.000   165.000      .000      .000      .000
GR    637.000      .000   636.300    12.000   632.000    36.000   632.000   300.000   636.400   334.000
GR    637.200   367.000   639.900   415.000      .000      .000      .000      .000      .000      .000

          SECTION THRU PROPOSED POND
          SECTION "L1"
X1   6250.000     6.000      .000   245.000   120.000   120.000   120.000      .000      .000      .000
GR    636.400      .000   635.000    12.000   632.000    30.000   632.000   198.000   636.300   228.000
GR    637.000   245.000      .000      .000      .000      .000      .000      .000      .000      .000

          SECTION THRU PROPOSED POND
X1   6500.000     7.000      .000   232.000   250.000   250.000   250.000      .000      .000      .000
GR    637.300      .000   636.900    20.000   632.000    45.000   632.000   176.000   636.400   203.000
GR    637.400   214.000   638.900   232.000      .000      .000      .000      .000      .000      .000

          SECTION THRU PROPOSED POND
X1   6685.000     7.000      .000   365.000   250.000   155.000   185.000      .000      .000      .000
GR    639.200      .000   637.000    21.000   632.000    58.000   632.000   306.000   636.400   332.000
GR    636.500   345.000   638.700   365.000      .000      .000      .000      .000      .000      .000

          SECTION THRU PROPOSED POND
          UPSTREAM END OF STORAGE BASIN AND DOWNSTREAM END OF 84" CONC CULVERT
X1   6920.000    12.000      .000   157.000   310.000   175.000   235.000      .000      .000      .000
GR    637.000      .000   636.000    20.000   635.000    30.000   634.000    40.000   633.000    46.000
GR    632.000    51.000   632.000   129.000   633.000   134.000   634.000   139.000   635.000   143.000
GR    636.000   148.000   637.000   157.000      .000      .000      .000      .000      .000      .000

          UPSTREAM END OF 84" CONCRETE CULVERT
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          SECTION "M1"
X1   7259.000     4.000      .000    17.130   344.000   334.000   339.000      .000      .000      .000
X5     -4.000      .410      .810     1.090     2.150      .000      .000      .000      .000      .000
GR    639.000      .000   630.770      .000   630.770    17.130   639.000    17.130      .000      .000

          CHECK DAM AT UPSTREAM END OF 84" CONCRETE CULVERT
X1   7260.000     4.000      .000    19.130     1.000     1.000     1.000      .000      .000      .000
GR    639.000      .000   632.300      .000   632.300    19.130   639.000    19.130      .000      .000

X1   7367.000     9.000   245.000   280.000   107.000   107.000   107.000      .000      .000      .000
GR    638.700      .000   637.500   230.000   637.000   245.000   632.800   260.000   632.800   265.000
GR    635.500   273.000   637.800   280.000   638.000   314.000   638.700   420.000      .000      .000

X1   7977.000     9.000   333.000   370.000   595.000   620.000   610.000      .000      .000      .000
GR    639.200      .000   638.100   255.000   637.900   310.000   637.900   333.000   633.500   353.000
GR    633.500   357.000   638.200   370.000   638.200   390.000   743.000   445.000      .000      .000

X1   8632.000     8.000   202.000   242.000   650.000   660.000   655.000      .000      .000      .000
GR    640.000      .000   639.300   100.000   638.500   202.000   634.600   223.000   634.600   227.000
GR    639.000   242.000   639.400   265.000   643.900   400.000      .000      .000      .000      .000

X1   8832.000     4.000      .000    36.300   200.000   200.000   200.000      .000      .000      .000
GR    639.800      .000   634.760    17.500   634.760    21.500   639.700    36.300      .000      .000

          SECTION "N1"
     9000.000     4.000      .000    47.000   168.000   168.000   168.000      .000      .000      .000
GR    640.100      .000   635.690    19.500   635.690    26.500   640.500    47.000      .000      .000

X1   9600.000     4.000      .000    42.000   600.000   600.000   600.000      .000      .000      .000
GR    642.000      .000   637.330    17.000   637.330    25.000   642.300    42.000      .000      .000

X1  10000.000     4.000      .000    40.000   400.000   400.000   400.000      .000      .000      .000
GR    642.800      .000   638.130    16.600   638.130    23.600   642.700    40.000      .000      .000

X1  10400.000     5.000    10.000    44.000   400.000   400.000   400.000      .000      .000      .000
GR    643.500      .000   643.100    10.000   639.130    26.600   639.130    33.600   643.400    44.000

X1  10800.000     5.000      .000    35.000   400.000   400.000   400.000      .000      .000      .000
GR    644.400      .000   640.190    13.500   640.190    21.500   644.000    35.000   645.000   130.000

          CHECK DAM
          SECTION "O1"
X1  11110.000     4.000      .000    50.000   311.000   311.000   311.000      .000      .000      .000
GR    647.000      .000   639.330    23.000   639.330    27.000   647.000    50.000      .000      .000

X1  11111.000     6.000      .000    50.000     1.000     1.000     1.000      .000      .000      .000
GR    647.000      .000   645.530    12.000   641.870    23.000   641.870    27.000   645.530    38.000
GR    647.000    50.000      .000      .000      .000      .000      .000      .000      .000      .000
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         CHECK DAM
         SECTION "P1"
X1  11591.000     4.000      .000    50.000   481.000   481.000   481.000      .000      .000      .000
GR    648.000      .000   642.370    23.000   642.370    27.000   648.000    50.000      .000      .000

X1  11592.000     6.000      .000    50.000     1.000     1.000     1.000      .000      .000      .000
GR    650.000      .000   650.000     2.500   643.500    22.000   643.500    28.000   650.000    47.500
GR    650.000    50.000      .000      .000      .000      .000      .000      .000      .000      .000

         SOUTH R.O.W LINE OF M-59
X1  11662.000     4.000      .000    50.000    70.000    70.000    70.000      .000      .000      .000
GR    648.000      .000   645.200    20.000   645.200    30.000   648.000    50.000      .000      .000

         SECTION "Q1" DOWNSTREAM END OF EXISTING 60" CULVERT UNDER DOBRY RD
         AND M-59
X1  11760.000    13.000   220.000   275.000    98.000    98.000    98.000      .000      .000      .000
GR    650.100      .000   649.600    50.000   649.300   100.000   651.500   150.000   652.000   200.000
GR    651.500   220.000   645.600   240.000   645.700   258.000   651.600   275.000   653.200   300.000
GR    653.800   350.000   654.300   400.000   654.100   450.000      .000      .000      .000      .000
EJ       .000      .000      .000      .000      .000      .000      .000      .000      .000      .000
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THIS RUN EXECUTED 02-20-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1
T2
T3 100 YEAR EVENT PROP. CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 4. | 0. | 0. | .000000 | .00 | .0 | 0. | 630.040 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

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 CNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
 Q       QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
 TIME    VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*PROF 3

CCHV=    .500 CEHV=   1.000
1490 NH CARD USED
*SECNO 2810.000
  2810.00     7.14   630.04      .00   630.04   630.14      .10      .00      .00   628.50
     360.      47.     313.       0.      56.     116.       0.       0.       0.   630.00
      .00      .83     2.70      .01     .050     .042     .060     .000   622.90   226.67
  .001101     170.     170.     170.        0        0        0      .00   105.08   331.75


1490 NH CARD USED
*SECNO 3091.000
  3091.00     4.90   630.60      .00      .00   630.72      .12      .56      .02   628.50
     360.     134.     162.      64.      68.      47.      27.       1.       1.   628.30
      .03     1.97     3.43     2.41     .050     .050     .050     .000   625.70   190.92
  .004097     350.     281.     200.        2        0        0      .00   102.95   293.87


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      2.34      3.03       .00     16.00       .00     22.50       .00    625.70    625.70

*SECNO 3168.000
3280 CROSS SECTION   3168.00 EXTENDED       .79 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    639.89    630.72      .00      183.      179.       23.       61.     629.50    632.10


  3168.00     7.19   632.89      .00      .00   632.89      .00     2.17      .00   628.50
     360.     238.     43.       79.     520.      71.     173.       2.       1.   628.30
      .07      .46      .61      .45     .050     .050     .050     .000   625.70      .00
  .000077      77.      77.      77.        0        0        7      .00   367.41   367.41


1490 NH CARD USED
*SECNO 4020.000
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 .CNO    DEPTH   CWSEL   CRIWS   WSELK   EG      HV      HL      OLOSS   BANK ELEV
  Q      QLOB    QCH     QROB    ALOB    ACH     AROB    VOL     TWA   LEFT/RIGHT
  TIME   VLOB    VCH     VROB    XNL     XNCH    XNR     WTN     ELMIN     SSTA
  SLOPE  XLOBL   XLCH    XLOBR   ITRIAL  IDC     ICONT   CORAR   TOPWID    ENDST


3470 ENCROACHMENT STATIONS=    200.0    400.0  TYPE=    1  TARGET=    200.000
  4020.00    5.11  633.01     .00     .00  633.07    .06     .12     .06  632.00
     265.     85.    176.      4.    102.     76.     8.     11.      6.   632.10
      .20     .83    2.33     .51    .050    .038   .045    .000  627.90  200.00
  .000702    750.    852.   1000.       2       0      0     .00  129.68  329.68


1490 NH CARD USED
*SECNO 4173.000

3470 ENCROACHMENT STATIONS=    159.0    318.0  TYPE=    1  TARGET=    200.000
  4173.00    5.06  633.26     .00     .00  633.31    .04     .23     .01  629.50
     250.    167.     25.     58.    104.     14.    31.     12.      6.   629.50
      .23    1.61    1.74    1.87    .050    .050   .050    .000  628.20  159.00
  .002103    250.    153.    200.       2       0      0     .00  108.57  267.57


1490 NH CARD USED

SPECIAL BRIDGE

SB  XK      XKOR    COFQ    RDLEN   BWC     BWP     BAREA   SS      ELCHU   ELCHD
     .00    2.70    2.71     .00    4.00     .00   12.56     .00  628.20  628.20

*SECNO 4217.000
PRESSURE AND WEIR FLOW


 EGPRS    EGLWC    H3     QWEIR    QPR     BAREA  TRAPEZOID    ELLC    ELTRD
                                                     AREA
   649.87  633.31    .00    188.     62.     13.     16.     632.20  633.40


3470 ENCROACHMENT STATIONS=    159.0    318.0  TYPE=    1  TARGET=    200.000
  4217.00    6.06  634.26     .00     .00  634.27    .01     .97     .00  629.50
     250.    175.     14.     60.    182.     17.    67.     12.      7.   629.50
      .25     .96    .83     .90    .050    .050   .050    .000  628.20  159.00
  .000365     44.     44.     44.       1       0      7     .00  124.64  283.64


1490 NH CARD USED
*SECNO 4937.000
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q      QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME    VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      60.0     550.0  TYPE=     1  TARGET=     490.000
  4937.00     4.12   634.52      .00      .00   634.54     .01      .26      .00   633.80
     217.     147.     69.       0.     249.     49.      2.      16.      10.    634.20
      .46      .59     1.43     .21     .045     .041    .045     .000   630.40    60.00
  .000462     600.     720.    800.        3        0       0      .00   368.62   428.62


*SECNO 4997.000

3470 ENCROACHMENT STATIONS=      60.0     550.0  TYPE=     1  TARGET=     490.000
  4997.00     3.96   634.56      .00      .00   634.58     .03      .04      .01   634.00
     217.     131.     86.       0.     189.     45.      0.      16.      11.    634.40
      .47      .69     1.90     .17     .045     .041    .045     .000   630.60    60.00
  .000881      55.     60.      70.        0        0       0      .00   362.83   422.83


*SECNO 5057.000

3470 ENCROACHMENT STATIONS=      60.0     550.0  TYPE=     1  TARGET=     490.000
  5057.00     3.91   634.61      .00      .00   634.63     .02      .04      .00   634.10
     163.      94.     69.       0.     174.     45.      0.      17.      11.    634.50
      .49      .54     1.54     .11     .045     .041    .045     .000   630.70    60.00
  .000592      50.     60.      70.        1        0       0      .00   361.39   421.39


*SECNO 5086.000

3470 ENCROACHMENT STATIONS=      60.0     550.0  TYPE=     1  TARGET=     490.000
  5086.00     3.83   634.63      .00      .00   634.65     .03      .02      .01   634.20
     163.      87.     76.       0.     150.     43.      0.      17.      11.    634.60
      .49      .58     1.76     .01     .045     .040    .045     .000   630.80    60.00
  .000800      25.     29.      35.        0        0       0      .00   359.04   419.04


*SECNO 5115.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      90.0     550.0  TYPE=     1  TARGET=     460.000
  5115.00     3.76   634.66      .00      .00   634.69     .04      .03      .01   634.30
     163.      77.     86.       0.     109.     42.      0.      17.      11.    634.70
      .50      .71     2.06     .00     .045     .045    .045     .000   630.90    90.00
     1430      25.     29.      35.        0        0       0      .00   308.67   417.91
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   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID    ENDST


1490 NH CARD USED
*SECNO 5165.000

3470 ENCROACHMENT STATIONS=     400.0     800.0  TYPE=     1  TARGET=     400.000
  5165.00     4.05   634.75      .00      .00   634.77      .02      .07      .01   634.30
     163.      89.      74.       0.     132.      49.       0.      17.      12.   634.80
      .51      .67     1.50      .00     .050     .043     .045     .000   630.70   400.00
  .001258      50.      50.      50.        2        0        0      .00   311.87   711.87



SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     .00      2.23     3.03      .00    24.00      .00    25.10      .00   630.70   630.70

*SECNO 5205.000
PRESSURE AND WEIR FLOW


ELPRS     EGLWC     H3       QWEIR    QPR      BAREA   TRAPEZOID     ELLC     ELTRD
                                                          AREA
   636.21   634.77      .00      71.      93.      25.      91.     634.50   634.90



3470 ENCROACHMENT STATIONS=     400.0     800.0  TYPE=     1  TARGET=     400.000
         SECTION "J"
  5205.00     4.52   635.22      .00      .00   635.22      .00      .45      .00   634.30
     163.     118.      44.       0.     268.      61.       3.      17.      12.   634.80
      .53      .44      .73      .16     .050     .044     .050     .000   630.70   400.00
  .000237      40.      40.      40.        0        0        5      .00   326.40   726.40


1490 NH CARD USED
*SECNO 5286.000
3280 CROSS SECTION   5286.00 EXTENDED      .41 FEET


3470 ENCROACHMENT STATIONS=        .0     130.0  TYPE=     1  TARGET=     129.999
  5286.00     4.51   635.31      .00      .00   635.44      .13      .09      .12   635.40
     163.       0.     163.       0.       0.      57.       1.      18.      13.   635.00
      .55      .00     2.84      .37     .050     .045     .060     .000   630.80    85.29
  .002611     320.      81.      75.        2        0        0      .00    29.89   115.18
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q      QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME   VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE  XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


CCHV=    .100 CEHV=    .300
*SECNO 5324.000
          BEGINNING OF DRAIN IMPROVEMENTS
  5324.00     4.02   635.40      .00      .00   635.55      .15      .11      .01   634.63
     163.      14.     149.       0.      17.     45.       0.      18.      13.   635.50
      .55      .87     3.27      .00     .060    .040     .060     .000   631.38    14.81
  .002938      38.      38.      38.        2       0        0      .00    54.92    69.72


*SECNO 5435.000
  5435.00     4.68   635.61      .00      .00   635.63      .02      .07      .01   635.28
     163.       0.     142.      21.       0.    116.      49.      19.      13.   634.38
      .58      .12     1.22      .42     .060    .040     .060     .000   630.93    37.86
  .000269     105.     111.     120.        2       0        0      .00    91.64   129.50


*SECNO 5502.000
  5502.00     4.19   635.63      .00      .00   635.65      .02      .02      .00   636.00
     163.       0.     154.       9.       0.    135.      33.      19.      14.   634.83
      .60      .00     1.14      .28     .060    .040     .060     .000   631.44     1.82
  .000256      85.      67.      45.        2       0        0      .00   109.28   111.10


CCHV=    .300 CEHV=    .500
*SECNO 5545.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      637.50 ELREA=      637.50

          DOWNSTREAM OF 12'X4' BOX CULVERT
  5545.00     3.91   635.57      .00      .00   635.76      .19      .03      .08   635.66
     163.       0.     163.       0.       0.     47.       0.      19.      14.   635.66
      .60      .00     3.47      .00     .060    .040     .060     .000   631.66    25.00
  .002765      43.      43.      43.        2       0        0      .00    12.00    37.00



SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     .00     1.75     2.50       .00    12.00      .00    48.00      .00   631.68   631.66

*SECNO 5633.000
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 ECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
 Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
 TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
 SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=      .000  EGLWC=   635.616  ELLC=   635.630  PCWSE=   635.573  ELTRD=   637.500

3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  637.50 MAX ELLC=  635.63


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      637.50 ELREA=      637.50

         UPSTREAM OF 12'X4' BOX CULVERT
         SECTION "K1"
  5633.00     4.43   635.86      .00      .00   635.88      .02      .07      .05   636.03
     163.       0.     163.       0.       0.     147.       0.      19.      14.   635.23
      .62      .00     1.11      .00     .060     .040     .060     .000   631.43      .95
  .000357      88.      88.      88.        3        0        0    -2.73    54.05    55.00


*SECNO 5737.000
     7.00     4.11   635.89      .00      .00   635.91      .02      .03      .00   636.30
     163.       0.     156.       7.       0.     132.      25.      20.      14.   635.10
      .65      .00     1.18      .28     .060     .040     .060     .000   631.78     2.04
  .000282     104.     104.     104.        2        0        0      .00    99.85   101.89


CCHV=    .100 CEHV=    .300
*SECNO 5792.000

3265 DIVIDED FLOW

         CONC CTRL STRUCT FOR 10 YEAR EVENT AND DOWNSTREAM END OF STORAGE BASIN
  5792.00     3.79   635.79      .00      .00   636.02      .23      .04      .06   636.00
     163.       0.     151.      12.       0.      38.      14.      20.      14.   636.95
      .65      .00     3.95      .88     .060     .040     .060     .000   632.00    35.00
  .005835      55.      55.      55.        2        0        0      .00    60.36    99.92


CCHV=    .100 CEHV=    .300
*SECNO 5965.000
         SECTION THRU PROPOSED POND
  5965.00     4.04   636.04      .00      .00   636.04      .00      .00      .02   636.40
     217.       0.     217.       0.       0.    1431.       0.      23.      15.   638.40
      .98      .00      .15      .00     .060     .040     .060     .000   632.00    13.21
  .000003     120.     173.     330.        2        0        0      .00   392.23   405.44
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 SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q      QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME    VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 6130.000
         SECTION THRU PROPOSED POND
  6130.00    4.04   636.04     .00      .00   636.04     .00      .00      .00   637.00
     217.      0.     217.      0.       0.    1175.      0.      28.      16.   639.90
     1.23     .00      .18     .00     .060     .040    .060     .000   632.00    13.46
  .000004    130.     165.    235.        2        0       0      .00   317.76   331.21


*SECNO 6250.000
         SECTION THRU PROPOSED POND
         SECTION "L1"
  6250.00    4.04   636.04     .00      .00   636.04     .00      .00      .00   636.40
     217.      0.     217.      0.       0.     786.      0.      30.      17.   637.00
     1.35     .00      .28     .00     .060     .040    .060     .000   632.00     3.09
  .000010    120.     120.    120.        0        0       0      .00   223.09   226.18


*SECNO 6500.000
         SECTION THRU PROPOSED POND
     0.00    4.04   636.04     .00      .00   636.04     .00      .00      .00   637.30
     217.      0.     217.      0.       0.     621.      0.      34.      18.   638.90
     1.55     .00      .35     .00     .060     .040    .060     .000   632.00    24.38
  .000017    250.     250.    250.        0        0       0      .00   176.42   200.80


*SECNO 6685.000
         SECTION THRU PROPOSED POND
  6685.00    4.05   636.05     .00      .00   636.05     .00      .00      .00   639.20
     217.      0.     217.      0.       0.    1112.      0.      38.      19.   638.70
     1.81     .00      .20     .00     .060     .040    .060     .000   632.00    28.07
  .000005    250.     185.    155.        0        0       0      .00   301.83   329.90


*SECNO 6920.000
         SECTION THRU PROPOSED POND
         UPSTREAM END OF STORAGE BASIN AND DOWNSTREAM END OF 84" CONC CULVERT
  6920.00    4.05   636.05     .00      .00   636.05     .00      .00      .00   637.00
     217.      0.     217.      0.       0.     409.      0.      42.      20.   637.00
     1.93     .00      .53     .00     .060     .040    .060     .000   632.00    19.05
  .000044    310.     235.    175.        0        0       0      .00   129.38   148.43
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 .CNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q       QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME    VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 7259.000
 WATER EL=X5 CARD=   637.135
         UPSTREAM END OF 84" CONCRETE CULVERT
         SECTION "M1"
  7259.00     6.37   637.14      .00      .00   637.20      .06      .04      .02   639.00
     217.       0.     217.       0.       0.     109.       0.      44.      21.   639.00
     1.98      .00     1.99      .00     .060     .040     .060     .000   630.77      .00
  .000510     344.     339.     334.        0        0        0      .00    17.13    17.13


*SECNO 7260.000
         CHECK DAM AT UPSTREAM END OF 84" CONCRETE CULVERT
  7260.00     4.82   637.12      .00      .00   637.20      .09      .00      .01   639.00
     217.       0.     217.       0.       0.      92.       0.      44.      21.   639.00
     1.98      .00     2.35      .00     .060     .040     .060     .000   632.30      .00
  .000846       1.       1.       1.        1        0        0      .00    19.13    19.13


*SECNO 7367.000
     7.00     4.42   637.22      .00      .00   637.32      .10      .11      .00   637.00
     217.       0.     217.       0.       1.      86.       0.      44.      21.   637.80
     1.99      .21     2.52      .00     .060     .040     .060     .000   632.80   238.31
  .001361     107.     107.     107.        2        0        0      .00    39.94   278.24


*SECNO 7977.000
  7977.00     4.52   638.02      .00      .00   638.10      .08      .78      .00   637.90
     217.       1.     216.       0.       5.      93.       0.      46.      22.   638.20
     2.06      .17     2.34      .00     .060     .040     .060     .000   633.50   278.10
  .001195     595.     610.     620.        2        0        0      .00    91.39   369.49


*SECNO 8632.000
  8632.00     4.21   638.81      .00      .00   638.89      .08      .79      .00   638.50
     217.       2.     215.       0.       6.      94.       0.      47.      23.   639.00
     2.14      .25     2.28      .00     .060     .040     .060     .000   634.60   162.67
  .001212     650.     655.     660.        2        0        0      .00    78.68   241.35


*SECNO 8832.000
  8832.00     4.31   639.07      .00      .00   639.20      .12      .30      .01   639.80
     217.       0.     217.       0.       0.      77.       0.      48.      23.   639.70
     2.16      .00     2.80      .00     .060     .040     .060     .000   634.76     2.52
  .001838     200.     200.     200.        2        0        0      .00    31.91    34.43
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   ECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 9000.000
         SECTION "N1"
  9000.00     3.71   639.40      .00      .00   639.50      .10      .30      .00   640.10
     217.       0.     217.       0.       0.      86.       0.      48.      24.   640.50
     2.18      .00     2.54      .00     .060     .040     .060     .000   635.69     3.12
  .001693     168.     168.     168.        2        0        0      .00    39.18    42.29


*SECNO 9600.000
  9600.00     3.35   640.68      .00      .00   640.84      .17     1.33      .02   642.00
     217.       0.     217.       0.       0.      66.       0.      49.      24.   642.30
     2.23      .00     3.27      .00     .060     .040     .060     .000   637.33     4.82
  .003012     600.     600.     600.        2        0        0      .00    31.62    36.44


*SECNO 10000.000
 10000.00     3.64   641.77      .00      .00   641.90      .14     1.06      .00   642.80
     217.       0.     217.       0.       0.      73.       0.      50.      24.   642.70
     2.27      .00     2.99      .00     .060     .040     .060     .000   638.13     3.68
    12347     400.     400.     400.        2        0        0      .00    32.97    36.64


*SECNO 10400.000
 10400.00     3.62   642.75      .00      .00   642.90      .16      .99      .01   643.10
     217.       0.     217.       0.       0.      69.       0.      50.      25.   643.40
     2.31      .00     3.16      .00     .060     .040     .060     .000   639.13    11.48
  .002631     400.     400.     400.        2        0        0      .00    30.93    42.41


*SECNO 10800.000
 10800.00     3.57   643.76      .00      .00   643.91      .14     1.00      .00   644.40
     217.       0.     217.       0.       0.      71.       0.      51.      25.   644.00
     2.34      .00     3.04      .00     .060     .040     .060     .000   640.19     2.06
  .002395     400.     400.     400.        1        0        0      .00    32.07    34.14


*SECNO 11110.000
         CHECK DAM
         SECTION "O1"
 11110.00     4.97   644.30      .00      .00   644.39      .08      .47      .01   647.00
     217.       0.     217.       0.       0.      94.       0.      51.      25.   647.00
     2.38      .00     2.31      .00     .060     .040     .060     .000   639.33     8.09
  .001050     311.     311.     311.        2        0        0      .00    33.82    41.91
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 .CNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
  Q       QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
  TIME    VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
  SLOPE   XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


*SECNO 11111.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 11111.00     2.58   644.45   644.45      .00   645.25      .79      .00      .21   647.00
     217.       0.     217.       0.       0.      30.       0.      51.      25.   647.00
     2.38      .00     7.15      .00     .060     .040     .060     .000   641.87    15.24
  .021737       1.       1.       1.       20       11        0      .00    19.52    34.76


*SECNO 11591.000

3301 HV CHANGED MORE THAN HVINS

         CHECK DAM
         SECTION "P1"
     1.00     4.38   646.75      .00      .00   646.83      .08     1.51      .07   648.00
     217.       0.     217.       0.       0.      96.       0.      52.      25.   648.00
     2.44      .00     2.27      .00     .060     .040     .060     .000   642.37     5.13
  .001195     481.     481.     481.        6        0        0      .00    39.75    44.87


*SECNO 11592.000
 11592.00     3.07   646.57      .00      .00   646.90      .33      .00      .08   650.00
     217.       0.     217.       0.       0.      47.       0.      52.      25.   650.00
     2.44      .00     4.64      .00     .060     .040     .060     .000   643.50    12.78
  .006932       1.       1.       1.        2        0        0      .00    24.43    37.22


*SECNO 11662.000
         SOUTH R.O.W LINE OF M-59
 11662.00     1.99   647.19      .00      .00   647.50      .31      .60      .00   648.00
     217.       0.     217.       0.       0.      49.       0.      52.      26.   648.00
     2.44      .00     4.47      .00     .060     .040     .060     .000   645.20     5.71
  .010726      70.      70.      70.        2        0        0      .00    38.58    44.29


*SECNO 11760.000
         SECTION "Q1" DOWNSTREAM END OF EXISTING 60" CULVERT UNDER DOBRY RD
         AND M-59
```

| CNO | DEPTH | CWSEL | CRIWS | WSELK | EG | HV | HL | OLOSS | BANK ELEV |
|---|---|---|---|---|---|---|---|---|---|
| Q | QLOB | QCH | QROB | ALOB | ACH | AROB | VOL | TWA | LEFT/RIGHT |
| TIME | VLOB | VCH | VROB | XNL | XNCH | XNR | WTN | ELMIN | SSTA |
| SLOPE | XLOBL | XLCH | XLOBR | ITRIAL | IDC | ICONT | CORAR | TOPWID | ENDST |
| 11760.00 | 2.37 | 647.97 | .00 | .00 | 648.18 | .21 | .67 | .01 | 651.50 |
| 217. | 0. | 217. | 0. | 0. | 59. | 0. | 52. | 26. | 651.60 |
| 2.45 | .00 | 3.71 | .00 | .060 | .040 | .060 | .000 | 645.60 | 231.98 |
| .004688 | 98. | 98. | 98. | 2 | 0 | 0 | .00 | 32.54 | 264.53 |

THIS RUN EXECUTED 02-21-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PROJECT CONDITIONS MODEL

* SUMMARY PRINTOUT TABLE 150

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2810.000 | .00 | .00 | .00 | 622.90 | 161.00 | 629.00 | .00 | 629.05 | 9.81 | 1.85 | 91.99 | 51.41 |
| 2810.000 | .00 | .00 | .00 | 622.90 | 310.00 | 629.90 | .00 | 629.98 | 14.82 | 2.40 | 158.28 | 80.53 |
| 2810.000 | .00 | .00 | .00 | 622.90 | 360.00 | 630.04 | .00 | 630.14 | 11.01 | 2.70 | 172.30 | 108.50 |
| 2810.000 | .00 | .00 | .00 | 622.90 | 510.00 | 630.40 | .00 | 630.54 | 14.72 | 3.27 | 216.06 | 132.91 |
| 3091.000 | 281.00 | .00 | .00 | 625.70 | 161.00 | 629.54 | .00 | 629.67 | 51.51 | 3.25 | 62.89 | 22.43 |
| 3091.000 | 281.00 | .00 | .00 | 625.70 | 310.00 | 630.53 | .00 | 630.63 | 34.13 | 3.10 | 134.69 | 53.06 |
| 3091.000 | 281.00 | .00 | .00 | 625.70 | 360.00 | 630.60 | .00 | 630.72 | 40.97 | 3.43 | 141.69 | 56.25 |
| 3091.000 | 281.00 | .00 | .00 | 625.70 | 510.00 | 631.08 | .00 | 631.18 | 32.64 | 3.28 | 217.69 | 89.27 |
| 3168.000 | 77.00 | 632.10 | 629.50 | 625.70 | 161.00 | 631.39 | .00 | 631.40 | 1.79 | .80 | 285.20 | 120.25 |
| 3168.000 | 77.00 | 632.10 | 629.50 | 625.70 | 310.00 | 632.79 | .00 | 632.79 | .65 | .56 | 729.32 | 384.89 |
| 3168.000 | 77.00 | 632.10 | 629.50 | 625.70 | 360.00 | 632.89 | .00 | 632.89 | .77 | .61 | 764.38 | 410.83 |
| 3168.000 | 77.00 | 632.10 | 629.50 | 625.70 | 510.00 | 633.11 | .00 | 633.12 | 1.15 | .77 | 848.65 | 475.85 |
| 4020.000 | 852.00 | .00 | .00 | 627.90 | 105.00 | 631.65 | .00 | 631.72 | 12.05 | 2.14 | 48.97 | 30.25 |
| 4020.000 | 852.00 | .00 | .00 | 627.90 | 227.00 | 632.90 | .00 | 632.95 | 6.17 | 2.14 | 171.05 | 91.42 |
| 4020.000 | 852.00 | .00 | .00 | 627.90 | 265.00 | 633.01 | .00 | 633.07 | 7.02 | 2.33 | 185.34 | 100.03 |
| 4020.000 | 852.00 | .00 | .00 | 627.90 | 375.00 | 633.29 | .00 | 633.37 | 9.12 | 2.76 | 222.61 | 124.14 |
| 4173.000 | 153.00 | .00 | .00 | 628.20 | 98.00 | 632.11 | .00 | 632.26 | 108.52 | 3.25 | 36.41 | 9.41 |
| 4173.000 | 153.00 | .00 | .00 | 628.20 | 217.00 | 633.12 | .00 | 633.17 | 21.88 | 1.74 | 133.74 | 46.39 |
| 4173.000 | 153.00 | .00 | .00 | 628.20 | 250.00 | 633.26 | .00 | 633.31 | 21.03 | 1.74 | 149.08 | 54.51 |
| 4173.000 | 153.00 | .00 | .00 | 628.20 | 355.00 | 633.60 | .00 | 633.66 | 21.57 | 1.85 | 186.89 | 76.44 |
| 4217.000 | 44.00 | 633.40 | 632.20 | 628.20 | 98.00 | 633.70 | .00 | 633.71 | 1.36 | .47 | 198.92 | 83.92 |
| 4217.000 | 44.00 | 633.40 | 632.20 | 628.20 | 217.00 | 634.17 | .00 | 634.19 | 3.12 | .76 | 255.46 | 122.80 |
| 4217.000 | 44.00 | 633.40 | 632.20 | 628.20 | 250.00 | 634.26 | .00 | 634.27 | 3.65 | .83 | 266.20 | 130.80 |
| 4217.000 | 44.00 | 633.40 | 632.20 | 628.20 | 355.00 | 634.50 | .00 | 634.52 | 5.37 | 1.04 | 295.24 | 153.21 |
| 4937.000 | 720.00 | .00 | .00 | 630.40 | 77.00 | 633.87 | .00 | 633.90 | 8.86 | 1.54 | 87.69 | 25.87 |
| 4937.000 | 720.00 | .00 | .00 | 630.40 | 187.00 | 634.42 | .00 | 634.44 | 4.91 | 1.44 | 262.50 | 84.40 |
| 4937.000 | 720.00 | .00 | .00 | 630.40 | 217.00 | 634.52 | .00 | 634.54 | 4.62 | 1.43 | 299.63 | 100.94 |
| 4937.000 | 720.00 | .00 | .00 | 630.40 | 305.00 | 634.81 | .00 | 634.82 | 3.86 | 1.38 | 405.30 | 155.25 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4997.000 | 60.00 | .00 | .00 | 630.60 | 77.00 | 633.94 | .00 | 633.99 | 15.11 | 1.96 | 57.84 | 19.81 |
| 4997.000 | 60.00 | .00 | .00 | 630.60 | 187.00 | 634.46 | .00 | 634.49 | 9.64 | 1.94 | 200.70 | 60.23 |
| 4997.000 | 60.00 | .00 | .00 | 630.60 | 217.00 | 634.56 | .00 | 634.58 | 8.81 | 1.90 | 235.03 | 73.12 |
| 4997.000 | 60.00 | .00 | .00 | 630.60 | 305.00 | 634.83 | .00 | 634.85 | 6.38 | 1.72 | 340.51 | 120.73 |
| 5057.000 | 60.00 | .00 | .00 | 630.70 | 60.00 | 634.04 | .00 | 634.08 | 9.12 | 1.53 | 58.17 | 19.87 |
| 5057.000 | 60.00 | .00 | .00 | 630.70 | 150.00 | 634.51 | .00 | 634.54 | 7.49 | 1.70 | 184.97 | 54.80 |
| 5057.000 | 60.00 | .00 | .00 | 630.70 | 163.00 | 634.61 | .00 | 634.63 | 5.92 | 1.54 | 219.14 | 66.98 |
| 5057.000 | 60.00 | .00 | .00 | 630.70 | 190.00 | 634.87 | .00 | 634.88 | 3.10 | 1.18 | 314.49 | 107.94 |
| 5086.000 | 29.00 | .00 | .00 | 630.80 | 60.00 | 634.07 | .00 | 634.11 | 10.92 | 1.66 | 48.45 | 18.16 |
| 5086.000 | 29.00 | .00 | .00 | 630.80 | 150.00 | 634.54 | .00 | 634.57 | 11.16 | 1.82 | 161.27 | 44.90 |
| 5086.000 | 29.00 | .00 | .00 | 630.80 | 163.00 | 634.63 | .00 | 634.65 | 8.00 | 1.76 | 193.26 | 57.62 |
| 5086.000 | 29.00 | .00 | .00 | 630.80 | 190.00 | 634.88 | .00 | 634.89 | 4.02 | 1.32 | 286.22 | 94.80 |
| 5115.000 | 29.00 | .00 | .00 | 630.90 | 60.00 | 634.11 | .00 | 634.15 | 13.11 | 1.80 | 39.95 | 16.57 |
| 5115.000 | 29.00 | .00 | .00 | 630.90 | 150.00 | 634.58 | .00 | 634.62 | 16.85 | 2.20 | 126.68 | 36.54 |
| 5115.000 | 29.00 | .00 | .00 | 630.90 | 163.00 | 634.66 | .00 | 634.69 | 14.30 | 2.06 | 150.61 | 43.11 |
| 5115.000 | 29.00 | .00 | .00 | 630.90 | 190.00 | 634.90 | .00 | 634.92 | 6.50 | 1.65 | 230.95 | 74.54 |
| 5165.000 | 50.00 | .00 | .00 | 630.70 | 60.00 | 634.20 | .00 | 634.24 | 15.74 | 1.48 | 54.08 | 15.12 |
| 5165.000 | 50.00 | .00 | .00 | 630.70 | 150.00 | 634.69 | .00 | 634.71 | 13.83 | 1.56 | 163.01 | 40.33 |
| 5165.000 | 50.00 | .00 | .00 | 630.70 | 163.00 | 634.75 | .00 | 634.77 | 12.58 | 1.50 | 181.76 | 45.95 |
| 165.000 | 50.00 | .00 | .00 | 630.70 | 190.00 | 634.94 | .00 | 634.96 | 7.99 | 1.26 | 241.86 | 67.23 |
| 5205.000 | 40.00 | 634.90 | 634.50 | 630.70 | 60.00 | 634.30 | 632.63 | 634.42 | 44.01 | 2.75 | 21.85 | 9.04 |
| 5205.000 | 40.00 | 634.90 | 634.50 | 630.70 | 150.00 | 635.18 | .00 | 635.18 | 2.27 | .71 | 317.74 | 99.59 |
| 5205.000 | 40.00 | 634.90 | 634.50 | 630.70 | 163.00 | 635.22 | .00 | 635.22 | 2.37 | .73 | 331.40 | 105.99 |
| 5205.000 | 40.00 | 634.90 | 634.50 | 630.70 | 190.00 | 635.31 | .00 | 635.31 | 2.49 | .77 | 360.76 | 120.30 |
| 5286.000 | 81.00 | .00 | .00 | 630.80 | 60.00 | 634.57 | .00 | 634.61 | 9.56 | 1.50 | 40.10 | 19.41 |
| 5286.000 | 81.00 | .00 | .00 | 630.80 | 150.00 | 635.26 | .00 | 635.37 | 23.52 | 2.67 | 56.69 | 30.93 |
| 5286.000 | 81.00 | .00 | .00 | 630.80 | 163.00 | 635.31 | .00 | 635.44 | 26.11 | 2.84 | 58.09 | 31.90 |
| 5286.000 | 81.00 | .00 | .00 | 630.80 | 190.00 | 635.41 | .00 | 635.57 | 31.67 | 3.18 | 60.81 | 33.76 |
| 5324.000 | 38.00 | .00 | .00 | 631.38 | 60.00 | 634.60 | .00 | 634.66 | 16.86 | 2.02 | 29.76 | 14.61 |
| 5324.000 | 38.00 | .00 | .00 | 631.38 | 150.00 | 635.34 | .00 | 635.48 | 27.64 | 3.13 | 58.82 | 28.53 |
| 5324.000 | 38.00 | .00 | .00 | 631.38 | 163.00 | 635.40 | .00 | 635.55 | 29.38 | 3.27 | 61.99 | 30.07 |
| 5324.000 | 38.00 | .00 | .00 | 631.38 | 190.00 | 635.52 | .00 | 635.69 | 32.01 | 3.51 | 68.92 | 33.58 |
| 5435.000 | 111.00 | .00 | .00 | 630.93 | 58.00 | 634.70 | .00 | 634.70 | 1.35 | .71 | 90.43 | 49.83 |
| 5435.000 | 111.00 | .00 | .00 | 630.93 | 150.00 | 635.54 | .00 | 635.56 | 2.53 | 1.17 | 158.83 | 94.37 |
| 5435.000 | 111.00 | .00 | .00 | 630.93 | 163.00 | 635.61 | .00 | 635.63 | 2.69 | 1.22 | 165.42 | 99.30 |
| 5435.000 | 111.00 | .00 | .00 | 630.93 | 190.00 | 635.76 | .00 | 635.78 | 3.00 | 1.33 | 179.22 | 109.77 |
| 5502.000 | 67.00 | .00 | .00 | 631.44 | 58.00 | 634.71 | .00 | 634.71 | 1.18 | .64 | 90.75 | 53.38 |
| 5502.000 | 67.00 | .00 | .00 | 631.44 | 150.00 | 635.56 | .00 | 635.57 | 2.39 | 1.09 | 159.73 | 96.93 |
| 5502.000 | 67.00 | .00 | .00 | 631.44 | 163.00 | 635.63 | .00 | 635.65 | 2.56 | 1.14 | 167.72 | 101.93 |
| 5502.000 | 67.00 | .00 | .00 | 631.44 | 190.00 | 635.78 | .00 | 635.80 | 2.84 | 1.23 | 184.59 | 112.69 |

| SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 58.00 | 634.70 | .00 | 634.74 | 7.14 | 1.59 | 36.55 | 21.70 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 150.00 | 635.51 | .00 | 635.67 | 24.55 | 3.25 | 46.17 | 30.27 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 163.00 | 635.57 | .00 | 635.76 | 27.65 | 3.47 | 46.96 | 31.00 |
| 5545.000 | 43.00 | .00 | .00 | 631.66 | 190.00 | 635.70 | .00 | 635.94 | 34.09 | 3.92 | 48.52 | 32.54 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 58.00 | 634.76 | .00 | 634.77 | 1.08 | .62 | 93.85 | 55.84 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 150.00 | 635.76 | .00 | 635.77 | 3.04 | 1.05 | 142.77 | 86.03 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 163.00 | 635.86 | .00 | 635.88 | 3.57 | 1.11 | 146.50 | 86.33 |
| 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 190.00 | 636.11 | .00 | 636.13 | 2.37 | 1.17 | 162.82 | 123.54 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 58.00 | 634.78 | .00 | 634.78 | 1.70 | .73 | 79.65 | 44.53 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 150.00 | 635.79 | .00 | 635.81 | 2.75 | 1.14 | 146.88 | 90.37 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 163.00 | 635.89 | .00 | 635.91 | 2.82 | 1.18 | 157.15 | 96.99 |
| 5737.000 | 104.00 | .00 | .00 | 631.78 | 190.00 | 636.13 | .00 | 636.16 | 2.79 | 1.23 | 182.29 | 113.73 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 58.00 | 634.73 | .00 | 634.84 | 24.00 | 2.59 | 22.35 | 11.84 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 150.00 | 635.68 | .00 | 635.91 | 60.95 | 3.93 | 45.66 | 19.21 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 163.00 | 635.79 | .00 | 636.02 | 58.35 | 3.95 | 51.91 | 21.34 |
| 5792.000 | 55.00 | .00 | .00 | 632.00 | 190.00 | 636.06 | .00 | 636.25 | 47.31 | 3.78 | 71.02 | 27.62 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 133.00 | 634.85 | .00 | 634.85 | .04 | .14 | 976.17 | 690.04 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 187.00 | 635.93 | .00 | 635.93 | .02 | .13 | 1390.25 | 1203.41 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 217.00 | 636.04 | .00 | 636.04 | .03 | .15 | 1431.40 | 1259.54 |
| 5965.000 | 173.00 | .00 | .00 | 632.00 | 305.00 | 636.27 | .00 | 636.27 | .05 | .20 | 1521.40 | 1385.16 |
| 6130.000 | 165.00 | .00 | .00 | 632.00 | 133.00 | 634.85 | .00 | 634.85 | .05 | .17 | 805.91 | 575.59 |
| 6130.000 | 165.00 | .00 | .00 | 632.00 | 187.00 | 635.93 | .00 | 635.93 | .04 | .16 | 1141.49 | 996.39 |
| 6130.000 | 165.00 | .00 | .00 | 632.00 | 217.00 | 636.04 | .00 | 636.04 | .04 | .18 | 1174.91 | 1042.38 |
| 6130.000 | 165.00 | .00 | .00 | 632.00 | 305.00 | 636.27 | .00 | 636.27 | .07 | .24 | 1247.85 | 1145.09 |
| 6250.000 | 120.00 | .00 | .00 | 632.00 | 133.00 | 634.85 | .00 | 634.85 | .13 | .25 | 531.23 | 371.86 |
| 6250.000 | 120.00 | .00 | .00 | 632.00 | 187.00 | 635.93 | .00 | 635.94 | .08 | .25 | 762.50 | 644.79 |
| 6250.000 | 120.00 | .00 | .00 | 632.00 | 217.00 | 636.04 | .00 | 636.04 | .10 | .28 | 785.92 | 674.81 |
| 6250.000 | 120.00 | .00 | .00 | 632.00 | 305.00 | 636.27 | .00 | 636.27 | .17 | .36 | 837.37 | 742.11 |
| 6500.000 | 250.00 | .00 | .00 | 632.00 | 133.00 | 634.85 | .00 | 634.85 | .21 | .32 | 419.15 | 291.62 |
| 6500.000 | 250.00 | .00 | .00 | 632.00 | 187.00 | 635.94 | .00 | 635.94 | .14 | .31 | 602.60 | 508.70 |
| 6500.000 | 250.00 | .00 | .00 | 632.00 | 217.00 | 636.04 | .00 | 636.04 | .17 | .35 | 621.20 | 532.70 |
| 6500.000 | 250.00 | .00 | .00 | 632.00 | 305.00 | 636.27 | .00 | 636.28 | .27 | .46 | 662.01 | 586.53 |
| 6685.000 | 185.00 | .00 | .00 | 632.00 | 133.00 | 634.86 | .00 | 634.86 | .06 | .17 | 762.45 | 544.05 |
| 6685.000 | 185.00 | .00 | .00 | 632.00 | 187.00 | 635.94 | .00 | 635.94 | .04 | .17 | 1079.98 | 940.33 |
| 6685.000 | 185.00 | .00 | .00 | 632.00 | 217.00 | 636.05 | .00 | 636.05 | .05 | .20 | 1112.00 | 984.13 |
| 6685.000 | 185.00 | .00 | .00 | 632.00 | 305.00 | 636.28 | .00 | 636.28 | .08 | .26 | 1182.36 | 1082.66 |
| 6920.000 | 235.00 | .00 | .00 | 632.00 | 133.00 | 634.86 | .00 | 634.86 | .56 | .50 | 266.66 | 177.12 |
| 6920.000 | 235.00 | .00 | .00 | 632.00 | 187.00 | 635.94 | .00 | 635.94 | .36 | .47 | 395.45 | 311.96 |
| 6920.000 | 235.00 | .00 | .00 | 632.00 | 217.00 | 636.05 | .00 | 636.05 | .44 | .53 | 409.14 | 326.29 |
| 6920.000 | 235.00 | .00 | .00 | 632.00 | 305.00 | 636.28 | .00 | 636.28 | .73 | .69 | 440.20 | 356.29 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 133.00 | 635.27 | .00 | 635.31 | 5.11 | 1.73 | 77.02 | 58.83 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 187.00 | 636.75 | .00 | 636.80 | 4.51 | 1.83 | 102.42 | 88.06 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 217.00 | 637.14 | .00 | 637.20 | 5.10 | 1.99 | 109.03 | 96.06 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 305.00 | 638.43 | .00 | 638.51 | 6.08 | 2.33 | 131.17 | 123.67 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 133.00 | 635.24 | .00 | 635.33 | 13.77 | 2.37 | 56.21 | 35.84 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 187.00 | 636.73 | .00 | 636.81 | 8.00 | 2.20 | 84.96 | 66.13 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 217.00 | 637.12 | .00 | 637.20 | 8.46 | 2.35 | 92.34 | 74.63 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 305.00 | 638.41 | .00 | 638.52 | 8.49 | 2.60 | 117.08 | 104.66 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 133.00 | 635.41 | .00 | 635.63 | 57.40 | 3.76 | 35.34 | 17.55 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 187.00 | 636.83 | .00 | 636.93 | 16.01 | 2.55 | 73.36 | 46.73 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 217.00 | 637.22 | .00 | 637.32 | 13.61 | 2.52 | 86.81 | 58.81 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 305.00 | 638.55 | .00 | 638.59 | 4.45 | 1.85 | 300.65 | 144.56 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 133.00 | 637.09 | .00 | 637.16 | 13.78 | 2.16 | 61.45 | 35.82 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 187.00 | 637.72 | .00 | 637.80 | 12.63 | 2.28 | 81.92 | 52.61 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 217.00 | 638.02 | .00 | 638.10 | 11.95 | 2.34 | 97.10 | 62.77 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 305.00 | 638.85 | .00 | 638.90 | 5.82 | 1.96 | 270.27 | 126.43 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 133.00 | 637.99 | .00 | 638.06 | 13.63 | 2.07 | 64.25 | 36.03 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 187.00 | 638.56 | .00 | 638.63 | 12.77 | 2.21 | 84.83 | 52.33 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 217.00 | 638.81 | .00 | 638.89 | 12.12 | 2.28 | 100.52 | 62.33 |
| | 632.000 | 655.00 | .00 | .00 | 634.60 | 305.00 | 639.33 | .00 | 639.42 | 10.99 | 2.46 | 162.92 | 91.99 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 133.00 | 638.29 | .00 | 638.38 | 18.08 | 2.46 | 54.06 | 31.28 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 187.00 | 638.83 | .00 | 638.94 | 17.96 | 2.67 | 69.92 | 44.13 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 217.00 | 639.07 | .00 | 639.20 | 18.38 | 2.80 | 77.47 | 50.61 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 305.00 | 639.58 | .00 | 639.74 | 21.42 | 3.23 | 94.39 | 65.91 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 133.00 | 638.61 | .00 | 638.69 | 18.67 | 2.32 | 57.32 | 30.78 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 187.00 | 639.15 | .00 | 639.24 | 17.23 | 2.46 | 76.08 | 45.05 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 217.00 | 639.40 | .00 | 639.50 | 16.93 | 2.54 | 85.55 | 52.74 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 305.00 | 639.95 | .00 | 640.07 | 17.65 | 2.81 | 108.56 | 72.60 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 133.00 | 639.98 | .00 | 640.11 | 30.39 | 2.89 | 46.02 | 24.13 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 187.00 | 640.45 | .00 | 640.60 | 30.29 | 3.16 | 59.23 | 33.98 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 217.00 | 640.68 | .00 | 640.84 | 30.12 | 3.27 | 66.26 | 39.54 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 305.00 | 641.25 | .00 | 641.45 | 29.82 | 3.56 | 85.59 | 55.85 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 133.00 | 641.06 | .00 | 641.16 | 22.81 | 2.60 | 51.06 | 27.85 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 187.00 | 641.54 | .00 | 641.66 | 23.28 | 2.87 | 65.24 | 38.76 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 217.00 | 641.77 | .00 | 641.90 | 23.47 | 2.99 | 72.64 | 44.80 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 305.00 | 642.35 | .00 | 642.51 | 23.86 | 3.28 | 92.99 | 62.44 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 133.00 | 642.02 | .00 | 642.14 | 26.09 | 2.78 | 47.88 | 26.04 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 187.00 | 642.51 | .00 | 642.66 | 26.23 | 3.04 | 61.50 | 36.51 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 217.00 | 642.75 | .00 | 642.90 | 26.31 | 3.16 | 68.60 | 42.31 |
| | 400.000 | 400.00 | .00 | .00 | 639.13 | 305.00 | 643.33 | .00 | 643.52 | 25.98 | 3.48 | 88.19 | 59.84 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 133.00 | 643.03 | .00 | 643.14 | 24.01 | 2.67 | 49.74 | 27.14 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 187.00 | 643.53 | .00 | 643.66 | 23.96 | 2.92 | 64.01 | 38.20 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 217.00 | 643.76 | .00 | 643.91 | 23.95 | 3.04 | 71.46 | 44.34 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 305.00 | 644.33 | .00 | 644.50 | 23.50 | 3.34 | 95.90 | 62.91 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 133.00 | 643.52 | .00 | 643.58 | 8.92 | 1.92 | 69.30 | 44.53 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 187.00 | 644.05 | .00 | 644.12 | 10.02 | 2.18 | 85.63 | 59.09 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 217.00 | 644.30 | .00 | 644.39 | 10.50 | 2.31 | 94.03 | 66.95 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 305.00 | 644.91 | .00 | 645.02 | 11.94 | 2.64 | 115.64 | 88.27 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 133.00 | 643.91 | 643.91 | 644.55 | 228.41 | 6.42 | 20.72 | 8.80 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 187.00 | 644.29 | 644.29 | 645.02 | 216.55 | 6.87 | 27.21 | 12.71 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 217.00 | 644.45 | 644.45 | 645.25 | 217.37 | 7.15 | 30.35 | 14.72 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 305.00 | 644.91 | 644.91 | 645.82 | 206.82 | 7.65 | 39.84 | 21.21 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 133.00 | 645.99 | .00 | 646.05 | 11.14 | 1.95 | 68.13 | 39.86 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 187.00 | 646.50 | .00 | 646.58 | 11.78 | 2.17 | 86.08 | 54.48 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 217.00 | 646.75 | .00 | 646.83 | 11.95 | 2.27 | 95.71 | 62.77 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 305.00 | 647.35 | .00 | 647.45 | 12.53 | 2.51 | 121.34 | 86.17 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 133.00 | 645.82 | .00 | 646.12 | 85.09 | 4.41 | 30.19 | 14.42 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 187.00 | 646.33 | .00 | 646.65 | 72.88 | 4.55 | 41.10 | 21.90 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 217.00 | 646.57 | .00 | 646.90 | 69.32 | 4.64 | 46.75 | 26.06 |
| | 592.000 | 1.00 | .00 | .00 | 643.50 | 305.00 | 647.16 | .00 | 647.53 | 63.29 | 4.90 | 62.26 | 38.34 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 133.00 | 646.62 | .00 | 646.95 | 170.67 | 4.65 | 28.60 | 10.18 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 187.00 | 646.99 | .00 | 647.32 | 127.35 | 4.57 | 40.87 | 16.57 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 217.00 | 647.19 | .00 | 647.50 | 107.26 | 4.47 | 48.59 | 20.95 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 305.00 | 647.74 | .00 | 648.03 | 75.80 | 4.29 | 71.08 | 35.03 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 133.00 | 647.52 | .00 | 647.66 | 38.03 | 2.97 | 44.80 | 21.57 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 187.00 | 647.83 | .00 | 648.01 | 43.83 | 3.46 | 54.01 | 28.25 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 217.00 | 647.97 | .00 | 648.18 | 46.88 | 3.71 | 58.53 | 31.69 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 305.00 | 648.36 | .00 | 648.64 | 51.92 | 4.25 | 71.74 | 42.33 |

:CT CONDITIONS MODEL

SUMMARY PRINTOUT TABLE 150

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 2810.000 | 161.00 | 629.00 | .00 | .00 | .00 | 50.93 | .00 |
| 2810.000 | 310.00 | 629.90 | .90 | .00 | .00 | 96.38 | .00 |
| 2810.000 | 360.00 | 630.04 | .14 | .00 | .00 | 105.08 | .00 |
| 2810.000 | 510.00 | 630.40 | .36 | .00 | .00 | 137.98 | .00 |
| 3091.000 | 161.00 | 629.54 | .00 | .54 | .00 | 52.77 | 281.00 |
| 3091.000 | 310.00 | 630.53 | .99 | .63 | .00 | 98.96 | 281.00 |
| 3091.000 | 360.00 | 630.60 | .07 | .56 | .00 | 102.95 | 281.00 |
| 3091.000 | 510.00 | 631.08 | .49 | .68 | .00 | 196.72 | 281.00 |
| 3168.000 | 161.00 | 631.39 | .00 | 1.85 | .00 | 233.93 | 77.00 |
| 3168.000 | 310.00 | 632.79 | 1.40 | 2.26 | .00 | 364.03 | 77.00 |
| 3168.000 | 360.00 | 632.89 | .10 | 2.29 | .00 | 367.41 | 77.00 |
| 3168.000 | 510.00 | 633.11 | .22 | 2.03 | .00 | 375.43 | 77.00 |
| 4020.000 | 105.00 | 631.65 | .00 | .26 | .00 | 18.81 | 852.00 |
| 4020.000 | 227.00 | 632.90 | 1.24 | .10 | .00 | 127.51 | 852.00 |
| 4020.000 | 265.00 | 633.01 | .11 | .12 | .00 | 129.68 | 852.00 |
| '020.000 | 375.00 | 633.29 | .28 | .18 | .00 | 135.18 | 852.00 |
| 4173.000 | 98.00 | 632.11 | .00 | .46 | .00 | 74.42 | 153.00 |
| 4173.000 | 217.00 | 633.12 | 1.01 | .23 | .00 | 106.17 | 153.00 |
| 4173.000 | 250.00 | 633.26 | .14 | .25 | .00 | 108.57 | 153.00 |
| 4173.000 | 355.00 | 633.60 | .34 | .31 | .00 | 114.27 | 153.00 |
| 4217.000 | 98.00 | 633.70 | .00 | 1.59 | .00 | 116.02 | 44.00 |
| 4217.000 | 217.00 | 634.17 | .47 | 1.05 | .00 | 123.36 | 44.00 |
| 4217.000 | 250.00 | 634.26 | .09 | 1.00 | .00 | 124.64 | 44.00 |
| 4217.000 | 355.00 | 634.50 | .24 | .89 | .00 | 128.02 | 44.00 |
| 4937.000 | 77.00 | 633.87 | .00 | .17 | .00 | 239.08 | 720.00 |
| 4937.000 | 187.00 | 634.42 | .55 | .25 | .00 | 365.31 | 720.00 |
| 4937.000 | 217.00 | 634.52 | .10 | .26 | .00 | 368.62 | 720.00 |
| 4937.000 | 305.00 | 634.81 | .28 | .31 | .00 | 377.91 | 720.00 |
| 4997.000 | 77.00 | 633.94 | .00 | .07 | .00 | 170.60 | 60.00 |
| 4997.000 | 187.00 | 634.46 | .52 | .04 | .00 | 359.71 | 60.00 |
| 4997.000 | 217.00 | 634.56 | .10 | .04 | .00 | 362.83 | 60.00 |
| 4997.000 | 305.00 | 634.83 | .28 | .03 | .00 | 372.24 | 60.00 |
| 5057.000 | 60.00 | 634.04 | .00 | .10 | .00 | 171.79 | 60.00 |
| 5057.000 | 150.00 | 634.51 | .47 | .06 | .00 | 358.28 | 60.00 |
| 5057.000 | 163.00 | 634.61 | .09 | .05 | .00 | 361.39 | 60.00 |
| 5057.000 | 190.00 | 634.87 | .26 | .04 | .00 | 369.94 | 60.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 5086.000 | 60.00 | 634.07 | .00 | .03 | .00 | 131.50 | 29.00 |
| 5086.000 | 150.00 | 634.54 | .47 | .02 | .00 | 335.54 | 29.00 |
| 5086.000 | 163.00 | 634.63 | .09 | .02 | .00 | 359.04 | 29.00 |
| 5086.000 | 190.00 | 634.88 | .25 | .01 | .00 | 367.43 | 29.00 |
| 5115.000 | 60.00 | 634.11 | .00 | .03 | .00 | 92.26 | 29.00 |
| 5115.000 | 150.00 | 634.58 | .47 | .04 | .00 | 277.93 | 29.00 |
| 5115.000 | 163.00 | 634.66 | .08 | .03 | .00 | 308.67 | 29.00 |
| 5115.000 | 190.00 | 634.90 | .24 | .01 | .00 | 334.34 | 29.00 |
| 5165.000 | 60.00 | 634.20 | .00 | .10 | .00 | 136.36 | 50.00 |
| 5165.000 | 150.00 | 634.69 | .49 | .11 | .00 | 308.72 | 50.00 |
| 5165.000 | 163.00 | 634.75 | .06 | .09 | .00 | 311.87 | 50.00 |
| 5165.000 | 190.00 | 634.94 | .19 | .05 | .00 | 316.89 | 50.00 |
| 5205.000 | 60.00 | 634.30 | .00 | .10 | .00 | 173.78 | 40.00 |
| 5205.000 | 150.00 | 635.18 | .87 | .48 | .00 | 324.97 | 40.00 |
| 5205.000 | 163.00 | 635.22 | .04 | .47 | .00 | 326.40 | 40.00 |
| 5205.000 | 190.00 | 635.31 | .09 | .36 | .00 | 329.46 | 40.00 |
| 5286.000 | 60.00 | 634.57 | .00 | .27 | .00 | 21.27 | 81.00 |
| 5286.000 | 150.00 | 635.26 | .69 | .09 | .00 | 28.94 | 81.00 |
| 5286.000 | 163.00 | 635.31 | .05 | .09 | .00 | 29.89 | 81.00 |
| 5286.000 | 190.00 | 635.41 | .10 | .10 | .00 | 31.65 | 81.00 |
| 5324.000 | 60.00 | 634.60 | .00 | .03 | .00 | 18.50 | 38.00 |
| 5324.000 | 150.00 | 635.34 | .74 | .08 | .00 | 53.81 | 38.00 |
| 5324.000 | 163.00 | 635.40 | .06 | .09 | .00 | 54.92 | 38.00 |
| 5324.000 | 190.00 | 635.52 | .12 | .11 | .00 | 57.89 | 38.00 |
| 5435.000 | 58.00 | 634.70 | .00 | .10 | .00 | 72.62 | 111.00 |
| 5435.000 | 150.00 | 635.54 | .84 | .20 | .00 | 90.03 | 111.00 |
| 5435.000 | 163.00 | 635.61 | .07 | .22 | .00 | 91.64 | 111.00 |
| 5435.000 | 190.00 | 635.76 | .15 | .24 | .00 | 94.94 | 111.00 |
| 5502.000 | 58.00 | 634.71 | .00 | .01 | .00 | 44.94 | 67.00 |
| 5502.000 | 150.00 | 635.56 | .85 | .02 | .00 | 106.48 | 67.00 |
| 5502.000 | 163.00 | 635.63 | .07 | .02 | .00 | 109.28 | 67.00 |
| 5502.000 | 190.00 | 635.78 | .15 | .02 | .00 | 115.96 | 67.00 |
| 5545.000 | 58.00 | 634.70 | .00 | -.01 | .00 | 12.00 | 43.00 |
| 5545.000 | 150.00 | 635.51 | .81 | -.05 | .00 | 12.00 | 43.00 |
| 5545.000 | 163.00 | 635.57 | .07 | -.06 | .00 | 12.00 | 43.00 |
| 5545.000 | 190.00 | 635.70 | .13 | -.08 | .00 | 12.00 | 43.00 |
| 5633.000 | 58.00 | 634.76 | .00 | .06 | .00 | 45.69 | 88.00 |
| 5633.000 | 150.00 | 635.76 | .99 | .25 | .00 | 53.49 | 88.00 |
| 5633.000 | 163.00 | 635.86 | .10 | .29 | .00 | 54.05 | 88.00 |
| 5633.000 | 190.00 | 636.11 | .25 | .40 | .00 | 55.00 | 88.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 5737.000 | 58.00 | 634.78 | .00 | .01 | .00 | 42.60 | 104.00 |
| | 5737.000 | 150.00 | 635.79 | 1.01 | .03 | .00 | 96.76 | 104.00 |
| | 5737.000 | 163.00 | 635.89 | .11 | .03 | .00 | 99.85 | 104.00 |
| | 5737.000 | 190.00 | 636.13 | .24 | .03 | .00 | 107.06 | 104.00 |
| | 5792.000 | 58.00 | 634.73 | .00 | -.04 | .00 | 8.87 | 55.00 |
| | 5792.000 | 150.00 | 635.68 | .95 | -.11 | .00 | 54.05 | 55.00 |
| | 5792.000 | 163.00 | 635.79 | .11 | -.10 | .00 | 60.36 | 55.00 |
| | 5792.000 | 190.00 | 636.06 | .27 | -.08 | .00 | 91.79 | 55.00 |
| | 5965.000 | 133.00 | 634.85 | .00 | .12 | .00 | 371.64 | 173.00 |
| | 5965.000 | 187.00 | 635.93 | 1.09 | .25 | .00 | 390.46 | 173.00 |
| | 5965.000 | 217.00 | 636.04 | .11 | .25 | .00 | 392.23 | 173.00 |
| | 5965.000 | 305.00 | 636.27 | .23 | .21 | .00 | 396.08 | 173.00 |
| | 6130.000 | 133.00 | 634.85 | .00 | .00 | .00 | 301.91 | 165.00 |
| | 6130.000 | 187.00 | 635.93 | 1.09 | .00 | .00 | 316.35 | 165.00 |
| | 6130.000 | 217.00 | 636.04 | .11 | .00 | .00 | 317.76 | 165.00 |
| | 6130.000 | 305.00 | 636.27 | .23 | .00 | .00 | 320.80 | 165.00 |
| | 6250.000 | 133.00 | 634.85 | .00 | .00 | .00 | 204.97 | 120.00 |
| | 6250.000 | 187.00 | 635.93 | 1.09 | .00 | .00 | 221.46 | 120.00 |
| | 6250.000 | 217.00 | 636.04 | .11 | .00 | .00 | 223.09 | 120.00 |
| | 6250.000 | 305.00 | 636.27 | .23 | .00 | .00 | 226.65 | 120.00 |
| | 6500.000 | 133.00 | 634.85 | .00 | .00 | .00 | 163.04 | 250.00 |
| | 6500.000 | 187.00 | 635.94 | 1.08 | .00 | .00 | 175.23 | 250.00 |
| | 6500.000 | 217.00 | 636.04 | .11 | .00 | .00 | 176.42 | 250.00 |
| | 6500.000 | 305.00 | 636.27 | .23 | .00 | .00 | 179.00 | 250.00 |
| | 6685.000 | 133.00 | 634.86 | .00 | .00 | .00 | 286.01 | 185.00 |
| | 6685.000 | 187.00 | 635.94 | 1.08 | .00 | .00 | 300.42 | 185.00 |
| | 6685.000 | 217.00 | 636.05 | .11 | .00 | .00 | 301.83 | 185.00 |
| | 6685.000 | 305.00 | 636.28 | .23 | .00 | .00 | 304.92 | 185.00 |
| | 6920.000 | 133.00 | 634.86 | .00 | .00 | .00 | 111.02 | 235.00 |
| | 6920.000 | 187.00 | 635.94 | 1.08 | .00 | .00 | 127.11 | 235.00 |
| | 6920.000 | 217.00 | 636.05 | .11 | .00 | .00 | 129.38 | 235.00 |
| | 6920.000 | 305.00 | 636.28 | .23 | .00 | .00 | 136.17 | 235.00 |
| * | 7259.000 | 133.00 | 635.27 | .00 | .41 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 187.00 | 636.75 | 1.48 | .81 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 217.00 | 637.14 | .39 | 1.09 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 305.00 | 638.43 | 1.29 | 2.15 | .00 | 17.13 | 339.00 |
| | 7260.000 | 133.00 | 635.24 | .00 | -.03 | .00 | 19.13 | 1.00 |
| | 7260.000 | 187.00 | 636.73 | 1.49 | -.02 | .00 | 19.13 | 1.00 |
| | 7260.000 | 217.00 | 637.12 | .39 | -.02 | .00 | 19.13 | 1.00 |
| | 7260.000 | 305.00 | 638.41 | 1.29 | -.01 | .00 | 19.13 | 1.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 7367.000 | 133.00 | 635.41 | .00 | .17 | .00 | 22.06 | 107.00 |
| 7367.000 | 187.00 | 636.83 | 1.42 | .10 | .00 | 31.46 | 107.00 |
| 7367.000 | 217.00 | 637.22 | .39 | .10 | .00 | 39.94 | 107.00 |
| 7367.000 | 305.00 | 638.55 | 1.32 | .13 | .00 | 367.13 | 107.00 |
| 7977.000 | 133.00 | 637.09 | .00 | 1.68 | .00 | 30.24 | 610.00 |
| 7977.000 | 187.00 | 637.72 | .63 | .89 | .00 | 34.84 | 610.00 |
| 7977.000 | 217.00 | 638.02 | .30 | .79 | .00 | 91.39 | 610.00 |
| 7977.000 | 305.00 | 638.85 | .83 | .30 | .00 | 309.17 | 610.00 |
| 8632.000 | 133.00 | 637.99 | .00 | .90 | .00 | 33.85 | 655.00 |
| 8632.000 | 187.00 | 638.56 | .56 | .84 | .00 | 45.63 | 655.00 |
| 8632.000 | 217.00 | 638.81 | .25 | .79 | .00 | 78.68 | 655.00 |
| 8632.000 | 305.00 | 639.33 | .52 | .48 | .00 | 166.00 | 655.00 |
| 8832.000 | 133.00 | 638.29 | .00 | .29 | .00 | 26.75 | 200.00 |
| 8832.000 | 187.00 | 638.83 | .55 | .28 | .00 | 30.34 | 200.00 |
| 8832.000 | 217.00 | 639.07 | .24 | .27 | .00 | 31.91 | 200.00 |
| 8832.000 | 305.00 | 639.58 | .50 | .25 | .00 | 35.17 | 200.00 |
| 9000.000 | 133.00 | 638.61 | .00 | .32 | .00 | 32.32 | 168.00 |
| 9000.000 | 187.00 | 639.15 | .54 | .31 | .00 | 37.02 | 168.00 |
| 9000.000 | 217.00 | 639.40 | .25 | .32 | .00 | 39.18 | 168.00 |
| 000.000 | 305.00 | 639.95 | .55 | .37 | .00 | 43.98 | 168.00 |
| 9600.000 | 133.00 | 639.98 | .00 | 1.38 | .00 | 26.72 | 600.00 |
| 9600.000 | 187.00 | 640.45 | .47 | 1.30 | .00 | 30.01 | 600.00 |
| 9600.000 | 217.00 | 640.68 | .23 | 1.28 | .00 | 31.62 | 600.00 |
| 9600.000 | 305.00 | 641.25 | .57 | 1.30 | .00 | 35.67 | 600.00 |
| 10000.000 | 133.00 | 641.06 | .00 | 1.07 | .00 | 27.90 | 400.00 |
| 10000.000 | 187.00 | 641.54 | .48 | 1.09 | .00 | 31.32 | 400.00 |
| 10000.000 | 217.00 | 641.77 | .23 | 1.09 | .00 | 32.97 | 400.00 |
| 10000.000 | 305.00 | 642.35 | .58 | 1.10 | .00 | 37.12 | 400.00 |
| 10400.000 | 133.00 | 642.02 | .00 | .96 | .00 | 26.13 | 400.00 |
| 10400.000 | 187.00 | 642.51 | .49 | .98 | .00 | 29.37 | 400.00 |
| 10400.000 | 217.00 | 642.75 | .24 | .98 | .00 | 30.93 | 400.00 |
| 10400.000 | 305.00 | 643.33 | .58 | .98 | .00 | 39.50 | 400.00 |
| 10800.000 | 133.00 | 643.03 | .00 | 1.01 | .00 | 27.12 | 400.00 |
| 10800.000 | 187.00 | 643.53 | .49 | 1.01 | .00 | 30.46 | 400.00 |
| 10800.000 | 217.00 | 643.76 | .24 | 1.02 | .00 | 32.07 | 400.00 |
| 10800.000 | 305.00 | 644.33 | .57 | 1.01 | .00 | 66.06 | 400.00 |
| 11110.000 | 133.00 | 643.52 | .00 | .49 | .00 | 29.11 | 311.00 |
| 11110.000 | 187.00 | 644.05 | .53 | .52 | .00 | 32.30 | 311.00 |
| 11110.000 | 217.00 | 644.30 | .25 | .54 | .00 | 33.82 | 311.00 |
| '110.000 | 305.00 | 644.91 | .61 | .58 | .00 | 37.46 | 311.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| * | 11111.000 | 133.00 | 643.91 | .00 | .39 | .00 | 16.28 | 1.00 |
| * | 11111.000 | 187.00 | 644.29 | .37 | .24 | .00 | 18.52 | 1.00 |
| * | 11111.000 | 217.00 | 644.45 | .17 | .15 | .00 | 19.52 | 1.00 |
| * | 11111.000 | 305.00 | 644.91 | .45 | .00 | .00 | 22.25 | 1.00 |
| | 11591.000 | 133.00 | 645.99 | .00 | 2.08 | .00 | 33.61 | 481.00 |
| | 11591.000 | 187.00 | 646.50 | .51 | 2.22 | .00 | 37.72 | 481.00 |
| | 11591.000 | 217.00 | 646.75 | .24 | 2.29 | .00 | 39.75 | 481.00 |
| | 11591.000 | 305.00 | 647.35 | .61 | 2.45 | .00 | 44.71 | 481.00 |
| | 11592.000 | 133.00 | 645.82 | .00 | -.17 | .00 | 19.96 | 1.00 |
| | 11592.000 | 187.00 | 646.33 | .51 | -.17 | .00 | 23.01 | 1.00 |
| | 11592.000 | 217.00 | 646.57 | .24 | -.18 | .00 | 24.43 | 1.00 |
| | 11592.000 | 305.00 | 647.16 | .59 | -.19 | .00 | 27.98 | 1.00 |
| | 11662.000 | 133.00 | 646.62 | .00 | .79 | .00 | 30.28 | 70.00 |
| | 11662.000 | 187.00 | 646.99 | .37 | .66 | .00 | 35.61 | 70.00 |
| | 11662.000 | 217.00 | 647.19 | .20 | .62 | .00 | 38.58 | 70.00 |
| | 11662.000 | 305.00 | 647.74 | .55 | .58 | .00 | 46.16 | 70.00 |
| | 11760.000 | 133.00 | 647.52 | .00 | .91 | .00 | 29.78 | 98.00 |
| | 11760.000 | 187.00 | 647.83 | .30 | .84 | .00 | 31.66 | 98.00 |
| | 11760.000 | 217.00 | 647.97 | .14 | .77 | .00 | 32.54 | 98.00 |
| | 760.000 | 305.00 | 648.36 | .39 | .62 | .00 | 34.99 | 98.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 4  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

THIS RUN EXECUTED 02-21-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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1) COUNTY: Macomb ~~County~~

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Chrissman Drain

4) DOCUMENT TYPE: CLOMR- Hydrology

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****************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****************

JOB TR-20                    FULLPRINT          SUMMARY   NOPLOTS
TITLE 001 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK      (FEB 96)
TITLE     INCLUDES GREENS DRAIN ENCLOSURE                       (CRISLOMR.DAT)
 2 XSECTN   130        1.0
 8                     637.33      0.0         0.0
 8                     638.33      14.4        7.
 8                     639.33      60.17       20.
 8                     640.33      148.0       39.
 8                     641.33      286.67      64.
 8                     642.33      487.1       95.
 9 ENDTBL
 2 XSECTN   120        1.0
 8                     632.3       0.0         0.0
 8                     633.3       12.47       5.69
 8                     634.3       52.13       20.
 8                     635.3       128.23      39.
 8                     636.3       248.38      64.
 8                     637.3       422.04      95.
 9 ENDTBL
 2 XSECTN   110        1.0
 8                     628.41      0.0         0.0
 8                     629.41      11.42       11.
 8                     630.41      48.96       32.
                       631.41      121.93      63.
 8                     632.41      238.69      104.
 8                     633.60      445.26      165.82
 9 ENDTBL
 2 XSECTN   100        1.0
 8                     626.00      0.0         0.0
 8                     627.00      34.73       16.5
 8                     628.00      114.80      36.
 8                     629.00      236.44      58.5
 8                     630.00      399.11      84.
 8                     631.00      605.54      112.5
 8                     632.00      857.02      144.
 8                     633.00      1157.7      178.5
 8                     634.00      1508.11     216.
 9 ENDTBL
 2 XSECTN   080        1.0
 8                     617.60      0.0         0.0
 8                     618.60      18.11       11.69
 8                     619.60      69.87       30.78
 8                     620.60      162.91      57.27
 8                     621.60      238.10      123.06
 8                     622.60      703.23      249.64
 8                     623.60      1387.33     394.70
1


**********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

 8                     624.60      2137.96     562.95
 9 ENDTBL
```

```
 3 STRUCT      50
 8                    632.0       0.0         0.0
 8                    633.3       35.24       .0536
 8                    634.3       65.54       .3062
                      635.3       90.44       .7502
 8                    636.3       92.19       1.5210
 8                    637.3       210.00      2.7271
 9 ENDTBL
 3 STRUCT      40
 8                    631.89      0.0         0.0
 8                    632.00      .7656       .00001
 8                    633.00      32.63       4.9004
 8                    634.00      87.354      10.1800
 8                    635.00      154.132     15.8300
 8                    636.00      155.        21.9300
 9 ENDTBL
 3 STRUCT      30
 8                    628.41      0.0         0.0
 8                    629.41      4.42        .021
 8                    630.41      16.08       .143
 8                    631.41      29.42       .516
 8                    632.41      32.18       1.117
 8                    633.6       75.         2.128
 9 ENDTBL
 3 STRUCT      20
 8                    626.00      0.0         0.00
 8                    627.00      6.44        .1401
 8                    628.00      17.86       .4383
 8                    629.00      51.45       .7938
                      630.00      78.19       1.2002
 8                    631.00      95.07       1.6575
 8                    632.00      100.00      2.1660
 8                    633.00      175.00      2.7253
 9 ENDTBL
 3 STRUCT      10
 8                    616.03      0.0         0.00000
 8                    617.03      10.37       .000001
 8                    618.03      48.04       .000002
 8                    619.03      86.51       .000003
 8                    620.03      144.58      .000004
 8                    621.03      206.43      .000005
 8                    622.03      263.73      .000006
 8                    623.03      276.48      .000007
 8                    624.03      289.23      .000008
1


**********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

 9 ENDTBL
 3 STRUCT      09
 8                    614.83      0.0         0.0
 8                    615.83      12.28       .000001
                      616.83      44.23       .000002
                      617.83      99.09       .000003
 8                    618.83      168.97      .000004
 8                    619.83      248.59      .000005
 8                    620.83      331.82      .000006
 8                    621.83      408.09      .000007
```

