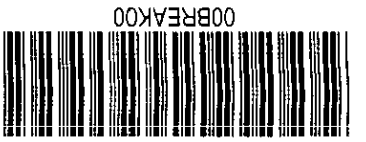


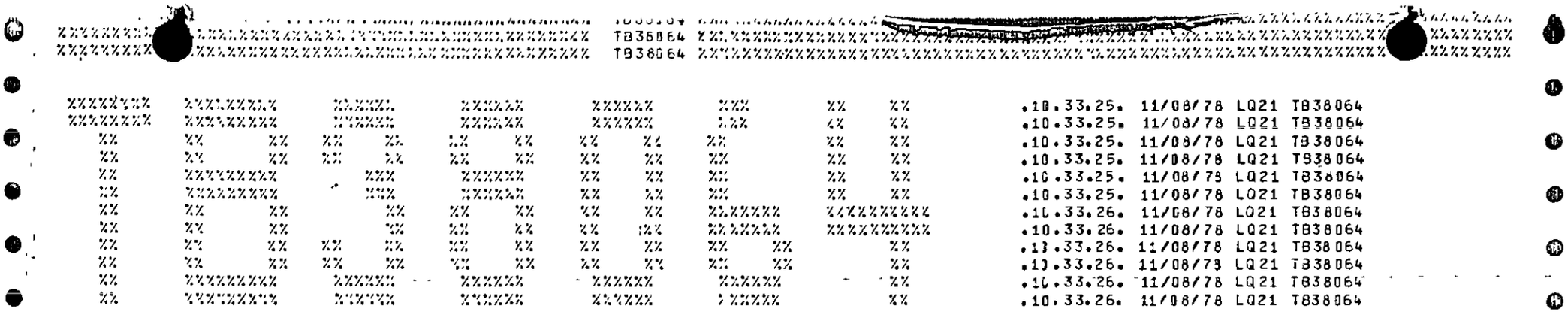
1) COUNTY: Ingham + Eaton

2) STUDY NAME: City of Lansing

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 100 yr : Encroached





GRAND RIVER II FLOODWAY

Input in the rear of the folder.

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********

T1
T2       100 YEAR FLOODWAY RUN
T3       GRAND RIVER PART II
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.000000	0.00	0.0	10000.	634.830	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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*PROF 2

CCHV=     .100 CEHV=     .300
*SECNO 121.100
 2800 NAT Q1=    3422.55  WSEL=     834.73  ENC Q1=    3456.29  WSEL=     834.83  RATIO=  -.0099
 NAT Q1=    3469.  RATIOS LOB,CH,ROB=  0.0000    .9964    .0036  WSEL=     834.83
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QPOB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VPOB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      100.0      240.0  TYPE=      4  TARGET=          .004
   121.10    15.23    834.63      0.00    834.73    835.49       .66      0.00      0.00    835.90
   10000.       0.    10000.        0.        0.     1529.        0.        0.        0.    835.80
     0.00     0.00      6.54      0.00      .050      .032      .050     0.000    819.60    103.13
  .000937       0.        0.        0.         0         0         0      0.00    135.38    238.52

*SECNO 122.000
 2800 NAT Q1=   11031.21  WSEL=     835.54  ENC Q1=   11160.90  WSEL=     835.64  RATIO=  -.0118
 NAT Q1=   11161.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.64

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      150.0      510.0  TYPE=      4  TARGET=          0.000
   122.00    15.43    835.63      0.00    835.54    835.71       .08       .16       .06    837.30
   10000.       0.    10000.        0.        0.     4365.        0.       56.        4.    847.20
      .10     0.00      2.26      0.00      .050      .032      .050      .032    820.20    150.00
  .000080     930.      830.      805.         2         0         0      0.00    327.17    477.17

*SECNO 123.000
 2800 NAT Q1=    9493.93  WSEL=     835.59  ENC Q1=    9621.81  WSEL=     835.69  RATIO=  -.0135
 NAT Q1=    9622.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.69

3470 ENCROACHMENT STATIONS=      100.0      445.0  TYPE=      4  TARGET=          0.000
   123.00    19.48    835.68      0.00    835.59    835.77       .10       .06       .01    838.50
   10000.       0.    10000.        0.        0.     3991.        0.      119.        9.    844.00
      .17     0.00      2.51      0.00      .050      .032      .050      .032    816.20    100.00
  .000108     650.      650.      700.         1         0         0      0.00    332.52    432.52

CCHV=     .300 CEHV=     .500
*SECNO 124.000
 2800 NAT Q1=    9784.61  WSEL=     835.61  ENC Q1=    9883.32  WSEL=     835.71  RATIO=  -.0101
 NAT Q1=    9883.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.71

3470 ENCROACHMENT STATIONS=      191.0      484.0  TYPE=      4  TARGET=          0.000

           EXISTING LOGAN STREET BRIDGE

   124.00    26.50    835.70      0.00    835.61    835.80       .11       .03       .00    839.00
   10000.       0.    10000.        0.        0.     3805.        0.      140.       11.    840.00
      .20     0.00      2.63      0.00      .050      .032      .050      .032    809.20    191.00
  .000103     275.      240.      200.         0         0         0      0.00    268.77    459.77

*SECNO 124.100
 2800 NAT Q1=    8362.42  WSEL=     835.60  ENC Q1=    8447.09  WSEL=     835.70  RATIO=  -.0101
 NAT Q1=    8447.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.70
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QPOB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VPOB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NRO= 20 MIN ELTRD=  840.00 MAX ELLC=  868.00

3470 ENCROACHMENT STATIONS=      191.0      484.0  TYPE=      4  TARGET=          0.000
   124.10    26.49    835.69      0.00    835.60    835.81       .13       .00       .01    839.00
   10000.       0.    10000.        0.        0.     3463.        0.      140.       11.    840.00
      .20     0.00      2.89      0.00      .050      .032      .050      .032    809.20    191.00
  .000140       1.        1.        1.         1         0         0   -339.57    268.71    459.71
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*SECNO 124.400
 2800 NAT Q1=    8363.13  WSEL=     835.60  ENC Q1=    8453.83  WSEL=     835.70  RATIO=  -.0108
 NAT Q1=    8454.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.70

3370 NORMAL BRIDGE,NRO= 20 MIN ELTRD=   840.00 MAX ELLC=   868.00

3470 ENCROACHMENT STATIONS=      191.0      484.0  TYPE=      4  TARGET=        0.000
   124.40     26.49    835.69     0.00    835.60    835.82      .13       .01       .00    839.00
   10000.        0.   10000.       0.        0.      3463.       0.      145.       11.    840.00
      .20      0.00      2.89     0.00      .050      .032     .050      .032    809.20    191.00
  .000140       52.       52.      52.         0         0        0   -339.59    258.72    459.72

*SECNO 124.500
 2800 NAT Q1=    9809.00  WSEL=     835.63  ENC Q1=    9909.81  WSEL=     835.73  RATIO=  -.0103
 NAT Q1=    9910.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.73

3470 ENCROACHMENT STATIONS=      191.0      484.0  TYPE=      4  TARGET=        0.000
   124.50     26.52    835.72     0.00    835.63    835.83      .11       .00       .01    839.00
   10000.        0.   10000.       0.        0.      3811.       0.      145.       11.    840.00
      .20      0.00      2.62     0.00      .050      .032     .050      .032    809.20    191.00
  .000102        1.        1.       1.         2         0        0      0.00    258.89    459.89

*SECNO 125.000
 2800 NAT Q1=   14310.24  WSEL=     835.73  ENC Q1=   14485.20  WSEL=     835.83  RATIO=  -.0122
 NAT Q1=   14486.  RATIOS LOB,CH,ROB=   .0001   .9999  0.0000  WSEL=     835.83

3470 ENCROACHMENT STATIONS=      150.0      585.0  TYPE=      4  TARGET=         .000
   125.00     26.51    835.81     0.00    835.73    835.86      .05       .01       .02    834.00
   10000.        0.   10000.       0.        0.      5681.       0.      168.       13.    840.00
      .24      0.00      1.76     0.00      .050      .032     .050      .032    809.30    150.00
  .000048      240.      210.     200.         2         0        0      0.00    426.74    576.74

*SECNO 125.500
 2800 NAT Q1=   11729.52  WSEL=     835.73  ENC Q1=   11860.74  WSEL=     835.83  RATIO=  -.0112
 NAT Q1=   11861.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.83

3470 ENCROACHMENT STATIONS=      150.5      588.1  TYPE=      4  TARGET=        0.000

            PROPOSED LOGAN STREET BRIDGE

   125.50     15.82    835.82     0.00    835.73    835.89      .06       .02       .01    842.00
   10000.        0.   10000.       0.        0.      4892.       0.      201.       16.    841.00
      .27      0.00      2.04     0.00      .050      .032     .050      .032    820.00    177.13
  .000071      340.      280.     110.         0         0        0      0.00    403.60    580.72

*SECNO 125.510
 2800 NAT Q1=    6805.02  WSEL=     835.70  ENC Q1=    6887.81  WSEL=     835.80  RATIO=  -.0122
 NAT Q1=    6888.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.80
   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      XLOER     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRO= 32 MIN ELTRD=   847.00 MAX ELLC=   879.00

3470 ENCROACHMENT STATIONS=      150.5      588.1  TYPE=      4  TARGET=        0.000
   125.51     15.79    835.79     0.00    835.70    835.92      .12       .00       .03    842.00
   10000.        0.   10000.       0.        0.      3528.       0.      202.       16.    841.00
      .28      0.00      2.83     0.00      .050      .032     .050      .032    820.00    177.52
  .000211        1.        1.       1.         2         0        0   -1349.73    403.16    580.67

*SECNO 125.590
 2800 NAT Q1=    6811.21  WSEL=     835.71  ENC Q1=    6897.31  WSEL=     835.81  RATIO=  -.0126
 NAT Q1=    6897.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     835.81

3370 NORMAL BRIDGE,NRO= 32 MIN ELTRD=   847.00 MAX ELLC=   879.00

3470 ENCROACHMENT STATIONS=      150.5      588.1  TYPE=      4  TARGET=        0.000
   125.59     15.80    835.80     0.00    835.71    835.93      .12       .01       .00    842.00
   10000.        0.   10000.       0.        0.      3531.       0.      206.       16.    841.00
      .28      0.00      2.83     0.00      .050      .032     .050      .032    820.00    177.40
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 .000211      52.      52.      52.        0        0        0 -1350.88   403.29   580.69

*SECNO 125.600
 2800 NAT Q1=  11806.44  WSEL=    835.79  ENC Q1=  11945.52  WSEL=    835.89  RATIO=  -.0118
 NAT Q1=  11946.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    835.89

3470 ENCROACHMENT STATIONS=      150.5      588.1  TYPE=      4  TARGET=        0.000
   125.60     15.88    835.88     0.00    835.79    835.94      .06      .00      .02    842.00
   10000.        0.    10000.       0.        0.     4914.       0.     206.      16.    841.00
      .28      0.00      2.04     0.00      .050      .032     .050     .032   820.30    176.56
 .000070        1.        1.       1.         2         0         0     0.00   404.24    580.80

*SECNO 126.000
 2800 NAT Q1=  10060.01  WSEL=    835.84  ENC Q1=  10211.60  WSEL=    835.94  RATIO=  -.0151
 NAT Q1=  10218.  RATIOS LOB,CH,ROB=   .0001   .9994   .0005  WSEL=    835.94

3470 ENCROACHMENT STATIONS=       20.0      438.0  TYPE=      4  TARGET=         .001
   126.00     12.52    835.92     0.00    835.84    836.00      .08      .05      .01    833.10
   10000.        0.    10000.       0.        0.     4510.       0.     271.      22.    833.10
      .36      0.00      2.22     0.00      .050      .032     .050     .032   823.40     20.00
 .000098       480.      600.      925.         1         0         0     0.00   418.00    438.00

CCHV=     .100 CEHV=     .300
*SECNO 127.000
 2800 NAT Q1=   5951.36  WSEL=    836.06  ENC Q1=   6066.55  WSEL=    836.16  RATIO=  -.0194
 NAT Q1=   6073.  RATIOS LOB,CH,ROB=   .0009   .9989   .0001  WSEL=    836.16

3470 ENCROACHMENT STATIONS=       65.0      447.0  TYPE=      4  TARGET=         .001
   127.00     13.15    836.15     0.00    836.06    836.30      .15      .28      .02    834.00
   10000.        0.    10000.       0.        0.     3177.       0.     430.      39.    834.00
      .51      0.00      3.15     0.00      .050      .032     .050     .032   823.00     65.00
 .000278      1820.     1800.     1740.         2         0         0     0.00   332.00    447.00

*SECNO 128.000
 2800 NAT Q1=   8359.18  WSEL=    836.49  ENC Q1=   8496.43  WSEL=    836.59  RATIO=  -.0164
 NAT Q1=   8500.  RATIOS LOB,CH,ROB=   .0005   .9995  0.0000  WSEL=    836.59
   SECNO     DEPTH     CWSEL     CPIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QPOF      ALOB      ACH       ARDP      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VPOF      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      220.0      625.0  TYPE=      4  TARGET=         .000
   128.00     15.76    836.56     0.00    836.49    836.66      .10      .36      .01    835.00
   10000.        0.    10000.       0.        0.     3974.       0.     581.      55.    840.00
      .72      0.00      2.52     0.00      .050      .032     .050     .032   820.80    220.00
 .000141      1900.     1850.     2100.         1         0         0     0.00   402.13    622.13

*SECNO 129.000
 2800 NAT Q1=   6595.91  WSEL=    836.62  ENC Q1=   6717.36  WSEL=    836.72  RATIO=  -.0184
 NAT Q1=   6718.  RATIOS LOB,CH,ROB=   .0000   .9999   .0000  WSEL=    836.72

3470 ENCROACHMENT STATIONS=       68.0      450.0  TYPE=      4  TARGET=         .000
   129.00     13.39    836.69     0.00    836.62    836.83      .14      .16      .01    836.00
   10000.        0.    10000.       0.        0.     3308.       0.     657.      63.    836.00
      .80      0.00      3.02     0.00      .050      .032     .050     .032   823.30     88.00
 .000225       950.      900.      900.         2         0         0     0.00   362.00    450.00

*SECNO 130.000
 2800 NAT Q1=   7424.99  WSEL=    836.97  ENC Q1=   7538.53  WSEL=    837.07  RATIO=  -.0153
 NAT Q1=   7547.  RATIOS LOB,CH,ROB=  0.0000   .9989   .0011  WSEL=    837.07
   130.00     13.73    837.03     0.00    836.97    837.16      .13      .33      .00    848.10
   10000.        0.    10000.       0.        0.     3457.       0.     785.      76.    836.60
      .96      0.00      2.89     0.00      .050      .032     .050     .032   823.30     18.69
 .000178      2000.     1650.     1500.         0         0         0     0.00   339.31    358.00

*SECNO 131.000
 2800 NAT Q1=   8094.24  WSEL=    837.28  ENC Q1=   8242.10  WSEL=    837.38  RATIO=  -.0183
 NAT Q1=   8246.  RATIOS LOB,CH,ROB=  0.0000   .9995   .0005  WSEL=    837.38

3470 ENCROACHMENT STATIONS=      120.0      600.0  TYPE=      4  TARGET=         .001
   131.00     14.54    837.34     0.00    837.28    837.43      .09      .26      .00    838.00
   10000.        0.    10000.       0.        0.     4166.       0.     925.      91.    836.00
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    1.14      0.00      2.40      0.00      .050      .032      .050      .032    822.60    122.64
  .000150     1700.     1600.     1700.         2         0         0      0.00    477.36    600.00

*SECNO 132.000
 2800 NAT Q1=    9291.60  WSEL=     837.48  ENC Q1=    9403.38  WSEL=     837.58  RATIO=  -.0120
 NAT Q1=    9450.  RATIOS LOB,CH,ROB=    .0035    .9951    .0014  WSEL=     837.58

3470 ENCROACHMENT STATIONS=       80.0      504.0  TYPE=      4  TARGET=          .005
   132.00     15.34    837.54      0.00    837.48    837.63       .08       .20       .00    834.70
X  10000.        0.     10000.        0.        0.     4300.        0.     1071.      107.    835.70
     1.32      0.00      2.33      0.00      .035      .032      .035      .032    822.20     80.00
  .000117     1500.     1500.     1450.         0         0         0      0.00    424.00    504.00

*SECNO 133.000
 2800 NAT Q1=    9371.77  WSEL=     837.58  ENC Q1=    9473.94  WSEL=     837.58  RATIO=  -.0109
 NAT Q1=    9520.  RATIOS LOB,CH,ROB=    .0034    .9951    .0015  WSEL=     837.68
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VCL       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=       80.0      504.0  TYPE=      4  TARGET=          .005
X  133.00     15.24    837.64      0.00    837.58    837.72       .08       .09       .00    834.70
   10000.        0.     10000.        0.        0.     4322.        0.     1150.      114.    835.70
     1.42      0.00      2.31      0.00      .040      .032      .035      .032    822.40     80.00
  .000115      750.      800.      800.         0         0         0      0.00    424.00    504.00

CCHV=     .300 CEHV=     .500
*SECNO 134.000
 2800 NAT Q1=    7962.03  WSEL=     837.60  ENC Q1=    8063.29  WSEL=     837.70  RATIO=  -.0127
 NAT Q1=    8063.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     837.70

3470 ENCROACHMENT STATIONS=      161.5      408.9  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.80 ELREA=       842.80

          WAVERLY ROAD BRIDGE

X  134.00     17.76    837.66      0.00    837.60    837.81       .15       .06       .03    832.90
   10000.        0.     10000.        0.        0.     3199.        0.     1189.      118.    832.90
     1.46      0.00      3.13      0.00      .040      .032      .035      .032    819.90    161.49
  .000159      450.      450.      450.         2         0         0      0.00    247.39    408.89

*SECNO 134.100
 2800 NAT Q1=    7142.44  WSEL=     837.59  ENC Q1=    7229.15  WSEL=     837.69  RATIO=  -.0121
 NAT Q1=    7229.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     837.69

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  842.80 MAX ELLC=  840.00

3470 ENCROACHMENT STATIONS=      161.5      408.9  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.80 ELREA=       842.80

   134.10     17.75    837.65      0.00    837.59    837.83       .17       .00       .01    832.90
   10000.        0.     10000.        0.        0.     2997.        0.     1189.      118.    832.90
     1.46      0.00      3.34      0.00      .040      .032      .035      .032    819.90    161.49
  .000198        1.        1.        1.         1         0         0   -200.71    247.39    408.89

*SECNO 134.500
 2800 NAT Q1=    8023.70  WSEL=     837.63  ENC Q1=    8119.17  WSEL=     837.73  RATIO=  -.0119
 NAT Q1=    8119.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     837.73

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  842.80 MAX ELLC=  840.00

3470 ENCROACHMENT STATIONS=      165.5      432.9  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.80 ELREA=       842.80

   134.50     18.79    837.69      0.00    837.63    837.84       .15       .01       .01    832.90
   10000.        0.     10000.        0.        0.     3224.        0.     1192.      118.    827.50
     1.46      0.00      3.10      0.00      .040      .032      .035      .032    818.90    185.54
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   .000161       46.       46.       46.        2         0         0  -210.02    247.39    432.94

*SECNO 134.900
 2800 NAT Q1=    8938.26  WSEL=     837.65  ENC Q1=    9043.78  WSEL=     837.75  RATIO=   -.0118
 NAT Q1=    9044.  RATIOS LOB,CH,ROB=   0.0000  1.0000  0.0000  WSEL=     837.75

3470 ENCROACHMENT STATIONS=      185.5      432.9  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      842.80 ELREA=      842.80

    134.90     18.81    837.71      0.00    837.65    837.85       .13       .01       .01    832.90
    10000.        0.   10000.        0.        0.      3440.       0.      1192.      118.    827.50
      1.46      0.00      2.91      0.00      .040      .032      .035      .032    818.90    185.54
   .000130        1.        1.        1.         2         0         0      0.00    247.39    432.94

*SECNO 135.000
 2800 NAT Q1=   10691.69  WSEL=     837.78  ENC Q1=   10767.74  WSEL=     837.88  RATIO=   -.0071
 NAT Q1=   10836.  RATIOS LOB,CH,ROB=   .0096   .9891   .0012  WSEL=     837.88
    SECNO      DEPTH      CWSEL      CFLWS      WSELK      EG         HV         HL         QLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        ARGB       VOL        TWA    LEFT/RIGHT
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENOST


3470 ENCROACHMENT STATIONS=      190.0      720.0  TYPE=      4  TARGET=        .011
    135.00     13.54    837.84      0.00    837.78    837.90       .06       .03       .02    834.60
    10000.        0.   10000.        0.        0.      5101.       0.      1221.      121.    833.00
      1.51      0.00      1.96      0.00      .040      .032      .050      .032    324.30    190.00
   .000089      400.      300.      250.         2         0         0      0.00    530.00    720.00

CCHV=     .100 CEHV=     .300
*SECNO 136.000
 2800 NAT Q1=    8089.39  WSEL=     838.15  ENC Q1=    8089.39  WSEL=     838.25  RATIO=    .0000
 NAT Q1=    8252.  RATIOS LOB,CH,ROB=   .0744   .9243   .0013  WSEL=     838.25

3470 ENCROACHMENT STATIONS=      182.3      744.0  TYPE=      4  TARGET=        .020
    136.00     16.92    838.22      0.00    838.15    838.32       .10       .41       .01    833.10
    10000.      571.     9429.        0.      666.     3594.       0.      1594.      164.    833.10
      1.89       .86      2.62      0.00      .050      .032      .050      .032    821.30    182.31
   .000157     3000.     3500.     5000.         2         0         0      0.00    561.69    744.00

*SECNO 137.000
 2800 NAT Q1=    8249.39  WSEL=     838.35  ENC Q1=    8249.39  WSEL=     838.45  RATIO=    .0000
 NAT Q1=    8424.  RATIOS LOB,CH,ROB=   .0006   .9510   .0484  WSEL=     838.45

3470 ENCROACHMENT STATIONS=       20.0      657.8  TYPE=      4  TARGET=        .121
    137.00     17.13    838.43      0.00    838.35    838.54       .11       .22       .00    835.00
    10000.        0.     9717.      283.        0.     3613.      527.     1732.      185.    836.00
      2.04      0.00      2.69       .54      .050      .032      .050      .032    821.30     20.00
   .000150     1300.     1400.     2100.         2         0         0      0.00    637.80    657.80

*SECNO 139.000
 2800 NAT Q1=    9173.69  WSEL=     838.63  ENC Q1=    9173.69  WSEL=     838.73  RATIO=    .0000
 NAT Q1=    9327.  RATIOS LOB,CH,ROB=   .1819   .8178   .0003  WSEL=     838.73

3470 ENCROACHMENT STATIONS=      113.1      736.0  TYPE=      4  TARGET=        .016
    139.00     18.11    838.71      0.00    838.63    838.83       .11       .29       .00    833.00
    10000.     1703.     8297.        0.     1896.     2826.       0.      1953.      218.    833.00
      2.27       .90      2.94      0.00      .050      .032      .050      .032    820.60    113.13
   .000123     2300.     2100.     2600.         2         0         0      0.00    622.87    736.00

*SECNO 140.000
 2800 NAT Q1=    8630.88  WSEL=     838.93  ENC Q1=    8630.88  WSEL=     839.03  RATIO=    .0000
 NAT Q1=    8767.  RATIOS LOB,CH,ROB=   .0387   .9513  0.0000  WSEL=     839.03

3470 ENCROACHMENT STATIONS=      184.8      630.0  TYPE=      4  TARGET=        .015
    140.00     15.72    839.02      0.00    838.93    839.12       .10       .29       .00    834.30
    10000.      236.     9764.        0.      273.     3865.       0.      2183.      246.    840.00
      2.52       .87      2.53      0.00      .050      .032      .050      .032    823.30    184.84
   .000135     2300.     2250.     2500.         1         0         0      0.00    442.98    627.82

*SECNO 141.000
 2800 NAT Q1=   10298.38  WSEL=     839.19  ENC Q1=   10298.38  WSEL=     839.29  RATIO=    .0000
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NAT Q1=  10527.  RATIOS LOB,CH,ROB=    .0031    .6319    .3650  WSEL=     839.29
  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     COPAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=       92.0     1084.4  TYPE=      4  TARGET=          .022
   141.00     15.38    839.28      0.00    839.19    839.33      .05       .20       .00    833.00
   10000.        0.     6429.     3571.        0.     3031.     3888.     2395.      272.    833.00
     2.82      0.00      2.12       .92      .050      .032      .050      .032    823.90     92.00
  .000096     2050.     1950.     1150.         2         0         0      0.00    992.40   1084.40

*SECNO 141.500
 2800 NAT Q1=    9572.69  WSEL=     839.31  ENC Q1=    9572.69  WSEL=     839.41  RATIO=    .0000
 NAT Q1=    9749.  RATIOS LOB,CH,ROB=    .1072    .8919    .0008  WSEL=     839.41

3470 ENCROACHMENT STATIONS=       96.0      679.0  TYPE=      4  TARGET=          .018
   141.50     19.40    839.40      0.00    839.31    839.48      .07       .14       .01    834.40
   10000.      949.     9051.        0.      987.     4006.        0.     2583.      296.    835.00
     3.00       .96      2.26      0.00      .050      .032      .050      .032    820.00     95.95
  .000110     1500.     1400.     1300.         1         0         0      0.00    583.05    679.00

*SECNO 142.000
 2800 NAT Q1=    7497.50  WSEL=     839.49  ENC Q1=    7497.50  WSEL=     839.59  RATIO=    .0000
 NAT Q1=    7647.  RATIOS LOB,CH,ROB=    .0006    .7983    .2012  WSEL=     839.59

3470 ENCROACHMENT STATIONS=      140.0      798.4  TYPE=      4  TARGET=          .020
   142.00     19.08    839.58      0.00    839.49    839.74      .16       .24       .02    838.50
   10000.        0.     8137.     1563.        0.     2334.     1890.     2763.      321.    835.00
     3.15      0.00      3.49       .99      .050      .032      .050      .032    820.50    140.00
  .000160     1700.     1700.     1700.         2         0         0      0.00    658.43    798.43

*SECNO 143.000
 2800 NAT Q1=    9235.49  WSEL=     839.96  ENC Q1=    9235.49  WSEL=     840.06  RATIO=    .0000
 NAT Q1=    9472.  RATIOS LOB,CH,ROB=    .4916    .5084    .0001  WSEL=     840.06

3470 ENCROACHMENT STATIONS=      151.1     1516.0  TYPE=      4  TARGET=          .025
   143.00     14.86    840.06      0.00    839.96    840.10      .04       .35       .01    836.90
   10000.     4794.     5206.        0.     5323.     2580.        0.     3100.      377.    839.20
     3.61       .90      2.02      0.00      .050      .040      .050      .033    825.20    151.15
  .000118     2300.     2440.     2700.         2         0         0      0.00   1364.86   1516.00

*SECNO 144.000
 2800 NAT Q1=    5521.50  WSEL=     840.44  ENC Q1=    5521.50  WSEL=     840.54  RATIO=    .0000
 NAT Q1=    5589.  RATIOS LOB,CH,ROB=    .0176    .9806    .0018  WSEL=     840.54

3470 ENCROACHMENT STATIONS=      248.1      410.0  TYPE=      4  TARGET=          .012
   144.00     18.25    840.55      0.00    840.44    840.91      .36       .71       .10    836.50
   10000.       70.     9930.        0.       44.     2046.        0.     3549.      447.    836.50
     3.83      1.59      4.85      0.00      .035      .031      .035      .032    822.30    248.14
  .000340     4050.     3750.     2300.         2         0         0      0.00    161.86    410.00

*SECNO 145.000
 2800 NAT Q1=    5947.04  WSEL=     840.90  ENC Q1=    5998.78  WSEL=     841.00  RATIO=   -.0087
 NAT Q1=    6033.  RATIOS LOB,CH,ROB=    .0052    .9944    .0004  WSEL=     841.00
  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     COPAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      645.0      844.0  TYPE=      4  TARGET=          .006
   145.00     15.33    841.03      0.00    840.90    841.29      .27       .37       .01    838.30
   10000.        0.    10000.        0.        0.     2414.        0.     3611.      452.    838.20
     3.91      0.00      4.14      0.00      .035      .031      .035      .032    825.70    645.00
  .000287     1100.     1200.     1500.         2         0         0      0.00    199.00    844.00

*SECNO 146.000
 2800 NAT Q1=    7511.13  WSEL=     841.39  ENC Q1=    7511.13  WSEL=     841.49  RATIO=    .0000
 NAT Q1=    7624.  RATIOS LOB,CH,ROB=    .0521    .9261    .0217  WSEL=     841.49

3470 ENCROACHMENT STATIONS=       72.0      350.9  TYPE=      4  TARGET=          .015
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   146.00     17.31    841.51      0.00    841.39    841.70       .19       .40       .01    835.00
   10000.      447.     9407.      146.      249.     2639.      127.     3723.      462.     837.80
     4.05      1.80      3.56      1.15      .035      .031      .035      .032    824.20     71.99
  .000177     1900.     1800.     1925.         2         0         0      0.00    278.95    350.94

CCHV=     .300 CEHV=     .500
*SECNO 147.000
 2800 NAT Q1=    6799.85  WSEL=     841.49  ENC Q1=    6900.67  WSEL=     841.59  RATIO=  -.0148
 NAT Q1=    6901.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     841.59

3470 ENCROACHMENT STATIONS=     1028.0     1395.1  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.70 ELPEA=       842.70

          CRIETZ ROAD BRIDGE

   147.00     16.42    841.62      0.00    841.49    841.76       .14       .04       .01    835.20
   10000.        0.    10000.        0.        0.     3331.        0.     3739.      463.     841.80
     4.07      0.00      3.00      0.00      .035      .031      .035      .032    825.20   1027.95
  .000211       75.      220.      250.         2         0         0      0.00    363.66   1391.61


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS        ELCHU      ELCHD
     1.25      1.56       2.60       0.00     134.98     12.00     2600.00      1.67     826.50     826.50

*SECNO 147.500
6110 EGLWC OF  841.74 LESS THAN XEG OF  841.76
CLASS A LOW FLOW

3420 BRIDGE W.S.=     841.57 BRIDGE VELOCITY=,       4.33      CALCULATED CHANNEL AREA=,      2309.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTPD
                                                                        AREA
     0.00     841.74       .02         0.     10000.      2600.      2640.      843.40     842.70


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.70 ELPEA=       842.70

   147.50     16.41    841.61      0.00    841.51    841.76       .13      0.00      0.00    837.70
   10000.        0.    10000.        0.        0.     3449.        0.     3744.      464.     843.50
     4.08      0.00      2.90      0.00      .035      .031      .035      .032    825.20    930.05
  .000194       66.       56.       66.         0         0         0      0.00    377.93   1307.98

*SECNO 148.000
 2800 NAT Q1=    5457.66  WSEL=     841.56  ENC Q1=    5457.66  WSEL=     841.56  RATIO=    .0000
 NAT Q1=    5563.  RATIOS LOB,CH,ROB=   .1020   .7973   .1005  WSEL=     841.65

3470 ENCROACHMENT STATIONS=      132.2      549.5  TYPE=      4  TARGET=         .019
   148.00     15.67    841.67      0.00    841.56    841.84       .17       .06       .02    836.40
   10000.      949.     8119.      932.      512.     2303.      413.     3764.      466.     835.10
     4.10      1.85      3.52      2.26      .035      .040      .035      .032    826.00    132.22
  .000333      500.      250.      166.         1         0         0      0.00    417.41    549.62

*SECNO 149.000
 2800 NAT Q1=    5977.53  WSEL=     841.65  ENC Q1=    6075.91  WSEL=     841.75  RATIO=  -.0165
 NAT Q1=    6076.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     841.75
   SECNO     DEPTH     CWSEL     CPIWS     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     XLOPL     XLCH      XLOBP     ITRIAL    IOC       ICONT     CORAP     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      419.0      700.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       858.50 ELPEA=       858.50

          WESTBOUND I-96 BRIDGE

   149.00     16.77    841.77      0.00    841.55    841.96       .19       .11       .01    838.00
   10000.        0.    10000.        0.        0.     2888.        0.     3789.      463.     836.20
     4.13      0.00      3.46      0.00      .035      .033      .035      .032    825.00    419.00
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 .000280      350.      350.      350.         0         0         0      0.00    231.00    700.00

SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      DWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05      1.56       2.60       0.00     178.00       8.00    5855.50      2.49     828.00     828.00

*SECNO 149.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     841.75 BRIDGE VELOCITY=,       3.56      CALCULATED CHANNEL AREA=,      2809.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
     0.00     841.96       .01         0.     10000.      5856.      5777.       852.90     858.50


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       852.30 ELREA=       852.30

   149.50     16.76    841.76      0.00    841.66    841.96       .20       .01      0.00    845.00
   10000.        0.    10000.        0.        0.     2772.        0.     3791.      469.    843.10
     4.13      0.00      3.61      0.00      .035      .033      .035      .032    825.00    438.72
  .000280       34.       34.       34.         0         0         0      0.00    258.73    697.45

*SECNO 150.000
 2800 NAT Q1=    5316.59  WSEL=     841.70  ENC Q1=    5316.59  WSEL=     841.80  RATIO=    .0000
 NAT Q1=    5404.  RATIOS LOB,CH,ROB=    .0266    .9582    .0052  WSEL=     841.80

3470 ENCROACHMENT STATIONS=      384.6      605.0  TYPE=      4  TARGET=          .016
   150.00     16.79    841.79      0.00    841.70    842.06       .27       .06       .03    838.50
   10000.      156.     9842.        0.       96.     2339.        0.     3803.      470.    841.00
     4.15      1.64      4.21      0.00      .035      .035      .035      .032    825.00    384.61
  .000357      200.      200.      200.         2         0         0      0.00    220.39    605.00

*SECNO 151.000
 2800 NAT Q1=    4776.82  WSEL=     841.87  ENC Q1=    4857.63  WSEL=     841.97  RATIO=   -.0169
 NAT Q1=    4858.  RATIOS LOB,CH,ROB=   0.0000   1.0000   0.0000  WSEL=     841.97

3470 ENCROACHMENT STATIONS=      397.4      683.6  TYPE=      4  TARGET=         0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       860.40 ELREA=       860.40

          EASTBOUND I-96 BRIDGE

   151.00     14.78    841.98      0.00    841.87    842.17       .19       .09       .02    839.80
   10000.        0.    10000.        0.        0.     2857.        0.     3817.      472.    841.50
     4.16      0.00      3.50      0.00      .035      .040      .035      .032    827.20    397.38
  .000428      225.      225.      225.         2         0         0      0.00    286.26    683.64


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.05      1.56       2.60       0.00     213.40       8.00    6138.00      2.15     830.00     830.00

*SECNO 151.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     841.97 BRIDGE VELOCITY=,       3.61      CALCULATED CHANNEL AREA=,      2766.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
     0.00     842.18       .01         0.     10000.      6138.      6137.       853.90     860.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       860.40 ELREA=       860.40

   151.50     14.58    841.98      0.00    841.88    842.18       .19       .00      0.00    839.90
   10000.        0.    10000.        0.        0.     2825.        0.     3819.      472.    838.90
     4.17      0.00      3.54      0.00      .035      .040      .035      .032    827.40    413.39
  .000435       35.       35.       35.         0         0         0      0.00    286.26    699.64
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*SECNO 152.000
 2800 NAT Q1=    5733.99  WSEL=     842.04  ENC Q1=    5739.49  WSEL=     842.14  RATIO=  -.0010
 NAT Q1=    5822.  RATIOS LOB,CH,ROB=    .0032    .9858    .0110  WSEL=     842.14
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS   BANK ELEV
   Q         QLOB      QCH       QPOB      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=      525.0      770.0  TYPE=      4  TARGET=          .014
   152.00     15.93    842.13      0.00    842.04    842.31       .18       .13       .00    840.00
   10000.        0.    10000.        0.        0.     2949.        0.     3842.      474.    833.90
     4.20      0.00      3.39      0.00      .035      .040      .035      .033    326.20    525.00
  .000322      400.      350.      250.         2         0         0      0.00    245.00    770.00

*SECNO 153.000
 2800 NAT Q1=    6823.98  WSEL=     842.28  ENC Q1=    6823.98  WSEL=     842.38  RATIO=  0.0000
 NAT Q1=    6964.  RATIOS LOB,CH,ROB=    .1373    .8410    .0217  WSEL=     842.38

3470 ENCROACHMENT STATIONS=      341.7      899.9  TYPE=      4  TARGET=          .020

          DOWNSTREAM END OF ISLAND

   153.00     15.18    842.38      0.00    842.28    842.52       .14       .19       .01    837.60
   10000.     1298.     8584.      118.      937.     2700.       91.     3898.      480.    838.80
     4.27      1.39      3.18      1.30      .035      .035      .035      .033    327.20    341.69
  .000215      562.      750.      625.         2         0         0      0.00    558.21    899.90

*SECNO 157.000
 WATER EL=X5 CARD=    843.208
 2800 NAT Q1=    8598.94  WSEL=     843.11  ENC Q1=    8598.94  WSEL=     843.21  RATIO=  0.0000
 NAT Q1=    8736.  RATIOS LOB,CH,ROB=  0.0000    .8486    .1514  WSEL=     843.21

3470 ENCROACHMENT STATIONS=          .0      427.0  TYPE=      4  TARGET=          .016

          UPSTREAM END OF ISLAND

           WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

   157.00     15.31    843.21      0.00    843.11    843.32       .11       .31       .01    852.00
   10000.        0.     8627.     1373.        0.     3027.      925.     4058.      501.    839.40
     4.45      0.00      2.65      1.48      .035      .033      .035      .033    827.90     18.91
  .000136     2100.     1600.     1700.         0         0         0      0.00    408.05    426.96

CCHV=     .100 CEHV=     .300
*SECNO 158.000
 2800 NAT Q1=    8001.43  WSEL=     843.37  ENC Q1=    8001.43  WSEL=     843.47  RATIO=    .0000
 NAT Q1=    8141.  RATIOS LOB,CH,ROB=    .0022    .8908    .1070  WSEL=     843.47

3470 ENCROACHMENT STATIONS=      655.0     1113.6  TYPE=      4  TARGET=          .017
   158.00     14.16    843.46      0.00    843.37    843.59       .12       .26       .00    841.70
   10000.        0.     9059.      941.        0.     3087.      897.     4222.      519.    838.00
     4.64      0.00      2.93      1.05      .050      .033      .050      .033    829.30    655.00
  .000158     1812.     1800.     1500.         0         0         0      0.00    458.60   1113.60

*SECNO 159.000
 2800 NAT Q1=    6735.81  WSEL=     843.67  ENC Q1=    6735.81  WSEL=     843.77  RATIO=    .0000
 NAT Q1=    6857.  RATIOS LOB,CH,ROB=    .1051    .8041    .0907  WSEL=     843.77

3470 ENCROACHMENT STATIONS=      156.9      646.0  TYPE=      4  TARGET=          .018
   159.00     16.27    843.77      0.00    843.67    843.95       .17       .34       .02    839.60
   10000.      979.     8179.      841.      894.     2238.      534.     4385.      539.    834.40
     4.80      1.10      3.65      1.57      .050      .033      .050      .033    827.50    156.85
  .000220     1750.     1875.     1812.         2         0         0      0.00    489.20    646.05

*SECNO 160.000
 2800 NAT Q1=    4536.81  WSEL=     844.00  ENC Q1=    4536.81  WSEL=     844.10  RATIO=    .0000
 NAT Q1=    4619.  RATIOS LOB,CH,ROB=    .1874    .7965    .0160  WSEL=     844.10

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS=     461.7      874.7  TYPE=      4  TARGET=          .018
    160.00     15.00    844.10      0.00    844.00    844.49       .39       .48       .06    836.70
     10000.      1322.     8121.       57.     1019.     1477.       40.     4493.      554.     834.20
       4.38      1.79      5.50      1.42      .050      .033      .050      .033    829.10    481.72
   .000488      1562.     1500.     1500.         2         0         0      0.00    362.89    874.66

*SECNO 161.000
 2800 NAT Q1=    4290.96  WSEL=     844.38  ENC Q1=    4290.96  WSEL=     844.48  RATIO=    .0000
 NAT Q1=    4375.  RATIOS LOB,CH,ROB=    .0217    .9046    .0737  WSEL=     844.48
3280 CROSS SECTION     161.00 EXTENDED          .48 FEET


3470 ENCROACHMENT STATIONS=    1141.5     1493.9  TYPE=      4  TARGET=          .019
    161.00     13.38    844.48      0.00    844.38    844.76       .28       .26       .01    842.30
     10000.      124.     9222.      654.      116.     2110.      378.     4523.      558.     836.30
       4.92      1.07      4.37      1.73      .050      .040      .050      .033    831.10   1141.51
   .000543       600.      500.      400.         2         0         0      0.00    352.41   1493.92

CCHV=     .300 CEHV=     .500
*SECNO 162.000
 2800 NAT Q1=    6101.95  WSEL=     844.89  ENC Q1=    6157.65  WSEL=     844.99  RATIO=   -.0092
 NAT Q1=    6194.  RATIOS LOB,CH,ROB=    .0024    .9942    .0034  WSEL=     844.99

3470 ENCROACHMENT STATIONS=     300.0      540.0  TYPE=      4  TARGET=          .006

            DIMONDALE DAM

    162.00     13.90    845.05      0.00    844.89    845.15       .16       .36       .04    844.20
     10000.        0.     10000.        0.        0.     3140.        0.     4587.      565.     844.00
       5.00      0.00      3.18      0.00      .050      .040      .050      .033    831.10    300.00
   .000266      1100.      980.      600.         2         0         0      0.00    240.00    540.00

*SECNO 162.100
 WATER EL=X5 CARD=    846.33
 2300 NAT Q1=    6018.45  WSEL=     846.23  ENC Q1=    6018.45  WSEL=     846.33  RATIO=    .0000
 NAT Q1=    6120.  RATIOS LOB,CH,ROB=    .0206    .9359    .0235  WSEL=     846.33

3470 ENCROACHMENT STATIONS=     218.9      627.2  TYPE=      4  TARGET=          .017
    162.10     12.74    846.34      0.00    846.23    846.49       .15       .01       .00    844.20
     10000.      126.     9719.      255.      163.     3057.      189.     4588.      565.     844.00
       5.00       .77      3.18       .82      .050      .040      .050      .033    833.60    218.94
   .000275        10.       10.       10.         0         0         0      0.00    408.28    627.22

*SECNO 163.000
 2800 NAT Q1=    3564.56  WSEL=     846.47  ENC Q1=    3623.06  WSEL=     846.57  RATIO=   -.0164
 NAT Q1=    3632.  RATIOS LOB,CH,ROB=    .0010    .9974    .0016  WSEL=     846.57

3470 ENCROACHMENT STATIONS=     409.0      660.0  TYPE=      4  TARGET=          .003

            REDUCTION OF FLOW

    163.00     12.58    846.58      0.00    846.47    846.85       .27       .31       .06    844.70
      9475.        0.      9475.        0.        0.     2267.        0.     4636.      570.     844.50
       5.05      0.00      4.18      0.00      .050      .040      .050      .033    834.00    409.00
   .000696       750.      750.      625.         2         0         0      0.00    251.00    660.00

CCHV=     .300 CEHV=     .500
*SECNO 164.000
 2800 NAT Q1=    4859.74  WSEL=     846.55  ENC Q1=    4937.93  WSEL=     846.65  RATIO=   -.0161
 NAT Q1=    4953.  RATIOS LOB,CH,ROB=    .0009    .9969    .0022  WSEL=     846.65
   SECNO     DEPTH     CWSEL     CFLWS     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     COPAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     339.0      600.0  TYPE=      4  TARGET=          .003

            BRIDGE STREET BRIDGE
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   164.00     12.66    846.66      0.00    846.55    846.92       .26       .06       .00    844.70
    9475.        0.     9475.        0.        0.     2330.        0.     4643.      571.     844.50
     5.06      0.00      4.07      0.00      .040      .030      .040      .033    834.00    339.00
  .000376      120.      120.      120.         1         0         0      0.00    251.00    600.00


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       ROLEN      BWC        BWP        BAREA      SS        ELCHU      ELCHD
     .90       1.56       2.60       0.00     150.00       6.00    2739.00       .90     834.50     834.50

*SECNO 164.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     846.63 BRIDGE VELOCITY=,       5.04      CALCULATED CHANNEL AREA=,      1860.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
     0.00     846.91       .01         0.      9475.       2739.      2674.       851.30     853.00


   164.50     12.96    846.66      0.00    846.56    846.91       .25      -.01      0.00    842.90
    9475.      227.     9227.       21.      159.     2273.       28.     4645.      571.     844.50
     5.06      1.42      4.06       .76      .040      .030      .040      .033    833.70    274.39
  .000379       41.       41.       41.         0         0         0      0.00    351.06    625.45


CCHV=     .100 CEHV=     .300
*SECNO 165.000
 2800 NAT Q1=    5167.74  WSEL=     846.66  ENC Q1=    5231.95  WSEL=     846.76  RATIO=   -.0124
 NAT Q1=    5269.  RATIOS LOB,CH,ROB=    .0011    .9930    .0059  WSEL=     846.76

3470 ENCROACHMENT STATIONS=      110.0      387.0  TYPE=      4  TARGET=          .007
   165.00     12.75    846.75      0.00    846.66    846.98       .23       .06       .00    844.00
    9475.        0.     9475.        0.        0.     2467.        0.     4655.      573.     844.00
     5.08      0.00      3.84      0.00      .060      .030      .060      .033    834.00    110.00
  .000338      100.      175.      220.         2         0         0      0.00    277.00    387.00


*SECNO 166.000
 2800 NAT Q1=    6227.27  WSEL=     847.03  ENC Q1=    6249.29  WSEL=     847.13  RATIO=   -.0035
 NAT Q1=    6320.  RATIOS LOB,CH,ROB=    .0113    .9887  0.0000  WSEL=     847.13

3470 ENCROACHMENT STATIONS=      490.0      720.0  TYPE=      4  TARGET=          .011
   166.00     13.52    847.12      0.00    847.03    847.34       .22       .36       .00    843.50
    9475.        0.     9475.        0.        0.     2515.        0.     4729.      580.     855.50
     5.17      0.00      3.77      0.00      .060      .030      .060      .033    833.60    490.00
  .000236     1130.     1300.     1500.         0         0         0      0.00    219.18    709.18


*SECNO 167.000
 2800 NAT Q1=    5938.61  WSEL=     847.21  ENC Q1=    6019.08  WSEL=     847.31  RATIO=   -.0135
 NAT Q1=    6062.  RATIOS LOB,CH,ROB=    .0069    .9929    .0002  WSEL=     847.31

3470 ENCROACHMENT STATIONS=      355.0      710.0  TYPE=      4  TARGET=          .007
   167.00     13.31    847.31      0.00    847.21    847.47       .16       .12       .01    843.70
    9475.        0.     9475.        0.        0.     2962.        0.     4760.      583.     846.00
     5.22      0.00      3.20      0.00      .060      .030      .060      .033    834.00    355.00
  .000253      500.      500.      375.         2         0         0      0.00    355.00    710.00


*SECNO 168.000
 2800 NAT Q1=    5938.67  WSEL=     847.86  ENC Q1=    5938.67  WSEL=     847.96  RATIO=    .0000
 NAT Q1=    6051.  RATIOS LOB,CH,ROB=    .1895    .8105  0.0000  WSEL=     847.96
   SECNO     DEPTH     CWSEL     CPIWS     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     COPAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      169.8      625.0  TYPE=      4  TARGET=          .019

          END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS.

   168.00     13.45    847.95      0.00    847.86    848.12       .17       .65       .00    842.80
    9475.     1650.     7825.        0.      1313.     2155.        0.     4949.      607.     855.00
     5.44      1.26      3.63      0.00      .060      .030      .060      .033    834.50    169.82
  .000256     2500.     2562.     2500.         1         0         0      0.00    443.80    613.62
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*SECNO 169.000
 2800 NAT Q1=   4011.40  WSEL=    848.63  ENC Q1=   4011.40  WSEL=    848.73  RATIO=  0.0000
 NAT Q1=   4074.  RATIOS LOB,CH,ROB=   .0157   .8741   .1103  WSEL=    848.73

3470 ENCROACHMENT STATIONS=      554.9      810.1  TYPE=      4  TARGET=          .015
   169.00     14.32    848.72      0.00    848.63    849.06      .34       .89       .05    837.50
    9475.       66.     8426.      963.       49.     1717.      583.     5111.      626.    838.20
     5.59      1.35      4.91      1.69      .060      .040      .060      .033    834.40    554.87
  .000561     2438.     2438.     2300.         2         0         0      0.00    255.18    810.05

*SECNO 170.000
 2800 NAT Q1=   3734.58  WSEL=    850.12  ENC Q1=   3734.58  WSEL=    850.22  RATIO=   .0000
 NAT Q1=   3807.  RATIOS LOB,CH,ROB=   .0026   .8913   .1061  WSEL=    850.22

3470 ENCROACHMENT STATIONS=      400.0      682.1  TYPE=      4  TARGET=          .019
   170.00     14.22    850.22      0.00    850.12    850.49      .27      1.42       .01    848.50
    9475.        0.     8603.      672.        0.     1991.      447.     5239.      640.    842.50
     5.74      0.00      4.32      1.95      .060      .040      .060      .033    836.00    400.00
  .000649     2375.     2375.     2250.         2         0         0      0.00    282.15    682.15

CCHV=     .300 CEHV=     .500
*SECNO 171.000
 2800 NAT Q1=   3557.14  WSEL=    850.17  ENC Q1=   3607.00  WSEL=    850.27  RATIO=  -.0140
 NAT Q1=   3607.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    850.27

3470 ENCROACHMENT STATIONS=      181.8      338.8  TYPE=      4  TARGET=          0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       856.20 ELREA=       856.20

          MICHIGAN ROAD BRIDGE

   171.00     13.79    850.29      0.00    850.17    850.69      .40       .14       .06    841.00
    9475.        0.     9475.        0.        0.     1878.        0.     5248.      641.    841.00
     5.76      0.00      5.05      0.00      .060      .040      .060      .033    836.50    181.84
  .000787      320.      200.        0.         2         0         0      0.00    157.00    338.84

SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWG        BWP        BAREA      SS         ELCHU      ELCHD
     1.25      1.56       2.60       0.00     133.00       4.00    2072.00       .61     837.00     837.00

*SECNO 171.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     850.27 BRIDGE VELOCITY=,       5.21      CALCULATED CHANNEL AREA=,      1619.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
     0.00     850.70       .03         0.      9475.      2072.      2057.      851.90     856.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       856.20 ELREA=       856.20

   171.50     13.60    850.30      0.00    850.20    850.70      .40       .01       0.00    841.00
    9475.        0.     9475.        0.        0.     1874.        0.     5250.      641.    841.00
     5.76      0.00      5.06      0.00      .060      .040      .060      .033    836.70    159.66
  .000690       47.       47.       47.         0         0         0      0.00    157.00    316.66

*SECNO 172.000
 2800 NAT Q1=   5103.30  WSEL=    850.53  ENC Q1=   5103.30  WSEL=    850.53  RATIO=   .0000
 NAT Q1=   5136.  RATIOS LOB,CH,ROB=   .0495   .8992   .0514  WSEL=    850.63
   SECNO     DEPTH     CWSEL     CFIRS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QPOB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VPOB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      526.3      842.0  TYPE=      4  TARGET=          .016
   172.00     13.92    850.62      0.00    850.53    850.81      .20       .06       .06    841.00
    9475.      392.     8667.      416.      232.     2346.      352.     5257.      642.    841.00
     5.77      1.69      3.69      1.18      .060      .040      .060      .033    836.70    526.26
  .000347      120.      120.      120.         2         0         0      0.00    315.75    842.01
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*SECNO 173.000
 2800 NAT Q1=    4070.00  WSEL=     850.67  ENC Q1=    4070.00  WSEL=     850.97  RATIO=    .0000
 NAT Q1=    4142.  RATIOS LOB,CH,ROB=    .1014    .8568    .0417  WSEL=     850.97

3470 ENCROACHMENT STATIONS=      160.5      453.4  TYPE=      4  TARGET=          .017
   173.00     13.46    850.96      0.00    850.87    851.22      .26       .37       .03    847.00
    9475.      885.     8274.      316.      507.     1893.      186.     5312.      648.     844.00
     5.83      1.75      4.37      1.69      .060      .040      .060      .033    837.50    160.55
  .000546      750.      875.     1000.         2         0         0      0.00    292.82    453.37

*SECNO 174.000
 2800 NAT Q1=    2151.60  WSEL=     850.74  ENC Q1=    2188.18  WSEL=     850.84  RATIO=   -.0170
 NAT Q1=    2189.  RATIOS LOB,CH,ROB=   0.0000    .9995    .0005  WSEL=     850.84

3470 ENCROACHMENT STATIONS=      200.0      346.0  TYPE=      4  TARGET=          .000
   174.00     11.63    850.83      0.00    850.74    851.57      .73       .11       .23    854.70
    9475.        0.     9475.        0.        0.     1377.        0.     5318.      649.     848.80
     5.83      0.00      6.88      0.00      .040      .040      .040      .033    839.20    200.00
  .001912      100.      120.     130.         2         0         0      0.00    146.00    346.00

*SECNO 175.000
 2800 NAT Q1=    4275.55  WSEL=     851.64  ENC Q1=    4275.55  WSEL=     851.74  RATIO=    .0000
 NAT Q1=    4355.  RATIOS LOB,CH,ROB=    .0672    .9227    .0101  WSEL=     851.74

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      127.8      392.1  TYPE=      4  TARGET=          .018
   175.00     13.21    851.71      0.00    851.64    851.94      .23       .22       .15    844.10
    9475.      562.     8907.        6.      227.     2264.        6.     5329.      650.     848.70
     5.85      2.47      3.90       .96      .040      .040      .040      .034    838.50    127.84
  .000497      250.      250.     250.         2         0         0      0.00    264.29    392.13

*SECNO 176.000
 2800 NAT Q1=    4989.00  WSEL=     852.12  ENC Q1=    4989.00  WSEL=     852.22  RATIO=    .0000
 NAT Q1=    5078.  RATIOS LOB,CH,ROB=    .0490    .8219    .1291  WSEL=     852.22

3470 ENCROACHMENT STATIONS=      337.6      663.9  TYPE=      4  TARGET=          .017
   176.00     15.69    852.19      0.00    852.12    852.38      .19       .43       .01    844.50
    9475.      391.     7928.     1156.      186.     2157.      567.     5393.      657.     848.00
     5.93      2.10      3.66      2.04      .040      .040      .040      .034    836.50    337.64
  .000364     1500.     1000.      875.         0         0         0      0.00    326.27    663.91

*SECNO 177.000
 2800 NAT Q1=    7103.60  WSEL=     852.56  ENC Q1=    7103.60  WSEL=     852.66  RATIO=   0.0000
 NAT Q1=    7223.  RATIOS LOB,CH,ROB=    .0535    .8728    .0738  WSEL=     852.66
   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      XLOER     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=       80.8      442.2  TYPE=      4  TARGET=          .017
   177.00     14.44    852.64      0.00    852.56    852.82      .18       .44       .00    848.20
    9475.      432.     8414.      629.      332.     2347.      466.     5516.      671.     846.50
     6.08      1.30      3.58      1.35      .040      .030      .040      .033    838.20     80.80
  .000179     1500.     1750.     2000.         2         0         0      0.00    361.45    442.24

*SECNO 178.000
 2800 NAT Q1=    7685.96  WSEL=     852.96  ENC Q1=    7685.96  WSEL=     853.06  RATIO=   0.0000
 NAT Q1=    7307.  RATIOS LOB,CH,ROB=    .0549    .9357    .0094  WSEL=     853.05

3470 ENCROACHMENT STATIONS=       63.7      367.4  TYPE=      4  TARGET=          .015
   178.00     13.84    853.04      0.00    852.96    853.19      .15       .37       .01    846.50
    9475.      455.     9000.       20.      347.     2800.       19.     5677.      638.     847.00
     6.28      1.31      3.21      1.03      .040      .030      .040      .033    839.20     63.74
  .000153     2250.     2225.     2125.         2         0         0      0.00    303.70    367.44

CCHV=    .300 CEHV=     .500
*SECNO 179.000
 2800 NAT Q1=    6328.52  WSEL=     852.98  ENC Q1=    6395.68  WSEL=     853.08  RATIO=   -.0106
 NAT Q1=    6428.  RATIOS LOB,CH,ROB=    .0046    .9950    .0004  WSEL=     853.08
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3470 ENCROACHMENT STATIONS=      169.0      425.3  TYPE=      4  TARGET=          .005
     .     .    APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

          WAVERLY ROAD BRIDGE

    179.00     13.16    853.06      0.00    852.98    853.27       .20       .05       .03    850.30
     9475.        0.     9475.        0.        0.     2616.        0.     5694.      690.     852.00
     6.30      0.00      3.62      0.00      .063      .030      .063      .033    839.90    189.00
  .000225      500.      250.        0.         2         0         0      0.00    236.25    425.25


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
          .95        1.50       2.50       0.00     146.53      12.00    1957.40       1.51     839.90     839.90

 *SECNO 179.500
 6790 POSSIBLE INVALID SOLUTION  20 TRIALS OF EG NOT ENOUGH
 FINAL QWEIR + QPR =      19934.  QDEL NOT EQUAL ACTUAL Q =       9475.

 6840,FLOW IS BY WEIR AND LOW FLOW
  2800 NAT Q1=    5246.44  WSEL=     853.34  ENC Q1=    5246.44  WSEL=     853.44  RATIO=    .0000
  NAT Q1=    5324.  RATIOS LOB,CH,ROB=    .0245     .9676     .0079  WSEL=     853.44
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      161.0      403.4  TYPE=      4  TARGET=          .015
    179.50     14.22    853.42      0.00    853.34    853.61       .19       .01       .00    847.40
     9475.      162.     9310.        3.       142.     2624.        6.     5696.      690.     849.70
     6.30      1.15      3.55       .48      .053      .040      .063      .033    839.20    161.02
   .000328       28.       28.       28.         0         0         0      0.00    242.34    403.36


 CCHV=     .100 CEHV=     .300
 *SECNO 180.000
  2800 NAT Q1=    4085.89  WSEL=     853.39  ENC Q1=    4085.89  WSEL=     853.49  RATIO=    .0000
  NAT Q1=    4155.  RATIOS LOB,CH,ROB=    .0703     .9219     .0077  WSEL=     853.49

 3470 ENCROACHMENT STATIONS=      166.5      343.8  TYPE=      4  TARGET=          .017
    180.00     12.57    853.47      0.00    853.39    853.74       .26       .10       .02    846.20
     9475.      602.     8873.        0.       315.     2095.        0.     5710.      691.     850.30
     6.32      1.91      4.24      0.00      .063      .040      .063      .033    840.90    106.52
   .000551       125.      250.      450.         2         0         0      0.00    236.47    343.00


 *SECNO 181.000
  2800 NAT Q1=    3353.85  WSEL=     854.12  ENC Q1=    3353.85  WSEL=     854.22  RATIO=   0.0000
  NAT Q1=    3413.  RATIOS LOB,CH,ROB=   0.0000     .9564     .0436  WSEL=     854.22
     SECNO     DEPTH     CWSEL     CTIPS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
       0         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       E.MIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=          .0      247.1  TYPE=      4  TARGET=          .017
    181.00     13.11    854.21      0.00    854.12    854.59       .38       .82       .03    862.80
     9475.        0.     9222.       253.        0.     1838.      198.     5774.      690.     849.10
     6.39      0.00      5.02      1.28      .070      .040      .070      .034    841.10     11.64
   .000800      1125.     1250.     1375.         2         0         0      0.00    235.43    247.07


 *SECNO 182.000
  2800 NAT Q1=    9991.63  WSEL=     854.98  ENC Q1=    9991.63  WSEL=     855.08  RATIO=   0.0000
  NAT Q1=   10184.  RATIOS LOB,CH,ROB=    .1834     .5719     .2447  WSEL=     855.08

 3470 ENCROACHMENT STATIONS=      650.7     1682.9  TYPE=      4  TARGET=          .019
    182.00     15.58    855.08      0.00    854.98    855.12       .04       .49       .03    846.50
     9475.     1677.     5526.     2272.     2253.     2897.     2994.     6064.      733.     848.50
     6.86       .74      1.91       .76      .070      .040      .070      .034    839.50    690.75
   .000090     2500.     2375.     2625.         2         0         0      0.00    992.18   1682.93


 *SECNO 183.000
  2800 NAT Q1=   11331.57  WSEL=     855.13  ENC Q1=   11331.57  WSEL=     855.23  RATIO=   0.0000
  NAT Q1=   11582.  RATIOS LOB,CH,ROB=    .0287     .3373     .6339  WSEL=     855.23

 3470 ENCROACHMENT STATIONS=      123.4     1740.2  TYPE=      4  TARGET=          .022
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   183.00     15.24    855.24      0.00    855.13    855.26       .02       .14       .00    851.20
    9475.      174.     3749.     5551.      347.     2303.     8276.     6460.      788.     848.50
     7.32       .50      1.63       .67      .065      .040      .065      .034    840.00    123.39
  .000070     1375.     1625.     2000.         2         0         0      0.00   1616.82   1740.21

*SECNO 184.000
 2800 NAT Q1=  10482.26  WSEL=    855.26  ENC Q1=  10482.26  WSEL=    855.36  RATIO=  0.0000
 NAT Q1=  10699.  RATIOS LOB,CH,ROB=    .5853    .3542    .0605  WSEL=    855.36

3470 ENCROACHMENT STATIONS=      372.1     1919.1  TYPE=      4  TARGET=          .020
   184.00     17.86    855.36      0.00    855.26    855.39       .07       .13       .00    848.50
    9475.     5564.     3424.      487.     7978.     1897.      690.     6886.      851.     848.50
     7.76       .70      1.80       .71      .065      .040      .065      .034    837.50    372.09
  .000062     1688.     1750.     1750.         0         0         0      0.00   1547.02   1919.10

*SECNO 185.000
 2800 NAT Q1=   7413.66  WSEL=    855.58  ENC Q1=   7413.66  WSEL=    855.68  RATIO=    .0000
 NAT Q1=   7570.  RATIOS LOB,CH,ROB=    .3224    .5532    .1144  WSEL=    855.68

3470 ENCROACHMENT STATIONS=      733.1     1682.5  TYPE=      4  TARGET=          .021
   185.00     14.68    855.68      0.00    855.58    855.74       .07       .34       .01    850.00
    9475.     3016.     5431.     1029.     3459.     2095.      862.     7484.      939.     847.50
     8.21       .87      2.59      1.19      .065      .040      .065      .034    841.00    733.10
  .000162     3000.     3000.     3750.         2         0         0      0.00    949.41   1682.51

*SECNO 186.000
 2800 NAT Q1=   8705.98  WSEL=    855.83  ENC Q1=   8705.98  WSEL=    855.93  RATIO=    .0000
 NAT Q1=   8874.  RATIOS LOB,CH,ROB=    .6586    .3414   0.0000  WSEL=    855.93
   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=      373.6     1337.0  TYPE=      4  TARGET=          .019
   186.00     15.63    855.93      0.00    855.83    855.96       .03       .22       .00    848.10
    9475.     6176.     3299.        0.     6374.     1584.        0.     7739.      972.     858.50
     8.53       .97      2.08      0.00      .065      .040      .065      .034    840.30    373.57
  .000119     1500.     1625.     1750.         2         0         0      0.00    958.25   1331.82

*SECNO 187.000
 2800 NAT Q1=   7304.70  WSEL=    856.12  ENC Q1=   7304.70  WSEL=    856.22  RATIO=    .0000
 NAT Q1=   7503.  RATIOS LOB,CH,ROB=    .1605    .5597    .2796  WSEL=    856.22

3470 ENCROACHMENT STATIONS=      298.1     1782.2  TYPE=      4  TARGET=          .026
   187.00     17.52    856.22      0.00    856.12    856.28       .07       .31       .01    854.30
    9475.     1436.     5443.     2596.     1336.     2068.     3402.     8105.     1031.     848.90
     8.86      1.08      2.63       .76      .035      .040      .065      .035    838.70    298.14
  .000168     2125.     2375.     2000.         1         0         0      0.00   1484.05   1782.19

*SECNO 188.000
 2800 NAT Q1=   5837.36  WSEL=    856.25  ENC Q1=   5837.36  WSEL=    856.35  RATIO=    .0000
 NAT Q1=   6000.  RATIOS LOB,CH,ROB=    .0314    .6334    .3352  WSEL=    856.35

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=      479.8     1635.2  TYPE=      4  TARGET=          .027
   188.00     16.55    856.35      0.00    856.25    856.45       .10       .15       .01    856.30
    9475.      174.     6165.     3136.      250.     2036.     2927.     8201.     1054.     851.30
     8.95       .69      3.03      1.07      .035      .040      .065      .035    839.80    479.78
  .000263     1200.      800.      500.         2         0         0      0.00   1087.03   1635.20

*SECNO 189.000
 2800 NAT Q1=   8900.05  WSEL=    856.77  ENC Q1=   8900.05  WSEL=    856.87  RATIO=    .0000
 NAT Q1=   9069.  RATIOS LOB,CH,ROB=    .1910    .4001    .4089  WSEL=    856.87

3470 ENCROACHMENT STATIONS=      317.0     1156.2  TYPE=      4  TARGET=          .019

          END POINT OF STUDY

   189.00     15.37    856.87      0.00    856.77    856.91       .04       .46       .01    849.00
    9475.     1776.     3852.     3848.      991.     1768.     4224.     8600.     1116.     849.00
     9.44      1.79      2.18       .91      .035      .040      .065      .035    841.50    316.95
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.000113	2300.	2750.	3000.	2	0	0	0.00	839.26	1156.22

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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

GRAND RIVER PART II

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
121.100	834.73	0.00	835.40	269.12	0.00	9973.21	26.79	0.00	0.00	100.00	240.00	0.00
121.100	834.83	.10	835.49	135.38	0.00	10000.00	0.00	.00	100.00	100.00	240.00	240.00
122.000	835.54	0.00	835.62	326.91	0.00	10000.00	0.00	0.00	0.00	150.00	510.00	0.00
122.000	835.63	.09	835.71	327.17	0.00	10000.00	0.00	0.00	150.00	150.00	510.00	510.00
123.000	835.59	0.00	835.69	332.38	0.00	10000.00	0.00	0.00	0.00	100.00	445.00	0.00
123.000	835.68	.09	835.77	332.52	0.00	10000.00	0.00	0.00	100.00	100.00	445.00	445.00
124.000	835.61	0.00	835.72	268.25	0.00	10000.00	0.00	0.00	0.00	191.00	484.00	0.00
124.000	835.70	.09	835.80	268.77	0.00	10000.00	0.00	0.00	191.00	191.00	484.00	484.00
124.100	835.60	0.00	835.73	268.21	0.00	10000.00	0.00	0.00	0.00	191.00	484.00	0.00
124.100	835.69	.09	835.81	268.71	0.00	10000.00	0.00	0.00	191.00	191.00	484.00	484.00
124.400	835.60	0.00	835.73	268.22	0.00	10000.00	0.00	0.00	0.00	191.00	484.00	0.00
124.400	835.69	.09	835.82	268.72	0.00	10000.00	0.00	0.00	191.00	191.00	484.00	484.00
124.500	835.63	0.00	835.74	268.39	0.00	10000.00	0.00	0.00	0.00	191.00	484.00	0.00
124.500	835.72	.09	835.83	268.89	0.00	10000.00	0.00	0.00	191.00	191.00	484.00	484.00
125.000	835.73	0.00	835.77	430.88	.57	9999.33	0.00	0.00	0.00	150.00	585.00	0.00
125.000	835.81	.09	835.86	426.74	0.00	10000.00	0.00	.00	150.00	150.00	585.00	585.00
125.500	835.73	0.00	835.80	402.52	0.00	10000.00	0.00	0.00	0.00	150.53	588.05	0.00
125.500	835.82	.09	835.89	403.60	0.00	10000.00	0.00	0.00	150.53	150.53	588.05	588.05
125.510	835.70	0.00	835.83	402.09	0.00	10000.00	0.00	0.00	0.00	150.53	588.05	0.00
125.510	835.79	.09	835.92	403.16	0.00	10000.00	0.00	0.00	150.53	150.53	588.05	588.05
125.590	835.71	0.00	835.84	402.18	0.00	10000.00	0.00	0.00	0.00	150.53	588.05	0.00
125.590	835.80	.09	835.93	403.29	0.00	10000.00	0.00	0.00	150.53	150.53	588.05	588.05
125.600	835.79	0.00	835.86	403.20	0.00	10000.00	0.00	0.00	0.00	150.53	588.05	0.00
125.600	835.88	.09	835.96	404.24	0.00	10000.00	0.00	0.00	150.53	150.53	588.05	588.05
126.000	835.84	0.00	835.92	429.50	.97	9994.68	4.35	0.00	0.00	20.00	438.00	0.00
126.000	835.92	.09	836.00	418.00	0.00	10000.00	0.00	.00	20.00	20.00	438.00	438.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
127.000	836.06	0.00	836.22	400.07	8.26	9990.59	1.25	0.00	0.00	65.00	447.00	0.00
127.000	836.15	.08	836.30	382.00	0.00	10000.00	0.00	.00	65.00	65.00	447.00	447.00
128.000	836.49	0.00	836.59	420.67	4.03	9995.97	0.00	0.00	0.00	220.00	625.00	0.00
128.000	836.56	.08	836.66	402.13	0.00	10000.00	0.00	.00	220.00	220.00	625.00	625.00
129.000	836.62	0.00	836.76	363.18	.19	9999.61	.19	0.00	0.00	88.00	450.00	0.00
129.000	836.69	.07	836.83	362.00	0.00	10000.00	0.00	.00	88.00	88.00	450.00	450.00
130.000	836.97	0.00	837.10	414.69	0.00	9991.72	8.29	0.00	0.00	0.00	358.00	0.00
130.000	837.03	.07	837.16	339.31	0.00	10000.00	0.00	.00	0.00	0.00	358.00	358.00
131.000	837.28	0.00	837.37	502.67	0.00	9995.55	4.45	0.00	0.00	120.00	600.00	0.00
131.000	837.34	.06	837.43	477.36	0.00	10000.00	0.00	.00	120.00	120.00	600.00	600.00
132.000	837.48	0.00	837.57	487.67	32.75	9955.36	11.89	0.00	0.00	80.00	504.00	0.00
132.000	837.54	.06	837.63	424.00	0.00	10000.00	0.00	.00	80.00	80.00	504.00	504.00
133.000	837.58	0.00	837.66	489.76	31.29	9955.09	13.62	0.00	0.00	80.00	504.00	0.00
133.000	837.64	.06	837.72	424.00	0.00	10000.00	0.00	.00	80.00	80.00	504.00	504.00
134.000	837.60	0.00	837.75	247.39	0.00	10000.00	0.00	0.00	0.00	161.49	408.88	0.00
134.000	837.66	.06	837.81	247.39	0.00	10000.00	0.00	0.00	161.49	161.49	408.88	408.89
134.100	837.59	0.00	837.77	247.39	0.00	10000.00	0.00	0.00	0.00	161.49	408.88	0.00
134.100	837.65	.06	837.83	247.39	0.00	10000.00	0.00	0.00	161.49	161.49	408.88	408.89
134.500	837.63	0.00	837.78	247.39	0.00	10000.00	0.00	0.00	0.00	185.54	432.94	0.00
134.500	837.69	.06	837.84	247.39	0.00	10000.00	0.00	0.00	185.54	185.54	432.94	432.94
134.900	837.65	0.00	837.79	247.39	0.00	10000.00	0.00	0.00	0.00	185.54	432.94	0.00
134.900	837.71	.06	837.85	247.39	0.00	10000.00	0.00	0.00	185.54	185.54	432.94	432.94
135.000	837.78	0.00	837.84	636.80	89.89	9898.09	12.02	0.00	0.00	190.00	720.00	0.00
135.000	837.84	.06	837.90	530.00	0.00	10000.00	0.00	.01	190.00	190.00	720.00	720.00
136.000	838.15	0.00	838.25	702.12	718.79	9268.65	12.56	0.00	0.00	375.00	744.00	0.00
136.000	838.22	.07	838.32	561.69	571.01	9428.99	0.00	.02	182.31	375.00	744.00	744.00
137.000	838.35	0.00	838.46	860.61	5.29	9547.55	447.16	0.00	0.00	20.00	365.00	0.00
137.000	838.43	.07	838.54	637.80	0.00	9716.65	283.35	.02	20.00	20.00	365.00	657.80
139.000	838.63	0.00	838.74	698.79	1779.41	8217.41	3.18	0.00	0.00	536.00	736.00	0.00
139.000	838.71	.06	838.83	622.87	1703.00	8297.00	0.00	.02	113.13	536.00	736.00	736.00
140.000	838.93	0.00	839.03	533.51	376.35	9623.65	0.00	0.00	0.00	250.00	630.00	0.00
140.000	839.02	.09	839.12	442.98	236.14	9763.86	0.00	.02	184.64	250.00	630.00	630.00
141.000	839.19	0.00	839.24	1183.88	29.78	6354.67	3515.54	0.00	0.00	92.00	387.00	0.00
141.000	839.28	.09	839.33	992.40	0.00	6428.51	3571.49	.02	92.00	92.00	387.00	1084.40
141.500	839.31	0.00	839.38	655.88	1156.18	8935.87	7.35	0.00	0.00	286.00	679.00	0.00
141.500	839.40	.09	839.48	583.05	948.61	9051.39	0.00	.02	95.95	286.00	679.00	679.00
142.000	839.49	0.00	839.64	818.81	4.30	8039.25	1955.45	0.00	0.00	140.00	310.00	0.00
142.000	839.58	.09	839.74	653.43	0.00	8137.33	1862.67	.02	140.00	140.00	310.00	798.44

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
143.000	839.96	0.00	840.00	1463.53	4861.66	5137.69	.65	0.00	0.00	1290.00	1516.00	0.00
143.000	840.06	.10	840.10	1364.86	4793.54	5206.46	0.00	.02	151.15	1290.00	1516.00	1516.00
144.000	840.44	0.00	840.80	227.76	167.23	9815.71	17.06	0.00	0.00	260.00	410.00	0.00
144.000	840.55	.10	840.91	161.86	69.82	9930.18	0.00	.01	248.14	260.00	410.00	410.00
145.000	840.90	0.00	841.17	245.80	47.99	9948.59	3.42	0.00	0.00	645.00	844.00	0.00
145.000	841.03	.12	841.29	199.00	0.00	10000.01	0.00	.01	645.00	645.00	844.00	844.00
146.000	841.39	0.00	841.58	412.27	512.69	9284.07	203.24	0.00	0.00	113.00	310.00	0.00
146.000	841.51	.12	841.70	273.95	447.03	9406.78	146.19	.01	71.99	113.00	310.00	350.34
147.000	841.49	0.00	841.63	361.23	0.00	10000.00	0.00	0.00	0.00	1027.95	1395.08	0.00
147.000	841.62	.13	841.76	363.66	0.00	10000.01	0.00	0.00	1027.95	1027.95	1395.08	1395.08
147.500	841.51	0.00	841.64	377.21	0.00	10000.00	0.00	0.00	0.00	930.05	1321.65	0.00
147.500	841.61	.10	841.76	377.93	0.00	10000.00	0.00	0.00	0.00	930.05	1321.65	0.00
148.000	841.56	0.00	841.72	557.06	990.56	8022.47	986.97	0.00	0.00	275.00	467.00	0.00
148.000	841.67	.11	841.84	417.41	949.19	8118.67	932.15	.02	132.22	275.00	467.00	549.63
149.000	841.65	0.00	841.84	281.00	0.00	10000.01	0.00	0.00	0.00	419.00	700.00	0.00
149.000	841.77	.12	841.96	281.00	0.00	10000.00	0.00	0.00	419.00	419.00	700.00	700.00
149.500	841.66	0.00	841.87	257.93	0.00	10000.01	0.00	0.00	0.00	419.00	700.00	0.00
149.500	841.76	.10	841.96	258.73	0.00	10000.00	0.00	0.00	0.00	419.00	700.00	0.00
150.000	841.70	0.00	841.96	435.52	251.83	9707.40	40.77	0.00	0.00	415.00	605.00	0.00
150.000	841.79	.09	842.06	220.39	157.79	9842.21	0.00	.02	384.61	415.00	605.00	605.10
151.000	841.87	0.00	842.07	286.26	0.00	10000.01	0.00	0.00	0.00	397.38	683.64	0.00
151.000	841.98	.11	842.17	286.26	0.00	10000.00	0.00	0.00	397.38	397.38	683.64	683.64
151.500	841.88	0.00	842.08	286.26	0.00	10000.01	0.00	0.00	0.00	413.39	699.64	0.00
151.500	841.98	.10	842.18	286.26	0.00	10000.01	0.00	0.00	0.00	413.39	699.64	0.00
152.000	842.04	0.00	842.22	297.32	28.23	9863.71	108.06	0.00	0.00	525.00	770.00	0.00
152.000	842.13	.09	842.31	245.00	0.00	10000.00	0.00	.01	525.00	525.00	770.00	770.00
153.000	842.28	0.00	842.42	778.80	1325.12	8466.96	207.92	0.00	0.00	641.00	873.00	0.00
153.000	842.38	.10	842.52	558.21	1298.08	8583.71	113.21	.02	341.69	641.00	873.00	899.90
* 157.000	843.11	0.00	843.22	482.46	0.00	8516.74	1483.26	0.00	0.00	0.00	252.00	0.00
* 157.000	843.21	.10	843.32	408.05	0.00	8627.42	1372.58	.02	.00	.00	252.00	426.96
158.000	843.37	0.00	843.48	693.53	19.49	8938.70	1041.81	0.00	0.00	655.00	910.00	0.00
158.000	843.46	.10	843.59	458.60	0.00	9058.87	941.13	.02	655.00	655.00	910.00	1113.60
159.000	843.67	0.00	843.84	601.75	1021.42	8080.13	898.45	0.00	0.00	385.00	558.00	0.00
159.000	843.77	.10	843.95	489.20	979.37	8179.40	841.23	.02	156.85	385.00	558.00	646.05
160.000	844.00	0.00	844.38	515.56	1931.32	8009.79	158.89	0.00	0.00	760.00	870.00	0.00
160.000	844.10	.09	844.49	362.89	1822.05	8120.55	57.40	.02	481.72	760.00	870.00	874.67
161.000	844.38	0.00	844.65	559.11	198.88	9089.00	712.12	0.00	0.00	1200.00	1384.00	0.00
161.000	844.48	.10	844.76	352.41	123.66	9222.05	654.30	.02	1141.51	1200.00	1384.00	1493.92

SECNO	CWSEL	DLFKHS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
162.000	844.89	0.00	845.05	510.64	17.77	9955.95	26.28	0.00	0.00	300.00	540.00	0.00
162.000	845.00	.11	845.15	240.00	0.00	10000.00	0.00	.01	300.00	300.00	540.00	540.00
162.100	846.23	0.00	846.38	617.55	188.66	9592.99	218.35	0.00	0.00	300.00	540.00	0.00
162.100	846.34	.11	846.49	468.28	126.45	9718.79	154.76	.02	218.94	300.00	540.00	627.23
163.000	846.47	0.00	846.75	281.40	8.38	9453.27	13.35	0.00	0.00	409.00	660.00	0.00
163.000	846.58	.11	846.85	251.00	0.00	9475.00	0.00	.00	409.00	409.00	660.00	660.00
164.000	846.55	0.00	846.81	298.22	7.90	9448.39	18.70	0.00	0.00	339.00	600.00	0.00
164.000	846.66	.11	846.92	261.00	0.00	9475.00	0.00	.00	339.00	339.00	600.00	600.00
164.500	846.56	0.01	846.82	343.92	218.47	9237.70	18.63	0.00	0.00	339.00	600.00	0.00
164.500	846.66	.10	846.91	351.06	227.07	9227.00	20.93	0.00	0.00	339.00	600.00	0.00
165.000	846.66	0.00	846.89	360.87	9.56	9414.02	51.42	0.00	0.00	110.00	387.00	0.00
165.000	846.75	.09	846.98	277.00	0.00	9475.00	0.00	.01	110.00	110.00	387.00	387.00
166.000	847.03	0.00	847.25	340.16	99.47	9375.53	0.00	0.00	0.00	490.00	720.00	0.00
166.000	847.12	.09	847.34	219.18	0.00	9475.00	0.00	.01	490.00	490.00	720.00	720.00
167.000	847.21	0.00	847.37	422.16	61.01	9412.37	1.62	0.00	0.00	355.00	710.00	0.00
167.000	847.31	.10	847.47	353.00	0.00	9475.00	0.00	.01	355.00	355.00	710.00	710.00
168.000	847.86	0.00	848.03	501.06	1774.16	7710.84	0.00	0.00	0.00	400.00	625.00	0.00
168.000	847.95	.09	848.12	443.80	1649.61	7825.39	0.00	.02	169.82	400.00	625.00	625.00
169.000	848.63	0.00	848.96	312.86	147.38	8305.90	1021.72	0.00	0.00	560.00	690.00	0.00
169.000	848.72	.09	849.06	255.18	65.58	8426.49	982.93	.02	554.87	560.00	690.00	810.05
170.000	850.12	0.01	850.38	383.88	21.28	8464.53	989.19	0.00	0.00	400.00	600.00	0.00
170.000	850.22	.11	850.49	282.15	0.00	8602.67	872.33	.02	400.00	400.00	600.00	682.15
171.000	850.17	0.00	850.58	157.00	0.00	9475.00	0.00	0.00	0.00	181.84	338.83	0.00
171.000	850.29	.12	850.69	157.00	0.00	9475.00	0.00	0.00	181.84	181.84	338.83	338.84
171.500	850.20	0.00	850.60	157.00	0.00	9475.00	0.00	0.00	0.00	159.66	316.66	0.00
171.500	850.30	.10	850.70	157.00	0.00	9475.00	0.00	0.00	0.00	159.66	316.66	0.00
172.000	850.53	0.00	850.72	457.20	462.72	8542.00	470.27	0.00	0.00	557.00	747.00	0.00
172.000	850.62	.08	850.81	315.75	391.75	8666.94	415.32	.02	526.26	557.00	747.00	842.11
173.000	850.87	0.00	851.13	373.12	946.15	8141.92	386.93	0.00	0.00	255.00	420.00	0.00
173.000	850.96	.08	851.22	292.82	885.04	8273.72	316.23	.02	160.55	255.00	420.00	453.37
174.000	850.74	0.00	851.49	143.96	0.00	9470.92	4.08	0.00	0.00	200.00	346.00	0.00
174.000	850.83	.10	851.57	145.00	0.00	9475.00	0.00	.00	200.00	200.00	346.00	346.00
175.000	851.64	0.00	851.86	357.95	523.73	8762.18	89.09	0.00	0.00	168.00	390.00	0.00
175.000	851.71	.07	851.94	264.29	562.24	8906.73	5.04	.02	127.84	168.00	390.00	392.13
176.000	852.12	0.00	852.30	379.24	455.00	7817.38	1202.62	0.00	0.00	370.00	550.00	0.00
176.000	852.19	.07	852.38	326.27	390.90	7927.78	1155.32	.02	337.64	370.00	550.00	663.91
177.000	852.56	0.00	852.74	458.06	493.24	8299.46	682.27	0.00	0.00	157.00	341.00	0.00
177.000	852.64	.08	852.82	361.45	431.75	8414.12	523.13	.02	80.80	157.00	341.00	442.25

SECNO	CWSEL	DIFKWS	EG	TOPMID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
178.000	852.96	0.00	853.11	405.75	509.24	8881.69	84.06	0.00	0.00	132.00	363.00	0.00
178.000	853.04	.06	853.19	303.76	454.54	9000.45	20.01	.02	63.74	132.00	363.00	367.44
179.000	852.98	0.00	853.18	330.86	40.36	9432.04	2.60	0.00	0.00	189.00	425.25	0.00
179.000	853.06	.08	853.27	236.25	0.00	9475.00	0.00	.00	189.00	189.00	425.25	425.25
179.500	853.34	0.00	853.52	360.30	225.07	9179.20	70.74	0.00	0.00	189.00	401.63	0.00
179.500	853.42	.08	853.61	242.34	162.42	9309.53	3.05	.01	161.02	189.00	401.63	403.36
180.000	853.39	0.00	853.65	336.22	658.36	8749.25	67.39	0.00	0.00	153.00	343.00	0.00
180.000	853.47	.08	853.74	236.47	602.22	8872.78	0.00	.02	106.52	153.00	343.00	343.00
181.000	854.12	0.00	854.49	378.74	0.00	9083.21	391.79	0.00	0.00	0.00	184.00	0.00
181.000	854.21	.09	854.59	235.43	0.00	9221.62	253.38	.02	.00	.00	184.00	247.07
182.000	854.98	0.00	855.01	1325.53	1722.05	5448.04	2304.92	0.00	0.00	1050.00	1275.00	0.00
182.000	855.08	.10	855.12	992.18	1577.09	5525.59	2272.32	.02	690.75	1050.00	1275.00	1682.93
183.000	855.13	0.00	855.15	1763.79	268.15	3699.23	5507.62	0.00	0.00	200.00	390.00	0.00
183.000	855.24	.10	855.26	1615.82	174.17	3749.40	5551.43	.02	123.39	200.00	390.00	1740.21
184.000	855.26	0.00	855.28	1769.37	5518.87	3386.14	569.99	0.00	0.00	1670.00	1815.00	0.00
184.000	855.36	.10	855.39	1547.02	5563.81	3423.90	487.49	.02	372.09	1670.00	1815.00	1919.10
185.000	855.58	0.00	855.64	1257.56	3011.69	5380.03	1083.28	0.00	0.00	1420.00	1580.00	0.00
185.000	855.68	.10	855.74	949.41	3015.75	5430.61	1028.65	.02	733.10	1420.00	1580.00	1652.51
186.000	855.83	0.00	855.86	1075.85	6219.98	3255.02	0.00	0.00	0.00	1200.00	1337.00	0.00
186.000	855.93	.10	855.96	958.25	6175.72	3299.28	0.00	.02	373.57	1200.00	1337.00	1337.00
187.000	856.12	0.00	856.18	1782.88	1473.19	5384.51	2617.30	0.00	0.00	790.00	947.00	0.00
187.000	856.22	.10	856.28	1464.05	1436.49	5442.54	2595.98	.03	298.14	790.00	947.00	1782.19
188.000	856.25	0.00	856.35	1407.89	259.14	6075.93	3139.94	0.00	0.00	865.00	1040.00	0.00
188.000	856.35	.10	856.45	1067.03	173.74	6165.15	3136.11	.03	479.78	865.00	1040.00	1635.20
189.000	856.77	0.00	856.81	976.84	1805.37	3815.61	3854.02	0.00	0.00	440.00	570.00	0.00
189.000	856.87	.10	856.91	839.26	1775.67	3851.62	3847.71	.02	316.96	440.00	570.00	1156.23

GRAND RIVER PART II

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
121.100	0.00	0.00	0.00	813.60	10000.00	834.73	0.00	835.40	8.54	6.58	1571.07	3422.55
121.100	0.00	0.00	0.00	813.60	10000.00	834.83	0.00	835.49	8.37	6.54	1528.90	3456.29
122.000	830.00	0.00	0.00	820.20	10000.00	835.54	0.00	835.62	.82	2.30	4355.68	11031.21
122.000	830.00	0.00	0.00	820.20	10000.00	835.63	0.00	835.71	.80	2.28	4385.33	11148.77
123.000	650.00	0.00	0.00	815.20	10000.00	835.59	0.00	835.69	1.11	2.53	3958.91	9493.93
123.000	650.00	0.00	0.00	815.20	10000.00	835.68	0.00	835.77	1.08	2.51	3991.10	9617.78
124.000	240.00	0.00	0.00	809.20	10000.00	835.61	0.00	835.72	1.04	2.65	3780.53	9784.61
124.000	240.00	0.00	0.00	809.20	10000.00	835.70	0.00	835.80	1.03	2.63	3805.18	9877.01
124.100	1.00	840.00	868.00	809.20	10000.00	835.60	0.00	835.73	1.43	2.91	3440.30	8362.42
124.100	1.00	840.00	868.00	809.20	10000.00	835.69	0.00	835.81	1.40	2.89	3462.90	8442.41
124.400	52.20	840.00	868.00	809.20	10000.00	835.61	0.00	835.73	1.43	2.91	3440.51	8363.13
124.400	52.20	840.00	868.00	809.20	10000.00	835.69	0.00	835.82	1.40	2.89	3463.33	8443.96
124.500	1.00	0.00	0.00	809.20	10000.00	835.63	0.00	835.74	1.04	2.64	3787.05	9809.00
124.500	1.00	0.00	0.00	809.20	10000.00	835.72	0.00	835.83	1.02	2.62	3810.85	9893.29
125.000	210.00	0.00	0.00	809.30	10000.00	835.73	0.00	835.77	.49	1.77	5647.75	14310.24
125.000	210.00	0.00	0.00	809.30	10000.00	835.81	0.00	835.86	.48	1.76	5681.33	14421.51
125.500	280.00	0.00	0.00	820.00	10000.00	835.73	0.00	835.80	.73	2.06	4856.40	11729.52
125.500	280.00	0.00	0.00	820.00	10000.00	835.82	0.00	835.89	.71	2.04	4892.12	11852.34
125.510	1.00	847.00	879.00	820.00	10000.00	835.70	0.00	835.83	2.16	2.86	3501.53	6805.02
125.510	1.00	847.00	879.00	820.00	10000.00	835.79	0.00	835.92	2.11	2.83	3527.68	6877.64
125.590	52.00	847.00	879.00	820.00	10000.00	835.71	0.00	835.84	2.16	2.85	3503.77	6811.21
125.590	52.00	847.00	879.00	820.00	10000.00	835.80	0.00	835.93	2.11	2.83	3530.95	6886.74
125.600	1.00	0.00	0.00	820.00	10000.00	835.79	0.00	835.86	.72	2.05	4878.79	11806.44
125.600	1.00	0.00	0.00	820.00	10000.00	835.88	0.00	835.94	.70	2.04	4913.61	11926.38
126.000	600.00	0.00	0.00	823.40	10000.00	835.84	0.00	835.92	.99	2.24	4487.21	10060.01
126.000	600.00	0.00	0.00	823.40	10000.00	835.92	0.00	836.00	.98	2.22	4509.79	10104.87
127.000	1800.00	0.00	0.00	823.00	10000.00	836.06	0.00	836.22	2.82	3.18	3163.64	5951.36
127.000	1800.00	0.00	0.00	823.00	10000.00	836.15	0.00	836.30	2.78	3.15	3176.72	5999.67
128.000	1850.00	0.00	0.00	820.80	10000.00	836.49	0.00	836.59	1.43	2.53	3959.08	8359.18
128.000	1850.00	0.00	0.00	820.80	10000.00	836.56	0.00	836.66	1.41	2.52	3973.67	8432.13
129.000	900.00	0.00	0.00	823.30	10000.00	836.62	0.00	836.76	2.30	3.05	3283.52	6595.91
129.000	900.00	0.00	0.00	823.30	10000.00	836.69	0.00	836.83	2.25	3.02	3308.23	6665.80
130.000	1650.00	0.00	0.00	823.30	10000.00	836.97	0.00	837.10	1.81	2.91	3468.60	7424.99
130.000	1650.00	0.00	0.00	823.30	10000.00	837.03	0.00	837.16	1.78	2.89	3456.86	7491.81
131.000	1600.00	0.00	0.00	822.80	10000.00	837.28	0.00	837.37	1.53	2.42	4153.25	8094.24
131.000	1600.00	0.00	0.00	822.80	10000.00	837.34	0.00	837.43	1.50	2.40	4166.09	8166.73

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
132.000	1500.00	0.00	0.00	822.20	10000.00	837.48	0.00	837.57	1.16	2.33	4358.57	9291.60
132.000	1500.00	0.00	0.00	822.20	10000.00	837.54	0.00	837.63	1.17	2.33	4300.18	9255.19
133.000	800.00	0.00	0.00	822.40	10000.00	837.58	0.00	837.66	1.14	2.31	4386.94	9371.77
133.000	800.00	0.00	0.00	822.40	10000.00	837.64	0.00	837.72	1.15	2.31	4321.91	9330.66
134.000	450.00	0.00	0.00	819.90	10000.00	837.60	0.00	837.75	1.58	3.14	3184.22	7962.03
134.000	450.00	0.00	0.00	819.90	10000.00	837.66	0.00	837.81	1.59	3.13	3199.31	7921.24
134.100	1.00	842.80	840.00	819.90	10000.00	837.59	0.00	837.77	1.96	3.35	2983.28	7142.44
134.100	1.00	842.80	840.00	819.90	10000.00	837.65	0.00	837.83	1.98	3.34	2997.34	7105.66
134.500	46.00	342.80	840.00	818.90	10000.00	837.63	0.00	837.76	1.55	3.12	3210.12	8023.70
134.500	46.00	342.80	840.00	818.90	10000.00	837.69	0.00	837.84	1.61	3.10	3224.14	7870.29
134.900	1.00	0.00	0.00	818.90	10000.00	837.65	0.00	837.79	1.25	2.92	3425.02	8938.26
134.900	1.00	0.00	0.00	818.90	10000.00	837.71	0.00	837.85	1.30	2.91	3440.04	8767.10
135.000	300.00	0.00	0.00	824.30	10000.00	837.78	0.00	837.84	.87	1.95	5266.78	10691.59
135.000	300.00	0.00	0.00	824.30	10000.00	837.84	0.00	837.90	.89	1.96	5101.11	10581.58
136.000	3500.00	0.00	0.00	821.30	10000.00	838.15	0.00	838.25	1.53	2.60	4514.51	8089.39
136.000	3500.00	0.00	0.00	821.30	10000.00	838.22	0.00	838.32	1.57	2.62	4259.68	7969.43
137.000	1400.00	0.00	0.00	821.30	10000.00	838.35	0.00	838.46	1.47	2.66	4469.14	8249.39
137.000	1400.00	0.00	0.00	821.30	10000.00	838.43	0.00	838.54	1.50	2.69	4140.15	8153.52
139.000	2100.00	0.00	0.00	820.60	10000.00	838.63	0.00	838.74	1.19	2.92	4897.09	9173.69
139.000	2100.00	0.00	0.00	820.60	10000.00	838.71	0.00	838.83	1.23	2.94	4721.87	9002.03
140.000	2250.00	0.00	0.00	823.30	10000.00	838.93	0.00	839.03	1.34	2.51	4319.03	8630.33
140.000	2250.00	0.00	0.00	823.30	10000.00	839.02	0.00	839.12	1.35	2.53	4138.09	8605.53
141.000	1950.00	0.00	0.00	823.90	10000.00	839.19	0.00	839.24	.94	2.12	7227.11	10298.38
141.000	1950.00	0.00	0.00	823.90	10000.00	839.28	0.00	839.33	.96	2.12	6918.98	10187.13
141.500	1400.00	0.00	0.00	820.00	10000.00	839.31	0.00	839.38	1.09	2.25	5153.28	9572.69
141.500	1400.00	0.00	0.00	820.00	10000.00	839.41	0.00	839.48	1.10	2.26	4992.42	9535.41
142.000	1700.00	0.00	0.00	820.50	10000.00	839.49	0.00	839.64	1.78	3.47	4434.86	7497.50
142.000	1700.00	0.00	0.00	820.50	10000.00	839.58	0.00	839.74	1.80	3.49	4223.99	7462.22
143.000	2440.00	0.00	0.00	825.20	10000.00	839.96	0.00	840.00	1.17	2.01	8072.45	9235.49
143.000	2440.00	0.00	0.00	825.20	10000.00	840.06	0.00	840.10	1.18	2.02	7902.65	9220.56
144.000	3750.00	0.00	0.00	822.30	10000.00	840.44	0.00	840.80	3.26	4.83	2185.46	5521.50
144.000	3750.00	0.00	0.00	822.30	10000.00	840.55	0.00	840.91	3.40	4.85	2090.39	5426.28
145.000	1200.00	0.00	0.00	825.70	10000.00	840.96	0.00	841.17	2.83	4.16	2450.86	5947.04
145.000	1200.00	0.00	0.00	825.70	10000.00	841.03	0.00	841.29	2.87	4.14	2414.28	5907.19
146.000	1800.00	0.00	0.00	824.20	10000.00	841.39	0.00	841.58	1.77	3.55	3158.63	7511.13
146.000	1800.00	0.00	0.00	824.20	10000.00	841.51	0.00	841.70	1.77	3.56	3014.45	7523.66
147.000	220.00	0.00	0.00	825.20	10000.00	841.49	0.00	841.63	2.16	3.04	3284.17	6799.85
147.000	220.00	0.00	0.00	825.20	10000.00	841.62	0.00	841.76	2.11	3.00	3330.77	6333.67

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
147.500	66.00	842.70	843.40	825.20	10000.00	841.51	0.00	841.64	2.01	2.93	3410.86	7061.55
147.500	66.00	842.70	843.40	825.20	10000.00	841.61	0.00	841.76	1.94	2.90	3448.62	7183.05
148.000	250.00	0.00	0.00	826.00	10000.00	841.56	0.00	841.72	3.36	3.52	3368.92	5457.55
148.000	250.00	0.00	0.00	826.00	10000.00	841.67	0.00	841.84	3.33	3.52	3228.77	5479.75
149.000	350.00	0.00	0.00	825.00	10000.00	841.65	0.00	841.84	2.80	3.50	2853.41	5977.53
149.000	350.00	0.00	0.00	825.00	10000.00	841.77	0.00	841.96	2.80	3.46	2888.49	5970.85
149.500	34.00	858.50	852.90	825.00	10000.00	841.66	0.00	841.87	2.87	3.64	2746.04	5898.16
149.500	34.00	858.50	852.90	825.00	10000.00	841.76	0.00	841.96	2.80	3.61	2771.88	5978.36
150.000	200.00	0.00	0.00	825.00	10000.00	841.70	0.00	841.96	3.54	4.18	2596.64	5316.59
150.000	200.00	0.00	0.00	825.00	10000.00	841.79	0.00	842.05	3.57	4.21	2434.78	5294.94
151.000	225.00	0.00	0.00	827.20	10000.00	841.87	0.00	842.07	4.38	3.54	2825.98	4775.82
151.000	225.00	0.00	0.00	827.20	10000.00	841.98	0.00	842.17	4.28	3.50	2856.85	4834.36
151.500	35.00	860.40	853.90	827.40	10000.00	841.88	0.00	842.08	4.50	3.58	2796.10	4712.23
151.500	35.00	860.40	853.90	827.40	10000.00	841.98	0.00	842.18	4.35	3.54	2824.73	4792.84
152.000	350.00	0.00	0.00	826.20	10000.00	842.04	0.00	842.22	3.04	3.37	3025.40	5733.99
152.000	350.00	0.00	0.00	826.20	10000.00	842.13	0.00	842.31	3.22	3.39	2949.39	5574.85
153.000	750.00	0.00	0.00	827.20	10000.00	842.28	0.00	842.42	2.15	3.16	3926.46	6823.98
153.000	750.00	0.00	0.00	827.20	10000.00	842.38	0.00	842.52	2.15	3.18	3727.17	6820.52
157.000	1800.00	0.00	0.00	827.90	10000.00	843.11	0.00	843.22	1.35	2.84	4093.42	8598.94
157.000	1800.00	0.00	0.00	827.90	10000.00	843.21	0.00	843.32	1.36	2.85	3951.52	8590.02
158.000	1800.00	0.00	0.00	829.30	10000.00	843.37	0.00	843.48	1.56	2.92	4263.00	8001.43
158.000	1800.00	0.00	0.00	829.30	10000.00	843.46	0.00	843.59	1.58	2.93	3984.24	7967.66
159.000	1875.00	0.00	0.00	827.50	10000.00	843.67	0.00	843.84	2.20	3.64	3838.23	6735.81
159.000	1875.00	0.00	0.00	827.50	10000.00	843.77	0.00	843.95	2.20	3.65	3666.85	6740.08
160.000	1500.00	0.00	0.00	829.10	10000.00	844.00	0.00	844.38	4.86	5.46	2724.38	4536.81
160.000	1500.00	0.00	0.00	829.10	10000.00	844.10	0.00	844.49	4.88	5.50	2535.92	4527.94
161.000	500.00	0.00	0.00	831.10	10000.00	844.38	0.00	844.65	5.43	4.35	2782.84	4290.96
161.000	500.00	0.00	0.00	831.10	10000.00	844.48	0.00	844.76	5.43	4.37	2603.06	4290.89
162.000	980.00	0.00	0.00	831.10	10000.00	844.89	0.00	845.05	2.69	3.20	3246.52	6101.95
162.000	980.00	0.00	0.00	831.10	10000.00	845.00	0.00	845.15	2.66	3.18	3139.93	6132.85
162.100	10.00	0.00	0.00	833.60	10000.00	846.23	0.00	846.38	2.76	3.17	3615.06	6018.45
162.100	10.00	0.00	0.00	833.60	10000.00	846.34	0.00	846.49	2.75	3.18	3409.09	6025.65
163.000	750.00	0.00	0.00	834.00	9475.00	846.47	0.00	846.75	7.07	4.22	2268.38	3564.56
163.000	750.00	0.00	0.00	834.00	9475.00	846.58	0.00	846.85	6.96	4.18	2267.39	3590.76
164.000	120.00	0.00	0.00	834.00	9475.00	846.55	0.00	846.81	3.80	4.10	2341.26	4859.74
164.000	120.00	0.00	0.00	834.00	9475.00	846.66	0.00	846.92	3.76	4.07	2330.47	4885.09
164.500	41.00	853.00	851.30	833.70	9475.00	846.56	0.00	846.82	3.95	4.11	2425.19	4768.57
164.500	41.00	853.00	851.30	833.70	9475.00	846.66	0.00	846.91	3.79	4.06	2460.19	4866.87

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
165.000	175.00	0.00	0.00	834.00	9475.00	846.66	0.00	846.89	3.36	3.86	2552.52	5167.74
165.000	175.00	0.00	0.00	834.00	9475.00	846.75	0.00	846.98	3.38	3.84	2466.59	5154.14
166.000	1300.00	0.00	0.00	833.60	9475.00	847.03	0.00	847.25	2.32	3.76	2671.44	6227.27
166.000	1300.00	0.00	0.00	833.60	9475.00	847.12	0.00	847.34	2.36	3.77	2515.20	6170.09
167.000	500.00	0.00	0.00	834.00	9475.00	847.21	0.00	847.37	2.55	3.22	3032.60	5939.61
167.000	500.00	0.00	0.00	834.00	9475.00	847.31	0.00	847.47	2.53	3.20	2961.69	5959.26
168.000	2562.00	0.00	0.00	834.50	9475.00	847.86	0.00	848.03	2.55	3.60	3597.55	5938.67
168.000	2562.00	0.00	0.00	834.50	9475.00	847.95	0.00	848.12	2.56	3.63	3468.43	5926.13
169.000	2438.00	0.00	0.00	834.40	9475.00	848.63	0.00	848.96	5.58	4.87	2444.75	4011.40
169.000	2438.00	0.00	0.00	834.40	9475.00	848.72	0.00	849.06	5.61	4.91	2348.22	4001.29
170.000	2375.00	0.00	0.00	836.00	9475.00	850.13	0.00	850.38	6.44	4.30	2563.62	3734.38
170.000	2375.00	0.00	0.00	836.00	9475.00	850.22	0.00	850.48	6.49	4.32	2437.88	3719.22
171.000	200.00	0.00	0.00	836.50	9475.00	850.17	0.00	850.58	7.10	5.10	1858.47	3557.14
171.000	200.00	0.00	0.00	836.50	9475.00	850.29	0.00	850.69	7.87	5.05	1877.63	3377.98
171.500	47.00	856.00	851.90	835.70	9475.00	850.20	0.00	850.60	7.10	5.10	1857.89	3556.35
171.500	47.00	856.00	851.90	836.70	9475.00	850.30	0.00	850.70	6.90	5.06	1873.59	3606.20
172.000	120.00	0.00	0.00	836.70	9475.00	850.53	0.00	850.72	3.45	3.67	3091.95	5103.30
172.000	120.00	0.00	0.00	836.70	9475.00	850.62	0.00	850.81	3.47	3.69	2930.31	5086.60
173.000	875.00	0.00	0.00	837.50	9475.00	850.87	0.00	851.13	5.42	4.33	2750.51	4070.00
173.000	875.00	0.00	0.00	837.50	9475.00	850.96	0.00	851.22	5.46	4.37	2587.20	4054.55
174.000	120.00	0.00	0.00	839.20	9475.00	850.74	0.00	851.43	19.39	6.95	1366.23	2151.50
174.000	120.00	0.00	0.00	839.20	9475.00	850.83	0.00	851.57	19.12	6.88	1377.38	2167.03
175.000	250.00	0.00	0.00	838.50	9475.00	851.64	0.00	851.86	4.91	3.86	2646.42	4275.55
175.000	250.00	0.00	0.00	838.50	9475.00	851.71	0.00	851.94	4.97	3.90	2517.20	4251.67
176.000	1000.00	0.00	0.00	836.50	9475.00	852.12	0.00	852.39	3.61	3.64	2994.59	4989.00
176.000	1000.00	0.00	0.00	836.50	9475.00	852.19	0.00	852.33	3.64	3.68	2909.96	4963.73
177.000	1750.00	0.00	0.00	838.20	9475.00	852.56	0.00	852.74	1.78	3.56	3290.36	7103.50
177.000	1750.00	0.00	0.00	838.20	9475.00	852.64	0.00	852.82	1.79	3.58	3145.86	7079.03
178.000	2225.00	0.00	0.00	839.20	9475.00	852.96	0.00	853.11	1.52	3.19	3316.11	7685.96
178.000	2225.00	0.00	0.00	839.20	9475.00	853.04	0.00	853.19	1.53	3.21	3166.36	7670.35
179.000	250.00	0.00	0.00	839.90	9475.00	852.98	0.00	853.18	2.24	3.63	2701.65	6328.52
179.000	250.00	0.00	0.00	839.90	9475.00	853.06	0.00	853.27	2.25	3.62	2615.56	6310.06
179.500	28.00	853.60	852.40	839.20	9475.00	853.34	0.00	853.52	3.26	3.52	2973.49	5246.44
179.500	28.00	999999.00	0.00	839.20	9475.00	853.42	0.00	853.61	3.28	3.55	2771.51	5232.38
180.000	250.00	0.00	0.00	840.90	9475.00	853.39	0.00	853.65	5.38	4.21	2548.11	4085.89
180.000	250.00	0.00	0.00	840.90	9475.00	853.47	0.00	853.74	5.51	4.24	2409.66	4035.23
181.000	1250.00	0.00	0.00	841.10	9475.00	854.12	0.00	854.49	7.98	4.98	2201.38	3353.85
181.000	1250.00	0.00	0.00	841.10	9475.00	854.21	0.00	854.59	8.00	5.02	2036.28	3350.19

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
182.000	2375.00	0.00	0.00	839.50	9475.00	854.98	0.00	855.01	.90	1.90	8554.23	9991.63
182.000	2375.00	0.00	0.00	839.50	9475.00	855.08	0.00	855.12	.90	1.91	8143.31	9989.72
183.000	1625.00	0.00	0.00	840.00	9475.00	855.13	0.00	855.15	.70	1.62	11200.79	11331.57
183.000	1625.00	0.00	0.00	840.00	9475.00	855.24	0.00	855.26	.70	1.63	10926.18	11342.31
184.000	1750.00	0.00	0.00	837.50	9475.00	855.26	0.00	855.28	.82	1.80	10921.39	10482.26
184.000	1750.00	0.00	0.00	837.50	9475.00	855.36	0.00	855.39	.82	1.80	10566.18	10492.04
185.000	3000.00	0.00	0.00	841.00	9475.00	855.58	0.00	855.64	1.63	2.59	6788.59	7413.66
185.000	3000.00	0.00	0.00	841.00	9475.00	855.68	0.00	855.74	1.62	2.59	6415.08	7440.24
186.000	1625.00	0.00	0.00	840.30	9475.00	855.83	0.00	855.85	1.18	2.07	8218.80	8705.98
186.000	1625.00	0.00	0.00	840.30	9475.00	855.93	0.00	855.96	1.19	2.08	7958.15	8701.04
187.000	2375.00	0.00	0.00	838.70	9475.00	856.12	0.00	856.18	1.68	2.62	7106.12	7304.70
187.000	2375.00	0.00	0.00	838.70	9475.00	856.22	0.00	856.28	1.68	2.63	6805.23	7319.10
188.000	800.00	0.00	0.00	839.80	9475.00	856.25	0.00	856.35	2.63	3.01	5570.38	5837.36
188.000	800.00	0.00	0.00	839.80	9475.00	856.35	0.00	856.45	2.63	3.03	5213.41	5838.73
189.000	2750.00	0.00	0.00	841.50	9475.00	856.77	0.00	856.81	1.13	2.17	7225.96	8900.05
189.000	2750.00	0.00	0.00	841.50	9475.00	856.87	0.00	856.91	1.13	2.18	6983.21	8925.52

GRAND RIVER PART II

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
121.100	10000.00	834.73	0.00	0.00	0.00	269.12	0.00
121.100	10000.00	834.83	.10	0.00	.10	135.38	0.00
122.000	10000.00	835.54	0.00	.81	0.00	326.91	830.00
122.000	10000.00	835.63	.09	.80	.09	327.17	830.00
123.000	10000.00	835.59	0.00	.05	0.00	332.38	650.00
123.000	10000.00	835.68	.09	.05	.09	332.52	650.00
124.000	10000.00	835.61	0.00	.02	0.00	268.25	240.00
124.000	10000.00	835.70	.09	.02	.09	268.77	240.00
124.100	10000.00	835.60	0.00	-.01	0.00	268.21	1.00
124.100	10000.00	835.69	.09	-.01	.09	268.71	1.00
124.400	10000.00	835.60	0.00	.01	0.00	268.22	52.20
124.400	10000.00	835.69	.09	.01	.09	268.72	52.20
124.500	10000.00	835.63	0.00	.03	0.00	268.39	1.00
124.500	10000.00	835.72	.09	.03	.09	268.89	1.00
125.000	10000.00	835.73	0.00	.09	0.00	430.88	210.00
125.000	10000.00	835.81	.09	.09	.09	426.74	210.00
125.500	10000.00	835.73	0.00	.01	0.00	402.52	280.00
125.500	10000.00	835.82	.09	.01	.09	403.60	280.00
125.510	10000.00	835.70	0.00	-.03	0.00	402.09	1.00
125.510	10000.00	835.79	.09	-.03	.09	403.16	1.00
125.590	10000.00	835.71	0.00	.01	0.00	402.18	52.00
125.590	10000.00	835.80	.09	.01	.09	403.29	52.00
125.600	10000.00	835.79	0.00	.08	0.00	403.20	1.00
125.600	10000.00	835.88	.09	.08	.09	404.24	1.00
126.000	10000.00	835.84	0.00	.04	0.00	429.51	600.00
126.000	10000.00	835.92	.09	.04	.09	418.01	600.00
127.000	10000.00	836.06	0.00	.23	0.00	400.07	1800.00
127.000	10000.00	836.15	.08	.22	.08	382.00	1800.00
128.000	10000.00	836.49	0.00	.42	0.00	420.67	1850.00
128.000	10000.00	836.56	.08	.42	.08	402.13	1850.00
129.000	10000.00	836.62	0.00	.13	0.00	368.18	900.00
129.000	10000.00	836.69	.07	.13	.07	362.01	900.00
130.000	10000.00	836.97	0.00	.35	0.00	414.69	1650.00
130.000	10000.00	837.03	.07	.34	.07	339.31	1650.00
131.000	10000.00	837.28	0.00	.31	0.00	502.67	1600.00
131.000	10000.00	837.34	.06	.31	.05	477.36	1600.00

SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
132.000	10000.00	837.48	0.00	.21	0.00	487.67	1500.00
132.000	10000.00	837.54	.06	.20	.06	424.00	1500.00
133.000	10000.00	837.58	0.00	.09	0.00	489.78	800.00
133.000	10000.00	837.64	.06	.09	.06	424.01	800.00
134.000	10000.00	837.60	0.00	.02	0.00	247.39	450.00
134.000	10000.00	837.66	.06	.03	.06	247.39	450.00
134.100	10000.00	837.59	0.00	-.01	0.00	247.39	1.00
134.100	10000.00	837.65	.06	-.01	.06	247.39	1.00
134.500	10000.00	837.63	0.00	.04	0.00	247.39	46.00
134.500	10000.00	837.69	.06	.04	.06	247.39	46.00
134.900	10000.00	837.65	0.00	.02	0.00	247.39	1.00
134.900	10000.00	837.71	.06	.02	.06	247.39	1.00
135.000	10000.00	837.78	0.00	.13	0.00	636.81	300.00
135.000	10000.00	837.84	.06	.13	.06	530.01	300.00
136.000	10000.00	838.15	0.00	.37	0.00	702.12	3500.00
136.000	10000.00	838.22	.07	.38	.07	561.69	3500.00
137.000	10000.00	838.35	0.00	.21	0.00	880.61	1400.00
137.000	10000.00	838.43	.07	.21	.07	637.80	1400.00
139.000	10000.00	838.63	0.00	.28	0.00	698.79	2100.00
139.000	10000.00	838.71	.08	.29	.08	622.87	2100.00
140.000	10000.00	838.93	0.00	.30	0.00	533.51	2250.00
140.000	10000.00	839.02	.09	.31	.09	442.98	2250.00
141.000	10000.00	839.19	0.00	.25	0.00	1183.88	1950.00
141.000	10000.00	839.28	.09	.26	.09	992.40	1950.00
141.500	10000.00	839.31	0.00	.12	0.00	655.88	1400.00
141.500	10000.00	839.40	.09	.13	.09	583.05	1400.00
142.000	10000.00	839.49	0.00	.18	0.00	818.81	1700.00
142.000	10000.00	839.58	.09	.18	.09	658.43	1700.00
143.000	10000.00	839.96	0.00	.47	0.00	1463.53	2440.00
143.000	10000.00	840.06	.10	.48	.10	1364.86	2440.00
144.000	10000.00	840.44	0.00	.48	0.00	227.76	3750.00
144.000	10000.00	840.55	.10	.49	.10	161.86	3750.00
145.000	10000.00	840.90	0.00	.46	0.00	245.80	1200.00
145.000	10000.00	841.03	.12	.48	.12	199.00	1200.00
146.000	10000.00	841.39	0.00	.49	0.00	412.27	1800.00
146.000	10000.00	841.51	.12	.49	.12	278.95	1800.00
147.000	10000.00	841.49	0.00	.09	0.00	361.23	220.00
147.000	10000.00	841.62	.13	.10	.13	363.66	220.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
147.500	10000.00	841.51	0.00	.02	0.00	377.21	65.00
147.500	10000.00	841.61	.10	-.01	.10	377.93	66.00
148.000	10000.00	841.56	0.00	.05	0.00	557.06	250.00
148.000	10000.00	841.67	.11	.06	.11	417.41	250.00
149.000	10000.00	841.65	0.00	.09	0.00	281.00	350.00
149.000	10000.00	841.77	.12	.10	.12	281.00	350.00
149.500	10000.00	841.66	0.00	.01	0.00	257.93	34.00
149.500	10000.00	841.76	.10	-.01	.10	258.73	34.00
150.000	10000.00	841.70	0.00	.03	0.00	436.52	200.00
150.000	10000.00	841.79	.09	.03	.09	220.39	200.00
151.000	10000.00	841.87	0.00	.16	0.00	286.26	225.00
151.000	10000.00	841.98	.11	.19	.11	286.26	225.00
151.500	10000.00	841.82	0.00	.01	0.00	286.26	35.00
151.500	10000.00	841.92	.10	.00	.10	286.26	35.00
152.000	10000.00	842.04	0.00	.16	0.00	297.32	350.00
152.000	10000.00	842.13	.09	.15	.09	245.00	350.00
153.000	10000.00	842.28	0.00	.24	0.00	778.80	750.00
153.000	10000.00	842.38	.10	.24	.10	558.21	750.00
* 157.000	10000.00	843.11	0.00	.83	0.00	482.46	1800.00
* 157.000	10000.00	843.21	.10	.83	.10	408.05	1800.00
158.000	10000.00	843.37	0.00	.25	0.00	693.53	1800.00
158.000	10000.00	843.46	.10	.26	.10	458.60	1800.00
159.000	10000.00	843.67	0.00	.31	0.00	601.75	1875.00
159.000	10000.00	843.77	.10	.31	.10	489.20	1875.00
160.000	10000.00	844.00	0.00	.33	0.00	515.56	1500.00
160.000	10000.00	844.10	.09	.32	.09	362.89	1500.00
161.000	10000.00	844.38	0.00	.38	0.00	559.11	500.00
161.000	10000.00	844.48	.10	.39	.10	352.41	500.00
162.000	10000.00	844.89	0.00	.51	0.00	510.64	980.00
162.000	10000.00	845.00	.11	.51	.11	240.00	980.00
* 162.100	10000.00	846.23	0.00	1.34	0.00	617.55	10.00
* 162.100	10000.00	846.34	.11	1.34	.11	408.28	10.00
163.000	9475.00	846.47	0.00	.25	0.00	281.40	750.00
163.000	9475.00	846.58	.11	.25	.11	251.00	750.00
164.000	9475.00	846.55	0.00	.08	0.00	298.22	120.00
164.000	9475.00	846.66	.11	.08	.11	261.00	120.00
164.500	9475.00	846.56	0.00	.01	0.00	348.92	41.00
164.500	9475.00	846.66	.10	.00	.10	351.06	41.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
165.000	9475.00	846.66	0.00	.09	0.00	360.87	175.00
165.000	9475.00	846.75	.09	.09	.09	277.00	175.00
166.000	9475.00	847.03	0.00	.37	0.00	340.16	1300.00
166.000	9475.00	847.12	.09	.37	.09	219.18	1300.00
167.000	9475.00	847.21	0.00	.18	0.00	422.16	500.00
167.000	9475.00	847.31	.10	.19	.10	355.00	500.00
168.000	9475.00	847.86	0.00	.64	0.00	501.06	2562.00
168.000	9475.00	847.95	.09	.64	.09	443.80	2562.00
169.000	9475.00	848.63	0.00	.77	0.00	312.86	2438.00
169.000	9475.00	848.72	.09	.77	.09	255.18	2438.00
170.000	9475.00	850.12	0.00	1.49	0.00	383.88	2375.00
170.000	9475.00	850.22	.11	1.50	.11	282.15	2375.00
171.000	9475.00	850.17	0.00	.06	0.00	157.00	200.00
171.000	9475.00	850.29	.12	.07	.12	157.00	200.00
171.500	9475.00	850.20	0.00	.03	0.00	157.00	47.00
171.500	9475.00	850.30	.10	.01	.10	157.00	47.00
172.000	9475.00	850.53	0.00	.33	0.00	457.20	120.00
172.000	9475.00	850.62	.08	.32	.08	315.75	120.00
173.000	9475.00	850.87	0.00	.34	0.00	378.12	875.00
173.000	9475.00	850.96	.08	.34	.08	292.82	875.00
174.000	9475.00	850.74	0.00	-.14	0.00	148.96	120.00
174.000	9475.00	850.83	.10	-.12	.10	146.00	120.00
175.000	9475.00	851.64	0.00	.91	0.00	357.95	250.00
175.000	9475.00	851.71	.07	.88	.07	264.29	250.00
176.000	9475.00	852.12	0.00	.48	0.00	379.24	1000.00
176.000	9475.00	852.19	.07	.48	.07	326.27	1000.00
177.000	9475.00	852.56	0.00	.44	0.00	458.06	1750.00
177.000	9475.00	852.64	.08	.44	.08	361.45	1750.00
178.000	9475.00	852.96	0.00	.40	0.00	405.75	2225.00
178.000	9475.00	853.04	.08	.40	.08	303.71	2225.00
179.000	9475.00	852.98	0.00	.02	0.00	330.86	250.00
179.000	9475.00	853.06	.08	.02	.08	236.25	250.00
179.500	9475.00	853.34	0.00	.36	0.00	360.30	28.00
179.500	9475.00	853.42	.08	.36	.08	242.34	28.00
180.000	9475.00	853.39	0.00	.05	0.00	336.22	250.00
180.000	9475.00	853.47	.08	.05	.08	236.47	250.00
181.000	9475.00	854.12	0.00	.73	0.00	378.74	1250.00
181.000	9475.00	854.21	.09	.74	.09	235.43	1250.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
182.000	9475.00	854.98	0.00	.86	0.00	1325.53	2375.00
182.000	9475.00	855.08	.10	.87	.10	992.18	2375.00
183.000	9475.00	855.13	0.00	.16	0.00	1763.79	1625.00
183.000	9475.00	855.24	.10	.15	.10	1616.82	1625.00
184.000	9475.00	855.26	0.00	.13	0.00	1769.37	1750.00
184.000	9475.00	855.36	.10	.13	.10	1547.02	1750.00
185.000	9475.00	855.58	0.00	.31	0.00	1257.56	3000.00
185.000	9475.00	855.68	.10	.31	.10	949.41	3000.00
186.000	9475.00	855.83	0.00	.25	0.00	1075.85	1625.00
186.000	9475.00	855.93	.10	.25	.10	958.25	1625.00
187.000	9475.00	856.12	0.00	.29	0.00	1782.88	2375.00
187.000	9475.00	856.22	.10	.29	.10	1484.05	2375.00
188.000	9475.00	856.25	0.00	.13	0.00	1407.89	800.00
188.000	9475.00	856.35	.10	.13	.10	1087.03	800.00
189.000	9475.00	856.77	0.00	.52	0.00	976.84	2750.00
189.000	9475.00	856.87	.10	.52	.10	839.26	2750.00

SUMMARY OF ERRORS

NOTE SECNO= 157.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 157.000 PROFILE= 2 WSEL BASED ON X5 CARD

NOTE SECNO= 162.100 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 162.100 PROFILE= 2 WSEL BASED ON X5 CARD

CAUTION SECNO= 179.500 PROFILE= 2 20 TRIALS OF EG NOT ENOUGH

FLOODWAY DATA, GRAND RIVER PART II
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
121.100	135.	1529.	6.5	834.8	834.7	.1
122.000	327.	4385.	2.3	835.6	835.5	.1
123.000	333.	3991.	2.5	835.7	835.6	.1
124.000	269.	3005.	2.6	835.7	835.6	.1
124.100	269.	3463.	2.9	835.7	835.6	.1
124.400	269.	3463.	2.9	835.7	835.6	.1
124.500	269.	3811.	2.6	835.7	835.6	.1
125.000	427.	5681.	1.8	835.8	835.7	.1
125.500	404.	4892.	2.0	835.8	835.7	.1
125.510	403.	3526.	2.8	835.8	835.7	.1
125.590	403.	3531.	2.8	835.8	835.7	.1
125.600	404.	4914.	2.0	835.9	835.8	.1
126.000	418.	4510.	2.2	835.9	835.8	.1
127.000	382.	3177.	3.1	836.2	836.1	.1
128.000	402.	3974.	2.5	836.6	836.5	.1
129.000	362.	3306.	3.0	836.7	836.6	.1
130.000	339.	3457.	2.9	837.1	837.0	.1
131.000	477.	4166.	2.4	837.4	837.3	.1
132.000	424.	4300.	2.3	837.6	837.5	.1
133.000	424.	4322.	2.3	837.7	837.6	.1
134.000	247.	3199.	3.1	837.7	837.6	.1
134.100	247.	2997.	3.3	837.7	837.6	.1
134.500	247.	3224.	3.1	837.7	837.6	.1
134.900	247.	3440.	2.9	837.8	837.7	.1
135.000	530.	5101.	2.0	837.9	837.8	.1
136.000	562.	4260.	2.3	838.2	838.1	.1
137.000	638.	4140.	2.4	838.5	838.4	.1
139.000	623.	4722.	2.1	838.7	838.6	.1
140.000	443.	4138.	2.4	839.0	838.9	.1
141.000	992.	6919.	1.4	839.3	839.2	.1
141.500	583.	4992.	2.0	839.4	839.3	.1
142.000	658.	4227.	2.4	839.6	839.5	.1
143.000	1365.	7903.	1.3	840.1	840.0	.1
144.000	162.	2096.	4.8	840.5	840.4	.1
145.000	199.	2414.	4.1	841.0	840.9	.1
146.000	279.	3014.	3.3	841.5	841.4	.1
147.000	364.	3331.	3.0	841.6	841.5	.1
147.500	378.	3449.	2.9	841.6	841.5	.1
148.000	417.	3229.	3.1	841.7	841.6	.1
149.000	281.	2888.	3.5	841.8	841.7	.1
149.500	259.	2772.	3.6	841.8	841.7	.1
150.000	220.	2435.	4.1	841.8	841.7	.1
151.000	286.	2857.	3.5	842.0	841.9	.1
151.500	286.	2825.	3.5	842.0	841.9	.1
152.000	295.	2949.	3.4	842.1	842.0	.1
153.000	558.	3727.	2.7	842.4	842.3	.1
157.000	408.	3952.	2.5	843.2	843.1	.1
158.000	459.	3964.	2.5	843.5	843.4	.1
159.000	449.	3667.	2.7	843.8	843.7	.1
160.000	393.	2536.	3.9	844.1	844.0	.1

FLOODWAY DATA, GRAND RIVER PART II
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
161.000	352.	2603.	3.8	844.5	844.4	.1
162.000	240.	3146.	3.2	845.0	844.9	.1
162.100	408.	3409.	2.9	846.3	846.2	.1
163.000	251.	2267.	4.2	846.6	846.5	.1
164.000	261.	2350.	4.1	846.7	846.6	.1
164.500	351.	2460.	3.9	846.7	846.6	.1
165.000	277.	2467.	3.8	846.8	846.7	.1
166.000	219.	2518.	3.6	847.1	847.0	.1
167.000	355.	2962.	3.2	847.3	847.2	.1
168.000	444.	3468.	2.7	848.0	847.9	.1
169.000	255.	2346.	4.0	848.7	848.6	.1
170.000	282.	2438.	3.9	850.2	850.1	.1
171.000	157.	1870.	5.0	850.3	850.2	.1
171.500	157.	1874.	5.1	850.3	850.2	.1
172.000	316.	2930.	3.2	850.6	850.5	.1
173.000	293.	2587.	3.7	851.0	850.9	.1
174.000	146.	1377.	6.9	850.8	850.7	.1
175.000	264.	2517.	3.8	851.7	851.6	.1
176.000	326.	2910.	3.3	852.2	852.1	.1
177.000	361.	3146.	3.1	852.7	852.6	.1
178.000	304.	3165.	3.0	853.1	853.0	.1
179.000	236.	2616.	3.6	853.1	853.0	.1
179.500	242.	2772.	3.4	853.4	853.3	.1
180.000	236.	2410.	3.9	853.5	853.4	.1
181.000	235.	2036.	4.7	854.2	854.1	.1
182.000	992.	8143.	1.2	855.1	855.0	.1
183.000	1617.	10928.	.9	855.2	855.1	.1
184.000	1547.	10566.	.9	855.4	855.3	.1
185.000	949.	6415.	1.5	855.7	855.6	.1
186.000	956.	7956.	1.2	855.9	855.8	.1
187.000	1484.	6805.	1.4	856.2	856.1	.1
188.000	1155.	9213.	1.8	856.3	856.2	.1
189.000	839.	6983.	1.4	856.9	856.8	.1

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  HEX2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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  11/08/78  MSU HUSTLER 2       LSD 47.03+ 11/05/78  6500
10.15.19.T633064
10.15.19.NL    17600
10.15.19.RP  000000000002  000000000174
10.15.19.JOB DISPOSED.
10.15.19.417286,PN        ,T50,JC999,RG2,CM110000,
10.15.19.L200.
10.15.20.NL    20000
10.15.20.RP  000000000023  000000000205
10.15.20.PUNS- 0149 USER DOLLAR BALANCE $00047.39
10.15.20.CP-PP SEC.      .041-     .000  $      .00
10.15.20.ATTACH,A,GR3FLOODWAY.
10.15.26.A       - CYCLE 01, GR3FLOODWAY
10.15.26.FILE ATTACHED
10.15.26.CP-PP SEC.      .056-     .688  $      .01
10.15.26.ATTACH,LGO,HEC2LG01,PW=------.
10.15.26.LGO     - CYCLE 01, HEC2LG01
10.15.26.FILE ATTACHED
10.15.26.CP-PP SEC.      .074-    1.058  $      .01
10.15.26.NL    030000
10.15.26.RP        00000005  000000000024
10.15.27.SETCORE,ZERO.
10.15.27.LGO,A.
10.15.27.NL    40000
10.15.27.RP  000000300025  000000000050
10.15.28.NL    44000
10.15.28.RP  000000000035  000000000234
10.15.28.NL    50000
10.15.28.RP  000000000042  000000000326
10.15.29.NL    54000
10.15.29.RP  000000000046  000000000377
10.15.30.NL    60000
10.15.30.RP  000000000051  000000000445
10.15.30.NL    64000
10.15.30.RP  000000000055  000000000514
10.15.30.NL    70000
10.15.33.RP  000000000057  000000000540
10.15.33.NL    74000
10.15.33.RP  000000000072  000000000667
10.15.34.NL    100000
10.15.34.RP  000000000074  000000000742
10.15.36.NL    104000
10.15.36.RP  000000000106  000000001043
10.15.40.NL    73600
10.15.40.RP  000000000121  000000001063
10.15.40.EXEC,BEGUN.10.15.40.
10.17.51.      STOP
10.17.51.      26.192 CP SECONDS EXECUTION TIME
10.17.52.MAX FILES 0010 MAX PPUS 002400B.
10.17.52.  PP     21.762 SEC.
10.17.52.RP  000000001154  000000003712
10.17.52.CP USE    35.066 SEC    VALUE=     1.34
10.17.52.PP USE    63.994 SEC    VALUE=      .18
10.17.52.CM USE    12.168 W-M    VALUE=     3.27
10.17.52.TOTAL COMPUTE VALUE AT RG2 $      4.79
10.37.58..000063 PAGES PRINT. 003862 LINES PRINT. FOR $ 004.20 AT RG2.
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**********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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C
T1       100 YEAR FLOOD
T2       MOORES PARK DAM TO WILBUR HIGHWAY
T3       GRAND RIVER PART II
J1   ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q        WSEL      FQ
        0.       2.        0.        0.  0.000000      0.00      0.0   10000.   834.730    0.000
J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     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
     110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .050      .050      .032      .100      .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

X1   121.100    18.000   100.000   240.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   845.000     0.000   835.200     0.000   835.900   100.000   831.800   112.000   822.000   125.000
GR   820.600   135.000   819.500   171.000   820.700   192.000   826.000   225.000   835.800   240.000
GR   835.400   306.000   833.900   306.000   835.100   500.000   833.000   700.000   838.000   900.000
GR   841.000  1100.000   844.200  1300.000   849.200  1500.000     0.000     0.000     0.000     0.000

X1   122.000    13.000   150.000   510.000   930.000   805.000   830.000     0.000     0.000     0.000
GR   838.600     0.000   838.300   100.000   837.300   150.000   833.100   150.000   822.800   150.000
GR   821.700   200.000   821.500   250.000   820.700   300.000   820.200   330.000   821.600   420.000
GR   827.400   460.000   833.100   470.000   847.200   510.000     0.000     0.000     0.000     0.000

X1   123.000    16.000   100.000   445.000   650.000   700.000   650.000     0.000     0.000     0.000
GR   842.000     0.000   839.300    15.000   839.300    50.000   838.500   100.000   834.000   100.000
GR   832.500   110.000   820.000   160.000   819.500   185.000   813.000   190.000   816.200   230.000
GR   816.500   255.000   820.000   300.000   828.000   350.000   833.000   390.000   834.000   430.000
GR   844.000   445.000     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

                EXISTING LOGAN STREET BRIDGE

X1   124.000    40.000   191.000   484.000   275.000   200.000   240.000     0.000     0.000     0.000
GR   874.000     0.000   843.000     0.000   843.000     0.000   842.500    30.000   841.000    30.000
GR   839.500   145.000   839.510   145.000   839.300   152.000   839.300   152.000   839.000   191.000
GR   834.000   191.000   834.000   200.000   832.500   208.000   830.000   224.000   825.000   235.000
GR   820.000   277.000   809.300   289.000   809.300   289.000   809.200   297.000   809.200   297.000
GR   817.000   322.000   816.400   335.000   817.200   372.000   817.200   372.000   817.600   379.000
GR   817.600   379.000   820.000   409.000   826.100   441.000   834.100   441.000   834.100   449.000
GR   834.500   453.000   840.000   484.000   845.000   494.000   845.000   494.000   847.200   494.000
GR   853.200   494.000   850.000   582.000   848.000   700.000   848.500   809.000   850.000   934.000

X1   124.100     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
BT    20.000     0.000   874.000   843.000     0.000   874.000   863.000   147.000   868.000   862.000
BT   147.000   868.000   839.500   152.000   867.300   839.300   152.000   867.800   861.800   289.000
BT   861.900   856.100   289.000   861.900   809.300   297.000   861.700   809.200   297.000   861.700
BT   855.900   372.000   858.500   852.500   372.000   858.500   817.200   379.000   858.300   817.600
BT   379.000   858.300   852.300   494.000   853.200   847.200   494.000   853.200   845.000   582.000
BT   950.000     0.000   700.000   848.000     0.000     0.000   848.500     0.000   934.000   848.000
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   124.400     0.000     0.000     0.000    52.200    52.200    52.200     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   124.500     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
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X1	125.000	25.000	150.000	565.000	240.000	200.000	210.000	0.000	0.000	0.000
GR	850.000	1.000	843.000	0.000	842.500	30.000	841.000	30.000	840.000	120.000
GR	838.000	140.000	836.000	145.000	834.000	150.000	832.400	150.000	830.000	170.000
GR	825.000	180.000	820.000	105.000	809.300	140.000	817.000	195.000	816.400	205.000
GR	817.600	297.000	820.000	368.000	826.100	479.000	832.400	570.000	840.000	565.000
GR	842.000	605.000	844.000	685.000	846.000	775.000	848.000	860.000	850.000	890.000

PROPOSED LOGAN STREET BRIDGE

X1	125.500	46.000	225.000	879.000	340.000	110.000	280.000	.663	0.000	0.000
GR	855.500	0.000	857.000	0.000	857.000	0.000	854.900	80.000	854.900	80.000
GR	854.500	86.000	854.500	86.000	853.500	120.000	842.000	120.000	842.000	225.000
GR	836.500	254.000	836.500	254.000	836.000	262.000	836.000	262.000	835.500	270.000
GR	830.000	284.000	826.000	326.000	825.500	375.000	825.500	375.000	825.500	383.000
GR	825.500	383.000	824.100	498.000	824.100	498.000	824.000	504.000	824.000	504.000
GR	824.000	525.000	822.000	562.000	821.200	650.000	821.200	650.000	821.000	656.000
GR	821.000	656.000	820.100	773.000	820.100	773.000	820.000	779.000	820.000	779.000
GR	820.100	813.000	822.600	836.000	827.500	844.000	832.500	861.000	841.000	879.000
GR	842.500	895.000	842.500	895.000	843.300	960.000	844.500	1031.000	847.000	1085.000
GR	850.000	1211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	125.510	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	.669	0.000
BT	32.000	0.000	885.500	857.000	0.000	885.500	373.000	80.000	884.900	878.500
BT	80.000	884.900	854.900	86.000	884.900	854.500	85.000	864.900	878.500	254.000
BT	360.500	874.800	254.000	880.500	836.500	262.000	880.400	836.000	262.000	850.400
BT	874.700	375.000	875.300	869.300	375.000	875.300	325.500	383.000	875.100	825.500
BT	383.000	875.100	869.100	498.000	870.000	864.000	498.000	870.000	824.100	504.000
BT	869.900	824.000	504.000	869.900	863.900	650.000	363.500	657.500	650.000	863.500
BT	821.200	650.000	863.300	821.000	656.000	863.300	773.000	857.300	858.000	852.000
BT	773.000	858.000	820.100	779.000	857.900	820.000	779.000	857.000	851.900	895.000
BT	852.500	847.000	895.000	852.500	842.500	960.000	850.000	0.000	1031.000	848.000
BT	0.000	1085.000	847.000	0.000	1211.000	850.000	0.000	0.000	0.000	0.000

X1	125.590	0.000	0.000	0.000	52.000	52.000	52.000	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	125.600	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	126.000	15.000	20.000	438.000	480.000	925.000	500.000	0.000	0.000	0.000
GR	844.200	0.000	844.000	10.000	833.100	20.000	829.100	29.000	824.100	80.000
GR	823.700	130.000	823.500	180.000	823.900	230.000	823.400	280.000	825.000	330.000
GR	825.200	380.000	826.400	410.000	833.100	438.000	839.800	460.000	847.200	600.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	127.000	17.000	65.000	447.000	1820.000	1740.000	1300.000	0.000	0.000	0.000
GR	846.500	0.000	844.000	10.000	842.000	20.000	340.000	30.000	836.000	50.000
GR	834.000	65.000	833.600	85.000	828.000	135.000	826.000	185.000	823.000	235.000
GR	826.000	285.000	827.000	335.000	828.000	385.000	833.600	445.000	834.000	447.000
GR	840.000	455.000	846.000	465.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	128.000	20.000	220.000	625.000	1900.000	2100.000	1850.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	60.000	844.000	95.000	842.000	125.000
GR	840.000	165.000	838.000	165.000	837.000	195.000	835.000	220.000	834.500	240.000
GR	831.500	255.000	826.000	375.000	823.000	415.000	821.000	495.000	829.800	545.000
GR	830.000	595.000	833.000	615.000	834.000	620.000	840.000	625.000	850.000	640.000

X1	129.000	20.000	88.000	450.000	950.000	900.000	901.000	0.000	0.000	0.000
GR	848.000	0.000	846.000	12.000	844.000	40.000	842.000	50.000	840.000	68.000
GR	838.000	78.000	836.000	88.000	834.000	110.000	830.000	120.000	829.700	185.000
GR	825.300	260.000	823.300	310.000	824.100	385.000	833.100	445.000	836.000	450.000
GR	840.000	470.000	842.000	480.000	844.000	510.000	846.000	515.000	848.000	525.000

X1	130.000	10.000	0.000	358.000	2300.000	1500.000	1650.000	0.000	0.000	0.000
GR	848.100	0.000	833.300	25.000	829.700	52.000	825.300	150.000	823.300	250.000
GR	824.100	310.000	833.300	340.000	836.500	358.000	836.400	430.000	849.400	510.000

X1	131.000	22.000	120.000	600.000	1700.000	1700.000	1500.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	70.000	844.000	90.000	842.000	104.000
GR	840.000	112.000	838.000	120.000	836.000	128.000	833.000	140.000	830.000	148.000

GR	825.500	236.000	822.300	324.000	826.400	412.000	333.000	500.000	836.000	600.000
GR	838.000	640.000	840.000	643.000	842.300	649.000	844.600	655.000	846.000	662.000
GR	845.000	675.000	850.000	640.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.039	.035	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	132.000	12.000	80.000	504.000	1500.000	1450.000	1500.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	332.700	81.000	830.300	98.000
GR	825.700	200.000	822.200	300.000	828.700	400.000	832.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	133.000	12.000	80.000	504.000	750.000	800.000	300.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	832.700	81.000	830.300	98.000
GR	825.700	200.000	822.400	300.000	828.700	400.000	332.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	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

WAVERLY ROAD BRIDGE

X1	134.000	26.000	188.000	476.000	450.000	450.000	450.000	.859	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.300	842.800	0.000
GR	844.900	0.000	837.000	100.000	832.900	188.000	832.900	188.100	825.800	245.000
GR	825.900	245.100	823.400	248.900	823.400	249.000	321.200	304.900	821.200	305.000
GR	820.400	308.900	820.400	309.000	821.400	364.900	321.400	365.000	819.900	368.900
GR	819.900	369.000	825.400	424.900	825.400	425.000	325.400	428.900	826.400	429.000
GR	832.900	476.000	832.900	476.100	843.850	502.000	842.800	700.000	842.900	900.000
GR	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	134.100	0.000	0.100	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	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
BT	26.000	0.000	844.900	0.000	100.000	843.800	0.000	188.000	843.600	832.900
BT	188.100	843.800	840.000	245.000	844.600	840.000	245.100	844.600	825.800	248.900
BT	844.700	823.400	249.000	844.700	840.000	304.900	844.700	840.000	305.000	844.700
BT	821.200	308.900	844.700	820.400	309.000	844.700	840.000	364.900	844.600	840.000
BT	365.000	844.600	821.400	368.900	844.600	819.900	369.000	844.600	840.000	424.900
BT	844.600	840.000	425.000	844.600	825.400	428.900	844.600	826.400	429.000	844.600
BT	840.000	476.000	844.600	840.000	476.100	844.600	832.900	502.000	844.700	0.000
BT	700.000	842.800	0.000	900.000	842.900	0.000	1100.000	843.100	0.000	0.000
X1	134.500	27.000	216.000	504.000	46.000	46.000	46.000	.859	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.300	842.800	0.000
BT	24.000	0.000	844.900	0.000	100.000	843.800	0.000	216.000	844.600	832.900
BT	216.100	844.600	840.000	272.900	844.700	840.000	273.000	844.700	828.500	276.900
BT	844.700	824.400	277.000	844.700	840.000	332.900	844.700	840.000	333.000	844.700
BT	820.700	336.900	844.700	819.600	337.000	844.700	340.000	392.900	844.600	840.000
BT	393.000	844.600	818.900	396.900	844.600	820.600	397.000	844.600	840.000	452.900
BT	844.600	840.000	453.000	844.600	821.500	456.900	844.600	824.800	457.000	844.600
BT	840.000	504.000	843.800	840.000	504.100	843.800	827.500	700.000	842.800	0.000
BT	1100.000	843.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.900	0.000	843.600	100.000	832.900	216.000	932.900	216.100	828.500	272.900
GR	828.900	273.000	824.400	276.900	824.400	277.000	320.700	332.900	820.700	333.000
GR	819.600	336.900	819.600	337.000	818.900	392.900	818.900	393.000	820.600	396.900
GR	820.600	397.000	821.500	452.900	821.500	453.000	824.600	456.900	824.800	457.000
GR	827.500	504.000	827.500	504.100	828.200	600.000	829.700	700.000	832.900	750.000
GR	842.900	760.000	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	134.900	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	842.800	842.800	0.000
NC	.040	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	135.000	18.000	190.000	720.000	400.000	250.000	300.000	0.000	0.000	0.000
GR	846.800	0.000	837.200	100.000	834.600	190.000	833.000	200.000	831.400	220.000
GR	830.200	300.000	830.200	400.000	826.900	500.000	825.000	600.000	824.300	700.000
GR	833.000	720.000	841.900	760.000	842.900	960.000	843.100	1100.000	843.100	1300.000
GR	843.100	1500.000	843.900	1700.000	848.400	1900.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	136.000	12.000	375.000	744.000	3000.000	5000.000	3500.000	0.000	0.000	0.000
GR	846.000	0.000	839.800	25.000	836.500	75.000	835.200	175.000	835.400	275.000
GR	833.100	375.000	831.400	400.000	830.100	500.000	823.600	600.000	821.300	700.000
GR	833.100	744.000	848.600	769.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	137.000	15.000	20.000	365.000	1300.000	2100.000	1400.000	0.000	0.000	0.000	
GR	845.000	0.000	835.000	20.000	834.100	30.000	831.500	50.000	830.000	200.000	
GR	823.000	240.000	821.300	290.000	821.500	330.000	836.000	365.000	837.000	470.000	
GR	836.500	620.000	836.500	820.000	839.000	920.000	839.500	970.000	843.000	1020.000	
X1	139.000	14.000	536.000	736.000	2300.000	2600.000	2100.000	0.000	0.000	0.000	
GR	846.300	0.000	835.600	56.000	834.600	136.000	834.500	236.000	834.500	336.000	
GR	834.000	436.000	833.000	536.000	828.300	553.000	820.600	603.000	821.600	653.000	
GR	824.500	703.000	833.000	736.000	840.700	740.000	847.100	786.000	0.000	0.000	
X1	140.000	16.000	250.000	630.000	2300.000	2500.000	2250.000	0.000	0.000	0.000	
GR	850.000	0.000	848.000	18.000	846.000	30.000	844.000	45.000	842.000	60.000	
GR	840.000	82.000	838.000	105.000	836.000	145.000	834.300	250.000	833.000	253.000	
GR	831.500	293.000	830.800	393.000	825.300	493.000	823.300	593.000	840.000	630.000	
GR	846.100	652.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	141.000	14.000	92.000	387.000	2050.000	1150.000	1950.000	0.000	0.000	0.000	
GR	847.900	0.000	837.200	83.000	833.000	92.000	829.900	130.000	823.300	230.000	
GR	832.300	330.000	833.000	387.000	833.300	500.000	833.500	700.000	833.700	900.000	
GR	835.400	1100.000	840.400	1300.000	842.100	1430.000	846.200	1500.000	0.000	0.000	
X1	141.500	22.000	236.000	679.000	1500.000	1300.000	1400.000	0.000	0.000	0.000	
GR	847.000	0.000	836.300	43.000	835.900	67.000	833.000	96.000	831.000	115.000	
GR	833.000	138.000	836.500	146.000	834.500	210.000	834.400	286.000	833.000	294.000	
GR	832.500	320.000	832.500	400.000	833.000	445.000	833.100	457.000	833.000	458.000	
GR	831.600	500.000	820.000	600.000	823.300	650.000	833.000	675.000	835.000	679.000	
GR	842.200	692.000	847.400	741.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	142.000	13.000	140.000	310.000	1700.000	1700.000	1700.000	0.000	0.000	0.000	
GR	846.000	0.000	841.000	50.000	838.500	140.000	830.000	155.000	820.500	210.000	
GR	825.000	280.000	835.000	310.000	835.000	400.000	836.000	550.000	836.000	700.000	
GR	836.500	800.000	837.800	900.000	845.000	1000.000	0.000	0.000	0.000	0.000	
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	143.000	18.000	1290.000	1516.000	2300.000	2700.000	2440.000	0.000	0.000	0.000	
GR	847.100	0.000	835.700	100.000	835.200	300.000	835.600	500.000	835.500	700.000	
GR	835.100	900.000	834.700	1100.000	836.900	1290.000	833.100	1300.000	830.700	1322.000	
GR	825.200	1400.000	826.100	1475.000	833.100	1500.000	839.200	1516.000	845.500	1600.000	
GR	846.000	1700.000	846.500	1800.000	849.100	1875.000	0.000	0.000	0.000	0.000	
NC	.035	.035	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	144.000	12.000	260.000	410.000	4050.000	2300.000	3750.000	0.000	0.000	0.000	
GR	850.000	0.000	843.800	0.000	841.900	1100.000	841.800	166.000	836.500	260.000	
GR	833.300	276.000	822.300	300.000	823.600	350.000	827.700	390.000	833.300	404.000	
GR	836.500	410.000	849.300	435.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	145.000	13.000	643.000	844.000	1100.000	1500.000	1200.000	0.000	0.000	0.000	
GR	847.700	0.000	845.700	145.000	845.100	345.000	844.300	545.000	838.300	645.000	
GR	833.300	660.000	828.300	680.000	828.700	730.000	825.400	760.000	825.700	813.000	
GR	833.300	833.000	838.200	844.000	847.700	856.000	0.000	0.000	0.000	0.000	
X1	146.000	13.000	113.000	310.000	1900.000	1925.000	1800.000	0.000	0.000	0.000	
GR	847.100	0.000	835.500	81.000	835.000	113.000	833.200	120.000	830.500	140.000	
GR	824.200	190.000	824.700	240.000	827.500	265.000	833.200	300.000	837.800	310.000	
GR	840.500	400.000	841.700	470.000	848.600	500.000	1.000	0.000	0.000	0.000	
NC	.035	.035	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000	

CRIETZ ROAD BRIDGE

X1	147.000	18.000	1050.000	1425.000	75.000	250.000	220.000	.979	0.000	0.000	
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000	
GR	849.400	0.000	842.700	200.000	842.300	400.000	843.600	600.000	845.600	775.000	
GR	836.900	800.000	835.200	1050.000	834.500	1058.000	833.200	1062.000	826.800	1115.000	
GR	827.300	1113.000	825.400	1170.000	825.800	1174.000	825.200	1226.000	827.200	1230.000	
GR	833.200	1259.000	841.300	1425.000	849.600	1450.000	0.000	0.000	0.000	0.000	
SB	1.250	1.560	2.600	0.000	139.980	12.000	2800.000	1.670	826.500	826.500	
X1	147.500	19.000	950.000	1350.000	66.000	66.000	66.000	.979	0.000	0.000	

X2	0.000	0.000	1.000	343.000	0.000	0.000	0.000	0.000	.979	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000
BT	20.000	0.000	849.400	0.000	200.000	842.700	0.000	400.000	842.800	0.000
BT	600.000	843.600	0.000	775.000	845.600	0.000	923.000	846.100	0.000	1050.000
BT	846.500	0.000	1158.000	847.000	834.500	1058.000	847.800	843.400	1069.000	847.800
BT	843.400	1124.000	847.900	843.400	1179.000	847.900	843.400	1235.000	847.900	843.400
BT	1259.000	847.800	843.400	1259.000	847.000	833.200	1282.000	847.800	0.000	1282.000
BT	847.000	0.000	1291.000	847.000	0.000	1400.000	843.500	0.000	1450.000	849.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.400	0.000	842.700	900.000	842.300	400.000	843.600	600.000	845.300	775.000
GR	846.300	925.000	837.700	950.000	835.200	1050.000	933.200	1104.000	830.300	1129.000
GR	827.900	1133.000	826.200	1184.000	825.200	1188.000	825.500	1240.000	827.500	1244.000
GR	833.200	1274.000	843.500	1350.000	848.500	1400.000	849.800	1450.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	148.000	15.000	275.000	467.000	500.000	188.000	250.000	0.000	0.000	0.000
GR	847.200	0.000	842.700	15.000	840.100	100.000	838.300	200.000	836.400	275.000
GR	833.200	278.000	828.600	300.000	826.000	350.000	830.800	420.000	833.200	440.000
GR	835.100	467.000	836.200	500.000	840.900	600.000	844.900	655.000	851.800	655.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

WESTBOUND I-96 BRIDGE

X1	149.000	16.000	419.000	700.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	858.500	858.500	0.000
GR	849.300	0.000	842.900	200.000	838.000	419.000	838.200	461.000	838.100	493.000
GR	832.600	503.000	830.000	513.000	827.200	517.000	825.000	570.000	828.800	623.000
GR	832.600	680.000	835.500	695.000	836.200	700.000	839.300	800.000	847.300	1000.000
GR	851.500	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	178.000	8.000	5355.500	2.490	828.000	828.000

X1	149.500	16.000	419.000	700.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.900	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.300	852.300	0.000
BT	16.000	0.000	861.400	0.000	100.000	860.400	0.000	200.000	860.400	0.000
BT	300.000	860.200	0.000	400.000	859.900	0.000	419.000	859.900	838.000	419.000
BT	862.900	852.900	515.000	862.700	852.700	625.000	862.500	852.500	695.000	862.300
BT	852.300	721.000	862.200	0.000	721.000	859.200	0.000	800.000	859.100	0.000
BT	900.000	859.100	0.000	1000.000	858.700	0.000	1100.000	858.500	0.000	0.000
GR	854.700	0.000	850.300	200.000	845.000	419.000	533.100	461.000	838.100	493.000
GR	832.600	503.000	829.200	513.000	826.700	517.000	825.000	570.000	827.400	623.000
GR	828.900	627.000	832.600	660.000	843.100	700.000	844.700	800.000	847.900	1000.000
GR	853.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	150.000	16.000	415.000	605.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	849.600	0.000	847.300	100.000	845.400	200.000	841.800	300.000	838.500	400.000
GR	838.500	415.000	833.100	430.000	828.500	450.000	825.000	510.000	828.900	565.000
GR	833.100	585.000	841.000	605.000	841.100	700.000	842.600	800.000	845.900	1000.000
GR	847.600	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

EASTBOUND I-96 BRIDGE

X1	151.000	17.000	447.000	769.000	225.000	225.000	225.000	.889	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
GR	857.800	0.000	847.400	200.000	842.200	400.000	840.800	414.000	839.800	447.000
GR	839.500	489.000	833.900	503.000	831.400	538.000	830.400	542.000	829.500	612.000
GR	827.200	583.000	828.900	687.000	833.900	759.000	841.500	769.000	847.400	1000.000
GR	851.400	1200.000	855.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	213.400	8.000	6138.000	2.150	830.000	830.000

X1	151.500	16.000	465.000	787.000	35.000	35.000	35.000	.889	0.000	0.000
X2	0.000	0.000	1.000	853.900	0.000	0.000	0.000	0.000	.889	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
BT	22.000	0.000	864.500	0.000	100.000	863.800	0.000	200.000	863.300	0.000
BT	300.000	862.800	0.000	400.000	862.600	0.000	414.000	862.500	853.900	414.000
BT	862.500	840.800	421.000	862.500	853.900	430.000	862.500	853.900	430.000	865.500
BT	853.900	549.000	865.100	853.400	692.000	864.500	852.900	769.000	861.300	852.600
BT	769.000	861.300	841.500	830.000	864.100	0.000	830.000	861.100	0.000	900.000
BT	860.700	0.000	1000.000	860.600	0.000	1100.000	860.400	0.000	1200.000	860.500
BT	0.000	1300.000	860.500	0.000	1400.000	860.800	0.000	0.000	0.000	0.000
GR	855.900	0.000	846.200	200.000	837.100	400.000	839.900	465.000	839.600	507.000
GR	833.900	521.000	832.900	556.000	831.900	560.000	829.400	630.000	827.400	699.000
GR	827.700	703.000	833.900	777.000	838.900	787.000	841.400	1000.000	844.400	1200.000

GR	849.800	1403.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	152.000	12.000	525.000	770.000	400.000	250.000	350.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	250.000	845.500	425.000	840.000	525.000	834.000	565.000
GR	831.400	595.000	826.800	650.000	826.200	700.000	826.900	730.000	830.000	755.000
GR	833.900	770.000	860.500	820.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DOWNSTREAM END OF ISLAND

X1	153.000	14.000	641.000	873.000	562.000	625.000	750.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	400.000	837.800	600.000	837.500	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.300	873.000	839.200	900.000	843.300	1000.000	850.700	1071.000	0.000	0.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM END OF ISLAND

WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

X1	157.000	12.000	0.000	252.000	2100.000	1700.000	1800.000	0.000	0.000	0.000
X5	-2.000	.830	.830	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	852.000	0.000	833.600	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	158.000	20.000	655.000	910.000	1312.000	1800.000	1800.000	0.000	0.000	0.000
GR	860.000	.000	850.000	300.000	841.700	655.000	340.000	660.000	834.000	675.000
GR	829.300	685.000	830.000	700.000	830.500	715.000	830.000	740.000	830.500	825.000
GR	831.500	885.000	834.000	905.000	838.000	910.000	838.500	1045.000	841.500	1090.000
GR	842.500	1120.000	840.700	1235.000	847.000	1335.000	850.000	1365.000	860.000	1915.000
X1	159.000	16.000	305.000	558.000	1750.000	1812.000	1875.000	0.000	0.000	0.000
GR	852.900	0.000	842.300	100.000	840.100	200.000	839.500	300.000	839.600	385.000
GR	833.700	400.000	830.500	420.000	829.900	466.000	827.500	515.000	833.700	549.000
GR	834.400	558.000	834.600	587.000	841.000	606.000	839.000	645.000	845.400	705.000
GR	851.900	805.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	160.000	16.000	760.000	870.000	1562.100	1510.000	1500.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	570.000	846.700	625.000	839.200	650.000	838.000	710.000
GR	840.000	730.000	837.500	745.000	836.700	760.000	834.200	760.000	830.200	770.000
GR	829.100	795.000	830.000	835.000	832.100	850.000	834.200	870.000	850.000	900.000
GR	860.000	930.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	161.000	23.000	1200.000	1384.000	600.000	400.000	500.000	0.000	0.000	0.000
GR	853.900	0.000	850.900	100.000	844.300	200.000	844.600	300.000	845.200	400.000
GR	845.600	500.000	845.600	700.000	846.500	800.000	845.600	900.000	845.000	1000.000
GR	843.000	1100.000	842.300	1200.000	834.100	1221.000	831.100	1280.000	831.400	1300.000
GR	831.900	1358.000	834.100	1375.000	836.300	1384.000	842.200	1430.000	842.500	1500.000
GR	843.700	1562.000	844.000	1575.000	844.000	1590.000	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

DIMONDALE DAM

X1	162.000	12.000	300.000	540.000	1100.000	800.000	980.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	835.000	300.000
GR	831.100	350.000	831.100	490.000	835.000	540.000	844.000	540.000	844.200	600.000
GR	845.000	700.000	854.200	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	162.100	10.000	300.000	540.000	10.000	10.000	10.000	0.000	0.000	0.000
X5	-2.000	1.340	1.340	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	833.600	300.000
GR	833.600	540.000	844.000	540.000	844.200	600.000	345.000	700.000	854.200	800.000
QT	2.000	9475.000	9475.000	2.000	0.000	0.000	0.000	0.000	0.000	0.000

REDUCTION OF FLOW

X1	163.000	24.000	409.000	660.000	750.000	625.000	750.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	200.000	865.000	225.000	865.000	245.000	864.000	245.000

GR	850.100	370.000	844.710	609.000	840.500	422.000	534.200	445.000	834.200	479.000
GR	834.000	482.000	834.500	540.000	835.200	543.000	834.400	570.000	840.500	600.000
GR	842.600	610.000	844.500	660.000	852.800	733.000	853.400	763.000	854.000	790.000
GR	870.000	790.000	871.010	810.000	855.000	810.000	860.000	900.000	0.000	0.000
NC	.040	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE STREET BRIDGE

X1	164.000	17.000	339.000	600.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	853.600	200.000	850.500	300.000	844.700	339.000
GR	840.500	352.000	834.200	375.000	834.200	409.000	834.000	412.000	834.500	470.000
GR	835.200	473.000	834.400	500.000	840.500	532.000	842.600	543.000	844.500	600.000
GR	852.600	700.000	853.410	800.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.600	0.000	150.000	6.000	2739.000	.904	834.500	834.500

X1	164.500	17.000	339.010	600.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.300	0.000	0.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	850.800	0.000	100.000	856.400	0.000	200.000	854.300	0.000
BT	300.000	354.700	0.010	339.000	855.300	0.000	349.000	855.900	0.000	352.000
BT	855.900	840.500	352.000	855.900	850.900	352.000	858.900	850.900	411.000	858.800
BT	851.300	471.000	858.900	851.300	532.000	858.900	850.900	532.000	855.900	840.500
BT	533.000	855.600	0.010	500.000	854.500	0.000	700.000	853.000	0.000	800.000
BT	853.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	854.400	200.000	844.000	300.000	842.900	339.000
GR	840.500	352.000	834.200	375.000	834.400	409.000	833.700	412.000	835.400	470.000
GR	834.900	473.000	834.400	500.000	840.500	530.000	843.900	543.000	844.500	600.000
GR	853.000	700.000	853.600	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.030	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	165.000	22.000	110.000	387.000	100.000	220.000	175.000	0.000	0.000	0.000
GR	860.000	0.000	852.500	0.000	850.000	80.000	844.000	110.000	840.500	130.000
GR	834.200	153.000	834.000	162.000	834.400	190.000	834.700	232.000	835.000	242.000
GR	834.400	281.000	840.500	305.000	844.000	387.000	847.500	480.000	865.000	480.000
GR	865.000	515.000	850.000	515.000	856.000	625.000	865.000	625.000	865.000	665.000
GR	858.000	665.000	860.000	715.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	166.000	20.000	490.000	720.000	1130.000	1500.000	1300.000	0.000	0.000	0.000
GR	867.000	0.000	858.000	100.000	854.000	200.000	852.200	250.000	848.500	300.000
GR	845.300	450.000	843.500	490.000	840.000	497.000	835.200	510.000	835.200	530.000
GR	834.200	540.000	834.000	570.000	834.200	600.000	835.300	670.000	833.600	680.000
GR	836.500	690.000	840.000	700.000	855.500	720.000	859.000	735.000	860.000	738.000

X1	167.000	22.000	355.000	710.000	500.000	375.000	500.000	0.000	0.000	0.000
GR	860.000	0.000	855.200	100.000	851.200	200.000	849.500	255.000	846.800	305.000
GR	843.700	355.000	842.600	390.000	838.500	430.000	834.800	420.000	834.000	440.000
GR	834.000	470.000	835.500	510.000	835.800	530.000	838.000	540.000	838.400	560.000
GR	839.500	600.000	842.400	655.000	846.000	710.000	852.400	760.000	857.000	810.000
GR	859.000	860.000	860.000	860.000	0.000	0.000	0.000	0.000	0.000	0.000

END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS.

X1	168.000	17.000	400.000	625.000	2500.000	2500.000	2562.000	0.000	0.000	0.000
GR	860.000	0.000	843.800	150.000	841.000	200.000	841.600	250.000	842.200	300.000
GR	843.500	350.000	842.800	400.000	842.500	420.000	839.500	420.000	838.000	439.000
GR	838.000	463.000	837.010	470.000	837.300	490.000	834.500	560.000	839.500	600.000
GR	855.000	625.000	860.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	169.000	29.000	560.000	690.000	2438.000	2300.000	2438.000	0.000	0.000	0.000
GR	867.500	0.000	866.500	50.000	865.000	90.000	865.200	150.000	864.600	200.000
GR	863.300	250.000	862.410	310.000	860.500	350.000	859.000	400.000	856.500	450.000
GR	853.600	500.000	851.100	540.000	837.500	560.000	834.900	600.000	834.400	620.000
GR	834.700	640.000	835.300	670.000	838.200	690.000	842.900	700.000	844.500	750.000
GR	844.500	800.000	848.210	850.000	851.500	900.000	856.400	950.000	857.200	1000.000
GR	857.200	1050.000	858.000	1100.000	860.100	1150.000	859.000	1200.000	0.000	0.000

X1	170.000	18.000	400.010	600.000	2375.000	2250.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	200.000	853.500	250.000	848.500	400.000	847.000	425.000
GR	842.500	450.000	838.500	460.000	838.500	470.000	836.000	530.000	836.500	545.000
GR	837.500	550.000	837.510	570.000	842.500	585.000	842.500	600.000	845.500	650.000
GR	847.000	700.000	850.000	735.000	860.000	775.000	1.000	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

MICHIGAN ROAD BRIDGE

X1	171.000	13.000	205.000	382.000	320.000	0.000	200.000	.887	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
GR	857.000	0.000	855.100	100.000	848.800	123.000	841.000	205.000	837.500	263.000
GR	837.000	265.000	837.200	323.000	836.500	325.000	841.000	382.000	844.100	405.000
GR	846.000	500.000	849.500	600.000	858.000	640.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	133.000	4.000	2072.000	.607	837.000	837.000
X1	171.500	13.000	180.000	357.000	47.000	47.000	47.000	.887	0.000	0.000
X2	0.000	0.000	1.000	851.900	0.000	0.000	0.000	0.000	.887	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
BT	14.000	0.000	857.000	0.000	100.000	856.500	0.000	191.000	856.200	0.000
BT	203.000	856.700	841.000	203.000	859.700	851.900	251.000	859.200	851.800	311.000
BT	859.200	851.900	372.000	859.000	851.900	385.000	359.000	851.900	385.000	856.000
BT	841.000	400.000	856.200	0.000	500.000	856.300	0.000	600.000	875.000	0.000
BT	640.000	856.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	857.000	0.000	853.700	100.000	843.900	158.000	841.000	180.000	836.700	238.000
GR	836.700	240.000	837.500	298.000	837.500	300.000	841.000	357.000	847.300	380.000
GR	848.800	500.000	852.100	600.000	858.300	640.000	0.000	0.000	0.000	0.000
X1	172.000	14.000	557.000	747.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	860.000	0.000	857.000	150.000	854.000	300.000	850.000	500.000	843.900	535.000
GR	841.000	557.000	836.700	615.000	836.700	620.000	837.500	690.000	841.000	747.000
GR	847.300	770.000	848.800	880.000	850.000	900.000	860.000	1470.000	0.000	0.000
X1	173.000	22.000	255.000	420.000	750.000	1000.000	875.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	70.000	852.300	120.000	843.500	165.000	845.000	215.000
GR	847.000	255.000	844.500	265.000	841.000	270.000	839.500	300.000	838.500	310.000
GR	838.500	320.000	838.000	330.000	838.000	335.000	838.500	340.000	838.500	350.000
GR	837.500	360.000	837.500	375.000	838.500	390.000	839.500	410.000	844.000	420.000
GR	852.000	520.000	860.000	570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	174.000	18.000	200.000	346.000	100.000	130.000	120.000	0.000	0.000	0.000
GR	857.300	0.000	855.400	100.000	854.700	192.000	854.700	200.000	844.600	200.000
GR	841.700	210.000	840.700	220.000	841.700	256.000	842.900	267.000	841.700	277.000
GR	840.200	300.000	839.200	325.000	841.700	334.000	845.200	345.000	848.800	346.000
GR	856.000	357.000	855.700	400.000	857.600	500.000	0.000	0.000	0.000	0.000
X1	175.000	12.000	168.000	390.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	859.200	0.000	850.700	100.000	844.100	168.000	842.000	171.000	840.500	191.000
GR	838.500	241.000	839.800	286.000	842.000	310.000	843.500	359.000	848.700	390.000
GR	854.400	500.000	859.300	550.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	176.000	24.000	370.000	550.000	1500.000	875.000	1000.000	0.000	0.000	0.000
GR	858.000	0.000	856.500	70.000	856.500	120.000	855.000	170.000	856.000	220.000
GR	857.000	270.000	855.500	290.000	850.500	320.000	844.500	370.000	842.500	380.000
GR	841.000	380.000	840.000	395.000	837.500	445.000	835.500	450.000	837.000	460.000
GR	839.000	490.000	841.500	520.000	843.500	525.000	848.000	550.000	847.000	570.000
GR	846.500	620.000	849.000	670.000	857.000	720.000	858.000	770.000	0.000	0.000
NC	0.000	0.000	.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	177.000	14.000	157.000	341.000	1500.000	2000.000	1750.000	0.000	0.000	0.000
GR	859.900	0.000	851.000	50.000	848.100	100.000	848.200	157.000	842.500	169.000
GR	840.500	185.000	838.200	233.000	838.200	284.000	839.200	314.000	842.500	333.000
GR	846.500	341.000	849.800	450.000	855.400	550.000	858.300	600.000	0.000	0.000
X1	178.000	16.000	132.000	363.000	2250.000	2125.000	2225.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	25.000	850.000	50.000	846.500	132.000	842.900	155.000
GR	840.400	195.000	840.200	206.000	839.800	243.000	839.200	252.000	839.200	289.000
GR	839.900	323.000	842.900	355.000	847.000	363.000	850.000	367.000	855.000	492.000
GR	860.000	617.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.063	.063	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

WAVERLY ROAD BRIDGE

X1	179.000	16.000	200.000	450.000	500.000	0.000	250.000	.945	0.000	0.000

GR	859.200	0.000	853.900	100.000	850.300	200.000	842.900	225.000	839.900	272.000
GR	840.400	276.000	840.400	323.000	839.900	327.000	839.900	374.000	839.900	378.000
GR	842.900	425.000	852.000	450.000	853.900	500.000	855.500	700.000	856.700	900.000
GR	859.100	942.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.950	1.500	2.500	0.000	146.530	12.000	1957.400	1.510	839.900	839.960
X1	179.500	24.000	200.000	425.000	28.000	28.000	28.000	.945	0.000	0.000
X2	0.000	0.000	1.000	852.400	853.600	0.000	0.000	0.000	.945	0.000
BT	23.000	0.000	859.200	0.000	100.000	856.100	0.000	215.000	854.900	0.000
BT	215.000	854.900	852.400	262.000	854.800	852.300	262.000	854.800	840.400	266.000
BT	854.700	840.200	266.000	854.700	852.200	313.000	854.400	851.900	313.000	854.400
BT	839.800	317.000	854.300	839.200	317.000	854.300	351.800	364.000	854.100	851.600
BT	364.000	854.100	839.200	368.000	854.000	839.900	368.000	854.000	851.500	415.000
BT	853.700	851.100	415.000	853.700	842.900	425.000	353.600	0.000	500.000	853.900
BT	0.000	700.000	855.500	0.000	900.000	858.700	0.000	942.000	859.100	0.000
GR	859.200	0.000	853.900	100.000	847.400	200.000	842.900	215.000	842.900	215.000
GR	840.400	262.000	840.400	262.000	840.200	266.000	840.200	266.000	839.800	313.000
GR	839.800	313.000	839.200	317.000	839.200	317.000	839.200	364.000	839.200	364.000
GR	839.900	368.000	839.900	368.000	842.300	415.000	842.900	415.000	849.700	425.000
GR	853.900	500.000	855.500	700.000	858.700	900.000	859.100	942.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	180.000	14.000	153.000	343.000	125.000	450.000	250.000	0.000	0.000	0.000
GR	859.100	0.000	850.600	100.000	845.700	128.000	846.200	153.000	843.300	156.000
GR	842.300	175.000	841.600	225.000	840.900	275.000	843.300	325.000	850.300	343.000
GR	853.300	403.000	855.900	500.000	858.500	600.000	861.500	700.000	0.000	0.000
NC	.070	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	181.000	15.000	2.000	184.000	1125.000	1375.000	1250.000	0.000	0.000	0.000
GR	862.800	0.000	845.100	24.000	843.100	44.000	841.100	100.000	841.300	140.000
GR	845.100	160.000	847.100	167.000	849.100	184.000	851.100	200.000	852.400	300.000
GR	854.300	400.000	857.000	500.000	857.500	600.000	853.600	700.000	860.400	800.000
X1	182.000	32.000	1050.000	1275.000	2500.000	2625.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.500	500.000	855.000	600.000	849.500	700.000	850.800	750.000
GR	853.500	800.000	852.800	830.000	848.300	860.000	846.000	900.000	846.000	950.000
GR	847.000	1000.000	846.500	1050.000	844.300	1050.000	842.500	1050.000	840.500	1055.000
GR	840.300	1060.000	839.500	1100.000	840.000	1130.000	840.800	1160.000	842.300	1180.000
GR	844.300	1200.000	845.000	1250.000	845.300	1265.000	848.500	1275.000	848.500	1300.000
GR	847.000	1350.000	847.500	1400.000	847.300	1450.000	847.000	1500.000	848.500	1650.000
GR	855.500	1900.000	860.000	1880.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	183.000	18.000	200.000	390.000	1375.000	2000.000	1625.000	0.000	0.000	0.000
GR	861.200	0.000	861.000	40.000	849.900	100.000	851.200	200.000	844.900	225.000
GR	840.400	250.000	840.000	300.000	842.100	340.000	844.900	360.000	848.600	390.000
GR	846.900	600.000	846.900	800.000	847.900	1000.000	849.900	1200.000	850.900	1400.000
GR	851.900	1600.000	851.900	1800.000	861.000	1900.000	0.000	0.000	0.000	0.000
X1	184.000	19.000	1670.000	1815.000	1688.000	1750.000	1750.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	430.000	850.000	830.000	843.000	1130.000	847.500	1230.000
GR	850.000	1630.000	848.500	1670.000	847.500	1710.000	844.300	1720.000	846.300	1735.000
GR	840.300	1740.000	837.500	1765.000	838.300	1800.000	843.500	1815.000	848.500	1815.000
GR	848.500	1870.000	849.500	1920.000	854.500	1970.000	363.500	2020.000	0.000	0.000
X1	185.000	25.000	1420.000	1580.000	3000.000	3750.000	3000.000	0.000	0.000	0.000
GR	860.000	0.000	851.500	880.000	850.300	930.000	850.800	980.000	849.300	1030.000
GR	852.300	1180.000	847.800	1230.000	850.500	1330.000	849.800	1380.000	850.000	1420.000
GR	844.500	1429.000	843.500	1430.000	841.500	1440.000	841.000	1450.000	842.300	1485.000
GR	842.000	1550.000	843.500	1565.000	842.900	1570.000	847.500	1580.000	846.300	1630.000
GR	848.800	1680.000	858.300	1730.000	859.300	1760.000	861.800	1830.000	873.800	1889.000
X1	186.000	15.000	1200.000	1337.000	1500.000	1750.000	1625.000	0.000	0.000	0.000
GR	862.800	0.000	858.700	200.000	848.400	400.000	848.000	600.000	848.200	800.000
GR	848.300	1000.000	848.100	1200.000	845.100	1207.000	843.500	1222.000	840.300	1248.000
GR	841.600	1271.000	842.600	1297.000	845.100	1310.000	858.500	1337.000	863.500	1393.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	187.000	19.000	790.000	947.000	2125.000	2000.000	2375.000	0.000	0.000	0.000
GR	866.400	0.000	857.500	100.000	853.400	300.000	853.100	500.000	853.900	700.000
GR	854.300	790.000	845.700	805.000	838.700	825.000	842.700	875.000	842.500	920.000

GR	845.000	940.000	848.900	947.000	852.000	980.000	851.800	1200.000	851.600	1400.000
GR	853.000	1600.000	853.200	1800.000	857.100	2000.000	863.300	2200.000	0.000	0.000
X1	188.000	31.000	865.000	1040.000	1200.000	500.000	800.000	0.000	0.000	0.000
GR	870.000	0.000	860.000	180.000	854.500	340.000	855.000	390.000	856.800	430.000
GR	856.500	440.000	854.500	490.000	855.000	540.000	855.800	590.000	856.500	640.000
GR	856.500	690.000	855.500	740.000	855.500	790.000	856.000	840.000	856.300	865.000
GR	844.500	885.000	839.800	920.000	840.300	935.000	841.000	950.000	842.300	980.000
GR	844.800	998.000	848.500	1000.000	851.300	1040.000	852.000	1140.000	851.500	1240.000
GR	850.300	1290.000	851.800	1340.000	850.300	1440.000	852.300	1490.000	850.800	1540.000
GR	860.000	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

END POINT OF STUDY

X1	189.000	35.000	840.000	570.000	2300.000	3000.000	2750.000	0.000	0.000	0.000
GR	869.000	0.000	866.000	40.000	865.000	90.000	862.000	140.000	860.500	190.000
GR	860.500	240.000	858.800	290.000	859.300	295.000	849.000	320.000	849.000	340.000
GR	848.500	390.000	849.000	440.000	845.500	440.000	844.000	440.000	842.000	450.000
GR	841.500	455.000	842.500	465.000	841.300	470.000	842.500	480.000	842.800	500.000
GR	843.000	530.000	845.500	562.000	849.000	570.000	848.800	600.000	849.800	610.000
GR	846.500	640.000	848.500	690.000	850.800	740.000	850.300	840.000	848.600	890.000
GR	849.000	940.000	849.800	990.000	851.300	1040.000	849.600	1090.000	865.000	1500.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000



1) COUNTY: Ingham + Eaton

2) STUDY NAME: City of Lansing

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 100 yr. natural



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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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mc 11/7/78

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C
T1       100 YEAR FLOOD
T2       MOORES PARK DAM TO WILBUR HIGHWAY
T3       GRAND RIVER PART II
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ		
	0.	2.	0.	0.	0.000000	0.00	0.0	10000.	834.730	0.000		
NC	.050	.050	.032	.100	.300	0.000	0.000	0.000	0.000	0.000		
X1	121.100	18.000	100.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000		
GR	845.000	0.000	835.200	0.000	835.900	100.000	831.800	112.000	822.000	125.000		
GR	820.600	135.000	819.600	171.000	820.700	192.000	826.000	225.000	835.800	240.000		
GR	835.400	306.000	833.900	306.000	835.100	500.000	838.000	700.000	838.000	900.000		
GR	841.000	1100.000	844.200	1300.000	849.200	1500.000	0.000	0.000	0.000	0.000		
X1	122.000	13.000	150.000	510.000	930.000	805.000	830.000	0.000	0.000	0.000		
GR	838.600	0.000	838.300	100.000	837.300	150.000	833.100	150.000	822.800	150.000		
GR	821.700	200.000	821.500	250.000	820.700	300.000	820.200	330.000	821.600	420.000		
GR	827.400	460.000	833.100	470.000	847.200	510.000	0.000	0.000	0.000	0.000		
X1	123.000	16.000	100.000	445.000	650.000	700.000	650.000	0.000	0.000	0.000		
GR	842.000	0.000	839.500	15.000	839.800	50.000	838.500	100.000	834.000	100.000		
GR	832.500	110.000	820.000	160.000	819.500	185.000	818.000	190.000	816.200	230.000		
GR	816.500	255.000	820.000	300.000	828.000	350.000	830.000	390.000	834.000	430.000		
GR	844.000	445.000	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		

EXISTING LOGAN STREET BRIDGE

X1	124.000	40.000	191.000	484.000	275.000	200.000	240.000	0.000	0.000	0.000		
GR	874.000	0.000	843.000	0.000	843.000	0.000	842.500	30.000	841.000	30.000		
GR	839.500	145.000	839.500	145.000	839.300	152.000	839.300	152.000	839.000	191.000		
GR	834.000	191.000	834.000	200.000	832.500	200.000	830.000	224.000	825.000	235.000		
GR	820.000	277.000	809.300	289.000	809.300	289.000	809.200	297.000	809.200	297.000		
GR	817.000	322.000	816.400	338.000	817.200	372.000	817.200	372.000	817.600	379.000		
GR	817.600	379.000	820.000	409.000	826.100	441.000	834.100	441.000	834.100	449.000		
GR	834.500	453.000	840.000	484.000	845.000	494.000	845.000	494.000	847.200	494.000		
GR	853.200	494.000	850.000	582.000	848.000	700.000	848.500	809.000	850.000	934.000		
X1	124.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000		
BT	20.000	0.000	874.000	843.000	0.000	874.000	868.000	147.000	868.000	862.000		
BT	147.000	868.000	839.500	152.000	867.800	839.300	152.000	867.800	861.800	289.000		
BT	861.900	856.100	289.000	861.900	809.300	297.000	861.700	809.200	297.000	861.700		
BT	855.900	372.000	858.500	852.500	372.000	858.500	817.200	379.000	858.300	817.600		

BT	379.000	858.300	852.300	494.000	853.200	847.200	494.000	853.200	845.000	582.000
BT	850.000	0.000	700.000	848.000	0.000	809.000	848.500	0.000	934.000	840.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	124.400	0.000	0.000	0.000	52.200	52.200	52.200	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	124.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	125.000	25.000	150.000	585.000	240.000	200.000	210.000	0.000	0.000	0.000
GR	850.000	0.000	843.000	0.000	842.500	30.000	841.000	30.000	840.000	120.000
GR	838.000	140.000	836.000	145.000	834.000	150.000	832.400	160.000	830.000	170.000
GR	825.000	180.000	820.000	185.000	809.300	190.000	817.000	195.000	816.400	205.000
GR	817.600	297.000	820.000	388.000	826.100	479.000	832.400	570.000	840.000	585.000
GR	842.000	605.000	844.000	685.000	846.000	775.000	843.000	860.000	850.000	890.000

PROPOSED LOGAN STREET BRIDGE

X1	125.500	46.000	225.000	879.000	340.000	110.000	280.000	.669	0.000	0.000
GR	885.500	0.000	857.000	0.000	857.000	0.000	854.900	80.000	854.900	80.000
GR	854.500	86.000	854.500	86.000	853.500	120.000	842.000	120.000	842.000	225.000
GR	836.500	254.000	836.500	254.000	836.000	262.000	836.000	262.000	835.500	270.000
GR	830.000	284.000	826.000	326.000	825.500	375.000	825.500	375.000	825.500	383.000
GR	825.500	383.000	824.100	498.000	824.100	498.000	824.000	504.000	824.000	504.000
GR	824.000	525.000	822.000	552.000	821.200	650.000	821.200	650.000	821.000	656.000
GR	821.000	656.000	820.100	773.000	820.100	773.000	820.000	779.000	820.000	779.000
GR	820.100	813.000	822.600	836.000	827.600	844.000	832.500	861.000	841.000	879.000
GR	842.500	895.000	842.500	895.000	843.300	960.000	844.500	1031.000	847.000	1035.000
GR	850.000	1211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	125.510	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	.669	0.000
BT	32.000	0.000	885.500	857.000	0.000	885.500	879.000	80.000	884.900	878.500
BT	80.000	884.900	854.900	86.000	884.900	854.500	86.000	884.900	878.500	254.000
BT	880.500	874.800	254.000	880.500	836.500	262.000	880.400	836.000	262.000	880.400
BT	874.700	375.000	875.300	869.300	375.000	875.300	825.500	383.000	875.100	825.500
BT	383.000	875.100	869.100	498.000	870.000	864.000	498.000	870.000	824.100	504.000
BT	869.900	824.000	504.000	869.900	863.900	650.000	863.500	857.500	650.000	863.500
BT	821.200	656.000	863.300	821.000	656.000	863.300	857.300	773.000	858.000	852.000
BT	773.000	858.000	820.100	779.000	857.900	820.000	779.000	857.000	851.900	895.000
BT	852.500	847.000	895.000	852.500	842.500	960.000	850.000	0.000	1031.000	848.000
BT	0.000	1085.000	847.000	0.000	1211.000	850.000	0.000	0.000	0.000	0.000
X1	125.590	0.000	0.000	0.000	52.000	52.000	52.000	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	125.600	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	126.000	15.000	20.000	438.000	480.000	925.000	600.000	0.000	0.000	0.000
GR	844.200	0.000	844.000	10.000	833.100	20.000	829.100	29.000	824.100	80.000
GR	823.700	130.000	823.500	180.000	823.900	230.000	823.400	280.000	825.000	330.000
GR	825.200	380.000	828.400	410.000	833.100	438.000	839.800	460.000	847.200	600.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	127.000	17.000	65.000	447.000	1820.000	1740.000	1300.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	10.000	842.000	20.000	840.000	30.000	836.000	50.000
GR	834.000	65.000	833.600	85.000	828.000	135.000	826.000	185.000	823.000	235.000
GR	826.000	285.000	827.000	335.000	828.000	385.000	833.600	445.000	834.000	447.000
GR	840.000	455.000	846.000	465.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	128.000	20.000	220.000	625.000	1900.000	2100.000	1850.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	60.000	844.000	95.000	842.000	125.000
GR	840.000	165.000	838.000	185.000	837.000	195.000	835.000	220.000	834.500	240.000
GR	831.500	255.000	828.000	375.000	823.000	415.000	821.000	495.000	820.800	545.000
GR	830.000	595.000	833.000	615.000	834.000	620.000	840.000	625.000	850.000	640.000
X1	129.000	20.000	88.000	450.000	950.000	900.000	900.000	0.000	0.000	0.000
GR	848.000	0.000	846.000	12.000	844.000	40.000	842.000	50.000	840.000	68.000
GR	838.000	78.000	836.000	88.000	834.000	110.000	830.000	120.000	829.700	185.000
GR	825.300	260.000	823.300	310.000	824.100	385.000	833.100	445.000	836.000	450.000
GR	840.000	470.000	842.000	480.000	844.000	510.000	846.000	515.000	848.000	525.000
X1	130.000	10.000	0.000	358.000	2000.000	1500.000	1650.000	0.000	0.000	0.000
GR	848.100	0.000	833.300	25.000	829.700	52.000	825.300	150.000	823.300	250.000
GR	824.100	310.000	833.300	340.000	836.500	358.000	836.400	430.000	849.400	510.000
X1	131.000	22.000	120.000	600.000	1700.000	1700.000	1600.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	70.000	844.000	90.000	842.000	104.000
GR	840.000	112.000	838.000	120.000	836.000	128.000	833.000	140.000	830.000	148.000
GR	825.500	236.000	822.800	324.000	826.400	412.000	833.000	500.000	836.000	600.000
GR	838.000	640.000	840.000	643.000	842.000	649.000	844.000	655.000	846.000	662.000
GR	848.000	675.000	850.000	680.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	132.000	12.000	80.000	504.000	1500.000	1450.000	1500.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	832.700	81.000	830.300	98.000
GR	825.700	200.000	822.200	300.000	828.700	400.000	832.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	133.000	12.000	80.000	504.000	750.000	800.000	800.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	832.700	81.000	830.300	98.000
GR	825.700	200.000	822.400	300.000	828.700	400.000	832.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	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

WAVERLY ROAD BRIDGE

X1	134.000	26.000	188.000	476.000	450.000	450.000	450.000	.333	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
GR	844.900	0.000	837.000	100.000	832.900	188.000	832.900	188.100	825.800	245.000
GR	825.800	245.100	823.400	248.900	823.400	249.000	821.200	304.900	821.200	305.000
GR	820.400	308.900	820.400	309.000	821.400	364.900	821.400	365.000	819.900	368.900
GR	819.900	369.000	825.400	424.900	825.400	425.000	826.400	428.900	826.400	429.000
GR	832.900	476.000	832.900	476.100	843.800	502.000	842.800	700.000	842.900	900.000
GR	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	134.100	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	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
BT	26.000	0.000	844.900	0.000	100.000	843.800	0.000	188.000	843.800	832.900
BT	188.100	843.800	840.000	245.000	844.600	840.000	245.100	844.600	825.800	248.900
BT	844.700	823.400	249.000	844.700	840.000	304.900	844.700	840.000	305.000	844.700
BT	821.200	308.900	844.700	820.400	309.000	844.700	840.000	364.900	844.600	840.000
BT	365.000	844.600	821.400	368.900	844.500	819.900	369.000	844.500	840.000	424.900
BT	844.600	840.000	425.000	844.600	825.400	428.900	844.600	826.400	429.000	844.600
BT	840.000	476.000	844.600	840.000	476.100	844.600	832.900	502.000	844.700	0.000
BT	700.000	842.800	0.000	900.000	842.900	0.000	1100.000	843.100	0.000	0.000
X1	134.500	27.000	216.000	504.000	46.000	46.000	46.000	.859	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
BT	24.000	0.000	844.900	0.000	100.000	843.800	0.000	216.000	844.600	832.900
BT	216.100	844.600	840.000	272.900	844.700	840.000	273.000	844.700	828.500	276.900
BT	844.700	824.400	277.000	844.700	840.000	332.900	844.700	840.000	333.000	844.700
BT	820.700	336.900	844.700	819.600	337.000	844.700	840.000	392.900	844.600	840.000
BT	393.000	844.600	818.900	396.900	844.600	820.600	397.000	844.600	840.000	452.900
BT	844.600	840.000	453.000	844.600	821.500	456.900	844.600	824.300	457.000	844.600
BT	840.000	504.000	843.800	840.000	504.100	843.800	827.500	700.000	842.800	0.000
BT	1100.000	843.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.900	0.000	843.800	100.000	832.900	216.000	832.900	216.100	828.500	272.900
GR	828.900	273.000	824.400	276.900	824.400	277.000	820.700	332.900	820.700	333.000
GR	819.600	336.900	819.600	337.000	818.900	392.900	818.900	393.000	820.600	396.900
GR	820.600	397.000	821.500	452.900	821.500	453.000	824.800	456.900	824.800	457.000
GR	827.500	504.000	827.500	504.100	828.200	600.000	829.700	700.000	832.900	750.000
GR	842.900	760.000	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	134.900	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	842.800	842.800	0.000
NC	.040	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	135.000	18.000	190.000	720.000	400.000	250.000	300.000	0.000	0.000	0.000
GR	846.800	0.000	837.200	100.000	834.600	190.000	833.000	200.000	831.400	220.000
GR	830.200	300.000	830.200	400.000	826.900	500.000	825.000	600.000	824.300	700.000
GR	833.000	720.000	841.900	740.000	842.900	900.000	843.100	1100.000	843.100	1300.000
GR	843.100	1500.000	843.900	1700.000	848.400	1900.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	136.000	12.000	375.000	744.000	3000.000	5000.000	3500.000	0.000	0.000	0.000
GR	846.000	0.000	839.800	25.000	836.500	75.000	835.200	175.000	835.400	275.000
GR	833.100	375.000	831.400	400.000	830.100	500.000	828.600	600.000	821.300	700.000
GR	833.100	744.000	848.600	769.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	137.000	15.000	20.000	365.000	1300.000	2100.000	1400.000	0.000	0.000	0.000
GR	845.000	0.000	835.000	20.000	834.100	30.000	831.500	50.000	830.000	200.000
GR	823.000	240.000	821.300	290.000	821.500	330.000	836.000	365.000	837.000	470.000
GR	836.500	620.000	836.500	820.000	839.000	920.000	839.500	970.000	843.000	1020.000
X1	139.000	14.000	536.000	736.000	2300.000	2600.000	2100.000	0.000	0.000	0.000
GR	846.300	0.000	835.600	56.000	834.600	136.000	834.500	236.000	834.500	336.000

GR	834.000	436.000	833.000	536.000	828.800	553.000	820.600	603.000	821.600	653.000
GR	824.500	703.000	833.000	736.000	840.700	740.000	847.100	786.000	0.000	0.000
X1	140.000	16.000	250.000	630.000	2300.000	2500.000	2250.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	18.000	846.000	30.000	844.000	45.000	842.000	60.000
GR	840.000	82.000	838.000	105.000	836.000	145.000	834.300	250.000	833.000	253.000
GR	831.500	293.000	830.800	393.000	825.800	493.000	823.300	593.000	840.000	630.000
GR	846.100	652.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	141.000	14.000	92.000	387.000	2050.000	1150.000	1950.000	0.000	0.000	0.000
GR	847.900	0.000	837.200	83.000	833.000	92.000	829.900	130.000	823.900	230.000
GR	832.300	330.000	833.000	387.000	833.300	500.000	833.500	700.000	833.700	900.000
GR	835.400	1100.000	840.400	1300.000	842.100	1430.000	846.200	1500.000	0.000	0.000
X1	141.500	22.000	286.000	679.000	1500.000	1300.000	1400.000	0.000	0.000	0.000
GR	847.000	0.000	836.300	43.000	835.900	87.000	833.000	96.000	831.000	115.000
GR	833.000	138.000	836.500	146.000	834.500	200.000	834.400	286.000	833.000	294.000
GR	832.500	320.000	832.500	400.000	833.000	445.000	833.100	457.000	833.000	458.000
GR	831.600	500.000	820.000	600.000	823.300	650.000	833.000	675.000	835.000	679.000
GR	842.200	692.000	847.400	741.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	142.000	13.000	140.000	310.000	1700.000	1700.000	1700.000	0.000	0.000	0.000
GR	846.000	0.000	841.000	50.000	838.500	140.000	830.000	155.000	820.500	210.000
GR	825.000	280.000	835.000	310.000	835.000	400.000	836.000	550.000	836.000	700.000
GR	836.500	800.000	837.800	900.000	845.000	1000.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	143.000	18.000	1290.000	1516.000	2300.000	2700.000	2440.000	0.000	0.000	0.000
GR	847.100	0.000	835.700	100.000	835.200	300.000	835.600	500.000	835.500	700.000
GR	835.100	900.000	834.700	1100.000	836.900	1290.000	833.100	1300.000	830.700	1322.000
GR	825.200	1400.000	826.100	1475.000	833.100	1500.000	839.200	1516.000	845.500	1600.000
GR	846.000	1700.000	846.500	1800.000	849.100	1875.000	0.000	0.000	0.000	0.000
NC	.035	.035	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	144.000	12.000	260.000	410.000	4050.000	2300.000	3750.000	0.000	0.000	0.000
GR	850.000	0.000	843.800	0.000	841.900	100.000	841.800	166.000	836.500	260.000
GR	833.300	276.000	822.300	300.000	823.600	350.000	827.700	390.000	833.300	404.000
GR	836.500	410.000	849.300	435.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	145.000	13.000	645.000	844.000	1100.000	1500.000	1200.000	0.000	0.000	0.000
GR	847.700	0.000	845.700	145.000	845.100	345.000	844.300	545.000	838.300	645.000
GR	833.300	660.000	828.300	680.000	828.700	730.000	826.400	780.000	825.700	818.000
GR	833.300	838.000	838.200	844.000	847.700	856.000	0.000	0.000	0.000	0.000
X1	146.000	13.000	113.000	310.000	1900.000	1925.000	1800.000	0.000	0.000	0.000
GR	847.100	0.000	835.500	81.000	835.000	113.000	833.200	120.000	830.600	140.000
GR	824.200	190.000	824.700	240.000	827.500	265.000	833.200	300.000	837.800	310.000
GR	840.500	400.000	841.700	470.000	848.500	500.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

8366

CRIETZ ROAD BRIDGE

X1	147.000	18.000	1050.000	1425.000	75.000	250.000	220.000	.979	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000
GR	849.400	0.000	842.700	200.000	842.800	400.000	843.600	600.000	845.600	775.000
GR	836.900	800.000	835.200	1050.000	834.500	1058.000	833.200	1082.000	828.800	1115.000
GR	827.300	1119.000	825.400	1170.000	825.800	1174.000	825.200	1226.000	827.200	1230.000
GR	833.200	1259.000	841.800	1425.000	849.300	1450.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	139.980	12.000	2800.000	1.670	826.500	826.500
X1	147.500	19.000	950.000	1350.000	66.000	66.000	66.000	.979	0.000	0.000
X2	0.000	0.000	1.000	843.400	0.000	0.000	0.000	0.000	.979	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000
BT	20.000	0.000	849.400	0.000	200.000	842.700	0.000	400.000	842.800	0.000
BT	600.000	843.600	0.000	775.000	845.600	0.000	925.000	846.100	0.000	1050.000
BT	846.500	0.000	1058.000	847.000	834.500	1058.000	847.800	843.400	1069.000	847.800
BT	843.400	1124.000	847.900	843.400	1179.000	847.900	843.400	1235.000	847.900	843.400
BT	1259.000	847.800	843.400	1259.000	847.000	833.200	1282.000	847.800	0.000	1282.000
BT	847.000	0.000	1291.000	847.000	0.000	1400.000	848.500	0.000	1450.000	849.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.400	0.000	842.700	200.000	842.800	400.000	843.600	600.000	845.300	775.000
GR	846.300	925.000	837.700	950.000	835.200	1050.000	833.200	1104.000	830.300	1129.000
GR	827.900	1133.000	826.200	1184.000	825.200	1188.000	825.500	1240.000	827.500	1244.000
GR	833.200	1274.000	843.500	1350.000	848.500	1400.000	849.800	1450.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	148.000	15.000	275.000	467.000	500.000	188.000	250.000	0.000	0.000	0.000
GR	847.200	0.000	842.700	15.000	840.100	100.000	838.300	200.000	836.400	275.000
GR	833.200	278.000	828.600	300.000	826.000	350.000	830.800	420.000	833.200	440.000
GR	835.100	467.000	836.200	500.000	840.900	600.000	844.900	655.000	851.800	655.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

WESTBOUND I-96 BRIDGE

X1	149.000	16.000	419.000	700.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	858.500	858.500	0.000
GR	849.300	0.000	842.900	200.000	838.000	419.000	838.200	461.000	838.100	493.000
GR	832.600	503.000	830.000	513.000	827.200	517.000	825.000	570.000	828.800	623.000
GR	832.600	680.000	835.500	695.000	836.200	700.000	839.300	800.000	847.300	1000.000
GR	851.500	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	178.000	8.000	5855.500	2.490	828.000	828.000
X1	149.500	16.000	419.000	700.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.900	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.300	852.300	0.000
BT	16.000	0.000	861.400	0.000	100.000	850.400	0.000	200.000	860.400	0.000
BT	300.000	860.200	0.000	400.000	859.900	0.000	419.000	859.900	838.000	419.000
BT	862.900	852.900	515.000	862.700	852.700	625.000	862.500	852.500	695.000	862.300
BT	852.300	721.000	862.200	0.000	721.000	859.200	0.000	800.000	859.100	0.000
BT	900.000	859.100	0.000	1000.000	858.700	0.000	1100.000	858.500	0.000	0.000
GR	854.700	0.000	850.300	200.000	845.000	419.000	838.100	461.000	838.100	493.000
GR	832.600	503.000	829.200	513.000	826.700	517.000	825.000	570.000	827.400	623.000
GR	828.900	627.000	832.600	680.000	843.100	700.000	844.700	800.000	847.900	1000.000
GR	853.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	150.000	16.000	415.000	605.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	849.600	0.000	847.300	100.000	845.400	200.000	841.800	300.000	838.500	400.000

GR	838.500	415.000	833.100	430.000	828.500	450.000	823.000	510.000	826.900	565.000
GR	833.100	585.000	841.000	605.000	841.100	700.000	842.600	800.000	845.900	1000.000
GR	847.600	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

EASTBOUND I-96 BRIDGE

X1	151.000	17.000	447.000	769.000	225.000	225.000	225.000	.889	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
GR	857.800	0.000	847.400	200.000	842.200	400.000	840.800	414.000	839.800	447.000
GR	839.500	489.000	833.900	503.000	831.400	538.000	830.400	542.000	829.500	612.000
GR	827.200	683.000	828.900	687.000	833.900	759.000	841.500	769.000	847.400	1000.000
GR	851.400	1200.000	855.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	213.400	8.000	6138.000	2.150	830.000	830.000

X1	151.500	16.000	465.000	787.000	35.000	35.000	35.000	.889	0.000	0.000
X2	0.000	0.000	1.000	853.900	0.000	0.000	0.000	0.000	.889	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
BT	22.000	0.000	864.500	0.000	100.000	863.800	0.000	200.000	863.300	0.000
BT	300.000	862.800	0.000	400.000	862.600	0.000	414.000	862.500	853.900	414.000
BT	862.500	840.800	421.000	862.500	853.900	430.000	862.500	853.900	430.000	865.500
BT	853.900	549.000	865.100	853.400	692.000	864.500	852.900	769.000	861.300	852.600
BT	769.000	861.300	841.500	830.000	864.100	0.000	830.000	861.100	0.000	900.000
BT	860.700	0.000	1000.000	860.600	0.000	1100.000	860.400	0.000	1200.000	860.500
BT	0.000	1300.000	860.600	0.000	1400.000	860.800	0.000	0.000	0.000	0.000
GR	855.900	0.000	846.200	200.000	837.100	400.000	839.900	465.000	839.600	507.000
GR	833.900	521.000	832.900	556.000	831.900	560.000	823.400	630.000	827.400	699.000
GR	827.700	703.000	833.900	777.000	838.900	787.000	841.400	1000.000	844.400	1200.000
GR	849.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	152.000	12.000	525.000	770.000	400.000	250.000	350.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	250.000	845.500	425.000	840.000	525.000	834.000	565.000
GR	831.400	595.000	826.800	650.000	826.200	700.000	826.900	730.000	830.000	755.000
GR	833.900	770.000	860.500	820.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DOWNSTREAM END OF ISLAND

X1	153.000	14.000	641.000	873.000	562.000	625.000	750.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	400.000	837.800	600.000	837.600	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.800	873.000	839.200	900.000	843.300	1000.000	850.700	1071.000	0.000	0.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM END OF ISLAND

WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

X1	157.000	12.000	0.000	252.000	2100.000	1700.000	1800.000	0.000	0.000	0.000
X5	-1.000	.830	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	158.000	20.000	655.000	910.000	1812.000	1800.000	1300.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	300.000	841.700	655.000	840.000	660.000	834.000	675.000
GR	829.300	685.000	830.000	700.000	830.500	715.000	830.000	740.000	830.500	825.000
GR	831.500	885.000	834.000	905.000	838.000	910.000	838.500	1045.000	841.500	1090.000
GR	842.500	1120.000	840.700	1235.000	847.000	1335.000	850.000	1365.000	860.000	1915.000
X1	159.000	16.000	385.000	558.000	1750.000	1812.000	1875.000	0.000	0.000	0.000
GR	852.900	0.000	842.300	100.000	840.100	200.000	839.500	300.000	839.600	385.000
GR	833.700	400.000	830.500	420.000	829.900	466.000	827.500	515.000	833.700	549.000
GR	834.400	558.000	834.600	587.000	841.000	606.000	839.000	645.000	845.400	705.000
GR	851.900	805.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	160.000	16.000	760.000	870.000	1562.000	1500.000	1500.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	570.000	846.700	625.000	839.200	650.000	838.000	710.000
GR	840.000	730.000	837.500	745.000	836.700	760.000	834.200	760.000	830.200	770.000
GR	829.100	795.000	830.000	835.000	832.100	850.000	834.200	870.000	850.000	900.000
GR	860.000	930.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	161.000	23.000	1200.000	1384.000	690.000	490.000	500.000	0.000	0.000	0.000
GR	853.900	0.000	850.900	100.000	844.800	200.000	844.600	300.000	845.200	400.000
GR	845.600	500.000	845.600	700.000	846.600	800.000	846.600	900.000	845.000	1000.000
GR	843.000	1100.000	842.300	1200.000	834.100	1221.000	831.100	1280.000	831.400	1300.000
GR	831.900	1350.000	834.100	1375.000	836.300	1384.000	842.200	1430.000	842.500	1500.000
GR	843.700	1562.000	844.000	1575.000	844.000	1590.000	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

DIMONDALE DAM

X1	162.000	12.000	300.000	540.000	1100.000	800.000	980.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	835.000	300.000
GR	831.100	350.000	831.100	490.000	835.000	540.000	844.000	540.000	844.200	600.000
GR	845.000	700.000	854.200	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	162.100	10.000	300.000	540.000	10.000	10.000	10.000	0.000	0.000	0.000
X5	-1.000	1.340	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	833.600	300.000
GR	833.600	540.000	844.000	540.000	844.200	600.000	845.000	700.000	854.200	800.000
QT	1.000	9475.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REDUCTION OF FLOW

X1	163.000	24.000	409.000	660.000	750.000	625.000	750.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	200.000	865.000	225.000	865.000	245.000	864.000	245.000
GR	850.000	370.000	844.700	409.000	840.500	422.000	834.200	445.000	834.200	479.000
GR	834.000	482.000	834.500	540.000	835.200	543.000	834.400	570.000	840.500	600.000
GR	842.600	610.000	844.500	660.000	852.800	733.000	853.400	783.000	854.000	790.000
GR	870.000	790.000	870.000	810.000	855.000	810.000	860.000	900.000	0.000	0.000
NC	.040	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE STREET BRIDGE

X1	164.000	17.000	339.000	600.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	853.600	200.000	850.500	300.000	844.700	339.000

GR	840.500	352.000	834.200	375.000	834.200	409.000	834.000	412.000	834.500	470.000
GR	835.200	473.000	834.400	500.000	840.500	532.000	842.600	543.000	844.500	600.000
GR	852.800	700.000	853.400	800.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.600	0.000	150.000	6.000	2739.000	.904	834.500	834.500
X1	164.500	17.000	339.000	600.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.300	0.000	0.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	859.800	0.000	100.000	856.400	0.000	200.000	854.300	0.000
BT	300.000	854.700	0.000	339.000	855.300	0.000	349.000	855.900	0.000	352.000
BT	855.900	840.500	352.000	855.900	850.900	352.000	858.900	850.300	411.000	858.800
BT	851.300	471.000	858.800	851.300	532.000	858.900	850.900	532.000	855.900	840.500
BT	533.000	855.600	0.000	600.000	854.500	0.000	700.000	853.000	0.000	800.000
BT	853.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	854.400	200.000	844.000	300.000	842.900	339.000
GR	840.500	352.000	834.200	375.000	834.400	409.000	833.700	412.000	835.400	470.000
GR	834.900	473.000	834.400	500.000	840.500	530.000	843.900	543.000	844.500	600.000
GR	853.000	700.000	853.600	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.030	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	165.000	22.000	110.000	387.000	100.000	220.000	175.000	0.000	0.000	0.000
GR	860.000	0.000	852.500	0.000	850.000	80.000	844.000	110.000	840.500	130.000
GR	834.200	153.000	834.000	182.000	834.400	190.000	834.700	232.000	835.000	242.000
GR	834.400	281.000	840.500	305.000	844.000	387.000	847.500	480.000	865.000	480.000
GR	865.000	515.000	850.000	515.000	856.000	625.000	865.000	625.000	865.000	665.000
GR	858.000	665.000	860.000	715.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	166.000	20.000	490.000	720.000	1130.000	1510.000	1300.000	0.000	0.000	0.000
GR	867.000	0.000	858.000	100.000	854.000	200.000	852.200	250.000	848.500	300.000
GR	845.300	450.000	843.500	490.000	840.000	497.000	835.200	510.000	835.200	530.000
GR	834.200	540.000	834.800	570.000	834.200	600.000	835.300	670.000	833.600	680.000
GR	836.500	690.000	840.000	700.000	855.500	720.000	859.000	735.000	868.000	738.000
X1	167.000	22.000	355.000	710.000	500.000	375.000	500.000	0.000	0.000	0.000
GR	860.000	0.000	855.200	100.000	851.200	200.000	849.500	255.000	846.800	305.000
GR	843.700	355.000	842.600	390.000	838.500	410.000	834.800	420.000	834.000	440.000
GR	834.000	470.000	835.500	510.000	835.800	530.000	838.000	540.000	838.400	560.000
GR	839.500	600.000	842.400	655.000	846.000	710.000	852.400	760.000	857.000	810.000
GR	859.000	860.000	860.000	880.000	0.000	0.000	0.000	0.000	0.000	0.000

END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS.

X1	168.000	17.000	400.000	625.000	2500.000	2510.000	2562.000	0.000	0.000	0.000
GR	860.000	0.000	843.800	150.000	841.000	200.000	841.600	250.000	842.200	300.000
GR	843.500	350.000	842.800	400.000	842.500	420.000	839.500	420.000	838.000	430.000
GR	838.000	460.000	837.000	470.000	837.300	490.000	834.500	560.000	839.500	600.000
GR	855.000	625.000	860.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	169.000	29.000	560.000	690.000	2438.000	2300.000	2438.000	0.000	0.000	0.000
GR	867.500	0.000	866.500	50.000	865.000	90.000	865.200	150.000	864.600	200.000
GR	863.300	250.000	862.400	300.000	860.500	350.000	859.000	400.000	856.500	450.000
GR	853.600	500.000	851.100	540.000	837.500	560.000	834.900	600.000	834.400	620.000
GR	834.700	640.000	835.300	670.000	838.200	690.000	842.900	700.000	844.500	750.000
GR	844.500	800.000	848.200	850.000	851.500	910.000	856.400	950.000	857.200	1000.000
GR	857.200	1050.000	858.000	1100.000	860.100	1150.000	859.000	1200.000	0.000	0.000

X1	170.000	18.000	400.000	600.000	2375.000	2250.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	200.000	853.500	250.000	848.500	400.000	847.000	425.000
GR	842.500	450.000	838.500	460.000	838.500	470.000	836.000	530.000	836.500	545.000
GR	837.500	550.000	837.500	570.000	842.500	535.000	842.500	600.000	845.500	650.000
GR	847.000	700.000	850.000	735.000	860.000	775.000	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

MICHIGAN ROAD BRIDGE

X1	171.000	13.000	205.000	382.000	320.000	0.000	200.000	.887	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
GR	857.000	0.000	855.100	100.000	848.800	183.000	841.000	205.000	837.500	263.000
GR	837.000	265.000	837.200	323.000	836.500	325.000	841.000	382.000	844.100	405.000
GR	846.000	500.000	849.500	600.000	858.000	640.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	133.000	4.000	2072.000	.607	837.000	837.000

X1	171.500	13.000	180.000	357.000	47.000	47.000	47.000	.887	0.000	0.000
X2	0.000	0.000	1.000	851.900	0.000	0.000	0.000	0.000	.887	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
BT	14.000	0.000	857.000	0.000	100.000	856.500	0.000	191.000	856.200	0.000
BT	203.000	856.700	841.000	203.000	859.700	851.900	251.000	859.200	851.800	311.000
BT	859.200	851.900	372.000	859.000	851.900	385.000	859.000	851.900	385.000	856.000
BT	841.000	400.000	856.200	0.000	500.000	856.300	0.000	600.000	875.000	0.000
BT	640.000	858.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	857.000	0.000	853.700	100.000	843.900	158.000	841.000	180.000	836.700	238.000
GR	836.700	240.000	837.500	298.000	837.500	300.000	841.000	357.000	847.300	380.000
GR	848.800	500.000	852.100	600.000	858.300	640.000	0.000	0.000	0.000	0.000

X1	172.000	14.000	557.000	747.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	860.000	0.000	857.000	150.000	854.000	300.000	850.000	500.000	843.900	535.000
GR	841.000	557.000	836.700	615.000	836.700	620.000	837.500	690.000	841.000	747.000
GR	847.300	770.000	848.800	880.000	850.000	900.000	860.000	1470.000	0.000	0.000

X1	173.000	22.000	255.000	420.000	750.000	1000.000	875.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	70.000	852.000	120.000	845.500	165.000	845.000	215.000
GR	847.000	255.000	844.500	265.000	841.000	270.000	839.500	300.000	838.500	310.000
GR	838.500	320.000	838.000	330.000	838.000	335.000	838.500	340.000	838.500	350.000
GR	837.500	360.000	837.500	370.000	838.500	390.000	839.500	410.000	844.000	420.000
GR	852.000	520.000	860.000	570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	174.000	18.000	200.000	346.000	100.000	130.000	120.000	0.000	0.000	0.000
GR	857.300	0.000	855.400	100.000	854.700	192.000	854.700	200.000	844.600	200.000
GR	841.700	210.000	840.700	220.000	841.700	256.000	842.900	267.000	841.700	277.000
GR	840.200	300.000	839.200	325.000	841.700	334.000	846.200	345.000	848.800	346.000
GR	856.000	357.000	855.700	400.000	857.600	500.000	0.000	0.000	0.000	0.000

X1	175.000	12.000	168.000	390.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	859.200	0.000	850.700	100.000	844.100	168.000	842.000	171.000	840.500	191.000
GR	838.500	241.000	839.800	286.000	842.000	310.000	843.500	359.000	848.700	390.000
GR	854.400	500.000	859.300	550.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	176.000	24.000	370.000	550.000	1500.000	875.000	1000.000	0.000	0.000	0.000
GR	858.000	0.000	856.500	70.000	856.500	120.000	855.000	170.000	856.000	220.000
GR	857.000	270.000	855.500	290.000	850.500	320.000	844.500	370.000	842.500	380.000
GR	841.000	380.000	840.000	395.000	837.500	445.000	836.500	450.000	837.000	460.000
GR	839.000	490.000	841.500	520.000	843.500	525.000	848.000	550.000	847.000	570.000
GR	846.500	620.000	849.000	670.000	857.000	720.000	853.000	770.000	0.000	0.000
NC	0.000	0.000	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	177.000	14.000	157.000	341.000	1500.000	2000.000	1750.000	0.000	0.000	0.000
GR	859.900	0.000	851.000	50.000	848.100	100.000	848.200	157.000	842.500	169.000
GR	840.500	185.000	838.200	233.000	838.200	284.000	839.200	314.000	842.500	333.000
GR	846.500	341.000	849.800	450.000	855.400	550.000	858.300	600.000	0.000	0.000
X1	178.000	16.000	132.000	363.000	2250.000	2125.000	2225.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	25.000	850.000	50.000	846.500	132.000	842.900	155.000
GR	840.400	195.000	840.200	206.000	839.800	243.000	839.200	252.000	839.200	289.000
GR	839.900	323.000	842.900	355.000	847.000	363.000	850.000	367.000	855.000	492.000
GR	860.000	617.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.063	.063	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

WAVERLY ROAD BRIDGE

X1	179.000	16.000	200.000	450.000	500.000	0.000	250.000	.945	0.000	0.000
GR	859.200	0.000	853.900	100.000	850.300	230.000	842.900	225.000	839.900	272.000
GR	840.400	276.000	840.400	323.000	839.900	327.000	839.900	374.000	839.900	378.000
GR	842.900	425.000	852.000	450.000	853.900	500.000	855.500	700.000	858.700	900.000
GR	859.100	942.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.950	1.500	2.500	0.000	146.530	9.000	1957.400	1.509	839.900	839.900
X1	179.500	16.000	200.000	425.000	28.000	28.000	28.000	.945	0.000	0.000
X2	0.000	0.000	1.000	852.400	853.600	0.000	0.000	0.000	.945	0.000
BT	12.000	0.000	859.200	0.000	100.000	856.100	0.000	218.000	854.900	0.000
BT	218.000	855.700	0.000	225.000	855.600	842.900	225.000	855.600	852.400	425.000
BT	854.400	851.100	425.000	853.600	842.900	500.000	353.900	0.000	700.000	855.500
BT	0.000	900.000	858.700	0.000	942.000	859.000	0.000	0.000	0.000	0.000
GR	859.200	0.000	853.900	100.000	847.400	200.000	842.900	215.000	840.400	262.000
GR	840.200	266.000	839.800	313.000	839.200	317.000	839.200	364.000	839.900	368.000
GR	842.900	415.000	849.700	425.000	853.900	500.000	855.500	700.000	858.700	900.000
GR	859.100	942.000	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
X1	180.000	14.000	153.000	343.000	125.000	450.000	250.000	0.000	0.000	0.000
GR	859.100	0.000	850.600	100.000	845.700	128.000	846.200	153.000	843.300	156.000
GR	842.300	175.000	841.800	225.000	840.900	275.000	843.300	325.000	850.300	343.000
GR	853.300	400.000	855.900	500.000	858.500	600.000	861.500	700.000	0.000	0.000
NC	.070	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	181.000	15.000	0.000	184.000	1125.000	1375.000	1250.000	0.000	0.000	0.000
GR	862.800	0.000	845.100	24.000	843.100	44.000	841.100	100.000	841.300	140.000
GR	845.100	160.000	847.100	167.000	849.100	184.000	851.100	200.000	852.400	300.000
GR	854.300	400.000	857.000	500.000	857.600	600.000	858.600	700.000	860.400	800.000

X1	182.000	32.000	1050.000	1275.000	2500.000	2625.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.500	500.000	855.000	610.000	849.500	700.000	850.800	750.000
GR	853.500	800.000	852.800	830.000	848.300	860.000	846.000	900.000	846.000	950.000
GR	847.000	1000.000	846.500	1050.000	844.300	1050.000	842.500	1050.000	840.500	1055.000
GR	840.300	1080.000	839.500	1100.000	840.000	1130.000	840.800	1160.000	842.300	1180.000
GR	844.300	1200.000	845.000	1250.000	845.300	1265.000	848.500	1275.000	848.500	1300.000
GR	847.000	1350.000	847.500	1400.000	847.300	1450.000	847.000	1500.000	848.500	1650.000
GR	855.500	1800.000	860.000	1880.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	183.000	18.000	200.000	390.000	1375.000	2000.000	1625.000	0.000	0.000	0.000
GR	861.200	0.000	861.000	40.000	849.900	100.000	851.200	200.000	844.900	225.000
GR	840.400	250.000	840.000	300.000	842.100	340.000	844.900	360.000	848.600	390.000
GR	846.900	600.000	846.900	800.000	847.900	1000.000	849.900	1200.000	850.900	1400.000
GR	851.900	1600.000	851.900	1800.000	861.000	1900.000	0.000	0.000	0.000	0.000
X1	184.000	19.000	1670.000	1815.000	1688.000	1750.000	1750.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	430.000	850.000	830.000	848.000	1130.000	847.500	1230.000
GR	850.000	1630.000	848.500	1670.000	847.500	1710.000	844.300	1720.000	840.300	1735.000
GR	840.500	1740.000	837.500	1765.000	838.300	1800.000	843.500	1815.000	848.500	1815.000
GR	848.500	1870.000	849.500	1920.000	854.500	1970.000	868.500	2020.000	0.000	0.000
X1	185.000	25.000	1420.000	1580.000	3000.000	3750.000	3000.000	0.000	0.000	0.000
GR	860.000	0.000	851.500	880.000	850.300	930.000	850.800	980.000	849.300	1030.000
GR	852.300	1180.000	847.800	1230.000	850.500	1330.000	849.800	1380.000	850.000	1420.000
GR	844.500	1429.000	843.500	1430.000	841.500	1440.000	841.000	1450.000	842.300	1485.000
GR	842.000	1550.000	843.500	1565.000	842.900	1570.000	847.500	1580.000	846.300	1630.000
GR	848.800	1680.000	858.300	1730.000	859.300	1780.000	861.800	1830.000	873.800	1880.000
X1	186.000	15.000	1200.000	1337.000	1500.000	1750.000	1625.000	0.000	0.000	0.000
GR	862.800	0.000	858.700	200.000	848.400	400.000	848.000	600.000	848.200	800.000
GR	848.300	1000.000	848.100	1200.000	845.100	1207.000	843.500	1222.000	840.300	1248.000
GR	841.600	1271.000	842.600	1297.000	845.100	1310.000	858.500	1337.000	863.500	1393.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	187.000	19.000	790.000	947.000	2125.000	2000.000	2375.000	0.000	0.000	0.000
GR	866.400	0.000	857.500	100.000	853.400	300.000	853.100	500.000	853.900	700.000
GR	854.300	790.000	845.700	805.000	838.700	825.000	842.700	875.000	842.500	920.000
GR	845.700	940.000	848.900	947.000	852.000	980.000	851.800	1200.000	851.600	1400.000
GR	853.000	1600.000	853.200	1800.000	857.100	2000.000	863.300	2200.000	0.000	0.000
X1	188.000	31.000	865.000	1040.000	1200.000	500.000	800.000	0.000	0.000	0.000
GR	870.000	0.000	860.000	180.000	854.500	340.000	855.000	390.000	856.800	430.000
GR	856.500	440.000	854.500	490.000	855.000	540.000	855.800	590.000	856.500	640.000
GR	856.500	690.000	855.500	740.000	855.500	790.000	856.000	840.000	856.300	865.000
GR	844.800	885.000	839.800	920.000	840.300	935.000	841.000	950.000	842.300	980.000
GR	844.800	998.000	848.500	1000.000	851.300	1040.000	852.000	1140.000	851.500	1240.000
GR	850.300	1290.000	851.800	1340.000	850.300	1440.000	852.300	1490.000	850.800	1540.000
GR	860.000	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

END POINT OF STUDY

X1	189.000	35.000	440.000	570.000	2300.000	3000.000	2750.000	0.000	0.000	0.000
GR	869.000	0.000	866.000	40.000	865.000	90.000	862.000	140.000	860.500	190.000
GR	860.500	240.000	858.800	290.000	859.300	295.000	849.000	320.000	849.000	340.000
GR	848.500	390.000	849.000	440.000	845.500	440.000	844.000	440.000	842.000	450.000
GR	841.500	455.000	842.500	465.000	841.800	470.000	842.500	480.000	842.800	500.000
GR	843.000	530.000	845.500	562.000	849.000	570.000	849.800	600.000	849.800	610.000
GR	846.500	640.000	848.500	690.000	850.300	740.000	850.300	840.000	848.800	890.000
GR	849.000	940.000	849.800	990.000	850.300	1040.000	849.800	1090.000	865.000	1500.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 121.100

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
121.10	15.13	834.73	0.00	834.73	835.40	.67	0.00	0.00	835.90
10000.	0.	9973.	27.	0.	1515.	56.	0.	0.	835.80
0.00	0.00	6.58	.48	.050	.032	.050	0.000	819.60	103.42
.000854	0.	0.	0.	0	0	0	0.00	269.12	440.16

*SECNO 122.000

3301 HV CHANGED MORE THAN HVINS

122.00	15.34	835.54	0.00	0.00	835.62	.08	.16	.06	837.30
10000.	0.	10000.	0.	0.	4356.	0.	56.	6.	847.20
.10	0.00	2.30	0.00	.050	.032	.050	.032	820.20	150.00
.000082	930.	830.	805.	2	0	0	0.00	326.91	476.91

*SECNO 123.000

123.00	19.39	835.59	0.00	0.00	835.69	.10	.06	.01	838.50
10000.	0.	10000.	0.	0.	3959.	0.	118.	11.	844.00
.17	0.00	2.53	0.00	.050	.032	.050	.032	816.20	100.00
.000111	650.	650.	700.	2	0	0	0.00	332.38	432.38

CCHV= .300 CEHV= .500
*SECNO 124.000

EXISTING LOGAN STREET BRIDGE

124.00	26.41	835.61	0.00	0.00	835.72	.11	.03	.00	839.00
10000.	0.	10000.	0.	0.	3781.	0.	140.	12.	840.00
.20	0.00	2.65	0.00	.050	.032	.050	.032	809.20	191.00
.000104	275.	240.	200.	0	0	0	0.00	268.25	459.25

*SECNO 124.100

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	IOC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 840.00 MAX ELLC= 868.00

124.10	26.40	835.60	0.00	0.00	835.73	.13	.00	.01	839.00
10000.	0.	10000.	0.	0.	3440.	0.	140.	12.	840.00
.20	0.00	2.91	0.00	.050	.032	.050	.032	809.20	191.00

.000143	1.	1.	1.	1	0	0	-338.23	268.21	459.21

*SECNO 124.400

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 840.00 MAX ELLC= 868.00

124.40	26.40	835.60	0.00	0.00	835.73	.13	.01	.00	839.00
10000.	0.	10000.	0.	0.	3441.	0.	144.	13.	840.00
.20	0.00	2.91	0.00	.050	.032	.050	.032	809.20	191.00
.000143	52.	52.	52.	0	0	0	-338.24	268.22	459.22

*SECNO 124.500

124.50	26.43	835.63	0.00	0.00	835.74	.11	.00	.01	839.00
10000.	0.	10000.	0.	0.	3787.	0.	144.	13.	840.00
.20	0.00	2.64	0.00	.050	.032	.050	.032	809.20	191.00
.000104	1.	1.	1.	2	0	0	0.00	268.39	459.39

*SECNO 125.000

125.00	26.43	835.73	0.00	0.00	835.77	.05	.01	.02	834.00
10000.	1.	9999.	0.	4.	5644.	0.	167.	14.	840.00
.24	.18	1.77	0.00	.050	.032	.050	.032	809.30	145.69
.000049	240.	210.	200.	2	0	0	0.00	430.88	576.56

*SECNO 125.500

PROPOSED LOGAN STREET BRIDGE

125.50	15.73	835.73	0.00	0.00	835.80	.07	.02	.01	842.00
10000.	0.	10000.	0.	0.	4856.	0.	201.	17.	841.00
.27	0.00	2.06	0.00	.050	.032	.050	.032	820.00	178.07
.000073	340.	280.	110.	1	0	0	0.00	402.52	580.60

*SECNO 125.510

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

3370 NORMAL BRIDGE,NRD= 32 MIN ELTRD= 847.00 MAX ELLC= 879.00

125.51	15.70	835.70	0.00	0.00	835.83	.13	.00	.03	842.00
10000.	0.	10000.	0.	0.	3502.	0.	201.	17.	841.00
.27	0.00	2.86	0.00	.050	.032	.050	.032	820.00	178.46
.000216	1.	1.	1.	2	0	0	-1340.54	402.09	580.55

*SECNO 125.590

3370 NORMAL BRIDGE,NRD= 32 MIN ELTRD= 847.00 MAX ELLC= 879.00

125.59	15.71	835.71	0.00	0.00	835.84	.13	.01	.00	842.00
10000.	0.	10000.	0.	0.	3504.	0.	205.	17.	841.00
.28	0.00	2.85	0.00	.050	.032	.050	.032	820.00	178.37
.000216	52.	52.	52.	0	0	0	-1341.33	402.18	580.56

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*SECNO 125.600
   125.60     15.79    835.79      0.00      0.00    835.86       .07       .01       .02    842.00
   10000.        0.     10000.        0.        0.      4879.        0.      205.       17.     841.00
     .28       0.00      2.05      0.00      .050      .032      .050      .032    820.00    177.48
  .000072        1.        1.        1.         2         0         0      0.00    403.20    580.68

*SECNO 126.000
   126.00     12.44    835.84      0.00      0.00    835.92       .08       .05       .01    833.10
   10000.        1.      9995.        4.        3.      4471.       12.      270.       23.     833.10
     .35       .28      2.24       .35      .050      .032      .050      .032    823.40     17.49
  .000099       480.      600.      925.         2         0         0      0.00    429.50    446.99

CCHV=     .100 CEHV=     .300
*SECNO 127.000
   127.00     13.06    836.06      0.00      0.00    836.22       .16       .28       .02    834.00
   10000.        8.      9990.        1.       16.      3145.        3.      428.       40.     834.00
     .51       .52      3.18       .44      .050      .032      .050      .032    823.00     49.68
  .000282      1820.     1800.     1740.         2         0         0      0.00    400.07    449.75

*SECNO 128.000
   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
   128.00     19.69    836.49      0.00      0.00    836.59       .10       .36       .01    835.00
   10000.        4.      9996.        0.       14.      3945.        0.      579.       58.     840.00
     .71       .29      2.53      0.00      .050      .032      .050      .032    820.80    201.40
  .000143      1900.     1850.     2100.         2         0         0      0.00    420.67    622.07

*SECNO 129.000
   129.00     13.32    836.62      0.00      0.00    836.76       .14       .16       .01    836.00
   10000.        0.     10000.        0.        1.      3282.        1.      654.       66.     836.00
     .60       .20      3.05       .20      .050      .032      .050      .032    823.30     84.91
  .000230       950.      900.      900.         2         0         0      0.00    368.18    453.09

*SECNO 130.000
   130.00     13.67    836.97      0.00      0.00    837.10       .13       .34       .00    848.10
   10000.        0.      9992.        8.        0.      3434.       35.      782.       81.     836.50
     .95      0.00      2.91       .24      .050      .032      .050      .032    823.30     18.80
  .000181      2000.     1650.     1500.         2         0         0      0.00    414.69    433.49

*SECNO 131.000
   131.00     14.48    837.28      0.00      0.00    837.37       .09       .27       .00    838.00
   10000.        0.      9996.        4.        0.      4137.       16.      922.       98.     836.00
     1.14      0.00      2.42       .27      .050      .032      .050      .032    822.80    122.89
  .000153      1700.     1600.     1700.         2         0         0      0.00    502.67    625.56

*SECNO 132.000
   132.00     15.28    837.48      0.00      0.00    837.57       .08       .20       .00    834.70
   10000.       33.      9955.       12.       51.      4279.       28.      1068.      115.     835.70
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1.32	.64	2.33	.42	.035	.032	.035	.032	822.20	47.85
.000116	1500.	1500.	1450.	2	0	0	0.0(	487.67	535.52

*SECNO 133.000

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
133.00	15.18	837.58	0.00	0.00	837.66	.08	.09	.00	834.70
10000.	31.	9955.	14.	54.	4301.	31.	1148.	124.	835.70
1.41	.58	2.31	.43	.040	.032	.035	.032	822.40	47.49
.000114	750.	800.	800.	1	0	0	0.0(	489.78	537.27

CCHV= .300 CEHV= .500

*SECNO 134.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

WAVERLY ROAD BRIDGE

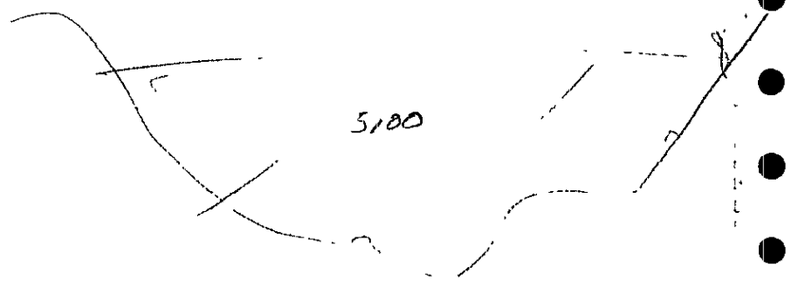
134.00	17.70	837.60	0.00	0.00	837.75	.15	.06	.04	832.90
10000.	0.	10000.	0.	0.	3184.	0.	1187.	127.	832.90
1.45	0.00	3.14	0.00	.040	.032	.035	.032	819.90	161.49
.000158	450.	450.	450.	2	0	0	0.00	247.39	408.88

*SECNO 134.100

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 842.80 MAX ELLC= 840.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.10	17.69	837.59	0.00	0.00	837.77	.17	.00	.01	832.90
10000.	0.	10000.	0.	0.	2983.	0.	1188.	127.	832.90
1.45	0.00	3.35	0.00	.040	.032	.035	.032	819.90	161.49
.000196	1.	1.	1.	1	0	0	-199.87	247.39	408.88



*SECNO 134.500

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 842.80 MAX ELLC= 840.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.50	18.73	837.63	0.00	0.00	837.78	.15	.01	.01	832.90
10000.	0.	10000.	0.	0.	3210.	0.	1191.	128.	827.50
1.46	0.00	3.12	0.00	.040	.032	.035	.032	818.90	185.54
.000155	46.	46.	46.	2	0	0	-209.41	247.39	432.94

*SECNO 134.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.90	18.75	837.65	0.00	0.00	837.79	.13	.00	.01	832.90
10000.	0.	10000.	0.	0.	3425.	0.	1191.	128.	827.50
1.46	0.00	2.92	0.00	.040	.032	.035	.032	318.90	185.54
.000125	1.	1.	1.	2	0	0	0.00	247.39	432.94

*SECNO 135.000

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
135.00	13.48	837.78	0.00	0.00	837.84	.06	.03	.02	834.60
10000.	90.	9898.	12.	171.	5070.	26.	1221.	131.	833.00
1.50	.53	1.95	.47	.040	.032	.050	.032	824.30	93.95
.000087	400.	300.	250.	2	0	0	0.00	636.80	730.74

CCHV= .100 CEHV= .300

*SECNO 136.000

136.00	16.85	838.15	0.00	0.00	838.25	.10	.39	.01	833.10
10000.	719.	9269.	13.	925.	3569.	21.	1608.	132.	833.10
1.89	.78	2.60	.61	.050	.032	.050	.032	821.30	50.82
.000153	3000.	3500.	5000.	2	0	0	0.00	702.12	752.14

*SECNO 137.000

137.00	17.05	838.35	0.00	0.00	838.46	.11	.21	.00	835.00
10000.	5.	9548.	447.	11.	3586.	872.	1759.	212.	836.00
2.05	.47	2.66	.51	.050	.032	.050	.032	821.30	13.30
.000147	1300.	1460.	2100.	1	0	0	0.00	880.61	893.92

*SECNO 139.000

139.00	18.03	838.63	0.00	0.00	838.74	.11	.28	.00	833.00
10000.	1779.	8217.	3.	2079.	2810.	8.	1995.	254.	833.00
2.28	.86	2.92	.39	.050	.032	.050	.032	820.60	40.13
.000119	2300.	2100.	2600.	2	0	0	0.00	698.79	738.93

*SECNO 140.000

140.00	15.63	838.93	0.00	0.00	839.03	.09	.28	.00	834.30
10000.	376.	9624.	0.	481.	3838.	0.	2234.	286.	840.00
2.53	.78	2.51	0.00	.050	.032	.050	.032	823.30	94.15
.000134	2300.	2250.	2500.	0	0	0	0.00	533.51	627.66

*SECNO 141.000

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
141.00	15.29	839.19	0.00	0.00	839.24	.05	.20	.00	833.00
10000.	30.	6355.	3616.	52.	3004.	4171.	2455.	317.	833.00
2.84	.57	2.12	.87	.050	.032	.050	.032	823.90	67.59
.000094	2050.	1950.	1150.	2	0	0	0.00	1183.88	1251.47

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*SECNO 141.500
   141.50     19.31    839.31      0.00      0.00    839.38      .07       .14       .01    834.40
   10000.     1056.     8936.        8.      1171.     3966.       17.     2650.      346.    835.00
     3.02       .90      2.25       .47       .050      .032      .050      .032    820.00     30.90
  .000109    1500.     1400.     1300.          2         0         0      0.00    655.88    686.78

*SECNO 142.000
   142.00     18.99    839.49      0.00      0.00    839.64      .15       .23       .02    838.50
   10000.        4.     8039.     1956.       17.     2317.     2100.     2837.      375.    835.00
     3.18       .25      3.47       .93       .050      .032      .050      .032    820.50    104.58
  .000178    1700.     1700.     1700.          0         0         0      0.00    818.81    923.39

*SECNO 143.000
   143.00     14.76    839.96      0.00      0.00    840.00      .04       .35       .01    836.90
   10000.     4862.     5138.        1.      5511.     2557.        4.     3185.      433.    839.20
     3.64       .88      2.01       .17       .050      .040      .050      .033    825.20     62.62
  .000117    2300.     2440.     2700.          2         0         0      0.00   1463.53   1526.15

*SECNO 144.000
   144.00     18.14    840.44      0.00      0.00    840.80      .36       .70       .10    836.50
   10000.      167.     9816.       17.       138.     2032.       15.     3646.      515.    836.50
     3.86       1.21     4.83       1.12      .035      .031      .035      .032    822.30    189.95
  .000328    4050.     3750.     2300.          1         0         0      0.00    227.75    417.71

*SECNO 145.000
     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      XLOEL      XLCH       XLOBR      ITRIAL     IOC        ICONT      CORAR      TOPWID      ENDST

    145.00     15.20    840.90      0.00      0.00    841.17      .27       .36       .01    838.30
    10000.       48.     9949.        3.       56.     2390.        5.     3709.      522.    838.20
      3.94       .85      4.16       .74       .035      .031      .035      .032    825.70    601.62
  .000283    1100.     1200.     1500.          2         0         0      0.00    245.80    847.41

*SECNO 146.000
    146.00     17.19    841.39      0.00      0.00    841.58      .18       .40       .01    835.00
    10000.      513.     9284.      203.       318.     2616.      225.     3826.      536.    837.80
      4.09       1.61     3.55       .90       .035      .031      .035      .032    824.20     39.85
  .000177    1900.     1800.     1925.          2         0         0      0.00    412.27    452.12

CCHV=     .300 CEHV=     .500
*SECNO 147.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,EL_EA=      842.70 ELREA=      842.70

            CRIETZ ROAD BRIDGE

   147.00     16.29    841.49      0.00      0.00    841.63      .14       .04       .01    835.20
   10000.        0.    10000.        0.        0.     3284.        0.     3842.      538.    841.80
     4.11       0.00     3.04       0.00      .035      .031      .035      .032    825.20   1027.95
  .000216      75.      220.      250.          2         0         0      0.00    361.23   1389.18
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SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.56	2.60	0.00	139.98	12.00	2800.00	1.67	826.50	826.50

*SECNO 147.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 841.44 BRIDGE VELOCITY=, 4.38 CALCULATED CHANNEL AREA=, 2286.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	841.64	.02	0.	10000.	2800.	2640.	843.40	842.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.70 ELREA= 842.70

147.50	16.31	841.51	0.00	0.00	841.64	.13	.01	0.00	837.70
10000.	0.	10000.	0.	0.	3411.	0.	3847.	538.	843.50
4.12	0.00	2.93	0.00	.035	.031	.035	.032	825.20	930.05
.000201	66.	66.	66.	0	0	0	0.00	377.21	1307.26

*SECNO 148.000

148.00	15.56	841.56	0.00	0.00	841.72	.16	.07	.02	836.40
10000.	991.	8022.	987.	588.	2281.	500.	3868.	541.	835.10
4.14	1.69	3.52	1.97	.035	.040	.035	.032	826.00	52.09
.000336	500.	250.	188.	1	0	0	0.00	557.16	609.15

*SECNO 149.000

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 858.50 ELREA= 858.50

WESTBOUND I-96 BRIDGE

149.00	16.65	841.65	0.00	0.00	841.84	.19	.11	.01	838.00
10000.	0.	10000.	0.	0.	2853.	0.	3893.	545.	836.20
4.17	0.00	3.50	0.00	.035	.033	.035	.032	825.00	419.00
.000280	350.	350.	350.	0	0	0	0.00	281.00	700.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	1.56	2.60	0.00	178.00	8.00	5855.50	2.43	823.00	828.00

*SECNO 149.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 841.64 BRIDGE VELOCITY=, 3.60 CALCULATED CHANNEL AREA=, 2781.