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8                    622.83      420.00      .000008
8                    623.83      440.00      .000009
8                    624.33      457.18      .000010
  ENDTBL
  RUNOFF 1 130       2 .40       61.         2.18        1
6 ADDHYD 4 130   2 7 1
6 REACH  3 120   1   2 1387.                              1
6 RUNOFF 1 120       3 .02       67.         .49         1
6 ADDHYD 4    50 2 3 4                                   1
6 RESVOR 2    50 4   2 632.                               1
6 RUNOFF 1    40     1 .19       71.         .53         1
6 ADDHYD 4    40 1 2 3                                   1
6 RESVOR 2    40 3   1 632.                               1
6 REACH  3 110   1   2 1606.                              1
6 RUNOFF 1    30     1 .0225     75.         .68         1
6 ADDHYD 4    30 1 2 3                                   1
6 RESVOR 2    30 3   1 628.41                             1
6 REACH  3 100   1   2 972.                               1
6 RUNOFF 1    20     1 .0260     81.         .61         1
6 ADDHYD 4    20 1 2 3                                   1
6 RUNOFF 1    10     1 .4200     75.         1.51        1
6 ADDHYD 4    09 1 3 6                                   1
6 RUNOFF 1  80       1 .29       86.         2.29        1
  ENDATA
7 READHD 8     2                                                STR   55
7 READHD 9        .0000       .1000       .3780       .0000      A 1  S 1
8                  .00         .00         .00         .00        .00     1
8                  .00         .00         .00         .00        .00     2
8                  .00         .00         .00         .00        .00     3
                   .00         .00         .00         .00        .00     4
                   .00         .00         .00         .00        .00     5
8                  .00         .00         .00         .00        .00     6
8                  .00         .00         .00         .00        .00     7
8                  .00         .00         .00         .00        .00     8
8                  .00         .00         .00         .00        .00     9
8                  .00         .00         .00         .00        .00     10
1
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**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8                  .00         .00         .00         .00        .00     11
8                  .00         .00         .00         .00        .00     12
8                  .00         .00         .00         .00        .00     13
8                  .00         .00         .00         .00        .00     14
8                  .00         .00         .00         .00        .00     15
8                  .00         .00         .00         .00        .00     16
8                  .00         .00         .00         .00        .00     17
8                  .00         .00         .00         .00        .00     18
8                  .00         .00         .00         .00        .00     19
8                  .00         .00         .00         .00        .00     20
8                  .00         .00         .00         .01        .02     21
8                  .04         .07         .11         .17        .25     22
                   .34         .45         .58         .74        .92     23
                  1.15        1.56        2.38        4.08       7.41     24
8                12.94       20.21       27.24       31.64      32.72     25
8                31.20       28.16       24.88       22.25      20.36     26
8                19.00       18.02       17.34       16.90      16.64     27
8                16.55       16.55       16.54       16.54      16.58     28
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8                 16.66     16.76     16.86     16.98     17.09     29
8                 17.21     17.29     17.35     17.39     17.40     30
8                 17.40     17.39     17.37     17.34     17.28     31
                  17.21     17.09     16.96     16.80     16.64     32
                  16.47     16.30     16.11     15.92     15.70     33
8                 15.48     15.25     15.00     14.73     14.44     34
8                 14.14     13.86     13.58     13.31     13.05     35
8                 12.81     12.51     12.20     11.90     11.61     36
8                 11.32     11.02     10.73     10.44     10.17     37
8                  9.93      9.70      9.49      9.29      9.10     38
8                  8.92      8.76      8.60      8.45      8.30     39
8                  8.17      8.03      7.91      7.79      7.66     40
8                  7.52      7.38      7.22      7.08      6.94     41
8                  6.81      6.70      6.60      6.50      6.41     42
8                  6.33      6.25      6.17      6.10      6.02     43
8                  5.95      5.88      5.82      5.75      5.69     44
8                  5.62      5.57      5.51      5.45      5.40     45
8                  5.35      5.30      5.26      5.22      5.18     46
8                  5.14      5.10      5.07      5.04      5.01     47
8                  4.99      4.96      4.94      4.91      4.88     48
8                  4.83      4.76      4.64      4.50      4.32     49
8                  4.15      3.99      3.85      3.73      3.63     50
8                  3.53      3.45      3.36      3.27      3.18     51
8                  3.09      2.98      2.89      2.78      2.67     52
8                  2.56      2.45      2.34      2.23      2.12     53
8                  2.01      1.91      1.80      1.70      1.60     54
8                  1.51      1.42      1.33      1.25      1.17     55
8                  1.09      1.02       .96       .89       .83     56
1
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**********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

8                   .77       .72       .67       .62       .58     57
8                   .54       .50       .46       .43       .40     58
8                   .37       .34       .32       .29       .27     59
8                   .25       .23       .22       .20       .18     60
9 ENDTBL
7 READHD 8      7                                             STR   55
7 READHD 9        .0000     .1000     .3780     .0000         A 1  S 1
8                   .00       .00       .00       .00       .00      1
8                   .00       .00       .00       .00       .00      2
8                   .00       .00       .00       .00       .00      3
8                   .00       .00       .00       .00       .00      4
8                   .00       .00       .00       .00       .00      5
8                   .00       .00       .00       .00       .00      6
8                   .00       .00       .00       .00       .00      7
8                   .00       .00       .00       .00       .00      8
8                   .00       .00       .00       .00       .00      9
8                   .00       .00       .00       .00       .00     10
8                   .00       .00       .00       .00       .00     11
8                   .00       .00       .00       .00       .00     12
8                   .00       .00       .00       .00       .00     13
                    .00       .00       .00       .00       .00     14
                    .00       .00       .00       .00       .00     15
8                   .00       .00       .00       .00       .00     16
8                   .00       .00       .00       .00       .00     17
8                   .00       .00       .00       .00       .00     18
8                   .00       .00       .00       .00       .00     19
```

```
8                .00        .00        .00        .00        .00      20
8                .00        .00        .00        .01        .02      21
8                .04        .07        .11        .17        .25      22
                 .34        .45        .58        .74        .92      23
                1.15       1.56       2.38       4.08       7.41      24
8              12.94      20.21      27.24      31.64      32.72      25
8              31.20      28.16      24.89      22.25      20.36      26
8              19.00      18.02      17.34      16.90      16.64      27
8              16.55      16.55      16.54      16.53      16.59      28
8              16.66      16.76      16.86      16.98      17.09      29
8              17.21      17.29      17.35      17.39      17.40      30
8              17.40      17.39      17.37      17.34      17.28      31
8              17.21      17.09      16.96      16.80      16.64      32
8              16.47      16.30      16.11      15.92      15.70      33
8              15.48      15.25      15.00      14.73      14.44      34
8              14.14      13.86      13.58      13.31      13.05      35
8              12.81      12.51      12.20      11.90      11.61      36
8              11.32      11.02      10.72      10.44      10.17      37
8               9.93       9.70       9.49       9.29       9.10      38
8               8.92       8.76       8.60       8.45       8.30      39
1
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**********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

8               8.17       8.03       7.91       7.79       7.66      40
8               7.52       7.38       7.22       7.08       6.94      41
8               6.81       6.70       6.60       6.50       6.41      42
                6.33       6.25       6.17       6.10       6.02      43
                5.95       5.88       5.82       5.75       5.69      44
8               5.62       5.57       5.51       5.45       5.40      45
8               5.35       5.30       5.26       5.22       5.18      46
8               5.14       5.11       5.07       5.04       5.01      47
8               4.99       4.96       4.94       4.91       4.88      48
8               4.83       4.76       4.64       4.50       4.32      49
8               4.15       3.99       3.85       3.73       3.63      50
8               3.53       3.45       3.36       3.27       3.18      51
8               3.09       2.98       2.89       2.78       2.67      52
8               2.56       2.45       2.34       2.23       2.12      53
8               2.01       1.91       1.80       1.70       1.60      54
8               1.51       1.42       1.33       1.25       1.17      55
8               1.10       1.02        .96        .89        .83      56
8                .77        .72        .67        .62        .58      57
8                .54        .50        .46        .43        .40      58
8                .37        .34        .32        .30        .27      59
8                .25        .23        .22        .20        .18      60
9 ENDTBL
7 INCREM 6            .1
7 COMPUT 7 130    80   0.0        3.3        1.0        2 2  01  01
  ENDCMP 1
7 ALTER  3
6 ADDHYD 4    09 1 3 6                                  1
7 READHD 8     2                                                  STR   55
  READHD 9        .0000      .1000      .3780      .0000           A 1  S 2
                   .00        .00        .00        .00        .00      1
8                  .00        .00        .00        .00        .00      2
8                  .00        .00        .00        .00        .00      3
8                  .00        .00        .00        .00        .00      4
8                  .00        .00        .00        .00        .00      5
```

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 | 6 |
| 8 | .00 | .00 | .00 | .00 | .00 | 7 |
| 8 | .00 | .00 | .00 | .00 | .00 | 8 |
| | .00 | .00 | .00 | .00 | .00 | 9 |
| | .00 | .00 | .00 | .00 | .00 | 10 |
| 8 | .00 | .00 | .00 | .00 | .00 | 11 |
| 8 | .00 | .00 | .00 | .00 | .00 | 12 |
| 8 | .00 | .00 | .00 | .00 | .00 | 13 |
| 8 | .00 | .00 | .00 | .00 | .00 | 14 |
| 8 | .00 | .00 | .00 | .00 | .00 | 15 |
| 8 | .00 | .00 | .00 | .00 | .00 | 16 |
| 8 | .00 | .00 | .00 | .00 | .00 | 17 |

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 | 18 |
| 8 | .00 | .00 | .01 | .03 | .04 | 19 |
| 8 | .08 | .11 | .15 | .20 | .25 | 20 |
| 8 | .30 | .36 | .42 | .49 | .56 | 21 |
| 8 | .65 | .75 | .88 | 1.03 | 1.20 | 22 |
| 8 | 1.40 | 1.64 | 1.90 | 2.20 | 2.54 | 23 |
| 8 | 2.96 | 3.70 | 5.16 | 8.11 | 13.62 | 24 |
| 8 | 22.45 | 33.71 | 44.33 | 50.76 | 52.05 | 25 |
| 8 | 49.46 | 44.66 | 39.56 | 35.30 | 32.27 | 26 |
| 8 | 30.03 | 28.44 | 27.29 | 26.55 | 26.08 | 27 |
| 8 | 25.88 | 25.82 | 25.90 | 26.04 | 26.29 | 28 |
| | 26.47 | 26.70 | 26.94 | 27.25 | 27.53 | 29 |
| | 27.83 | 28.05 | 28.25 | 28.37 | 28.50 | 30 |
| 8 | 28.59 | 28.72 | 28.82 | 28.95 | 29.03 | 31 |
| 8 | 29.10 | 29.09 | 29.07 | 28.99 | 28.91 | 32 |
| 8 | 28.79 | 28.69 | 28.54 | 28.41 | 28.22 | 33 |
| 8 | 28.04 | 27.81 | 27.56 | 27.24 | 26.91 | 34 |
| 8 | 26.53 | 26.17 | 25.78 | 25.43 | 25.06 | 35 |
| 8 | 24.71 | 24.34 | 24.00 | 23.63 | 23.28 | 36 |
| 8 | 22.88 | 22.49 | 21.99 | 21.48 | 20.95 | 37 |
| 8 | 20.48 | 19.99 | 19.55 | 19.10 | 18.70 | 38 |
| 8 | 18.28 | 17.90 | 17.50 | 17.15 | 16.78 | 39 |
| 8 | 16.45 | 16.10 | 15.79 | 15.46 | 15.16 | 40 |
| 8 | 14.82 | 14.50 | 14.14 | 13.82 | 13.49 | 41 |
| 8 | 13.21 | 12.93 | 12.69 | 12.41 | 12.11 | 42 |
| 8 | 11.81 | 11.55 | 11.28 | 11.05 | 10.80 | 43 |
| 8 | 10.60 | 10.37 | 10.18 | 9.98 | 9.81 | 44 |
| 8 | 9.62 | 9.48 | 9.31 | 9.18 | 9.02 | 45 |
| 8 | 8.91 | 8.77 | 8.67 | 8.55 | 8.46 | 46 |
| 8 | 8.35 | 8.28 | 8.18 | 8.12 | 8.03 | 47 |
| 8 | 7.98 | 7.90 | 7.86 | 7.79 | 7.74 | 48 |
| 8 | 7.64 | 7.52 | 7.33 | 7.13 | 6.86 | 49 |
| 8 | 6.61 | 6.36 | 6.16 | 5.96 | 5.82 | 50 |
| 8 | 5.65 | 5.53 | 5.37 | 5.24 | 5.08 | 51 |
| 8 | 4.94 | 4.76 | 4.61 | 4.43 | 4.26 | 52 |
| 8 | 4.07 | 3.91 | 3.72 | 3.55 | 3.36 | 53 |
| | 3.19 | 3.02 | 2.86 | 2.69 | 2.54 | 54 |
| | 2.39 | 2.24 | 2.10 | 1.97 | 1.85 | 55 |
| 8 | 1.73 | 1.61 | 1.51 | 1.41 | 1.31 | 56 |
| 8 | 1.22 | 1.14 | 1.06 | .98 | .91 | 57 |
| 8 | .85 | .79 | .73 | .68 | .63 | 58 |
| 8 | .58 | .54 | .50 | .46 | .43 | 59 |

```
8                    .40        .37        .34        .32        .29      60
9 ENDTBL
7 READHD 8     7                                                   STR   55
7 READHD 9         .0000      .1000      .3780      .0000          A 1  S 2
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8                    .00        .00        .00        .00        .00       1
8                    .00        .00        .00        .00        .00       2
8                    .00        .00        .00        .00        .00       3
8                    .00        .00        .00        .00        .00       4
8                    .00        .00        .00        .00        .00       5
8                    .00        .00        .00        .00        .00       6
8                    .00        .00        .00        .00        .00       7
8                    .00        .00        .00        .00        .00       8
8                    .00        .00        .00        .00        .00       9
8                    .00        .00        .00        .00        .00      10
8                    .00        .00        .00        .00        .00      11
8                    .00        .00        .00        .00        .00      12
8                    .00        .00        .00        .00        .00      13
8                    .00        .00        .00        .00        .00      14
8                    .00        .00        .00        .00        .00      15
8                    .00        .00        .00        .00        .00      16
8                    .00        .00        .00        .00        .00      17
8                    .00        .00        .00        .00        .00      18
8                    .00        .00        .01        .03        .04      19
                     .08        .11        .15        .20        .25      20
                     .30        .36        .42        .49        .56      21
8                    .65        .75        .88       1.03       1.20      22
8                   1.40       1.64       1.90       2.20       2.54      23
8                   2.96       3.70       5.16       8.11      13.62      24
8                  22.45      33.71      44.33      50.76      52.05      25
8                  49.47      44.66      39.56      35.30      32.27      26
8                  30.03      28.44      27.29      26.55      26.08      27
8                  25.88      25.82      25.90      26.04      26.29      28
8                  26.47      26.70      26.94      27.25      27.53      29
8                  27.83      28.05      28.25      28.37      28.50      30
8                  28.59      28.72      28.82      28.95      29.03      31
8                  29.10      29.09      29.07      28.99      28.91      32
8                  28.79      28.69      28.54      28.40      28.22      33
8                  28.04      27.81      27.56      27.24      26.91      34
8                  26.53      26.17      25.78      25.43      25.06      35
8                  24.71      24.34      24.00      23.63      23.28      36
8                  22.88      22.49      21.99      21.48      20.95      37
8                  20.48      19.99      19.55      19.10      18.70      38
8                  18.28      17.90      17.50      17.15      16.78      39
8                  16.45      16.10      15.79      15.46      15.16      40
8                  14.82      14.50      14.14      13.82      13.49      41
8                  13.21      12.93      12.69      12.41      12.11      42
8                  11.81      11.55      11.28      11.05      10.80      43
8                  10.59      10.37      10.18       9.98       9.81      44
                    9.63       9.48       9.31       9.18       9.02      45
                    8.91       8.77       8.67       8.55       8.46      46
```

```
**********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

 8                 8.35       8.28       8.18       8.12       8.03      47
 8                 7.98       7.90       7.86       7.79       7.74      48
                   7.64       7.52       7.33       7.13       6.86      49
 8                 6.61       6.36       6.16       5.96       5.82      50
 8                 5.65       5.53       5.37       5.24       5.08      51
 8                 4.94       4.76       4.61       4.43       4.26      52
 8                 4.07       3.91       3.72       3.55       3.36      53
 8                 3.19       3.02       2.86       2.69       2.54      54
 8                 2.39       2.24       2.10       1.97       1.85      55
 8                 1.73       1.61       1.51       1.41       1.31      56
 8                 1.22       1.14       1.06        .98        .91      57
 8                  .85        .79        .73        .68        .63      58
 8                  .58        .54        .50        .46        .43      59
 8                  .40        .37        .34        .32        .29      60
 9 ENDTBL
 7 INCREM 6            .1
 7 COMPUT 7 130    80   0.0        4.2        1.0        2 2  01  02
   ENDCMP 1
 7 ALTER  3
 6 ADDHYD 4    09 1 3 6                                  1
 7 READHD 8     2                                                STR   55
 7 READHD 9       .0000      .1000      .3780      .0000          A 1  S 3
 8                 .00        .00        .00        .00        .00       1
 8                 .00        .00        .00        .00        .00       2
 8                 .00        .00        .00        .00        .00       3
 8                 .00        .00        .00        .00        .00       4
 8                 .00        .00        .00        .00        .00       5
                   .00        .00        .00        .00        .00       6
                   .00        .00        .00        .00        .00       7
 8                 .00        .00        .00        .00        .00       8
 8                 .00        .00        .00        .00        .00       9
 8                 .00        .00        .00        .00        .00      10
 8                 .00        .00        .00        .00        .00      11
 8                 .00        .00        .00        .00        .00      12
 8                 .00        .00        .00        .00        .00      13
 8                 .00        .00        .00        .00        .00      14
 8                 .00        .00        .00        .00        .00      15
 8                 .00        .00        .00        .00        .00      16
 8                 .00        .00        .00        .00        .00      17
 8                 .00        .00        .00        .01        .02      18
 8                 .03        .05        .09        .12        .16      19
 8                 .21        .26        .31        .37        .44      20
 8                 .50        .57        .65        .73        .82      21
 8                 .93       1.05       1.20       1.38       1.59      22
 8                1.83       2.11       2.41       2.76       3.16      23
 8                3.65       4.51       6.20       9.59      15.89      24
1


**********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

                  25.87      38.52      50.42      57.52      58.89      25
                  55.88      50.22      44.22      39.50      36.08      26
 8                33.64      31.82      30.61      29.75      29.26      27
 8                29.04      29.22      29.33      29.69      30.10      28
 8                30.63      31.12      31.66      32.12      32.62      29
 8                32.88      33.02      33.07      33.14      33.12      30
```

```
 8                33.13     33.07     33.07     33.01     33.01     31
 8                32.94     32.90     32.78     32.71     32.58     32
 8                32.51     32.37     32.29     32.14     32.04     33
 8                31.87     31.73     31.52     31.32     31.03     34
                  30.78     30.45     30.04     29.58     29.18     35
 8                28.72     28.33     27.87     27.47     27.01     36
 8                26.58     26.07     25.61     25.10     24.65     37
 8                24.17     23.77     23.33     22.95     22.53     38
 8                22.16     21.63     21.16     20.66     20.23     39
 8                19.76     19.35     18.91     18.53     18.10     40
 8                17.71     17.26     16.86     16.42     16.05     41
 8                15.66     15.34     14.99     14.72     14.40     42
 8                14.15     13.86     13.63     13.35     13.14     43
 8                12.88     12.68     12.38     12.12     11.82     44
 8                11.59     11.32     11.12     10.88     10.71     45
 8                10.50     10.34     10.15     10.02      9.85     46
 8                 9.74      9.59      9.50      9.36      9.29     47
 8                 9.17      9.11      9.00      8.94      8.83     48
 8                 8.75      8.57      8.39      8.11      7.84     49
 8                 7.52      7.28      7.01      6.82      6.62     50
 8                 6.47      6.28      6.14      5.95      5.80     51
 8                 5.60      5.44      5.22      5.05      4.82     52
 8                 4.64      4.42      4.24      4.01      3.83     53
 8                 3.61      3.44      3.22      3.06      2.86     54
 8                 2.72      2.53      2.39      2.22      2.10     55
 8                 1.94      1.84      1.69      1.60      1.47     56
 8                 1.39      1.27      1.21      1.10      1.04     57
 8                  .95       .90       .82       .78       .70     58
 8                  .67       .60       .58       .51       .50     59
                    .44       .43       .38       .37       .32     60
 ENDTBL
 7 READHD 8     7                                            STR    55
 7 READHD 9        .0000     .1000     .3780     .0000        A 1  S 3
 8                  .00       .00       .00       .00       .00      1
 8                  .00       .00       .00       .00       .00      2
 8                  .00       .00       .00       .00       .00      3
 8                  .00       .00       .00       .00       .00      4
 8                  .00       .00       .00       .00       .00      5
 8                  .00       .00       .00       .00       .00      6
 8                  .00       .00       .00       .00       .00      7
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                  .00       .00       .00       .00       .00      8
 8                  .00       .00       .00       .00       .00      9
 8                  .00       .00       .00       .00       .00     10
 8                  .00       .00       .00       .00       .00     11
 8                  .00       .00       .00       .00       .00     12
 8                  .00       .00       .00       .00       .00     13
 8                  .00       .00       .00       .00       .00     14
 8                  .00       .00       .00       .00       .00     15
 8                  .00       .00       .00       .00       .00     16
                    .00       .00       .00       .00       .00     17
 8                  .00       .00       .00       .01       .02     18
 8                  .03       .05       .09       .12       .16     19
 8                  .21       .26       .31       .37       .44     20
 8                  .50       .57       .65       .73       .82     21
```

```
8                .93        1.05        1.20        1.38        1.59      22
8               1.83        2.11        2.41        2.76        3.16      23
8               3.65        4.51        6.20        9.59       15.89      24
               25.87       38.52       50.42       57.52       58.89      25
               55.88       50.22       44.22       39.50       36.08      26
8              33.64       31.82       30.61       29.75       29.26      27
8              29.04       29.22       29.33       29.69       30.10      28
8              30.63       31.12       31.66       32.12       32.62      29
8              32.88       33.02       33.07       33.14       33.12      30
8              33.13       33.07       33.07       33.01       33.01      31
8              32.94       32.90       32.78       32.71       32.58      32
8              32.51       32.37       32.29       32.14       32.04      33
8              31.87       31.73       31.52       31.32       31.03      34
8              30.78       30.45       30.04       29.58       29.18      35
8              28.72       28.32       27.87       27.47       27.01      36
8              26.58       26.07       25.61       25.10       24.65      37
8              24.17       23.77       23.33       22.95       22.53      38
8              22.16       21.63       21.16       20.66       20.23      39
8              19.76       19.35       18.91       18.53       18.10      40
8              17.71       17.26       16.86       16.42       16.05      41
8              15.66       15.34       14.99       14.72       14.40      42
8              14.15       13.86       13.63       13.35       13.14      43
8              12.88       12.68       12.38       12.12       11.82      44
8              11.59       11.32       11.12       10.88       10.71      45
8              10.50       10.34       10.15       10.02        9.85      46
8               9.74        9.59        9.50        9.36        9.29      47
8               9.17        9.10        9.00        8.94        8.83      48
8               8.74        8.57        8.39        8.11        7.84      49
8               7.52        7.27        7.01        6.82        6.62      50
                6.47        6.28        6.14        5.95        5.80      51
                5.60        5.44        5.22        5.05        4.82      52
8               4.64        4.42        4.24        4.01        3.83      53
1
```

```
**********************80-80 LIST OF INPUT DATA (CONTINUED)*********************

8               3.61        3.44        3.23        3.06        2.86      54
8               2.72        2.53        2.39        2.22        2.10      55
8               1.94        1.84        1.69        1.60        1.47      56
8               1.39        1.28        1.21        1.10        1.04      57
8                .95         .90         .82         .78         .70      58
8                .67         .60         .58         .51         .50      59
8                .44         .43         .38         .37         .32      60
9 ENDTBL
7 INCREM 6            .1
7 COMPUT 7 130    80   0.0         4.5         1.0         2 2  01  03
  ENDCMP 1
7 ALTER  3
6 ADDHYD 4    09 1 3 6                                  1
7 READHD 8     2                                                   STR   55
7 READHD 9        .0000       .1000       .3780       .0000          A 1  S 4
8                  .00         .00         .00         .00         .00     1
                   .00         .00         .00         .00         .00     2
                   .00         .00         .00         .00         .00     3
8                  .00         .00         .00         .00         .00     4
8                  .00         .00         .00         .00         .00     5
8                  .00         .00         .00         .00         .00     6
8                  .00         .00         .00         .00         .00     7
```

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 | 8 |
| 8 | .00 | .00 | .00 | .00 | .00 | 9 |
| 8 | .00 | .00 | .00 | .00 | .00 | 10 |
| 8 | .00 | .00 | .00 | .00 | .00 | 11 |
| | .00 | .00 | .00 | .00 | .00 | 12 |
| 8 | .00 | .00 | .00 | .00 | .00 | 13 |
| 8 | .00 | .00 | .00 | .00 | .00 | 14 |
| 8 | .00 | .00 | .00 | .00 | .00 | 15 |
| 8 | .00 | .00 | .00 | .00 | .01 | 16 |
| 8 | .02 | .03 | .05 | .08 | .12 | 17 |
| 8 | .16 | .20 | .25 | .31 | .37 | 18 |
| 8 | .43 | .49 | .55 | .62 | .70 | 19 |
| 8 | .78 | .86 | .95 | 1.04 | 1.14 | 20 |
| 8 | 1.25 | 1.35 | 1.46 | 1.58 | 1.72 | 21 |
| 8 | 1.88 | 2.07 | 2.29 | 2.57 | 2.89 | 22 |
| 8 | 3.25 | 3.67 | 4.13 | 4.64 | 5.22 | 23 |
| 8 | 5.93 | 7.17 | 9.61 | 14.44 | 23.19 | 24 |
| 8 | 36.76 | 53.76 | 69.50 | 78.69 | 79.48 | 25 |
| 8 | 74.66 | 66.83 | 58.79 | 52.47 | 47.90 | 26 |
| 8 | 44.60 | 42.14 | 40.53 | 39.60 | 39.19 | 27 |
| 8 | 39.17 | 39.45 | 39.34 | 39.38 | 40.31 | 28 |
| 8 | 44.59 | 48.27 | 51.42 | 54.09 | 56.35 | 29 |
| 8 | 58.18 | 59.62 | 60.68 | 61.42 | 61.87 | 30 |
| 8 | 62.08 | 62.07 | 61.85 | 61.36 | 60.62 | 31 |

1

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

| | | | | | | |
|---|---|---|---|---|---|---|
| | 59.59 | 58.31 | 56.82 | 55.18 | 53.42 | 32 |
| 8 | 51.61 | 49.74 | 47.87 | 46.08 | 44.50 | 33 |
| 8 | 43.09 | 41.81 | 40.62 | 39.51 | 38.43 | 34 |
| 8 | 37.38 | 36.35 | 35.38 | 34.45 | 33.58 | 35 |
| 8 | 33.38 | 33.22 | 33.04 | 32.86 | 32.64 | 36 |
| 8 | 32.40 | 32.11 | 31.81 | 31.49 | 31.18 | 37 |
| 8 | 30.87 | 30.58 | 30.19 | 29.75 | 29.31 | 38 |
| 8 | 28.88 | 28.44 | 28.03 | 27.60 | 27.20 | 39 |
| 8 | 26.78 | 26.39 | 25.99 | 25.60 | 25.19 | 40 |
| 8 | 24.77 | 24.31 | 23.85 | 23.39 | 22.96 | 41 |
| 8 | 22.54 | 22.16 | 21.68 | 21.23 | 20.79 | 42 |
| 8 | 20.38 | 19.97 | 19.59 | 19.20 | 18.84 | 43 |
| 8 | 18.48 | 18.14 | 17.80 | 17.49 | 17.17 | 44 |
| 8 | 16.87 | 16.57 | 16.30 | 16.02 | 15.76 | 45 |
| 8 | 15.51 | 15.27 | 15.04 | 14.82 | 14.60 | 46 |
| 8 | 14.41 | 14.21 | 14.03 | 13.85 | 13.68 | 47 |
| 8 | 13.52 | 13.37 | 13.22 | 13.08 | 12.89 | 48 |
| 8 | 12.67 | 12.39 | 12.06 | 11.66 | 11.24 | 49 |
| 8 | 10.80 | 10.41 | 10.04 | 9.73 | 9.45 | 50 |
| 8 | 9.19 | 8.93 | 8.69 | 8.43 | 8.18 | 51 |
| 8 | 7.91 | 7.64 | 7.35 | 7.07 | 6.77 | 52 |
| 8 | 6.48 | 6.19 | 5.90 | 5.61 | 5.33 | 53 |
| 8 | 5.04 | 4.77 | 4.50 | 4.24 | 3.99 | 54 |
| 8 | 3.75 | 3.52 | 3.31 | 3.10 | 2.90 | 55 |
| 8 | 2.71 | 2.53 | 2.36 | 2.20 | 2.05 | 56 |
| | 1.91 | 1.78 | 1.66 | 1.54 | 1.43 | 57 |
| 8 | 1.33 | 1.23 | 1.14 | 1.06 | .98 | 58 |
| 8 | .91 | .85 | .78 | .73 | .67 | 59 |
| 8 | .62 | .58 | .53 | .49 | .46 | 60 |

9 ENDTBL

```
 7 READHD 8     7                                                    STR   55
 7 READHD 9        .0000      .1000      .3780      .0000            À 1  S 4
 8                  .00        .00        .00        .00        .00      1
 ^                  .00        .00        .00        .00        .00      2
                    .00        .00        .00        .00        .00      3
 8                  .00        .00        .00        .00        .00      4
 8                  .00        .00        .00        .00        .00      5
 8                  .00        .00        .00        .00        .00      6
 8                  .00        .00        .00        .00        .00      7
 8                  .00        .00        .00        .00        .00      8
 8                  .00        .00        .00        .00        .00      9
 8                  .00        .00        .00        .00        .00     10
 8                  .00        .00        .00        .00        .00     11
 8                  .00        .00        .00        .00        .00     12
 8                  .00        .00        .00        .00        .00     13
 8                  .00        .00        .00        .00        .00     14
1
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 8                  .00        .00        .00        .00        .00     15
 8                  .00        .00        .00        .00        .01     16
 8                  .02        .03        .05        .08        .12     17
 8                  .16        .20        .25        .31        .37     18
 8                  .43        .49        .55        .62        .70     19
 8                  .78        .86        .95       1.04       1.14     20
 8                 1.25       1.35       1.46       1.58       1.72     21
                   1.88       2.07       2.29       2.57       2.89     22
                   3.25       3.67       4.13       4.64       5.22     23
 8                 5.93       7.17       9.61      14.44      23.19     24
 8                36.76      53.76      69.50      78.69      79.48     25
 8                74.66      66.83      58.79      52.47      47.90     26
 8                44.60      42.14      40.53      39.60      39.19     27
 8                39.17      39.45      39.34      39.38      40.31     28
 8                44.59      48.27      51.42      54.09      56.35     29
 8                58.18      59.62      60.68      61.42      61.87     30
 8                62.08      62.07      61.85      61.36      60.62     31
 8                59.59      58.31      56.82      55.18      53.42     32
 8                51.61      49.74      47.87      46.08      44.50     33
 8                43.09      41.81      40.62      39.51      38.43     34
 8                37.38      36.35      35.38      34.45      33.58     35
 8                33.38      33.22      33.04      32.86      32.64     36
 8                32.40      32.12      31.81      31.49      31.18     37
 8                30.87      30.58      30.19      29.75      29.31     38
 8                28.88      28.44      28.03      27.60      27.19     39
 8                26.78      26.39      25.99      25.60      25.19     40
 8                24.77      24.31      23.85      23.39      22.96     41
 8                22.54      22.16      21.68      21.23      20.79     42
 8                20.38      19.97      19.59      19.20      18.84     43
 8                18.48      18.14      17.80      17.49      17.17     44
 8                16.87      16.57      16.30      16.02      15.76     45
 8                15.51      15.27      15.04      14.82      14.60     46
 ^                14.40      14.21      14.03      13.85      13.68     47
                  13.52      13.37      13.22      13.08      12.89     48
 8                12.67      12.39      12.06      11.67      11.24     49
 8                10.80      10.41      10.04       9.73       9.45     50
 8                 9.19       8.93       8.69       8.43       8.18     51
 8                 7.91       7.64       7.35       7.07       6.77     52
```

```
 8                6.48       6.19       5.90       5.61       5.33      53
 8                5.04       4.77       4.50       4.24       3.99      54
 8                3.75       3.53       3.31       3.10       2.90      55
 8                2.71       2.53       2.36       2.20       2.05      56
                  1.91       1.78       1.65       1.54       1.43      57
 8                1.33       1.23       1.14       1.06        .98      58
 8                 .91        .85        .78        .73        .67      59
 8                 .62        .58        .53        .49        .46      60
1


 **********************80-80 LIST OF INPUT DATA (CONTINUED)**********************

  9 ENDTBL
  7 INCREM 6            .1
  7 COMPUT 7 130    80   0.0        5.4        1.0        2 2  01  04
    ENDCMP 1
    ENDJOB 2
0*******************************END OF 80-80 LIST*******************************
1


 TR20 XEQ 02-12-96  13:56      CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK     (FEB 96)                JOB  1   PASS   1
      REV PC 09/83(.2)         INCLUDES GREENS DRAIN ENCLOSURE                      (CRISLOMR.DAT)                  PAGE   1


 EXECUTIVE CONTROL OPERATION READHD                                                                          RECORD ID STR   55
+                                   DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 2

   STARTING TIME=   .00     TIME INCREMENT=   .10     DRAINAGE AREA=    .38     BASE FLOW=    .00

 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
 8                 .00        .00        .00        .00        .00
                   .00        .00        .00        .01        .02
 8                 .04        .07        .11        .17        .25
 8                 .34        .45        .58        .74        .92
 8                1.15       1.56       2.38       4.08       7.41
 8               12.94      20.21      27.24      31.64      32.72
```

| | | | | | |
|---|---|---|---|---|---|
| 8 | 31.20 | 28.16 | 24.88 | 22.25 | 20.36 |
| 8 | 19.00 | 18.02 | 17.34 | 16.90 | 16.64 |
| 8 | 16.55 | 16.55 | 16.54 | 16.54 | 16.58 |
| 8 | 16.66 | 16.76 | 16.86 | 16.98 | 17.09 |
| | 17.21 | 17.29 | 17.35 | 17.39 | 17.40 |
| 8 | 17.40 | 17.39 | 17.37 | 17.34 | 17.28 |
| 8 | 17.21 | 17.09 | 16.96 | 16.80 | 16.64 |
| 8 | 16.47 | 16.30 | 16.11 | 15.92 | 15.70 |
| 8 | 15.48 | 15.25 | 15.00 | 14.73 | 14.44 |
| 8 | 14.14 | 13.86 | 13.58 | 13.31 | 13.05 |
| 8 | 12.81 | 12.51 | 12.20 | 11.90 | 11.61 |
| 8 | 11.32 | 11.02 | 10.73 | 10.44 | 10.17 |
| 8 | 9.93 | 9.70 | 9.49 | 9.29 | 9.10 |
| 8 | 8.92 | 8.76 | 8.60 | 8.45 | 8.30 |
| 8 | 8.17 | 8.03 | 7.91 | 7.79 | 7.66 |
| 8 | 7.52 | 7.38 | 7.22 | 7.08 | 6.94 |
| 8 | 6.81 | 6.70 | 6.60 | 6.50 | 6.41 |
| 8 | 6.33 | 6.25 | 6.17 | 6.10 | 6.02 |

1



| | | | | | |
|---|---|---|---|---|---|
| 8 | 5.95 | 5.88 | 5.82 | 5.75 | 5.69 |
| 8 | 5.62 | 5.57 | 5.51 | 5.45 | 5.40 |
| 8 | 5.35 | 5.30 | 5.26 | 5.22 | 5.18 |
| | 5.14 | 5.10 | 5.07 | 5.04 | 5.01 |
| | 4.99 | 4.96 | 4.94 | 4.91 | 4.88 |
| 8 | 4.83 | 4.76 | 4.64 | 4.50 | 4.32 |
| 8 | 4.15 | 3.99 | 3.85 | 3.73 | 3.63 |
| 8 | 3.53 | 3.45 | 3.36 | 3.27 | 3.18 |
| 8 | 3.09 | 2.98 | 2.89 | 2.78 | 2.67 |
| 8 | 2.56 | 2.45 | 2.34 | 2.23 | 2.12 |
| 8 | 2.01 | 1.91 | 1.80 | 1.70 | 1.60 |
| 8 | 1.51 | 1.42 | 1.33 | 1.25 | 1.17 |
| 8 | 1.09 | 1.02 | .96 | .89 | .83 |
| 8 | .77 | .72 | .67 | .62 | .58 |
| 8 | .54 | .50 | .46 | .43 | .40 |
| 8 | .37 | .34 | .32 | .29 | .27 |
| 8 | .25 | .23 | .22 | .20 | .18 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55

+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 7

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .01 | .02 |
| 8 | .04 | .07 | .11 | .17 | .25 |
| 8 | .34 | .45 | .58 | .74 | .92 |
| 8 | 1.15 | 1.56 | 2.38 | 4.08 | 7.41 |
| 8 | 12.94 | 20.21 | 27.24 | 31.64 | 32.72 |

1



| | | | | | |
|---|---|---|---|---|---|
| 8 | 31.20 | 28.16 | 24.89 | 22.25 | 20.36 |
| 8 | 19.00 | 18.02 | 17.34 | 16.90 | 16.64 |
| 8 | 16.55 | 16.55 | 16.54 | 16.53 | 16.59 |
| 8 | 16.66 | 16.76 | 16.86 | 16.98 | 17.09 |
| 8 | 17.21 | 17.29 | 17.35 | 17.39 | 17.40 |
| | 17.40 | 17.39 | 17.37 | 17.34 | 17.28 |
| | 17.21 | 17.09 | 16.96 | 16.80 | 16.64 |
| 8 | 16.47 | 16.30 | 16.11 | 15.92 | 15.70 |
| 8 | 15.48 | 15.25 | 15.00 | 14.73 | 14.44 |
| 8 | 14.14 | 13.86 | 13.58 | 13.31 | 13.05 |
| 8 | 12.81 | 12.51 | 12.20 | 11.90 | 11.61 |
| 8 | 11.32 | 11.02 | 10.72 | 10.44 | 10.17 |
| 8 | 9.93 | 9.70 | 9.49 | 9.29 | 9.10 |
| 8 | 8.92 | 8.76 | 8.60 | 8.45 | 8.30 |
| 8 | 8.17 | 8.03 | 7.91 | 7.79 | 7.66 |
| 8 | 7.52 | 7.38 | 7.22 | 7.08 | 6.94 |
| 8 | 6.81 | 6.70 | 6.60 | 6.50 | 6.41 |
| 8 | 6.33 | 6.25 | 6.17 | 6.10 | 6.02 |
| 8 | 5.95 | 5.88 | 5.82 | 5.75 | 5.69 |
| 8 | 5.62 | 5.57 | 5.51 | 5.45 | 5.40 |
| 8 | 5.35 | 5.30 | 5.26 | 5.22 | 5.18 |
| 8 | 5.14 | 5.11 | 5.07 | 5.04 | 5.01 |
| 8 | 4.99 | 4.96 | 4.94 | 4.91 | 4.88 |
| 8 | 4.83 | 4.76 | 4.64 | 4.50 | 4.32 |
| 8 | 4.15 | 3.99 | 3.85 | 3.73 | 3.63 |
| 8 | 3.53 | 3.45 | 3.36 | 3.27 | 3.18 |
| 8 | 3.09 | 2.98 | 2.89 | 2.78 | 2.67 |
| 8 | 2.56 | 2.45 | 2.34 | 2.23 | 2.12 |
| 8 | 2.01 | 1.91 | 1.80 | 1.70 | 1.60 |
| 8 | 1.51 | 1.42 | 1.33 | 1.25 | 1.17 |
| | 1.10 | 1.02 | .96 | .89 | .83 |
| | .77 | .72 | .67 | .62 | .58 |
| 8 | .54 | .50 | .46 | .43 | .40 |
| 8 | .37 | .34 | .32 | .30 | .27 |
| 8 | .25 | .23 | .22 | .20 | .18 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
+ MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID
+ FROM XSECTION 130
+ TO XSECTION 80
STARTING TIME = .00 RAIN DEPTH = 3.30 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF CROSS SECTION 130
OUTPUT HYDROGRAPH= 2
AREA= .40 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= 2.18 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0969 HOURS
1



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.71 | 26.52 | (RUNOFF) |

FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .40 SQ.MI.

| TIME(HRS) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .16 |
| 12.00 | DISCHG | .54 | 1.18 | 2.10 | 3.30 | 4.79 | 6.65 | 8.95 | 11.52 | 14.19 | 16.72 |
| 13.00 | DISCHG | 19.07 | 21.10 | 22.78 | 24.16 | 25.23 | 25.97 | 26.38 | 26.51 | 26.43 | 26.13 |
| 14.00 | DISCHG | 25.56 | 24.73 | 23.75 | 22.75 | 21.80 | 20.91 | 20.06 | 19.24 | 18.46 | 17.74 |
| 15.00 | DISCHG | 17.04 | 16.35 | 15.69 | 15.06 | 14.47 | 13.92 | 13.40 | 12.90 | 12.45 | 12.02 |
| 16.00 | DISCHG | 11.62 | 11.24 | 10.89 | 10.56 | 10.26 | 9.99 | 9.74 | 9.50 | 9.29 | 9.09 |
| 17.00 | DISCHG | 8.91 | 8.74 | 8.57 | 8.42 | 8.27 | 8.12 | 7.99 | 7.86 | 7.73 | 7.61 |
| 18.00 | DISCHG | 7.50 | 7.40 | 7.29 | 7.19 | 7.08 | 6.98 | 6.87 | 6.76 | 6.65 | 6.54 |
| 19.00 | DISCHG | 6.44 | 6.33 | 6.24 | 6.15 | 6.07 | 5.99 | 5.92 | 5.86 | 5.80 | 5.75 |
| 20.00 | DISCHG | 5.70 | 5.65 | 5.60 | 5.56 | 5.51 | 5.45 | 5.39 | 5.33 | 5.26 | 5.18 |
| 21.00 | DISCHG | 5.11 | 5.03 | 4.96 | 4.89 | 4.82 | 4.75 | 4.69 | 4.63 | 4.58 | 4.53 |
| 22.00 | DISCHG | 4.49 | 4.45 | 4.42 | 4.39 | 4.37 | 4.35 | 4.33 | 4.32 | 4.31 | 4.29 |
| 23.00 | DISCHG | 4.29 | 4.28 | 4.27 | 4.27 | 4.26 | 4.26 | 4.26 | 4.26 | 4.26 | 4.25 |
| 24.00 | DISCHG | 4.25 | 4.24 | 4.22 | 4.18 | 4.13 | 4.06 | 3.97 | 3.85 | 3.71 | 3.54 |
| 25.00 | DISCHG | 3.35 | 3.15 | 2.94 | 2.72 | 2.51 | 2.29 | 2.08 | 1.88 | 1.69 | 1.52 |
| 26.00 | DISCHG | 1.35 | 1.20 | 1.07 | .96 | .85 | .76 | .68 | .61 | .54 | .49 |
| 27.00 | DISCHG | .43 | .39 | .35 | .31 | .27 | .25 | .22 | .19 | .17 | .15 |
| 28.00 | DISCHG | .14 | .12 | .11 | .10 | .09 | .08 | .07 | .06 | .05 | .05 |
| 29.00 | DISCHG | .04 | .04 | .03 | .03 | .02 | .02 | .02 | .02 | .01 | .01 |

RUNOFF VOLUME ABOVE BASEFLOW = .49 WATERSHED INCHES, 125.30 CFS-HRS, 10.35 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130
INPUT HYDROGRAPHS= 2,7 OUTPUT HYDROGRAPH= 1

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.48 | 37.87 | 638.84 |
| 13.71 | 43.05 | 638.96 |

RUNOFF VOLUME ABOVE BASEFLOW = .57 WATERSHED INCHES, 285.23 CFS-HRS, 23.57 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 120
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1387.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= 1.72 M= 1.14
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .55 PEAK TRAVEL TIME = .20 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.90 | 42.88 | 634.07 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .78 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .03 | .05 | .08 | .13 |
| 11.00 | DISCHG | .19 | .27 | .37 | .48 | .62 | .79 | .98 | 1.30 | 1.89 | 3.10 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.00 | DISCHG | 5.54 | 9.88 | 16.17 | 23.37 | 29.69 | 33.96 | 36.09 | 36.65 | 36.52 | 36.47 |
| 13.00 | DISCHG | 36.81 | 37.50 | 38.39 | 39.33 | 40.28 | 41.15 | 41.90 | 42.46 | 42.79 | 42.88 |
| 14.00 | DISCHG | 42.79 | 42.48 | 41.94 | 41.21 | 40.40 | 39.57 | 38.78 | 37.99 | 37.23 | 36.47 |
| 15.00 | DISCHG | 35.74 | 35.03 | 34.33 | 33.63 | 32.96 | 32.29 | 31.66 | 31.02 | 30.39 | 29.76 |
| 16.00 | DISCHG | 29.16 | 28.57 | 28.01 | 27.46 | 26.92 | 26.40 | 25.89 | 25.40 | 24.91 | 24.42 |
| 17.00 | DISCHG | 23.94 | 23.45 | 22.99 | 22.53 | 22.09 | 21.67 | 21.26 | 20.84 | 20.41 | 19.99 |
| .00 | DISCHG | 19.57 | 19.16 | 18.75 | 18.35 | 17.95 | 17.57 | 17.21 | 16.86 | 16.52 | 16.20 |
| 9.00 | DISCHG | 15.90 | 15.60 | 15.32 | 15.06 | 14.81 | 14.57 | 14.35 | 14.13 | 13.93 | 13.75 |
| 20.00 | DISCHG | 13.56 | 13.37 | 13.19 | 12.99 | 12.80 | 12.60 | 12.42 | 12.24 | 12.07 | 11.90 |
| 21.00 | DISCHG | 11.73 | 11.57 | 11.41 | 11.26 | 11.11 | 10.96 | 10.82 | 10.68 | 10.55 | 10.43 |
| 22.00 | DISCHG | 10.31 | 10.20 | 10.10 | 10.01 | 9.92 | 9.84 | 9.76 | 9.69 | 9.63 | 9.57 |
| 23.00 | DISCHG | 9.52 | 9.47 | 9.42 | 9.38 | 9.34 | 9.30 | 9.27 | 9.24 | 9.22 | 9.19 |
| 24.00 | DISCHG | 9.16 | 9.11 | 9.05 | 8.94 | 8.80 | 8.61 | 8.39 | 8.15 | 7.90 | 7.65 |
| 25.00 | DISCHG | 7.39 | 7.11 | 6.83 | 6.54 | 6.24 | 5.94 | 5.63 | 5.32 | 5.02 | 4.72 |
| 26.00 | DISCHG | 4.43 | 4.15 | 3.88 | 3.62 | 3.38 | 3.16 | 2.95 | 2.75 | 2.56 | 2.39 |
| 27.00 | DISCHG | 2.22 | 2.07 | 1.92 | 1.79 | 1.66 | 1.54 | 1.43 | 1.33 | 1.23 | 1.14 |
| 28.00 | DISCHG | 1.05 | .97 | .90 | .83 | .77 | .71 | .66 | .61 | .56 | .52 |
| 29.00 | DISCHG | .48 | .44 | .41 | .38 | .35 | .32 | .16 | .08 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = .57 WATERSHED INCHES, 285.20 CFS-HRS, 23.57 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 120
OUTPUT HYDROGRAPH= 3
AREA= .02 SQ MI INPUT RUNOFF CURVE= 67. TIME OF CONCENTRATION= .49 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0653 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.23 | 6.71 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .06 | .32 | 1.14 |
| .00 | DISCHG | 3.01 | 5.30 | 6.62 | 6.36 | 5.24 | 4.07 | 3.25 | 2.68 | 2.28 | 2.00 |
| 13.00 | DISCHG | 1.77 | 1.60 | 1.45 | 1.33 | 1.23 | 1.14 | 1.07 | 1.01 | .96 | .91 |
| 14.00 | DISCHG | .86 | .83 | .79 | .76 | .73 | .70 | .67 | .65 | .62 | .59 |
| 15.00 | DISCHG | .58 | .57 | .57 | .56 | .56 | .54 | .52 | .51 | .50 | .50 |
| 16.00 | DISCHG | .49 | .49 | .49 | .49 | .49 | .49 | .49 | .48 | .47 | .45 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17.00 | DISCHG | .44 | .43 | .43 | .42 | .42 | .42 | .42 | .42 | .42 | .42 |
| 18.00 | DISCHG | .40 | .38 | .37 | .36 | .35 | .35 | .35 | .35 | .35 | .35 |
| 19.00 | DISCHG | .35 | .35 | .35 | .35 | .35 | .35 | .35 | .35 | .35 | .34 |
| 20.00 | DISCHG | .33 | .31 | .29 | .28 | .27 | .27 | .27 | .27 | .27 | .27 |
| 21.00 | DISCHG | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 |
| 22.00 | DISCHG | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 |
| 23.00 | DISCHG | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .27 | .26 |
| 24.00 | DISCHG | .25 | .22 | .18 | .13 | .08 | .05 | .03 | .02 | .01 | .01 |
| 25.00 | DISCHG | .00 | | | | | | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = .74 WATERSHED INCHES, 9.54 CFS-HRS, .79 ACRE-FEET; BASEFLOW = .00 CFS

1



OPERATION ADDHYD STRUCTURE 50
INPUT HYDROGRAPHS= 2,3 OUTPUT HYDROGRAPH= 4

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.88 | 43.79 | 633.58 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .03 | .05 | .08 | .13 |
| 11.00 | DISCHG | .19 | .27 | .37 | .48 | .62 | .79 | .99 | 1.36 | 2.21 | 4.23 |
| 12.00 | DISCHG | 8.55 | 15.18 | 22.80 | 29.74 | 34.93 | 38.03 | 39.33 | 39.33 | 38.80 | 38.47 |
| 13.00 | DISCHG | 38.58 | 39.09 | 39.84 | 40.66 | 41.51 | 42.29 | 42.97 | 43.48 | 43.74 | 43.79 |
| 14.00 | DISCHG | 43.65 | 43.30 | 42.73 | 41.97 | 41.13 | 40.28 | 39.45 | 38.64 | 37.84 | 37.07 |
| 15.00 | DISCHG | 36.32 | 35.60 | 34.89 | 34.20 | 33.51 | 32.84 | 32.18 | 31.53 | 30.89 | 30.26 |
| 16.00 | DISCHG | 29.65 | 29.06 | 28.50 | 27.95 | 27.42 | 26.89 | 26.38 | 25.88 | 25.37 | 24.87 |
| 17.00 | DISCHG | 24.37 | 23.88 | 23.41 | 22.95 | 22.51 | 22.09 | 21.69 | 21.27 | 20.84 | 20.40 |
| 18.00 | DISCHG | 19.97 | 19.54 | 19.12 | 18.70 | 18.30 | 17.92 | 17.55 | 17.20 | 16.87 | 16.55 |
| 19.00 | DISCHG | 16.24 | 15.95 | 15.67 | 15.40 | 15.15 | 14.91 | 14.69 | 14.48 | 14.28 | 14.09 |
| 20.00 | DISCHG | 13.89 | 13.68 | 13.48 | 13.27 | 13.07 | 12.88 | 12.69 | 12.51 | 12.33 | 12.16 |
| 21.00 | DISCHG | 12.00 | 11.84 | 11.68 | 11.52 | 11.37 | 11.23 | 11.08 | 10.95 | 10.82 | 10.70 |
| 22.00 | DISCHG | 10.58 | 10.47 | 10.37 | 10.28 | 10.19 | 10.11 | 10.03 | 9.96 | 9.90 | 9.84 |
| 23.00 | DISCHG | 9.79 | 9.74 | 9.69 | 9.65 | 9.61 | 9.58 | 9.55 | 9.52 | 9.49 | 9.45 |
| 24.00 | DISCHG | 9.41 | 9.34 | 9.23 | 9.07 | 8.88 | 8.66 | 8.42 | 8.17 | 7.92 | 7.65 |
| 25.00 | DISCHG | 7.39 | 7.11 | 6.83 | 6.54 | 6.24 | 5.94 | 5.63 | 5.32 | 5.02 | 4.72 |
| 26.00 | DISCHG | 4.43 | 4.15 | 3.88 | 3.62 | 3.38 | 3.16 | 2.95 | 2.75 | 2.56 | 2.39 |
| 27.00 | DISCHG | 2.22 | 2.07 | 1.92 | 1.79 | 1.66 | 1.54 | 1.43 | 1.33 | 1.23 | 1.14 |
| 28.00 | DISCHG | 1.05 | .97 | .90 | .83 | .77 | .71 | .66 | .61 | .56 | .52 |
| 29.00 | DISCHG | .48 | .44 | .41 | .38 | .35 | .32 | .16 | .08 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = .57 WATERSHED INCHES, 294.74 CFS-HRS, 24.36 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 50
INPUT HYDROGRAPH= 4 OUTPUT HYDROGRAPH= 2
SURFACE ELEVATION= 632.00

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.98 | 43.69 | 633.58 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .02 | .05 | .08 | .12 |
| 11.00 | DISCHG | .18 | .26 | .35 | .46 | .60 | .75 | .95 | 1.28 | 2.01 | 3.78 |
| 12.00 | DISCHG | 7.60 | 13.83 | 21.37 | 28.53 | 34.09 | 36.31 | 37.88 | 38.84 | 38.99 | 38.75 |
| 13.00 | DISCHG | 38.60 | 38.76 | 39.23 | 39.90 | 40.69 | 41.49 | 42.25 | 42.89 | 43.37 | 43.63 |
| 14.00 | DISCHG | 43.69 | 43.55 | 43.20 | 42.64 | 41.92 | 41.11 | 40.28 | 39.46 | 38.65 | 37.86 |
| 15.00 | DISCHG | 37.09 | 36.34 | 35.61 | 34.50 | 33.56 | 33.00 | 32.28 | 31.66 | 31.00 | 30.38 |
| 16.00 | DISCHG | 29.76 | 29.17 | 28.60 | 28.05 | 27.51 | 26.99 | 26.47 | 25.97 | 25.47 | 24.96 |
| 17.00 | DISCHG | 24.46 | 23.97 | 23.50 | 23.04 | 22.59 | 22.17 | 21.76 | 21.35 | 20.91 | 20.48 |
| 18.00 | DISCHG | 20.05 | 19.62 | 19.20 | 18.78 | 18.38 | 17.99 | 17.62 | 17.27 | 16.93 | 16.61 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.00 | DISCHG | 16.30 | 16.00 | 15.72 | 15.45 | 15.20 | 14.96 | 14.73 | 14.52 | 14.32 | 14.12 |
| 20.00 | DISCHG | 13.92 | 13.72 | 13.51 | 13.31 | 13.10 | 12.91 | 12.72 | 12.54 | 12.37 | 12.19 |
| 21.00 | DISCHG | 12.03 | 11.87 | 11.71 | 11.55 | 11.40 | 11.25 | 11.11 | 10.97 | 10.84 | 10.72 |
| 22.00 | DISCHG | 10.60 | 10.49 | 10.39 | 10.29 | 10.20 | 10.12 | 10.05 | 9.97 | 9.91 | 9.85 |
| 23.00 | DISCHG | 9.80 | 9.75 | 9.70 | 9.66 | 9.62 | 9.58 | 9.55 | 9.52 | 9.49 | 9.46 |
| 24.00 | DISCHG | 9.42 | 9.35 | 9.25 | 9.10 | 8.92 | 8.70 | 8.46 | 8.22 | 7.96 | 7.70 |
| 25.00 | DISCHG | 7.44 | 7.16 | 6.88 | 6.59 | 6.30 | 5.99 | 5.69 | 5.38 | 5.07 | 4.78 |
| 26.00 | DISCHG | 4.48 | 4.20 | 3.93 | 3.67 | 3.43 | 3.20 | 2.98 | 2.79 | 2.60 | 2.42 |
| 27.00 | DISCHG | 2.25 | 2.10 | 1.95 | 1.81 | 1.68 | 1.56 | 1.45 | 1.35 | 1.25 | 1.16 |
| 28.00 | DISCHG | 1.07 | .99 | .91 | .85 | .78 | .72 | .67 | .62 | .57 | .53 |
| 29.00 | DISCHG | .49 | .45 | .41 | .38 | .35 | .32 | .20 | .08 | .05 | .03 |

NOFF VOLUME ABOVE BASEFLOW = .57 WATERSHED INCHES, 294.73 CFS-HRS, 24.36 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 40
OUTPUT HYDROGRAPH= 1
AREA= .19 SQ MI INPUT RUNOFF CURVE= 71. TIME OF CONCENTRATION= .53 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0707 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.25 | 82.90 | (RUNOFF) |
| 23.67 | 2.96 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .19 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .00 | .00 | .00 | .03 | .12 | .36 | 1.09 | 3.14 | 7.71 | 19.32 |
| 12.00 | DISCHG | 40.35 | 65.63 | 81.23 | 80.42 | 67.87 | 53.13 | 42.08 | 34.38 | 28.74 | 24.80 |
| 13.00 | DISCHG | 21.70 | 19.35 | 17.42 | 15.83 | 14.56 | 13.46 | 12.53 | 11.72 | 11.03 | 10.41 |
| 14.00 | DISCHG | 9.88 | 9.44 | 9.04 | 8.67 | 8.33 | 7.99 | 7.66 | 7.32 | 7.00 | 6.73 |
| 15.00 | DISCHG | 6.53 | 6.41 | 6.34 | 6.29 | 6.21 | 6.06 | 5.88 | 5.72 | 5.60 | 5.53 |
| 16.00 | DISCHG | 5.49 | 5.47 | 5.46 | 5.46 | 5.47 | 5.47 | 5.45 | 5.35 | 5.19 | 5.01 |
| 17.00 | DISCHG | 4.87 | 4.77 | 4.72 | 4.69 | 4.67 | 4.66 | 4.66 | 4.66 | 4.65 | 4.59 |
| 18.00 | DISCHG | 4.45 | 4.26 | 4.09 | 3.97 | 3.89 | 3.85 | 3.82 | 3.80 | 3.80 | 3.79 |
| 19.00 | DISCHG | 3.79 | 3.79 | 3.80 | 3.80 | 3.80 | 3.81 | 3.81 | 3.82 | 3.81 | 3.74 |
| 20.00 | DISCHG | 3.60 | 3.41 | 3.23 | 3.10 | 3.02 | 2.97 | 2.94 | 2.92 | 2.91 | 2.91 |
| 21.00 | DISCHG | 2.90 | 2.90 | 2.90 | 2.91 | 2.91 | 2.91 | 2.91 | 2.91 | 2.92 | 2.92 |
| 22.00 | DISCHG | 2.92 | 2.92 | 2.93 | 2.93 | 2.93 | 2.93 | 2.94 | 2.94 | 2.94 | 2.94 |
| 23.00 | DISCHG | 2.94 | 2.95 | 2.95 | 2.95 | 2.95 | 2.96 | 2.96 | 2.96 | 2.95 | 2.89 |
| 24.00 | DISCHG | 2.73 | 2.46 | 2.05 | 1.54 | 1.05 | .67 | .42 | .26 | .16 | .10 |
| 25.00 | DISCHG | .06 | .04 | .02 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = .94 WATERSHED INCHES, 115.01 CFS-HRS, 9.50 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 40
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.30 | 108.96 | 634.32 |

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TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .02 | .05 | .08 | .12 |
| 11.00 | DISCHG | .18 | .26 | .35 | .49 | .72 | 1.12 | 2.04 | 4.41 | 9.73 | 23.10 |
| 12.00 | DISCHG | 47.95 | 79.46 | 102.60 | 108.95 | 101.97 | 89.44 | 79.96 | 73.23 | 67.73 | 63.55 |
| 13.00 | DISCHG | 60.30 | 58.11 | 56.64 | 55.74 | 55.25 | 54.95 | 54.78 | 54.62 | 54.39 | 54.05 |
| 14.00 | DISCHG | 53.57 | 52.99 | 52.24 | 51.31 | 50.25 | 49.10 | 47.94 | 46.79 | 45.65 | 44.59 |
| 15.00 | DISCHG | 43.62 | 42.75 | 41.95 | 40.79 | 39.77 | 39.06 | 38.16 | 37.37 | 36.60 | 35.91 |
| 16.00 | DISCHG | 35.25 | 34.65 | 34.07 | 33.51 | 32.98 | 32.46 | 31.92 | 31.32 | 30.65 | 29.97 |
| 17.00 | DISCHG | 29.33 | 28.74 | 28.21 | 27.72 | 27.26 | 26.83 | 26.42 | 26.01 | 25.57 | 25.07 |
| 18.00 | DISCHG | 24.50 | 23.89 | 23.29 | 22.74 | 22.27 | 21.83 | 21.44 | 21.07 | 20.73 | 20.40 |
| 19.00 | DISCHG | 20.09 | 19.79 | 19.51 | 19.25 | 19.00 | 18.77 | 18.54 | 18.33 | 18.12 | 17.87 |
| 20.00 | DISCHG | 17.53 | 17.13 | 16.74 | 16.41 | 16.13 | 15.88 | 15.66 | 15.46 | 15.28 | 15.10 |
| 21.00 | DISCHG | 14.93 | 14.77 | 14.61 | 14.46 | 14.31 | 14.16 | 14.02 | 13.89 | 13.76 | 13.64 |
| 22.00 | DISCHG | 13.52 | 13.41 | 13.31 | 13.22 | 13.13 | 13.05 | 12.98 | 12.91 | 12.85 | 12.80 |
| 23.00 | DISCHG | 12.74 | 12.69 | 12.65 | 12.61 | 12.57 | 12.54 | 12.51 | 12.48 | 12.45 | 12.35 |
| 24.00 | DISCHG | 12.14 | 11.81 | 11.30 | 10.64 | 9.97 | 9.37 | 8.88 | 8.48 | 8.12 | 7.81 |
| 25.00 | DISCHG | 7.50 | 7.20 | 6.91 | 6.61 | 6.30 | 5.99 | 5.69 | 5.38 | 5.07 | 4.78 |
| 26.00 | DISCHG | 4.48 | 4.20 | 3.93 | 3.67 | 3.43 | 3.20 | 2.98 | 2.79 | 2.60 | 2.42 |
| 27.00 | DISCHG | 2.25 | 2.10 | 1.95 | 1.81 | 1.68 | 1.56 | 1.45 | 1.35 | 1.25 | 1.16 |
| 28.00 | DISCHG | 1.07 | .99 | .91 | .85 | .78 | .72 | .67 | .62 | .57 | .53 |
| 29.00 | DISCHG | .49 | .45 | .41 | .38 | .35 | .32 | .20 | .08 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = .64 WATERSHED INCHES, 409.75 CFS-HRS, 33.86 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 40
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 632.00

*** WARNING - STRUCTURE 40 DELTA T IS TOO LARGE. O /2 > S /DELTA T OCCURED 56 TIMES STARTING WITH POINT 2

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| .00 | .77 | 632.00 |
| .20 | .76 | 632.00 |
| .40 | .75 | 632.00 |
| .60 | .74 | 632.00 |
| .80 | .73 | 631.99 |
| 1.00 | .72 | 631.99 |
| 1.20 | .71 | 631.99 |
| 1.40 | .70 | 631.99 |
| 1.60 | .69 | 631.99 |
| 14.51 | 49.02 | 633.30 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .77 | -.76 | .76 | -.75 | .75 | -.74 | .74 | -.73 | .73 | -.72 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | DISCHG | .72 | -.71 | .71 | -.71 | .70 | -.70 | .69 | -.69 | .68 | -.68 |
| 2.00 | DISCHG | .67 | -.67 | .67 | -.66 | .66 | -.65 | .65 | -.65 | .64 | -.64 |
| 3.00 | DISCHG | .63 | -.63 | .63 | -.62 | .62 | -.61 | .61 | -.61 | .60 | -.60 |
| 4.00 | DISCHG | .59 | -.59 | .59 | -.58 | .58 | -.58 | .57 | -.57 | .57 | -.56 |



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | DISCHG | .56 | -.55 | .55 | -.55 | .54 | -.54 | .54 | -.53 | .53 | -.53 |
| 6.00 | DISCHG | .52 | -.52 | .52 | -.51 | .51 | -.51 | .50 | -.50 | .50 | -.49 |
| 7.00 | DISCHG | .49 | -.49 | .49 | -.48 | .48 | -.48 | .47 | -.47 | .47 | -.46 |
| 8.00 | DISCHG | .46 | -.46 | .46 | -.45 | .45 | -.45 | .44 | -.44 | .44 | -.44 |
| 9.00 | DISCHG | .43 | -.43 | .43 | -.43 | .42 | -.42 | .42 | -.41 | .41 | -.41 |
| 10.00 | DISCHG | .41 | -.40 | .40 | -.40 | .40 | -.38 | .42 | -.34 | .46 | -.26 |
| 11.00 | DISCHG | .56 | -.12 | .73 | .11 | .77 | .78 | .82 | .95 | 1.27 | 2.06 |
| 12.00 | DISCHG | 3.81 | 6.95 | 11.35 | 16.29 | 20.96 | 24.87 | 28.00 | 30.54 | 32.63 | 35.34 |
| 13.00 | DISCHG | 37.53 | 39.31 | 40.79 | 42.06 | 43.16 | 44.14 | 45.02 | 45.82 | 46.53 | 47.16 |
| 14.00 | DISCHG | 47.71 | 48.17 | 48.53 | 48.80 | 48.96 | 49.02 | 48.98 | 48.85 | 48.63 | 48.34 |
| 15.00 | DISCHG | 47.99 | 47.60 | 47.17 | 46.69 | 46.16 | 45.61 | 45.04 | 44.44 | 43.83 | 43.20 |
| 16.00 | DISCHG | 42.58 | 41.95 | 41.33 | 40.71 | 40.10 | 39.49 | 38.89 | 38.29 | 37.69 | 37.09 |
| 17.00 | DISCHG | 36.48 | 35.86 | 35.26 | 34.66 | 34.07 | 33.49 | 32.93 | 32.47 | 32.12 | 31.76 |
| 18.00 | DISCHG | 31.40 | 31.02 | 30.63 | 30.23 | 29.83 | 29.42 | 29.01 | 28.61 | 28.21 | 27.81 |
| 19.00 | DISCHG | 27.41 | 27.02 | 26.63 | 26.25 | 25.88 | 25.51 | 25.16 | 24.80 | 24.46 | 24.12 |
| 20.00 | DISCHG | 23.79 | 23.45 | 23.11 | 22.76 | 22.42 | 22.09 | 21.76 | 21.43 | 21.12 | 20.81 |
| 21.00 | DISCHG | 20.50 | 20.21 | 19.92 | 19.64 | 19.36 | 19.09 | 18.83 | 18.58 | 18.33 | 18.09 |
| 2.00 | DISCHG | 17.85 | 17.62 | 17.40 | 17.18 | 16.97 | 16.77 | 16.57 | 16.38 | 16.20 | 16.02 |
| 23.00 | DISCHG | 15.85 | 15.69 | 15.53 | 15.38 | 15.23 | 15.09 | 14.96 | 14.83 | 14.71 | 14.59 |
| 24.00 | DISCHG | 14.46 | 14.33 | 14.19 | 14.02 | 13.82 | 13.61 | 13.37 | 13.13 | 12.87 | 12.62 |
| 25.00 | DISCHG | 12.36 | 12.10 | 11.83 | 11.57 | 11.30 | 11.03 | 10.76 | 10.48 | 10.21 | 9.93 |
| 26.00 | DISCHG | 9.66 | 9.38 | 9.10 | 8.82 | 8.55 | 8.27 | 8.00 | 7.73 | 7.47 | 7.21 |
| 27.00 | DISCHG | 6.95 | 6.70 | 6.46 | 6.22 | 5.99 | 5.76 | 5.54 | 5.32 | 5.11 | 4.90 |
| 28.00 | DISCHG | 4.71 | 4.51 | 4.33 | 4.15 | 3.97 | 3.80 | 3.64 | 3.48 | 3.33 | 3.19 |
| 29.00 | DISCHG | 3.05 | 2.91 | 2.78 | 2.66 | 2.54 | 2.42 | 2.31 | 2.20 | 2.08 | 1.98 |

RUNOFF VOLUME ABOVE BASEFLOW = .64 WATERSHED INCHES, 405.43 CFS-HRS, 33.50 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 110
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1606.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .43 M= 1.36
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .38 PEAK TRAVEL TIME = .30 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.78 | 48.80 | 630.41 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .29 | .00 | .29 | .00 | .28 | .00 | .28 | .00 | .28 |
| 1.00 | DISCHG | .00 | .27 | .00 | .27 | .00 | .26 | .00 | .26 | .00 | .26 |
| 2.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .24 |
| 3.00 | DISCHG | .00 | .24 | .00 | .24 | .00 | .23 | .00 | .23 | .00 | .23 |
| 4.00 | DISCHG | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .21 |
| 5.00 | DISCHG | .00 | .21 | .00 | .21 | .00 | .21 | .00 | .20 | .00 | .20 |
| 6.00 | DISCHG | .00 | .20 | .00 | .20 | .00 | .19 | .00 | .19 | .00 | .19 |
| 7.00 | DISCHG | .00 | .19 | .00 | .18 | .00 | .18 | .00 | .18 | .00 | .18 |
| 8.00 | DISCHG | .00 | .17 | .00 | .17 | .00 | .17 | .00 | .17 | .00 | .17 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .16 | .00 | .16 | .00 | .16 | .00 | .16 | .00 | .16 |
| 10.00 | DISCHG | .00 | .15 | .00 | .15 | .00 | .15 | .00 | .16 | .00 | .17 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .01 | .22 | .09 | .33 | .25 | .45 | .57 | .67 | .77 | .96 |
| 12.00 | DISCHG | 1.38 | 2.30 | 4.06 | 6.82 | 10.41 | 14.41 | 18.37 | 22.02 | 25.25 | 28.05 |
| 13.00 | DISCHG | 30.81 | 33.36 | 35.61 | 37.58 | 39.27 | 40.75 | 42.03 | 43.17 | 44.17 | 45.06 |
| 14.00 | DISCHG | 45.86 | 46.56 | 47.17 | 47.68 | 48.11 | 48.43 | 48.65 | 48.78 | 48.80 | 48.74 |
| 15.00 | DISCHG | 48.58 | 48.36 | 48.07 | 47.73 | 47.33 | 46.89 | 46.40 | 45.88 | 45.34 | 44.76 |
| 16.00 | DISCHG | 44.17 | 43.57 | 42.95 | 42.34 | 41.72 | 41.10 | 40.49 | 39.88 | 39.28 | 38.68 |
| 17.00 | DISCHG | 38.07 | 37.47 | 36.86 | 36.25 | 35.65 | 35.05 | 34.46 | 33.88 | 33.34 | 32.88 |
| 18.00 | DISCHG | 32.46 | 32.06 | 31.66 | 31.27 | 30.88 | 30.48 | 30.08 | 29.67 | 29.27 | 28.87 |
| 19.00 | DISCHG | 28.46 | 28.06 | 27.67 | 27.27 | 26.89 | 26.50 | 26.13 | 25.76 | 25.40 | 25.04 |
| 20.00 | DISCHG | 24.69 | 24.35 | 24.01 | 23.67 | 23.32 | 22.98 | 22.64 | 22.31 | 21.98 | 21.65 |
| 21.00 | DISCHG | 21.33 | 21.02 | 20.71 | 20.41 | 20.12 | 19.83 | 19.55 | 19.28 | 19.01 | 18.75 |
| 22.00 | DISCHG | 18.50 | 18.25 | 18.01 | 17.78 | 17.55 | 17.33 | 17.12 | 16.91 | 16.71 | 16.52 |
| 23.00 | DISCHG | 16.33 | 16.15 | 15.97 | 15.81 | 15.64 | 15.49 | 15.34 | 15.19 | 15.06 | 14.92 |
| 24.00 | DISCHG | 14.79 | 14.67 | 14.54 | 14.41 | 14.26 | 14.09 | 13.91 | 13.70 | 13.48 | 13.25 |
| 25.00 | DISCHG | 13.01 | 12.76 | 12.51 | 12.25 | 11.99 | 11.73 | 11.46 | 11.19 | 10.93 | 10.65 |
| 26.00 | DISCHG | 10.38 | 10.10 | 9.83 | 9.55 | 9.27 | 9.00 | 8.72 | 8.45 | 8.18 | 7.91 |
| 27.00 | DISCHG | 7.64 | 7.38 | 7.12 | 6.87 | 6.62 | 6.38 | 6.14 | 5.91 | 5.69 | 5.47 |
| 28.00 | DISCHG | 5.25 | 5.05 | 4.84 | 4.65 | 4.46 | 4.27 | 4.09 | 3.92 | 3.76 | 3.59 |
| 29.00 | DISCHG | 3.44 | 3.29 | 3.15 | 3.01 | 2.87 | 2.75 | 2.62 | 2.50 | 2.39 | 2.27 |

RUNOFF VOLUME ABOVE BASEFLOW = .64 WATERSHED INCHES, 408.43 CFS-HRS, 33.75 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 30
OUTPUT HYDROGRAPH= 1
AREA= .02 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .68 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0907 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.33 | 10.73 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .02 |
| 11.00 | DISCHG | .04 | .06 | .10 | .14 | .20 | .26 | .39 | .66 | 1.27 | 2.52 |
| 12.00 | DISCHG | 4.62 | 7.28 | 9.58 | 10.66 | 10.42 | 9.25 | 7.68 | 6.29 | 5.26 | 4.47 |
| 13.00 | DISCHG | 3.85 | 3.36 | 2.96 | 2.64 | 2.38 | 2.17 | 1.99 | 1.84 | 1.71 | 1.59 |
| 14.00 | DISCHG | 1.49 | 1.40 | 1.32 | 1.26 | 1.21 | 1.16 | 1.11 | 1.06 | 1.01 | .97 |
| 15.00 | DISCHG | .93 | .91 | .89 | .87 | .86 | .84 | .82 | .80 | .78 | .77 |
| 16.00 | DISCHG | .76 | .75 | .75 | .74 | .74 | .74 | .74 | .73 | .72 | .70 |
| 17.00 | DISCHG | .68 | .66 | .65 | .64 | .64 | .63 | .63 | .63 | .63 | .62 |
| 18.00 | DISCHG | .61 | .59 | .57 | .55 | .54 | .53 | .52 | .52 | .51 | .51 |
| 19.00 | DISCHG | .51 | .51 | .51 | .51 | .51 | .51 | .51 | .51 | .51 | .50 |
| 20.00 | DISCHG | .49 | .48 | .46 | .44 | .42 | .41 | .40 | .40 | .39 | .39 |
| 21.00 | DISCHG | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 |
| 22.00 | DISCHG | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 |
| 23.00 | DISCHG | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 | .39 |
| 24.00 | DISCHG | .38 | .35 | .31 | .26 | .20 | .15 | .11 | .07 | .05 | .04 |
| 25.00 | DISCHG | .02 | .02 | .01 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES, 16.85 CFS-HRS, 1.39 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 30
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.73 | 49.84 | 632.90 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .29 | .00 | .29 | .00 | .28 | .00 | .28 | .00 | .28 |
| 1.00 | DISCHG | .00 | .27 | .00 | .27 | .00 | .26 | .00 | .26 | .00 | .26 |
| 2.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .24 |
| 3.00 | DISCHG | .00 | .24 | .00 | .24 | .00 | .23 | .00 | .23 | .00 | .23 |
| 4.00 | DISCHG | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .21 |
| 5.00 | DISCHG | .00 | .21 | .00 | .21 | .00 | .21 | .00 | .20 | .00 | .20 |
| 6.00 | DISCHG | .00 | .20 | .00 | .20 | .00 | .19 | .00 | .19 | .00 | .19 |
| 7.00 | DISCHG | .00 | .19 | .00 | .18 | .00 | .18 | .00 | .18 | .00 | .18 |
| 8.00 | DISCHG | .00 | .17 | .00 | .17 | .00 | .17 | .00 | .17 | .00 | .17 |
| 9.00 | DISCHG | .00 | .16 | .00 | .16 | .00 | .16 | .00 | .16 | .00 | .16 |
| 10.00 | DISCHG | .00 | .15 | .00 | .15 | .00 | .15 | .00 | .16 | .01 | .19 |
| 11.00 | DISCHG | .05 | .28 | .19 | .47 | .44 | .71 | .96 | 1.33 | 2.05 | 3.48 |
| [illegible].00 | DISCHG | 5.99 | 9.58 | 13.64 | 17.48 | 20.83 | 23.66 | 26.06 | 28.31 | 30.51 | 32.51 |
| [illegible].00 | DISCHG | 34.66 | 36.71 | 38.57 | 40.22 | 41.66 | 42.91 | 44.02 | 45.01 | 45.88 | 46.66 |
| 14.00 | DISCHG | 47.35 | 47.96 | 48.49 | 48.95 | 49.31 | 49.59 | 49.76 | 49.83 | 49.81 | 49.70 |
| 15.00 | DISCHG | 49.52 | 49.27 | 48.96 | 48.60 | 48.19 | 47.73 | 47.23 | 46.69 | 46.12 | 45.53 |
| 16.00 | DISCHG | 44.93 | 44.32 | 43.70 | 43.08 | 42.46 | 41.84 | 41.23 | 40.62 | 40.00 | 39.38 |
| 17.00 | DISCHG | 38.75 | 38.13 | 37.51 | 36.89 | 36.28 | 35.68 | 35.09 | 34.51 | 33.97 | 33.50 |
| 18.00 | DISCHG | 33.07 | 32.65 | 32.24 | 31.83 | 31.42 | 31.01 | 30.60 | 30.19 | 29.78 | 29.38 |
| 19.00 | DISCHG | 28.97 | 28.57 | 28.18 | 27.78 | 27.40 | 27.01 | 26.64 | 26.27 | 25.91 | 25.55 |
| 20.00 | DISCHG | 25.19 | 24.82 | 24.46 | 24.10 | 23.74 | 23.39 | 23.05 | 22.71 | 22.37 | 22.04 |
| 21.00 | DISCHG | 21.72 | 21.41 | 21.10 | 20.80 | 20.50 | 20.22 | 19.94 | 19.67 | 19.40 | 19.14 |
| 22.00 | DISCHG | 18.89 | 18.64 | 18.40 | 18.17 | 17.94 | 17.72 | 17.51 | 17.30 | 17.10 | 16.91 |
| 23.00 | DISCHG | 16.72 | 16.54 | 16.37 | 16.20 | 16.04 | 15.88 | 15.73 | 15.59 | 15.45 | 15.31 |
| 24.00 | DISCHG | 15.17 | 15.02 | 14.85 | 14.67 | 14.46 | 14.25 | 14.02 | 13.78 | 13.54 | 13.29 |
| 25.00 | DISCHG | 13.04 | 12.78 | 12.52 | 12.26 | 12.00 | 11.73 | 11.46 | 11.19 | 10.93 | 10.65 |
| 26.00 | DISCHG | 10.38 | 10.10 | 9.83 | 9.55 | 9.27 | 9.00 | 8.72 | 8.45 | 8.18 | 7.91 |
| 27.00 | DISCHG | 7.64 | 7.38 | 7.12 | 6.87 | 6.62 | 6.38 | 6.14 | 5.91 | 5.69 | 5.47 |
| 28.00 | DISCHG | 5.25 | 5.05 | 4.84 | 4.65 | 4.46 | 4.27 | 4.09 | 3.92 | 3.76 | 3.59 |
| 29.00 | DISCHG | 3.44 | 3.29 | 3.15 | 3.01 | 2.87 | 2.75 | 2.62 | 2.50 | 2.39 | 2.27 |

RUNOFF VOLUME ABOVE BASEFLOW = .65 WATERSHED INCHES, 425.28 CFS-HRS, 35.14 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 30
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 628.41

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 15.07 | 49.36 | 632.89 |

1

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .13 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 1.00 | DISCHG | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 2.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 | .12 |
| 3.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .11 |
| 4.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 5.00 | DISCHG | .11 | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 6.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 |
| 7.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 |
| 8.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .08 | .08 | .08 |
| 9.00 | DISCHG | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 |
| 10.00 | DISCHG | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .10 |
| 11.00 | DISCHG | .12 | .16 | .23 | .32 | .45 | .57 | .82 | 1.12 | 1.65 | 2.69 |
| 12.00 | DISCHG | 4.53 | 6.37 | 9.34 | 12.86 | 16.24 | 17.78 | 19.60 | 21.56 | 23.58 | 25.62 |
| 13.00 | DISCHG | 27.67 | 29.47 | 29.77 | 30.13 | 30.53 | 30.97 | 31.43 | 31.92 | 34.14 | 37.76 |
| 14.00 | DISCHG | 40.51 | 42.64 | 44.30 | 45.62 | 46.66 | 47.49 | 48.14 | 48.64 | 48.99 | 49.22 |
| 15.00 | DISCHG | 49.34 | 49.35 | 49.28 | 49.13 | 48.91 | 48.63 | 48.29 | 47.89 | 47.45 | 46.96 |
| 16.00 | DISCHG | 46.45 | 45.90 | 45.34 | 44.76 | 44.17 | 43.57 | 42.96 | 42.35 | 41.74 | 41.13 |
| 17.00 | DISCHG | 40.52 | 39.90 | 39.28 | 38.66 | 38.04 | 37.43 | 36.82 | 36.22 | 35.63 | 35.07 |
| 18.00 | DISCHG | 34.53 | 34.04 | 33.56 | 33.11 | 32.66 | 32.23 | 32.13 | 32.07 | 31.99 | 31.90 |
| 19.00 | DISCHG | 31.80 | 31.69 | 31.56 | 31.43 | 31.29 | 31.14 | 30.97 | 30.81 | 30.63 | 30.45 |
| 20.00 | DISCHG | 30.26 | 30.06 | 29.86 | 29.65 | 29.44 | 28.05 | 26.80 | 25.79 | 24.95 | 24.25 |
| 21.00 | DISCHG | 23.64 | 23.10 | 22.63 | 22.19 | 21.80 | 21.43 | 21.08 | 20.75 | 20.44 | 20.14 |
| 22.00 | DISCHG | 19.85 | 19.57 | 19.30 | 19.04 | 18.79 | 18.54 | 18.30 | 18.07 | 17.85 | 17.63 |
| 23.00 | DISCHG | 17.42 | 17.22 | 17.02 | 16.83 | 16.65 | 16.47 | 16.30 | 16.13 | 15.85 | 15.58 |
| 24.00 | DISCHG | 15.39 | 15.22 | 15.06 | 14.89 | 14.71 | 14.51 | 14.29 | 14.07 | 13.84 | 13.60 |
| 25.00 | DISCHG | 13.35 | 13.10 | 12.85 | 12.59 | 12.33 | 12.06 | 11.80 | 11.53 | 11.27 | 11.00 |
| 26.00 | DISCHG | 10.72 | 10.45 | 10.18 | 9.90 | 9.62 | 9.35 | 9.07 | 8.80 | 8.52 | 8.25 |
| 27.00 | DISCHG | 7.98 | 7.71 | 7.45 | 7.20 | 6.94 | 6.69 | 6.45 | 6.21 | 5.98 | 5.75 |
| 28.00 | DISCHG | 5.53 | 5.31 | 5.10 | 4.90 | 4.70 | 4.51 | 4.27 | 4.03 | 3.85 | 3.69 |
| 29.00 | DISCHG | 3.53 | 3.38 | 3.23 | 3.09 | 2.95 | 2.82 | 2.69 | 2.57 | 2.45 | 2.34 |

RUNOFF VOLUME ABOVE BASEFLOW = .65 WATERSHED INCHES, 424.72 CFS-HRS, 35.10 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 100
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 972.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .47 M= 1.53
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .81 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 100 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 15.20 | 49.34 | 627.18 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .11 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 1.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| .00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 4.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 5.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 6.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 | .09 |
| 7.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 |
| 8.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .08 | .08 |
| 9.00 | DISCHG | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 |
| 10.00 | DISCHG | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 | .08 |
| 11.00 | DISCHG | .10 | .11 | .15 | .22 | .30 | .42 | .54 | .76 | 1.05 | 1.53 |
| 12.00 | DISCHG | 2.46 | 4.13 | 5.94 | 8.68 | 12.05 | 15.42 | 17.33 | 19.16 | 21.09 | 23.09 |
| 13.00 | DISCHG | 25.13 | 27.18 | 29.02 | 29.62 | 30.03 | 30.43 | 30.86 | 31.32 | 31.81 | 33.69 |
| 14.00 | DISCHG | 36.97 | 39.82 | 42.09 | 43.87 | 45.28 | 46.40 | 47.28 | 47.97 | 48.51 | 48.90 |
| 15.00 | DISCHG | 49.15 | 49.30 | 49.34 | 49.29 | 49.16 | 48.96 | 48.69 | 48.37 | 47.98 | 47.55 |
| 16.00 | DISCHG | 47.08 | 46.57 | 46.03 | 45.47 | 44.90 | 44.31 | 43.71 | 43.11 | 42.50 | 41.89 |
| 17.00 | DISCHG | 41.28 | 40.66 | 40.05 | 39.43 | 38.81 | 38.19 | 37.58 | 36.97 | 36.36 | 35.77 |
| 18.00 | DISCHG | 35.20 | 34.66 | 34.16 | 33.68 | 33.22 | 32.77 | 32.34 | 32.17 | 32.09 | 32.01 |
| 19.00 | DISCHG | 31.92 | 31.82 | 31.71 | 31.59 | 31.46 | 31.32 | 31.17 | 31.01 | 30.85 | 30.67 |
| 20.00 | DISCHG | 30.49 | 30.30 | 30.11 | 29.91 | 29.70 | 29.49 | 28.33 | 27.10 | 26.05 | 25.17 |
| 21.00 | DISCHG | 24.42 | 23.79 | 23.24 | 22.74 | 22.30 | 21.89 | 21.52 | 21.16 | 20.83 | 20.51 |
| 22.00 | DISCHG | 20.21 | 19.92 | 19.64 | 19.36 | 19.10 | 18.85 | 18.60 | 18.36 | 18.13 | 17.90 |
| 23.00 | DISCHG | 17.68 | 17.47 | 17.26 | 17.07 | 16.88 | 16.69 | 16.51 | 16.34 | 16.17 | 15.91 |
| 24.00 | DISCHG | 15.65 | 15.44 | 15.26 | 15.10 | 14.93 | 14.75 | 14.55 | 14.34 | 14.12 | 13.89 |
| 25.00 | DISCHG | 13.65 | 13.41 | 13.16 | 12.91 | 12.65 | 12.39 | 12.13 | 11.86 | 11.60 | 11.33 |
| 26.00 | DISCHG | 11.06 | 10.79 | 10.52 | 10.24 | 9.97 | 9.69 | 9.41 | 9.14 | 8.86 | 8.59 |
| 27.00 | DISCHG | 8.31 | 8.05 | 7.78 | 7.52 | 7.26 | 7.00 | 6.75 | 6.51 | 6.27 | 6.03 |
| .00 | DISCHG | 5.81 | 5.58 | 5.37 | 5.16 | 4.95 | 4.75 | 4.56 | 4.32 | 4.08 | 3.90 |
| .00 | DISCHG | 3.73 | 3.57 | 3.41 | 3.26 | 3.12 | 2.98 | 2.85 | 2.72 | 2.60 | 2.48 |

RUNOFF VOLUME ABOVE BASEFLOW = .65 WATERSHED INCHES, 424.45 CFS-HRS, 35.08 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 20
OUTPUT HYDROGRAPH= 1
AREA= .03 SQ MI INPUT RUNOFF CURVE= 81. TIME OF CONCENTRATION= .61 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0813 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.26 | 18.51 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .03 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .01 | .01 | .02 | .03 | .05 | .06 | .08 | .10 |
| 10.00 | DISCHG | .11 | .13 | .15 | .18 | .20 | .23 | .27 | .31 | .37 | .43 |
| 11.00 | DISCHG | .50 | .58 | .67 | .78 | .89 | 1.05 | 1.36 | 2.00 | 3.34 | 5.92 |
| 12.00 | DISCHG | 9.97 | 14.65 | 18.06 | 18.37 | 16.48 | 13.57 | 10.70 | 8.59 | 7.08 | 5.94 |
| 13.00 | DISCHG | 5.07 | 4.40 | 3.88 | 3.47 | 3.13 | 2.85 | 2.62 | 2.43 | 2.25 | 2.09 |
| 14.00 | DISCHG | 1.97 | 1.87 | 1.78 | 1.70 | 1.63 | 1.56 | 1.49 | 1.42 | 1.36 | 1.30 |
| 15.00 | DISCHG | 1.26 | 1.23 | 1.20 | 1.19 | 1.17 | 1.15 | 1.12 | 1.08 | 1.06 | 1.04 |
| 16.00 | DISCHG | 1.03 | 1.02 | 1.02 | 1.01 | 1.01 | 1.01 | 1.01 | .99 | .97 | .94 |
| 17.00 | DISCHG | .91 | .89 | .88 | .87 | .86 | .86 | .85 | .85 | .85 | .84 |

1

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.00 | DISCHG | .82 | .79 | .76 | .74 | .72 | .71 | .70 | .70 | .69 | .69 |
| 19.00 | DISCHG | .69 | .69 | .69 | .69 | .69 | .69 | .69 | .69 | .69 | .68 |
| 20.00 | DISCHG | .66 | .63 | .60 | .57 | .56 | .54 | .54 | .53 | .53 | .52 |
| 1.00 | DISCHG | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 |
| 22.00 | DISCHG | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 | .52 |
| 23.00 | DISCHG | .52 | .52 | .53 | .53 | .53 | .53 | .53 | .53 | .52 | .52 |
| 24.00 | DISCHG | .50 | .46 | .40 | .32 | .23 | .16 | .11 | .07 | .05 | .03 |
| 25.00 | DISCHG | .02 | .01 | .01 | .01 | .00 | | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.55 WATERSHED INCHES, 25.96 CFS-HRS, 2.15 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 20
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.48 | 29.02 | 628.33 |
| 15.17 | 50.55 | 628.97 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.04 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .11 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 1.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |
| 2.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| 3.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 4.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 5.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 6.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 | .09 |
| 7.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 |
| 8.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .08 | .08 |
| 9.00 | DISCHG | .08 | .08 | .09 | .10 | .10 | .11 | .13 | .14 | .16 | .17 |
| 10.00 | DISCHG | .19 | .21 | .23 | .25 | .28 | .31 | .34 | .39 | .44 | .51 |
| 11.00 | DISCHG | .60 | .70 | .83 | .99 | 1.20 | 1.47 | 1.90 | 2.77 | 4.39 | 7.45 |
| 12.00 | DISCHG | 12.43 | 18.78 | 24.00 | 27.05 | 28.53 | 28.99 | 28.02 | 27.76 | 28.17 | 29.04 |
| 13.00 | DISCHG | 30.20 | 31.58 | 32.91 | 33.09 | 33.16 | 33.29 | 33.49 | 33.75 | 34.05 | 35.78 |
| 14.00 | DISCHG | 38.94 | 41.69 | 43.87 | 45.57 | 46.91 | 47.95 | 48.77 | 49.40 | 49.87 | 50.20 |
| 15.00 | DISCHG | 50.41 | 50.53 | 50.55 | 50.48 | 50.33 | 50.11 | 49.81 | 49.45 | 49.04 | 48.59 |
| 16.00 | DISCHG | 48.11 | 47.59 | 47.05 | 46.49 | 45.91 | 45.32 | 44.72 | 44.10 | 43.47 | 42.83 |
| 17.00 | DISCHG | 42.19 | 41.55 | 40.92 | 40.29 | 39.67 | 39.05 | 38.43 | 37.82 | 37.22 | 36.61 |
| 18.00 | DISCHG | 36.02 | 35.46 | 34.92 | 34.41 | 33.94 | 33.48 | 33.04 | 32.87 | 32.78 | 32.70 |
| 19.00 | DISCHG | 32.61 | 32.51 | 32.40 | 32.28 | 32.15 | 32.01 | 31.86 | 31.70 | 31.53 | 31.35 |
| 20.00 | DISCHG | 31.15 | 30.93 | 30.71 | 30.48 | 30.26 | 30.03 | 28.86 | 27.63 | 26.57 | 25.69 |
| 21.00 | DISCHG | 24.95 | 24.31 | 23.76 | 23.27 | 22.82 | 22.42 | 22.04 | 21.69 | 21.35 | 21.04 |
| 22.00 | DISCHG | 20.73 | 20.44 | 20.16 | 19.89 | 19.63 | 19.37 | 19.12 | 18.88 | 18.65 | 18.43 |
| 23.00 | DISCHG | 18.21 | 17.99 | 17.79 | 17.59 | 17.40 | 17.22 | 17.04 | 16.87 | 16.70 | 16.43 |
| 24.00 | DISCHG | 16.14 | 15.89 | 15.66 | 15.42 | 15.17 | 14.91 | 14.66 | 14.42 | 14.17 | 13.92 |
| 25.00 | DISCHG | 13.68 | 13.42 | 13.17 | 12.91 | 12.65 | 12.39 | 12.13 | 11.86 | 11.60 | 11.33 |
| 26.00 | DISCHG | 11.06 | 10.79 | 10.52 | 10.24 | 9.97 | 9.69 | 9.41 | 9.14 | 8.86 | 8.59 |
| 27.00 | DISCHG | 8.31 | 8.05 | 7.78 | 7.52 | 7.26 | 7.00 | 6.75 | 6.51 | 6.27 | 6.03 |
| 28.00 | DISCHG | 5.81 | 5.58 | 5.37 | 5.16 | 4.95 | 4.75 | 4.56 | 4.32 | 4.08 | 3.90 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 29.00 | DISCHG | 3.73 | 3.57 | 3.41 | 3.26 | 3.12 | 2.98 | 2.85 | 2.72 | 2.60 | 2.48 |

RUNOFF VOLUME ABOVE BASEFLOW = .67 WATERSHED INCHES, 450.41 CFS-HRS, 37.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 1
AREA= .42 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= 1.51 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1007 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.94 | 114.28 | (RUNOFF) |
| 23.74 | 7.33 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .42 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .02 | .05 |
| 11.00 | DISCHG | .10 | .18 | .32 | .52 | .79 | 1.18 | 1.80 | 2.85 | 4.76 | 8.41 |
| 12.00 | DISCHG | 14.73 | 23.86 | 35.60 | 49.91 | 66.00 | 81.84 | 95.21 | 105.03 | 111.18 | 113.99 |
| 13.00 | DISCHG | 113.81 | 110.90 | 106.15 | 99.80 | 92.03 | 83.91 | 76.64 | 70.42 | 64.87 | 59.95 |
| 14.00 | DISCHG | 55.54 | 51.46 | 47.68 | 44.30 | 41.28 | 38.53 | 36.04 | 33.78 | 31.73 | 29.84 |
| 15.00 | DISCHG | 28.15 | 26.61 | 25.22 | 23.97 | 22.85 | 21.83 | 20.91 | 20.09 | 19.35 | 18.67 |
| 16.00 | DISCHG | 18.05 | 17.51 | 17.01 | 16.56 | 16.15 | 15.78 | 15.43 | 15.11 | 14.82 | 14.57 |
| 17.00 | DISCHG | 14.34 | 14.12 | 13.89 | 13.66 | 13.44 | 13.22 | 13.01 | 12.82 | 12.65 | 12.49 |
| 18.00 | DISCHG | 12.33 | 12.19 | 12.03 | 11.87 | 11.68 | 11.48 | 11.28 | 11.07 | 10.88 | 10.69 |
| 19.00 | DISCHG | 10.52 | 10.36 | 10.22 | 10.11 | 10.01 | 9.94 | 9.87 | 9.82 | 9.77 | 9.72 |
| 20.00 | DISCHG | 9.67 | 9.60 | 9.51 | 9.40 | 9.26 | 9.09 | 8.92 | 8.73 | 8.55 | 8.38 |
| 21.00 | DISCHG | 8.22 | 8.07 | 7.94 | 7.83 | 7.74 | 7.66 | 7.60 | 7.55 | 7.50 | 7.47 |
| 22.00 | DISCHG | 7.44 | 7.41 | 7.39 | 7.37 | 7.36 | 7.35 | 7.34 | 7.33 | 7.33 | 7.32 |
| 23.00 | DISCHG | 7.32 | 7.32 | 7.32 | 7.32 | 7.32 | 7.32 | 7.32 | 7.33 | 7.33 | 7.32 |
| 24.00 | DISCHG | 7.29 | 7.23 | 7.13 | 6.96 | 6.71 | 6.38 | 5.98 | 5.50 | 4.99 | 4.46 |
| 25.00 | DISCHG | 3.93 | 3.42 | 2.95 | 2.52 | 2.14 | 1.81 | 1.53 | 1.30 | 1.10 | .94 |
| 26.00 | DISCHG | .80 | .68 | .58 | .49 | .41 | .35 | .30 | .25 | .21 | .18 |
| 27.00 | DISCHG | .15 | .13 | .11 | .09 | .07 | .06 | .05 | .04 | .03 | .03 |
| 28.00 | DISCHG | .02 | .02 | .01 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES, 315.00 CFS-HRS, 26.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 9
INPUT HYDROGRAPHS= 1,3 OUTPUT HYDROGRAPH= 6

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.99 | 144.02 | 618.47 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.46 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .11 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 1.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |
| 2.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| 3.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 4.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 6.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 | .09 |
| 7.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 |
| 8.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .08 | .08 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .08 | .08 | .09 | .10 | .10 | .11 | .13 | .14 | .16 | .17 |
| 10.00 | DISCHG | .19 | .21 | .23 | .25 | .28 | .31 | .34 | .39 | .46 | .56 |
| 11.00 | DISCHG | .70 | .88 | 1.15 | 1.51 | 1.99 | 2.65 | 3.69 | 5.62 | 9.16 | 15.86 |
| 12.00 | DISCHG | 27.16 | 42.64 | 59.60 | 76.96 | 94.53 | 110.83 | 123.23 | 132.79 | 139.35 | 143.02 |
| 3.00 | DISCHG | 144.01 | 142.48 | 139.06 | 132.89 | 125.19 | 117.20 | 110.13 | 104.17 | 98.93 | 95.73 |
| 14.00 | DISCHG | 94.48 | 93.15 | 91.55 | 89.87 | 88.19 | 86.49 | 84.81 | 83.18 | 81.59 | 80.04 |
| 15.00 | DISCHG | 78.56 | 77.14 | 75.77 | 74.45 | 73.18 | 71.94 | 70.72 | 69.54 | 68.39 | 67.26 |
| 16.00 | DISCHG | 66.15 | 65.10 | 64.06 | 63.05 | 62.06 | 61.09 | 60.15 | 59.21 | 58.29 | 57.40 |
| 17.00 | DISCHG | 56.53 | 55.68 | 54.82 | 53.96 | 53.11 | 52.27 | 51.44 | 50.64 | 49.87 | 49.10 |
| 18.00 | DISCHG | 48.36 | 47.64 | 46.95 | 46.28 | 45.62 | 44.96 | 44.32 | 43.94 | 43.66 | 43.39 |
| 19.00 | DISCHG | 43.13 | 42.87 | 42.63 | 42.39 | 42.16 | 41.95 | 41.73 | 41.52 | 41.31 | 41.08 |
| 20.00 | DISCHG | 40.82 | 40.53 | 40.22 | 39.88 | 39.51 | 39.13 | 37.78 | 36.36 | 35.13 | 34.07 |
| 21.00 | DISCHG | 33.17 | 32.38 | 31.70 | 31.09 | 30.56 | 30.08 | 29.64 | 29.23 | 28.86 | 28.50 |
| 22.00 | DISCHG | 28.17 | 27.85 | 27.55 | 27.26 | 26.98 | 26.72 | 26.46 | 26.21 | 25.98 | 25.75 |
| 23.00 | DISCHG | 25.53 | 25.31 | 25.11 | 24.91 | 24.72 | 24.54 | 24.36 | 24.19 | 24.02 | 23.75 |
| 24.00 | DISCHG | 23.43 | 23.13 | 22.79 | 22.38 | 21.88 | 21.30 | 20.64 | 19.92 | 19.16 | 18.38 |
| 25.00 | DISCHG | 17.61 | 16.85 | 16.12 | 15.43 | 14.79 | 14.20 | 13.66 | 13.16 | 12.70 | 12.27 |
| 26.00 | DISCHG | 11.86 | 11.47 | 11.09 | 10.73 | 10.38 | 10.04 | 9.71 | 9.39 | 9.07 | 8.77 |
| 27.00 | DISCHG | 8.47 | 8.17 | 7.89 | 7.61 | 7.33 | 7.06 | 6.80 | 6.55 | 6.30 | 6.06 |
| 28.00 | DISCHG | 5.83 | 5.60 | 5.38 | 5.17 | 4.96 | 4.75 | 4.56 | 4.32 | 4.08 | 3.90 |
| 29.00 | DISCHG | 3.73 | 3.57 | 3.41 | 3.26 | 3.12 | 2.98 | 2.85 | 2.72 | 2.60 | 2.48 |

RUNOFF VOLUME ABOVE BASEFLOW = .81 WATERSHED INCHES, 765.41 CFS-HRS, 63.25 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 80
OUTPUT HYDROGRAPH= 1
AREA= .29 SQ MI INPUT RUNOFF CURVE= 86. TIME OF CONCENTRATION= 2.29 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1018 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.44 | 102.11 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .29 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .01 | .02 | .03 | .04 |
| 8.00 | DISCHG | .05 | .07 | .10 | .13 | .16 | .21 | .25 | .31 | .37 | .44 |
| 9.00 | DISCHG | .52 | .61 | .70 | .81 | .92 | 1.04 | 1.16 | 1.30 | 1.45 | 1.60 |
| 10.00 | DISCHG | 1.76 | 1.93 | 2.11 | 2.30 | 2.51 | 2.72 | 2.95 | 3.20 | 3.47 | 3.77 |
| 11.00 | DISCHG | 4.10 | 4.46 | 4.87 | 5.33 | 5.86 | 6.45 | 7.20 | 8.21 | 9.68 | 11.96 |
| 12.00 | DISCHG | 15.30 | 19.62 | 24.96 | 31.28 | 38.61 | 46.94 | 56.15 | 65.63 | 74.69 | 82.73 |
| 13.00 | DISCHG | 89.49 | 94.78 | 98.50 | 100.87 | 102.00 | 101.93 | 100.73 | 98.56 | 95.65 | 92.09 |
| 14.00 | DISCHG | 87.89 | 83.08 | 77.88 | 72.67 | 67.79 | 63.39 | 59.42 | 55.78 | 52.42 | 49.32 |
| 15.00 | DISCHG | 46.47 | 43.83 | 41.31 | 38.94 | 36.73 | 34.69 | 32.83 | 31.11 | 29.51 | 28.04 |
| 16.00 | DISCHG | 26.67 | 25.40 | 24.24 | 23.17 | 22.16 | 21.25 | 20.43 | 19.67 | 18.98 | 18.34 |
| 17.00 | DISCHG | 17.75 | 17.21 | 16.71 | 16.23 | 15.78 | 15.36 | 14.96 | 14.59 | 14.24 | 13.91 |
| 18.00 | DISCHG | 13.60 | 13.31 | 13.03 | 12.77 | 12.52 | 12.27 | 12.02 | 11.77 | 11.52 | 11.28 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.00 | DISCHG | 11.04 | 10.81 | 10.59 | 10.38 | 10.18 | 10.00 | 9.85 | 9.71 | 9.58 | 9.47 |
| .00 | DISCHG | 9.36 | 9.25 | 9.15 | 9.05 | 8.95 | 8.85 | 8.74 | 8.62 | 8.50 | 8.37 |
| 21.00 | DISCHG | 8.24 | 8.11 | 7.98 | 7.86 | 7.73 | 7.62 | 7.51 | 7.40 | 7.30 | 7.21 |
| 22.00 | DISCHG | 7.13 | 7.05 | 6.99 | 6.93 | 6.88 | 6.84 | 6.80 | 6.76 | 6.73 | 6.70 |
| 23.00 | DISCHG | 6.67 | 6.65 | 6.63 | 6.61 | 6.59 | 6.58 | 6.57 | 6.56 | 6.55 | 6.53 |
| 24.00 | DISCHG | 6.52 | 6.49 | 6.45 | 6.40 | 6.32 | 6.22 | 6.09 | 5.93 | 5.73 | 5.50 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25.00 | DISCHG | 5.24 | 4.96 | 4.66 | 4.35 | 4.04 | 3.72 | 3.41 | 3.11 | 2.83 | 2.55 |
| 26.00 | DISCHG | 2.30 | 2.06 | 1.84 | 1.65 | 1.48 | 1.33 | 1.19 | 1.07 | .96 | .86 |
| 27.00 | DISCHG | .78 | .70 | .62 | .56 | .50 | .45 | .40 | .36 | .33 | .29 |
| 28.00 | DISCHG | .26 | .23 | .21 | .19 | .17 | .15 | .13 | .12 | .11 | .10 |
| .00 | DISCHG | .08 | .08 | .07 | .06 | .05 | .05 | .04 | .04 | .03 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.92 WATERSHED INCHES, 359.65 CFS-HRS, 29.72 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID
+ COMPUTATIONS COMPLETED FOR PASS 1

1



OCHANGES TO STANDARD CONTROL LIST FOLLOW

EXECUTIVE CONTROL OPERATION ALTER RECORD ID

STANDARD CONTROL OPERATION ADDHYD STRUCTURE 9 RECORD ID
INPUT HYDROGRAPHS = 1,3 OUTPUT HYDROGRAPH = 6 DATA FIELD VALUES = .0000 .0000 .0000
OUTPUT OPTIONS IN EFFECT PEAK HYD VOL SUM



EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55
+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 2

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .01 | .03 | .04 |
| 8 | .08 | .11 | .15 | .20 | .25 |
| | .30 | .36 | .42 | .49 | .56 |
| 8 | .65 | .75 | .88 | 1.03 | 1.20 |
| 8 | 1.40 | 1.64 | 1.90 | 2.20 | 2.54 |
| 8 | 2.96 | 3.70 | 5.16 | 8.11 | 13.62 |
| 8 | 22.45 | 33.71 | 44.33 | 50.76 | 52.05 |
| 8 | 49.46 | 44.66 | 39.56 | 35.30 | 32.27 |
| 8 | 30.03 | 28.44 | 27.29 | 26.55 | 26.08 |
| 8 | 25.88 | 25.82 | 25.90 | 26.04 | 26.29 |
| 8 | 26.47 | 26.70 | 26.94 | 27.25 | 27.53 |
| 8 | 27.83 | 28.05 | 28.25 | 28.37 | 28.50 |
| 8 | 28.59 | 28.72 | 28.82 | 28.95 | 29.03 |
| 8 | 29.10 | 29.09 | 29.07 | 28.99 | 28.91 |
| 8 | 28.79 | 28.69 | 28.54 | 28.41 | 28.22 |
| 8 | 28.04 | 27.81 | 27.56 | 27.24 | 26.91 |
| 8 | 26.53 | 26.17 | 25.78 | 25.43 | 25.06 |
| 8 | 24.71 | 24.34 | 24.00 | 23.63 | 23.28 |
| 8 | 22.88 | 22.49 | 21.99 | 21.48 | 20.95 |
| 8 | 20.48 | 19.99 | 19.55 | 19.10 | 18.70 |
| 8 | 18.28 | 17.90 | 17.50 | 17.15 | 16.78 |
| 8 | 16.45 | 16.10 | 15.79 | 15.46 | 15.16 |
| 8 | 14.82 | 14.50 | 14.14 | 13.82 | 13.49 |
| 8 | 13.21 | 12.93 | 12.69 | 12.41 | 12.11 |
| 8 | 11.81 | 11.55 | 11.28 | 11.05 | 10.80 |

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| | | | | | |
|---|---|---|---|---|---|
| 8 | 10.60 | 10.37 | 10.18 | 9.98 | 9.81 |
| 8 | 9.62 | 9.48 | 9.31 | 9.18 | 9.02 |
| 8 | 8.91 | 8.77 | 8.67 | 8.55 | 8.46 |
| 8 | 8.35 | 8.28 | 8.18 | 8.12 | 8.03 |
| 8 | 7.98 | 7.90 | 7.86 | 7.79 | 7.74 |
| 8 | 7.64 | 7.52 | 7.33 | 7.13 | 6.86 |
| 8 | 6.61 | 6.36 | 6.16 | 5.96 | 5.82 |
| 8 | 5.65 | 5.53 | 5.37 | 5.24 | 5.08 |
| 8 | 4.94 | 4.76 | 4.61 | 4.43 | 4.26 |
| 8 | 4.07 | 3.91 | 3.72 | 3.55 | 3.36 |
| 8 | 3.19 | 3.02 | 2.86 | 2.69 | 2.54 |
| 8 | 2.39 | 2.24 | 2.10 | 1.97 | 1.85 |
| 8 | 1.73 | 1.61 | 1.51 | 1.41 | 1.31 |
| 8 | 1.22 | 1.14 | 1.06 | .98 | .91 |
| 8 | .85 | .79 | .73 | .68 | .63 |
| 8 | .58 | .54 | .50 | .46 | .43 |
| 8 | .40 | .37 | .34 | .32 | .29 |

9 ENDTBL

JTIVE CONTROL OPERATION READHD RECORD ID STR 55

+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 7

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .01 | .03 | .04 |
| 8 | .08 | .11 | .15 | .20 | .25 |
| 8 | .30 | .36 | .42 | .49 | .56 |
| 8 | .65 | .75 | .88 | 1.03 | 1.20 |
| 8 | 1.40 | 1.64 | 1.90 | 2.20 | 2.54 |
| 8 | 2.96 | 3.70 | 5.16 | 8.11 | 13.62 |
| 8 | 22.45 | 33.71 | 44.33 | 50.76 | 52.05 |
| 1 | | | | | |



| | | | | | |
|---|---|---|---|---|---|
| 8 | 49.47 | 44.66 | 39.56 | 35.30 | 32.27 |
| 8 | 30.03 | 28.44 | 27.29 | 26.55 | 26.08 |
| 8 | 25.88 | 25.82 | 25.90 | 26.04 | 26.29 |
| 8 | 26.47 | 26.70 | 26.94 | 27.25 | 27.53 |
| 8 | 27.83 | 28.05 | 28.25 | 28.37 | 28.50 |
| 8 | 28.59 | 28.72 | 28.82 | 28.95 | 29.03 |
| 8 | 29.10 | 29.09 | 29.07 | 28.99 | 28.91 |
| 8 | 28.79 | 28.69 | 28.54 | 28.40 | 28.22 |
| 8 | 28.04 | 27.81 | 27.56 | 27.24 | 26.91 |
| 8 | 26.53 | 26.17 | 25.78 | 25.43 | 25.06 |
| 8 | 24.71 | 24.34 | 24.00 | 23.63 | 23.28 |
| 8 | 22.88 | 22.49 | 21.99 | 21.48 | 20.95 |
| 8 | 20.48 | 19.99 | 19.55 | 19.10 | 18.70 |
| 8 | 18.28 | 17.90 | 17.50 | 17.15 | 16.78 |
| 8 | 16.45 | 16.10 | 15.79 | 15.46 | 15.16 |
| 8 | 14.82 | 14.50 | 14.14 | 13.82 | 13.49 |
| 8 | 13.21 | 12.93 | 12.69 | 12.41 | 12.11 |
| 8 | 11.81 | 11.55 | 11.28 | 11.05 | 10.80 |
| 8 | 10.59 | 10.37 | 10.18 | 9.98 | 9.81 |
| 8 | 9.63 | 9.48 | 9.31 | 9.18 | 9.02 |
| 8 | 8.91 | 8.77 | 8.67 | 8.55 | 8.46 |
| | 8.35 | 8.28 | 8.18 | 8.12 | 8.03 |
| | 7.98 | 7.90 | 7.86 | 7.79 | 7.74 |
| 8 | 7.64 | 7.52 | 7.33 | 7.13 | 6.86 |
| 8 | 6.61 | 6.36 | 6.16 | 5.96 | 5.82 |
| 8 | 5.65 | 5.53 | 5.37 | 5.24 | 5.08 |
| 8 | 4.94 | 4.76 | 4.61 | 4.43 | 4.26 |

```
8                4.07       3.91       3.72       3.55       3.36
8                3.19       3.02       2.86       2.69       2.54
8                2.39       2.24       2.10       1.97       1.85
                 1.73       1.61       1.51       1.41       1.31
                 1.22       1.14       1.06        .98        .91
8                 .85        .79        .73        .68        .63
8                 .58        .54        .50        .46        .43
8                 .40        .37        .34        .32        .29
9 ENDTBL


EXECUTIVE CONTROL OPERATION INCREM                                                                    RECORD ID
+                                   MAIN TIME INCREMENT =   .10 HOURS


EXECUTIVE CONTROL OPERATION COMPUT                                                                    RECORD ID
+                                   FROM XSECTION 130
+                                                   TO XSECTION  80
        STARTING TIME =   .00    RAIN DEPTH =  4.20    RAIN DURATION=  1.00    RAIN TABLE NO.= 2    ANT. MOIST. COND= 2
        ALTERNATE NO.= 1         STORM NO.= 2    MAIN TIME INCREMENT =   .10 HOURS


OPERATION RUNOFF   CROSS SECTION 130
          OUTPUT HYDROGRAPH=  2
          AREA=    .40 SQ MI   INPUT RUNOFF CURVE= 61.    TIME OF CONCENTRATION=  2.18 HOURS
          INTERNAL HYDROGRAPH TIME INCREMENT=  .0969 HOURS
1


TRZ0 XEQ 02-12-96  13:56       CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK      (FEB 96)                JOB  1   PASS   2
     REV PC 09/83(.2)          INCLUDES GREENS DRAIN ENCLOSURE                       (CRISLOMR.DAT)                   PAGE  22


          PEAK TIME(HRS)              PEAK DISCHARGE(CFS)          PEAK ELEVATION(FEET)
            13.58                          57.24                        (RUNOFF)

TIME(HRS)        FIRST HYDROGRAPH POINT =   .00 HOURS      TIME INCREMENT =  .10 HOURS      DRAINAGE AREA =    .40 SQ.MI.
  11.00    DISCHG        .00        .00        .00        .00        .00        .00        .01        .04        .20        .73
  12.00    DISCHG       1.87       3.63       6.04       9.09      12.86      17.49      22.98      28.89      34.78      40.21
  13.00    DISCHG      45.01      49.00      52.12      54.51      56.16      57.06      57.23      56.83      55.97      54.61
  14.00    DISCHG      52.69      50.32      47.73      45.22      42.91      40.78      38.80      36.92      35.17      33.55
  15.00    DISCHG      32.00      30.51      29.07      27.72      26.48      25.33      24.25      23.24      22.30      21.42
  16.00    DISCHG      20.61      19.85      19.14      18.49      17.90      17.35      16.85      16.39      15.97      15.58
  17.00    DISCHG      15.22      14.88      14.57      14.26      13.97      13.70      13.44      13.19      12.95      12.74
  18.00    DISCHG      12.53      12.33      12.13      11.94      11.75      11.56      11.36      11.16      10.96      10.77
  19.00    DISCHG      10.58      10.40      10.23      10.08       9.94       9.81       9.68       9.57       9.47       9.38
  20.00    DISCHG       9.29       9.21       9.13       9.04       8.96       8.86       8.76       8.65       8.53       8.41
  21.00    DISCHG       8.28       8.16       8.03       7.91       7.79       7.68       7.58       7.48       7.39       7.31
  22.00    DISCHG       7.24       7.18       7.13       7.08       7.04       7.01       6.98       6.95       6.93       6.91
  23.00    DISCHG       6.89       6.88       6.86       6.85       6.84       6.84       6.83       6.83       6.82       6.82
  24.00    DISCHG       6.81       6.78       6.75       6.69       6.61       6.49       6.34       6.15       5.92       5.66
  25.00    DISCHG       5.36       5.03       4.70       4.35       4.00       3.66       3.33       3.01       2.70       2.42
  [illegible].00    DISCHG       2.16       1.92       1.71       1.53       1.36       1.22       1.09        .97        .87        .78
  [illegible].00    DISCHG        .69        .62        .55        .49        .44        .39        .35        .31        .28        .25
  28.00    DISCHG        .22        .20        .17        .15        .14        .12        .11        .10        .09        .08
  29.00    DISCHG        .07        .06        .05        .04        .04        .03        .03        .03        .02        .02