EGPRS	EGLWC	H3	QWEIR	QPP	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	841.87	.01	0.	10000.	5856.	5777.	852.90	856.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.30 ELREA= 852.30

149.50	16.66	841.66	0.00	0.00	841.87	.21	.02	0.00	845.00
10000.	0.	10000.	0.	0.	2746.	0.	3895.	545.	843.10
4.17	0.00	3.64	0.00	.035	.033	.035	.032	825.00	439.32
.000287	34.	34.	34.	0	0	0	0.00	257.93	697.26

*SECNO 150.000

150.00	16.70	841.70	0.00	0.00	841.96	.26	.06	.03	838.50
10000.	252.	9707.	41.	203.	2321.	73.	3907.	547.	841.00
4.18	1.24	4.18	.56	.035	.035	.035	.032	825.00	303.17
.000354	200.	200.	200.	2	0	0	0.00	436.52	739.69

*SECNO 151.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.40 ELREA= 850.40

EASTBOUND I-96 BRIDGE

151.00	14.67	841.87	0.00	0.00	842.07	.19	.09	.02	839.80
10000.	0.	10000.	0.	0.	2826.	0.	3921.	549.	841.50
4.20	0.00	3.54	0.00	.035	.040	.035	.032	827.20	397.38
.000438	225.	225.	225.	2	0	0	0.00	286.26	683.64

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	0.00	213.40	8.00	6138.00	2.15	830.00	830.00

*SECNO 151.500

CLASS A LOW FLOW

3420 BRIDGE W.S.= 841.86 BRIDGE VELOCITY=, 3.65 CALCULATED CHANNEL AREA=, 2739.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	842.08	.01	0.	10000.	6138.	6137.	853.90	860.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.40 ELREA= 860.40

151.50	14.48	841.88	0.00	0.00	842.08	.20	.01	0.00	839.90
10000.	0.	10000.	0.	0.	2796.	0.	3924.	549.	838.90
4.20	0.00	3.58	0.00	.035	.040	.035	.032	827.40	413.39
.000450	35.	35.	35.	0	0	0	0.00	286.26	699.64

```
*SECNO 152.000
   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

    152.00     15.84    842.04      0.00      0.00    842.22       .17       .13       .01    840.00
    10000.       28.      9864.      108.       38.     2925.       62.     3947.       551.    833.90
      4.23       .75      3.37      1.74      .035      .040      .035      .033    826.20    487.97
   .000304      400.       350.       250.         1         0         0      0.00    297.32    785.29

*SECNO 153.000

            DOWNSTREAM END OF ISLAND

    153.00     15.08    842.28      0.00      0.00    842.42       .13       .19       .01    837.60
    10000.     1325.      8457.      208.     1056.     2678.      192.     4004.       559.    838.80
      4.30      1.26      3.16      1.08      .035      .035      .035      .033    827.20    188.28
   .000215       562.       750.       625.         0         0         0      0.00    778.80    967.08

*SECNO 157.000
 WATER EL=X5 CARD=    843.110

            UPSTREAM END OF ISLAND

             WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

    157.00     15.21    843.11      0.00      0.00    843.22       .11       .30       .01    852.00
    10000.       0.      8517.     1463.       0.     3004.     1089.     4172.       586.    839.40
      4.50      0.00      2.84      1.36      .035      .033      .035      .033    827.90     19.12
   .000135     2100.      1800.     1700.         0         0         0      0.00    482.46    501.58


 CCHV=     .100 CEHV=     .300
 *SECNO 158.000
    158.00     14.07    843.37      0.00      0.00    843.48       .12       .26       .00    841.70
    10000.       19.      8939.     1042.       59.     3061.     1142.     4345.       611.    838.00
      4.68       .33      2.92       .91      .050      .033      .050      .033    829.30    583.78
   .000156     1812.      1800.     1800.         2         0         0      0.00    693.53   1277.31

*SECNO 159.000
    159.00     16.17    843.67      0.00      0.00    843.84       .17       .34       .02    839.60
    10000.     1021.      8080.      898.      994.     2221.      623.     4516.       638.    834.40
      4.84      1.03      3.64      1.44      .050      .033      .050      .033    827.50     87.05
   .000220     1750.      1875.     1812.         2         0         0      0.00    601.75    688.81


*SECNO 160.000

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    IDC       ICONT     CORAR     TOPWID      ENDST
```

160.00	14.90	844.00	0.00	0.00	844.38	.38	.47	.06	836.70
10000.	1831.	8010.	159.	1167.	1466.	91.	4631.	657.	834.20
4.93	1.57	5.46	1.74	.050	.033	.050	.033	829.10	341.90
.000486	1562.	1500.	1500.	2	0	0	0.00	515.56	888.61

*SECNO 161.000
3280 CROSS SECTION 161.00 EXTENDED .38 FEET

161.00	13.28	844.38	0.00	0.00	844.65	.27	.28	.01	842.30
10000.	199.	9089.	712.	221.	2091.	470.	4663.	664.	836.30
4.97	.90	4.35	1.51	.050	.040	.050	.033	831.10	1030.89
.000543	600.	500.	400.	2	0	0	0.01	559.11	1590.00

CCHV= .300 CEHV= .500
*SECNO 162.000

DIMONDALE DAM

162.00	13.79	844.89	0.00	0.00	845.05	.16	.36	.03	844.20
10000.	18.	9956.	26.	58.	3113.	76.	4730.	676.	844.00
5.05	.31	3.20	.35	.050	.040	.050	.033	831.10	174.56
.000269	1100.	980.	800.	1	0	0	0.00	513.54	685.20

*SECNO 162.100
WATER EL=X5 CARD= 846.227

162.10	12.63	846.23	0.00	0.00	846.38	.15	.00	.00	844.20
10000.	189.	9593.	218.	286.	3031.	299.	4731.	676.	844.00
5.05	.66	3.17	.73	.050	.040	.050	.033	833.60	95.79
.000276	10.	10.	10.	0	0	0	0.00	617.55	713.34

*SECNO 163.000

REDUCTION OF FLOW

163.00	12.47	846.47	0.00	0.00	846.75	.28	.31	.06	844.70
9475.	8.	9453.	13.	12.	2240.	17.	4781.	683.	844.50
5.10	.72	4.22	.78	.050	.040	.050	.033	834.00	395.95
.000707	750.	750.	625.	2	0	0	0.01	281.40	677.36

CCHV= .300 CEHV= .500
*SECNO 164.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	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 STREET BRIDGE

164.00	12.55	846.55	0.00	0.00	846.81	.26	.06	.00	844.70
9475.	8.	9448.	19.	12.	2304.	25.	4788.	684.	844.50
5.11	.68	4.10	.74	.040	.030	.040	.033	834.00	326.53
.000380	120.	120.	120.	2	0	0	0.00	298.22	624.75

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.60	0.00	150.00	6.00	2739.00	.90	834.50	834.50

*SECNO 164.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 846.52 BRIDGE VELOCITY= 5.09 CALCULATED CHANNEL AREA= 1862.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	846.82	.01	0.	9475.	2739.	2674.	851.30	853.00

164.50	12.86	846.56	0.00	0.00	846.82	.26	.01	0.00	842.90
9475.	218.	9238.	19.	153.	2247.	25.	4790.	684.	844.50
5.11	1.43	4.11	.75	.040	.030	.040	.033	833.70	275.35
.000395	41.	41.	41.	0	0	0	0.00	348.92	624.27

CCHV= .100 CEHV= .300
*SECNO 165.000

165.00	12.66	846.66	0.00	0.00	846.89	.23	.06	.00	844.00
9475.	10.	9414.	51.	18.	2441.	94.	4800.	686.	844.00
5.13	.54	3.86	.55	.060	.030	.060	.033	834.00	96.72
.000336	100.	175.	220.	2	0	0	0.00	360.87	457.59

*SECNO 166.000

166.00	13.43	847.03	0.00	0.00	847.25	.22	.36	.00	843.50
9475.	99.	9376.	0.	175.	2496.	0.	4878.	696.	855.50
5.22	.57	3.76	0.00	.060	.030	.060	.033	833.60	368.91
.000232	1130.	1300.	1500.	2	0	0	0.00	340.16	709.07

*SECNO 167.000 Sec E-S

167.00	13.21	847.21	0.00	0.00	847.37	.16	.12	.01	843.70
9475.	61.	9412.	2.	100.	2927.	6.	4910.	700.	846.00
5.27	.61	3.22	.28	.060	.030	.060	.033	834.00	297.33
.000255	500.	500.	375.	2	0	0	0.00	422.16	719.49

*SECNO 168.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HW	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

END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS. Sec E-T

168.00	13.36	847.86	0.00	0.00	848.03	.17	.65	.00	842.80
9475.	1774.	7701.	0.	1461.	2137.	0.	5104.	727.	855.00
5.49	1.21	3.60	0.00	.060	.030	.060	.033	834.50	112.42
.000255	2500.	2562.	2500.	2	0	0	0.00	501.06	613.48

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*SECNO 169.000
   169.00     14.23    848.63      0.00      0.00    848.96      .33       .88       .05    837.50
    9475.      147.     8306.     1022.       91.     1705.     649.     5272.      750.    838.20
     5.64      1.62      4.87      1.57      .060      .040     .060      .033    834.40    543.63
  .000558     2438.     2438.     2300.         2         0        0      0.00    312.86    856.49


*SECNO 170.000
   170.00     14.12    850.12      0.00      0.00    850.38      .26      1.41       .01    848.50
    9475.       21.     8465.      989.       39.     1969.     555.     5407.      768.    842.50
     5.81       .54      4.30      1.78      .060      .040     .060      .033    836.00    351.57
  .000644     2375.     2375.     2250.         2         0        0      0.00    383.88    735.46


CCHV=     .300 CEHV=     .500
*SECNO 171.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       856.20 ELREA=       856.20


            MICHIGAN ROAD BRIDGE

   171.00     13.67    850.17      0.00      0.00    850.58      .40       .13       .07    841.00
    9475.        0.     9475.        0.        0.     1858.       0.     5416.      769.    841.00
     5.82      0.00      5.10      0.00      .060      .040     .060      .033    836.50    181.84
  .000710      320.      200.        0.         2         0        0      0.00    157.00    338.83


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1.25       1.56       2.60       0.00     133.00       4.00     2072.00       .61     837.00     837.00

*SECNO 171.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     850.15 BRIDGE VELOCITY=,        5.26       CALCULATED CHANNEL AREA=,      1801.

 EGPRS       EGLWC        H3         QWEIR       QPR        BAREA    TRAPEZOID AREA      ELLC       ELTRD
      0.00     850.60        .03         0.      9475.      2072.      2057.      851.90     856.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       856.20 ELREA=       856.20

   171.50     13.50    850.20      0.00      0.00    850.60      .40       .03      0.00    841.00
    9475.        0.     9475.        0.        0.     1858.       0.     5418.      770.    841.00
     5.82      0.00      5.10      0.00      .060      .040     .060      .033    836.70    159.66
  .000710       47.       47.       47.         0         0        0      0.00    157.00    316.66


*SECNO 172.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        IWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      COPAR      TOPWID     ENDST
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172.00	13.83	850.53	0.00	0.00	850.72	.19	.06	.06	841.00
9475.	463.	8542.	470.	310.	2331.	451.	5425.	770.	841.00
5.83	1.49	3.67	1.04	.060	.040	.060	.033	836.70	473.27
.000345	120.	120.	120.	2	0	0	0.00	457.20	930.47

*SECNO 173.000

173.00	13.37	850.87	0.00	0.00	851.13	.26	.37	.03	847.00
9475.	946.	8142.	387.	576.	1879.	295.	5483.	779.	844.00
5.89	1.64	4.33	1.31	.060	.040	.060	.033	837.50	127.80
.000542	750.	875.	1000.	2	0	0	0.00	378.12	505.92

*SECNO 174.000

174.00	11.54	850.74	0.00	0.00	851.49	.75	.11	.25	854.70
9475.	0.	9471.	4.	0.	1363.	3.	5489.	780.	848.80
5.90	0.00	6.95	1.42	.040	.040	.040	.033	839.20	200.00
.001939	100.	120.	130.	2	0	0	0.01	148.96	348.96

*SECNO 175.000

3301 HV CHANGED MORE THAN HVINS

175.00	13.14	851.64	0.00	0.00	851.86	.22	.22	.16	844.10
9475.	624.	8762.	89.	294.	2269.	84.	5500.	731.	848.70
5.91	2.12	3.86	1.06	.040	.040	.040	.034	838.50	88.88
.000491	250.	250.	250.	2	0	0	0.00	357.95	446.83

*SECNO 176.000

176.00	15.62	852.12	0.00	0.00	852.30	.18	.43	.01	844.50
9475.	455.	7817.	1203.	239.	2146.	610.	5567.	790.	848.00
6.00	1.90	3.64	1.97	.040	.040	.040	.034	836.50	310.27
.000361	1500.	1000.	875.	2	0	0	0.01	379.24	689.51

*SECNO 177.000

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

177.00	14.36	852.56	0.00	0.00	852.74	.18	.43	.00	848.20
9475.	493.	8299.	682.	409.	2333.	549.	5695.	807.	846.50
6.15	1.21	3.56	1.24	.040	.030	.040	.033	838.20	41.23
.000178	1500.	1750.	2000.	2	0	0	0.01	458.06	499.30

*SECNO 178.000

178.00	13.76	852.96	0.00	0.00	853.11	.15	.36	.01	846.50
9475.	509.	8882.	84.	408.	2781.	127.	5863.	829.	847.00
6.35	1.25	3.19	.66	.040	.030	.040	.033	839.20	35.21
.000152	2250.	2225.	2125.	2	0	0	0.00	405.75	440.95

CCHV= .300 CEHV= .500
*SECNO 179.000

APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

WAVERLY ROAD BRIDGE

179.00	13.08	852.98	0.00	0.00	853.18	.20	.05	.03	850.30
9475.	40.	9432.	3.	94.	2596.	12.	5881.	831.	852.00
6.37	.43	3.63	.22	.063	.030	.063	.033	839.90	118.71
.000224	500.	250.	0.	2	0	0	0.00	330.86	449.57

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	1.50	2.50	0.00	146.53	9.00	1957.40	1.51	839.90	839.90

*SECNO 179.500
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLO	ELTRD
853.52	853.19	.01	0.	9475.	1957.	1955.	852.40	853.60

179.50	14.14	853.34	0.00	0.00	853.52	.19	.34	0.00	847.40
9475.	225.	9180.	71.	256.	2606.	112.	5883.	832.	849.70
6.37	.88	3.52	.63	.063	.040	.063	.033	839.20	102.69
.000325	28.	28.	28.	2	0	0	0.00	360.30	462.99

CCHV= .100 CEHV= .300
*SECNO 180.000

180.00	12.49	853.39	0.00	0.00	853.65	.26	.10	.02	846.20
9475.	658.	8749.	67.	378.	2079.	91.	5899.	834.	850.30
6.39	1.74	4.21	.74	.063	.040	.063	.033	840.90	67.20
.000538	125.	250.	450.	2	0	0	0.00	336.21	403.40

*SECNO 181.000

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	IOPWID	ENDST
181.00	13.02	854.12	0.00	0.00	854.49	.37	.81	.03	862.80
9475.	0.	9083.	392.	0.	1822.	379.	5967.	844.	849.10
6.46	0.00	4.98	1.03	.070	.040	.070	.034	841.10	11.77
.000798	1125.	1250.	1375.	2	0	0	0.00	378.72	390.49

*SECNO 182.000

3265 DIVIDED FLOW

182.00	15.48	854.98	0.00	0.00	855.01	.04	.49	.03	846.50
9475.	1722.	5448.	2305.	2470.	2873.	3211.	6274.	894.	848.50
6.94	.70	1.90	.72	.070	.040	.070	.034	839.50	457.09
.000090	2500.	2375.	2625.	2	0	0	0.00	1325.47	1788.68

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*SECNO 183.000
   183.00     15.13    855.13      0.00      0.00    855.15      .02       .14       .00    851.20
    9475.       268.     3699.     5508.      532.     2283.     8385.     6684.      958.     848.60
     7.42        .50      1.62       .66      .065      .040      .065      .034   340.00     71.72
  .000070     1375.     1625.     2000.         2         0         0      0.00  1763.79   1835.51

*SECNO 184.000
   184.00     17.76    855.26      0.00      0.00    855.28      .02       .13       .00    848.50
    9475.      5519.     3386.      570.     8187.     1884.      850.     7122.     1027.     848.50
     7.86        .67      1.80       .67      .065      .040      .065      .034   837.50     203.39
  .000082     1688.     1750.     1750.         0         0         0      0.00  1769.36   1972.75

*SECNO 185.000
   185.00     14.58    855.58      0.00      0.00    855.64      .06       .34       .01    850.00
    9475.      3012.     5380.     1063.     3754.     2079.      956.     7747.     1134.     847.50
     8.32        .80      2.59      1.13      .065      .040      .065      .034   841.00     458.11
  .000163     3000.     3000.     3750.         2         0         0      0.00  1257.54   1715.66

*SECNO 186.000
   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

   186.00     15.53    855.83      0.00      0.00    855.86      .03       .22       .00    848.10
    9475.      6220.     3255.        0.     6648.     1570.        0.     8014.     1175.     858.50
     8.65        .94      2.07      0.00      .065      .040      .065      .034   840.30     255.75
  .000118     1500.     1625.     1750.         2         0         0      0.00  1075.85   1331.62

*SECNO 187.000
   187.00     17.42    856.12      0.00      0.00    856.18      .07       .31       .01    854.30
    9475.      1473.     5385.     2617.     1463.     2052.     3591.     8393.     1244.     848.90
     8.99       1.01      2.62       .73      .035      .040      .065      .035   338.70     167.10
  .000168     2125.     2375.     2000.         1         0         0      0.00  1782.86   1949.97

*SECNO 188.000

3265 DIVIDED FLOW

   188.00     16.45    856.25      0.00      0.00    856.35      .10       .15       .01    856.30
    9475.       259.     6076.     3140.      376.     2018.     3177.     8494.     1272.     851.30
     9.08        .69      3.01       .99      .035      .040      .065      .035   839.80     289.31
  .000263     1200.      800.      500.         1         0         0      0.00  1407.86   1812.13

*SECNO 189.000

            END POINT OF STUDY

   189.00     15.27    856.77      0.00      0.00    856.81      .04       .46       .01    849.00
    9475.      1805.     3816.     3854.     1031.     1755.     4440.     8913.     1349.     849.00
     9.57       1.75      2.17       .87      .035      .040      .065      .035   841.50     301.14
  .000113     2300.     2750.     3000.         2         0         0      0.00   976.84   1277.98
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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09.03.34..000040 PAGES PRINT. 002016 LINES PRINT. FOR $ 002.23 AT RG2.

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HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GRAND RIVER PART II

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
121.100	0.00	0.00	0.00	819.60	5860.00	832.00	0.00	832.39	6.23	5.04	1163.61	2348.54
121.100	0.00	0.00	0.00	819.60	8710.00	832.31	0.00	833.13	14.58	7.25	1201.88	2281.31
121.100	0.00	0.00	0.00	819.60	10000.00	834.73	0.00	835.41	10.33	6.58	1571.07	3111.41
121.100	0.00	0.00	0.00	819.60	13300.00	838.61	0.00	838.98	5.25	5.36	3904.10	5803.62
122.000	830.00	0.00	0.00	820.20	5860.00	832.50	0.00	832.55	.63	1.74	3376.49	7383.53
122.000	830.00	0.00	0.00	820.20	8710.00	833.36	0.00	833.45	1.26	2.39	3650.70	7756.84
122.000	830.00	0.00	0.00	820.20	10000.00	835.57	0.00	835.65	.99	2.29	4366.37	10066.86
122.000	830.00	0.00	0.00	820.20	13300.00	839.07	0.00	839.16	.91	2.45	5652.07	13963.61
123.000	650.00	0.00	0.00	816.20	5860.00	832.54	0.00	832.60	.88	1.97	2969.66	6241.71
123.000	650.00	0.00	0.00	816.20	8710.00	833.44	0.00	833.55	1.78	2.68	3251.48	6523.21
123.000	650.00	0.00	0.00	816.20	10000.00	835.63	0.00	835.73	1.33	2.52	3973.93	8683.31
123.000	650.00	0.00	0.00	816.20	13300.00	839.13	0.00	839.23	1.12	2.58	5153.26	12551.24
124.000	240.00	0.00	0.00	809.20	5860.00	832.56	0.00	832.62	.66	1.95	3010.03	7238.77
124.000	240.00	0.00	0.00	809.20	8710.00	833.48	0.00	833.59	1.34	2.70	3231.27	7522.42
124.000	240.00	0.00	0.00	809.20	10000.00	835.66	0.00	835.77	1.25	2.64	3793.88	8940.56
124.000	240.00	0.00	0.00	809.20	13300.00	839.15	0.00	839.27	1.25	2.79	4767.95	11875.82
124.100	1.00	840.00	868.00	809.20	5860.00	832.55	0.00	832.63	.92	2.16	2717.97	6106.38
124.100	1.00	840.00	868.00	809.20	8710.00	833.46	0.00	833.60	1.87	2.98	2923.54	6366.92
124.100	1.00	840.00	868.00	809.20	10000.00	835.65	0.00	835.73	1.71	2.90	3453.05	7643.22
124.100	1.00	840.00	868.00	809.20	13300.00	839.14	0.00	839.28	1.67	3.04	4373.58	10235.69
124.400	52.20	840.00	868.00	809.20	5860.00	832.56	0.00	832.63	.92	2.16	2717.40	6104.27
124.400	52.20	840.00	868.00	809.20	8710.00	833.47	0.00	833.61	1.87	2.98	2924.02	6368.56
124.400	52.20	840.00	868.00	809.20	10000.00	835.66	0.00	835.79	1.71	2.90	3453.59	7644.95
124.400	52.20	840.00	868.00	809.20	13300.00	839.15	0.00	839.29	1.67	3.04	4374.14	10287.51
124.500	1.00	0.00	0.00	809.20	5860.00	832.58	0.00	832.64	.65	1.95	3012.25	7247.49
124.500	1.00	0.00	0.00	809.20	8710.00	833.51	0.00	833.62	1.33	2.69	3238.67	7549.95
124.500	1.00	0.00	0.00	809.20	10000.00	835.69	0.00	835.79	1.24	2.63	3800.91	8964.55
124.500	1.00	0.00	0.00	809.20	13300.00	839.18	0.00	839.30	1.25	2.79	4775.19	11900.42
125.000	210.00	0.00	0.00	809.30	5860.00	832.63	0.00	832.65	.38	1.35	4337.49	9449.13
125.000	210.00	0.00	0.00	809.30	8710.00	833.61	0.00	833.66	.75	1.84	4744.80	10048.86
125.000	210.00	0.00	0.00	809.30	10000.00	835.78	0.00	835.83	.58	1.76	5671.01	13095.57
125.000	210.00	0.00	0.00	809.30	13300.00	839.28	0.00	839.33	.52	1.85	7213.66	18356.49

Summary - slight differences
because of the new
submittal 11/7/18

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10**FS	VCH	AREA	.01K
125.500	280.00	0.00	0.00	820.00	5860.00	832.65	0.00	832.67	.28	1.08	5426.18	11088.16
125.500	280.00	0.00	0.00	820.00	8710.00	833.65	0.00	833.68	.52	1.45	6013.03	12136.19
125.500	280.00	0.00	0.00	820.00	10000.00	835.82	0.00	835.85	.38	1.37	7301.84	16165.17
125.500	280.00	0.00	0.00	820.00	13300.00	839.32	0.00	839.35	.33	1.40	9481.85	23034.47
125.510	1.00	847.00	879.00	820.00	5860.00	832.65	0.00	832.67	.33	1.13	5178.24	10256.07
125.510	1.00	847.00	879.00	820.00	8710.00	833.65	0.00	833.68	.60	1.52	5738.59	11225.55
125.510	1.00	847.00	879.00	820.00	10000.00	835.82	0.00	835.85	.45	1.43	6970.59	14959.12
125.510	1.00	847.00	879.00	820.00	13300.00	839.32	0.00	839.35	.39	1.47	9036.37	21257.45
125.590	52.00	847.00	879.00	820.00	5860.00	832.65	0.00	832.67	.33	1.13	5178.62	10257.29
125.590	52.00	847.00	879.00	820.00	8710.00	833.65	0.00	833.69	.60	1.52	5739.32	11223.85
125.590	52.00	847.00	879.00	820.00	10000.00	835.82	0.00	835.85	.45	1.43	6971.02	14960.41
125.590	52.00	847.00	879.00	820.00	13300.00	839.32	0.00	839.36	.39	1.47	9036.57	21258.18
125.600	1.00	0.00	0.00	820.00	5860.00	832.65	0.00	832.67	.28	1.08	5432.41	11108.70
125.600	1.00	0.00	0.00	820.00	8710.00	833.65	0.00	833.69	.51	1.45	6019.20	12156.24
125.600	1.00	0.00	0.00	820.00	10000.00	835.82	0.00	835.85	.38	1.37	7307.22	16182.14
125.600	1.00	0.00	0.00	820.00	13300.00	839.33	0.00	839.36	.33	1.40	9488.41	23059.14
126.000	600.00	0.00	0.00	823.40	5860.00	832.66	0.00	832.72	1.08	1.86	3148.81	5636.94
126.000	600.00	0.00	0.00	823.40	8710.00	833.68	0.00	833.77	1.84	2.44	3571.97	6412.53
126.000	600.00	0.00	0.00	823.40	10000.00	835.84	0.00	835.91	1.19	2.23	4489.06	9151.62
126.000	600.00	0.00	0.00	823.40	13300.00	839.33	0.00	839.41	.89	2.23	6017.53	14060.73
127.000	1800.00	0.00	0.00	823.00	5860.00	832.94	0.00	833.08	4.02	2.97	1975.85	2921.18
127.000	1800.00	0.00	0.00	823.00	8710.00	834.15	0.00	834.35	6.01	3.61	2415.74	3553.35
127.000	1800.00	0.00	0.00	823.00	10000.00	836.12	0.00	836.27	3.34	3.16	3185.40	5470.40
127.000	1800.00	0.00	0.00	823.00	13300.00	839.53	0.00	839.66	2.02	2.96	4586.33	9348.19
128.000	1850.00	0.00	0.00	820.80	5860.00	833.44	0.00	833.51	1.46	2.13	2753.67	4843.37
128.000	1850.00	0.00	0.00	820.80	8710.00	834.89	0.00	835.00	2.23	2.64	3304.77	5831.26
128.000	1850.00	0.00	0.00	820.80	10000.00	836.61	0.00	836.70	1.67	2.50	4008.29	7749.29
128.000	1850.00	0.00	0.00	820.80	13300.00	839.86	0.00	839.95	1.25	2.49	5442.39	11894.13
129.000	900.00	0.00	0.00	823.30	5860.00	833.58	0.00	833.69	2.61	2.64	2219.65	3625.91
129.000	900.00	0.00	0.00	823.30	8710.00	835.11	0.00	835.26	3.54	3.18	2739.83	4628.39
129.000	900.00	0.00	0.00	823.30	10000.00	836.76	0.00	836.90	2.64	3.00	3336.45	6155.47
129.000	900.00	0.00	0.00	823.30	13300.00	839.97	0.00	840.10	1.87	2.95	4572.90	9720.56
130.000	1650.00	0.00	0.00	823.30	5860.00	833.96	0.00	834.05	1.79	2.40	2439.87	4374.11
130.000	1650.00	0.00	0.00	823.30	8710.00	835.62	0.00	835.75	2.49	2.92	2978.22	5516.04
130.000	1650.00	0.00	0.00	823.30	10000.00	837.16	0.00	837.29	2.06	2.85	3548.31	6963.76
130.000	1650.00	0.00	0.00	823.30	13300.00	840.27	0.00	840.39	1.63	2.86	4878.89	10415.79
131.000	1600.00	0.00	0.00	822.80	5860.00	834.25	0.00	834.32	1.63	2.12	2762.87	4592.72
131.000	1600.00	0.00	0.00	822.80	8710.00	836.04	0.00	836.13	2.21	2.45	3548.76	5854.16
131.000	1600.00	0.00	0.00	822.80	10000.00	837.53	0.00	837.59	1.70	2.35	4266.68	7670.54
131.000	1600.00	0.00	0.00	822.80	13300.00	840.54	0.00	840.62	1.22	2.32	5859.45	12044.10
132.000	1500.00	0.00	0.00	822.20	5860.00	834.48	0.00	834.54	1.27	1.95	3009.54	5200.66
132.000	1500.00	0.00	0.00	822.20	8710.00	836.33	0.00	836.41	1.54	2.30	3810.06	7011.04
132.000	1500.00	0.00	0.00	822.20	10000.00	837.73	0.00	837.81	1.29	2.27	4479.48	8803.51
132.000	1500.00	0.00	0.00	822.20	13300.00	840.71	0.00	840.79	1.03	2.30	6012.94	13098.62

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01<
133.000	800.00	0.00	0.00	822.40	5860.00	834.58	0.00	834.64	1.24	1.93	3034.40	5266.74
133.000	800.00	0.00	0.00	822.40	8710.00	836.45	0.00	836.53	1.59	2.28	3846.65	7111.72
133.000	800.00	0.00	0.00	822.40	10000.00	837.83	0.00	837.91	1.26	2.25	4513.91	8893.66
133.000	800.00	0.00	0.00	822.40	13300.00	840.79	0.00	840.87	1.02	2.29	6039.52	13155.04
134.000	450.00	0.00	0.00	819.90	5860.00	834.62	0.00	834.71	1.28	2.39	2449.09	5181.34
134.000	450.00	0.00	0.00	819.90	8710.00	836.50	0.00	836.63	1.87	2.99	2910.61	6377.21
134.000	450.00	0.00	0.00	819.90	10000.00	837.87	0.00	838.01	1.79	3.08	3249.82	7483.23
134.000	450.00	0.00	0.00	819.90	13300.00	840.80	0.00	840.98	1.79	3.34	3976.10	9941.96
134.100	1.00	842.80	840.00	819.90	5860.00	834.62	0.00	834.72	1.60	2.56	2288.18	4626.30
134.100	1.00	842.80	840.00	819.90	8710.00	836.49	0.00	836.64	2.32	3.20	2726.01	5717.45
134.100	1.00	842.80	840.00	819.90	10000.00	837.86	0.00	838.02	2.22	3.28	3045.31	6715.03
134.100	1.00	842.80	840.00	819.90	13300.00	840.78	0.00	841.01	6.20	3.75	3545.37	5342.22
134.500	46.00	842.80	840.00	818.90	5860.00	834.65	0.00	834.73	1.19	2.33	2512.68	5375.31
134.500	46.00	842.80	840.00	818.90	8710.00	836.53	0.00	836.66	1.80	2.95	2952.12	6491.65
134.500	46.00	842.80	840.00	818.90	10000.00	837.90	0.00	838.04	1.77	3.06	3272.01	7525.00
134.500	46.00	842.80	840.00	818.90	13300.00	840.84	0.00	841.03	5.11	3.53	3763.86	5885.71
134.900	1.00	0.00	0.00	818.90	5860.00	834.66	0.00	834.73	.96	2.18	2682.31	5994.11
134.900	1.00	0.00	0.00	818.90	8710.00	836.55	0.00	836.67	1.45	2.76	3151.28	7237.49
134.900	1.00	0.00	0.00	818.90	10000.00	837.92	0.00	838.05	1.42	2.87	3490.32	8379.79
134.900	1.00	0.00	0.00	818.90	13300.00	840.89	0.00	841.04	1.48	3.15	4225.74	10939.66
135.000	150.00	0.00	0.00	824.30	5860.00	834.71	0.00	834.76	1.11	1.70	3446.92	5554.19
135.000	150.00	0.00	0.00	824.30	8710.00	836.65	0.00	836.70	1.19	1.94	4555.59	7383.39
135.000	150.00	0.00	0.00	824.30	10000.00	838.03	0.00	838.08	.97	1.90	5425.20	10161.36
135.000	150.00	0.00	0.00	824.30	13300.00	841.04	0.00	841.09	.73	1.69	7406.64	15520.15
136.000	1520.00	0.00	0.00	821.30	5860.00	834.92	0.00	835.01	2.36	2.46	2446.50	3817.95
136.000	1520.00	0.00	0.00	821.30	8710.00	836.86	0.00	836.95	2.33	2.71	3620.35	5700.75
136.000	1520.00	0.00	0.00	821.30	10000.00	838.20	0.00	838.29	1.81	2.58	4547.41	7422.91
136.000	1520.00	0.00	0.00	821.30	13300.00	841.16	0.00	841.24	1.25	2.44	6692.48	11906.36
137.000	1400.00	0.00	0.00	821.30	5860.00	835.21	0.00	835.30	1.82	2.34	2512.34	4340.38
137.000	1400.00	0.00	0.00	821.30	8710.00	837.16	0.00	837.28	2.09	2.72	3453.91	6024.05
137.000	1400.00	0.00	0.00	821.30	10000.00	838.44	0.00	838.54	1.71	2.63	4550.88	7637.03
137.000	1400.00	0.00	0.00	821.30	13300.00	841.33	0.00	841.41	1.17	2.45	7295.95	12281.17
139.000	2100.00	0.00	0.00	820.60	5860.00	835.52	0.00	835.62	1.28	2.57	2753.18	5175.49
139.000	2100.00	0.00	0.00	820.60	8710.00	837.54	0.00	837.65	1.53	2.92	4134.62	7037.38
139.000	2100.00	0.00	0.00	820.60	10000.00	838.76	0.00	838.87	1.38	2.88	4989.44	8524.57
139.000	2100.00	0.00	0.00	820.60	13300.00	841.57	0.00	841.67	1.15	2.64	6981.07	12416.72
140.000	2250.00	0.00	0.00	823.30	5860.00	835.87	0.00	835.94	1.57	2.17	2767.85	4676.55
140.000	2250.00	0.00	0.00	823.30	8710.00	837.93	0.00	838.02	1.71	2.46	3783.93	6664.54
140.000	2250.00	0.00	0.00	823.30	10000.00	839.11	0.00	839.20	1.53	2.46	4412.03	8083.06
140.000	2250.00	0.00	0.00	823.30	13300.00	841.85	0.00	841.94	1.27	2.50	5927.30	11795.44
141.000	1950.00	0.00	0.00	823.90	5860.00	836.18	0.00	836.24	1.61	2.19	3881.02	4621.65
141.000	1950.00	0.00	0.00	823.90	8710.00	838.24	0.00	838.29	1.29	2.15	6127.76	7662.52
141.000	1950.00	0.00	0.00	823.90	10000.00	839.39	0.00	839.43	1.05	2.05	7462.79	9776.22
141.000	1950.00	0.00	0.00	823.90	13300.00	842.08	0.00	842.12	.72	1.96	10902.76	15651.21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
141.500	1400.00	0.00	0.00	820.00	5860.00	836.39	0.00	836.44	1.32	1.98	3265.19	5097.67
141.500	1400.00	0.00	0.00	820.00	8710.00	838.41	0.00	838.48	1.36	2.19	4566.23	7469.14
141.500	1400.00	0.00	0.00	820.00	10000.00	839.53	0.00	839.59	1.22	2.20	5294.22	9048.90
141.500	1400.00	0.00	0.00	820.00	13300.00	842.17	0.00	842.24	1.01	2.23	7055.29	13212.12
142.000	1700.00	0.00	0.00	820.50	5860.00	836.59	0.00	836.74	1.90	3.10	2259.00	4256.62
142.000	1700.00	0.00	0.00	820.50	8710.00	838.64	0.00	838.80	2.16	3.42	3759.89	5896.57
142.000	1700.00	0.00	0.00	820.50	10000.00	839.73	0.00	839.86	1.96	3.35	4634.92	7135.84
142.000	1700.00	0.00	0.00	820.50	13300.00	842.35	0.00	842.46	1.53	3.17	6966.60	10769.18
143.000	2440.00	0.00	0.00	825.20	5860.00	837.17	0.00	837.24	2.19	2.32	4056.15	3961.11
143.000	2440.00	0.00	0.00	825.20	8710.00	839.21	0.00	839.28	1.55	2.04	6977.85	7007.31
143.000	2440.00	0.00	0.00	825.20	10000.00	840.23	0.00	840.26	1.24	1.91	8461.95	8971.93
143.000	2440.00	0.00	0.00	825.20	13300.00	842.72	0.00	842.74	.83	1.70	12188.40	14585.15
144.000	3750.00	0.00	0.00	822.30	5860.00	837.93	0.00	838.13	2.31	3.54	1674.89	3855.46
144.000	3750.00	0.00	0.00	822.30	8710.00	839.87	0.00	840.17	3.38	4.42	2056.39	4734.90
144.000	3750.00	0.00	0.00	822.30	10000.00	840.77	0.00	841.11	3.65	4.76	2258.67	5234.41
144.000	3750.00	0.00	0.00	822.30	13300.00	843.06	0.00	843.45	3.90	5.15	2948.17	6732.23
145.000	1200.00	0.00	0.00	825.70	5860.00	838.25	0.00	838.41	2.25	3.15	1862.22	3905.98
145.000	1200.00	0.00	0.00	825.70	8710.00	840.33	0.00	840.55	2.95	3.82	2312.51	5072.10
145.000	1200.00	0.00	0.00	825.70	10000.00	841.27	0.00	841.52	3.08	4.03	2542.13	5694.37
145.000	1200.00	0.00	0.00	825.70	13300.00	843.58	0.00	843.88	3.25	4.44	3174.33	7373.51
146.000	1800.00	0.00	0.00	824.20	5860.00	838.62	0.00	838.73	1.47	2.76	2221.42	4841.22
146.000	1800.00	0.00	0.00	824.20	8710.00	840.82	0.00	840.98	1.86	3.27	2932.48	6387.13
146.000	1800.00	0.00	0.00	824.20	10000.00	841.79	0.00	841.96	1.91	3.41	3327.43	7244.99
146.000	1800.00	0.00	0.00	824.20	13300.00	844.16	0.00	844.34	1.89	3.62	4384.10	9675.01
147.000	220.00	0.00	0.00	825.20	5860.00	838.68	0.00	838.77	1.84	2.53	2343.48	4317.27
147.000	220.00	0.00	0.00	825.20	8710.00	840.91	0.00	841.03	2.27	2.83	3077.67	5781.15
147.000	220.00	0.00	0.00	825.20	10000.00	841.88	0.00	842.02	2.32	2.92	3428.62	6567.76
147.000	220.00	0.00	0.00	825.20	13300.00	844.33	0.00	844.46	1.10	2.25	7036.90	12707.09
147.500	66.00	842.70	843.40	825.20	5860.00	838.69	0.00	838.78	2.13	2.47	2376.89	4014.89
147.500	66.00	842.70	843.40	825.20	8710.00	840.92	0.00	841.04	2.17	2.73	3192.07	5909.32
147.500	66.00	842.70	843.40	825.20	10000.00	841.91	0.00	842.02	2.13	2.81	3560.05	6859.53
147.500	66.00	842.70	843.40	825.20	13300.00	844.60	0.00	844.71	1.67	2.77	5416.95	10296.94
148.000	250.00	0.00	0.00	826.00	5860.00	838.73	0.00	838.83	3.90	3.16	2020.40	2968.88
148.000	250.00	0.00	0.00	826.00	8710.00	840.98	0.00	841.13	3.78	3.35	3053.93	4482.53
148.000	250.00	0.00	0.00	826.00	10000.00	841.96	0.00	842.10	3.45	3.31	3595.58	5383.46
148.000	250.00	0.00	0.00	826.00	13300.00	844.65	0.00	844.77	2.46	3.05	5249.21	8475.87
149.000	350.00	0.00	0.00	825.00	5860.00	838.88	0.00	839.01	2.78	2.83	2074.32	3514.30
149.000	350.00	0.00	0.00	825.00	8710.00	841.09	0.00	841.23	2.99	3.23	2693.34	5036.83
149.000	350.00	0.00	0.00	825.00	10000.00	842.06	0.00	842.23	2.97	3.37	2967.46	5800.44
149.000	350.00	0.00	0.00	825.00	13300.00	844.70	0.00	844.90	2.73	3.59	3709.74	8043.19
149.500	34.00	858.50	852.90	825.00	5860.00	838.89	0.00	839.01	2.27	2.84	2060.84	3885.36
149.500	34.00	858.50	852.90	825.00	8710.00	841.10	0.00	841.27	2.96	3.35	2602.03	5061.72
149.500	34.00	858.50	852.90	825.00	10000.00	842.06	0.00	842.26	3.12	3.51	2850.66	5638.95
149.500	34.00	858.50	852.90	825.00	13300.00	844.71	0.00	844.92	3.13	3.73	3566.65	7519.35

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10KPS	VCH	AREA	.CIK
	150.000	200.00	0.00	0.00	825.00	5850.00	838.92	0.00	839.08	2.89	3.25	1809.34	3448.70
	150.000	200.00	0.00	0.00	825.00	8710.00	841.14	0.00	841.36	3.73	3.86	2368.03	4513.71
	150.000	200.00	0.00	0.00	825.00	10000.00	842.11	0.00	842.35	3.72	3.99	2789.17	5182.81
	150.000	200.00	0.00	0.00	825.00	13300.00	844.79	0.00	844.99	2.91	3.84	4387.94	7793.66
	151.000	225.00	0.00	0.00	827.20	5860.00	839.04	0.00	839.15	3.62	2.87	2040.20	3081.70
	151.000	225.00	0.00	0.00	827.20	8710.00	841.31	0.00	841.48	4.69	3.27	2664.80	4027.98
	151.000	225.00	0.00	0.00	827.20	10000.00	842.28	0.00	842.46	4.64	3.43	2941.38	4641.83
	151.000	225.00	0.00	0.00	827.20	13300.00	844.87	0.00	845.07	4.25	3.61	3680.76	6447.30
	151.500	35.00	860.40	853.90	827.40	5860.00	839.04	0.00	839.17	3.84	2.92	2009.57	2990.59
	151.500	35.00	860.40	853.90	827.40	8710.00	841.32	0.00	841.49	4.84	3.31	2634.51	3953.55
	151.500	35.00	860.40	853.90	827.40	10000.00	842.29	0.00	842.47	4.76	3.43	2911.25	4581.32
	151.500	35.00	860.40	853.90	827.40	13300.00	844.88	0.00	845.08	4.33	3.64	3653.06	6393.47
	152.000	350.00	0.00	0.00	826.20	5860.00	839.18	0.00	839.29	2.56	2.62	2252.82	3663.12
	152.000	350.00	0.00	0.00	826.20	8710.00	841.48	0.00	841.63	3.16	3.09	2862.25	4897.36
	152.000	350.00	0.00	0.00	826.20	10000.00	842.45	0.00	842.61	3.28	3.25	3147.57	5523.88
	152.000	350.00	0.00	0.00	826.20	13300.00	845.03	0.00	845.22	3.21	3.50	4004.18	7418.63
	153.000	750.00	0.00	0.00	827.20	5860.00	839.37	0.00	839.49	2.60	2.87	2171.08	3631.03
	153.000	750.00	0.00	0.00	827.20	8710.00	841.71	0.00	841.84	2.43	3.01	3487.67	5588.84
	153.000	750.00	0.00	0.00	827.20	10000.00	842.73	0.00	842.82	2.17	2.96	4259.70	6791.48
	153.000	750.00	0.00	0.00	827.20	13300.00	845.31	0.00	845.40	1.51	2.69	6463.72	10830.53
*	157.000	1800.00	0.00	0.00	827.90	5860.00	840.29	0.00	840.37	1.22	2.33	2802.14	5308.01
*	157.000	1800.00	0.00	0.00	827.90	8710.00	842.53	0.00	842.63	1.43	2.64	3816.33	7273.75
*	157.000	1800.00	0.00	0.00	827.90	10000.00	843.43	0.00	843.53	1.48	2.73	4248.49	8219.70
*	157.000	1800.00	0.00	0.00	827.90	13300.00	845.85	0.00	845.96	1.43	2.83	5476.89	11126.46
	158.000	1800.00	0.00	0.00	829.30	5860.00	840.53	0.00	840.62	1.50	2.42	2678.05	4780.20
	158.000	1800.00	0.00	0.00	829.30	8710.00	842.80	0.00	842.91	1.68	2.72	3882.13	6722.85
	158.000	1800.00	0.00	0.00	829.30	10000.00	843.71	0.00	843.82	1.68	2.80	4504.60	7716.42
	158.000	1800.00	0.00	0.00	829.30	13300.00	846.11	0.00	846.22	1.51	2.86	6391.66	10840.85
	159.000	1875.00	0.00	0.00	827.50	5860.00	840.83	0.00	840.97	2.26	3.12	2243.82	3894.55
	159.000	1875.00	0.00	0.00	827.50	8710.00	843.14	0.00	843.29	2.36	3.39	3519.59	5671.37
	159.000	1875.00	0.00	0.00	827.50	10000.00	844.04	0.00	844.20	2.34	3.47	4063.19	6537.29
	159.000	1875.00	0.00	0.00	827.50	13300.00	846.41	0.00	846.56	2.11	3.52	5562.06	9151.65
	160.000	1500.00	0.00	0.00	829.10	5860.00	841.19	0.00	841.50	4.83	4.65	1553.99	2665.55
	160.000	1500.00	0.00	0.00	829.10	8710.00	843.52	0.00	843.85	5.11	5.07	2481.92	3851.39
	160.000	1500.00	0.00	0.00	829.10	10000.00	844.42	0.00	844.75	5.06	5.17	2945.71	4444.54
	160.000	1500.00	0.00	0.00	829.10	13300.00	846.76	0.00	847.05	4.41	5.13	4413.92	6332.11
	161.000	500.00	0.00	0.00	831.10	5860.00	841.57	0.00	841.77	5.45	3.63	1683.23	2509.58
	161.000	500.00	0.00	0.00	831.10	8710.00	843.98	0.00	844.13	5.78	4.04	2518.93	3621.73
	161.000	500.00	0.00	0.00	831.10	10000.00	844.79	0.00	845.03	5.60	4.11	3030.62	4225.00
	161.000	500.00	0.00	0.00	831.10	13300.00	847.11	0.00	847.28	4.03	3.76	5648.95	6624.38
	162.000	980.00	0.00	0.00	831.10	5860.00	842.03	0.00	842.12	2.09	2.41	2427.12	4056.79
	162.000	980.00	0.00	0.00	831.10	8710.00	844.41	0.00	844.54	2.70	2.90	3029.19	5303.18
	162.000	980.00	0.00	0.00	831.10	10000.00	845.29	0.00	845.44	2.88	3.08	3472.04	5888.11
	162.000	980.00	0.00	0.00	831.10	13300.00	847.46	0.00	847.62	2.99	3.31	4804.32	7695.71

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
*	162.100	10.00	0.00	0.00	833.60	5860.00	843.61	0.00	843.79	2.23	2.44	2401.32	3927.16
*	162.100	10.00	0.00	0.00	833.60	8710.00	845.65	0.00	845.78	2.96	2.94	3264.33	5066.55
*	162.100	10.00	0.00	0.00	833.60	10000.00	846.47	0.00	846.61	3.08	3.08	3766.42	5701.75
*	162.100	10.00	0.00	0.00	833.60	13300.00	848.53	0.00	848.68	3.07	3.25	5115.71	7587.57
	163.000	750.00	0.00	0.00	834.00	5550.00	843.82	0.00	844.02	6.93	3.51	1581.97	2108.41
	163.000	750.00	0.00	0.00	834.00	8255.00	845.93	0.00	846.17	7.71	3.92	2116.98	2972.22
	163.000	750.00	0.00	0.00	834.00	9475.00	846.76	0.00	847.01	7.69	4.09	2348.68	3416.60
	163.000	750.00	0.00	0.00	834.00	12600.00	848.79	0.00	849.09	7.49	4.41	2964.19	4604.57
	164.000	120.00	0.00	0.00	834.00	5550.00	843.89	0.00	844.08	3.84	3.44	1614.70	2832.04
	164.000	120.00	0.00	0.00	834.00	8255.00	846.01	0.00	846.24	4.17	3.82	2178.80	4043.13
	164.000	120.00	0.00	0.00	834.00	9475.00	846.84	0.00	847.09	4.12	3.97	2427.84	4665.19
	164.000	120.00	0.00	0.00	834.00	12600.00	848.88	0.00	849.16	3.98	4.26	3085.85	6316.57
	164.500	41.00	853.00	851.30	833.70	5550.00	843.90	0.00	844.09	3.40	3.53	1587.05	3010.25
	164.500	41.00	853.00	851.30	833.70	8255.00	846.02	0.00	846.24	4.39	3.85	2237.80	3941.76
	164.500	41.00	853.00	851.30	833.70	9475.00	846.85	0.00	847.09	4.25	3.97	2526.13	4593.80
	164.500	41.00	853.00	851.30	833.70	12600.00	848.89	0.00	849.15	3.92	4.16	3294.82	6363.74
	165.000	175.00	0.00	0.00	834.00	5550.00	844.00	0.00	844.15	3.87	3.26	1704.12	2821.42
	165.000	175.00	0.00	0.00	834.00	8255.00	846.12	0.00	846.32	3.68	3.59	2362.24	4303.34
	165.000	175.00	0.00	0.00	834.00	9475.00	846.94	0.00	847.16	3.64	3.73	2657.39	4964.79
	165.000	175.00	0.00	0.00	834.00	12600.00	848.98	0.00	849.22	3.47	3.98	3448.78	6763.13
	166.000	1300.00	0.00	0.00	833.60	5550.00	844.38	0.00	844.51	1.90	2.69	1927.70	4029.42
	166.000	1300.00	0.00	0.00	833.60	8255.00	846.52	0.00	846.70	2.39	3.44	2502.88	5344.17
	166.000	1300.00	0.00	0.00	833.60	9475.00	847.35	0.00	847.55	2.55	3.64	2782.55	5934.19
	166.000	1300.00	0.00	0.00	833.60	12600.00	849.39	0.00	849.63	2.80	4.03	3593.29	7534.12
	167.000	500.00	0.00	0.00	834.00	5550.00	844.51	0.00	844.62	2.96	2.80	1988.53	3223.42
	167.000	500.00	0.00	0.00	834.00	8255.00	846.69	0.00	846.83	2.80	3.00	2815.95	4929.58
	167.000	500.00	0.00	0.00	834.00	9475.00	847.54	0.00	847.69	2.70	3.09	3172.73	5771.12
	167.000	500.00	0.00	0.00	834.00	12600.00	849.61	0.00	849.77	2.48	3.27	4117.60	8003.75
	168.000	2562.00	0.00	0.00	834.50	5550.00	845.22	0.00	845.36	2.76	3.12	2315.01	3341.23
	168.000	2562.00	0.00	0.00	834.50	8255.00	847.39	0.00	847.54	2.69	3.34	3363.78	5032.56
	168.000	2562.00	0.00	0.00	834.50	9475.00	848.23	0.00	848.38	2.69	3.44	3782.76	5779.08
	168.000	2562.00	0.00	0.00	834.50	12600.00	850.26	0.00	850.42	2.65	3.64	4834.32	7745.15
	169.000	2438.00	0.00	0.00	834.40	5550.00	846.02	0.00	846.24	4.63	3.83	1682.18	2579.63
	169.000	2438.00	0.00	0.00	834.40	8255.00	848.21	0.00	848.49	5.61	4.44	2316.24	3484.15
	169.000	2438.00	0.00	0.00	834.40	9475.00	849.06	0.00	849.35	5.91	4.66	2580.53	3896.04
	169.000	2438.00	0.00	0.00	834.40	12600.00	851.09	0.00	851.43	6.40	5.09	3264.62	4979.31
	170.000	2375.00	0.00	0.00	836.00	5550.00	847.32	0.00	847.53	6.48	3.72	1640.62	2179.57
	170.000	2375.00	0.00	0.00	836.00	8255.00	849.71	0.00	849.93	6.64	3.94	2412.01	3202.66
	170.000	2375.00	0.00	0.00	836.00	9475.00	850.59	0.00	850.82	6.50	4.05	2751.17	3715.56
	170.000	2375.00	0.00	0.00	836.00	12600.00	852.67	0.00	852.92	6.17	4.27	3655.39	5071.08
	171.000	200.00	0.00	0.00	836.50	5550.00	847.43	0.00	847.66	5.85	3.89	1426.27	2293.95
	171.000	200.00	0.00	0.00	836.50	8255.00	849.79	0.00	850.12	6.98	4.59	1798.33	3124.88
	171.000	200.00	0.00	0.00	836.50	9475.00	850.65	0.00	851.03	7.52	4.90	1934.25	3454.79
	171.000	200.00	0.00	0.00	836.50	12600.00	852.69	0.00	853.17	8.78	5.59	2253.49	4253.13

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	1JK*S	VCH	AREA	.01K
171.500	47.00	856.00	851.90	836.70	5550.00	847.44	0.00	847.68	5.86	3.89	1425.13	2291.97
171.500	47.00	856.00	851.90	836.70	8255.00	849.81	0.00	850.14	6.99	4.59	1796.76	3121.36
171.500	47.00	856.00	851.90	836.70	9475.00	850.68	0.00	851.05	7.53	4.90	1933.19	3452.59
171.500	47.00	856.00	851.90	836.70	12600.00	853.12	0.00	853.55	8.00	5.44	2317.27	4454.12
172.000	120.00	0.00	0.00	836.70	5550.00	847.63	0.00	847.76	3.26	2.97	2016.32	3075.51
172.000	120.00	0.00	0.00	836.70	8255.00	850.08	0.00	850.25	3.52	3.35	2897.16	4397.89
172.000	120.00	0.00	0.00	836.70	9475.00	851.00	0.00	851.17	3.59	3.49	3317.90	5011.31
172.000	120.00	0.00	0.00	836.70	12600.00	853.57	0.00	853.73	3.16	3.53	4971.84	7091.66
173.000	875.00	0.00	0.00	837.50	5550.00	847.97	0.00	848.17	5.92	3.72	1733.89	2281.23
173.000	875.00	0.00	0.00	837.50	8255.00	850.44	0.00	850.66	5.58	3.97	2587.63	3493.44
173.000	875.00	0.00	0.00	837.50	9475.00	851.36	0.00	851.59	5.55	4.10	2936.43	4021.86
173.000	875.00	0.00	0.00	837.50	12600.00	853.88	0.00	854.10	4.85	4.17	3994.39	5721.47
174.000	120.00	0.00	0.00	839.20	5550.00	847.93	0.00	848.45	21.25	5.82	953.26	1203.95
174.000	120.00	0.00	0.00	839.20	8255.00	850.35	0.00	850.97	19.64	6.32	1308.66	1862.64
174.000	120.00	0.00	0.00	839.20	9475.00	851.25	0.00	851.92	19.72	6.58	1442.61	2133.77
174.000	120.00	0.00	0.00	839.20	12600.00	853.71	0.00	854.47	18.41	6.99	1815.74	2936.68
175.000	250.00	0.00	0.00	838.50	5550.00	848.64	0.00	848.81	5.90	3.36	1708.62	2284.76
175.000	250.00	0.00	0.00	838.50	8255.00	851.14	0.00	851.33	5.25	3.56	2468.73	3602.18
175.000	250.00	0.00	0.00	838.50	9475.00	852.09	0.00	852.29	5.05	3.66	2809.63	4217.35
175.000	250.00	0.00	0.00	838.50	12600.00	854.64	0.00	854.83	4.20	3.69	3856.61	6147.07
176.000	1000.00	0.00	0.00	836.50	5550.00	849.16	0.00	849.31	4.08	3.20	1927.44	2746.88
176.000	1000.00	0.00	0.00	836.50	8255.00	851.63	0.00	851.79	3.86	3.37	2810.55	4233.58
176.000	1000.00	0.00	0.00	836.50	9475.00	852.58	0.00	852.74	3.72	3.45	3168.91	4912.71
176.000	1000.00	0.00	0.00	836.50	12600.00	855.06	0.00	855.22	3.31	3.51	4161.26	6928.72
177.000	1750.00	0.00	0.00	838.20	5550.00	849.64	0.00	849.77	1.79	3.00	2061.79	4147.06
177.000	1750.00	0.00	0.00	838.20	8255.00	852.09	0.00	852.24	1.84	3.27	3077.83	6082.40
177.000	1750.00	0.00	0.00	838.20	9475.00	853.03	0.00	853.19	1.84	3.37	3508.90	6981.21
177.000	1750.00	0.00	0.00	838.20	12600.00	855.47	0.00	855.63	1.70	3.48	4724.85	9651.00
178.000	2225.00	0.00	0.00	839.20	5550.00	850.04	0.00	850.14	1.45	2.59	2258.30	4614.71
178.000	2225.00	0.00	0.00	839.20	8255.00	852.50	0.00	852.62	1.55	2.92	3132.57	6626.99
178.000	2225.00	0.00	0.00	839.20	9475.00	853.44	0.00	853.57	1.59	3.04	3513.93	7522.39
178.000	2225.00	0.00	0.00	839.20	12600.00	855.85	0.00	855.99	1.55	3.23	4612.65	10136.02
179.000	250.00	0.00	0.00	839.90	5550.00	850.06	0.00	850.20	2.07	2.90	1913.62	3856.52
179.000	250.00	0.00	0.00	839.90	8255.00	852.52	0.00	852.69	2.28	3.31	2559.28	5469.39
179.000	250.00	0.00	0.00	839.90	9475.00	853.46	0.00	853.65	2.33	3.47	2870.88	6284.59
179.000	250.00	0.00	0.00	839.90	12600.00	855.86	0.00	856.07	2.27	3.71	4028.65	8371.15
179.500	28.00	853.60	852.40	839.20	5550.00	850.07	0.00	850.20	3.30	2.89	1964.37	3054.73
179.500	28.00	853.60	852.40	839.20	8255.00	852.78	0.00	852.94	3.39	3.24	2777.61	4486.03
179.500	28.00	853.60	852.40	839.20	9475.00	853.83	0.00	854.00	3.40	3.36	3156.80	5140.50
179.500	28.00	853.60	852.40	839.20	12600.00	856.26	0.00	856.44	3.29	3.56	4436.68	6943.95
180.000	250.00	0.00	0.00	840.90	5550.00	850.13	0.00	850.33	6.44	3.65	1622.58	2186.83
180.000	250.00	0.00	0.00	840.90	8255.00	852.84	0.00	853.06	5.70	3.89	2372.23	3457.03
180.000	250.00	0.00	0.00	840.90	9475.00	853.90	0.00	854.13	5.48	3.98	2728.66	4046.27
180.000	250.00	0.00	0.00	840.90	12600.00	856.32	0.00	856.56	5.07	4.16	3754.38	5596.95

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
181.000	1250.00	0.00	0.00	841.10	5550.00	851.01	0.00	851.30	8.94	4.28	1308.45	1856.63
181.000	1250.00	0.00	0.00	841.10	8255.00	853.63	0.00	853.95	8.38	4.60	2021.68	2851.78
181.000	1250.00	0.00	0.00	841.10	9475.00	854.65	0.00	854.98	8.02	4.68	2410.38	3345.31
181.000	1250.00	0.00	0.00	841.10	12600.00	857.02	0.00	857.34	7.22	4.76	3470.27	4689.98
182.000	2375.00	0.00	0.00	839.50	5550.00	851.87	0.00	851.91	1.12	1.75	5096.81	5254.99
182.000	2375.00	0.00	0.00	839.50	8255.00	854.46	0.00	854.49	.96	1.77	7914.72	8426.53
182.000	2375.00	0.00	0.00	839.50	9475.00	855.47	0.00	855.51	.91	1.78	9222.18	9925.96
182.000	2375.00	0.00	0.00	839.50	12600.00	857.78	0.00	857.81	.81	1.79	12721.83	13973.39
183.000	1625.00	0.00	0.00	840.00	5550.00	852.08	0.00	852.11	1.20	1.74	5895.06	5074.59
183.000	1625.00	0.00	0.00	840.00	8255.00	854.63	0.00	854.65	.77	1.54	10313.68	9381.24
183.000	1625.00	0.00	0.00	840.00	9475.00	855.62	0.00	855.64	.69	1.50	12067.44	11437.54
183.000	1625.00	0.00	0.00	840.00	12600.00	857.91	0.00	857.93	.57	1.46	16170.82	16722.71
184.000	1750.00	0.00	0.00	837.50	5550.00	852.30	0.00	852.34	1.43	2.00	5890.74	4641.62
184.000	1750.00	0.00	0.00	837.50	8255.00	854.77	0.00	854.79	.91	1.71	10056.01	9669.51
184.000	1750.00	0.00	0.00	837.50	9475.00	855.75	0.00	855.77	.80	1.66	11783.88	10502.34
184.000	1750.00	0.00	0.00	837.50	12600.00	858.02	0.00	858.03	.65	1.58	15973.11	15654.74
185.000	3000.00	0.00	0.00	841.00	5550.00	852.80	0.00	852.87	2.06	2.48	3714.57	3867.73
185.000	3000.00	0.00	0.00	841.00	8255.00	855.12	0.00	855.18	1.75	2.43	6228.19	6240.59
185.000	3000.00	0.00	0.00	841.00	9475.00	856.06	0.00	856.12	1.62	2.40	7413.80	7451.52
185.000	3000.00	0.00	0.00	841.00	12600.00	858.28	0.00	858.32	1.36	2.33	10581.56	10791.35
186.000	1625.00	0.00	0.00	840.30	5550.00	853.11	0.00	853.14	1.39	1.95	5371.07	4714.80
186.000	1625.00	0.00	0.00	840.30	8255.00	855.38	0.00	855.41	1.24	1.93	7743.60	7401.26
186.000	1625.00	0.00	0.00	840.30	9475.00	856.31	0.00	856.34	1.20	1.93	8737.48	8653.57
186.000	1625.00	0.00	0.00	840.30	12600.00	858.49	0.00	858.52	1.12	1.95	11156.14	11888.80
187.000	2375.00	0.00	0.00	838.70	5550.00	853.49	0.00	853.61	2.96	3.02	2820.63	3224.57
187.000	2375.00	0.00	0.00	838.70	8255.00	855.70	0.00	855.76	1.91	2.54	6364.67	5972.53
187.000	2375.00	0.00	0.00	838.70	9475.00	856.59	0.00	856.64	1.55	2.34	7969.85	7617.92
187.000	2375.00	0.00	0.00	838.70	12600.00	858.72	0.00	858.75	1.02	2.00	12016.45	12497.83
188.000	800.00	0.00	0.00	839.80	5550.00	853.74	0.00	853.85	3.20	2.88	2987.47	3103.12
188.000	800.00	0.00	0.00	839.80	8255.00	855.85	0.00	855.94	2.83	2.84	5047.78	4919.61
188.000	800.00	0.00	0.00	839.80	9475.00	856.72	0.00	856.80	2.50	2.74	6271.24	5995.91
188.000	800.00	0.00	0.00	839.80	12600.00	858.81	0.00	858.86	1.70	2.46	9712.64	9671.26
189.000	2750.00	0.00	0.00	841.50	5550.00	854.31	0.00	854.35	1.12	1.89	4913.94	5242.84
189.000	2750.00	0.00	0.00	841.50	8255.00	856.39	0.00	856.43	1.16	2.00	6857.87	7675.48
189.000	2750.00	0.00	0.00	841.50	9475.00	857.22	0.00	857.26	1.16	2.04	7668.71	8793.23
189.000	2750.00	0.00	0.00	841.50	12600.00	859.20	0.00	859.24	1.16	2.14	9693.04	11693.97

GRAND RIVER PART II

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
121.100	5860.00	832.00	0.00	0.00	0.00	122.77	0.00
121.100	8710.00	832.31	.31	0.00	0.00	124.15	0.00
121.100	10000.00	834.73	2.42	0.00	0.00	269.12	0.00
121.100	13300.00	838.61	3.88	0.00	0.00	940.67	0.00
122.000	5860.00	832.50	0.00	.50	0.00	318.95	830.00
122.000	8710.00	833.36	.86	1.05	0.00	320.74	830.00
122.000	10000.00	835.57	2.21	.84	0.00	327.01	830.00
122.000	13300.00	839.07	3.50	.46	0.00	486.93	830.00
123.000	5860.00	832.54	0.00	.04	0.00	305.68	650.00
123.000	8710.00	833.44	.90	.08	0.00	320.68	650.00
123.000	10000.00	835.63	2.19	.06	0.00	332.45	650.00
123.000	13300.00	839.13	3.50	.06	0.00	361.87	650.00
124.000	5860.00	832.56	0.00	.02	0.00	241.00	240.00
124.000	8710.00	833.48	.92	.04	0.00	241.00	240.00
124.000	10000.00	835.66	2.18	.03	0.00	268.53	240.00
124.000	13300.00	839.15	3.49	.02	0.00	308.09	240.00
124.100	5860.00	832.55	0.00	-.01	0.00	241.00	1.00
124.100	8710.00	833.46	.91	-.01	0.00	241.00	1.00
124.100	10000.00	835.65	2.18	-.01	0.00	268.49	1.00
124.100	13300.00	839.14	3.49	-.01	0.00	306.75	1.00
124.400	5860.00	832.56	0.00	.00	0.00	241.01	52.20
124.400	8710.00	833.47	.92	.01	0.00	241.01	52.20
124.400	10000.00	835.66	2.18	.01	0.00	268.51	52.20
124.400	13300.00	839.15	3.49	.01	0.00	307.01	52.20
124.500	5860.00	832.58	0.00	.02	0.00	241.00	1.00
124.500	8710.00	833.51	.93	.03	0.00	241.00	1.00
124.500	10000.00	835.69	2.18	.03	0.00	268.68	1.00
124.500	13300.00	839.18	3.49	.03	0.00	311.25	1.00
125.000	5860.00	832.63	0.00	.05	0.00	411.86	210.00
125.000	8710.00	833.61	.98	.10	0.00	419.92	210.00
125.000	10000.00	835.78	2.17	.09	0.00	431.12	210.00
125.000	13300.00	839.28	3.50	.10	0.00	456.38	210.00
125.500	5860.00	832.65	0.00	.02	0.00	584.01	280.00
125.500	8710.00	833.65	1.00	.04	0.00	588.68	280.00
125.500	10000.00	835.82	2.17	.04	0.00	602.96	280.00
125.500	13300.00	839.32	3.50	.04	0.00	636.25	280.00
125.510	5860.00	832.65	0.00	-.00	0.00	584.06	1.00
125.510	8710.00	833.65	1.00	-.00	0.00	588.72	1.00
125.510	10000.00	835.82	2.17	-.00	0.00	603.11	1.00
125.510	13300.00	839.32	3.50	-.00	0.00	636.32	1.00
125.590	5860.00	832.65	0.00	.00	0.00	584.06	52.00
125.590	8710.00	833.65	1.00	.00	0.00	588.73	52.00
125.590	10000.00	835.82	2.17	.00	0.00	603.12	52.00

125.590	13300.00	839.32	3.50	.00	0.00	636.32	52.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
125.600	5860.00	832.65	0.00	.00	0.00	584.06	1.00
125.600	8710.00	833.65	1.00	.00	0.00	588.73	1.00
125.600	10000.00	835.82	2.17	.00	0.00	603.12	1.00
125.600	13300.00	839.33	3.50	.00	0.00	636.32	1.00
126.000	5860.00	832.66	0.00	.01	0.00	414.49	600.00
126.000	8710.00	833.68	1.01	.02	0.00	420.46	600.00
126.000	10000.00	835.84	2.16	.01	0.00	429.52	600.00
126.000	13300.00	839.33	3.50	.01	0.00	444.22	600.00
127.000	5860.00	832.94	0.00	.28	0.00	347.10	1800.00
127.000	8710.00	834.15	1.21	.47	0.00	383.37	1800.00
127.000	10000.00	836.12	1.97	.28	0.00	400.42	1800.00
127.000	13300.00	839.53	3.41	.19	0.00	421.99	1800.00
128.000	5860.00	833.44	0.00	.49	0.00	371.91	1850.00
128.000	8710.00	834.89	1.45	.74	0.00	396.41	1850.00
128.000	10000.00	836.61	1.71	.49	0.00	422.23	1850.00
128.000	13300.00	839.86	3.25	.33	0.00	458.46	1350.00
129.000	5860.00	833.58	0.00	.15	0.00	334.79	900.00
129.000	8710.00	835.11	1.52	.22	0.00	350.64	900.00
129.000	10000.00	836.76	1.65	.16	0.00	369.61	900.00
129.000	13300.00	839.97	3.21	.11	0.00	401.67	900.00
130.000	5860.00	833.96	0.00	.37	0.00	319.70	1650.00
130.000	8710.00	835.62	1.66	.51	0.00	331.51	1650.00
130.000	10000.00	837.16	1.54	.40	0.00	416.19	1650.00
130.000	13300.00	840.27	3.11	.30	0.00	440.55	1650.00
131.000	5860.00	834.25	0.00	.30	0.00	406.79	1600.00
131.000	8710.00	836.04	1.79	.42	0.00	472.93	1600.00
131.000	10000.00	837.50	1.46	.34	0.00	508.06	1600.00
131.000	13300.00	840.54	3.03	.27	0.00	534.76	1600.00
132.000	5860.00	834.48	0.00	.23	0.00	417.38	1500.00
132.000	8710.00	836.33	1.85	.29	0.00	457.26	1500.00
132.000	10000.00	837.73	1.40	.23	0.00	492.93	1500.00
132.000	13300.00	840.71	2.98	.17	0.00	528.17	1500.00
133.000	5860.00	834.56	0.00	.10	0.00	418.01	800.00
133.000	8710.00	836.45	1.87	.12	0.00	461.11	800.00
133.000	10000.00	837.83	1.38	.10	0.00	495.28	800.00
133.000	13300.00	840.79	2.96	.08	0.00	528.81	800.00
134.000	5860.00	834.62	0.00	.04	0.00	247.39	450.00
134.000	8710.00	836.50	1.87	.05	0.00	247.39	450.00
134.000	10000.00	837.87	1.37	.03	0.00	247.39	450.00
134.000	13300.00	840.80	2.94	.01	0.00	247.39	450.00
134.100	5860.00	834.62	0.00	-.01	0.00	247.39	1.00
134.100	8710.00	836.49	1.87	-.01	0.00	247.39	1.00
134.100	10000.00	837.86	1.37	-.01	0.00	247.39	1.00
134.100	13300.00	840.78	2.92	-.02	0.00	247.39	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
134.500	5860.00	834.65	0.00	.03	0.00	247.39	46.00
134.500	8710.00	836.53	1.88	.04	0.00	247.39	46.00
134.500	10000.00	837.90	1.37	.04	0.00	247.39	46.00
134.500	13300.00	840.84	2.94	.06	0.00	247.39	46.00
134.900	5860.00	834.66	0.00	.01	0.00	247.39	1.00
134.900	8710.00	836.55	1.89	.02	0.00	247.39	1.00
134.900	10000.00	837.92	1.37	.02	0.00	247.39	1.00
134.900	13300.00	840.89	2.97	.05	0.00	247.39	1.00
135.000	5860.00	834.71	0.00	.05	0.00	537.73	150.00
135.000	8710.00	836.65	1.93	.10	0.00	639.01	150.00
135.000	10000.00	838.03	1.38	.11	0.00	639.94	150.00
135.000	13300.00	841.04	3.01	.15	0.00	678.02	150.00
136.000	5860.00	834.92	0.00	.20	0.00	450.54	1520.00
136.000	8710.00	836.86	1.94	.21	0.00	680.44	1520.00
136.000	10000.00	838.21	1.34	.17	0.00	732.91	1520.00
136.000	13300.00	841.16	2.96	.12	0.00	737.47	1520.00
137.000	5860.00	835.21	0.00	.30	0.00	343.49	1400.00
137.000	8710.00	837.16	1.95	.31	0.00	830.76	1400.00
137.000	10000.00	838.44	1.28	.25	0.00	884.51	1400.00
137.000	13300.00	841.33	2.89	.18	0.00	988.72	1400.00
139.000	5860.00	835.52	0.00	.31	0.00	675.17	2100.00
139.000	8710.00	837.54	2.01	.37	0.00	692.48	2100.00
139.000	10000.00	838.76	1.23	.32	0.00	699.55	2100.00
139.000	13300.00	841.57	2.81	.24	0.00	721.55	2100.00
140.000	5860.00	835.87	0.00	.35	0.00	468.40	2250.00
140.000	8710.00	837.93	2.06	.39	0.00	518.96	2250.00
140.000	10000.00	839.11	1.18	.35	0.00	535.90	2250.00
140.000	13300.00	841.85	2.74	.28	0.00	574.98	2250.00
141.000	5860.00	836.18	0.00	.31	0.00	1946.04	1950.00
141.000	8710.00	838.24	2.06	.31	0.00	1138.67	1950.00
141.000	10000.00	839.39	1.14	.28	0.00	1193.35	1950.00
141.000	13300.00	842.08	2.69	.23	0.00	1383.27	1950.00
141.500	5860.00	836.39	0.00	.21	0.00	635.80	1400.00
141.500	8710.00	838.41	2.03	.17	0.00	650.65	1400.00
141.500	10000.00	839.53	1.11	.14	0.00	657.13	1400.00
141.500	13300.00	842.17	2.65	.10	0.00	672.56	1400.00
142.000	5860.00	836.59	0.00	.21	0.00	663.68	1700.00
142.000	8710.00	838.64	2.05	.23	0.00	776.59	1700.00
142.000	10000.00	839.73	1.09	.21	0.00	830.91	1700.00
142.000	13300.00	842.35	2.62	.18	0.00	926.79	1700.00
143.000	5860.00	837.17	0.00	.58	0.00	1423.61	2440.00
143.000	8710.00	839.21	2.04	.57	0.00	1446.90	2440.00
143.000	10000.00	840.23	1.02	.49	0.00	1469.40	2440.00
143.000	13300.00	842.72	2.49	.36	0.00	1524.43	2440.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
144.000	5860.00	837.93	0.00	.76	0.00	178.24	3750.00
144.000	8710.00	839.87	1.93	.66	0.00	216.31	3750.00
144.000	10000.00	840.77	.91	.55	0.00	234.00	3750.00
144.000	13300.00	843.06	2.29	.34	0.00	383.84	3750.00
145.000	5860.00	838.25	0.00	.32	0.00	198.92	1200.00
145.000	8710.00	840.33	2.08	.46	0.00	235.49	1200.00
145.000	10000.00	841.27	.94	.50	0.00	252.37	1200.00
145.000	13300.00	843.58	2.31	.52	0.00	293.87	1200.00
146.000	5860.00	838.62	0.00	.37	0.00	278.30	1800.00
146.000	8710.00	840.82	2.20	.49	0.00	374.74	1800.00
146.000	10000.00	841.79	.97	.52	0.00	433.32	1800.00
146.000	13300.00	844.16	2.37	.57	0.00	460.12	1800.00
147.000	5860.00	838.68	0.00	.06	0.00	308.11	220.00
147.000	8710.00	840.91	2.23	.09	0.00	350.26	220.00
147.000	10000.00	841.88	.98	.09	0.00	367.12	220.00
147.000	13300.00	844.33	2.45	.18	0.00	1142.71	220.00
147.500	5860.00	838.69	0.00	.01	0.00	356.86	66.00
147.500	8710.00	840.92	2.23	.02	0.00	372.99	66.00
147.500	10000.00	841.90	.98	.02	0.00	380.05	66.00
147.500	13300.00	844.60	2.69	.26	0.00	969.36	66.00
148.000	5860.00	838.73	0.00	.04	0.00	378.76	250.00
148.000	8710.00	840.98	2.24	.05	0.00	530.15	250.00
148.000	10000.00	841.96	.98	.06	0.00	575.65	250.00
148.000	13300.00	844.65	2.69	.05	0.00	642.98	250.00
149.000	5860.00	838.88	0.00	.14	0.00	281.01	350.00
149.000	8710.00	841.09	2.21	.11	0.00	281.01	350.00
149.000	10000.00	842.06	.97	.10	0.00	281.01	350.00
149.000	13300.00	844.70	2.64	.05	0.00	281.61	350.00
149.500	5860.00	838.89	0.00	.01	0.00	235.75	34.00
149.500	8710.00	841.10	2.21	.01	0.00	253.43	34.00
149.500	10000.00	842.06	.97	.01	0.00	261.16	34.00
149.500	13300.00	844.71	2.64	.01	0.00	279.22	34.00
150.000	5860.00	838.92	0.00	.03	0.00	212.67	200.00
150.000	8710.00	841.14	2.22	.04	0.00	382.38	200.00
150.000	10000.00	842.11	.97	.04	0.00	476.60	200.00
150.000	13300.00	844.79	2.68	.08	0.00	716.02	200.00
151.000	5860.00	839.04	0.00	.12	0.00	245.01	225.00
151.000	8710.00	841.31	2.28	.17	0.00	286.04	225.00
151.000	10000.00	842.28	.97	.17	0.00	286.26	225.00
151.000	13300.00	844.87	2.59	.08	0.00	286.26	225.00
151.500	5860.00	839.04	0.00	.01	0.00	247.70	35.00
151.500	8710.00	841.32	2.28	.01	0.00	286.26	35.00
151.500	10000.00	842.29	.97	.01	0.00	286.26	35.00
151.500	13300.00	844.88	2.59	.01	0.00	286.26	35.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	152.000	5860.00	839.18	0.00	.14	0.00	249.42	350.00
	152.000	8710.00	841.48	2.30	.16	0.00	286.1[illegible]	350.00
	152.000	10000.00	842.45	.97	.16	0.00	315.46	350.00
	152.000	13300.00	845.03	2.59	.16	0.00	357.31	350.00
	153.000	5860.00	839.37	0.00	.18	0.00	419.77	750.00
	153.000	8710.00	841.71	2.35	.23	0.00	754.92	750.00
	153.000	10000.00	842.70	.99	.25	0.00	796.46	750.00
	153.000	13300.00	845.31	2.61	.28	0.00	887.88	750.00
*	157.000	5860.00	840.29	0.00	.92	0.00	433.12	1800.00
*	157.000	8710.00	842.53	2.24	.82	0.00	472.41	1800.00
*	157.000	10000.00	843.43	.90	.73	0.00	487.71	1800.00
*	157.000	13300.00	845.85	2.42	.54	0.00	527.49	1800.00
	158.000	5860.00	841.53	0.00	.24	0.00	416.96	1800.00
	158.000	8710.00	842.80	2.28	.27	0.00	660.54	1800.00
	158.000	10000.00	843.71	.91	.28	0.00	713.67	1800.00
	158.000	13300.00	846.11	2.41	.26	0.00	854.78	1800.00
	159.000	5860.00	840.83	0.00	.30	0.00	491.66	1875.00
	159.000	8710.00	843.14	2.31	.34	0.00	591.71	1875.00
	159.000	10000.00	844.04	.91	.34	0.00	608.75	1875.00
	159.000	13300.00	846.41	2.37	.30	0.00	659.43	1875.00
	160.000	5860.00	841.19	0.00	.36	0.00	317.68	1500.00
	160.000	8710.00	843.52	2.32	.38	0.00	481.30	1500.00
	160.000	10000.00	844.42	.90	.37	0.00	544.96	1500.00
	160.000	13300.00	846.76	2.34	.34	0.00	709.13	1500.00
	161.000	5860.00	841.57	0.00	.38	0.00	223.23	500.00
	161.000	8710.00	843.90	2.32	.38	0.00	515.33	500.00
	161.000	10000.00	844.79	.90	.38	0.00	709.74	500.00
	161.000	13300.00	847.11	2.32	.35	0.00	1427.92	500.00
	162.000	5860.00	842.03	0.00	.45	0.00	240.01	980.00
	162.000	8710.00	844.41	2.38	.51	0.00	397.51	980.00
	162.000	10000.00	845.29	.89	.50	0.00	556.62	980.00
	162.000	13300.00	847.46	2.17	.35	0.00	653.81	980.00
*	162.100	5860.00	843.61	0.00	1.58	0.00	240.00	10.00
*	162.100	8710.00	845.65	2.04	1.24	0.00	583.46	10.00
*	162.100	10000.00	846.47	.83	1.18	0.00	624.81	10.00
*	162.100	13300.00	848.53	2.06	1.07	0.00	685.25	10.00
	163.000	5550.00	843.32	0.00	.22	0.00	230.51	750.00
	163.000	8255.00	845.93	2.10	.26	0.00	272.57	750.00
	163.000	9475.00	846.76	.83	.28	0.00	285.98	750.00
	163.000	12600.00	848.79	2.04	.26	0.00	318.85	750.00
	164.000	5550.00	843.89	0.00	.07	0.00	240.08	120.00
	164.000	8255.00	846.01	2.11	.08	0.00	287.81	120.00
	164.000	9475.00	846.84	.83	.09	0.00	303.62	120.00
	164.000	12600.00	848.88	2.04	.09	0.00	341.89	120.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
164.500	5550.00	843.90	0.00	.01	0.00	239.58	41.00
164.500	8255.00	846.02	2.12	.01	0.00	337.24	41.00
164.500	9475.00	846.85	.83	.01	0.00	355.05	41.00
164.500	12600.00	848.89	2.04	.01	0.00	398.66	41.00
165.000	5550.00	844.00	0.00	.09	0.00	276.88	175.00
165.000	8255.00	846.12	2.12	.10	0.00	343.82	175.00
165.000	9475.00	846.94	.83	.09	0.00	369.97	175.00
165.000	12600.00	848.98	2.04	.09	0.00	394.92	175.00
166.000	5550.00	844.38	0.00	.38	0.00	235.10	1300.00
166.000	8255.00	846.52	2.14	.40	0.00	315.39	1300.00
166.000	9475.00	847.35	.83	.40	0.00	355.54	1300.00
166.000	12600.00	849.39	2.04	.40	0.00	424.38	1300.00
167.000	5550.00	844.50	0.00	.13	0.00	345.23	500.00
167.000	8255.00	846.69	2.19	.18	0.00	408.68	500.00
167.000	9475.00	847.54	.85	.19	0.00	430.81	500.00
167.000	12600.00	849.61	2.06	.22	0.00	486.59	500.00
168.000	5550.00	845.22	0.00	.72	0.00	472.42	2562.00
168.000	8255.00	847.39	2.17	.70	0.00	495.96	2562.00
168.000	9475.00	848.23	.84	.68	0.00	505.07	2562.00
168.000	12600.00	850.26	2.03	.65	0.00	527.22	2562.00
169.000	5550.00	846.02	0.00	.80	0.00	273.12	2438.00
169.000	8255.00	848.21	2.19	.82	0.00	305.96	2438.00
169.000	9475.00	849.06	.84	.83	0.00	319.99	2438.00
169.000	12600.00	851.09	2.03	.83	0.00	353.75	2438.00
170.000	5550.00	847.32	0.00	1.30	0.00	283.93	2375.00
170.000	8255.00	849.71	2.39	1.50	0.00	367.97	2375.00
170.000	9475.00	850.59	.88	1.54	0.00	400.15	2375.00
170.000	12600.00	852.67	2.08	1.58	0.00	470.79	2375.00
171.000	5550.00	847.43	0.00	.11	0.00	157.00	200.00
171.000	8255.00	849.79	2.36	.08	0.00	157.00	200.00
171.000	9475.00	850.65	.87	.06	0.00	157.00	200.00
171.000	12600.00	852.69	2.03	.02	0.00	157.00	200.00
171.500	5550.00	847.44	0.00	.01	0.00	157.00	47.00
171.500	8255.00	849.81	2.37	.02	0.00	157.00	47.00
171.500	9475.00	850.68	.87	.02	0.00	157.00	47.00
171.500	12600.00	853.12	2.45	.44	0.00	157.00	47.00
172.000	5550.00	847.63	0.00	.19	0.00	280.53	120.00
172.000	8255.00	850.08	2.46	.27	0.00	409.07	120.00
172.000	9475.00	851.00	.92	.32	0.00	507.33	120.00
172.000	12600.00	853.57	2.57	.44	0.00	781.87	120.00
173.000	5550.00	847.97	0.00	.34	0.00	321.69	875.00
173.000	8255.00	850.44	2.47	.35	0.00	369.66	875.00
173.000	9475.00	851.36	.92	.36	0.00	387.55	875.00
173.000	12600.00	853.88	2.52	.31	0.00	458.64	875.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
174.000	5550.00	847.93	0.00	-.04	0.00	145.66	120.00
174.000	8255.00	850.35	2.42	-.09	0.00	148.37	120.00
174.000	9475.00	851.25	.90	-.11	0.00	149.74	120.00
174.000	12600.00	853.71	2.46	-.17	0.00	153.50	120.00
175.000	5550.00	848.64	0.00	.71	0.00	268.46	250.00
175.000	8255.00	851.14	2.49	.79	0.00	342.18	250.00
175.000	9475.00	852.09	.95	.84	0.00	371.84	250.00
175.000	12600.00	854.64	2.55	.93	0.00	448.76	250.00
176.000	5550.00	849.16	0.00	.52	0.00	339.84	1000.00
176.000	8255.00	851.63	2.47	.50	0.00	373.25	1000.00
176.000	9475.00	852.58	.95	.49	0.00	384.83	1000.00
176.000	12600.00	855.06	2.48	.42	0.00	420.06	1000.00
177.000	5550.00	849.64	0.00	.47	0.00	371.02	1750.00
177.000	8255.00	852.09	2.46	.46	0.00	447.04	1750.00
177.000	9475.00	853.03	.94	.45	0.00	469.13	1750.00
177.000	12600.00	855.47	2.44	.42	0.00	526.42	1750.00
178.000	5550.00	850.04	0.00	.40	0.00	318.06	2225.00
178.000	8255.00	852.50	2.46	.41	0.00	391.94	2225.00
178.000	9475.00	853.44	.94	.41	0.00	420.12	2225.00
178.000	12600.00	855.85	2.41	.37	0.00	492.36	2225.00
179.000	5550.00	850.06	0.00	.03	0.00	230.51	250.00
179.000	8255.00	852.52	2.46	.03	0.00	308.08	250.00
179.000	9475.00	853.46	.94	.02	0.00	356.05	250.00
179.000	12600.00	855.86	2.40	.02	0.00	623.45	250.00
179.500	5550.00	850.07	0.00	.01	0.00	257.72	28.00
179.500	8255.00	852.78	2.71	.26	0.00	342.80	28.00
179.500	9475.00	853.83	1.06	.37	0.00	375.95	28.00
179.500	12600.00	856.26	2.43	.40	0.00	654.16	28.00
180.000	5550.00	850.13	0.00	.06	0.00	239.95	250.00
180.000	8255.00	852.84	2.71	.06	0.00	317.91	250.00
180.000	9475.00	853.90	1.06	.06	0.00	362.19	250.00
180.000	12600.00	856.32	2.42	.06	0.00	483.96	250.00
181.000	5550.00	851.01	0.00	.88	0.00	183.32	1250.00
181.000	8255.00	853.63	2.61	.79	0.00	352.19	1250.00
181.000	9475.00	854.65	1.03	.76	0.00	402.05	1250.00
181.000	12600.00	857.02	2.37	.70	0.00	495.83	1250.00
182.000	5550.00	851.87	0.00	.86	0.00	999.21	2375.00
182.000	8255.00	854.46	2.59	.84	0.00	1167.77	2375.00
182.000	9475.00	855.47	1.01	.82	0.00	1386.82	2375.00
182.000	12600.00	857.78	2.31	.76	0.00	1638.41	2375.00
183.000	5550.00	852.08	0.00	.21	0.00	1713.77	1625.00
183.000	8255.00	854.63	2.55	.16	0.00	1755.53	1625.00
183.000	9475.00	855.62	.99	.15	0.00	1771.83	1625.00
183.000	12600.00	857.91	2.29	.13	0.00	1809.40	1625.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
184.000	5550.00	852.30	0.00	.22	0.00	1617.02	1750.00
184.000	8255.00	854.77	2.47	.14	0.00	1746.44	1750.00
184.000	9475.00	855.75	.98	.13	0.00	1791.93	1750.00
184.000	12600.00	858.02	2.27	.10	0.00	1897.68	1750.00
185.000	5550.00	852.80	0.00	.49	0.00	955.30	3000.00
185.000	8255.00	855.12	2.32	.35	0.00	1208.11	3000.00
185.000	9475.00	856.06	.94	.31	0.00	1310.53	3000.00
185.000	12600.00	858.28	2.21	.26	0.00	1551.37	3000.00
186.000	5550.00	853.11	0.00	.31	0.00	1017.54	1625.00
186.000	8255.00	855.38	2.28	.26	0.00	1066.35	1625.00
186.000	9475.00	856.31	.92	.25	0.00	1086.14	1625.00
186.000	12600.00	858.49	2.18	.21	0.00	1132.86	1625.00
187.000	5550.00	853.49	0.00	.38	0.00	1322.09	2375.00
187.000	8255.00	855.70	2.21	.31	0.00	1740.76	2375.00
187.000	9475.00	856.59	.89	.28	0.00	1830.71	2375.00
187.000	12600.00	858.72	2.13	.23	0.00	1965.94	2375.00
188.000	5550.00	853.74	0.00	.25	0.00	817.60	800.00
188.000	8255.00	855.85	2.11	.15	0.00	1275.98	800.00
188.000	9475.00	856.72	.87	.13	0.00	1555.27	800.00
188.000	12600.00	858.81	2.09	.09	0.00	1725.76	800.00
189.000	5550.00	854.31	0.00	.57	0.00	904.58	2750.00
189.000	8255.00	856.39	2.08	.54	0.00	965.70	2750.00
189.000	9475.00	857.22	.83	.50	0.00	990.07	2750.00
189.000	12600.00	859.20	1.98	.39	0.00	1064.23	2750.00

SUMMARY OF ERRORS

NOTE SECNO= 157.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 157.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 157.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 157.000 PROFILE= 4 WSEL BASED ON X5 CARD

NOTE SECNO= 162.100 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 162.100 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 162.100 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 162.100 PROFILE= 4 WSEL BASED ON X5 CARD

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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10.59.49..000036 PAGES PRINT. 001682 LINES PRINT. FOR $ 002.07 AT RG2.

RECEIVED
OCT 02 1978
WATER MANAGEMENT

00BREAK00

1) COUNTY: Ingham + Eaton

2) STUDY NAME: city of Lansing

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 1975 Flood - HEC-2

00BREAK00

.08.53.27. 11/07/76 LQ21 SB32057
.08.53.27. 11/07/76 LQ21 SB32057
.08.53.27. 11/07/76 LQ21 SB32057
.08.53.27. 11/07/76 LQ21 SB32057
.08.53.28. 11/07/76 LQ21 SB32057
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.08.53.28. 11/07/76 LQ21 SB32057
.08.53.28. 11/07/76 LQ21 SB32057
.08.53.28. 11/07/76 LQ21 SB32057

1975 Flood Model
11/7/76

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

C
T1       1975 FLOOD
T2       MOORES PARK DAM TO WILBUR HIGHWAY
T3       GRAND RIVER PART II

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      0.         2.         0.         0.  0.000000       0.00       0.0      3980.    832.000      0.000

NC       .050       .050       .032       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    121.100     18.000    100.000    240.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    845.000      0.000    835.200      0.000    835.900    100.000    831.800    112.000    822.000    125.000
GR    820.600    135.000    819.600    171.000    820.700    192.000    826.000    225.000    835.800    240.000
GR    835.400    306.000    833.900    306.000    835.100    500.000    835.000    700.000    838.000    900.000
GR    841.000   1100.000    844.200   1300.000    849.200   1500.000      0.000      0.000      0.000      0.000

X1    122.000     13.000    150.000    510.000    930.000    805.000    830.000      0.000      0.000      0.000
GR    838.600      0.000    838.300    100.000    837.300    150.000    833.100    150.000    822.800    150.000
GR    821.700    200.000    821.500    250.000    820.700    300.000    820.200    330.000    821.600    420.000
GR    827.400    460.000    833.100    470.000    847.200    510.000      0.000      0.000      0.000      0.000

X1    123.000     16.000    100.000    445.000    650.000    700.000    650.000      0.000      0.000      0.000
GR    842.000      0.000    839.500     15.000    839.800     50.000    838.500    100.000    834.000    100.000
GR    832.500    110.000    820.000    160.000    819.500    185.000    818.000    190.000    816.200    230.000
GR    816.500    255.000    820.000    300.000    828.000    350.000    830.000    390.000    834.000    430.000
GR    844.000    445.000      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

                EXISTING LOGAN STREET BRIDGE

X1    124.000     40.000    191.000    484.000    275.000    200.000    240.000      0.000      0.000      0.000
GR    874.000      0.000    843.000      0.000    843.000      0.000    842.500     30.000    841.000     30.000
GR    839.500    145.000    839.500    145.000    839.300    152.000    839.300    152.000    839.000    191.000
GR    834.000    191.000    834.000    200.000    832.500    200.000    830.000    224.000    825.000    235.000
GR    820.000    277.000    809.300    289.000    809.300    289.000    809.200    297.000    809.200    297.000
GR    817.000    322.000    816.400    338.000    817.200    372.000    817.200    372.000    817.600    379.000
GR    817.600    379.000    820.000    409.000    826.100    441.000    834.100    441.000    834.100    449.000
GR    834.500    453.000    840.000    484.000    845.000    494.000    845.000    494.000    847.200    494.000
GR    853.200    494.000    850.000    582.000    848.000    700.000    848.500    809.000    850.000    934.000

X1    124.100      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT     20.000      0.000    874.000    843.000      0.000    874.000    868.000    147.000    868.000    862.000
BT    147.000    868.000    839.500    152.000    867.800    839.300    152.000    867.300    861.800    289.000
BT    861.900    856.100    289.000    861.900    809.300    297.000    861.700    809.200    297.000    861.700
BT    855.900    372.000    858.500    852.500    372.000    858.500    817.200    379.000    858.300    817.600
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BT	379.000	858.300	852.300	494.000	853.200	847.200	494.000	853.200	845.000	582.000
BT	850.000	0.000	700.000	848.000	0.000	809.000	848.500	0.000	934.000	840.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	124.400	0.000	0.000	0.000	52.200	52.200	52.200	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	124.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	125.000	25.000	150.000	585.000	240.000	200.000	210.000	0.000	0.000	0.000
GR	850.000	0.000	843.000	0.000	842.500	30.000	841.000	30.000	840.000	120.000
GR	838.000	140.000	836.000	145.000	834.000	150.000	832.400	160.000	830.000	170.000
GR	825.000	180.000	820.000	185.000	809.300	190.000	817.000	195.000	816.400	205.000
GR	817.600	297.000	820.000	388.000	826.100	479.000	832.400	570.000	840.000	585.000
GR	842.000	605.000	844.000	685.000	846.000	775.000	848.000	860.000	850.000	890.000

PROPOSED LOGAN STREET BRIDGE

X1	125.500	46.000	225.000	879.000	340.000	110.000	280.000	.669	0.000	0.000
GR	885.500	0.000	857.000	0.000	857.000	0.000	854.900	80.000	854.900	80.000
GR	854.500	86.000	854.500	86.000	853.500	120.000	842.000	120.000	842.000	225.000
GR	836.500	254.000	836.500	254.000	836.000	262.000	836.000	262.000	835.500	270.000
GR	830.000	284.000	826.000	326.000	825.500	375.000	825.500	375.000	825.500	383.000
GR	825.500	383.000	824.100	498.000	824.100	498.000	824.000	504.000	824.000	504.000
GR	824.000	525.000	822.000	552.000	821.200	650.000	821.200	650.000	821.000	656.000
GR	821.000	656.000	820.100	773.000	820.100	773.000	820.000	779.000	820.000	779.000
GR	820.100	813.000	822.600	836.000	827.600	844.000	832.500	861.000	841.000	879.000
GR	842.500	895.000	842.500	895.000	843.300	960.000	844.500	1031.000	847.000	1085.000
GR	850.000	1211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	125.510	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	.669	0.000
BT	32.000	0.000	885.500	857.000	0.000	885.500	879.000	80.000	684.900	878.500
BT	80.000	884.900	854.900	86.000	884.900	854.500	86.000	884.900	878.500	254.000
BT	880.500	874.800	254.000	880.500	836.500	262.000	880.400	836.000	262.000	880.400
BT	874.700	375.000	875.300	869.300	375.000	875.300	825.500	383.000	875.100	825.500
BT	383.000	875.100	869.100	498.000	870.000	864.000	498.000	870.000	824.100	504.000
BT	869.900	824.000	504.000	869.900	863.900	650.000	863.500	857.500	650.000	863.500
BT	821.200	656.000	863.300	821.000	656.000	863.300	857.300	773.000	858.000	852.000
BT	773.000	858.000	820.100	779.000	857.900	820.000	779.000	857.000	851.900	895.000
BT	852.500	847.000	895.000	852.500	842.500	960.000	850.000	0.000	1031.000	848.000
BT	0.000	1085.000	847.000	0.000	1211.000	850.000	0.000	0.000	0.000	0.000
X1	125.590	0.000	0.000	0.000	52.000	52.000	52.000	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	125.600	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	126.000	15.000	20.000	438.000	480.000	925.000	600.000	0.000	0.000	0.000
GR	844.200	0.000	844.000	10.000	833.100	20.000	829.100	29.000	824.100	80.000
GR	823.700	130.000	823.500	180.000	823.900	230.000	823.400	280.000	825.000	330.000
GR	825.200	380.000	828.400	410.000	833.100	438.000	839.800	460.000	847.200	600.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	127.000	17.000	65.000	447.000	1820.000	1740.000	1800.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	10.000	842.000	20.000	840.000	30.000	836.000	50.000
GR	834.000	65.000	833.600	85.000	828.000	135.000	826.000	185.000	823.000	235.000
GR	826.000	285.000	827.000	335.000	828.000	385.000	833.600	445.000	834.000	447.000
GR	840.000	455.000	846.000	465.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	128.000	20.000	220.000	625.000	1900.000	2100.000	1850.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	60.000	844.000	95.000	842.000	125.000
GR	840.000	165.000	838.000	185.000	837.000	195.000	835.000	220.000	834.500	240.000
GR	831.500	255.000	828.000	375.000	823.000	415.000	821.000	495.000	820.800	545.000
GR	830.000	595.000	833.000	615.000	834.000	620.000	840.000	625.000	850.000	640.000
X1	129.000	20.000	88.000	450.000	950.000	900.000	900.000	0.000	0.000	0.000
GR	848.000	0.000	846.000	12.000	844.000	40.000	842.000	50.000	840.000	68.000
GR	838.000	78.000	836.000	88.000	834.000	110.000	830.000	120.000	829.700	185.000
GR	825.300	260.000	823.300	310.000	824.100	385.000	833.100	445.000	836.000	450.000
GR	840.000	470.000	842.000	480.000	844.000	510.000	846.000	515.000	848.000	525.000
X1	130.000	10.000	0.000	358.000	2000.000	1500.000	1650.000	0.000	0.000	0.000
GR	848.100	0.000	833.300	25.000	829.700	52.000	825.300	150.000	823.300	250.000
GR	824.100	310.000	833.300	340.000	836.600	358.000	836.400	430.000	849.400	510.000
X1	131.000	22.000	120.000	600.000	1700.000	1700.000	1600.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	40.000	846.000	70.000	844.000	90.000	842.000	104.000
GR	840.000	112.000	838.000	120.000	836.000	128.000	833.000	140.000	830.000	148.000
GR	825.500	236.000	822.800	324.000	826.400	412.000	833.000	500.000	836.000	600.000
GR	838.000	640.000	840.000	643.000	842.000	649.000	844.000	655.000	846.000	662.000
GR	848.000	675.000	850.000	680.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	132.000	12.000	80.000	504.000	1500.000	1450.000	1500.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	832.700	81.000	830.300	98.000
GR	825.700	200.000	822.200	300.000	828.700	400.000	832.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	133.000	12.000	80.000	504.000	750.000	800.000	800.000	0.000	0.000	0.000
GR	850.500	0.000	836.900	50.000	834.700	80.000	832.700	81.000	830.300	98.000
GR	825.700	200.000	822.400	300.000	828.700	400.000	832.700	488.000	835.700	504.000
GR	838.700	557.000	845.700	582.000	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

HIGHWATER MARK FROM PHOTO 833.6

WAVERLY ROAD BRIDGE

X1	134.000	26.000	188.000	476.000	450.000	450.000	450.000	.859	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
GR	844.900	0.000	837.000	100.000	832.900	188.000	832.900	188.100	825.800	245.000
GR	825.800	245.100	823.400	248.900	823.400	249.000	821.200	304.900	821.200	305.000
GR	820.400	308.900	820.400	309.000	821.400	364.900	821.400	365.000	819.900	368.900
GR	819.900	369.000	825.400	424.900	825.400	425.000	826.400	428.900	826.400	429.000

GR	832.900	476.000	832.900	476.100	843.800	502.000	842.800	700.000	842.900	900.000
GR	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	134.100	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	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
BT	26.000	0.000	844.900	0.000	100.000	843.800	0.000	188.000	843.800	832.900
BT	188.100	843.800	840.000	245.000	844.500	840.000	245.100	844.600	825.800	248.900
BT	844.700	823.400	249.000	844.700	840.000	304.900	844.700	840.000	305.000	844.700
BT	821.200	308.900	844.700	820.400	309.000	844.700	840.000	364.900	844.600	840.000
BT	365.000	844.600	821.400	368.900	844.600	819.900	369.000	844.600	840.000	424.900
BT	844.600	840.000	425.000	844.600	825.400	428.900	844.600	826.400	429.000	844.600
BT	840.000	476.000	844.600	840.000	476.100	844.600	832.900	502.000	844.700	0.000
BT	700.000	842.800	0.000	900.000	842.900	0.000	1100.000	843.100	0.000	0.000
X1	134.500	27.000	216.000	504.000	46.000	46.000	46.000	.859	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.859	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.800	842.800	0.000
BT	24.000	0.000	844.900	0.000	100.000	843.800	0.000	216.000	844.600	832.900
BT	216.100	844.600	840.000	272.900	844.700	840.000	273.000	844.700	828.500	276.900
BT	844.700	824.400	277.000	844.700	840.000	332.900	844.700	840.000	333.000	844.700
BT	820.700	336.900	844.700	819.600	337.000	844.700	840.000	392.900	844.600	840.000
BT	393.000	844.600	818.900	396.900	844.600	820.600	397.000	844.600	840.000	452.900
BT	844.600	840.000	453.000	844.600	821.500	456.900	844.600	824.800	457.000	844.600
BT	840.000	504.000	843.800	840.000	504.100	843.800	827.500	700.000	842.800	0.000
BT	1100.000	843.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.900	0.000	843.800	100.000	832.900	216.000	832.900	216.100	828.500	272.900
GR	828.900	273.000	824.400	276.900	824.400	277.000	820.700	332.900	820.700	333.000
GR	819.600	336.900	819.600	337.000	818.900	392.900	818.900	393.000	820.600	396.900
GR	820.600	397.000	821.500	452.900	821.500	453.000	824.800	456.900	824.800	457.000
GR	827.500	504.000	827.500	504.100	828.200	600.000	829.700	700.000	832.900	750.000
GR	842.900	760.000	843.100	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	134.900	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	842.800	842.800	0.000
NC	.040	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	135.000	18.000	190.000	720.000	400.000	250.000	300.000	0.000	0.000	0.000
GR	846.800	0.000	837.200	100.000	834.500	190.000	833.000	200.000	831.400	220.000
GR	830.200	300.000	830.200	400.000	826.900	500.000	825.000	600.000	824.300	700.000
GR	833.000	720.000	841.900	740.000	842.900	900.000	843.100	1100.000	843.100	1300.000
GR	843.100	1500.000	843.900	1700.000	848.400	1900.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	136.000	12.000	375.000	744.000	3000.000	5000.000	3500.000	0.000	0.000	0.000
GR	846.000	0.000	839.800	25.000	836.500	75.000	835.200	175.000	835.400	275.000
GR	833.100	375.000	831.400	400.000	830.100	500.000	828.600	600.000	821.300	700.000
GR	833.100	744.000	848.600	769.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	137.000	15.000	20.000	365.000	1300.000	2100.000	1400.000	0.000	0.000	0.000
GR	845.000	0.000	835.000	20.000	834.100	30.000	831.500	50.000	830.000	200.000
GR	823.000	240.000	821.300	290.000	821.500	330.000	836.000	365.000	837.000	470.000
GR	836.500	620.000	836.500	820.000	839.000	920.000	839.500	970.000	843.000	1020.000

X1	139.000	14.000	536.000	736.000	2300.000	26 (0.000	2100.000	0.000	0.000	0.000	
GR	846.300	0.000	835.6(0	56.000	834.600	136.000	834.500	236.000	834.500	336.000	
GR	834.000	436.000	833.000	536.000	828.800	553.000	820.600	603.000	821.600	653.000	
GR	824.500	703.000	833.000	736.000	840.700	740.000	847.100	786.000	0.000	0.000	
X1	140.000	16.000	250.000	630.000	2300.000	25 (0.000	2250.000	0.000	0.000	0.000	
GR	850.000	0.000	848.000	18.000	846.000	30.000	844.000	45.000	842.000	60.000	
GR	840.000	82.000	838.000	105.000	836.000	145.000	834.300	250.000	833.000	253.000	
GR	831.500	293.000	830.800	393.000	825.800	493.000	823.300	593.000	840.000	630.000	
GR	846.100	652.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	141.000	14.000	92.000	387.000	2050.000	1150.000	1950.000	0.000	0.000	0.000	
GR	847.900	0.000	837.200	83.000	833.000	92.000	829.900	130.000	823.900	230.000	
GR	832.300	330.000	833.000	387.000	833.300	500.000	833.500	700.000	833.700	900.000	
GR	835.400	1100.000	840.400	1300.000	842.100	1430.000	846.200	1500.000	0.000	0.000	
X1	141.500	22.000	286.000	679.000	1500.000	1300.000	1400.000	0.000	0.000	0.000	
GR	847.000	0.000	836.300	43.000	835.900	87.000	833.000	96.000	831.000	115.000	
GR	833.000	138.000	836.500	146.000	834.500	200.000	834.400	286.000	833.000	294.000	
GR	832.500	320.000	832.500	400.000	833.000	445.000	833.100	457.000	833.000	458.000	
GR	831.600	500.000	820.000	600.000	823.300	650.000	833.000	675.000	835.000	679.000	
GR	842.200	692.000	847.400	741.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	142.000	13.000	140.000	310.000	1700.000	17 00.000	1700.000	0.000	0.000	0.000	
GR	846.000	0.000	841.000	50.000	838.500	140.000	830.000	155.000	820.500	210.000	
GR	825.000	280.000	835.000	310.000	835.000	4 00.000	836.000	550.000	836.000	700.000	
GR	836.500	800.000	837.800	900.000	845.000	1000.000	0.000	0.000	0.000	0.000	
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	143.000	18.000	1290.000	1516.000	2300.000	2700.000	2440.000	0.000	0.000	0.000	
GR	847.100	0.000	835.700	100.000	835.200	300.000	835.600	500.000	835.500	700.000	
GR	835.100	900.000	834.700	1100.000	836.900	1290.000	833.100	1300.000	830.700	1322.000	
GR	825.200	1400.000	826.100	1475.000	833.100	15 00.000	839.200	1516.000	845.500	1600.000	
GR	846.000	1700.000	846.500	1800.000	849.100	1875.000	0.000	0.000	0.000	0.000	
NC	.035	.035	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
			D4								
X1	144.000	12.000	260.000	410.000	4050.000	2300.000	3750.000	0.000	0.000	0.000	836.6
GR	850.000	0.000	843.800	0.000	841.900	100.000	841.800	166.000	836.500	260.000	
GR	833.300	276.000	822.300	300.000	823.600	350.000	827.700	390.000	833.300	404.000	
GR	836.500	410.000	849.300	435.000	0.000	0.000	0.000	0.000	0.000	0.000	
			DZ								
X1	145.000	13.000	645.000	844.000	1100.000	15 00.000	1200.000	0.000	0.000	0.000	836.8
GR	847.700	0.000	845.700	145.000	845.100	345.000	844.300	545.000	836.300	645.000	
GR	833.300	660.000	828.300	680.000	828.700	730.000	826.400	780.000	825.700	816.000	
GR	833.300	839.000	838.200	844.000	847.700	856.000	0.000	0.000	0.000	0.000	
			EA								
X1	146.000	13.000	113.000	310.000	1900.000	1925.000	1800.000	0.000	0.000	0.000	837.1
GR	847.100	0.000	835.500	81.000	835.000	113.000	833.200	120.000	830.600	140.000	
GR	824.200	190.000	824.700	240.000	827.500	265.000	833.200	300.000	837.800	310.000	
GR	840.500	400.000	841.700	470.000	848.600	500.000	0.000	0.000	0.000	0.000	
NC	.035	.035	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000	

CRIETZ ROAD BRIDGE

X1	147.000	18.000	1050.000	1425.000	75.000	250.000	220.000	.979	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000
GR	849.400	0.000	842.700	200.000	842.800	400.000	843.600	600.000	845.600	775.000
GR	836.900	800.000	835.200	1050.000	834.500	1058.000	833.200	1082.000	828.800	1115.000
GR	827.300	1119.000	825.400	1170.000	825.800	1174.000	825.200	1226.000	827.200	1230.000
GR	833.200	1259.000	841.800	1425.000	849.800	1450.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	139.980	12.000	2300.000	1.670	826.500	826.500

X1	147.500	19.000	950.000	1350.000	66.000	66.000	66.000	.979	0.000	0.000
X2	0.000	0.000	1.000	843.400	0.000	0.000	0.000	0.000	.979	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.700	842.700	0.000
BT	20.000	0.000	849.400	0.000	200.000	842.700	0.000	400.000	842.800	0.000
BT	600.000	843.600	0.000	775.000	845.600	0.000	925.000	846.100	0.000	1053.000
BT	846.500	0.000	1058.000	847.000	834.500	1058.000	847.800	843.400	1069.000	847.800
BT	843.400	1124.000	847.900	843.400	1179.000	847.900	843.400	1235.000	847.900	843.400
BT	1259.000	847.800	843.400	1259.000	847.000	833.200	1262.000	847.800	0.000	1282.000
BT	847.000	0.000	1291.000	847.000	0.000	1400.000	848.500	0.000	1450.000	849.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.400	0.000	842.700	200.000	842.300	400.000	843.600	600.000	845.300	775.000
GR	846.300	925.000	837.700	950.000	835.200	1050.000	833.200	1104.000	830.300	1129.000
GR	827.900	1133.000	826.200	1184.000	825.200	1188.000	825.500	1240.000	827.500	1244.000
GR	833.200	1274.000	843.500	1350.000	848.500	1400.000	849.800	1450.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	148.000	15.000	275.000	467.000	500.000	188.000	250.000	0.000	0.000	0.000
GR	847.200	0.000	842.700	15.000	840.100	100.000	838.300	200.000	836.400	275.000
GR	833.200	278.000	828.600	300.000	826.000	350.000	830.800	420.000	833.200	440.000
GR	835.100	467.000	836.200	500.000	840.900	600.000	844.900	655.000	851.800	655.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

WESTBOUND I-96 BRIDGE

X1	149.000	16.000	419.000	700.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	858.500	858.500	0.000
GR	849.300	0.000	842.900	200.000	838.000	419.000	838.200	461.000	838.100	493.000
GR	832.600	503.000	830.000	513.000	827.200	517.000	825.000	570.000	828.800	623.000
GR	832.600	680.000	835.500	695.000	836.200	700.000	839.300	800.000	847.300	1000.000
GR	851.500	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	178.000	8.000	5855.500	2.490	828.000	828.000

X1	149.500	16.000	419.000	700.000	34.000	34.000	34.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.900	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	852.300	852.300	0.000
BT	16.000	0.000	861.400	0.000	100.000	860.400	0.000	200.000	860.400	0.000
BT	300.000	860.200	0.000	400.000	859.900	0.000	419.000	859.900	838.000	419.000
BT	862.900	852.900	515.000	862.700	852.700	625.000	862.500	852.500	695.000	862.300
BT	852.300	721.000	862.200	0.000	721.000	859.200	0.000	800.000	859.100	0.000
BT	900.000	859.100	0.000	1000.000	858.700	0.000	1100.000	858.500	0.000	0.000
GR	854.700	0.000	850.300	200.000	845.000	419.000	838.100	461.000	838.100	493.000
GR	832.600	503.000	829.200	513.000	826.700	517.000	825.000	570.000	827.400	623.000
GR	828.900	627.000	832.600	680.000	843.100	700.000	844.700	800.000	847.900	1000.000
GR	853.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DNR HIGHWATER MARK 837.27

X1	150.000	16.000	415.000	605.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	849.600	0.000	847.300	100.000	845.400	210.000	841.800	300.000	838.500	400.000
GR	838.500	415.000	833.100	430.000	828.500	450.000	825.000	510.000	828.900	565.000
GR	833.100	585.000	841.000	605.000	841.100	700.000	842.600	809.000	845.900	1000.000
GR	847.600	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

EASTBOUND I-95 BRIDGE

X1	151.000	17.000	447.000	769.000	225.000	225.000	225.000	.889	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
GR	857.800	0.000	847.400	200.000	842.200	410.000	840.800	414.000	839.800	447.000
GR	839.500	489.000	833.900	503.000	831.400	538.000	830.400	542.000	829.500	612.000
GR	827.200	683.000	828.900	687.000	833.900	759.000	841.500	769.000	847.400	1000.000
GR	851.400	1200.000	855.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	213.400	8.000	6138.000	2.150	830.000	830.000
X1	151.500	16.000	465.000	787.000	35.000	35.000	35.000	.889	0.000	0.000
X2	0.000	0.000	1.000	853.900	0.000	0.000	0.000	0.000	.889	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.400	860.400	0.000
BT	22.000	0.000	864.500	0.000	100.000	863.800	0.000	200.000	863.300	0.000
BT	300.000	862.800	0.000	400.000	862.600	0.000	414.000	862.500	853.900	414.000
BT	862.500	840.800	421.000	862.500	853.900	430.000	862.500	853.900	430.000	865.500
BT	853.900	549.000	865.100	853.400	692.000	864.500	852.900	769.000	861.300	852.600
BT	769.000	861.300	841.500	830.000	864.100	0.000	830.000	861.100	0.000	900.000
BT	860.700	0.000	1000.000	860.600	0.000	1100.000	860.400	0.000	1200.000	860.500
BT	0.000	1300.000	860.600	0.000	1400.000	860.800	0.000	0.000	0.000	0.000
GR	855.900	0.000	846.200	200.000	837.100	400.000	839.900	465.000	839.600	507.000
GR	833.900	521.000	832.900	556.000	831.900	560.000	829.400	630.000	827.400	699.000
GR	827.700	703.000	833.900	777.000	838.900	737.000	841.400	1000.000	844.400	1200.000
GR	849.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	152.000	12.000	525.000	770.000	400.000	250.000	350.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	250.000	845.500	425.000	840.000	525.000	834.000	565.000
GR	831.400	595.000	826.800	650.000	826.200	700.000	826.900	730.000	830.000	755.000
GR	833.900	770.000	860.500	820.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DOWNSTREAM END OF ISLAND

X1	153.000	14.000	641.000	873.000	562.000	625.000	750.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	410.000	837.800	600.000	837.600	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.800	873.000	839.200	900.000	843.800	1000.000	850.700	1071.000	0.000	0.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM END OF ISLAND

WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

X1	157.000	12.000	0.000	252.000	2100.000	1710.000	1800.000	0.000	0.000	0.000
X5	1.000	838.490	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000

GR	843.000	500.000	850.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	158.000	20.000	655.000	910.000	1812.000	1800.000	1800.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	300.000	841.700	655.000	840.000	660.000	834.000	675.000
GR	829.300	685.000	830.000	700.000	830.500	715.000	830.000	740.000	830.500	825.000
GR	831.500	885.000	834.000	905.000	838.000	910.000	838.500	1045.000	841.500	1090.000
GR	842.500	1120.000	840.700	1235.000	847.000	1335.000	850.000	1365.000	860.000	1915.000
X1	159.000	16.000	385.000	558.000	1750.000	1812.000	1875.000	0.000	0.000	0.000
GR	852.900	0.000	842.300	100.000	840.100	200.000	839.500	300.000	839.600	385.000
GR	833.700	400.000	830.500	420.000	829.900	466.000	827.500	515.000	833.700	549.000
GR	834.400	558.000	834.600	587.000	841.000	606.000	839.000	645.000	845.400	705.000
GR	851.900	805.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	160.000	16.000	760.000	870.000	1562.000	1500.000	1500.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	570.000	846.700	625.000	839.200	650.000	838.000	710.000
GR	840.000	730.000	837.500	745.000	836.700	760.000	834.200	760.000	830.200	770.000
GR	829.100	795.000	830.000	835.000	832.100	850.000	834.200	870.000	850.000	900.000
GR	860.000	930.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	161.000	23.000	1200.000	1384.000	600.000	400.000	500.000	0.000	0.000	0.000
GR	853.900	0.000	850.900	100.000	844.800	200.000	844.600	300.000	845.200	400.000
GR	845.600	500.000	845.600	700.000	846.600	800.000	846.600	900.000	845.000	1000.000
GR	843.000	1100.000	842.300	1200.000	834.100	1221.000	831.100	1280.000	831.400	1300.000
GR	831.900	1350.000	834.100	1375.000	836.300	1384.000	842.200	1430.000	842.500	1500.000
GR	843.700	1562.000	844.000	1575.000	844.000	1590.000	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

DIMONDALE DAM

X1	162.000	12.000	300.000	540.000	1100.000	810.000	980.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	835.000	300.000
GR	831.100	350.000	831.100	490.000	835.000	540.000	844.000	540.000	844.200	600.000
GR	845.000	700.000	854.200	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	162.100	10.000	300.000	540.000	10.000	10.000	10.000	0.000	0.000	0.000
X5	-1.000	2.110	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.400	0.000	846.000	100.000	844.500	200.000	844.200	300.000	833.600	300.000
GR	833.600	540.000	844.000	540.000	844.200	600.000	845.000	700.000	854.200	800.000
QT	1.000	3770.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

REDUCTION OF FLOW

X1	163.000	24.000	409.000	660.000	750.000	625.000	750.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	200.000	865.000	225.000	865.000	245.000	864.000	245.000
GR	850.000	370.000	844.700	409.000	840.500	422.000	834.200	445.000	834.200	479.000
GR	834.000	482.000	834.500	540.000	835.200	543.000	834.400	570.000	840.500	600.000
GR	842.600	610.000	844.500	660.000	852.800	733.000	853.400	783.000	854.000	790.000
GR	870.000	790.000	870.000	810.000	855.000	810.000	860.000	900.000	0.000	0.000
NC	.040	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000

BRIDGE STREET BRIDGE

X1	164.000	17.000	339.000	600.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	853.600	200.000	850.500	300.000	844.700	339.000
GR	840.500	352.000	834.200	375.000	834.200	409.000	834.000	412.000	834.500	470.000
GR	835.200	473.000	834.400	500.000	840.500	532.000	842.600	543.000	844.500	600.000
GR	852.800	700.000	853.400	800.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.600	0.000	150.000	6.000	2739.000	.304	834.500	834.500
X1	164.500	17.000	339.000	600.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.300	0.000	0.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	859.800	0.000	100.000	856.400	0.000	200.000	854.300	0.000
BT	300.000	854.700	0.000	339.000	855.300	0.000	349.000	855.900	0.000	352.000
BT	855.900	840.500	352.000	855.900	850.900	352.000	858.900	850.900	411.000	858.800
BT	851.300	471.000	858.800	851.300	532.000	858.900	850.900	532.000	855.900	840.500
BT	533.000	855.600	0.000	600.000	854.500	0.000	700.000	853.000	0.000	800.000
BT	853.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	859.800	0.000	856.400	100.000	854.400	200.000	844.000	300.000	842.900	339.000
GR	840.500	352.000	834.200	375.000	834.400	409.000	833.700	412.000	835.400	470.000
GR	834.900	473.000	834.400	500.000	840.500	530.000	843.900	543.000	844.500	600.000
GR	853.000	700.000	853.600	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.030	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	165.000	22.000	110.000	387.000	100.000	220.000	175.000	0.000	0.000	0.000
GR	860.000	0.000	852.500	0.000	850.000	80.000	844.000	110.000	840.500	130.000
GR	834.200	153.000	834.000	182.000	834.400	190.000	834.700	232.000	835.000	242.000
GR	834.400	281.000	840.500	305.000	844.000	397.000	847.500	480.000	865.000	480.000
GR	865.000	515.000	850.000	515.000	856.000	625.000	865.000	625.000	865.000	665.000
GR	858.000	665.000	860.000	715.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	166.000	20.000	490.000	720.000	1130.000	1500.000	1300.000	0.000	0.000	0.000
GR	867.000	0.000	858.000	100.000	854.000	200.000	852.200	250.000	848.500	300.000
GR	845.300	450.000	843.500	490.000	840.000	497.000	835.200	510.000	835.200	530.000
GR	834.200	540.000	834.800	570.000	834.200	600.000	835.300	670.000	833.600	680.000
GR	836.500	690.000	840.000	700.000	855.500	720.000	859.000	735.000	868.000	738.000
X1	167.000	22.000	355.000	710.000	500.000	375.000	500.000	0.000	0.000	0.000
GR	860.000	0.000	855.200	100.000	851.200	200.000	849.500	255.000	846.800	305.000
GR	843.700	355.000	842.600	390.000	838.500	400.000	834.800	420.000	834.000	440.000
GR	834.000	470.000	835.500	510.000	835.800	530.000	838.000	540.000	838.400	560.000
GR	839.500	600.000	842.400	655.000	846.000	710.000	852.400	760.000	857.000	810.000
GR	859.000	860.000	860.000	880.000	0.000	0.000	0.000	0.000	0.000	0.000

END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS.