  RUNOFF VOLUME ABOVE BASEFLOW =   .92 WATERSHED INCHES,    236.43 CFS-HRS,    19.54 ACRE-FEET;   BASEFLOW =    .00 CFS
```

OPERATION ADDHYD CROSS SECTION 130
INPUT HYDROGRAPHS= 2,7 OUTPUT HYDROGRAPH= 1

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.58 | 83.07 | 639.59 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 514.82 CFS-HRS, 42.54 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 120
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1387.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= 1.50 M= 1.20
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .63 PEAK TRAVEL TIME = .11 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.74 | 82.84 | 634.70 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .78 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .01 | .02 | .03 | .06 | .09 | .13 | .17 |
| 10.00 | DISCHG | .22 | .27 | .33 | .38 | .45 | .52 | .60 | .69 | .81 | .95 |
| 11.00 | DISCHG | 1.11 | 1.29 | 1.51 | 1.75 | 2.03 | 2.35 | 2.73 | 3.34 | 4.51 | 6.90 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.00 | DISCHG | 11.58 | 19.58 | 30.74 | 43.07 | 53.62 | 60.71 | 64.64 | 66.52 | 67.73 | 69.21 |
| 13.00 | DISCHG | 71.26 | 73.64 | 76.02 | 78.15 | 79.98 | 81.40 | 82.37 | 82.80 | 82.76 | 82.29 |
| 14.00 | DISCHG | 81.42 | 80.00 | 78.13 | 75.96 | 73.77 | 71.68 | 69.75 | 67.93 | 66.19 | 64.52 |
| 15.00 | DISCHG | 62.97 | 61.47 | 60.06 | 58.70 | 57.43 | 56.22 | 55.10 | 53.99 | 52.93 | 51.90 |
| 16.00 | DISCHG | 50.91 | 49.96 | 49.07 | 48.20 | 47.38 | 46.58 | 45.83 | 45.10 | 44.38 | 43.64 |
| 17.00 | DISCHG | 42.92 | 42.19 | 41.47 | 40.76 | 40.09 | 39.42 | 38.78 | 38.15 | 37.55 | 36.94 |
| 18.00 | DISCHG | 36.36 | 35.76 | 35.17 | 34.51 | 33.83 | 33.12 | 32.44 | 31.75 | 31.10 | 30.45 |
| 19.00 | DISCHG | 29.83 | 29.22 | 28.64 | 28.07 | 27.54 | 27.02 | 26.54 | 26.07 | 25.62 | 25.19 |
| 20.00 | DISCHG | 24.78 | 24.36 | 23.95 | 23.52 | 23.11 | 22.69 | 22.30 | 21.92 | 21.56 | 21.17 |
| 21.00 | DISCHG | 20.76 | 20.34 | 19.94 | 19.55 | 19.18 | 18.81 | 18.47 | 18.14 | 17.84 | 17.55 |
| 22.00 | DISCHG | 17.28 | 17.02 | 16.80 | 16.57 | 16.38 | 16.18 | 16.01 | 15.85 | 15.70 | 15.56 |
| 23.00 | DISCHG | 15.44 | 15.31 | 15.21 | 15.11 | 15.02 | 14.93 | 14.86 | 14.78 | 14.72 | 14.65 |
| 24.00 | DISCHG | 14.59 | 14.50 | 14.38 | 14.19 | 13.96 | 13.65 | 13.31 | 12.93 | 12.54 | 12.13 |
| 25.00 | DISCHG | 11.72 | 11.27 | 10.83 | 10.35 | 9.87 | 9.38 | 8.89 | 8.38 | 7.90 | 7.42 |
| 26.00 | DISCHG | 6.95 | 6.50 | 6.08 | 5.67 | 5.30 | 4.93 | 4.60 | 4.29 | 4.00 | 3.72 |
| 27.00 | DISCHG | 3.47 | 3.22 | 2.99 | 2.78 | 2.58 | 2.40 | 2.22 | 2.06 | 1.91 | 1.77 |
| 28.00 | DISCHG | 1.63 | 1.51 | 1.40 | 1.29 | 1.19 | 1.10 | 1.02 | .94 | .87 | .80 |
| 29.00 | DISCHG | .74 | .68 | .63 | .58 | .53 | .49 | .20 | .09 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 514.76 CFS-HRS, 42.54 ACRE-FEET; BASEFLOW = .00 CFS

RATION RUNOFF CROSS SECTION 120
OUTPUT HYDROGRAPH= 3
AREA= .02 SQ MI INPUT RUNOFF CURVE= 67. TIME OF CONCENTRATION= .49 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0653 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|

12.22 12.60 (RUNOFF)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | DISCHG | .00 | .00 | .01 | .03 | .07 | .13 | .28 | .65 | 1.51 | 3.34 |
| 12.00 | DISCHG | 6.83 | 10.68 | 12.56 | 11.65 | 9.35 | 7.13 | 5.59 | 4.54 | 3.80 | 3.29 |
| 13.00 | DISCHG | 2.89 | 2.59 | 2.33 | 2.13 | 1.96 | 1.82 | 1.70 | 1.60 | 1.51 | 1.43 |
| 14.00 | DISCHG | 1.36 | 1.30 | 1.24 | 1.19 | 1.15 | 1.10 | 1.05 | 1.01 | .96 | .93 |
| 15.00 | DISCHG | .90 | .89 | .88 | .87 | .86 | .84 | .81 | .79 | .77 | .77 |
| 16.00 | DISCHG | .76 | .76 | .76 | .76 | .76 | .76 | .76 | .74 | .72 | .69 |
| 17.00 | DISCHG | .67 | .66 | .65 | .65 | .65 | .65 | .65 | .65 | .65 | .64 |
| 18.00 | DISCHG | .61 | .59 | .56 | .55 | .54 | .53 | .53 | .53 | .53 | .53 |
| 19.00 | DISCHG | .53 | .53 | .53 | .53 | .53 | .53 | .53 | .53 | .53 | .52 |
| 20.00 | DISCHG | .49 | .47 | .44 | .42 | .42 | .41 | .41 | .40 | .40 | .40 |
| 21.00 | DISCHG | .40 | .40 | .40 | .40 | .40 | .40 | .40 | .40 | .40 | .40 |
| 22.00 | DISCHG | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .41 |
| 23.00 | DISCHG | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .41 | .40 |
| 24.00 | DISCHG | .37 | .33 | .27 | .19 | .13 | .07 | .05 | .03 | .02 | .01 |
| 25.00 | DISCHG | .01 | .00 | | | | | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.27 WATERSHED INCHES, 16.37 CFS-HRS, 1.35 ACRE-FEET; BASEFLOW = .00 CFS

1

TR20 XEQ 02-12-96 13:56 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK (FEB 96) JOB 1 PASS 2
REV PC 09/83(.2) INCLUDES GREENS DRAIN ENCLOSURE (CRISLOMR.DAT) PAGE 24

OPERATION ADDHYD STRUCTURE 50
INPUT HYDROGRAPHS= 2,3 OUTPUT HYDROGRAPH= 4

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.72 | 84.41 | 635.06 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .01 | .02 | .03 | .06 | .09 | .13 | .17 |
| 10.00 | DISCHG | .22 | .27 | .33 | .38 | .45 | .52 | .60 | .69 | .81 | .95 |
| 11.00 | DISCHG | 1.11 | 1.29 | 1.52 | 1.78 | 2.10 | 2.48 | 3.01 | 3.99 | 6.01 | 10.24 |
| 12.00 | DISCHG | 18.41 | 30.27 | 43.30 | 54.72 | 62.97 | 67.84 | 70.22 | 71.06 | 71.53 | 72.50 |
| 13.00 | DISCHG | 74.15 | 76.22 | 78.36 | 80.28 | 81.94 | 83.22 | 84.07 | 84.40 | 84.27 | 83.72 |
| 14.00 | DISCHG | 82.77 | 81.30 | 79.37 | 77.15 | 74.91 | 72.78 | 70.81 | 68.93 | 67.16 | 65.45 |
| 15.00 | DISCHG | 63.87 | 62.36 | 60.94 | 59.57 | 58.29 | 57.06 | 55.91 | 54.78 | 53.71 | 52.66 |
| 16.00 | DISCHG | 51.68 | 50.72 | 49.83 | 48.96 | 48.14 | 47.35 | 46.59 | 45.84 | 45.09 | 44.33 |
| 17.00 | DISCHG | 43.59 | 42.85 | 42.13 | 41.41 | 40.74 | 40.07 | 39.43 | 38.80 | 38.19 | 37.58 |
| 18.00 | DISCHG | 36.97 | 36.35 | 35.73 | 35.06 | 34.36 | 33.65 | 32.97 | 32.28 | 31.62 | 30.97 |
| 19.00 | DISCHG | 30.36 | 29.75 | 29.17 | 28.59 | 28.07 | 27.55 | 27.07 | 26.60 | 26.15 | 25.71 |
| 20.00 | DISCHG | 25.27 | 24.82 | 24.39 | 23.94 | 23.52 | 23.10 | 22.71 | 22.32 | 21.96 | 21.57 |
| 21.00 | DISCHG | 21.16 | 20.74 | 20.35 | 19.95 | 19.58 | 19.22 | 18.88 | 18.55 | 18.25 | 17.95 |
| 22.00 | DISCHG | 17.69 | 17.43 | 17.20 | 16.98 | 16.78 | 16.59 | 16.42 | 16.25 | 16.11 | 15.97 |
| 23.00 | DISCHG | 15.85 | 15.72 | 15.62 | 15.52 | 15.43 | 15.34 | 15.27 | 15.19 | 15.13 | 15.05 |
| 24.00 | DISCHG | 14.96 | 14.83 | 14.65 | 14.38 | 14.08 | 13.72 | 13.35 | 12.95 | 12.56 | 12.14 |
| 25.00 | DISCHG | 11.72 | 11.27 | 10.83 | 10.35 | 9.87 | 9.38 | 8.89 | 8.38 | 7.90 | 7.42 |
| [illegible].00 | DISCHG | 6.95 | 6.50 | 6.08 | 5.67 | 5.30 | 4.93 | 4.60 | 4.29 | 4.00 | 3.72 |
| [illegible].00 | DISCHG | 3.47 | 3.22 | 2.99 | 2.78 | 2.58 | 2.40 | 2.22 | 2.06 | 1.91 | 1.77 |
| 28.00 | DISCHG | 1.63 | 1.51 | 1.40 | 1.29 | 1.19 | 1.10 | 1.02 | .94 | .87 | .80 |
| 29.00 | DISCHG | .74 | .68 | .63 | .58 | .53 | .49 | .20 | .09 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 531.13 CFS-HRS, 43.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 50
INPUT HYDROGRAPH= 4 OUTPUT HYDROGRAPH= 2
SURFACE ELEVATION= 632.00

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.93 | 83.46 | 635.02 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .00 | .02 | .03 | .05 | .09 | .12 | .16 |
| 10.00 | DISCHG | .21 | .26 | .32 | .37 | .44 | .51 | .58 | .68 | .79 | .92 |
| 11.00 | DISCHG | 1.08 | 1.25 | 1.47 | 1.73 | 2.04 | 2.41 | 2.90 | 3.78 | 5.57 | 9.31 |
| 12.00 | DISCHG | 16.64 | 27.89 | 37.80 | 45.23 | 54.25 | 61.64 | 66.11 | 67.82 | 69.13 | 70.21 |
| 13.00 | DISCHG | 71.39 | 72.82 | 74.50 | 76.31 | 78.12 | 79.80 | 81.24 | 82.37 | 83.11 | 83.44 |
| 14.00 | DISCHG | 83.37 | 82.87 | 81.91 | 80.54 | 78.84 | 76.96 | 75.02 | 73.08 | 71.18 | 69.35 |
| 15.00 | DISCHG | 67.58 | 65.90 | 63.36 | 61.30 | 59.73 | 58.37 | 57.12 | 55.94 | 54.82 | 53.74 |
| 16.00 | DISCHG | 52.70 | 51.70 | 50.76 | 49.85 | 48.99 | 48.16 | 47.37 | 46.60 | 45.85 | 45.10 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17.00 | DISCHG | 44.34 | 43.60 | 42.86 | 42.14 | 41.43 | 40.75 | 40.09 | 39.44 | 38.82 | 38.20 |
| 18.00 | DISCHG | 37.59 | 36.97 | 36.35 | 35.72 | 34.82 | 33.63 | 33.16 | 32.38 | 31.76 | 31.09 |
| 19.00 | DISCHG | 30.47 | 29.86 | 29.27 | 28.70 | 28.16 | 27.65 | 27.16 | 26.68 | 26.23 | 25.79 |
| [illegible].00 | DISCHG | 25.35 | 24.91 | 24.47 | 24.03 | 23.60 | 23.18 | 22.78 | 22.40 | 22.02 | 21.65 |
| 21.00 | DISCHG | 21.24 | 20.82 | 20.42 | 20.02 | 19.65 | 19.28 | 18.94 | 18.61 | 18.30 | 18.01 |
| 22.00 | DISCHG | 17.73 | 17.48 | 17.24 | 17.02 | 16.82 | 16.62 | 16.45 | 16.29 | 16.14 | 16.00 |
| 23.00 | DISCHG | 15.87 | 15.75 | 15.64 | 15.54 | 15.44 | 15.36 | 15.28 | 15.20 | 15.14 | 15.07 |
| 24.00 | DISCHG | 14.98 | 14.86 | 14.68 | 14.44 | 14.14 | 13.79 | 13.42 | 13.03 | 12.63 | 12.22 |
| 25.00 | DISCHG | 11.80 | 11.36 | 10.91 | 10.44 | 9.96 | 9.47 | 8.98 | 8.48 | 7.99 | 7.51 |
| 26.00 | DISCHG | 7.04 | 6.58 | 6.15 | 5.75 | 5.36 | 5.00 | 4.66 | 4.35 | 4.05 | 3.77 |
| 27.00 | DISCHG | 3.51 | 3.27 | 3.03 | 2.82 | 2.61 | 2.43 | 2.25 | 2.09 | 1.93 | 1.79 |
| 28.00 | DISCHG | 1.66 | 1.53 | 1.42 | 1.31 | 1.21 | 1.12 | 1.03 | .96 | .88 | .81 |
| 29.00 | DISCHG | .75 | .69 | .64 | .59 | .54 | .50 | .28 | .09 | .06 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.03 WATERSHED INCHES, 531.12 CFS-HRS, 43.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 40
OUTPUT HYDROGRAPH= 1
AREA= .19 SQ MI INPUT RUNOFF CURVE= 71. TIME OF CONCENTRATION= .53 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0707 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.23 | 142.71 | (RUNOFF) |
| 16.45 | 8.13 | (RUNOFF) |
| 19.68 | 5.60 | (RUNOFF) |
| 23.67 | 4.31 | (RUNOFF) |

[illegible](HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .19 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| [illegible].00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .02 | .07 | .19 | .38 | .66 |
| 11.00 | DISCHG | 1.03 | 1.47 | 2.01 | 2.63 | 3.37 | 4.35 | 6.39 | 11.39 | 21.23 | 42.66 |
| 12.00 | DISCHG | 78.56 | 118.86 | 141.29 | 136.48 | 113.23 | 87.44 | 68.42 | 55.26 | 45.69 | 39.05 |
| 13.00 | DISCHG | 33.89 | 30.02 | 26.87 | 24.31 | 22.27 | 20.51 | 19.05 | 17.78 | 16.70 | 15.75 |
| 14.00 | DISCHG | 14.92 | 14.24 | 13.63 | 13.06 | 12.53 | 12.00 | 11.50 | 10.99 | 10.50 | 10.08 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.00 | DISCHG | 9.78 | 9.59 | 9.48 | 9.40 | 9.28 | 9.05 | 8.77 | 8.52 | 8.34 | 8.24 |
| 16.00 | DISCHG | 8.18 | 8.14 | 8.13 | 8.12 | 8.12 | 8.12 | 8.08 | 7.94 | 7.69 | 7.43 |
| 17.00 | DISCHG | 7.21 | 7.07 | 6.98 | 6.93 | 6.91 | 6.89 | 6.88 | 6.88 | 6.87 | 6.78 |
| 18.00 | DISCHG | 6.57 | 6.29 | 6.04 | 5.85 | 5.74 | 5.67 | 5.63 | 5.60 | 5.59 | 5.58 |
| 19.00 | DISCHG | 5.58 | 5.58 | 5.58 | 5.58 | 5.59 | 5.59 | 5.60 | 5.60 | 5.59 | 5.49 |
| 20.00 | DISCHG | 5.29 | 5.00 | 4.74 | 4.55 | 4.43 | 4.36 | 4.31 | 4.28 | 4.27 | 4.26 |
| 21.00 | DISCHG | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.25 | 4.26 | 4.26 | 4.26 | 4.27 |
| 22.00 | DISCHG | 4.27 | 4.27 | 4.27 | 4.28 | 4.28 | 4.28 | 4.28 | 4.29 | 4.29 | 4.29 |
| 23.00 | DISCHG | 4.29 | 4.30 | 4.30 | 4.30 | 4.30 | 4.31 | 4.31 | 4.31 | 4.30 | 4.20 |
| 24.00 | DISCHG | 3.97 | 3.58 | 2.98 | 2.24 | 1.53 | .98 | .60 | .38 | .24 | .15 |
| 25.00 | DISCHG | .09 | .06 | .03 | .02 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.53 WATERSHED INCHES, 187.77 CFS-HRS, 15.52 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 40
1



INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.27 | 182.71 | 667.92 |

E(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .00 | .02 | .03 | .05 | .09 | .12 | .16 |
| 10.00 | DISCHG | .21 | .26 | .32 | .37 | .44 | .52 | .65 | .87 | 1.17 | 1.58 |
| 11.00 | DISCHG | 2.10 | 2.72 | 3.48 | 4.36 | 5.42 | 6.75 | 9.29 | 15.16 | 26.80 | 51.97 |
| 12.00 | DISCHG | 95.20 | 146.75 | 179.09 | 181.71 | 167.48 | 149.08 | 134.53 | 123.08 | 114.82 | 109.27 |
| 13.00 | DISCHG | 105.27 | 102.84 | 101.37 | 100.63 | 100.39 | 100.30 | 100.29 | 100.15 | 99.81 | 99.19 |
| 14.00 | DISCHG | 98.29 | 97.11 | 95.54 | 93.60 | 91.37 | 88.96 | 86.51 | 84.07 | 81.68 | 79.43 |
| 15.00 | DISCHG | 77.36 | 75.49 | 72.83 | 70.70 | 69.01 | 67.42 | 65.89 | 64.46 | 63.16 | 61.97 |
| 16.00 | DISCHG | 60.87 | 59.85 | 58.88 | 57.97 | 57.11 | 56.28 | 55.46 | 54.54 | 53.54 | 52.52 |
| 17.00 | DISCHG | 51.55 | 50.66 | 49.85 | 49.07 | 48.34 | 47.64 | 46.97 | 46.33 | 45.69 | 44.98 |
| 18.00 | DISCHG | 44.15 | 43.26 | 42.39 | 41.56 | 40.56 | 39.30 | 38.79 | 37.98 | 37.34 | 36.67 |
| 19.00 | DISCHG | 36.05 | 35.44 | 34.85 | 34.28 | 33.75 | 33.24 | 32.75 | 32.29 | 31.82 | 31.29 |
| 20.00 | DISCHG | 30.64 | 29.91 | 29.20 | 28.58 | 28.03 | 27.54 | 27.09 | 26.68 | 26.29 | 25.90 |
| 21.00 | DISCHG | 25.49 | 25.07 | 24.67 | 24.27 | 23.90 | 23.54 | 23.19 | 22.87 | 22.56 | 22.27 |
| 22.00 | DISCHG | 22.00 | 21.75 | 21.51 | 21.29 | 21.09 | 20.91 | 20.73 | 20.57 | 20.42 | 20.29 |
| 23.00 | DISCHG | 20.16 | 20.04 | 19.94 | 19.84 | 19.75 | 19.66 | 19.59 | 19.52 | 19.44 | 19.27 |
| 24.00 | DISCHG | 18.95 | 18.44 | 17.66 | 16.67 | 15.67 | 14.77 | 14.02 | 13.41 | 12.87 | 12.37 |
| 25.00 | DISCHG | 11.89 | 11.41 | 10.94 | 10.46 | 9.97 | 9.47 | 8.98 | 8.48 | 7.99 | 7.51 |
| 26.00 | DISCHG | 7.04 | 6.58 | 6.15 | 5.75 | 5.36 | 5.00 | 4.66 | 4.35 | 4.05 | 3.77 |
| 27.00 | DISCHG | 3.51 | 3.27 | 3.03 | 2.82 | 2.61 | 2.43 | 2.25 | 2.09 | 1.93 | 1.79 |
| 28.00 | DISCHG | 1.66 | 1.53 | 1.42 | 1.31 | 1.21 | 1.12 | 1.03 | .96 | .88 | .81 |
| 29.00 | DISCHG | .75 | .69 | .64 | .59 | .54 | .50 | .28 | .09 | .06 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.13 WATERSHED INCHES, 718.89 CFS-HRS, 59.41 ACRE-FEET; BASEFLOW = .00 CFS

RATION RESVOR STRUCTURE 40
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 632.00

*** WARNING - STRUCTURE 40 DELTA T IS TOO LARGE. O /2 > S /DELTA T OCCURED 52 TIMES STARTING WITH POINT 2

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| .00 | .77 | 632.00 |
| .20 | .76 | 632.00 |
| .40 | .75 | 632.00 |
| .60 | .74 | 632.00 |
| .80 | .73 | 631.99 |
| 1.00 | .72 | 631.99 |
| 1.20 | .71 | 631.99 |
| 1.40 | .70 | 631.99 |
| 1.60 | .69 | 631.99 |
| 14.39 | 91.65 | 634.06 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.
1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .77 | -.76 | .76 | -.75 | .75 | -.74 | .74 | -.73 | .73 | -.72 |
| 1.00 | DISCHG | .72 | -.71 | .71 | -.71 | .70 | -.70 | .69 | -.69 | .68 | -.68 |
| 2.00 | DISCHG | .67 | -.67 | .67 | -.66 | .66 | -.65 | .65 | -.65 | .64 | -.64 |
| 3.00 | DISCHG | .63 | -.63 | .63 | -.62 | .62 | -.61 | .61 | -.61 | .60 | -.60 |
| 4.00 | DISCHG | .59 | -.59 | .59 | -.58 | .58 | -.58 | .57 | -.57 | .57 | -.56 |
| 5.00 | DISCHG | .56 | -.55 | .55 | -.55 | .54 | -.54 | .54 | -.53 | .53 | -.53 |
| 6.00 | DISCHG | .52 | -.52 | .52 | -.51 | .51 | -.51 | .50 | -.50 | .50 | -.49 |
| 7.00 | DISCHG | .49 | -.49 | .49 | -.48 | .48 | -.48 | .47 | -.47 | .47 | -.46 |
| 8.00 | DISCHG | .46 | -.46 | .46 | -.45 | .45 | -.45 | .44 | -.44 | .44 | -.44 |
| 9.00 | DISCHG | .43 | -.43 | .43 | -.43 | .44 | -.39 | .47 | -.33 | .53 | -.25 |
| 10.00 | DISCHG | .62 | -.14 | .72 | -.03 | .77 | .26 | .77 | .77 | .78 | .81 |
| 11.00 | DISCHG | .87 | .95 | 1.06 | 1.21 | 1.40 | 1.65 | 1.98 | 2.52 | 3.48 | 5.36 |
| 12.00 | DISCHG | 8.93 | 14.80 | 22.55 | 30.81 | 41.58 | 51.17 | 58.61 | 64.38 | 68.86 | 72.41 |
| 13.00 | DISCHG | 75.27 | 77.64 | 79.65 | 81.40 | 82.97 | 84.40 | 85.70 | 86.90 | 88.05 | 89.12 |
| 14.00 | DISCHG | 90.02 | 90.73 | 91.25 | 91.56 | 91.65 | 91.51 | 91.16 | 90.61 | 89.89 | 89.02 |
| 15.00 | DISCHG | 88.03 | 87.00 | 85.94 | 84.78 | 83.55 | 82.29 | 81.01 | 79.71 | 78.40 | 77.10 |
| 16.00 | DISCHG | 75.81 | 74.54 | 73.30 | 72.08 | 70.88 | 69.72 | 68.58 | 67.46 | 66.36 | 65.27 |
| 17.00 | DISCHG | 64.18 | 63.11 | 62.05 | 61.02 | 60.00 | 59.02 | 58.06 | 57.12 | 56.21 | 55.31 |
| 18.00 | DISCHG | 54.43 | 53.55 | 52.67 | 51.79 | 50.91 | 50.01 | 49.11 | 48.23 | 47.36 | 46.51 |
| 19.00 | DISCHG | 45.67 | 44.86 | 44.06 | 43.28 | 42.52 | 41.78 | 41.06 | 40.36 | 39.67 | 39.01 |
| 20.00 | DISCHG | 38.35 | 37.68 | 37.01 | 36.35 | 35.69 | 35.04 | 34.40 | 33.79 | 33.19 | 32.61 |
| 21.00 | DISCHG | 32.25 | 31.89 | 31.52 | 31.15 | 30.78 | 30.41 | 30.04 | 29.68 | 29.31 | 28.95 |
| 22.00 | DISCHG | 28.59 | 28.24 | 27.90 | 27.56 | 27.22 | 26.90 | 26.58 | 26.27 | 25.97 | 25.67 |
| 23.00 | DISCHG | 25.39 | 25.11 | 24.84 | 24.58 | 24.33 | 24.09 | 23.86 | 23.63 | 23.41 | 23.20 |
| 24.00 | DISCHG | 22.99 | 22.76 | 22.52 | 22.24 | 21.92 | 21.57 | 21.19 | 20.80 | 20.40 | 19.99 |
| 25.00 | DISCHG | 19.58 | 19.17 | 18.75 | 18.33 | 17.90 | 17.47 | 17.04 | 16.61 | 16.17 | 15.73 |
| 26.00 | DISCHG | 15.29 | 14.84 | 14.40 | 13.96 | 13.52 | 13.08 | 12.65 | 12.22 | 11.80 | 11.39 |
| 27.00 | DISCHG | 10.98 | 10.59 | 10.20 | 9.82 | 9.45 | 9.08 | 8.73 | 8.39 | 8.05 | 7.73 |
| 28.00 | DISCHG | 7.42 | 7.11 | 6.82 | 6.53 | 6.26 | 5.99 | 5.73 | 5.48 | 5.25 | 5.02 |
| 29.00 | DISCHG | 4.79 | 4.58 | 4.38 | 4.18 | 3.99 | 3.81 | 3.63 | 3.45 | 3.27 | 3.10 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.12 WATERSHED INCHES, 712.55 CFS-HRS, 58.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 110
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1606.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .44 M= 1.36

0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .43 PEAK TRAVEL TIME = .20 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.62 | 91.32 | 630.99 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .33 | .00 | .32 | .00 | .32 | .00 | .32 | .00 | .31 |
| 1.00 | DISCHG | .00 | .31 | .00 | .30 | .00 | .30 | .00 | .30 | .00 | .29 |
| 2.00 | DISCHG | .00 | .29 | .00 | .29 | .00 | .28 | .00 | .28 | .00 | .28 |
| 3.00 | DISCHG | .00 | .27 | .00 | .27 | .00 | .26 | .00 | .26 | .00 | .26 |
| 4.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .24 |
| 5.00 | DISCHG | .00 | .24 | .00 | .24 | .00 | .23 | .00 | .23 | .00 | .23 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.00 | DISCHG | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .21 |
| 7.00 | DISCHG | .00 | .21 | .00 | .21 | .00 | .20 | .00 | .20 | .00 | .20 |
| 8.00 | DISCHG | .00 | .20 | .00 | .19 | .00 | .19 | .00 | .19 | .00 | .19 |
| 9.00 | DISCHG | .00 | .19 | .00 | .18 | .00 | .19 | .00 | .20 | .00 | .23 |
| 10.00 | DISCHG | .02 | .28 | .10 | .36 | .20 | .44 | .36 | .54 | .64 | .70 |
| 11.00 | DISCHG | .75 | .80 | .86 | .95 | 1.06 | 1.21 | 1.40 | 1.65 | 2.02 | 2.65 |
| 12.00 | DISCHG | 3.81 | 6.01 | 9.78 | 15.26 | 21.94 | 30.37 | 39.30 | 47.59 | 54.80 | 60.84 |
| 13.00 | DISCHG | 65.81 | 69.87 | 73.21 | 75.97 | 78.30 | 80.31 | 82.06 | 83.63 | 85.03 | 86.33 |
| 14.00 | DISCHG | 87.53 | 88.60 | 89.51 | 90.26 | 90.82 | 91.17 | 91.32 | 91.25 | 90.97 | 90.51 |
| 5.00 | DISCHG | 89.87 | 89.08 | 88.18 | 87.22 | 86.17 | 85.05 | 83.86 | 82.64 | 81.38 | 80.10 |
| 16.00 | DISCHG | 78.81 | 77.52 | 76.24 | 74.98 | 73.73 | 72.51 | 71.31 | 70.14 | 68.99 | 67.86 |
| 17.00 | DISCHG | 66.75 | 65.64 | 64.55 | 63.48 | 62.42 | 61.38 | 60.37 | 59.37 | 58.40 | 57.46 |
| 18.00 | DISCHG | 56.54 | 55.63 | 54.74 | 53.85 | 52.96 | 52.08 | 51.19 | 50.29 | 49.41 | 48.53 |
| 19.00 | DISCHG | 47.66 | 46.81 | 45.97 | 45.15 | 44.35 | 43.56 | 42.79 | 42.05 | 41.32 | 40.61 |
| 20.00 | DISCHG | 39.92 | 39.24 | 38.57 | 37.90 | 37.24 | 36.57 | 35.91 | 35.26 | 34.63 | 34.01 |
| 21.00 | DISCHG | 33.41 | 32.91 | 32.47 | 32.06 | 31.67 | 31.29 | 30.91 | 30.54 | 30.17 | 29.80 |
| 22.00 | DISCHG | 29.43 | 29.07 | 28.72 | 28.36 | 28.02 | 27.67 | 27.34 | 27.01 | 26.69 | 26.38 |
| 23.00 | DISCHG | 26.08 | 25.78 | 25.49 | 25.21 | 24.94 | 24.68 | 24.43 | 24.18 | 23.95 | 23.72 |
| 24.00 | DISCHG | 23.50 | 23.28 | 23.06 | 22.82 | 22.57 | 22.29 | 21.98 | 21.64 | 21.28 | 20.90 |
| 25.00 | DISCHG | 20.51 | 20.11 | 19.71 | 19.30 | 18.88 | 18.46 | 18.04 | 17.61 | 17.18 | 16.75 |
| 26.00 | DISCHG | 16.31 | 15.87 | 15.43 | 14.99 | 14.54 | 14.10 | 13.66 | 13.23 | 12.80 | 12.37 |
| 27.00 | DISCHG | 11.95 | 11.53 | 11.13 | 10.73 | 10.34 | 9.95 | 9.58 | 9.22 | 8.86 | 8.51 |
| 28.00 | DISCHG | 8.18 | 7.85 | 7.53 | 7.22 | 6.93 | 6.64 | 6.36 | 6.09 | 5.83 | 5.58 |
| 29.00 | DISCHG | 5.34 | 5.10 | 4.88 | 4.66 | 4.45 | 4.25 | 4.06 | 3.88 | 3.69 | 3.51 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.12 WATERSHED INCHES, 715.37 CFS-HRS, 59.12 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 30
OUTPUT HYDROGRAPH= 1
AREA= .02 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .68 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0907 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.32 | 17.33 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .02 |
| 10.00 | DISCHG | .03 | .05 | .06 | .08 | .10 | .13 | .16 | .20 | .24 | .29 |
| 11.00 | DISCHG | .36 | .43 | .51 | .60 | .70 | .83 | 1.08 | 1.59 | 2.71 | 4.83 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 12.00 | DISCHG | 8.24 | 12.40 | 15.85 | 17.29 | 16.66 | 14.63 | 12.04 | 9.78 | 8.11 | 6.84 |
| 13.00 | DISCHG | 5.85 | 5.07 | 4.45 | 3.95 | 3.54 | 3.21 | 2.94 | 2.71 | 2.51 | 2.33 |
| 14.00 | DISCHG | 2.18 | 2.04 | 1.93 | 1.84 | 1.76 | 1.68 | 1.61 | 1.54 | 1.47 | 1.41 |
| 15.00 | DISCHG | 1.35 | 1.31 | 1.28 | 1.26 | 1.24 | 1.22 | 1.19 | 1.16 | 1.13 | 1.11 |
| 16.00 | DISCHG | 1.09 | 1.08 | 1.07 | 1.07 | 1.07 | 1.07 | 1.06 | 1.05 | 1.03 | 1.00 |
| 17.00 | DISCHG | .97 | .95 | .93 | .92 | .91 | .91 | .90 | .90 | .90 | .89 |
| 18.00 | DISCHG | .87 | .85 | .82 | .79 | .77 | .76 | .75 | .74 | .73 | .73 |
| 19.00 | DISCHG | .73 | .73 | .73 | .73 | .73 | .73 | .73 | .73 | .73 | .72 |
| 20.00 | DISCHG | .70 | .68 | .65 | .62 | .60 | .58 | .57 | .57 | .56 | .56 |
| 21.00 | DISCHG | .56 | .55 | .55 | .55 | .55 | .55 | .55 | .55 | .55 | .55 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.00 | DISCHG | .55 | .55 | .55 | .55 | .55 | .55 | .55 | .55 | .55 | .55 |
| 23.00 | DISCHG | .56 | .56 | .56 | .56 | .56 | .56 | .56 | .56 | .56 | .55 |
| 24.00 | DISCHG | .53 | .50 | .44 | .37 | .29 | .21 | .15 | .11 | .07 | .05 |
| 25.00 | DISCHG | .04 | .02 | .02 | .01 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.81 WATERSHED INCHES, 26.35 CFS-HRS, 2.18 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 30
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.58 | 92.93 | 634.10 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .33 | .00 | .32 | .00 | .32 | .00 | .32 | .00 | .31 |
| 1.00 | DISCHG | .00 | .31 | .00 | .30 | .00 | .30 | .00 | .30 | .00 | .29 |
| 2.00 | DISCHG | .00 | .29 | .00 | .29 | .00 | .28 | .00 | .28 | .00 | .28 |
| 3.00 | DISCHG | .00 | .27 | .00 | .27 | .00 | .26 | .00 | .26 | .00 | .26 |
| 4.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .25 | .00 | .24 |
| 5.00 | DISCHG | .00 | .24 | .00 | .24 | .00 | .23 | .00 | .23 | .00 | .23 |
| 6.00 | DISCHG | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .22 | .00 | .21 |
| 7.00 | DISCHG | .00 | .21 | .00 | .21 | .00 | .20 | .00 | .20 | .00 | .20 |
| 8.00 | DISCHG | .00 | .20 | .00 | .19 | .00 | .19 | .00 | .19 | .00 | .19 |
| 9.00 | DISCHG | .00 | .19 | .00 | .18 | .00 | .19 | .00 | .20 | .01 | .25 |
| 10.00 | DISCHG | .06 | .33 | .16 | .45 | .30 | .57 | .52 | .73 | .88 | .99 |
| 11.00 | DISCHG | 1.10 | 1.22 | 1.37 | 1.55 | 1.76 | 2.04 | 2.47 | 3.24 | 4.73 | 7.48 |
| 12.00 | DISCHG | 12.06 | 18.41 | 25.64 | 32.55 | 38.60 | 45.00 | 51.34 | 57.37 | 62.91 | 67.67 |
| 13.00 | DISCHG | 71.65 | 74.94 | 77.65 | 79.92 | 81.84 | 83.52 | 85.00 | 86.34 | 87.54 | 88.66 |
| 14.00 | DISCHG | 89.70 | 90.64 | 91.44 | 92.10 | 92.57 | 92.85 | 92.92 | 92.78 | 92.44 | 91.91 |
| 15.00 | DISCHG | 91.22 | 90.39 | 89.47 | 88.49 | 87.42 | 86.27 | 85.05 | 83.79 | 82.51 | 81.21 |
| 16.00 | DISCHG | 79.90 | 78.61 | 77.32 | 76.05 | 74.80 | 73.57 | 72.37 | 71.19 | 70.02 | 68.86 |
| 17.00 | DISCHG | 67.72 | 66.59 | 65.49 | 64.40 | 63.33 | 62.29 | 61.27 | 60.28 | 59.30 | 58.35 |
| 18.00 | DISCHG | 57.41 | 56.48 | 55.56 | 54.64 | 53.74 | 52.84 | 51.94 | 51.03 | 50.14 | 49.26 |
| 19.00 | DISCHG | 48.39 | 47.53 | 46.70 | 45.88 | 45.07 | 44.29 | 43.52 | 42.78 | 42.05 | 41.33 |
| 20.00 | DISCHG | 40.63 | 39.92 | 39.22 | 38.53 | 37.83 | 37.15 | 36.48 | 35.83 | 35.19 | 34.57 |
| 21.00 | DISCHG | 33.96 | 33.47 | 33.02 | 32.61 | 32.22 | 31.84 | 31.46 | 31.09 | 30.72 | 30.35 |
| 22.00 | DISCHG | 29.99 | 29.63 | 29.27 | 28.92 | 28.57 | 28.23 | 27.90 | 27.57 | 27.25 | 26.94 |
| 23.00 | DISCHG | 26.63 | 26.34 | 26.05 | 25.77 | 25.50 | 25.24 | 24.98 | 24.74 | 24.50 | 24.27 |
| 24.00 | DISCHG | 24.03 | 23.77 | 23.50 | 23.20 | 22.86 | 22.51 | 22.13 | 21.75 | 21.35 | 20.95 |
| 25.00 | DISCHG | 20.55 | 20.14 | 19.72 | 19.31 | 18.89 | 18.46 | 18.04 | 17.61 | 17.18 | 16.75 |
| 26.00 | DISCHG | 16.31 | 15.87 | 15.43 | 14.99 | 14.54 | 14.10 | 13.66 | 13.23 | 12.80 | 12.37 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 27.00 | DISCHG | 11.95 | 11.53 | 11.13 | 10.73 | 10.34 | 9.95 | 9.58 | 9.22 | 8.86 | 8.51 |
| 28.00 | DISCHG | 8.18 | 7.85 | 7.53 | 7.22 | 6.93 | 6.64 | 6.36 | 6.09 | 5.83 | 5.58 |
| 29.00 | DISCHG | 5.34 | 5.10 | 4.88 | 4.66 | 4.45 | 4.25 | 4.06 | 3.88 | 3.69 | 3.51 |

.UNOFF VOLUME ABOVE BASEFLOW = 1.14 WATERSHED INCHES, 741.72 CFS-HRS, 61.30 ACRE-FEET; BASEFLOW = .00 CFS
1



OPERATION RESVOR STRUCTURE 30
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 628.41

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.86 | 92.14 | 634.08 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .15 | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 | .12 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .11 |
| 6.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 8.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 |
| 9.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .10 | .11 | .13 |
| 10.00 | DISCHG | .15 | .19 | .24 | .30 | .37 | .43 | .54 | .62 | .79 | .93 |
| 11.00 | DISCHG | 1.04 | 1.16 | 1.29 | 1.45 | 1.64 | 1.88 | 2.23 | 2.81 | 3.90 | 5.35 |
| 12.00 | DISCHG | 7.85 | 12.03 | 16.81 | 19.98 | 23.99 | 28.58 | 30.03 | 30.93 | 32.02 | 40.82 |
| 13.00 | DISCHG | 49.42 | 56.53 | 62.42 | 67.29 | 71.34 | 74.72 | 77.56 | 79.98 | 82.05 | 83.85 |
| 14.00 | DISCHG | 85.44 | 86.85 | 88.10 | 89.19 | 90.13 | 90.90 | 91.49 | 91.90 | 92.11 | 92.13 |
| 15.00 | DISCHG | 91.96 | 91.62 | 91.12 | 90.48 | 89.73 | 88.87 | 87.91 | 86.87 | 85.76 | 84.60 |
| 16.00 | DISCHG | 83.40 | 82.16 | 80.91 | 79.65 | 78.39 | 77.14 | 75.90 | 74.67 | 73.46 | 72.26 |
| 17.00 | DISCHG | 71.08 | 69.91 | 68.76 | 67.62 | 66.50 | 65.40 | 64.32 | 63.27 | 62.23 | 61.22 |
| 18.00 | DISCHG | 60.22 | 59.25 | 58.29 | 57.34 | 56.40 | 55.47 | 54.55 | 53.64 | 52.73 | 51.83 |
| 19.00 | DISCHG | 50.93 | 50.05 | 49.17 | 48.31 | 47.47 | 46.64 | 45.82 | 45.03 | 44.25 | 43.49 |
| 20.00 | DISCHG | 42.74 | 42.00 | 41.28 | 40.56 | 39.85 | 39.15 | 38.46 | 37.77 | 37.10 | 36.44 |
| 21.00 | DISCHG | 35.79 | 35.17 | 34.60 | 34.07 | 33.58 | 33.12 | 32.68 | 32.26 | 32.14 | 32.08 |
| 22.00 | DISCHG | 32.01 | 31.93 | 31.83 | 31.73 | 31.62 | 31.50 | 31.37 | 31.24 | 31.09 | 30.95 |
| 23.00 | DISCHG | 30.79 | 30.63 | 30.46 | 30.30 | 30.12 | 29.94 | 29.76 | 29.58 | 29.26 | 28.01 |
| 24.00 | DISCHG | 27.01 | 26.21 | 25.55 | 24.98 | 24.48 | 24.02 | 23.58 | 23.16 | 22.74 | 22.33 |
| 25.00 | DISCHG | 21.93 | 21.52 | 21.11 | 20.70 | 20.29 | 19.87 | 19.45 | 19.03 | 18.61 | 18.19 |
| 26.00 | DISCHG | 17.76 | 17.33 | 16.90 | 16.46 | 15.96 | 15.03 | 14.38 | 13.85 | 13.38 | 12.93 |
| 27.00 | DISCHG | 12.49 | 12.07 | 11.65 | 11.24 | 10.84 | 10.45 | 10.06 | 9.69 | 9.32 | 8.96 |
| 28.00 | DISCHG | 8.61 | 8.27 | 7.94 | 7.62 | 7.31 | 7.01 | 6.72 | 6.44 | 6.17 | 5.90 |
| 29.00 | DISCHG | 5.65 | 5.41 | 5.17 | 4.94 | 4.73 | 4.52 | 4.24 | 3.99 | 3.80 | 3.62 |

UNOFF VOLUME ABOVE BASEFLOW = 1.14 WATERSHED INCHES, 741.12 CFS-HRS, 61.25 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 100
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 972.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH

0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .47 M= 1.53
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .91 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 100 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.97 | 92.13 | 627.72 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .14 | .16 | .16 | .16 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 8.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .09 | .09 |
| 9.00 | DISCHG | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .09 | .10 | .10 |
| 10.00 | DISCHG | .13 | .15 | .18 | .23 | .29 | .36 | .42 | .53 | .61 | .78 |
| 11.00 | DISCHG | .91 | 1.03 | 1.14 | 1.27 | 1.43 | 1.62 | 1.86 | 2.20 | 2.76 | 3.80 |
| 12.00 | DISCHG | 5.22 | 7.62 | 11.65 | 16.36 | 19.66 | 23.61 | 28.14 | 29.86 | 30.84 | 31.92 |
| 13.00 | DISCHG | 40.04 | 48.59 | 55.83 | 61.84 | 66.81 | 70.94 | 74.39 | 77.28 | 79.74 | 81.85 |
| 14.00 | DISCHG | 83.68 | 85.28 | 86.71 | 87.97 | 89.08 | 90.04 | 90.82 | 91.43 | 91.86 | 92.09 |
| 15.00 | DISCHG | 92.13 | 91.98 | 91.65 | 91.16 | 90.54 | 89.80 | 88.95 | 88.00 | 86.97 | 85.87 |
| 16.00 | DISCHG | 84.71 | 83.51 | 82.28 | 81.03 | 79.77 | 78.51 | 77.26 | 76.02 | 74.79 | 73.57 |
| 17.00 | DISCHG | 72.38 | 71.19 | 70.02 | 68.87 | 67.73 | 66.61 | 65.51 | 64.43 | 63.37 | 62.33 |
| 18.00 | DISCHG | 61.31 | 60.32 | 59.34 | 58.38 | 57.43 | 56.49 | 55.56 | 54.64 | 53.73 | 52.82 |
| 19.00 | DISCHG | 51.91 | 51.02 | 50.13 | 49.26 | 48.40 | 47.55 | 46.72 | 45.90 | 45.10 | 44.32 |
| 20.00 | DISCHG | 43.56 | 42.81 | 42.08 | 41.35 | 40.63 | 39.92 | 39.22 | 38.52 | 37.84 | 37.16 |
| 21.00 | DISCHG | 36.50 | 35.85 | 35.23 | 34.65 | 34.12 | 33.62 | 33.16 | 32.72 | 32.30 | 32.15 |
| 22.00 | DISCHG | 32.09 | 32.01 | 31.93 | 31.84 | 31.74 | 31.63 | 31.51 | 31.39 | 31.25 | 31.11 |
| 23.00 | DISCHG | 30.96 | 30.81 | 30.65 | 30.48 | 30.31 | 30.14 | 29.96 | 29.78 | 29.60 | 29.29 |
| 24.00 | DISCHG | 28.12 | 27.11 | 26.29 | 25.61 | 25.04 | 24.53 | 24.06 | 23.62 | 23.20 | 22.78 |
| 25.00 | DISCHG | 22.37 | 21.97 | 21.56 | 21.15 | 20.74 | 20.33 | 19.91 | 19.49 | 19.07 | 18.65 |
| 26.00 | DISCHG | 18.23 | 17.80 | 17.37 | 16.94 | 16.50 | 16.00 | 15.12 | 14.45 | 13.90 | 13.42 |
| 27.00 | DISCHG | 12.97 | 12.53 | 12.11 | 11.69 | 11.28 | 10.88 | 10.48 | 10.10 | 9.72 | 9.35 |
| 28.00 | DISCHG | 8.99 | 8.65 | 8.31 | 7.97 | 7.65 | 7.34 | 7.04 | 6.75 | 6.47 | 6.19 |
| 29.00 | DISCHG | 5.93 | 5.68 | 5.43 | 5.19 | 4.97 | 4.75 | 4.53 | 4.27 | 4.01 | 3.82 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.14 WATERSHED INCHES, 740.61 CFS-HRS, 61.20 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 20
OUTPUT HYDROGRAPH= 1
AREA= .03 SQ MI INPUT RUNOFF CURVE= 81. TIME OF CONCENTRATION= .61 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0813 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.25 | 27.66 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .03 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .01 | .01 | .02 | .03 | .04 | .06 | .07 | .09 | .11 | .13 |
| 9.00 | DISCHG | .14 | .16 | .18 | .21 | .23 | .25 | .28 | .31 | .34 | .37 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .40 | .43 | .46 | .50 | .54 | .60 | .66 | .74 | .84 | .95 |
| 11.00 | DISCHG | 1.07 | 1.21 | 1.36 | 1.53 | 1.72 | 1.97 | 2.47 | 3.53 | 5.66 | 9.62 |
| 12.00 | DISCHG | 15.65 | 22.43 | 27.19 | 27.33 | 24.32 | 19.88 | 15.59 | 12.45 | 10.21 | 8.52 |
| 13.00 | DISCHG | 7.24 | 6.25 | 5.50 | 4.89 | 4.40 | 4.00 | 3.68 | 3.40 | 3.14 | 2.92 |
| 14.00 | DISCHG | 2.74 | 2.60 | 2.48 | 2.36 | 2.26 | 2.16 | 2.07 | 1.98 | 1.88 | 1.81 |
| 15.00 | DISCHG | 1.74 | 1.70 | 1.67 | 1.64 | 1.62 | 1.59 | 1.54 | 1.50 | 1.46 | 1.44 |
| 16.00 | DISCHG | 1.42 | 1.41 | 1.40 | 1.40 | 1.40 | 1.39 | 1.39 | 1.37 | 1.34 | 1.29 |
| 17.00 | DISCHG | 1.26 | 1.23 | 1.21 | 1.19 | 1.18 | 1.18 | 1.18 | 1.17 | 1.17 | 1.16 |
| 18.00 | DISCHG | 1.13 | 1.09 | 1.05 | 1.01 | .99 | .97 | .96 | .95 | .95 | .95 |
| 19.00 | DISCHG | .95 | .94 | .94 | .94 | .94 | .94 | .94 | .94 | .94 | .93 |
| 20.00 | DISCHG | .90 | .86 | .82 | .79 | .76 | .74 | .73 | .73 | .72 | .72 |
| 21.00 | DISCHG | .72 | .71 | .71 | .71 | .71 | .71 | .71 | .71 | .71 | .71 |
| 22.00 | DISCHG | .71 | .71 | .71 | .71 | .71 | .71 | .72 | .72 | .72 | .72 |
| 23.00 | DISCHG | .72 | .72 | .72 | .72 | .72 | .72 | .72 | .72 | .72 | .70 |
| 24.00 | DISCHG | .68 | .62 | .54 | .43 | .32 | .22 | .15 | .10 | .07 | .04 |
| 25.00 | DISCHG | .03 | .02 | .01 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.29 WATERSHED INCHES, 38.42 CFS-HRS, 3.17 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 20
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.56 | 43.83 | 628.77 |
| 14.94 | 93.91 | 630.93 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.04 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .14 | .16 | .16 | .16 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 8.00 | DISCHG | .11 | .11 | .12 | .13 | .14 | .15 | .17 | .19 | .20 | .22 |
| 9.00 | DISCHG | .24 | .26 | .28 | .30 | .32 | .35 | .37 | .40 | .43 | .47 |
| 10.00 | DISCHG | .52 | .58 | .64 | .73 | .83 | .96 | 1.09 | 1.27 | 1.45 | 1.72 |
| 11.00 | DISCHG | 1.98 | 2.24 | 2.51 | 2.81 | 3.15 | 3.59 | 4.33 | 5.73 | 8.42 | 13.42 |
| 12.00 | DISCHG | 20.86 | 30.06 | 38.83 | 43.69 | 43.98 | 43.50 | 43.73 | 42.31 | 41.05 | 40.44 |
| 13.00 | DISCHG | 47.28 | 54.84 | 61.33 | 66.73 | 71.22 | 74.95 | 78.06 | 80.68 | 82.88 | 84.77 |
| 14.00 | DISCHG | 86.42 | 87.88 | 89.19 | 90.34 | 91.35 | 92.20 | 92.89 | 93.41 | 93.74 | 93.89 |
| 15.00 | DISCHG | 93.87 | 93.67 | 93.32 | 92.81 | 92.16 | 91.38 | 90.49 | 89.50 | 88.43 | 87.31 |
| [illegible].00 | DISCHG | 86.13 | 84.92 | 83.68 | 82.43 | 81.17 | 79.91 | 78.65 | 77.39 | 76.12 | 74.87 |
| [illegible].00 | DISCHG | 73.63 | 72.42 | 71.23 | 70.06 | 68.91 | 67.79 | 66.68 | 65.60 | 64.54 | 63.49 |
| 18.00 | DISCHG | 62.44 | 61.41 | 60.39 | 59.39 | 58.42 | 57.46 | 56.52 | 55.60 | 54.68 | 53.76 |
| 19.00 | DISCHG | 52.86 | 51.96 | 51.08 | 50.20 | 49.34 | 48.49 | 47.66 | 46.85 | 46.04 | 45.25 |
| 20.00 | DISCHG | 44.46 | 43.68 | 42.90 | 42.14 | 41.39 | 40.67 | 39.95 | 39.25 | 38.56 | 37.88 |

1

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 21.00 | DISCHG | 37.21 | 36.57 | 35.94 | 35.37 | 34.83 | 34.34 | 33.87 | 33.43 | 33.02 | 32.87 |
| 22.00 | DISCHG | 32.80 | 32.73 | 32.65 | 32.56 | 32.46 | 32.35 | 32.23 | 32.10 | 31.97 | 31.82 |
| 23.00 | DISCHG | 31.68 | 31.52 | 31.36 | 31.20 | 31.03 | 30.86 | 30.68 | 30.50 | 30.31 | 29.99 |
| 24.00 | DISCHG | 28.79 | 27.73 | 26.83 | 26.04 | 25.36 | 24.75 | 24.21 | 23.72 | 23.26 | 22.83 |
| 25.00 | DISCHG | 22.40 | 21.98 | 21.57 | 21.16 | 20.74 | 20.33 | 19.91 | 19.49 | 19.07 | 18.65 |
| 26.00 | DISCHG | 18.23 | 17.80 | 17.37 | 16.94 | 16.50 | 16.00 | 15.12 | 14.45 | 13.90 | 13.42 |
| 27.00 | DISCHG | 12.97 | 12.53 | 12.11 | 11.69 | 11.28 | 10.88 | 10.48 | 10.10 | 9.72 | 9.35 |
| 28.00 | DISCHG | 8.99 | 8.65 | 8.31 | 7.97 | 7.65 | 7.34 | 7.04 | 6.75 | 6.47 | 6.19 |
| 29.00 | DISCHG | 5.93 | 5.68 | 5.43 | 5.19 | 4.97 | 4.75 | 4.53 | 4.27 | 4.01 | 3.82 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.16 WATERSHED INCHES, 779.02 CFS-HRS, 64.38 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 1
AREA= .42 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= 1.51 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1007 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.92 | 185.69 | (RUNOFF) |
| 23.69 | 10.38 | (RUNOFF) |

(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .42 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .03 | .05 |
| 10.00 | DISCHG | .10 | .16 | .25 | .36 | .51 | .70 | .93 | 1.20 | 1.54 | 1.94 |
| 11.00 | DISCHG | 2.41 | 2.98 | 3.64 | 4.41 | 5.32 | 6.41 | 7.91 | 10.18 | 13.92 | 20.53 |
| 12.00 | DISCHG | 31.42 | 46.74 | 66.08 | 89.21 | 114.72 | 139.34 | 159.66 | 174.09 | 182.53 | 185.64 |
| 13.00 | DISCHG | 183.98 | 178.06 | 169.31 | 158.17 | 145.01 | 131.53 | 119.59 | 109.39 | 100.35 | 92.34 |
| 14.00 | DISCHG | 85.21 | 78.63 | 72.58 | 67.19 | 62.40 | 58.05 | 54.12 | 50.58 | 47.36 | 44.42 |
| 15.00 | DISCHG | 41.80 | 39.42 | 37.27 | 35.35 | 33.62 | 32.06 | 30.66 | 29.40 | 28.27 | 27.23 |
| 16.00 | DISCHG | 26.29 | 25.47 | 24.72 | 24.04 | 23.41 | 22.83 | 22.31 | 21.83 | 21.39 | 21.00 |
| 17.00 | DISCHG | 20.67 | 20.34 | 20.00 | 19.66 | 19.33 | 19.00 | 18.70 | 18.42 | 18.17 | 17.93 |
| 18.00 | DISCHG | 17.70 | 17.48 | 17.26 | 17.01 | 16.74 | 16.45 | 16.15 | 15.86 | 15.57 | 15.30 |
| 19.00 | DISCHG | 15.05 | 14.82 | 14.62 | 14.45 | 14.31 | 14.20 | 14.10 | 14.02 | 13.95 | 13.88 |
| 20.00 | DISCHG | 13.80 | 13.70 | 13.57 | 13.40 | 13.19 | 12.96 | 12.70 | 12.44 | 12.18 | 11.93 |
| 21.00 | DISCHG | 11.70 | 11.49 | 11.30 | 11.14 | 11.01 | 10.90 | 10.81 | 10.73 | 10.67 | 10.61 |
| 22.00 | DISCHG | 10.57 | 10.53 | 10.50 | 10.47 | 10.45 | 10.43 | 10.42 | 10.41 | 10.40 | 10.39 |
| 23.00 | DISCHG | 10.39 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.38 | 10.37 |
| 24.00 | DISCHG | 10.33 | 10.25 | 10.10 | 9.85 | 9.50 | 9.04 | 8.46 | 7.79 | 7.06 | 6.31 |
| 25.00 | DISCHG | 5.56 | 4.85 | 4.17 | 3.56 | 3.02 | 2.56 | 2.17 | 1.84 | 1.56 | 1.33 |
| 26.00 | DISCHG | 1.13 | .96 | .81 | .69 | .59 | .50 | .42 | .35 | .30 | .25 |
| 27.00 | DISCHG | .21 | .18 | .15 | .13 | .11 | .09 | .07 | .06 | .05 | .04 |
| 28.00 | DISCHG | .03 | .03 | .02 | .01 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.82 WATERSHED INCHES, 492.78 CFS-HRS, 40.72 ACRE-FEET; BASEFLOW = .00 CFS

ATION ADDHYD STRUCTURE 9
INPUT HYDROGRAPHS= 1,3 OUTPUT HYDROGRAPH= 6

1

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.09 | 232.92 | 619.63 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.46 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .14 | .16 | .16 | .16 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .13 | .13 | .13 | .13 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .12 | .12 | .12 | .12 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 8.00 | DISCHG | .11 | .11 | .12 | .13 | .14 | .15 | .17 | .19 | .20 | .22 |
| 9.00 | DISCHG | .24 | .26 | .28 | .30 | .32 | .35 | .37 | .41 | .46 | .52 |
| 10.00 | DISCHG | .62 | .73 | .89 | 1.10 | 1.35 | 1.65 | 2.01 | 2.47 | 2.99 | 3.66 |
| 11.00 | DISCHG | 4.40 | 5.22 | 6.15 | 7.22 | 8.47 | 10.01 | 12.24 | 15.91 | 22.35 | 33.95 |
| 12.00 | DISCHG | 52.28 | 76.80 | 104.91 | 132.90 | 158.70 | 182.84 | 203.39 | 216.40 | 223.58 | 226.07 |
| 13.00 | DISCHG | 231.26 | 232.90 | 230.64 | 224.90 | 216.23 | 206.48 | 197.66 | 190.07 | 183.23 | 177.11 |
| 14.00 | DISCHG | 171.63 | 166.52 | 161.77 | 157.53 | 153.74 | 150.25 | 147.01 | 143.99 | 141.10 | 138.32 |
| 15.00 | DISCHG | 135.67 | 133.09 | 130.59 | 128.16 | 125.78 | 123.44 | 121.15 | 118.90 | 116.70 | 114.54 |
| 16.00 | DISCHG | 112.42 | 110.39 | 108.40 | 106.47 | 104.58 | 102.74 | 100.96 | 99.21 | 97.51 | 95.87 |
| 17.00 | DISCHG | 94.30 | 92.75 | 91.23 | 89.72 | 88.24 | 86.79 | 85.38 | 84.02 | 82.70 | 81.42 |
| 18.00 | DISCHG | 80.14 | 78.89 | 77.65 | 76.40 | 75.16 | 73.91 | 72.68 | 71.45 | 70.25 | 69.06 |
| 19.00 | DISCHG | 67.91 | 66.78 | 65.70 | 64.65 | 63.65 | 62.69 | 61.76 | 60.87 | 60.00 | 59.13 |
| 20.00 | DISCHG | 58.26 | 57.37 | 56.46 | 55.54 | 54.59 | 53.62 | 52.66 | 51.69 | 50.74 | 49.81 |
| 21.00 | DISCHG | 48.92 | 48.06 | 47.25 | 46.51 | 45.84 | 45.24 | 44.68 | 44.17 | 43.68 | 43.48 |
| 22.00 | DISCHG | 43.37 | 43.26 | 43.15 | 43.03 | 42.91 | 42.78 | 42.65 | 42.51 | 42.36 | 42.22 |
| 23.00 | DISCHG | 42.06 | 41.91 | 41.74 | 41.58 | 41.41 | 41.24 | 41.06 | 40.88 | 40.70 | 40.36 |
| 24.00 | DISCHG | 39.12 | 37.98 | 36.93 | 35.90 | 34.86 | 33.79 | 32.67 | 31.51 | 30.33 | 29.14 |
| 25.00 | DISCHG | 27.97 | 26.83 | 25.74 | 24.72 | 23.77 | 22.88 | 22.08 | 21.33 | 20.64 | 19.98 |
| 26.00 | DISCHG | 19.36 | 18.76 | 18.18 | 17.63 | 17.09 | 16.50 | 15.54 | 14.80 | 14.20 | 13.68 |
| 27.00 | DISCHG | 13.18 | 12.71 | 12.26 | 11.82 | 11.39 | 10.97 | 10.56 | 10.16 | 9.77 | 9.39 |
| 28.00 | DISCHG | 9.03 | 8.67 | 8.32 | 7.99 | 7.66 | 7.35 | 7.04 | 6.75 | 6.47 | 6.19 |
| 29.00 | DISCHG | 5.93 | 5.68 | 5.43 | 5.19 | 4.97 | 4.75 | 4.53 | 4.27 | 4.01 | 3.82 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.35 WATERSHED INCHES, 1271.81 CFS-HRS, 105.10 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 80
OUTPUT HYDROGRAPH= 1
AREA= .29 SQ MI INPUT RUNOFF CURVE= 86. TIME OF CONCENTRATION= 2.29 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1018 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.42 | 145.41 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .29 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.00 | DISCHG | .00 | .00 | .00 | .00 | .01 | .01 | .02 | .04 | .05 | .08 |
| 7.00 | DISCHG | .10 | .14 | .18 | .23 | .29 | .35 | .42 | .50 | .58 | .67 |

1

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .77 | .86 | .97 | 1.08 | 1.19 | 1.31 | 1.44 | 1.58 | 1.72 | 1.87 |
| 9.00 | DISCHG | 2.03 | 2.21 | 2.39 | 2.59 | 2.80 | 3.01 | 3.24 | 3.48 | 3.73 | 3.99 |
| 10.00 | DISCHG | 4.26 | 4.55 | 4.84 | 5.15 | 5.48 | 5.82 | 6.19 | 6.58 | 7.00 | 7.47 |
| 11.00 | DISCHG | 7.98 | 8.55 | 9.19 | 9.90 | 10.71 | 11.62 | 12.78 | 14.31 | 16.53 | 19.88 |
| 12.00 | DISCHG | 24.74 | 30.97 | 38.63 | 47.65 | 58.08 | 69.89 | 82.85 | 96.12 | 108.72 | 119.82 |
| 13.00 | DISCHG | 129.07 | 136.20 | 141.13 | 144.12 | 145.36 | 144.92 | 142.91 | 139.54 | 135.14 | 129.85 |
| 14.00 | DISCHG | 123.67 | 116.67 | 109.16 | 101.69 | 94.72 | 88.44 | 82.77 | 77.60 | 72.82 | 68.42 |
| 15.00 | DISCHG | 64.39 | 60.64 | 57.09 | 53.74 | 50.62 | 47.75 | 45.13 | 42.72 | 40.48 | 38.40 |
| 16.00 | DISCHG | 36.49 | 34.72 | 33.09 | 31.59 | 30.19 | 28.92 | 27.77 | 26.71 | 25.74 | 24.86 |
| 17.00 | DISCHG | 24.04 | 23.29 | 22.59 | 21.92 | 21.29 | 20.71 | 20.16 | 19.64 | 19.17 | 18.72 |
| 18.00 | DISCHG | 18.29 | 17.88 | 17.50 | 17.15 | 16.80 | 16.46 | 16.11 | 15.77 | 15.43 | 15.10 |
| 19.00 | DISCHG | 14.77 | 14.46 | 14.15 | 13.86 | 13.60 | 13.36 | 13.15 | 12.97 | 12.79 | 12.63 |
| 20.00 | DISCHG | 12.48 | 12.34 | 12.21 | 12.07 | 11.94 | 11.80 | 11.65 | 11.49 | 11.33 | 11.16 |
| 21.00 | DISCHG | 10.98 | 10.81 | 10.64 | 10.47 | 10.30 | 10.15 | 10.00 | 9.86 | 9.72 | 9.60 |
| 22.00 | DISCHG | 9.49 | 9.39 | 9.30 | 9.23 | 9.16 | 9.10 | 9.04 | 9.00 | 8.95 | 8.91 |
| 23.00 | DISCHG | 8.88 | 8.85 | 8.82 | 8.79 | 8.77 | 8.75 | 8.73 | 8.72 | 8.70 | 8.68 |
| 24.00 | DISCHG | 8.66 | 8.63 | 8.58 | 8.50 | 8.40 | 8.27 | 8.10 | 7.88 | 7.62 | 7.31 |
| 25.00 | DISCHG | 6.96 | 6.59 | 6.19 | 5.78 | 5.36 | 4.94 | 4.53 | 4.13 | 3.75 | 3.39 |
| 26.00 | DISCHG | 3.05 | 2.74 | 2.45 | 2.19 | 1.96 | 1.76 | 1.58 | 1.42 | 1.28 | 1.15 |
| 27.00 | DISCHG | 1.03 | .92 | .83 | .74 | .67 | .60 | .54 | .48 | .43 | .39 |
| 28.00 | DISCHG | .35 | .31 | .28 | .25 | .22 | .20 | .18 | .16 | .14 | .13 |
| 29.00 | DISCHG | .11 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .04 |

RUNOFF VOLUME ABOVE BASEFLOW = 2.73 WATERSHED INCHES, 510.41 CFS-HRS, 42.18 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID

COMPUTATIONS COMPLETED FOR PASS 2

1



OCHANGES TO STANDARD CONTROL LIST FOLLOW

EXECUTIVE CONTROL OPERATION ALTER RECORD ID

STANDARD CONTROL OPERATION ADDHYD STRUCTURE 9 RECORD ID

INPUT HYDROGRAPHS = 1,3 OUTPUT HYDROGRAPH = 6 DATA FIELD VALUES = .0000 .0000 .0000

OUTPUT OPTIONS IN EFFECT PEAK HYD VOL SUM

1



EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55

\+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 2

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .01 | .02 |
| 8 | .03 | .05 | .09 | .12 | .16 |
| 8 | .21 | .26 | .31 | .37 | .44 |
| 8 | .50 | .57 | .65 | .73 | .82 |
| 8 | .93 | 1.05 | 1.20 | 1.38 | 1.59 |
| 8 | 1.83 | 2.11 | 2.41 | 2.76 | 3.16 |
| 8 | 3.65 | 4.51 | 6.20 | 9.59 | 15.89 |
| 8 | 25.87 | 38.52 | 50.42 | 57.52 | 58.89 |
| 8 | 55.88 | 50.22 | 44.22 | 39.50 | 36.08 |
| | 33.64 | 31.82 | 30.61 | 29.75 | 29.26 |
| | 29.04 | 29.22 | 29.33 | 29.69 | 30.10 |
| 8 | 30.63 | 31.12 | 31.66 | 32.12 | 32.62 |
| 8 | 32.88 | 33.02 | 33.07 | 33.14 | 33.12 |
| 8 | 33.13 | 33.07 | 33.07 | 33.01 | 33.01 |
| 8 | 32.94 | 32.90 | 32.78 | 32.71 | 32.58 |
| 8 | 32.51 | 32.37 | 32.29 | 32.14 | 32.04 |
| 8 | 31.87 | 31.73 | 31.52 | 31.32 | 31.03 |
| 8 | 30.78 | 30.45 | 30.04 | 29.58 | 29.18 |
| 8 | 28.72 | 28.33 | 27.87 | 27.47 | 27.01 |
| 8 | 26.58 | 26.07 | 25.61 | 25.10 | 24.65 |
| 8 | 24.17 | 23.77 | 23.33 | 22.95 | 22.53 |
| 8 | 22.16 | 21.63 | 21.16 | 20.66 | 20.23 |
| 8 | 19.76 | 19.35 | 18.91 | 18.53 | 18.10 |
| 8 | 17.71 | 17.26 | 16.86 | 16.42 | 16.05 |
| 8 | 15.66 | 15.34 | 14.99 | 14.72 | 14.40 |
| 8 | 14.15 | 13.86 | 13.63 | 13.35 | 13.14 |

1



| | | | | | |
|---|---|---|---|---|---|
| | 12.88 | 12.68 | 12.38 | 12.12 | 11.82 |
| | 11.59 | 11.32 | 11.12 | 10.88 | 10.71 |
| | 10.50 | 10.34 | 10.15 | 10.02 | 9.85 |
| 8 | 9.74 | 9.59 | 9.50 | 9.36 | 9.29 |
| 8 | 9.17 | 9.11 | 9.00 | 8.94 | 8.83 |
| 8 | 8.75 | 8.57 | 8.39 | 8.11 | 7.84 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | 7.52 | 7.28 | 7.01 | 6.82 | 6.62 |
| 8 | 6.47 | 6.28 | 6.14 | 5.95 | 5.80 |
| 8 | 5.60 | 5.44 | 5.22 | 5.05 | 4.82 |
| | 4.64 | 4.42 | 4.24 | 4.01 | 3.83 |
| | 3.61 | 3.44 | 3.22 | 3.06 | 2.86 |
| 8 | 2.72 | 2.53 | 2.39 | 2.22 | 2.10 |
| 8 | 1.94 | 1.84 | 1.69 | 1.60 | 1.47 |
| 8 | 1.39 | 1.27 | 1.21 | 1.10 | 1.04 |
| 8 | .95 | .90 | .82 | .78 | .70 |
| 8 | .67 | .60 | .58 | .51 | .50 |
| 8 | .44 | .43 | .38 | .37 | .32 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55

+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 7

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .01 | .02 |
| 8 | .03 | .05 | .09 | .12 | .16 |
| 8 | .21 | .26 | .31 | .37 | .44 |
| 8 | .50 | .57 | .65 | .73 | .82 |
| 8 | .93 | 1.05 | 1.20 | 1.38 | 1.59 |
| 8 | 1.83 | 2.11 | 2.41 | 2.76 | 3.16 |
| 8 | 3.65 | 4.51 | 6.20 | 9.59 | 15.89 |
| 8 | 25.87 | 38.52 | 50.42 | 57.52 | 58.89 |

1



| | | | | | |
|---|---|---|---|---|---|
| 8 | 55.88 | 50.22 | 44.22 | 39.50 | 36.08 |
| 8 | 33.64 | 31.82 | 30.61 | 29.75 | 29.26 |
| | 29.04 | 29.22 | 29.33 | 29.69 | 30.10 |
| | 30.63 | 31.12 | 31.66 | 32.12 | 32.62 |
| 8 | 32.88 | 33.02 | 33.07 | 33.14 | 33.12 |
| 8 | 33.13 | 33.07 | 33.07 | 33.01 | 33.01 |
| 8 | 32.94 | 32.90 | 32.78 | 32.71 | 32.58 |
| 8 | 32.51 | 32.37 | 32.29 | 32.14 | 32.04 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | 31.87 | 31.73 | 31.52 | 31.32 | 31.03 |
| 8 | 30.78 | 30.45 | 30.04 | 29.58 | 29.18 |
| 8 | 28.72 | 28.32 | 27.87 | 27.47 | 27.01 |
| | 26.58 | 26.07 | 25.61 | 25.10 | 24.65 |
| | 24.17 | 23.77 | 23.33 | 22.95 | 22.53 |
| 8 | 22.16 | 21.63 | 21.16 | 20.66 | 20.23 |
| 8 | 19.76 | 19.35 | 18.91 | 18.53 | 18.10 |
| 8 | 17.71 | 17.26 | 16.86 | 16.42 | 16.05 |
| 8 | 15.66 | 15.34 | 14.99 | 14.72 | 14.40 |
| 8 | 14.15 | 13.86 | 13.63 | 13.35 | 13.14 |
| 8 | 12.88 | 12.68 | 12.38 | 12.12 | 11.82 |
| 8 | 11.59 | 11.32 | 11.12 | 10.88 | 10.71 |
| 8 | 10.50 | 10.34 | 10.15 | 10.02 | 9.85 |
| 8 | 9.74 | 9.59 | 9.50 | 9.36 | 9.29 |
| 8 | 9.17 | 9.10 | 9.00 | 8.94 | 8.83 |
| 8 | 8.74 | 8.57 | 8.39 | 8.11 | 7.84 |
| 8 | 7.52 | 7.27 | 7.01 | 6.82 | 6.62 |
| 8 | 6.47 | 6.28 | 6.14 | 5.95 | 5.80 |
| 8 | 5.60 | 5.44 | 5.22 | 5.05 | 4.82 |
| 8 | 4.64 | 4.42 | 4.24 | 4.01 | 3.83 |
| 8 | 3.61 | 3.44 | 3.23 | 3.06 | 2.86 |
| 8 | 2.72 | 2.53 | 2.39 | 2.22 | 2.10 |
| 8 | 1.94 | 1.84 | 1.69 | 1.60 | 1.47 |
| 8 | 1.39 | 1.28 | 1.21 | 1.10 | 1.04 |
| 8 | .95 | .90 | .82 | .78 | .70 |
| 8 | .67 | .60 | .58 | .51 | .50 |
| 8 | .44 | .43 | .38 | .37 | .32 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
+ MAIN TIME INCREMENT = .10 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID
+ FROM XSECTION 130
+ TO XSECTION 80
STARTING TIME = .00 RAIN DEPTH = 4.50 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 3 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF CROSS SECTION 130
OUTPUT HYDROGRAPH= 2
AREA= .40 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= 2.18 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0969 HOURS
1



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.55 | 69.41 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .40 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .09 | .34 | 1.07 |
| 12.00 | DISCHG | 2.55 | 4.80 | 7.85 | 11.71 | 16.44 | 22.21 | 28.97 | 36.19 | 43.32 | 49.84 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.00 | DISCHG | 55.56 | 60.25 | 63.88 | 66.61 | 68.42 | 69.31 | 69.33 | 68.66 | 67.43 | 65.59 |
| 14.00 | DISCHG | 63.11 | 60.09 | 56.86 | 53.75 | 50.90 | 48.28 | 45.85 | 43.55 | 41.42 | 39.45 |
| 15.00 | DISCHG | 37.57 | 35.76 | 34.03 | 32.41 | 30.91 | 29.53 | 28.23 | 27.02 | 25.90 | 24.85 |
| 16.00 | DISCHG | 23.88 | 22.98 | 22.14 | 21.36 | 20.66 | 20.01 | 19.42 | 18.87 | 18.37 | 17.92 |
| 17.00 | DISCHG | 17.49 | 17.09 | 16.71 | 16.35 | 16.01 | 15.69 | 15.38 | 15.09 | 14.81 | 14.56 |
| 18.00 | DISCHG | 14.32 | 14.08 | 13.85 | 13.63 | 13.40 | 13.18 | 12.95 | 12.72 | 12.49 | 12.26 |
| 19.00 | DISCHG | 12.04 | 11.83 | 11.64 | 11.46 | 11.30 | 11.15 | 11.01 | 10.88 | 10.76 | 10.66 |
| 20.00 | DISCHG | 10.55 | 10.46 | 10.37 | 10.27 | 10.17 | 10.07 | 9.95 | 9.82 | 9.68 | 9.54 |
| 21.00 | DISCHG | 9.40 | 9.26 | 9.11 | 8.98 | 8.84 | 8.71 | 8.60 | 8.49 | 8.38 | 8.29 |
| 22.00 | DISCHG | 8.21 | 8.14 | 8.08 | 8.03 | 7.98 | 7.94 | 7.91 | 7.87 | 7.85 | 7.82 |
| 23.00 | DISCHG | 7.80 | 7.79 | 7.77 | 7.76 | 7.75 | 7.74 | 7.73 | 7.73 | 7.72 | 7.72 |
| 24.00 | DISCHG | 7.70 | 7.68 | 7.63 | 7.57 | 7.47 | 7.34 | 7.17 | 6.96 | 6.70 | 6.40 |
| 25.00 | DISCHG | 6.06 | 5.69 | 5.31 | 4.92 | 4.53 | 4.14 | 3.76 | 3.40 | 3.06 | 2.74 |
| 26.00 | DISCHG | 2.44 | 2.18 | 1.94 | 1.72 | 1.54 | 1.37 | 1.23 | 1.10 | .98 | .88 |
| 27.00 | DISCHG | .78 | .70 | .62 | .56 | .50 | .44 | .39 | .35 | .31 | .28 |
| 28.00 | DISCHG | .25 | .22 | .20 | .17 | .16 | .14 | .12 | .11 | .10 | .08 |
| 29.00 | DISCHG | .07 | .07 | .06 | .05 | .04 | .04 | .03 | .03 | .02 | .02 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.08 WATERSHED INCHES, 278.51 CFS-HRS, 23.02 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130
INPUT HYDROGRAPHS= 2,7 OUTPUT HYDROGRAPH= 1

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.58 | 98.57 | 639.77 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.20 WATERSHED INCHES, 600.65 CFS-HRS, 49.64 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 120
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1387.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= 1.41 M= 1.22
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .66 PEAK TRAVEL TIME = .10 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.72 | 98.31 | 634.91 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .78 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 9.00 | DISCHG | .01 | .02 | .04 | .07 | .10 | .14 | .19 | .23 | .28 | .34 |
| 10.00 | DISCHG | .41 | .47 | .53 | .61 | .69 | .77 | .88 | .99 | 1.13 | 1.29 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | 1.49 | 1.71 | 1.97 | 2.26 | 2.59 | 2.96 | 3.41 | 4.14 | 5.55 | 8.43 |
| 12.00 | DISCHG | 14.02 | 23.47 | 36.50 | 50.78 | 62.89 | 71.05 | 75.67 | 77.98 | 79.57 | 81.71 |
| 13.00 | DISCHG | 84.47 | 87.57 | 90.53 | 93.13 | 95.25 | 96.84 | 97.83 | 98.30 | 98.10 | 97.45 |
| 14.00 | DISCHG | 96.30 | 94.62 | 92.38 | 89.85 | 87.24 | 84.80 | 82.41 | 80.09 | 77.81 | 75.68 |
| 15.00 | DISCHG | 73.64 | 71.71 | 69.82 | 68.03 | 66.32 | 64.75 | 63.25 | 61.86 | 60.51 | 59.26 |
| 16.00 | DISCHG | 58.06 | 56.97 | 55.91 | 54.94 | 53.99 | 53.14 | 52.31 | 51.55 | 50.79 | 50.07 |
| 17.00 | DISCHG | 49.33 | 48.63 | 47.91 | 47.15 | 46.35 | 45.59 | 44.81 | 44.08 | 43.34 | 42.65 |
| 18.00 | DISCHG | 41.94 | 41.25 | 40.53 | 39.83 | 39.11 | 38.42 | 37.71 | 37.06 | 36.40 | 35.77 |
| 19.00 | DISCHG | 35.13 | 34.52 | 33.82 | 33.15 | 32.48 | 31.85 | 31.23 | 30.66 | 30.09 | 29.57 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | DISCHG | 29.03 | 28.53 | 28.00 | 27.49 | 26.97 | 26.48 | 25.98 | 25.53 | 25.06 | 24.63 |
| 21.00 | DISCHG | 24.18 | 23.77 | 23.34 | 22.95 | 22.54 | 22.17 | 21.79 | 21.45 | 21.07 | 20.70 |
| 22.00 | DISCHG | 20.31 | 19.98 | 19.64 | 19.35 | 19.06 | 18.82 | 18.57 | 18.36 | 18.14 | 17.96 |
| 23.00 | DISCHG | 17.77 | 17.62 | 17.46 | 17.34 | 17.19 | 17.09 | 16.97 | 16.88 | 16.78 | 16.70 |
| 24.00 | DISCHG | 16.60 | 16.50 | 16.33 | 16.13 | 15.83 | 15.49 | 15.08 | 14.66 | 14.21 | 13.76 |
| 25.00 | DISCHG | 13.27 | 12.78 | 12.25 | 11.73 | 11.16 | 10.61 | 10.04 | 9.49 | 8.92 | 8.39 |
| 26.00 | DISCHG | 7.84 | 7.34 | 6.85 | 6.41 | 5.97 | 5.57 | 5.19 | 4.85 | 4.51 | 4.20 |
| 27.00 | DISCHG | 3.89 | 3.64 | 3.37 | 3.13 | 2.90 | 2.70 | 2.49 | 2.32 | 2.14 | 1.99 |
| 28.00 | DISCHG | 1.83 | 1.70 | 1.57 | 1.46 | 1.34 | 1.24 | 1.14 | 1.06 | .97 | .91 |
| 29.00 | DISCHG | .83 | .77 | .70 | .66 | .59 | .56 | .22 | .10 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.20 WATERSHED INCHES, 600.75 CFS-HRS, 49.65 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 120
OUTPUT HYDROGRAPH= 3
AREA= .02 SQ MI INPUT RUNOFF CURVE= 67. TIME OF CONCENTRATION= .49 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0653 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.21 | 14.76 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .01 | .03 | .07 | .12 | .18 | .26 | .46 | .95 | 2.02 | 4.21 |
| 12.00 | DISCHG | 8.28 | 12.67 | 14.73 | 13.56 | 10.84 | 8.23 | 6.42 | 5.20 | 4.34 | 3.75 |
| 13.00 | DISCHG | 3.29 | 2.94 | 2.64 | 2.41 | 2.22 | 2.05 | 1.92 | 1.81 | 1.70 | 1.61 |
| 14.00 | DISCHG | 1.53 | 1.46 | 1.40 | 1.34 | 1.29 | 1.24 | 1.19 | 1.13 | 1.08 | 1.04 |
| 15.00 | DISCHG | 1.01 | 1.00 | .99 | .98 | .97 | .94 | .91 | .89 | .87 | .86 |
| 16.00 | DISCHG | .86 | .85 | .85 | .85 | .85 | .85 | .85 | .83 | .80 | .77 |
| 17.00 | DISCHG | .75 | .74 | .73 | .73 | .73 | .72 | .72 | .73 | .72 | .71 |
| 18.00 | DISCHG | .69 | .66 | .63 | .61 | .60 | .59 | .59 | .59 | .59 | .59 |
| 19.00 | DISCHG | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .58 |
| 20.00 | DISCHG | .55 | .52 | .49 | .47 | .46 | .46 | .45 | .45 | .45 | .45 |
| 21.00 | DISCHG | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 |
| 22.00 | DISCHG | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 | .45 |
| 23.00 | DISCHG | .46 | .46 | .46 | .46 | .46 | .46 | .46 | .46 | .46 | .44 |
| 24.00 | DISCHG | .41 | .37 | .30 | .22 | .14 | .08 | .05 | .03 | .02 | .01 |
| 25.00 | DISCHG | .01 | .00 | | | | | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.46 WATERSHED INCHES, 18.87 CFS-HRS, 1.56 ACRE-FEET; BASEFLOW = .00 CFS

1



OPERATION ADDHYD STRUCTURE 50
INPUT HYDROGRAPHS= 2,3 OUTPUT HYDROGRAPH= 4

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.70 | 100.11 | 636.37 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 9.00 | DISCHG | .01 | .02 | .04 | .07 | .10 | .14 | .19 | .23 | .28 | .34 |
| 10.00 | DISCHG | .41 | .47 | .53 | .61 | .69 | .77 | .88 | .99 | 1.13 | 1.29 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | 1.50 | 1.74 | 2.04 | 2.38 | 2.77 | 3.23 | 3.88 | 5.09 | 7.56 | 12.63 |
| 12.00 | DISCHG | 22.30 | 36.14 | 51.22 | 64.35 | 73.72 | 79.28 | 82.09 | 83.18 | 83.92 | 85.46 |
| 13.00 | DISCHG | 87.76 | 90.51 | 93.17 | 95.54 | 97.46 | 98.89 | 99.75 | 100.11 | 99.80 | 99.06 |
| 14.00 | DISCHG | 97.83 | 96.08 | 93.78 | 91.19 | 88.53 | 86.04 | 83.60 | 81.22 | 78.89 | 76.72 |
| 15.00 | DISCHG | 74.65 | 72.71 | 70.81 | 69.02 | 67.28 | 65.69 | 64.17 | 62.75 | 61.38 | 60.12 |
| 16.00 | DISCHG | 58.92 | 57.82 | 56.76 | 55.79 | 54.85 | 54.00 | 53.16 | 52.38 | 51.59 | 50.84 |
| 17.00 | DISCHG | 50.08 | 49.37 | 48.64 | 47.88 | 47.07 | 46.31 | 45.54 | 44.81 | 44.07 | 43.36 |
| 18.00 | DISCHG | 42.63 | 41.91 | 41.16 | 40.44 | 39.71 | 39.01 | 38.31 | 37.65 | 36.98 | 36.35 |
| 19.00 | DISCHG | 35.71 | 35.11 | 34.41 | 33.74 | 33.07 | 32.45 | 31.83 | 31.25 | 30.68 | 30.15 |
| 20.00 | DISCHG | 29.59 | 29.05 | 28.49 | 27.97 | 27.43 | 26.94 | 26.44 | 25.98 | 25.51 | 25.08 |
| 21.00 | DISCHG | 24.63 | 24.22 | 23.79 | 23.40 | 22.99 | 22.62 | 22.24 | 21.90 | 21.52 | 21.15 |
| 22.00 | DISCHG | 20.76 | 20.43 | 20.09 | 19.80 | 19.51 | 19.27 | 19.02 | 18.81 | 18.59 | 18.41 |
| 23.00 | DISCHG | 18.23 | 18.08 | 17.92 | 17.79 | 17.65 | 17.55 | 17.43 | 17.34 | 17.24 | 17.15 |
| 24.00 | DISCHG | 17.01 | 16.86 | 16.63 | 16.34 | 15.97 | 15.58 | 15.13 | 14.69 | 14.23 | 13.77 |
| 25.00 | DISCHG | 13.28 | 12.78 | 12.25 | 11.73 | 11.16 | 10.61 | 10.04 | 9.49 | 8.92 | 8.39 |
| 26.00 | DISCHG | 7.84 | 7.34 | 6.85 | 6.41 | 5.97 | 5.57 | 5.19 | 4.85 | 4.51 | 4.20 |
| 27.00 | DISCHG | 3.89 | 3.64 | 3.37 | 3.13 | 2.90 | 2.70 | 2.49 | 2.32 | 2.14 | 1.99 |
| 28.00 | DISCHG | 1.83 | 1.70 | 1.57 | 1.46 | 1.34 | 1.24 | 1.14 | 1.06 | .97 | .91 |
| 29.00 | DISCHG | .83 | .77 | .70 | .66 | .59 | .56 | .22 | .10 | .05 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.20 WATERSHED INCHES, 619.62 CFS-HRS, 51.21 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 50
INPUT HYDROGRAPH= 4 OUTPUT HYDROGRAPH= 2
SURFACE ELEVATION= 632.00

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.28 | 91.65 | 635.99 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .01 | .02 | .04 | .07 | .10 | .13 | .18 | .22 | .27 | .33 |
| 10.00 | DISCHG | .39 | .46 | .52 | .60 | .67 | .76 | .86 | .97 | 1.10 | 1.26 |
| 11.00 | DISCHG | 1.46 | 1.70 | 1.98 | 2.31 | 2.69 | 3.14 | 3.74 | 4.82 | 7.02 | 11.52 |
| 12.00 | DISCHG | 20.21 | 33.38 | 41.23 | 52.20 | 63.36 | 69.25 | 73.55 | 76.97 | 79.45 | 81.42 |
| 13.00 | DISCHG | 83.37 | 85.54 | 87.91 | 90.34 | 90.55 | 90.69 | 90.85 | 91.02 | 91.19 | 91.34 |
| 14.00 | DISCHG | 91.47 | 91.57 | 91.64 | 91.65 | 91.62 | 91.54 | 91.41 | 91.25 | 91.04 | 90.79 |
| 15.00 | DISCHG | 90.51 | 85.54 | 80.36 | 76.43 | 73.31 | 70.74 | 68.55 | 66.64 | 64.44 | 62.00 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16.00 | DISCHG | 60.36 | 59.04 | 57.88 | 56.82 | 55.82 | 54.89 | 54.02 | 53.19 | 52.39 | 51.61 |
| 17.00 | DISCHG | 50.85 | 50.11 | 49.38 | 48.64 | 47.87 | 47.09 | 46.32 | 45.56 | 44.81 | 44.09 |
| 18.00 | DISCHG | 43.36 | 42.64 | 41.91 | 41.17 | 40.44 | 39.73 | 39.02 | 38.33 | 37.66 | 37.00 |
| 19.00 | DISCHG | 36.36 | 35.73 | 34.90 | 33.69 | 33.27 | 32.52 | 31.96 | 31.35 | 30.79 | 30.24 |
| 20.00 | DISCHG | 29.69 | 29.14 | 28.60 | 28.06 | 27.53 | 27.02 | 26.53 | 26.06 | 25.60 | 25.15 |
| 21.00 | DISCHG | 24.72 | 24.29 | 23.87 | 23.47 | 23.07 | 22.69 | 22.32 | 21.96 | 21.60 | 21.21 |
| 22.00 | DISCHG | 20.84 | 20.48 | 20.15 | 19.85 | 19.57 | 19.31 | 19.07 | 18.85 | 18.64 | 18.44 |
| 23.00 | DISCHG | 18.26 | 18.10 | 17.95 | 17.81 | 17.68 | 17.56 | 17.45 | 17.35 | 17.26 | 17.16 |
| 24.00 | DISCHG | 17.04 | 16.89 | 16.68 | 16.40 | 16.05 | 15.65 | 15.22 | 14.77 | 14.32 | 13.85 |
| 25.00 | DISCHG | 13.37 | 12.87 | 12.35 | 11.82 | 11.27 | 10.71 | 10.15 | 9.59 | 9.03 | 8.48 |
| 26.00 | DISCHG | 7.95 | 7.43 | 6.94 | 6.48 | 6.05 | 5.64 | 5.26 | 4.90 | 4.57 | 4.25 |
| 27.00 | DISCHG | 3.95 | 3.68 | 3.42 | 3.17 | 2.94 | 2.73 | 2.53 | 2.35 | 2.17 | 2.01 |
| 28.00 | DISCHG | 1.86 | 1.72 | 1.60 | 1.48 | 1.36 | 1.26 | 1.16 | 1.07 | .99 | .92 |
| 29.00 | DISCHG | .84 | .78 | .72 | .66 | .61 | .56 | .31 | .09 | .07 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.20 WATERSHED INCHES, 619.61 CFS-HRS, 51.20 ACRE-FEET; BASEFLOW = .00 CFS

ATION RUNOFF STRUCTURE 40

OUTPUT HYDROGRAPH= 1

AREA= .19 SQ MI INPUT RUNOFF CURVE= 71. TIME OF CONCENTRATION= .53 HOURS

INTERNAL HYDROGRAPH TIME INCREMENT= .0707 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.23 | 164.15 | (RUNOFF) |
| 19.67 | 6.21 | (RUNOFF) |
| 23.66 | 4.77 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .19 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .02 | .06 | .15 | .29 | .49 | .76 | 1.09 | 1.50 |
| 11.00 | DISCHG | 1.99 | 2.56 | 3.23 | 3.99 | 4.89 | 6.06 | 8.54 | 14.61 | 26.39 | 51.36 |
| 12.00 | DISCHG | 92.54 | 138.09 | 162.80 | 156.44 | 129.30 | 99.55 | 77.70 | 62.58 | 51.62 | 44.02 |
| 13.00 | DISCHG | 38.13 | 33.73 | 30.15 | 27.25 | 24.93 | 22.94 | 21.29 | 19.87 | 18.65 | 17.59 |
| 14.00 | DISCHG | 16.66 | 15.89 | 15.20 | 14.56 | 13.97 | 13.38 | 12.81 | 12.24 | 11.69 | 11.23 |
| 15.00 | DISCHG | 10.89 | 10.68 | 10.55 | 10.46 | 10.33 | 10.07 | 9.76 | 9.48 | 9.28 | 9.16 |
| 16.00 | DISCHG | 9.09 | 9.05 | 9.03 | 9.03 | 9.03 | 9.03 | 8.99 | 8.82 | 8.55 | 8.25 |
| 17.00 | DISCHG | 8.01 | 7.85 | 7.76 | 7.70 | 7.67 | 7.65 | 7.64 | 7.64 | 7.63 | 7.53 |
| 18.00 | DISCHG | 7.29 | 6.98 | 6.70 | 6.49 | 6.37 | 6.29 | 6.24 | 6.21 | 6.20 | 6.19 |
| 19.00 | DISCHG | 6.19 | 6.19 | 6.19 | 6.19 | 6.20 | 6.20 | 6.21 | 6.21 | 6.19 | 6.09 |
| 20.00 | DISCHG | 5.86 | 5.54 | 5.25 | 5.04 | 4.91 | 4.83 | 4.78 | 4.74 | 4.73 | 4.72 |
| 21.00 | DISCHG | 4.71 | 4.71 | 4.71 | 4.71 | 4.71 | 4.71 | 4.71 | 4.72 | 4.72 | 4.72 |
| 22.00 | DISCHG | 4.73 | 4.73 | 4.73 | 4.73 | 4.74 | 4.74 | 4.74 | 4.74 | 4.75 | 4.75 |
| 23.00 | DISCHG | 4.75 | 4.75 | 4.76 | 4.76 | 4.76 | 4.76 | 4.77 | 4.77 | 4.76 | 4.65 |
| '.00 | DISCHG | 4.39 | 3.96 | 3.29 | 2.48 | 1.70 | 1.08 | .67 | .42 | .26 | .16 |
| ›.00 | DISCHG | .10 | .06 | .04 | .02 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 1.74 WATERSHED INCHES, 213.95 CFS-HRS, 17.68 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 40

1

TR20 XEQ 02-12-96 13:56 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK (FEB 96) JOB 1 PASS 3

REV PC 09/83(.2) INCLUDES GREENS DRAIN ENCLOSURE (CRISLOMR.DAT) PAGE 44

INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.27 | 209.42 | 698.70 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .01 | .02 | .04 | .07 | .10 | .13 | .18 | .22 | .27 | .33 |
| 10.00 | DISCHG | .39 | .46 | .54 | .65 | .82 | 1.05 | 1.34 | 1.72 | 2.19 | 2.76 |
| 11.00 | DISCHG | 3.45 | 4.26 | 5.21 | 6.30 | 7.58 | 9.20 | 12.29 | 19.44 | 33.41 | 62.88 |
| 12.00 | DISCHG | 112.75 | 171.47 | 204.02 | 208.64 | 192.66 | 168.80 | 151.25 | 139.55 | 131.06 | 125.44 |
| 13.00 | DISCHG | 121.50 | 119.27 | 118.06 | 117.58 | 115.48 | 113.63 | 112.14 | 110.89 | 109.84 | 108.93 |
| .00 | DISCHG | 108.13 | 107.47 | 106.84 | 106.22 | 105.59 | 104.92 | 104.23 | 103.49 | 102.73 | 102.02 |
| 15.00 | DISCHG | 101.40 | 96.22 | 90.91 | 86.89 | 83.64 | 80.82 | 78.32 | 76.12 | 73.72 | 71.16 |
| 16.00 | DISCHG | 69.45 | 68.09 | 66.91 | 65.84 | 64.85 | 63.92 | 63.01 | 62.01 | 60.94 | 59.86 |
| 17.00 | DISCHG | 58.86 | 57.95 | 57.14 | 56.34 | 55.54 | 54.74 | 53.96 | 53.20 | 52.44 | 51.61 |
| 18.00 | DISCHG | 50.65 | 49.62 | 48.60 | 47.66 | 46.81 | 46.01 | 45.26 | 44.54 | 43.86 | 43.19 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.00 | DISCHG | 42.55 | 41.92 | 41.09 | 39.89 | 39.46 | 38.72 | 38.16 | 37.56 | 36.99 | 36.33 |
| 20.00 | DISCHG | 35.55 | 34.69 | 33.85 | 33.10 | 32.44 | 31.85 | 31.31 | 30.80 | 30.32 | 29.87 |
| 21.00 | DISCHG | 29.43 | 28.99 | 28.58 | 28.17 | 27.78 | 27.40 | 27.03 | 26.68 | 26.32 | 25.94 |
| 22.00 | DISCHG | 25.56 | 25.21 | 24.89 | 24.58 | 24.30 | 24.05 | 23.81 | 23.59 | 23.38 | 23.19 |
| .00 | DISCHG | 23.02 | 22.86 | 22.71 | 22.57 | 22.44 | 22.33 | 22.22 | 22.12 | 22.01 | 21.81 |
| 24.00 | DISCHG | 21.43 | 20.85 | 19.98 | 18.87 | 17.74 | 16.73 | 15.89 | 15.19 | 14.58 | 14.01 |
| 25.00 | DISCHG | 13.47 | 12.93 | 12.39 | 11.84 | 11.28 | 10.72 | 10.15 | 9.59 | 9.03 | 8.48 |
| 26.00 | DISCHG | 7.95 | 7.43 | 6.94 | 6.48 | 6.05 | 5.64 | 5.26 | 4.90 | 4.57 | 4.25 |
| 27.00 | DISCHG | 3.95 | 3.68 | 3.42 | 3.17 | 2.94 | 2.73 | 2.53 | 2.35 | 2.17 | 2.01 |
| 28.00 | DISCHG | 1.86 | 1.72 | 1.60 | 1.48 | 1.36 | 1.26 | 1.16 | 1.07 | .99 | .92 |
| 29.00 | DISCHG | .84 | .78 | .72 | .66 | .61 | .56 | .31 | .09 | .07 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.31 WATERSHED INCHES, 833.56 CFS-HRS, 68.88 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 40
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 632.00

*** WARNING - STRUCTURE 40 DELTA T IS TOO LARGE. 0 /2 > S /DELTA T OCCURED 50 TIMES STARTING WITH POINT 2

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| .00 | .77 | 632.00 |
| .20 | .76 | 632.00 |
| .40 | .75 | 632.00 |
| .60 | .74 | 632.00 |
| .80 | .73 | 631.99 |
| 1.00 | .72 | 631.99 |
| 1.20 | .71 | 631.99 |
| 1.40 | .70 | 631.99 |
| 1.60 | .69 | 631.99 |
| 14.52 | 104.77 | 634.26 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.
1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .77 | -.76 | .76 | -.75 | .75 | -.74 | .74 | -.73 | .73 | -.72 |
| 1.00 | DISCHG | .72 | -.71 | .71 | -.71 | .70 | -.70 | .69 | -.69 | .68 | -.68 |
| 2.00 | DISCHG | .67 | -.67 | .67 | -.66 | .66 | -.65 | .65 | -.65 | .64 | -.64 |
| 3.00 | DISCHG | .63 | -.63 | .63 | -.62 | .62 | -.61 | .61 | -.61 | .60 | -.60 |
| 4.00 | DISCHG | .59 | -.59 | .59 | -.58 | .58 | -.58 | .57 | -.57 | .57 | -.56 |
| 5.00 | DISCHG | .56 | -.55 | .55 | -.55 | .54 | -.54 | .54 | -.53 | .53 | -.53 |
| 6.00 | DISCHG | .52 | -.52 | .52 | -.51 | .51 | -.51 | .50 | -.50 | .50 | -.49 |
| 7.00 | DISCHG | .49 | -.49 | .49 | -.48 | .48 | -.48 | .47 | -.47 | .47 | -.46 |
| 8.00 | DISCHG | .46 | -.46 | .46 | -.45 | .45 | -.45 | .44 | -.44 | .44 | -.44 |
| 9.00 | DISCHG | .45 | -.41 | .47 | -.36 | .52 | -.29 | .59 | -.19 | .69 | -.08 |
| 10.00 | DISCHG | .77 | .12 | .77 | .53 | .77 | .78 | .80 | .84 | .90 | .98 |
| 11.00 | DISCHG | 1.09 | 1.24 | 1.42 | 1.65 | 1.92 | 2.26 | 2.70 | 3.39 | 4.60 | 6.88 |
| 12.00 | DISCHG | 11.11 | 17.97 | 26.85 | 38.31 | 51.64 | 62.25 | 70.28 | 76.45 | 81.28 | 85.14 |
| 00 | DISCHG | 88.42 | 91.39 | 93.93 | 96.16 | 98.05 | 99.59 | 100.83 | 101.82 | 102.62 | 103.25 |
| 14.00 | DISCHG | 103.74 | 104.12 | 104.40 | 104.60 | 104.72 | 104.77 | 104.75 | 104.67 | 104.52 | 104.32 |
| 15.00 | DISCHG | 104.08 | 103.59 | 102.66 | 101.37 | 99.87 | 98.23 | 96.49 | 94.70 | 92.86 | 90.95 |
| 16.00 | DISCHG | 89.03 | 87.17 | 85.55 | 83.98 | 82.45 | 80.96 | 79.53 | 78.13 | 76.76 | 75.42 |
| 17.00 | DISCHG | 74.10 | 72.81 | 71.56 | 70.34 | 69.16 | 68.00 | 66.88 | 65.79 | 64.72 | 63.68 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.00 | DISCHG | 62.65 | 61.62 | 60.59 | 59.57 | 58.56 | 57.56 | 56.58 | 55.62 | 54.68 | 53.77 |
| 19.00 | DISCHG | 52.87 | 52.00 | 51.14 | 50.26 | 49.39 | 48.55 | 47.72 | 46.91 | 46.11 | 45.34 |
| 20.00 | DISCHG | 44.57 | 43.79 | 43.01 | 42.22 | 41.45 | 40.68 | 39.94 | 39.21 | 38.50 | 37.81 |
| 21.00 | DISCHG | 37.14 | 36.48 | 35.85 | 35.24 | 34.64 | 34.06 | 33.50 | 32.95 | 32.50 | 32.16 |
| .00 | DISCHG | 31.83 | 31.49 | 31.15 | 30.82 | 30.49 | 30.16 | 29.83 | 29.51 | 29.19 | 28.88 |
| 23.00 | DISCHG | 28.58 | 28.29 | 28.00 | 27.72 | 27.45 | 27.18 | 26.92 | 26.67 | 26.43 | 26.20 |
| 24.00 | DISCHG | 25.96 | 25.71 | 25.43 | 25.11 | 24.76 | 24.36 | 23.94 | 23.50 | 23.05 | 22.59 |
| 25.00 | DISCHG | 22.13 | 21.66 | 21.19 | 20.72 | 20.24 | 19.75 | 19.27 | 18.78 | 18.28 | 17.78 |
| 26.00 | DISCHG | 17.28 | 16.78 | 16.28 | 15.78 | 15.28 | 14.78 | 14.30 | 13.81 | 13.34 | 12.87 |
| 27.00 | DISCHG | 12.41 | 11.96 | 11.52 | 11.09 | 10.67 | 10.26 | 9.86 | 9.47 | 9.10 | 8.73 |
| 28.00 | DISCHG | 8.37 | 8.03 | 7.70 | 7.37 | 7.06 | 6.76 | 6.47 | 6.19 | 5.92 | 5.66 |
| 29.00 | DISCHG | 5.41 | 5.17 | 4.94 | 4.72 | 4.50 | 4.30 | 4.10 | 3.89 | 3.69 | 3.50 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.30 WATERSHED INCHES, 826.49 CFS-HRS, 68.30 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 110
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1606.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .44 M= 1.36
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .44 PEAK TRAVEL TIME = .30 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.76 | 104.66 | 631.17 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .34 | .00 | .33 | .00 | .33 | .00 | .32 | .00 | .32 |
| 1.00 | DISCHG | .00 | .32 | .00 | .31 | .00 | .31 | .00 | .30 | .00 | .30 |
| 2.00 | DISCHG | .00 | .30 | .00 | .29 | .00 | .29 | .00 | .29 | .00 | .28 |
| .00 | DISCHG | .00 | .28 | .00 | .28 | .00 | .27 | .00 | .27 | .00 | .26 |
| 4.00 | DISCHG | .00 | .26 | .00 | .26 | .00 | .25 | .00 | .25 | .00 | .25 |
| 5.00 | DISCHG | .00 | .25 | .00 | .24 | .00 | .24 | .00 | .24 | .00 | .23 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.00 | DISCHG | .00 | .23 | .00 | .23 | .00 | .22 | .00 | .22 | .00 | .22 |
| 7.00 | DISCHG | .00 | .22 | .00 | .21 | .00 | .21 | .00 | .21 | .00 | .21 |
| 8.00 | DISCHG | .00 | .20 | .00 | .20 | .00 | .20 | .00 | .19 | .00 | .19 |
| 9.00 | DISCHG | .00 | .20 | .00 | .20 | .00 | .23 | .00 | .26 | .06 | .34 |
| 10.00 | DISCHG | .15 | .42 | .29 | .50 | .51 | .63 | .69 | .74 | .78 | .83 |
| 11.00 | DISCHG | .90 | .98 | 1.09 | 1.24 | 1.42 | 1.64 | 1.91 | 2.26 | 2.76 | 3.57 |
| 12.00 | DISCHG | 5.03 | 7.71 | 12.23 | 18.68 | 27.33 | 38.04 | 48.71 | 58.22 | 66.25 | 72.88 |
| 13.00 | DISCHG | 78.28 | 82.75 | 86.56 | 89.81 | 92.61 | 95.01 | 97.03 | 98.70 | 100.08 | 101.20 |
| 14.00 | DISCHG | 102.10 | 102.82 | 103.39 | 103.84 | 104.17 | 104.41 | 104.57 | 104.65 | 104.66 | 104.60 |
| 15.00 | DISCHG | 104.48 | 104.30 | 103.99 | 103.40 | 102.51 | 101.35 | 99.97 | 98.44 | 96.79 | 95.06 |
| 16.00 | DISCHG | 93.25 | 91.39 | 89.53 | 87.78 | 86.10 | 84.49 | 82.94 | 81.43 | 79.98 | 78.56 |
| 17.00 | DISCHG | 77.17 | 75.82 | 74.49 | 73.20 | 71.94 | 70.71 | 69.52 | 68.36 | 67.22 | 66.12 |
| 18.00 | DISCHG | 65.05 | 63.99 | 62.95 | 61.91 | 60.88 | 59.85 | 58.84 | 57.85 | 56.86 | 55.90 |
| 19.00 | DISCHG | 54.96 | 54.04 | 53.14 | 52.26 | 51.38 | 50.50 | 49.64 | 48.79 | 47.96 | 47.15 |
| 20.00 | DISCHG | 46.35 | 45.56 | 44.78 | 44.00 | 43.22 | 42.44 | 41.66 | 40.90 | 40.15 | 39.42 |
| .00 | DISCHG | 38.71 | 38.01 | 37.34 | 36.68 | 36.05 | 35.43 | 34.82 | 34.24 | 33.67 | 33.15 |
| 22.00 | DISCHG | 32.72 | 32.33 | 31.96 | 31.60 | 31.26 | 30.92 | 30.58 | 30.25 | 29.92 | 29.60 |
| 23.00 | DISCHG | 29.28 | 28.97 | 28.67 | 28.37 | 28.08 | 27.80 | 27.53 | 27.26 | 27.00 | 26.75 |
| 24.00 | DISCHG | 26.51 | 26.26 | 26.02 | 25.76 | 25.47 | 25.16 | 24.81 | 24.43 | 24.02 | 23.59 |
| 25.00 | DISCHG | 23.15 | 22.70 | 22.24 | 21.78 | 21.31 | 20.84 | 20.36 | 19.88 | 19.39 | 18.90 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26.00 | DISCHG | 18.41 | 17.91 | 17.41 | 16.91 | 16.41 | 15.91 | 15.41 | 14.92 | 14.43 | 13.95 |
| 27.00 | DISCHG | 13.47 | 13.01 | 12.55 | 12.10 | 11.65 | 11.22 | 10.80 | 10.39 | 9.98 | 9.59 |
| 28.00 | DISCHG | 9.21 | 8.84 | 8.48 | 8.14 | 7.80 | 7.47 | 7.16 | 6.86 | 6.56 | 6.28 |
| 29.00 | DISCHG | 6.01 | 5.74 | 5.49 | 5.25 | 5.01 | 4.79 | 4.57 | 4.36 | 4.15 | 3.95 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.30 WATERSHED INCHES, 829.17 CFS-HRS, 68.52 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 30
OUTPUT HYDROGRAPH= 1
AREA= .02 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .68 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0907 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.32 | 19.66 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .00 | .01 | .01 | .02 | .04 | .05 | .07 |
| 10.00 | DISCHG | .09 | .11 | .13 | .15 | .18 | .21 | .25 | .29 | .35 | .41 |
| 11.00 | DISCHG | .49 | .57 | .67 | .78 | .90 | 1.05 | 1.34 | 1.94 | 3.24 | 5.68 |
| 12.00 | DISCHG | 9.55 | 14.23 | 18.07 | 19.63 | 18.84 | 16.50 | 13.55 | 10.99 | 9.09 | 7.66 |
| 13.00 | DISCHG | 6.54 | 5.66 | 4.96 | 4.39 | 3.94 | 3.57 | 3.26 | 3.01 | 2.78 | 2.58 |
| 14.00 | DISCHG | 2.41 | 2.26 | 2.14 | 2.03 | 1.94 | 1.86 | 1.78 | 1.70 | 1.62 | 1.55 |
| 15.00 | DISCHG | 1.50 | 1.45 | 1.42 | 1.40 | 1.37 | 1.35 | 1.31 | 1.28 | 1.25 | 1.22 |
| 16.00 | DISCHG | 1.20 | 1.19 | 1.19 | 1.18 | 1.18 | 1.18 | 1.17 | 1.16 | 1.14 | 1.11 |
| 17.00 | DISCHG | 1.07 | 1.05 | 1.03 | 1.02 | 1.01 | 1.00 | 1.00 | .99 | .99 | .98 |
| 18.00 | DISCHG | .96 | .94 | .90 | .87 | .85 | .83 | .82 | .81 | .81 | .81 |
| 19.00 | DISCHG | .80 | .80 | .80 | .80 | .80 | .80 | .80 | .80 | .80 | .79 |
| 20.00 | DISCHG | .77 | .75 | .71 | .68 | .66 | .64 | .63 | .62 | .62 | .61 |
| .00 | DISCHG | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 |



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22.00 | DISCHG | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 |
| 23.00 | DISCHG | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .61 | .60 |
| 24.00 | DISCHG | .58 | .55 | .49 | .41 | .32 | .24 | .17 | .12 | .08 | .06 |
| 25.00 | DISCHG | .04 | .03 | .02 | .01 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.05 WATERSHED INCHES, 29.72 CFS-HRS, 2.46 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 30
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.65 | 106.36 | 634.47 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .34 | .00 | .33 | .00 | .33 | .00 | .32 | .00 | .32 |
| 1.00 | DISCHG | .00 | .32 | .00 | .31 | .00 | .31 | .00 | .30 | .00 | .30 |
| .00 | DISCHG | .00 | .30 | .00 | .29 | .00 | .29 | .00 | .29 | .00 | .28 |
| 3.00 | DISCHG | .00 | .28 | .00 | .28 | .00 | .27 | .00 | .27 | .00 | .26 |
| 4.00 | DISCHG | .00 | .26 | .00 | .26 | .00 | .25 | .00 | .25 | .00 | .25 |
| 5.00 | DISCHG | .00 | .25 | .00 | .24 | .00 | .24 | .00 | .24 | .00 | .23 |
| 6.00 | DISCHG | .00 | .23 | .00 | .23 | .00 | .22 | .00 | .22 | .00 | .22 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.00 | DISCHG | .00 | .22 | .00 | .21 | .00 | .21 | .00 | .21 | .00 | .21 |
| 8.00 | DISCHG | .00 | .20 | .00 | .20 | .00 | .20 | .00 | .19 | .00 | .19 |
| 9.00 | DISCHG | .00 | .20 | .00 | .20 | .01 | .24 | .02 | .30 | .11 | .41 |
| 0.00 | DISCHG | .24 | .53 | .42 | .65 | .69 | .84 | .94 | 1.03 | 1.13 | 1.25 |
| 1.00 | DISCHG | 1.38 | 1.56 | 1.76 | 2.01 | 2.32 | 2.69 | 3.25 | 4.20 | 6.00 | 9.25 |
| 12.00 | DISCHG | 14.58 | 21.94 | 30.30 | 38.30 | 46.17 | 54.55 | 62.26 | 69.21 | 75.35 | 80.53 |
| 13.00 | DISCHG | 84.82 | 88.41 | 91.52 | 94.20 | 96.55 | 98.58 | 100.29 | 101.71 | 102.86 | 103.78 |
| 14.00 | DISCHG | 104.51 | 105.08 | 105.53 | 105.87 | 106.12 | 106.27 | 106.35 | 106.35 | 106.28 | 106.15 |
| 15.00 | DISCHG | 105.97 | 105.75 | 105.41 | 104.80 | 103.88 | 102.69 | 101.28 | 99.72 | 98.04 | 96.28 |
| 16.00 | DISCHG | 94.45 | 92.58 | 90.71 | 88.96 | 87.28 | 85.67 | 84.11 | 82.59 | 81.11 | 79.66 |
| 17.00 | DISCHG | 78.25 | 76.87 | 75.52 | 74.21 | 72.94 | 71.71 | 70.51 | 69.35 | 68.22 | 67.10 |
| 18.00 | DISCHG | 66.01 | 64.93 | 63.85 | 62.78 | 61.73 | 60.69 | 59.66 | 58.66 | 57.67 | 56.71 |
| 19.00 | DISCHG | 55.76 | 54.84 | 53.94 | 53.06 | 52.18 | 51.30 | 50.44 | 49.59 | 48.76 | 47.94 |
| 20.00 | DISCHG | 47.12 | 46.31 | 45.49 | 44.68 | 43.88 | 43.08 | 42.29 | 41.52 | 40.77 | 40.04 |
| 21.00 | DISCHG | 39.32 | 38.62 | 37.95 | 37.29 | 36.65 | 36.03 | 35.43 | 34.85 | 34.28 | 33.76 |
| 22.00 | DISCHG | 33.33 | 32.93 | 32.57 | 32.21 | 31.87 | 31.52 | 31.19 | 30.86 | 30.53 | 30.21 |
| 23.00 | DISCHG | 29.89 | 29.58 | 29.28 | 28.98 | 28.70 | 28.41 | 28.14 | 27.87 | 27.61 | 27.35 |
| 24.00 | DISCHG | 27.09 | 26.81 | 26.50 | 26.16 | 25.79 | 25.39 | 24.98 | 24.54 | 24.10 | 23.65 |
| 25.00 | DISCHG | 23.19 | 22.73 | 22.26 | 21.79 | 21.32 | 20.84 | 20.36 | 19.88 | 19.39 | 18.90 |
| 26.00 | DISCHG | 18.41 | 17.91 | 17.41 | 16.91 | 16.41 | 15.91 | 15.41 | 14.92 | 14.43 | 13.95 |
| 27.00 | DISCHG | 13.47 | 13.01 | 12.55 | 12.10 | 11.65 | 11.22 | 10.80 | 10.39 | 9.98 | 9.59 |
| 28.00 | DISCHG | 9.21 | 8.84 | 8.48 | 8.14 | 7.80 | 7.47 | 7.16 | 6.86 | 6.56 | 6.28 |
| 29.00 | DISCHG | 6.01 | 5.74 | 5.49 | 5.25 | 5.01 | 4.79 | 4.57 | 4.36 | 4.15 | 3.95 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.32 WATERSHED INCHES, 858.89 CFS-HRS, 70.98 ACRE-FEET; BASEFLOW = .00 CFS

1



OPERATION RESVOR STRUCTURE 30
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 628.41

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 15.00 | 105.98 | 634.46 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .16 | .17 | .17 | .17 | .16 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .15 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .14 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .13 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .12 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .12 | .12 | .12 | .11 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .10 | .10 | .10 |
| 8.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 9.00 | DISCHG | .10 | .10 | .10 | .10 | .11 | .12 | .13 | .16 | .20 | .26 |
| 10.00 | DISCHG | .32 | .38 | .47 | .53 | .66 | .76 | .88 | .98 | 1.08 | 1.18 |
| 11.00 | DISCHG | 1.31 | 1.46 | 1.64 | 1.87 | 2.14 | 2.48 | 2.94 | 3.67 | 4.77 | 6.39 |
| .00 | DISCHG | 9.52 | 14.47 | 18.35 | 22.46 | 27.55 | 30.00 | 31.06 | 33.53 | 45.07 | 54.86 |
| 13.00 | DISCHG | 63.15 | 70.14 | 76.04 | 81.05 | 85.32 | 88.97 | 92.08 | 94.74 | 96.99 | 98.87 |
| 14.00 | DISCHG | 100.44 | 101.74 | 102.80 | 103.67 | 104.36 | 104.91 | 105.32 | 105.63 | 105.83 | 105.95 |
| 15.00 | DISCHG | 105.98 | 105.95 | 105.84 | 105.62 | 105.24 | 104.66 | 103.86 | 102.86 | 101.67 | 100.33 |
| 16.00 | DISCHG | 98.85 | 97.26 | 95.59 | 93.87 | 92.16 | 90.47 | 88.80 | 87.18 | 85.59 | 84.04 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 17.00 | DISCHG | 82.53 | 81.05 | 79.60 | 78.19 | 76.82 | 75.48 | 74.18 | 72.91 | 71.68 | 70.48 |
| 18.00 | DISCHG | 69.31 | 68.17 | 67.04 | 65.93 | 64.84 | 63.76 | 62.69 | 61.64 | 60.60 | 59.59 |
| 19.00 | DISCHG | 58.59 | 57.61 | 56.65 | 55.71 | 54.79 | 53.88 | 52.98 | 52.10 | 51.23 | 50.37 |
| 20.00 | DISCHG | 49.52 | 48.69 | 47.86 | 47.03 | 46.21 | 45.40 | 44.59 | 43.79 | 43.00 | 42.23 |
| 21.00 | DISCHG | 41.47 | 40.73 | 40.00 | 39.29 | 38.60 | 37.93 | 37.27 | 36.64 | 36.02 | 35.42 |
| 22.00 | DISCHG | 34.86 | 34.35 | 33.87 | 33.43 | 33.02 | 32.62 | 32.25 | 32.14 | 32.09 | 32.02 |
| 23.00 | DISCHG | 31.95 | 31.87 | 31.78 | 31.68 | 31.57 | 31.46 | 31.34 | 31.22 | 31.09 | 30.95 |
| 24.00 | DISCHG | 30.82 | 30.67 | 30.52 | 30.37 | 30.20 | 30.03 | 29.85 | 29.66 | 29.46 | 28.27 |
| 25.00 | DISCHG | 27.02 | 25.98 | 25.08 | 24.29 | 23.59 | 22.94 | 22.34 | 21.77 | 21.22 | 20.68 |
| 26.00 | DISCHG | 20.16 | 19.65 | 19.13 | 18.63 | 18.12 | 17.62 | 17.11 | 16.61 | 16.11 | 15.07 |
| 27.00 | DISCHG | 14.30 | 13.70 | 13.18 | 12.69 | 12.23 | 11.78 | 11.34 | 10.92 | 10.50 | 10.10 |
| 28.00 | DISCHG | 9.70 | 9.32 | 8.95 | 8.59 | 8.24 | 7.90 | 7.57 | 7.25 | 6.94 | 6.65 |
| 29.00 | DISCHG | 6.36 | 6.09 | 5.82 | 5.57 | 5.32 | 5.08 | 4.85 | 4.64 | 4.42 | 4.08 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.32 WATERSHED INCHES, 858.13 CFS-HRS, 70.92 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 100
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 972.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .47 M= 1.53
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .94 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 100 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***
1



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 15.11 | 105.98 | 627.89 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .15 | .17 | .17 | .17 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .12 | .12 | .12 | .12 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .10 | .10 | .10 | .10 |
| 8.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 | .10 |
| 9.00 | DISCHG | .10 | .10 | .10 | .10 | .10 | .10 | .12 | .13 | .16 | .20 |
| 10.00 | DISCHG | .25 | .31 | .38 | .46 | .52 | .65 | .75 | .87 | .97 | 1.07 |
| 11.00 | DISCHG | 1.17 | 1.30 | 1.45 | 1.63 | 1.86 | 2.13 | 2.46 | 2.91 | 3.62 | 4.70 |
| 12.00 | DISCHG | 6.28 | 9.31 | 14.14 | 18.08 | 22.18 | 27.21 | 29.82 | 30.98 | 33.37 | 44.33 |
| 13.00 | DISCHG | 54.19 | 62.58 | 69.66 | 75.64 | 80.71 | 85.03 | 88.71 | 91.87 | 94.56 | 96.83 |
| 14.00 | DISCHG | 98.74 | 100.34 | 101.65 | 102.73 | 103.61 | 104.31 | 104.87 | 105.29 | 105.61 | 105.82 |
| 15.00 | DISCHG | 105.94 | 105.98 | 105.95 | 105.84 | 105.63 | 105.26 | 104.69 | 103.91 | 102.93 | 101.75 |
| 16.00 | DISCHG | 100.42 | 98.95 | 97.37 | 95.70 | 93.99 | 92.28 | 90.58 | 88.92 | 87.29 | 85.70 |
| 17.00 | DISCHG | 84.15 | 82.63 | 81.15 | 79.70 | 78.29 | 76.91 | 75.57 | 74.27 | 73.00 | 71.77 |
| 18.00 | DISCHG | 70.57 | 69.39 | 68.25 | 67.12 | 66.01 | 64.91 | 63.83 | 62.76 | 61.71 | 60.67 |
| 19.00 | DISCHG | 59.66 | 58.66 | 57.68 | 56.72 | 55.78 | 54.85 | 53.94 | 53.04 | 52.16 | 51.29 |
| 20.00 | DISCHG | 50.43 | 49.58 | 48.74 | 47.91 | 47.09 | 46.27 | 45.45 | 44.64 | 43.85 | 43.06 |
| 21.00 | DISCHG | 42.28 | 41.52 | 40.78 | 40.05 | 39.34 | 38.65 | 37.97 | 37.32 | 36.68 | 36.06 |
| 22.00 | DISCHG | 35.46 | 34.90 | 34.38 | 33.90 | 33.46 | 33.04 | 32.65 | 32.27 | 32.15 | 32.09 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23.00 | DISCHG | 32.03 | 31.96 | 31.87 | 31.78 | 31.69 | 31.58 | 31.47 | 31.35 | 31.23 | 31.10 |
| 24.00 | DISCHG | 30.96 | 30.83 | 30.68 | 30.53 | 30.38 | 30.21 | 30.04 | 29.86 | 29.67 | 29.48 |
| 25.00 | DISCHG | 28.35 | 27.11 | 26.05 | 25.14 | 24.35 | 23.64 | 22.99 | 22.38 | 21.81 | 21.26 |
| 26.00 | DISCHG | 20.72 | 20.20 | 19.68 | 19.17 | 18.66 | 18.15 | 17.65 | 17.15 | 16.65 | 16.15 |
| 27.00 | DISCHG | 15.13 | 14.35 | 13.74 | 13.21 | 12.72 | 12.26 | 11.81 | 11.37 | 10.95 | 10.53 |
| 28.00 | DISCHG | 10.13 | 9.73 | 9.35 | 8.97 | 8.61 | 8.26 | 7.92 | 7.59 | 7.27 | 6.97 |
| 29.00 | DISCHG | 6.67 | 6.38 | 6.11 | 5.84 | 5.58 | 5.34 | 5.10 | 4.87 | 4.65 | 4.44 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.32 WATERSHED INCHES, 857.82 CFS-HRS, 70.89 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 20
OUTPUT HYDROGRAPH= 1
AREA= .03 SQ MI INPUT RUNOFF CURVE= 81. TIME OF CONCENTRATION= .61 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0813 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.25 | 30.80 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .03 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .01 | .02 | .03 |
| 8.00 | DISCHG | .04 | .05 | .06 | .07 | .09 | .11 | .13 | .15 | .17 | .19 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .22 | .24 | .26 | .29 | .31 | .34 | .37 | .40 | .44 | .47 |
| 10.00 | DISCHG | .51 | .54 | .58 | .62 | .67 | .73 | .81 | .90 | 1.01 | 1.14 |
| 11.00 | DISCHG | 1.28 | 1.44 | 1.62 | 1.81 | 2.02 | 2.31 | 2.88 | 4.07 | 6.49 | 10.92 |
| 12.00 | DISCHG | 17.63 | 25.13 | 30.32 | 30.41 | 27.00 | 22.04 | 17.25 | 13.76 | 11.27 | 9.39 |
| 13.00 | DISCHG | 7.97 | 6.88 | 6.04 | 5.37 | 4.83 | 4.39 | 4.03 | 3.72 | 3.44 | 3.20 |
| 14.00 | DISCHG | 3.00 | 2.85 | 2.71 | 2.59 | 2.47 | 2.37 | 2.26 | 2.16 | 2.06 | 1.97 |
| 15.00 | DISCHG | 1.91 | 1.86 | 1.82 | 1.80 | 1.77 | 1.73 | 1.69 | 1.64 | 1.60 | 1.57 |
| 16.00 | DISCHG | 1.55 | 1.54 | 1.53 | 1.53 | 1.52 | 1.52 | 1.52 | 1.50 | 1.46 | 1.41 |
| 17.00 | DISCHG | 1.37 | 1.34 | 1.32 | 1.30 | 1.29 | 1.29 | 1.28 | 1.28 | 1.28 | 1.26 |
| 18.00 | DISCHG | 1.23 | 1.19 | 1.14 | 1.11 | 1.08 | 1.06 | 1.05 | 1.04 | 1.04 | 1.03 |
| 19.00 | DISCHG | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.03 | 1.01 |
| 20.00 | DISCHG | .99 | .94 | .90 | .86 | .83 | .81 | .80 | .79 | .79 | .78 |
| 21.00 | DISCHG | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 |
| 22.00 | DISCHG | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 |
| 23.00 | DISCHG | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .77 |
| 24.00 | DISCHG | .74 | .68 | .59 | .47 | .35 | .24 | .16 | .11 | .07 | .05 |
| 25.00 | DISCHG | .03 | .02 | .01 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.55 WATERSHED INCHES, 42.73 CFS-HRS, 3.53 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 20
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.45 | 49.49 | 628.94 |
| 15.03 | 107.85 | 632.10 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.04 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .15 | .17 | .17 | .17 | .16 | .16 | .16 | .16 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .12 | .12 | .12 | .12 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .12 | .12 | .13 |
| 8.00 | DISCHG | .14 | .15 | .16 | .17 | .19 | .21 | .23 | .25 | .27 | .29 |
| 9.00 | DISCHG | .31 | .33 | .36 | .38 | .41 | .45 | .49 | .53 | .59 | .67 |
| 10.00 | DISCHG | .76 | .85 | .95 | 1.08 | 1.19 | 1.38 | 1.56 | 1.77 | 1.98 | 2.21 |
| 11.00 | DISCHG | 2.46 | 2.74 | 3.07 | 3.44 | 3.88 | 4.43 | 5.33 | 6.98 | 10.11 | 15.62 |
| 12.00 | DISCHG | 23.91 | 34.43 | 44.46 | 48.49 | 49.18 | 49.24 | 47.07 | 44.74 | 44.63 | 53.72 |
| 13.00 | DISCHG | 62.16 | 69.45 | 75.70 | 81.01 | 85.54 | 89.42 | 92.74 | 95.59 | 97.99 | 100.03 |
| 14.00 | DISCHG | 101.75 | 103.18 | 104.36 | 105.32 | 106.08 | 106.68 | 107.13 | 107.45 | 107.67 | 107.79 |
| 15.00 | DISCHG | 107.84 | 107.83 | 107.77 | 107.64 | 107.40 | 106.99 | 106.38 | 105.55 | 104.52 | 103.32 |
| 16.00 | DISCHG | 101.97 | 100.49 | 98.90 | 97.23 | 95.52 | 93.80 | 92.10 | 90.41 | 88.75 | 87.11 |
| 17.00 | DISCHG | 85.52 | 83.97 | 82.46 | 81.00 | 79.58 | 78.20 | 76.85 | 75.55 | 74.28 | 73.03 |
| 18.00 | DISCHG | 71.80 | 70.58 | 69.39 | 68.22 | 67.09 | 65.97 | 64.88 | 63.80 | 62.75 | 61.71 |
| 19.00 | DISCHG | 60.69 | 59.69 | 58.71 | 57.74 | 56.80 | 55.88 | 54.97 | 54.07 | 53.19 | 52.30 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 20.00 | DISCHG | 51.41 | 50.52 | 49.64 | 48.77 | 47.92 | 47.08 | 46.25 | 45.44 | 44.63 | 43.84 |
| 21.00 | DISCHG | 43.06 | 42.30 | 41.55 | 40.83 | 40.12 | 39.42 | 38.75 | 38.09 | 37.46 | 36.84 |
| 22.00 | DISCHG | 36.24 | 35.68 | 35.16 | 34.68 | 34.24 | 33.82 | 33.43 | 33.05 | 32.93 | 32.87 |
| 23.00 | DISCHG | 32.81 | 32.74 | 32.65 | 32.56 | 32.47 | 32.36 | 32.25 | 32.13 | 32.01 | 31.86 |
| 24.00 | DISCHG | 31.70 | 31.50 | 31.27 | 31.00 | 30.72 | 30.46 | 30.20 | 29.97 | 29.74 | 29.52 |
| 25.00 | DISCHG | 28.38 | 27.13 | 26.06 | 25.15 | 24.35 | 23.64 | 22.99 | 22.38 | 21.81 | 21.26 |
| 26.00 | DISCHG | 20.72 | 20.20 | 19.68 | 19.17 | 18.66 | 18.15 | 17.65 | 17.15 | 16.65 | 16.15 |
| 27.00 | DISCHG | 15.13 | 14.35 | 13.74 | 13.21 | 12.72 | 12.26 | 11.81 | 11.37 | 10.95 | 10.53 |
| 28.00 | DISCHG | 10.13 | 9.73 | 9.35 | 8.97 | 8.61 | 8.26 | 7.92 | 7.59 | 7.27 | 6.97 |
| 29.00 | DISCHG | 6.67 | 6.38 | 6.11 | 5.84 | 5.58 | 5.34 | 5.10 | 4.87 | 4.65 | 4.44 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.35 WATERSHED INCHES, 900.56 CFS-HRS, 74.42 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 1
AREA= .42 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= 1.51 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1007 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.91 | 210.94 | (RUNOFF) |
| 23.68 | 11.41 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .42 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .01 | .02 | .03 | .06 | .11 | .18 | .28 |
| 10.00 | DISCHG | .40 | .56 | .74 | .96 | 1.21 | 1.51 | 1.84 | 2.23 | 2.68 | 3.20 |
| 11.00 | DISCHG | 3.81 | 4.51 | 5.34 | 6.29 | 7.39 | 8.71 | 10.49 | 13.19 | 17.57 | 25.22 |
| 12.00 | DISCHG | 37.72 | 55.22 | 77.23 | 103.44 | 132.24 | 159.90 | 182.60 | 198.58 | 207.77 | 210.92 |
| 13.00 | DISCHG | 208.68 | 201.65 | 191.46 | 178.59 | 163.52 | 148.14 | 134.55 | 122.95 | 112.67 | 103.58 |
| 14.00 | DISCHG | 95.49 | 88.03 | 81.18 | 75.09 | 69.68 | 64.77 | 60.34 | 56.35 | 52.72 | 49.42 |
| 15.00 | DISCHG | 46.47 | 43.80 | 41.39 | 39.24 | 37.30 | 35.55 | 33.97 | 32.57 | 31.30 | 30.14 |
| 16.00 | DISCHG | 29.09 | 28.17 | 27.34 | 26.57 | 25.87 | 25.23 | 24.64 | 24.10 | 23.61 | 23.18 |
| 17.00 | DISCHG | 22.81 | 22.44 | 22.06 | 21.69 | 21.32 | 20.96 | 20.62 | 20.31 | 20.03 | 19.77 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.00 | DISCHG | 19.51 | 19.27 | 19.02 | 18.75 | 18.45 | 18.13 | 17.80 | 17.47 | 17.15 | 16.85 |
| 19.00 | DISCHG | 16.57 | 16.32 | 16.10 | 15.92 | 15.76 | 15.63 | 15.53 | 15.44 | 15.36 | 15.28 |
| 20.00 | DISCHG | 15.19 | 15.08 | 14.93 | 14.75 | 14.52 | 14.26 | 13.98 | 13.69 | 13.41 | 13.13 |
| 21.00 | DISCHG | 12.88 | 12.64 | 12.44 | 12.26 | 12.11 | 11.99 | 11.89 | 11.81 | 11.73 | 11.67 |
| 2.00 | DISCHG | 11.62 | 11.58 | 11.54 | 11.52 | 11.49 | 11.47 | 11.46 | 11.44 | 11.43 | 11.43 |
| 23.00 | DISCHG | 11.42 | 11.42 | 11.41 | 11.41 | 11.41 | 11.41 | 11.41 | 11.41 | 11.41 | 11.39 |
| 24.00 | DISCHG | 11.35 | 11.26 | 11.10 | 10.83 | 10.44 | 9.93 | 9.30 | 8.56 | 7.76 | 6.93 |
| 25.00 | DISCHG | 6.11 | 5.32 | 4.58 | 3.92 | 3.32 | 2.81 | 2.38 | 2.02 | 1.72 | 1.46 |
| 26.00 | DISCHG | 1.24 | 1.05 | .89 | .76 | .64 | .54 | .46 | .39 | .33 | .28 |
| 27.00 | DISCHG | .23 | .20 | .17 | .14 | .12 | .10 | .08 | .07 | .05 | .04 |
| 28.00 | DISCHG | .04 | .03 | .02 | .02 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.05 WATERSHED INCHES, 555.74 CFS-HRS, 45.93 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 9
INPUT HYDROGRAPHS= 1,3 OUTPUT HYDROGRAPH= 6

1



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.06 | 271.51 | 620.11 |

| E(HRS) | | FIRST HYDROGRAPH POINT = .00 HOURS | | | | TIME INCREMENT = .10 HOURS | | | DRAINAGE AREA = 1.46 SQ.MI. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .15 | .17 | .17 | .17 | .16 | .16 | .16 | .16 |
| 1.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 | .15 | .15 |
| 2.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 | .14 | .14 |
| 3.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .13 | .13 |
| 4.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 5.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 6.00 | DISCHG | .12 | .12 | .12 | .12 | .11 | .11 | .11 | .11 | .11 | .11 |
| 7.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .11 | .12 | .12 | .13 |
| 8.00 | DISCHG | .14 | .15 | .16 | .17 | .19 | .21 | .23 | .25 | .27 | .29 |
| 9.00 | DISCHG | .31 | .33 | .36 | .39 | .43 | .48 | .56 | .64 | .77 | .95 |
| 10.00 | DISCHG | 1.16 | 1.41 | 1.70 | 2.04 | 2.41 | 2.89 | 3.40 | 4.00 | 4.66 | 5.41 |
| 11.00 | DISCHG | 6.26 | 7.26 | 8.40 | 9.73 | 11.27 | 13.14 | 15.83 | 20.17 | 27.68 | 40.84 |
| 12.00 | DISCHG | 61.62 | 89.66 | 121.69 | 151.93 | 181.42 | 209.14 | 229.67 | 243.32 | 252.40 | 264.63 |
| 13.00 | DISCHG | 270.84 | 271.11 | 267.16 | 259.60 | 249.06 | 237.56 | 227.29 | 218.53 | 210.66 | 203.61 |
| 14.00 | DISCHG | 197.24 | 191.21 | 185.54 | 180.41 | 175.76 | 171.45 | 167.47 | 163.80 | 160.39 | 157.21 |
| 15.00 | DISCHG | 154.31 | 151.63 | 149.16 | 146.88 | 144.70 | 142.54 | 140.35 | 138.12 | 135.83 | 133.46 |
| 16.00 | DISCHG | 131.06 | 128.66 | 126.24 | 123.80 | 121.38 | 119.02 | 116.74 | 114.51 | 112.35 | 110.29 |
| 17.00 | DISCHG | 108.32 | 106.41 | 104.53 | 102.69 | 100.89 | 99.16 | 97.48 | 95.86 | 94.31 | 92.80 |
| 18.00 | DISCHG | 91.31 | 89.85 | 88.41 | 86.97 | 85.53 | 84.10 | 82.68 | 81.28 | 79.90 | 78.56 |
| 19.00 | DISCHG | 77.26 | 76.01 | 74.81 | 73.66 | 72.57 | 71.52 | 70.50 | 69.51 | 68.55 | 67.58 |
| 20.00 | DISCHG | 66.60 | 65.60 | 64.58 | 63.52 | 62.44 | 61.34 | 60.23 | 59.13 | 58.04 | 56.97 |
| 21.00 | DISCHG | 55.94 | 54.94 | 53.99 | 53.08 | 52.23 | 51.42 | 50.64 | 49.90 | 49.19 | 48.51 |
| 22.00 | DISCHG | 47.86 | 47.26 | 46.70 | 46.20 | 45.73 | 45.29 | 44.88 | 44.49 | 44.36 | 44.30 |
| 23.00 | DISCHG | 44.23 | 44.15 | 44.07 | 43.98 | 43.88 | 43.77 | 43.66 | 43.54 | 43.42 | 43.26 |
| 24.00 | DISCHG | 43.05 | 42.76 | 42.37 | 41.83 | 41.17 | 40.39 | 39.50 | 38.53 | 37.51 | 36.46 |
| 5.00 | DISCHG | 34.49 | 32.45 | 30.65 | 29.06 | 27.68 | 26.45 | 25.37 | 24.40 | 23.52 | 22.72 |
| 26.00 | DISCHG | 21.96 | 21.25 | 20.58 | 19.93 | 19.30 | 18.70 | 18.11 | 17.54 | 16.97 | 16.43 |
| 27.00 | DISCHG | 15.37 | 14.55 | 13.91 | 13.35 | 12.84 | 12.36 | 11.89 | 11.44 | 11.00 | 10.57 |
| 28.00 | DISCHG | 10.16 | 9.76 | 9.37 | 8.99 | 8.62 | 8.27 | 7.92 | 7.59 | 7.27 | 6.97 |
| 29.00 | DISCHG | 6.67 | 6.38 | 6.11 | 5.84 | 5.58 | 5.34 | 5.10 | 4.87 | 4.65 | 4.44 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.55 WATERSHED INCHES, 1456.29 CFS-HRS, 120.35 ACRE-FEET; BASEFLOW = .00 CFS

RATION RUNOFF CROSS SECTION 80
OUTPUT HYDROGRAPH= 1
AREA= .29 SQ MI INPUT RUNOFF CURVE= 86. TIME OF CONCENTRATION= 2.29 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1018 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.42 | 160.06 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .29 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.00 | DISCHG | .00 | .01 | .01 | .02 | .04 | .05 | .08 | .11 | .14 | .19 |
| 7.00 | DISCHG | .24 | .30 | .37 | .45 | .53 | .63 | .72 | .83 | .94 | 1.05 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | 1.17 | 1.29 | 1.42 | 1.55 | 1.69 | 1.83 | 1.98 | 2.14 | 2.30 | 2.48 |
| 9.00 | DISCHG | 2.67 | 2.87 | 3.08 | 3.31 | 3.54 | 3.79 | 4.05 | 4.32 | 4.61 | 4.91 |
| 10.00 | DISCHG | 5.22 | 5.54 | 5.87 | 6.23 | 6.59 | 6.98 | 7.39 | 7.83 | 8.31 | 8.83 |
| 11.00 | DISCHG | 9.41 | 10.05 | 10.76 | 11.57 | 12.47 | 13.49 | 14.79 | 16.50 | 18.97 | 22.70 |
| 12.00 | DISCHG | 28.07 | 34.94 | 43.39 | 53.32 | 64.79 | 77.77 | 91.99 | 106.53 | 120.32 | 132.44 |
| 13.00 | DISCHG | 142.51 | 150.26 | 155.57 | 158.77 | 160.03 | 159.45 | 157.15 | 153.36 | 148.46 | 142.57 |
| 1.00 | DISCHG | 135.72 | 127.97 | 119.69 | 111.44 | 103.77 | 96.86 | 90.61 | 84.92 | 79.67 | 74.83 |
| 15.00 | DISCHG | 70.39 | 66.27 | 62.37 | 58.70 | 55.27 | 52.12 | 49.25 | 46.60 | 44.14 | 41.87 |
| 16.00 | DISCHG | 39.77 | 37.83 | 36.04 | 34.40 | 32.86 | 31.47 | 30.22 | 29.06 | 28.00 | 27.03 |
| 17.00 | DISCHG | 26.13 | 25.31 | 24.54 | 23.81 | 23.13 | 22.49 | 21.89 | 21.33 | 20.81 | 20.31 |
| 18.00 | DISCHG | 19.84 | 19.40 | 18.99 | 18.60 | 18.22 | 17.85 | 17.47 | 17.10 | 16.73 | 16.37 |
| 19.00 | DISCHG | 16.01 | 15.67 | 15.34 | 15.02 | 14.73 | 14.47 | 14.25 | 14.05 | 13.86 | 13.69 |
| 20.00 | DISCHG | 13.52 | 13.37 | 13.22 | 13.08 | 12.93 | 12.78 | 12.62 | 12.45 | 12.27 | 12.08 |
| 21.00 | DISCHG | 11.89 | 11.71 | 11.52 | 11.33 | 11.16 | 10.99 | 10.82 | 10.67 | 10.53 | 10.40 |
| 22.00 | DISCHG | 10.28 | 10.17 | 10.07 | 9.99 | 9.92 | 9.85 | 9.79 | 9.74 | 9.69 | 9.65 |
| 23.00 | DISCHG | 9.61 | 9.57 | 9.54 | 9.52 | 9.49 | 9.47 | 9.45 | 9.43 | 9.42 | 9.40 |
| 24.00 | DISCHG | 9.37 | 9.34 | 9.28 | 9.20 | 9.09 | 8.95 | 8.76 | 8.53 | 8.24 | 7.91 |
| 25.00 | DISCHG | 7.54 | 7.13 | 6.70 | 6.25 | 5.80 | 5.35 | 4.90 | 4.47 | 4.06 | 3.67 |
| 26.00 | DISCHG | 3.30 | 2.96 | 2.65 | 2.37 | 2.12 | 1.91 | 1.71 | 1.54 | 1.38 | 1.24 |
| 27.00 | DISCHG | 1.11 | 1.00 | .90 | .81 | .72 | .65 | .58 | .52 | .47 | .42 |
| 28.00 | DISCHG | .38 | .34 | .30 | .27 | .24 | .22 | .19 | .17 | .15 | .14 |
| 29.00 | DISCHG | .12 | .11 | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 |

RUNOFF VOLUME ABOVE BASEFLOW = 3.00 WATERSHED INCHES, 561.88 CFS-HRS, 46.43 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID
+ COMPUTATIONS COMPLETED FOR PASS 3

1

0CHANGES TO STANDARD CONTROL LIST FOLLOW

ECUTIVE CONTROL OPERATION ALTER RECORD ID

STANDARD CONTROL OPERATION ADDHYD STRUCTURE 9 RECORD ID
INPUT HYDROGRAPHS = 1,3 OUTPUT HYDROGRAPH = 6 DATA FIELD VALUES = .0000 .0000 .0000
OUTPUT OPTIONS IN EFFECT PEAK HYD VOL SUM

1

TR20 XEQ 02-12-96 13:56 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK (FEB 96) JOB 1 PASS 4
REV PC 09/83(.2) INCLUDES GREENS DRAIN ENCLOSURE (CRISLOMR.DAT) PAGE 55

EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55

+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 2

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .01 |
| 8 | .02 | .03 | .05 | .08 | .12 |
| 8 | .16 | .20 | .25 | .31 | .37 |
| 8 | .43 | .49 | .55 | .62 | .70 |
| 8 | .78 | .86 | .95 | 1.04 | 1.14 |
| 8 | 1.25 | 1.35 | 1.46 | 1.58 | 1.72 |
| 8 | 1.88 | 2.07 | 2.29 | 2.57 | 2.89 |
| 8 | 3.25 | 3.67 | 4.13 | 4.64 | 5.22 |
| 8 | 5.93 | 7.17 | 9.61 | 14.44 | 23.19 |
| 8 | 36.76 | 53.76 | 69.50 | 78.69 | 79.48 |
| 8 | 74.66 | 66.83 | 58.79 | 52.47 | 47.90 |
| 8 | 44.60 | 42.14 | 40.53 | 39.60 | 39.19 |
| 8 | 39.17 | 39.45 | 39.34 | 39.38 | 40.31 |
| 8 | 44.59 | 48.27 | 51.42 | 54.09 | 56.35 |
| 8 | 58.18 | 59.62 | 60.68 | 61.42 | 61.87 |
| | 62.08 | 62.07 | 61.85 | 61.36 | 60.62 |
| | 59.59 | 58.31 | 56.82 | 55.18 | 53.42 |
| 8 | 51.61 | 49.74 | 47.87 | 46.08 | 44.50 |
| 8 | 43.09 | 41.81 | 40.62 | 39.51 | 38.43 |
| 8 | 37.38 | 36.35 | 35.38 | 34.45 | 33.58 |
| 8 | 33.38 | 33.22 | 33.04 | 32.86 | 32.64 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | 32.40 | 32.11 | 31.81 | 31.49 | 31.18 |
| 8 | 30.87 | 30.58 | 30.19 | 29.75 | 29.31 |
| 8 | 28.88 | 28.44 | 28.03 | 27.60 | 27.20 |
| | 26.78 | 26.39 | 25.99 | 25.60 | 25.19 |
| | 24.77 | 24.31 | 23.85 | 23.39 | 22.96 |
| 8 | 22.54 | 22.16 | 21.68 | 21.23 | 20.79 |
| 8 | 20.38 | 19.97 | 19.59 | 19.20 | 18.84 |

1



| | | | | | |
|---|---|---|---|---|---|
| 8 | 18.48 | 18.14 | 17.80 | 17.49 | 17.17 |
| 8 | 16.87 | 16.57 | 16.30 | 16.02 | 15.76 |
| 8 | 15.51 | 15.27 | 15.04 | 14.82 | 14.60 |
| 8 | 14.41 | 14.21 | 14.03 | 13.85 | 13.68 |
| 8 | 13.52 | 13.37 | 13.22 | 13.08 | 12.89 |
| 8 | 12.67 | 12.39 | 12.06 | 11.66 | 11.24 |
| 8 | 10.80 | 10.41 | 10.04 | 9.73 | 9.45 |
| 8 | 9.19 | 8.93 | 8.69 | 8.43 | 8.18 |
| 8 | 7.91 | 7.64 | 7.35 | 7.07 | 6.77 |
| 8 | 6.48 | 6.19 | 5.90 | 5.61 | 5.33 |
| 8 | 5.04 | 4.77 | 4.50 | 4.24 | 3.99 |
| 8 | 3.75 | 3.52 | 3.31 | 3.10 | 2.90 |
| 8 | 2.71 | 2.53 | 2.36 | 2.20 | 2.05 |
| 8 | 1.91 | 1.78 | 1.66 | 1.54 | 1.43 |
| | 1.33 | 1.23 | 1.14 | 1.06 | .98 |
| 8 | .91 | .85 | .78 | .73 | .67 |
| 8 | .62 | .58 | .53 | .49 | .46 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION READHD RECORD ID STR 55

+ DISCHARGE HYDROGRAPH, HYDROGRAPH LOCATION 7

STARTING TIME= .00 TIME INCREMENT= .10 DRAINAGE AREA= .38 BASE FLOW= .00

| | | | | | |
|---|---|---|---|---|---|
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .00 |
| | .00 | .00 | .00 | .00 | .01 |
| 8 | .02 | .03 | .05 | .08 | .12 |
| 8 | .16 | .20 | .25 | .31 | .37 |
| 8 | .43 | .49 | .55 | .62 | .70 |
| 8 | .78 | .86 | .95 | 1.04 | 1.14 |

| | | | | | |
|---|---|---|---|---|---|
| 8 | 1.25 | 1.35 | 1.46 | 1.58 | 1.72 |
| 8 | 1.88 | 2.07 | 2.29 | 2.57 | 2.89 |
| 8 | 3.25 | 3.67 | 4.13 | 4.64 | 5.22 |
| | 5.93 | 7.17 | 9.61 | 14.44 | 23.19 |
| | 36.76 | 53.76 | 69.50 | 78.69 | 79.48 |

1



| | | | | | |
|---|---|---|---|---|---|
| 8 | 74.66 | 66.83 | 58.79 | 52.47 | 47.90 |
| 8 | 44.60 | 42.14 | 40.53 | 39.60 | 39.19 |
| 8 | 39.17 | 39.45 | 39.34 | 39.38 | 40.31 |
| 8 | 44.59 | 48.27 | 51.42 | 54.09 | 56.35 |
| 8 | 58.18 | 59.62 | 60.68 | 61.42 | 61.87 |
| 8 | 62.08 | 62.07 | 61.85 | 61.36 | 60.62 |
| 8 | 59.59 | 58.31 | 56.82 | 55.18 | 53.42 |
| 8 | 51.61 | 49.74 | 47.87 | 46.08 | 44.50 |
| 8 | 43.09 | 41.81 | 40.62 | 39.51 | 38.43 |
| 8 | 37.38 | 36.35 | 35.38 | 34.45 | 33.58 |
| 8 | 33.38 | 33.22 | 33.04 | 32.86 | 32.64 |
| 8 | 32.40 | 32.12 | 31.81 | 31.49 | 31.18 |
| 8 | 30.87 | 30.58 | 30.19 | 29.75 | 29.31 |
| 8 | 28.88 | 28.44 | 28.03 | 27.60 | 27.19 |
| 8 | 26.78 | 26.39 | 25.99 | 25.60 | 25.19 |
| 8 | 24.77 | 24.31 | 23.85 | 23.39 | 22.96 |
| | 22.54 | 22.16 | 21.68 | 21.23 | 20.79 |
| | 20.38 | 19.97 | 19.59 | 19.20 | 18.84 |
| 8 | 18.48 | 18.14 | 17.80 | 17.49 | 17.17 |
| 8 | 16.87 | 16.57 | 16.30 | 16.02 | 15.76 |
| 8 | 15.51 | 15.27 | 15.04 | 14.82 | 14.60 |
| 8 | 14.40 | 14.21 | 14.03 | 13.85 | 13.68 |
| 8 | 13.52 | 13.37 | 13.22 | 13.08 | 12.89 |
| 8 | 12.67 | 12.39 | 12.06 | 11.67 | 11.24 |
| 8 | 10.80 | 10.41 | 10.04 | 9.73 | 9.45 |
| 8 | 9.19 | 8.93 | 8.69 | 8.43 | 8.18 |
| 8 | 7.91 | 7.64 | 7.35 | 7.07 | 6.77 |
| 8 | 6.48 | 6.19 | 5.90 | 5.61 | 5.33 |
| 8 | 5.04 | 4.77 | 4.50 | 4.24 | 3.99 |
| 8 | 3.75 | 3.53 | 3.31 | 3.10 | 2.90 |
| 8 | 2.71 | 2.53 | 2.36 | 2.20 | 2.05 |
| 8 | 1.91 | 1.78 | 1.65 | 1.54 | 1.43 |
| 8 | 1.33 | 1.23 | 1.14 | 1.06 | .98 |
| 8 | .91 | .85 | .78 | .73 | .67 |
| 8 | .62 | .58 | .53 | .49 | .46 |

9 ENDTBL

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
+ MAIN TIME INCREMENT = .10 HOURS

.UTIVE CONTROL OPERATION COMPUT RECORD ID
+ FROM XSECTION 130
+ TO XSECTION 80
STARTING TIME = .00 RAIN DEPTH = 5.40 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 4 MAIN TIME INCREMENT = .10 HOURS

OPERATION RUNOFF CROSS SECTION 130
OUTPUT HYDROGRAPH= 2
AREA= .40 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= 2.18 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0969 HOURS



PEAK TIME(HRS) 13.50 PEAK DISCHARGE(CFS) 110.46 PEAK ELEVATION(FEET) (RUNOFF)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .40 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 11.00 | DISCHG | .00 | .00 | .00 | .02 | .04 | .09 | .23 | .52 | 1.22 | 2.76 |
| 12.00 | DISCHG | 5.57 | 9.66 | 15.06 | 21.76 | 29.85 | 39.48 | 50.53 | 62.06 | 73.25 | 83.29 |
| 13.00 | DISCHG | 91.90 | 98.80 | 103.93 | 107.59 | 109.76 | 110.46 | 109.80 | 108.07 | 105.46 | 101.94 |
| 14.00 | DISCHG | 97.46 | 92.27 | 86.85 | 81.71 | 77.03 | 72.77 | 68.82 | 65.14 | 61.72 | 58.58 |
| 15.00 | DISCHG | 55.59 | 52.73 | 50.01 | 47.48 | 45.16 | 43.02 | 41.00 | 39.14 | 37.41 | 35.80 |
| 16.00 | DISCHG | 34.32 | 32.95 | 31.66 | 30.48 | 29.42 | 28.43 | 27.53 | 26.71 | 25.96 | 25.27 |
| 17.00 | DISCHG | 24.62 | 24.02 | 23.45 | 22.92 | 22.41 | 21.93 | 21.47 | 21.04 | 20.64 | 20.26 |
| 18.00 | DISCHG | 19.91 | 19.56 | 19.23 | 18.90 | 18.57 | 18.24 | 17.90 | 17.57 | 17.23 | 16.91 |
| 19.00 | DISCHG | 16.59 | 16.29 | 16.02 | 15.77 | 15.54 | 15.33 | 15.13 | 14.95 | 14.78 | 14.63 |
| 20.00 | DISCHG | 14.49 | 14.35 | 14.22 | 14.08 | 13.94 | 13.79 | 13.63 | 13.45 | 13.26 | 13.07 |
| .00 | DISCHG | 12.87 | 12.67 | 12.47 | 12.28 | 12.09 | 11.91 | 11.75 | 11.59 | 11.45 | 11.32 |
| 22.00 | DISCHG | 11.21 | 11.11 | 11.03 | 10.95 | 10.89 | 10.83 | 10.78 | 10.74 | 10.70 | 10.66 |
| 23.00 | DISCHG | 10.63 | 10.61 | 10.59 | 10.57 | 10.55 | 10.54 | 10.53 | 10.52 | 10.51 | 10.49 |
| 24.00 | DISCHG | 10.47 | 10.44 | 10.38 | 10.29 | 10.16 | 9.98 | 9.75 | 9.46 | 9.10 | 8.69 |
| 25.00 | DISCHG | 8.23 | 7.73 | 7.21 | 6.68 | 6.15 | 5.62 | 5.11 | 4.62 | 4.15 | 3.72 |
| 26.00 | DISCHG | 3.32 | 2.95 | 2.63 | 2.34 | 2.09 | 1.87 | 1.67 | 1.49 | 1.33 | 1.19 |
| 27.00 | DISCHG | 1.06 | .95 | .85 | .75 | .67 | .60 | .54 | .48 | .43 | .38 |
| 28.00 | DISCHG | .34 | .30 | .27 | .24 | .21 | .19 | .17 | .15 | .13 | .12 |
| 29.00 | DISCHG | .10 | .09 | .08 | .07 | .06 | .05 | .05 | .04 | .03 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.61 WATERSHED INCHES, 416.86 CFS-HRS, 34.45 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD CROSS SECTION 130
INPUT HYDROGRAPHS= 2,7 OUTPUT HYDROGRAPH= 1

PEAK TIME(HRS) 13.51 PEAK DISCHARGE(CFS) 149.64 PEAK ELEVATION(FEET) 640.34

RUNOFF VOLUME ABOVE BASEFLOW = 1.75 WATERSHED INCHES, 881.02 CFS-HRS, 72.81 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 120
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1387.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= 1.23 M= 1.27
MODIFIED ATT-KIN ROUTING COEFFICIENT = .72 PEAK TRAVEL TIME = .20 HOURS

*** WARNING REACH 120 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.65 149.39 635.48

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .78 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .01 | .02 | .03 | .04 | .07 | .10 | .14 | .18 | .23 | .29 |



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .35 | .41 | .47 | .53 | .59 | .67 | .75 | .83 | .92 | 1.00 |
| 10.00 | DISCHG | 1.10 | 1.21 | 1.31 | 1.42 | 1.53 | 1.67 | 1.82 | 2.00 | 2.21 | 2.47 |
| 11.00 | DISCHG | 2.77 | 3.12 | 3.52 | 3.96 | 4.46 | 5.04 | 5.75 | 6.94 | 9.24 | 13.87 |
| 12.00 | DISCHG | 22.58 | 36.82 | 55.99 | 76.58 | 93.78 | 104.99 | 111.59 | 115.75 | 119.43 | 123.96 |
| 13.00 | DISCHG | 129.17 | 134.46 | 139.13 | 142.97 | 146.01 | 148.13 | 149.21 | 149.24 | 147.92 | 145.70 |
| 14.00 | DISCHG | 143.21 | 142.38 | 141.05 | 139.05 | 136.71 | 134.31 | 131.89 | 129.40 | 126.82 | 124.17 |
| 15.00 | DISCHG | 121.49 | 118.74 | 115.90 | 112.99 | 110.00 | 106.95 | 103.82 | 100.57 | 97.24 | 93.89 |
| 16.00 | DISCHG | 90.53 | 87.21 | 83.95 | 80.76 | 77.73 | 74.98 | 72.49 | 70.22 | 68.14 | 66.21 |
| 17.00 | DISCHG | 64.40 | 62.67 | 61.01 | 59.44 | 57.94 | 56.53 | 55.65 | 54.96 | 54.33 | 53.73 |
| 18.00 | DISCHG | 53.13 | 52.54 | 51.92 | 51.28 | 50.64 | 50.00 | 49.35 | 48.73 | 48.03 | 47.27 |
| 19.00 | DISCHG | 46.51 | 45.76 | 45.02 | 44.32 | 43.63 | 42.98 | 42.35 | 41.75 | 41.17 | 40.60 |
| 20.00 | DISCHG | 40.04 | 39.47 | 38.89 | 38.30 | 37.70 | 37.13 | 36.55 | 36.00 | 35.37 | 34.74 |
| 21.00 | DISCHG | 34.10 | 33.48 | 32.87 | 32.28 | 31.70 | 31.14 | 30.60 | 30.09 | 29.59 | 29.12 |
| 22.00 | DISCHG | 28.67 | 28.25 | 27.84 | 27.47 | 27.11 | 26.78 | 26.46 | 26.17 | 25.89 | 25.62 |
| 23.00 | DISCHG | 25.36 | 25.12 | 24.90 | 24.69 | 24.49 | 24.30 | 24.13 | 23.96 | 23.80 | 23.65 |
| 24.00 | DISCHG | 23.46 | 23.23 | 22.94 | 22.58 | 22.13 | 21.60 | 21.01 | 20.40 | 19.75 | 19.09 |
| 25.00 | DISCHG | 18.40 | 17.69 | 16.95 | 16.19 | 15.41 | 14.63 | 13.84 | 13.05 | 12.27 | 11.52 |
| .00 | DISCHG | 10.77 | 10.07 | 9.40 | 8.77 | 8.18 | 7.63 | 7.11 | 6.62 | 6.17 | 5.74 |
| 27.00 | DISCHG | 5.34 | 4.96 | 4.61 | 4.28 | 3.97 | 3.68 | 3.41 | 3.16 | 2.93 | 2.71 |
| 28.00 | DISCHG | 2.51 | 2.32 | 2.15 | 1.98 | 1.83 | 1.69 | 1.57 | 1.44 | 1.33 | 1.23 |
| 29.00 | DISCHG | 1.13 | 1.04 | .97 | .89 | .82 | .76 | .25 | .10 | .06 | .04 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.75 WATERSHED INCHES, 881.07 CFS-HRS, 72.81 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 120
OUTPUT HYDROGRAPH= 3
AREA= .02 SQ MI INPUT RUNOFF CURVE= 67. TIME OF CONCENTRATION= .49 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0653 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.21 21.66 (RUNOFF)

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 10.00 | DISCHG | .00 | .00 | .00 | .01 | .02 | .04 | .06 | .10 | .14 | .20 |
| 11.00 | DISCHG | .26 | .34 | .42 | .52 | .64 | .78 | 1.13 | 1.98 | 3.74 | 7.09 |
| 12.00 | DISCHG | 12.98 | 19.07 | 21.65 | 19.64 | 15.53 | 11.70 | 9.05 | 7.28 | 6.03 | 5.18 |
| 13.00 | DISCHG | 4.52 | 4.02 | 3.61 | 3.28 | 3.01 | 2.78 | 2.60 | 2.44 | 2.30 | 2.17 |
| 14.00 | DISCHG | 2.06 | 1.97 | 1.88 | 1.81 | 1.73 | 1.66 | 1.59 | 1.52 | 1.45 | 1.39 |
| 15.00 | DISCHG | 1.36 | 1.33 | 1.32 | 1.31 | 1.29 | 1.26 | 1.22 | 1.18 | 1.16 | 1.15 |
| 16.00 | DISCHG | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.13 | 1.11 | 1.07 | 1.03 |
| 17.00 | DISCHG | 1.00 | .98 | .97 | .97 | .96 | .96 | .96 | .96 | .96 | .95 |
| 00 | DISCHG | .91 | .87 | .83 | .81 | .80 | .79 | .78 | .78 | .78 | .78 |
| .00 | DISCHG | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .77 |
| 20.00 | DISCHG | .73 | .69 | .65 | .63 | .61 | .60 | .60 | .60 | .59 | .59 |
| 21.00 | DISCHG | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .59 | .60 |
| 22.00 | DISCHG | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .60 |
| 23.00 | DISCHG | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .60 | .58 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24.00 | DISCHG | .55 | .49 | .39 | .28 | .18 | .11 | .07 | .04 | .02 | .01 |
| 25.00 | DISCHG | .01 | .00 | | | | | | | | |

1



RUNOFF VOLUME ABOVE BASEFLOW = 2.08 WATERSHED INCHES, 26.90 CFS-HRS, 2.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 50
INPUT HYDROGRAPHS= 2,3 OUTPUT HYDROGRAPH= 4

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.64 | 151.88 | 636.81 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .01 | .02 | .03 | .04 | .07 | .10 | .14 | .18 | .23 | .29 |
| 9.00 | DISCHG | .35 | .41 | .47 | .53 | .59 | .67 | .75 | .83 | .92 | 1.00 |
| 10.00 | DISCHG | 1.10 | 1.21 | 1.31 | 1.42 | 1.55 | 1.71 | 1.88 | 2.10 | 2.35 | 2.66 |
| 11.00 | DISCHG | 3.03 | 3.45 | 3.94 | 4.48 | 5.10 | 5.82 | 6.88 | 8.91 | 12.98 | 20.96 |
| 12.00 | DISCHG | 35.56 | 55.89 | 77.64 | 96.23 | 109.31 | 116.69 | 120.64 | 123.03 | 125.46 | 129.14 |
| 13.00 | DISCHG | 133.69 | 138.47 | 142.73 | 146.25 | 149.02 | 150.91 | 151.81 | 151.68 | 150.22 | 147.87 |
| 14.00 | DISCHG | 145.27 | 144.34 | 142.94 | 140.85 | 138.44 | 135.97 | 133.48 | 130.92 | 128.27 | 125.56 |
| 15.00 | DISCHG | 122.84 | 120.07 | 117.22 | 114.30 | 111.29 | 108.21 | 105.04 | 101.75 | 98.41 | 95.04 |
| 6.00 | DISCHG | 91.67 | 88.35 | 85.09 | 81.90 | 78.87 | 76.12 | 73.62 | 71.33 | 69.20 | 67.24 |
| 17.00 | DISCHG | 65.40 | 63.65 | 61.98 | 60.41 | 58.91 | 57.49 | 56.61 | 55.92 | 55.29 | 54.68 |
| 18.00 | DISCHG | 54.04 | 53.40 | 52.75 | 52.09 | 51.43 | 50.78 | 50.14 | 49.51 | 48.81 | 48.05 |
| 19.00 | DISCHG | 47.29 | 46.54 | 45.80 | 45.10 | 44.42 | 43.77 | 43.13 | 42.54 | 41.95 | 41.37 |
| 20.00 | DISCHG | 40.77 | 40.16 | 39.54 | 38.92 | 38.32 | 37.73 | 37.15 | 36.60 | 35.97 | 35.33 |
| 21.00 | DISCHG | 34.69 | 34.08 | 33.46 | 32.88 | 32.29 | 31.74 | 31.20 | 30.68 | 30.18 | 29.72 |
| 22.00 | DISCHG | 29.26 | 28.84 | 28.44 | 28.07 | 27.71 | 27.38 | 27.06 | 26.76 | 26.48 | 26.22 |