X1	168.000	17.000	400.000	625.000	2500.000	2500.000	2562.000	0.000	0.000	0.000
GR	860.000	0.000	843.800	150.000	841.000	200.000	841.600	250.000	842.200	300.000
GR	843.500	350.000	842.800	400.000	842.500	420.000	839.500	420.000	838.000	430.000
GR	838.000	460.000	837.000	470.000	837.300	490.000	834.500	560.000	839.500	600.000
GR	855.000	625.000	860.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	169.000	29.000	560.000	690.000	2438.000	2300.000	2438.000	0.000	0.000	0.000
GR	867.500	0.000	866.500	50.000	865.000	90.000	865.200	150.000	864.600	200.000
GR	863.300	250.000	862.400	300.000	860.500	350.000	359.000	400.000	856.500	450.000

GR	853.600	500.000	851.100	540.000	837.500	560.000	834.900	600.000	834.400	620.000
GR	834.700	640.000	835.300	670.000	838.200	690.000	842.900	700.000	844.500	750.000
GR	844.500	800.000	848.200	850.000	851.500	900.000	856.400	950.000	857.200	1000.000
GR	857.200	1050.000	858.000	1100.000	860.100	1150.000	859.000	1200.000	0.000	0.000
X1	170.000	13.000	400.000	600.000	2375.000	2250.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	200.000	853.500	250.000	848.500	400.000	847.000	425.000
GR	842.500	450.000	838.500	460.000	838.500	470.000	836.000	530.000	836.500	545.000
GR	837.500	550.000	837.500	570.000	842.500	585.000	842.500	600.000	845.500	650.000
GR	847.000	700.000	850.000	735.000	860.000	775.000	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

MICHIGAN ROAD BRIDGE

X1	171.000	13.000	205.000	382.000	320.000	0.000	200.000	.887	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
GR	857.000	0.000	855.100	100.000	848.800	183.000	841.000	205.000	837.500	263.000
GR	837.000	265.000	837.200	323.000	836.500	325.000	841.000	382.000	844.100	405.000
GR	846.000	500.000	849.500	600.000	858.000	640.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	133.000	4.000	2072.000	.607	837.000	837.000
X1	171.500	13.000	180.000	357.000	47.000	47.000	47.000	.887	0.000	0.000
X2	0.000	0.000	1.000	851.900	0.000	0.000	0.000	0.000	.887	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
BT	14.000	0.000	857.000	0.000	100.000	856.500	0.000	191.000	856.200	0.000
BT	203.000	856.700	841.000	203.000	859.700	851.900	251.000	859.200	851.800	311.000
BT	859.200	851.900	372.000	859.000	851.900	385.000	859.000	851.900	385.000	856.000
BT	841.000	400.000	856.200	0.000	500.000	856.300	3.000	600.000	875.000	0.000
BT	640.000	858.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	857.000	0.000	853.700	100.000	843.900	158.000	841.000	180.000	836.700	238.000
GR	836.700	240.000	837.500	298.000	837.500	300.000	841.000	357.000	847.300	380.000
GR	848.800	500.000	852.100	600.000	858.300	640.000	0.000	0.000	0.000	0.000
X1	172.000	14.000	557.000	747.000	120.000	120.000	120.000	0.000	0.000	0.000
GR	860.000	0.000	857.000	150.000	854.000	300.000	850.000	500.000	843.900	535.000
GR	841.000	557.000	836.700	615.000	836.700	620.000	837.500	690.000	841.000	747.000
GR	847.300	770.000	848.800	880.000	850.000	900.000	860.000	1470.000	0.000	0.000
X1	173.000	22.000	255.000	420.000	750.000	1000.000	375.000	0.000	0.000	0.000
GR	860.000	0.000	854.000	70.000	852.000	120.000	845.500	165.000	845.000	215.000
GR	847.000	255.000	844.500	265.000	841.000	270.000	839.500	300.000	838.500	310.000
GR	838.500	320.000	838.000	330.000	838.000	335.000	838.500	340.000	838.500	350.000
GR	837.500	360.000	837.500	370.000	838.500	390.000	839.500	410.000	844.000	420.000
GR	852.000	520.000	860.000	570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	174.000	18.000	200.000	346.000	100.000	130.000	120.000	0.000	0.000	0.000
GR	857.300	0.000	855.400	100.000	854.700	192.000	854.700	200.000	844.600	200.000
GR	841.700	210.000	840.700	220.000	841.700	256.000	842.900	267.000	841.700	277.000
GR	840.200	300.000	839.200	325.000	841.700	334.000	846.200	345.000	848.800	346.000
GR	856.000	357.000	855.700	400.000	857.500	500.000	0.000	0.000	0.000	0.000
X1	175.000	12.000	168.000	390.000	250.000	250.000	250.000	0.000	0.000	0.000

GR	859.200	0.000	850.700	100.000	844.100	168.000	842.000	171.000	840.500	191.000
GR	838.500	241.000	839.800	286.000	842.000	310.000	843.500	359.000	848.700	390.000
GR	854.400	500.000	859.300	550.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	176.000	24.000	370.000	550.000	1500.000	875.000	1000.000	0.000	0.000	0.000
GR	858.000	0.000	856.500	70.000	856.500	120.000	855.000	170.000	856.000	220.000
GR	857.000	270.000	855.500	290.000	850.500	320.000	844.500	370.000	842.500	380.000
GR	841.000	380.000	840.000	395.000	837.500	445.000	836.500	450.000	837.000	460.000
GR	839.000	490.000	841.500	520.000	843.500	525.000	848.000	550.000	847.000	570.000
GR	846.500	620.000	849.000	670.000	857.000	720.000	858.000	770.000	0.000	0.000
NC	0.000	0.000	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	177.000	14.000	157.000	341.000	1500.000	2000.000	1750.000	0.000	0.000	0.000
GR	859.900	0.000	851.000	50.000	848.100	100.000	848.200	157.000	842.500	169.000
GR	840.500	185.000	838.200	233.000	838.200	284.000	839.200	314.000	842.500	333.000
GR	846.500	341.000	849.800	450.000	855.400	550.000	858.300	600.000	0.000	0.000
X1	178.000	16.000	132.000	363.000	2250.000	2125.000	2225.000	0.000	0.000	0.000
GR	860.000	0.000	855.000	25.000	850.000	50.000	846.500	132.000	842.900	155.000
GR	840.400	195.000	840.200	206.000	839.800	243.000	839.200	252.000	839.200	289.000
GR	839.900	323.000	842.900	355.000	847.000	363.000	850.000	367.000	855.000	492.000
GR	860.000	617.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.063	.063	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

WAVERLY ROAD BRIDGE

X1	179.000	16.000	200.000	450.000	500.000	0.000	250.000	.945	0.000	0.000
GR	859.200	0.000	853.900	100.000	850.300	200.000	842.900	225.000	839.900	272.000
GR	840.400	276.000	840.400	323.000	839.900	327.000	839.900	374.000	839.900	378.000
GR	842.900	425.000	852.000	450.000	853.900	500.000	855.500	700.000	858.700	900.000
GR	859.100	942.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.950	1.500	2.500	0.000	146.530	9.000	1357.400	1.509	839.900	839.900
X1	179.500	16.000	200.000	425.000	28.000	28.000	28.000	.945	0.000	0.000
X2	0.000	0.000	1.000	852.400	853.600	0.000	0.000	0.000	.945	0.000
BT	12.000	0.000	859.200	0.000	100.000	856.100	0.000	218.000	854.900	0.000
BT	218.000	855.700	0.000	225.000	855.600	842.900	225.000	855.600	852.400	425.000
BT	854.400	851.100	425.000	853.600	842.900	500.000	853.900	0.000	700.000	855.500
BT	0.000	900.000	858.700	0.000	942.000	859.000	0.000	0.000	0.000	0.000
GR	859.200	0.000	853.900	100.000	847.400	200.000	842.900	215.000	840.400	262.000
GR	840.200	266.000	839.800	313.000	839.200	317.000	839.200	364.000	839.900	368.000
GR	842.900	415.000	849.700	425.000	853.900	500.000	855.500	700.000	858.700	900.000
GR	859.100	942.000	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
X1	180.000	14.000	153.000	343.000	125.000	450.000	250.000	0.000	0.000	0.000
GR	859.100	0.000	850.600	100.000	845.700	128.000	846.200	153.000	843.300	156.000
GR	842.300	175.000	841.800	225.000	840.300	275.000	843.300	325.000	850.300	343.000
GR	853.300	400.000	855.900	500.000	858.500	600.000	861.500	700.000	0.000	0.000
NC	.070	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	181.000	15.000	0.000	184.000	1125.000	1375.000	1250.000	0.000	0.000	0.000
GR	862.800	0.000	845.100	24.000	843.100	44.000	841.100	100.000	841.300	140.000
GR	845.100	160.000	847.100	167.000	849.100	184.000	851.100	200.000	852.400	300.000
GR	854.300	400.000	857.000	500.000	857.600	600.000	858.600	700.000	860.400	800.000
X1	182.000	32.000	1050.000	1275.000	2500.000	2625.000	2375.000	0.000	0.000	0.000
GR	860.000	0.000	854.500	500.000	855.000	600.000	849.500	700.000	850.800	750.000
GR	853.500	800.000	852.800	830.000	848.300	860.000	846.000	900.000	846.000	950.000
GR	847.000	1000.000	846.500	1050.000	844.300	1050.000	842.500	1050.000	840.500	1055.000
GR	840.300	1080.000	839.500	1100.000	840.000	1130.000	840.800	1160.000	842.300	1180.000
GR	844.300	1200.000	845.000	1250.000	845.300	1265.000	848.500	1275.000	848.500	1300.000
GR	847.000	1350.000	847.500	1400.000	847.300	1450.000	847.000	1500.000	848.500	1650.000
GR	855.500	1800.000	860.000	1880.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	183.000	18.000	200.000	390.000	1375.000	2000.000	1625.000	0.000	0.000	0.000
GR	861.200	0.000	861.000	40.000	849.900	100.000	851.200	200.000	844.900	225.000
GR	840.400	250.000	840.000	300.000	842.100	340.000	844.900	360.000	848.600	390.000
GR	846.900	600.000	846.900	800.000	847.900	1000.000	849.900	1200.000	850.900	1400.000
GR	851.900	1600.000	851.900	1800.000	861.000	1900.000	0.000	0.000	0.000	0.000
X1	184.000	19.000	1670.000	1815.000	1688.000	1750.000	1750.000	0.000	0.000	0.000
GR	860.000	0.000	850.000	430.000	850.000	830.000	848.000	1130.000	847.500	1230.000
GR	850.000	1630.000	848.500	1670.000	847.500	1710.000	844.300	1720.000	840.300	1735.000
GR	840.500	1740.000	837.500	1765.000	838.300	1800.000	843.500	1815.000	848.500	1815.000
GR	848.500	1870.000	849.500	1920.000	854.500	1970.000	868.500	2020.000	0.000	0.000
X1	185.000	25.000	1420.000	1580.000	3000.000	3750.000	3000.000	0.000	0.000	0.000
GR	860.000	0.000	851.500	880.000	850.300	930.000	850.800	980.000	849.300	1030.000
GR	852.300	1180.000	847.800	1230.000	850.500	1330.000	849.800	1380.000	850.000	1420.000
GR	844.500	1429.000	843.500	1430.000	841.500	1440.000	841.000	1450.000	842.300	1485.000
GR	842.000	1550.000	843.500	1565.000	842.300	1570.000	847.500	1580.000	846.300	1630.000
GR	848.800	1680.000	858.300	1730.000	859.300	1780.000	861.800	1830.000	873.800	1880.000
X1	186.000	15.000	1200.000	1337.000	1500.000	1750.000	1625.000	0.000	0.000	0.000
GR	862.800	0.000	858.700	200.000	848.400	400.000	848.000	600.000	848.200	800.000
GR	848.300	1000.000	848.100	1200.000	845.100	1207.000	843.500	1222.000	840.300	1248.000
GR	841.600	1271.000	842.600	1297.000	845.100	1310.000	358.500	1337.000	863.500	1393.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	187.000	19.000	790.000	947.000	2125.000	2000.000	2375.000	0.000	0.000	0.000
GR	866.400	0.000	857.500	100.000	853.400	300.000	853.100	500.000	853.900	700.000
GR	854.300	790.000	845.700	805.000	838.700	825.000	842.700	875.000	842.500	920.000
GR	845.700	940.000	848.900	947.000	852.000	980.000	851.800	1200.000	851.600	1400.000
GR	853.000	1600.000	853.200	1800.000	857.100	2000.000	863.300	2200.000	0.000	0.000
X1	188.000	31.000	865.000	1040.000	1200.000	500.000	800.000	0.000	0.000	0.000
GR	870.000	0.000	860.000	180.000	854.500	340.000	855.000	390.000	856.800	430.000
GR	856.500	440.000	854.500	490.000	855.000	540.000	855.800	590.000	856.500	640.000
GR	856.500	690.000	855.500	740.000	855.500	790.000	856.000	840.000	856.300	865.000
GR	844.800	885.000	839.800	920.000	840.300	935.000	841.000	950.000	842.300	980.000
GR	844.800	998.000	848.500	1000.000	851.300	1040.000	852.000	1140.000	851.500	1240.000
GR	850.300	1290.000	851.800	1340.000	850.300	1440.000	852.300	1490.000	850.800	1540.000
GR	860.000	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

END POINT OF STUDY

X1	189.000	35.000	440.000	570.000	2300.000	3000.000	2750.000	0.000	0.000	0.000
GR	869.000	0.000	866.000	40.000	865.000	90.000	362.000	140.000	860.500	190.000
GR	860.500	240.000	858.800	290.000	859.300	295.000	849.000	320.000	849.000	340.000
GR	848.500	390.000	849.000	440.000	845.500	440.000	844.000	440.000	842.000	450.000
GR	841.500	455.000	842.500	465.000	841.800	470.000	842.500	480.000	842.800	500.000
GR	843.000	530.000	845.500	562.000	849.000	570.000	849.800	600.000	849.800	610.000
GR	846.500	640.000	848.500	690.000	850.800	740.000	850.300	840.000	848.800	890.000
GR	849.000	940.000	849.800	990.000	850.300	1040.000	849.800	1090.000	865.000	1500.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 121.100

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	IOC	ICONT	CORAR	TOPWID	ENDST
121.10	12.40	832.00	0.00	832.00	832.18	.18	0.0(	0.00	835.90
3980.	0.	3980.	0.	0.	1164.	0.	0.	0.	835.80
0.00	0.00	3.42	0.00	.050	.032	.050	0.000	819.60	111.41
.000287	0.	0.	0.	0	0	0	0.00	122.77	234.18

*SECNO 122.000

122.00	12.03	832.23	0.00	0.00	832.26	.02	.06	.02	837.30
3980.	0.	3980.	0.	0.	3293.	0.	42.	4.	847.20
.19	0.00	1.21	0.00	.050	.032	.050	.032	820.20	150.00
.000031	930.	830.	805.	1	0	0	0.0(	318.49	468.49

*SECNO 123.000

123.00	16.05	832.25	0.00	0.00	832.28	.03	.02	.00	838.50
3980.	0.	3980.	0.	0.	2882.	0.	89.	9.	844.00
.32	0.00	1.38	0.00	.050	.032	.050	.032	816.20	110.99
.000044	650.	650.	700.	2	0	0	0.0(	301.54	412.53

CCHV= .300 CEHV= .500

*SECNO 124.000

EXISTING LOGAN STREET BRIDGE

124.00	23.06	832.26	0.00	0.00	832.29	.03	.01	.00	839.00
3980.	0.	3980.	0.	0.	2939.	0.	105.	10.	840.00
.37	0.00	1.35	0.00	.050	.032	.050	.032	809.20	202.28
.000032	275.	240.	200.	0	0	0	0.00	238.72	441.00

*SECNO 124.100

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	IOC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 840.00 MAX ELLC= 868.00

124.10	23.06	832.26	0.00	0.00	832.30	.03	.00	.00	839.00
3980.	0.	3980.	0.	0.	2651.	0.	105.	10.	840.00
.37	0.00	1.50	0.00	.050	.032	.050	.032	809.20	202.27
.000046	1.	1.	1.	0	0	0	-288.15	238.73	441.00

*SECNO 124.400

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 840.00 MAX ELLC= 868.00

124.40	23.06	832.26	0.00	0.00	832.30	.04	.01	.00	839.00
3980.	0.	3980.	0.	0.	2651.	0.	108.	11.	840.00
.38	0.00	1.50	0.00	.050	.032	.050	.032	809.20	202.28
.000046	52.	52.	52.	0	0	0	-288.14	238.72	441.00

*SECNO 124.500

124.50	23.07	832.27	0.00	0.00	832.30	.03	.00	.00	839.00
3980.	0.	3980.	0.	0.	2939.	0.	108.	11.	840.00
.38	0.00	1.35	0.00	.050	.032	.050	.032	809.20	202.28
.000032	1.	1.	1.	0	0	0	0.00	238.72	441.00

*SECNO 125.000

125.00	23.00	832.30	0.00	0.00	832.31	.01	.01	.00	834.00
3980.	0.	3980.	0.	0.	4198.	0.	125.	12.	840.00
.44	0.00	.95	0.00	.050	.032	.050	.032	809.30	160.47
.000020	240.	210.	200.	1	0	0	0.00	407.91	568.37

*SECNO 125.500

PROPOSED LOGAN STREET BRIDGE

125.50	12.30	832.30	0.00	0.00	832.32	.02	.01	.00	842.00
3980.	0.	3980.	0.	0.	3498.	0.	150.	15.	841.00
.51	0.00	1.14	0.00	.050	.032	.050	.032	820.00	186.08
.000033	340.	280.	110.	0	0	0	0.00	389.47	575.55

*SECNO 125.510

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= 32 MIN ELTRD= 847.00 MAX ELLC= 879.00

125.51	12.29	832.29	0.00	0.00	832.33	.04	.01	.01	842.00
3980.	0.	3980.	0.	0.	2513.	0.	150.	15.	841.00
.51	0.00	1.58	0.00	.050	.032	.050	.032	820.00	186.08
.000098	1.	1.	1.	0	0	0	-984.15	389.46	575.54

*SECNO 125.590

3370 NORMAL BRIDGE,NRD= 32 MIN ELTRD= 847.00 MAX ELLC= 879.00

125.59	12.29	832.29	0.00	0.00	832.33	.04	.01	.00	842.00
3980.	0.	3980.	0.	0.	2512.	0.	153.	15.	841.00
.52	0.00	1.58	0.00	.050	.032	.050	.032	820.00	186.09
.000099	52.	52.	52.	0	0	0	-983.52	389.44	575.53

*SECNO 125.600

125.60	12.32	832.32	0.00	0.00	832.34	.02	.00	.01	842.00
3980.	0.	3980.	0.	0.	3505.	0.	153.	15.	841.00
.52	0.00	1.14	0.00	.050	.032	.050	.032	820.00	186.05

.000032	1.	1.	1.	2	0	0	0.00	389.54	575.59

*SECNO 126.000

126.00	8.94	832.34	0.00	0.00	832.37	.03	.03	.00	833.10
3980.	0.	3980.	0.	0.	3012.	0.	198.	21.	833.10
.65	0.00	1.32	0.00	.050	.032	.050	.032	823.40	21.71
.000057	480.	600.	925.	2	0	0	0.00	411.77	433.48

CCHV= .100 CEHV= .300

*SECNO 127.000

127.00	9.49	832.49	0.00	0.00	832.57	.07	.18	.01	834.00
3980.	0.	3980.	0.	0.	1822.	0.	298.	36.	834.00
.88	0.00	2.18	0.00	.050	.032	.050	.032	823.00	94.88
.000235	1820.	1800.	1740.	2	0	0	0.00	338.26	433.14

*SECNO 128.000

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
128.00	11.99	832.79	0.00	0.00	832.82	.04	.25	.00	835.00
3980.	0.	3980.	0.	0.	2510.	0.	390.	51.	840.00
1.20	0.00	1.59	0.00	.050	.032	.050	.032	820.80	248.61
.000090	1900.	1850.	2100.	0	0	0	0.00	364.92	613.52

*SECNO 129.000

129.00	9.58	832.88	0.00	0.00	832.94	.06	.11	.01	836.00
3980.	0.	3980.	0.	0.	1985.	0.	436.	58.	836.00
1.32	0.00	2.01	0.00	.050	.032	.050	.032	823.30	112.80
.000172	950.	900.	900.	2	0	0	0.00	330.72	443.52

*SECNO 130.000

130.00	9.82	833.12	0.00	0.00	833.18	.05	.23	.00	848.10
3980.	0.	3980.	0.	0.	2172.	0.	515.	71.	836.60
1.57	0.00	1.83	0.00	.050	.032	.050	.032	823.30	26.40
.000118	2000.	1650.	1500.	1	0	0	0.00	312.99	339.39

*SECNO 131.000

131.00	10.51	833.31	0.00	0.00	833.36	.04	.18	.00	838.00
3980.	0.	3980.	0.	0.	2397.	0.	599.	83.	836.00
1.84	0.00	1.66	0.00	.050	.032	.050	.032	822.80	138.75
.000107	1700.	1600.	1700.	2	0	0	0.00	371.69	510.43

*SECNO 132.000

132.00	11.27	833.47	0.00	0.00	833.51	.04	.15	.00	834.70
3980.	0.	3980.	0.	0.	2595.	0.	685.	97.	835.70
2.11	0.00	1.53	0.00	.035	.032	.035	.032	822.20	80.61
.000094	1500.	1500.	1450.	0	0	0	0.00	411.55	492.16

*SECNO 133.000

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
133.00	11.15	833.55	0.00	0.00	833.58	.04	.07	.00	834.70
3980.	0.	3980.	0.	0.	2603.	0.	732.	114.	835.70
2.26	0.00	1.53	0.00	.040	.032	.035	.032	822.40	80.58
.000093	750.	800.	800.	0	0	0	0.0(	411.95	492.53

CCHV= .300 CEHV= .500
*SECNO 134.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.50

HIGHWATER MARK FROM PHOTO 833.6

WAVERLY ROAD BRIDGE

134.00	13.68	833.58	0.00	0.00	833.63	.05	.04	.01	832.90
3980.	0.	3980.	0.	0.	2191.	0.	757.	108.	832.90
2.33	0.00	1.82	0.00	.040	.032	.035	.032	819.90	161.49
.000085	450.	450.	450.	0	0	0	0.0(	247.39	408.88

*SECNO 134.100

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 842.80 MAX ELLC= 840.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.10	13.67	833.57	0.00	0.00	833.63	.06	.0(	.00	832.90
3980.	0.	3980.	0.	0.	2044.	0.	757.	108.	832.90
2.33	0.00	1.95	0.00	.040	.032	.035	.032	819.90	161.49
.000107	1.	1.	1.	0	0	0	-144.81	247.39	408.88

*SECNO 134.500

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD= 842.80 MAX ELLC= 840.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.50	14.69	833.59	0.00	0.00	833.64	.05	.0(	.00	832.90
3980.	0.	3980.	0.	0.	2265.	0.	760.	108.	827.50
2.33	0.00	1.76	0.00	.040	.032	.035	.032	818.90	185.54
.000077	46.	46.	46.	1	0	0	-153.65	247.39	432.94

*SECNO 134.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.80 ELREA= 842.80

134.90	14.70	833.60	0.00	0.00	833.64	.04	.0(	.00	832.90
3980.	0.	3980.	0.	0.	2420.	0.	760.	108.	827.50
2.34	0.00	1.64	0.00	.040	.032	.035	.032	818.90	185.54

.000062	1.	1.	1.	0	0	0	0.00	247.39	432.94

*SECNO 135.000

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
135.00	9.34	833.64	0.00	0.00	833.67	.03	.02	.00	834.60
3980.	0.	3980.	0.	0.	2873.	0.	778.	111.	833.00
2.40	0.00	1.39	.12	.040	.032	.050	.032	824.30	196.06
.000092	400.	300.	250.	1	0	0	0.00	525.36	721.42

CCHV= .100 CEHV= .300

*SECNO 136.000

136.00	12.75	834.05	0.00	0.00	834.11	.06	.44	.01	833.10
3980.	5.	3975.	0.	20.	2058.	1.	977.	148.	833.10
2.90	.24	1.93	.22	.050	.032	.050	.032	821.30	333.52
.000176	3000.	3500.	5000.	2	0	0	0.00	412.02	745.54

*SECNO 137.000

137.00	12.97	834.27	0.00	0.00	834.32	.05	.21	.00	835.00
3980.	0.	3980.	0.	0.	2186.	0.	1045.	160.	836.00
3.11	0.00	1.82	0.00	.050	.032	.050	.032	821.30	28.12
.000127	1300.	1400.	2100.	0	0	0	0.00	332.70	360.82

*SECNO 139.000

139.00	13.88	834.48	0.00	0.00	834.54	.06	.22	.00	833.00
3980.	30.	3950.	0.	121.	1980.	1.	1149.	178.	833.00
3.41	.24	2.00	.14	.050	.032	.050	.032	820.60	339.57
.000088	2300.	2100.	2600.	2	0	0	0.01	397.20	736.77

*SECNO 140.000

140.00	11.43	834.73	0.00	0.00	834.78	.05	.24	.00	834.30
3980.	1.	3979.	0.	6.	2268.	0.	1262.	199.	840.00
3.76	.12	1.75	0.00	.050	.032	.050	.032	823.30	223.16
.000128	2300.	2250.	2500.	0	0	0	0.00	395.18	618.33

*SECNO 141.000

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
141.00	11.11	835.01	0.00	0.00	835.06	.05	.28	.00	833.00
3980.	2.	3520.	458.	4.	1771.	913.	1365.	223.	833.00
4.05	.36	1.99	.50	.050	.032	.050	.032	823.90	87.70
.000168	2050.	1950.	1150.	2	0	0	0.00	956.09	1053.79

*SECNO 141.500

3265 DIVIDED FLOW

141.50	15.22	835.22	0.00	0.00	835.26	.04	.19	.00	834.40
3980.	117.	3863.	0.	221.	2356.	0.	1448.	247.	835.00
4.30	.53	1.64	.00	.050	.032	.050	.032	820.00	89.13
.000116	1500.	1400.	1300.	0	0	0	0.00	552.62	679.39

*SECNO 142.000

142.00	14.89	835.39	0.00	0.00	835.48	.09	.21	.02	838.50
3980.	0.	3972.	8.	0.	1630.	47.	1531.	264.	835.00
4.49	0.00	2.44	.17	.050	.032	.050	.032	820.50	145.49
.000134	1700.	1700.	1700.	2	0	0	0.00	313.17	458.65

*SECNO 143.000

3265 DIVIDED FLOW

DX

143.00	10.65	835.85	0.00	0.00	835.92	.08	.44	.00	836.90
3980.	198.	3782.	0.	583.	1643.	0.	1640.	308.	839.20
4.80	.34	2.30	0.00	.050	.040	.050	.033	825.20	98.72
.000257	2300.	2440.	2700.	2	0	0	0.00	1314.72	1507.20

DY

*SECNO 144.000

144.00	14.28	836.58	0.00	0.00	836.70	.12	.77	.01	836.50
3980.	0.	3980.	0.	0.	1452.	0.	1800.	375.	836.50
5.18	.01	2.74	.01	.035	.031	.035	.032	822.30	258.50
.000165	4050.	3750.	2300.	2	0	0	0.00	151.67	410.17

DZ

*SECNO 145.000

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
145.00	11.11	836.81	0.00	0.00	836.91	.10	.21	.00	838.30
3980.	0.	3980.	0.	0.	1579.	0.	1842.	390.	838.20
5.31	0.00	2.52	0.00	.035	.031	.035	.032	825.70	649.48
.000172	1100.	1200.	1500.	2	0	0	0.00	192.81	842.29

EA

*SECNO 146.000

146.00	12.88	837.08	0.00	0.00	837.16	.08	.25	.00	835.00
3980.	44.	3936.	0.	67.	1767.	0.	1913.	389.	837.80
5.54	.65	2.23	0.00	.035	.031	.035	.032	824.20	69.94
.000116	1900.	1800.	1925.	2	0	0	0.00	238.50	308.44

CCHV= .300 CEHV= .500

*SECNO 147.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.70 ELREA= 842.70

CRIETZ ROAD BRIDGE

147.00	11.92	837.12	0.00	0.00	837.19	.07	.03	.00	835.20
3980.	0.	3980.	0.	0.	1886.	0.	1922.	390.	841.80

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    5.57      0.00      2.11      0.00      .035      .031      .035      .032    825.20   1027.95
  .000153      75.      220.      250.         1         0         0      0.00    278.61   1306.56


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
    1.25        1.56       2.60       0.00     139.98      12.00    2800.00      1.67      826.50     826.50

*SECNO 147.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     837.11 BRIDGE VELOCITY=,       2.58      CALCULATED CHANNEL AREA=,      1545.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
    0.00     837.20        .01         0.      3980.      2800.      2640.       843.40     842.70


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.70 ELREA=       842.70

   147.50     11.93    837.13      0.00      0.00    837.20       .07       .01      0.00    837.70
    3980.        0.     3980.        0.        0.     1836.        0.     1925.      390.     843.50
     5.57      0.00      2.17      0.00      .035      .031      .035      .032    825.20    952.31
  .000204       66.       66.       66.         0         0         0      0.00    323.34   1275.65


*SECNO 148.000

   148.00     11.18    837.18      0.00      0.00    837.29       .11       .07       .02    836.40
    3980.        5.     3914.       60.       12.     1441.       61.     1934.      392.     835.10
     5.60       .44      2.72       .99      .035      .040      .035      .032    826.00    243.92
  .000370      500.      250.      188.         0         0         0      0.00    277.09    521.01


*SECNO 149.000
   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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       858.50 ELREA=       858.50

          WESTBOUND I-96 BRIDGE

   149.00     12.30    837.30      0.00      0.00    837.38       .09       .08       .01    838.00
    3980.        0.     3980.        0.        0.     1689.        0.     1947.      394.     836.20
     5.64      0.00      2.36      0.00      .035      .033      .035      .032    825.00    494.48
  .000168      350.      350.      350.         1         0         0      0.00    205.52    700.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
    1.05        1.56       2.60       0.00     178.00       8.00    5855.50      2.49      828.00     828.00
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*SECNO 149.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 837.30 BRIDGE VELOCITY=, 2.22 CALCULATED CHANNEL AREA=, 1795.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	837.38	.00	0.	3980.	5856.	5777.	852.90	858.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 852.30 ELREA= 852.30

149.50	12.30	837.30	0.00	0.00	837.38	.08	.00	0.00	845.00
3980.	0.	3980.	0.	0.	1722.	0.	1949.	39[illegible].	843.10
5.65	0.00	2.31	0.00	.035	.033	.035	.032	825.00	494.45
.000148	34.	34.	34.	0	0	0	0.00	194.50	688.96

*SECNO 150.000

ONR HIGHWATER MARK 837.27

150.00	12.33	837.33	0.00	0.00	837.43	.11	.04	.01	838.50
3980.	0.	3980.	0.	0.	1511.	0.	1956.	395.	841.00
5.67	0.00	2.63	0.00	.035	.035	.035	.032	825.00	418.24
.000226	200.	200.	200.	0	0	0	0.00	177.48	595.72

*SECNO 151.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.40 ELREA= 860.40

EASTBOUND I-96 BRIDGE

151.00	10.21	837.41	0.00	0.00	837.50	.09	.06	.01	839.80
3980.	0.	3980.	0.	0.	1646.	0.	1964.	396.	841.50
5.69	0.00	2.42	0.00	.035	.040	.035	.032	827.20	439.37
.000330	225.	225.	225.	2	0	0	0.00	239.48	678.85

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	0.00	213.40	8.00	6138.00	2.15	830.00	830.00

*SECNO 151.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 837.40 BRIDGE VELOCITY=, 2.43 CALCULATED CHANNEL AREA=, 1539.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	837.51	.00	0.	3980.	6138.	6137.	853.90	860.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.40 ELREA= 860.40

151.50	10.01	837.41	0.00	0.00	837.51	.09	.01	0.00	839.90
3980.	0.	3980.	0.	0.	1611.	0.	1965.	396.	838.90
5.70	0.00	2.47	0.00	.035	.040	.035	.032	827.40	455.50
.000357	35.	35.	35.	0	0	0	0.0(	241.50	697.00

*SECNO 152.000

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
152.00	11.34	837.54	0.00	0.00	837.61	.07	.09	.01	840.00
3980.	0.	3970.	10.	0.	1841.	12.	1979.	398.	833.90
5.74	0.00	2.16	.84	.035	.040	.035	.033	826.20	541.49
.000210	400.	350.	250.	0	0	0	0.0(	235.32	776.82

*SECNO 153.000

DOWNSTREAM END OF ISLAND

153.00	10.50	837.70	0.00	0.00	837.79	.09	.17	.01	837.60
3980.	0.	3980.	0.	1.	1616.	0.	2009.	402.	838.80
5.83	.09	2.46	0.00	.035	.035	.035	.033	827.20	621.29
.000250	562.	750.	625.	2	0	0	0.00	247.96	869.25

*SECNO 157.000
WATER EL=X5 CARD= 838.490

3265 DIVIDED FLOW

UPSTREAM END OF ISLAND

WATER EL CHANGE DUE TO ISLAND; SEE APPROPRIATE FIGURE.

157.00	10.59	838.49	0.00	0.00	838.55	.06	.29	.01	852.00
3980.	0.	3924.	56.	0.	1951.	125.	2085.	414.	839.40
6.08	0.00	2.01	.45	.035	.033	.035	.033	827.90	29.05
.000113	2100.	1800.	1700.	0	0	0	0.0(	347.57	430.62

CCHV= .100 CEHV= .300

*SECNO 158.000

158.00	9.42	838.72	0.00	0.00	838.78	.07	.23	.00	841.70
3980.	0.	3966.	14.	0.	1889.	63.	2169.	430.	838.00
6.32	0.00	2.10	.22	.050	.033	.050	.033	829.30	663.21
.000147	1812.	1800.	1800.	2	0	0	0.00	385.04	1048.25

*SECNO 159.000

3265 DIVIDED FLOW

159.00	11.52	839.02	0.00	0.00	839.13	.11	.33	.01	839.60
3980.	0.	3803.	177.	0.	1417.	160.	2244.	442.	834.40
6.51	0.00	2.68	1.11	.050	.033	.050	.033	827.50	386.48

.000216	1750.	1875.	1812.	2	0	0	0.0(	214.21	645.18

*SECNO 160.000

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	IDC	ICONT	CORAR	TOPWID	ENDST
160.00	10.28	839.38	0.00	0.00	839.63	.25	.46	.04	836.70
3980.	75.	3876.	29.	101.	958.	25.	2290.	450.	834.20
6.62	.74	4.05	1.12	.050	.033	.050	.033	829.10	649.39
.000470	1562.	1500.	1500.	2	0	0	0.0(	220.55	879.64
*SECNO 161.000									
161.00	8.64	839.74	0.00	0.00	839.89	.15	.25	.01	842.30
3980.	0.	3934.	46.	0.	1245.	46.	2304.	452.	836.30
6.66	0.00	3.16	.99	.050	.040	.050	.033	831.10	1206.56
.000544	600.	500.	400.	2	0	0	0.0(	204.25	1410.81

CCHV= .300 CEHV= .500

*SECNO 162.000

DIMONDALE DAM

162.00	9.05	840.15	0.00	0.00	840.21	.06	.29	.03	844.20
3980.	0.	3980.	0.	0.	1976.	0.	2341.	457.	844.00
6.80	0.00	2.01	0.00	.050	.040	.050	.033	831.10	300.00
.000187	1100.	980.	800.	2	0	0	0.0(	240.00	540.00

*SECNO 162.100

WATER EL=X5 CARD= 842.257

162.10	8.66	842.26	0.00	0.00	842.31	.06	.0(	.00	844.20
3980.	0.	3980.	0.	0.	2078.	0.	2341.	457.	844.00
6.80	0.00	1.92	0.00	.050	.040	.050	.033	833.60	300.00
.000164	10.	10.	10.	0	0	0	0.0(	240.00	540.00

*SECNO 163.000

REDUCTION OF FLOW

163.00	8.42	842.42	0.00	0.00	842.55	.13	.2(	.04	844.70
3770.	0.	3770.	0.	0.	1286.	0.	2370.	461.	844.50
6.87	0.00	2.93	0.00	.050	.040	.050	.033	334.00	416.07
.000504	750.	750.	625.	2	0	0	0.00	193.05	609.12

CCHV= .300 CEHV= .500

*SECNO 164.000

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

BRIDGE STREET BRIDGE

164.00	8.46	842.46	0.00	0.00	842.59	.13	.04	.00	844.70
3770.	0.	3770.	0.	0.	1305.	0.	2374.	462.	844.50
6.88	0.00	2.89	0.00	.040	.030	.040	.033	834.00	345.95
.000276	120.	120.	120.	0	0	0	0.00	196.30	542.24

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.56	2.60	0.00	150.00	6.00	2739.00	.90	834.50	834.50

*SECNO 164.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 842.45 BRIDGE VELOCITY=, 3.14 CALCULATED CHANNEL AREA=, 1202.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	842.60	.00	0.	3770.	2739.	2674.	851.30	853.00

164.50	8.77	842.47	0.00	0.00	842.60	.13	.01	0.00	842.90
3770.	0.	3770.	0.	0.	1281.	0.	2375.	462.	844.50
6.89	0.00	2.94	0.00	.040	.030	.040	.033	833.70	341.34
.000293	41.	41.	41.	0	0	0	0.00	196.19	537.53

CCHV= .100 CEHV= .300

*SECNO 165.000

165.00	8.53	842.53	0.00	0.00	842.66	.13	.05	.00	844.00
3770.	0.	3770.	0.	0.	1328.	0.	2380.	463.	844.00
6.90	0.00	2.84	0.00	.060	.030	.060	.033	834.00	118.44
.000328	100.	175.	220.	1	0	0	0.00	233.98	352.41

*SECNO 166.000

166.00	9.26	842.86	0.00	0.00	842.95	.09	.29	.00	843.50
3770.	0.	3770.	0.	0.	1595.	0.	2424.	469.	855.50
7.06	0.00	2.36	0.00	.060	.030	.060	.033	833.60	491.28
.000159	1130.	1300.	1500.	2	0	0	0.00	212.42	703.69

*SECNO 167.000

167.00	8.96	842.96	0.00	0.00	843.06	.10	.10	.00	843.70
3770.	0.	3770.	0.	0.	1498.	0.	2441.	472.	846.00
7.11	0.00	2.52	0.00	.060	.030	.060	.033	834.00	378.37
.000285	500.	500.	375.	1	0	0	0.00	285.26	663.64

*SECNO 168.000

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

END OF FIRST DETAILED STUDY REACH. APPROXIMATE STUDY BEGINS.

168.00	9.19	843.69	0.00	0.00	843.81	.12	.75	.01	842.80
3770.	207.	3563.	0.	343.	1261.	0.	2532.	494.	855.00
7.38	.60	2.82	0.00	.060	.030	.060	.033	834.50	151.90
.000301	2500.	2562.	2500.	2	0	0	0.00	454.86	606.76

*SECNO 169.000

169.00	10.10	844.50	0.00	0.00	844.65	.15	.83	.01	837.50
3770.	36.	3673.	62.	36.	1168.	79.	2613.	512.	838.20
7.59	.99	3.15	.78	.060	.040	.060	.033	834.40	549.71
.000385	2438.	2438.	2300.	2	0	0	0.00	200.20	749.91

*SECNO 170.000

170.00	9.63	845.63	0.00	0.00	845.79	.16	1.14	.00	848.50
3770.	0.	3701.	69.	0.	1130.	82.	2681.	523.	842.50
7.80	0.00	3.27	.85	.060	.040	.060	.033	836.00	432.62
.000618	2375.	2375.	2250.	2	0	0	0.00	221.69	654.31

CCHV= .300 CEHV= .500
*SECNO 171.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.20 ELREA= 856.20

MICHIGAN ROAD BRIDGE

171.00	9.24	845.74	0.00	0.00	845.91	.16	.11	.00	841.00
3770.	0.	3770.	0.	0.	1163.	0.	2686.	524.	841.00
7.82	0.00	3.24	0.00	.060	.040	.060	.033	836.50	181.84
.000532	320.	200.	0.	2	0	0	0.00	157.00	338.83

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.56	2.60	0.00	133.00	4.00	2072.00	.61	837.00	837.00

*SECNO 171.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 845.74 BRIDGE VELOCITY= 3.21 CALCULATED CHANNEL AREA= 1174.

EGPRS	EGLWC	H3	QWEIR	QPP	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	845.92	.01	0.	3770.	2072.	2057.	851.90	856.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.20 ELREA= 856.20

171.50	9.05	845.75	0.00	0.00	845.92	.16	.01	0.00	841.00
3770.	0.	3770.	0.	0.	1160.	0.	2687.	524.	841.00
7.82	0.00	3.25	0.00	.060	.040	.060	.033	836.70	159.66
.000536	47.	47.	47.	0	0	0	0.00	157.00	316.66

*SECNO 172.000

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
172.00	9.19	845.89	0.00	0.00	845.99	.10	.05	.02	841.00
3770.	79.	3657.	34.	87.	1448.	44.	2691.	525.	841.00
7.83	.91	2.53	.77	.060	.040	.060	.033	936.70	523.59
.000309	120.	120.	120.	2	0	0	0.00	241.26	764.85

*SECNO 173.000

3265 DIVIDED FLOW

173.00	8.73	846.23	0.00	0.00	846.40	.17	.37	.04	847.00
3770.	37.	3712.	21.	66.	1113.	31.	2719.	530.	844.00
7.91	.57	3.33	.67	.060	.040	.060	.033	837.50	159.98
.000629	750.	875.	1000.	2	0	0	0.00	269.25	447.82

*SECNO 174.000

174.00	7.02	846.22	0.00	0.00	846.67	.44	.14	.14	854.70
3770.	0.	3770.	0.	0.	706.	0.	2722.	530.	848.80
7.91	0.00	5.34	0.00	.040	.040	.040	.033	839.20	200.00
.002591	100.	120.	130.	2	0	0	0.00	145.01	345.01

*SECNO 175.000

175.00	8.40	846.90	0.00	0.00	847.05	.14	.29	.09	844.10
3770.	48.	3722.	0.	40.	1226.	0.	2727.	532.	848.70
7.94	1.18	3.04	0.00	.040	.040	.040	.033	838.50	139.12
.000646	250.	250.	250.	2	0	0	0.00	240.17	379.29

*SECNO 176.000

3265 DIVIDED FLOW

176.00	10.94	847.44	0.00	0.00	847.57	.12	.52	.01	844.50
3770.	35.	3710.	25.	36.	1304.	46.	2758.	538.	848.00
8.04	.98	2.84	.55	.040	.040	.040	.034	836.50	345.47
.000417	1500.	1000.	875.	2	0	0	0.00	279.16	638.86

*SECNO 177.000

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
177.00	9.71	847.91	0.00	0.00	848.01	.10	.44	.01	848.20
3770.	0.	3758.	12.	0.	1477.	33.	2816.	548.	846.50
8.23	0.00	2.54	.38	.040	.030	.040	.033	838.20	157.61
.000166	1500.	1750.	2000.	2	0	0	0.00	229.97	387.58

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*SECNO 178.000
  178.00      9.08    848.28      0.00      0.00    848.36       .08       .34       .01    846.50
   3770.       15.     3755.        0.       37.     1701.        1.     2899.      561.    847.00
    8.51       .41      2.21       .28      .040      .030      .040      .033    839.20     90.27
 .000140     2250.     2225.     2125.         2         0         0      0.00    274.44    364.71

CCHV=     .300 CEHV=     .500
*SECNO 179.000

          APPROXIMATE STUDY ENDS. SECOND REACH OF DETAILED STUDY BEGINS.

          WAVERLY ROAD BRIDGE

  179.00      8.41    848.31      0.00      0.00    848.41       .10       .04       .01    850.30
   3770.        0.     3770.        0.        0.     1519.        0.     2909.      563.    852.00
    8.54      0.00      2.48      0.00      .063      .030      .063      .033    839.90    195.32
 .000194      500.      250.        0.         0         0         0      0.00    220.37    415.70


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     .95       1.50       2.50       0.00     146.53       9.00    1957.40       1.51     839.90     839.90

*SECNO 179.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=     848.30 BRIDGE VELOCITY=,       2.99      CALCULATED CHANNEL AREA=,      1251.

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
    0.00     848.41        .00         0.      3770.      1957.      1955.       852.40     853.60


  179.50      9.12    848.32      0.00      0.00    848.41       .09       .00      0.00    847.40
   3770.        2.     3768.        0.        6.     1540.        0.     2910.      563.    849.70
    8.54       .25      2.45      0.00      .063      .040      .063      .033    839.20    175.67
 .000311       28.       28.       28.         0         0         0      0.00    224.04    399.70

CCHV=     .100 CEHV=     .300
*SECNO 180.000
  180.00      7.48    848.38      0.00      0.00    848.54       .16       .11       .02    846.20
   3770.       84.     3686.        0.       82.     1133.        0.     2918.      564.    850.30
    8.56      1.03      3.25      0.00      .063      .040      .063      .033    840.90    112.65
 .000695      125.      250.      450.         0         0         0      0.00    225.43    338.08

*SECNO 181.000
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
  TIME      VLOE      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

  181.00      8.23    849.33      0.00      0.00    849.55       .21       .99       .02    862.80
   3770.        0.     3770.        0.        0.     1014.        0.     2950.      570.    849.10
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8.65	0.00	3.72	.15	.070	.040	.070	.034	841.10	18.26
.000913	1125.	1250.	1375.	2	0	0	0.00	167.61	185.87

*SECNO 182.000

3265 DIVIDED FLOW

182.00	10.67	850.17	0.00	0.00	850.21	.03	.64	.02	846.50
3770.	390.	2939.	441.	709.	1794.	993.	3076.	600.	848.50
9.13	.55	1.64	.44	.070	.040	.070	.034	839.50	687.74
.000126	2500.	2375.	2625.	3	0	0	0.00	876.58	1685.88

*SECNO 183.000

3265 DIVIDED FLOW

183.00	10.42	850.42	0.00	0.00	850.45	.03	.24	.00	851.20
3770.	1.	2493.	1275.	11.	1388.	2195.	3220.	642.	848.60
9.47	.12	1.80	.58	.065	.040	.065	.034	840.00	97.22
.000163	1375.	1625.	2000.	2	0	0	0.00	1142.08	1302.86

*SECNO 184.000

184.00	13.23	850.73	0.00	0.00	850.78	.05	.32	.01	848.50
3770.	979.	2678.	113.	1967.	1225.	216.	3359.	695.	848.50
9.76	.50	2.19	.52	.065	.040	.065	.034	837.50	398.77
.000215	1688.	1750.	1750.	2	0	0	0.00	1533.49	1932.26

*SECNO 185.000

3265 DIVIDED FLOW

185.00	10.36	851.36	0.00	0.00	851.42	.07	.64	.00	850.00
3770.	279.	3136.	356.	641.	1402.	430.	3567.	775.	847.50
10.19	.44	2.24	.83	.065	.040	.065	.034	841.00	886.26
.000206	3000.	3000.	3750.	1	0	0	0.00	749.10	1693.42

*SECNO 186.000

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
186.00	11.38	851.68	0.00	0.00	851.71	.03	.28	.00	848.10
3770.	1835.	1935.	0.	2894.	1041.	0.	3683.	806.	858.50
10.54	.63	1.86	0.00	.065	.040	.065	.034	840.30	336.40
.000150	1500.	1625.	1750.	2	0	0	0.00	986.85	1323.25

*SECNO 187.000

187.00	13.37	852.07	0.00	0.00	852.18	.11	.45	.02	854.30
3770.	0.	3722.	48.	0.	1420.	179.	3824.	847.	848.90
10.79	0.00	2.62	.27	.035	.040	.065	.035	838.70	793.89
.000265	2125.	2375.	2000.	1	0	0	0.00	672.86	1466.76

```
*SECNO 188.000
   188.00     12.51    852.31      0.00      0.00    852.41      .10      .23      .00    856.30
    3770.        0.      3552.      218.        0.     1343.      527.     3854.      856.    851.30
    10.88      0.00      2.64       .41      .035      .040      .065      .039   839.80    871.94
  .000329     1200.       800.      500.         2         0         0     0.01   743.52   1615.46

*SECNO 189.000

            END POINT OF STUDY

   189.00     11.38    852.88      0.00      0.00    852.91      .03      .49      .01    849.00
    3770.       576.      2154.     1040.      509.     1249.     1891.     4032.      909.    849.00
    11.46       1.13      1.72       .55      .035      .040      .065      .039   841.50    310.58
  .000112     2300.      2750.     3000.         2         0         0     0.00   862.51   1173.09
```

00BREAK00

1) COUNTY: Ingham + Eaton

2) STUDY NAME: City of Lansing

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Report

00BREAK00

RECEIVED
OCT 02 1978
WATER MANAGEMENT

SNELL ENVIRONMENTAL GROUP, INC.

Grand River Part II
Flood Insurance Study
Hydraulic Analysis

Snell Environmental Group

Engineering · Planning · Research

LETTER OF TRANSMITTAL

DATE	JOB NO.
October 2, 1978	1728IA 17284A,17285A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: Lansing City, Dimondale Village, Delta, Windsor and Delhi Townships	
Flood Insurance Studies	
Grand River Part II	
Hydraulic Analysis Report	

TO: Mr. Daniel H. Morgan, P.E.
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 ☐ Partial Payment Request ☒ Reports ☐ Prints ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	10/2/78		Hydraulic Analysis Report
1	10/2/78		Computer Printout File

THESE ARE TRANSMITTED as checked below:

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SIGNED: Sam M. Nalluswami

1120 May St. Lansing Mich 48906 • Telephone (517) 374-6800 • Additional offices in Akron • Indianapolis • Tokyo • Dacca • Amman
Principals John R Snell • John C O'Malia • Gerald M McDonnell
Associates Kurt J Gutex • William J Bandy Jr • Joseph A Badra • Alan D Godfrey • Virgil W Longworthy
CABLE SNELL TELEX 229458

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INTRODUCTION

This study concerns two reaches of the Grand River separated by a reach which is to be studied by approximate methods. The first detailed study reach, 9.3 miles long, extends upstream from the Moores Park Dam in Lansing, Michigan to the southern border of the Village of Dimondale in Windsor Township, Michigan. The second detailed study reach, 3.2 miles in length and entirely within Delhi Township, Michigan, extends upstream from the Waverly Road bridge to Wilbur Highway. In the interest of simplicity, the entire reach from the Moores Park Dam to Wilbur Highway was modeled as one reach and is presented as such in this report and the accompanying computer outputs.

The drainage area at the downstream limit of the study is 751 square miles. The Moores Park Dam and the Dimondale Dam are the only significant hydraulic control structures within the study reach. There are no major tributaries contributing to the Grand River within the study reach. The average slope of the channel bottom is 1.35 ft./mile.

FLOOD FLOWS

Flows for the 10-, 50-, 100-, and 500-year floods were obtained from Hydrology Report, Grand River and Red Cedar River Confluence (Reference 15). Due to the uneven storm distribution the 1975 flood flow was extrapolated from the peak flow recorded at the Eaton Rapids U.S.G.S. gauge, using the following relationship: (Reference 2).

$$(A_x/A_{gauge})^n = Q_x/Q_{guage} \qquad (1)$$

Where:

A_x = drainage area at Location X
A_{gauge} = drainage area at the gauge
Q_x = peak flow at Location X
Q_{gauge} = peak flow at gauge
n = relational constant

Equation (1) was used to adjust flows at the Bridge Street Bridge in Dimondale, just upstream of the Dimondale Dam. The starting and the adjusted flows are both presented in Table 1.

TABLE 1

Q's OK RCS, 1/12/78

Location	Peak Flow (cfs)				
	1975 Flood	10-yr.	50-yr.	100-yr.	500-yr.
Moores Park Dam	3,980	5,860	8,710	10,000	13,300
Bridge Street Bridge, Dimondale	3,770	5,550	8,255	9,475	12,600
	.947	.947	948		

HYDRAULIC CONTROL STRUCTURES

The Moores Park Dam (Figure 1), at the starting point of the study, and the Dimondale Dam (Figure 2), 8.9 miles upstream are the only significant control structures within the study reach. The Moores Park Dam has a fixed crest with an effective length of 109 ft. and three 8 ft. vertical lift gates with a total length of 76 ft. Operating procedures of the gates were investigated by contacting authorities and reviewing gate positions during past floods. The gates are operated so as to maintain the reservoir level up to the fixed crest. The Dimondale Dam is a 240 ft. long sharp-crested weir.

good

METHOD OF ANALYSIS

The HEC-2 Computer Program developed by the U.S. Army Corps of Engineers was used to compute water surface profiles (References 3, 4 and 5). Cross Sections (Appendix B) used in the analysis were obtained from: 1) field survey, 2) U.S. Army Corps of Engineers FPI report data (Reference 6), 3) fabrication using 2' contour maps and 4) repeating few cross sections as required. Cross section locations (Appendix G) were chosen from field inspection and according to the guidelines suggested by the HEC-2 training documents. Cross Sections have been plotted in the computer printout in Appendix E.

Manning roughness factors were chosen from field inspection and adjusted during calibration of the hydraulic model. The roughness coefficients were based on values listed in References 6, 7, and 8. The 100-year flood roughness coefficients used for the main channel range from .033 to .044 while for the overbank areas the coefficients range from .039 to .077. Contraction and expansion coefficients of 0.1 and 0.3 respectively were used for valley sections. Coefficients of 0.3 and 0.5 were used at most bridge cross sections because of more abrupt flow transition. Buildings that are close to the main channel were coded into the cross sections. ✓

STARTING POINT

The starting elevations for this study were determined by performing a weir analysis on the Moores Park Dam (Figure 1), the starting point of this reach of the Grand River. Tailwater elevations were obtained from Grand River, Part I Hydraulic Analysis (Reference 16). The following assumptions and facts were used in the analysis.

1. The three gates are operated in a manner so as to keep the reservoir level up to the spillway crest of 831.75.

2. Each gate has a vertical lift of 8 ft. and a flow capacity of 2,850 cfs. During flood flows the gates are opened completely allowing a total of 8,550 cfs to pass through.

3. For water surface higher than 834.9* weir flow occurs over a wall in the right overbank.

* safety factor for 100 yr if normal gates are not operated

4. For water surface higher than 835.1 weir flow occurs over a wall in the left overbank in addition to the weir flow in the right overbank. 500yr only

5. Aside from the gates the major portion of the flow occurs over the fixed spillway with an effective length of 109 ft.

6. During the 1975 flood one gate was open 8 ft., another was open 6 ft., and the third was closed.

A complete weir analysis using these assumptions and field survey data is presented in Appendix A. The starting elevations for the historic and synthetic floods on the upstream side of Moores Park Dam are presented in Table 2.

TABLE 2

Location	Water Surface Elevation (ft. from mean sea level)				
	1975 Flood	10-yr.	50-yr.	100-yr.	500-yr.
Upstream side of Moores Park Dam	832	832	832.31	834.73	838.61

CALIBRATION OF THE HYDRAULIC MODEL

The model was calibrated using the 1975 flood. Three highwater marks were available, each of which is discussed in turn as the study moves upstream.

HWM #1 - 833.6 @ Section 134
Culvert downstream of the Waverly Road Bridge

This highwater mark was obtained from an aerial photograph of the above mentioned culvert during the 1975 flood. The water level, in relation to the culvert diameter, was estimated from the photograph. A field survey was conducted to determine the elevation. The resulting highwater mark is approximate, at best, for the following reasons:

1. The estimate of the water level was strictly an "eyeball" estimate which could easily be incorrect.

2. It is not known whether the photograph was taken at the time of the peak flood stage.

HWM #2 837.27 @ Section 150.
Culvert between the westbound and eastbound I-96 bridges.

According to information provided by an eyewitness the water, at peak flood stage, was almost up to the crown of the culvert. A field survey was conducted to determine the elevation. This highwater mark should be quite reliable.

~~Pth~~ Peak flow at Eatra Rapids Apr 19 Th
Sat photo Monday April 21st.

HWM #3 844.04 @ Section 164
Weather Bureau gauge at the Bridge Street Bridge in Dimondale

This highwater mark was obtained from the gauge readings made during the 1975 flood. The following factors, however, raised serious questions as to its validity.

1. The Dimondale gauge is in a state of extreme disrepair. It is broken in several places and all markings are illegible due to rust. It is probable that the gauge datum has changed.

2. The USACE report entitled Flood Plain Information, Grand River (Reference 17) shows an elevation of 844 at the Bridge Street bridge in Dimondale for the 1947 flood. The 1947 flood had a peak flow of 7,800 cfs as compared to 3,770 cfs for the 1975 flood.

Highwater marks 1 and 2 were matched within 0.04'. Highwater mark 3 was not used in the calibration.

As there was no rating curve available for this reach of the Grand River, 'n' values for the synthetic flows were adjusted using the same FN factors that were used in Grand River, Part I (Reference 16). These are presented in Table 3.

we objected to this procedure on Part I

TABLE 3

Flood Frequency	Peak Flow at Moores Park Dam (cfs)	FN Factor	ΔFN (%)
1975 Historic	3,980	0	0
10-Year	5,860	0	0
50-Year	8,710	1.078	7.8
100-Year	10,000	1.1	10
500-Year	13,300	1.15	15

FN should reduce with increases in depth.

BRIDGE ANALYSIS

Bridges were modeled using the special and the normal bridge routines of HEC-2. Cross sections were located according to the HEC-2 training document, Application of HEC-2 Bridge Routines (Reference 4). Coefficients used in the special bridge routine were chosen from the same publication. Selection of the bridge routine was based on water surface elevations of the 100-year flood. Some bridges with piers (Sections 124, 125.5 and 134) were modeled using the normal bridge routine due to low flow and the insignificant loss of energy caused by the piers. In all such cases, the piers were coded into the BT points and show up in the output as "corrected area".

The maximum low steel of all bridges in this reach of the Grand River would be above the 100-year flood stage.

SPECIAL PROBLEMS

Moores Park Dam

This particular control structure is the downstream limit of the study and has already been discussed in the section entitled, "Starting Point".

Island Downstream of Dimondale

At Section 157, about a mile downstream of the Dimondale Dam, Grand River is divided by a 2,000 ft. long island into one large and one small channel. The main channel is a regular river channel 200-300 ft. wide. The small channel, 75-150 ft. wide, has two small bridges. HEC-2 backwater runs were performed up each channel using 5 different divisions of flow. The correct division of flow was determined by plotting the small channel and main channel elevations at Section 157 and bisecting the axis, as illustrated in Open Channel Hydraulics, V.T. Chow (Reference 8). This graphic analysis was done for each of the historic and synthetic floods. The resulting curves are depicted in Figures 3 through 7. The correct divisions of flow and head loss due to the island are presented in Table 4. The elevations were inserted into the model using the X5 card.

TABLE 4
DIVISION OF FLOW AT ISLAND NEAR DIMONDALE
All flows in cfs

Flood Frequency	Total Q	Small Channel Q	Main Channel Q	Head Loss Through Island
1975 Historic	3,980	625	3,355	0.83'
10-Year	5,860	855	5,005	0.92'
50-Year	8,710	1,120	7,590	0.82'
100-Year	10,000	1,475	8,525	0.73'
500-Year	13,300	1,680	11,620	0.54'

Dimondale Dam

The Dimondale Dam is a sharpcrested weir 240 ft. in length with a crest of 839.3 ft. above mean sea level. For all the historic and synthetic floods the dam acts as a submerged weir. Head losses for all floods were calculated according to the techniques for submerged weirs illustrated in References 8 and 18. Losses were inserted into the model, at Section 162.1, using the X5 card. The head loss through the structure for the 100-year flood was 1.18 ft. Table 5 presents the head losses for all historic and synthetic floods.

TABLE 5

HEAD LOSS THROUGH THE DIMONDALE DAM
CREST LEVEL - 839.3

Flood Frequency	Peak Flow (cfs)	Unsubmerged Weir Coefficient	Tailwater Elevation	Upstream Elevation	Head Loss
1975 Historic	3,980	3.48	840.15	842.26	2.11'
10-Year	5,860	3.57	842.03	843.61	1.58'
50-Year	8,710	3.72	844.41	845.65	1.24'
100-Year	10,000	3.77	845.29	846.47	1.18'
500-Year	13,300	3.92	847.46	848.53	1.07'

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17. U.S. Army Corps of Engineers, Flood Plain Information, Grand River, Ingham County, Eaton County, Michigan, 1969.

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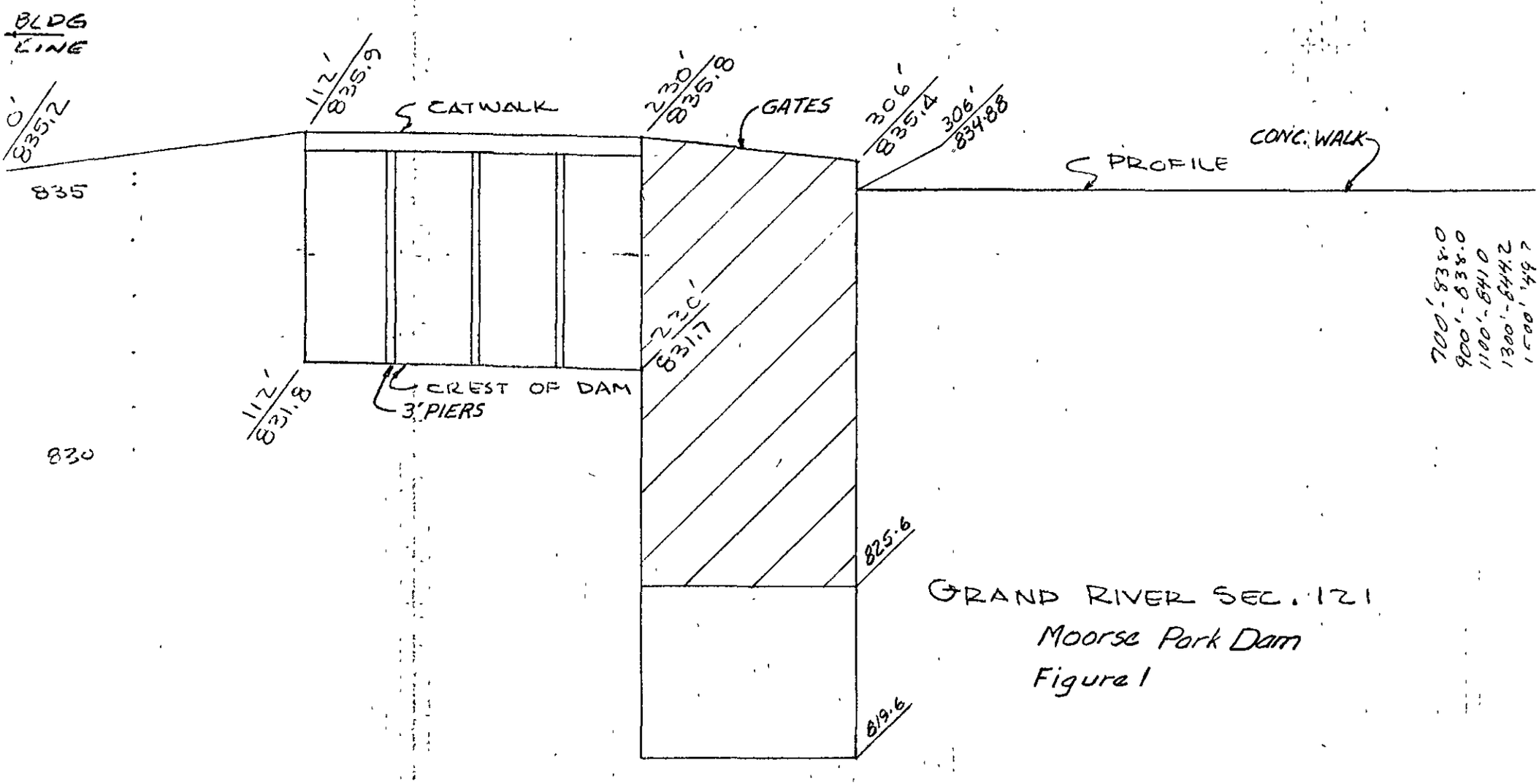
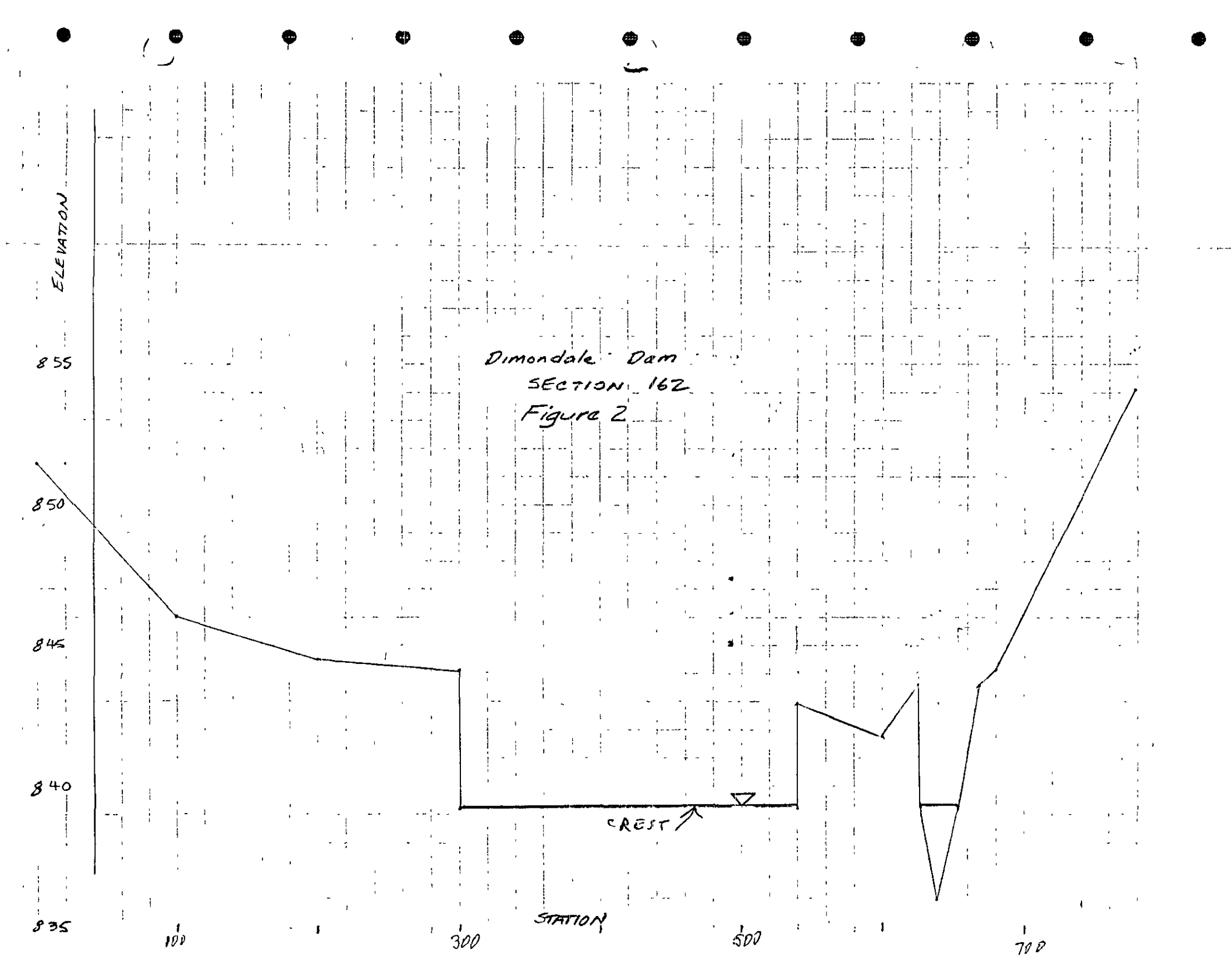


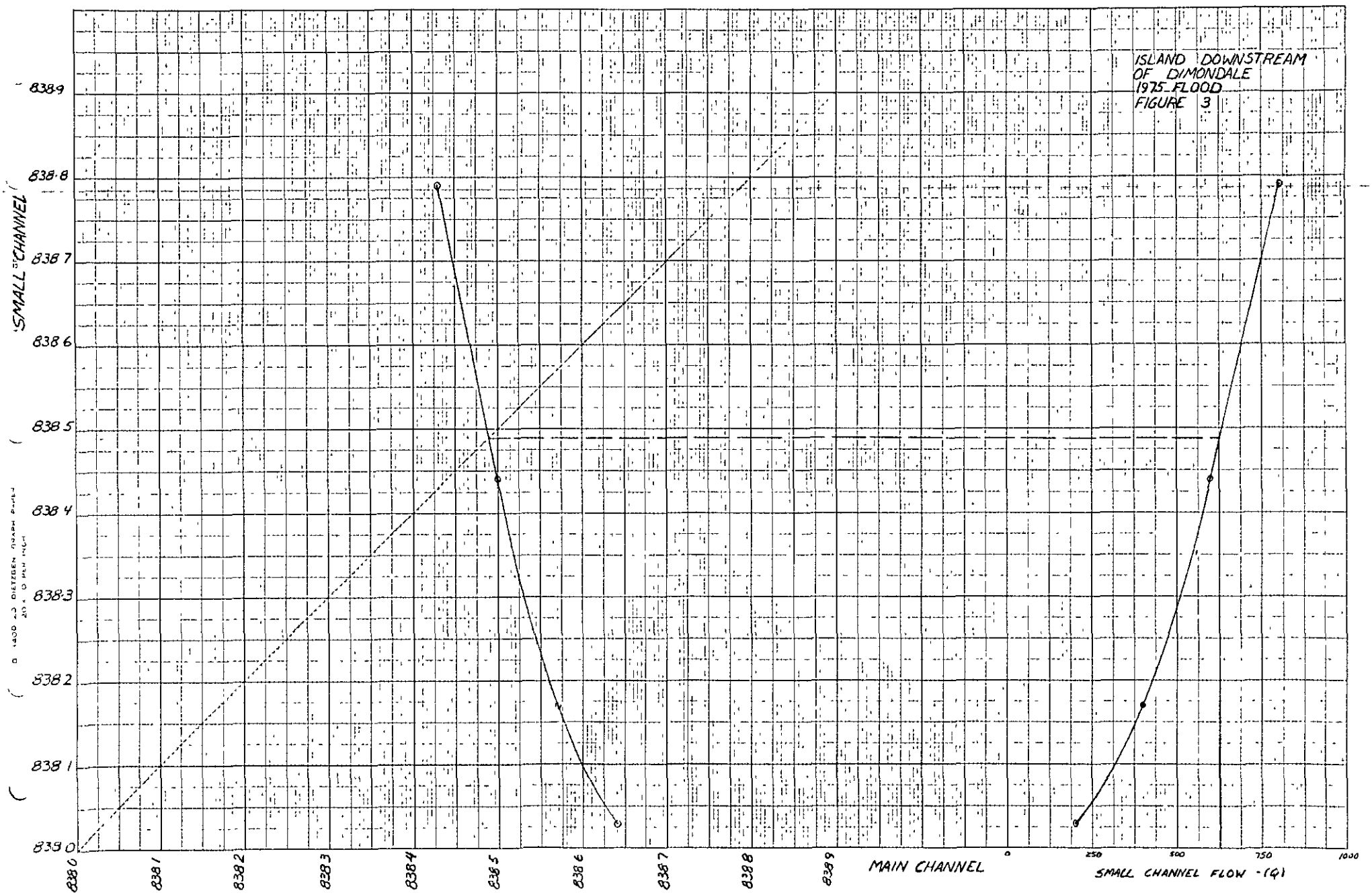
GRAND RIVER SEC. 121

Moorse Park Dam

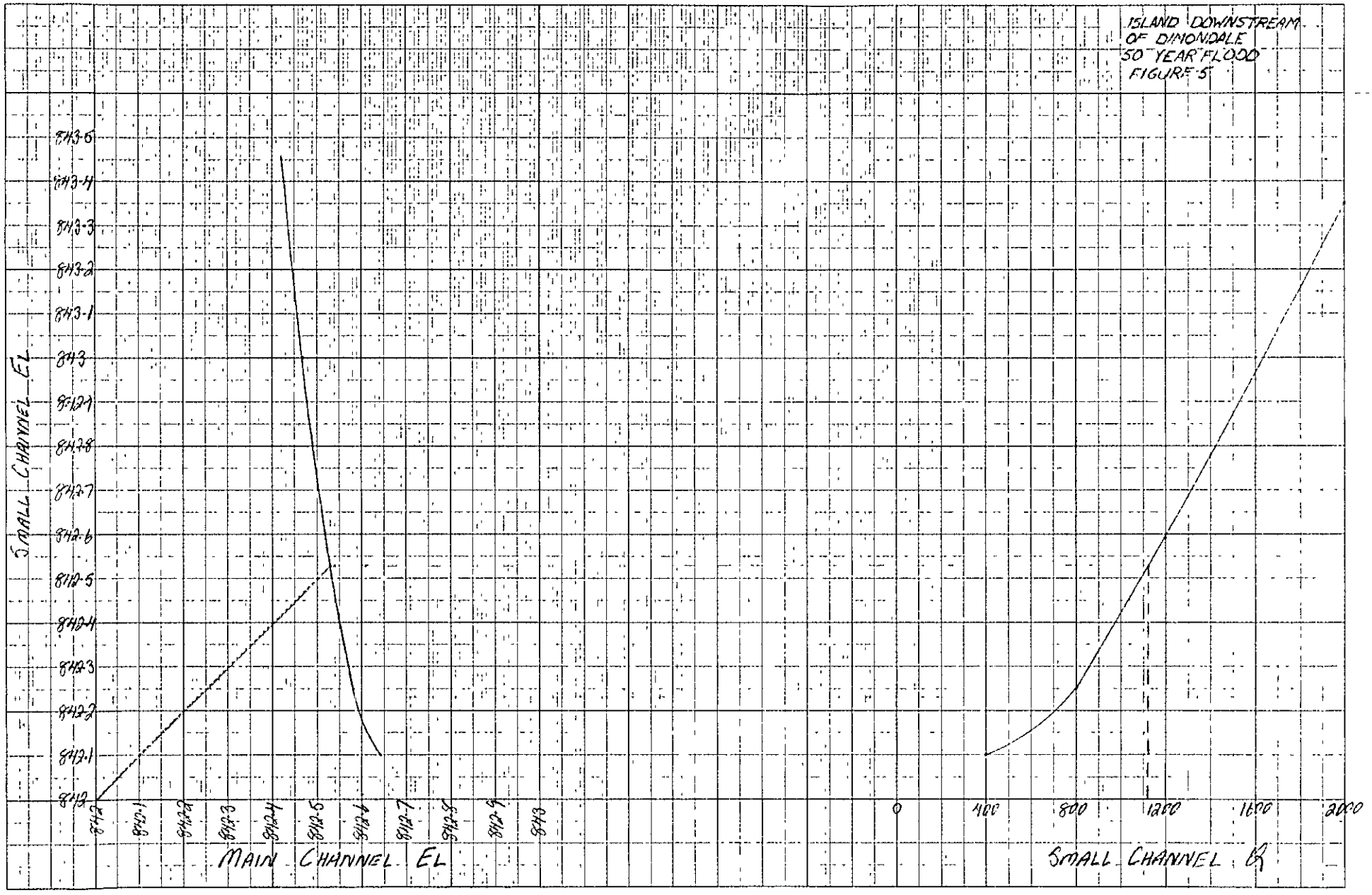
Figure 1

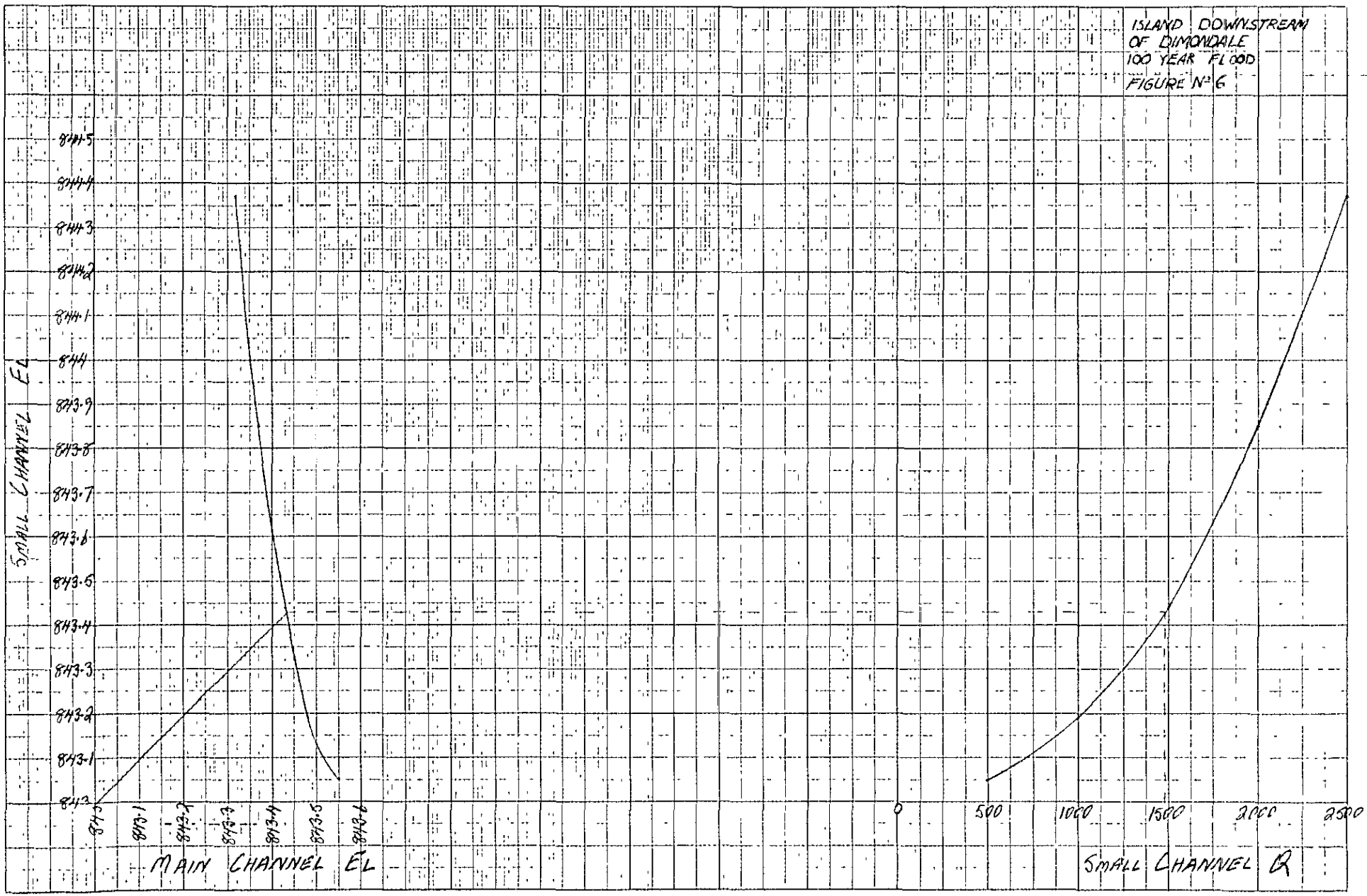


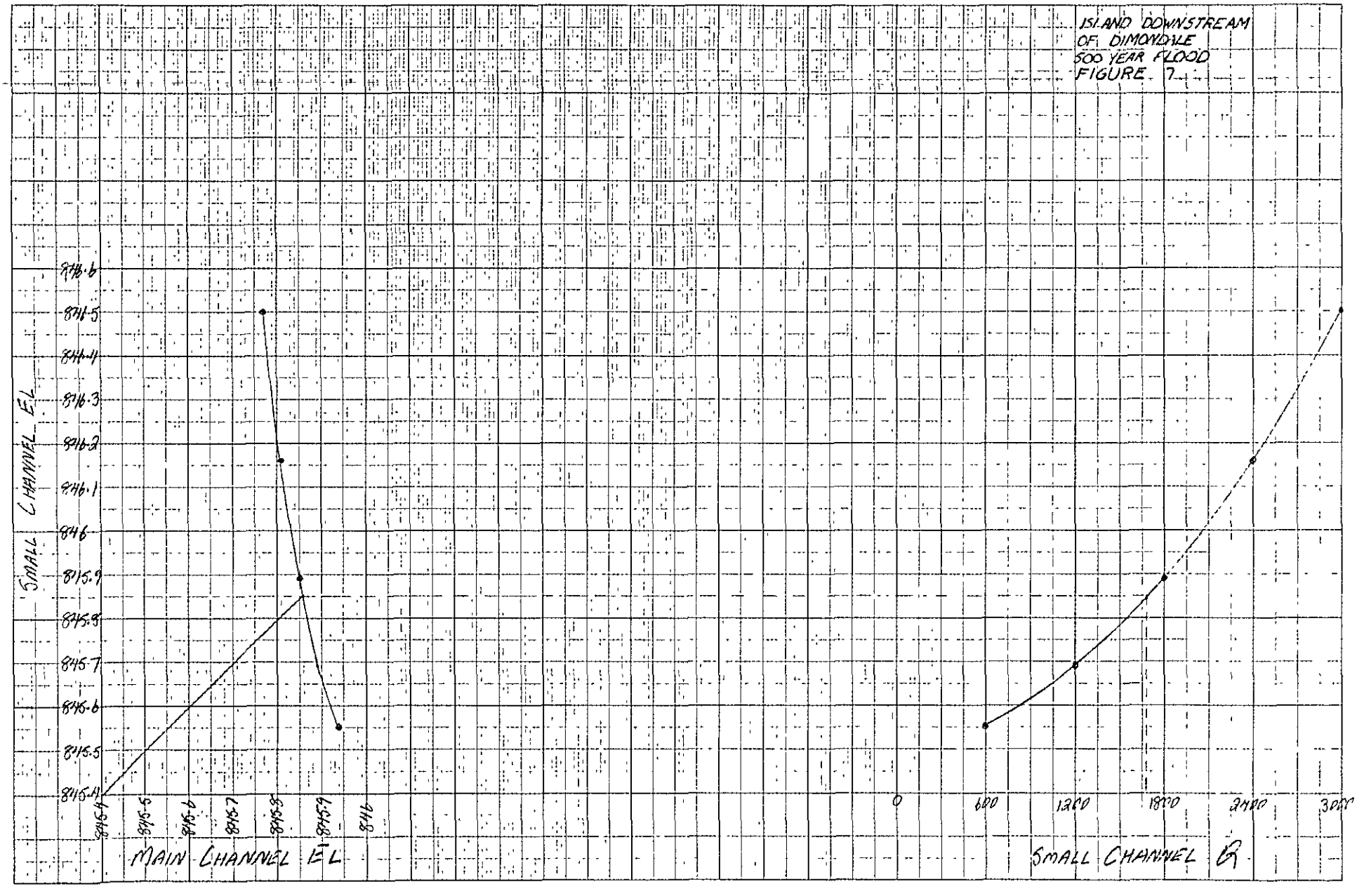
Dimondale Dam
SECTION 16Z
Figure 2


ISLAND DOWNSTREAM OF DIMONDALE
1975 FLOOD
FIGURE 3
SMALL CHANNEL
838.9
838.8
838.7
838.6
838.5
838.4
838.3
838.2
838.1
839.0
838.6
838.1
838.2
838.3
838.4
838.5
838.6
838.7
838.8
838.9
MAIN CHANNEL
0
250
500
750
1000
SMALL CHANNEL FLOW - (Q)

ISLAND DOWNSTREAM OF DIMONDALE
10 YEAR FLOOD
FIGURE 4
SMALL CHANNEL EL
MAIN CHANNEL EL
SMALL CHANNEL EL


ISLAND DOWNSTREAM
OF DIMONDALE
50 YEAR FLOOD
FIGURE 5
SMALL CHANNEL EL
843.5
843.4
843.3
843.2
843.1
843
842.9
842.8
842.7
842.6
842.5
842.4
842.3
842.2
842.1
842
842
842.1
842.2
842.3
842.4
842.5
842.6
842.7
842.8
842.9
843
MAIN CHANNEL EL
0
400
800
1200
1600
2000
SMALL CHANNEL Q


ISLAND DOWNSTREAM OF DIMONDALE
100 YEAR FLOOD
FIGURE Nº 6
SMALL CHANNEL EL
844.5
844.4
844.3
844.2
844.1
844
843.9
843.8
843.7
843.6
843.5
843.4
843.3
843.2
843.1
843
843
843.1
843.2
843.3
843.4
843.5
843.6
MAIN CHANNEL EL
0
500
1000
1500
2000
2500
SMALL CHANNEL Q


ISLAND DOWNSTREAM
OF DIMONDALE
500 YEAR FLOOD
FIGURE 7
SMALL CHANNEL EL
846.6
846.5
846.4
846.3
846.2
846.1
846
845.9
845.8
845.7
845.6
845.5
845.4
845.4
845.5
845.6
845.7
845.8
845.9
846
MAIN CHANNEL EL
0
600
1200
1800
2400
3000
SMALL CHANNEL Q

APPENDIX A

WEIR ANALYSIS FOR THE MOORES PARK DAM

Snell Environmental Group
Engineering Planning Research
Michigan · Ohio · Indiana

SUBJECT Mookee Park Dam
JOB NUMBER
SHEET NO. 1 OF 12
COMP. BY KDG DATE 7/31/78
CHK'D. BY DATE

100 - YEAR STORM

$Q = 10,000$ CFS
TAILWATER = 833.73, from published report which may be 1 high

CALCULATION

1. $Q = Q_G + Q_S + Q_L + Q_R$

$Q_G \equiv$ FLOW THROUGH GATES
$Q_S \equiv$ FLOW OVER SPILLWAY
$Q_L \equiv$ FLOW IN LEFT OVER BANK
$Q_R \equiv$ " " RIGHT OVERBANK
$\equiv$ "

2. Q_G

A. ASSUMPTIONS

1) FLOW THROUGH GATES IS A FUNCTION OF GATE OPENING ONLY
2) ALL GATES OPEN TO 8'
NO SUBMERGENCE

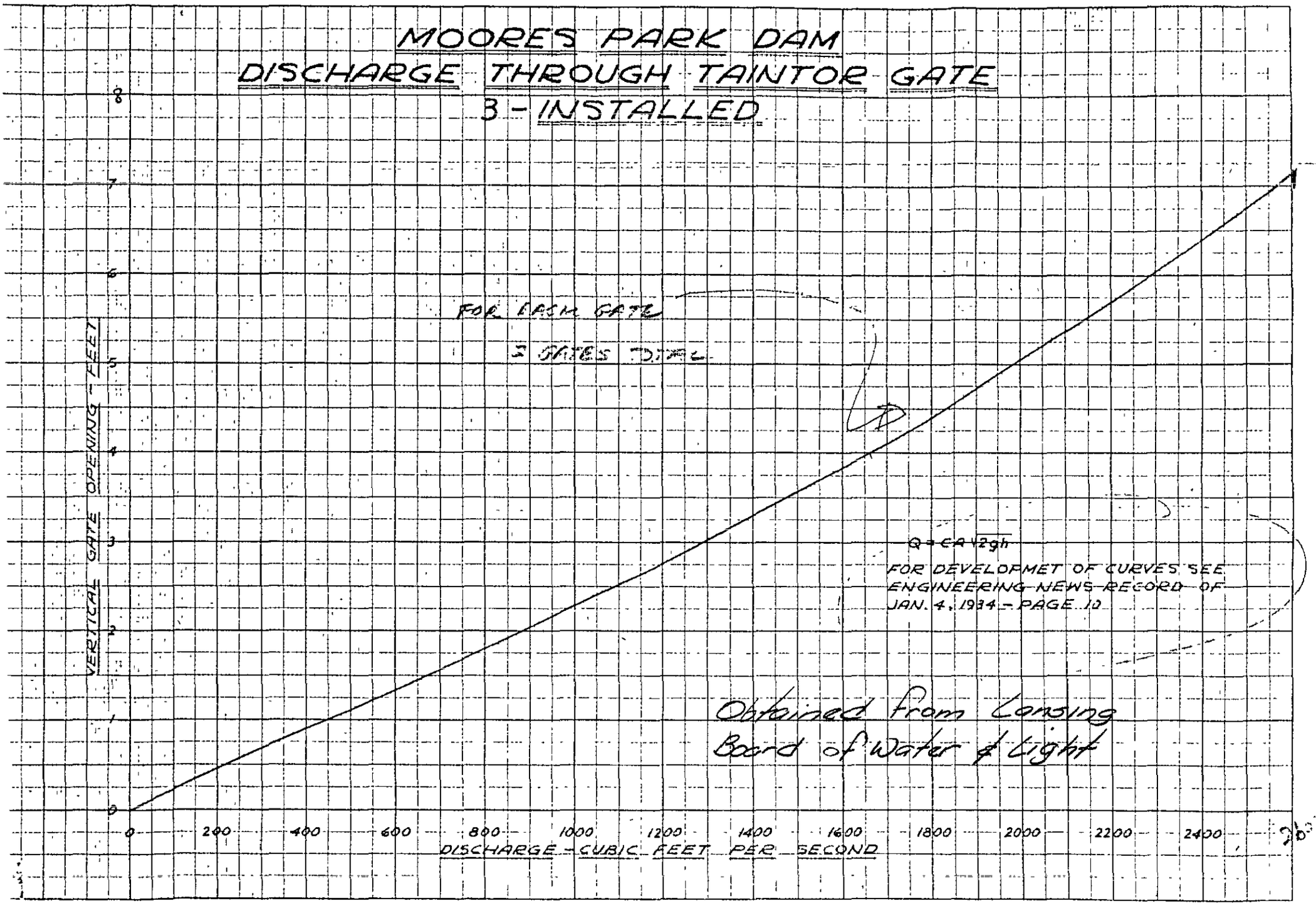
B. CALCULATIONS

Q/gate = 2850 cfs (extrapolated from rating curve, CHART #4)

3 gates
$Q_G = 8550$ cfs

CHART NO. 4

MOORES PARK DAM
DISCHARGE THROUGH TAINTOR GATE
3 - INSTALLED



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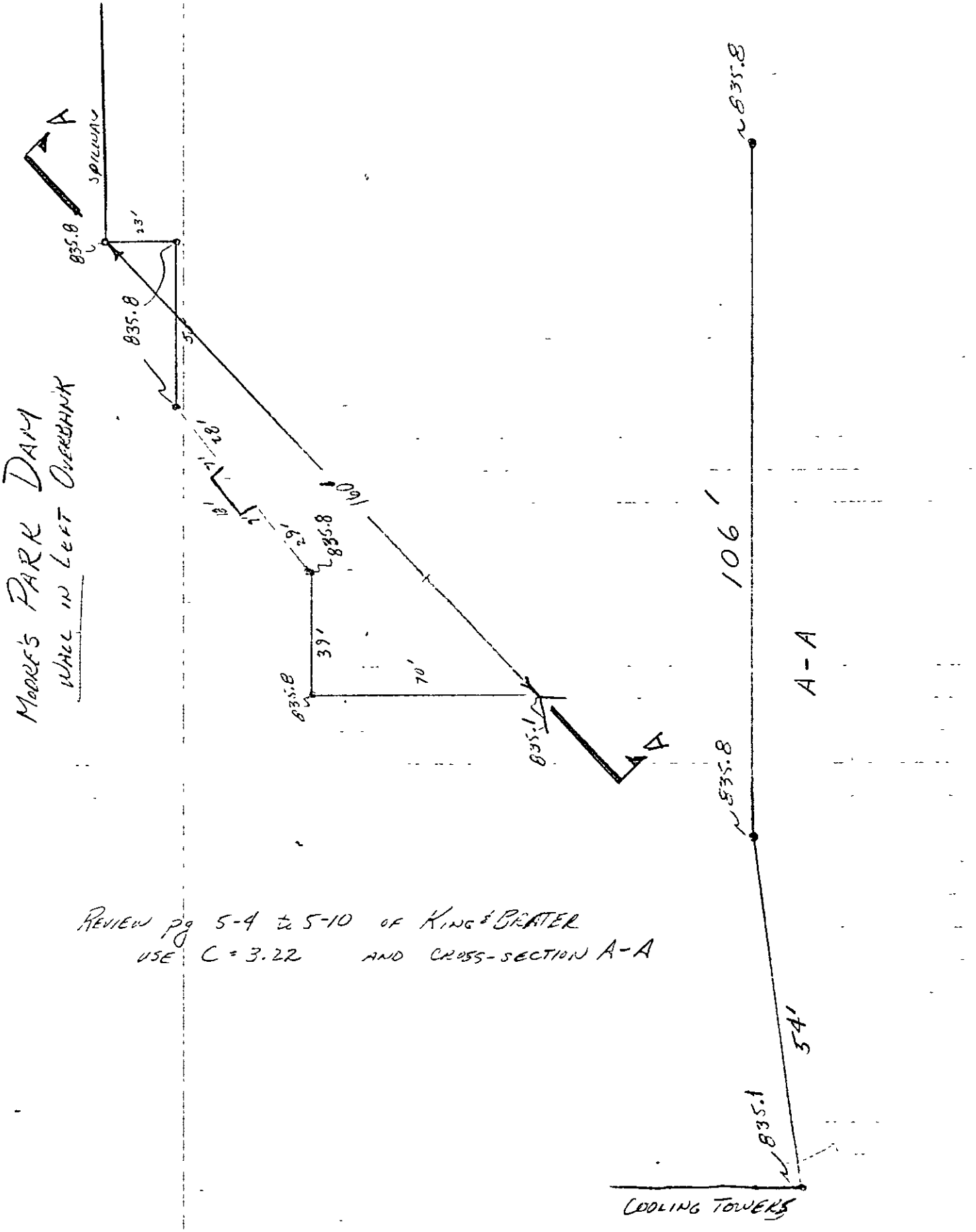
SUBJECT Moore-Park Dam

JOB NUMBER
SHEET NO. 4 OF 12
COMP. BY [illegible] DATE 5/1/79
CHK'D. BY DATE



MOORE'S PARK DAM
WHEEL IN LEFT OVERHANG

REVIEW pg 5-9 & 5-10 OF KING & BRATER
USE C = 3.22 AND CROSS-SECTION A-A

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SUBJECT Main Park Dam

JOB NUMBER

SHEET NO. 3 OF 12

COMP. BY KGJ DATE 9/1/78

CHK'D. BY DATE

4. Q_L

C = 3.22

$Q = C_L H^{3/2}$

ELMIN = 835.1

ELEVATION	AVERAGE H	L	Q_L
835.3	0.1	15.43	1.57
835.5	0.2	30.86	8.89
835.7	0.3	46.29	24.5
835.8	0.35	54.00	36.0
835.9	0.22	160.00	52.5
836.0	0.32	160.	92.4 ✓
836.5	0.82	160.	381.
837.	1.32	160.	781.
837.5	1.82	160.	1265.

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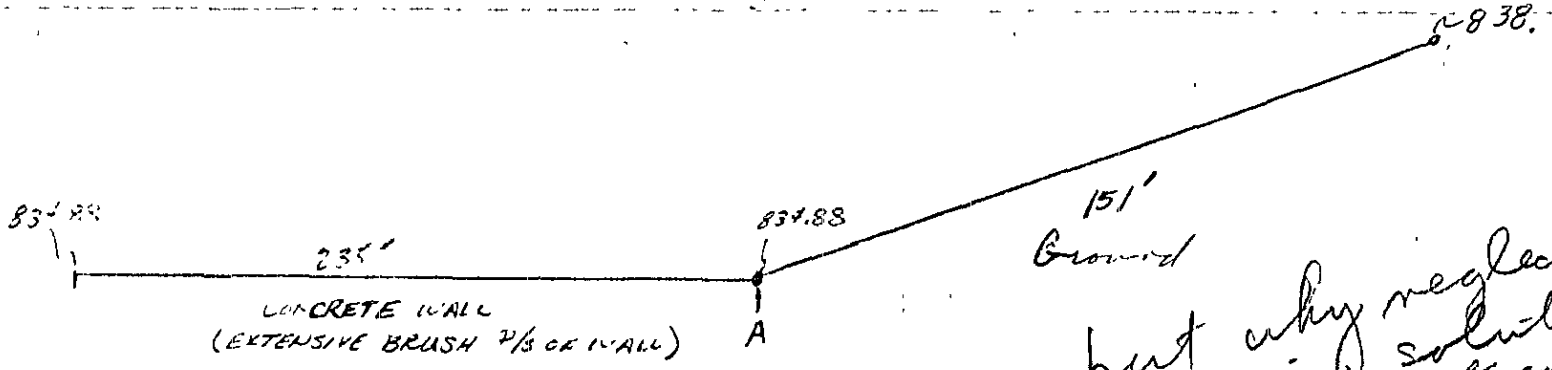
SUBJECT Moores Park Dam
JOB NUMBER
SHEET NO. 5 OF 17
COMP. BY [illegible] DATE 8/1/79
CHK'D. BY [illegible] DATE

Moores Park Dam
Right Overbank

5. Qe



but why neglect because of the weir solution is not applicable

FLOW TO RIGHT OF A WILL BE OVERLAND
ASSUME THAT FLOW RIGHT OF A IS NEGLIGIBLE ∴ 235' FLOW OVER WALL
ONLY FLOW IN RIGHT OVERBANK

$C = 3.22 - \underbrace{0.4}_{\text{REDUCTION FOR GROWTH OBSTRUCTING FLOW}} = 2.82$

$Q = (2.82)(235) H^{3/2}$

ELEVATION	H	Q
834.88	0.	0.
835.	0.12	27.5
835.5	0.62	321.
836.	1.12	785.
836.5	1.62	1366.
837.	2.12	2046.
837.5	2.62	2810.

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SUBJECT Moore Park Dam

JOB NUMBER
SHEET NO. 2 OF 12
COMP. BY KJJ DATE 7/31/79
CHK'D. BY DATE

3. Q_S

AVERAGE CREST ELEVATION (SPILLWAY) = $\frac{831.8 + 831.7}{2}$ = 831.75 ~ 833.1

WEIR LENGTH: 109'

TAILWATER - 833.73

$Q_1 = CLH^{3/2}$

TAKE C FROM KING & BRATER TABLE 5-13 PG 5-50

ASSUME SUBMERGENCE $\frac{Q_S}{Q_1} = \left[1 - \left(\frac{H_2}{H_1}\right)^{3/2}\right]^{0.385}$

H_2 = 1.98

U/S ELEVATION	H_1	C	Q_1 (was H_1)	H_2/H_1	Q_S
834	2.25	3.39	1247	0.88	637
834.5	2.75	3.41	1695	0.72	1178
835	3.25	3.45	2203	0.609	1718
835.5	3.75	3.50	2770	0.528	2299
836	4.25	3.57	3409	0.466	2942
836.5	4.75	3.67	4141	0.417	3670
837	5.25	3.72	4878	0.377	4407

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SUBJECT Moores Park Dam

JOB NUMBER
SHEET NO. 6 OF 12
COMP. BY KJJ DATE 9/1/79
CHK'D. BY DATE

6. $Q = Q_G + Q_S + Q_L + Q_R$ (100 YR TAILWATER)

ELEVATION	Q_G	Q	Q_L	Q_R	Q
834	8550	637	—	—	9187
834.5	8550	1178	—	—	9728
835	8550	1718	—	28	10306
835.5	8550	2299	9	324	11182

$\therefore$ 100 YR EL $= 834.5 + \frac{10000 - 9728}{10306 - 9728}(.5)$

$= 834.73$

Q_{100} 10,000

Ton 3 Gates + Ogeetha

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SUBJECT Harris Park Dam

JOB NUMBER
SHEET NO. 7 OF 12
COMP. BY [illegible] DATE 8/3/73
CHK'D. BY [illegible] DATE

APRIL, 1975 FLOOD

$Q = 3980$ cfs

TW = 826.78

CALCULATIONS

2. Q_G

DESCRIPTION

- FLOW THROUGH GATES IS A FUNC OF GATE OPENING ONLY

1 GATE @ 8' ⇒ 2850 cfs
1 GATE @ 6' ⇒ 2290

flow = 5140 cfs

as $Q_G > Q$ . . USE HIGH CREST ELEVATION 831.8

Assume slight flow over spillway, use 832.

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SUBJECT Moses Point Dam
JOB NUMBER
SHEET NO. 8 OF 12
COMP. BY AEC DATE 6/3/79
CHK'D. BY DATE

10 - YEAR FLOW

Q = 5860 cfs
TAILWATER = 826.56

CALCULATIONS

q_G

ASSUMPTIONS
1. FLOW THROUGH GATES IS A FUNCTION OF GATE OPENING ONLY
2. ALL GATES OPEN TO 8' AFTER FLOOD STAGE REACHES 823.3'

q/GATE = 2850 cfs
3 GATES
q_G = 8550 cfs

AS $q_G > Q$ USE HIGH CREST ELEVATION OF 831.8
ASSUME SLIGHT FLOW OVER SPILLWAY, USE 832.

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SUBJECT MOORES PARK DAM

JOB NUMBER
SHEET NO. OF
COMP. BY DATE
CHK'D BY DATE

50 YR FLOW

$Q = 8710$ cfs

Tailwater = 831.65

$Q_G = 8550$

Q_S

No submergence. weir flow used

$Q = CLH^{1/2}$ $^{3/2}$ $L = 109'$

EL.	H	C	Q
832	0.25	3.25	44
832.5	0.75	3.29	232
833	1.25	3.31	504

EL.	Q_G	Q_S	Q_L	Q_R	Q
832	8550	44	—	—	8594
832.5	8550	232	—	—	8782
833	8550	504	—	—	9004

$$\therefore \text{50 YR EL.} = 832 + (0.5)\left(\frac{8710 - 8594}{8782 - 8594}\right)$$

$$= 832.31$$

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SUBJECT _____ JOB NUMBER _____
SHEET NO. _____ OF _____
COMP. BY _____ DATE _____
CHK'D BY _____ DATE _____

500 YEAR FLOW
Q = 13300 cfs
Tailwater = 838.42

R_G = 8550

$$\frac{Q_s}{Q} = \left[1 - \left(\frac{H_2}{H_1}\right)^{3/2}\right]^{.385}$$

G_S

H_2 = 6.67' (4.72)

EL	H_1 = wier-crest	C	G_1	H_2/H_1	R_S	
838.5	6.75 4.8	3.72	7110	.988 .983	1505	1728.5
839	7.25 5.3	3.72	7915	.92 .891	3471	3899
839.5	7.75 5.8	3.72	8748	.861 .814	4722	5250
840	8.25 6.3	3.72	9605	.808 .749	5829	6426

R_L Submergence

H_2 = 3.32

EL	H_1	C	R_1	H_2/H_1	R_L
835.5	3.4	3.22	3230	.976	889
839	3.9	3.22	3968	.851	2194

R_R Submergence

H_2 = 3.54

EL	H_1	C	R_1	H_2/H_1	R_R
838.5	3.42	2.82	4564	.985	1227
839	4.12	2.82	5542	.859	3003

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Michigan · Ohio · Indiana

SUBJECT _____ JOB NUMBER _____
SHEET NO _____ OF _____
COMP. BY _____ DATE _____
CHK'D. BY _____ DATE _____

Q_{Total}

EL	Q_G	Q_S	Q_L	Q_{IR}	Q_{Total}	
838.5	8550	(1505)	859	1237	12171	12396.5
839	8550	(3471)	2194	3003	17218	

$$\therefore \quad 500 \text{ YR EL} = 838.5 + \frac{13300 - 12171}{17218 - 12171} 1.5$$

$$= 838.61$$

APPENDIX B

CROSS SECTION DESCRIPTION

Main channel of all fabricated cross sections derived by interpolating between surveyed cross sections. All U.S.A.C.E. sections from U.S.A.C.E. FPI Report, 1969 (Reference 17).

Cross Section	SECNO	Description
DA	121.1	Fabricated cross section 20' upstream of Moores Park Dam.
DB	122	Surveyed valley section
DC	123	U.S.A.C.E. section no. 57
DD	124	Surveyed bridge section. Downstream section of existing Logan Street bridge.
DE	125	Fabricated from 2' contour map.
DF	125.5	Surveyed bridge section. Downstream section of the proposed Logan Street bridge.
DG	126	Surveyed valley section
DH	127	Fabricated from 2' contour map
DI	128	U.S.A.C.E. section no. 59
DJ	129	Fabricated from 2' contour map
DK	130	Surveyed valley section
DL	131	Fabricated from 2' contour map
DM	132	Surveyed valley section
DN	133	Repeat of section M
DO	134	Surveyed bridge section. Downstream section of Waverly Road bridge.
DP	135	Surveyed valley section
DQ	136	Surveyed valley section
DR	137	U.S.A.C.E. section no. 62
DS	139	Surveyed valley section
DT	140	Fabricated using 2' contour map. Main channel surveyed.
DU	141	Surveyed valley section
DV	141.5	Surveyed valley section
DW	142	U.S.A.C.E. section no. 63

DX	143	Surveyed valley section
DY	144	Surveyed valley section
DZ	145	Surveyed valley section
EA	146	Surveyed valley section
EB	147	Surveyed bridge section. Downstream section of Creyts Road bridge.
EC	148	Surveyed valley section
ED	149	Surveyed bridge section. Downstream section of westbound I-96 bridge.
EE	150	Surveyed valley section
EF	151	Surveyed bridge section. Downstream section of eastbound I-96 bridge.
EG	152	U.S.A.C.E. section no. 67
EH	153	Surveyed valley section. Section immediately downstream of island near Dimondale.
EI	157	Surveyed valley section. Section immediately upstream of island near Dimondale.
EJ	158	U.S.A.C.E. section no. 68
EK	159	Surveyed valley section
EL	160	U.S.A.C.E. section no. 69
EM	161	Surveyed valley section
EN	162	Surveyed dam section. Downstream section of Dimondale Dam.
EO	163	Fabricated from 10' contour map
EP	164	Surveyed bridge section. Downstream section of Bridge Street bridge.
EQ	165	Fabricated from 10' contour map
ER	166	U.S.A.C.E. section no. 4
ES	167	U.S.A.C.E. section no. 5
ET	168	U.S.A.C.E. section no. 6

End point of first detailed study reach.

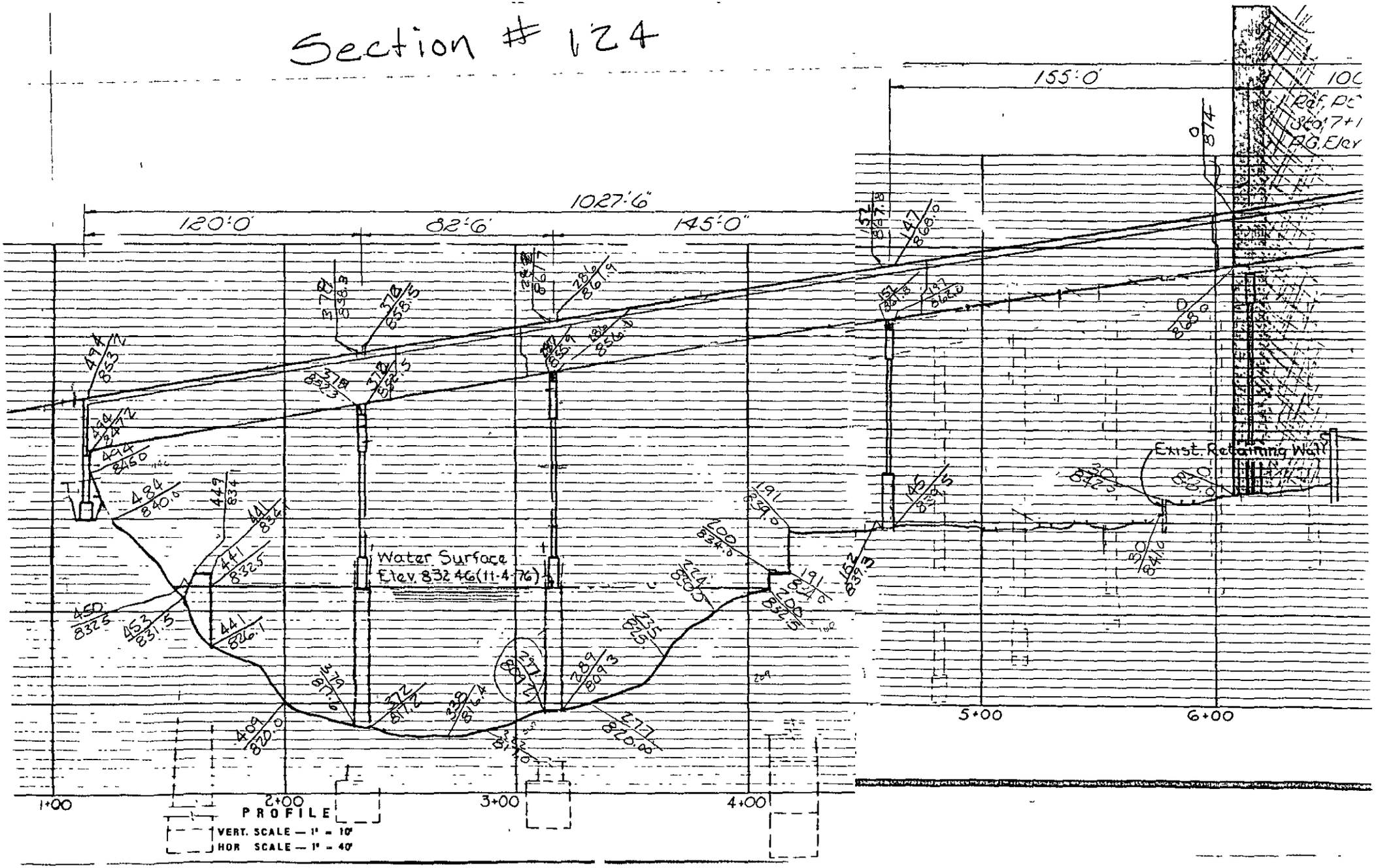
EU	179	Surveyed bridge section. Downstream section of Waverly Road bridge. Starting point of second detailed study reach.
EV	180	Surveyed valley section
EW	181	Surveyed valley section
EX	182	U.S.A.C.E. Section No. 15
EY	183	Surveyed valley section
EZ	184	U.S.A.C.E. Section No. 16
FA	185	U.S.A.C.E. Section No. 17
FB	186	Surveyed valley section
FC	187	Surveyed valley section
FD	188	U.S.A.C.E. Section No. 18
FE	189	U.S.A.C.E. Section No. 19

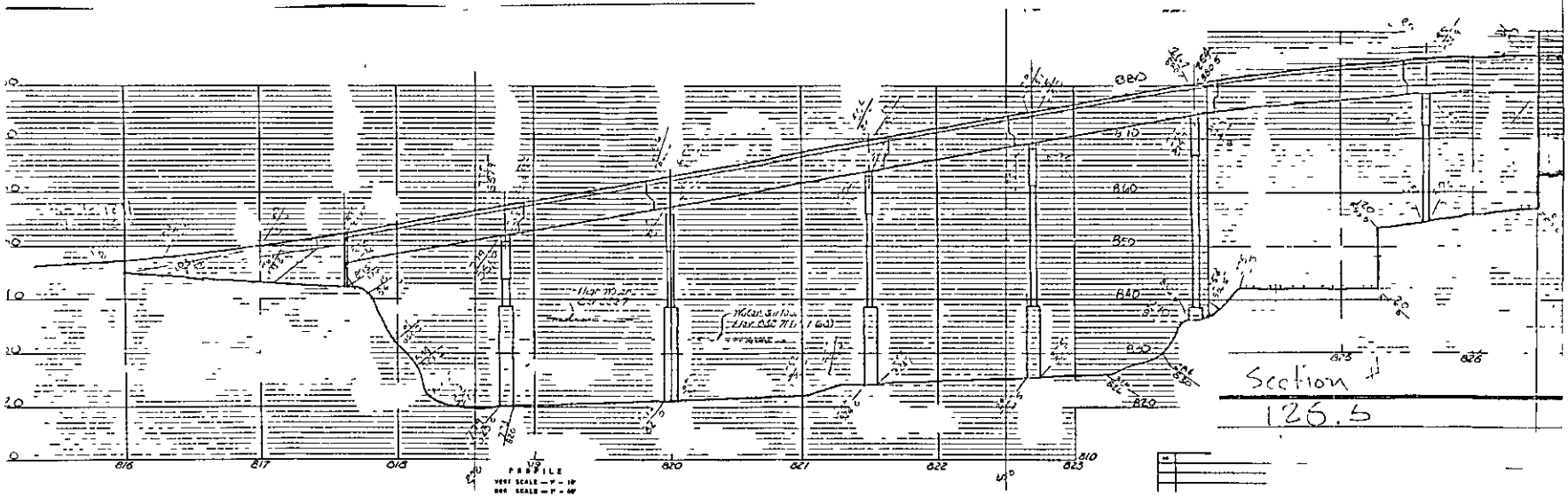
End point of the study.

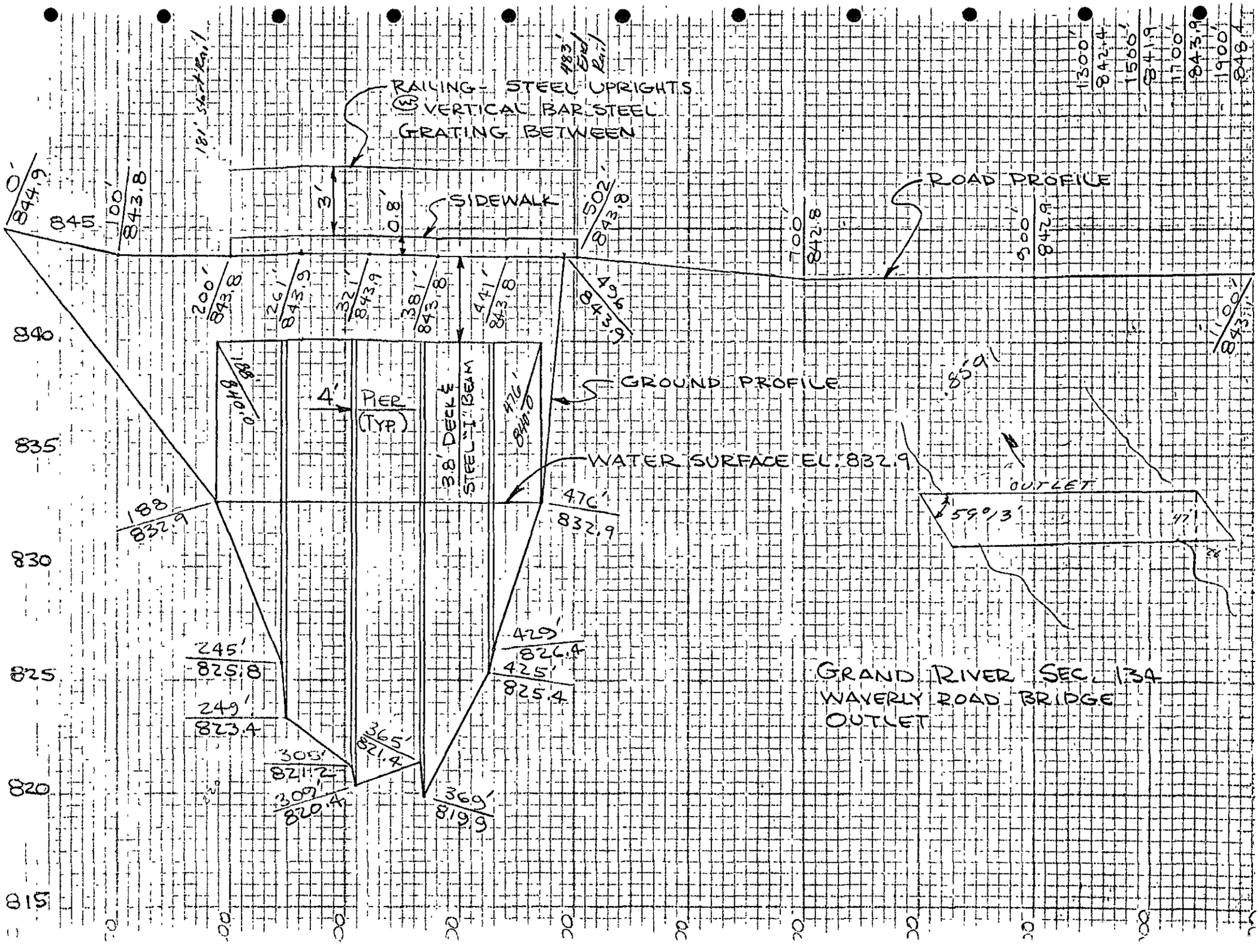
APPENDIX C

BRIDGE SKETCHES

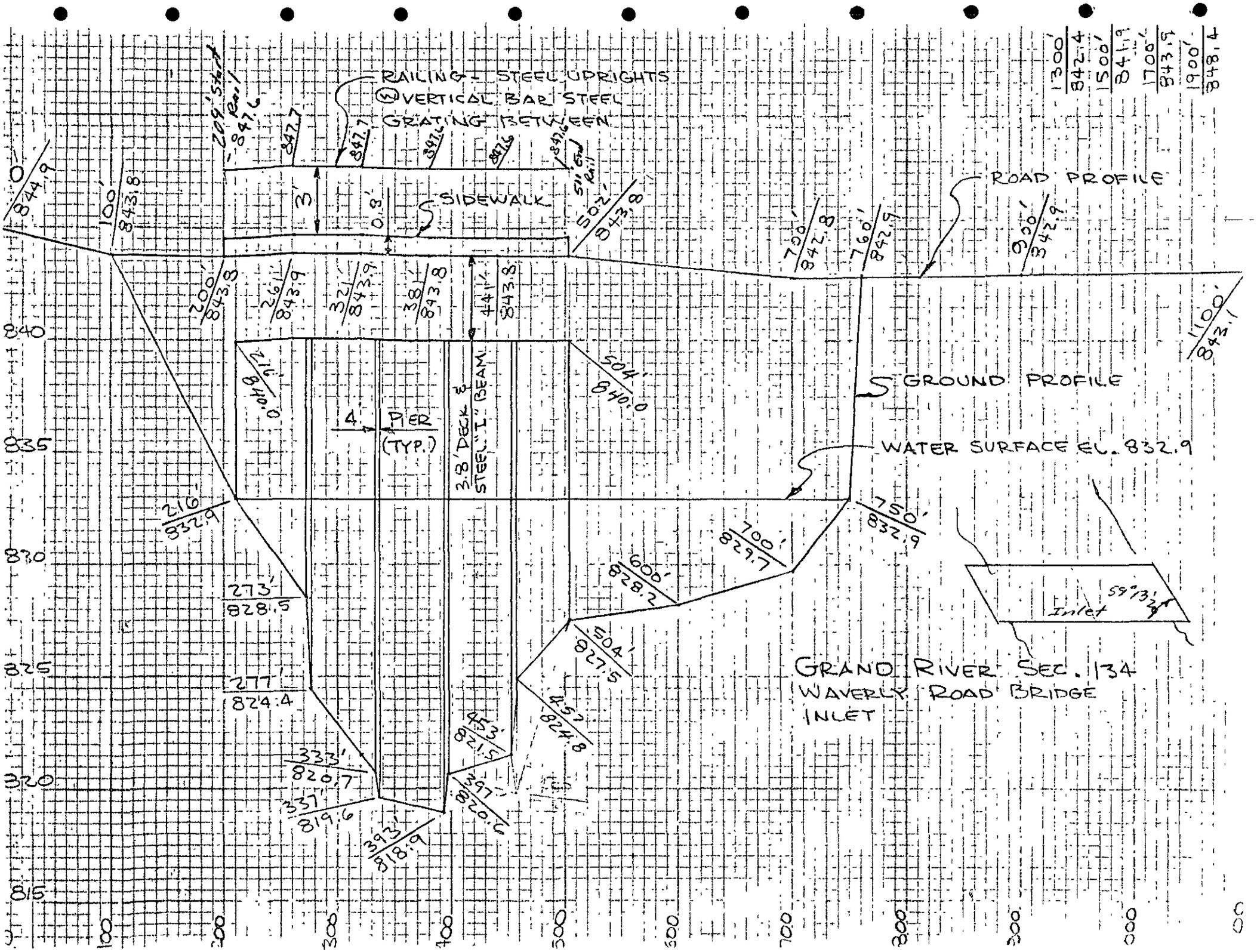
Section # 124


1027.6"
120'0"
82'6"
145'0"
155'0"
Water Surface
Elev. 832.46 (11-4-76)
Exist. Retaining Wall
1+00
2+00
3+00
4+00
5+00
6+00
PROFILE
VERT. SCALE — 1" = 10'
HOR SCALE — 1" = 40'

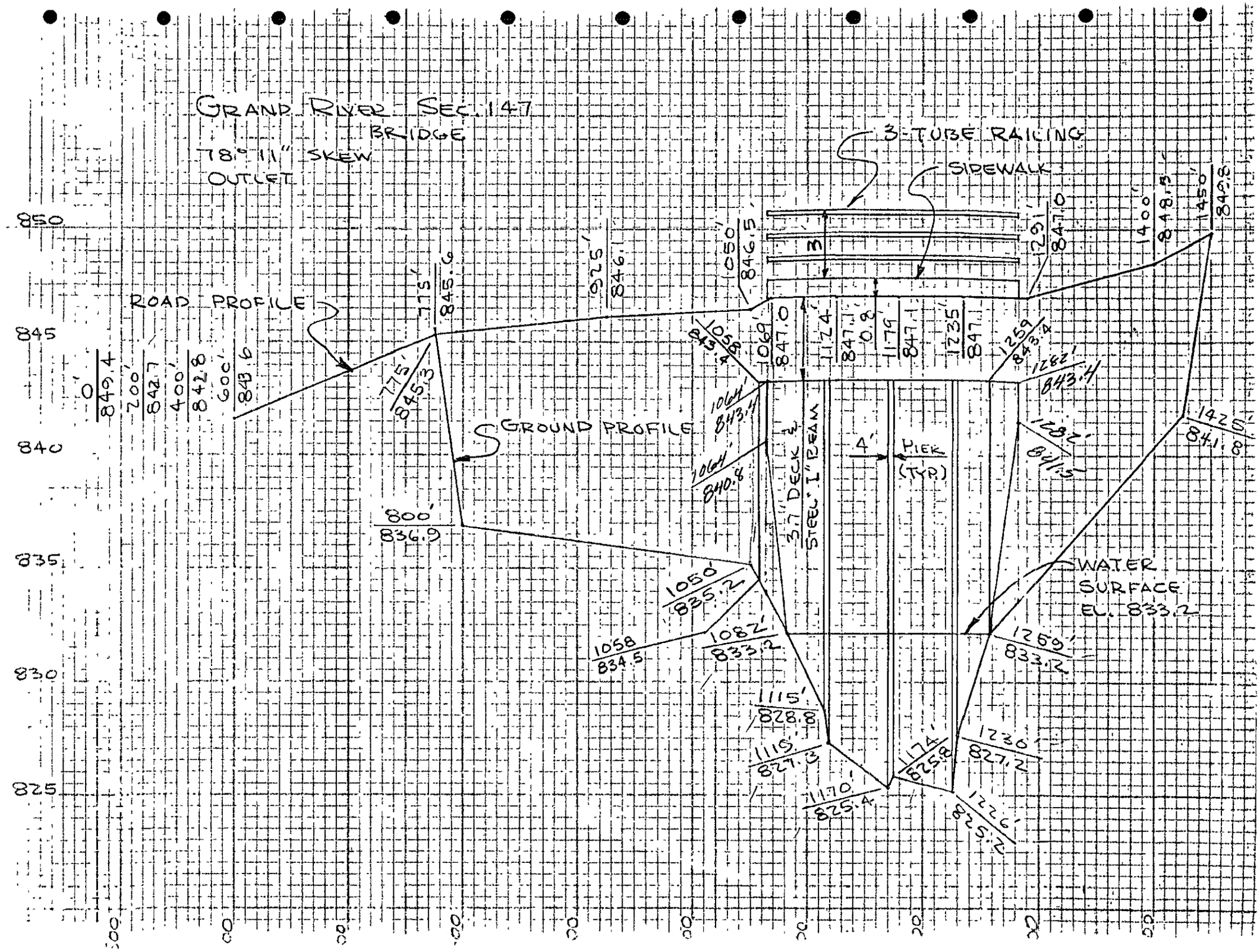

Section 11
125.5

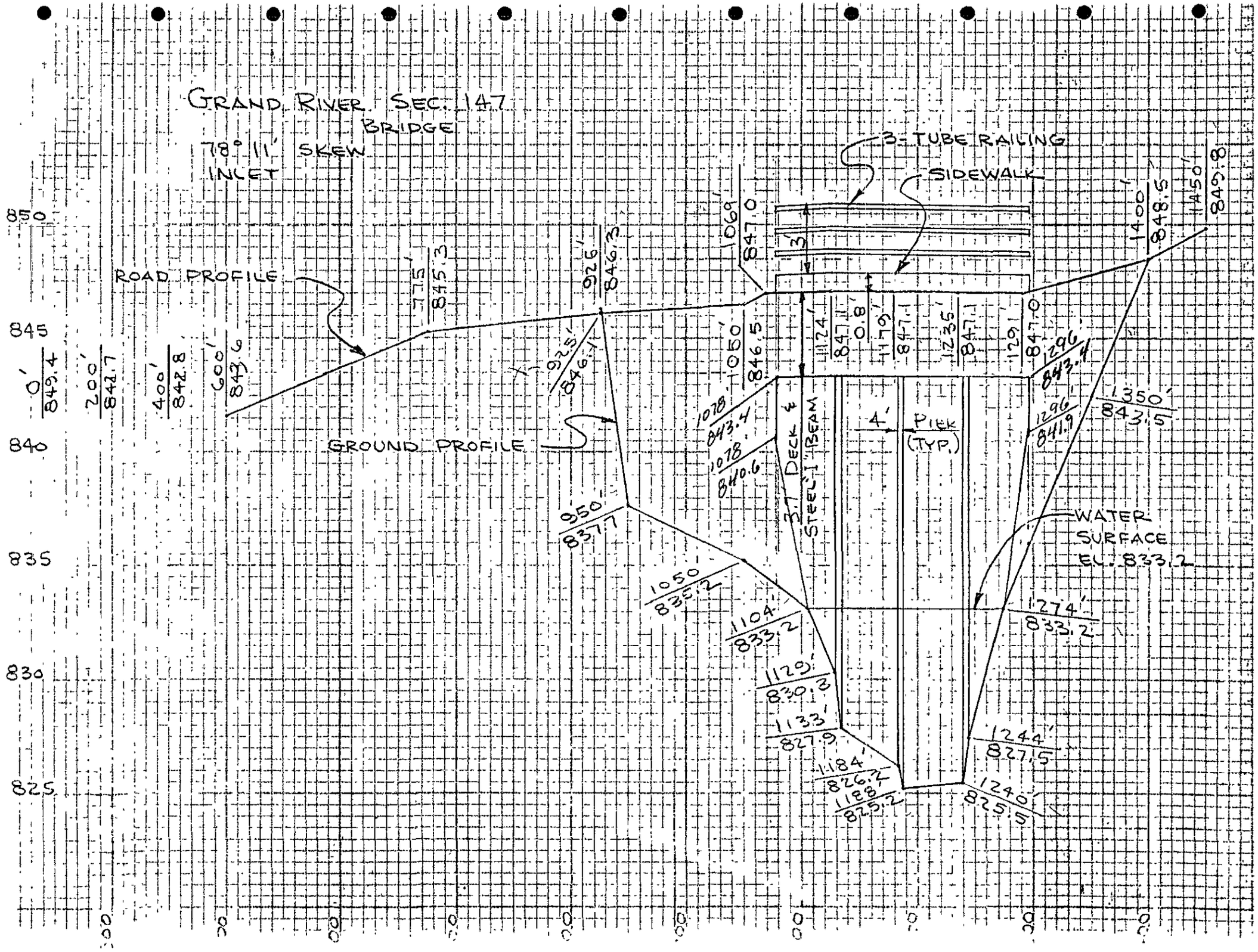


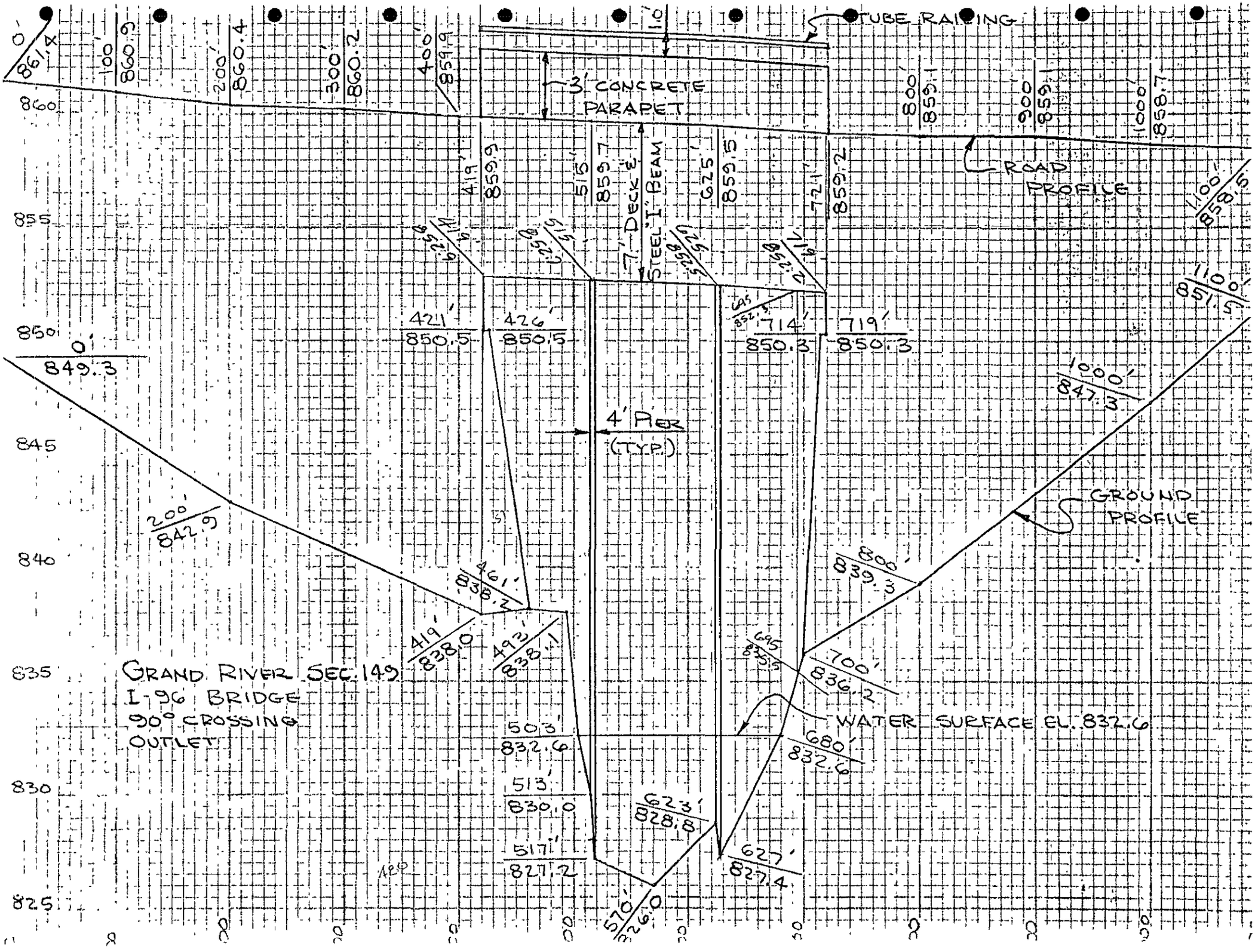
RAILING - STEEL UPRIGHTS
W/ VERTICAL BAR STEEL
GRATING BETWEEN
SIDEWALK
ROAD PROFILE
GROUND PROFILE
WATER SURFACE EL. 832.9
PIER (TYP.)
3.8' DECK & STEEL "I" BEAM
OUTLET
GRAND RIVER SEC. 134
WAVERLY ROAD BRIDGE
OUTLET
845
840
835
830
825
820
815

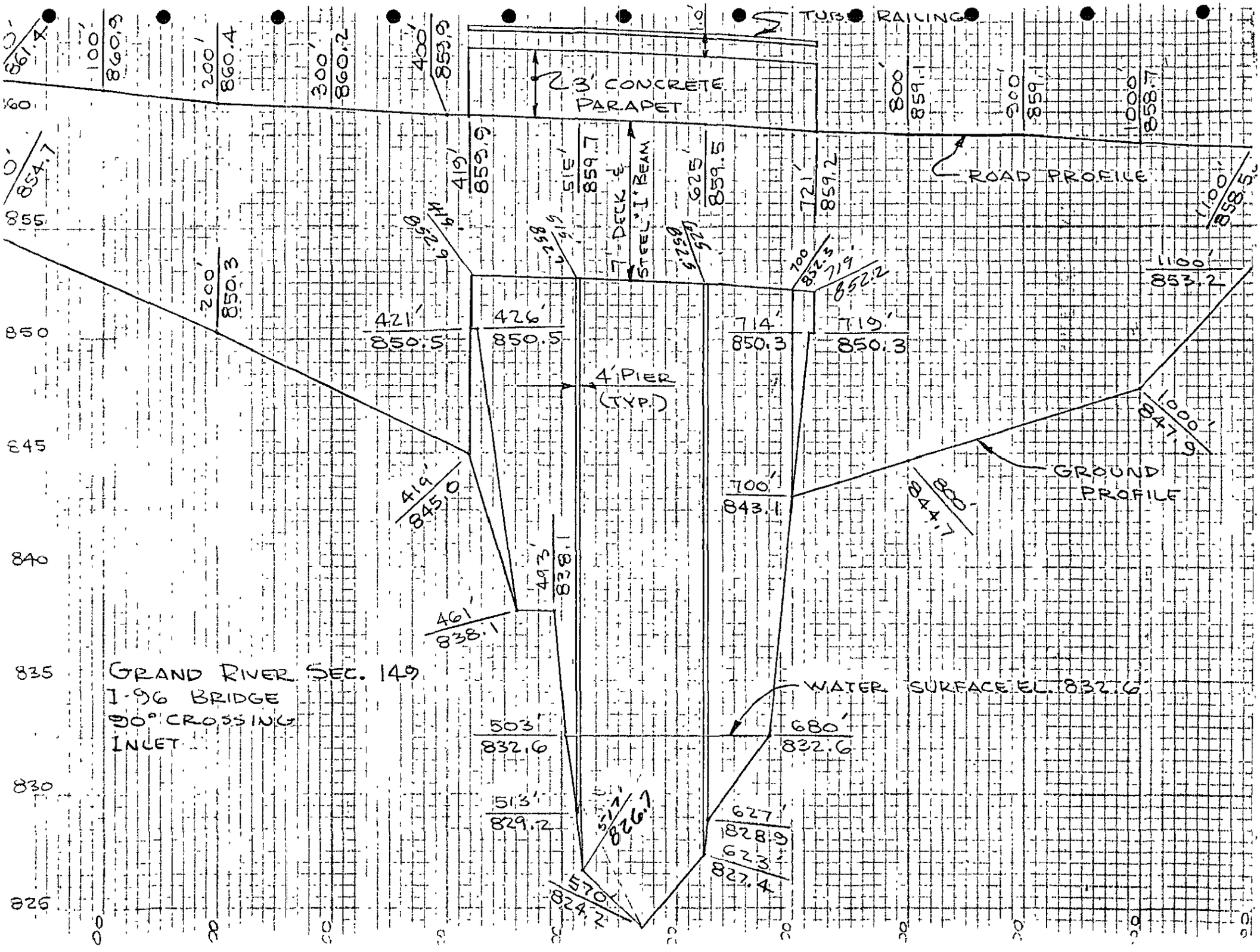


RAILING - STEEL UPRIGHTS
W/ VERTICAL BAR STEEL
GRATING BETWEEN
SIDEWALK
ROAD PROFILE
GROUND PROFILE
WATER SURFACE EL. 832.9
4' PIER (TYP.)
3.8' DECK & STEEL "I" BEAM
Inlet
GRAND RIVER SEC. 134
WAVERLY ROAD BRIDGE
INLET


GRAND RIVER SEC. 147
BRIDGE
78° 11" SKEW
OUTLET
3-TUBE RAILING
SIDEWALK
ROAD PROFILE
GROUND PROFILE
3'-7" DECK
STEEL "I" BEAM
4'
PIER (TYP.)
WATER SURFACE EL. 833.2
850
845
840
835
830
825
0
849.4
200'
842.7
400'
842.8
600'
843.6
775'
845.3
775'
845.6
625'
846.
1050'
846.5
1069'
847.0
1124'
847.1
1176'
847.1
1235'
847.1
1259'
843.4
1282'
843.4
1400'
848.5
1450'
848.8
1064'
843.4
1064'
840.8
800'
836.9
1050'
835.2
1058'
834.5
1082'
833.2
1115'
828.8
1115'
827.3
1170'
825.4
1259'
833.2
1230'
827.2
1226'
825.2
1282'
841.5
1425'
841.
100
00
00
00

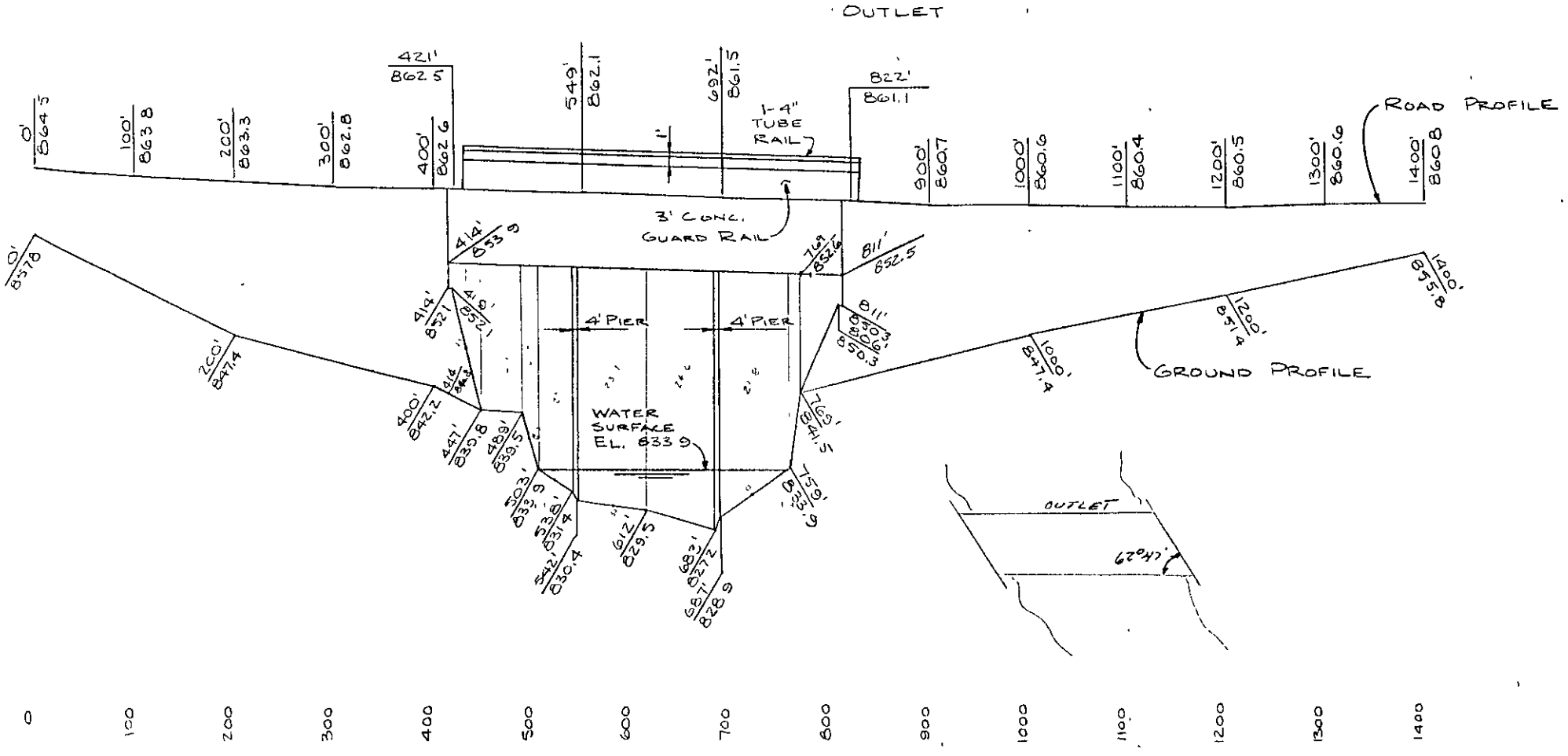

GRAND RIVER SEC. 147
BRIDGE
78° 11' SKEW
INLET
3-TUBE RAILING
SIDEWALK
ROAD PROFILE
GROUND PROFILE
WATER SURFACE EL. 833.2
3'-7" DECK & STEEL I BEAM
4' PIER (TYP.)
850
845
840
835
830
825
0' 849.4
200' 842.7
400' 842.8
600' 843.9
775' 845.3
926' 846.2
925' 846.1
950' 837.7
1050' 835.2
1104' 833.2
1129' 830.8
1133' 827.9
1184' 826.2
1188' 825.2
1240' 825.5
1244' 827.5
1274' 833.2
1296' 841.9
1296' 843.4
1350' 843.5
1400' 848.5
1450' 848.8
1069' 847.0
1060' 846.5
1078' 843.4
1078' 840.6
1124' 847.1
1176' 847.1
1235' 847.1
1291' 847.0
0.8'


TUBE RAILING
3' CONCRETE PARAPET
7" DECK
STEEL "I" BEAM
ROAD PROFILE
GROUND PROFILE
4' PIER (TYP.)
WATER SURFACE EL. 832.6
GRAND RIVER SEC. 149
I-96 BRIDGE
90° CROSSING
OUTLET
860
855
850
845
840
835
830
825
0' 861.X
100' 860.9
200' 860.4
300' 860.2
400' 859.9
419' 859.9
516' 859.7
625' 859.5
724' 859.2
800' 859.1
900' 859.1
1000' 858.7
1100' 858.5
1200' 858.5
0' 849.3
421' 850.5
426' 850.5
714' 850.3
719' 850.3
200' 842.9
461' 838.2
419' 838.0
493' 838.1
503' 832.6
513' 830.0
517' 827.2
570' 826.0
623' 828.8
627' 827.4
680' 832.6
700' 836.2
695' 835.5
800' 839.3
1000' 847.3

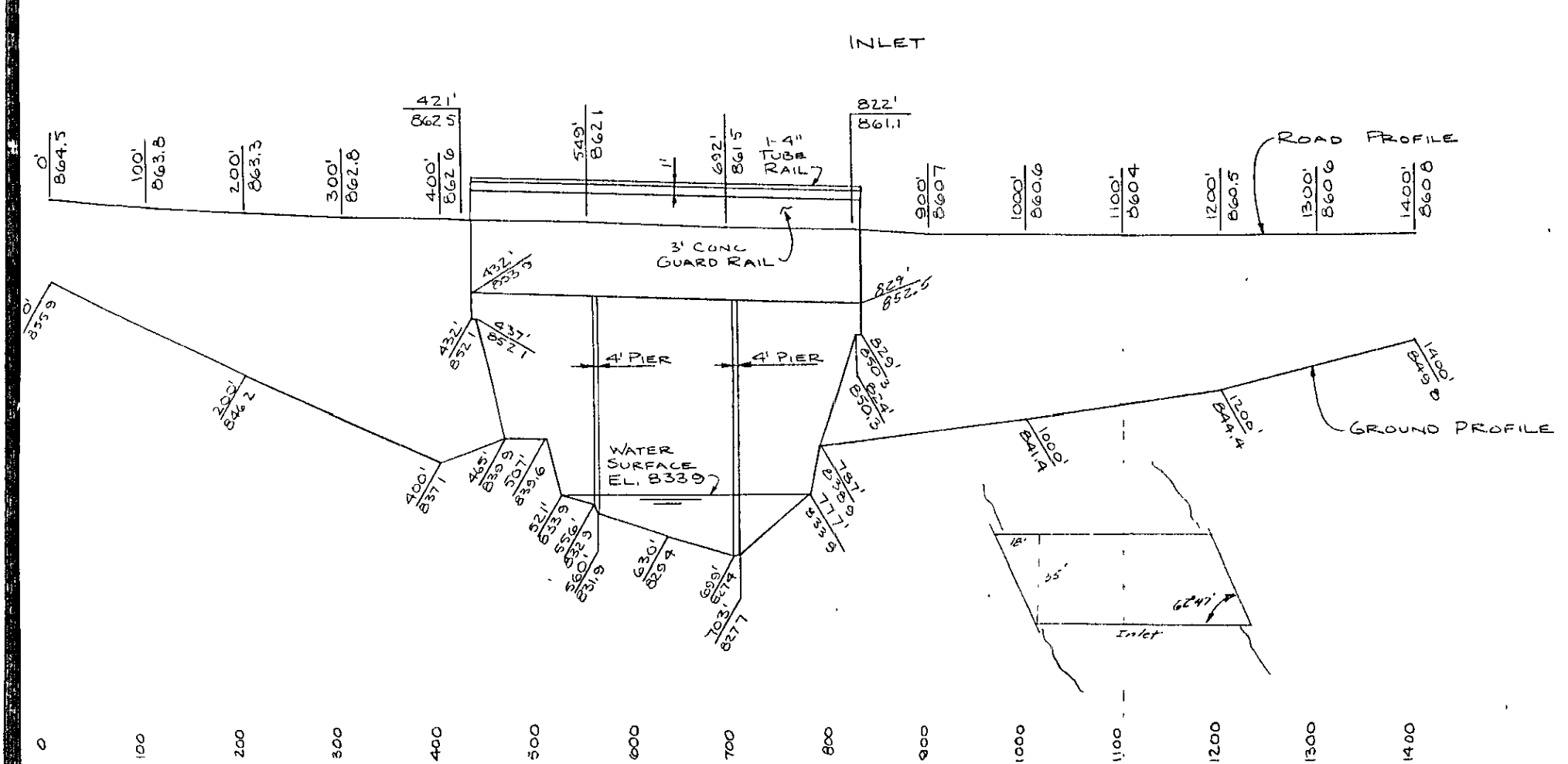


TUBE RAILING
3' CONCRETE PARAPET
ROAD PROFILE
7" DECK & STEEL "I" BEAM
4' PIER (TYP.)
GROUND PROFILE
WATER SURFACE EL. 832.6
GRAND RIVER SEC. 149
I-96 BRIDGE
90° CROSSING
INLET

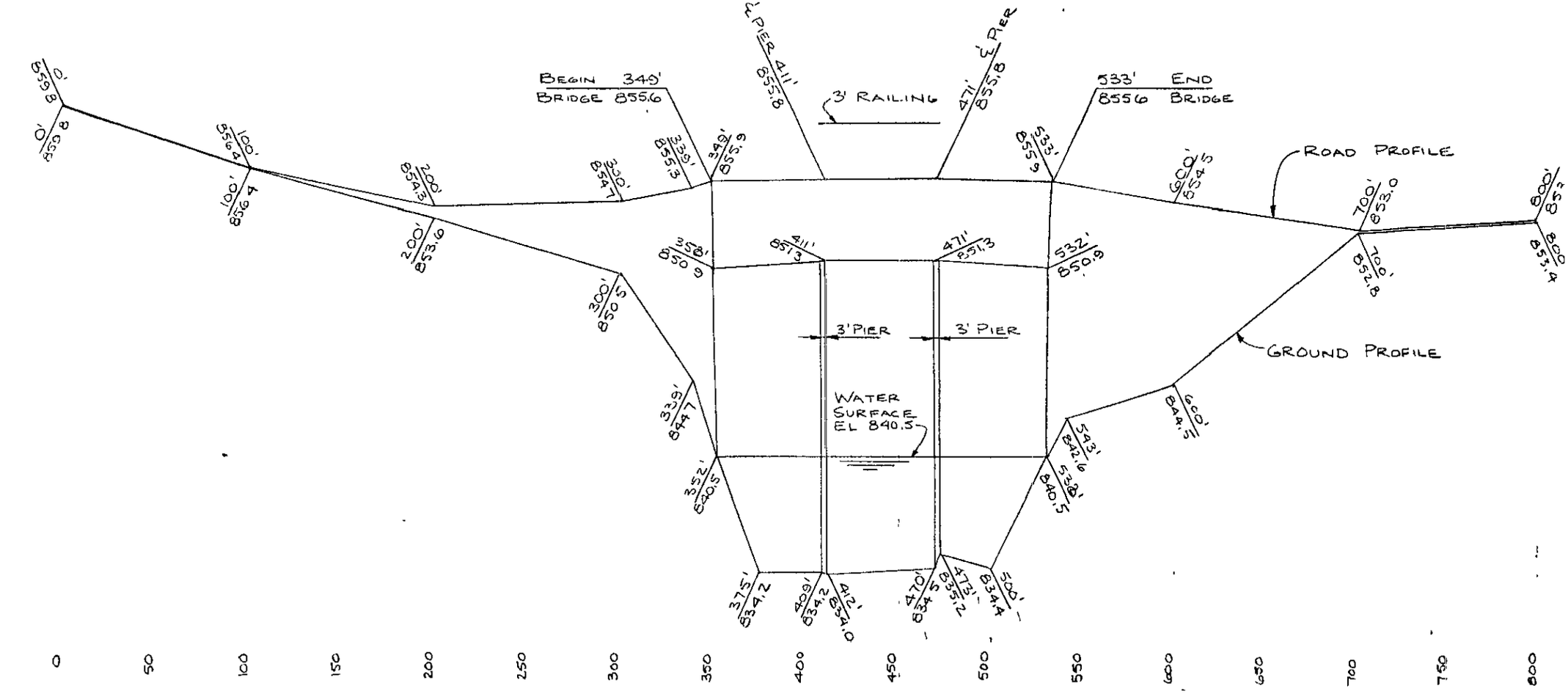
GRAND RIVER SEC. 151

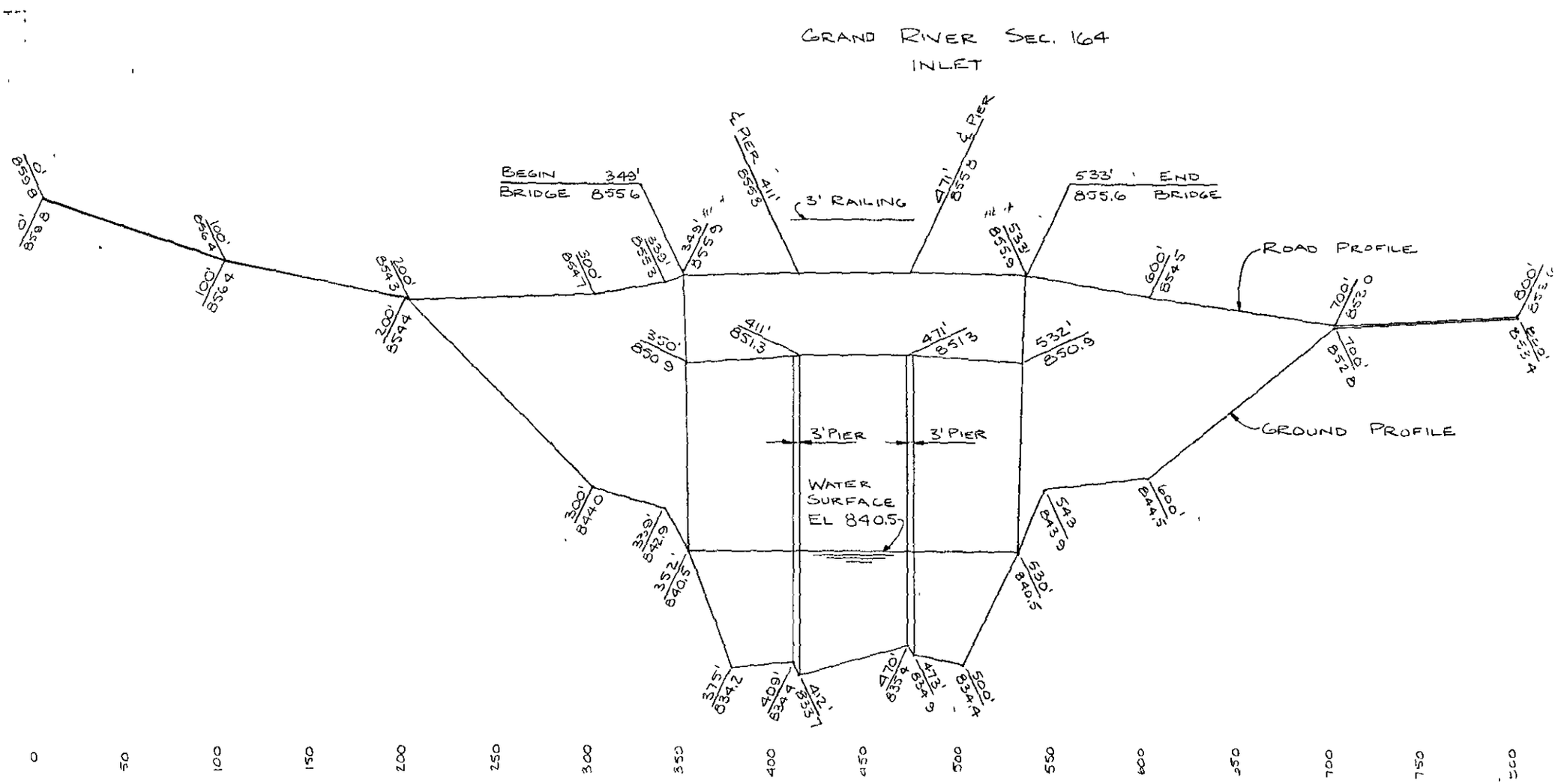


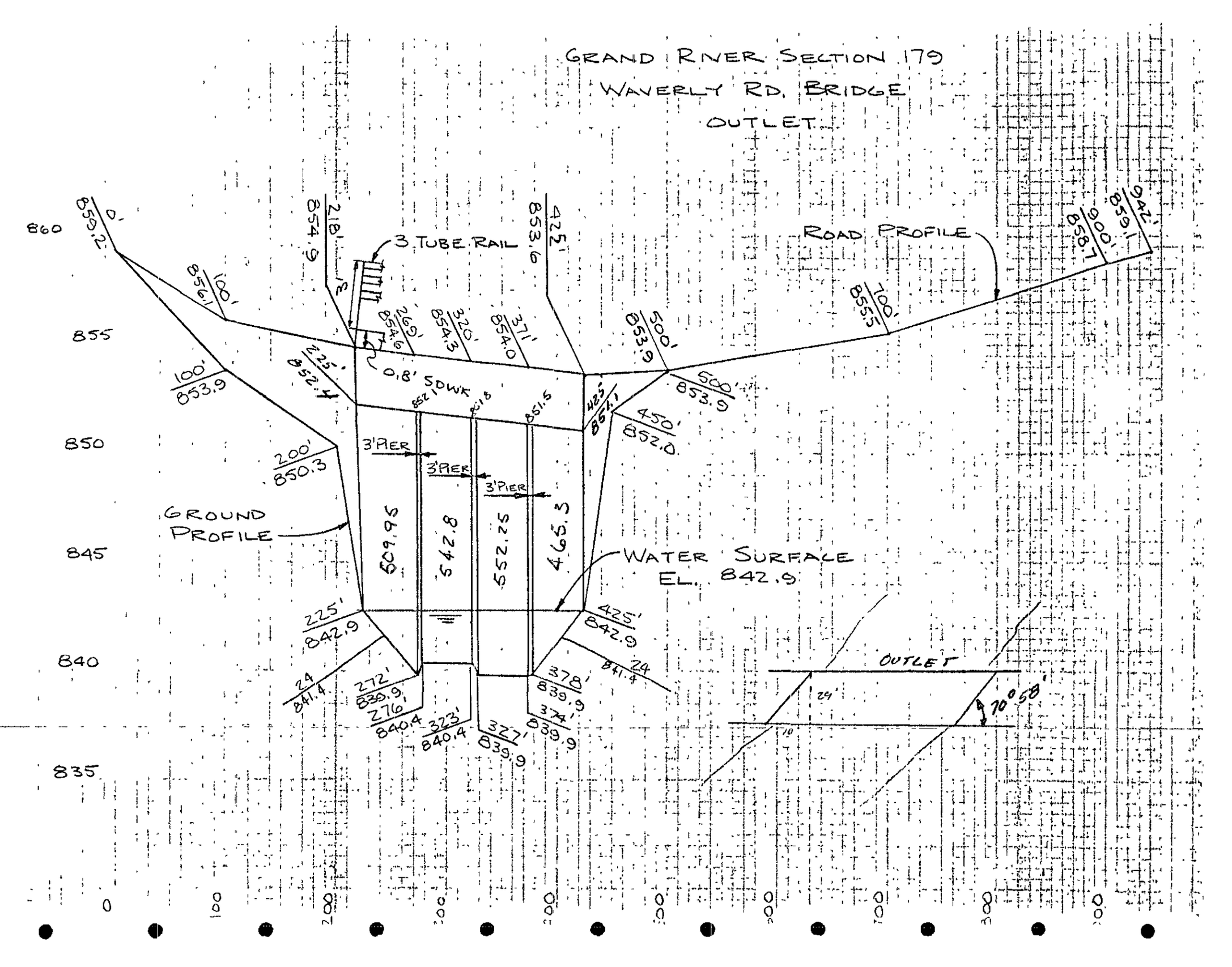
GRAND RIVER SEC 151

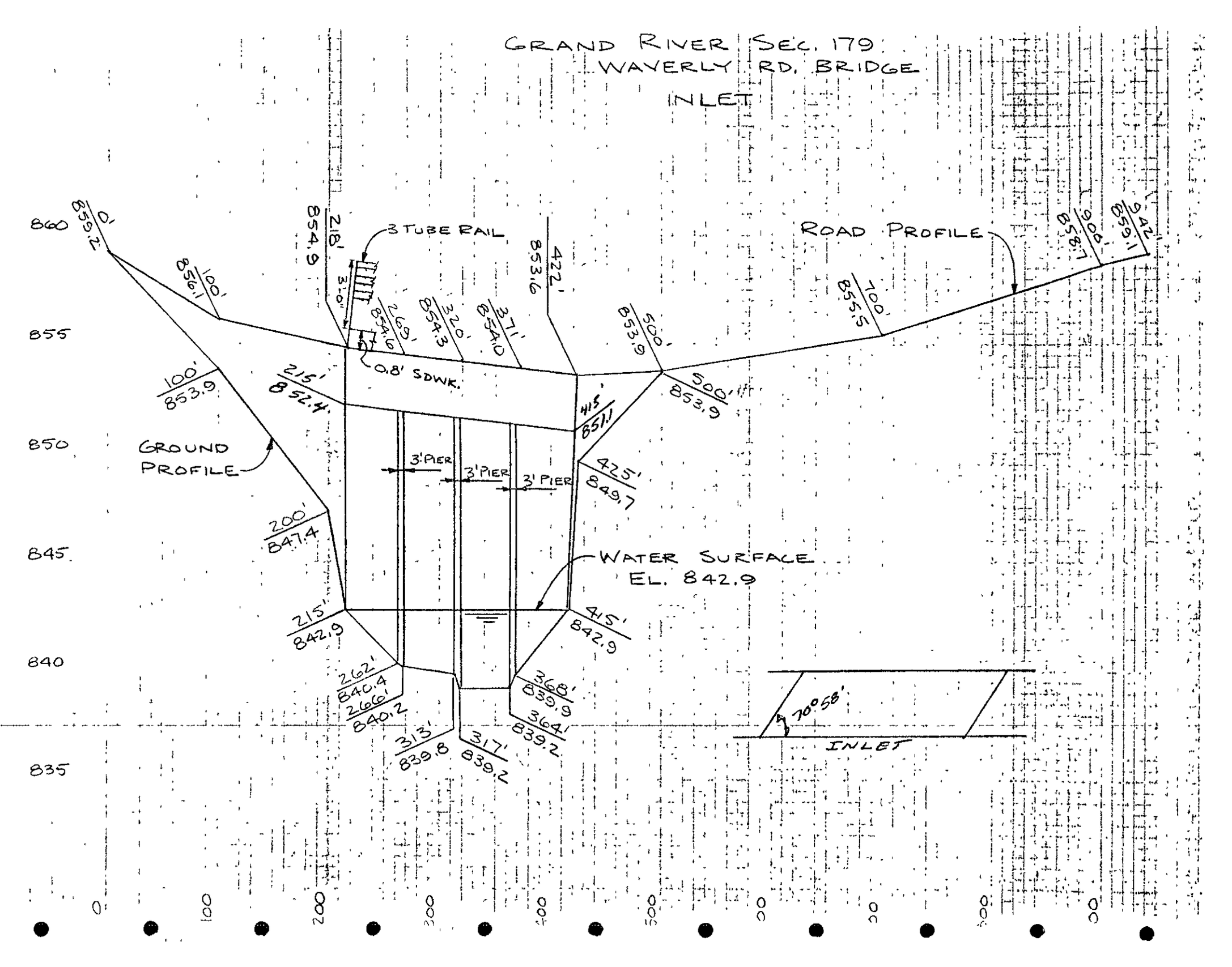


GRAND RIVER SEC. 164
OUTLET




GRAND RIVER SEC. 164
INLET
BEGIN BRIDGE
349'
855.6
℄ PIER
411'
855.3
℄ PIER
471'
855.0
3' RAILING
533'
855.6
END BRIDGE
ROAD PROFILE
GROUND PROFILE
3' PIER
3' PIER
WATER SURFACE EL 840.5
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800


GRAND RIVER SECTION 179
WAVERLY RD. BRIDGE
OUTLET
ROAD PROFILE
3 TUBE RAIL
0.8' SDWK
3'PIER
3'PIER
3'PIER
GROUND PROFILE
WATER SURFACE
EL. 842.9
OUTLET
70°58'
860
855
850
845
840
835
0'
859.2
100'
856.1
218'
854.9
269'
854.6
320'
854.3
371'
854.0
425'
853.6
500'
853.9
700'
855.5
858.7
900'
859.1
942'
225'
852.4
100'
853.9
200'
850.3
852.1
851.8
851.5
425'
854.1
450'
852.0
500'
853.9
509.95
542.8
552.25
465.3
225'
842.9
425'
842.9
24
841.4
272'
839.9
276'
840.4
323'
840.4
327'
839.9
378'
839.9
374'
839.9
24
841.4
24'
10'
0
100
200
200
200
200
300
300


GRAND RIVER SEC. 179
WAVERLY RD. BRIDGE
INLET
ROAD PROFILE
GROUND PROFILE
3 TUBE RAIL
0.8' SDWK.
3' PIER
3' PIER
3' PIER
WATER SURFACE
EL. 842.9
70°58'
INLET
0' 859.2
100' 856.1
218' 854.9
269' 854.6
320' 854.3
371' 854.0
422' 853.6
500' 853.9
700' 855.5
900' 858.7
942' 859.1
100' 853.9
215' 852.4
415' 851.1
500' 853.9
425' 849.7
200' 847.4
215' 842.9
415' 842.9
262' 840.4
266' 840.2
313' 839.8
317' 839.2
368' 839.9
364' 839.2
860
855
850
845
840
835
0
100
200
300
400
500
600
700

Snell Environmental Group

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OCT 17 1978
WATER MANAGEMENT

LETTER OF TRANSMITTAL

DATE	JOB NO.
10-16-78	17287A, 17280A & 17281A

ATTENTION: Sam M. Nalluswami, P.E.

RE: Grand Ledge, Delta Twp. & Lansing City
Flood Insurance Studies
Grand River, Part 1
Hydraulic Report

TO: Mr. Daniel H. Morgan, P.E.
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 ☐ Partial Payment Request ☒ Reports ☐ Prints ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	10-16-78		Revision of Grand River Part 1, Hydraulic Report
1	10-16-78		Computer Printout File - Appendix D, Reach A, Appendix F, Reach A and B

THESE ARE TRANSMITTED as checked below:

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☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution

☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS USE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS: _____

COPY TO: SEG File No. 17287A, 17280A & 17281A

SIGNED: _____
Project Coordinator

May St. Lansing, Mich 48906 • Telephone (517) 374-6800 • Additional offices in Akron • Indianapolis • Tokyo • Dacca • Amman
Principals John R Snell • John C O'Malia • Gerald M McDonnell
Associates Kurt J Guter • William J Bandy, Jr • Joseph A Badra • Alan D Godfrey • Virgil W Langworthy
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Snell Environmental Group
Engineering · Planning · Research

October 12, 1978

RECEIVED
OCT 17 1978
WATER MANAGEMENT

Mr. Daniel H. Morgan, P.E.
Chief, Flood Insurance Unit
Michigan DNR - Water Management
Division
P.O. Box 30028
Lansing, Michigan 48909

RE: Grand River, Part 1
Hydraulic Analysis

Dear Mr. Morgan:

As a result of our September 30, 1978 meeting, a discussion with Mr. Larry Stoimenoff of the USGS, and from additional information provided by the Michigan DNR on the 1975 Flood, the following adjustments were included in the Grand River, Part 1 HEC-2 Computer Model.

Reach A

1. Cross Section No. 44 removed from backwater model to provide topwidth continuity.

2. Waverly Road Bridge, XKOR increased from 1.56 to 1.95.

3. Waverly Road Bridge, BT points changed to describe road curb.

4. Waverly Road Bridge, right overbank encroached to Station 1400.

5. Bridge loss of .83 inserted at C and O R.R. Bridge for 1975 Flood Model (Section No. 58) to account for debris clogging.

6. n values reduced approximately 15% for the 1975 Flood Backwater Model between Section No. 16 and 58.

7. n values used in the calibrated 1975 Flood Model were used for synthetic floods.

8. For all synthetic floods, a loss of 0.50' due to debris blockage was inserted at Section No. 58.4 (C and O R.R. Bridge).

1120 May St, Lansing, Mich 48906 • Telephone (517) 374-6800 • Additional offices in Akron • Indianapolis • Tokyo • Dacca • Amman
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Reach B

1. n values used in the calibrated 1975 Flood Model were used for synthetic floods.

The 1975 Flood Backwater Model for Reach B was not changed.

Enclosed is the revised 1975 Flood Backwater Model and HEC-2 Summary Output and profiles for 10-, 50-, 100- and 500-year synthetic floods.

Should you have any further questions, please contact Jim Walker or myself at 374-6800.

Sincerely,

SNELL ENVIRONMENTAL GROUP, INC.

Sam Nalluswami, P.E.

SN/JW/dk

SNELL ENVIRONMENTAL GROUP, INC.

GRAND RIVER
PART I
Flood Insurance Study

HYDRAULIC ANALYSIS

LETTER OF TRANSMITTAL

Snell Environmental Group

Engineering · Planning · Research

RECEIVED
AUG 2 1978
WATER MANAGEMENT

DATE	JOB NO.
August 1, 1978	17280A, 17287A, 17281A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: Grand River - Part I	
Flood Insurance Study	
Hydraulic Analysis	

TO: Mr. Daniel M. Morgan, P.E.
Chief, Flood Insurance Unit
MDNR - Water Management Division
P. O. Box 30028
Lansing, Michigan

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1	8-1-78		Computer Printout File

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SIGNED: Sam M. Nalluswami
Project Coordinator

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Principals: John R. Snell • John C. O'Malia • Gerald M. McDonnell

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CABLE "SNELL" TELEX 229458

FLOOD INSURANCE STUDY

GRAND RIVER - PART I

Hydraulic Analysis

SEG File No.:

17280A-12, 17287A-12 and 17281A-12

Snell Environmental Group, Inc.
1120 May Street
Lansing, Michigan 48906
(517) 374-6800

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FLOOD INSURANCE STUDY
GRAND RIVER - PART I

HYDRAULIC ANALYSIS

Introduction

The portion of river under study is a 16.3 mile reach of Grand River extending from the Grand Ledge Dam in Grand Ledge to the Moores Park Dam in Lansing, Michigan. The total drainage area of the Grand River at the downstream limit of study is 1,280 square miles. Within the study reach, the only significant Grand River tributary is the Red Cedar River having a 474 square mile drainage area. Grand Ledge Dam and North Lansing Dam are the only hydraulic control structures influencing the study reach. The average channel bottom slope for the reach of study is 1.8 feet per mile.

Flood Flows

The Lansing USGS gauging station on the Grand River is located midway through the study reach, 30 ft. upstream of North Grand River Avenue Bridge. A U.S.G.S. gauging station is also located on Red Cedar River at Farm Lane Bridge in East Lansing. Both historic (Reference 1) and synthetic floods are available at these gauging stations. The drainage area of Grand River at the downstream limit of study is 529 square miles greater than the drainage area at the upstream study limit. In order to account for the change in flow of the Grand River between Grand Ledge (1,280 $mi.^2$) and Moores Park Dam (751 $mi.^2$) peak discharges were changed at five locations using the following relationship: (Reference 2)

$$(Ax/A_{gauge})^{.886} = Qx/Q\ gauge \qquad (1)$$

Where Ax = drainage area at location X

A_{gauge} = drainage area at U.S.G.S. gauge

Qx = peak flow at location X

Q gauge = peak flow at U.S.G.S. gauge

Upstream of the Red Cedar River confluence Grand River flood flows are based on USGS gauge records at Eaton Rapids (Reference 15). Table 1 lists Grand River historic and synthetic flood peaks at Lansing USGS gauging station and upstream of the Red Cedar River confluence. Synthetic flood discharges at the Lansing USGS gauge were supplied by the Michigan Department of Natural Resources (Appendix A). Flood flows upstream of the Red Cedar River confluence were approved by the Michigan DNR (Appendix A).

The 1904 flood is over 100 yr flood

1904 March 26, (24,500)

TABLE 1

Flood Frequency	Discharge at Grand Ledge Dam (cfs)	Discharge at Lansing USGS Gauge (cfs)	Discharge Upstream of Red Cedar R. (cfs)
10 Year	11085	10700	4595
50 Year	17200	16600	8710
100 Year	20100	19400	10000
500 Year	27765	26800	13300
1975 flood	11600	11200	3980

Hydraulic Control Structures

The Grand Ledge Dam (Figure 1) at the starting point of study and the North Lansing dam (Figure 2), 14.0 miles upstream are the only control structures in the reach of study. The Grand Ledge Dam has a 227 ft. fixed crest and seven 9 ft. vertical lift gates. The North Lansing Dam has four drum gates comprising a 232 ft. crest. Position of the dam gates in this flood report is based on normal operating procedures, and operation of the gates during past historic floods. Operation procedure of the gates during flooding periods were investigated by contacting authorities and gate positions during past floods were reviewed. With this information and a meeting with DNR it was decided that all gates at the two structures are assumed to be in the lowered position.

Method of Analysis

The HEC-2 Computer Program developed by the U.S. Army Corps of Engineers was used to compute water surface profiles (References 3, 4 and 5). Cross Sections (Appendix B) used in the analysis were obtained from: 1) field survey, 2) U.S. Army Corps of Engineers FPI report data (Reference 6), 3) fabrication using 2' contour map and 4) repeating few cross sections as required. Cross section locations (Appendix G) were chosen from field inspection and according to the guidelines suggested by the HEC-2 training documents. Cross Sections have been plottted in the computer printout in Appendix E.

Manning roughness factors were chosen from field inspection and adjusted during calibration of the hydraulic model. The roughness coefficients were based on values listed in References 6, 7, 8. In some cases very high "n" values were used to limit flow in overbank areas where topographic restrictions exist or to allow for continuity. Ignoring extreme n values used (in forcing flow), the 100-year flood roughness coefficients used for the main channel range from .026 to .057 while for the overbank areas the coefficients range from .030 to .091. Contraction and expansion coefficients of 0.1 and 0.3 respectively were used for valley sections. Coefficients of 0.3 and 0.5 were used at dams and most bridge cross sections because of more abrupt flow transition.

Starting Point

In the absence of an existing rating curve, a synthetic rating curve for the Grand Ledge Dam was computed using the weir formula with the weir coefficient, C, based on the 1975 flood elevation. Information and pictures of the dam during other floods were not available. Tailwater elevations for discharges ranging between 5000 and 25000 cfs were derived from a 3.0 mile backwater analysis (Figure 3). In the tailwater analysis, starting elevations were computed by slope area procedure and convergence was tested for the 1975 and synthetic 100-year floods. Both floods converged within 0.21 ft. for starting elevation 3.0 ft. higher and 3.0 ft. lower than slope area elevations. From an accurate 1975 flood high water elevation at the dam crest, a weir coefficient of 2.94 was calculated for the peak discharge, 11600 cfs. By comparing the tailwater and upstream water surface elevations the weir was found to be submerged for the 1975 flood. This was confirmed by comparing the recorded high water elevation to the computed critical depth on the dam crest. The computed critical depth was found to be 0.7' lower than the recorded water elevation.

OK

With the 2.94 weir coefficient computation influenced by tailwater submergence, a free discharge weir coefficient of 3.16 was computed using the graph shown in Figure 4 (Reference 9). Although this coefficient appears low for ogee crested spillways, considering the date of construction and condition of the crest, a value of 3.16 is reasonable. Using the free flow weir coefficient, the tailwater rating curve, and the graph in Figure 4, a rating curve for the Grand Ledge Dam was constructed. This rating curve is shown in Figure 5.

Calibration of the Hydraulic Model

The Lansing USGS gauging station and 1975 flood water surface profile were used to calibrate the hydraulic model. High water marks were obtained from city officials, Michigan DNR, U.S. Weather Bureau and door to door investigation. For convenience, the study reach is divided at North Lansing Dam and henceforth the downstream reach will be referred to as A and the upstream as B.

Through reach A seven high water marks from the 1975 flood were available to calibrate a base hydraulic model. These marks are described in the HEC-2 computer output given in Appendix D. Roughness coefficients were varied so that the computed water surface profile matched all seven marks within 0.16' using a 1.29 FN factor. Once the base hydraulic model was established, "n" values for other flows were adjusted by an FN factor so that the computed water surface elevation matched the Lansing USGS rating curve. The rating curve was extended for flows greater than 11320 cfs by means of a log graph shown in Figure 6.

The extended rating curve is thought to be accurate for 50 and 100 year synthetic floods because of small backwater effects (column 7, Table 2), from the Grand River Avenue bridge (low steel elevation 826.4)

Roughness coefficients for the 500-year flood were increased 15% over roughness values used in the 1975 flood model. The Lansing USGS rating curve extension was not used for calibrating the 500-year flood.

Table 2 is a listing of the FN factor used for each discharge considered in this study. The table also shows head loss through the Grand River Avenue Bridge and elevations of the rating curve extension and the computed HEC-2 water surface.

TABLE 2 Reach A?

(1) Peak Flow at gauging station (cfs)	(2) Flood Frequency	(3) Rc elevation (extended)	(4) Fn Factor	(5) Δ FN(%) based on FN=1.29	(6) Computed HEC-2 WSEL	(7) WSEl difference x sec. 67.1-67
7000	2.4 year	817.23	1.21	- 6.2	817.32	0.12
11200	1975 Historic	820.93	1.29	0	820.97	0.18
10700	10 year	820.5	1.29	0	820.53	0.17
16600	50 year	(824.7) 6 ft	1.39	7.8	824.66	0.35
19400	100 year	(826.5)	1.419	10	826.67	0.56
26800	500 year	(830.8)	1.484 *	15	830.50	0.71

* Should it really be this high? Why does it increase with depth?

The percent change in "n" values listed in column 5 of Table 2 are within expected limits. The increase in n values with flow is thought to be due to greater turbulence resulting from shifts of main flow from side to side. In Guide for Selecting Roughness Coefficient "n" values for Channels, (Reference 6) the author suggests this effect may cause a .015 increase in "n" value.

For reach B, North lansing Dam to Moores Park Dam, three 1975 flood high water marks described in the computer output were used to calibrate the hydraulic model. The HEC-2 computed water surface profile matched all three marks within 0.09' using an FN value of 1.03. In the absence of a rating curve to calibrate n values for low or higher flows, the percentage change in "n" values with flood frequency for reach A were applied to synthetic floods of reach B.

Water Surface Profile Computations

Using the calibrated hydraulic model, the 100-year flood elevations were computed under the existing conditions. The detailed computer printout of the 100-year flood water surface profile computations are given in Appendix E. The 100-year flood plain under the existing conditions is shown in Appendix G. Water surface profile computations were also made for 10-, 50-, and 500-year floods under the existing conditions and a summary printout is shown in Appendix F. The 10-, 50-, 100- and 500-year flood profiles are shown in Appendix H.

Bridge Analysis

Bridges were modeled using the special and normal bridge routines of HEC-2. Cross sections were located according to the HEC-2 training document, Application of HEC-2 Bridge Routines (Reference 4). Coefficients used in the special bridge routine were chosen from the same publication. Selection of the bridge routine was based on water surface elevations of the 100-year flood. Multiple arch bridges or bridge cross sections which carry significant overbank flow (cross sections 9, 67, 75, 79, 82, 96, 97, 99, 104, 108, 114) were modeled using the normal bridge routine, otherwise the special bridge routine was used.

The maximum low steel elevaton of all bridges except Waverly Rd. Bridge, Penn Central Mfrs Belt Line RR Bridge, West Grand River Ave. Bridge, Grand River Ave. Bridge, Saginaw St. Bridge, Penn Central R.R. Bridge, River St. Bridge, and G.T.W.R.R. Bridge would be above the 100-year flood. The roadway of the Waverly Rd., Grand River Ave. Bridge and River St. Bridge would be inundated by the 100-year flood.

Special Problems

North Lansing Dam

For the 10-year flood discharge and greater flows, the North Lansing Dam is highly submerged and weir flow is not applicable. Water surface profiles at the dam were computed from a continuous HEC-2 backwater analysis through the structure. Cross sections located 55 feet downstream of the dam, at the crest and 40 ft. upstream were used in the hydraulic model. Energy losses through the structure were computed as transition losses using contraction and expansion coefficients of .3 and .5 respectively. Head loss for the 100-year flood was calculated as 0.24 ft.

Red Cedar River and Grand River Confluence

Grand River water surface profiles at the Red Cedar and Grand River confluence were computed from a continuous HEC-2 backwater analysis. Between cross sections CN and CO flow on the Grand River has been reduced using a QT or X2 card to account for change in drainage areas (see flood flows).

Bridge to Island, Cross Section

The normal bridge routine was used to compute water surface profiles at bridge section J. Bridge deck area and pier area were subtracted from the total cross section area, (see bridge sketch, Appendix C) Contraction and expansion coefficients of .3 and .5 were used to calculate transition losses through the structure. The computed 100 year flood elevation is 1.7 ft. below maximum low steel of the bridge.

East Kalamazoo Ave.

At the time of this study, the old East Kalamazoo Avenue bridge is being replaced. Cross sections from plans of the new East Kalamazoo Avenue bridge were used in the hydraulic model.

Flow Continuity

Encroachments were applied by means of ET, X3, or GR cards to maintain continuity or restrict areas of slack flow. In some cases flow and topwidth continuity were maintained by using unrealistic "n" values. In using extreme "n" values, reach length and head loss were carefully considered to maintain accurate energy losses. Modifications were based on the 100-year flood.

Buildings

Cross sections partly blocked by building were modified in one of the following manners; 1) direct coding of the obstruction in GR data, 2) increased "n" value without coding of obstruction in GR data, 3) on level ground, shifting of blocked area together as one obstruction and coding on GR cards.

REFERENCES

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2. USGS Water Supply Paper #1677, Magnitudes and Frequency of Floods in the U.S., Part 4, St. Lawrence River Basin, by S.W. Witala, 1965.

3. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile Users Manual, November, 1976.

4. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Training Document No. 6, Application of the HEC-2 Bridge Routines, June, 1974.

5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Volume 6, Water Surface Profiles, July, 1975.

6. Fasken, Guy B., Guide for Selecting Roughness Coefficient "n" Values for Channels, Soil Conservation Service - U.S.D.A., December, 1963.

7. USGS Water Supply Paper #1849, Roughness Characteristics of Natural Channels, by Harry M. Barnes, Jr., 1967.

8. Chow, V.T., Open Channel Hydraulics, McGraw-Hill, New York, 1959.

9. U.S. Department of the Interior, Bureau of Reclamation, Design of Small Dams, 1973.

10. U.S. Army Corps of Engineers, Flood Plain Information, Grand River, Red Cedar River and Sycamore Creek, Lansing, Michigan and Vicinity, April, 1970.

11. U.S. Geological Survey, Topographical Maps, Dimondale Quadrange, Clinton County, Michigan, 7.5 minute Series, Photorevised, 1973.

12. U.S. Geological Survey, Topographical Maps, Lansing South Quadrange, 7.5 minute Series, Photorevised, 1973.

13. U.S. Geological Survey, Topogrpahical Maps, Charlotte, Michigan, 15 minute Series, 1949.

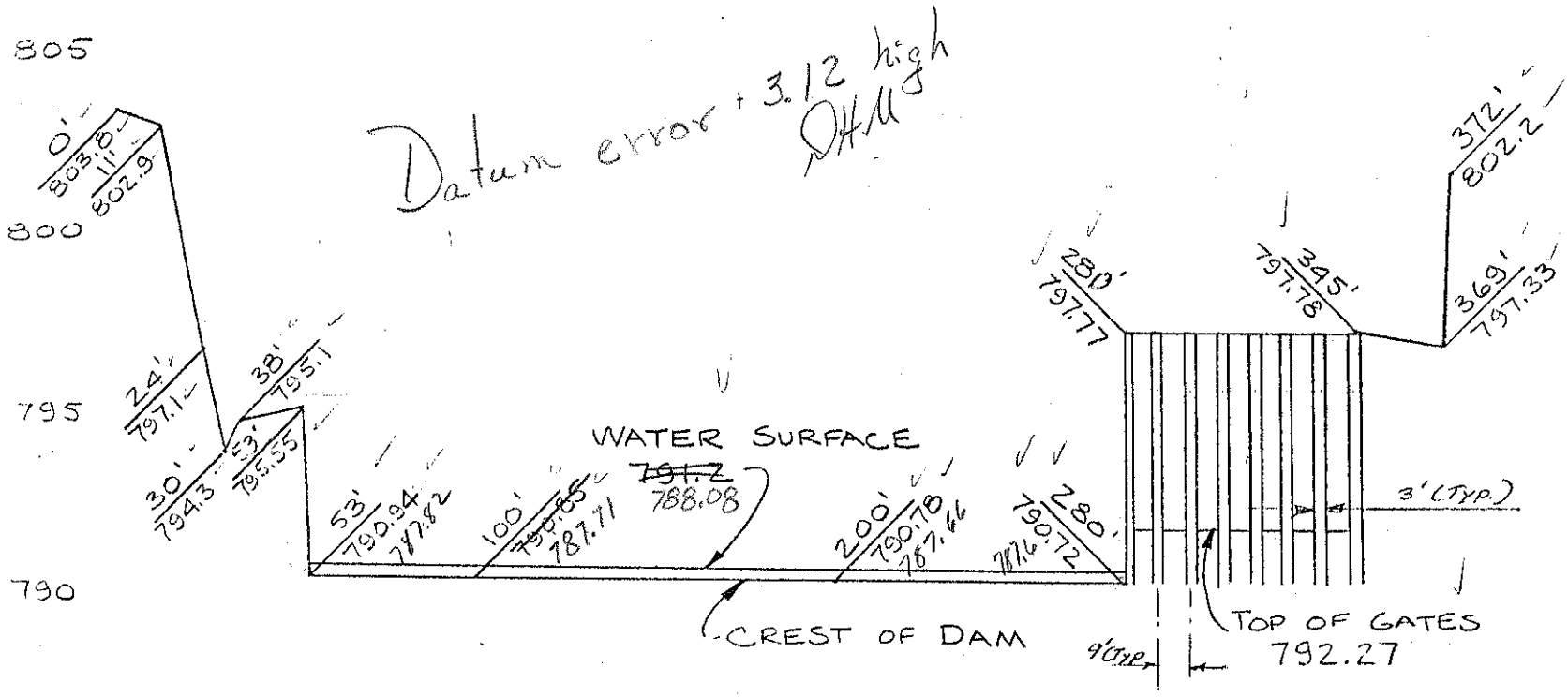
14. USGS, Flood of April, 1975 at Lansing, Michigan (photomosaic), by J.B. Miller and L.S. Swallow.

15. Snell Environmental Group, Hydrology Grand River and Red Cedar Confluence, August, 1978.

FIGURES

GRAND RIVER Sec 1

Grand Ledge Dam



790
-3
787
8
796

FIGURE 1

0 50 100 150 200 250 300 350 400

GRAND RIVER SEC. 73

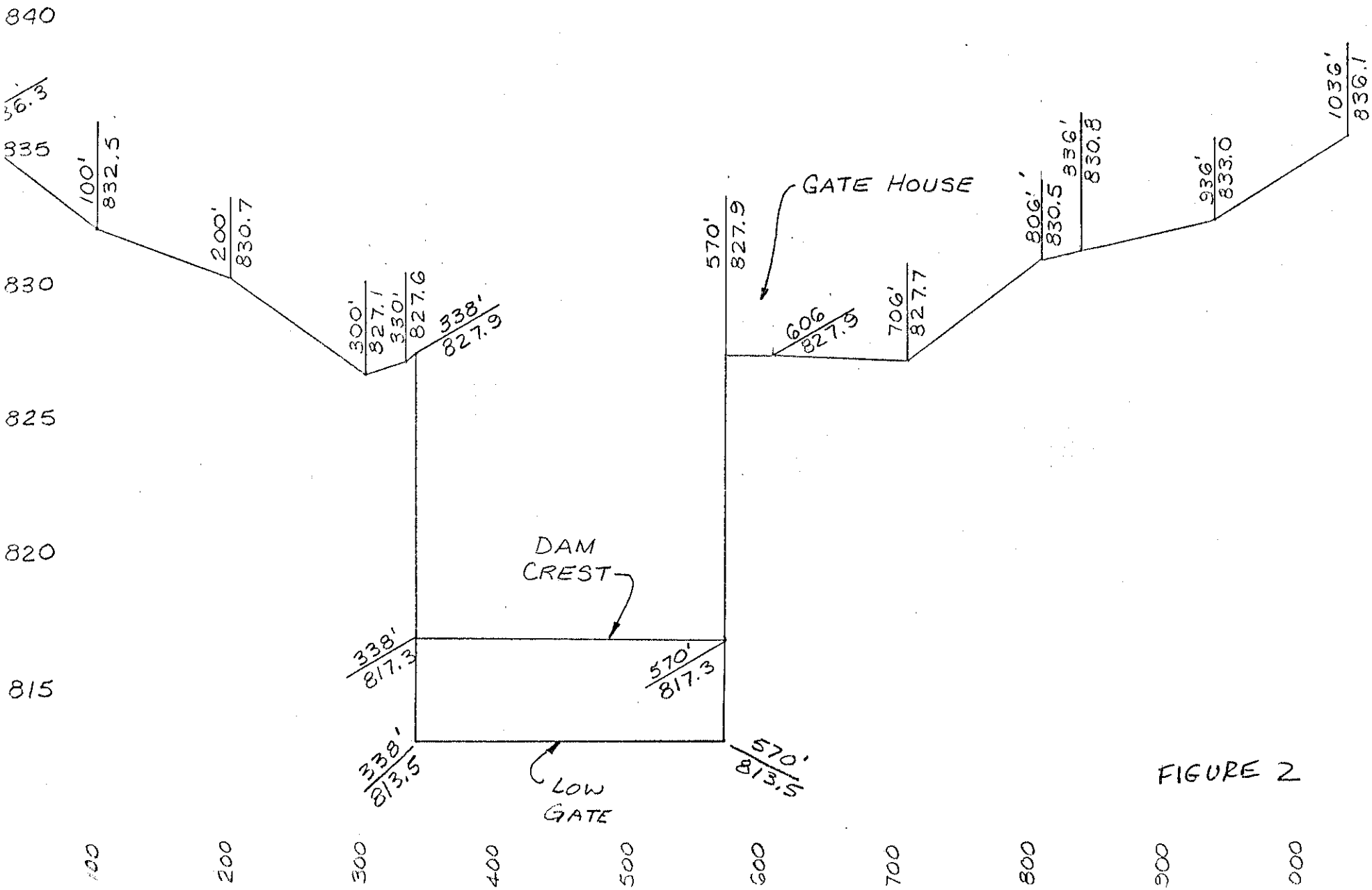


FIGURE 2

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SUBJECT TAILWATER EL
FOR G.L. DAM
SEC 0.51

JOB NUMBER
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CHK'D. BY DATE

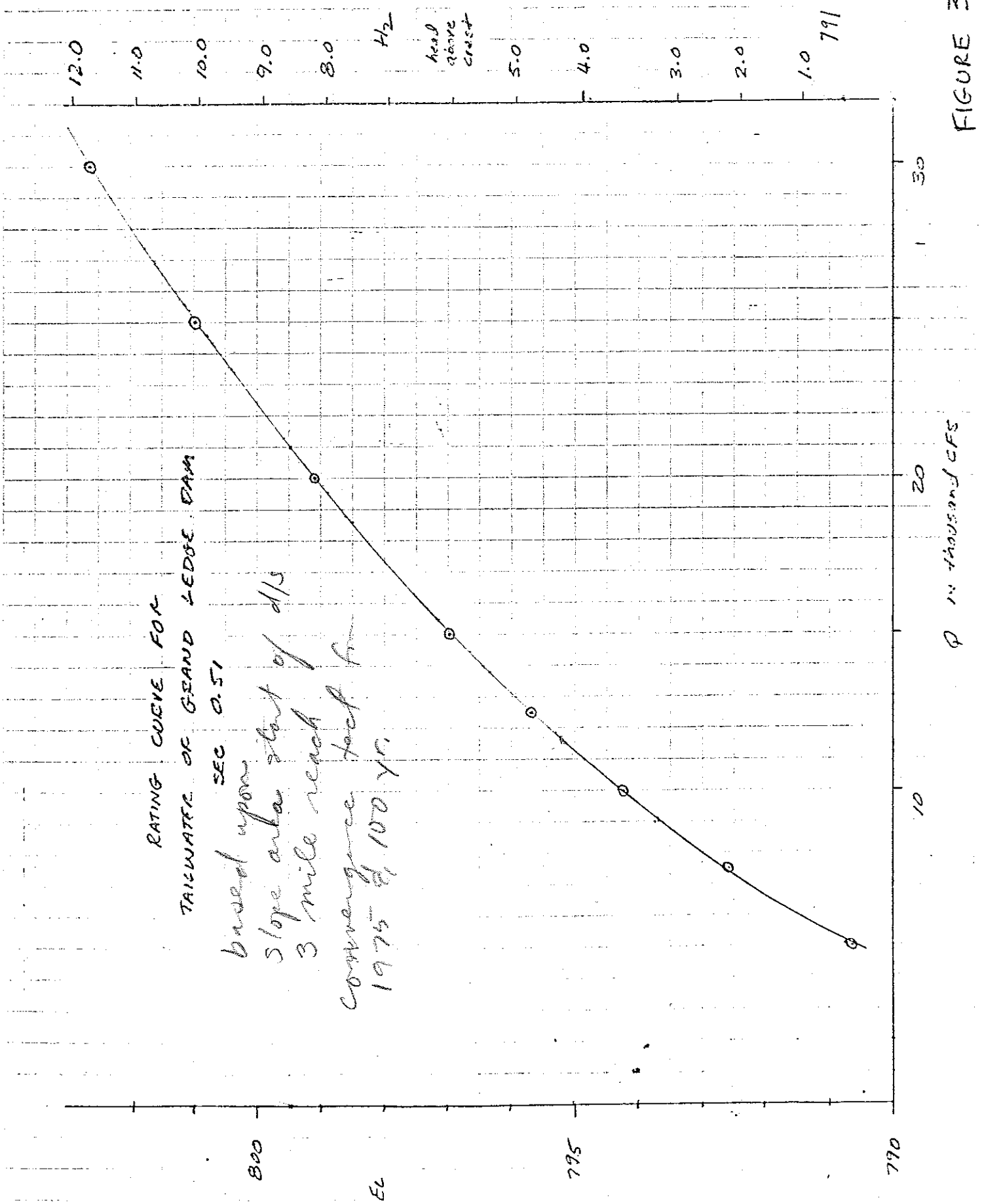

FIGURE 3

FIGURE 4

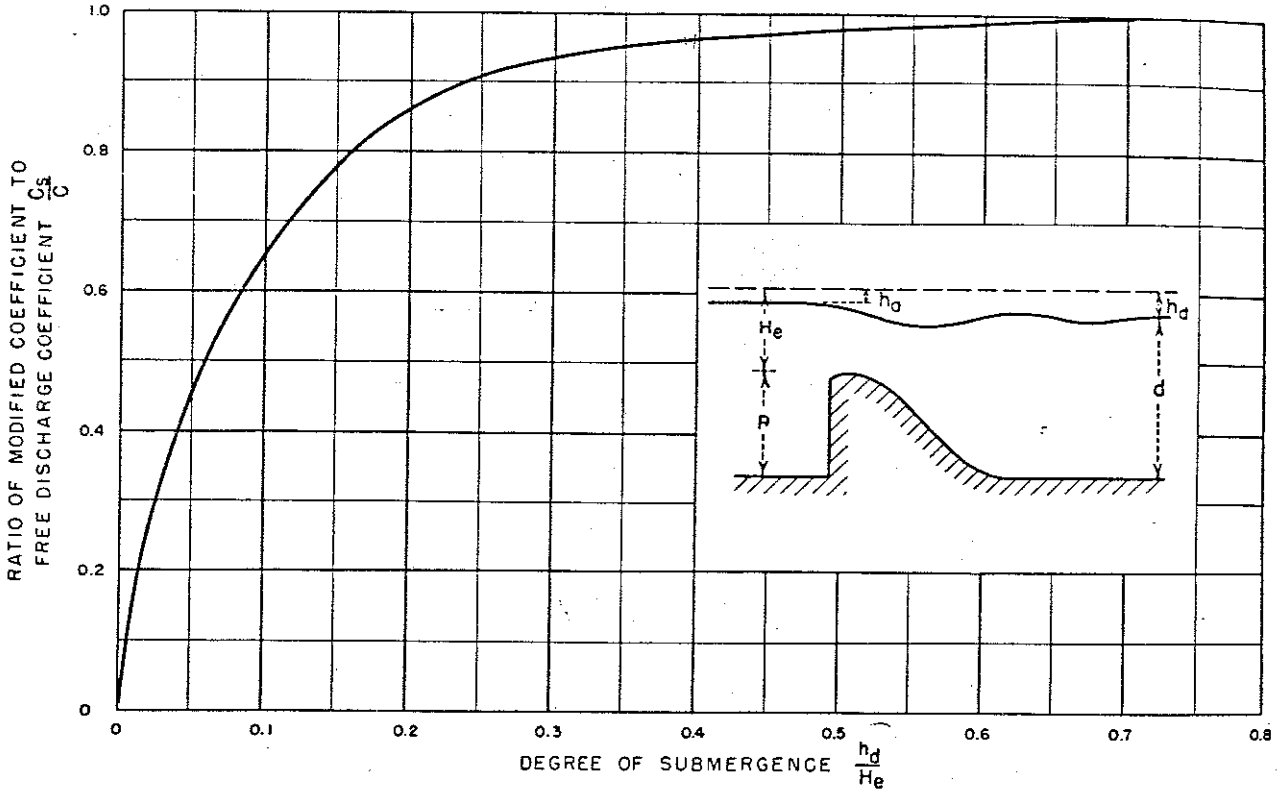

Figure 254. Ratio of discharge coefficients due to tailwater effect. 288–D–2414.

allow for other factors which may reduce the coefficient, an approach depth of about 2 feet might reasonably be assumed.

With a 2-foot approach depth, the computation for approach losses will be the same as in the procedure 1 solution and the effective head, H_o, will become 4.89 feet. Similarly, the value of C_i will be 3.84.

Since the overall coefficient of 3.5 was assumed for the 5-foot gross head, the corre-

TABLE 22.—*Design of an uncontrolled overflow ogee crest—example 1, procedure 1*

[Given l=50 feet.[1] H_e=4.89 feet. P=2 feet]

$\frac{H_e}{H_o}$	H_e feet	(2) $\frac{C}{C_o}$	C_i	h_a+d	$\frac{h_a+d}{H_e}$	(4) $\frac{C_s}{C}$	C_s	$Q=C_sLH_e^{3/2}$	H_e+P	v_a (approx.)	h_a	s	Entrance loss, 0.1 h_a	Total approach losses, feet	Gross head, feet	Total discharge, second-feet, $Q=C_sLH_e^{3/2}$
0.1	0.49	0.82	3.15	2.49	5.08	1.00	3.15	1.1	2.49	0.44	0.003	0.00001	0	0	0.49	55
.2	.98	.85	3.26	2.98	3.04	1.00	3.26	3.2	2.98	1.07	.02	.00006	0	.01	.99	160
.4	1.96	.90	3.46	3.96	2.02	1.00	3.46	9.5	3.96	2.40	.09	.0002	.01	.03	1.99	475
.6	2.93	.94	3.61	4.93	1.68	1.00	3.61	18.1	4.93	3.67	.21	.0004	.02	.06	2.99	905
.8	3.91	.97	3.73	5.91	1.51	.982	3.66	28.3	5.91	4.79	.36	.0005	.04	.09	4.00	1,415
1.0	4.89	1.0	[3] 3.84	6.89	1.41	.966	3.71	40.0	6.89	5.80	.52	.0006	.05	.11	5.00	2,000
1.2	5.87	1.03	3.96	7.87	1.34	.95	3.76	53.5	7.87	6.80	.72	.0007	.07	.14	6.01	2,675

[1] The effective crest length and the net crest length for H_o are 49.9 feet and 50.1 feet, respectively. Because of the small magnitude of the pier effects, an average length of 50 feet is taken for the effective crest length for all values of H_e. If the pier effects are significant, separate effective crest lengths should be computed for each H_e value.

[2] From fig. 250.

[3] *Cinclined* for H_o.

[4] From fig. 253.

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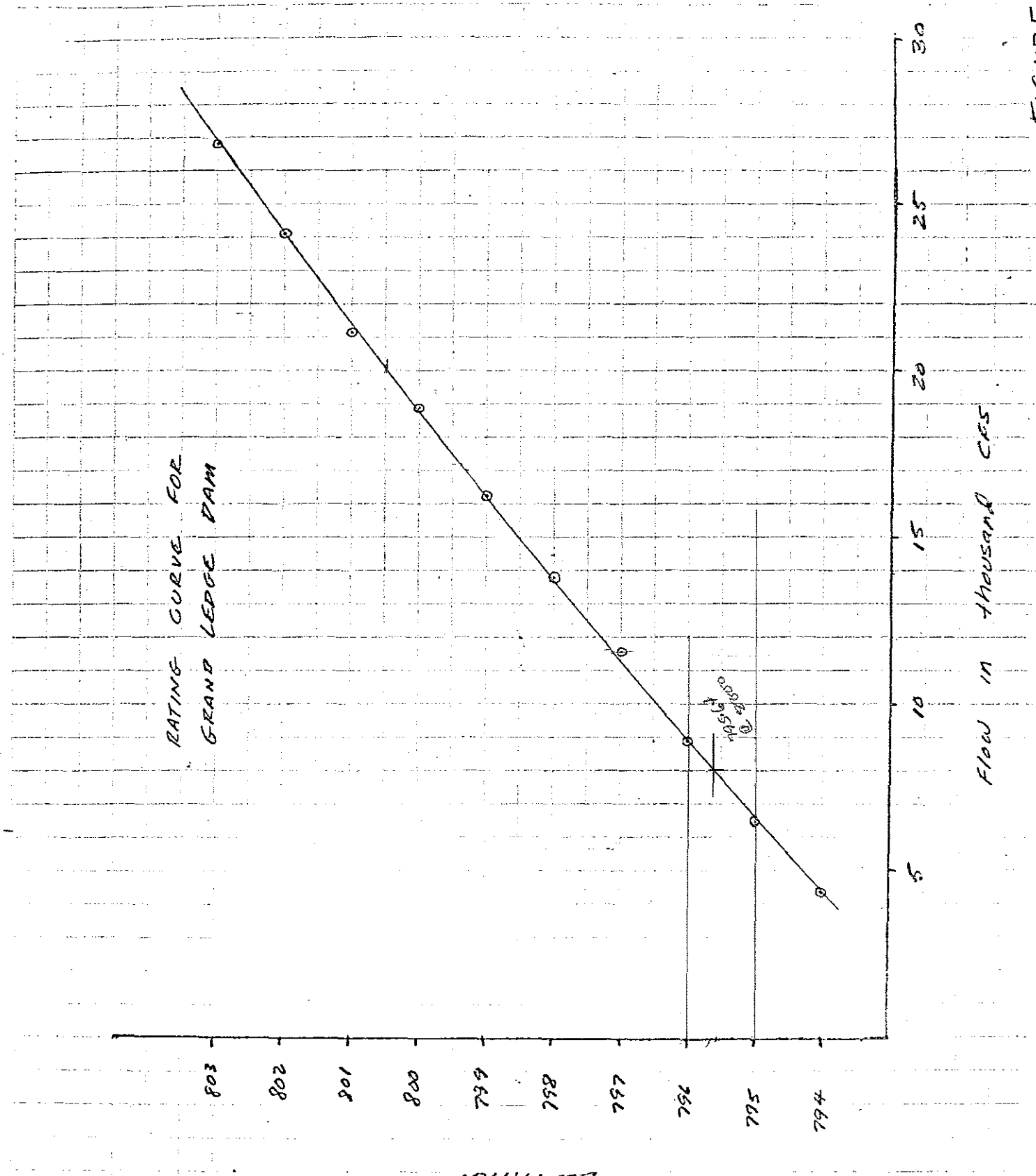
SUBJECT Grand Ledge Dam / rating curve

JOB NUMBER
SHEET NO. 2 OF
COMP. BY YEW DATE 5/12/78
CHK'D. BY DATE

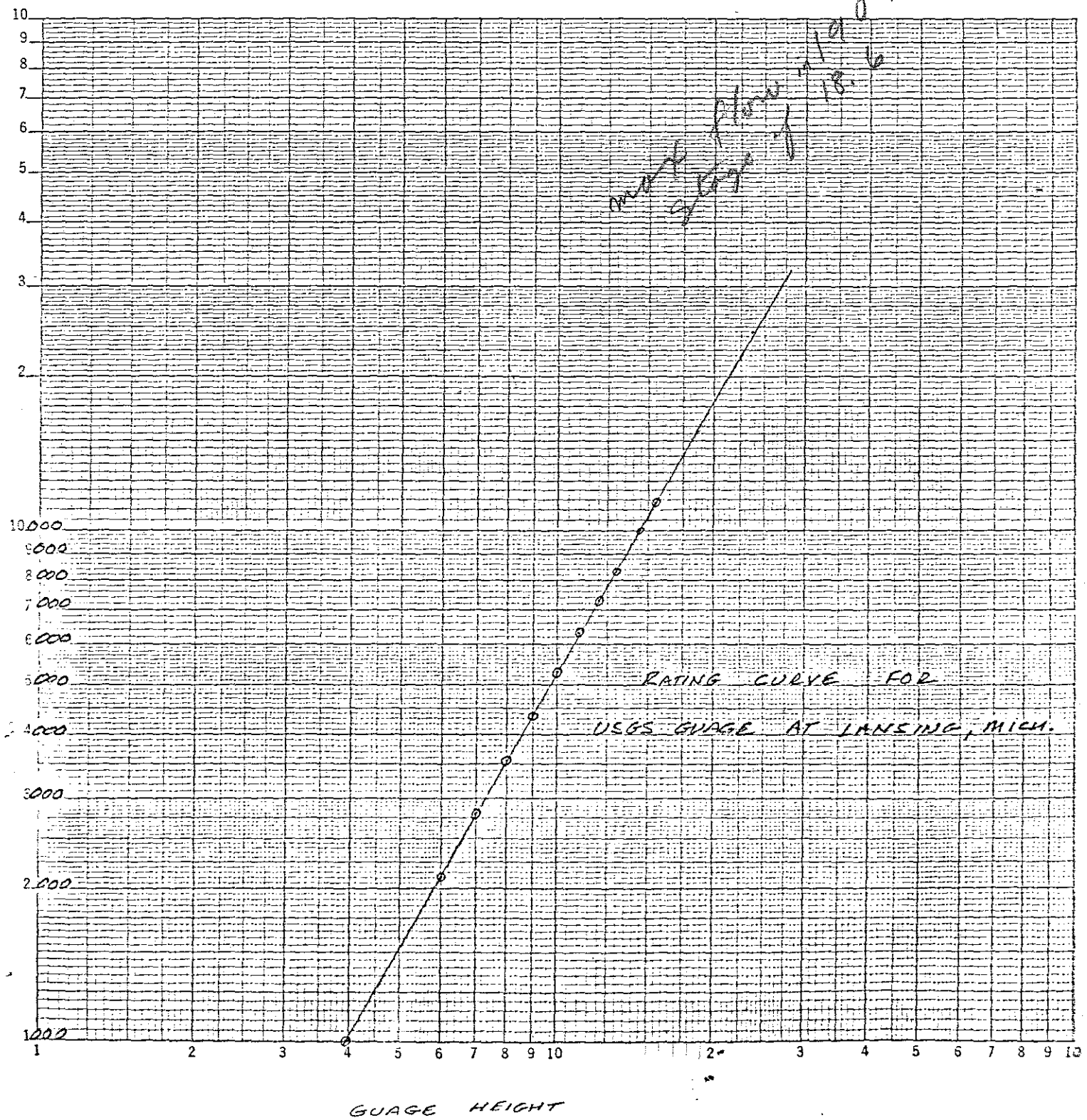
FIGURE 5



NATIONAL
12-185

USGS's rating curve extended above 15 000 cfs which is less than a 50 yr. freq.

FIGURE 6



APPENDIX A

FLOOD FREQUENCY INFORMATION

FROM MICHIGAN DNR

NATURAL RESOURCES COMMISSION
CARL T. JOHNSON
E. M. LAITALA
DEAN PRIDGEON
HILARY F. SNELL
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING, BOX 30028, LANSING, MICHIGAN 48909
HOWARD A. TANNER, Director

September 1, 1978

Snell Environmental Group
1120 May Street
Lansing, Michigan 48906

Attn: Sam M. Nalluswami

Re: FIS Hydrology - City of Lansing
and East Lansing, Ingham County

Dear Sam:

We have reviewed the hydrology for the Red Cedar River and the Grand River and concur with the flood discharge estimates as listed in your letter dated August 21, 1978.

If you have any questions concerning the hydrology, please contact me.

Sincerely,

Richard C. Sorrell, Engineer
Hydrologic Studies Unit
Water Management Division

RCS:ch

cc: D. Morgan

MICHIGAN
THE GREAT LAKE STATE

NATURAL RESOURCES COMMISSION
CARL T. JOHNSON
E. M. LAITALA
DEAN PRIDGEON
HILARY F. SNELL
HARRY H. WHITELEY
JOAN L. WOLFE
CHARLES G. YOUNGLOVE

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T. MASON BUILDING, BOX 30028, LANSING, MICHIGAN 48909

HOWARD A. TANNER, Director

December 5, 1977

Sam M. Nalluswami
Snell Environmental Group, Inc.
1120 May Street
Lansing, Michigan 48906

Dear Mr. Nalluswami:

As per the request in your letter of November 2, 1977 we have made frequency analyses of the Grand River at Lansing (#1130), the Red Cedar River at East Lansing (#1125), and the Lookingglass River near Eagle (#1145) gages. I have enclosed tables for the respective gages that summarize the various flood discharge estimates. These tables will give you a good indication of the range in estimates depending on how the frequency analysis is applied. The log Pearson Type III method was used with various skewness coefficients and outliers.

The Grand River at Lansing has 76 years of record from 1901 to 1976. We feel that due to the length of record the discharge estimates based on the computed station skew is the best estimate. This gives a 100 year flood discharge of 19400 cfs.

The Red Cedar River at East Lansing has 66 years of record to 1976. Based on our outlier test, we feel the flood peaks for the years 1931 and 1964 should be dropped. Therefore, using the station skewness coefficient and dropping the outliers gives a 100 year flood discharge of 7200 cfs. When the Meridian Twp. FIS was made a 100 year value of 7700 cfs was used at the gage. This was taken from the Corps of Engineers 1968 FPI report. We feel the lower value is more appropriate at this time.

The Lookingglass River near Eagle has 32 years of record to 1976. We attempted to extend the record based on the Grand River at Lansing. Based on the two-station comparison test in WRC Bulletin 17, the extension is just adequate. With both the natural and extended record the flood peak for 1964 tests as an outlier. Using the natural record and dropping the outlier gives a 100 year flood peak of 3130 cfs. The extended record

with the outlier dropped indicates a value of 3370 cfs. There is not a significant difference in these values, but a 100 year flood discharge of 3370 cfs is probably the most appropriate.

If you have questions about our frequency analyses, please contact me.

Sincerely,

BUREAU OF LAND & WATER MANAGEMENT
Water Management Division

Richard Watt

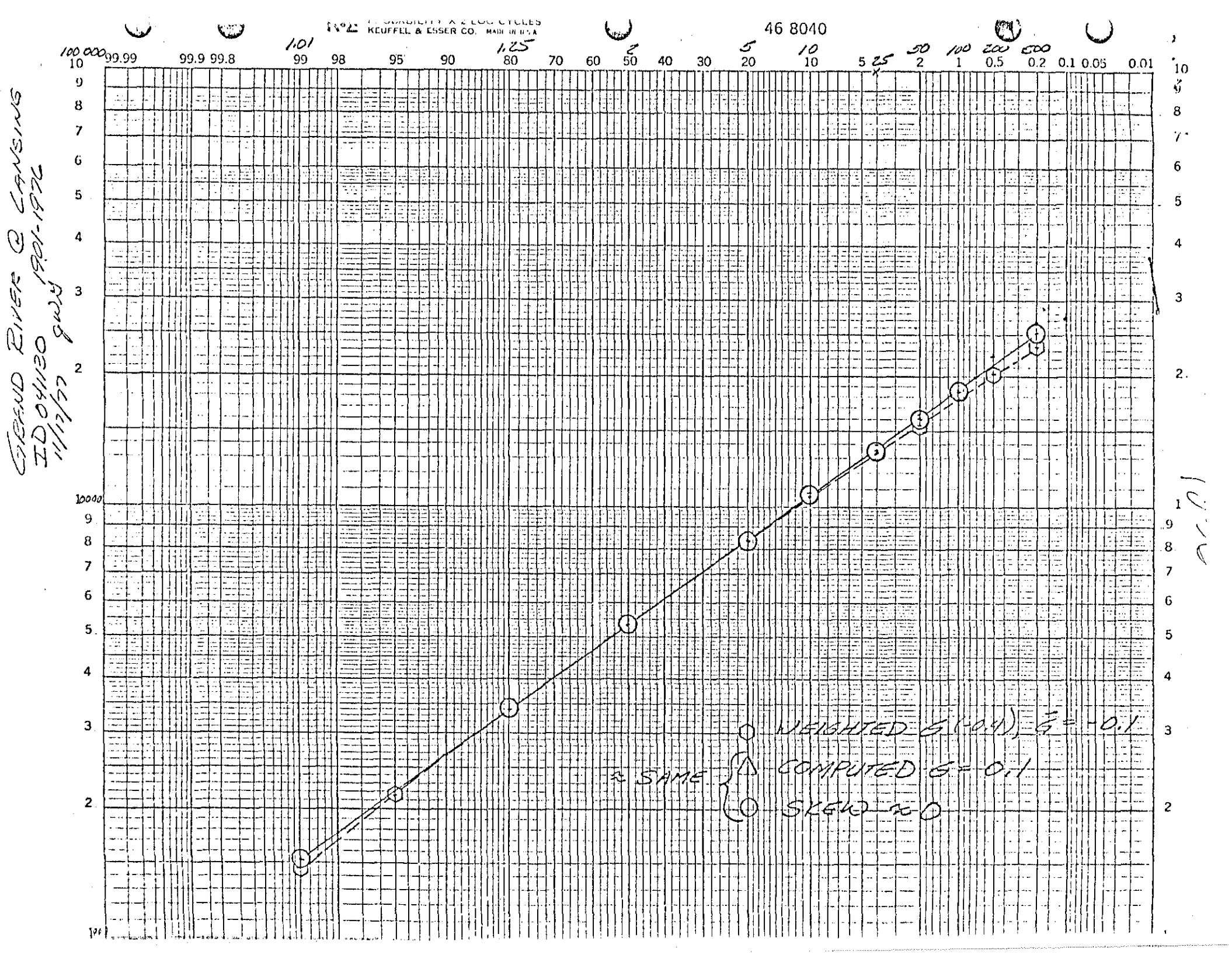
Richard Watt
Hydrologic Studies Unit

RW:ch
Enclosures
cc: Dan Morgan

GRAND RIVER @ LANSING
04/1130

R1016-1

	PROB.	10	50	100	500
1.)	SEED (G) = 0	10638	16104	18643	25071
2.)	COMPUTED (G) = 0.1	10700	16600	19400	26800
3.)	WEIGHTED (G) = -0.1	10600	15600	17900	23500



GRAND RIVER @ LANSING
ID 041130 1901-1976
11/17/77 GWJ
46 8040
KEUFFEL & ESSER CO.
WEIGHTED G (-0.4), $\bar{G}$ = -0.1
≈ SAME
COMPUTED G = 0.1
SKEW ≈ 0

APPENDIX B

CROSS SECTION DESCRIPTION TABLE

only this page

GRAND RIVER

Main channel of fabricated cross sections are dervied from upstream and downstream surveyed sections.

Cross Section	Section No.	DESCRIPTION
A	1.1	Fabricated section using 2' contour map, starting cross section for synthetic floods 20 feet upstream of Grand Ledge Dam.
B	1.5	Surveyed valley section, left over bank modified to block slack flow area at sewage treatment plant.
C	2.5	Surveyed valley section
D	2.7	Same as section 5.0 elevations lowered .52'
E	3.5	Repeat of section 2.7, elevation raised .43'
F	5.0	Surveyed railroad bridge section, downstream section.
H	7.0	Surveyed valley section.
J	9.0	Surveyed section, foot bridge on right overbank from island.
K	10.5	Surveyed valley section.
L	12.0	Surveyed bridge section at South Bridge Street, downstream section.
M	13.0	Fabricated from 2' contour map.
N	14.0	Surveyed valley section.
O	15.0	Fabricated from 2' contour map
P	16.0	Surveyed valley section
Q	16.5	Fabricated from 2' contour map
R	17.0	Valley section 8 used in U.S. Army Corps of Engineers FPI Report
S	18.0	Surveyed valley section
T	19.0	Fabricated from 2' contour map
U	20.0	Surveyed valley section
V	21.0	Fabricated from 2' contour map

W	22.0	Surveyed valley section
X	23.0	Surveyed valley section, left overbank and right overbank are encroached. good
Y	24.0	Valley section 10 used in U.S. Army Corps of Engineers FPI Report
Z	25.0	Surveyed valley section
AA	26.0	Valley section 11 used in U.S. Army Corps of Engineers FPI Report
AB	27.0	Surveyed valley section
AC	28.0	Fabricated from 2' contour map, left overbank and right overbank are encroached.
AD	29.0	Surveyed bridge section at southbound I-96, downstream section.
AE	30.1	Surveyed bridge section at northbound I-96, upstream section.
AF	30.5	Fabricated from 2' contour map
AG	31.0	Surveyed valley section
AH	32.0	Valley section 14 used in U.S. Army Corps of Engineers FPI Report
AI	33.0	Surveyed valley section, right overbank is encroached
AJ	34.0	Fabricated from 2' contour map, left overbank and right overbank are encroached
AK	35.0	Surveyed bridge section at ~~Willow~~ Webster Highway, downstream section Corp of Engr #16
AL	36.0	Surveyed valley section
AM	37.0	Surveyed valley section
AN	38.0	Surveyed valley section
AO	39.0	Valley section 17 used in U.S. Army Corps of Engineers FPI Report
AP	40.0	Surveyed valley section
AQ	41.0	Fabricated from 2' contour map TW 1104
AR	44	removed from run to provide continuity Valley section 19 used in U.S. Army Corps of Engineers FPI Report

Should have been extended

l/90B as TW = 579 ft

Reach Length

AS 45. 750 820 820, TW = 1854'

AS	45	Surveyed valley section
AT	47	Surveyed valley section, left overbank and right overbank are encroached
AU	48	Surveyed valley section
AV	50	Surveyed bridge section at Waverly Road, downstream section, left overbank and right overbank are encroached
AW	51	Fabricated from 2' contour map
AX	52	Surveyed valley section
AY	53	Valley section 22 used in U.S. Army Corps of Engineers FPI Report
AZ	54	Surveyed valley section
BA	55	Valley section 23 used in U.S. Army Corps of Engineers FPI Report
BB	56	Fabricated from 2' contour map
BC	57	Surveyed valley section
BD	58	Surveyed railroad bridge section, downstream section
BE	60	Surveyed valley section
BF	62	Surveyed bridge section at Logan Street, downstream section
BG	63	Surveyed valley section, right overbank is encroached
BH	64	Fabricated from 2' contour map
BI	65	Surveyed valley section
BJ	67	Surveyed bridge section at North Grand River Avenue, downstream section, right overbank is encroached.
BK	68	Fabricated from 2' contour map
BL	69	Surveyed valley section, section altered to account for buildings.
BM	70	Fabricated from 2' contour map, section modified to account for buildings.
BN	71	Surveyed bridge section at Grand River Avenue, downstream section
BO	72	Surveyed valley section, left overbank and right overbank are encroached.