| 23.00 | DISCHG | 25.96 | 25.72 | 25.50 | 25.30 | 25.09 | 24.90 | 24.73 | 24.56 | 24.40 | 24.23 |
| 24.00 | DISCHG | 24.00 | 23.72 | 23.33 | 22.86 | 22.31 | 21.71 | 21.08 | 20.44 | 19.77 | 19.10 |
| 25.00 | DISCHG | 18.41 | 17.69 | 16.95 | 16.19 | 15.41 | 14.63 | 13.84 | 13.05 | 12.27 | 11.52 |
| 26.00 | DISCHG | 10.77 | 10.07 | 9.40 | 8.77 | 8.18 | 7.63 | 7.11 | 6.62 | 6.17 | 5.74 |
| 27.00 | DISCHG | 5.34 | 4.96 | 4.61 | 4.28 | 3.97 | 3.68 | 3.41 | 3.16 | 2.93 | 2.71 |
| 28.00 | DISCHG | 2.51 | 2.32 | 2.15 | 1.98 | 1.83 | 1.69 | 1.57 | 1.44 | 1.33 | 1.23 |
| 29.00 | DISCHG | 1.13 | 1.04 | .97 | .89 | .82 | .76 | .25 | .10 | .06 | .04 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.76 WATERSHED INCHES, 907.97 CFS-HRS, 75.03 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 50
INPUT HYDROGRAPH= 4 OUTPUT HYDROGRAPH= 2
SURFACE ELEVATION= 632.00

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.75 | 151.08 | 636.80 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .80 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .01 | .01 | .02 | .04 | .06 | .10 | .14 | .18 | .22 | .28 |
| 9.00 | DISCHG | .34 | .39 | .45 | .51 | .58 | .66 | .73 | .81 | .90 | .99 |
| 10.00 | DISCHG | 1.08 | 1.19 | 1.29 | 1.40 | 1.53 | 1.67 | 1.85 | 2.06 | 2.30 | 2.60 |
| 11.00 | DISCHG | 2.96 | 3.37 | 3.84 | 4.38 | 4.98 | 5.68 | 6.65 | 8.47 | 12.09 | 19.22 |
| 12.00 | DISCHG | 32.43 | 42.78 | 58.68 | 72.28 | 83.75 | 90.65 | 91.17 | 91.74 | 97.08 | 114.46 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.00 | DISCHG | 124.21 | 131.04 | 136.54 | 141.11 | 144.86 | 147.80 | 149.84 | 150.94 | 150.94 | 149.85 |
| 14.00 | DISCHG | 147.96 | 146.15 | 144.71 | 143.09 | 141.11 | 138.87 | 136.49 | 134.02 | 131.48 | 128.85 |
| 15.00 | DISCHG | 126.18 | 123.46 | 120.69 | 117.86 | 114.95 | 111.96 | 108.89 | 105.73 | 102.48 | 99.17 |
| 16.00 | DISCHG | 95.82 | 92.48 | 92.09 | 91.93 | 91.72 | 91.45 | 91.15 | 90.80 | 89.96 | 81.78 |
| 17.00 | DISCHG | 75.96 | 71.66 | 68.33 | 65.65 | 61.76 | 59.40 | 57.84 | 56.80 | 56.01 | 55.33 |
| 18.00 | DISCHG | 54.69 | 54.05 | 53.41 | 52.75 | 52.10 | 51.44 | 50.79 | 50.15 | 49.49 | 48.79 |
| 19.00 | DISCHG | 48.05 | 47.30 | 46.55 | 45.82 | 45.11 | 44.44 | 43.78 | 43.15 | 42.55 | 41.96 |
| 20.00 | DISCHG | 41.37 | 40.77 | 40.16 | 39.54 | 38.93 | 38.33 | 37.74 | 37.17 | 36.58 | 35.96 |
| 21.00 | DISCHG | 35.33 | 34.06 | 33.64 | 32.96 | 32.41 | 31.83 | 31.30 | 30.77 | 30.27 | 29.80 |
| 22.00 | DISCHG | 29.35 | 28.92 | 28.51 | 28.13 | 27.78 | 27.43 | 27.12 | 26.82 | 26.53 | 26.27 |
| 23.00 | DISCHG | 26.01 | 25.77 | 25.54 | 25.33 | 25.13 | 24.94 | 24.76 | 24.59 | 24.43 | 24.26 |
| 24.00 | DISCHG | 24.05 | 23.77 | 23.41 | 22.95 | 22.42 | 21.83 | 21.19 | 20.55 | 19.90 | 19.22 |
| 25.00 | DISCHG | 18.54 | 17.83 | 17.09 | 16.33 | 15.56 | 14.77 | 13.98 | 13.20 | 12.41 | 11.65 |
| 26.00 | DISCHG | 10.91 | 10.20 | 9.52 | 8.89 | 8.29 | 7.73 | 7.20 | 6.71 | 6.25 | 5.82 |
| 27.00 | DISCHG | 5.41 | 5.03 | 4.67 | 4.34 | 4.03 | 3.74 | 3.46 | 3.21 | 2.97 | 2.75 |
| 28.00 | DISCHG | 2.54 | 2.35 | 2.18 | 2.01 | 1.86 | 1.72 | 1.59 | 1.47 | 1.35 | 1.25 |
| 29.00 | DISCHG | 1.15 | 1.06 | .98 | .90 | .83 | .77 | .38 | .08 | .08 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.76 WATERSHED INCHES, 907.88 CFS-HRS, 75.03 ACRE-FEET; BASEFLOW = .00 CFS

'ATION RUNOFF STRUCTURE 40
OUTPUT HYDROGRAPH= 1
AREA= .19 SQ MI INPUT RUNOFF CURVE= 71. TIME OF CONCENTRATION= .53 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0707 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.22 | 231.70 | (RUNOFF) |
| 19.67 | 8.06 | (RUNOFF) |
| 23.66 | 6.16 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .19 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .00 | .00 | .00 | .01 | .04 | .11 | .21 | .35 | .52 | .71 |
| 10.00 | DISCHG | .91 | 1.12 | 1.35 | 1.61 | 1.91 | 2.27 | 2.70 | 3.23 | 3.85 | 4.58 |
| 11.00 | DISCHG | 5.44 | 6.39 | 7.46 | 8.66 | 10.05 | 11.86 | 15.77 | 25.32 | 43.32 | 79.54 |
| 12.00 | DISCHG | 137.31 | 199.06 | 230.54 | 219.02 | 179.55 | 137.32 | 106.53 | 85.30 | 69.95 | 59.36 |
| 13.00 | DISCHG | 51.19 | 45.12 | 40.20 | 36.24 | 33.09 | 30.38 | 28.15 | 26.24 | 24.61 | 23.19 |
| 14.00 | DISCHG | 21.95 | 20.93 | 20.01 | 19.16 | 18.36 | 17.58 | 16.83 | 16.08 | 15.35 | 14.73 |
| 15.00 | DISCHG | 14.28 | 14.00 | 13.83 | 13.70 | 13.52 | 13.19 | 12.78 | 12.40 | 12.14 | 11.98 |
| 16.00 | DISCHG | 11.89 | 11.83 | 11.80 | 11.79 | 11.79 | 11.78 | 11.73 | 11.51 | 11.15 | 10.76 |
| 17.00 | DISCHG | 10.44 | 10.23 | 10.11 | 10.03 | 9.99 | 9.96 | 9.95 | 9.95 | 9.93 | 9.79 |
| 18.00 | DISCHG | 9.48 | 9.08 | 8.71 | 8.43 | 8.27 | 8.17 | 8.11 | 8.07 | 8.05 | 8.04 |
| 19.00 | DISCHG | 8.04 | 8.03 | 8.03 | 8.04 | 8.04 | 8.05 | 8.05 | 8.06 | 8.03 | 7.90 |
| 20.00 | DISCHG | 7.60 | 7.19 | 6.81 | 6.53 | 6.36 | 6.25 | 6.19 | 6.15 | 6.12 | 6.11 |
| 21.00 | DISCHG | 6.10 | 6.10 | 6.09 | 6.10 | 6.10 | 6.10 | 6.10 | 6.10 | 6.11 | 6.11 |
| 22.00 | DISCHG | 6.11 | 6.12 | 6.12 | 6.12 | 6.12 | 6.13 | 6.13 | 6.13 | 6.13 | 6.14 |
| [illegible].00 | DISCHG | 6.14 | 6.14 | 6.15 | 6.15 | 6.15 | 6.15 | 6.16 | 6.16 | 6.14 | 6.00 |
| [illegible].00 | DISCHG | 5.66 | 5.11 | 4.25 | 3.19 | 2.19 | 1.39 | .86 | .55 | .34 | .21 |
| 25.00 | DISCHG | .13 | .08 | .05 | .03 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.42 WATERSHED INCHES, 296.89 CFS-HRS, 24.53 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 40
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.26 | 294.09 | 796.24 |
| 13.51 | 178.18 | 662.70 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .01 | .01 | .02 | .04 | .06 | .10 | .14 | .18 | .22 | .28 |
| 9.00 | DISCHG | .34 | .39 | .45 | .53 | .62 | .76 | .95 | 1.17 | 1.42 | 1.70 |
| 10.00 | DISCHG | 1.99 | 2.31 | 2.64 | 3.01 | 3.43 | 3.94 | 4.54 | 5.28 | 6.15 | 7.18 |
| 11.00 | DISCHG | 8.40 | 9.76 | 11.30 | 13.03 | 15.03 | 17.54 | 22.43 | 33.79 | 55.41 | 98.76 |
| 12.00 | DISCHG | 169.74 | 241.84 | 289.22 | 291.29 | 263.30 | 227.97 | 197.70 | 177.04 | 167.03 | 173.82 |
| 13.00 | DISCHG | 175.40 | 176.15 | 176.74 | 177.35 | 177.95 | 178.18 | 178.00 | 177.18 | 175.56 | 173.04 |
| 14.00 | DISCHG | 169.92 | 167.08 | 164.72 | 162.25 | 159.47 | 156.45 | 153.32 | 150.10 | 146.82 | 143.59 |
| 15.00 | DISCHG | 140.46 | 137.46 | 134.52 | 131.56 | 128.47 | 125.15 | 121.67 | 118.14 | 114.62 | 111.15 |
| 16.00 | DISCHG | 107.71 | 104.31 | 103.90 | 103.72 | 103.51 | 103.24 | 102.87 | 102.31 | 101.11 | 92.54 |
| 17.00 | DISCHG | 86.41 | 81.89 | 78.44 | 75.68 | 71.75 | 69.37 | 67.80 | 66.75 | 65.93 | 65.12 |
| 18.00 | DISCHG | 64.17 | 63.13 | 62.12 | 61.19 | 60.37 | 59.61 | 58.90 | 58.22 | 57.54 | 56.83 |
| 19.00 | DISCHG | 56.08 | 55.33 | 54.58 | 53.86 | 53.16 | 52.48 | 51.83 | 51.21 | 50.58 | 49.86 |
| 0.00 | DISCHG | 48.96 | 47.95 | 46.96 | 46.07 | 45.29 | 44.58 | 43.93 | 43.31 | 42.70 | 42.07 |
| 21.00 | DISCHG | 41.43 | 40.16 | 39.73 | 39.05 | 38.51 | 37.93 | 37.40 | 36.88 | 36.38 | 35.91 |
| 22.00 | DISCHG | 35.46 | 35.03 | 34.63 | 34.25 | 33.90 | 33.56 | 33.25 | 32.95 | 32.67 | 32.40 |
| 23.00 | DISCHG | 32.15 | 31.91 | 31.69 | 31.48 | 31.28 | 31.09 | 30.91 | 30.75 | 30.57 | 30.26 |
| 24.00 | DISCHG | 29.71 | 28.89 | 27.66 | 26.15 | 24.61 | 23.22 | 22.06 | 21.10 | 20.23 | 19.44 |
| 25.00 | DISCHG | 18.67 | 17.91 | 17.14 | 16.36 | 15.57 | 14.78 | 13.98 | 13.20 | 12.41 | 11.65 |
| 26.00 | DISCHG | 10.91 | 10.20 | 9.52 | 8.89 | 8.29 | 7.73 | 7.20 | 6.71 | 6.25 | 5.82 |
| 27.00 | DISCHG | 5.41 | 5.03 | 4.67 | 4.34 | 4.03 | 3.74 | 3.46 | 3.21 | 2.97 | 2.75 |
| 28.00 | DISCHG | 2.54 | 2.35 | 2.18 | 2.01 | 1.86 | 1.72 | 1.59 | 1.47 | 1.35 | 1.25 |
| 29.00 | DISCHG | 1.15 | 1.06 | .98 | .90 | .83 | .77 | .38 | .08 | .08 | .03 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.89 WATERSHED INCHES, 1204.77 CFS-HRS, 99.56 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RESVOR STRUCTURE 40
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 632.00

*** WARNING - STRUCTURE 40 DELTA T IS TOO LARGE. 0 /2 > S /DELTA T OCCURED 46 TIMES STARTING WITH POINT 2
1



| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| .00 | .77 | 632.00 |
| .20 | .76 | 632.00 |

| | | |
|---|---|---|
| .40 | .75 | 632.00 |
| .60 | .74 | 632.00 |
| .80 | .73 | 631.99 |
| 1.00 | .72 | 631.99 |
| 1.20 | .71 | 631.99 |
| 1.40 | .70 | 631.99 |
| 1.60 | .69 | 631.99 |
| 14.57 | 154.25 | 635.14 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .77 | -.76 | .76 | -.75 | .75 | -.74 | .74 | -.73 | .73 | -.72 |
| 1.00 | DISCHG | .72 | -.71 | .71 | -.71 | .70 | -.70 | .69 | -.69 | .68 | -.68 |
| 2.00 | DISCHG | .67 | -.67 | .67 | -.66 | .66 | -.65 | .65 | -.65 | .64 | -.64 |
| 3.00 | DISCHG | .63 | -.63 | .63 | -.62 | .62 | -.61 | .61 | -.61 | .60 | -.60 |
| 4.00 | DISCHG | .59 | -.59 | .59 | -.58 | .58 | -.58 | .57 | -.57 | .57 | -.56 |
| 5.00 | DISCHG | .56 | -.55 | .55 | -.55 | .54 | -.54 | .54 | -.53 | .53 | -.53 |
| 6.00 | DISCHG | .52 | -.52 | .52 | -.51 | .51 | -.51 | .50 | -.50 | .50 | -.49 |
| 7.00 | DISCHG | .49 | -.49 | .49 | -.48 | .48 | -.48 | .47 | -.47 | .47 | -.46 |
| 8.00 | DISCHG | .47 | -.44 | .48 | -.41 | .51 | -.35 | .58 | -.27 | .66 | -.16 |
| 9.00 | DISCHG | .77 | -.03 | .77 | .32 | .77 | .67 | .77 | .79 | .81 | .85 |
| 10.00 | DISCHG | .90 | .97 | 1.05 | 1.14 | 1.25 | 1.38 | 1.53 | 1.71 | 1.92 | 2.16 |
| 11.00 | DISCHG | 2.46 | 2.80 | 3.21 | 3.68 | 4.22 | 4.85 | 5.64 | 6.82 | 8.80 | 12.37 |
| 12.00 | DISCHG | 18.75 | 28.54 | 45.67 | 65.76 | 83.14 | 97.71 | 108.43 | 115.78 | 121.02 | 125.62 |
| 13.00 | DISCHG | 130.18 | 134.43 | 138.34 | 141.95 | 145.27 | 148.33 | 151.10 | 153.57 | 154.15 | 154.18 |
| 14.00 | DISCHG | 154.20 | 154.21 | 154.23 | 154.24 | 154.24 | 154.25 | 154.25 | 154.25 | 154.24 | 154.23 |
| 15.00 | DISCHG | 154.22 | 154.20 | 154.18 | 154.15 | 153.40 | 150.92 | 148.36 | 145.71 | 142.98 | 140.17 |
| 16.00 | DISCHG | 137.31 | 134.40 | 131.57 | 128.99 | 126.63 | 124.46 | 122.47 | 120.62 | 118.85 | 116.80 |
| 17.00 | DISCHG | 114.26 | 111.45 | 108.54 | 105.61 | 102.64 | 99.65 | 96.76 | 94.01 | 91.43 | 89.02 |
| 18.00 | DISCHG | 86.82 | 84.92 | 83.09 | 81.33 | 79.64 | 78.02 | 76.48 | 75.01 | 73.60 | 72.26 |
| 1.00 | DISCHG | 70.96 | 69.71 | 68.49 | 67.32 | 66.19 | 65.09 | 64.03 | 63.00 | 62.00 | 61.04 |
| 20.00 | DISCHG | 60.08 | 59.13 | 58.17 | 57.21 | 56.26 | 55.33 | 54.42 | 53.54 | 52.67 | 51.83 |
| 21.00 | DISCHG | 51.00 | 50.16 | 49.32 | 48.51 | 47.71 | 46.93 | 46.17 | 45.43 | 44.70 | 44.00 |
| 22.00 | DISCHG | 43.32 | 42.65 | 42.01 | 41.39 | 40.79 | 40.21 | 39.65 | 39.11 | 38.59 | 38.10 |
| 23.00 | DISCHG | 37.62 | 37.16 | 36.72 | 36.30 | 35.89 | 35.51 | 35.14 | 34.78 | 34.44 | 34.11 |
| 24.00 | DISCHG | 33.77 | 33.41 | 32.99 | 32.54 | 32.16 | 31.73 | 31.26 | 30.75 | 30.22 | 29.68 |
| 25.00 | DISCHG | 29.12 | 28.56 | 27.98 | 27.39 | 26.79 | 26.18 | 25.57 | 24.94 | 24.30 | 23.66 |
| 26.00 | DISCHG | 23.01 | 22.36 | 21.71 | 21.05 | 20.40 | 19.75 | 19.11 | 18.47 | 17.85 | 17.23 |
| 27.00 | DISCHG | 16.62 | 16.02 | 15.44 | 14.87 | 14.31 | 13.76 | 13.23 | 12.71 | 12.21 | 11.72 |
| 28.00 | DISCHG | 11.24 | 10.78 | 10.34 | 9.91 | 9.49 | 9.09 | 8.70 | 8.32 | 7.96 | 7.61 |
| 29.00 | DISCHG | 7.28 | 6.95 | 6.64 | 6.34 | 6.06 | 5.78 | 5.51 | 5.23 | 4.96 | 4.71 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.88 WATERSHED INCHES, 1195.66 CFS-HRS, 98.81 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 110
1

TR20 XEQ 02-12-96 13:56 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK (FEB 96) JOB 1 PASS 4
REV PC 09/83(.2) INCLUDES GREENS DRAIN ENCLOSURE (CRISLOMR.DAT) PAGE 64

INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 1606.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .45 M= 1.35
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = .47 PEAK TRAVEL TIME = .20 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.85 | 154.24 | 631.69 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .99 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .36 | .00 | .36 | .00 | .35 | .00 | .35 | .00 | .34 |
| 1.00 | DISCHG | .00 | .34 | .00 | .34 | .00 | .33 | .00 | .33 | .00 | .32 |
| 2.00 | DISCHG | .00 | .32 | .00 | .32 | .00 | .31 | .00 | .31 | .00 | .30 |
| 3.00 | DISCHG | .00 | .30 | .00 | .30 | .00 | .29 | .00 | .29 | .00 | .28 |
| 4.00 | DISCHG | .00 | .28 | .00 | .28 | .00 | .28 | .00 | .27 | .00 | .27 |
| 5.00 | DISCHG | .00 | .26 | .00 | .26 | .00 | .26 | .00 | .25 | .00 | .25 |
| 6.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .24 | .00 | .24 | .00 | .24 |
| 7.00 | DISCHG | .00 | .23 | .00 | .23 | .00 | .23 | .00 | .22 | .00 | .22 |
| 8.00 | DISCHG | .00 | .22 | .00 | .23 | .00 | .24 | .00 | .28 | .02 | .32 |
| 9.00 | DISCHG | .09 | .41 | .20 | .47 | .40 | .57 | .62 | .69 | .74 | .77 |
| 10.00 | DISCHG | .81 | .85 | .91 | .98 | 1.05 | 1.15 | 1.26 | 1.38 | 1.54 | 1.72 |
| 11.00 | DISCHG | 1.93 | 2.18 | 2.47 | 2.82 | 3.23 | 3.70 | 4.24 | 4.91 | 5.81 | 7.23 |
| 12.00 | DISCHG | 9.67 | 13.98 | 20.89 | 32.65 | 48.36 | 64.87 | 80.45 | 93.73 | 104.20 | 112.18 |
| 13.00 | DISCHG | 118.56 | 124.08 | 128.99 | 133.43 | 137.47 | 141.17 | 144.57 | 147.67 | 150.47 | 152.21 |
| 14.00 | DISCHG | 153.15 | 153.64 | 153.91 | 154.06 | 154.14 | 154.19 | 154.22 | 154.23 | 154.24 | 154.24 |
| 15.00 | DISCHG | 154.23 | 154.23 | 154.21 | 154.19 | 154.17 | 153.80 | 152.43 | 150.50 | 148.23 | 145.73 |
| 16.00 | DISCHG | 143.10 | 140.35 | 137.52 | 134.70 | 131.99 | 129.44 | 127.08 | 124.89 | 122.86 | 120.96 |
| 17.00 | DISCHG | 118.99 | 116.74 | 114.23 | 111.53 | 108.72 | 105.83 | 102.90 | 99.98 | 97.15 | 94.44 |
| 18.00 | DISCHG | 91.87 | 89.47 | 87.31 | 85.31 | 83.42 | 81.62 | 79.92 | 78.29 | 76.73 | 75.25 |
| 19.00 | DISCHG | 73.83 | 72.46 | 71.15 | 69.89 | 68.67 | 67.49 | 66.35 | 65.25 | 64.18 | 63.15 |
| 20.00 | DISCHG | 62.15 | 61.17 | 60.20 | 59.23 | 58.27 | 57.32 | 56.38 | 55.45 | 54.54 | 53.65 |
| 21.00 | DISCHG | 52.79 | 51.94 | 51.09 | 50.25 | 49.42 | 48.61 | 47.81 | 47.03 | 46.27 | 45.53 |
| 22.00 | DISCHG | 44.80 | 44.10 | 43.41 | 42.75 | 42.10 | 41.48 | 40.88 | 40.29 | 39.73 | 39.19 |
| 23.00 | DISCHG | 38.67 | 38.17 | 37.69 | 37.23 | 36.79 | 36.36 | 35.96 | 35.57 | 35.19 | 34.84 |
| 24.00 | DISCHG | 34.49 | 34.15 | 33.80 | 33.41 | 33.00 | 32.60 | 32.19 | 31.75 | 31.27 | 30.77 |
| 25.00 | DISCHG | 30.25 | 29.72 | 29.17 | 28.60 | 28.03 | 27.44 | 26.84 | 26.24 | 25.62 | 25.00 |
| 26.00 | DISCHG | 24.36 | 23.72 | 23.08 | 22.43 | 21.77 | 21.12 | 20.47 | 19.83 | 19.18 | 18.55 |
| 7.00 | DISCHG | 17.92 | 17.30 | 16.69 | 16.10 | 15.51 | 14.94 | 14.38 | 13.83 | 13.30 | 12.78 |
| 8.00 | DISCHG | 12.28 | 11.79 | 11.31 | 10.85 | 10.40 | 9.97 | 9.55 | 9.15 | 8.75 | 8.38 |
| 29.00 | DISCHG | 8.01 | 7.66 | 7.33 | 7.00 | 6.69 | 6.39 | 6.10 | 5.82 | 5.54 | 5.27 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.88 WATERSHED INCHES, 1198.02 CFS-HRS, 99.00 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 30
OUTPUT HYDROGRAPH= 1
AREA= .02 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= .68 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0907 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.31 | 26.89 | (RUNOFF) |

1



TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .02 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .01 | .01 | .02 | .03 | .05 |
| 9.00 | DISCHG | .07 | .08 | .10 | .12 | .14 | .17 | .19 | .22 | .25 | .28 |
| .00 | DISCHG | .31 | .34 | .37 | .41 | .45 | .50 | .56 | .63 | .72 | .82 |
| 11.00 | DISCHG | .93 | 1.06 | 1.21 | 1.37 | 1.55 | 1.78 | 2.20 | 3.08 | 4.95 | 8.38 |
| 12.00 | DISCHG | 13.68 | 19.97 | 25.00 | 26.88 | 25.62 | 22.31 | 18.23 | 14.72 | 12.13 | 10.17 |
| 13.00 | DISCHG | 8.65 | 7.46 | 6.52 | 5.76 | 5.15 | 4.65 | 4.24 | 3.91 | 3.61 | 3.35 |
| 14.00 | DISCHG | 3.12 | 2.92 | 2.76 | 2.63 | 2.51 | 2.40 | 2.29 | 2.19 | 2.09 | 2.00 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 15.00 | DISCHG | 1.92 | 1.87 | 1.82 | 1.79 | 1.77 | 1.73 | 1.69 | 1.64 | 1.60 | 1.57 |
| 16.00 | DISCHG | 1.55 | 1.53 | 1.52 | 1.52 | 1.51 | 1.51 | 1.50 | 1.49 | 1.46 | 1.42 |
| 17.00 | DISCHG | 1.38 | 1.34 | 1.32 | 1.30 | 1.29 | 1.28 | 1.27 | 1.27 | 1.27 | 1.26 |
| 18.00 | DISCHG | 1.23 | 1.20 | 1.16 | 1.12 | 1.09 | 1.06 | 1.05 | 1.04 | 1.03 | 1.03 |
| 19.00 | DISCHG | 1.03 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | 1.01 |
| 20.00 | DISCHG | .99 | .95 | .91 | .87 | .84 | .82 | .80 | .79 | .79 | .78 |
| 21.00 | DISCHG | .78 | .78 | .77 | .77 | .77 | .77 | .77 | .77 | .77 | .77 |
| 22.00 | DISCHG | .77 | .77 | .77 | .77 | .77 | .77 | .77 | .77 | .78 | .78 |
| 23.00 | DISCHG | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .78 | .77 |
| 24.00 | DISCHG | .74 | .69 | .62 | .52 | .40 | .30 | .21 | .15 | .10 | .07 |
| 25.00 | DISCHG | .05 | .03 | .02 | .02 | .01 | .01 | .00 | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.77 WATERSHED INCHES, 40.25 CFS-HRS, 3.33 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 30
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.28 | 156.69 | 635.87 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .36 | .00 | .36 | .00 | .35 | .00 | .35 | .00 | .34 |
| 1.00 | DISCHG | .00 | .34 | .00 | .34 | .00 | .33 | .00 | .33 | .00 | .32 |
| 2.00 | DISCHG | .00 | .32 | .00 | .32 | .00 | .31 | .00 | .31 | .00 | .30 |
| 3.00 | DISCHG | .00 | .30 | .00 | .30 | .00 | .29 | .00 | .29 | .00 | .28 |
| 4.00 | DISCHG | .00 | .28 | .00 | .28 | .00 | .28 | .00 | .27 | .00 | .27 |
| 5.00 | DISCHG | .00 | .26 | .00 | .26 | .00 | .26 | .00 | .25 | .00 | .25 |
| 6.00 | DISCHG | .00 | .25 | .00 | .25 | .00 | .24 | .00 | .24 | .00 | .24 |
| 7.00 | DISCHG | .00 | .23 | .00 | .23 | .00 | .23 | .00 | .22 | .00 | .22 |
| 8.00 | DISCHG | .00 | .22 | .00 | .23 | .00 | .25 | .01 | .30 | .05 | .37 |
| 9.00 | DISCHG | .16 | .49 | .30 | .59 | .54 | .74 | .81 | .91 | .98 | 1.05 |
| 10.00 | DISCHG | 1.12 | 1.19 | 1.28 | 1.38 | 1.50 | 1.64 | 1.81 | 2.01 | 2.25 | 2.53 |
| 11.00 | DISCHG | 2.86 | 3.24 | 3.68 | 4.19 | 4.78 | 5.47 | 6.44 | 7.98 | 10.77 | 15.61 |
| 12.00 | DISCHG | 23.35 | 33.94 | 45.88 | 59.53 | 73.99 | 87.17 | 98.68 | 108.45 | 116.33 | 122.35 |
| 13.00 | DISCHG | 127.21 | 131.54 | 135.51 | 139.19 | 142.62 | 145.83 | 148.81 | 151.57 | 154.08 | 155.56 |
| 14.00 | DISCHG | 156.26 | 156.56 | 156.67 | 156.69 | 156.65 | 156.59 | 156.51 | 156.42 | 156.33 | 156.24 |
| 15.00 | DISCHG | 156.16 | 156.09 | 156.04 | 155.99 | 155.94 | 155.54 | 154.12 | 152.14 | 149.83 | 147.30 |
| 16.00 | DISCHG | 144.64 | 141.88 | 139.04 | 136.21 | 133.50 | 130.95 | 128.58 | 126.38 | 124.32 | 122.37 |
| 17.00 | DISCHG | 120.36 | 118.08 | 115.55 | 112.83 | 110.01 | 107.11 | 104.17 | 101.25 | 98.41 | 95.69 |

1



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 18.00 | DISCHG | 93.10 | 90.67 | 88.47 | 86.42 | 84.50 | 82.69 | 80.96 | 79.33 | 77.76 | 76.28 |
| 19.00 | DISCHG | 74.85 | 73.49 | 72.18 | 70.91 | 69.69 | 68.51 | 67.37 | 66.27 | 65.20 | 64.16 |
| 20.00 | DISCHG | 63.13 | 62.12 | 61.11 | 60.11 | 59.11 | 58.14 | 57.18 | 56.24 | 55.33 | 54.43 |
| 21.00 | DISCHG | 53.56 | 52.71 | 51.87 | 51.03 | 50.20 | 49.38 | 48.58 | 47.80 | 47.04 | 46.30 |
| 22.00 | DISCHG | 45.57 | 44.87 | 44.18 | 43.52 | 42.88 | 42.25 | 41.65 | 41.07 | 40.51 | 39.97 |
| 23.00 | DISCHG | 39.45 | 38.95 | 38.47 | 38.01 | 37.56 | 37.14 | 36.73 | 36.34 | 35.97 | 35.60 |
| 24.00 | DISCHG | 35.24 | 34.85 | 34.42 | 33.93 | 33.40 | 32.90 | 32.40 | 31.89 | 31.37 | 30.84 |
| .00 | DISCHG | 30.30 | 29.75 | 29.19 | 28.62 | 28.04 | 27.45 | 26.84 | 26.24 | 25.62 | 25.00 |
| 26.00 | DISCHG | 24.36 | 23.72 | 23.08 | 22.43 | 21.77 | 21.12 | 20.47 | 19.83 | 19.18 | 18.55 |
| 27.00 | DISCHG | 17.92 | 17.30 | 16.69 | 16.10 | 15.51 | 14.94 | 14.38 | 13.83 | 13.30 | 12.78 |
| 28.00 | DISCHG | 12.28 | 11.79 | 11.31 | 10.85 | 10.40 | 9.97 | 9.55 | 9.15 | 8.75 | 8.38 |
| 29.00 | DISCHG | 8.01 | 7.66 | 7.33 | 7.00 | 6.69 | 6.39 | 6.10 | 5.82 | 5.54 | 5.27 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 1238.27 CFS-HRS, 102.33 ACRE-FEET; BASEFLOW = .00 CFS

RATION RESVOR STRUCTURE 30
INPUT HYDROGRAPH= 3 OUTPUT HYDROGRAPH= 1
SURFACE ELEVATION= 628.41

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 14.98 | 156.18 | 635.86 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .17 | .18 | .18 | .18 | .18 | .18 | .17 | .17 | .17 |
| 1.00 | DISCHG | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .16 | .16 | .16 |
| 2.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 | .15 |
| 3.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 | .14 |
| 4.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .13 |
| 5.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 6.00 | DISCHG | .13 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 7.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .11 | .11 | .11 | .11 | .11 |
| 8.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .12 | .13 | .15 | .17 | .21 |
| 9.00 | DISCHG | .26 | .32 | .39 | .44 | .56 | .64 | .77 | .85 | .94 | 1.01 |
| 10.00 | DISCHG | 1.08 | 1.15 | 1.23 | 1.32 | 1.43 | 1.56 | 1.72 | 1.90 | 2.12 | 2.37 |
| 11.00 | DISCHG | 2.67 | 3.03 | 3.43 | 3.90 | 4.44 | 4.83 | 5.47 | 6.46 | 8.11 | 10.99 |
| 12.00 | DISCHG | 15.79 | 19.26 | 24.58 | 29.77 | 31.15 | 38.63 | 54.80 | 69.33 | 82.16 | 93.23 |
| 13.00 | DISCHG | 102.63 | 110.60 | 117.43 | 123.36 | 128.59 | 133.25 | 137.44 | 141.24 | 144.69 | 147.71 |
| 14.00 | DISCHG | 150.15 | 152.02 | 153.39 | 154.37 | 155.05 | 155.52 | 155.83 | 156.02 | 156.12 | 156.17 |
| 15.00 | DISCHG | 156.18 | 156.16 | 156.13 | 156.10 | 156.06 | 155.96 | 155.62 | 154.88 | 153.72 | 152.18 |
| 16.00 | DISCHG | 150.33 | 148.23 | 145.91 | 143.45 | 140.89 | 138.31 | 135.76 | 133.29 | 130.93 | 128.67 |
| 7.00 | DISCHG | 126.49 | 124.33 | 122.09 | 119.74 | 117.26 | 114.67 | 111.98 | 109.22 | 106.42 | 103.63 |
| 8.00 | DISCHG | 100.88 | 98.20 | 95.63 | 93.19 | 90.89 | 88.72 | 86.66 | 84.72 | 82.88 | 81.14 |
| 19.00 | DISCHG | 79.48 | 77.90 | 76.39 | 74.94 | 73.56 | 72.23 | 70.96 | 69.72 | 68.53 | 67.39 |
| 20.00 | DISCHG | 66.27 | 65.18 | 64.12 | 63.07 | 62.04 | 61.02 | 60.02 | 59.04 | 58.07 | 57.12 |
| 21.00 | DISCHG | 56.19 | 55.28 | 54.39 | 53.51 | 52.65 | 51.80 | 50.96 | 50.13 | 49.33 | 48.53 |
| 22.00 | DISCHG | 47.76 | 47.00 | 46.27 | 45.55 | 44.85 | 44.17 | 43.51 | 42.87 | 42.25 | 41.65 |
| 23.00 | DISCHG | 41.07 | 40.51 | 39.97 | 39.46 | 38.96 | 38.48 | 38.02 | 37.58 | 37.16 | 36.75 |
| 24.00 | DISCHG | 36.35 | 35.96 | 35.56 | 35.15 | 34.71 | 34.24 | 33.77 | 33.29 | 32.79 | 32.29 |
| 25.00 | DISCHG | 32.13 | 32.05 | 31.96 | 31.84 | 31.71 | 31.56 | 31.40 | 31.22 | 31.02 | 30.81 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26.00 | DISCHG | 30.58 | 30.34 | 30.08 | 29.80 | 29.52 | 28.02 | 26.16 | 24.61 | 23.30 | 22.16 |
| 27.00 | DISCHG | 21.15 | 20.24 | 19.40 | 18.63 | 17.90 | 17.21 | 16.56 | 15.74 | 14.51 | 13.68 |
| 28.00 | DISCHG | 13.03 | 12.46 | 11.95 | 11.46 | 10.99 | 10.53 | 10.09 | 9.67 | 9.26 | 8.87 |
| 29.00 | DISCHG | 8.49 | 8.12 | 7.77 | 7.42 | 7.10 | 6.78 | 6.48 | 6.18 | 5.90 | 5.62 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 1237.38 CFS-HRS, 102.26 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION REACH CROSS SECTION 100
INPUT HYDROGRAPH= 1 OUTPUT HYDROGRAPH= 2
LENGTH = 972.00 FEET INPUT = RATING CURVE REPRESENTATIVE OF REACH
0 COEFFICIENTS USED IN ROUTING RELATED TO CROSS SECTION AREA, X= .49 M= 1.52
0 MODIFIED ATT-KIN ROUTING COEFFICIENT = 1.00 PEAK TRAVEL TIME = .10 HOURS

*** WARNING REACH 100 ATT-KIN COEFF.(C) GREATER THAN 0.667, CONSIDER REDUCING MAIN TIME INCREMENT ***

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 15.08 | 156.18 | 628.34 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.01 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .17 | .18 | .18 | .18 | .18 | .18 | .17 | .17 |
| 1.00 | DISCHG | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .16 | .16 |
| 2.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 |
| 3.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 |
| 4.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 5.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 6.00 | DISCHG | .13 | .13 | .12 | .12 | .12 | .12 | .12 | .12 | .12 | .12 |
| 7.00 | DISCHG | .12 | .12 | .12 | .12 | .12 | .12 | .11 | .11 | .11 | .11 |
| 8.00 | DISCHG | .11 | .11 | .11 | .11 | .11 | .11 | .12 | .13 | .15 | .17 |
| 9.00 | DISCHG | .21 | .26 | .32 | .39 | .44 | .56 | .64 | .77 | .85 | .94 |
| 10.00 | DISCHG | 1.01 | 1.08 | 1.15 | 1.23 | 1.32 | 1.43 | 1.56 | 1.72 | 1.90 | 2.12 |
| 11.00 | DISCHG | 2.37 | 2.67 | 3.03 | 3.43 | 3.90 | 4.43 | 4.82 | 5.47 | 6.45 | 8.10 |
| 12.00 | DISCHG | 10.98 | 15.78 | 19.25 | 24.56 | 29.75 | 31.14 | 38.61 | 54.76 | 69.29 | 82.12 |
| 13.00 | DISCHG | 93.20 | 102.61 | 110.58 | 117.41 | 123.35 | 128.57 | 133.23 | 137.43 | 141.23 | 144.68 |
| 14.00 | DISCHG | 147.70 | 150.15 | 152.01 | 153.38 | 154.37 | 155.05 | 155.52 | 155.82 | 156.02 | 156.12 |
| 15.00 | DISCHG | 156.17 | 156.18 | 156.16 | 156.13 | 156.10 | 156.06 | 155.96 | 155.63 | 154.88 | 153.72 |
| 16.00 | DISCHG | 152.19 | 150.34 | 148.23 | 145.92 | 143.45 | 140.89 | 138.31 | 135.77 | 133.30 | 130.93 |
| 17.00 | DISCHG | 128.67 | 126.50 | 124.33 | 122.10 | 119.74 | 117.26 | 114.67 | 111.99 | 109.22 | 106.43 |
| 18.00 | DISCHG | 103.64 | 100.89 | 98.21 | 95.63 | 93.20 | 90.89 | 88.72 | 86.67 | 84.73 | 82.89 |
| 19.00 | DISCHG | 81.14 | 79.48 | 77.90 | 76.39 | 74.95 | 73.57 | 72.24 | 70.96 | 69.73 | 68.54 |
| 20.00 | DISCHG | 67.39 | 66.27 | 65.19 | 64.12 | 63.08 | 62.04 | 61.03 | 60.02 | 59.04 | 58.07 |
| 21.00 | DISCHG | 57.12 | 56.19 | 55.28 | 54.39 | 53.51 | 52.65 | 51.80 | 50.96 | 50.14 | 49.33 |
| 22.00 | DISCHG | 48.54 | 47.76 | 47.01 | 46.27 | 45.55 | 44.85 | 44.17 | 43.51 | 42.87 | 42.25 |
| 3.00 | DISCHG | 41.65 | 41.07 | 40.51 | 39.97 | 39.46 | 38.96 | 38.48 | 38.02 | 37.58 | 37.16 |
| 4.00 | DISCHG | 36.75 | 36.35 | 35.96 | 35.57 | 35.15 | 34.71 | 34.24 | 33.77 | 33.29 | 32.79 |
| 25.00 | DISCHG | 32.29 | 32.13 | 32.05 | 31.95 | 31.84 | 31.71 | 31.56 | 31.40 | 31.22 | 31.02 |
| 26.00 | DISCHG | 30.81 | 30.58 | 30.34 | 30.08 | 29.81 | 29.52 | 28.02 | 26.16 | 24.61 | 23.30 |
| 27.00 | DISCHG | 22.16 | 21.15 | 20.24 | 19.40 | 18.63 | 17.90 | 17.21 | 16.56 | 15.74 | 14.51 |
| 28.00 | DISCHG | 13.68 | 13.03 | 12.47 | 11.95 | 11.46 | 10.99 | 10.53 | 10.10 | 9.67 | 9.26 |
| 29.00 | DISCHG | 8.87 | 8.49 | 8.12 | 7.77 | 7.43 | 7.10 | 6.78 | 6.48 | 6.18 | 5.90 |

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RUNOFF VOLUME ABOVE BASEFLOW = 1.90 WATERSHED INCHES, 1236.87 CFS-HRS, 102.22 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 20
OUTPUT HYDROGRAPH= 1
AREA= .03 SQ MI INPUT RUNOFF CURVE= 81. TIME OF CONCENTRATION= .61 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0813 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.25 | 40.67 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .03 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 6.00 | DISCHG | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .01 | .02 |
| 7.00 | DISCHG | .04 | .05 | .06 | .08 | .09 | .11 | .12 | .14 | .15 | .17 |
| 8.00 | DISCHG | .18 | .20 | .21 | .24 | .26 | .30 | .33 | .37 | .40 | .43 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9.00 | DISCHG | .46 | .49 | .52 | .56 | .60 | .64 | .68 | .72 | .77 | .82 |
| 10.00 | DISCHG | .87 | .91 | .96 | 1.02 | 1.09 | 1.18 | 1.29 | 1.42 | 1.58 | 1.76 |
| 11.00 | DISCHG | 1.97 | 2.19 | 2.43 | 2.70 | 2.99 | 3.38 | 4.16 | 5.80 | 9.08 | 14.97 |
| 12.00 | DISCHG | 23.73 | 33.38 | 39.91 | 39.77 | 35.15 | 28.57 | 22.29 | 17.73 | 14.47 | 12.02 |
| 13.00 | DISCHG | 10.18 | 8.76 | 7.68 | 6.81 | 6.12 | 5.55 | 5.09 | 4.69 | 4.33 | 4.03 |
| 14.00 | DISCHG | 3.78 | 3.58 | 3.41 | 3.25 | 3.11 | 2.97 | 2.84 | 2.71 | 2.59 | 2.48 |
| 15.00 | DISCHG | 2.39 | 2.33 | 2.29 | 2.25 | 2.22 | 2.17 | 2.11 | 2.05 | 2.00 | 1.97 |
| 16.00 | DISCHG | 1.94 | 1.93 | 1.92 | 1.91 | 1.91 | 1.91 | 1.90 | 1.87 | 1.82 | 1.77 |
| 17.00 | DISCHG | 1.71 | 1.67 | 1.65 | 1.63 | 1.62 | 1.61 | 1.60 | 1.60 | 1.60 | 1.58 |
| 18.00 | DISCHG | 1.54 | 1.49 | 1.43 | 1.38 | 1.35 | 1.32 | 1.31 | 1.30 | 1.29 | 1.29 |
| 19.00 | DISCHG | 1.29 | 1.29 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.27 |
| 20.00 | DISCHG | 1.23 | 1.17 | 1.12 | 1.07 | 1.03 | 1.01 | 1.00 | .99 | .98 | .97 |
| 21.00 | DISCHG | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 |
| 22.00 | DISCHG | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 |
| 23.00 | DISCHG | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .97 | .95 |
| 24.00 | DISCHG | .92 | .84 | .73 | .59 | .43 | .30 | .20 | .13 | .09 | .06 |
| 25.00 | DISCHG | .04 | .03 | .02 | .01 | .01 | .00 | | | | |

RUNOFF VOLUME ABOVE BASEFLOW = 3.34 WATERSHED INCHES, 56.04 CFS-HRS, 4.63 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 20
INPUT HYDROGRAPHS= 1,2 OUTPUT HYDROGRAPH= 3

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.36 | 65.36 | 629.52 |
| 14.85 | 158.61 | 632.78 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.04 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .17 | .18 | .18 | .18 | .18 | .18 | .17 | .17 |
| 1.00 | DISCHG | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .16 | .16 |
| 2.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 |
| 3.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 |
| 4.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 6.00 | DISCHG | .13 | .13 | .12 | .12 | .12 | .12 | .12 | .13 | .13 | .14 |
| 7.00 | DISCHG | .15 | .17 | .18 | .19 | .21 | .22 | .24 | .25 | .26 | .28 |
| 8.00 | DISCHG | .29 | .31 | .32 | .35 | .38 | .41 | .45 | .50 | .55 | .60 |
| 9.00 | DISCHG | .67 | .75 | .84 | .95 | 1.04 | 1.20 | 1.31 | 1.49 | 1.62 | 1.76 |
| 10.00 | DISCHG | 1.88 | 1.99 | 2.11 | 2.25 | 2.42 | 2.61 | 2.85 | 3.14 | 3.48 | 3.88 |
| 11.00 | DISCHG | 4.34 | 4.87 | 5.46 | 6.13 | 6.89 | 7.81 | 8.98 | 11.26 | 15.53 | 23.07 |
| 12.00 | DISCHG | 34.71 | 49.16 | 59.16 | 64.33 | 64.90 | 59.71 | 60.90 | 72.49 | 83.76 | 94.15 |
| 13.00 | DISCHG | 103.38 | 111.37 | 118.26 | 124.22 | 129.46 | 134.13 | 138.32 | 142.12 | 145.56 | 148.71 |
| 14.00 | DISCHG | 151.48 | 153.73 | 155.42 | 156.64 | 157.47 | 158.03 | 158.36 | 158.54 | 158.60 | 158.60 |
| 15.00 | DISCHG | 158.56 | 158.51 | 158.45 | 158.39 | 158.32 | 158.23 | 158.07 | 157.68 | 156.89 | 155.69 |
| 16.00 | DISCHG | 154.13 | 152.27 | 150.15 | 147.83 | 145.36 | 142.80 | 140.21 | 137.64 | 135.13 | 132.70 |
| 17.00 | DISCHG | 130.39 | 128.17 | 125.98 | 123.72 | 121.36 | 118.87 | 116.28 | 113.59 | 110.82 | 108.01 |
| .00 | DISCHG | 105.18 | 102.37 | 99.64 | 97.01 | 94.54 | 92.22 | 90.03 | 87.97 | 86.02 | 84.18 |
| 19.00 | DISCHG | 82.43 | 80.77 | 79.18 | 77.67 | 76.23 | 74.85 | 73.52 | 72.24 | 71.01 | 69.80 |
| 20.00 | DISCHG | 68.62 | 67.45 | 66.30 | 65.19 | 64.11 | 63.05 | 62.02 | 61.01 | 60.02 | 59.04 |
| 21.00 | DISCHG | 58.09 | 57.16 | 56.25 | 55.36 | 54.48 | 53.62 | 52.77 | 51.93 | 51.11 | 50.30 |
| 22.00 | DISCHG | 49.51 | 48.73 | 47.97 | 47.24 | 46.52 | 45.82 | 45.14 | 44.48 | 43.84 | 43.22 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 23.00 | DISCHG | 42.62 | 42.04 | 41.48 | 40.95 | 40.43 | 39.93 | 39.45 | 38.99 | 38.55 | 38.11 |
| 24.00 | DISCHG | 37.66 | 37.19 | 36.69 | 36.15 | 35.58 | 35.01 | 34.45 | 33.90 | 33.38 | 32.85 |
| 25.00 | DISCHG | 32.33 | 32.16 | 32.07 | 31.97 | 31.85 | 31.71 | 31.56 | 31.40 | 31.22 | 31.02 |
| 26.00 | DISCHG | 30.81 | 30.58 | 30.34 | 30.08 | 29.81 | 29.52 | 28.02 | 26.16 | 24.61 | 23.30 |
| 7.00 | DISCHG | 22.16 | 21.15 | 20.24 | 19.40 | 18.63 | 17.90 | 17.21 | 16.56 | 15.74 | 14.51 |
| 28.00 | DISCHG | 13.68 | 13.03 | 12.47 | 11.95 | 11.46 | 10.99 | 10.53 | 10.10 | 9.67 | 9.26 |
| 29.00 | DISCHG | 8.87 | 8.49 | 8.12 | 7.77 | 7.43 | 7.10 | 6.78 | 6.48 | 6.18 | 5.90 |

RUNOFF VOLUME ABOVE BASEFLOW = 1.93 WATERSHED INCHES, 1292.91 CFS-HRS, 106.85 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF STRUCTURE 10
OUTPUT HYDROGRAPH= 1
AREA= .42 SQ MI INPUT RUNOFF CURVE= 75. TIME OF CONCENTRATION= 1.51 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1007 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 12.89 | 289.66 | (RUNOFF) |
| 23.65 | 14.51 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .42 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8.00 | DISCHG | .00 | .00 | .00 | .00 | .01 | .01 | .03 | .06 | .11 | .17 |
| 9.00 | DISCHG | .27 | .38 | .53 | .71 | .91 | 1.15 | 1.41 | 1.70 | 2.03 | 2.38 |
| 10.00 | DISCHG | 2.75 | 3.16 | 3.59 | 4.05 | 4.54 | 5.08 | 5.67 | 6.33 | 7.08 | 7.93 |
| 11.00 | DISCHG | 8.91 | 10.05 | 11.35 | 12.84 | 14.55 | 16.57 | 19.28 | 23.29 | 29.70 | 40.64 |
| 12.00 | DISCHG | 58.18 | 82.49 | 112.80 | 148.58 | 187.51 | 224.50 | 254.48 | 275.14 | 286.50 | 289.64 |
| 13.00 | DISCHG | 285.48 | 274.90 | 260.10 | 241.82 | 220.73 | 199.44 | 180.69 | 164.71 | 150.59 | 138.13 |
| 14.00 | DISCHG | 127.06 | 116.88 | 107.56 | 99.29 | 91.95 | 85.31 | 79.33 | 73.95 | 69.08 | 64.65 |
| 15.00 | DISCHG | 60.70 | 57.13 | 53.92 | 51.05 | 48.47 | 46.14 | 44.05 | 42.18 | 40.50 | 38.97 |
| .00 | DISCHG | 37.58 | 36.36 | 35.26 | 34.24 | 33.31 | 32.46 | 31.68 | 30.97 | 30.32 | 29.76 |
| .00 | DISCHG | 29.27 | 28.79 | 28.30 | 27.81 | 27.33 | 26.87 | 26.43 | 26.03 | 25.66 | 25.31 |
| 18.00 | DISCHG | 24.98 | 24.67 | 24.34 | 23.99 | 23.60 | 23.19 | 22.77 | 22.34 | 21.93 | 21.54 |

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| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19.00 | DISCHG | 21.19 | 20.86 | 20.58 | 20.33 | 20.13 | 19.97 | 19.83 | 19.72 | 19.61 | 19.51 |
| 20.00 | DISCHG | 19.39 | 19.24 | 19.06 | 18.82 | 18.53 | 18.19 | 17.83 | 17.46 | 17.10 | 16.74 |
| 21.00 | DISCHG | 16.42 | 16.12 | 15.85 | 15.62 | 15.43 | 15.28 | 15.15 | 15.04 | 14.95 | 14.87 |
| 22.00 | DISCHG | 14.80 | 14.75 | 14.70 | 14.66 | 14.63 | 14.60 | 14.58 | 14.56 | 14.55 | 14.54 |
| 23.00 | DISCHG | 14.53 | 14.52 | 14.52 | 14.51 | 14.51 | 14.51 | 14.51 | 14.51 | 14.51 | 14.48 |
| 24.00 | DISCHG | 14.43 | 14.31 | 14.10 | 13.76 | 13.27 | 12.62 | 11.81 | 10.88 | 9.86 | 8.81 |
| 25.00 | DISCHG | 7.77 | 6.76 | 5.82 | 4.97 | 4.22 | 3.57 | 3.02 | 2.57 | 2.18 | 1.86 |
| 26.00 | DISCHG | 1.58 | 1.34 | 1.14 | .96 | .82 | .69 | .59 | .50 | .42 | .35 |
| 27.00 | DISCHG | .30 | .25 | .21 | .18 | .15 | .12 | .10 | .08 | .07 | .06 |
| 28.00 | DISCHG | .04 | .04 | .03 | .02 | .01 | .01 | .01 | .00 | | |

RUNOFF VOLUME ABOVE BASEFLOW = 2.78 WATERSHED INCHES, 752.79 CFS-HRS, 62.21 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION ADDHYD STRUCTURE 9
INPUT HYDROGRAPHS= 1,3 OUTPUT HYDROGRAPH= 6

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.02 | 388.97 | 621.58 |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = 1.46 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| .00 | DISCHG | .00 | .00 | .17 | .18 | .18 | .18 | .18 | .18 | .17 | .17 |
| 1.00 | DISCHG | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .17 | .16 | .16 |
| 2.00 | DISCHG | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .16 | .15 | .15 |
| 3.00 | DISCHG | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .15 | .14 | .14 |
| 4.00 | DISCHG | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 | .14 |
| 5.00 | DISCHG | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 | .13 |
| 6.00 | DISCHG | .13 | .13 | .12 | .12 | .12 | .12 | .12 | .13 | .13 | .14 |
| 7.00 | DISCHG | .15 | .17 | .18 | .19 | .21 | .22 | .24 | .25 | .26 | .28 |
| 8.00 | DISCHG | .29 | .31 | .32 | .35 | .38 | .42 | .49 | .56 | .66 | .78 |
| 9.00 | DISCHG | .93 | 1.13 | 1.37 | 1.66 | 1.95 | 2.34 | 2.72 | 3.19 | 3.65 | 4.13 |
| 10.00 | DISCHG | 4.63 | 5.15 | 5.70 | 6.30 | 6.96 | 7.69 | 8.52 | 9.47 | 10.55 | 11.81 |
| 11.00 | DISCHG | 13.25 | 14.91 | 16.81 | 18.97 | 21.44 | 24.38 | 28.26 | 34.56 | 45.23 | 63.71 |
| 12.00 | DISCHG | 92.89 | 131.65 | 171.96 | 212.91 | 252.41 | 284.21 | 315.38 | 347.64 | 370.26 | 383.79 |
| 13.00 | DISCHG | 388.87 | 386.27 | 378.36 | 366.04 | 350.19 | 333.56 | 319.01 | 306.83 | 296.15 | 286.84 |
| 14.00 | DISCHG | 278.55 | 270.61 | 262.98 | 255.93 | 249.43 | 243.34 | 237.69 | 232.49 | 227.68 | 223.25 |
| 15.00 | DISCHG | 219.26 | 215.64 | 212.37 | 209.44 | 206.78 | 204.37 | 202.12 | 199.86 | 197.39 | 194.65 |
| 16.00 | DISCHG | 191.71 | 188.63 | 185.41 | 182.08 | 178.67 | 175.26 | 171.89 | 168.61 | 165.44 | 162.46 |
| 17.00 | DISCHG | 159.66 | 156.96 | 154.28 | 151.53 | 148.69 | 145.74 | 142.70 | 139.61 | 136.48 | 133.32 |
| 18.00 | DISCHG | 130.16 | 127.04 | 123.98 | 121.01 | 118.15 | 115.41 | 112.80 | 110.31 | 107.95 | 105.72 |
| 19.00 | DISCHG | 103.61 | 101.63 | 99.76 | 98.01 | 96.37 | 94.82 | 93.35 | 91.96 | 90.62 | 89.31 |
| 20.00 | DISCHG | 88.00 | 86.69 | 85.36 | 84.01 | 82.64 | 81.25 | 79.85 | 78.47 | 77.11 | 75.79 |
| 21.00 | DISCHG | 74.51 | 73.28 | 72.10 | 70.98 | 69.92 | 68.90 | 67.92 | 66.97 | 66.05 | 65.16 |
| 22.00 | DISCHG | 64.31 | 63.48 | 62.67 | 61.90 | 61.15 | 60.42 | 59.72 | 59.04 | 58.39 | 57.76 |
| 23.00 | DISCHG | 57.15 | 56.56 | 56.00 | 55.46 | 54.94 | 54.44 | 53.96 | 53.50 | 53.05 | 52.60 |
| 24.00 | DISCHG | 52.09 | 51.51 | 50.80 | 49.91 | 48.86 | 47.63 | 46.26 | 44.78 | 43.24 | 41.66 |
| 25.00 | DISCHG | 40.10 | 38.92 | 37.89 | 36.94 | 36.07 | 35.28 | 34.59 | 33.96 | 33.40 | 32.88 |
| 26.00 | DISCHG | 32.39 | 31.92 | 31.47 | 31.04 | 30.62 | 30.21 | 28.61 | 26.66 | 25.03 | 23.65 |
| 27.00 | DISCHG | 22.46 | 21.40 | 20.45 | 19.58 | 18.78 | 18.03 | 17.32 | 16.64 | 15.81 | 14.57 |



| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 28.00 | DISCHG | 13.72 | 13.06 | 12.49 | 11.97 | 11.47 | 11.00 | 10.54 | 10.10 | 9.67 | 9.26 |
| 29.00 | DISCHG | 8.87 | 8.49 | 8.12 | 7.77 | 7.43 | 7.10 | 6.78 | 6.48 | 6.18 | 5.90 |

RUNOFF VOLUME ABOVE BASEFLOW = 2.18 WATERSHED INCHES, 2045.70 CFS-HRS, 169.06 ACRE-FEET; BASEFLOW = .00 CFS

OPERATION RUNOFF CROSS SECTION 80
OUTPUT HYDROGRAPH= 1
AREA= .29 SQ MI INPUT RUNOFF CURVE= 86. TIME OF CONCENTRATION= 2.29 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .1018 HOURS

| PEAK TIME(HRS) | PEAK DISCHARGE(CFS) | PEAK ELEVATION(FEET) |
|---|---|---|
| 13.41 | 204.36 | (RUNOFF) |

TIME(HRS) FIRST HYDROGRAPH POINT = .00 HOURS TIME INCREMENT = .10 HOURS DRAINAGE AREA = .29 SQ.MI.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5.00 | DISCHG | .00 | .00 | .00 | .01 | .02 | .03 | .04 | .06 | .08 | .11 |
| 6.00 | DISCHG | .15 | .20 | .25 | .31 | .39 | .47 | .56 | .66 | .77 | .90 |
| 7.00 | DISCHG | 1.03 | 1.17 | 1.32 | 1.47 | 1.64 | 1.81 | 1.98 | 2.15 | 2.33 | 2.51 |
| 00 | DISCHG | 2.70 | 2.88 | 3.07 | 3.26 | 3.46 | 3.66 | 3.87 | 4.09 | 4.32 | 4.57 |
| 9.00 | DISCHG | 4.83 | 5.11 | 5.41 | 5.72 | 6.05 | 6.40 | 6.75 | 7.13 | 7.52 | 7.93 |
| 10.00 | DISCHG | 8.35 | 8.79 | 9.25 | 9.72 | 10.22 | 10.74 | 11.29 | 11.88 | 12.52 | 13.21 |
| 11.00 | DISCHG | 13.98 | 14.83 | 15.79 | 16.86 | 18.07 | 19.42 | 21.15 | 23.41 | 26.65 | 31.49 |
| 12.00 | DISCHG | 38.42 | 47.25 | 58.06 | 70.74 | 85.36 | 101.85 | 119.87 | 138.22 | 155.55 | 170.72 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13.00 | DISCHG | 183.25 | 192.82 | 199.28 | 203.04 | 204.35 | 203.33 | 200.14 | 195.09 | 188.63 | 180.93 |
| 14.00 | DISCHG | 172.04 | 162.03 | 151.38 | 140.82 | 131.01 | 122.18 | 114.21 | 106.95 | 100.25 | 94.09 |
| 15.00 | DISCHG | 88.45 | 83.21 | 78.25 | 73.58 | 69.23 | 65.23 | 61.60 | 58.25 | 55.13 | 52.26 |
| 16.00 | DISCHG | 49.61 | 47.15 | 44.90 | 42.82 | 40.88 | 39.13 | 37.55 | 36.09 | 34.75 | 33.53 |
| 17.00 | DISCHG | 32.40 | 31.36 | 30.40 | 29.48 | 28.62 | 27.82 | 27.06 | 26.36 | 25.70 | 25.08 |
| 18.00 | DISCHG | 24.50 | 23.94 | 23.43 | 22.94 | 22.47 | 22.00 | 21.53 | 21.06 | 20.60 | 20.15 |
| 19.00 | DISCHG | 19.71 | 19.28 | 18.87 | 18.48 | 18.12 | 17.80 | 17.52 | 17.27 | 17.04 | 16.82 |
| 20.00 | DISCHG | 16.62 | 16.43 | 16.25 | 16.07 | 15.89 | 15.70 | 15.50 | 15.29 | 15.07 | 14.84 |
| 21.00 | DISCHG | 14.61 | 14.38 | 14.15 | 13.92 | 13.70 | 13.49 | 13.29 | 13.10 | 12.93 | 12.76 |
| 22.00 | DISCHG | 12.62 | 12.48 | 12.37 | 12.26 | 12.17 | 12.09 | 12.02 | 11.95 | 11.89 | 11.84 |
| 23.00 | DISCHG | 11.79 | 11.75 | 11.71 | 11.68 | 11.65 | 11.62 | 11.59 | 11.57 | 11.55 | 11.53 |
| 24.00 | DISCHG | 11.50 | 11.45 | 11.38 | 11.29 | 11.15 | 10.97 | 10.74 | 10.45 | 10.11 | 9.70 |
| 25.00 | DISCHG | 9.24 | 8.74 | 8.21 | 7.67 | 7.11 | 6.56 | 6.01 | 5.49 | 4.98 | 4.50 |
| 26.00 | DISCHG | 4.05 | 3.63 | 3.25 | 2.91 | 2.60 | 2.34 | 2.10 | 1.88 | 1.69 | 1.52 |
| 27.00 | DISCHG | 1.37 | 1.23 | 1.10 | .99 | .89 | .79 | .71 | .64 | .57 | .51 |
| 28.00 | DISCHG | .46 | .41 | .37 | .33 | .30 | .26 | .24 | .21 | .19 | .17 |
| 29.00 | DISCHG | .15 | .13 | .12 | .10 | .09 | .08 | .07 | .06 | .06 | .05 |

RUNOFF VOLUME ABOVE BASEFLOW = 3.84 WATERSHED INCHES, 718.79 CFS-HRS, 59.40 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID

+ COMPUTATIONS COMPLETED FOR PASS 4

EXECUTIVE CONTROL OPERATION ENDJOB RECORD ID

1

TR20 XEQ 02-12-96 13:56 CRISSMAN DRAIN HYDROLOGY HALL ROAD TO PLUM BROOK (FEB 96) JOB 1 SUMMARY
REV PC 09/83(.2) INCLUDES GREENS DRAIN ENCLOSURE (CRISLOMR.DAT) PAGE 72

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

| SECTION/ STRUCTURE ID | STANDARD CONTROL OPERATION | DRAINAGE AREA (SQ MI) | RAIN TABLE # | ANTEC MOIST COND | MAIN TIME INCREM (HR) | PRECIPITATION BEGIN (HR) | PRECIPITATION AMOUNT (IN) | PRECIPITATION DURATION (HR) | RUNOFF AMOUNT (IN) | PEAK DISCHARGE ELEVATION (FT) | PEAK DISCHARGE TIME (HR) | PEAK DISCHARGE RATE (CFS) | PEAK DISCHARGE RATE (CSM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALTERNATE 1 STORM 1 | | | | | | | | | | | | | |
| + | | | | | | | | | | | | | |
| XSECTION 130 | RUNOFF | .40 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .49 | --- | 13.71 | 26.52 | 66.3 |
| XSECTION 130 | ADDHYD | .78 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .57 | 638.96 | 13.71 | 43.05 | 55.3 |
| XSECTION 120 | REACH | .78 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .57 | 634.07 | 13.90 | 42.88 | 55.1 |
| XSECTION 120 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .74 | --- | 12.23 | 6.71 | 335.7 |
| STRUCTURE 50 | ADDHYD | .80 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .57 | 633.58 | 13.88 | 43.79 | 54.9 |
| STRUCTURE 50 | RESVOR | .80 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .57 | 633.58 | 13.98 | 43.69 | 54.8 |
| STRUCTURE 40 | RUNOFF | .19 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .94 | --- | 12.25 | 82.90 | 436.3 |
| STRUCTURE 40 | ADDHYD | .99 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .64 | 634.32 | 12.30 | 108.96 | 110.3 |
| STRUCTURE 40 | RESVOR | .99 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .64 | 633.30 | 14.51 | 49.02 | 49.6 |
| XSECTION 110 | REACH | .99 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .64 | 630.41 | 14.78 | 48.80 | 49.4 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STRUCTURE 30 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | 1.16 | --- | 12.33 | 10.73 | 476.7 |
| STRUCTURE 30 | ADDHYD | 1.01 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .65 | 632.90 | 14.73 | 49.84 | 49.3 |
| STRUCTURE 30 | RESVOR | 1.01 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .65 | 632.89 | 15.07 | 49.36 | 48.8 |
| XSECTION 100 | REACH | 1.01 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .65 | 627.18 | 15.20 | 49.34 | 48.8 |
| STRUCTURE 20 | RUNOFF | .03 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | 1.55 | --- | 12.26 | 18.51 | 712.0 |
| STRUCTURE 20 | ADDHYD | 1.04 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .67 | 628.97 | 15.17 | 50.55 | 48.8 |
| STRUCTURE 10 | RUNOFF | .42 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | 1.16 | --- | 12.94 | 114.28 | 272.1 |
| STRUCTURE 9 | ADDHYD | 1.46 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | .81 | 618.47 | 12.99 | 144.02 | 98.9 |
| XSECTION 80 | RUNOFF | .29 | 2 | 2 | .10 | .0 | 3.30 | 24.00 | 1.92 | --- | 13.44 | 102.11 | 352.1 |

ALTERNATE 1 STORM 2

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XSECTION 130 | RUNOFF | .40 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | .92 | --- | 13.58 | 57.24 | 143.1 |
| XSECTION 130 | ADDHYD | .78 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.03 | 639.59 | 13.58 | 83.07 | 106.8 |
| XSECTION 120 | REACH | .78 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.03 | 634.70 | 13.74 | 82.84 | 106.5 |
| XSECTION 120 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.27 | --- | 12.22 | 12.60 | 630.0 |
| STRUCTURE 50 | ADDHYD | .80 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.03 | 635.06 | 13.72 | 84.41 | 105.8 |
| STRUCTURE 50 | RESVOR | .80 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.03 | 635.02 | 13.93 | 83.46 | 104.6 |
| STRUCTURE 40 | RUNOFF | .19 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.53 | --- | 12.23 | 142.71 | 751.1 |
| STRUCTURE 40 | ADDHYD | .99 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.13 | 667.92 | 12.27 | 182.71 | 184.9 |
| STRUCTURE 40 | RESVOR | .99 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.12 | 634.06 | 14.39 | 91.65 | 92.8 |
| XSECTION 110 | REACH | .99 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.12 | 630.99 | 14.62 | 91.32 | 92.4 |
| STRUCTURE 30 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.81 | --- | 12.32 | 17.33 | 770.2 |
| STRUCTURE 30 | ADDHYD | 1.01 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.14 | 634.10 | 14.58 | 92.93 | 92.0 |

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

| SECTION/ STRUCTURE ID | STANDARD CONTROL OPERATION | DRAINAGE AREA (SQ MI) | RAIN TABLE # | ANTEC MOIST COND | MAIN TIME INCREM (HR) | PRECIPITATION BEGIN (HR) | PRECIPITATION AMOUNT (IN) | PRECIPITATION DURATION (HR) | RUNOFF AMOUNT (IN) | PEAK DISCHARGE ELEVATION (FT) | PEAK DISCHARGE TIME (HR) | PEAK DISCHARGE RATE (CFS) | PEAK DISCHARGE RATE (CSM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

ALTERNATE 1 STORM 2

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STRUCTURE 30 | RESVOR | 1.01 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.14 | 634.08 | 14.86 | 92.14 | 91.2 |
| XSECTION 100 | REACH | 1.01 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.14 | 627.72 | 14.97 | 92.13 | 91.2 |
| STRUCTURE 20 | RUNOFF | .03 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 2.29 | --- | 12.25 | 27.66 | 1063.8 |
| STRUCTURE 20 | ADDHYD | 1.04 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.16 | 630.93 | 14.94 | 93.91 | 90.6 |
| STRUCTURE 10 | RUNOFF | .42 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.82 | --- | 12.92 | 185.69 | 442.1 |
| STRUCTURE 9 | ADDHYD | 1.46 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 1.35 | 619.63 | 13.09 | 232.92 | 159.9 |
| XSECTION 80 | RUNOFF | .29 | 2 | 2 | .10 | .0 | 4.20 | 24.00 | 2.73 | --- | 13.42 | 145.41 | 501.4 |

ALTERNATE 1 STORM 3

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XSECTION 130 | RUNOFF | .40 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.08 | --- | 13.55 | 69.41 | 173.5 |
| XSECTION 130 | ADDHYD | .78 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.20 | 639.77 | 13.58 | 98.57 | 126.7 |
| XSECTION 120 | REACH | .78 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.20 | 634.91 | 13.72 | 98.31 | 126.4 |
| "ECTION 120 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.46 | --- | 12.21 | 14.76 | 737.9 |
| .UCTURE 50 | ADDHYD | .80 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.20 | 636.37 | 13.70 | 100.11 | 125.4 |
| STRUCTURE 50 | RESVOR | .80 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.20 | 635.99 | 14.28 | 91.65 | 114.9 |
| STRUCTURE 40 | RUNOFF | .19 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.74 | --- | 12.23 | 164.15 | 864.0 |
| STRUCTURE 40 | ADDHYD | .99 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.31 | 698.70 | 12.27 | 209.42 | 212.0 |
| STRUCTURE 40 | RESVOR | .99 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.30 | 634.26 | 14.52 | 104.77 | 106.0 |
| XSECTION 110 | REACH | .99 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.30 | 631.17 | 14.76 | 104.66 | 105.9 |
| STRUCTURE 30 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 2.05 | --- | 12.32 | 19.66 | 873.6 |
| STRUCTURE 30 | ADDHYD | 1.01 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.32 | 634.47 | 14.65 | 106.36 | 105.3 |
| STRUCTURE 30 | RESVOR | 1.01 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.32 | 634.46 | 15.00 | 105.98 | 104.9 |
| XSECTION 100 | REACH | 1.01 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.32 | 627.89 | 15.11 | 105.98 | 104.9 |
| STRUCTURE 20 | RUNOFF | .03 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 2.55 | --- | 12.25 | 30.80 | 1184.7 |
| STRUCTURE 20 | ADDHYD | 1.04 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.35 | 632.10 | 15.03 | 107.85 | 104.0 |
| STRUCTURE 10 | RUNOFF | .42 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 2.05 | --- | 12.91 | 210.94 | 502.2 |
| STRUCTURE 9 | ADDHYD | 1.46 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 1.55 | 620.11 | 13.06 | 271.51 | 186.4 |
| XSECTION 80 | RUNOFF | .29 | 2 | 2 | .10 | .0 | 4.50 | 24.00 | 3.00 | --- | 13.42 | 160.06 | 551.9 |

ALTERNATE 1 STORM 4

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XSECTION 130 | RUNOFF | .40 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.61 | --- | 13.50 | 110.46 | 276.1 |
| XSECTION 130 | ADDHYD | .78 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.75 | 640.34 | 13.51 | 149.64 | 192.3 |
| XSECTION 120 | REACH | .78 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.75 | 635.48 | 13.65 | 149.39 | 192.0 |
| XSECTION 120 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 2.08 | --- | 12.21 | 21.66 | 1082.8 |
| UCTURE 50 | ADDHYD | .80 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.76 | 636.81 | 13.64 | 151.88 | 190.3 |
| STRUCTURE 50 | RESVOR | .80 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.76 | 636.80 | 13.75 | 151.08 | 189.3 |
| STRUCTURE 40 | RUNOFF | .19 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 2.42 | --- | 12.22 | 231.70 | 1219.5 |
| STRUCTURE 40 | ADDHYD | .99 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.89 | 796.24 | 12.26 | 294.09 | 297.7 |

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SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

| SECTION/ STRUCTURE ID | STANDARD CONTROL OPERATION | DRAINAGE AREA (SQ MI) | RAIN TABLE # | ANTEC MOIST COND | MAIN TIME INCREM (HR) | PRECIPITATION BEGIN (HR) | PRECIPITATION AMOUNT (IN) | PRECIPITATION DURATION (HR) | RUNOFF AMOUNT (IN) | PEAK DISCHARGE ELEVATION (FT) | PEAK DISCHARGE TIME (HR) | PEAK DISCHARGE RATE (CFS) | PEAK DISCHARGE RATE (CSM) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

ALTERNATE 1 STORM 4

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| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTURE 40 | RESVOR | .99 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.88 | 635.14 | 14.57 | 154.25 | 156.1 |
| XSECTION 110 | REACH | .99 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.88 | 631.69 | 14.85 | 154.24 | 156.1 |
| STRUCTURE 30 | RUNOFF | .02 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 2.77 | --- | 12.31 | 26.89 | 1195.3 |
| STRUCTURE 30 | ADDHYD | 1.01 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.90 | 635.87 | 14.28 | 156.69 | 155.1 |
| STRUCTURE 30 | RESVOR | 1.01 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.90 | 635.86 | 14.98 | 156.18 | 154.6 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| XSECTION 100 | REACH | 1.01 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.90 | 628.34 | 15.08 | 156.18 | 154.6 |
| STRUCTURE 20 | RUNOFF | .03 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 3.34 | --- | 12.25 | 40.67 | 1564.2 |
| RUCTURE 20 | ADDHYD | 1.04 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 1.93 | 632.78 | 14.85 | 158.61 | 153.0 |
| UCTURE 10 | RUNOFF | .42 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 2.78 | --- | 12.89 | 289.66 | 689.7 |
| RUCTURE 9 | ADDHYD | 1.46 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 2.18 | 621.58 | 13.02 | 388.97 | 267.1 |
| XSECTION 80 | RUNOFF | .29 | 2 | 2 | .10 | .0 | 5.40 | 24.00 | 3.84 | --- | 13.41 | 204.36 | 704.7 |

1



SUMMARY TABLE 2 - SELECTED MODIFIED ATT-KIN REACH ROUTINGS IN ORDER OF STANDARD EXECUTIVE CONTROL INSTRUCTIONS
A STARRED UPPER VOLUME ABOVE BASE(IN) INDICATES A HYDROGRAPH TRUNCATED AT A VALUE EXCEEDING BASE + 10% OF PEAK
A QUESTION MARK(?) AFTER COEFF.(C) INDICATES PARAMETERS OUTSIDE ACCEPTABLE LIMITS, SEE PREVIOUS WARNINGS

| XSEC ID | REACH LENGTH (FT) | HYDROGRAPH INFORMATION: INFLOW PEAK (CFS) | INFLOW TIME (HR) | OUTFLOW PEAK (CFS) | OUTFLOW TIME (HR) | OUTFLOW+ INTERV. PEAK (CFS) | INTERV. TIME (HR) | BASE-FLOW (CFS) | ROUTING PARAMETERS: VOLUME ABOVE BASE (IN) | MAIN TIME INCR (HR) | ITER-ATION # | Q AND A EQUATION COEFF (X) | POWER (M) | LENGTH FACTOR (K*) | PEAK RATIO O/I (Q*) | S/Q @PEAK (K) (SEC) | ATT-KIN COEFF (C) | PEAK TRAVEL TIME STOR-AGE (HR) | KINE-MATIC (HR) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALTERNATE 1 STORM 1 | | | | | | | | | | | | | | | | | | | |
| +120 | 1387 | 43 | 13.7 | 43 | 13.9 | --- | --- | 0 | .57 | .10 | 1 | 1.72 | 1.14 | .014 | .996 | 479 | .55 | .20 | .13 |
| +110 | 1606 | 49 | 14.5 | 49 | 14.8 | --- | --- | 0 | .64 | .10 | 1 | .435 | 1.36 | .010 | .996 | 770 | .38 | .30 | .21 |
| +100 | 972 | 49 | 15.1 | 49 | 15.2 | --- | --- | 0 | .65 | .10 | 1 | .473 | 1.53 | .001 | 1.000 | 267 | .81? | .10 | .07 |
| ALTERNATE 1 STORM 2 | | | | | | | | | | | | | | | | | | | |
| +120 | 1387 | 83 | 13.6 | 83 | 13.7 | --- | --- | 0 | 1.03 | .10 | 1 | 1.50 | 1.20 | .010 | .997 | 393 | .63 | .10 | .11 |
| +110 | 1606 | 92 | 14.4 | 91 | 14.6 | --- | --- | 0 | 1.12 | .10 | 1 | .443 | 1.36 | .009 | .996 | 658 | .43 | .20 | .18 |
| +100 | 972 | 92 | 14.9 | 92 | 15.0 | --- | --- | 0 | 1.14 | .10 | 1 | .473 | 1.53 | .001 | 1.000 | 215 | .91? | .10 | .06 |
| ALTERNATE 1 STORM 3 | | | | | | | | | | | | | | | | | | | |
| +120 | 1387 | 99 | 13.6 | 98 | 13.7 | --- | --- | 0 | 1.20 | .10 | 1 | 1.41 | 1.22 | .009 | .997 | 369 | .66 | .10 | .10 |