BP	72.9	Surveyed valley section 55 feet downstream from North Lansing Dam, right overbank is encroached
BQ	73	Surveyed river structure at North Lansing Dam, right overbank is encroached
BR	73.1	Surveyed valley section 40 feet upstream from North Lansing Dam
BS	74	Surveyed valley section
BT	75	Surveyed bridge section at Oakland Avenue, downstream section
BU	77	Valley section 34 used in U.S. Army Corps of Engineers FPI Report
BV	79	Surveyed bridge section at Saginaw Street, downstream section
BW	81	Fabricated from 2' contour map, left overbank and right overbank are encroached.
BX	82	Surveyed railroad bridge, downstream section, right overbank encroached using GR cards
BY	83	Fabricated from 2' contour map
Bz	85	Surveyed bridge section at Shiawassee Street, downstream section, left overbank and right overbank are encroached
CA	86	Surveyed valley section
CB	88	Fabricated from 2' contour map
CC	89	Surveyed bridge section at Michigan Avenue, downstream section
CD	90	Fabricated from 2' contour map
CE	91	Fabricated from 2' contour map
CF	92	Bridge section at Kalamazoo Street, plans obtained from the City of Lansing
CG	93	Valley section 43 used in U.S. Army Corps of Engineers FPI Report, left overbank and right overbank are encroached.
CH	94	Fabricated from 2' contour map, left overbank and right overbank are encroached, buildings shifted in left overbank
CI	96	Surveyed bridge section at I-496, downstream section
CJ	97.5	Surveyed bridge section at I-496, upstream section

CK	98	Fabricated section, left overbank from section CJ, channel from U.S. Army Corps of Engineers FPI Report, right overbank from 2' contour map
CL	99	Surveyed bridge section at River Street, downstream section, left overbank modified using section CJ and 2' contour map, right overbank modified using 2' contour map
CM	100	Fabricated from 2' contour map
CN	101	Valley section 47 used in U.S. Army Corps of Engineers FPI Report
CO	102	Fabricated from 2' contour map, right overbank is encroached
CP	104	Surveyed bridge section at Washington Avenue, downstream section, right overbank is encroached
CQ	106	Surveyed valley section
CR	107	Surveyed valley section, left overbank encroached
CS	108	Surveyed bridge section at Elm Street, downstream section, left overbank and right overbank are encroached
CT	109	Fabricated from 2' contour map
CU	112	Surveyed railroad bridge section, downstream section, left overbank and right overbank are encroached
CV	113	Fabricated from 2' contour map, left overbank is encroached
CW	114	Surveyed bridge section at Island Avenue, downstream section, right overbank from 2' contour map, right overbank encroached using GR cards
CX	117	Surveyed valley section
CY	119	Fabricated using 2' contour map for left overbank and right overbank, channel by U.S. Army Corps of Engineers FPI Report
CZ	120	Surveyed valley section, located 250' downstream from Moores Park Dam

00BREAK00

1) COUNTY: Ingham + Eaton

2) STUDY NAME: Island Problem

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: HEC-2 for 1975 Flood

00BREAK00

GRAND RIVER PART II

ISLAND PROBLEM

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************


T1
T2
T3          SMALL CHANNEL

J1   ICHECK      INQ        NINV       IDIR       STRT-      METRIC -   HVINS      O          WSEL       FQ

          0.         0.         0.         0.  0.000000       0.00       0.0     3980.    837.700      0.000

NC        .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1     153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GP     833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR     838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC       0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1     154.000     14.000    364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2     200.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     849.600      0.000    843.300    100.000    842.000    200.000    841.600    300.000    841.300    363.000
GP     833.500    364.000    827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR     841.900    500.000    844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB       0.000      1.560      2.600      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1     154.500      0.000      0.000      0.000     31.000     31.000     31.000      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      13.000      0.000    849.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT     300.000    841.600      0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT     842.400    838.600    390.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT       0.000    600.000    844.000      0.000    700.000    849.600      0.000    800.000    849.600      0.000
NC       0.000      0.000      0.000       .190       .300      0.000      0.000      0.000      0.000      0.000

X1     155.000      8.000     38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR     852.000      0.000    841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR     833.600    121.000    845.400    161.000    851.500    300.000      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     156.000     10.000    121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR     850.700      0.000    848.500     50.000    846.600    100.000    846.500    121.000    828.900    122.000
GR     828.400    149.000    846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB       0.000      1.560      2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1     156.500      0.000      0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT       9.000      0.000    850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT     121.000    847.500      0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT     847.400      0.000    200.000    847.500      0.000    250.000    849.400      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.900	500.000	850.000	600.000	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

```
*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00     10.50   837.70     0.00   837.70    837.79      .09      0.00      0.00   837.60
    3980.        0.     3980.       0.      1.      1617.       0.       0.        0.   838.80
     0.00       .07     2.46     0.00     .050      .040      .035    0.000    827.20   620.50
  .000326        0.       0.       0.        0         0         0     0.00    248.76   869.26


CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00     10.06   837.96     0.00     0.00   837.98      .02      .16      .02   833.50
    200.        0.     200.       0.      1.      183.       0.       11.       2.   841.40
     .14       .12     1.09     0.00     .050      .040      .035     .040    827.90   363.43
  .000084     500.     550.     600.        2         0         0     0.00     26.14   389.56


SPECIAL BRIDGE

SB   XK        XKOP      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU     ELCHD
      0.00      1.56      2.60       0.00     27.00      0.00     205.00     0.00     831.00    831.00

*SECNO 154.500

6070,LOW FLOW BY NORMAL BRIDGE

EGPPS=   837.985  EGLWC=   841.071  ELLC=   838.600  PCWSE=   837.962  ELTRD=   841.300

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  841.30 MAX ELLC=  838.60

   154.50     10.06   837.96     0.00     0.00   837.98      .02      .00      .00   833.50
    200.        0.     200.       0.      1.      183.       0.       12.       2.   841.40
     .15       .12     1.09     0.00     .050      .040      .035     .040    827.90   363.43
  .000084       31.      31.      31.        2         0         0     0.00     26.14   389.57


CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00      9.01   838.01     0.00     0.00   838.01      .00      .03      .00   841.30
    200.        0.     200.       0.      0.      483.       0.       19.       3.   845.40
     .82       0.00      .41     0.00     .050      .040      .035     .040    829.00    47.40
  .000013     1000.    1000.    1000.        2         0         0     0.00     88.55   135.95


CCHV=    .300 CEHV=    .500
*SECNO 155.000
   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
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   156.00      9.62    838.02      0.00      0.00    838.03       .01       .01       .00    846.50
     200.        0.      200.        0.        0.      258.        0.       23.        4.    846.40
     1.00      0.00       .77      0.00      .050      .040      .035      .040    828.40    121.48
  .000043      750.      500.      400.         1         0         0      0.00     28.05    149.53


SPECIAL BRIDGE

SB  XK          XKOP       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.56       2.60       0.00      27.00       0.00     400.00       0.00     828.90     828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  846.60 MAX ELLC=  843.60

   156.50      9.62    838.02      0.00      0.00    838.03       .01       .00       .00    846.50
     200.        0.      200.        0.        0.      258.        0.       24.        4.    846.40
     1.01      0.00       .78      0.00      .050      .040      .035      .040    828.40    121.48
  .000043       29.       29.       29.         0         0         0      0.00     28.05    149.53


CCHV=     .100 CEHV=     .300
*SECNO 157.000

3265 DIVIDED FLOW

   157.00     10.13    838.03      0.00      0.00    838.03       .00       .00       .00    852.00
     200.        0.      198.        2.        0.     1849.       74.       42.        7.    839.40
     2.97      0.00       .11       .03      .050      .040      .035      .040    827.90     30.04
  .000001      750.      750.      750.         2         0         0      0.00    317.20    423.53
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************
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15.54.15..000009 PAGES PRINT. 000240 LINES PRINT. FOR $ 000.28 AT RG2.



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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3          SMALL CHANNEL

J1   ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

          0.        0.         0.         0.  0.000000       0.00       0.0     3980.   837.700      0.000

NC        .050       .035       .040       .100       .300     0.000      0.000      0.000      0.000      0.000

X1     153.000    14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     851.700     0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR     833.500   656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR     838.800   873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC       0.000     0.000      0.000       .300       .500     0.000      0.000      0.000      0.000      0.000

X1     154.000    14.000    364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2     400.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     849.600     0.000    843.300    100.000    842.000    200.000    841.600    300.000    841.300    363.000
GR     833.500   364.000    827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR     841.900   500.000    844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB       0.000     1.560      2.600      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1     154.500     0.000      0.000      0.000     31.000     31.000     31.000      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      13.000     0.000    849.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT     300.000   841.600      0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT     842.400   838.600    390.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT       0.000   600.000    844.000      0.000    700.000    949.600      0.000    800.000    849.600      0.000
NC       0.000     0.000      0.000       .100       .300     0.000      0.000      0.000      0.000      0.000

X1     155.000     8.000     38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR     852.000     0.000    841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR     833.600   121.000    845.400    161.000    851.500    300.000      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     156.000    10.000    121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR     850.700     0.000    848.500     50.000    846.600    100.000    846.500    121.000    828.900    122.000
GR     828.400   149.000    846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB       0.000     1.560      2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1     156.500     0.000      0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT       9.000     0.000    850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT     121.000   847.500      0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT     847.400     0.000    200.000    847.500      0.000    250.000    849.400      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
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	49.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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

```
*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00     10.50    837.70      0.00    837.70    837.79      .09      0.00      0.00    837.60
    3980.        0.      3980.       0.       1.      1617.       0.        0.        0.     838.80
     0.00       .07      2.46      0.00      .050      .040      .035     0.000    827.20    620.50
  .000326        0.        0.        0.         0         0         0      0.00    248.76    869.26

CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00     10.00    837.90      0.00      0.00    837.98      .08       .18       .01    833.50
    400.        0.      400.        0.       1.       181.       0.       11.        2.     841.40
     .07       .24      2.20      0.00      .050      .040      .035      .040    827.90    363.44
  .000346      500.      550.      600.         2         0         0      0.00     26.12    389.56


SPECIAL BRIDGE

SB  XK        XKOP      COFQ      PDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.56      2.60      0.00     27.00      0.00     205.00     0.00    831.00    831.00

*SECNC 154.500

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   837.997  EGLWC=   841.041  ELLC=   838.600  PCWSE=   837.905  ELTRD=   841.300

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  841.30 MAX ELLC=  838.60

   154.50     10.02    837.92      0.00      0.00    837.99      .08       .01       .00    833.50
    400.        0.      400.        0.       1.       182.       0.       11.        2.     841.40
     .07       .24      2.20      0.00      .050      .040      .035      .040    827.90    363.43
  .000344       31.       31.       31.         3         0         0      0.00     26.13    389.56

CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00      9.09    839.09      0.00      0.00    838.10      .01       .11       .01    841.30
    400.        0.      400.        0.       0.       491.       0.       19.        3.     845.40
     .41       0.00       .82      0.00      .050      .040      .035      .040    829.00     47.16
  .000051     1000.     1000.     1000.         2         0         0      0.00     89.07    136.23

CCHV=    .300 CEHV=    .500
*SECNO 155.000
   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
```

156.00	9.72	838.12	0.00	0.00	838.16	.04	.04	.01	846.50
400.	0.	400.	0.	0.	261.	0.	24.	4.	846.40
.50	0.00	1.53	0.00	.050	.040	.035	.040	828.40	121.48
.000168	750.	500.	400.	2	0	0	0.00	28.06	149.54

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	PDLEN	BHC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	27.00	0.00	400.00	0.00	828.90	828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NPD= 9 MIN ELTRD= 846.60 MAX ELLC= 843.60

156.50	9.73	838.13	0.00	0.00	838.16	.04	.00	.00	846.50
400.	0.	400.	0.	0.	261.	0.	24.	4.	846.40
.51	0.00	1.53	0.00	.050	.040	.035	.040	828.40	121.48
.000168	29.	29.	29.	0	0	0	0.00	28.06	149.54

CCHV= .100 CEHV= .300
*SECNO 157.000

3265 DIVIDED FLOW

157.00	10.27	838.17	0.00	0.00	838.17	.00	.00	.00	852.00
400.	0.	395.	5.	0.	1881.	88.	43.	7.	839.40
1.51	0.00	.21	.05	.050	.040	.035	.040	827.90	29.74
.000002	750.	750.	750.	2	0	0	0.00	326.57	425.72

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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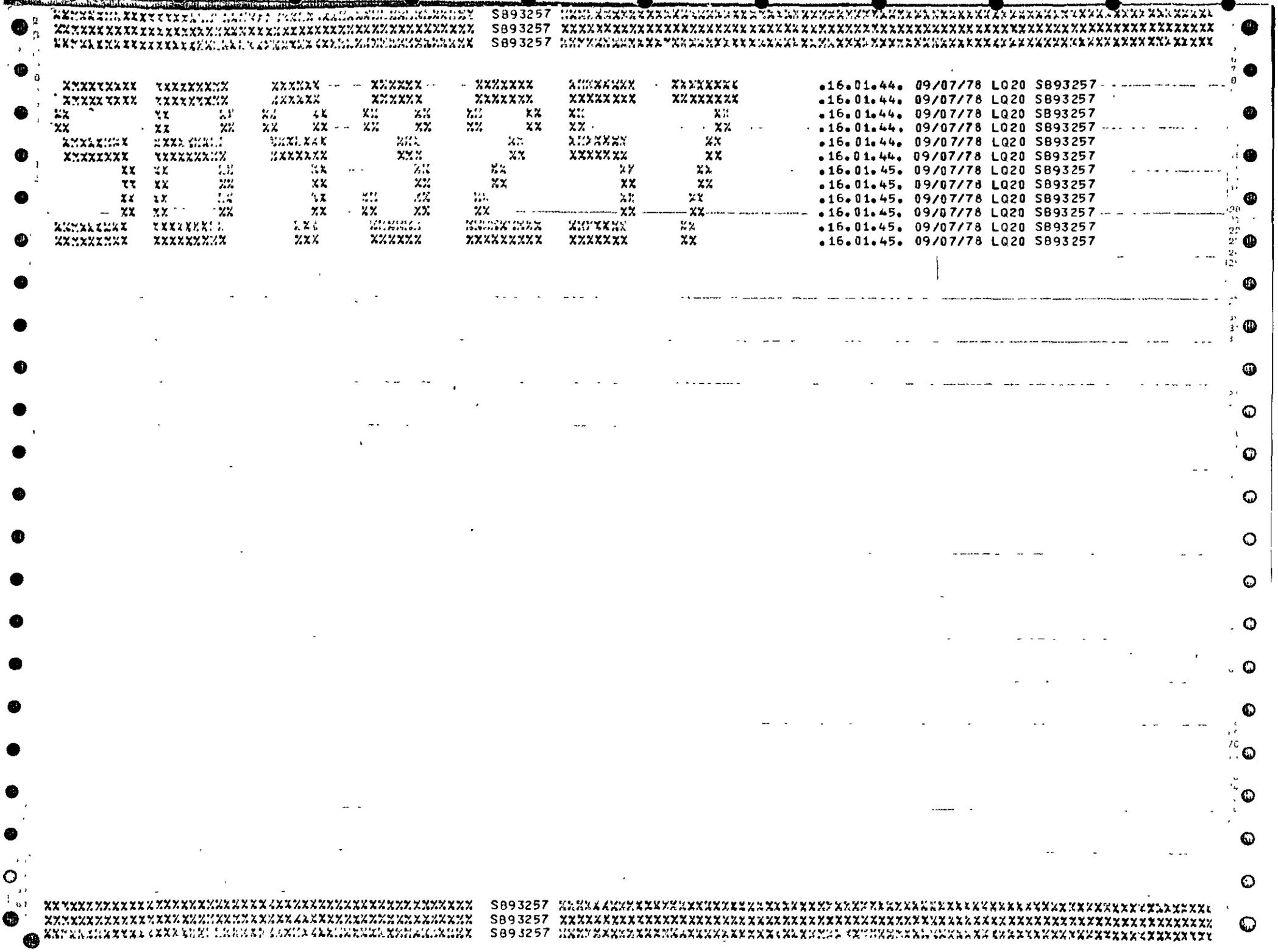

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3        SMALL CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.   0.000000       0.00       0.0     3980.    837.700    0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    154.000     14.000    364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2    600.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    843.300    100.000    842.000    200.000    841.600    300.000    841.300    363.000
GR    833.500    364.000    827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR    841.900    500.000    844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB      0.000      1.560      2.600      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1    154.500      0.000      0.000      0.000     31.000     31.000     31.000      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     13.000      0.000    849.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT    300.000    841.600      0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT    842.400    838.600    390.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT      0.000    600.000    844.000      0.000    700.000    849.600      0.000    800.000    849.600      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    155.000      3.000     38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    852.000      0.000    841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR    833.600    121.000    845.400    161.000    851.500    300.000      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    156.000     10.000    121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    850.700      0.000    848.500     50.000    846.600    100.000    846.500    121.000    828.900    122.000
GR    828.400    149.000    846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB      0.000      1.560      2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1    156.500      0.000      0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT      9.000      0.000    850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT    121.000    847.500      0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT    847.400      0.000    200.000    847.500      0.000    250.000    849.400      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PROF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

  153.00     10.50    837.70     0.00     837.70    837.79      .09      0.00      0.00      837.60
    3980.       0.      3980.       0.        1.      1617.       0.        0.        0.       838.80
     0.00      .07      2.46      0.00      .050      .040      .035     0.000     827.20     620.50
 .000326        0.        0.        0.         0         0         0      0.00     248.76     869.26

CCHV=    .300 CEHV=    .500
*SECNO 154.000
  154.00      9.96    837.86     0.00      0.00    838.03      .17       .20       .04      833.50
   600.         0.      600.       0.        1.      180.        0.       11.        2.      841.40
    .05       .36      3.33      0.00      .050      .040      .035      .040     827.90     363.44
 .000794      500.      550.      600.         2         0         0      0.00      26.11     389.55


SPECIAL-BRIDGE

SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.56        2.60        0.00       27.00        0.00       205.00       0.00       831.00      831.00

*SECNO 154.500

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   838.066  EGLWC=   841.041  ELLC=   838.600  PCWSE=   837.859  ELTRD=   841.300

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  841.30 MAX ELLC=  838.60

  154.50      9.98    837.88     0.00      0.00    838.06      .17       .02       .00      833.50
   600.         0.      600.       0.        1.      181.        0.       11.        2.      841.40
    .05       .36      3.31      0.00      .050      .040      .035      .040     827.90     363.44
 .000785        31.       31.       31.         3         0         0      0.00      26.12     389.56

CCHV=    .100 CEHV=    .300
*SECNO 155.000
  155.00      9.27    838.27     0.00      0.00    838.30      .02       .23       .01      841.30
   600.         0.      600.       0.        0.      507.        0.       19.        3.      845.40
    .28       0.00      1.18      0.00      .050      .040      .035      .040     829.00      46.65
 .000105      1000.     1000.     1000.         2         0         0      0.00      90.19     136.84

CCHV=    .300 CEHV=    .500
*SECNO 156.000
   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
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   156.00      9.93    838.33      0.00      0.00    838.41      .08       .09       .03    846.50
    600.         0.      600.        0.        0.      267.        0.       24.        4.     846.40
     .34       0.00      2.25      0.00      .050      .040      .035      .040    828.40    121.46
 .000356        750.      500.      400.         2         0         0      0.00     28.09    149.55


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        PDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     0.00        1.56        2.60         0.00      27.00        0.00      400.00        0.00      828.90      828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NPD=  9 MIN ELTRD=  846.60 MAX ELLC=  843.60

   156.50      9.94    838.34      0.00      0.00    838.42      .08       .01       .00    846.50
    600.         0.      600.        0.        0.      267.        0.       24.        4.     846.40
     .35       0.00      2.25      0.00      .050      .040      .035      .040    828.40    121.46
 .000355        29.       29.       29.         0         0         0      0.00     28.09    149.55


CCHV=    .100 CEHV=    .300
*SECNO 157.000

3265 DIVIDED FLOW

   157.00     10.54    838.44      0.00      0.00    838.44      .00       .01       .01    852.00
    600.         0.      590.       10.        0.     1940.      118.       44.        7.     839.40
     1.04       0.00      .30       .08      .050      .040      .035      .040    827.90     29.17
 .000004        750.      750.      750.         2         0         0      0.00    344.14    429.82
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* HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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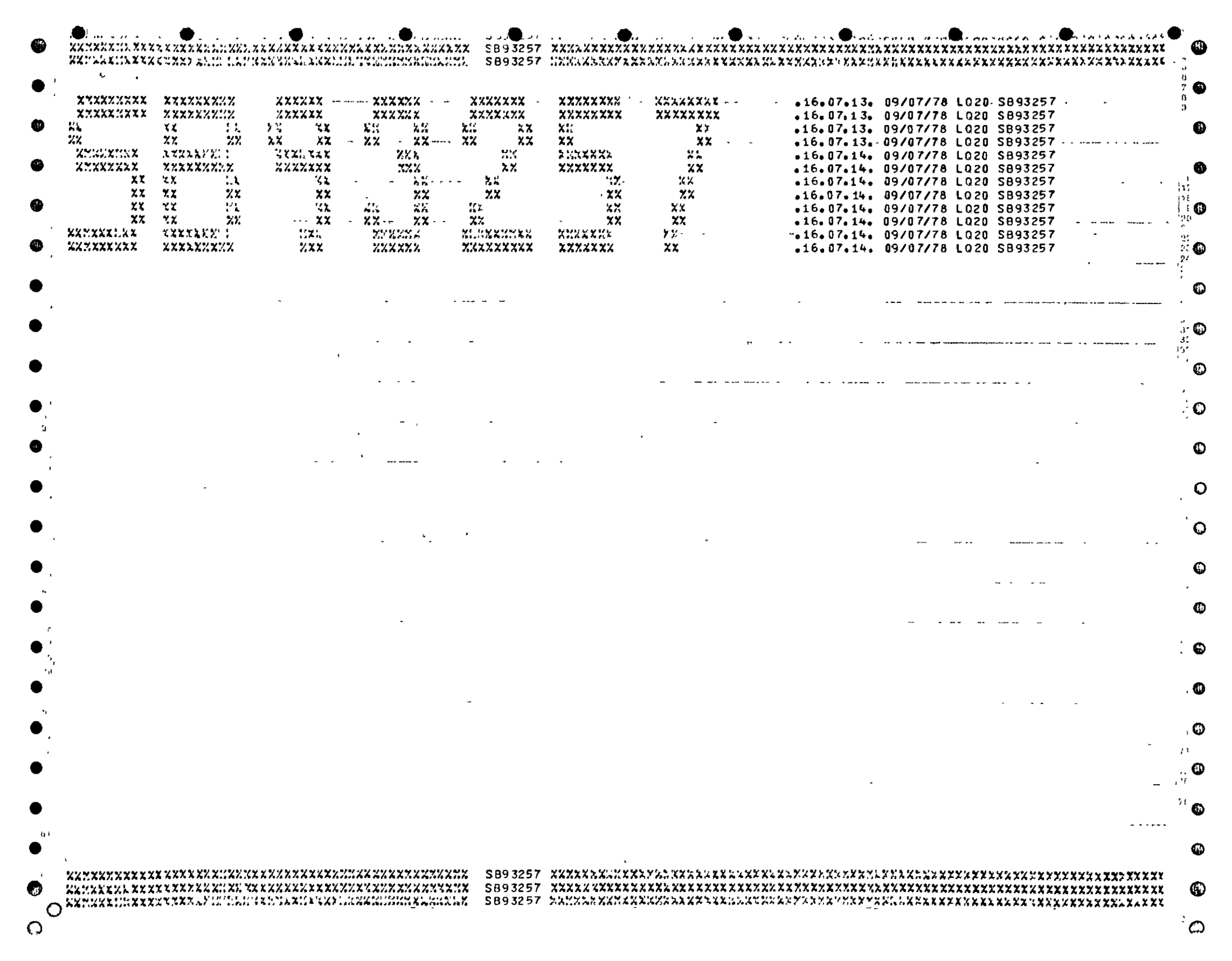
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  51,51,52,53
**************************************************

T1
T2
T3       SMALL CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0     3980.    837.700      0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000    14.000   641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700     0.000   841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500   656.000   827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800   873.000   839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC      0.000     0.000     0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    154.000    14.000   364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2    800.000     0.000     0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600     0.000   843.300    100.000    842.000    200.000    841.600    300.000    841.300    363.000
GR    833.530   364.000   827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR    841.900   500.000   844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB      0.000     1.560     2.600      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1    154.500     0.000     1.000      0.000     31.000     31.000     31.000      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     13.000     0.000   849.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT    300.000   841.600     0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT    842.400   838.600   390.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT      0.000   600.000   844.000      0.000    700.000    849.600      0.000    800.000    849.600      0.000
NC      0.000     0.000     0.000       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    155.000     8.000    38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    852.000     0.000   841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR    833.600   121.000   845.400    161.000    851.500    300.000      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    156.000    10.000   121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    850.700     0.000   848.500     50.000    846.600    100.000    846.500    121.000    828.900    122.000
GR    828.400   149.000   846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB      0.000     1.560     2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1    156.500     0.000     0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT      9.000     0.000   850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT    121.000   847.500     0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT    847.400     0.000   200.000    847.500      0.000    250.000    849.400      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
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00     10.50    837.70     0.00     837.70    837.79      .09      0.00      0.00     837.60
    3980.        0.     3980.       0.        1.     1617.       0.        0.        0.      838.80
     0.00       .07      2.46     0.00      .050      .040      .035     0.000    827.20     620.50
  .000326        0.        0.       0.         0         0         0     0.00     248.76     869.26

CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00     9.91     837.81     0.00      0.00     838.12      .31       .22       .11     833.50
    800.        1.      799.       0.        1.      179.       0.        11.        2.      841.40
     .03       .48      4.47     0.00      .050      .040      .035      .040    827.90     363.45
  .001443     500.      550.     600.         2         0         0     0.00     26.10     389.55


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       ROLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.56       2.60       0.00     27.00       0.00     205.00      0.00      831.00     831.00

*SECNO 154.500

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   838.177  EGLWC=   841.055  ELLC=   838.600  PCWSL=   837.808  ELTRD=   841.300

3370 NORMAL BRIDGE,NPD= 13 MIN ELTPD=  841.30 MAX ELLC=  838.60

   154.50     9.96     837.86     0.00      0.00     838.16      .31       .04       .00     833.50
    800.        1.      799.       0.        1.      180.       0.        11.        2.      841.40
     .04       .47      4.43     0.00      .050      .040      .035      .040    827.90     363.44
  .001410       31.       31.      31.         3         0         0     0.00     26.11     389.55

CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00     9.52     839.52     0.00      0.00     838.56      .04       .37       .03     841.30
    800.        0.      800.       0.        0.      529.       0.        20.        3.      845.40
     .22       0.00      1.51     0.00      .050      .040      .035      .040    829.00      45.95
  .000166     1000.     1000.    1000.         2         0         0     0.00     91.72     137.67

CCHV=    .300 CEHV=    .500
*SECNO 156.000
   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
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   156.08     10.22    838.62      0.00      0.00    838.75      .13       .14       .05    846.50
      800.       0.      800.        0.        0.      275.       0.       24.        4.     846.40
      .27      0.00      2.91      0.00      .050      .040      .035      .040    828.40    121.45
  .000583      750.      500.      400.         2         0         0      0.00     28.12    149.57


SPECIAL BRIDGE

SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
      0.00        1.56        2.60        0.00       27.00        0.00       400.00       0.00       828.90      828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  846.60 MAX ELLC=  843.60

   156.50     10.23    838.63      0.00      0.00    838.76      .13       .02       .00    846.50
      800.       0.      800.        0.        0.      275.       0.       24.        4.     846.40
      .27      0.00      2.91      0.00      .050      .040      .035      .040    828.40    121.45
  .000582       29.       29.       29.         0         0         0      0.00     28.12    149.57


CCHV=    .100 CEHV=    .300
*SECNO 157.000

3265 DIVIDED FLOW

   157.00     10.89    838.79      0.00      0.00    838.79      .00       .01       .01    852.00
      800.       0.      781.       19.        0.     2018.      165.       46.        7.     839.40
      .82      0.00       .39       .12      .050      .040      .035      .040    827.90     28.41
  .000006      750.      750.      750.         2         0         0      0.00    369.63    435.21
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


16.07.32..000009 PAGES PRINT. 000240 LINES PRINT. FOR $ 000.28 AT RG2.
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********

T1
T2
T3          SMALL CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0     3980.    837.700      0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.010    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.710    200.000    840.500    400.000    837.800    500.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    154.000     14.000    364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2   1000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    843.300    100.000    842.200    200.000    841.600    300.000    841.300    363.000
GR    833.500    364.000    827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR    841.900    500.000    844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB      0.000      1.560      2.610      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1    154.500      0.000      0.000      0.000     31.000     31.000     31.000      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     13.000      0.000    849.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT    300.000    841.600      0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT    842.400    838.600    393.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT      0.000    500.000    844.000      0.000    700.000    849.600      0.000    800.000    849.600      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    155.000      8.000     38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    852.000      0.000    841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR    833.600    121.000    845.400    161.000    851.500    300.000      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    156.000     10.000    121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    850.700      0.000    848.500     50.000    846.500    100.000    846.500    121.000    828.900    122.000
GR    828.400    149.000    846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB      0.000      1.560      2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1    156.500      0.000      0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT      9.000      0.000    850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT    121.000    847.500      0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT    847.400      0.000    200.000    847.500      0.000    250.000    849.400      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.410	40.000	828.900	70.000	827.900	120.000	826.400	170.000
GR	829.400	220.000	833.410	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	851.610	600.000	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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*PROF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00     10.50    837.70      0.00    837.70    837.79      .09      0.00      0.00     837.50
    3980.        0.     3980.        0.       1.      1617.       0.        0.        0.      838.80
     0.00       .07      2.46      0.00      .050      .040      .035    0.000    827.20     620.50
  .000326        0.        0.        0.         0         0         0     0.00    248.76     869.26

CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00      9.83    837.73      0.00      0.00    838.23      .49       .23       .20     833.50
    1000.        1.      999.        0.       1.      177.       0.        11.        2.      841.40
      .03       .60      5.65      0.00      .050      .040      .035      .040    827.90     363.46
  .002328       590.      590.      600.         2         0         0     0.00     26.08     389.54


SPECIAL BRIDGE

SB  XK         XKOR       CDFQ       PCLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       1.56       2.60       0.00      27.00       0.00     205.00      0.00     831.00     831.00

*SECNO 154.500

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   838.311  EGLWC=   841.059  ELLC=   838.600  PCWSE=   837.734  ELTRD=   841.300

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  841.30 MAX ELLC=  838.60

   154.50      9.92    837.81      0.00      0.00    838.30      .48       .07       .00     833.50
    1000.        1.      999.        0.       1.      179.       0.        11.        2.      841.40
      .03       .59      5.57      0.00      .050      .040      .035      .040    827.90     363.44
  .002231        31.       31.       31.         3         0         0     0.00     26.10     389.55

CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00      9.81    838.81      0.00      0.00    838.86      .05       .52       .04     841.30
    1000.        0.     1000.        0.       0.      557.       0.        20.        3.      845.40
      .18       0.00      1.82      0.00      .050      .040      .035      .040    829.00      45.10
  .000225     1000.     1000.     1000.         3         0         0     0.00     93.58     138.68

CCHV=    .300 CEHV=    .500
*SECNO 156.000
   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
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 156.00    10.54   838.94    0.00     0.00   839.13     .19      .19      .07   846.50
  1000.       0.     1000.      0.       0.     284.      0.      25.       4.    846.40
    .22     0.00     3.52     0.00     .050    .040     .035     .040   828.40   121.43
 .000833     750.     500.     400.        2       0        0     0.00   28.16   149.59


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHJ     ELCHD
     0.00      1.56      2.61       0.00    27.00      0.00     400.00      0.00     828.90    828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRD=  9 MIN EL TRD=  846.60 MAX ELLC=  843.60

  156.50    10.56   838.96    0.00     0.00   839.15     .19      .02      .00   846.50
  1000.       0.     1000.      0.       0.     284.      0.      25.       4.    846.40
    .22     0.00     3.52     0.00     .050    .040     .035     .040   828.40   121.43
 .000830      29.      29.      29.        0       0        0     0.00   28.16   149.59


CCHV=    .100 CEHV=    .300
*SECNO 157.000

3265 DIVIDED FLOW

  157.00    11.29   839.19    0.00     0.00   839.19     .00      .02      .02   852.00
  1000.       0.      964.     36.       0.    2158.     230.      48.       8.    839.40
    .69     0.00      .46      .16     .350    .040     .035     .040   827.90    27.55
 .000008     750.     750.     750.        2       0        0     0.00   461.05   441.38
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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16.13.40..000009 PAGES PRINT. 000240 LINES PRINT. FOR $ 000.28 AT RG2.
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 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

T1
T2
T3          MAIN CHANNEL

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       0.        0.        0.  0.000000      0.00      0.0    3980.   837.700     0.000

NC       .050      .035      .040      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    153.000    14.000   641.000   873.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    851.700     0.000   841.700   209.000   840.500   400.000   837.800   600.000   837.600   641.000
GR    833.500   656.000   827.200   700.000   828.200   750.000   830.500   800.000   833.500   855.000
GR    838.800   873.000   839.200   900.000   843.800  1000.000   850.700  1071.000     0.000     0.000

X1    154.000    11.000   100.000   523.000   500.000   600.000   550.000     0.000     0.000     0.000
X2   3760.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    849.600     0.000   844.600   100.000   838.600   200.000   837.700   300.000   833.600   323.000
GR    828.100   350.000   828.800   380.000   829.600   450.000   833.600   500.000   844.000   523.000
GR    855.800   580.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    155.000    14.000   400.000   843.000  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR    855.200     0.000   855.700   100.000   855.900   200.000   848.300   300.000   844.600   400.000
GR    838.600   500.000   837.700   620.000   833.600   643.000   828.100   670.000   828.800   700.000
GR    829.600   773.000   833.600   820.000   844.000   843.000   855.800   900.000     0.000     0.000

X1    156.000    12.000    40.000   400.000   750.000   400.000   500.000     0.000     0.000     0.000
GR    852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR    829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR    843.000   500.000   850.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    157.000    12.000     0.000   252.000   750.000   750.000   750.000     0.000     0.000     0.000
GR    852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR    829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR    843.000   500.000   850.000   600.000     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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*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00    10.50     837.70    0.00      837.70    837.79    .09       0.00      0.00      837.60
    3980.       0.      3980.       0.         1.      1617.       0.        0.        0.      838.80
     0.00      .07       2.46      0.00      .050      .040      .035     0.000     827.20     620.50
  .000326       0.         0.       0.         0         0         0      0.00     248.76     869.26

*SECNO 154.000
   154.00     9.79     837.89    0.00      0.00      838.00    .10       .20       .00       844.60
    3780.       0.      3780.       0.         0.      1469.       0.       19.        3.      844.00
     .06      0.00       2.57      0.00      .050      .040      .035      .040     828.10     279.28
  .000410      500.       550.      600.         1         0         0      0.00     230.20     509.48

*SECNO 155.000
   155.00    10.23     838.33    0.00      0.00      838.42    .09       .42       .00       844.60
    3780.       0.      3780.       0.         0.      1588.       0.       55.        9.      844.00
     .18      0.00       2.38      0.00      .050      .040      .035      .040     828.10     535.41
  .000439      1000.      1000.     1000.        2         0         0      0.00     295.06     830.47

*SECNO 156.000

3265 DIVIDED FLOW

   156.00    10.62     838.52    0.00      0.00      838.57    .05       .14       .00       833.40
    3780.      21.      3740.      19.        20.      2026.      31.       76.       13.      836.50
     .25       .74       1.85      .61       .050      .040      .035      .040     827.90      29.00
  .000202      750.       500.      400.        2         0         0      0.00     349.36     431.03

*SECND 157.000

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    IDC       ICONT     CORAR     TOPWID      ENDST

   157.00    10.74     838.64    0.00      0.00      838.69    .05       .13       .00       852.00
    3780.       0.      3703.      77.         0.      1985.     144.      112.       19.      839.40
     .37      0.00       1.87      .53       .050      .040      .035      .040     827.90      28.73
  .000140      750.       750.      750.        2         0         0      0.00     358.08     432.95
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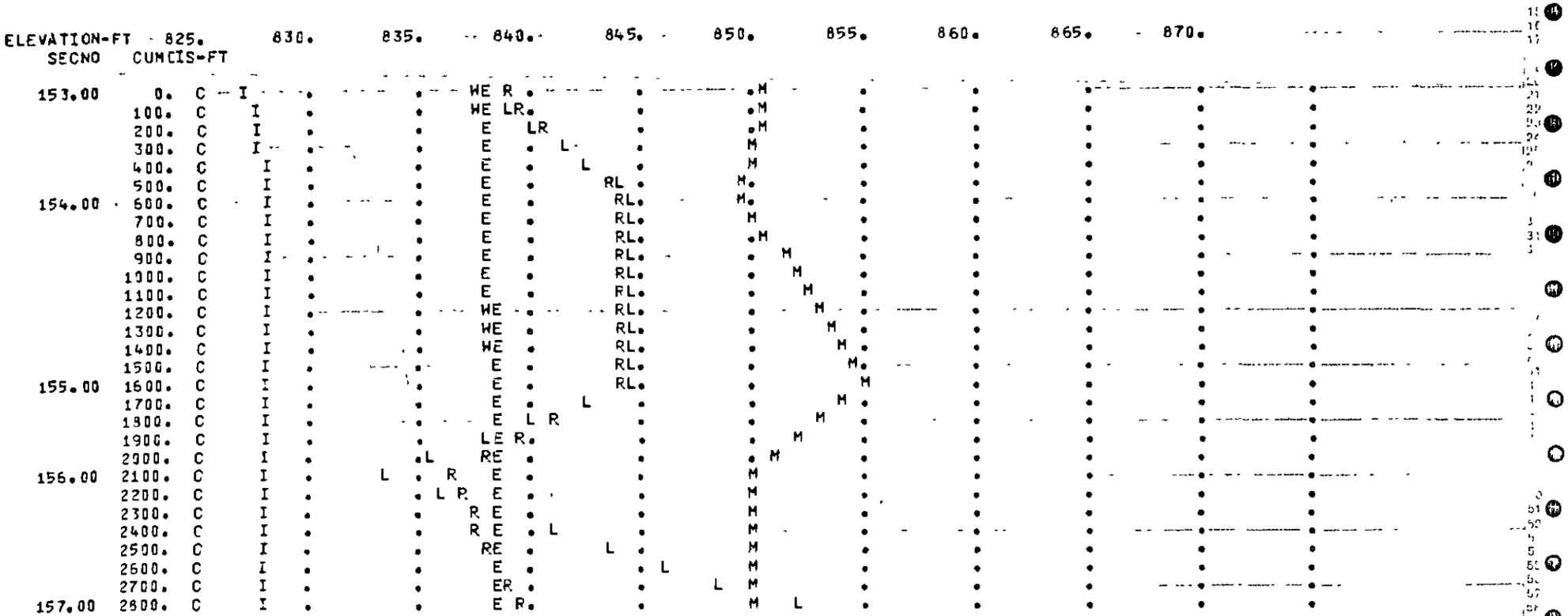
PROFILE FOR STREAM MAIN CHANNEL

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA



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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************
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16.28.12..000006 PAGES PRINT. 000157 LINES PRINT. FOR $ 000.18 AT RG2.

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


T1
T2
T3          MAIN CHANNEL

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

          0.         0.         0.         0.   0.000000       0.00       0.0     3980.    837.700      0.000

NC        .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1     153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR     833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR     838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000

X1     154.000     11.000    100.000    523.000    500.000    600.000    550.000      0.000      0.000      0.000
X2    3580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     849.600      0.000    844.600    100.000    838.600    200.000    837.700    300.000    833.600    323.000
GR     828.100    350.000    828.800    380.000    829.600    450.000    833.600    500.000    844.000    523.000
GR     855.800    580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     155.000     14.000    400.000    843.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR     855.200      0.000    855.700    100.000    855.900    200.000    848.300    300.000    844.600    400.000
GR     838.600    500.000    837.700    620.000    833.600    643.000    828.100    670.000    828.800    700.000
GR     829.600    770.000    833.600    820.000    844.000    843.000    855.800    900.000      0.000      0.000

X1     156.000     12.000     40.000    400.000    750.000    400.000    500.000      0.000      0.000      0.000
GR     852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR     829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR     843.000    500.000    850.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     157.000     12.000      0.000    252.000    750.000    750.000    750.000      0.000      0.000      0.000
GR     852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR     829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR     843.000    500.000    850.000    600.000      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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*PPOF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	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
153.00	10.50	837.70	0.00	837.70	837.79	.09	0.00	0.00	837.60
3980.	0.	3980.	0.	1.	1617.	0.	0.	0.	838.80
0.00	.07	2.46	0.00	.050	.040	.035	0.000	827.20	620.50
.003326	0.	0.	0.	0	0	0	0.00	248.76	869.26

*SECNO 154.000

154.00	9.79	837.89	0.00	0.00	837.98	.09	.19	.00	844.60
3580.	0.	3580.	0.	0.	1469.	0.	19.	3.	844.00
.06	0.00	2.44	0.00	.050	.040	.035	.040	828.10	279.40
.000368	500.	550.	600.	1	0	0	0.00	230.08	509.48

*SECNO 155.000

155.00	10.19	838.29	0.00	0.00	838.37	.08	.38	.00	844.60
3580.	0.	3580.	0.	0.	1574.	0.	54.	9.	844.00
.18	0.00	2.27	0.00	.050	.040	.035	.040	828.10	541.96
.000394	1000.	1000.	1000.	2	0	0	0.00	288.41	830.36

*SECNO 156.000

3265 DIVIDED FLOW

156.00	10.55	838.45	0.00	0.00	838.50	.05	.13	.00	833.40
3580.	19.	3544.	17.	27.	2006.	29.	75.	13.	836.50
.26	.70	1.77	.57	.050	.040	.035	.040	827.90	29.14
.000185	750.	500.	400.	2	0	0	0.00	345.01	430.02

*SECNO 157.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
157.00	10.67	838.57	0.00	0.00	838.61	.05	.12	.00	852.00
3580.	0.	3514.	66.	0.	1968.	134.	111.	19.	839.40
.38	0.00	1.79	.49	.050	.040	.035	.040	827.90	28.89
.000129	750.	750.	750.	2	0	0	0.00	352.57	431.78

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**************************************************
* HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
* ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


16.30.24..000006 PAGES PRINT. 000157 LINES PRINT. FOR $-000.18 AT RG2.
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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

T1
T2
T3          MAIN CHANNEL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.      0.        1.        0.  0.000001      0.00      0.0    3980.   837.700     0.000

NC      .050      .035      .040      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    153.000    14.000   641.000   873.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    851.700     0.000   841.700   200.000   840.500   400.000   837.800   600.000   837.600   641.000
GR    833.500   656.000   827.200   700.000   828.200   750.000   830.500   800.000   833.500   855.000
GR    838.800   873.000   839.200   900.000   843.800  1000.000   850.700  1071.000     0.000     0.000

X1    154.000    11.000   100.000   523.000   500.000   600.000   550.000     0.000     0.000     0.000
X2   3380.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    849.600     0.000   844.600   100.000   838.600   200.000   837.700   300.000   833.600   323.000
GR    828.100   350.000   828.100   380.000   829.600   450.000   833.600   500.000   844.000   523.000
GR    855.800   580.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    155.000    14.000   400.000   843.000  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR    855.200     0.000   855.700   100.000   855.900   200.000   848.300   300.000   844.600   400.000
GR    838.600   500.000   837.700   620.000   833.600   643.000   828.100   670.000   828.800   700.000
GR    829.600   770.000   833.500   820.000   844.000   843.000   855.800   900.000     0.000     0.000

X1    156.000    12.000    40.000   400.000   750.000   490.000   500.000     0.000     0.000     0.000
GR    852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR    829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR    843.000   500.000   850.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    157.000    12.000     0.000   252.000   750.000   750.000   750.000     0.000     0.000     0.000
GR    852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR    829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR    843.000   500.000   850.000   600.000     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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*PROF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
153.00	10.50	837.70	0.00	837.70	837.79	.09	0.00	0.00	837.60
3980.	0.	3980.	0.	1.	1617.	0.	0.	0.	838.80
0.00	.07	2.46	0.00	.050	.040	.035	0.000	827.20	620.50
.000326	0.	0.	0.	0	0	0	0.00	248.76	869.26
154.00	9.79	837.89	0.00	0.00	837.98	.08	.18	.00	844.60
3380.	0.	3380.	0.	0.	1469.	0.	19.	3.	844.00
.07	0.00	2.30	0.00	.050	.040	.035	.040	828.10	279.33
.000328	500.	550.	600.	1	0	0	0.00	230.14	509.48
155.00	10.14	838.24	0.00	0.00	838.32	.07	.34	.00	844.60
3380.	0.	3380.	0.	0.	1561.	0.	54.	9.	844.00
.19	0.00	2.16	0.00	.050	.040	.035	.040	828.10	547.70
.000351	1000.	1000.	1000.	2	0	0	0.00	282.57	830.27
156.00	10.49	838.39	0.00	0.00	838.44	.04	.12	.00	833.40
3380.	18.	3348.	15.	27.	1988.	28.	75.	12.	836.50
.28	.66	1.68	.53	.050	.040	.035	.040	827.90	29.26
.000168	750.	500.	400.	2	0	0	0.00	341.09	429.11

*SECNO 154.000

*SECNO 155.000

*SECNO 156.000

3265 DIVIDED FLOW

*SECNO 157.000

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
157.00	10.60	838.50	0.00	0.00	838.54	.04	.11	.00	852.00
3380.	0.	3322.	58.	0.	1953.	126.	110.	18.	839.40
.40	0.00	1.70	.45	.050	.040	.035	.040	827.90	29.04
.000119	750.	750.	750.	2	0	0	0.00	347.98	430.71

PROFILE FOR STREAM MAIN CHANNEL

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

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ELEVATION-FT   825.      830.      835.      840.      845.      850.      855.      860.      865.      870.
   SECNO   CUMDIS-FT

  153.00      0.  C   I     .         .    WE R .         .         .M        .         .         .         .         .
              100.  C    I    .         .    WE LR.         .         .M        .         .         .         .         .
              200.  C    I    .         .     E   LR        .         .M        .         .         .         .         .
              300.  C    I    .         .     E   .  L      .         M         .         .         .         .         .
              400.  C     I   .         .     E   .    L    .         M         .         .         .         .         .
              500.  C     I   .         .     E   .      RL .         M.        .         .         .         .         .
  154.00      600.  C     I   .         .     E   .       RL.         M.        .         .         .         .         .
              700.  C     I   .         .     E   .       RL.         M         .         .         .         .         .
              800.  C     I   .         .     E   .       RL.         .M        .         .         .         .         .
              900.  C     I   .         .     E   .       RL.         .  M      .         .         .         .         .
             1000.  C     I   .         .     E   .       RL.         .   M     .         .         .         .         .
             1100.  C     I   .         .     E   .       RL.         .    M    .         .         .         .         .
             1200.  C     I   .         .     E   .       RL.         .     M   .         .         .         .         .
             1300.  C     I   .         .     E   .       RL.         .      M  .         .         .         .         .
             1400.  C     I   .         .     WE  .       RL.         .       M .         .         .         .         .
             1500.  C     I   .         .     WE  .       RL.         .        M.         .         .         .         .
  155.00     1600.  C     I   .         .     WE  .       RL.         .         M         .         .         .         .
             1700.  C     I   .         .      E  .    L    .         .       M .         .         .         .         .
             1800.  C     I   .         .      E  . R       .         .     M   .         .         .         .         .
             1900.  C     I   .         .     LE R.         .         .   M     .         .         .         .         .
             2000.  C     I   .         .L    RE  .         .         . M       .         .         .         .         .
  156.00     2100.  C     I   .      L  .  R   E  .         .         M         .         .         .         .         .
             2200.  C     I   .         . L R  E  .         .         M         .         .         .         .         .
             2300.  C     I   .         .    R E  .         .         M         .         .         .         .         .
             2400.  C     I   .         .    R E  . L       .         M         .         .         .         .         .
             2500.  C     I   .         .     RE  .      L  .         M         .         .         .         .         .
             2600.  C     I   .         .      E  .         . L       M         .         .         .         .         .
             2700.  C     I   .         .      ER .         .      L  M         .         .         .         .         .
  157.00     2800.  C     I   .         .      E R.         .         M   L     .         .         .         .         .
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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 16.32.24..000006 PAGES PRINT. 000157 LINES PRINT. FOR $ 000.18 AT RG2.
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S893257

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1
T2
T3            MAIN CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0     3980.    837.700      0.000

NC       .050       .035       .040       .100       .300     0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000     0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500   400.000    837.800    600.000    837.600    641.000
GR    833.500    556.000    827.200    700.000    824.200   750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800  1000.000    850.700   1071.000      0.000      0.000

X1    154.000     11.000    100.000    523.000    500.000   600.000    550.000      0.000      0.000      0.000
X2   3180.000      0.000      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    844.600    100.000    838.600   200.000    837.700    300.000    833.600    323.000
GR    828.100    350.000    828.800    380.000    829.600   450.000    833.600    500.000    844.000    523.000
GR    855.900    580.000      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000

X1    155.000     14.000    400.000    843.000   1000.000  1000.000   1000.000      0.000      0.000      0.000
GR    855.200      0.000    855.700    100.000    855.900   200.000    848.300    300.000    844.600    400.000
GR    838.600    500.000    837.700    620.000    833.600   643.000    828.100    670.000    828.800    700.000
GR    829.600    770.000    833.600    820.000    844.000   843.000    855.800    900.000      0.000      0.000

X1    156.000     12.000     40.000    400.000    750.000   400.000    500.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900    70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400   252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      0.000     0.000      0.000      0.000      0.000      0.000

X1    157.000     12.000      0.000    252.000    750.000   750.000    750.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900    70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400   252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      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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*PPOF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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
153.00	10.50	837.70	0.00	837.70	837.79	.09	0.00	0.00	837.60
3980.	0.	3980.	0.	1.	1617.	0.	0.	0.	838.80
0.00	.07	2.46	0.00	.050	.040	.035	0.000	827.20	620.50
.000326	0.	0.	0.	0	0	0	0.00	248.76	869.26

*SECNO 154.000

154.00	9.79	837.89	0.00	0.00	837.97	.07	.17	.00	844.60
3180.	0.	3180.	0.	0.	1469.	0.	19.	3.	844.00
.07	0.00	2.16	0.00	.050	.040	.035	.040	828.10	279.29
.000290	500.	550.	600.	1	0	0	0.00	230.19	509.48

*SECNO 155.000

155.00	10.10	838.20	0.00	0.00	838.27	.07	.30	.00	844.60
3180.	0.	3180.	0.	0.	1550.	0.	54.	9.	844.00
.21	0.00	2.05	0.00	.050	.040	.035	.040	828.10	553.10
.000310	1000.	1000.	1000.	0	0	0	0.00	277.07	830.18

*SECNO 156.000

3265 DIVIDED FLOW

156.00	10.44	838.34	0.00	0.00	838.37	.04	.11	.00	833.40
3180.	16.	3151.	13.	26.	1971.	26.	75.	12.	836.50
.29	.63	1.60	.49	.050	.040	.035	.040	827.90	29.39
.000191	750.	500.	400.	2	0	0	0.00	337.35	428.23

*SECNO 157.000

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	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
157.00	10.53	838.43	0.00	0.00	838.47	.04	.10	.00	852.00
3180.	0.	3130.	50.	0.	1938.	117.	110.	18.	839.40
.42	0.00	1.61	.43	.050	.040	.035	.040	827.90	29.18
.000109	750.	750.	750.	2	0	0	0.00	343.59	429.69

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


16.38.31..000006 PAGES PRINT. 000157 LINES PRINT. FOR $ 000.18 AT RG2.
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3            MAIN CHANNEL

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

          0.        0.         0.         0.  0.000000       0.00        0.0     3980.    837.700      0.000

NC        .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1     153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR     833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR     838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000

X1     154.000     11.000    100.000    523.000    500.000    600.000    550.000      0.000      0.000      0.000
X2    2980.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR     849.600      0.000    844.600    100.000    838.600    200.000    837.700    300.000    833.600    323.000
GR     828.100    350.000    828.800    390.000    829.600    450.000    833.600    500.000    844.000    523.000
GR     855.800    580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     155.000     14.000    400.000    843.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR     855.200      0.000    855.700    100.000    855.900    200.000    848.300    300.000    844.600    400.000
GR     838.600    500.000    837.700    620.000    833.600    643.000    828.100    670.000    828.800    700.000
GR     829.600    771.000    833.600    820.000    844.000    843.000    855.800    900.000      0.000      0.000

X1     156.000     12.000     40.000    400.000    750.000    400.000    500.000      0.000      0.000      0.000
GR     852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR     829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR     843.000    500.000    850.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     157.000     12.000      0.000    252.000    750.000    750.000    750.000      0.000      0.000      0.000
GR     852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR     829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR     843.000    500.000    850.000    600.000      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
```

*PPOF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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	CORAR	TOPWID	ENDST
153.00	10.50	837.70	0.00	837.70	837.79	.09	0.00	0.00	837.60
3980.	0.	3980.	0.	1.	1617.	0.	0.	0.	838.80
0.00	.07	2.46	0.00	.050	.040	.035	0.000	827.20	620.50
.000326	0.	0.	0.	0	0	0	0.00	248.76	869.26

*SECNO 154.000

154.00	9.79	837.89	0.00	0.00	837.96	.06	.16	.00	844.60
2980.	0.	2980.	0.	0.	1469.	0.	19.	3.	844.00
.08	0.00	2.03	0.00	.050	.040	.035	.040	828.10	279.27
.000255	500.	550.	600.	1	0	0	0.00	230.21	509.48

*SECNO 155.000

155.00	10.06	838.16	0.00	0.00	838.22	.06	.26	.00	844.60
2980.	0.	2980.	0.	0.	1540.	0.	54.	9.	844.00
.22	0.00	1.94	0.00	.050	.040	.035	.040	828.10	558.23
.000272	1000.	1000.	1000.	2	0	0	0.00	271.86	830.09

*SECNO 156.000

3265 DIVIDED FLOW

156.00	10.38	838.28	0.00	0.00	838.32	.04	.09	.00	833.40
2980.	15.	2954.	11.	26.	1955.	24.	74.	12.	836.50
.31	.59	1.51	.46	.050	.040	.035	.040	827.90	29.50
.000135	750.	500.	400.	2	0	0	0.00	333.82	427.41

*SECNO 157.000

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
157.00	10.47	838.37	0.00	0.00	838.40	.04	.09	.00	852.00
2980.	0.	2936.	44.	0.	1924.	110.	109.	18.	839.40
.45	0.00	1.53	.40	.050	.040	.035	.040	827.90	29.32
.000097	750.	750.	750.	2	0	0	0.00	339.42	428.72

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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16.39.30..000006 PAGES PRINT. 000157 LINES PRINT. FOR $ 000.18 AT RG2.

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************
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T1
T2
T3 MAIN CHANNEL

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	0.	0.	0.	0.000000	0.00	0.0	10000.	842.710	0.000

NC	.050	.035	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	153.000	14.000	641.000	873.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	400.000	837.800	600.000	837.600	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.800	873.000	839.200	900.000	843.800	1000.000	850.700	1071.000	0.000	0.000
X1	154.000	11.000	100.000	523.000	500.000	600.000	550.000	0.000	0.000	0.000
X2	7500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.600	0.000	844.600	100.000	838.600	200.000	837.700	300.000	833.600	323.000
GR	828.100	350.000	828.800	380.000	829.600	450.000	833.600	500.000	844.000	523.000
GR	855.800	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	155.000	14.000	400.000	843.000	1000.000	1000.000	1000.000	0.000	0.000	0.000
GR	855.200	0.000	855.700	100.000	855.900	200.000	848.300	300.000	844.600	400.000
GR	838.600	500.000	837.700	620.000	833.600	643.000	828.100	670.000	828.800	700.000
GR	829.600	770.000	833.600	820.000	844.000	843.000	855.800	900.000	0.000	0.000
X1	156.000	12.000	40.000	400.000	750.000	400.000	500.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PPOF 1

CEHV=    .100 CEHV=    .300
*SECNO 153.000
   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    TOPWID      ENDST

   153.00     15.51    842.71      0.00    842.71     842.83      .12      0.00      0.00     837.60
   10000.      127.      8443.      290.     1250.      2777.      234.       0.        0.      838.80
     0.00      1.01      3.04      1.24      .050       .040       .035    0.000    827.20     179.80
  .000247       0.        0.        0.         0          0          0     0.00    796.50     976.30

*SECNO 154.000
   154.00     14.79    842.89      0.00      0.00     842.97      .09       .14       .00     844.60
    7500.        0.     7500.        0.        0.     3169.        0.       46.       7.      844.00
      .06      0.00      2.37      0.00      .050       .040       .035      .040    828.10     128.54
  .000253      500.      550.      600.         2          0          0     0.00    391.99     520.54

*SECNO 155.000
   155.00     15.04    843.14      0.00      0.00     843.21      .08       .24       .00     844.60
    7500.        0.     7500.        0.        0.     3368.        0.      121.      17.      844.00
      .19      0.00      2.23      0.00      .050       .040       .035      .040    828.10     424.38
  .000224     1000.     1000.     1000.         0          0          0     0.00    416.71     841.09

*SECNO 155.000
   156.00     15.34    843.24      0.00      0.00     843.29      .05       .08       .00     833.40
    7500.       91.      7038.      371.      104.     3703.      350.      164.      22.      836.50
      .26       .88      1.90      1.06      .050       .040       .035      .040    827.90     18.84
  .000119      750.      500.      400.         2          0          0     0.00    484.60     503.44

*SECNO 157.000
   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    TOPWID      ENDST

   157.00     15.42    843.32      0.00      0.00     843.38      .06       .08       .00     852.00
    7500.        0.     6138.     1362.        0.     3053.     1142.      236.      30.      839.40
      .38      0.00      2.01      1.19      .050       .040       .035      .040    827.90     18.67
  .000098      750.      750.      750.         2          0          0     0.00    485.91     504.58
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01,02
  MODIFICATION =  50,51,52,53
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16.20.06..000006 PAGES PRINT.. 000151 LINES PRINT. FOR $ 000.18 AT RG2.
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  5J,51,52,53
**********

T1
T2
T3            MAIN CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ
        0.         0.         0.         0.  0.000000       0.00       0.0    10000.    842.710    0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000

X1    154.000     11.000    100.000    523.000    500.000    600.000    550.000      0.000      0.000      0.000
X2   9500.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    844.600    100.000    838.600    200.000    837.700    300.000    833.600    323.000
GR    828.100    350.000    828.800    380.000    829.600    450.000    833.600    500.000    844.000    523.000
GR    855.800    580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    155.000     14.000    400.000    843.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    855.200      0.000    855.700    100.000    855.900    200.000    848.300    300.000    844.600    400.000
GR    838.600    500.000    837.700    620.000    833.600    643.000    828.100    670.000    828.800    700.000
GR    829.600    770.000    833.600    820.000    844.000    843.000    855.800    900.000      0.000      0.000

X1    156.000     12.000     40.000    400.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    157.000     12.000      0.000    252.000    750.000    750.000    750.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      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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*PPOF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	8443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

*SECNO 154.000

154.00	14.77	842.87	0.00	0.00	843.01	.14	.17	.00	844.60
9500.	0.	9500.	0.	0.	3162.	0.	46.	7.	844.00
.05	0.00	3.00	0.00	.050	.040	.035	.040	828.10	128.85
.000408	500.	550.	600.	2	0	0	0.00	391.64	520.50

*SECNO 155.000

155.00	15.17	843.27	0.00	0.00	843.38	.12	.37	.00	844.60
9500.	0.	9500.	0.	0.	3421.	0.	122.	17.	844.00
.15	0.00	2.78	0.00	.050	.040	.035	.040	828.10	422.25
.000344	1000.	1000.	1000.	2	0	0	0.00	419.12	841.37

*SECNO 156.000

156.00	15.53	843.43	0.00	0.00	843.51	.08	.12	.00	833.40
9500.	118.	8887.	496.	108.	3770.	369.	166.	22.	836.50
.21	1.09	2.36	1.34	.050	.040	.035	.040	827.90	18.44
.000178	750.	500.	400.	2	0	0	0.00	487.65	506.09

*SECNO 157.000

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
157.00	15.65	843.55	0.00	0.00	843.63	.08	.12	.00	852.00
9500.	0.	7702.	1798.	0.	3106.	1199.	239.	30.	839.40
.30	0.00	2.48	1.50	.050	.040	.035	.040	827.90	18.18
.000146	750.	750.	750.	2	0	0	0.00	489.62	507.80

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************


16.08.55..000006 PAGES PRINT. 000151 LINES PRINT. FOR $ 000.18 AT RG2.
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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

T1
T2
T3            MAIN CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0    10000.    842.710    0.000

NC       .050       .035       .040       .100       .300     0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000

X1    154.000     11.000    100.000    523.000    500.000    600.000    550.000      0.000      0.000      0.000
X2   9500.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    844.600    100.000    838.600    200.000    837.700    300.000    833.600    323.000
GR    828.100    350.000    829.800    380.000    829.600    450.000    833.600    500.000    844.000    523.000
GR    855.800    580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    155.000     14.000    400.000    843.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    855.200      0.000    855.700    100.000    855.900    200.000    848.300    300.000    844.600    400.000
GR    838.600    501.000    837.700    620.000    833.600    643.000    828.100    670.000    828.800    700.000
GR    829.600    770.000    833.600    820.000    844.000    843.000    855.800    900.000      0.000      0.000

X1    156.000     12.000     40.000    400.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    157.000     12.000      0.000    252.000    750.000    750.000    750.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      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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*PPOF 1

CEHV= .100 CEHV= .300

*SECNO 153.000

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
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	8443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

*SECNO 154.000

154.00	14.78	842.88	0.00	0.00	842.99	.11	.15	.00	844.60
8500.	0.	8500.	0.	0.	3165.	0.	46.	7.	844.00
.06	0.00	2.69	0.00	.050	.040	.035	.040	828.10	128.73
.000326	500.	550.	600.	2	0	0	0.00	391.78	520.51

*SECNO 155.000

155.00	15.09	843.19	0.00	0.00	843.29	.10	.30	.00	844.60
8500.	0.	8500.	0.	0.	3392.	0.	122.	17.	844.00
.17	0.00	2.51	0.00	.050	.040	.035	.040	828.10	423.42
.000282	1000.	1000.	1000.	2	0	0	0.00	417.80	841.22

*SECNO 156.000

156.00	15.43	843.33	0.00	0.00	843.39	.07	.10	.00	833.40
8500.	104.	7965.	431.	106.	3734.	358.	165.	22.	836.50
.23	.98	2.13	1.20	.050	.040	.035	.040	827.90	18.65
.000148	750.	500.	400.	2	0	0	0.00	486.02	504.67

*SECNO 157.000

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
157.00	15.53	843.43	0.00	0.00	843.50	.07	.10	.00	852.00
8500.	0.	6926.	1574.	0.	3078.	1169.	238.	30.	839.40
.33	0.00	2.25	1.35	.050	.040	.035	.040	827.90	18.44
.000122	750.	750.	750.	2	0	0	0.00	487.65	506.08

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

T1
T2
T3            MAIN CHANNEL

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        0.        0.        0.  0.000000      0.00       0.0   10000.   842.710     0.000

NC      .050      .035      .040      .100      .300     0.000     0.000     0.000     0.000     0.000

X1   153.000    14.000   641.000   873.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   851.700     0.000   841.700   200.000   840.500   400.000   837.800   600.000   837.600   641.000
GR   833.500   656.000   827.200   700.000   828.200   750.000   830.500   800.000   833.500   855.000
GR   838.800   873.000   839.200   900.000   843.800  1000.000   850.700  1071.000     0.000     0.000

X1   154.000    11.000   100.000   523.000   500.000   600.000   550.000     0.000     0.000     0.000
X2  8000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   849.600     0.000   844.600   100.000   838.600   200.000   837.700   300.000   833.600   323.000
GR   828.100   350.000   828.800   380.000   829.600   450.000   833.600   500.000   844.000   523.000
GR   855.800   580.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   155.000    14.000   400.000   843.000  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR   855.200     0.000   855.700   100.000   855.900   200.000   848.300   300.000   844.600   400.000
GR   838.600   500.000   837.700   620.000   833.600   643.000   828.100   670.000   828.800   700.000
GR   829.600   770.000   833.600   820.000   844.000   843.000   855.800   900.000     0.000     0.000

X1   156.000    12.000    40.000   400.000   750.000   400.000   500.000     0.000     0.000     0.000
GR   852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR   829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR   843.000   500.000   850.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000

X1   157.000    12.000     0.000   252.000   750.000   750.000   750.000     0.000     0.000     0.000
GR   852.000     0.000   833.400    40.000   828.900    70.000   827.900   120.000   828.400   170.000
GR   829.400   220.000   833.400   247.000   839.400   252.000   838.600   300.000   836.500   400.000
GR   843.000   500.000   850.000   600.000     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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*PROF 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	9443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

*SECNO 154.000

154.00	14.78	842.88	0.00	0.00	842.98	.10	.14	.00	844.60
8000.	0.	8000.	0.	0.	3167.	0.	46.	7.	844.00
.06	0.00	2.53	0.00	.050	.040	.035	.040	828.10	128.63
.000288	500.	550.	600.	2	0	0	0.00	391.90	520.53

*SECNO 155.000

155.00	15.06	843.16	0.00	0.00	843.25	.09	.27	.00	844.60
8000.	0.	8000.	0.	0.	3376.	0.	121.	17.	844.00
.18	0.00	2.37	0.00	.050	.040	.035	.040	828.10	424.04
.000253	1000.	1030.	1000.	1	0	0	0.00	417.09	841.14

*SECNO 156.000

156.00	15.38	843.28	0.00	0.00	843.34	.06	.09	.00	833.40
8000.	98.	7502.	401.	105.	3718.	354.	165.	22.	836.50
.25	.93	2.02	1.13	.050	.040	.035	.040	827.90	18.75
.000133	750.	500.	400.	2	0	0	0.00	485.30	504.05

*SECNO 157.000

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
157.00	15.47	843.37	0.00	0.00	843.43	.06	.09	.00	852.00
8000.	0.	6533.	1467.	0.	3065.	1155.	237.	30.	839.40
.35	0.00	2.13	1.27	.050	.040	.035	.040	827.90	18.55
.000110	750.	750.	750.	2	0	0	0.00	486.77	505.32

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1 977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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16.17.06..000010 PAGES PRINT. 000302 LINES PRINT. FOR $ 000.35 AT RG2.
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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************


T1
T2
T3            MAIN CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0    10000.    842.710      0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000

X1    154.000     11.000    100.000    523.000    500.000    600.000    550.000      0.000      0.000      0.000
X2   9000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    844.600    100.000    838.600    200.000    837.700    300.000    833.600    323.000
GR    828.100    350.000    828.800    380.000    829.600    450.000    833.600    500.000    844.000    523.000
GR    855.800    580.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    155.000     14.000    400.000    843.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    855.200      0.000    855.700    100.000    855.900    200.000    848.300    300.000    844.600    400.000
GR    838.600    500.000    837.700    620.000    833.600    643.000    828.100    670.000    828.800    700.000
GR    829.600    770.000    833.600    820.000    844.000    843.000    855.800    900.000      0.000      0.000

X1    156.000     12.000     40.000    400.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      0.000      0.000      0.000      0.000      0.000      0.000

X1    157.000     12.000      0.000    252.000    750.000    750.000    750.000      0.000      0.000      0.000
GR    852.000      0.000    833.400     40.000    828.900     70.000    827.900    120.000    828.400    170.000
GR    829.400    220.000    833.400    247.000    839.400    252.000    838.600    300.000    836.500    400.000
GR    843.000    500.000    850.000    600.000      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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*PPOR 1

CCHV= .100 CEHV= .300

*SECNO 153.000

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	9443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

*SECNO 154.000

154.00	14.77	842.87	0.00	0.00	843.00	.13	.16	.00	844.60
9000.	0.	9000.	0.	0.	3163.	0.	46.	7.	844.00
.05	0.00	2.85	0.00	.050	.040	.035	.040	828.10	128.83
.000366	500.	550.	600.	2	0	0	0.00	391.67	520.50

*SECNO 155.000

155.00	15.13	843.23	0.00	0.00	843.34	.11	.34	.00	844.60
9000.	0.	9000.	0.	0.	3405.	0.	122.	17.	844.00
.16	0.00	2.64	0.00	.050	.040	.035	.040	828.10	422.88
.000312	1000.	1000.	1000.	2	0	0	0.00	418.41	841.29

*SECNO 156.000

156.00	15.47	843.37	0.00	0.00	843.45	.07	.11	.00	833.40
9000.	111.	8426.	463.	107.	3751.	363.	165.	22.	836.50
.22	1.04	2.25	1.27	.050	.040	.035	.040	827.90	18.55
.000163	750.	500.	400.	2	0	0	0.00	486.78	505.34

*SECNO 157.000

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	XNP	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
157.00	15.58	843.48	0.00	0.00	843.56	.08	.11	.00	852.00
9000.	0.	7316.	1684.	0.	3091.	1183.	238.	30.	839.40
.32	0.00	2.37	1.42	.050	.040	.035	.040	827.90	18.32
.000134	750.	750.	750.	2	0	0	0.00	488.58	506.90

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**********
* HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
* ERROR CORR -  01,02
* MODIFICATION -  50,51,52,53
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16.09.11..000006 PAGES PRINT. 000151 LINES PRINT. FOR $ 000.18 AT RG2.
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 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 FRROR CORR -  01,02
 MODIFICATION -  50,51,52,53
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T1
T2
T3 SMALL CHANNEL

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	0.	0.	0.	0.000000	0.00	0.0	10000.	842.710	0.000

NC	.050	.035	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	153.000	14.000	641.000	873.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	400.000	837.800	600.000	837.600	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.800	873.000	839.200	900.000	843.800	1000.000	850.700	1071.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	154.000	14.000	364.000	390.000	500.000	600.000	550.000	0.000	0.000	0.000
X2	1500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.600	0.000	843.300	100.000	842.000	200.000	841.500	300.000	841.300	363.000
GR	833.500	364.000	827.900	376.000	833.500	389.000	841.400	390.000	841.400	400.000
GR	841.900	500.000	844.000	600.000	847.400	700.000	849.600	800.000	0.000	0.000
SB	0.000	1.560	2.600	0.000	27.000	0.000	205.000	0.000	831.000	831.000
X1	154.500	0.000	0.000	0.000	31.000	31.000	31.000	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	13.000	0.000	849.600	0.000	100.000	843.300	0.000	200.000	842.000	0.000
BT	300.000	841.600	0.000	363.000	841.300	0.000	364.000	842.300	838.500	389.000
BT	842.400	838.600	390.000	841.400	0.000	400.000	841.400	0.000	500.000	841.400
BT	0.000	600.000	844.000	0.000	700.000	849.600	0.000	800.000	849.600	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	155.000	8.000	38.000	161.000	1000.000	1000.000	1000.000	0.000	0.000	0.000
GR	852.000	0.000	841.300	38.000	833.600	60.000	829.000	80.000	830.600	100.000
GR	833.600	121.000	845.400	161.000	851.500	300.000	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	156.000	10.000	121.000	150.000	750.000	400.000	500.000	0.000	0.000	0.000
GR	850.700	0.000	848.500	50.000	846.600	100.000	846.500	121.000	828.900	122.000
GR	828.400	149.000	846.400	150.000	847.500	200.000	849.400	250.000	852.000	350.000
SB	0.000	1.560	2.600	0.000	27.000	0.000	400.000	0.000	828.900	828.900
X1	156.500	0.000	0.000	0.000	28.500	28.500	28.500	0.000	0.000	0.000
BT	9.000	0.000	850.700	0.000	50.000	848.500	0.000	100.000	846.600	0.000
BT	121.000	847.500	0.000	122.000	847.500	843.600	149.000	847.400	843.500	150.000
BT	847.400	0.000	200.000	847.500	0.000	250.000	849.400	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
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

   153.00     15.51    842.71      0.00    842.71    842.83      .12      0.00      0.00    837.60
   10000.      1267.     8443.      290.     1250.     2777.      234.        0.        0.     838.80
     0.00      1.01      3.04      1.24      .050      .040      .035     0.000    827.20    179.80
  .000247        0.        0.        0.         0         0         0      0.00    796.50    976.30


CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00     14.93    842.83      0.00      0.00    843.01      .17       .15       .03    833.50
    1500.      167.     1165.      167.      224.      309.      154.       31.        7.    841.40
     .05        .75      3.77      1.08      .050      .040      .035      .040    827.90    135.40
  .000573       500.      550.      600.         1         0         0      0.00    409.35    544.75


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.56      2.60      0.00     27.00      0.00    205.00      0.00    831.00    831.00

*SECNO 154.500
 PPESS FLOW BECAUSE EGLWC OF    846.11  EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF  843.01 HIGHER THAN COMPUTED ENERGY OF  842.99
PRESSURE AND WEIR FLOW

  EGPRS      EGLWC       H3       QWEIR      QPP       BAREA    TRAPEZOID     ELLC      ELTRD
                                                                   AREA
    844.13    846.11      0.00       980.      519.      205.      205.     838.60    841.30


   154.50     14.93    842.83      0.00      0.00    843.01      .18      0.00      0.00    833.50
    1500.      166.     1168.      166.      223.      309.      153.       31.        8.    841.40
     .05        .75      3.78      1.08      .050      .040      .035      .040    827.90    135.93
  .000577       31.       31.       31.         2         0         5      0.00    408.49    544.42


CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00     14.17    843.17      0.00      0.00    843.21      .03       .18       .01    841.30
    1500.        2.     1496.        0.         6.     1019.        0.        51.       14.    845.40
     .24        .26      1.47      0.00      .050      .040      .035      .040    829.00     31.35
  .000089      1000.     1000.     1000.         2         0         0      0.00    122.10    153.45


CCHV=    .300 CEHV=    .500
*SECNO 156.000
   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
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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
156.00	14.78	843.18	0.00	0.00	843.39	.21	.10	.09	846.50
1500.	0.	1500.	0.	0.	404.	0.	59.	15.	846.40
.28	0.00	3.71	0.00	.050	.040	.035	.040	828.40	121.19
.000717	750.	500.	400.	2	0	0	0.00	28.63	149.82

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	27.00	0.00	400.00	0.00	828.90	828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRO= 9 MIN ELTRO= 846.60 MAX ELLC= 843.60

156.50	14.80	843.20	0.00	0.00	843.41	.21	.02	.00	846.50
1500.	0.	1500.	0.	0.	405.	0.	59.	15.	846.40
.28	0.00	3.71	0.00	.050	.040	.035	.040	828.40	121.19
.000716	29.	29.	29.	0	0	0	0.00	28.63	149.82

CCHV= .100 CEHV= .300

*SECNO 157.000

157.00	15.54	843.44	0.00	0.00	843.45	.00	.01	.02	852.00
1500.	0.	1221.	279.	0.	3082.	1173.	99.	19.	839.40
.85	0.00	.40	.24	.050	.040	.035	.040	827.90	18.40
.000304	750.	750.	750.	2	0	0	0.00	487.93	536.33

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


15.43.24..000009 PAGES PRINT. 000240 LINES PRINT. FOR $ 000.28 AT RG2.
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01,02
  MODIFICATION =  50,51,52,53
**********************************************

T1
T2
T3          SMALL CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0    10000.    842.710      0.000

NC       .050       .035       .040       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500    400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200    750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800   1000.000    850.700   1071.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500      0.000      0.000      0.000      0.000      0.000

X1    154.000     14.000    364.000    390.000    500.000    600.000    550.000      0.000      0.000      0.000
X2   2500.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    843.300    100.000    842.000    200.000    841.600    300.000    841.300    363.000
GR    833.500    364.000    827.900    376.000    833.500    389.000    841.400    390.000    841.400    400.000
GR    841.900    500.000    844.000    600.000    847.400    700.000    849.600    800.000      0.000      0.000
SB      0.000      1.560      2.600      0.000     27.000      0.000    205.000      0.000    831.000    831.000

X1    154.500      0.000      0.000      0.000     31.000     31.000     31.000      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    -13.000      0.000    349.600      0.000    100.000    843.300      0.000    200.000    842.000      0.000
BT    300.000    841.600      0.000    363.000    841.300      0.000    364.000    842.300    838.500    389.000
BT    842.400    836.600    390.000    841.400      0.000    400.000    841.400      0.000    500.000    841.400
BT      0.000    600.000    844.000      0.000    700.000    849.600      0.000    800.000    849.600      0.000
NC      0.000      0.000      0.000       .100       .300      0.000      0.000      0.000      0.000      0.000

X1    155.000      8.000     38.000    161.000   1000.000   1000.000   1000.000      0.000      0.000      0.000
GR    852.000      0.000    841.300     38.000    833.600     60.000    829.000     80.000    830.600    100.000
GR    833.600   -121.000    845.400    161.000    851.500    300.000      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    156.000     10.000    121.000    150.000    750.000    400.000    500.000      0.000      0.000      0.000
GR    850.700      0.000    848.500     50.000    846.600    100.000    846.500    121.000    828.900    122.000
GR    828.400    149.000    846.400    150.000    847.500    200.000    849.400    250.000    852.000    350.000
SB      0.000      1.560      2.600      0.000     27.000      0.000    400.000      0.000    828.900    828.900

X1    156.500      0.000      0.000      0.000     28.500     28.500     28.500      0.000      0.000      0.000
BT      9.000      0.000    850.700      0.000     50.000    848.500      0.000    100.000    846.600      0.000
BT    121.000    847.500      0.000    122.000    847.500    843.600    149.000    847.400    843.500    150.000
BT    847.400      0.000    200.000    847.500      0.000    250.000    849.400      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	952.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PPOF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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     COPAR     TOPWID     ENDST

   153.00     15.51    842.71      0.00    842.71    842.83      .12      0.00      0.00    837.60
   10000.     1267.    8443.      290.     1250.     2777.     234.        0.        0.     838.80
     0.00      1.01     3.04      1.24      .050      .040      .035     0.000    827.20    179.80
  .000247       0.       0.        0.         0         0         0      0.00    796.50    976.30

CCHV=    .300 CEHV=    .500
*SECNO 154.000
   154.00     14.76    842.66      0.00      0.00    843.24      .58       .18       .23    833.50
   2500.      226.     2047.      227.      184.      304.      128.       30.        7.     841.40
     .03      1.23     6.73      1.78      .050      .040      .035      .040    827.90    149.15
  .001860     500.     550.      600.         2         0         0      0.00    387.10    536.24


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BHC       BWP       BAREA     SS        ELCHU     ELCHD
       0.00      1.56      2.60      0.00     27.00      0.00    205.00      0.00    831.00    831.00

*SECNO 154.500
 PPESS FLOW BECAUSE EGLWC OF    846.34  EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF  843.24 HIGHER THAN COMPUTED ENERGY OF  843.14
PRESSURE AND WEIR FLOW

  EGPRS       EGLWC       H3        QWEIR       QPR       BAREA    TRAPEZOID     ELLC      ELTRD
                                                                      AREA
    846.26      846.34      0.00      1592.       909.      205.      205.      838.60    841.30

   154.50     14.76    842.66      0.00      0.00    843.24      .58      0.00      0.00    833.50
   2500.      228.     2045.      228.      185.      304.      128.       31.        8.     841.40
     .03      1.23     6.72      1.78      .050      .040      .035      .040    827.90    148.87
  .001854       31.      31.       31.         3         0         4      0.00    387.55    536.41

CCHV=    .100 CEHV=    .300
*SECNO 155.000
   155.00     14.68    843.68      0.00      0.00    843.76      .08       .47       .05    841.30
   2500.         5.    2495.         0.       10.     1077.        0.       50.       13.     845.40
     .15       .47      2.32      0.00      .050      .040      .035      .040    829.00     29.57
  .000210     1000.    1000.     1000.         2         0         0      0.00    125.58    155.15

CCHV=    .300 CEHV=    .500
*SECNO 155.000
   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
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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
156.00	15.28	843.68	0.00	0.00	844.23	.55	.23	.24	846.50
2500.	0.	2500.	0.	0.	418.	0.	59.	14.	846.40
.17	0.00	5.97	0.00	.050	.040	.035	.040	828.40	121.16
.001817	750.	500.	400.	2	0	0	0.00	28.69	149.85

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BHC	BHP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	27.00	0.00	400.00	0.00	828.90	828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRO= 9 MIN ELTRD= 846.60 MAX ELLC= 843.60

156.50	15.34	843.74	0.00	0.00	844.30	.56	.07	.00	846.50
2500.	0.	2500.	0.	0.	415.	0.	59.	14.	846.40
.17	0.00	6.03	0.00	.050	.040	.035	.040	828.40	121.16
.003180	29.	29.	29.	2	0	0	-5.26	28.70	149.85

CCHV= .100 CEHV= .300
*SECNO 157.000

3301 HV CHANGED MORE THAN HVINS

157.00	16.47	844.37	0.00	0.00	844.38	.00	.02	.06	852.00
2500.	0.	1961.	539.	0.	3300.	1416.	103.	19.	839.40
.55	0.00	.59	.38	.050	.040	.035	.040	827.90	16.40
.000008	750.	750.	750.	2	0	0	0.00	503.24	519.63

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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15.45.01..000009 PAGES PRINT. 000243 LINES PRINT. FOR $ 000.29 AT RG2.
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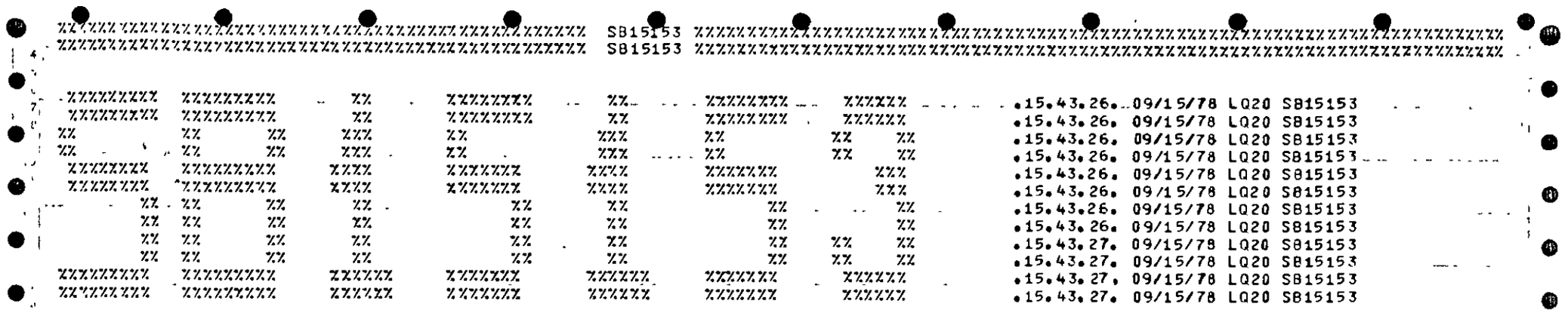
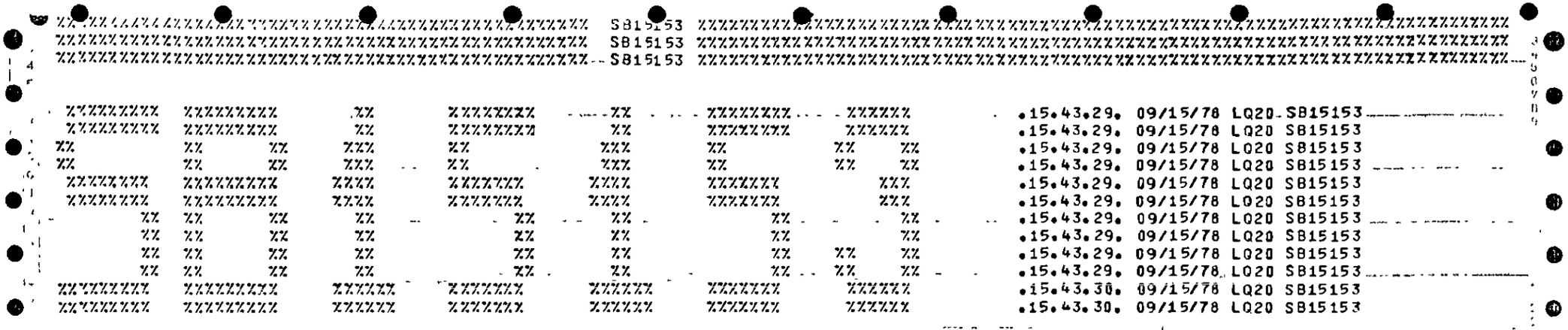
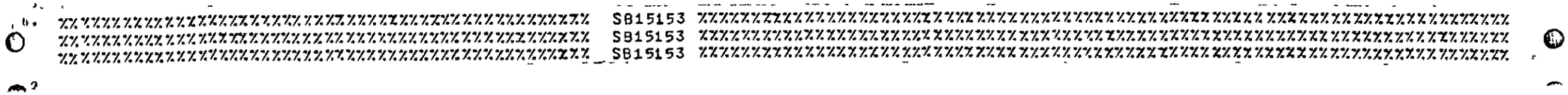


DUE TO HARDWARE PROBLEMS ON SEPTEMBER 12, 1978, SOME PERMANENT
FILES MAY HAVE BEEN INADVERTENTLY ALTERED. USERS HAVING ANY
QUESTIONS OR PROBLEMS SHOULD CALL THE CONSULTANTS AT 353-1800
FOR ASSISTANCE.
09-13-78/DF.



DUE TO HARDWARE PROBLEMS ON SEPTEMBER 12, 1978, SOME PERMANENT
FILES MAY HAVE BEEN INADVERTENTLY ALTERED. USERS HAVING ANY
QUESTIONS OR PROBLEMS SHOULD CALL THE CONSULTANTS AT 353-1800
FOR ASSISTANCE.
09-13-78/DF.



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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3          SMALL CHANNEL

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        0.        0.        0.  0.000000      0.00       0.0   10000.   842.710     0.000

NC      .050      .035      .040      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    153.000    14.000   641.000   873.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    851.700     0.000   841.700   200.000   840.500   400.000   837.800   600.000   837.600   641.000
GR    833.500   656.000   827.200   700.000   828.200   750.000   830.500   800.000   833.500   855.000
GR    838.800   873.000   839.200   900.000   843.800  1000.000   850.700  1071.000     0.000     0.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1    154.000    14.000   364.000   390.000   500.000   600.000   550.000     0.000     0.000     0.000
X2   2000.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    849.600     0.000   843.300   100.000   842.000   200.000   841.600   300.000   841.300   363.000
GR    833.500   364.000   827.900   376.000   833.500   389.000   841.400   390.000   841.400   400.000
GR    841.900   500.000   844.000   600.000   847.400   700.000   849.600   800.000     0.000     0.000
SB      0.000     1.560     2.600     0.000    27.000     0.000   205.000     0.000   831.000   831.000

X1    154.500     0.000     0.000     0.000    31.000    31.000    31.000     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     13.000     0.000   849.600     0.000   100.000   843.300     0.000   200.000   842.000     0.000
BT    300.000   841.600     0.000   363.000   841.300     0.000   364.000   842.300   838.500   389.000
BT    842.400   838.600   390.000   841.400     0.000   400.000   841.400     0.000   500.000   841.400
BT      0.000   600.000   844.000     0.000   700.000   849.600     0.000   800.000   849.600     0.000
NC      0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000

X1    155.000     8.000    39.000   161.000  1000.000  1000.000  1000.000     0.000     0.000     0.000
GR    852.000     0.000   841.300    38.000   833.600    60.000   829.000    80.000   830.600   100.000
GR    833.600   121.000   845.400   161.000   851.500   300.000     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    156.000    10.000   121.000   150.000   750.000   400.000   500.000     0.000     0.000     0.000
GR    850.700     0.000   848.500    50.000   846.600   100.000   846.500   121.000   828.900   122.000
GR    828.400   149.000   846.400   150.000   847.500   200.000   849.400   250.000   852.000   350.000
SB      0.000     1.560     2.600     0.000    27.000     0.000   400.000     0.000   828.900   828.900

X1    156.500     0.000     0.000     0.000    28.500    28.500    28.500     0.000     0.000     0.000
BT      9.000     0.000   850.700     0.000    50.000   848.500     0.000   100.000   846.600     0.000
BT    121.000   847.500     0.000   122.000   847.500   843.600   149.000   847.400   843.500   150.000
BT    847.400     0.000   200.000   847.500     0.000   250.000   849.400     0.000     0.000     0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
XL	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	850.000	600.000	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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*PROF 1

CCHV=    .100 CEHV=    .300
*SECNO 153.000
   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

  153.00     15.51     842.71      0.00    842.71    842.83      .12      0.00      0.00     837.60
 10000.      1267.     8443.      290.     1250.     2777.      234.       0.        0.      838.80
    .00       1.01      3.04      1.24      .050      .040      .035     0.000    827.20     179.80
 .000247        0.        0.        0.         0         0         0     0.00     796.50     976.30

CCHV=    .300 CEHV=    .500
*SECNO 154.300
  154.00     14.87     842.77      0.00      0.00    843.10      .33       .16       .11     833.50
 2000.       206.      1588.      206.      208.      307.      143.       30.        7.      841.40
    .03       .99      5.17      1.44      .050      .040      .035      .040    827.90     140.97
 .001086     500.      550.      600.         2         0         0      0.00    400.34     541.31


SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.56      2.60      0.00     27.00      0.00     205.00     0.00     831.00    831.00

*SECNO 154.500
 PPESS FLOW BECAUSE EGLWC OF    846.20  EXCEEDS 1.5 DEPTH
6870 D.S. ENERGY OF  843.10 HIGHER THAN COMPUTED ENERGY OF  843.05
PRESSURE AND WEIR FLOW

 EGPRS     EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID AREA     ELLC      ELTRD
  845.07    846.20      0.00     1301.      704.      205.      205.      838.60    841.30

  154.50     14.87    842.77      0.00      0.00    843.10      .33       0.00      0.00     833.50
 2000.       208.      1583.      209.      210.      307.      145.       31.        8.      841.40
    .04       .99      5.15      1.44      .050      .040      .035      .040    827.90     140.22
 .001076     31.       31.       31.          2         0         4     0.00     401.55     541.77

CCHV=    .100 CEHV=    .300
*SECNO 155.000
  155.00     14.39    843.39      0.00      0.00    843.44      .06       .31       .03     841.30
 2000.         3.      1997.        0.        8.      1043.       0.       51.       14.      845.40
    .18       .36      1.91      0.00      .050      .040      .035      .040    829.00      30.59
 .000148     1000.     1000.     1000.         2         0         0     0.00     123.58     154.17

CCHV=    .300 CEHV=    .500
*SECNO 156.000
   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	CORAR	TOPWID	ENDST
156.00	14.99	843.39	0.00	0.00	843.76	.37	.16	.16	846.50
2000.	0.	2000.	0.	0.	410.	0.	59.	15.	846.40
.21	0.00	4.87	0.00	.050	.040	.035	.040	828.40	121.18
.001225	750.	500.	400.	2	0	0	0.00	28.66	149.83

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHO
	0.00	1.56	2.60	0.00	27.00	0.00	400.00	0.00	828.90	828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 846.60 MAX ELLC= 843.60

156.50	15.03	843.43	0.00	0.00	843.80	.37	.03	.00	846.50
2000.	0.	2000.	0.	0.	411.	0.	59.	15.	846.40
.21	0.00	4.86	0.00	.050	.040	.035	.040	828.40	121.17
.001219	29.	29.	29.	1	0	0	0.00	28.66	149.83

CCHV= .100 CEHV= .300

*SECNO 157.000

157.00	15.95	843.85	0.00	0.00	843.85	.00	.02	.04	852.00
2000.	0.	1602.	398.	0.	3176.	1277.	101.	19.	839.40
.66	0.00	.50	.31	.050	.040	.035	.040	827.90	17.53
.000006	750.	750.	750.	2	0	0	0.00	494.56	512.10

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  51,51,52,53
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15.43.48..000009 PAGES PRINT. 000240 LINES PRINT. FOR $ 000.28 AT RG2.
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************
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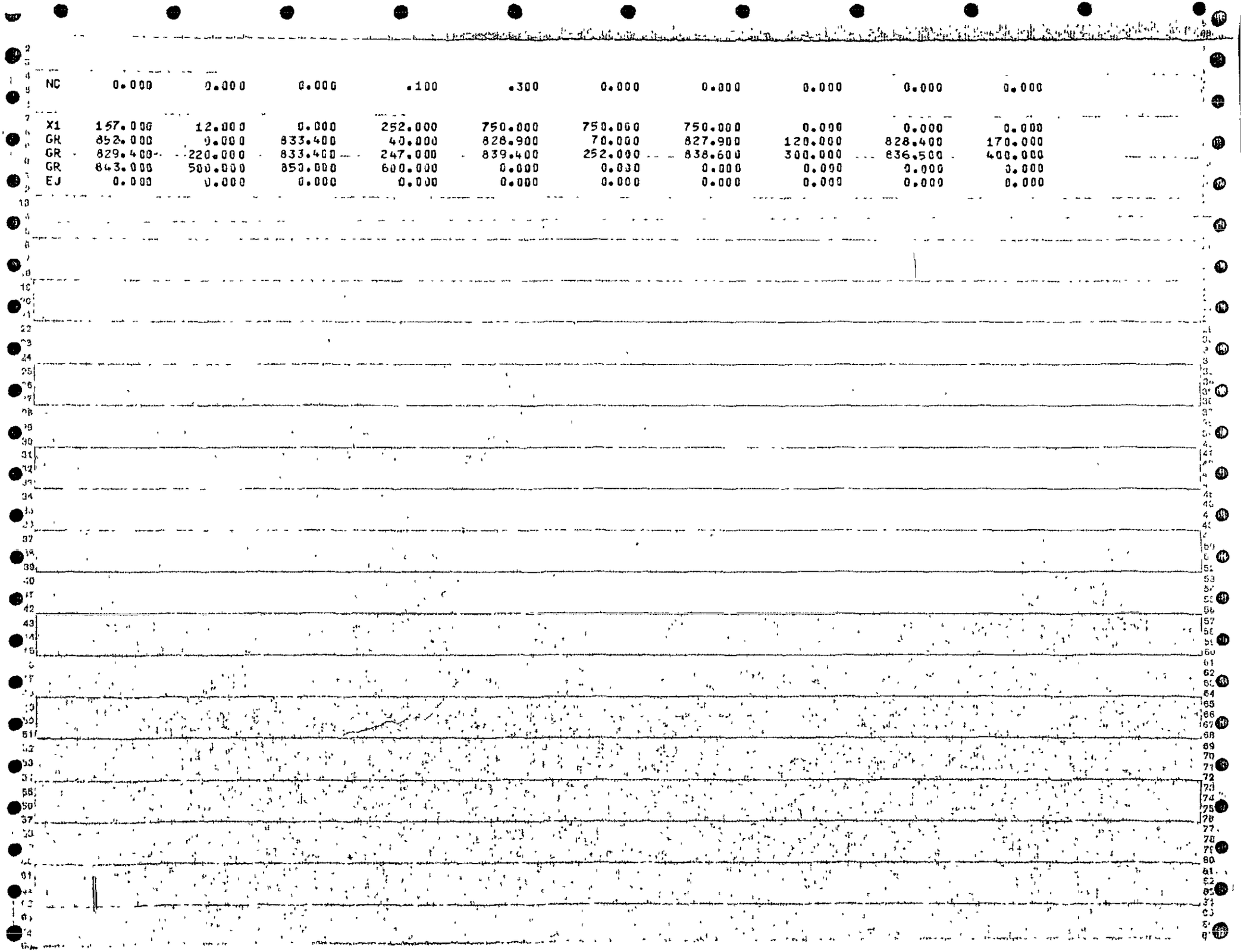
T1
T2
T3 SMALL CHANNEL

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	0.	0.	0.	0.000000	0.00	0.0	10000.	842.710	0.000

NC	.050	.035	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	153.000	14.000	641.000	873.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.700	0.000	841.700	200.000	840.500	400.000	837.800	600.000	837.600	641.000
GR	833.500	656.000	827.200	700.000	828.200	750.000	830.500	800.000	833.500	855.000
GR	838.800	873.000	839.200	900.000	843.800	1000.000	850.700	1071.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	154.000	14.000	364.000	390.000	500.000	600.000	550.000	0.000	0.000	0.000
X2	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.600	0.000	843.300	100.000	842.000	200.000	841.600	300.000	841.300	363.000
GR	833.500	364.000	827.900	376.000	833.500	389.000	841.400	390.000	841.400	400.000
GR	841.900	500.000	844.000	600.000	847.400	700.000	849.600	800.000	0.000	0.000
SB	0.000	1.560	2.600	0.000	27.000	0.000	205.000	0.000	831.000	831.000
X1	154.500	0.000	0.000	0.000	31.000	31.000	31.000	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	13.000	0.000	849.600	0.000	100.000	843.300	0.000	200.000	842.000	0.000
BT	300.000	841.600	0.000	363.000	841.300	0.000	364.000	842.300	838.500	389.000
BT	842.400	838.600	390.000	841.400	0.000	400.000	841.400	0.000	500.000	841.400
BT	0.000	600.000	844.000	0.000	700.000	849.600	0.000	800.000	849.600	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	155.000	8.000	38.000	161.000	1000.000	1000.000	1000.000	0.000	0.000	0.000
GR	852.000	0.000	841.300	38.000	833.600	60.000	829.000	80.000	830.600	100.000
GR	833.600	121.000	845.400	161.000	851.500	300.000	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	156.000	10.000	121.000	150.000	750.000	400.000	500.000	0.000	0.000	0.000
GR	850.700	0.000	848.500	50.000	846.600	100.000	846.500	121.000	828.900	122.000
GR	828.400	149.000	846.400	150.000	847.500	200.000	849.400	250.000	852.000	350.000
SB	0.000	1.560	2.600	0.000	27.000	0.000	400.000	0.000	828.900	828.900
X1	156.500	0.000	0.000	0.000	28.500	28.500	28.500	0.000	0.000	0.000
BT	9.000	0.000	850.700	0.000	50.000	848.500	0.000	100.000	846.600	0.000
BT	121.000	847.500	0.000	122.000	847.500	843.600	149.000	847.400	843.500	150.000
BT	847.400	0.000	200.000	847.500	0.000	250.000	849.400	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
X1 157.000 12.000 0.000 252.000 750.000 750.000 750.000 0.000 0.000 0.000
GR 852.000 0.000 833.400 40.000 828.900 70.000 827.900 120.000 828.400 170.000
GR 829.400 220.000 833.400 247.000 839.400 252.000 838.600 300.000 836.500 400.000
GR 843.000 500.000 850.000 600.000 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

*PPOF 1

CCHV= .100 CEHV= .300
*SECNO 153.000

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	CORAR	TOPWID	ENDST
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	8443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

CCHV= .300 CEHV= .500
*SECNO 154.000

154.00	15.07	842.97	0.00	0.00	842.99	.02	.12	.03	833.50
500.	63.	373.	63.	255.	312.	175.	31.	7.	841.40
.16	.25	1.19	.36	.050	.040	.035	.040	827.90	125.26
.000057	500.	550.	600.	2	0	0	0.00	425.75	551.03

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BHC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	27.00	0.00	205.00	0.00	831.00	831.00

*SECNO 154.500
PPESS FLOW BECAUSE EGLWC OF 846.09 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
843.12	846.09	0.00	271.	227.	205.	205.	838.60	841.30

154.50	15.08	842.98	0.00	0.00	843.00	.02	.01	0.00	833.50
500.	65.	371.	65.	260.	313.	179.	31.	8.	841.40
.17	.25	1.18	.36	.050	.040	.035	.040	827.90	123.62
.000056	31.	31.	31.	1	0	7	0.00	423.42	552.04

CCHV= .100 CEHV= .300
*SECNO 155.000

155.00	14.02	843.02	0.00	0.00	843.02	.00	.02	.00	841.30
500.	0.	500.	0.	5.	1001.	0.	52.	14.	845.40
.72	.08	.50	0.00	.050	.040	.035	.040	829.00	31.90
.000010	1000.	1000.	1000.	2	0	0	0.00	121.03	152.93

CCHV= .300 CEHV= .500
*SECNO 156.000

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	CORAR	TOPWID	ENDST

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   156.00     14.62    843.02      0.00      0.00    843.04       .02       .01       .01    846.50
     500.        0.      500.        0.        0.      400.        0.       60.       15.     846.40
      .83      0.00      1.25      0.00      .050      .040      .035      .040    828.40    121.20
  .000082      750.      500.      400.         1         0         0      0.00     28.62    149.81


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS       ELCHU     ELCHD
     0.00      1.56      2.60      0.00     27.00      0.00    400.00      0.00    828.90    828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRO=  9 MIN ELTRD=  846.60 MAX ELLC=  843.60

   156.50     14.62    843.02      0.00      0.00    843.05       .02       .00       .00    846.50
     500.        0.      500.        0.        0.      400.        0.       60.       15.     846.40
      .84      0.00      1.25      0.00      .050      .040      .035      .040    828.40    121.20
  .000082       29.       29.       29.         0         0         0      0.00     28.61    149.81


CCHV=     .100 CEHV=     .300
*SECNO 157.000
   157.00     15.15    843.05      0.00      0.00    843.05       .00       .00       .00    852.00
     500.        0.      414.       86.        0.     2990.     1074.       98.       19.     839.40
     2.46      0.00       .14       .08      .050      .040      .035      .040    827.90     19.25
  .000000      750.      750.      750.         2         0         0      0.00    481.47    500.72
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**************************************************
  REG2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


15.37.48..000009 PAGES PRINT. 000239 LINES PRINT. FOR $ 0 (0.28 AT RG2.
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

T1
T2
T3          SMALL CHANNEL

J1  ICHECK     INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ

        0.        0.         0.         0.  0.000000        0.00       0.0   10000.    842.710      0.000

NC       .050       .035       .040       .100       .300     0.000      0.000      0.000      0.000      0.000

X1    153.000     14.000    641.000    873.000      0.000     0.000      0.000      0.000      0.000      0.000
GR    851.700      0.000    841.700    200.000    840.500   400.000    837.800    600.000    837.600    641.000
GR    833.500    656.000    827.200    700.000    828.200   750.000    830.500    800.000    833.500    855.000
GR    838.800    873.000    839.200    900.000    843.800  1000.000    850.700   1071.000      0.000      0.000
NC      0.000      0.000      0.000       .300       .500     0.000      0.000      0.000      0.000      0.000

X1    154.000     14.000    364.000    390.000    500.000   600.000    550.000      0.000      0.000      0.000
X2   1000.000      0.000      0.000      0.000      0.000     0.000      0.000      0.000      0.000      0.000
GR    849.600      0.000    843.300    100.000    842.000   200.000    841.600    300.000    841.300    363.000
GR    833.500    364.000    827.900    376.000    833.500   389.000    841.400    390.000    841.400    400.000
GR    841.900    500.000    844.000    600.000    847.400   700.000    849.600    800.000      0.000      0.000
SB      0.000      1.560      2.600      0.000     27.000     0.000    205.000      0.000    831.000    831.000

X1    154.500      0.000      0.000      0.000     31.000    31.000     31.000      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     13.000      0.000    849.600      0.000    100.000   843.300      0.000    200.000    842.000      0.000
BT    300.000    841.600      0.000    363.000    841.300     0.000    364.000    842.300    838.500    389.000
BT    842.400    838.600    390.000    841.400      0.000   400.000    841.400      0.000    500.000    841.400
BT      0.000    600.000    844.000      0.000    700.000   849.600      0.000    800.000    849.600      0.000
NC      0.000      0.000      0.000       .100       .300     0.000      0.000      0.000      0.000      0.000

X1    155.000      8.000     38.000    161.000   1000.000  1000.000   1000.000      0.000      0.000      0.000
GR    852.000      0.000    841.300     38.000    833.600    60.000    829.000     80.000    830.600    100.000
GR    833.600    121.000    845.400    161.000    851.500   300.000      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    156.000     10.000    121.000    150.000    759.000   400.000    500.000      0.000      0.000      0.000
GR    850.700      0.000    848.500     50.000    846.600   190.000    846.500    121.000    828.900    122.000
GR    828.400    149.000    846.400    150.000    847.500   200.000    849.400    250.000    852.000    350.000
SB      0.000      1.560      2.600      0.000     27.000     0.000    400.000      0.000    828.900    828.900

X1    156.500      0.000      0.000      0.000     28.500    28.500     28.500      0.000      0.000      0.000
BT      9.000      0.000    850.700      0.000     50.000   848.500      0.000    100.000    846.600      0.000
BT    121.000    847.500      0.000    122.000    847.500   843.600    149.000    847.400    843.500    150.000
BT    847.400      0.000    200.000    847.500      0.000   250.000    849.400      0.000      0.000      0.000
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NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	157.000	12.000	0.000	252.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	852.000	0.000	833.400	40.000	828.900	70.000	827.900	120.000	828.400	170.000
GR	829.400	220.000	833.400	247.000	839.400	252.000	838.600	300.000	836.500	400.000
GR	843.000	500.000	833.000	600.000	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

*PPOF 1

CCHV= .100 CEHV= .300
*SECNO 153.000

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
153.00	15.51	842.71	0.00	842.71	842.83	.12	0.00	0.00	837.60
10000.	1267.	8443.	290.	1250.	2777.	234.	0.	0.	838.80
0.00	1.01	3.04	1.24	.050	.040	.035	0.000	827.20	179.80
.000247	0.	0.	0.	0	0	0	0.00	796.50	976.30

CCHV= .300 CEHV= .500
*SECNO 154.000

154.00	15.01	842.91	0.00	0.00	842.98	.07	.13	.02	833.50
1000.	120.	760.	120.	241.	311.	166.	31.	7.	841.40
.08	.50	2.45	.72	.050	.040	.035	.040	827.90	129.80
.000239	500.	550.	600.	2	0	0	0.00	418.42	548.22

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	27.00	0.00	205.00	0.00	831.00	831.00

*SECNO 154.500
PRESS FLOW BECAUSE EGLWC OF 846.08 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
843.49	846.08	0.00	637.	364.	205.	205.	838.60	841.30

154.50	15.02	842.92	0.00	0.00	842.99	.07	.00	0.00	833.50
1000.	121.	759.	121.	242.	311.	167.	31.	8.	841.40
.08	.50	2.44	.72	.050	.040	.035	.040	827.90	129.43
.000238	31.	31.	31.	2	0	7	0.00	419.02	548.45

CCHV= .100 CEHV= .300
*SECNO 155.000

155.00	14.06	843.06	0.00	0.00	843.08	.02	.08	.01	841.30
1000.	1.	999.	0.	6.	1006.	0.	51.	14.	845.40
.36	.17	.99	0.00	.050	.040	.035	.040	829.00	31.74
.000041	1000.	1000.	1000.	2	0	0	0.00	121.33	153.07

CCHV= .300 CEHV= .500
*SECNO 156.000

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

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  156.00    14.67   843.07    0.00    0.00   843.16     .10     .04     .04   846.50
   1000.       0.    1000.      0.      0.     401.      0.     59.     15.   846.40
     .42     0.00     2.49    0.00    .050     .040    .035    .040  828.40  121.20
 .000326     750.     500.    400.       2        0       0    0.00   28.62  149.81

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.56      2.60      0.00     27.00      0.00    400.00      0.00    828.90    828.90

*SECNO 156.500

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  846.60 MAX ELLC=  843.60

  156.50    14.69   843.08    0.00    0.00   843.17     .10     .01     .00   846.50
   1000.       0.    1000.      0.      0.     401.      0.     60.     15.   846.40
     .42     0.00     2.49    0.00    .050     .040    .035    .040  828.40  121.19
 .000325      29.      29.     29.       0        0       0    0.00   28.62  149.82

CCHV=    .100 CEHV=    .300
*SECNC 157.000
  157.00    15.29   843.19    0.00    0.00   843.19     .00     .00     .01   852.00
   1000.       0.     823.    177.      0.    3021.   1108.     99.     19.   839.40
    1.24     0.00      .27     .16    .050     .040    .035    .040  827.90   18.96
 .000002     750.     750.    750.       2        0       0    0.00  483.69  502.64
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  51,51,52,53
**************************************************
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15.41.36..000009 PAGES PRINT. 000239 LINES PRINT. FOR $ 000.28 AT RG2.

LANSING

LANSING

BM #4

BM #5

RM #6 BG

EH

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MAP COMPILED BY ABRAMS AERIAL SURVEY CORP
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1978
SCALE 1" = 100' WITH 2' CONTOURS

DATUM NOTES: STATE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE LAMBERT PROJECTION HORIZONTAL CONTROL POINT ... LAN 45
ELEVATIONS BASED ON U.S.C.&G.S. DATUM VERTICAL CONTROL POINT

NW 1/4 S...

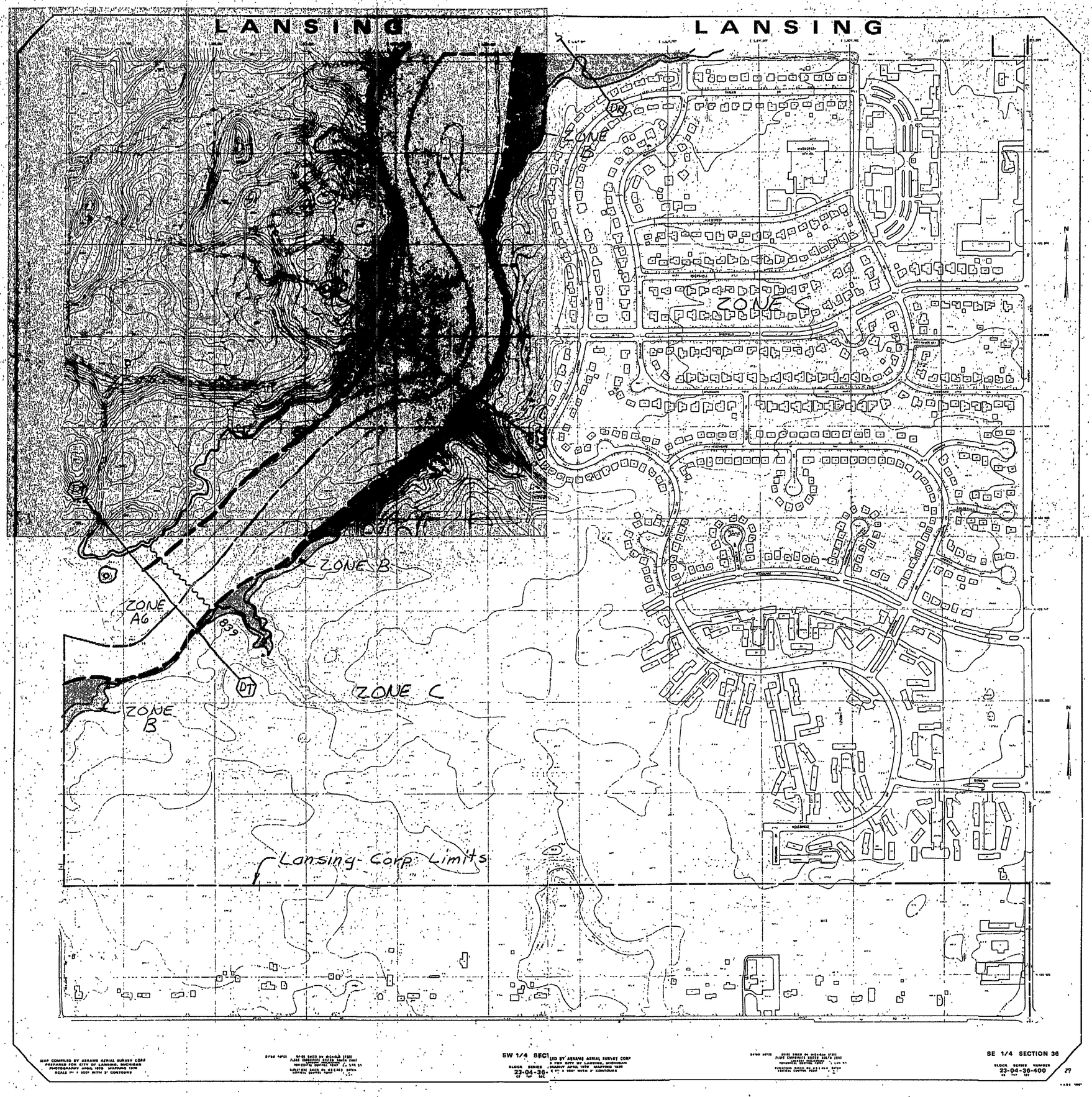
...D BY ABRAMS AERIAL SURVEY CORP
FOR CITY OF LANSING, MICHIGAN
BLOCK SERIES APRIL 1978 MAPPING 1978
33-01-...
...1" = 100' WITH 2' CONTOURS

DATUM NOTES: STATE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE LAMBERT PROJECTION HORIZONTAL CONTROL POINT ...
ELEVATIONS BASED ON U.S.C.&G.S. DATUM VERTICAL CONTROL POINT

NE 1/4 SECTION 8

BLOCK SERIES NUMBER
33-01-08-200

Grand River
Lansing



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

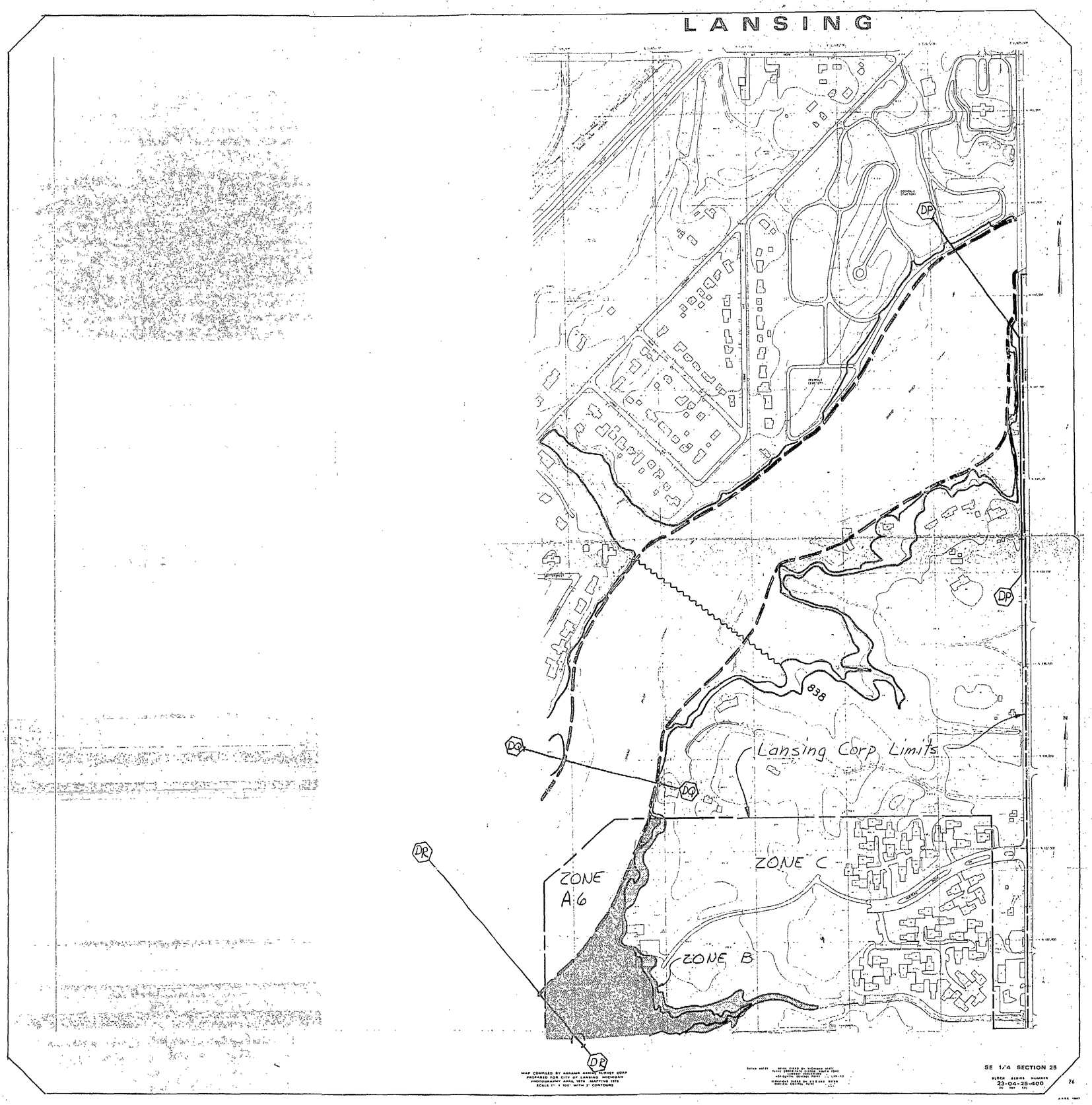
100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — DT — DT

ELEV. REFERENCE MARK — RM 2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

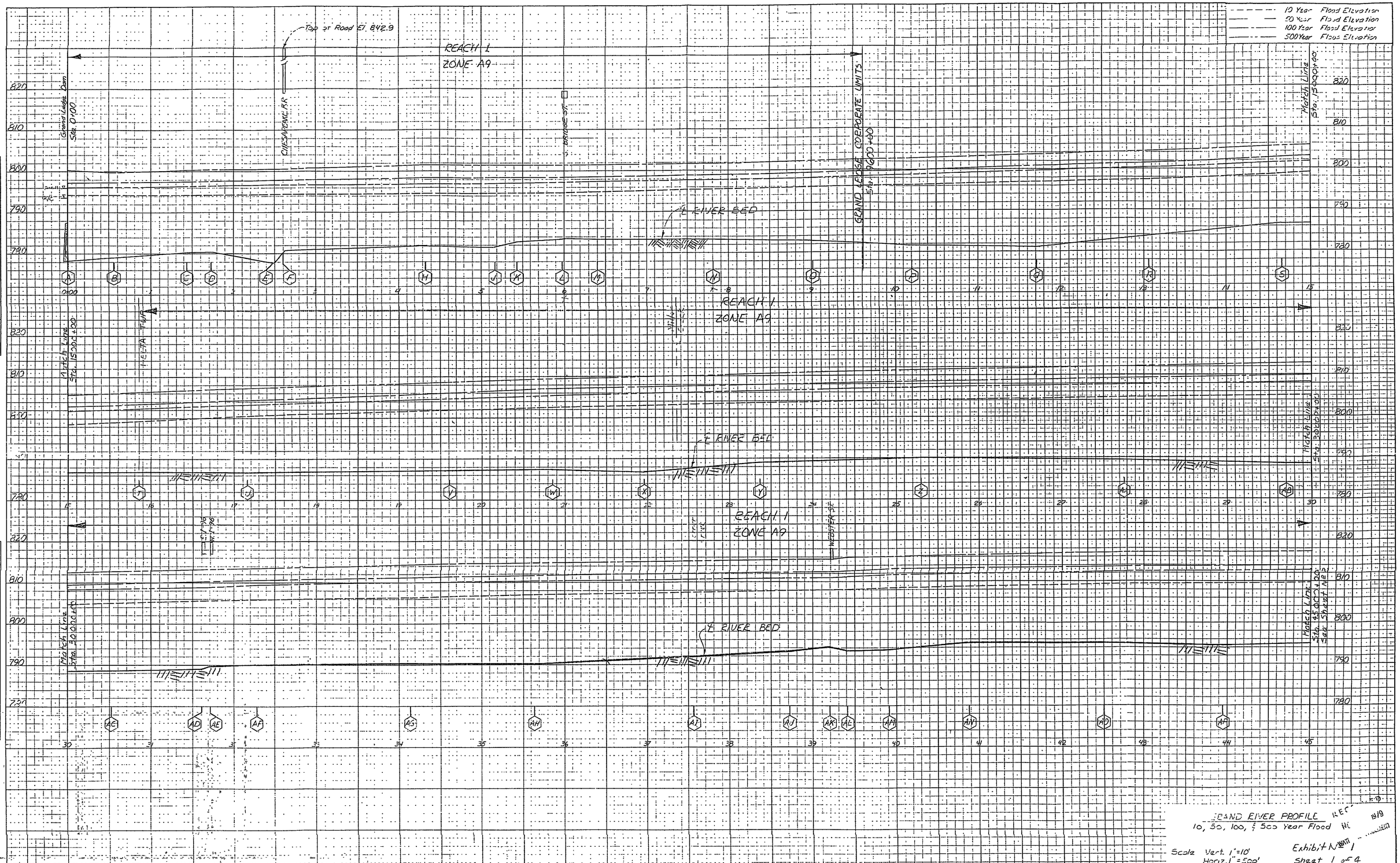
100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — DQ — DQ

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY



GRAND RIVER PROFILE
10, 50, 100, & 500 Year Flood

Scale Vert. 1"=10'
Horiz. 1"=500'

Exhibit No. 1
Sheet 1 of 4

NOTE: All elevations are referenced to U.S.G.S. elevations

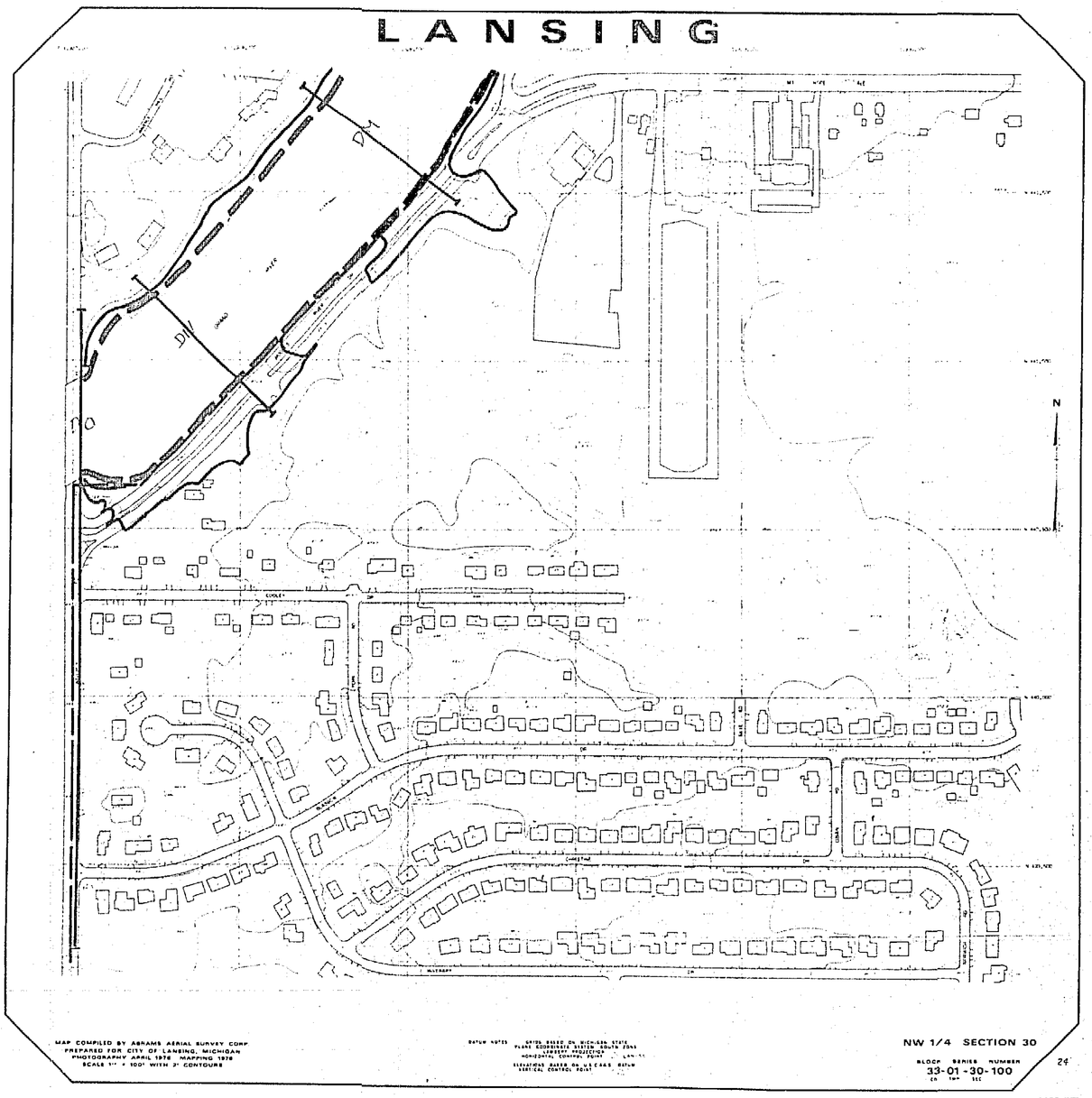
STREAM DISTANCE IN THOUSANDS OF FEET

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO NEW YORK

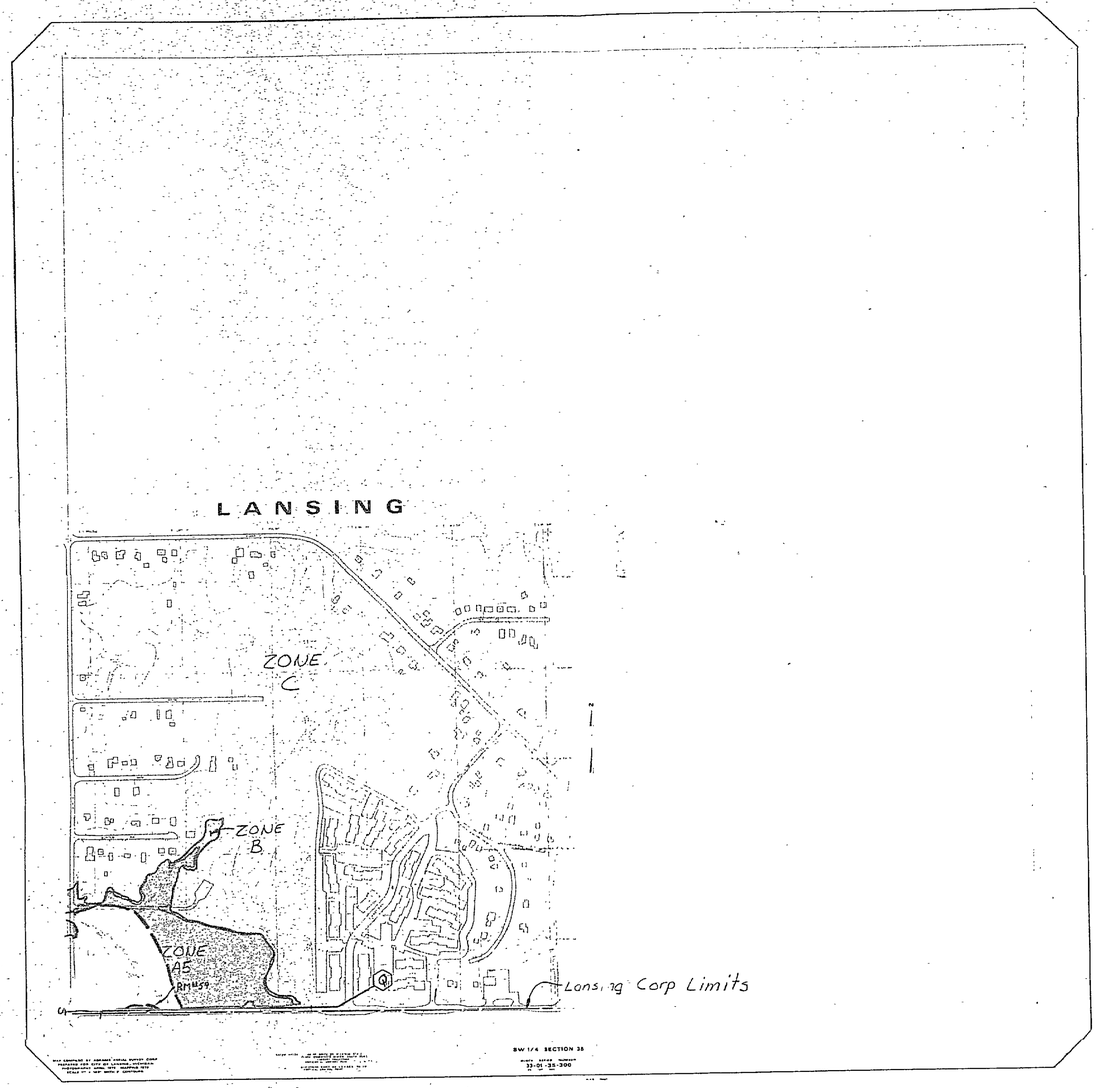
FINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

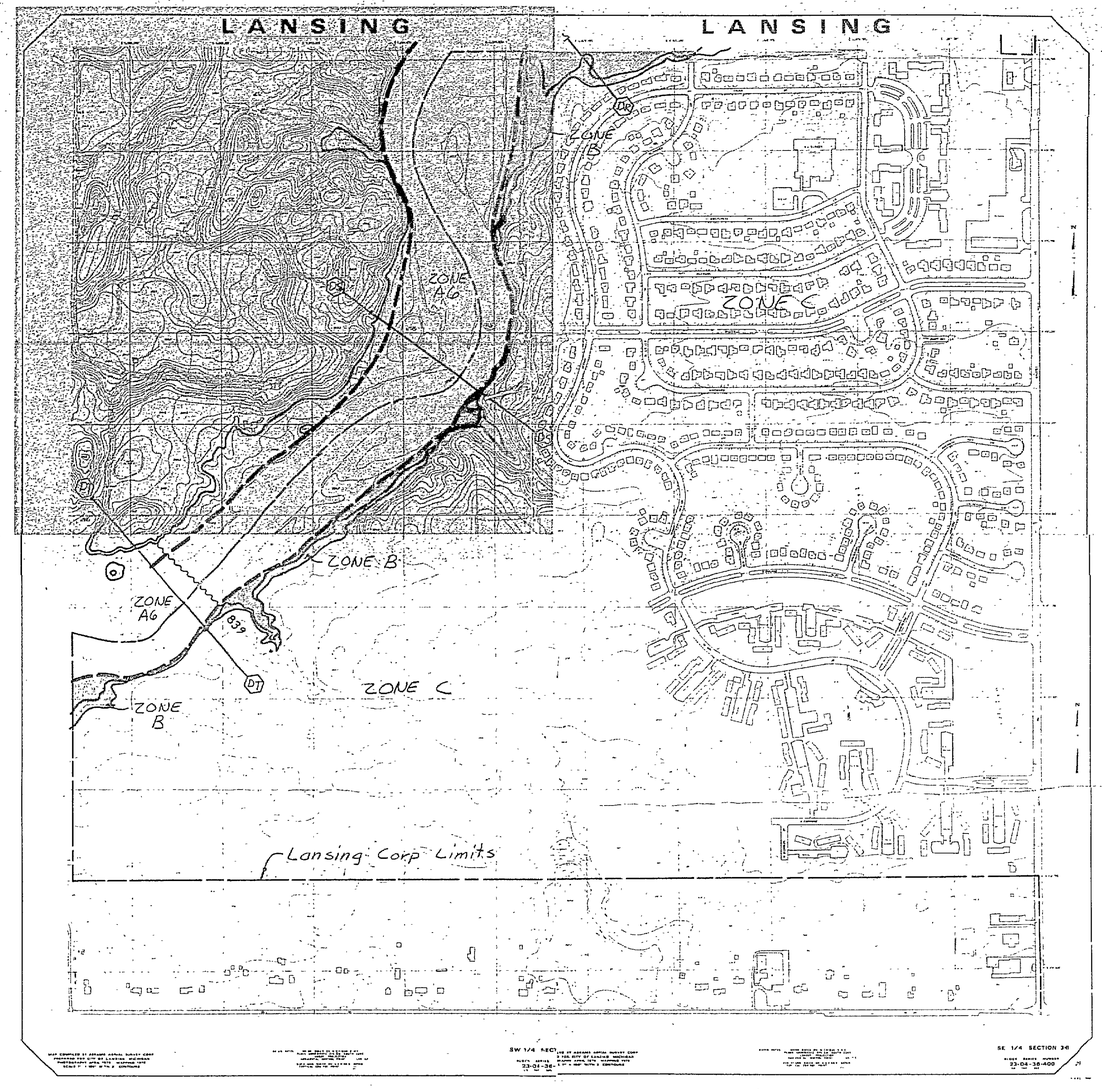
ORIGINAL SURVEY — NOTE BOOK — NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

10/12



RECEIVED
JUL 09 1979
WATER MANAGEMENT





KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — Q — Q

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

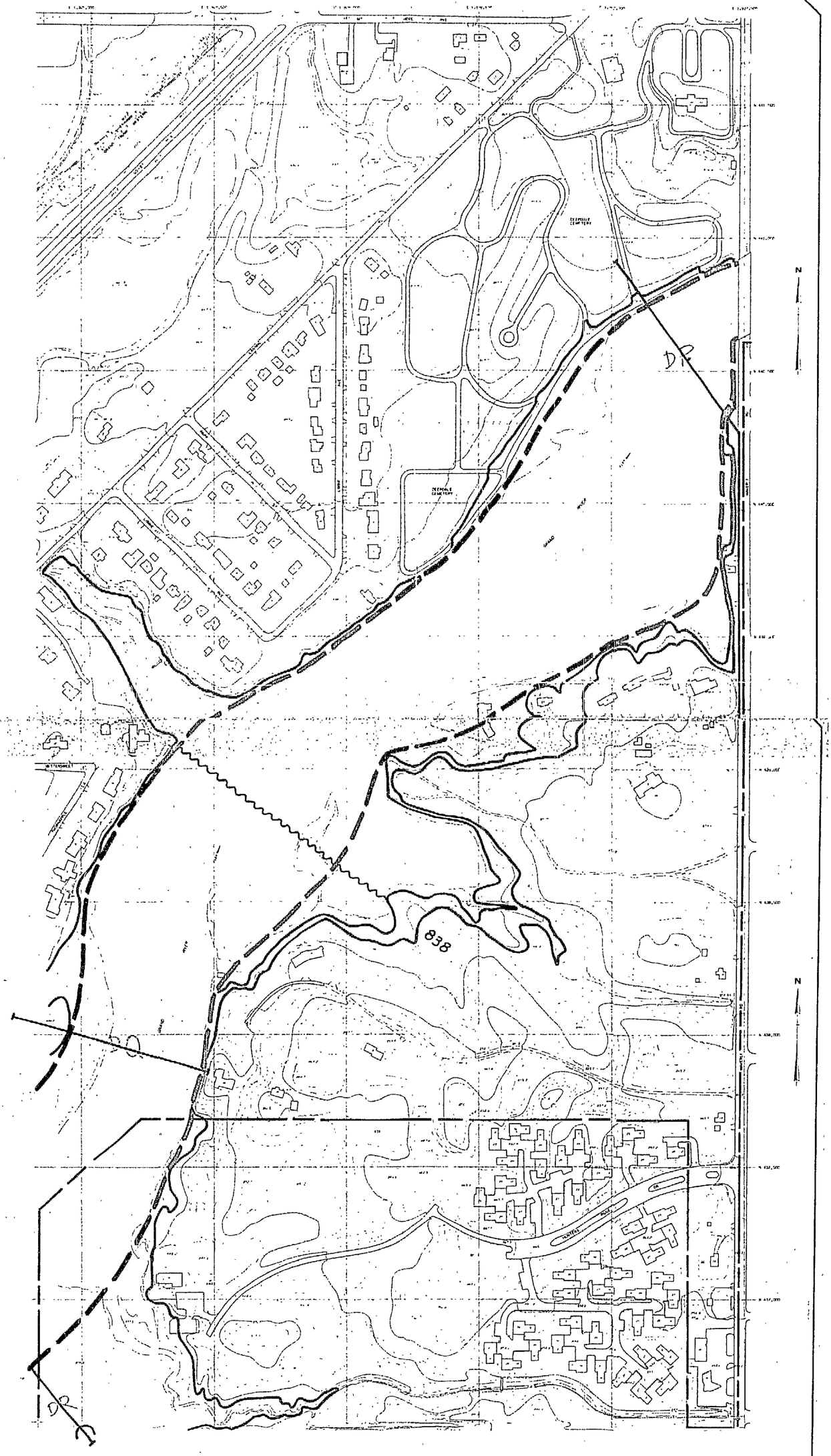
CROSS SECTION LINE — DT — DT

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

RECEIVED
JAN 3 1980
WATER MANAGEMENT

LANSING



MAP COMPILED BY ABRAMS AERIAL SURVEY CORP
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1978
SCALE 1" = 100' WITH 2' CONTOURS

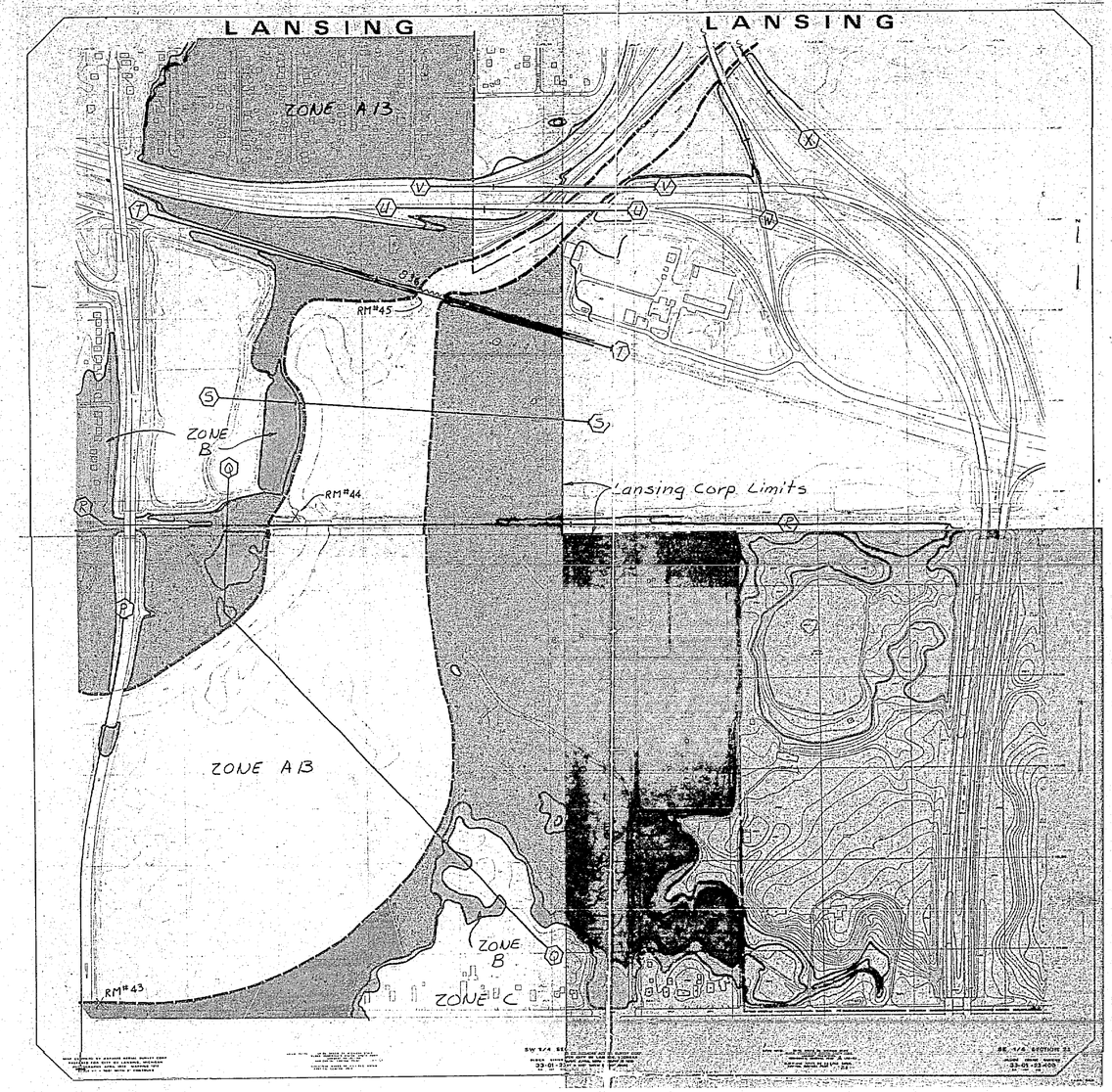
DATUM NOTES — ORIGIN BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE LAMBERT PROJECTION
HORIZONTAL CONTROL POINT △ LAN-51
ELEVATIONS BASED ON U.S.C.&G.S. DATUM
VERTICAL CONTROL POINT

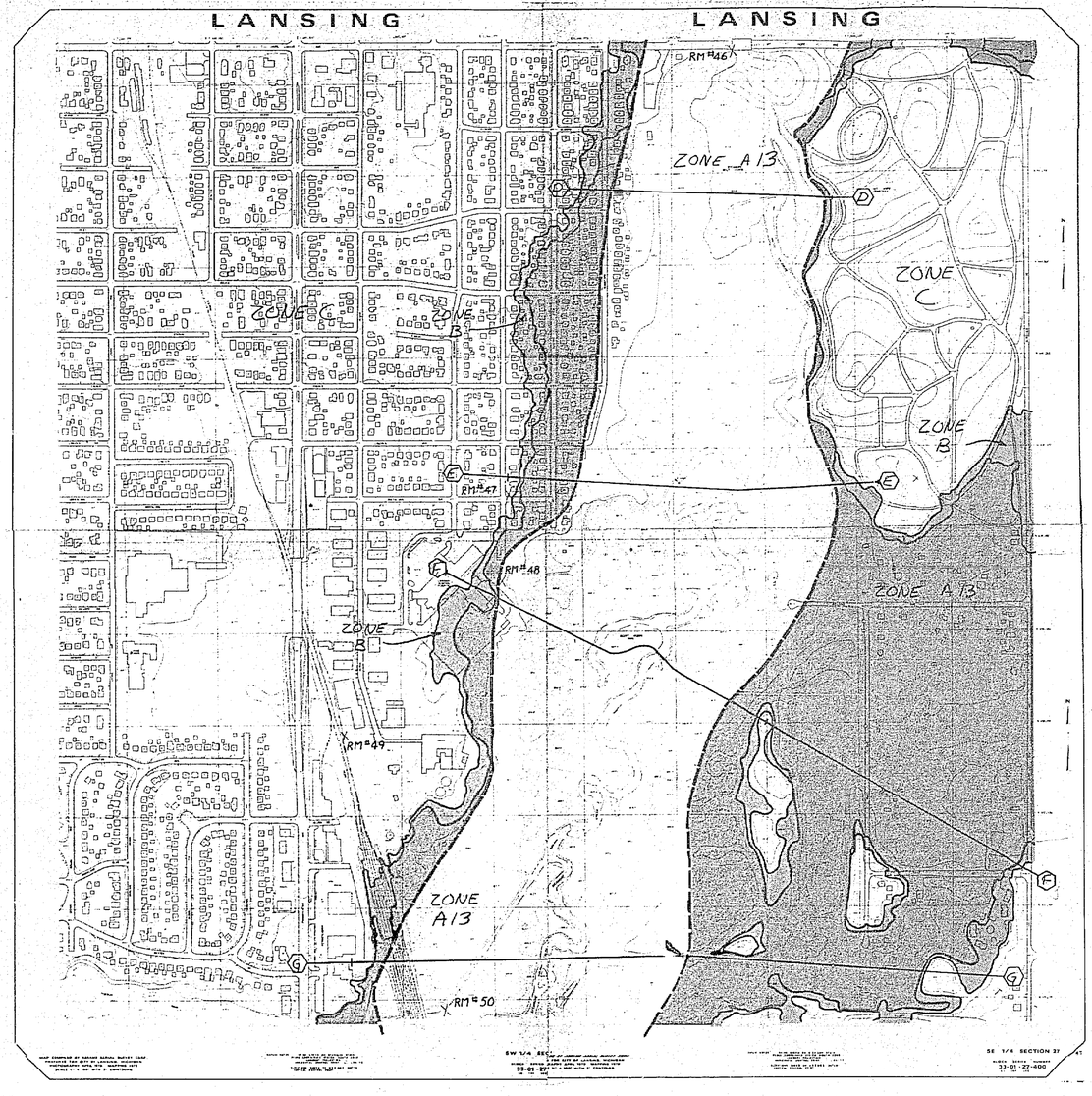
SE 1/4 SECTION 25

BLOCK SERIES NUMBER
23-04-25-400
CO TWP SEC

26

AASC 10467





KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — R — R

ELEV. REFERENCE MARK — RM2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

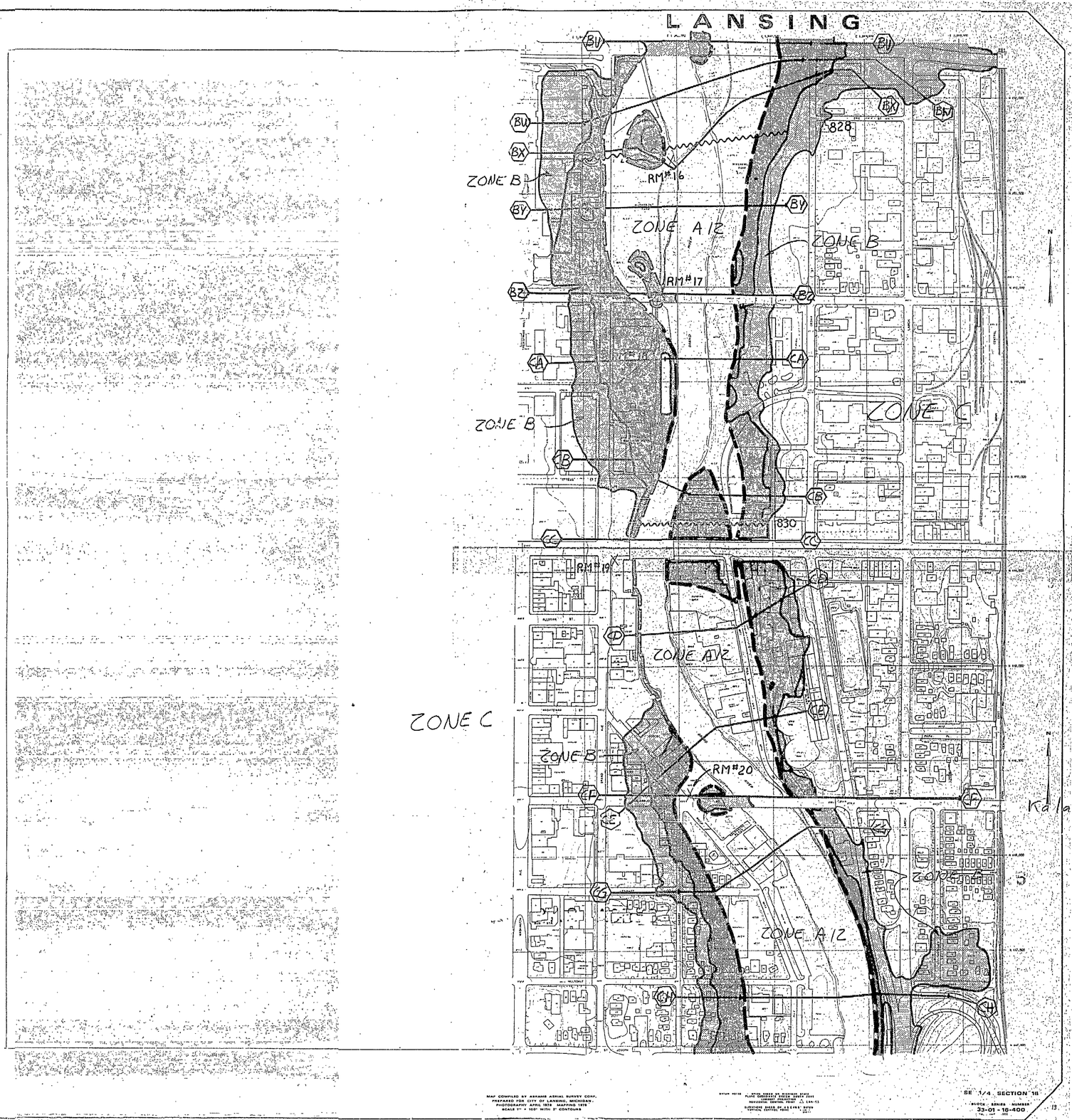
500YR FLOOD BOUNDARY

CROSS SECTION LINE — E — E

ELEV. REFERENCE MARK — RM2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

1"=400'



MAP COMPILED BY AERIAL SURVEY CORP.
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1973 & MARCH 1974
SCALE 1" = 100' WITH 2' CONTOURS

SE 1/4, SECTION 18
STOCK SERIES NUMBER
33-01-18-400

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A / ZONE A / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500YR FLOOD BOUNDARY

100 YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500 YR FLOOD BOUNDARY

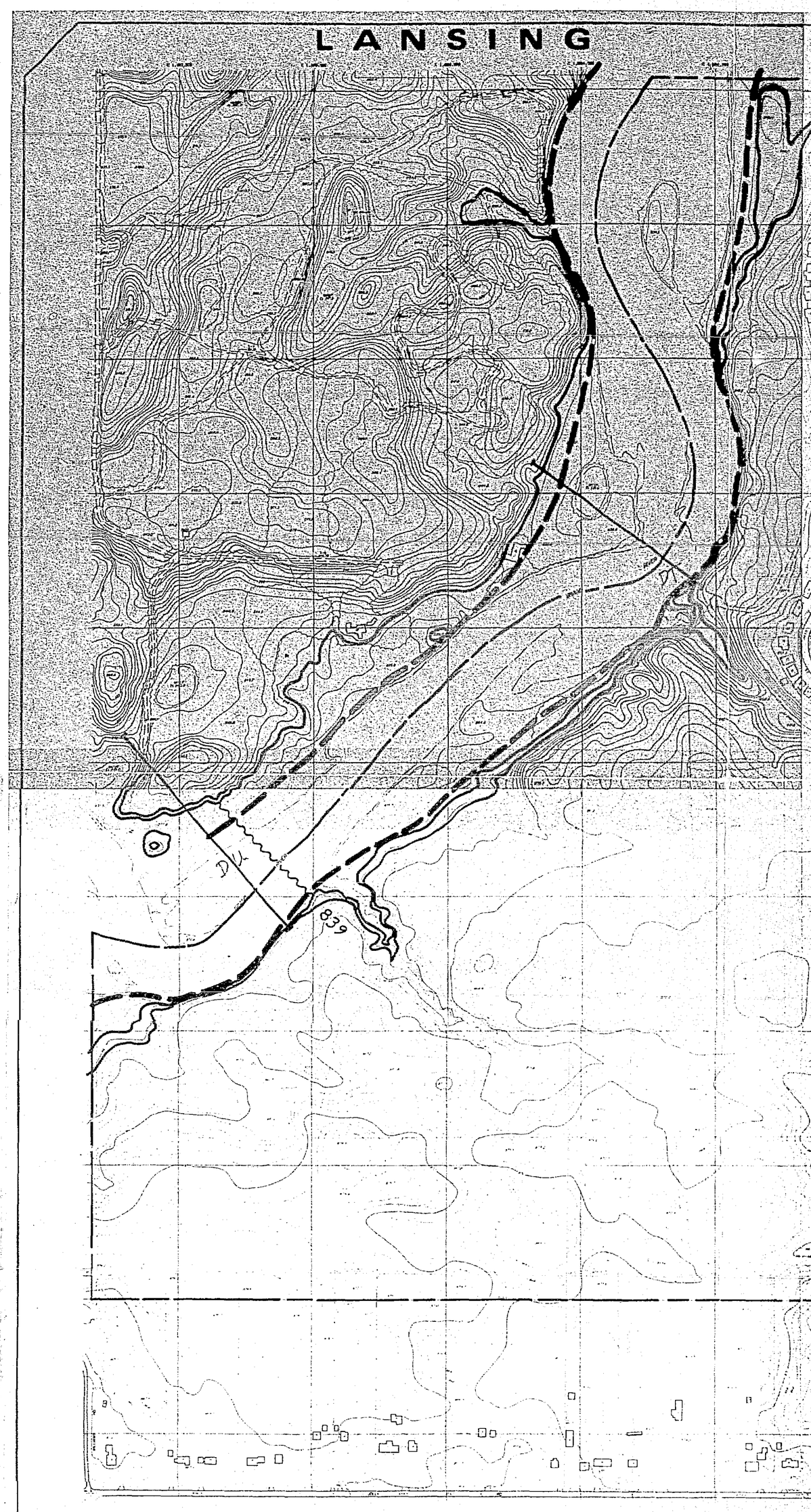
CROSS SECTION LINE — CF — CF

ELEV. REFERENCE MARK — RM 2 x

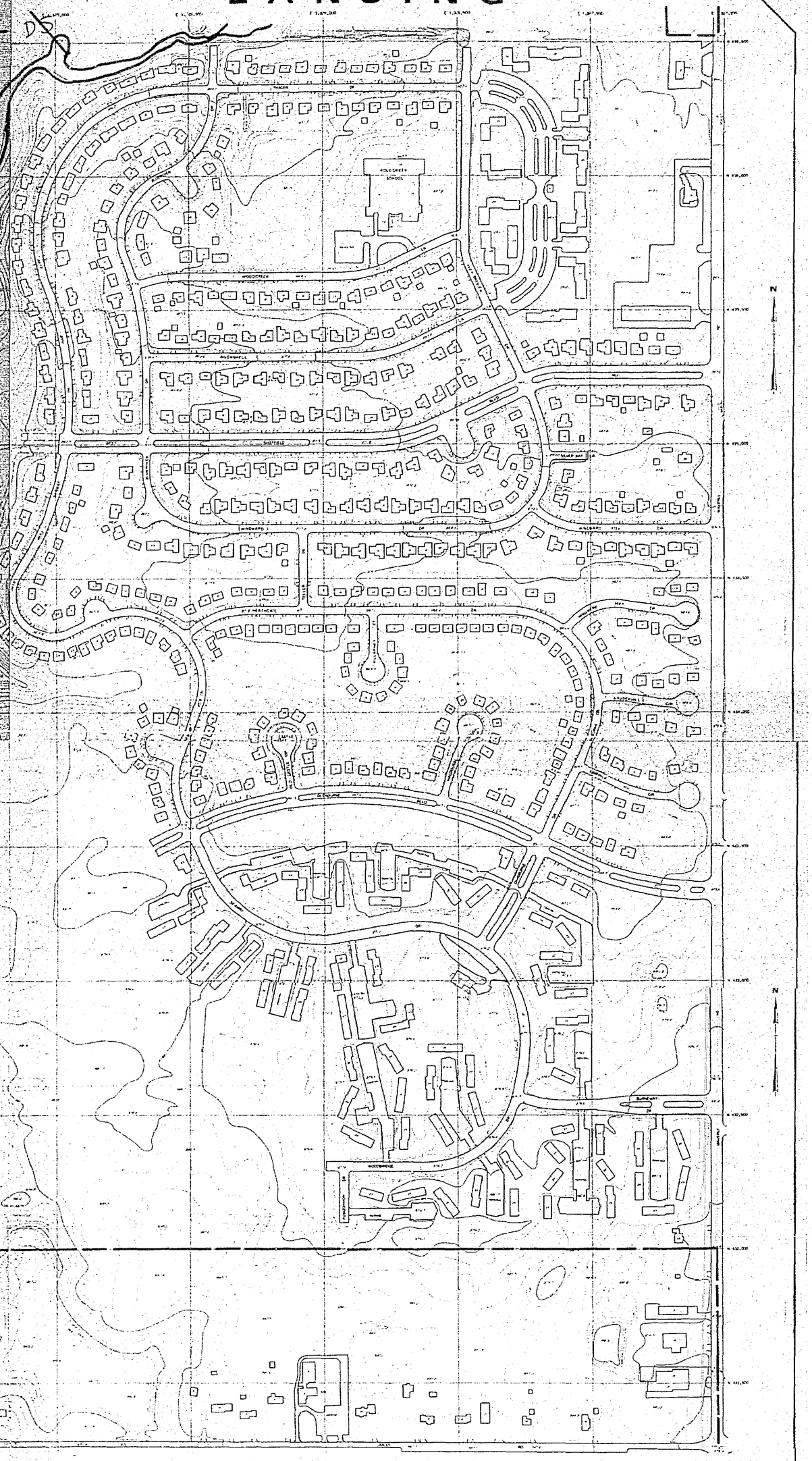
APPROXIMATE 100 YEAR FLOOD BOUNDARY

RECEIVED
AUG 17 1979
WATER MANAGEMENT

LANSING



LANSING



MAP COMPILED BY ABRAMS AERIAL SURVEY CORP.
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1978
SCALE 1" = 100' WITH 2' CONTOURS

DATUM NOTES — SPCS BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE LAMBERT PROJECTION HORIZONTAL CONTROL POINT ... LAN-11
ELEVATIONS BASED ON U.S.C.&G.S. DATUM VERTICAL CONTROL POINT ...

SW 1/4 SECTION 36

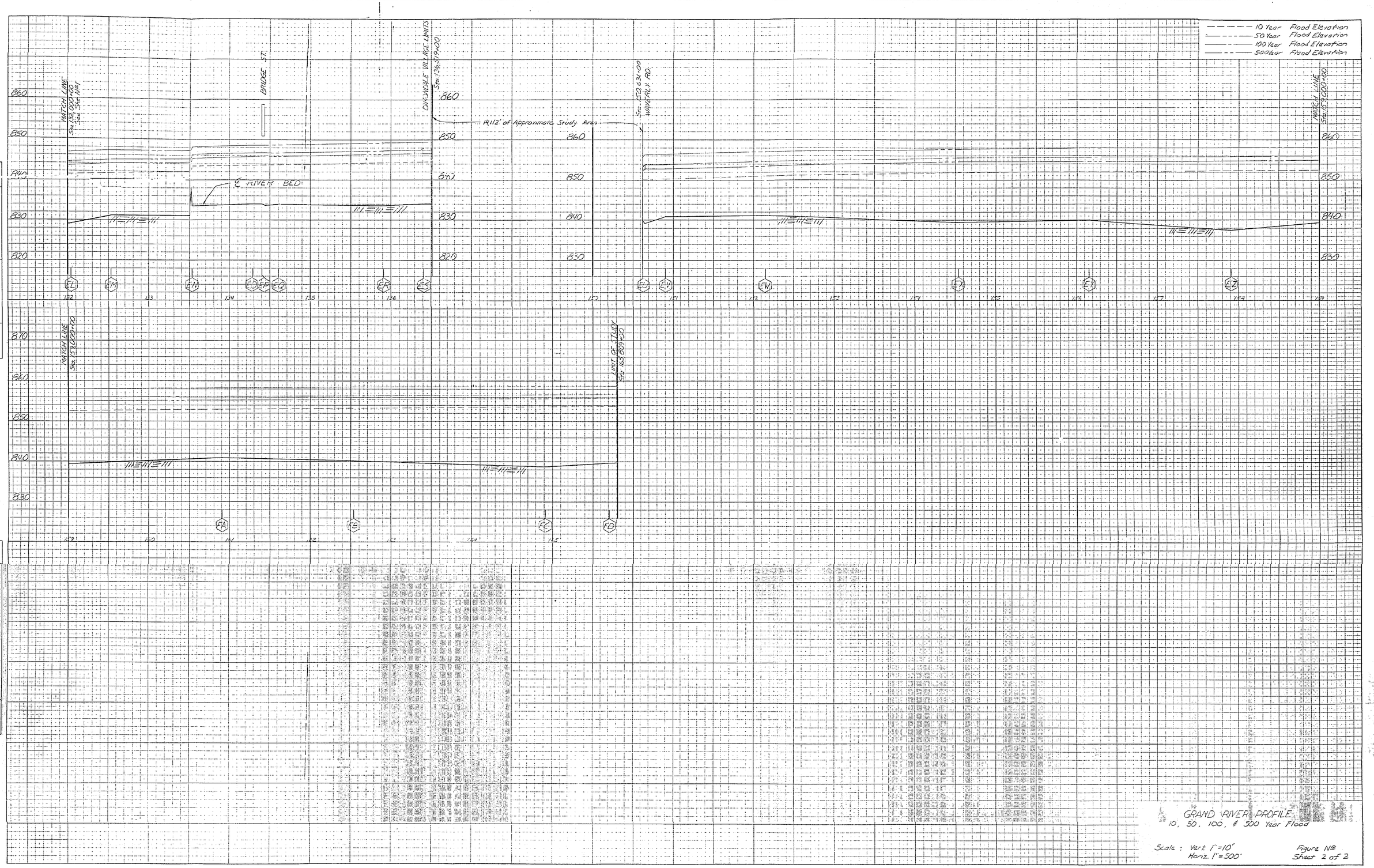
BLOCK SERIES
23-04-36-
CO TWP SEC

ED BY ABRAMS AERIAL SURVEY CORP.
R CITY OF LANSING, MICHIGAN
RAPHY APRIL 1978 MAPPING 1978
1" = 100' WITH 2' CONTOURS

DATUM NOTES — SPCS BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE LAMBERT PROJECTION HORIZONTAL CONTROL POINT ... LAN-11
ELEVATIONS BASED ON U.S.C.&G.S. DATUM VERTICAL CONTROL POINT ...

SE 1/4 SECTION 36

BLOCK SERIES NUMBER
23-04-36-400
CO TWP SEC



GRAND RIVER PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=500'

Figure No
Sheet 2 of 2

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO NEW YORK

NOTE: All elevations are referenced to U.S.G.S. elevations.

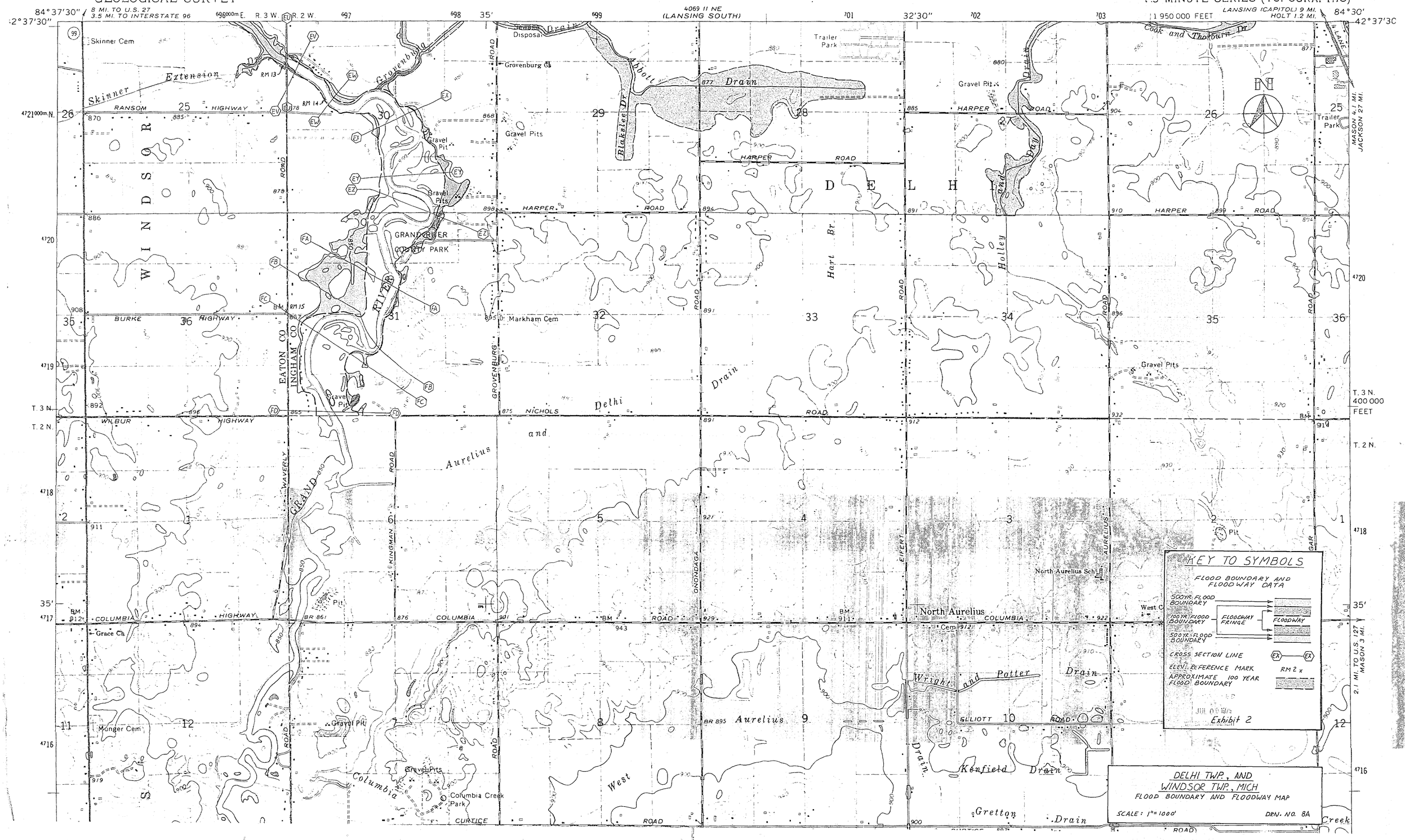
STREAM DISTANCE IN THOUSANDS OF FEET

FINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

AURELIUS QUADRANGLE
MICHIGAN
7.5 MINUTE SERIES (TOPOGRAPHIC)



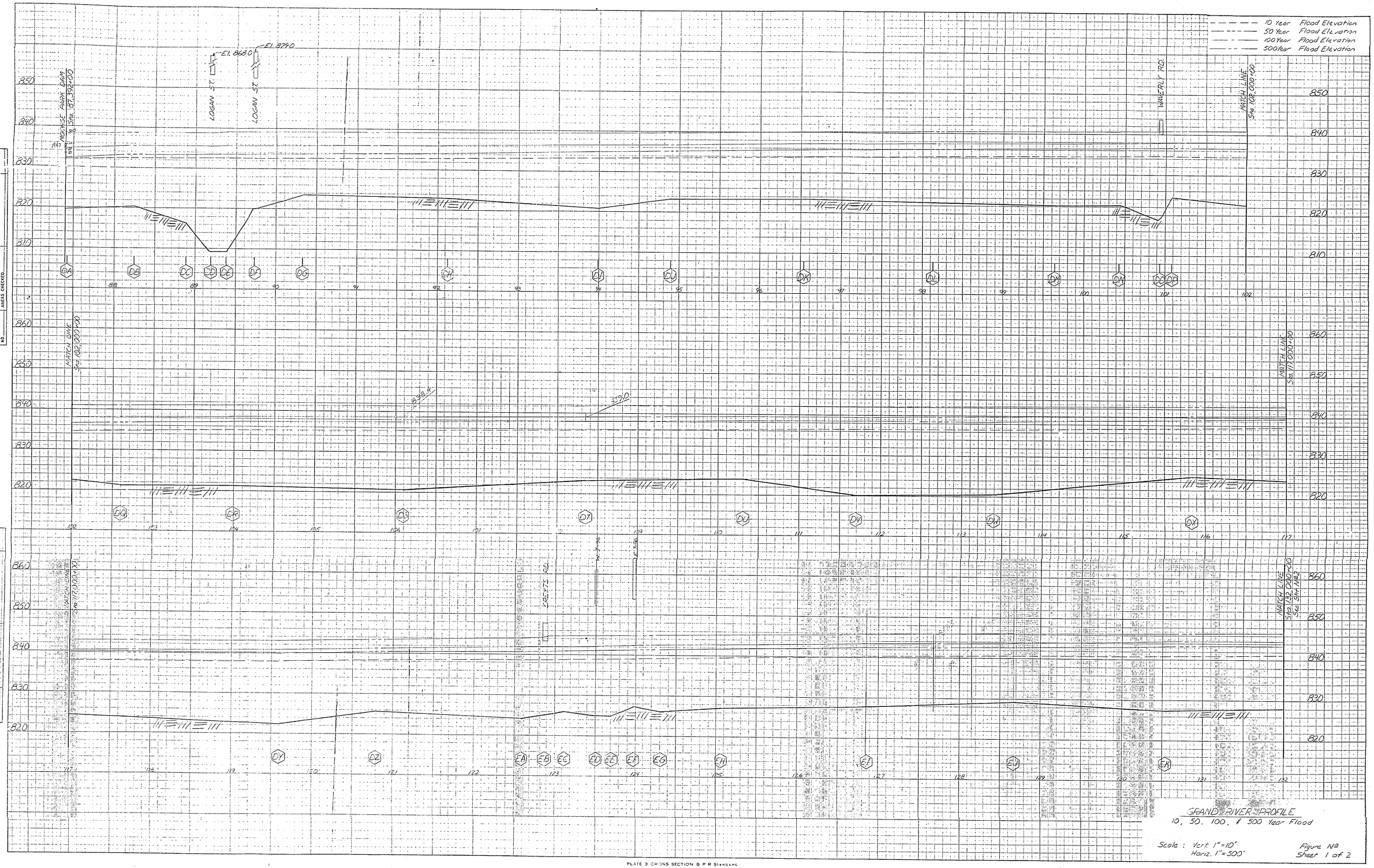
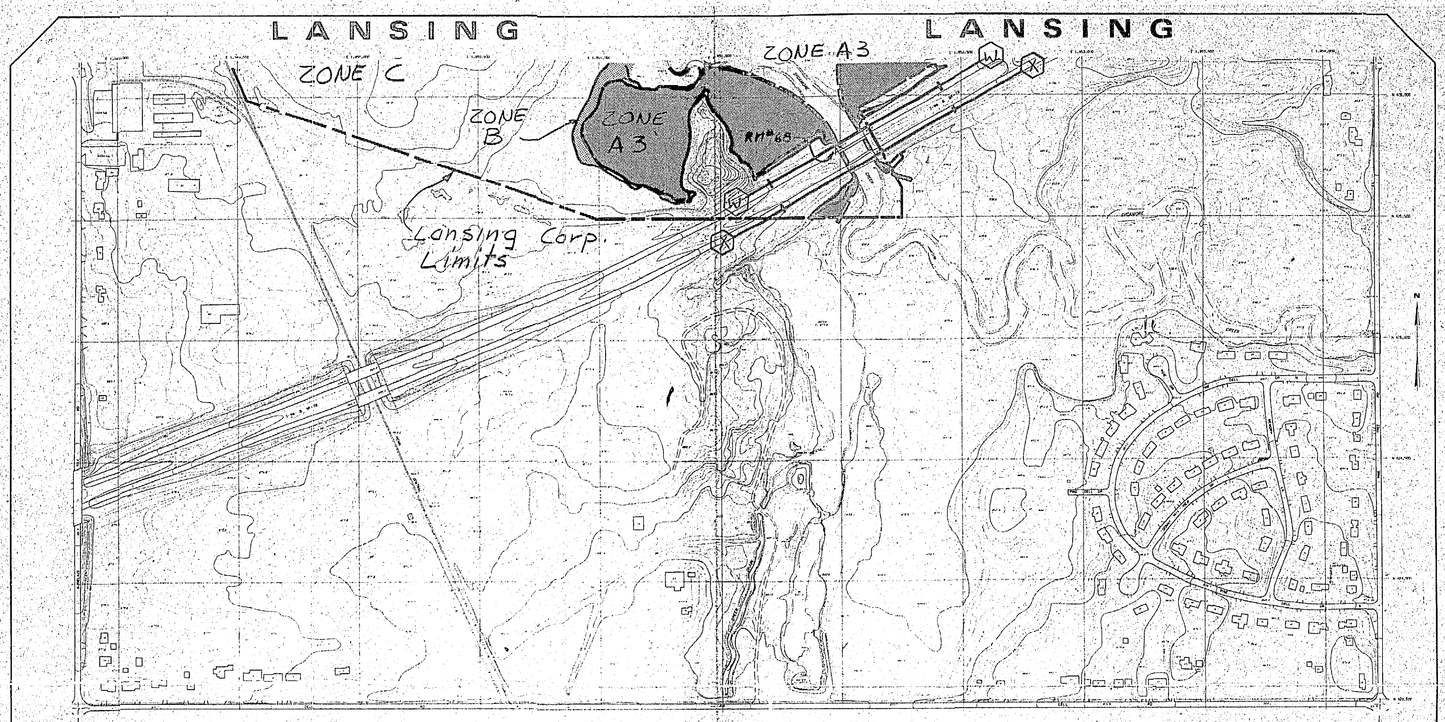


PLATE 3 CROSS SECTION B P R STANDARD

NOTE: All elevations are referenced to U.S.G.S. elevations.

STREAM DISTANCE IN THOUSANDS OF FEET



MAP COMPILED BY ABRAMS AERIAL SURVEY CORP
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1978
SCALE 1" = 100' WITH 2' CONTOURS

DATUM NOTES — MEAN SEA LEVEL DATUM BASED ON ELEVATIONS SHOWN ON FLINT CONTINENTAL SERIES (1941) AND ADJUSTMENTS MADE BY THE U.S. C. & G. S. IN 1947. ELEVATIONS SHOWN ON THIS MAP ARE IN FEET. ELEVATIONS BASED ON BENCH MARK DESCRIPTIONS PUBLISHED BY THE U.S. C. & G. S.

NW 1/4 SEC.
BLOCK SERIES NUMBER
33-06-11

COMPILED BY ABRAMS AERIAL SURVEY CORP
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1978
SCALE 1" = 100' WITH 2' CONTOURS

DATUM NOTES — MEAN SEA LEVEL DATUM BASED ON ELEVATIONS SHOWN ON FLINT CONTINENTAL SERIES (1941) AND ADJUSTMENTS MADE BY THE U.S. C. & G. S. IN 1947. ELEVATIONS BASED ON BENCH MARK DESCRIPTIONS PUBLISHED BY THE U.S. C. & G. S. DATUM

NE 1/4 SECTION 11
BLOCK SERIES NUMBER
33-06-11-200

62

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A3 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — W — W

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

*PROF 1

CCHV= .300 CEHV= .500
*SECNO 72.900

SECNO	DEPTH	QWSEL	QRIWS	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
72.90	22.16	827.96	0.00	0.00	828.14	.18	0.00	1.00	827.90
19400.	7.	19392.	1.	30.	5668.	9.	0.	0.	827.90
0.00	.22	3.42	.09	.052	.036	.052	0.000	805.50	276.11
.000142	0.	0.	0.	0	0	0	0.00	403.89	680.00

3470 ENCROACHMENT STATIONS= 1.0 680.0 TYPE= 1 TARGET= 579.000

CROSS SECTION IS LOCATED 55 FT. DOWNSTREAM FROM NORTH LANSING DAM

73.00	14.30	827.80	0.00	0.00	828.33	.53	.01	.17	827.80
19400.	8.	19392.	0.	21.	3318.	3.	6.	0.	827.80
.00	.38	5.85	.08	.052	.034	.052	.033	813.50	280.56
.000601	55.	55.	55.	2	0	0	0.00	353.28	680.00

*SECNO 73.100

CROSS SECTION IS LOCATED 40 FT. UPSTREAM FROM NORTH LANSING DAM

73.10	22.05	828.15	0.00	0.00	828.42	.27	.01	.08	827.90
19400.	8.	19174.	218.	31.	4553.	236.	9.	1.	827.90
.01	.26	4.21	.92	.052	.031	.052	.032	805.10	270.92
.000168	40.	40.	40.	2	0	0	0.00	451.03	721.96

CCHV= .100 CEHV= .300
*SECNO 74.000

3265 DIVIDED FLOW

flow down center ST.

74.00	21.85	828.25	0.00	0.00	828.52	.28	.10	.00	818.00
19400.	161.	18715.	524.	143.	4370.	283.	74.	7.	818.00
.04	1.13	4.28	1.85	.052	.032	.021	.032	805.40	109.12
.000188	505.	580.	630.	2	0	0	0.00	403.90	630.00

CCHV= .300 CEHV= .500
*SECNO 75.000

Where is the Bridge Rail Over Bridge R. BNSF

do the railroad track dip so the water can get back to the channel?

max typ width of soil

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TW	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= 838.20 ELREA= 827.51

75.00	21.08	828.28	0.00	0.00	828.57	.29	.04	.01	830.70
19400.	0.	18421.	979.	0.	4169.	900.	93.	9.	828.70
.06	0.00	4.42	1.09	.052	.031	.041	.032	807.20	37.81
.000227	150.	175.	175.	0	0	0	0.00	633.76	821.71

reduced 100 ft by lower stage not by restrictions

*SECNO 75.100

3265 DIVIDED FLOW

Grand River at Oakland

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 824.40 MAX ELLC= 833.60

where is this area? doesn't working

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 838.20 ELREA= 827.51

BT

75.10	21.06	828.26	0.00	0.00	828.58 *	.31	.00	.01	830.70
19400.	0.	18396.	1004.	0.	3992.	898.	94.	9.	828.70
.06	0.00	4.61	1.12	.052	.031	.052	.032	807.20	37.82
.000375	1.	1.	1.	1	0	0	-175.67	633.39	821.58

* This level is 10' over normal level

channel TW = 260

Bldg? 633 - 260 = 373.4

*SECNO 75.400

3265 DIVIDED FLOW

828.28
3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 824.40 MAX ELLC= 833.60
3.88

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 838.20 ELREA= 827.51

75.40	21.08	828.28	0.00	0.00	828.60	.31	.02	.00	830.70
19400.	0.	18392.	1008.	0.	3993.	901.	99.	9.	828.70
.06	0.00	4.61	1.12	.052	.031	.052	.032	807.20	37.80
.000375	50.	50.	50.	0	0	0	-176.21	633.95	821.77

*SECNO 75.500

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 838.20 ELREA= 827.50

INLET OAKLAND ST. BRIDGE

75.50	21.12	828.32	0.00	0.00	828.61	.29	.00	.01	830.70
19400.	0.	18401.	999.	0.	4160.	916.	99.	9.	828.70

.06	0.00	4.40	1.09	.052	.031	.041	.032	807.20	37.73
.000225	1.	1.	1.	2	0	0	0.00	641.45	822.65

*SECNO 77.000

77.00	20.50	828.50	0.00	0.00	828.70	.20	.07	.12	827.00
19400.	2.	17871.	1527.	8.	4740.	2388.	156.	17.	825.00
.09	.29	3.77	.64	.052	.031	.072	.031	803.00	130.00
.000150	450.	400.	425.	2	0	0	0.00	913.73	1040.74

CCHV= .300 CEHV= .500
*SECNO 79.000

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	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 833.00 ELREA= 829.00

79.00	18.53	828.53	0.00	0.00	828.84	.31	.08	.05	819.00
19400.	0.	18343.	1057.	0.	3996.	1638.	222.	25.	818.00
.12	0.00	4.59	.65	.036	.031	.082	.031	811.00	221.63
.000235	450.	450.	450.	2	0	0	0.00	755.56	1049.17

*SECNO 79.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 28 MIN ELTRD= 824.10 MAX ELLC= 826.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 832.00 ELREA= 829.01

79.10	18.47	828.47	0.00	0.00	828.90	.43	.00	.06	819.00
19400.	0.	18311.	1089.	0.	3378.	1567.	222.	25.	818.00
.12	0.00	5.42	.70	.036	.031	.155	.031	811.00	221.63
.000974	1.	1.	1.	2	0	0	-643.61	753.36	1049.17

*SECNO 79.400

3370 NORMAL BRIDGE,NRD= 32 MIN ELTRD= 824.10 MAX ELLC= 827.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 832.00 ELREA= 826.01

INLET SAGINAW ST. BRIDGE

79.40	18.54	828.54	0.00	0.00	829.00	.46	.08	.12	821.40
19400.	0.	18289.	1111.	0.	3251.	1592.	231.	27.	817.40
.12	0.00	5.63	.70	.036	.031	.165	.031	811.00	235.42
.001099	80.	80.	80.	1	0	0	-986.99	823.61	1059.02

*SECNO 79.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 832.60 ELREA= 828.00

79.50	18.74	828.74	0.00	0.00	829.05	.31	.00	.05	821.40
19400.	0.	19317.	1083.	0.	4016.	1991.	232.	27.	817.40
.12	0.00	4.56	.54	.036	.031	.103	.031	811.00	235.42
.000230	1.	1.	1.	2	0	0	0.00	823.62	1059.03

*SECNO 81.000

3470 ENCROACHMENT STATIONS= 150.0 1200.0 TYPE= 1 TARGET= -150.000

81.00	18.77	828.77	0.00	0.00	829.12	.35	.05	.02	818.50
19400.	685.	17717.	998.	1023.	3574.	1779.	261.	32.	818.10
.14	.67	4.96	.56	.093	.031	.103	.031	811.00	150.00
.000260	275.	200.	200.	2	0	0	0.00	1050.50	1200.00

CCHV= .300 CEHV= .500
*SECNO 82.000

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	IDC	ICONT	CORAR	TOPWID	ENDST
82.00	17.43	828.83	0.00	0.00	829.22	.39	.08	.02	829.90
19400.	843.	17741.	816.	434.	3390.	768.	291.	36.	830.00
.15	1.94	5.23	1.06	.036	.031	.052	.031	811.40	95.01
.000382	330.	250.	160.	0	0	0	0.00	705.81	1068.19

*SECNO 82.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD= 824.09 MAX ELLC= 828.60

82.10	17.32	828.72	0.00	0.00	829.33	.61	.00	.11	829.90
19400.	890.	17669.	840.	421.	2705.	730.	291.	36.	830.00
.15	2.12	6.53	1.15	.072	.031	.103	.031	811.40	95.01
.001875	1.	1.	1.	2	0	0	-658.39	693.53	1064.89

*SECNO 82.400

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 35 MIN ELTRD= 824.09 MAX ELLC= 828.60

82.40	18.37	828.77	0.00	0.00	829.36	.58	.02	.01	829.90
19400.	893.	17654.	854.	427.	2754.	750.	292.	36.	829.90
.15	2.09	6.41	1.14	.072	.031	.103	.031	811.40	95.01

.001798	13.	13.	13.	2	0	0	-676.18	705.89	1066.51

*SECNO 82.500

3265 DIVIDED FLOW

82.50	18.67	829.07	0.00	0.00	829.43	.36	.00	.07	829.90
19400.	885.	17615.	900.	463.	3502.	653.	292.	36.	829.90
.15	1.91	5.03	1.06	.036	.031	.052	.031	810.40	95.01
.000346	1.	1.	1.	2	0	0	0.00	725.67	1075.18

CCHV= .300 CEHV= .500

*SECNO 83.000

83.00	19.25	829.25	0.00	0.00	829.53	.28	.08	.02	822.00
19400.	1131.	17176.	1094.	2226.	3807.	797.	327.	41.	822.00
.17	.51	4.51	1.37	.124	.031	.036	.031	810.00	0.00
.000218	50.	325.	325.	2	0	0	0.00	965.96	966.96

*SECNO 85.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	SLOSS	BANK ELEV
Q	QLOB	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= 605.0 1500.0 TYPE= 1 TARGET= -605.000

85.00	18.96	829.36	0.00	0.00	829.66	.31	.12	.01	829.50
19400.	36.	18582.	783.	68.	4104.	512.	399.	50.	826.10
.20	.52	4.53	1.53	.036	.031	.026	.031	813.40	605.00
.000227	550.	525.	600.	2	0	0	0.00	573.69	1188.81

JUST DNSTR SHANNSSG

*SECNO 85.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD= 827.50 MAX ELLO= 843.20

3470 ENCROACHMENT STATIONS= 605.0 1500.0 TYPE= 1 TARGET= -605.000

85.10	18.85	829.25	0.00	0.00	829.77	.52	.00	.11	829.50
19400.	48.	18574.	778.	58.	3143.	453.	399.	51.	826.10
.20	.80	5.91	1.72	.036	.026	.036	.031	813.40	605.00
.000592	1.	1.	1.	2	0	0	-968.12	561.33	1185.19

*SECNO 85.400

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD= 827.50 MAX ELLO= 843.20

3470 ENCROACHMENT STATIONS= 605.0 1500.0 TYPE= 1 TARGET= -605.000

INLET SHIAWASSEE ST. BRIDGE

85.40	18.88	829.28	0.00	0.00	829.80	.52	.03	.00	829.50
19400.	50.	18558.	792.	61.	3146.	459.	403.	51.	826.10
.21	.81	5.90	1.73	.036	.026	.036	.031	811.40	605.00
.000589	52.	52.	52.	1	0	0	-972.12	553.74	1186.10

area blocked by u/s & d/s fills

*SECNO 85.500

3470 ENCROACHMENT STATIONS= 605.0 1500.0 TYPE= 1 TARGET= -605.000

85.50	19.17	829.57	0.00	0.00	829.87	.30	.00	.07	829.50
19400.	55.	18531.	814.	89.	4157.	564.	403.	51.	826.10
.21	.63	4.46	1.44	.036	.034	.031	.031	811.40	605.00
.000262	1.	1.	1.	2	0	0	0.00	591.14	1196.14

flow to go through bank to get around

*SECNO 86.000

3265 DIVIDED FLOW

86.00	19.59	829.59	0.00	0.00	830.04	.46	.10	.08	824.60
19400.	263.	18009.	1128.	138.	3212.	969.	435.	55.	823.10
.22	1.91	5.61	1.16	.036	.034	.072	.031	811.00	6.59
.000393	300.	300.	300.	2	0	0	0.00	453.83	476.18

10' fill placed by city appears to force water backing to channel

CCHV= .100 CEHV= .300

*SECNO 88.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
88.00	20.07	829.77	0.00	0.00	830.31	.54	.24	.03	829.00
19400.	8.	18824.	569.	17.	3152.	178.	486.	50.	818.00
.25	.45	5.97	3.20	.036	.034	.036	.032	809.70	1.50
.000428	500.	575.	675.	1	0	0	0.00	233.50	235.00

Con get back to area

Bldg

must have flow

*SECNO 89.000

DNR HIGHWATER MARK 824.08 200 FT. DOWNSTREAM OF SECTION 89.

EMORY ANI PORTER SURVEY HIGHWATER MARK 824.5 AT SECTION 89.

89.00	20.65	830.05	0.00	0.00	830.44	.39	.12	.02	830.50
19400.	0.	19400.	0.	0.	3864.	0.	512.	61.	831.60
.27	0.00	5.02	0.00	.052	.034	.052	.032	809.40	363.00
.000350	375.	310.	238.	2	0	0	0.00	230.00	593.00

SPECIAL BRIDGE

SB	XK	XKOR	DOFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD

1.05	1.56	2.60	0.00	140.00	7.00	3621.00	2.00	811.00	811.00

*SECNO 89.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 830.01 BRIDGE VELOCITY= 5.97 CALCULATED CHANNEL AREA= 3250.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	830.51	.02	0.	19400.	3621.	3589.	831.50	838.40

INLET EAST MICHIGAN AVE. BRIDGE

89.10	21.07	830.07	0.00	0.00	830.51	.44	.07	0.00	830.50
19400.	0.	19400.	0.	0.	3647.	0.	521.	62.	831.60
.27	0.00	5.32	0.00	.052	.034	.052	.032	809.00	363.00
.000412	103.	103.	103.	0	0	0	0.00	231.00	593.00

must be equal

*SECNO 90.000

3265 DIVIDED FLOW

90.00	20.83	830.23	0.00	0.00	830.64	.41	.13	.00	830.00
19400.	0.	18622.	778.	0.	3537.	550.	554.	54.	826.00
.29	.00	5.26	1.41	.052	.031	.052	.032	809.40	4.89
.000299	450.	375.	400.	0	0	0	0.00	323.11	655.00

CCHV= .100 CEHV= .300
*SECNO 91.000

3265 DIVIDED FLOW

DNR HIGHWATER MARK 824.93 150 FT. DOWNSTREAM OF SECTION 91.

91.00	21.10	830.50	0.00	0.00	830.81	.31	.15	.01	840.00
19400.	191.	18071.	1138.	234.	3930.	887.	616.	75.	824.00
.33	.82	4.60	1.28	.052	.031	.052	.032	809.40	0.00
.000226	650.	600.	550.	2	0	0	0.00	491.00	740.00

CCHV= .300 CEHV= .500
*SECNO 92.000

SECNO	DEPTH	QWSEL	QRIWS	WSELK	EG	HV	HL	BLOSS	BANK ELEV
Q	QLOB	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= 831.10 ELREA= 842.81

DNR HIGHWATER MARK 825.06 AT SECTION 92.

92.00	22.58	830.58	0.00	0.00	830.90	.32	.09	.01	832.60
19400.	0.	19400.	0.	0.	4276.	0.	659.	73.	822.00

.36	0.00	4.54	0.00	.052	.031	.052	.032	803.00	355.25
.000206	250.	400.	450.	1	0	0	0.00	245.36	600.61

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHO
	1.05	1.56	2.60	0.00	175.20	12.00	5826.00	.91	808.00	808.00

*SECNO 92.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 830.54 BRIDGE VELOCITY= 4.68 CALCULATED CHANNEL AREA= 4141.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	830.93	.02	0.	19400.	5826.	5477.	835.90	840.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.00 ELREA= 836.10

INLET EAST KALAMAZOO AVE. BRIDGE XSEC OBTAINED FROM PLANS OF NEW BRIDGE

92.50	22.61	830.61	0.00	0.00	830.93	.32	.02	0.00	832.60
19400.	0.	19400.	0.	0.	4280.	0.	666.	73.	822.00
.36	0.00	4.53	0.00	.052	.031	.052	.032	803.00	355.25
.000206	71.	71.	71.	0	0	0	0.00	245.36	600.61

*SECNO 93.000

3470 ENCROACHMENT STATIONS=		920.0	1250.0	TYPE=	1	TARGET=		330.000	
93.00	22.13	830.63	0.00	0.00	830.99	.36	.04	.02	823.50
19400.	238.	18535.	627.	176.	3766.	506.	686.	75.	825.50
.37	1.35	4.92	1.24	.052	.031	.052	.032	803.50	920.00
.000224	500.	200.	100.	2	0	0	0.00	330.00	1250.00

CCHV= .100 CEHV= .300
*SECNO 94.000

3470 ENCROACHMENT STATIONS=		190.0	850.0	TYPE=	1	TARGET=		660.000	
94.00	23.06	830.96	0.00	0.00	831.17	.21	.17	.01	823.00
19400.	4350.	14858.	192.	2504.	3592.	153.	795.	84.	822.00
.44	1.74	4.14	1.26	.041	.031	.041	.031	807.90	190.00
.000157	800.	900.	1050.	2	0	0	0.00	553.13	748.13

CCHV= .300 CEHV= .500
*SECNO 96.000

96.00	23.11	831.01	0.00	0.00	831.28	.27	.08	.03	824.70
19400.	3860.	14801.	739.	2107.	3193.	294.	856.	98.	820.50
.47	1.83	4.63	2.51	.036	.031	.036	.031	807.90	43.51
.000199	440.	450.	465.	2	0	0	0.00	596.50	640.02

*SECNO 96.100

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

3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD= 843.90 MAX ELLC= 845.20

OUTLET I-496 WESTBOUND

96.10	23.10	831.00	0.00	0.00	831.29	.29	.00	.01	824.70
19400.	3971.	14645.	784.	2006.	3027.	283.	856.	90.	820.50
.47	1.98	4.84	2.77	.036	.031	.036	.031	887.90	43.53
.000233	1.	1.	1.	1	0	0	-274.83	595.49	640.02

*SECNO 96.400

3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD= 843.90 MAX ELLC= 845.20

INLET I-496 WESTBOUND

96.40	23.12	831.02	0.00	0.00	831.31	.29	.02	.00	824.70
19400.	3979.	14637.	784.	2011.	3030.	284.	866.	91.	820.50
.48	1.98	4.83	2.77	.036	.031	.036	.031	887.90	43.50
.000233	85.	85.	85.	0	0	0	-275.21	595.52	640.02

*SECNO 96.500

96.50	23.15	831.05	0.00	0.00	831.32	.27	.00	.01	824.70
19400.	3867.	14773.	740.	2123.	3201.	296.	866.	91.	820.50
.48	1.83	4.62	2.50	.036	.031	.036	.031	887.90	43.41
.000197	1.	1.	1.	2	0	0	0.00	595.61	640.02

*SECNO 97.000

97.00	24.99	831.09	0.00	0.00	831.33	.25	.01	.01	821.10
19400.	4371.	15029.	0.	2117.	3413.	0.	875.	92.	831.50
.48	2.07	4.40	0.00	.036	.031	.036	.031	886.10	36.50
.000187	70.	70.	70.	2	0	0	0.00	586.30	542.79

*SECNO 97.100

3370 NORMAL BRIDGE,NRD= 46 MIN ELTRD= 843.90 MAX ELLC= 844.00

OUTLET I-496 EASTBOUND

97.10	24.96	831.06	0.00	0.00	831.36	.30	.00	.03	821.10
19400.	4053.	15347.	0.	1909.	3187.	0.	875.	92.	831.50
.48	2.12	4.82	0.00	.040	.031	.031	.031	886.10	36.55
.000244	1.	1.	1.	2	0	0	-421.16	586.21	542.76

*SECNO 97.400

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,NRO= 46 MIN ELTRD= 843.90 MAX ELLC= 844.00

INLET I-496 EASTBOUND

97.40	24.98	831.08	0.00	0.00	831.38	.30	.02	.00	821.10
19400.	4061.	15339.	0.	1914.	3191.	0.	886.	93.	831.50
.49	2.12	4.81	0.00	.040	.031	.031	.031	805.10	36.51
.000243	87.	87.	87.	0	0	0	-422.10	505.27	542.78

*SECNO 97.500

97.50	25.05	831.15	0.00	0.00	831.40	.24	.00	.02	821.10
19400.	4406.	14994.	0.	2138.	3426.	0.	886.	93.	831.50
.49	2.06	4.38	0.00	.036	.031	.036	.031	805.10	36.35
.000184	1.	1.	1.	2	0	0	0.00	505.52	542.87

1490 NH CARD USED

*SECNO 98.000

98.00	24.23	831.23	0.00	0.00	831.43	.20	.02	.01	820.00
19400.	3168.	15584.	668.	1215.	4094.	748.	901.	94.	817.00
.50	2.61	3.80	.89	.016	.031	.054	.032	807.00	20.23
.000110	10.	150.	250.	2	0	0	0.00	545.57	668.90

CCHV= .300 CEHV= .500

*SECNO 99.000

99.00	20.90	831.20	0.00	0.00	831.52	.32	.03	.06	818.00
19400.	2040.	16903.	458.	534.	3596.	457.	923.	96.	821.50
.51	3.82	4.70	1.00	.011	.031	.045	.032	813.30	19.84
.000240	60.	190.	300.	2	0	0	0.00	580.16	600.00

*SECNO 99.100

3370 NORMAL BRIDGE,NRO= 28 MIN ELTRD= 827.00 MAX ELLC= 828.80

99.10	20.83	831.13	0.00	0.00	831.59	.47	.00	.07	818.00
19400.	1409.	17480.	516.	451.	3068.	403.	923.	95.	821.50
.51	3.12	5.70	1.27	.027	.031	.072	.032	811.30	20.01
.001028	1.	1.	1.	2	0	0	-624.03	579.99	600.00

*SECNO 99.400

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

3370 NORMAL BRIDGE,NRO= 28 MIN ELTRD= 827.00 MAX ELLC= 828.80

99.40	20.87	831.17	0.00	0.00	831.63	.46	.04	.00	818.00
19400.	1436.	17449.	516.	457.	3068.	406.	927.	97.	821.50
.51	3.14	5.69	1.27	.027	.031	.072	.032	811.30	19.94

.001024	35.	35.	35.	1	0	0	-632.62	581.06	600.00

*SECNO 99.500

INLET RIVER ST. BRIDGE

99.50	21.06	831.36	0.00	0.00	831.67	.31	.00	.05	818.00
19400.	2034.	16873.	492.	568.	3630.	484.	927.	97.	821.50
.51	3.58	4.65	1.02	.012	.031	.045	.032	813.30	19.44
.000232	1.	1.	1.	2	0	0	0.00	580.56	600.00

*SECNO 100.000

3265 DIVIDED FLOW

100.00	21.39	831.39	0.00	0.00	831.69	.31	.01	.00	828.00
19400.	1369.	17499.	532.	312.	3886.	792.	933.	97.	826.00
.52	4.38	4.50	.67	.010	.031	.082	.032	813.00	25.81
.000202	70.	65.	25.	0	0	0	0.00	494.19	565.00

1490 NH CARD USED
*SECNO 101.000

3265 DIVIDED FLOW

CONFLUENCE RED CEDAR RIVER AND GRAND RIVER

101.00	22.13	831.63	0.00	0.00	831.78	.15	.04	.05	817.70
19400.	74.	18770.	556.	63.	6018.	818.	970.	101.	825.00
.54	1.16	3.12	.68	.031	.039	.052	.031	809.50	119.90
.000098	350.	275.	190.	2	0	0	0.00	587.10	807.00

CCHV= .100 CEHV= .300
*SECNO 102.000

3470 ENCROACHMENT STATIONS=			.0	330.0	TYPE=	1	TARGET=	329.999	
102.00	22.17	831.67	0.00	0.00	831.88	.21	.08	.02	817.30
10000.	293.	9364.	343.	203.	2459.	275.	1063.	108.	817.30
.60	1.45	3.81	1.25	.041	.031	.052	.031	809.50	147.50
.000119	650.	800.	1050.	2	0	0	0.00	182.50	330.00

CCHV= .300 CEHV= .500
*SECNO 104.000

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

3470 ENCROACHMENT STATIONS=			1.0	430.0	TYPE=	1	TARGET=	+29.000	

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 844.10 ELREA= 833.80

104.00	22.16	831.66	0.00	0.00	831.96	.29	.04	.04	820.30

10000.	0.	10000.	0.	0.	2303.	0.	1077.	109.	818.30
.62	0.00	4.34	0.00	.041	.031	.052	.031	809.50	78.00
.000187	275.	250.	150.	2	0	0	0.00	122.00	200.00

*SECNO 104.100

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 834.10 MAX ELLC= 839.50

3470 ENCROACHMENT STATIONS= 1.0 430.0 TYPE= 1 TARGET= .29.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 844.10 ELREA= 833.93

104.10	22.14	831.64	0.00	0.00	831.98	.34	.00	.02	820.30
10000.	0.	10000.	0.	0.	2135.	0.	1078.	109.	818.30
.62	0.00	4.68	0.00	.041	.031	.052	.031	809.50	78.00
.000325	1.	1.	1.	2	0	0	-264.17	122.00	200.00

*SECNO 104.400

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 836.80 MAX ELLC= 839.50

3470 ENCROACHMENT STATIONS= 1.0 430.0 TYPE= 1 TARGET= .29.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 844.10 ELREA= 833.80

INLET WASHINGTON AVE. BRIDGE

104.40	23.42	831.72	0.00	0.00	832.01	.29	.01	.01	817.30
10000.	0.	10000.	0.	0.	2311.	0.	1080.	109.	818.30
.62	0.00	4.33	0.00	.041	.031	.052	.031	809.30	78.00
.000257	52.	52.	52.	2	0	0	-436.49	122.00	200.00

*SECNO 104.500

3470 ENCROACHMENT STATIONS= 1.0 430.0 TYPE= 1 TARGET= 429.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 844.10 ELREA= 833.81

104.50	23.46	831.76	0.00	0.00	832.02	.26	.00	.01	817.30
10000.	0.	10000.	0.	0.	2449.	0.	1080.	109.	818.30
.62	0.00	4.08	0.00	.046	.034	.824	.031	809.30	78.00
.000183	1.	1.	1.	2	0	0	0.00	122.00	200.00

*SECNO 105.000

106.00	23.62	831.92	0.00	0.00	832.09	.16	.04	.03	825.90
10000.	26.	9702.	272.	38.	2955.	346.	1097.	110.	827.90
.64	.69	3.28	.79	.046	.034	.052	.031	809.30	32.27
.000121	375.	250.	150.	2	0	0	0.00	252.73	285.00

CCHV= .100 CEHV= .300

1490 NH CARD USED

*SECNO 107.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

```
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TW4    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      636.0  TYPE=       1  TARGET=     -100.000
     107.00      22.99     831.99       0.00       0.00     832.17       .18        .08        .01     818.20
     10000.       885.      8999.       115.      1282.      2507.       127.      1146.       115.      827.10
        .69        .69       3.59        .91        .082       .034       .052       .032     809.00     175.86
   .000149       630.       600.       470.          1          0          0       0.00     451.14     636.00


CCHV=     .300 CEHV=     .500
1490 NH CARD USED
*SECNO 108.000

3470 ENCROACHMENT STATIONS=       850.0     1250.0  TYPE=       1  TARGET=     -850.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       826.00 ELREA=       838.61

     108.00      20.92     832.02       0.00       0.00     832.22       .19        .04        .01     818.10
     10000.       246.      9754.         0.      1415.      2739.         0.      1172.       115.      818.10
        .72        .17       3.56       0.00       .415       .034       .052       .032     811.10     850.00
   .000137       275.       275.       275.          0          0          0       0.00     313.00    1163.00


1490 NH CARD USED
*SECNO 108.100

3370 NORMAL BRIDGE,NRO= 38 MIN ELTRD=   826.00 MAX ELLC=   835.10


3470 ENCROACHMENT STATIONS=       850.0     1250.0  TYPE=       1  TARGET=     -850.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       826.00 ELREA=       838.61

     108.10      20.91     832.01       0.00       0.00     832.23       .22        .00        .01     818.10
     10000.       135.      9865.         0.        59.      2620.         0.      1172.       115.      818.10
        .72       2.30       3.76       0.00       .031       .034       .052       .032     811.10     850.00
   .000163         1.         1.         1.          1          0          0 -1472.17     313.00    1163.00


1490 NH CARD USED
*SECNO 108.400

3370 NORMAL BRIDGE,NRO= 40 MIN ELTRD=   826.00 MAX ELLC=   835.10


3470 ENCROACHMENT STATIONS=       850.0     1250.0  TYPE=       1  TARGET=     -850.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       826.00 ELREA=       838.61

     108.40      21.31     832.01       0.00       0.00     832.24       .23        .01        .01     818.10
     10000.       140.      9860.         0.        59.      2560.         0.      1174.       115.      818.10
        .72       2.39       3.85       0.00       .031       .034       .052       .032     811.70     850.00
   .000176        32.        32.        32.          0          0          0 -1553.93     313.00    1163.00


1490 NH CARD USED
*SECNO 108.500
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3470 ENCROACHMENT STATIONS= 850.0 1250.0 TYPE= 1 TARGET= -850.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 826.00 ELREA= 838.50

108.50	21.35	832.05	0.00	0.00	832.25	.20	.00	.01	818.10
10000.	214.	9786.	0.	1495.	2686.	0.	1174.	118.	818.10
.72	.14	3.64	0.00	.550	.034	.052	.032	811.70	850.00
.000147	1.	1.	1.	2	0	0	0.00	313.00	1163.00

*SECNO 109.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	BLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
109.00	21.05	832.16	0.00	0.00	832.29	.13	.02	.02	820.00
10000.	1274.	8619.	107.	991.	2756.	111.	1191.	119.	820.00
.73	1.28	3.13	.97	.052	.034	.052	.032	811.10	0.00
.000109	200.	175.	200.	2	0	0	0.00	273.23	273.23

*SECNO 112.000

3470 ENCROACHMENT STATIONS= 350.0 650.0 TYPE= 1 TARGET= 300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.00 ELREA= 835.00

112.00	19.32	832.22	0.00	0.00	832.40	.18	.09	.02	817.90
10000.	0.	10000.	0.	0.	2908.	0.	1241.	122.	826.00
.79	0.00	3.44	0.00	.052	.034	.052	.032	812.90	420.00
.000170	650.	650.	650.	2	0	0	0.00	176.00	596.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.60	0.00	150.00	12.00	1956.00	.14	815.00	815.00

*SECNO 112.500
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
832.85	832.43	.02	0.	10000.	1956.	1815.	823.10	835.40

3470 ENCROACHMENT STATIONS= 350.0 650.0 TYPE= 1 TARGET= 300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.00 ELREA= 835.00

112.50	19.57	832.67	0.00	0.00	832.85	.18	.45	0.00	817.90
10000.	0.	10000.	0.	0.	2927.	0.	1243.	123.	827.80
.79	0.00	3.42	0.00	.052	.034	.052	.032	813.10	420.00
.000153	32.	32.	32.	2	0	0	0.00	176.00	596.00

```
*SECNO 113.000

3470 ENCROACHMENT STATIONS=        1.0      445.0   TYPE=      1  TARGET=      -1.000
    113.00      19.66     832.76      0.00      0.00     832.88       .12       .01       .02    820.00
    10000.       247.      9595.       158.      255.      3409.      167.      1251.      123.     820.00
       .80        .97       2.81        .95      .052       .034      .052       .032    813.10    142.02
   .000090        50.       100.       150.         2          0         0      0.00    281.27    423.29


*SECNO 114.000
    114.00      19.75     832.85      0.00      0.00     832.91       .06       .01       .02    831.70
    10000.       45.       9955.       0.       178.      4978.        0.      1266.      124.     842.70
       .82        .26       2.00      0.00      .052       .034      .052       .032    813.10    137.08
   .000055       100.       150.       175.         2          0         0      0.00    453.48    595.56


*SECNO 114.100
    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


3370 NORMAL BRIDGE,NRD= 30 MIN ELTRD=  831.00 MAX ELLC=  837.90

    114.10      19.74     832.84      0.00      0.00     832.92       .08       .00       .01    831.70
    10000.       74.       9926.       0.       177.      4297.        0.      1266.      124.     842.70
       .82        .42       2.31      0.00      .052       .034      .052       .032    813.10    137.25
   .000147         1.         1.         1.         1          0         0   -679.26    458.30    595.55


*SECNO 114.400

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  831.00 MAX ELLC=  837.90

    114.40      19.14     832.84      0.00      0.00     832.92       .08       .00       .00    831.70
    10000.       75.       9925.       0.       177.      4317.        0.      1269.      125.     842.70
       .82        .42       2.30      0.00      .052       .034      .052       .032    813.70    137.33
   .000152        26.        26.        26.         0          0         0   -709.75    451.28    595.62


*SECNO 114.500

        INLET ISLAND AVE BRIDGE

    114.50      19.17     832.87      0.00      0.00     832.93       .06       .00       .01    831.70
    10000.       46.       9954.       0.       181.      5036.        0.      1269.      125.     842.70
       .82        .25       1.98      0.00      .052       .034      .052       .032    813.70    136.32
   .000053         1.         1.         1.         2          0         0      0.00    459.37    595.69