```
                                                                                .445
+110   1606     105  14.5     105  14.8                 0    1.30    .10    1        1.36   .009   .999    637  .44    .30   .18
+                                          ---   ---
                                                                                .473
      972     106  15.0     106  15.1                 0    1.32    .10    1        1.53   .001  1.000    204  .94?   .10   .06
+                                          ---   ---

   ALTERNATE    1   STORM    4
+  ____________________
                                                                                1.23
+120   1387     150  13.5     149  13.7                 0    1.75    .10    1        1.27   .007   .997    319  .72?   .20   .09
+                                          ---   ---
                                                                                .451
+110   1606     154  14.6     154  14.8                 0    1.88    .10    1        1.35   .008  1.000    579  .47    .20   .16
+                                          ---   ---
                                                                                .486
+100    972     156  15.0     156  15.1                 0    1.90    .10    1        1.52   .001  1.000    181 1.00?   .10   .05
+                                          ---   ---
1
```



SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

| TION/ STRUCTURE ID | DRAINAGE AREA (SQ MI) | STORM NUMBERS..... 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| 0 STRUCTURE 50 | .80 | | | | |
| + ALTERNATE 1 | | 43.69 | 83.46 | 91.65 | 151.08 |
| 0 STRUCTURE 40 | .99 | | | | |
| + ALTERNATE 1 | | 49.02 | 91.65 | 104.77 | 154.25 |
| 0 STRUCTURE 30 | 1.01 | | | | |
| + ALTERNATE 1 | | 49.36 | 92.14 | 105.98 | 156.18 |
| 0 STRUCTURE 20 | 1.04 | | | | |
| + ALTERNATE 1 | | 50.55 | 93.91 | 107.85 | 158.61 |
| 0 STRUCTURE 10 | .42 | | | | |
| + ALTERNATE 1 | | 114.28 | 185.69 | 210.94 | 289.66 |
| 0 STRUCTURE 9 | 1.46 | | | | |
| + ALTERNATE 1 | | 144.02 | 232.92 | 271.51 | 388.97 |
| 0 XSECTION 80 | .29 | | | | |
| + ALTERNATE 1 | | 102.11 | 145.41 | 160.06 | 204.36 |
| 0 XSECTION 100 | 1.01 | | | | |
| + ALTERNATE 1 | | 49.34 | 92.13 | 105.98 | 156.18 |
| 0 XSECTION 110 | .99 | | | | |
| + ALTERNATE 1 | | 48.80 | 91.32 | 104.66 | 154.24 |

```
0 XSECTION  120          .02
+
    ALTERNATE    1                    6.71     12.60     14.76     21.66
0  ECTION  130          .78

    ALTERNATE    1                   43.05     83.07     98.57    149.64
1END OF  1 JOBS IN THIS RUN
```

Watercourse Crissman Drain DA 0.26 Basin Crissman Drain # 1

By JMR Date 12/11/95 Quad Southeast 1/4 File # 211-029

Sec 31 T 3N R 12E County Macomb Township Shelby

Location Drainage Area #1

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 5,920' (20 min inlet time) | | | 2 | 1.156 |

Recurrence Interval:

Total $t_c$, hrs = 1.156

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Hr. | | I24-100 | |
| | | | | | | | | | | RF = " | | RF = 4.5 " | |
| | SOILS | | | LAND USE | | | | | | Adj RF = " | | Adj RF = 4.5" | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | | R.O. | $mi^2$-in |
| Soil Map | A | 60% | 0.15626 | 1/4 Acre Lots | 86% | 0.13455 | 61 | | | | | 1.08 | 0.145 |
| | | | | 2 Acre Lots | 11% | 0.01625 | 46 | | | | | 0.33 | 0.005 |
| | | | | Idle Land | 3% | 0.00546 | 35 | | | | | 0.03 | 0.0002 |
| | B | 40% | 0.10374 | 1/4 Acre Lots | 43% | 0.04485 | 75 | | | | | 2.05 | 0.092 |
| | | | | 2 Acre Lots | 47% | 0.04875 | 65 | | | | | 1.33 | 0.065 |
| | | | | Idle Land | 10% | 0.01014 | 56 | | | | | 0.80 | 0.008 |
| County | C | | | | | | | | | | | | |
| State | D | | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | 0.3152 |
| Avg. R.O., in. | | | 1.21 | |
| Comp CN | | | 61 | |
| $Q_p$ cfs/$mi^2$/in | | | 270 | |
| Q cfs | | | 85.10 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.04 Basin Crissman Drain # 2

By JMR Date 12/12/95 Quad Southwest 1/4 File # 211-029

S 32 T 3N R 12E County Macomb Township Shelby

Location Drainage Area #2

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 1,700 (20 min inlet time) | | | 2 | 0.5694 |

Recurrence Interval:

Total $t_c$, hrs = 0.57

| | Hr. | | I24-100 |
|---|---|---|---|
| | RF = " | | RF = 4.5 " |
| | Adj RF = " | | Adj RF = 4.5" |

| SOILS | | | LAND USE | | | | R.O. | mi²-in | R.O. | mi²-in |
|---|---|---|---|---|---|---|---|---|---|---|
| GROUP | % | mi² | TYPE | % | mi² | CN | | | | |
| A | 74% | | Idle Lands-Fair | 10.1% | .003 | 75 | | | 0.03 | .00009 |
| | | | Brush | 25% | .0074 | 45 | | | 0.41 | .003 |
| | | | Townhouses | 64.9% | .0192 | 77 | | | 2.21 | .042 |
| B | 26% | | Idle Lands-Fair | 28.8% | .003 | 56 | | | 0.80 | .0024 |
| | | | Brush | 71.2% | .0074 | 67 | | | 1.46 | .011 |
| C | | | | | | | | | | |
| D | | | | | | | | | | |

☐ Soil Map ☐ County ☐ State

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total mi²-in | | | | .058 |
| Avg. R.O., in. | | | 1.45 | |
| Comp CN | | | 65 | |
| $Q_p$ cfs/mi²/in | | | 220 | |
| Q cfs | | | 12.76 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.02 Basin Crissman Drain # 3

By JMR Date 12/12/95 Quad Southwest 1/4 File # 211-029

Sec 32 T 3N R 12E County Macomb Township Shelby

Location Drainage Area #3

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 1,300' (20 min inlet time) | | | 2 | 0.5139 |

Recurrence Interval:

Total $t_c$, hrs = 0.51

| | SOILS | | | LAND USE | | | | Hr. | | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF = " | | | RF = 4.5 " | |
| | | | | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map | A | 100% | | Townhouses | 100% | 0.02 | 77 | | | | 2.21 | .0442 |
| | B | | | | | | | | | | | |
| County | C | | | | | | | | | | | |
| State | D | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | .0442 |
| Avg. R.O., in. | | | 2.21 | |
| Comp CN | | | 77 | |
| $Q_p$ cfs/$mi^2$/in | | | 510 | |
| Q cfs | | | 22.54 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA .06 Basin Crissman Drain # 4

By JMR Date 12/12/95 Quad Southwest 1/4 & Southeast 1/4 File # 211-029

Sec 32 T 3N R 12E County Macomb Township Shelby

Location Drainage Area #4

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm sewer | 2,900' (20 min inlet time) | | | 2 | 0.7361 |

Recurrence Interval:

Total $t_c$, hrs = 0.74

| | SOILS | | | LAND USE | | | | Hr. | | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF = " | | | RF = 4.5 " | |
| | | | | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map | A | 100% | | Townhouses | 100% | .06 | 77 | | | | 2.21 | 0.1326 |
| | B | | | | | | | | | | | |
| County | C | | | | | | | | | | | |
| State | D | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | 0.1326 |
| Avg. R.O., in. | | | 2.21 | |
| Comp CN | | | 77 | |
| $Q_p$ cfs/$mi^2$/in | | | 420 | |
| Q cfs | | | 55.69 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.40sm Basin Crissman Drain # 5

By JMR Date 12/18/95 Quad Northwest 1/4 & Northeast 1/4 File # 211-029

Sec 5 T 2N R 12E County Macomb City ~~Township~~ Sterling Heights

Location Service Area #5

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Small Tributary | 2000' | 4.2 | .21 | .96 | .58 |
| Sheet | 1800' | 7.5 | .42 | .31 | 1.6 |

Recurrence Interval:

Total $t_c$, hrs = 2.18

| SOILS | | | LAND USE | | | | Hr. | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | RF = " | | RF = 4.5 " | |
| | | | | | | | Adj RF = " | | Adj RF = 4.5 " | |
| GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | R.O. | $mi^2$-in |
| A | 45% | .18 | Wooded-Poor | 85% | .153 | 57 | | | 0.85 | .13 |
| | | | Brush-Fair | 15% | .027 | 35 | | | 0.03 | .00081 |
| B | 55% | .22 | Wooded-Poor | 100% | .22 | 66 | | | 1.40 | .308 |
| C | | | | | | | | | | |
| D | | | | | | | | | | |

Soil Map ☐ County ☐ State

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | 0.44 |
| Avg. R.O., in. | | | 1.10 | |
| Comp CN | | | 61 | |
| $Q_p$ cfs/$mi^2$/in | | | 190 | |
| Q cfs | | | 83.60 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA .02 Basin Crissman drain # 6

By JMR Date 12/18/95 Quad Southeast 1/4 & Southwest 1/4 File # 211-029

S 5 T 2N R 12E County Macomb City Township- Sterling Heights

Location Service Area #6

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Small Tributary | 1,387' | 2' | .14% | 0.79 | 0.49 |

Recurrence Interval:

Total $t_c$, hrs = 0.49

| | SOILS | | | LAND USE | | | | | | Hr. | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | RF = " | | RF = 4.5 " | |
| | | | | | | | | | | Adj RF = " | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map | A | | | | | | | | | | | |
| | B | | | Wooded-Poor | 70% | 0.014 | 66 | | | | 1.40 | 0.0196 |
| | | 100% | 0.02 | Open Space-Fair | 30% | 0.006 | 69 | | | | 1.60 | 0.0096 |
| County | C | | | | | | | | | | | |
| State | D | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | .029 |
| Avg. R.O., in. | | | | 1.46 |
| Comp CN | | | | 67 |
| $Q_p$ cfs/$mi^2$/in | | | | 480 |
| Q cfs | | | | 13.92 |
| Adj factor | x | | | x |
| Q _____ | | | $Q_{100}$= | |

Watercourse Crissman Drain DA 0.19 Basin Crissman Drain # 6A

By JMR Date 12/18/95 Quad Southwest 1/4 & Southeast 1/4 File # 211-029

Sec 5 T 2N R 12E County Macomb City Township Sterling Heights

Location Service Area #6A

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer (storm sewer calculations by MCS, Inc.) | | | | | |

Recurrence Interval:

Total $t_c$, hrs = 0.53

| | SOILS | | | LAND USE | | | | Hr. | | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF = " | | | RF = 4.5 " | |
| | | | | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map | A | 10% | 0.019 | 1/4 Acre Lots | 100% | .019 | 61 | | | | 1.08 | .0205 |
| Soil Map | B | 90% | 0.171 | 1/4 Acre Lots | 100% | .171 | 75 | | | | 2.05 | .351 |
| County | C | | | | | | | | | | | |
| State | D | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | .33 |
| Avg. R.O., in. | | | 1.74 | |
| Comp CN | | | 71 | |
| $Q_p$ cfs/$mi^2$/in | | | 410 | |
| Q cfs | | | 135.30 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.022 Basin Crissman Drain # 7

By JMR Date 12/11/95 Quad Northeast 1/4 File # 211-029

Sec 8 T 2N R 12E County Macomb ~~Township~~ City Sterling Heights

Location Structure 30

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 2,500 (20 min inlet time) | | | 2 | 0.68 |

Recurrence Interval:

Total $t_c$, hrs = 0.68

| | SOILS | | LAND USE | | | | Hr. | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | RF = " | | RF = 4.5 " | |
| | | | | | | | Adj RF = " | | Adj RF = 4.5 " | |
| | GROUP | % | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | R.O. | $mi^2$-in |
| Soil Map | A | | | | | | | | | |
| | B | 100% | 1/4 Acre Lots | 100% | .022537 | 75 | | | 2.05 | 0.046 |
| County | C | | | | | | | | | |
| State | D | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | 0.046 |
| Avg. R.O., in. | | | 2.05 | |
| Comp CN | | | 75 | |
| $Q_p$ cfs/$mi^2$/in | | | 430 | |
| Q cfs | | | 19.78 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.026 Basin Crissman Drain # 8

By JMR Date 12/11/95 Quad Northeast 1/4 File # 211-029

Sec 8 T 2N R 12E County Macomb City ~~Township~~ Sterling Heights

Location Structure 20

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 1,972' (20 min inlet time) | | | 2 | 0.61 |

Recurrence Interval:

Total $t_c$, hrs = 0.61

| | SOILS | | | LAND USE | | | | Hr. | | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF = " | | | RF = 4.5 " | |
| | | | | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map | A | | | | | | | | | | | |
| | B | 50% | | 1/4 Acre Lots | 100% | 0.013 | 75 | | | | 2.05 | 0.0267 |
| County | C | 10% | | 1/4 Acre Lots | 100% | 0.0026 | 83 | | | | 2.73 | 0.0071 |
| State | D | 40% | | 1/4 Acre Lots | 100% | 0.0104 | 87 | | | | 3.10 | 0.0322 |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | 0.066 |
| Avg R.O., in. | | | 2.54 | |
| Comp CN | | | 81 | |
| $Q_p$ cfs/$mi^2$/in | | | 480 | |
| Q cfs | | | 31.68 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.42sm Basin Crissman Drain #

By JMR Date 12/11/95 Quad Southeast 1/4 File # 211-029

c 5 T 2N R 12E County Macomb City Township Sterling Heights

Location Structure #10

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Storm Sewer | 8,485' (20 min inlet time) | | | 2 | 1.51 |

Recurrence Interval:

Total $t_c$, hrs = 1.51

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Hr. | | | I24-100 | |
| | | | | | | | | | RF = " | | | RF = 4.5 " | |
| | SOILS | | | LAND USE | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | mi² | TYPE | % | mi² | CN | | R.O. | mi²-in | | R.O. | mi²-in |
| | A | | | | | | | | | | | | |
| Soil Map | B | 100% | | 1/4 Acre Lots | 100 | 0.42 | 75 | | | | | 2.05 | 0.86 |
| County | C | | | | | | | | | | | | |
| State | D | | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total mi²-in | | | | 0.86 |
| Avg. R.O., in. | | | 2.05 | |
| Comp CN | | | 75 | |
| $Q_p$ cfs/mi²/in | | | 280 | |
| Q cfs | | | 240.80 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

Watercourse Crissman Drain DA 0.29 Basin Crissman Drain # 10

By JMR Date 12/18/95 Quad Southwest 1/4 File # 211-029

Sec 9 T 2N R 12E County Macomb City ~~Township~~ Sterling Heights

Location Service Area #10

| Flow type | Length (ft.) | Δ ele (ft.) | Slope (%) | Vel (fps) | $t_c$ (hrs) |
|---|---|---|---|---|---|
| Sheet | 700' | 6' | .86% | .44 | 0.44 |
| Small Tributary | 3400' | 2' | .06% | .51 | 1.85 |

Recurrence Interval:

Total $t_c$, hrs = 2.29

| | SOILS | | | LAND USE | | | | Hr. | | | I24-100 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | RF = " | | | RF = 4.5 " | |
| | | | | | | | | Adj RF = " | | | Adj RF = 4.5 " | |
| | GROUP | % | $mi^2$ | TYPE | % | $mi^2$ | CN | R.O. | $mi^2$-in | | R.O. | $mi^2$-in |
| Soil Map County State | A | 20% | 0.058 | Industrial | 100% | .058 | 81 | | | | 2.55 | .1479 |
| | B | 60% | 0.174 | Industrial | 100% | .174 | 88 | | | | 3.05 | .5307 |
| | C | 20% | 0.058 | Industrial | 100% | .058 | 91 | | | | 3.37 | .19546 |
| | D | | | | | | | | | | | |

☐ Land Use based on Orthophoto

| | | | | |
|---|---|---|---|---|
| Total $mi^2$-in | | | | .87 |
| Avg. R.O., in. | | | 3.01 | |
| Comp CN | | | 86 | |
| $Q_p$ cfs/$mi^2$/in | | | 205 | |
| Q cfs | | | 178.35 | |
| Adj factor | x | | x | |
| Q _____ | | $Q_{100}$= | | |

00BREAK00

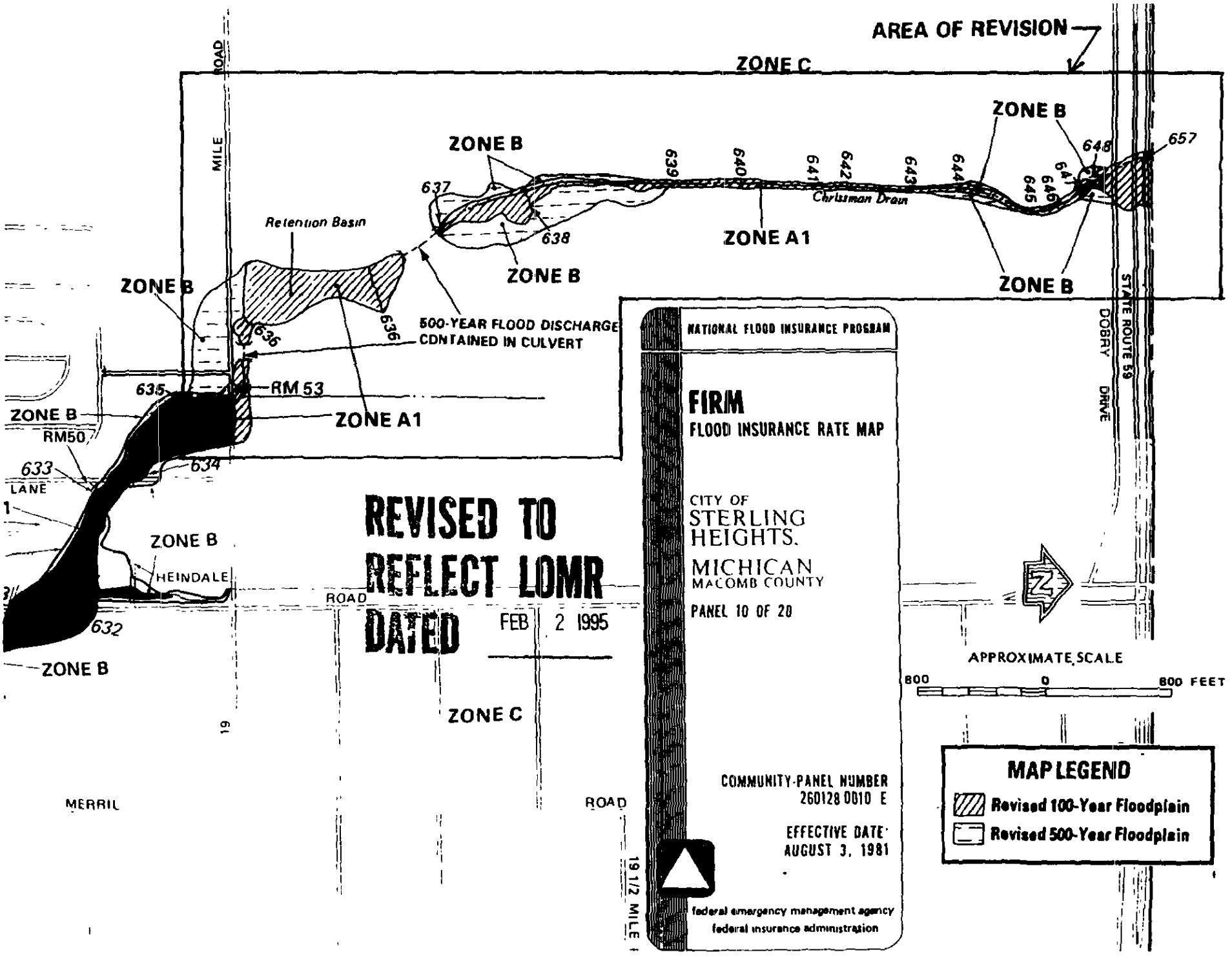
1) COUNTY: Macomb

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Chessman Drain

4) DOCUMENT TYPE: CLOMR - Maps

00BREAK00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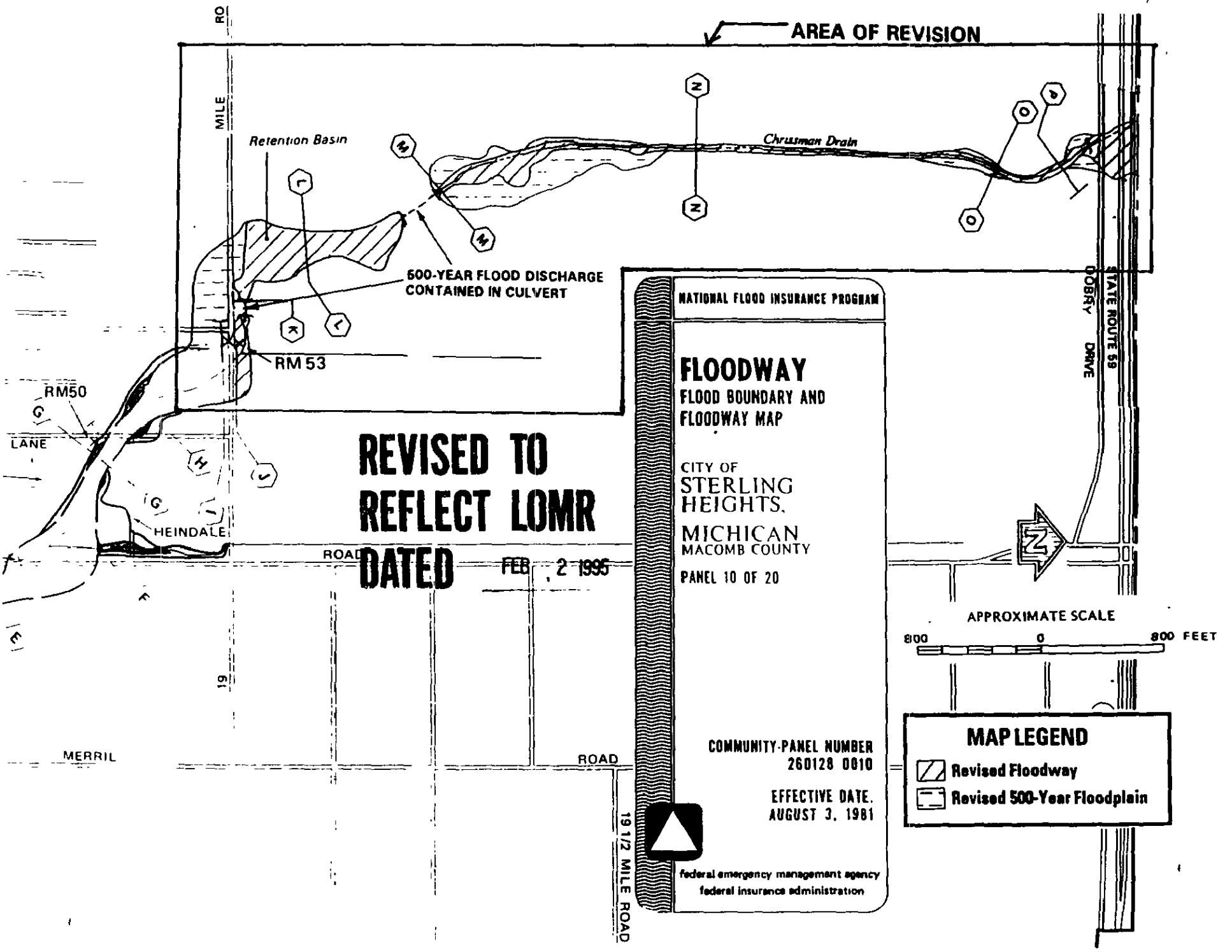
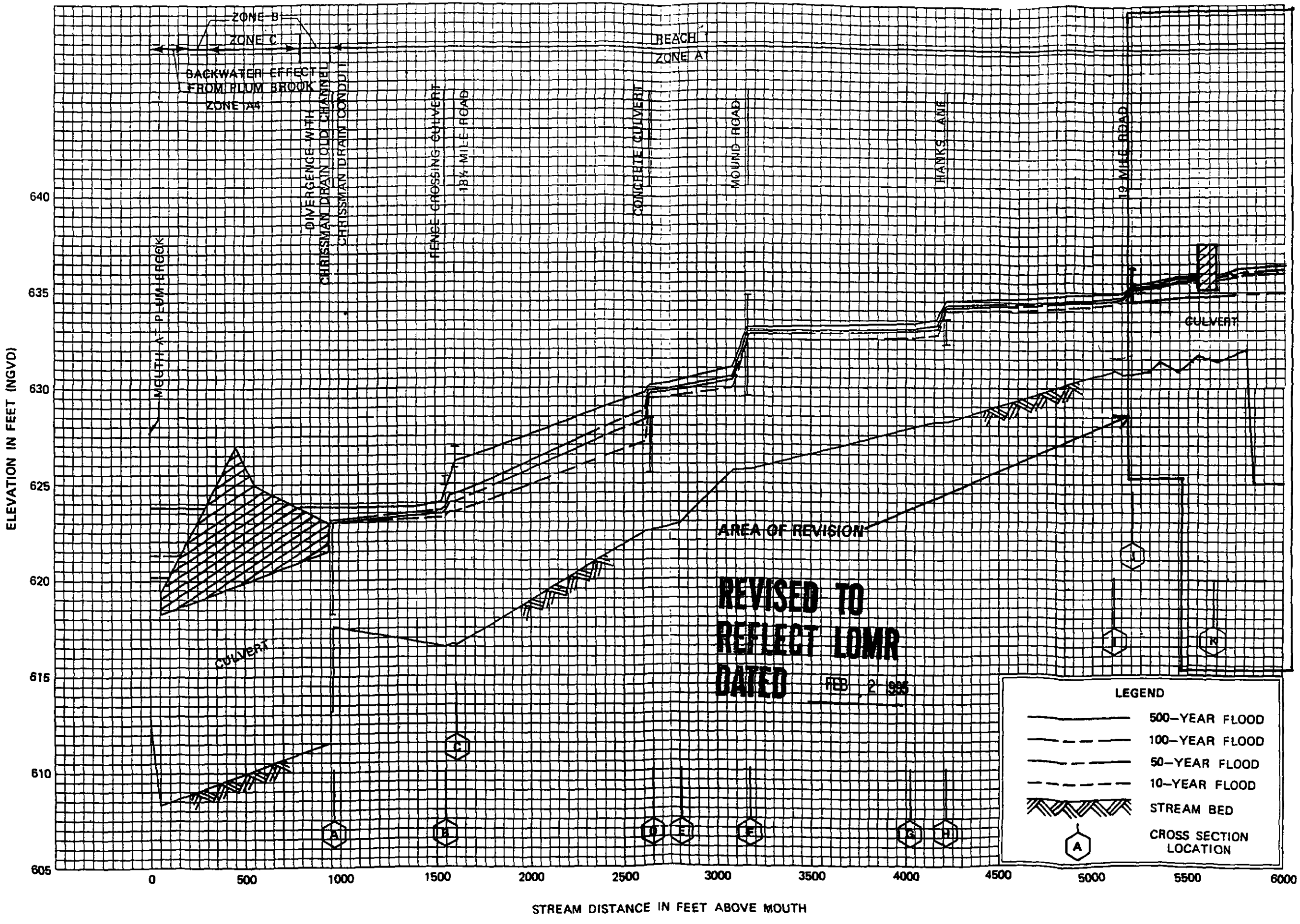
ZONE C
ZONE B
ZONE B
ZONE B
ZONE B
ZONE B
ZONE A1
ZONE A1
ZONE B
ZONE B
ZONE B
ZONE B
ZONE C
Retention Basin
Christman Drain
500-YEAR FLOOD DISCHARGE
CONTAINED IN CULVERT
RM 53
RM50
637
638
639
640
641
642
643
644
645
646
647
648
657
636
635
634
633
632
MILE ROAD
HEINDALE
ROAD
LANE
MERRIL
ROAD
19 1/2 MILE
DOBRY DRIVE
STATE ROUTE 53
REVISED TO
REFLECT LOMR
DATED FEB 2 1995
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF
STERLING
HEIGHTS,
MICHIGAN
MACOMB COUNTY
PANEL 10 OF 20
COMMUNITY-PANEL NUMBER
260128 0010 E
EFFECTIVE DATE:
AUGUST 3, 1981
federal emergency management agency
federal insurance administration
APPROXIMATE SCALE
800 0 800 FEET
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain


AREA OF REVISION
Retention Basin
Chrusman Drain
500-YEAR FLOOD DISCHARGE
CONTAINED IN CULVERT
RM 53
RM50
LANE
HEINDALE
ROAD
MERRIL
ROAD
19 1/2 MILE ROAD
STATE ROUTE 59
DOBRY DRIVE
REVISED TO
REFLECT LOMR
DATED FEB 2 1995
NATIONAL FLOOD INSURANCE PROGRAM
FLOODWAY
FLOOD BOUNDARY AND
FLOODWAY MAP
CITY OF
STERLING
HEIGHTS,
MICHIGAN
MACOMB COUNTY
PANEL 10 OF 20
COMMUNITY-PANEL NUMBER
260128 0010
EFFECTIVE DATE.
AUGUST 3, 1981
federal emergency management agency
federal insurance administration
APPROXIMATE SCALE
800 0 800 FEET
MAP LEGEND
Revised Floodway
Revised 500-Year Floodplain




FLOOD PROFILES

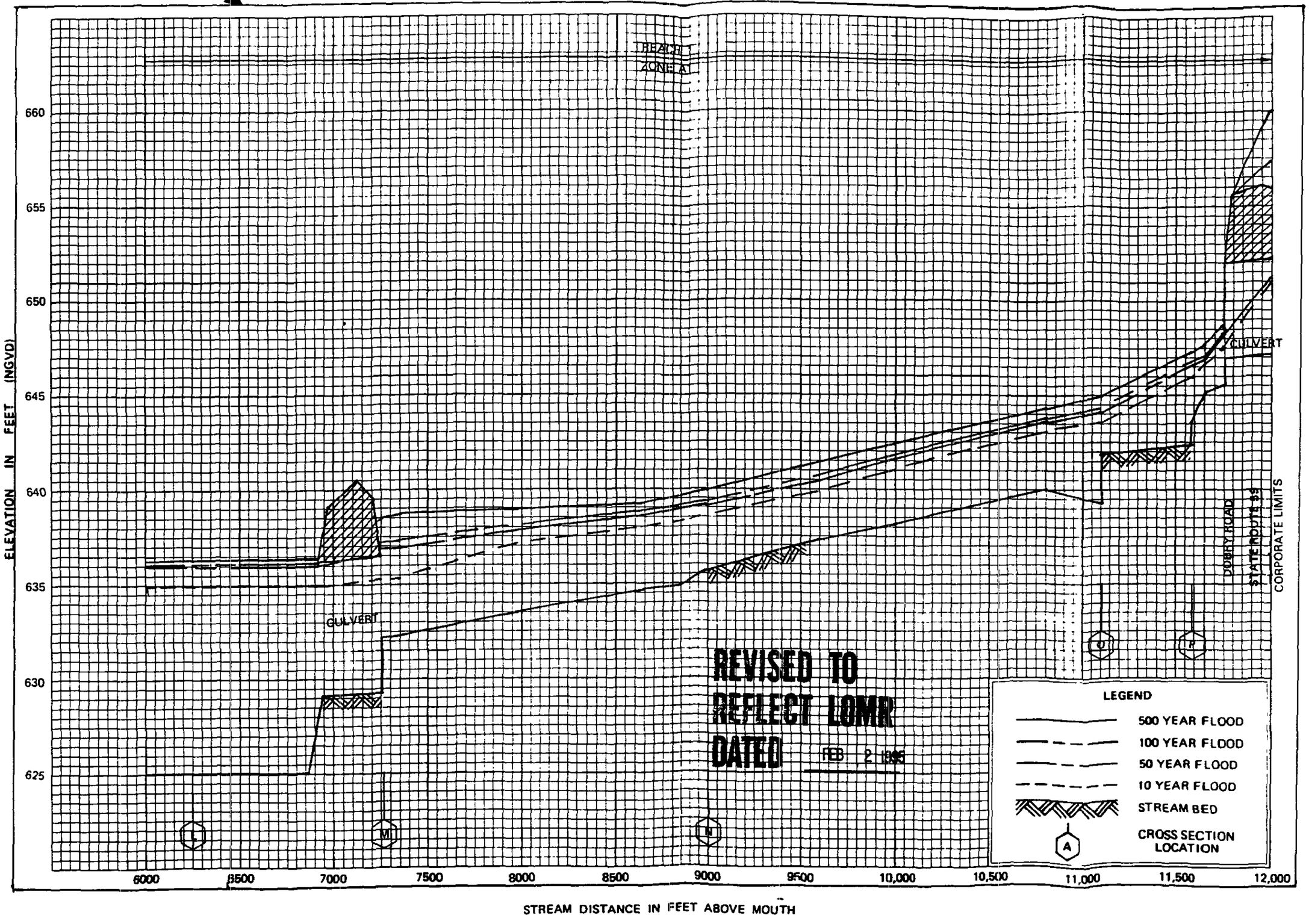
CHRISSMAN DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF STERLING HEIGHTS, MI

(MACOMB CO.)

AREA OF REVISION



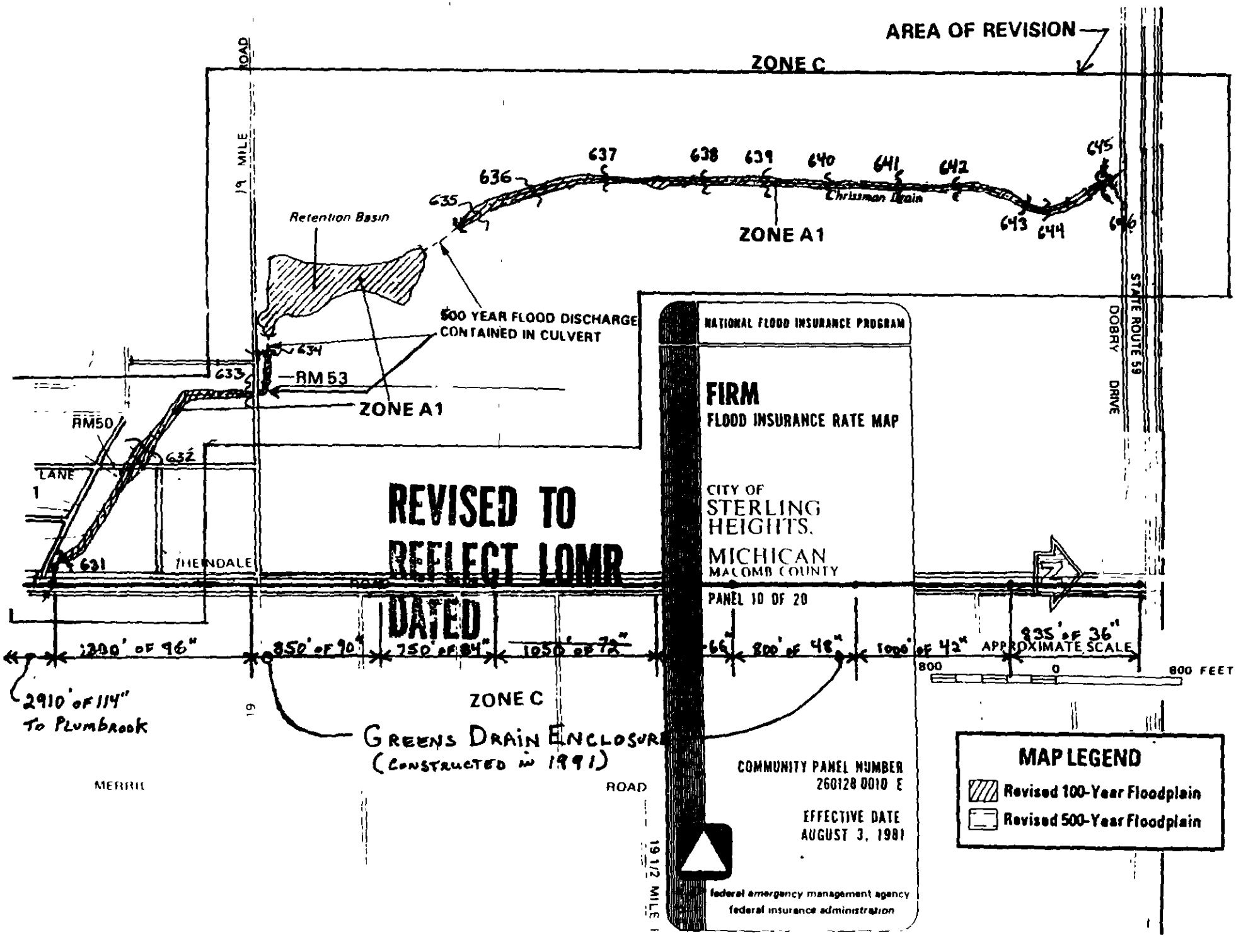

FLOOD PROFILES

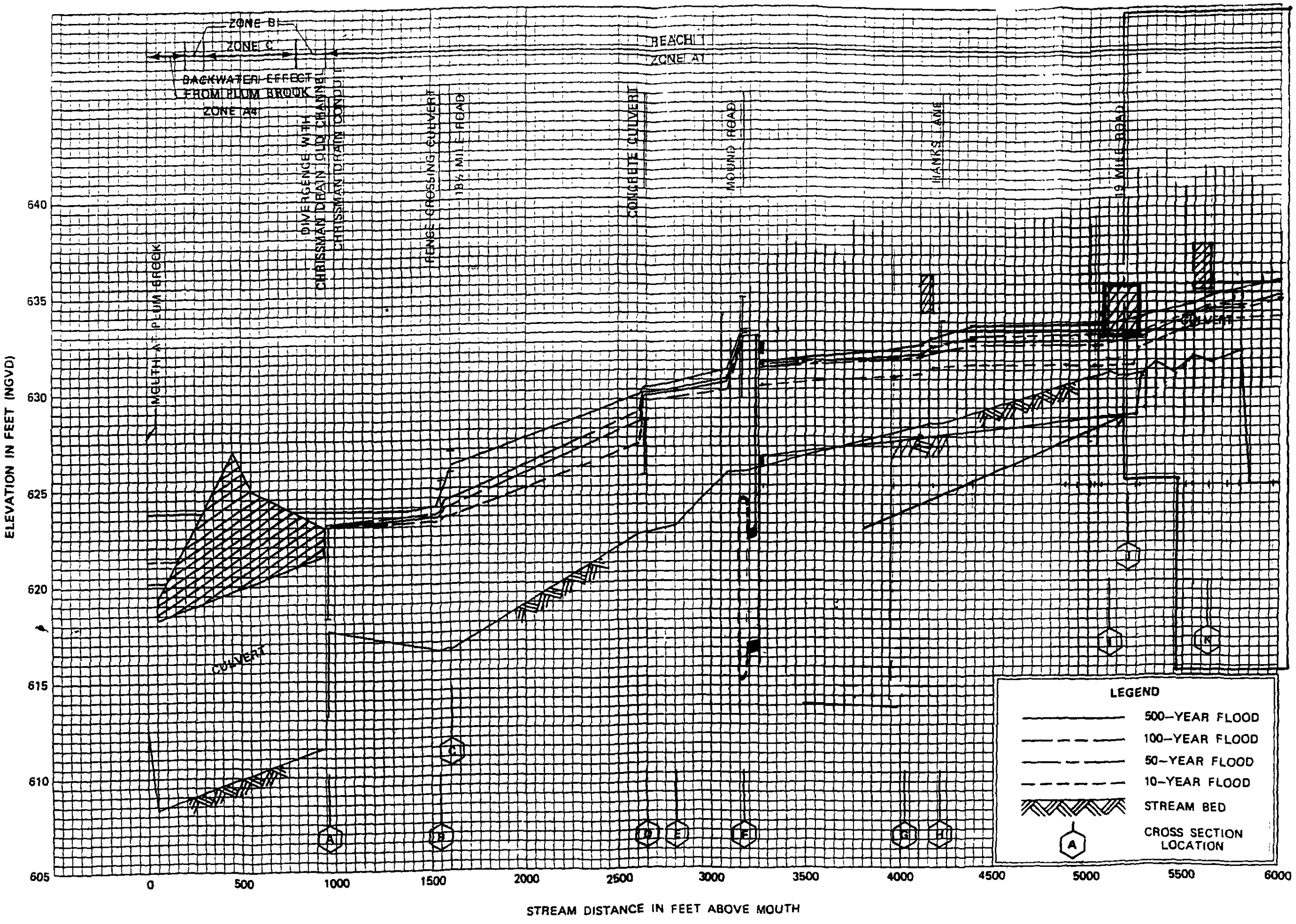
CHRISSMAN DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF STERLING HEIGHTS, MI

(MACOMB CO.)


AREA OF REVISION
ZONE C
19 MILE ROAD
Retention Basin
636
637
638
639
640
641
642
643
644
645
646
635
634
633
632
631
Chrissman Drain
ZONE A1
500 YEAR FLOOD DISCHARGE CONTAINED IN CULVERT
RM 53
ZONE A1
RM50
LANE
THENDALE
ROAD
REVISED TO REFLECT LOMR DATED
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
CITY OF STERLING HEIGHTS, MICHIGAN
MACOMB COUNTY
PANEL 10 OF 20
DOBRY DRIVE
STATE ROUTE 59
1200' of 96"
850' of 90"
750' of 84"
1050' of 72"
800' of 48"
1000' of 42"
935' of 36"
APPROXIMATE SCALE
800 0 800 FEET
2910' of 114" To Plumbrook
ZONE C
GREENS DRAIN ENCLOSURE (CONSTRUCTED in 1991)
MERRIL ROAD
19 1/2 MILE
COMMUNITY PANEL NUMBER 260128 0010 E
EFFECTIVE DATE AUGUST 3, 1981
federal emergency management agency
federal insurance administration
MAP LEGEND
Revised 100-Year Floodplain
Revised 500-Year Floodplain



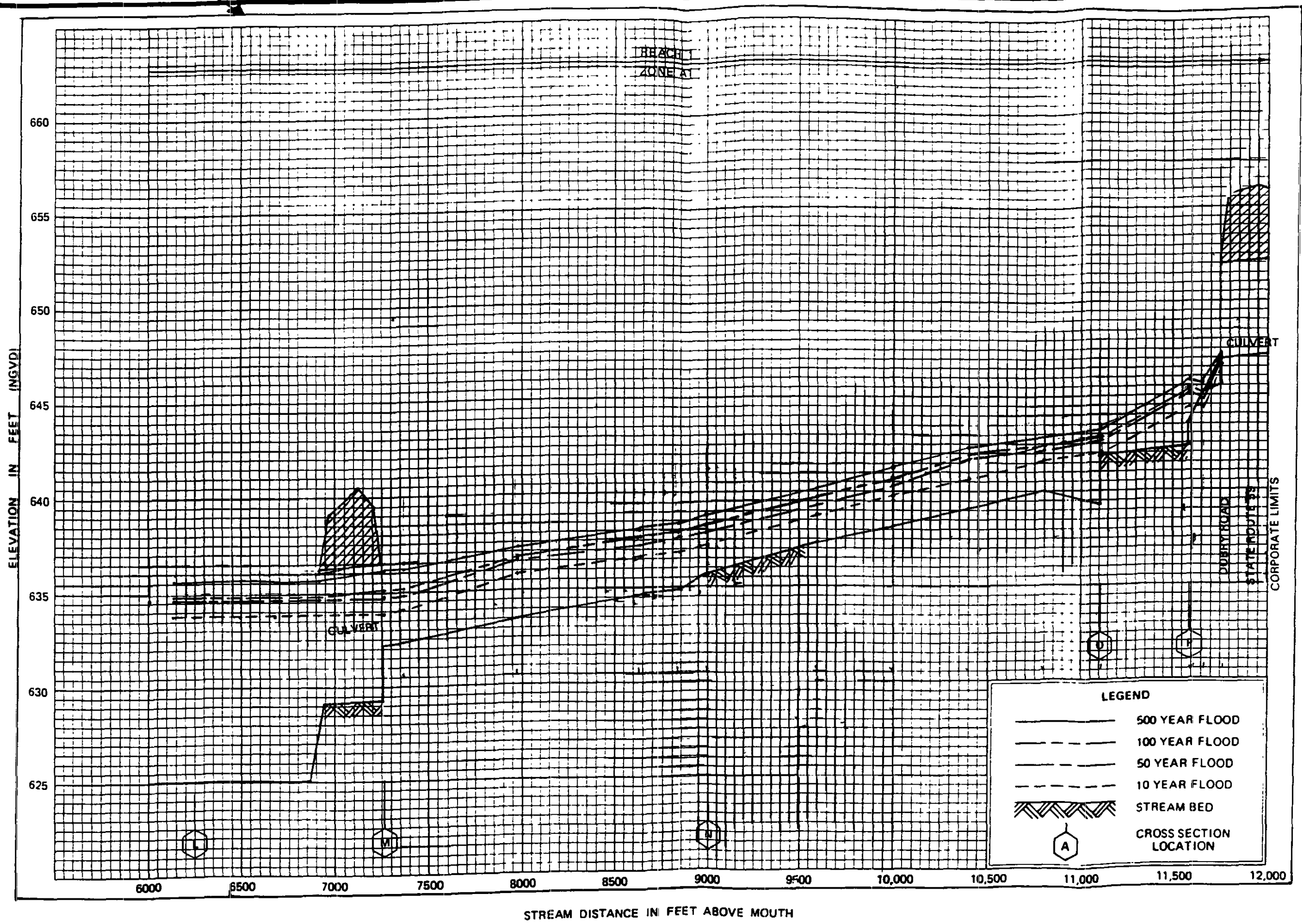

FLOOD PROFILES

CHRISSMAN DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF STERLING HEIGHTS, MI

(MACOMB CO.)




FLOOD PROFILES

CHRISSMAN DRAIN

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF STERLING HEIGHTS, MI

(MACOMB CO.)

1) COUNTY: Macomb ~~County~~

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: CHRISSMAN Drain

4) DOCUMENT TYPE: CLOMR Mound Rd - 19 M. 6 Rd

00BREAK00

CRISSMAN DRAIN
MOUND ROAD TO 19 MILE ROAD
CLOMR

AEW #211-029

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Channelization Form (FEMA Form No. 6) . . . . . 3 Pages
Bridge/Culvert Form (FEMA Form No. 7) . . . . . 6 Pages

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Duplicate Effective Model (Floodway) . . . . . Appendix E
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Existing Conditions Model (Floodway) . . . . . Appendix G
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- Floodway Map 1 Page
- Profiles 2 Pages

Post-Project Conditions Map & Profile . . . . . Appendix K
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- Computer Input Files 1 Disk

1) COUNTY: Macomb County

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Crissman Drain

4) DOCUMENT TYPE: CLOMR - Proposed

THIS RUN EXECUTED 02-19-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CRISSMAN DRAIN - 1 ON 3 SLOPES FROM MOUND TO 19 MILE, 78" CULVERT AT HANKS
T3 PROP PROJECT CONDITIONS MODEL  (FILE NAME: CDASB178) REVISED 02-19-96

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   .000000      .00       .0        0.   630.200     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     .000      .000      .000      .000      .000      .000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
QT     4.000    51.000    94.000   108.000   159.000      .000      .000      .000      .000      .000
          UPSTREAM OF EX. 66" CONFLUENCE WITH 114" GREENS DRAIN ENCLOSURE
          BEGIN DRAIN CLEANOUT (4' BOTTOM W/ 1 ON 3 SLOPES)
          STARTING WATER SURFACES BY NORMAL DEPTH
X1  3273.000     7.000    50.000    80.000      .000      .000      .000      .000      .000      .000
GR   631.980      .000   631.960    50.000   626.970    62.000   626.560    65.000   627.200    68.000
GR   631.220    80.000   633.930   130.000      .000      .000      .000      .000      .000      .000

QT     4.000    51.000    94.000   108.000   159.000      .000      .000      .000      .000      .000
NH     5.000      .050   200.000      .050   286.000      .040   304.000      .040   318.000      .045
NH   500.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
          DRAIN CLEANOUT FROM MOUND TO HANKS (4' BOTTOM W/ 1 ON 3 SLOPES)
X1  3965.000     9.000   286.000   318.000   692.000   692.000   692.000      .000      .000      .000
X3     .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
GR   634.600      .000   634.400   100.000   631.800   200.000   632.000   286.000   627.320   300.000
GR   627.320   304.000   632.100   318.000   636.600   400.000   636.700   500.000      .000      .000

QT     4.000    50.000    92.000   106.000   156.000      .000      .000      .000      .000      .000
NC      .050      .055      .040      .300      .500      .000      .000      .000      .000      .000
          DOWNSTREAM OF PROPOSED 78" CROSSING AT HANKS ROAD
X1  4103.000    19.000   296.750   303.250   235.000   185.000   138.000      .000      .000      .000
X3     .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
GR   634.600      .000   634.400   100.000   633.500   126.000   631.800   200.000   632.200   292.000
GR   630.720   296.750   629.400   297.000   628.200   298.000   627.600   299.000   627.470   300.000
GR   627.600   301.000   628.200   302.000   629.400   303.000   630.720   303.250   632.100   312.000
GR   633.900   350.000   636.600   400.000   636.700   500.000   636.900   545.000      .000      .000
```

```
NH      3.000      .050   296.750      .040   303.250      .055   545.000      .000      .000      .000
SB       .000     2.700     2.710      .000     5.100      .000    33.180      .000   627.570   627.470
         UPSTREAM OF PROPOSED 78" CROSSING AT HANKS ROAD
X1   4178.000    19.000   296.750   303.250    75.000    75.000    75.000      .000      .000      .000
X2       .000      .000     1.000   633.970   636.000      .000      .000      .000      .000      .000
X3       .000      .000      .000   200.000      .000   400.000      .000      .000      .000      .000
BT     12.000   200.000   633.400   631.800   296.750   636.000   630.820   297.000   636.000   632.100
BT    298.000   636.000   633.450   299.000   636.000   634.000   300.000   636.000   634.070   301.000
BT    636.000   634.000   302.000   636.000   633.450   303.000   636.000   632.100   303.250   636.000
BT    630.820   350.000   633.900   633.900   400.000   636.600   636.600      .000      .000      .000
GR    634.600      .000   634.400   100.000   633.500   126.000   631.800   200.000   632.200   292.000
GR    630.820   296.750   629.500   297.000   628.300   298.000   627.700   299.000   627.570   300.000
GR    627.700   301.000   628.300   302.000   629.400   303.000   630.820   303.250   632.200   312.000
GR    633.900   350.000   636.600   400.000   636.700   500.000   636.900   545.000      .000      .000

NC       .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
         DRAIN CLEANOUT FROM HANKS TO 19 MILE (4' BOTTOM W/ 1 ON 3 SLOPES)
X1   4382.000     4.000      .000    41.000    84.000   284.000   204.000      .000      .000      .000
GR    633.400      .000   627.780    17.000   627.780    21.000   634.200    41.000      .000      .000

NH      5.000      .045   377.600      .040   405.000      .040   413.000      .040   416.000      .045
NH   1300.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
NC       .000      .000      .000      .100      .300      .000      .000      .000      .000      .000
QT      4.000    50.000    93.000   107.000   157.000      .000      .000      .000      .000      .000
        4882.000  17.000   377.600   416.000   500.000   500.000   500.000      .000      .000      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000
GR    633.400      .000   633.800   100.000   633.400   200.000   634.200   300.000   633.800   377.600
GR    628.330   394.000   628.330   398.000   634.200   416.000   637.200   500.000   634.100   600.000
GR    634.800   700.000   634.500   800.000   634.000   900.000   634.400  1000.000   634.000  1100.000
GR    635.500  1200.000   637.200  1300.000      .000      .000      .000      .000      .000      .000

QT      4.000    50.000    93.000   107.000   157.000      .000      .000      .000      .000      .000
X1   4942.000      .000      .000      .000    55.000    70.000    60.000      .000      .070      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

X1   5002.000      .000      .000      .000    50.000    70.000    60.000      .000      .070      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

X1   5031.000      .000      .000      .000    25.000    35.000    29.000      .000      .020      .000
X3       .000      .000      .000    60.000      .000   550.000      .000      .000      .000      .000

NC       .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
QT      4.000    49.000    92.000   105.000   155.000      .000      .000      .000      .000      .000
         DOWNSTREAM OF 12'X 4' BOX CULVERT AT 19 MILE ROAD
         EXISTING BULKHEAD IN CULVERT REMOVED
X1   5065.000     8.000    80.000    92.000    34.000    34.000    34.000      .000      .000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   635.390   635.390      .000
GR    634.500      .000   634.500    50.000   632.500    80.000   628.500    80.000   628.500    92.000
GR    632.500    92.000   637.100   155.000   637.400   185.000      .000      .000      .000      .000
```

```
SB      .000     1.750     2.500      .000    12.000      .000    48.000      .000   628.680   628.500
        UPSTREAM OF 12'X 4' BOX CULVERT AT 19 MILE ROAD
        EXISTING BULKHEAD IN CULVERT REMOVED
        END OF PROPOSED IMPROVEMENTS
X1   5241.000     8.000    80.000    92.000   176.000   176.000   176.000      .000      .000      .000
X2      .000      .000     1.000   632.680   635.390      .000      .000      .000      .000      .000
X3    10.000      .000      .000      .000      .000      .000      .000   635.390   635.390      .000
BT     6.000      .000   635.390   634.500    50.000   636.390   634.500    80.000   636.390   632.680
BT    92.000   636.390   632.680   155.000   637.100      .000   185.000   637.400      .000      .000
GR   634.500      .000   634.500    50.000   632.680    80.000   628.680    80.000   628.680    92.000
GR   632.680    92.000   637.100   155.000   637.400   185.000      .000      .000      .000      .000

X1   5269.000     4.000      .000    43.000    28.000    28.000    28.000      .000      .000      .000
GR   636.000      .000   631.220    19.000   631.220    25.000   635.640    43.000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
X1   5502.000     8.000      .000    52.000   233.000   233.000   233.000      .000      .000      .000
GR   636.000      .000   631.540    22.000   631.440    28.000   631.540    34.000   634.830    52.000
GR   635.080    93.000   635.750   115.000   635.920   126.000      .000      .000      .000      .000

NC      .060      .060      .040      .300      .500      .000      .000      .000      .000      .000
        DOWNSTREAM OF 12'X4' BOX CULVERT
X1   5545.000     7.000    25.000    37.000    43.000    43.000    43.000      .000      .000      .000
X2     10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
     636.580      .000   635.660    25.000   631.660    25.000   631.660    37.000   635.660    37.000
GR   634.780    60.000   635.940   130.000      .000      .000      .000      .000      .000      .000

SB      .000     1.750     2.500      .000    12.000      .000    48.000      .000   631.680   631.660
        UPSTREAM OF 12'X4' BOX CULVERT
        SECTION "K1"
X1   5633.000     7.000      .000    55.000    88.000    88.000    88.000      .000      .000      .000
X2      .000      .000     1.000   635.630   637.500      .000      .000      .000      .000      .000
X3    10.000      .000      .000      .000      .000      .000      .000   637.500   637.500      .000
BT     4.000      .000   637.500   637.000    25.000   637.500   635.680    37.000   637.500   635.680
BT    60.000   637.500   637.000      .000      .000      .000      .000      .000      .000      .000
GR   636.030      .000   631.530    25.000   631.430    32.000   631.530    37.000   635.230    55.000
GR   635.700    60.000   636.100    67.000      .000      .000      .000      .000      .000      .000

NC      .060      .060      .040      .000      .000      .000      .000      .000      .000      .000
X1   5737.000     8.000      .000    52.000   104.000   104.000   104.000      .000      .000      .000
GR   636.300      .000   631.880    22.000   631.780    28.000   631.880    34.000   635.100    52.000
GR   635.530    93.000   636.300   112.000   636.400   123.000      .000      .000      .000      .000

NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
        CONC CTRL STRUCT FOR 10 YEAR EVENT AND DOWNSTREAM END OF STORAGE BASIN
X1   5792.000    14.000    35.000    52.000    55.000    55.000    55.000      .000      .000      .000
GR   637.000      .000   636.000    20.000   635.970    30.000   636.000    35.000   635.000    35.000
GR   635.000    39.000   632.000    39.750   632.000    47.250   635.000    48.000   635.000    52.000
GR   636.950    52.000   635.680    57.000   635.180    67.000   636.350   130.000      .000      .000
```

```
NC      .060      .060      .040      .100      .300      .000      .000      .000      .000      .000
QT     4.000   109.000   183.000   210.000   294.000      .000      .000      .000      .000      .000
         SECTION THRU EXISTING POND
X1  5965.000     7.000      .000   459.000   120.000   330.000   173.000      .000      .000      .000
GR   637.000      .000   636.300    12.000   635.000    18.000   632.000    42.000   632.000   356.000
GR   637.800   427.000   638.400   459.000      .000      .000      .000      .000      .000      .000

         SECTION THRU EXISTING POND
X1  6130.000     7.000      .000   415.000   130.000   235.000   165.000      .000      .000      .000
GR   637.000      .000   636.300    12.000   632.000    36.000   632.000   300.000   636.400   334.000
GR   637.200   367.000   639.900   415.000      .000      .000      .000      .000      .000      .000

         SECTION THRU EXISTING POND
         SECTION "L1"
X1  6250.000     6.000      .000   245.000   120.000   120.000   120.000      .000      .000      .000
GR   637.000      .000   635.000    12.000   632.000    30.000   632.000   198.000   636.300   228.000
GR   637.000   245.000      .000      .000      .000      .000      .000      .000      .000      .000

         SECTION THRU EXISTING POND
X1  6500.000     7.000      .000   232.000   250.000   250.000   250.000      .000      .000      .000
GR   637.300      .000   636.900    20.000   632.000    45.000   632.000   176.000   636.400   203.000
GR   637.400   214.000   638.900   232.000      .000      .000      .000      .000      .000      .000

         SECTION THRU EXISTING POND
     6685.000     7.000      .000   365.000   250.000   155.000   185.000      .000      .000      .000
GR   639.200      .000   637.000    21.000   632.000    58.000   632.000   306.000   636.400   332.000
GR   636.500   345.000   638.700   365.000      .000      .000      .000      .000      .000      .000

QT     4.000    44.000    84.000    92.000   151.000      .000      .000      .000      .000      .000
         SECTION THRU EXISTING POND
         UPSTREAM END OF STORAGE BASIN AND DOWNSTREAM END OF 84" CONC CULVERT
X1  6920.000    12.000      .000   157.000   310.000   175.000   235.000      .000      .000      .000
GR   637.000      .000   636.000    20.000   635.000    30.000   634.000    40.000   633.000    46.000
GR   632.000    51.000   632.000   129.000   633.000   134.000   634.000   139.000   635.000   143.000
GR   636.000   148.000   637.000   157.000      .000      .000      .000      .000      .000      .000

QT     4.000    44.000    85.000   100.000   152.000      .000      .000      .000      .000      .000
         UPSTREAM END OF 84" CONCRETE CULVERT
         SECTION "M1"
X1  7259.000     4.000      .000    17.130   344.000   334.000   339.000      .000      .000      .000
X5    -4.000      .050      .170      .230      .530      .000      .000      .000      .000      .000
GR   639.000      .000   630.770      .000   630.770    17.130   639.000    17.130      .000      .000

         CHECK DAM AT UPSTREAM END OF 84" CONCRETE CULVERT
X1  7260.000     4.000      .000    19.130     1.000     1.000     1.000      .000      .000      .000
GR   639.000      .000   632.300      .000   632.300    19.130   639.000    19.130      .000      .000

X1  7367.000     9.000   245.000   280.000   107.000   107.000   107.000      .000      .000      .000
GR   638.700      .000   637.500   230.000   637.000   245.000   632.800   260.000   632.800   265.000
GR   635.500   273.000   637.800   280.000   638.000   314.000   638.700   420.000      .000      .000
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X1   7977.000     9.000   333.000   370.000   595.000   620.000   610.000      .000      .000      .000
GR    639.200      .000   638.100   255.000   637.900   310.000   637.900   333.000   633.500   353.000
GR    633.500   357.000   638.200   370.000   638.200   390.000   643.000   445.000      .000      .000

QT      4.000    43.000    83.000    99.000   150.000      .000      .000      .000      .000      .000
X1   8632.000     8.000   202.000   242.000   650.000   660.000   655.000      .000      .000      .000
GR    640.000      .000   639.300   100.000   638.500   202.000   634.600   223.000   634.600   227.000
GR    639.000   242.000   639.400   265.000   643.900   400.000      .000      .000      .000      .000

X1   8832.000     4.000      .000    36.300   200.000   200.000   200.000      .000      .000      .000
GR    639.800      .000   634.760    17.500   634.760    21.500   639.700    36.300      .000      .000

          SECTION "N1"
X1   9000.000     4.000      .000    47.000   168.000   168.000   168.000      .000      .000      .000
GR    640.100      .000   635.690    19.500   635.690    26.500   640.500    47.000      .000      .000

X1   9600.000     4.000      .000    42.000   600.000   600.000   600.000      .000      .000      .000
GR    642.000      .000   637.330    17.000   637.330    25.000   642.300    42.000      .000      .000

QT      4.000    38.000    68.000    79.000   115.000      .000      .000      .000      .000      .000
X1  10000.000     4.000      .000    40.000   400.000   400.000   400.000      .000      .000      .000
GR    642.800      .000   638.130    16.600   638.130    23.600   642.700    40.000      .000      .000

Y1  10400.000     5.000    10.000    44.000   400.000   400.000   400.000      .000      .000      .000
      643.500      .000   643.100    10.000   639.130    26.600   639.130    33.600   643.400    44.000

X1  10800.000     5.000      .000    35.000   400.000   400.000   400.000      .000      .000      .000
GR    644.400      .000   640.190    13.500   640.190    21.500   644.000    35.000   645.000   130.000

          CHECK DAM
          SECTION "O1"
X1  11110.000     4.000      .000    50.000   311.000   311.000   311.000      .000      .000      .000
GR    647.000      .000   639.330    23.000   639.330    27.000   647.000    50.000      .000      .000

X1  11111.000     6.000      .000    50.000     1.000     1.000     1.000      .000      .000      .000
GR    647.000      .000   645.530    12.000   641.870    23.000   641.870    27.000   645.530    38.000
GR    647.000    50.000      .000      .000      .000      .000      .000      .000      .000      .000

          CHECK DAM
          SECTION "P1"
X1  11591.000     4.000      .000    50.000   481.000   481.000   481.000      .000      .000      .000
GR    648.000      .000   642.370    23.000   642.370    27.000   648.000    50.000      .000      .000

X1  11592.000     6.000      .000    50.000     1.000     1.000     1.000      .000      .000      .000
GR    650.000      .000   650.000     2.500   643.500    22.000   643.500    28.000   650.000    47.500
GR    650.000    50.000      .000      .000      .000      .000      .000      .000      .000      .000

QT      4.000    33.000    53.000    59.000    80.000      .000      .000      .000      .000      .000
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         SOUTH R.O.W LINE OF M-59
X1  11662.000     4.000      .000    50.000    70.000    70.000    70.000      .000      .000      .000
GR    648.000      .000   645.200    20.000   645.200    30.000   648.000    50.000      .000      .000

         SECTION "Q1" DOWNSTREAM END OF EXISTING 60" CULVERT UNDER DOBRY RD
         AND M-59
X1  11760.000    13.000   220.000   275.000    98.000    98.000    98.000      .000      .000      .000
GR    650.100      .000   649.600    50.000   649.300   100.000   651.500   150.000   652.000   200.000
GR    651.500   220.000   645.600   240.000   645.700   258.000   651.600   275.000   653.200   300.000
GR    653.800   350.000   654.300   400.000   654.100   450.000      .000      .000      .000      .000
EJ       .000      .000      .000      .000      .000      .000      .000      .000      .000      .000
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THIS RUN EXECUTED 02-19-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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T1
T2
T3 50 YEAR EVENT  PROP. CONDITIONS

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.100 | .000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 2.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-19-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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T1
T2
T3 100 YEAR EVENT  PROP. CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 4. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.180 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 3.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-19-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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T1
T2
T3 500 YEAR EVENT  PROP. CONDITIONS

| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
|---|---|---|---|---|---|---|---|---|---|---|
| | -10. | 5. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.220 | .000 |

| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
|---|---|---|---|---|---|---|---|---|---|---|
| | 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-19-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PROJECT CONDITIONS MODEL

SUMMARY PRINTOUT TABLE 150

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3273.000 | .00 | .00 | .00 | 626.56 | 51.00 | 630.20 | .00 | 630.22 | 3.67 | 1.10 | 46.24 | 26.64 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 94.00 | 631.10 | .00 | 631.13 | 4.28 | 1.36 | 68.88 | 45.41 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 108.00 | 631.18 | .00 | 631.22 | 5.19 | 1.52 | 71.10 | 47.39 |
| | 3273.000 | .00 | .00 | .00 | 626.56 | 159.00 | 631.22 | .00 | 631.30 | 10.80 | 2.20 | 72.22 | 48.39 |
| | 3965.000 | 692.00 | .00 | .00 | 627.32 | 51.00 | 630.57 | .00 | 630.59 | 8.84 | 1.15 | 44.37 | 17.15 |
| | 3965.000 | 692.00 | .00 | .00 | 627.32 | 94.00 | 631.53 | .00 | 631.56 | 9.96 | 1.35 | 69.38 | 29.78 |
| | 3965.000 | 692.00 | .00 | .00 | 627.32 | 108.00 | 631.69 | .00 | 631.72 | 11.20 | 1.46 | 74.05 | 32.27 |
| * | 3965.000 | 692.00 | .00 | .00 | 627.32 | 159.00 | 632.10 | 629.56 | 632.15 | 14.73 | 1.76 | 103.92 | 41.43 |
| | 4103.000 | 138.00 | .00 | .00 | 627.47 | 50.00 | 630.73 | .00 | 630.88 | 36.74 | 3.08 | 16.24 | 8.25 |
| | 4103.000 | 138.00 | .00 | .00 | 627.47 | 92.00 | 631.68 | .00 | 631.90 | 38.74 | 3.91 | 26.68 | 14.78 |
| | 4103.000 | 138.00 | .00 | .00 | 627.47 | 106.00 | 631.85 | .00 | 632.11 | 41.82 | 4.20 | 29.75 | 16.39 |
| | 4103.000 | 138.00 | .00 | .00 | 627.47 | 156.00 | 632.35 | .00 | 632.54 | 33.22 | 4.09 | 72.30 | 27.06 |
| | 4178.000 | 75.00 | 636.00 | 633.97 | 627.57 | 50.00 | 631.01 | .00 | 631.13 | 30.50 | 2.87 | 17.44 | 9.05 |
| | 4178.000 | 75.00 | 636.00 | 633.97 | 627.57 | 92.00 | 631.99 | 630.12 | 632.23 | 47.55 | 3.90 | 23.60 | 13.34 |
| | 4178.000 | 75.00 | 636.00 | 633.97 | 627.57 | 106.00 | 632.20 | 630.30 | 632.48 | 55.95 | 4.27 | 24.83 | 14.17 |
| | 4178.000 | 75.00 | 636.00 | 633.97 | 627.57 | 156.00 | 632.59 | 630.91 | 633.11 | 100.87 | 5.78 | 27.00 | 15.53 |
| | 4382.000 | 204.00 | .00 | .00 | 627.78 | 50.00 | 631.29 | .00 | 631.30 | 2.80 | .97 | 51.70 | 29.89 |
| | 4382.000 | 204.00 | .00 | .00 | 627.78 | 92.00 | 632.41 | .00 | 632.43 | 2.56 | 1.09 | 84.36 | 57.55 |
| | 4382.000 | 204.00 | .00 | .00 | 627.78 | 106.00 | 632.68 | .00 | 632.70 | 2.59 | 1.14 | 93.33 | 65.87 |
| | 4382.000 | 204.00 | .00 | .00 | 627.78 | 156.00 | 633.40 | .00 | 633.43 | 2.91 | 1.31 | 119.32 | 91.45 |
| | 4882.000 | 500.00 | .00 | .00 | 628.33 | 50.00 | 631.46 | .00 | 631.48 | 4.80 | 1.19 | 42.14 | 22.81 |
| | 4882.000 | 500.00 | .00 | .00 | 628.33 | 93.00 | 632.57 | .00 | 632.59 | 4.08 | 1.31 | 71.20 | 46.03 |
| | 4882.000 | 500.00 | .00 | .00 | 628.33 | 107.00 | 632.84 | .00 | 632.87 | 4.00 | 1.34 | 79.69 | 53.52 |
| | 4882.000 | 500.00 | .00 | .00 | 628.33 | 157.00 | 633.57 | .00 | 633.60 | 4.18 | 1.50 | 109.43 | 76.76 |
| | 4942.000 | 60.00 | .00 | .00 | 628.40 | 50.00 | 631.49 | .00 | 631.51 | 5.11 | 1.21 | 41.20 | 22.13 |
| | 4942.000 | 60.00 | .00 | .00 | 628.40 | 93.00 | 632.59 | .00 | 632.62 | 4.28 | 1.33 | 69.94 | 44.94 |
| | 4942.000 | 60.00 | .00 | .00 | 628.40 | 107.00 | 632.86 | .00 | 632.89 | 4.22 | 1.37 | 78.09 | 52.08 |
| | 4942.000 | 60.00 | .00 | .00 | 628.40 | 157.00 | 633.59 | .00 | 633.63 | 4.39 | 1.53 | 105.18 | 74.97 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5002.000 | 60.00 | .00 | .00 | 628.47 | 50.00 | 631.52 | .00 | 631.55 | 5.38 | 1.24 | 40.41 | 21.56 |
| | 5002.000 | 60.00 | .00 | .00 | 628.47 | 93.00 | 632.62 | .00 | 632.65 | 4.48 | 1.35 | 68.74 | 43.91 |
| | 5002.000 | 60.00 | .00 | .00 | 628.47 | 107.00 | 632.89 | .00 | 632.92 | 4.41 | 1.39 | 76.80 | 50.93 |
| | 5002.000 | 60.00 | .00 | .00 | 628.47 | 157.00 | 633.62 | .00 | 633.66 | 4.57 | 1.55 | 102.17 | 73.47 |
| | 5031.000 | 29.00 | .00 | .00 | 628.49 | 50.00 | 631.54 | .00 | 631.56 | 5.40 | 1.24 | 40.34 | 21.51 |
| | 5031.000 | 29.00 | .00 | .00 | 628.49 | 93.00 | 632.63 | .00 | 632.66 | 4.52 | 1.36 | 68.55 | 43.75 |
| | 5031.000 | 29.00 | .00 | .00 | 628.49 | 107.00 | 632.90 | .00 | 632.93 | 4.45 | 1.40 | 76.59 | 50.75 |
| | 5031.000 | 29.00 | .00 | .00 | 628.49 | 157.00 | 633.63 | .00 | 633.67 | 4.59 | 1.56 | 101.76 | 73.25 |
| | 5065.000 | 34.00 | .00 | .00 | 628.50 | 49.00 | 631.55 | .00 | 631.58 | 5.05 | 1.34 | 36.66 | 21.80 |
| | 5065.000 | 34.00 | .00 | .00 | 628.50 | 92.00 | 632.64 | .00 | 632.69 | 7.35 | 1.85 | 49.75 | 33.93 |
| | 5065.000 | 34.00 | .00 | .00 | 628.50 | 105.00 | 632.90 | .00 | 632.96 | 7.80 | 1.98 | 52.91 | 37.60 |
| | 5065.000 | 34.00 | .00 | .00 | 628.50 | 155.00 | 633.62 | .00 | 633.72 | 10.30 | 2.52 | 61.49 | 48.31 |
| | 5241.000 | 176.00 | 635.39 | 632.68 | 628.68 | 49.00 | 631.64 | .00 | 631.67 | 5.51 | 1.38 | 35.58 | 20.87 |
| | 5241.000 | 176.00 | 635.39 | 632.68 | 628.68 | 92.00 | 632.82 | .00 | 632.87 | 15.50 | 1.92 | 48.00 | 23.37 |
| | 5241.000 | 176.00 | 635.39 | 632.68 | 628.68 | 105.00 | 633.11 | .00 | 633.18 | 20.19 | 2.19 | 48.00 | 23.37 |
| | 5241.000 | 176.00 | 635.39 | 632.68 | 628.68 | 155.00 | 633.81 | .00 | 633.91 | 10.26 | 2.52 | 61.55 | 48.39 |
| * | 5269.000 | 28.00 | .00 | .00 | 631.22 | 49.00 | 632.23 | 632.23 | 632.59 | 269.18 | 4.83 | 10.14 | 2.99 |
| | 5269.000 | 28.00 | .00 | .00 | 631.22 | 92.00 | 632.76 | .00 | 633.13 | 171.08 | 4.87 | 18.89 | 7.03 |
| | 5269.000 | 28.00 | .00 | .00 | 631.22 | 105.00 | 633.12 | .00 | 633.38 | 93.76 | 4.05 | 25.96 | 10.84 |
| | 5269.000 | 28.00 | .00 | .00 | 631.22 | 155.00 | 633.81 | .00 | 634.02 | 53.61 | 3.64 | 42.57 | 21.17 |
| | 5502.000 | 233.00 | .00 | .00 | 631.44 | 49.00 | 633.25 | .00 | 633.28 | 10.05 | 1.34 | 36.61 | 15.45 |
| | 5502.000 | 233.00 | .00 | .00 | 631.44 | 92.00 | 633.81 | .00 | 633.85 | 11.78 | 1.68 | 54.67 | 26.80 |
| | 5502.000 | 233.00 | .00 | .00 | 631.44 | 105.00 | 633.95 | .00 | 634.00 | 11.96 | 1.75 | 59.89 | 30.36 |
| | 5502.000 | 233.00 | .00 | .00 | 631.44 | 155.00 | 634.48 | .00 | 634.54 | 11.58 | 1.92 | 80.73 | 45.56 |
| | 5545.000 | 43.00 | .00 | .00 | 631.66 | 49.00 | 633.29 | .00 | 633.39 | 32.43 | 2.50 | 19.60 | 8.60 |
| | 5545.000 | 43.00 | .00 | .00 | 631.66 | 92.00 | 633.83 | .00 | 634.02 | 48.69 | 3.54 | 26.02 | 13.18 |
| | 5545.000 | 43.00 | .00 | .00 | 631.66 | 105.00 | 633.96 | .00 | 634.18 | 53.18 | 3.80 | 27.61 | 14.40 |
| | 5545.000 | 43.00 | .00 | .00 | 631.66 | 155.00 | 634.44 | .00 | 634.77 | 66.56 | 4.65 | 33.35 | 19.00 |
| | 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 49.00 | 633.50 | .00 | 633.51 | 5.96 | 1.11 | 44.27 | 20.07 |
| | 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 92.00 | 634.16 | .00 | 634.19 | 6.45 | 1.35 | 68.22 | 36.23 |
| | 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 105.00 | 634.34 | .00 | 634.37 | 6.45 | 1.40 | 75.20 | 41.35 |
| | 5633.000 | 88.00 | 637.50 | 635.63 | 631.43 | 155.00 | 634.95 | .00 | 634.99 | 6.07 | 1.51 | 102.51 | 62.92 |
| | 5737.000 | 104.00 | .00 | .00 | 631.78 | 49.00 | 633.57 | .00 | 633.60 | 10.60 | 1.36 | 36.01 | 15.05 |
| | 5737.000 | 104.00 | .00 | .00 | 631.78 | 92.00 | 634.24 | .00 | 634.28 | 9.94 | 1.58 | 58.37 | 29.18 |
| | 5737.000 | 104.00 | .00 | .00 | 631.78 | 105.00 | 634.41 | .00 | 634.45 | 9.69 | 1.62 | 64.91 | 33.72 |
| | 5737.000 | 104.00 | .00 | .00 | 631.78 | 155.00 | 635.02 | .00 | 635.07 | 8.58 | 1.71 | 90.47 | 52.92 |
| | 5792.000 | 55.00 | .00 | .00 | 632.00 | 49.00 | 633.55 | .00 | 633.80 | 97.49 | 4.01 | 12.22 | 4.96 |
| | 5792.000 | 55.00 | .00 | .00 | 632.00 | 92.00 | 634.07 | .00 | 634.55 | 139.14 | 5.52 | 16.66 | 7.80 |
| | 5792.000 | 55.00 | .00 | .00 | 632.00 | 105.00 | 634.20 | .00 | 634.74 | 151.04 | 5.91 | 17.76 | 8.54 |
| | 5792.000 | 55.00 | .00 | .00 | 632.00 | 155.00 | 634.60 | .00 | 635.44 | 200.39 | 7.33 | 21.15 | 10.95 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5965.000 | 173.00 | .00 | .00 | 632.00 | 109.00 | 633.83 | .00 | 633.83 | .11 | .18 | 607.06 | 324.86 |
| | 5965.000 | 173.00 | .00 | .00 | 632.00 | 183.00 | 634.60 | .00 | 634.60 | .10 | .21 | 883.08 | 589.33 |
| | 5965.000 | 173.00 | .00 | .00 | 632.00 | 210.00 | 634.80 | .00 | 634.80 | .10 | .22 | 957.46 | 669.36 |
| | 5965.000 | 173.00 | .00 | .00 | 632.00 | 294.00 | 635.52 | .00 | 635.52 | .09 | .24 | 1230.32 | 993.60 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 109.00 | 633.83 | .00 | 633.83 | .16 | .22 | 505.00 | 272.42 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 183.00 | 634.60 | .00 | 634.60 | .14 | .25 | 730.67 | 492.51 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 210.00 | 634.80 | .00 | 634.80 | .14 | .27 | 791.16 | 558.96 |
| | 6130.000 | 165.00 | .00 | .00 | 632.00 | 294.00 | 635.52 | .00 | 635.52 | .13 | .29 | 1012.42 | 825.43 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 109.00 | 633.83 | .00 | 633.83 | .39 | .33 | 329.27 | 175.24 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 183.00 | 634.60 | .00 | 634.60 | .33 | .38 | 480.47 | 317.93 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 210.00 | 634.80 | .00 | 634.80 | .34 | .40 | 521.44 | 361.24 |
| | 6250.000 | 120.00 | .00 | .00 | 632.00 | 294.00 | 635.52 | .00 | 635.53 | .30 | .44 | 672.54 | 535.63 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 109.00 | 633.84 | .00 | 633.85 | .62 | .42 | 259.74 | 137.93 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 183.00 | 634.61 | .00 | 634.61 | .54 | .48 | 379.39 | 249.86 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 210.00 | 634.81 | .00 | 634.81 | .55 | .51 | 411.97 | 283.93 |
| | 6500.000 | 250.00 | .00 | .00 | 632.00 | 294.00 | 635.53 | .00 | 635.54 | .49 | .55 | 532.25 | 421.06 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 109.00 | 633.85 | .00 | 633.85 | .17 | .23 | 482.22 | 261.82 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 183.00 | 634.62 | .00 | 634.62 | .15 | .26 | 694.64 | 469.34 |
| | 6685.000 | 185.00 | .00 | .00 | 632.00 | 210.00 | 634.82 | .00 | 634.82 | .16 | .28 | 752.04 | 532.33 |
| | 685.000 | 185.00 | .00 | .00 | 632.00 | 294.00 | 635.54 | .00 | 635.54 | .14 | .31 | 961.13 | 783.61 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 44.00 | 633.85 | .00 | 633.86 | .27 | .27 | 162.71 | 84.87 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 84.00 | 634.62 | .00 | 634.62 | .30 | .35 | 241.05 | 152.73 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 92.00 | 634.82 | .00 | 634.82 | .28 | .35 | 263.14 | 173.71 |
| | 6920.000 | 235.00 | .00 | .00 | 632.00 | 151.00 | 635.54 | .00 | 635.55 | .34 | .44 | 346.58 | 258.50 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 44.00 | 633.90 | .00 | 633.91 | 1.61 | .82 | 53.69 | 34.70 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 85.00 | 634.79 | .00 | 634.81 | 2.88 | 1.23 | 68.86 | 50.04 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 100.00 | 635.05 | .00 | 635.08 | 3.32 | 1.36 | 73.35 | 54.84 |
| * | 7259.000 | 339.00 | .00 | .00 | 630.77 | 152.00 | 636.07 | .00 | 636.12 | 4.17 | 1.67 | 90.84 | 74.43 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 44.00 | 633.89 | .00 | 633.92 | 9.89 | 1.44 | 30.55 | 13.99 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 85.00 | 634.77 | .00 | 634.82 | 9.41 | 1.79 | 47.47 | 27.71 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 100.00 | 635.03 | .00 | 635.09 | 9.59 | 1.91 | 52.48 | 32.29 |
| | 7260.000 | 1.00 | .00 | .00 | 632.30 | 152.00 | 636.06 | .00 | 636.12 | 8.58 | 2.11 | 72.02 | 51.89 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 44.00 | 634.00 | .00 | 634.26 | 160.48 | 4.10 | 10.74 | 3.47 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 85.00 | 634.89 | .00 | 635.07 | 61.96 | 3.45 | 24.66 | 10.80 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 100.00 | 635.15 | .00 | 635.33 | 51.31 | 3.35 | 29.81 | 13.96 |
| | 7367.000 | 107.00 | .00 | .00 | 632.80 | 152.00 | 636.16 | .00 | 636.29 | 24.33 | 2.83 | 53.74 | 30.82 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 44.00 | 635.87 | .00 | 635.90 | 10.43 | 1.47 | 29.86 | 13.62 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 85.00 | 636.51 | .00 | 636.56 | 12.85 | 1.88 | 45.14 | 23.71 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 100.00 | 636.70 | .00 | 636.76 | 13.29 | 1.99 | 50.33 | 27.43 |
| | 7977.000 | 610.00 | .00 | .00 | 633.50 | 152.00 | 637.30 | .00 | 637.38 | 13.69 | 2.23 | 68.08 | 41.09 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 43.00 | 636.66 | .00 | 636.70 | 14.57 | 1.59 | 26.97 | 11.26 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 83.00 | 637.38 | .00 | 637.43 | 13.55 | 1.83 | 45.27 | 22.55 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 99.00 | 637.59 | .00 | 637.65 | 13.76 | 1.93 | 51.34 | 26.69 |
| | 8632.000 | 655.00 | .00 | .00 | 634.60 | 150.00 | 638.19 | .00 | 638.26 | 13.24 | 2.11 | 71.07 | 41.23 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 43.00 | 636.96 | .00 | 637.01 | 15.86 | 1.76 | 24.47 | 10.80 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 83.00 | 637.67 | .00 | 637.74 | 16.98 | 2.13 | 38.93 | 20.14 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 99.00 | 637.88 | .00 | 637.96 | 17.35 | 2.25 | 44.03 | 23.76 |
| | 8832.000 | 200.00 | .00 | .00 | 634.76 | 150.00 | 638.48 | .00 | 638.58 | 17.87 | 2.52 | 59.41 | 35.49 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 43.00 | 637.29 | .00 | 637.34 | 25.43 | 1.93 | 22.25 | 8.53 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 83.00 | 637.98 | .00 | 638.05 | 20.84 | 2.14 | 38.81 | 18.18 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 99.00 | 638.20 | .00 | 638.27 | 20.02 | 2.21 | 44.87 | 22.12 |
| | 9000.000 | 168.00 | .00 | .00 | 635.69 | 150.00 | 638.79 | .00 | 638.88 | 17.97 | 2.36 | 63.57 | 35.38 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 43.00 | 638.88 | .00 | 638.95 | 28.08 | 2.07 | 20.81 | 8.11 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 83.00 | 639.44 | .00 | 639.54 | 29.76 | 2.53 | 32.83 | 15.21 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 99.00 | 639.63 | .00 | 639.74 | 30.09 | 2.66 | 37.19 | 18.05 |
| | 9600.000 | 600.00 | .00 | .00 | 637.33 | 150.00 | 640.14 | .00 | 640.28 | 30.44 | 2.98 | 50.25 | 27.19 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 38.00 | 639.82 | .00 | 639.86 | 18.36 | 1.72 | 22.03 | 8.87 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 68.00 | 640.40 | .00 | 640.46 | 17.41 | 1.98 | 34.39 | 16.30 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 79.00 | 640.59 | .00 | 640.66 | 16.80 | 2.03 | 38.91 | 19.27 |
| | 10000.000 | 400.00 | .00 | .00 | 638.13 | 115.00 | 641.10 | .00 | 641.18 | 15.86 | 2.19 | 52.45 | 28.87 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 38.00 | 640.68 | .00 | 640.75 | 26.79 | 2.00 | 18.96 | 7.34 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 68.00 | 641.23 | .00 | 641.31 | 25.97 | 2.32 | 29.28 | 13.34 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 79.00 | 641.40 | .00 | 641.49 | 25.64 | 2.41 | 32.84 | 15.60 |
| | 10400.000 | 400.00 | .00 | .00 | 639.13 | 115.00 | 641.86 | .00 | 641.97 | 24.82 | 2.63 | 43.81 | 23.08 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 38.00 | 641.71 | .00 | 641.76 | 24.14 | 1.91 | 19.94 | 7.73 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 68.00 | 642.24 | .00 | 642.31 | 24.09 | 2.24 | 30.40 | 13.86 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 79.00 | 642.39 | .00 | 642.48 | 23.93 | 2.32 | 33.99 | 16.15 |
| | 10800.000 | 400.00 | .00 | .00 | 640.19 | 115.00 | 642.84 | .00 | 642.94 | 23.79 | 2.56 | 44.85 | 23.58 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 38.00 | 642.05 | .00 | 642.07 | 5.28 | 1.15 | 33.10 | 16.54 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 68.00 | 642.65 | .00 | 642.68 | 6.91 | 1.47 | 46.19 | 25.87 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 79.00 | 642.82 | .00 | 642.86 | 7.37 | 1.57 | 50.43 | 29.10 |
| | 11110.000 | 311.00 | .00 | .00 | 639.33 | 115.00 | 643.31 | .00 | 643.36 | 8.49 | 1.82 | 63.33 | 39.48 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 38.00 | 642.94 | 642.94 | 643.32 | 273.50 | 4.92 | 7.72 | 2.30 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 68.00 | 643.33 | 643.33 | 643.81 | 251.29 | 5.58 | 12.19 | 4.29 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 79.00 | 643.44 | 643.44 | 643.96 | 247.94 | 5.78 | 13.68 | 5.02 |
| * | 11111.000 | 1.00 | .00 | .00 | 641.87 | 115.00 | 643.77 | 643.77 | 644.37 | 231.07 | 6.21 | 18.52 | 7.57 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 38.00 | 644.58 | .00 | 644.60 | 9.11 | 1.32 | 28.81 | 12.59 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 68.00 | 645.16 | .00 | 645.19 | 10.04 | 1.59 | 42.90 | 21.46 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 79.00 | 645.33 | .00 | 645.37 | 10.28 | 1.66 | 47.56 | 24.64 |
| | 11591.000 | 481.00 | .00 | .00 | 642.37 | 115.00 | 645.79 | .00 | 645.84 | 10.91 | 1.87 | 61.57 | 34.81 |

| | SECNO | XLCH | ELTRD | ELLC | ELMIN | Q | CWSEL | CRIWS | EG | 10K*S | VCH | AREA | .01K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * | 11592.000 | 1.00 | .00 | .00 | 643.50 | 38.00 | 644.41 | 644.41 | 644.77 | 276.64 | 4.77 | 7.97 | 2.28 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 68.00 | 644.98 | .00 | 645.27 | 137.42 | 4.38 | 15.52 | 5.80 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 79.00 | 645.16 | .00 | 645.45 | 118.53 | 4.33 | 18.26 | 7.26 |
| | 11592.000 | 1.00 | .00 | .00 | 643.50 | 115.00 | 645.62 | .00 | 645.92 | 92.13 | 4.36 | 26.35 | 11.98 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 33.00 | 645.96 | .00 | 646.08 | 126.67 | 2.83 | 11.65 | 2.93 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 53.00 | 646.11 | 645.98 | 646.31 | 157.54 | 3.51 | 15.12 | 4.22 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 59.00 | 646.18 | 646.03 | 646.37 | 150.93 | 3.56 | 16.58 | 4.80 |
| | 11662.000 | 70.00 | .00 | .00 | 645.20 | 80.00 | 646.44 | .00 | 646.62 | 109.26 | 3.44 | 23.23 | 7.65 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 33.00 | 646.57 | .00 | 646.61 | 29.12 | 1.72 | 19.16 | 6.11 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 53.00 | 646.83 | .00 | 646.90 | 30.85 | 2.06 | 25.74 | 9.54 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 59.00 | 646.90 | .00 | 646.97 | 31.53 | 2.15 | 27.45 | 10.51 |
| | 11760.000 | 98.00 | .00 | .00 | 645.60 | 80.00 | 647.09 | .00 | 647.19 | 34.85 | 2.45 | 32.60 | 13.55 |

CT CONDITIONS MODEL

SUMMARY PRINTOUT TABLE 150

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 3273.000 | 51.00 | 630.20 | .00 | .00 | .00 | 22.72 | .00 |
| | 3273.000 | 94.00 | 631.10 | .90 | .00 | .00 | 27.57 | .00 |
| | 3273.000 | 108.00 | 631.18 | .08 | .00 | .00 | 28.00 | .00 |
| | 3273.000 | 159.00 | 631.22 | .04 | .00 | .00 | 28.22 | .00 |
| | 3965.000 | 51.00 | 630.57 | .00 | .37 | .00 | 23.27 | 692.00 |
| | 3965.000 | 94.00 | 631.53 | .96 | .43 | .00 | 28.94 | 692.00 |
| | 3965.000 | 108.00 | 631.69 | .16 | .51 | .00 | 29.88 | 692.00 |
| * | 3965.000 | 159.00 | 632.10 | .41 | .88 | .00 | 118.00 | 692.00 |
| | 4103.000 | 50.00 | 630.73 | .00 | .15 | .00 | 6.59 | 138.00 |
| | 4103.000 | 92.00 | 631.68 | .95 | .14 | .00 | 15.58 | 138.00 |
| | 4103.000 | 106.00 | 631.85 | .17 | .16 | .00 | 27.41 | 138.00 |
| | 4103.000 | 156.00 | 632.35 | .50 | .25 | .00 | 117.32 | 138.00 |
| | 4178.000 | 50.00 | 631.01 | .00 | .28 | .00 | 8.32 | 75.00 |
| | 4178.000 | 92.00 | 631.99 | .99 | .32 | .00 | 62.49 | 75.00 |
| | 4178.000 | 106.00 | 632.20 | .21 | .35 | .00 | 111.66 | 75.00 |
| | 178.000 | 156.00 | 632.59 | .39 | .24 | .00 | 120.68 | 75.00 |
| | 4382.000 | 50.00 | 631.29 | .00 | .28 | .00 | 25.51 | 204.00 |
| | 4382.000 | 92.00 | 632.41 | 1.13 | .42 | .00 | 32.43 | 204.00 |
| | 4382.000 | 106.00 | 632.68 | .27 | .49 | .00 | 34.09 | 204.00 |
| | 4382.000 | 156.00 | 633.40 | .72 | .81 | .00 | 38.49 | 204.00 |
| | 4882.000 | 50.00 | 631.46 | .00 | .17 | .00 | 22.96 | 500.00 |
| | 4882.000 | 93.00 | 632.57 | 1.11 | .15 | .00 | 29.66 | 500.00 |
| | 4882.000 | 107.00 | 632.84 | .27 | .15 | .00 | 31.35 | 500.00 |
| | 4882.000 | 157.00 | 633.57 | .73 | .17 | .00 | 98.71 | 500.00 |
| | 4942.000 | 50.00 | 631.49 | .00 | .03 | .00 | 22.71 | 60.00 |
| | 4942.000 | 93.00 | 632.59 | 1.10 | .02 | .00 | 29.40 | 60.00 |
| | 4942.000 | 107.00 | 632.86 | .27 | .02 | .00 | 31.04 | 60.00 |
| | 4942.000 | 157.00 | 633.59 | .73 | .02 | .00 | 80.66 | 60.00 |
| | 5002.000 | 50.00 | 631.52 | .00 | .03 | .00 | 22.50 | 60.00 |
| | 5002.000 | 93.00 | 632.62 | 1.10 | .03 | .00 | 29.15 | 60.00 |
| | 5002.000 | 107.00 | 632.89 | .27 | .03 | .00 | 30.78 | 60.00 |
| | 5002.000 | 157.00 | 633.62 | .73 | .03 | .00 | 64.89 | 60.00 |
| | 5031.000 | 50.00 | 631.54 | .00 | .02 | .00 | 22.48 | 29.00 |
| | 5031.000 | 93.00 | 632.63 | 1.09 | .01 | .00 | 29.11 | 29.00 |
| | 5031.000 | 107.00 | 632.90 | .27 | .01 | .00 | 30.74 | 29.00 |
| | 5031.000 | 157.00 | 633.63 | .73 | .01 | .00 | 62.47 | 29.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 5065.000 | 49.00 | 631.55 | .00 | .02 | .00 | 12.00 | 34.00 |
| 5065.000 | 92.00 | 632.64 | 1.08 | .01 | .00 | 12.00 | 34.00 |
| 5065.000 | 105.00 | 632.90 | .27 | .00 | .00 | 12.00 | 34.00 |
| 5065.000 | 155.00 | 633.62 | .72 | -.01 | .00 | 12.00 | 34.00 |
| 5241.000 | 49.00 | 631.64 | .00 | .09 | .00 | 12.00 | 176.00 |
| 5241.000 | 92.00 | 632.82 | 1.17 | .18 | .00 | 12.00 | 176.00 |
| 5241.000 | 105.00 | 633.11 | .29 | .20 | .00 | 12.00 | 176.00 |
| 5241.000 | 155.00 | 633.81 | .70 | .18 | .00 | 12.00 | 176.00 |
| * 5269.000 | 49.00 | 632.23 | .00 | .58 | .00 | 14.11 | 28.00 |
| 5269.000 | 92.00 | 632.76 | .54 | -.05 | .00 | 18.44 | 28.00 |
| 5269.000 | 105.00 | 633.12 | .36 | .02 | .00 | 21.30 | 28.00 |
| 5269.000 | 155.00 | 633.81 | .69 | .00 | .00 | 26.85 | 28.00 |
| 5502.000 | 49.00 | 633.25 | .00 | 1.03 | .00 | 29.89 | 233.00 |
| 5502.000 | 92.00 | 633.81 | .56 | 1.05 | .00 | 35.62 | 233.00 |
| 5502.000 | 105.00 | 633.95 | .14 | .83 | .00 | 37.12 | 233.00 |
| 5502.000 | 155.00 | 634.48 | .52 | .67 | .00 | 42.56 | 233.00 |
| 5545.000 | 49.00 | 633.29 | .00 | .04 | .00 | 12.00 | 43.00 |
| 5545.000 | 92.00 | 633.83 | .53 | .02 | .00 | 12.00 | 43.00 |
| 5545.000 | 105.00 | 633.96 | .13 | .01 | .00 | 12.00 | 43.00 |
| 5545.000 | 155.00 | 634.44 | .48 | -.04 | .00 | 12.00 | 43.00 |
| 5633.000 | 49.00 | 633.50 | .00 | .20 | .00 | 32.47 | 88.00 |
| 5633.000 | 92.00 | 634.16 | .67 | .34 | .00 | 39.41 | 88.00 |
| 5633.000 | 105.00 | 634.34 | .17 | .38 | .00 | 41.21 | 88.00 |
| 5633.000 | 155.00 | 634.95 | .62 | .52 | .00 | 47.62 | 88.00 |
| 5737.000 | 49.00 | 633.57 | .00 | .08 | .00 | 29.87 | 104.00 |
| 5737.000 | 92.00 | 634.24 | .67 | .08 | .00 | 36.94 | 104.00 |
| 5737.000 | 105.00 | 634.41 | .17 | .08 | .00 | 38.77 | 104.00 |
| 5737.000 | 155.00 | 635.02 | .61 | .07 | .00 | 45.20 | 104.00 |
| 5792.000 | 49.00 | 633.55 | .00 | -.02 | .00 | 8.27 | 55.00 |
| 5792.000 | 92.00 | 634.07 | .52 | -.17 | .00 | 8.54 | 55.00 |
| 5792.000 | 105.00 | 634.20 | .13 | -.22 | .00 | 8.60 | 55.00 |
| 5792.000 | 155.00 | 634.60 | .40 | -.42 | .00 | 8.80 | 55.00 |
| 5965.000 | 109.00 | 633.83 | .00 | .28 | .00 | 350.96 | 173.00 |
| 5965.000 | 183.00 | 634.60 | .77 | .52 | .00 | 366.53 | 173.00 |
| 5965.000 | 210.00 | 634.80 | .20 | .60 | .00 | 370.62 | 173.00 |
| 5965.000 | 294.00 | 635.52 | .72 | .92 | .00 | 383.49 | 173.00 |
| 6130.000 | 109.00 | 633.83 | .00 | .00 | .00 | 288.34 | 165.00 |
| 6130.000 | 183.00 | 634.60 | .77 | .00 | .00 | 298.57 | 165.00 |
| 6130.000 | 210.00 | 634.80 | .20 | .00 | .00 | 301.26 | 165.00 |
| 6130.000 | 294.00 | 635.52 | .72 | .00 | .00 | 310.88 | 165.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 6250.000 | 109.00 | 633.83 | .00 | .00 | .00 | 191.75 | 120.00 |
| | 6250.000 | 183.00 | 634.60 | .77 | .00 | .00 | 201.73 | 120.00 |
| | 6250.000 | 210.00 | 634.80 | .20 | .00 | .00 | 204.35 | 120.00 |
| | 6250.000 | 294.00 | 635.52 | .72 | .00 | .00 | 213.73 | 120.00 |
| | 6500.000 | 109.00 | 633.84 | .00 | .01 | .00 | 151.65 | 250.00 |
| | 6500.000 | 183.00 | 634.61 | .77 | .01 | .00 | 160.28 | 250.00 |
| | 6500.000 | 210.00 | 634.81 | .20 | .01 | .00 | 162.54 | 250.00 |
| | 6500.000 | 294.00 | 635.53 | .72 | .01 | .00 | 170.66 | 250.00 |
| | 6685.000 | 109.00 | 633.85 | .00 | .01 | .00 | 272.65 | 185.00 |
| | 6685.000 | 183.00 | 634.62 | .77 | .01 | .00 | 282.83 | 185.00 |
| | 6685.000 | 210.00 | 634.82 | .20 | .01 | .00 | 285.52 | 185.00 |
| | 6685.000 | 294.00 | 635.54 | .72 | .01 | .00 | 295.11 | 185.00 |
| | 6920.000 | 44.00 | 633.85 | .00 | .00 | .00 | 97.46 | 235.00 |
| | 6920.000 | 84.00 | 634.62 | .77 | .00 | .00 | 107.74 | 235.00 |
| | 6920.000 | 92.00 | 634.82 | .20 | .00 | .00 | 110.58 | 235.00 |
| | 6920.000 | 151.00 | 635.54 | .72 | .00 | .00 | 121.21 | 235.00 |
| * | 7259.000 | 44.00 | 633.90 | .00 | .05 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 85.00 | 634.79 | .89 | .17 | .00 | 17.13 | 339.00 |
| * | 7259.000 | 100.00 | 635.05 | .26 | .23 | .00 | 17.13 | 339.00 |
| | 7259.000 | 152.00 | 636.07 | 1.02 | .53 | .00 | 17.13 | 339.00 |
| | 7260.000 | 44.00 | 633.89 | .00 | -.01 | .00 | 19.13 | 1.00 |
| | 7260.000 | 85.00 | 634.77 | .88 | -.02 | .00 | 19.13 | 1.00 |
| | 7260.000 | 100.00 | 635.03 | .26 | -.02 | .00 | 19.13 | 1.00 |
| | 7260.000 | 152.00 | 636.06 | 1.02 | -.02 | .00 | 19.13 | 1.00 |
| | 7367.000 | 44.00 | 634.00 | .00 | .11 | .00 | 12.86 | 107.00 |
| | 7367.000 | 85.00 | 634.89 | .89 | .11 | .00 | 18.63 | 107.00 |
| | 7367.000 | 100.00 | 635.15 | .26 | .12 | .00 | 20.36 | 107.00 |
| | 7367.000 | 152.00 | 636.16 | 1.01 | .11 | .00 | 27.02 | 107.00 |
| | 7977.000 | 44.00 | 635.87 | .00 | 1.87 | .00 | 21.28 | 610.00 |
| | 7977.000 | 85.00 | 636.51 | .64 | 1.62 | .00 | 26.00 | 610.00 |
| | 7977.000 | 100.00 | 636.70 | .19 | 1.55 | .00 | 27.42 | 610.00 |
| | 7977.000 | 152.00 | 637.30 | .60 | 1.14 | .00 | 31.81 | 610.00 |
| | 8632.000 | 43.00 | 636.66 | .00 | .80 | .00 | 22.14 | 655.00 |
| | 8632.000 | 83.00 | 637.38 | .71 | .87 | .00 | 28.50 | 655.00 |
| | 8632.000 | 99.00 | 637.59 | .21 | .89 | .00 | 30.31 | 655.00 |
| | 8632.000 | 150.00 | 638.19 | .60 | .89 | .00 | 35.58 | 655.00 |
| | 8832.000 | 43.00 | 636.96 | .00 | .30 | .00 | 18.24 | 200.00 |
| | 8832.000 | 83.00 | 637.67 | .70 | .29 | .00 | 22.79 | 200.00 |
| | 8832.000 | 99.00 | 637.88 | .22 | .29 | .00 | 24.20 | 200.00 |
| | 8832.000 | 150.00 | 638.48 | .60 | .28 | .00 | 28.01 | 200.00 |

| | SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|---|
| | 9000.000 | 43.00 | 637.29 | .00 | .33 | .00 | 20.87 | 168.00 |
| | 9000.000 | 83.00 | 637.98 | .69 | .31 | .00 | 26.89 | 168.00 |
| | 9000.000 | 99.00 | 638.20 | .22 | .32 | .00 | 28.78 | 168.00 |
| | 9000.000 | 150.00 | 638.79 | .60 | .31 | .00 | 33.96 | 168.00 |
| | 9600.000 | 43.00 | 638.88 | .00 | 1.60 | .00 | 18.92 | 600.00 |
| | 9600.000 | 83.00 | 639.44 | .56 | 1.46 | .00 | 22.97 | 600.00 |
| | 9600.000 | 99.00 | 639.63 | .19 | 1.43 | .00 | 24.27 | 600.00 |
| | 9600.000 | 150.00 | 640.14 | .50 | 1.34 | .00 | 27.81 | 600.00 |
| | 10000.000 | 38.00 | 639.82 | .00 | .93 | .00 | 19.07 | 400.00 |
| | 10000.000 | 68.00 | 640.40 | .59 | .96 | .00 | 23.24 | 400.00 |
| | 10000.000 | 79.00 | 640.59 | .19 | .96 | .00 | 24.59 | 400.00 |
| | 10000.000 | 115.00 | 641.10 | .51 | .96 | .00 | 28.25 | 400.00 |
| | 10400.000 | 38.00 | 640.68 | .00 | .87 | .00 | 17.32 | 400.00 |
| | 10400.000 | 68.00 | 641.23 | .55 | .83 | .00 | 20.89 | 400.00 |
| | 10400.000 | 79.00 | 641.40 | .17 | .80 | .00 | 21.99 | 400.00 |
| | 10400.000 | 115.00 | 641.86 | .47 | .76 | .00 | 25.07 | 400.00 |
| | 10800.000 | 38.00 | 641.71 | .00 | 1.02 | .00 | 18.25 | 400.00 |
| | 10800.000 | 68.00 | 642.24 | .53 | 1.01 | .00 | 21.78 | 400.00 |
| | 10800.000 | 79.00 | 642.39 | .16 | 1.00 | .00 | 22.87 | 400.00 |
| | 800.000 | 115.00 | 642.84 | .45 | .98 | .00 | 25.87 | 400.00 |
| | 11110.000 | 38.00 | 642.05 | .00 | .34 | .00 | 20.32 | 311.00 |
| | 11110.000 | 68.00 | 642.65 | .60 | .41 | .00 | 23.87 | 311.00 |
| | 11110.000 | 79.00 | 642.82 | .17 | .43 | .00 | 24.92 | 311.00 |
| | 11110.000 | 115.00 | 643.31 | .49 | .47 | .00 | 27.85 | 311.00 |
| * | 11111.000 | 38.00 | 642.94 | .00 | .89 | .00 | 10.43 | 1.00 |
| * | 11111.000 | 68.00 | 643.33 | .39 | .68 | .00 | 12.75 | 1.00 |
| * | 11111.000 | 79.00 | 643.44 | .11 | .62 | .00 | 13.43 | 1.00 |
| * | 11111.000 | 115.00 | 643.77 | .34 | .47 | .00 | 15.45 | 1.00 |
| | 11591.000 | 38.00 | 644.58 | .00 | 1.64 | .00 | 22.06 | 481.00 |
| | 11591.000 | 68.00 | 645.16 | .58 | 1.83 | .00 | 26.78 | 481.00 |
| | 11591.000 | 79.00 | 645.33 | .17 | 1.89 | .00 | 28.16 | 481.00 |
| | 11591.000 | 115.00 | 645.79 | .46 | 2.02 | .00 | 31.97 | 481.00 |
| * | 11592.000 | 38.00 | 644.41 | .00 | -.17 | .00 | 11.48 | 1.00 |
| | 11592.000 | 68.00 | 644.98 | .56 | -.18 | .00 | 14.91 | 1.00 |
| | 11592.000 | 79.00 | 645.16 | .18 | -.17 | .00 | 15.97 | 1.00 |
| | 11592.000 | 115.00 | 645.62 | .47 | -.17 | .00 | 18.77 | 1.00 |
| | 11662.000 | 33.00 | 645.96 | .00 | 1.55 | .00 | 20.81 | 70.00 |
| | 11662.000 | 53.00 | 646.11 | .15 | 1.14 | .00 | 23.06 | 70.00 |
| | 11662.000 | 59.00 | 646.18 | .06 | 1.02 | .00 | 23.95 | 70.00 |
| | `662.000 | 80.00 | 646.44 | .26 | .81 | .00 | 27.63 | 70.00 |

| SECNO | Q | CWSEL | DIFWSP | DIFWSX | DIFKWS | TOPWID | XLCH |
|---|---|---|---|---|---|---|---|
| 11760.000 | 33.00 | 646.57 | .00 | .61 | .00 | 23.77 | 98.00 |
| 11760.000 | 53.00 | 646.83 | .27 | .72 | .00 | 25.45 | 98.00 |
| 11760.000 | 59.00 | 646.90 | .06 | .72 | .00 | 25.87 | 98.00 |
| 11760.000 | 80.00 | 647.09 | .20 | .66 | .00 | 27.09 | 98.00 |

SUMMARY OF ERRORS AND SPECIAL NOTES

```
CAUTION  SECNO=  3965.000  PROFILE= 4  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO=  3965.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  5269.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5269.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  5269.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 4  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
    ON   SECNO= 11111.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
    ION  SECNO= 11111.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 11592.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11592.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11592.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
```

THIS RUN EXECUTED 02-19-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

00BREAK00

1) COUNTY: Macomb

2) STUDY NAME: Sterling Heights

3) WATERCOURSE: Christmas Drain

4) DOCUMENT TYPE: Clomr Proposed Conditions Floodway

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1 WATER SURFACE PROF. 10,50,100 & 500 YEAR FLOOD
T2 CHRISSMAN DRAIN - 1 ON 3 SLOPES FROM MOUND TO HANKS, 78" CULVERT AT HANKS
T3 PROP PROJECT CONDITIONS MODEL FLOODWAY RUN REVISED 2/19/96 (FILE CDFLWY1.1)

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    -10.       2.        0.        0.   .000000       .00       .0        0.   631.180     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.000   200.000     .000      .000      .000      .000      .000      .000      .000      .000

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS********

   -10.000   -10.000     .000      .000      .000      .000      .000      .000      .000      .000
```

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
```

T1
T2
T3

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| J1 | ICHECK | INQ | NINV | IDIR | STRT | METRIC | HVINS | Q | WSEL | FQ |
| | -10. | 3. | 0. | 0. | .000000 | .00 | .0 | 0. | 631.180 | .000 |
| J2 | NPROF | IPLOT | PRFVS | XSECV | XSECH | FN | ALLDC | IBW | CHNIM | ITRACE |
| | 15.000 | .000 | -1.000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

THIS RUN EXECUTED 02-21-96

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PROJECT CONDITIONS MODEL

SUMMARY PRINTOUT TABLE 110

| SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3273.000 | 631.18 | .00 | 631.22 | 28.00 | .00 | 108.00 | .00 | .00 | .00 | 50.00 | 80.00 | .00 |
| 3273.000 | 631.18 | .00 | 631.22 | 28.00 | .00 | 108.00 | .00 | .00 | .00 | 50.00 | 80.00 | .00 |
| 3965.000 | 631.69 | .00 | 631.72 | 29.88 | .00 | 108.00 | .00 | 200.00 | 200.00 | 286.00 | 318.00 | 400.00 |
| 65.000 | 631.69 | .00 | 631.72 | 29.88 | .00 | 108.00 | .00 | 200.00 | 200.00 | 286.00 | 318.00 | 400.00 |
| 4103.000 | 631.85 | .00 | 632.11 | 27.41 | 2.61 | 98.66 | 4.73 | 200.00 | 200.00 | 296.75 | 303.25 | 400.00 |
| 4103.000 | 631.85 | .00 | 632.11 | 27.41 | 2.61 | 98.66 | 4.73 | 200.00 | 200.00 | 296.75 | 303.25 | 400.00 |
| 4178.000 | 632.20 | .00 | 632.48 | 111.66 | .00 | 106.00 | .00 | 200.00 | 200.00 | 296.75 | 303.25 | 400.00 |
| 4178.000 | 632.20 | .00 | 632.48 | 111.66 | .00 | 106.00 | .00 | 200.00 | 200.00 | 296.75 | 303.25 | 400.00 |
| 4382.000 | 632.68 | .00 | 632.70 | 34.09 | .00 | 106.00 | .00 | .00 | .00 | .00 | 41.00 | .00 |
| 4382.000 | 632.68 | .00 | 632.70 | 34.11 | .00 | 106.00 | .00 | .00 | .00 | .00 | 41.00 | 41.00 |
| 4882.000 | 632.84 | .00 | 632.87 | 31.35 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 4882.000 | 632.84 | .00 | 632.87 | 31.34 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 4942.000 | 632.86 | .00 | 632.89 | 31.04 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 4942.000 | 632.86 | .00 | 632.89 | 31.03 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 5002.000 | 632.89 | .00 | 632.92 | 30.78 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 5002.000 | 632.89 | .00 | 632.92 | 30.78 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 5031.000 | 632.90 | .00 | 632.93 | 30.74 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 5031.000 | 632.90 | .00 | 632.93 | 30.74 | .00 | 107.00 | .00 | 490.00 | 60.00 | 377.60 | 416.00 | 550.00 |
| 5065.000 | 632.90 | .00 | 632.96 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5065.000 | 632.90 | .00 | 632.96 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5241.000 | 633.11 | .00 | 633.18 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |
| 5241.000 | 633.11 | .00 | 633.18 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 80.00 | 92.00 | .00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5269.000 | 633.12 | .00 | 633.38 | 20.83 | .00 | 105.00 | .00 | .00 | .00 | .00 | 43.00 | .00 |
| | 5269.000 | 633.12 | .00 | 633.38 | 20.82 | .00 | 105.00 | .00 | .00 | .00 | .00 | 43.00 | .00 |
| | 5502.000 | 633.96 | .00 | 634.01 | 37.20 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5502.000 | 633.96 | .00 | 634.01 | 37.19 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5545.000 | 633.97 | .00 | 634.19 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| | 5545.000 | 633.97 | .00 | 634.19 | 12.00 | .00 | 105.00 | .00 | .00 | .00 | 25.00 | 37.00 | .00 |
| | 5633.000 | 634.34 | .00 | 634.37 | 41.26 | .00 | 105.00 | .00 | .00 | .00 | .00 | 55.00 | .00 |
| | 5633.000 | 634.34 | .00 | 634.37 | 41.31 | .00 | 105.00 | .00 | .00 | .00 | .00 | 55.00 | 55.00 |
| | 5737.000 | 634.42 | .00 | 634.46 | 38.81 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5737.000 | 634.42 | .00 | 634.46 | 38.81 | .00 | 105.00 | .00 | .00 | .00 | .00 | 52.00 | .00 |
| | 5792.000 | 634.20 | .00 | 634.74 | 8.60 | .00 | 105.00 | .00 | .00 | .00 | 35.00 | 52.00 | .00 |
| | 5792.000 | 634.20 | .00 | 634.74 | 8.60 | .00 | 105.00 | .00 | .00 | .00 | 35.00 | 52.00 | .00 |
| | 5965.000 | 634.80 | .00 | 634.80 | 370.66 | .00 | 210.00 | .00 | .00 | .00 | .00 | 459.00 | .00 |
| | 5965.000 | 634.80 | .00 | 634.80 | 370.71 | .00 | 210.00 | .00 | .00 | .00 | .00 | 459.00 | 459.00 |
| | 6130.000 | 634.80 | .00 | 634.80 | 301.28 | .00 | 210.00 | .00 | .00 | .00 | .00 | 415.00 | .00 |
| | 6130.000 | 634.80 | .00 | 634.80 | 301.32 | .00 | 210.00 | .00 | .00 | .00 | .00 | 415.00 | 415.00 |
| | 6250.000 | 634.80 | .00 | 634.81 | 204.37 | .00 | 210.00 | .00 | .00 | .00 | .00 | 245.00 | .00 |
| | 6250.000 | 634.81 | .00 | 634.81 | 204.42 | .00 | 210.00 | .00 | .00 | .00 | .00 | 245.00 | 245.00 |
| | 6500.000 | 634.81 | .00 | 634.82 | 162.57 | .00 | 210.00 | .00 | .00 | .00 | .00 | 232.00 | .00 |
| | 6500.000 | 634.81 | .00 | 634.82 | 162.65 | .00 | 210.00 | .00 | .00 | .00 | .00 | 232.00 | 232.00 |
| | 6685.000 | 634.82 | .00 | 634.82 | 285.55 | .00 | 210.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| | 6685.000 | 634.82 | .00 | 634.82 | 285.54 | .00 | 210.00 | .00 | .00 | .00 | .00 | 365.00 | .00 |
| | 6920.000 | 634.82 | .00 | 634.83 | 110.60 | .00 | 92.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| | 6920.000 | 634.83 | .00 | 634.83 | 110.54 | .00 | 92.00 | .00 | .00 | .00 | .00 | 157.00 | .00 |
| * | 7259.000 | 635.05 | .00 | 635.08 | 17.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |
| * | 7259.000 | 635.05 | .00 | 635.08 | 17.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 17.13 | .00 |
| | 7260.000 | 635.04 | .00 | 635.09 | 19.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7260.000 | 635.04 | .00 | 635.09 | 19.13 | .00 | 100.00 | .00 | .00 | .00 | .00 | 19.13 | .00 |
| | 7367.000 | 635.15 | .00 | 635.33 | 20.37 | .00 | 100.00 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7367.000 | 635.15 | .00 | 635.33 | 20.37 | .00 | 100.00 | .00 | .00 | .00 | 245.00 | 280.00 | .00 |
| | 7977.000 | 636.70 | .00 | 636.76 | 27.42 | .00 | 100.00 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 7977.000 | 636.71 | .01 | 636.77 | 27.40 | .00 | 100.00 | .00 | .00 | .00 | 333.00 | 370.00 | .00 |
| | 8632.000 | 637.59 | .00 | 637.65 | 30.31 | .00 | 99.00 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |
| | 8632.000 | 637.60 | .01 | 637.65 | 30.35 | .00 | 99.00 | .00 | .00 | .00 | 202.00 | 242.00 | .00 |

| | SECNO | CWSEL | DIFKWS | EG | TOPWID | QLOB | QCH | QROB | PERENC | STENCL | STCHL | STCHR | STENCR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 8832.000 | 637.88 | .00 | 637.96 | 24.20 | .00 | 99.00 | .00 | .00 | .00 | .00 | 36.30 | .00 |
| | 8832.000 | 637.89 | .00 | 637.96 | 24.28 | .00 | 99.00 | .00 | .00 | .00 | .00 | 36.30 | 36.30 |
| | 9000.000 | 638.20 | .00 | 638.27 | 28.78 | .00 | 99.00 | .00 | .00 | .00 | .00 | 47.00 | .00 |
| | 9000.000 | 638.20 | .00 | 638.27 | 28.78 | .00 | 99.00 | .00 | .00 | .00 | .00 | 47.00 | 47.00 |
| | 9600.000 | 639.63 | .00 | 639.74 | 24.27 | .00 | 99.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 9600.000 | 639.64 | .00 | 639.75 | 24.26 | .00 | 99.00 | .00 | .00 | .00 | .00 | 42.00 | .00 |
| | 10000.000 | 640.59 | .00 | 640.66 | 24.59 | .00 | 79.00 | .00 | .00 | .00 | .00 | 40.00 | .00 |
| | 10000.000 | 640.60 | .00 | 640.66 | 24.59 | .00 | 79.00 | .00 | .00 | .00 | .00 | 40.00 | 40.00 |
| | 10400.000 | 641.40 | .00 | 641.49 | 21.99 | .00 | 79.00 | .00 | .00 | .00 | 10.00 | 44.00 | .00 |
| | 10400.000 | 641.40 | .00 | 641.49 | 22.01 | .00 | 79.00 | .00 | .00 | 10.00 | 10.00 | 44.00 | 44.00 |
| | 10800.000 | 642.39 | .00 | 642.48 | 22.87 | .00 | 79.00 | .00 | .00 | .00 | .00 | 35.00 | .00 |
| | 10800.000 | 642.39 | .00 | 642.48 | 22.86 | .00 | 79.00 | .00 | .00 | .00 | .00 | 35.00 | 35.00 |
| | 11110.000 | 642.82 | .00 | 642.86 | 24.92 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11110.000 | 642.82 | .00 | 642.86 | 24.94 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | 50.00 |
| * | 11111.000 | 643.44 | .00 | 643.96 | 13.43 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| * | 11111.000 | 643.44 | .00 | 643.96 | 13.44 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 645.33 | .00 | 645.37 | 28.16 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11591.000 | 645.33 | .00 | 645.37 | 28.16 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 645.16 | .00 | 645.45 | 15.97 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11592.000 | 645.15 | .00 | 645.45 | 15.94 | .00 | 79.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 646.18 | .00 | 646.37 | 23.95 | .00 | 59.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11662.000 | 646.19 | .01 | 646.38 | 23.95 | .00 | 59.00 | .00 | .00 | .00 | .00 | 50.00 | .00 |
| | 11760.000 | 646.90 | .00 | 646.97 | 25.87 | .00 | 59.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |
| | 11760.000 | 646.90 | .01 | 646.98 | 25.89 | .00 | 59.00 | .00 | .00 | .00 | 220.00 | 275.00 | .00 |

*SUMMARY OF ERRORS AND SPECIAL NOTES*

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NOTE     SECNO=  7259.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=  7259.000  PROFILE= 2  WSEL BASED ON X5 CARD

CAUTION  SECNO= 11111.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 11111.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 11111.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11111.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, PROJECT CONDITIONS MODEL
PROFILE NO. 2

| STATION | FLOODWAY WIDTH | FLOODWAY SECTION AREA | FLOODWAY MEAN VELOCITY | WATER SURFACE ELEVATION WITH FLOODWAY | WITHOUT FLOODWAY | DIFFERENCE |
|---|---|---|---|---|---|---|
| 3273.000 | 28. | 71. | 1.5 | 631.2 | 631.2 | .0 |
| 3965.000 | 30. | 74. | 1.5 | 631.7 | 631.7 | .0 |
| 4103.000 | 110. | 30. | 3.6 | 631.9 | 631.9 | .0 |
| 4178.000 | 112. | 25. | 4.3 | 632.2 | 632.2 | .0 |
| 4382.000 | 34. | 93. | 1.1 | 632.7 | 632.7 | .0 |
| 4882.000 | 31. | 80. | 1.3 | 632.8 | 632.8 | .0 |
| 4942.000 | 31. | 78. | 1.4 | 632.9 | 632.9 | .0 |
| 5002.000 | 31. | 77. | 1.4 | 632.9 | 632.9 | .0 |
| 5031.000 | 31. | 77. | 1.4 | 632.9 | 632.9 | .0 |
| 5065.000 | 12. | 53. | 2.0 | 632.9 | 632.9 | .0 |
| 5241.000 | 12. | 48. | 2.2 | 633.1 | 633.1 | .0 |
| 5269.000 | 21. | 25. | 4.1 | 633.1 | 633.1 | .0 |
| 5502.000 | 37. | 60. | 1.7 | 634.0 | 634.0 | .0 |
| 5545.000 | 12. | 28. | 3.8 | 634.0 | 634.0 | .0 |
| 5633.000 | 41. | 76. | 1.4 | 634.3 | 634.3 | .0 |
| 7.000 | 39. | 65. | 1.6 | 634.4 | 634.4 | .0 |
| 92.000 | 9. | 18. | 5.9 | 634.2 | 634.2 | .0 |
| 5965.000 | 371. | 959. | .2 | 634.8 | 634.8 | .0 |
| 6130.000 | 301. | 793. | .3 | 634.8 | 634.8 | .0 |
| 6250.000 | 204. | 523. | .4 | 634.8 | 634.8 | .0 |
| 6500.000 | 163. | 414. | .5 | 634.8 | 634.8 | .0 |
| 6685.000 | 286. | 752. | .3 | 634.8 | 634.8 | .0 |
| 6920.000 | 111. | 263. | .4 | 634.8 | 634.8 | .0 |
| 7259.000 | 17. | 73. | 1.4 | 635.1 | 635.1 | .0 |
| 7260.000 | 19. | 52. | 1.9 | 635.0 | 635.0 | .0 |
| 7367.000 | 20. | 30. | 3.4 | 635.2 | 635.2 | .0 |
| 7977.000 | 27. | 50. | 2.0 | 636.7 | 636.7 | .0 |
| 8632.000 | 30. | 51. | 1.9 | 637.6 | 637.6 | .0 |
| 8832.000 | 24. | 44. | 2.2 | 637.9 | 637.9 | .0 |
| 9000.000 | 29. | 45. | 2.2 | 638.2 | 638.2 | .0 |
| 9600.000 | 24. | 37. | 2.7 | 639.6 | 639.6 | .0 |
| 10000.000 | 25. | 39. | 2.0 | 640.6 | 640.6 | .0 |
| 10400.000 | 22. | 33. | 2.4 | 641.4 | 641.4 | .0 |
| 10800.000 | 23. | 34. | 2.3 | 642.4 | 642.4 | .0 |
| 11110.000 | 25. | 51. | 1.6 | 642.8 | 642.8 | .0 |
| 11111.000 | 13. | 14. | 5.8 | 643.4 | 643.4 | .0 |
| 11591.000 | 28. | 48. | 1.7 | 645.3 | 645.3 | .0 |
| 11592.000 | 16. | 18. | 4.3 | 645.2 | 645.2 | .0 |
| 11662.000 | 24. | 17. | 3.6 | 646.2 | 646.2 | .0 |
| 11760.000 | 26. | 28. | 2.1 | 646.9 | 646.9 | .0 |

THIS RUN EXECUTED 02-21-96

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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