1490 NH CARD USED
*SECNO 117.000
    117.00      19.90     832.90      0.00      0.00     832.94       .05       .01       .00    818.70
    10000.       246.      9547.       207.      414.      5397.      215.      1295.      127.     818.00
       .86        .59       1.77        .96      .041       .039      .034       .032    813.00      9.46
   .000039       150.       200.       225.         0          0         0      0.00    456.36    473.82
```

CCHV= .100 CEHV= .300
*SECNO 119.000

3265 DIVIDED FLOW

119.00	20.91	832.91	0.00	0.00	833.00	.09	.04	.01	820.00
10000.	209.	8005.	1786.	278.	3145.	1416.	1399.	137.	819.00
.96	.75	2.55	1.26	.052	.034	.038	.032	812.00	0.00
.000075	700.	800.	1100.	2	0	0	0.00	541.71	585.71

*SECNO 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	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CROSS SECTION LOCATED 250 FT. DOWNSTREAM FROM MOORES PARK DAM

120.00	21.90	833.00	0.00	0.00	833.03	.03	.02	.01	821.00
10000.	206.	8030.	1764.	371.	5820.	1693.	1478.	144.	817.70
1.07	.56	1.38	1.04	.052	.036	.041	.032	811.10	132.87
.000027	475.	500.	650.	2	0	0	0.00	609.24	742.11

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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C
T1       100 YEAR FLOOD
T2       FN=1.03
T3       GRAND RIVER   XSEC 72.9-120

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.  0.000000      0.00       0.0       0.   827.960     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000    -1.000     0.000     0.000     1.030     0.000     0.000     0.000     0.000

NC       .050       .050       .035       .300       .500       0.000       0.000       0.000       0.000       0.000
QT      5.000  10700.000  16600.000  19400.000  26800.000  11200.000       0.000       0.000       0.000       0.000
ET      0.000      9.100      9.100      9.100      9.100      9.100       9.100       9.100       1.000     680.000

        CROSS SECTION IS LOCATED 55 FT. DOWNSTREAM FROM NORTH LANSING DAM

X1     72.900     20.000    338.000    610.000      0.000      0.000       0.000       0.000       0.000       0.000
GR    836.300      0.000    832.500    100.000    830.700    200.000     827.100     300.000     827.600     330.000
GR    827.900    338.000    817.300    338.000    808.800    340.000     808.000     350.000     806.000     370.000
GR    806.400    415.000    805.800    480.000    807.800    525.000     808.800     610.000     827.900     610.000
GR    827.700    710.000    830.500    810.000    830.800    846.000     833.000     946.000     836.000    1046.000
ET      0.000      9.100      9.100      9.100      9.100      9.100       9.100       9.100       1.000     680.000
NC      0.000      0.000       .033      0.000      0.000      0.000       0.000       0.000       0.000       0.000

        NORTH LANSING DAM

X1     73.000     15.000    338.000    570.000     55.000     55.000      55.000       0.000       0.000       0.000
GR    836.300      0.000    832.500    100.000    830.700    200.000     827.100     300.000     827.600     330.000
GR    827.800    338.000    813.500    338.000    813.500    570.000     827.800     570.000     827.800     606.000
GR    827.700    706.000    830.500    806.000    830.800    836.000     833.000     936.000     836.100    1036.000
NC      0.000      0.000       .030      0.000      0.000      0.000       0.000       0.000       0.000       0.000

        CROSS SECTION IS LOCATED 40 FT. UPSTREAM FROM NORTH LANSING DAM

X1     73.100     17.000    325.000    570.000     40.000     40.000      40.000       0.000       0.000       0.000
X4      2.000    817.300    566.000    817.400    574.000      0.000       0.000       0.000       0.000       0.000
GR    836.300      0.000    832.500    100.000    830.700    200.000     827.100     300.000     827.900     325.000
GR    810.000    360.000    808.000    380.000    806.100    450.000     807.000     500.000     809.100     555.000
GR    827.900    570.000    827.900    606.000    827.700    706.000     830.500     806.000     830.800     836.000
GR    833.000    936.000    836.100   1036.000      0.000      0.000       0.000       0.000       0.000       0.000
NC      0.000       .020       .032       .100       .300      0.000       0.000       0.000       0.000       0.000

X1     74.000     15.000    137.000    380.000    505.000    630.000     580.000       0.000       0.000       0.000
GR    838.500      0.000    831.600    100.000    818.000    137.000     814.000     150.000     809.000     180.000
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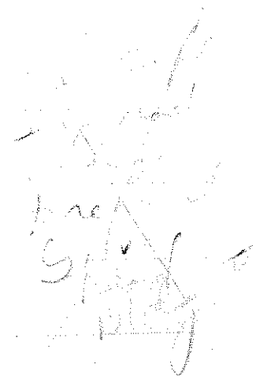
GR	806.400	220.000	810.100	270.000	809.500	320.000	812.000	360.000	818.000	380.000
GR	829.300	400.000	828.700	500.000	825.700	600.000	825.300	630.000	840.000	630.000
NC	.050	.040	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	75.000	28.000	28.000	306.010	150.000	175.000	175.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.200	827.500	0.000
GR	839.100	0.000	838.200	15.000	830.700	28.000	830.700	28.010	830.700	33.000
GR	817.600	59.000	809.400	114.000	809.400	114.010	810.900	118.000	810.900	118.010
GR	807.400	169.000	808.400	214.000	808.400	214.010	807.200	218.000	807.200	218.010
GR	817.600	287.000	825.200	299.000	825.200	304.000	825.200	304.010	828.700	306.000
GR	828.700	306.010	829.600	400.000	827.000	500.000	824.700	600.000	824.400	700.000
GR	827.300	800.000	831.800	900.000	837.100	1000.000	0.000	0.000	0.000	0.000
NC	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	75.100	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	838.200	827.500	0.000
BT	28.000	0.000	839.100	0.000	15.000	838.810	0.000	28.000	838.600	838.700
BT	28.010	841.700	833.600	33.000	841.700	833.600	39.000	841.200	833.100	114.000
BT	840.300	832.500	114.010	840.300	809.400	118.000	840.300	810.900	118.010	840.300
BT	832.500	169.000	839.300	831.200	214.000	838.100	830.000	214.010	838.100	808.400
BT	218.000	838.100	807.200	218.010	838.100	830.000	287.000	836.100	826.000	299.000
BT	835.700	827.600	304.000	835.600	827.500	304.010	835.600	825.200	306.000	835.500
BT	0.000	306.010	832.400	0.000	400.000	829.600	0.000	500.000	827.000	0.000
BT	600.000	824.700	0.000	700.000	824.400	0.000	800.000	827.300	0.000	900.000
BT	831.800	0.000	1000.000	837.100	0.000	0.000	0.000	0.000	0.000	0.000
X1	75.400	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
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.200	827.500	0.000
NC	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

INLET OAKLAND ST. BRIDGE

X1	75.500	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	838.200	827.500	0.000
NC	0.000	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	77.000	33.000	141.000	426.000	450.000	425.000	450.000	0.000	0.000	0.000
GR	838.000	0.000	835.500	86.000	836.500	113.000	828.500	130.000	827.000	141.000
GR	818.000	154.000	811.000	185.000	810.000	240.000	810.500	251.000	809.500	264.000
GR	810.000	275.000	808.000	313.000	809.000	337.000	810.500	385.000	815.500	395.000
GR	816.000	409.000	825.000	426.000	824.500	516.000	824.500	619.000	823.500	667.000
GR	824.500	770.000	824.500	822.000	823.500	927.000	828.000	1027.000	830.000	1082.000
GR	832.000	1117.000	834.000	1142.000	836.000	1267.000	835.000	1352.000	834.000	1425.000
GR	834.000	1565.000	836.000	1635.000	838.000	1825.000	0.000	0.000	0.000	0.000
NC	.035	.080	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	79.000	28.000	225.000	475.010	450.000	450.000	450.000	.985	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	828.000	0.000
GR	838.000	0.000	835.300	100.000	832.900	200.000	819.000	225.000	819.000	225.010
GR	818.000	228.000	810.500	285.000	810.500	285.010	811.000	289.000	811.000	289.010
GR	810.000	348.000	810.000	348.010	810.000	352.000	810.000	352.010	810.300	411.000
GR	810.300	411.010	810.800	415.000	810.800	415.010	818.000	475.000	818.000	475.010
GR	830.200	484.000	827.500	600.000	825.700	700.000	824.100	800.000	824.100	900.000
GR	825.100	1000.000	825.600	1065.000	845.000	1066.000	0.000	0.000	0.000	0.000



100 yr. Flood- Use "Encroached" Run which is in packet x SECNO 72.9-120

NC	0.000	.150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	79.100	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	.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	832.000	828.000	0.000
BT	28.000	0.000	838.000	0.000	100.000	835.300	0.000	200.000	832.900	0.000
BT	225.000	832.300	819.000	225.010	836.450	828.000	228.000	836.250	828.000	285.000
BT	835.820	827.450	285.010	835.820	810.500	289.000	835.780	811.000	289.010	835.780
BT	827.380	348.000	835.230	826.810	348.010	835.230	810.000	352.000	835.190	810.000
BT	352.010	835.190	826.780	411.000	834.970	826.210	411.010	834.970	810.300	415.000
BT	834.960	810.800	415.010	834.960	826.170	475.000	834.000	825.600	475.010	830.350
BT	818.000	484.000	830.200	0.000	600.000	827.500	0.000	700.000	825.700	0.000
BT	800.000	824.100	0.000	900.000	824.100	0.000	1010.000	825.100	0.000	1065.000
BT	825.600	0.000	1066.000	845.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.160	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

INLET SAGINAW ST. BRIDGE

X1	79.400	32.000	239.000	489.010	80.000	80.000	30.000	.985	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	832.000	828.000	0.000
BT	32.000	0.000	838.000	0.000	80.000	835.840	0.000	100.000	835.300	0.000
BT	114.000	834.960	0.000	200.000	832.900	0.000	230.000	832.600	0.000	234.000
BT	832.560	0.000	239.000	832.520	621.400	239.010	836.170	827.600	245.000	836.130
BT	827.540	299.000	835.700	827.020	299.010	835.700	810.500	303.000	835.660	812.200
BT	303.000	835.660	826.980	362.000	835.130	826.400	362.010	835.130	810.300	366.000
BT	835.120	810.300	366.010	835.120	826.380	425.000	834.860	825.810	425.010	834.860
BT	810.000	429.000	834.790	810.300	429.010	834.790	825.770	489.000	833.650	825.200
BT	489.010	830.000	817.400	522.000	829.310	0.000	610.000	827.500	0.000	700.000
BT	825.700	0.000	800.000	824.100	0.000	900.000	824.100	0.000	1000.000	825.100
BT	0.000	1075.000	825.000	0.000	1076.000	845.000	0.000	0.000	0.000	0.000
GR	838.000	0.000	836.400	80.000	829.870	100.000	835.700	114.000	824.760	200.000
GR	824.440	230.000	824.400	234.000	821.400	239.000	821.400	239.010	818.000	245.000
GR	810.500	299.000	810.500	299.010	812.200	303.000	812.200	303.010	810.300	362.000
GR	810.300	362.010	810.300	366.000	810.300	366.010	810.000	425.000	810.000	425.010
GR	810.300	429.000	810.300	429.010	817.400	489.000	817.400	489.010	826.800	522.000
GR	828.100	600.000	825.700	700.000	824.100	800.000	824.100	900.000	825.100	1000.000
GR	825.600	1075.000	845.000	1076.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	79.500	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	832.600	828.000	0.000
NC	.090	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	81.000	17.000	400.000	620.000	275.000	200.000	230.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	150.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.000	0.000	824.000	0.000	824.000	80.000	825.500	110.000	825.000	285.000
GR	824.000	385.000	818.500	400.000	811.000	455.000	810.000	510.000	810.800	565.000
GR	818.100	623.000	824.000	645.000	824.500	715.000	826.000	1000.000	828.000	1135.000
GR	828.700	1200.000	840.000	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.050	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	82.000	43.000	518.000	814.000	330.000	160.000	250.000	.829	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.000	828.000	0.000
GR	835.000	95.000	825.900	95.010	824.090	141.000	824.900	200.000	825.800	215.000
GR	830.100	252.000	832.100	300.000	831.600	400.000	831.200	441.000	829.100	460.000

GR	829.400	500.000	829.900	518.000	829.800	523.000	826.600	523.010	826.600	525.000
GR	825.000	525.010	825.800	533.000	822.300	533.010	818.100	548.000	811.800	619.000
GR	811.800	619.010	811.900	625.000	811.900	625.010	811.600	713.000	811.600	713.010
GR	811.400	719.000	811.400	719.010	818.100	802.000	820.000	805.000	824.900	805.010
GR	824.900	813.000	826.600	813.010	830.000	814.000	827.500	900.000	825.700	1000.000
GR	825.300	1100.000	826.900	1200.000	829.700	1300.000	830.000	1350.000	840.000	1350.010
NC	.070	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	82.100	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	.829	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.000	828.000	0.000
BT	40.000	95.000	835.000	0.000	95.010	825.900	0.000	141.000	824.090	0.000
BT	200.000	824.900	0.000	215.000	825.800	0.000	252.000	830.100	0.000	300.000
BT	832.100	0.000	400.000	831.600	0.000	441.000	831.200	0.000	460.000	825.100
BT	0.000	500.000	829.400	0.000	518.000	829.900	0.000	523.000	829.800	0.000
BT	523.010	829.900	826.600	525.000	829.900	826.600	525.010	829.900	826.600	533.000
BT	829.900	826.600	533.010	829.900	826.600	548.000	829.900	826.600	619.000	829.900
BT	826.600	619.010	829.900	811.800	625.000	829.900	811.900	625.010	829.900	826.600
BT	713.000	829.900	826.600	713.010	829.900	811.600	713.000	829.900	811.400	719.010
BT	829.900	826.600	802.000	829.900	826.600	805.000	829.900	826.600	805.010	829.900
BT	826.600	813.000	829.900	826.600	813.010	829.900	826.600	814.000	830.000	0.000
BT	900.000	827.500	0.000	1000.000	825.700	0.000	1100.000	825.300	0.000	1200.000
BT	826.900	0.000	1300.000	829.700	0.000	1350.000	830.000	0.000	1350.010	840.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	82.400	35.000	518.000	812.000	13.300	13.300	13.300	.829	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.829	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.000	828.000	0.000
BT	35.000	95.000	835.000	0.000	95.010	825.900	0.000	141.000	824.090	0.000
BT	200.000	824.900	0.000	215.000	825.800	0.000	252.000	830.100	0.000	300.000
BT	832.100	0.000	400.000	831.600	0.000	441.000	831.200	0.000	460.000	829.100
BT	0.000	500.000	829.400	0.000	518.000	829.900	826.600	518.010	829.900	826.600
BT	528.000	829.900	826.600	528.010	828.900	826.600	614.000	829.900	826.600	614.010
BT	829.900	810.400	620.000	829.900	811.600	620.010	829.900	826.600	708.000	829.900
BT	826.600	708.010	829.900	812.400	714.000	829.900	812.200	714.010	829.900	826.600
BT	788.000	829.900	826.600	800.000	829.900	826.600	810.010	829.900	826.600	810.000
BT	829.900	826.600	812.000	829.900	826.600	900.000	827.500	0.000	1000.000	825.700
BT	0.000	1100.000	825.300	0.000	1200.000	826.900	0.000	1300.000	829.700	0.000
BT	1350.000	830.000	0.000	1350.010	840.000	0.000	0.000	0.000	0.000	0.000
GR	835.000	95.000	825.900	95.010	824.090	141.000	824.900	200.000	825.800	215.000
GR	830.100	252.000	832.100	300.000	831.600	400.000	831.200	441.000	829.100	460.000
GR	829.400	500.000	829.900	518.000	824.900	518.010	824.900	528.000	817.800	528.010
GR	810.400	614.000	810.400	614.010	811.600	620.000	811.600	620.010	812.400	708.000
GR	812.400	708.010	812.200	714.000	812.200	714.010	818.100	788.000	821.600	800.000
GR	825.000	800.010	825.000	810.000	829.900	812.000	827.500	900.000	825.700	1000.000
GR	825.300	1100.000	826.900	1200.000	829.700	1300.000	830.000	1350.000	840.000	1350.010
NC	.035	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	82.500	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	828.000	828.000	0.000
NC	.120	.035	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	83.000	15.000	470.000	705.000	50.000	325.000	325.000	0.000	0.000	0.000
GR	840.000	0.000	826.000	0.000	824.000	330.000	824.000	380.000	822.000	470.000
GR	820.000	471.000	818.500	475.000	811.000	530.000	810.000	585.000	810.800	640.000
GR	818.500	695.000	822.000	705.000	824.000	735.000	830.000	1000.000	834.000	1050.000
NC	.035	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	85.000	53.000	705.000	951.000	550.000	600.000	525.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	605.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	841.200	0.000	828.200	400.000	827.500	500.000	827.700	600.000	829.500	700.000
GR	829.500	700.100	829.500	705.000	817.900	705.100	816.100	711.000	816.100	711.100
GR	812.700	732.000	812.300	746.000	811.400	776.000	811.400	776.100	810.900	782.000
GR	810.900	782.100	810.900	816.000	811.900	852.000	811.900	852.100	811.900	858.000
GR	811.900	858.100	811.600	864.000	810.400	891.000	811.800	901.000	817.200	940.000
GR	817.900	945.000	817.900	945.100	826.100	951.000	826.100	951.100	826.500	972.000
GR	827.000	993.500	827.000	993.600	827.000	997.500	827.000	997.600	827.000	1019.000
GR	827.000	1040.700	827.000	1040.800	827.000	1044.700	827.000	1044.800	827.000	1111.000
GR	827.000	1111.100	827.000	1115.000	827.000	1115.100	827.400	1134.500	827.700	1154.000
GR	827.700	1154.100	827.800	1158.000	827.800	1158.100	827.900	1160.000	829.100	1180.000
GR	829.100	1180.100	835.600	1400.000	839.300	1500.000	0.000	0.000	0.000	0.000
NC	.035	.035	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	85.100	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	605.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	49.000	0.000	841.200	0.000	400.000	828.200	0.000	500.000	827.500	0.000
BT	600.000	827.700	0.000	700.000	829.500	0.000	710.100	832.500	0.000	711.000
BT	833.000	816.100	711.100	833.000	823.000	746.000	834.700	829.000	766.000	836.200
BT	823.000	776.100	836.200	811.400	782.000	836.400	810.900	782.100	836.400	822.900
BT	816.000	838.100	832.000	852.000	839.900	823.900	852.100	839.900	811.900	858.000
BT	840.200	811.900	858.100	840.200	823.900	864.000	840.500	832.500	901.000	842.500
BT	836.800	940.000	844.500	832.500	945.000	844.700	830.000	945.100	844.700	817.900
BT	951.000	845.000	826.100	951.100	845.000	836.800	872.000	845.900	836.500	993.500
BT	846.900	838.100	993.600	846.900	827.000	997.500	847.100	827.000	997.600	841.100
BT	838.100	1019.000	848.000	841.300	1040.700	849.000	835.500	1040.800	849.000	827.000
BT	1044.700	849.000	827.000	1044.800	849.000	843.200	1111.000	848.500	843.200	1111.000
BT	848.500	827.000	1115.000	848.400	827.000	1115.000	846.400	838.500	1134.500	847.400
BT	840.700	1154.000	846.300	837.500	1154.100	846.300	827.700	1158.000	846.100	827.800
BT	1158.100	846.100	837.500	1160.000	845.900	839.600	1130.000	844.600	836.200	1180.100
BT	844.600	829.100	1400.000	835.600	0.000	1500.000	839.300	0.000	0.000	0.000

INLET SHIAWASSEE ST. BRIDGE

X1	85.400	0.000	0.000	0.000	51.500	51.500	51.500	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	605.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.030	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	85.500	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	605.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	86.000	20.000	67.000	250.000	300.000	300.000	310.000	0.000	0.000	0.000
GR	838.400	0.000	827.700	8.000	826.700	18.000	833.000	37.000	824.900	50.000
GR	824.600	67.000	818.100	67.000	815.100	67.000	811.300	90.000	810.000	120.000
GR	810.200	150.000	811.100	180.000	812.000	210.000	813.700	230.000	817.000	240.000
GR	823.100	250.000	824.400	350.000	827.600	450.000	831.400	500.000	634.600	650.000
NC	0.000	.035	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	88.000	15.000	45.000	215.000	500.000	675.000	575.000	0.000	0.000	0.000
GR	860.000	0.000	829.600	0.000	829.000	45.000	818.000	45.000	815.000	45.000
GR	812.000	75.000	810.300	105.000	809.800	135.000	819.700	165.000	810.000	195.000

GR	814.000	205.000	818.000	215.000	820.000	222.000	823.800	235.000	860.000	235.000
NC	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DNR HIGHWATER MARK 824.08 200 FT. DOWNSTREAM OF SECTION 89.

EMORY AND PORTER SURVEY HIGHWATER MARK 824.5 AT SECTION 89.

X1	89.000	25.000	363.000	593.000	375.000	238.000	310.000	0.000	0.000	0.000
GR	842.000	0.000	840.400	100.000	838.900	200.000	837.400	300.000	837.300	361.000
GR	830.500	363.000	829.400	363.000	829.400	365.000	818.000	365.000	809.400	400.000
GR	809.800	470.000	813.500	486.000	813.900	540.000	815.000	585.000	820.900	587.000
GR	822.400	587.000	822.400	590.000	829.100	590.000	829.100	593.000	831.600	593.000
GR	838.400	595.000	839.400	700.000	840.900	800.000	841.500	900.000	842.000	1000.000
SB	1.050	1.560	2.600	0.000	140.000	7.000	3621.000	2.000	811.000	811.000

INLET EAST MICHIGAN AVE. BRIDGE

X1	89.100	28.000	363.000	593.000	103.000	103.000	113.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	831.600	838.401	0.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	842.000	0.000	100.000	840.400	0.000	200.000	838.900	0.000
BT	300.000	837.400	0.000	361.000	837.300	0.000	351.000	841.500	0.000	363.000
BT	841.500	0.000	363.000	841.500	830.500	400.000	841.700	830.700	593.000	842.600
BT	831.600	593.000	842.600	0.000	595.000	842.600	0.000	595.000	838.400	0.000
BT	700.000	839.400	0.000	800.000	840.900	0.000	900.000	841.500	0.000	1000.000
BT	842.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	842.000	0.000	840.400	100.000	838.900	200.000	837.400	300.000	837.300	361.000
GR	837.300	361.000	830.500	363.000	829.400	363.000	829.400	365.000	822.500	365.000
GR	818.000	385.000	813.500	400.000	809.000	470.000	809.700	486.000	814.500	540.000
GR	818.000	568.000	820.900	537.000	822.401	587.000	822.400	590.000	829.100	590.000
GR	829.100	593.000	831.600	593.000	838.400	595.000	838.400	595.000	839.400	700.000
GR	840.900	800.000	841.500	900.000	842.000	1000.000	0.000	0.000	0.000	0.000
NC	.050	.050	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	90.000	17.000	5.000	220.000	450.000	400.000	375.000	0.000	0.000	0.000
GR	840.000	0.000	830.000	5.000	818.000	25.000	813.000	35.000	811.000	70.000
GR	809.400	135.000	811.500	160.000	814.000	190.000	820.000	205.000	826.000	220.000
GR	826.000	225.000	840.000	225.000	840.000	555.000	827.000	555.000	824.000	610.000
GR	824.500	655.000	840.000	655.000	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

DNR HIGHWATER MARK 824.93 150 FT. DOWNSTREAM OF SECTION 91.

X1	91.000	19.000	220.000	455.000	650.000	550.000	610.000	0.000	0.000	0.000
GR	840.000	0.000	828.000	0.000	827.500	85.000	840.000	85.000	840.000	220.000
GR	824.000	220.000	818.000	245.000	813.000	255.000	819.400	355.000	814.000	410.000
GR	818.000	440.000	824.000	455.000	824.200	505.000	840.000	505.000	840.000	620.000
GR	824.000	620.000	824.800	685.000	830.000	740.000	840.000	740.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

DNR HIGHWATER MARK 825.06 AT SECTION 92.

X1	92.000	28.000	456.000	771.000	250.000	450.000	410.000	.779	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	842.800	0.000
GR	839.000	0.000	837.000	100.000	835.500	200.000	835.000	300.000	837.000	400.000
GR	832.600	456.000	827.000	456.100	821.000	475.000	821.000	500.000	812.500	520.000
GR	809.000	550.000	808.500	580.000	808.000	600.000	808.600	650.000	812.500	700.000

GR	816.000	737.000	816.300	743.000	818.000	759.000	822.000	771.000	822.500	805.000
GR	827.000	812.000	827.000	862.000	836.100	862.100	536.500	900.000	836.500	950.000
GR	841.500	1000.000	842.000	1100.000	843.000	1200.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	175.200	12.000	5826.000	.910	808.000	808.000

INLET EAST KALAMAZOO AVE. BRIDGE XSEC OBTAINED FROM PLANS OF NEW BRIDGE

X1	92.500	0.000	0.000	0.000	71.000	71.000	71.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	836.900	840.100	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	836.000	836.100	0.000
BT	21.000	0.000	839.000	0.000	100.000	837.000	0.000	200.000	835.500	0.000
BT	300.000	835.500	0.000	300.100	835.100	0.000	350.000	835.800	0.000	393.000
BT	836.800	0.000	393.100	839.800	0.000	399.000	840.100	827.000	399.100	840.100
BT	831.100	500.000	842.800	839.800	600.000	844.900	841.900	700.000	846.000	843.000
BT	804.000	845.800	842.800	804.100	845.800	827.000	830.000	845.500	0.000	830.100
BT	842.500	0.000	900.000	841.800	0.000	1000.000	841.200	0.000	1100.000	842.000
BT	0.000	1200.000	843.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	920.000	1250.000

X1	93.000	24.000	945.000	1150.000	500.000	100.000	210.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	60.000	836.000	130.000	830.000	250.000	828.000	315.000
GR	826.000	485.000	824.000	665.000	824.100	705.000	824.000	730.000	824.000	860.000
GR	823.500	945.000	817.600	960.000	808.500	1000.000	810.000	1100.000	811.000	1120.000
GR	825.500	1150.000	825.000	1170.000	825.500	1180.000	825.600	1200.000	826.000	1260.000
GR	834.000	1370.000	836.000	1450.000	838.000	1465.000	840.000	1545.000	0.000	0.000
NC	.040	.040	.030	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	190.000	850.000

X1	94.000	19.000	515.000	710.000	800.000	1050.000	910.000	0.000	0.000	0.000
X4	1.000	840.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	825.000	1.000	823.500	250.000	821.200	250.000	822.200	280.000	823.500	280.000
GR	823.500	365.000	823.000	515.000	818.100	525.000	812.400	545.000	809.500	597.000
GR	807.900	657.000	811.500	661.000	818.100	695.000	822.000	710.000	830.000	740.000
GR	832.000	757.000	834.500	800.000	834.500	1100.000	845.000	1101.000	0.000	0.000
NC	.035	.035	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	96.000	48.000	426.000	600.000	440.000	465.000	450.000	0.000	0.000	0.000
GR	843.900	0.000	843.900	7.000	837.500	22.000	837.500	22.000	837.500	27.000
GR	826.100	56.000	826.000	74.100	826.000	74.200	825.000	77.800	826.000	77.900
GR	825.800	140.100	825.800	140.200	825.800	143.700	825.800	143.800	825.500	206.100
GR	825.500	206.200	825.500	209.700	825.500	209.800	825.300	272.100	825.300	272.200
GR	825.300	275.500	825.300	275.800	824.900	362.100	824.900	362.200	824.900	365.700
GR	824.900	365.800	824.700	426.000	818.100	437.000	812.400	454.900	812.400	455.000
GR	811.700	459.000	811.700	459.100	809.500	500.000	807.900	551.900	807.900	552.000
GR	811.500	556.000	811.500	556.100	818.100	585.000	820.500	600.000	820.500	623.000
GR	828.300	623.100	828.000	628.100	828.000	628.200	828.000	631.700	828.000	631.800
GR	827.600	640.000	849.100	640.100	849.100	685.000	0.000	0.000	0.000	0.000

OUTLET I-496 WESTBOUND

X1	96.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	48.000	0.000	843.900	0.000	7.000	843.900	0.000	22.000	844.600	837.500
BT	22.000	847.000	840.700	27.000	847.100	841.000	56.000	847.500	841.600	74.100
BT	848.400	842.100	74.200	848.400	826.000	77.800	849.400	826.000	77.900	848.400
BT	842.100	140.100	849.300	843.000	140.200	849.300	825.800	143.700	843.900	825.800
BT	143.800	849.300	843.000	206.100	849.900	843.600	216.200	849.900	825.500	209.700

BT	849.900	825.500	209.800	849.900	843.600	272.100	850.300	844.000	272.200	850.300
BT	825.300	275.700	850.300	825.300	275.800	850.300	844.000	362.100	850.500	844.200
BT	362.200	850.500	824.900	365.700	850.500	824.900	365.800	850.500	844.200	426.000
BT	850.900	844.600	437.000	850.900	844.600	454.900	851.000	844.700	455.000	851.000
BT	812.400	459.000	851.000	811.700	459.100	851.000	844.700	500.000	851.200	844.900
BT	551.900	851.000	845.200	552.000	851.500	807.900	556.000	851.500	811.500	556.100
BT	851.500	845.200	585.000	851.500	845.000	600.000	851.500	845.200	623.000	851.500
BT	845.200	623.100	851.500	845.200	628.100	851.500	845.200	628.200	851.500	826.000
BT	631.700	851.500	828.000	631.800	851.500	845.200	640.000	851.500	845.200	640.100
BT	851.500	845.200	685.000	851.500	0.000	0.000	0.000	0.000	0.000	0.000

INLET I-496 WESTBOUND

X1	96.400	0.000	0.000	0.000	85.400	85.400	85.400	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	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	96.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	97.000	48.000	390.000	597.000	70.000	70.000	70.000	.910	0.000	0.000
GR	843.900	0.000	843.900	20.000	843.900	20.100	836.500	22.000	836.500	27.000
GR	827.000	50.000	826.600	74.200	826.600	74.300	826.600	77.800	826.600	77.900
GR	825.600	140.200	825.600	140.300	825.500	143.800	825.500	143.900	824.500	206.200
GR	824.500	206.300	824.500	209.800	824.500	209.900	823.500	272.200	823.500	272.300
GR	823.400	275.800	823.400	275.900	822.500	338.200	822.500	338.300	822.400	341.800
GR	822.400	341.900	822.000	365.200	822.000	365.300	822.000	368.800	822.000	368.900
GR	821.100	390.000	818.100	405.000	808.100	433.900	818.100	434.000	809.100	440.000
GR	809.100	440.100	806.100	482.000	807.400	524.900	817.400	525.000	813.100	530.000
GR	813.100	530.100	818.100	564.000	825.200	589.000	831.500	597.000	831.500	597.100
GR	831.500	620.000	831.500	620.000	847.800	621.000	0.000	0.000	0.000	0.000
NC	.039	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

OUTLET I-496 EASTBOUND

X1	97.100	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	.910	0.000
BT	46.000	0.000	843.900	0.000	20.000	844.600	0.000	20.100	847.800	0.000
BT	74.200	849.200	842.100	74.300	849.200	826.600	77.800	849.200	826.600	77.900
BT	849.200	842.100	140.200	850.100	843.000	140.300	850.100	825.600	143.800	850.100
BT	825.500	143.900	850.100	843.000	206.200	850.700	843.600	206.300	850.700	824.500
BT	209.800	850.700	824.500	209.900	850.700	843.600	272.200	851.100	844.000	272.300
BT	851.100	823.500	275.800	851.100	823.400	275.900	851.100	844.000	338.200	851.100
BT	844.000	338.300	851.100	822.500	341.800	851.100	822.400	341.900	851.100	844.000
BT	365.200	851.100	844.000	365.300	851.100	822.000	368.800	851.100	822.000	368.900
BT	851.100	844.000	390.000	851.100	844.000	405.000	851.100	844.000	433.900	851.100
BT	844.000	434.000	851.100	808.100	440.000	851.100	818.100	440.100	851.100	844.000
BT	482.000	851.100	844.000	524.900	851.000	843.900	525.000	851.000	807.400	530.000
BT	851.000	813.100	530.100	851.000	843.900	564.000	851.000	843.900	575.000	851.000
BT	843.900	589.000	851.000	843.900	590.000	851.000	843.900	597.000	851.000	843.900
BT	597.100	851.000	831.500	620.000	851.000	0.000	620.100	847.800	0.000	0.000

INLET I-496 EASTBOUND

X1	97.400	0.000	0.000	0.000	87.400	87.400	87.400	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	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	97.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	4.000	.016	290.000	.030	485.000	.035	512.000	.080	714.000	0.000
X1	98.000	18.000	290.000	485.000	10.000	250.000	150.000	0.000	0.000	0.000
GR	840.000	0.000	827.000	30.000	826.300	230.000	829.000	270.000	820.000	290.000
GR	817.480	295.000	814.000	300.000	810.000	345.000	817.500	400.000	807.000	430.000
GR	807.900	450.000	817.000	485.000	820.000	497.000	826.000	502.000	826.000	620.000
GR	830.000	635.000	832.000	690.000	840.000	714.000	0.000	0.000	0.000	0.000
NC	.011	.044	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	99.000	28.000	228.010	437.000	60.000	300.000	130.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.800	828.000	0.000
GR	843.900	0.000	840.700	2.000	836.500	2.010	836.500	7.000	827.000	30.000
GR	830.300	200.000	827.150	223.000	826.300	228.000	818.000	228.010	812.900	242.000
GR	811.600	282.000	814.500	330.000	822.000	330.010	822.000	331.000	822.000	331.010
GR	822.000	335.000	822.000	335.010	822.000	336.000	814.000	336.010	810.300	363.000
GR	815.400	406.000	818.000	417.000	821.500	437.000	821.500	437.010	830.800	442.000
GR	827.100	552.000	827.600	600.000	857.000	600.000	0.000	0.000	0.000	0.000
NC	.027	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	99.100	2.000	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	828.800	828.800	0.000
BT	28.000	0.000	843.900	0.000	2.000	840.700	0.000	2.010	836.500	0.000
BT	7.000	836.500	0.000	30.000	827.000	0.000	210.000	830.300	0.000	223.000
BT	831.300	0.000	228.000	831.300	826.300	228.010	831.300	828.800	242.000	831.300
BT	828.800	282.000	831.300	828.800	330.000	831.300	828.800	330.010	831.300	828.800
BT	331.000	831.300	828.800	331.010	831.300	822.000	335.000	831.300	822.000	335.010
BT	831.300	828.800	336.000	831.300	828.800	336.010	831.300	828.800	363.000	831.300
BT	828.800	406.000	831.300	828.800	417.000	831.300	828.800	437.000	831.300	828.800
BT	437.010	831.300	821.500	442.000	831.300	0.000	552.000	827.100	0.000	600.000
BT	827.600	0.000	600.000	857.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	99.400	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.800	828.800	0.000
NC	.012	.044	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

INLET RIVER ST. BRIDGE

X1	99.500	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	828.800	828.800	0.000
NC	.010	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	100.000	22.000	130.000	345.000	70.000	25.000	35.000	0.000	0.000	0.000
GR	840.000	0.000	830.000	30.000	828.000	60.000	828.000	90.000	826.000	130.000
GR	818.000	130.000	813.000	145.000	811.000	189.000	814.000	241.000	815.000	248.000
GR	810.000	277.000	815.000	324.000	818.000	335.000	826.000	345.000	826.000	360.000
GR	840.000	360.000	840.000	405.000	826.000	405.000	826.500	460.000	828.000	555.000
GR	828.000	565.000	840.000	565.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.045	119.500	.030	290.000	.045	340.000	.030	490.000	.050
NH	807.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE RED CEDAR RIVER AND GRAND RIVER

X1	101.000	23.000	129.000	490.000	350.000	190.000	275.000	0.000	0.000	0.000
GR	836.500	0.000	835.500	20.000	833.000	119.000	817.700	129.000	814.000	130.000
GR	810.500	170.000	811.000	220.000	812.000	260.000	815.000	280.000	825.000	290.000
GR	825.500	340.000	817.700	355.000	811.500	380.000	819.500	430.000	815.500	470.000
GR	825.000	490.000	827.500	510.000	828.200	610.000	825.000	610.000	845.000	710.000
GR	828.200	710.000	828.200	807.000	845.000	807.000	0.000	0.000	0.000	0.000
NC	.040	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	102.000	15.000	175.000	299.000	650.000	1050.000	810.000	0.000	0.000	0.000
QT	5.000	5860.000	8710.000	10000.000	13300.000	3980.000	0.000	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	842.000	0.000	841.000	95.000	840.000	135.000	830.000	150.000	817.300	175.000
GR	809.500	201.000	810.000	249.000	814.000	285.000	817.300	299.000	824.000	314.000
GR	826.000	334.000	828.000	364.000	829.000	464.000	830.000	505.000	845.000	510.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1.000	430.000
X1	104.000	24.000	78.000	200.000	275.000	150.000	250.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	844.100	833.800	0.000
GR	845.300	0.000	844.500	50.000	844.500	50.000	820.300	78.000	820.300	78.000
GR	818.200	85.000	817.300	88.000	814.800	95.000	819.500	110.000	809.600	115.000
GR	810.000	150.000	813.100	173.000	814.000	180.000	815.600	188.000	817.300	192.000
GR	817.800	197.000	818.300	200.000	836.200	220.000	839.700	220.000	839.800	225.000
GR	839.800	225.000	840.300	300.000	834.100	430.000	845.000	435.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1.000	430.000
X1	104.100	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	844.100	833.800	0.000
BT	17.000	0.000	845.300	0.000	50.000	844.500	0.000	50.000	847.800	0.000
BT	78.000	847.600	820.300	85.000	847.600	826.000	32.000	847.500	830.000	115.000
BT	847.400	836.000	150.000	847.100	839.500	173.000	846.900	836.000	188.000	846.700
BT	830.000	197.000	846.600	826.000	200.000	846.600	818.300	225.000	846.400	0.000
BT	225.000	843.000	0.000	300.000	840.300	0.000	430.000	834.100	0.000	435.000
BT	845.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1.000	430.000

INLET WASHINGTON AVE. BRIDGE

X1	104.400	21.000	78.000	200.000	52.000	52.000	52.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	844.100	833.800	0.000
BT	18.000	0.000	845.200	0.000	40.000	844.400	0.000	50.000	844.400	0.000
BT	50.000	847.800	0.000	78.000	847.600	817.300	35.000	847.600	826.000	95.000
BT	847.500	830.000	115.000	847.400	836.000	150.000	847.100	839.500	173.000	846.900
BT	836.000	188.000	846.700	830.000	197.000	846.600	825.000	200.000	846.600	818.300
BT	225.000	843.000	0.000	300.000	840.300	0.000	430.000	837.700	0.000	430.000
BT	836.800	0.000	435.000	845.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.300	0.000	844.400	40.000	837.300	50.000	837.300	50.000	817.300	78.000
GR	815.300	85.000	812.500	95.000	811.100	100.000	818.300	110.000	806.400	115.000
GR	809.500	150.000	812.800	173.000	813.800	180.000	815.200	188.000	816.800	197.000
GR	818.300	200.000	820.800	225.000	820.800	225.000	837.700	400.000	836.800	430.000
GR	845.000	435.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.045	.800	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1.000	430.000

X1	104.500	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	844.100	833.800	0.000
NC	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	106.000	11.000	45.000	200.000	375.000	150.000	250.000	0.000	0.000	0.000
GR	847.200	0.000	825.900	45.000	822.400	45.000	817.300	55.000	812.400	70.000
GR	808.300	100.000	809.700	140.000	817.300	190.000	827.900	200.000	827.800	285.000
GR	903.600	285.000	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	4.000	.900	400.000	.045	472.000	.033	610.000	.050	636.000	0.000
X1	107.000	19.000	472.000	610.000	630.000	470.000	610.000	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	845.000	0.000	834.200	100.000	831.300	200.000	829.000	300.000	826.200	400.000
GR	825.500	436.000	827.200	436.000	827.200	438.000	821.800	458.000	818.200	472.000
GR	817.200	490.000	811.900	510.000	809.000	540.000	810.400	570.000	816.900	585.000
GR	818.200	600.000	827.100	610.000	827.100	636.000	814.900	636.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
NH	7.000	.900	750.000	.600	850.000	.800	913.000	.050	921.100	.500
NH	1015.000	.033	1163.100	.050	1250.000	0.000	0.000	0.000	0.000	0.000
X1	108.000	38.000	1015.000	1163.000	275.000	275.000	275.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	850.000	0.000	0.000	0.000	826.000	838.600	0.000
GR	844.000	0.000	839.400	.100	837.000	200.000	834.200	400.000	826.000	600.000
GR	828.400	650.000	826.500	750.000	824.700	850.000	824.700	913.000	824.700	913.100
GR	824.700	921.000	824.700	921.100	822.800	950.000	822.400	974.000	822.400	974.100
GR	821.800	1005.000	818.100	1015.000	818.100	1015.100	815.500	1020.000	815.100	1030.000
GR	814.100	1050.000	813.100	1065.000	812.700	1080.000	812.200	1085.000	812.200	1085.100
GR	813.200	1091.000	813.200	1091.100	813.000	1094.000	811.400	1124.000	811.100	1130.000
GR	814.600	1154.000	816.100	1163.000	818.100	1163.100	824.700	1172.000	824.700	1172.100
GR	838.600	1190.000	839.000	1200.000	844.000	1250.000	0.000	0.000	0.000	0.000
NH	7.000	.300	750.000	.150	850.000	.045	913.000	.030	921.100	.045
NH	1015.000	.033	1163.100	.050	1250.000	0.000	0.000	0.000	0.000	0.000
X1	108.100	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	850.000	0.000	0.000	0.000	826.000	838.600	0.000
BT	38.000	0.000	844.000	0.000	.100	838.400	0.000	200.000	837.000	0.000
BT	400.000	834.200	0.000	600.000	826.000	0.000	650.000	828.000	0.000	750.000
BT	831.600	0.000	850.000	834.600	0.000	913.000	836.200	824.700	913.100	836.200
BT	832.700	921.000	836.400	832.700	921.100	836.400	824.700	950.000	837.100	0.000
BT	974.000	837.100	0.000	974.100	840.500	0.000	1035.000	840.800	0.000	1015.000
BT	840.900	818.100	1015.100	840.900	833.100	1020.000	840.900	834.100	1030.000	841.000
BT	834.600	1050.000	841.200	835.100	1065.000	841.300	834.600	1080.000	841.400	834.100
BT	1085.000	841.500	833.100	1085.100	841.500	812.200	1091.000	841.500	813.200	1091.100
BT	841.500	832.200	1094.000	841.500	833.400	1124.000	841.700	834.600	1130.000	841.700
BT	834.200	1154.000	841.900	833.400	1163.000	841.900	832.200	1163.100	841.900	818.100
BT	1172.000	842.000	0.000	1172.100	838.600	0.000	1190.000	838.600	0.000	1200.000
BT	839.000	0.000	1250.000	844.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.300	750.000	.150	850.000	.045	913.000	.030	921.100	.045
NH	1015.000	.033	1163.100	.050	1250.000	0.000	0.000	0.000	0.000	0.000
X1	108.400	40.000	1015.000	1163.000	32.000	32.000	32.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	850.000	0.000	0.000	0.000	826.000	838.600	0.000
BT	40.000	0.000	844.000	0.000	.100	844.000	0.000	200.000	837.000	0.000
BT	400.000	834.200	0.000	560.000	830.500	0.000	610.000	826.000	0.000	650.000
BT	828.400	0.000	700.000	830.000	0.000	750.000	831.600	0.000	850.000	834.600

BT	0.000	913.000	836.200	824.700	913.100	836.200	832.700	921.000	836.400	832.700
BT	921.100	836.400	824.700	950.000	837.100	0.000	954.000	837.100	0.000	974.000
BT	837.100	0.000	974.100	840.500	0.000	1015.000	840.900	818.100	1015.100	840.900
BT	833.100	1020.000	840.900	834.100	1030.000	841.000	834.600	1050.000	841.200	835.100
BT	1065.000	841.300	834.600	1080.000	841.400	834.100	1035.000	841.500	833.100	1085.100
BT	841.500	810.700	1091.000	841.500	813.000	1091.100	841.500	832.200	1094.000	841.500
BT	833.400	1124.000	841.700	834.600	1130.000	841.700	834.200	1154.000	841.900	833.400
BT	1163.000	841.900	832.200	1163.100	841.900	818.100	1172.000	842.000	0.000	1172.100
BT	838.600	0.000	1190.000	838.600	0.000	1200.000	839.000	0.000	1250.000	844.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	844.000	0.000	838.400	.100	837.000	200.000	834.200	400.000	830.500	560.000
GR	826.000	600.000	828.400	650.000	827.500	700.000	826.500	750.000	824.600	850.000
GR	824.700	913.000	824.700	913.100	824.700	921.000	824.700	921.100	822.700	950.000
GR	822.600	964.000	821.700	974.000	821.700	974.100	818.100	1015.000	818.100	1015.100
GR	817.100	1020.000	815.100	1030.000	814.200	1050.000	813.500	1065.000	811.400	1080.000
GR	810.700	1085.000	810.700	1085.100	813.000	1091.000	813.000	1091.100	812.900	1094.000
GR	812.400	1124.000	812.300	1130.000	816.500	1154.000	818.100	1163.000	818.100	1163.100
GR	824.700	1172.000	824.700	1172.100	838.600	1190.000	839.000	1200.000	844.000	1250.000
NH	7.000	.900	750.000	.600	850.000	.900	913.000	.060	921.100	.700
NH	1015.000	.033	1163.100	.050	1250.000	0.000	0.000	0.000	0.000	0.000
X1	108.500	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	850.000	0.000	0.000	0.000	826.000	838.600	0.000
ND	.050	.050	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	109.000	15.000	105.000	255.000	200.000	200.000	175.000	0.000	0.000	0.000
GR	844.000	0.000	824.000	0.000	822.000	90.000	820.000	105.000	818.000	110.000
GR	815.100	125.000	813.100	160.000	812.200	185.000	813.200	195.000	811.100	240.000
GR	818.000	250.000	820.000	255.000	830.000	270.000	840.000	285.000	844.000	295.000
X1	112.000	20.000	420.000	596.000	650.000	650.000	650.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	350.000	0.000	650.000	0.000	836.000	835.000	0.000
GR	850.800	0.000	836.000	0.000	836.000	50.000	835.900	150.000	836.000	250.000
GR	835.700	350.000	835.500	350.000	817.900	420.000	812.900	420.000	814.300	475.000
GR	814.300	481.000	813.400	500.000	814.300	535.000	815.500	541.000	817.900	563.000
GR	826.000	596.000	835.500	600.000	835.500	650.000	835.500	850.000	850.000	851.000
SB	1.050	1.560	2.600	0.000	150.000	12.000	1956.000	.040	815.000	815.000
X1	112.500	19.000	420.000	596.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	828.100	835.400	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	350.000	0.000	650.000	0.000	836.000	835.000	0.000
BT	15.000	0.000	850.800	0.000	0.000	845.000	0.000	200.000	845.000	0.000
BT	200.000	836.000	0.000	250.000	836.000	0.000	350.000	835.700	0.000	417.000
BT	835.500	0.000	420.000	835.500	0.000	420.000	835.500	828.100	596.000	835.500
BT	828.100	596.000	835.500	0.000	599.000	835.500	0.000	650.000	835.500	0.000
BT	650.000	845.000	0.000	850.000	845.000	0.000	0.000	0.000	0.000	0.000
GR	850.800	0.000	836.000	0.000	836.000	50.000	835.900	150.000	836.000	250.000
GR	835.700	350.000	835.500	350.000	817.900	420.000	813.100	448.000	814.700	475.000
GR	814.300	481.000	814.200	500.000	814.300	535.000	814.900	541.000	817.900	570.000
GR	827.800	596.000	835.500	600.000	835.500	650.000	845.000	650.000	845.000	850.000
X1	113.000	18.000	205.000	395.000	50.000	150.000	130.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
X4	3.000	836.000	.500	836.000	50.000	834.000	130.000	0.000	0.000	0.000
GR	845.000	0.000	832.000	168.000	830.000	175.000	820.000	205.000	818.000	207.000
GR	817.900	210.000	813.100	243.000	814.700	275.000	814.300	286.000	814.200	310.000

GR	814.300	350.000	814.900	379.000	817.900	390.000	818.000	392.000	820.000	395.000
GR	830.000	415.000	840.000	445.000	844.000	445.000	0.000	0.000	0.000	0.000
X1	114.000	30.000	280.000	608.100	100.000	175.000	150.000	0.000	0.000	0.000
GR	845.000	125.000	833.200	125.100	831.000	200.000	831.700	280.000	821.980	289.000
GR	820.900	290.000	819.100	316.000	815.400	336.000	815.600	356.000	815.600	356.100
GR	815.600	360.000	815.600	360.100	813.900	390.000	815.200	426.000	815.200	426.100
GR	815.200	430.000	815.200	430.100	813.700	460.000	817.500	496.000	817.500	496.100
GR	817.100	500.000	817.100	500.100	813.500	520.000	813.100	532.000	818.100	564.000
GR	818.100	564.000	821.700	568.000	821.700	568.100	837.900	608.000	842.700	608.100
X1	114.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	30.000	125.000	845.000	0.000	125.100	833.200	0.000	200.000	831.000	0.000
BT	280.000	831.700	0.000	289.000	831.900	827.100	290.000	831.940	827.140	316.000
BT	832.870	828.070	336.000	833.600	828.800	356.000	834.320	829.520	356.100	834.320
BT	815.600	360.000	834.470	815.600	360.100	834.470	829.670	390.000	835.540	830.740
BT	426.000	836.820	832.020	426.100	836.820	815.200	430.000	836.970	815.200	430.100
BT	836.970	832.170	460.000	838.040	833.240	496.000	839.320	834.520	496.100	839.320
BT	817.500	500.000	839.470	817.100	500.100	839.470	834.670	520.000	840.180	835.380
BT	532.000	840.610	835.810	564.000	841.750	836.950	554.100	841.750	818.100	568.000
BT	841.900	821.700	568.100	841.900	837.100	608.000	842.700	837.900	608.100	842.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	114.400	31.000	280.000	608.100	26.000	26.000	26.000	0.000	0.000	0.000
BT	31.000	125.000	845.000	0.000	125.100	833.200	0.000	200.000	831.000	0.000
BT	280.000	831.700	0.000	289.000	831.900	827.100	290.000	831.940	827.140	306.000
BT	832.510	827.710	326.000	833.230	828.430	356.000	834.320	829.520	356.100	834.320
BT	814.800	360.000	834.470	814.800	360.100	834.470	829.670	390.000	835.540	830.740
BT	426.000	836.820	832.020	426.100	836.820	814.400	430.000	836.970	813.700	430.100
BT	836.970	832.170	460.000	838.040	833.240	490.000	839.110	834.320	496.000	839.320
BT	834.520	496.100	839.320	819.500	500.000	839.470	817.500	500.100	839.470	834.670
BT	510.000	839.820	835.020	530.000	840.540	835.740	554.000	841.750	836.950	564.100
BT	841.750	818.100	568.000	841.900	821.600	568.100	841.900	837.100	608.000	842.700
BT	837.900	608.100	842.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	845.000	125.000	833.200	125.100	831.000	200.000	831.700	280.000	821.980	289.000
GR	821.600	290.000	818.100	306.000	815.400	326.000	814.800	356.000	814.800	356.100
GR	814.800	360.000	814.800	360.100	813.800	390.000	814.400	426.000	814.400	426.100
GR	813.700	430.000	813.700	430.100	813.800	460.000	818.100	490.000	819.500	496.000
GR	819.500	496.100	817.500	500.000	817.500	500.100	815.000	510.000	814.400	530.000
GR	818.100	564.000	818.100	564.100	821.600	568.000	821.600	568.100	837.900	608.000
GR	842.700	608.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

INLET ISLAND AVE BRIDGE

X1	114.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NH	5.000	.050	108.000	.033	300.000	.040	376.000	.033	475.000	.050
NH	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	117.000	21.000	125.000	445.000	150.000	225.000	200.000	0.000	0.000	0.000
GR	841.400	0.000	830.600	12.000	829.700	108.000	818.700	125.000	815.500	135.000
GR	813.700	175.000	813.700	235.000	814.000	275.000	818.000	300.000	820.000	310.000
GR	822.100	335.000	822.200	350.000	820.200	355.000	819.500	376.000	818.000	377.000
GR	814.300	390.000	813.000	420.000	818.000	445.000	833.500	475.000	841.200	475.000
GR	846.200	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.035	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	119.000	23.000	196.000	280.000	700.000	1100.000	810.000	0.000	0.000	0.000
GR	850.000	0.000	830.800	0.000	830.800	40.000	850.000	40.000	850.000	85.000
GR	820.000	85.000	820.000	100.000	815.000	140.000	813.000	160.000	812.000	180.000
GR	813.000	200.000	815.000	220.000	817.000	250.000	819.000	280.000	820.000	295.000
GR	824.000	310.000	826.000	330.000	828.000	410.000	830.000	485.000	832.000	540.000
GR	834.000	540.000	836.000	680.000	840.000	680.000	0.000	0.000	0.000	0.000
NC	0.000	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION LOCATED 250 FT. DOWNSTREAM FROM MOORES PARK DAM

X1	120.000	23.000	225.000	572.000	475.000	650.000	510.000	0.000	0.000	0.000
GR	845.000	0.000	839.000	0.000	835.100	30.000	832.100	177.000	826.800	202.000
GR	822.200	202.000	821.000	225.000	817.700	225.000	811.100	225.000	812.700	250.000
GR	816.500	300.000	816.400	440.000	815.900	470.000	817.700	495.000	819.700	518.000
GR	817.700	534.000	817.400	545.000	817.700	572.000	818.300	667.000	824.400	668.000
GR	829.800	700.000	837.400	800.000	845.000	900.000	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



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

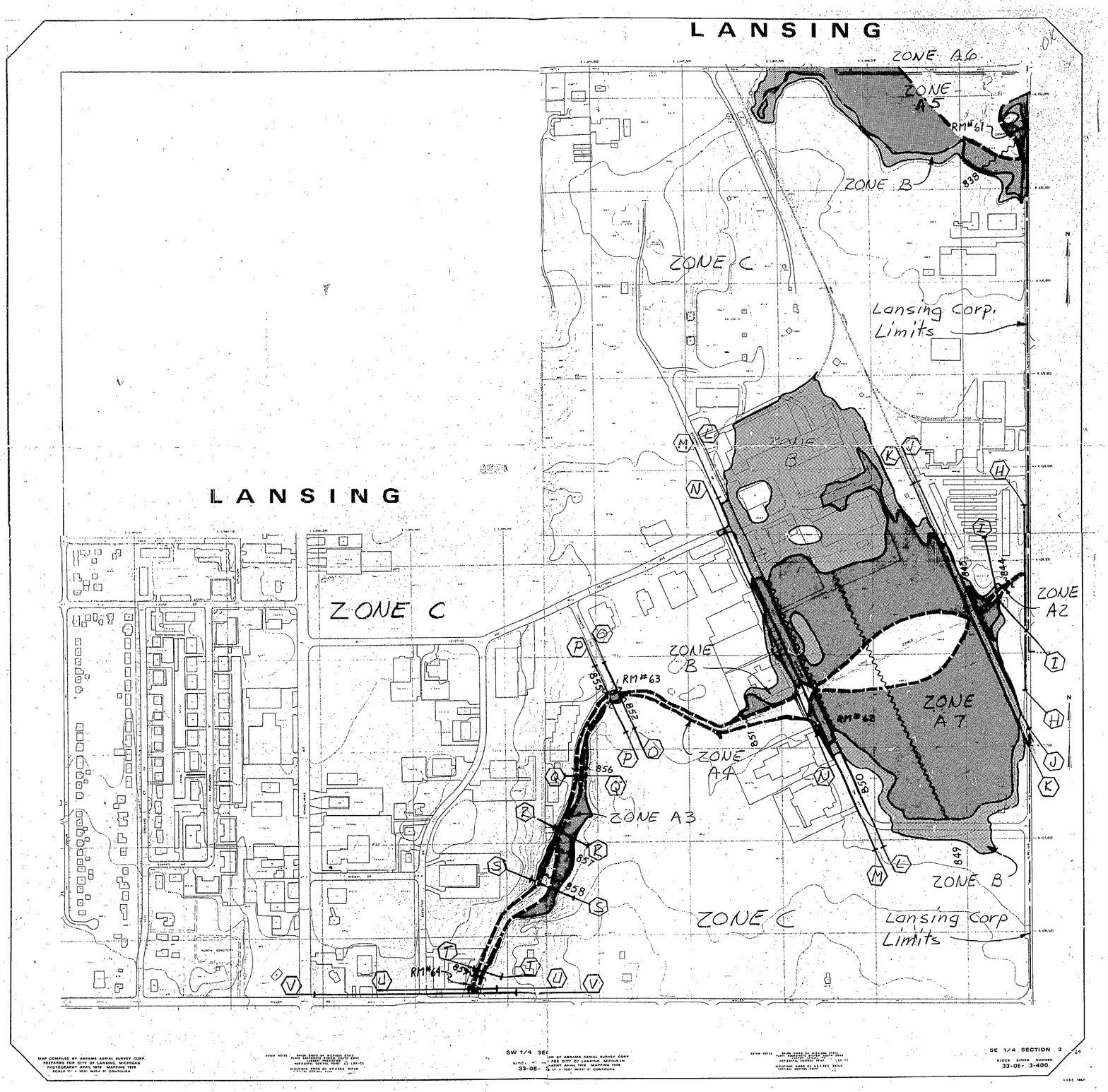
500YR FLOOD BOUNDARY

CROSS SECTION LINE — E — E

ELEV. REFERENCE MARK — RM 2 x

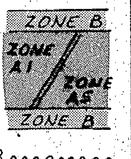
APPROXIMATE 100 YEAR FLOOD BOUNDARY

RECEIVED
AUG 17 1979
WATER MANAGEMENT



KEY TO SYMBOLS

Zone Designation

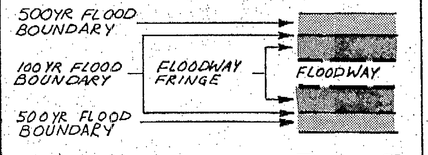


Base Flood Elevation Line - elevation in Feet 798

Elev. Reference Mark RM 2 x

KEY TO SYMBOLS

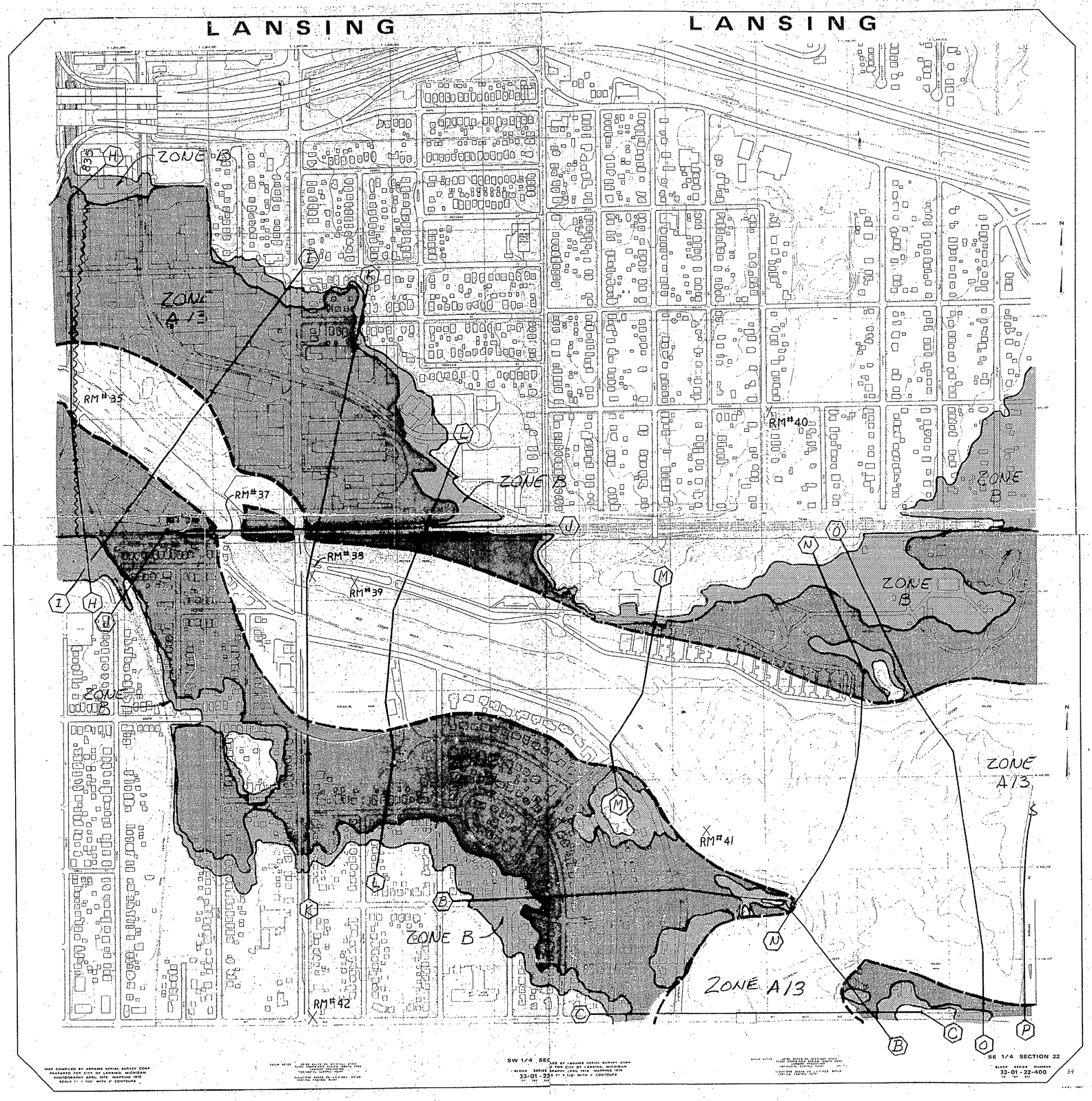
FLOOD BOUNDARY AND FLOODWAY DATA



CROSS SECTION LINE O O

ELEV. REFERENCE MARK RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100 YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

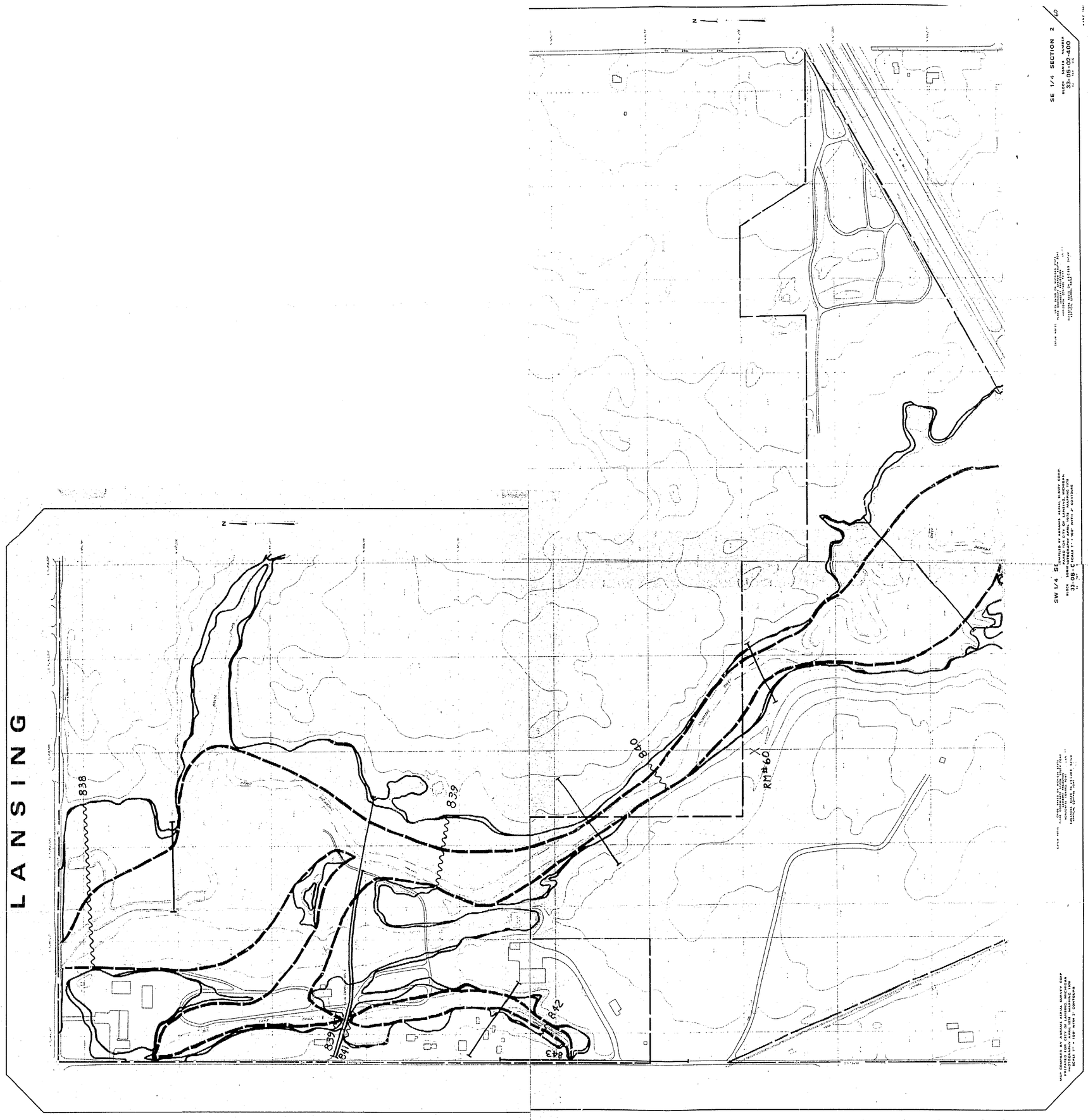
500 YR FLOOD BOUNDARY

CROSS SECTION LINE — K — K

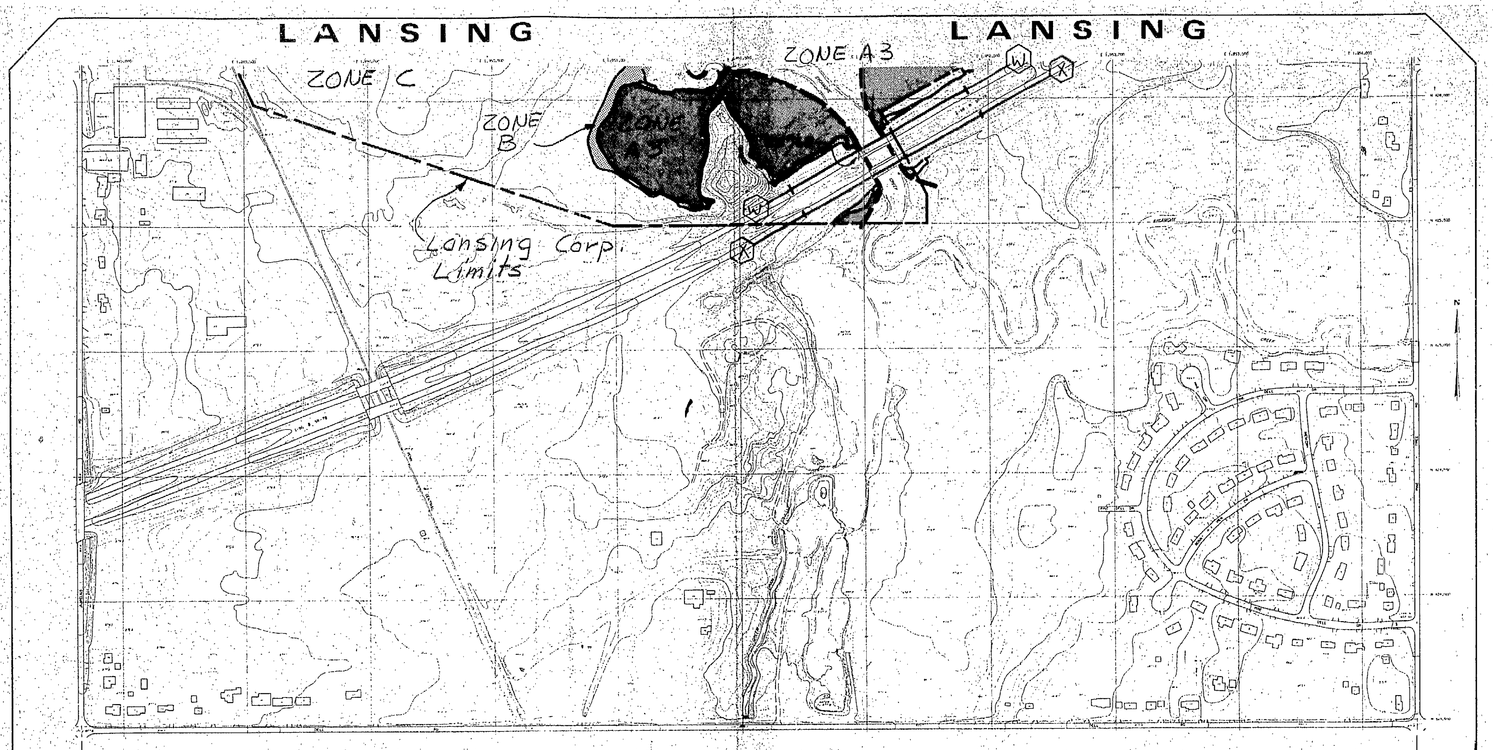
ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

MUD LAKE DRAIN
IN CITY OF LANSING 1/3
SCALE 1"= 400'
2' CONTOUR



RECEIVED
JUL 09 1979
WATER MANAGEMENT



MAP COMPILED BY ABRAMS AERIAL SURVEY CORP.
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1979
SCALE 1" = 100' WITH 2' CONTOUR

NW 1/4 SEC.

COMPILED BY ABRAMS AERIAL SURVEY CORP.
PARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 MAPPING 1979
BLOCK SERIES NUMBER
33-06-11 (SCALE 1" = 100' WITH 2' CONTOURS

NE 1/4 SECTION 11

BLOCK SERIES NUMBER
33-06-11-200

62

Sycamore Creek

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY

FLOODWAY FRINGE

FLOODWAY

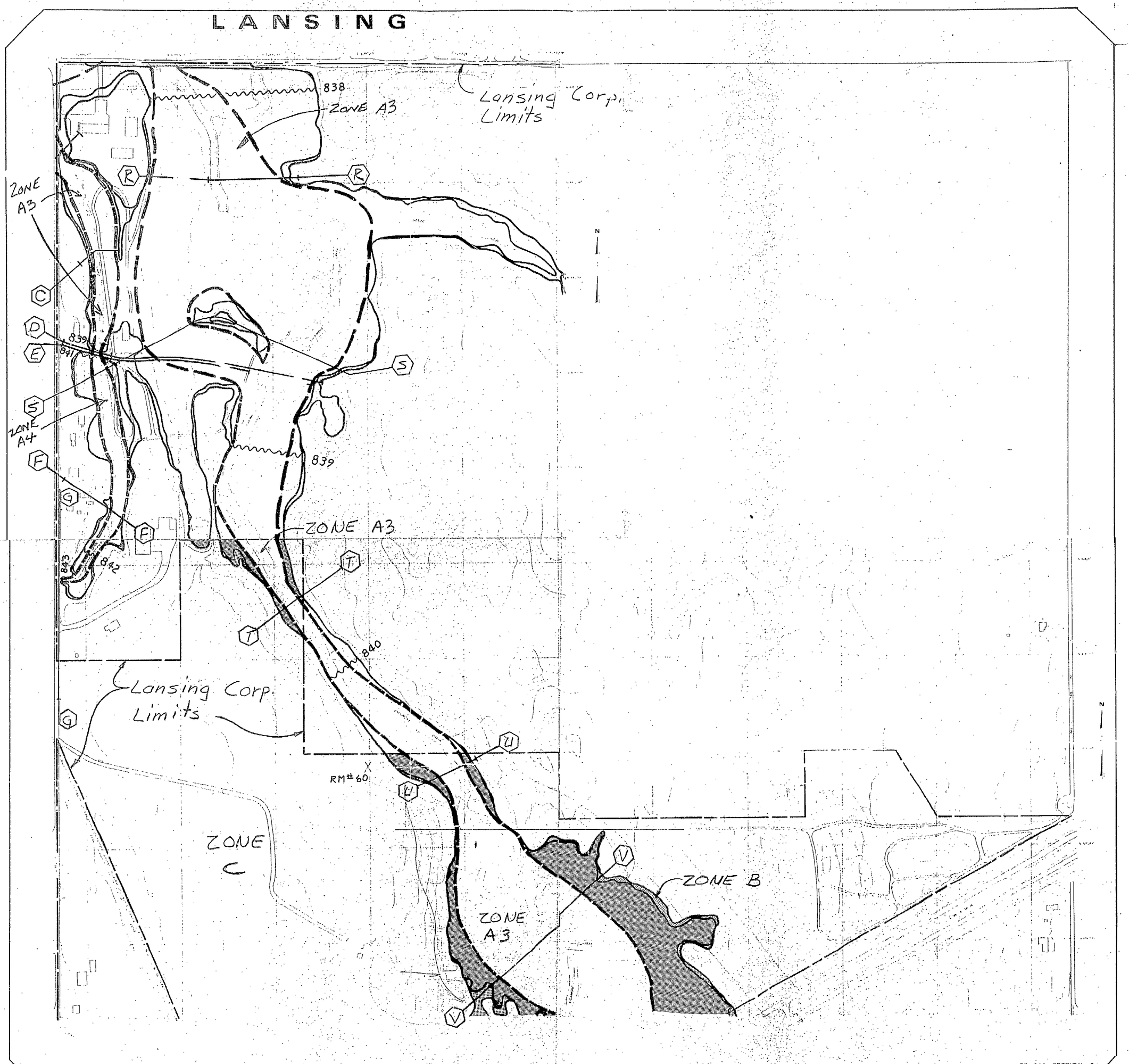
500YR FLOOD BOUNDARY

CROSS SECTION LINE — W — W

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

LANSING



750,000 CY

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 // ZONE A3 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

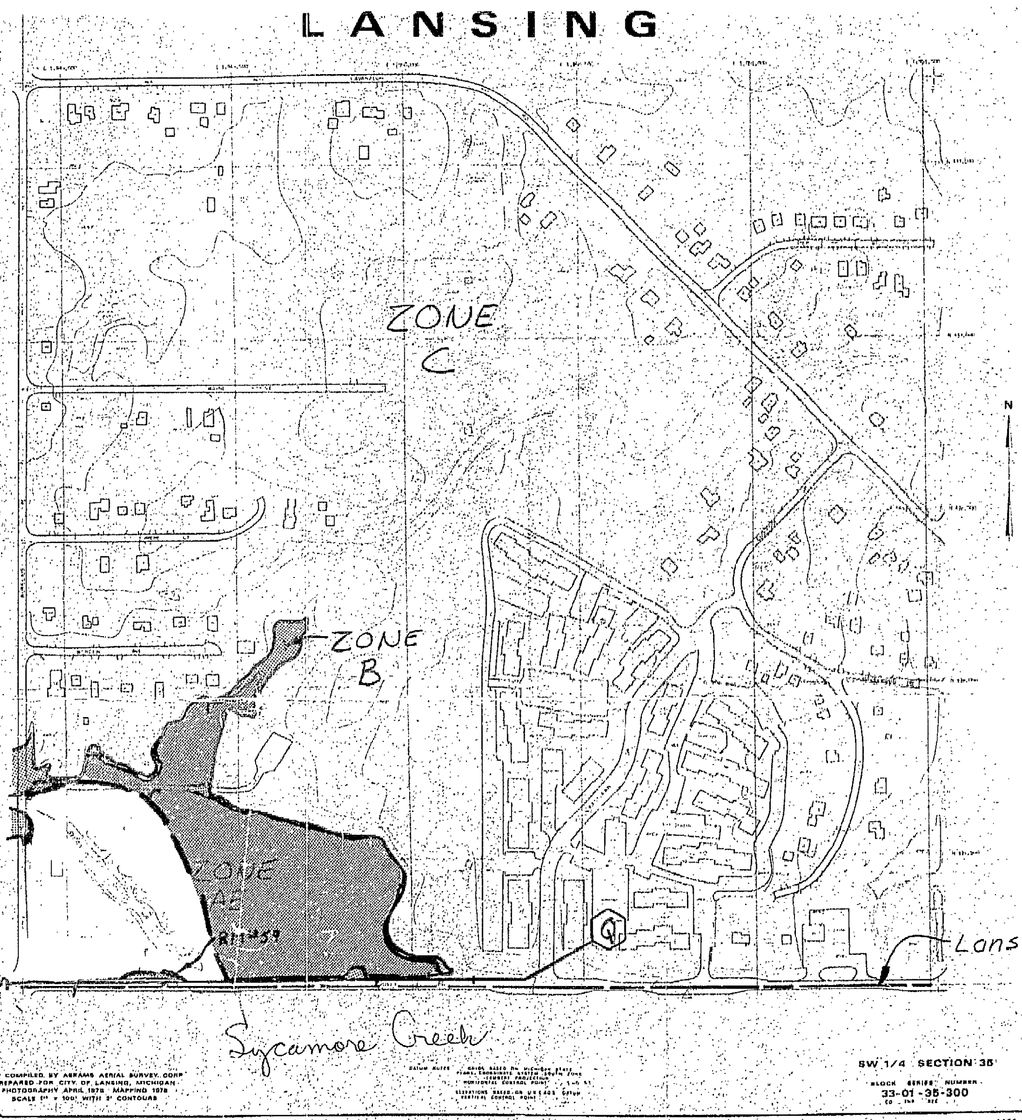
500YR FLOOD BOUNDARY

CROSS SECTION LINE — V — V

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

LANSING



MAP COMPILED BY ABRAMS AERIAL SURVEY CORP
PREPARED FOR CITY OF LANSING, MICHIGAN
PHOTOGRAPHY APRIL 1978 - MAPPING 1978
SCALE 1" = 500' WITH 5' CONTOURS

SW 1/4 SECTION 35
BLOCK SERIES NUMBER
33-01-35-300

KEY TO SYMBOLS

Zone Designation

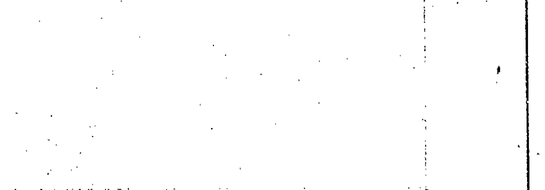


Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA



CROSS SECTION LINE — Q — Q

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

10 Year Flood Elevation
50 Year Flood Elevation
100 Year Flood Elevation
500 Year Flood Elevation

REACH 1
ZONE A13

MT. HOPE

FOOT BRIDGE

℄ CREEK BED

CAVANAUGH RD.

REACH 2
ZONE A5

REACH 2
ZONE A5

N.Y.C. RAILROAD

AURELIUS RD.

COLBY RD.

REACH 1
ZONE A3

LANSING CORPORATE LIMITS

REACH 3
ZONE A3

REACH 1
ZONE A3

REACH 1
ZONE A3

I-96 WEST-BOUND

I-96 EAST-BOUND

REACH 1
ZONE A3

PINE TREE RD.

REACH 1
ZONE A3

SYCAMORE CREEK PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=500'

Exhibit Nº 1
Sheet 1 of 1

NOTE: All elevations are referenced to U.S.G.S. elevations

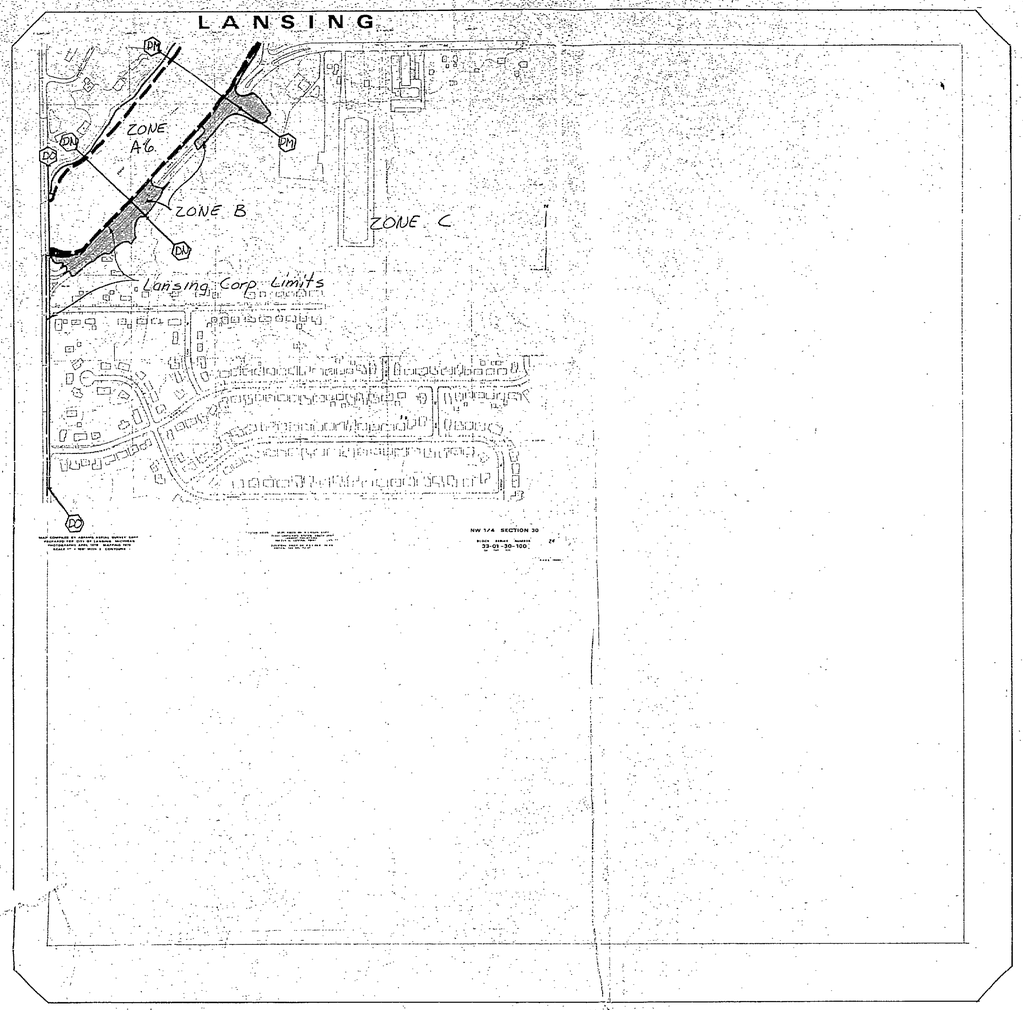
PLATE 3 CROSS SECTION 8 P. R STANDARD
EUGENE DITTGEN CO. CHICAGO NEW YORK

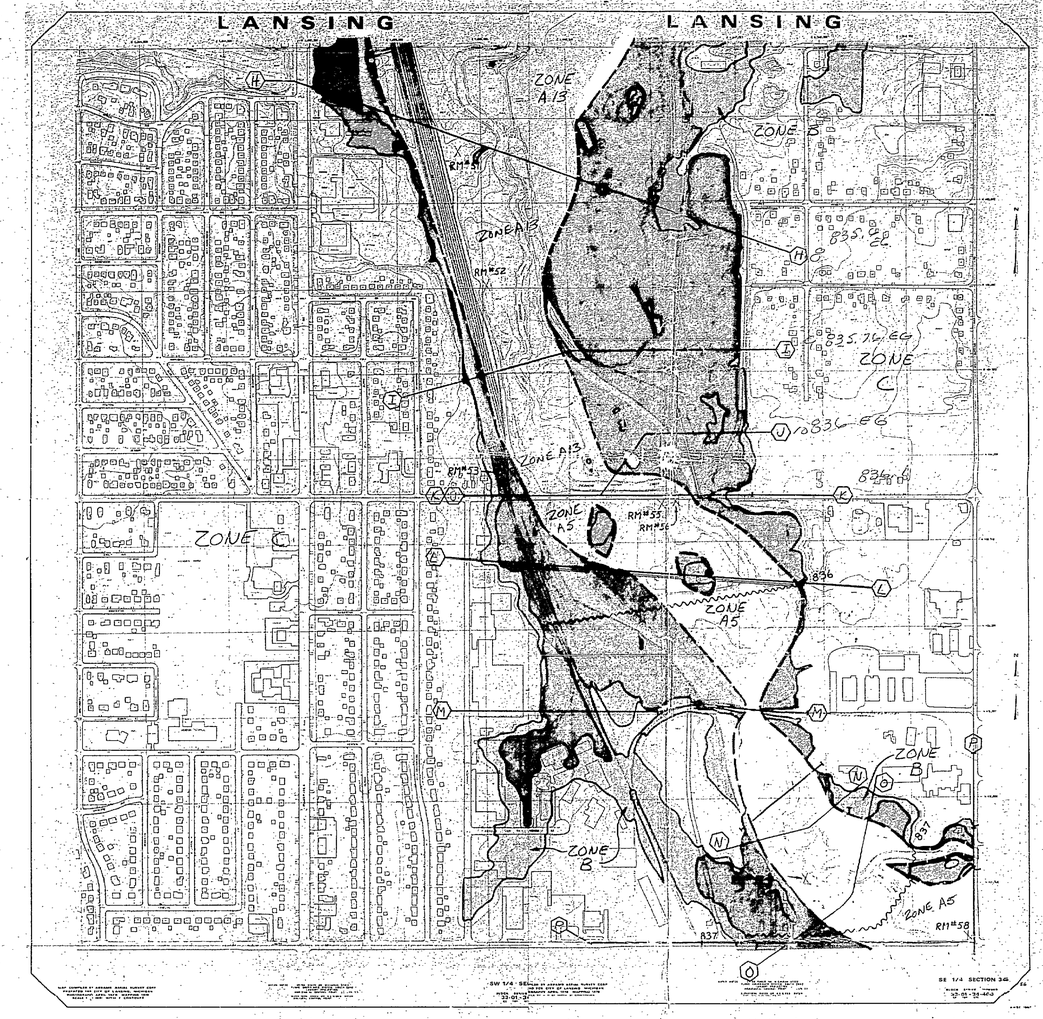
STREAM DISTANCE IN THOUSANDS OF FEET

RECEIVED
MAR 1 2 1990
WATER MANAGEMENT

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE





KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A6 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500 YR. FLOOD BOUNDARY

100 YR. FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500 YR. FLOOD BOUNDARY

CROSS SECTION LINE — D1 — D1

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A6 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500 YR. FLOOD BOUNDARY

100 YR. FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

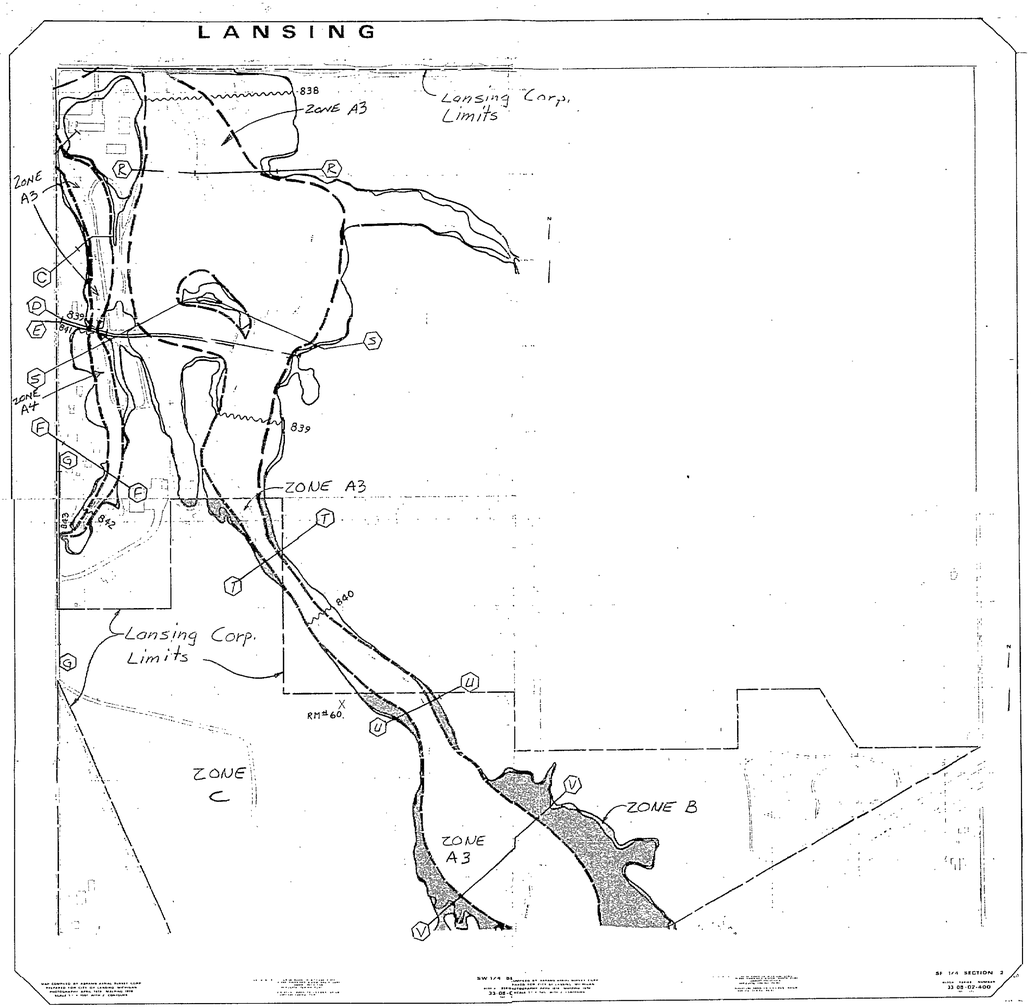
500 YR. FLOOD BOUNDARY

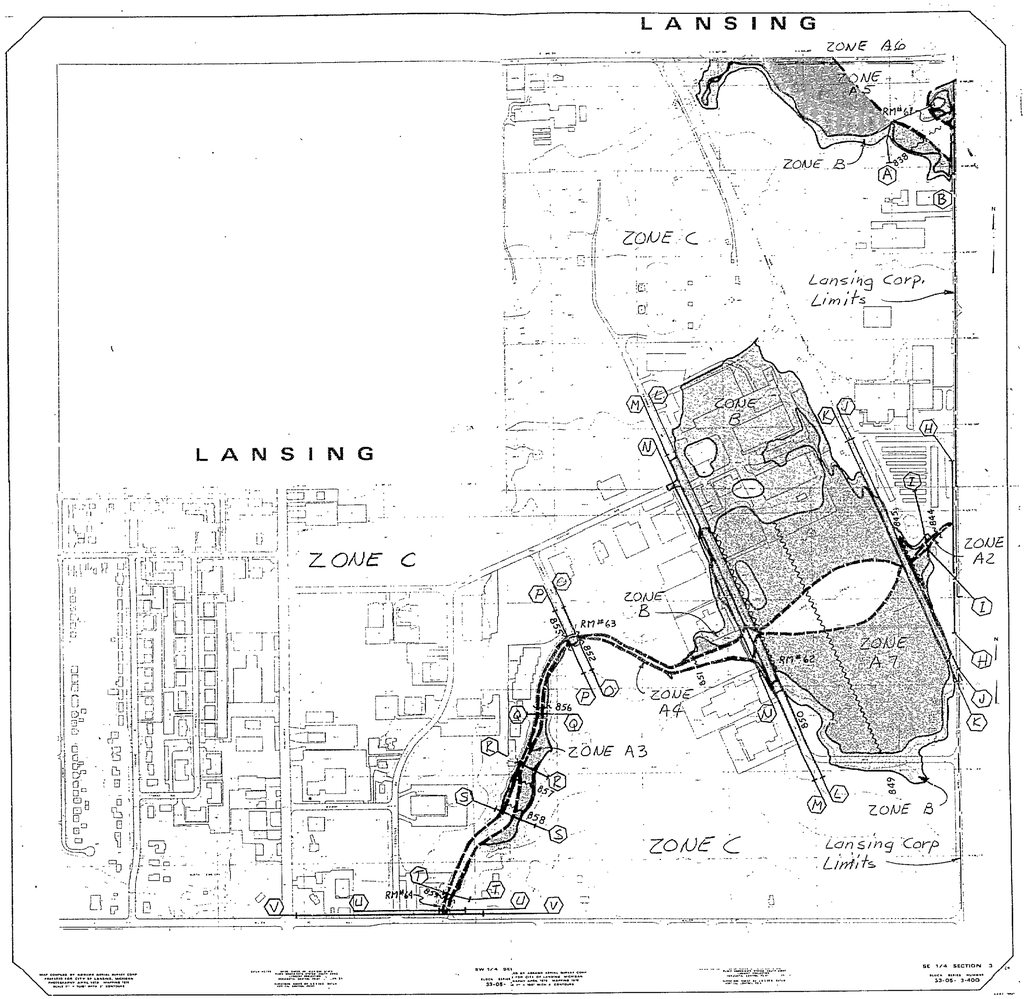
CROSS SECTION LINE — M — M

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

1" = 400'





KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — V—V

ELEV. REFERENCE MARK — RM2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — O—O

ELEV. REFERENCE MARK — RM2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

RECEIVED
JAN 3 1990
WATER MANAGEMENT

84°37'30" 42°45' 695 000m E. R. 3 W. R. 2 W. 697 35' 698 699 (LANSING NORTH) 700 ST. JOHNS 17 MI. 701 32'30" 702 703 1 950 000 FEET 704 84°30' 42°45'

4735 000m N.

GRAND LEDGE 6 MI. 2.1 MI. TO INTERSTATE 96

2.2 MI. TO INTERSTATE 96

CHARLOTTE 15 MI. 2.3 MI. TO INTERSTATE 96

4069 II NW DIMONDALE

4069 III NW (EAST LANSING)

4735 4734 4733 4732 4731 4730 4729

450 000 FEET

PERRY 16 MI. FLINT 47 MI.

LANSING

EAST LANSING

EATON CO. INGHAM CO.

GRAND RIVER

RED CEDAR RIVER

Waverly Hills Municipal Golf Course

Groesbeck Municipal Golf Course

Lansing Country Club

Sycamore Park

Potter Park

Scott Woods Park

Carl G. Fenner Arboretum

Evergreen Cemetery

Mt. Hope Cemetery

Frances Park

Riverside Park

Moores Park

Hospitals

Radio Towers (WILS)

Radio Towers (WJIM)

Reservoirs

Water Tanks

Shopping Centers

Trailer Parks

Golf Course

Bretton Woods Sch

Waverly High Sch

Stoner Sch

Waverly Jr High Sch

Michigan Avenue Sch

Sexton High Sch

West Jr High Sch

Main Street Sch

Everett High Sch

Everett Sch

Pattengill Jr High Sch

Gabriels High Sch

Fairview Sch

Forest Road Sch

Maplewood Sch

Elmhurst Sch

Rich Jr High Sch

Ingham Park

Averill Sch

Pleasant Grove Sch

Our Savior Sch

Pleasant View Sch

Lewton Sch

Snow Road Sch

Waynright Sch

Reo Sch

Kendon Sch

Cavanaugh Sch

Maple Hill Sch

Lyons Avenue Sch

Juvenile Home

Ingham Hospital

General Hospital

Driving Theater

Floodway RM 30

Floodway RM 28

Floodway RM 7

Floodway

Shopping Center

Trailer Park

Armory

Post Office

Capitol

Museum

Library

Civic Center

Oldsmobile Plant

Oak Park Sch

Ormand Park

Marshall Park

Ranney Park

Municipal Park

Foster Park

Scott Park

Reutter Park

Ferris Park

Comstock Park

Dunnabeck Park

West Side Park

Huff Court Park

Ottawa Street Park

Riverfront Park

Oldsmobile Park

Washington Park

Regent Park

Shubel Park

Clifford Park

Poxson Park

Lyons Park

Water Tank

Reservoir

Pit

Radio Tower

Golf Course

Sycamore Village Sch

Waverly Jr High Sch

Trailer Park

Shopping Center

Water Tank

Armory

Hospitals

Reservoirs

Radio Towers (WILS)

Radio Towers (WJIM)

Pit

Golf Course

Exhibit 2

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

- SOOYR FLOOD BOUNDARY
- 100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY
- 500YR FLOOD BOUNDARY
- CROSS SECTION LINE (DQ — DQ)
- ELEV. REFERENCE MARK RM2 x
- APPROXIMATE 100 YEAR FLOOD BOUNDARY

JUL 09 1979

WATER MANAGEMENT

DELTA TWP., LANSING TWP., ~~CITY OF LANSING~~, AND ~~CITY OF EAST LANSING~~, MICH.

FLOOD BOUNDARY AND FLOODWAY MAP

SCALE: 1"=1000'

Crossoffs are wrong, verified per USGS quad

DRN. No. 6A

00BREAK00

1) COUNTY: Ingham

2) STUDY NAME: Lansing + E. Lansing

3) WATERCOURSE: Red Cedar

4) DOCUMENT TYPE: 1975 Flood

00BREAK00

FINAL RED CEDAR
1975 FLOOD 7/9/79 YGW

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01:02
  MODIFICATION -  50:51:52:53
**************************************************

C
T1      1975 FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.       6.        0.        0.  0.000000      0.00      0.0       0.    824.400     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    0.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000

NC      .060      .060      .035      .100      .300    0.000     0.000     0.000     0.000     0.000
QT     6.000 10700.000 16600.000 19400.000 26800.000 11600.000 19400.000     0.000     0.000     0.000
NH     5.000      .045  119.500      .030  290.000      .045  340.000      .030  490.000      .050
NH   807.000     0.000     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

          CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

X1     1.000    23.000   129.000   490.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   834.500     0.000   835.500    20.000   833.000   119.000   817.700   129.000   814.000   130.000
GR   810.500   170.000   811.000   220.000   812.000   260.000   818.000   280.000   825.000   290.000
GR   825.500   340.000   817.700   355.000   811.500   380.000   809.500   430.000   815.500   470.000
GR   825.000   490.000   827.500   510.000   828.200   610.000   845.000   610.000   845.000   710.000
GR   828.200   710.000   828.200   807.000   845.000   807.000     0.000     0.000     0.000     0.000
NC      .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     6.000  5500.000  8280.000  9600.000 13000.000  7660.000  9600.000     0.000     0.000     0.000
ET     0.000   375.000   890.000     9.100     9.100     9.100     2.100     0.000   375.000     0.000

X1     2.000    14.000   515.000   655.000   500.000   335.000   400.000     0.000     0.000     0.000
GR   837.000     0.000   826.000   395.000   824.000   505.000   820.000   515.000   817.600   525.000
GR   810.900   550.000   809.500   590.000   815.100   628.000   818.000   655.000   822.000   665.000
GR   824.000   675.000   828.000   700.000   828.300  1055.000   845.000  1056.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     0.000     9.100     0.000     1.000   590.000

          ELM ST. BRIDGE

X1     3.000    19.000   175.000   266.000   550.000   550.000   550.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   840.100   826.000     0.000
GR   840.100     0.000   841.200   100.000   839.000   140.000   834.000   155.000   828.400   155.001
GR   817.700   175.000   817.700   175.001   810.400   200.000   809.600   230.000   814.800   262.000
GR   817.700   266.000   817.700   266.001   822.300   286.000   829.000   286.001   828.500   300.000
GR   828.700   400.000   830.000   490.000   826.000   625.000   870.000   625.001     0.000     0.000
ET     0.000     0.000   590.000     0.000     0.000     0.000     2.100     0.000     0.000     0.000
SB     0.000     1.560     3.000     0.000    80.000     0.000  1441.000      .100   810.000   809.600
```

RECEIVED
AUG 17 1979
WATER MANAGEMENT

X1	3.500	19.000	175.000	266.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	828.000	826.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.100	826.000	0.000
BT	15.000	0.000	840.100	0.000	100.000	841.300	0.000	155.000	840.600	0.000
BT	155.100	843.600	0.000	175.000	843.100	0.000	175.100	843.100	828.000	266.000
BT	840.200	828.000	266.100	840.200	0.000	286.000	839.500	0.000	286.100	836.500
BT	0.000	300.000	835.900	0.000	400.000	832.900	0.000	485.000	830.000	0.000
BT	625.000	826.000	0.000	625.001	870.000	0.000	0.000	0.000	0.000	0.000
GR	840.100	0.000	841.300	100.000	841.200	125.000	834.000	155.000	825.000	155.001
GR	817.700	175.000	817.700	175.100	810.700	200.000	810.500	230.000	813.900	262.000
GR	817.700	266.000	817.700	266.100	829.500	286.000	832.500	286.100	835.500	298.000
GR	829.300	400.000	828.000	615.000	827.900	625.000	870.000	625.001	0.000	0.000
NC	0.000	0.000	.035	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	9.100	0.000	116.500	539.000

X1	4.000	12.000	122.000	225.000	575.000	455.000	500.000	0.000	0.000	0.000
GR	840.400	0.000	830.000	110.000	820.000	117.000	818.000	122.000	816.900	151.000
GR	806.800	175.000	816.900	220.000	818.000	225.000	820.000	232.000	824.000	240.000
GR	829.500	415.000	829.500	540.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

PENN CENTRAL R.R. BRIDGE

X1	5.000	16.000	391.000	539.000	600.000	525.000	570.000	.985	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
GR	838.200	0.000	829.900	200.000	829.200	300.000	829.400	377.000	825.400	391.000
GR	825.400	391.001	816.100	403.000	803.000	425.000	811.200	450.000	812.600	500.000
GR	816.100	514.000	824.600	539.000	824.600	539.001	827.100	600.000	830.000	710.000
GR	840.000	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.900	0.000	110.000	44.000	1506.000	1.160	811.000	811.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

X1	5.100	18.000	391.000	539.000	26.000	26.000	26.000	.985	0.000	0.000
X2	0.000	0.000	1.000	828.300	828.300	0.000	0.000	0.000	.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
BT	8.000	259.000	830.700	0.000	260.000	830.700	0.000	300.000	830.500	0.000
BT	391.000	830.400	0.000	391.001	833.400	828.300	539.000	832.900	827.900	539.001
BT	829.900	0.000	560.000	829.700	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.200	0.000	830.500	200.000	830.400	300.000	830.500	377.000	826.100	391.000
GR	826.100	391.001	816.100	409.000	803.800	425.000	811.700	450.000	813.100	500.000
GR	816.100	526.000	825.600	539.000	827.900	539.001	829.700	539.002	829.700	539.003
GR	829.420	560.000	870.000	560.010	870.000	2020.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	450.000	1060.000

X1	6.000	45.000	589.100	815.000	195.000	195.000	195.000	.866	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100
GR	818.000	589.000	818.000	589.100	818.200	639.000	814.400	645.000	814.400	645.100
GR	810.400	649.000	810.400	649.100	812.900	707.000	812.900	707.100	810.600	711.000
GR	810.600	711.100	818.200	741.000	819.300	770.000	819.300	770.100	819.300	774.000
GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.460	1060.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	1060.000

CEDAR ST. BRIDGE

X1	6.010	51.000	589.100	815.000	1.000	1.000	1.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	47.000	204.000	848.000	854.200	269.000	862.900	854.400	269.100	862.900	832.000
BT	273.000	862.900	832.000	273.100	862.900	854.200	332.000	862.200	853.500	332.100
BT	862.200	832.100	336.000	862.200	832.100	336.100	862.200	853.500	396.000	860.900
BT	852.200	396.100	860.900	831.400	400.000	860.900	831.400	400.100	860.900	852.200
BT	458.000	858.900	850.200	458.100	858.900	830.600	462.000	858.900	830.600	462.100
BT	858.900	850.200	522.000	856.400	847.700	522.100	856.400	831.200	526.000	856.400
BT	831.200	526.100	856.400	847.700	585.000	853.900	845.200	585.100	853.900	839.700
BT	589.000	853.900	818.000	589.100	853.900	845.200	645.000	851.200	842.500	645.100
BT	851.200	814.400	649.000	851.200	810.400	649.100	851.200	842.500	707.000	848.200
BT	839.500	707.100	848.200	812.900	711.000	848.200	810.600	711.100	848.200	839.500
BT	770.000	846.400	837.700	770.100	846.400	819.300	774.000	846.400	819.300	774.100
BT	846.400	837.700	815.000	845.000	836.300	815.100	845.000	829.900	900.000	837.600
BT	0.000	1100.000	832.300	0.000	1300.000	830.900	0.000	1500.000	830.400	0.000
BT	1700.000	829.600	0.000	1900.000	832.900	0.000	2100.000	834.900	0.000	2200.000
BT	839.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100
GR	818.000	589.000	818.000	589.100	818.200	639.000	814.400	645.000	814.400	645.100
GR	810.400	649.000	810.400	649.100	812.900	707.000	812.900	707.100	810.600	711.000
GR	810.600	711.100	818.200	761.000	819.300	770.000	819.300	770.100	819.300	774.000
GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.300	1100.000
GR	830.900	1300.000	830.400	1500.000	829.600	1700.000	832.900	1900.000	834.900	2100.000
GR	839.900	2200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	815.000

X1	6.090	53.000	637.000	855.000	65.000	65.000	65.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	50.000	204.000	862.000	854.000	271.000	862.000	854.000	271.100	862.000	832.200
BT	275.000	862.000	832.200	275.100	862.000	854.000	332.000	862.000	853.000	332.100
BT	853.000	832.100	336.000	862.000	832.100	336.100	862.000	853.000	396.000	862.000
BT	852.000	396.100	860.000	831.400	400.000	860.000	831.400	400.100	860.000	852.000
BT	458.000	858.000	850.000	458.100	858.000	830.600	462.000	858.000	830.600	462.100
BT	858.000	850.000	522.000	856.000	847.700	522.100	856.000	831.100	526.000	856.000
BT	831.100	526.100	856.000	847.700	585.000	854.000	845.000	585.100	853.000	829.700
BT	589.000	853.000	829.700	589.100	853.000	845.000	621.000	851.000	844.000	621.100
BT	852.000	822.700	625.000	852.000	822.700	625.100	852.000	844.000	681.000	850.000
BT	842.000	681.100	850.000	810.500	685.000	850.000	809.500	685.100	850.000	842.000
BT	743.000	848.000	839.300	743.100	848.000	809.700	747.000	848.000	810.200	747.100
BT	848.000	839.300	810.000	845.000	836.600	810.100	845.000	818.200	814.000	845.000
BT	818.200	814.100	845.000	836.600	855.000	843.000	835.000	855.100	843.300	828.500
BT	900.000	841.300	0.000	1100.000	836.000	0.000	1300.000	834.600	0.000	1500.000
BT	834.100	0.000	1500.000	830.400	0.000	1700.000	829.600	0.000	1900.000	832.900
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	833.000	204.100	832.200	271.000	832.200	271.100	832.200	275.000
GR	832.200	275.100	832.100	332.000	832.100	332.100	832.100	336.000	832.100	336.100
GR	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100	830.600	458.000
GR	830.600	458.100	830.600	462.000	830.600	462.100	831.100	522.000	831.100	522.100
GR	831.100	526.000	831.100	526.100	829.700	585.000	829.700	585.100	829.700	589.000
GR	829.700	589.100	822.700	621.000	822.700	621.100	822.700	625.000	822.700	625.000
GR	818.200	637.000	810.500	681.000	810.500	681.100	809.500	685.000	809.500	685.100
GR	809.700	743.000	809.700	743.100	810.200	747.000	810.200	747.100	818.200	810.000
GR	818.200	810.100	818.200	814.000	818.200	814.100	828.500	855.000	828.500	855.100
GR	830.100	900.000	829.400	1100.000	830.900	1300.000	830.400	1500.000	829.600	1700.000
GR	832.900	1900.000	834.900	2100.000	839.900	2200.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	417.000	945.300

X1	6.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

LYONS ST. BRIDGE

X1	8.000	16.000	859.000	988.000	400.000	287.000	335.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
GR	830.300	670.000	830.800	700.000	833.300	800.000	833.200	837.000	823.300	859.000
GR	823.300	859.000	818.200	880.000	812.500	900.000	811.900	903.000	810.900	924.000
GR	811.400	946.000	811.500	949.000	818.200	974.000	823.000	988.000	823.000	988.000
GR	829.000	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	3.000	0.000	80.000	6.000	786.000	1.650	813.000	813.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

X1	8.100	22.000	859.000	988.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	830.000	829.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
BT	8.000	670.000	830.500	0.000	700.000	830.800	0.000	800.000	833.300	0.000
BT	859.000	833.600	823.500	859.000	836.600	830.000	988.000	836.600	830.000	988.000
BT	833.600	823.200	1100.000	830.600	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.100	0.000	834.400	100.000	832.000	300.000	830.300	400.000	830.600	500.000
GR	829.100	600.000	830.800	700.000	833.300	800.000	832.100	850.000	823.500	859.000
GR	823.500	859.000	818.200	895.000	816.800	900.000	814.300	903.000	810.500	924.000
GR	811.200	946.000	811.600	949.000	818.200	980.000	823.200	988.000	823.200	988.000
GR	824.600	991.000	826.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000

PENN CENTRAL R.R. BRIDGE

X1	9.000	16.000	364.000	561.000	470.000	512.000	520.000	.914	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
GR	870.000	169.900	830.750	170.000	830.700	200.000	831.000	300.000	828.900	364.000
GR	828.900	364.000	817.800	382.000	815.600	399.000	812.700	415.000	813.500	468.000
GR	814.000	499.000	817.800	533.000	825.900	561.000	825.900	561.000	829.000	600.000
GR	830.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000
SB	1.050	1.560	2.800	0.000	113.000	20.000	2084.000	2.900	813.900	812.700

X1	9.100	16.000	364.000	561.000	14.500	14.500	14.500	.914	0.000	0.000
X2	0.000	0.000	1.000	828.900	831.200	0.000	0.000	0.000	.914	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
BT	11.000	170.000	831.400	0.000	171.000	831.400	0.000	200.000	831.200	0.000
BT	300.000	831.100	0.000	364.000	831.300	828.900	364.000	834.300	828.900	561.000
BT	834.200	828.900	561.000	831.200	826.900	600.000	831.100	0.000	700.000	831.100
BT	0.000	720.000	831.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	870.000	169.900	825.110	170.000	824.600	200.000	827.400	300.000	828.900	364.000
GR	828.900	364.000	817.800	390.000	817.300	393.000	814.200	409.000	813.900	462.000
GR	815.900	499.000	817.800	542.000	826.900	561.000	826.900	561.000	827.700	600.000
GR	826.100	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	1.400	0.000	1.000	520.000

X1	10.000	15.000	50.000	171.000	620.000	662.000	600.000	0.000	0.000	0.000
GR	841.300	0.000	826.200	1.000	825.700	20.000	829.200	29.000	818.200	50.000
GR	814.400	65.000	809.100	100.000	812.200	150.000	818.200	170.000	826.400	171.000
GR	826.500	200.000	826.300	300.000	826.200	400.000	826.400	500.000	826.400	520.000
NC	.050	.050	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

G.T.W. R.R. BRIDGE

X1	11.000	37.000	269.000	406.000	475.000	875.000	475.000	.866	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	1.000	789.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	828.800	0.000	826.900	100.000	817.700	269.000	817.700	269.100	817.300	300.000
GR	817.300	300.100	814.600	306.000	814.600	306.100	811.600	334.000	813.700	334.100
GR	813.700	340.000	813.700	340.100	814.600	369.000	814.600	369.100	813.700	375.000
GR	813.700	375.100	817.700	406.000	817.700	406.100	825.800	418.000	826.000	500.000
GR	827.000	606.000	827.300	701.000	827.200	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	761.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.400	37.000	269.000	406.000	26.000	26.000	26.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	825.800	0.000	825.900	100.000	828.200	200.000	821.500	269.000	817.700	273.000
GR	816.700	300.000	816.700	300.100	816.700	306.000	816.700	306.100	814.300	334.000
GR	814.300	334.100	812.000	340.000	812.000	340.100	814.000	369.000	814.000	369.100
GR	814.100	375.000	814.100	375.100	817.700	406.000	817.700	406.100	826.100	427.000
GR	826.700	500.000	827.000	606.000	827.300	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	761.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	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	9.100	0.000	145.000	1165.000

X1	12.000	37.000	756.000	905.000	860.000	50.000	500.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
GR	828.500	70.000	828.100	200.000	827.500	400.000	827.100	600.000	827.300	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.000	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	824.100	1033.000	822.900	1100.000
GR	820.200	1171.000	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	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	9.100	0.000	145.000	1165.000

PENNSYLVANIA AVE. BRIDGE

X1	12.100	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	.972	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
NC	0.000	.060	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	9.100	0.000	115.000	1165.000

X1	12.400	26.000	756.000	905.000	72.000	72.000	72.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
GR	823.350	70.000	823.000	200.000	822.500	400.000	827.100	600.000	827.200	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.300	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	822.900	1100.000	820.200	1171.000
GR	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.091	.050	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	9.100	0.000	115.000	1165.000

MICH DNR 1975 FLOOD HIGH WATER MARK 829.36 AT SECTION 12.5

X1	12.500	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	828.470	824.970	0.000
NC	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	190.000	1310.000	9.100	9.100	9.100	2.100	0.000	160.000	0.000

X1	13.000	22.000	684.000	840.000	500.000	525.000	475.000	0.000	0.000	0.000
GR	850.000	0.000	850.000	159.900	826.000	160.000	826.000	325.000	824.000	335.000
GR	824.000	620.000	825.000	650.000	820.000	684.000	818.400	690.000	812.970	707.000
GR	810.970	779.000	810.970	784.000	813.970	815.000	818.400	840.000	820.000	867.000
GR	822.000	880.000	822.000	955.000	822.000	1140.000	824.000	1250.000	826.000	1258.000
GR	828.000	1264.000	836.700	1310.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	14.000	30.000	190.000	397.000	1300.000	1510.000	1375.000	0.000	0.000	0.000
GR	850.000	0.000	837.000	0.000	834.000	20.000	832.000	37.000	830.000	77.000
GR	830.000	103.000	820.000	184.000	819.500	190.000	817.500	190.000	817.500	195.000
GR	815.000	211.000	815.500	225.000	813.800	245.000	814.200	255.000	814.200	265.000
GR	812.000	308.000	811.000	312.000	811.000	325.000	814.000	355.000	814.000	375.000
GR	815.000	385.000	817.500	395.000	818.800	397.000	820.000	505.000	822.000	535.000
GR	824.000	618.000	828.000	700.000	832.000	784.000	836.000	818.000	838.000	868.000
NH	7.000	.070	151.000	.050	203.000	.070	583.000	.040	680.000	.070
NH	1055.000	.050	1090.000	.050	1360.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE RED CEDAR AND SYCAMORE CREEK

X1	14.500	21.000	151.000	1090.000	1375.000	1255.000	1550.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	18.000	819.000	150.000	818.100	151.000	815.900	161.000

GR	815.000	181.000	816.100	191.000	818.100	202.000	819.000	203.000	819.000	583.000
GR	815.000	600.000	811.800	620.000	811.800	630.000	815.000	640.000	819.000	680.000
GR	819.000	1050.000	817.000	1055.000	817.000	1090.000	819.000	1095.000	828.000	1260.000
GR	830.000	1360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.068	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RT	6.000	4120.000	6200.000	7200.000	9740.000	5940.000	7200.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	9.100	9.100	0.000	1.400	0.000	1.000	2470.000
X1	15.000	32.000	1533.000	1615.000	950.000	400.000	450.000	0.000	.970	0.000
GR	834.300	0.000	828.300	10.000	821.800	34.000	820.700	110.000	819.400	210.000
GR	819.300	410.000	818.800	610.000	818.600	810.000	818.600	830.000	817.500	835.000
GR	815.000	854.000	815.200	865.000	817.500	872.000	818.000	874.000	818.000	1010.000
GR	818.400	1210.000	818.100	1310.000	818.500	1410.000	818.300	1510.000	817.500	1533.000
GR	813.700	1540.000	812.500	1560.000	814.500	1603.000	817.500	1615.000	821.600	1624.000
GR	823.700	1710.000	823.600	1810.000	824.300	2010.000	828.300	2210.000	832.500	2410.000
GR	836.500	2510.000	841.400	2610.000	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	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000

AURELIUS RD. BRIDGE

X1	16.000	33.000	1905.100	2095.000	300.000	475.000	500.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
GR	842.300	0.000	837.300	100.000	834.600	200.000	832.400	300.000	827.270	345.500
GR	825.060	400.000	820.060	450.000	818.760	500.000	819.850	550.000	818.150	600.000
GR	817.240	700.000	816.540	800.000	819.220	1200.000	817.700	1300.000	819.500	1347.000
GR	819.000	1905.000	819.000	1905.100	819.000	1930.000	812.000	1947.000	812.000	1965.000
GR	812.000	1965.100	812.000	1968.000	812.000	1968.100	812.000	2035.000	812.000	2035.100
GR	812.000	2038.000	812.000	2038.100	818.200	2055.000	818.500	2095.000	818.500	2095.100
GR	819.100	2150.000	821.190	2435.000	821.700	2500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	3.000	0.000	81.000	6.000	2821.000	2.040	812.000	812.000
X1	16.500	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.000	829.140	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
RT	18.000	0.000	842.300	0.000	100.000	837.300	0.000	200.000	834.600	0.000
RT	300.000	832.400	0.000	700.000	829.140	0.000	1905.000	837.000	0.000	1905.100
RT	837.000	832.900	1965.000	838.300	834.600	1965.100	838.300	812.000	1968.000	838.300
RT	812.000	1968.100	838.300	834.600	2035.000	839.600	836.000	2035.100	839.600	812.000
RT	2038.000	839.600	812.000	2038.100	839.600	836.000	2095.000	840.800	837.000	2095.100
RT	840.800	0.000	2500.000	849.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.120	1040.000	.100	1563.000	.030	1672.000	.090	2250.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000
X1	17.000	22.000	1563.000	1672.000	1800.000	650.000	800.000	0.000	.970	0.000
GR	837.000	0.000	830.000	35.000	822.000	75.000	820.500	300.000	820.000	525.000
GR	820.000	665.000	821.800	835.000	820.000	1040.000	820.500	1485.000	834.700	1516.000
GR	830.800	1521.000	827.300	1539.000	819.300	1563.000	817.700	1564.000	813.200	1576.000
GR	813.500	1601.000	813.700	1631.000	814.000	1651.000	817.700	1672.000	835.000	1704.000
GR	836.000	2040.000	836.000	2250.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.068	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000

G.T.W. R.R. BRIDGE

X1	18.000	25.000	1325.000	1463.000	1250.000	675.000	830.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.370	833.570	0.000
GR	822.000	0.000	820.000	380.000	820.900	1022.000	821.000	1122.000	820.600	1222.000
GR	821.700	1325.000	821.700	1325.000	820.700	1336.000	817.800	1338.000	817.800	1340.000
GR	815.800	1358.000	814.100	1376.000	812.300	1394.000	809.800	1412.000	817.800	1430.000
GR	817.800	1448.000	817.800	1452.000	821.300	1463.000	821.300	1463.000	819.700	1522.000
GR	820.300	1622.000	832.500	1682.000	840.500	1722.000	840.500	1822.000	840.500	1922.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000
SB	1.050	1.910	3.000	0.000	50.000	8.000	1400.000	2.210	811.670	810.770

X1	18.500	24.000	1325.000	1463.000	26.000	26.000	26.000	0.000	.970	0.000
X2	0.000	0.000	1.000	829.170	833.070	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.070	833.070	0.000
BT	15.000	0.000	837.970	0.000	800.000	837.970	0.000	801.000	833.370	0.000
BT	1122.000	833.570	0.000	1222.000	833.370	0.000	1325.000	833.070	823.170	1325.000
BT	833.070	829.170	1463.000	833.070	829.170	1463.000	833.070	822.170	1522.008	33.370
BT	0.000	1622.000	833.570	0.000	1622.000	833.470	0.000	1722.000	841.470	0.000
BT	1882.000	840.500	0.000	1922.000	840.500	0.000	0.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	270.000	820.900	1022.000	821.200	1122.000	821.000	1222.000
GR	822.200	1325.000	822.200	1325.000	819.200	1337.000	817.800	1338.000	815.300	1340.000
GR	810.700	1358.000	813.300	1376.000	814.300	1394.000	817.300	1412.000	817.300	1430.000
GR	817.800	1448.000	817.800	1456.000	821.200	1463.000	820.300	1522.000	820.400	1622.000
GR	832.500	1682.000	840.500	1722.000	840.500	1882.000	840.500	1922.000	0.000	0.000
NC	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	1.400	0.000	850.000	1619.000

X1	19.000	19.000	1475.000	1560.000	650.000	550.000	640.000	0.000	.970	0.000
GR	870.000	0.000	870.000	125.000	870.000	180.000	870.000	849.900	819.300	850.000
GR	819.300	890.000	821.000	970.000	820.000	1100.000	820.000	1310.000	820.000	1310.100
GR	820.200	1475.000	818.000	1480.000	812.900	1499.000	813.900	1529.000	816.000	1549.000
GR	818.000	1560.000	826.000	1574.000	837.500	1608.000	838.600	1619.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C. AND O. R.R. BRIDGE

X1	21.000	17.000	950.000	1112.000	700.000	1060.000	1637.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
GR	824.500	0.000	828.900	650.000	829.200	750.000	828.200	850.000	821.600	950.000
GR	821.600	950.000	818.200	977.000	816.500	990.000	814.600	1028.000	817.000	1035.000
GR	814.700	1065.000	818.200	1076.000	819.800	1112.000	819.800	1112.000	828.700	1150.000
GR	827.600	1250.000	824.600	1350.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.900	0.000	75.000	7.000	1544.000	3.620	816.070	815.570

X1	21.500	17.000	950.000	1112.000	10.000	10.000	10.000	0.000	.970	0.000
X2	0.000	0.000	1.000	828.270	838.270	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
BT	11.000	0.000	839.070	0.000	650.000	838.870	0.000	750.000	838.770	0.000
BT	850.000	838.570	0.000	949.000	838.270	821.670	950.000	838.270	828.270	1112.000
BT	838.170	820.770	1112.100	838.170	828.270	1150.000	838.270	0.000	1250.000	838.570
BT	0.000	1350.000	838.970	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	822.200	0.000	822.700	650.000	825.900	750.000	828.100	850.000	820.700	949.000
GR	820.700	950.000	818.200	970.000	815.600	990.000	815.400	1028.000	815.600	1035.000
GR	815.100	1065.000	818.200	1077.000	819.800	1112.000	819.800	1112.100	829.900	1150.000
GR	827.700	1250.000	825.100	1350.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.000	37.000	216.700	358.000	975.000	930.000	950.000	.707	0.000	0.000
GR	841.000	109.000	846.200	110.000	846.300	126.700	846.200	126.800	846.200	130.000

GR	846.200	130.100	846.200	133.300	818.000	216.700	818.000	216.800	815.800	221.900
GR	815.800	222.000	815.000	236.700	815.700	246.700	815.700	274.700	815.000	300.000
GR	820.000	358.000	820.000	358.100	820.800	363.300	820.800	363.400	824.000	406.700
GR	826.500	413.300	828.300	442.000	828.300	442.100	828.800	445.300	828.800	445.400
GR	829.000	515.000	829.000	515.100	829.000	518.300	829.000	518.400	841.300	566.700
GR	841.300	573.300	841.300	573.400	847.000	576.700	847.100	576.700	847.000	686.700
GR	847.000	700.000	847.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

I-496 EASTBOUND (BRIDGE OUTLET)

X1	22.010	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	.707	0.000
BT	25.000	109.000	857.000	0.000	110.000	855.800	0.000	126.700	855.500	846.200
BT	130.000	855.400	846.200	130.100	855.400	849.000	216.700	854.600	848.000	216.800
BT	854.600	818.000	221.900	855.400	815.000	222.000	855.400	848.000	358.000	853.100
BT	846.700	358.100	853.100	820.000	363.300	853.000	820.800	363.400	853.000	846.600
BT	442.000	852.300	845.700	442.100	852.300	828.300	445.300	852.200	828.800	445.400
BT	852.200	845.600	515.000	851.600	845.000	515.100	851.600	829.000	518.300	851.500
BT	829.000	518.400	851.500	844.900	573.300	851.000	844.300	573.400	851.000	841.300
BT	576.700	850.900	847.000	800.000	848.800	0.000	0.000	0.000	0.000	0.000

I-496 WESTBOUND (BRIDGE INLET)

X1	23.000	36.000	222.700	362.000	190.000	190.000	190.000	.707	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.707	0.000
BT	22.000	99.000	857.500	0.000	100.000	856.500	0.000	136.000	856.200	846.200
BT	139.300	856.100	846.200	139.400	856.100	849.700	222.700	855.300	849.000	222.800
BT	855.300	819.000	226.000	855.200	818.000	226.100	855.200	848.900	362.000	853.900
BT	847.600	362.100	853.900	825.500	365.300	853.800	826.500	365.400	853.800	847.600
BT	502.700	852.400	846.300	502.800	852.400	831.600	506.000	852.300	832.200	506.100
BT	852.300	846.200	548.600	851.900	845.800	548.700	851.900	842.400	552.000	851.800
BT	0.000	700.000	850.520	0.000	900.000	849.000	0.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	842.000	406.800	842.000	446.600
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23.500	36.000	222.700	362.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	828.000	406.800	828.000	406.900
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	24.000	25.000	334.000	603.000	850.000	940.000	880.000	.891	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	541.000	827.500	541.100
GR	827.500	565.000	827.500	565.100	828.140	603.000	829.700	700.000	841.000	800.000

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

X1	24.500	27.000	334.000	603.000	1.000	1.000	1.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	18.000	334.000	849.270	845.570	334.100	849.270	845.570	339.000	849.170	845.570
BT	391.000	849.170	846.270	391.100	849.170	819.570	395.000	849.170	819.570	395.100
BT	849.170	846.270	474.000	849.170	847.170	474.100	849.170	819.570	478.000	849.170
BT	819.570	478.100	849.170	847.170	561.000	849.170	847.470	561.100	849.170	828.470
BT	565.000	849.170	828.470	565.100	849.170	847.470	598.000	849.170	847.470	603.000
BT	849.170	847.570	603.100	849.170	847.570	0.000	0.000	0.000	0.000	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	565.000	827.500	565.100	842.500	598.000	842.500	603.000	846.600	603.100
GR	829.700	700.000	841.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

U.S. 127 NORTHBOUND (BRIDGE INLET)

X1	25.000	28.000	214.000	480.000	200.000	200.000	200.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	20.000	214.000	850.970	846.470	214.100	850.970	846.470	219.000	850.970	846.470
BT	219.100	850.970	846.470	272.000	850.970	845.670	272.100	850.970	819.570	276.000
BT	850.970	819.570	276.100	850.970	845.970	357.000	850.970	845.970	357.100	850.970
BT	819.570	361.000	850.970	819.570	361.100	850.970	845.970	448.000	850.970	844.170
BT	448.100	850.970	829.670	452.000	850.970	829.670	452.100	850.970	844.170	476.000
BT	850.970	844.690	476.100	850.970	844.770	480.000	850.970	844.770	480.100	850.970
BT	844.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.200	214.000	827.190	214.001	827.190	214.002	827.190	214.003	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	830.200	600.000	830.400	700.000	0.000	0.000	0.000	0.000
NC	.082	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.500	28.000	214.000	480.000	460.000	410.000	400.000	0.000	.970	0.000
GR	825.900	0.000	831.500	100.000	827.500	212.000	827.200	214.000	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	850.000	500.010	850.000	700.000	0.000	0.000	0.000	0.000

X1	27.000	26.000	1436.100	1494.000	1400.000	1010.000	1100.000	.968	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
GR	825.500	0.000	827.000	455.000	825.500	610.000	825.500	700.000	825.500	1130.000
GR	825.300	1230.000	823.200	1330.000	818.400	1436.000	818.400	1436.100	816.200	1462.000
GR	816.200	1462.100	815.500	1466.000	815.500	1466.100	815.200	1480.000	815.100	1490.000
GR	815.100	1490.100	815.200	1494.000	815.200	1494.100	815.400	1507.000	816.900	1518.000
GR	818.400	1520.000	818.400	1520.100	824.800	1532.000	826.500	1630.000	826.300	1730.000
GR	825.000	2130.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

KALAMAZOO ST. BRIDGE

X1	27.100	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	.968	0.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
BT	26.000	0.000	829.470	0.000	455.000	828.970	0.000	610.000	826.970	0.000
BT	700.000	828.720	0.000	1130.000	828.170	0.000	1230.000	829.270	0.000	1330.000
BT	828.970	0.000	1436.000	829.970	829.970	1436.100	829.970	827.170	1462.000	829.570
BT	827.170	1462.100	829.870	817.170	1466.000	829.870	816.470	1466.100	829.870	827.170
BT	1480.000	829.870	827.170	1490.000	829.870	827.170	1490.100	829.870	816.070	1494.000
BT	829.870	827.170	1494.100	829.870	827.170	1507.000	829.970	827.170	1518.000	829.970
BT	827.170	1520.000	829.870	827.170	1520.100	829.870	829.870	1532.000	830.670	0.000
BT	1630.000	830.970	0.000	1730.000	832.370	0.000	2130.000	831.970	0.000	0.000
X1	27.400	0.000	0.000	0.000	38.000	38.000	38.000	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	826.970	829.970	0.000
NC	.070	.050	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

X1	27.500	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	826.970	829.970	0.000
NC	0.000	0.000	.040	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	9.100	0.000	90.000	1200.000
X1	28.000	20.000	466.000	570.000	1962.000	1962.000	1962.000	0.000	.970	0.000
GR	846.200	0.000	833.700	0.000	832.700	100.000	827.200	200.000	827.600	300.000
GR	829.100	400.000	829.600	439.000	823.200	453.000	823.200	466.000	819.700	470.000
GR	815.500	480.000	814.500	500.000	816.900	530.000	819.700	554.000	826.700	570.000
GR	826.800	700.000	826.800	900.000	826.900	1100.000	827.100	1250.000	850.000	1250.010
NC	.055	.055	.037	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	30.000	15.000	20.000	160.000	1220.000	1300.000	1275.000	0.000	0.000	0.000
GR	855.000	0.000	840.500	.100	840.000	9.000	835.000	20.000	830.000	40.000
GR	828.000	50.000	820.200	65.000	818.000	80.000	816.500	95.000	818.000	110.000
GR	820.200	125.000	830.000	145.000	833.000	160.000	834.000	250.000	854.000	250.000

HARRISON RD. BRIDGE

X1	31.000	19.000	325.000	424.000	750.000	750.000	750.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
GR	845.900	0.000	844.200	100.000	842.900	200.000	841.700	268.000	840.600	300.000
GR	840.100	318.000	832.800	325.000	832.800	325.000	820.700	353.000	818.600	361.000
GR	819.700	384.000	819.200	400.000	820.700	406.000	826.700	424.000	826.700	424.000
GR	834.800	434.000	835.500	500.000	835.100	600.000	835.100	700.000	0.000	0.000
SB	.900	1.560	3.000	0.000	58.000	0.000	1014.000	1.340	819.000	819.000
X1	31.500	19.000	325.000	424.000	57.000	57.000	57.000	.970	0.000	0.000
X2	0.000	0.000	1.000	835.100	835.500	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
BT	15.000	0.000	845.900	0.000	100.000	844.200	0.000	200.000	843.700	0.000
BT	298.000	840.600	0.000	300.000	839.200	0.000	300.000	842.700	0.000	325.000
BT	842.100	828.300	325.000	842.100	835.100	424.000	839.900	823.100	424.000	839.900
BT	831.900	444.000	839.400	0.000	444.000	835.900	0.000	500.000	835.600	0.000
BT	600.000	835.500	0.000	700.000	835.500	0.000	0.000	0.000	0.000	0.000
GR	845.900	0.000	844.200	100.000	843.700	200.000	840.600	298.000	839.200	300.000
GR	828.300	325.000	828.300	325.000	820.700	338.000	819.500	340.000	819.100	352.000
GR	818.500	366.000	816.100	388.000	820.700	417.000	823.700	424.000	831.900	424.000
GR	835.200	424.000	835.500	500.000	835.500	600.000	835.700	700.000	0.000	0.000
NC	.040	.040	.038	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	33.000	22.000	517.000	611.000	1240.000	600.000	875.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	829.300	200.000	828.200	300.000	827.100	400.000
GR	827.000	500.000	827.000	500.000	824.600	517.000	824.600	517.000	821.000	529.000
GR	819.000	539.500	819.000	550.000	818.900	562.000	819.400	586.500	821.000	600.000
GR	824.500	611.000	824.500	611.000	833.700	628.000	833.700	628.000	835.300	700.000
GR	835.300	781.000	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	33.010	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	829.300	835.300	0.000
BT	21.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.300	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	839.800	824.600	517.000	839.800	833.600	539.500	840.500
BT	835.800	550.000	840.700	836.500	542.000	841.000	836.200	586.500	840.800	835.900
BT	600.000	840.200	835.000	611.000	840.000	833.700	611.000	840.000	824.500	628.000
BT	839.100	0.000	628.000	835.600	0.000	700.000	835.300	0.000	781.000	835.300
BT	0.000	781.000	855.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	33.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BT	19.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.000	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	840.100	825.500	517.000	840.100	833.600	540.000	840.800
BT	836.000	562.000	841.000	836.200	584.000	840.800	836.000	611.000	840.000	833.700
BT	611.000	840.100	825.000	628.000	839.100	0.000	628.000	835.600	0.000	700.000
BT	834.700	0.000	781.000	834.400	0.000	781.000	855.200	0.000	0.000	0.000

X1	33.100	21.000	517.000	611.000	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	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	826.700	200.000	826.900	300.000	828.200	400.000
GR	831.400	500.000	831.400	500.000	825.500	517.000	825.500	517.000	821.000	527.000
GR	819.700	540.000	818.900	562.000	819.200	584.000	821.000	605.000	825.000	611.000
GR	825.000	611.000	833.900	628.000	833.900	628.000	834.700	700.000	834.000	781.000
GR	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.000	15.000	750.000	865.000	440.000	1965.000	1635.000	0.000	0.000	0.000
GR	862.000	0.000	832.500	.100	832.000	20.000	830.000	35.000	828.000	75.000
GR	827.000	410.000	828.000	585.000	828.000	750.000	822.000	770.000	820.500	790.000
GR	819.700	809.000	821.000	829.000	822.000	848.000	845.000	865.000	854.500	890.000

KALAMAZOO ST. BRIDGE

X1	36.000	21.000	622.100	715.000	520.000	1150.000	1110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
GR	832.000	0.000	830.000	65.000	828.500	100.000	828.200	315.000	828.400	415.000
GR	828.500	500.000	828.600	515.000	832.300	575.000	832.000	610.000	823.000	622.000
GR	823.000	622.100	820.400	670.000	820.400	670.100	820.400	674.000	820.400	674.100
GR	821.100	686.000	823.000	715.000	823.000	715.100	828.000	730.000	835.700	738.000
GR	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.100	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	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	100.000	832.800	0.000
BT	315.000	832.800	0.000	415.000	833.500	0.000	500.000	833.900	0.000	515.000

BT	834.000	0.000	575.000	835.100	0.000	610.000	835.700	0.000	622.000	835.800
BT	835.800	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200	820.400
BT	674.000	836.200	820.400	674.100	836.200	834.200	715.000	836.100	834.200	715.100
BT	836.100	836.100	785.000	836.800	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.400	17.000	622.100	715.000	58.000	58.000	58.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BT	16.000	0.000	833.400	0.000	65.000	833.000	0.000	315.000	832.800	0.000
BT	415.000	833.500	0.000	515.000	834.000	0.000	604.000	835.700	0.000	622.000
BT	835.900	835.900	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200
BT	820.400	674.000	836.200	820.700	674.100	836.200	834.200	715.000	836.100	834.200
BT	715.100	836.100	836.100	720.000	836.100	0.000	785.000	836.800	0.000	0.000
GR	833.400	0.000	833.000	65.000	832.800	315.000	833.500	415.000	832.200	515.000
GR	831.100	604.000	823.000	622.000	823.000	622.100	820.400	670.000	820.400	670.100
GR	820.700	674.000	820.700	674.100	820.500	686.000	823.000	715.000	823.000	715.100
GR	834.200	720.000	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.500	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	833.000	836.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	38.000	38.000	322.000	416.000	1270.000	1070.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
GR	841.600	0.000	838.500	100.000	835.800	200.000	836.800	300.000	824.300	315.000
GR	823.600	322.000	823.600	322.000	821.700	340.000	821.600	345.500	821.200	360.000
GR	820.400	380.000	820.800	392.500	821.000	400.000	824.300	408.000	829.500	416.000
GR	829.500	416.000	829.500	428.000	829.500	428.000	829.700	448.000	829.900	469.500
GR	829.900	469.500	829.900	470.500	829.900	470.500	830.000	488.500	830.000	506.500
GR	830.000	506.500	830.000	507.500	830.000	507.500	830.800	525.500	831.700	543.500
GR	831.700	543.500	831.700	544.500	831.700	544.500	836.100	559.000	840.500	574.000
GR	842.900	581.000	842.900	581.000	845.500	700.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	38.010	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	836.900	829.500	0.000
BT	33.000	0.000	846.600	0.000	100.000	841.600	0.000	200.000	836.900	0.000
BT	300.000	837.800	0.000	322.000	838.300	823.600	322.000	841.300	835.100	345.500
BT	841.800	836.900	369.000	842.200	837.800	392.500	842.600	837.500	416.000	843.000
BT	836.900	416.000	843.000	829.500	428.000	843.200	829.500	428.000	843.200	837.800
BT	448.000	843.500	839.000	469.500	844.000	838.500	469.500	844.000	829.900	470.500
BT	844.000	829.900	470.500	844.000	838.500	488.500	844.400	839.500	506.500	848.800
BT	839.200	506.500	848.800	830.000	507.500	848.000	830.000	507.500	848.000	839.200
BT	525.500	845.200	840.200	543.500	845.500	840.000	543.500	845.500	831.700	544.500
BT	845.500	831.700	544.500	845.500	840.000	559.000	845.700	840.900	574.000	845.800
BT	840.500	581.000	845.900	0.000	581.000	842.900	0.000	700.000	845.500	0.000
X1	38.090	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
X1	38.100	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	836.900	829.500	0.000
NC	.040	.040	.038	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	38.500	18.000	160.000	242.100	570.000	540.000	545.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000

GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	824.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000	838.000	310.000
GR	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

X1	39.000	19.000	160.000	242.100	10.000	10.000	10.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	826.890	160.100
GR	826.860	201.000	827.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

X1	40.000	19.000	156.000	246.100	20.000	20.000	20.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	156.000	827.350	156.100
GR	827.300	201.000	827.340	246.000	829.600	246.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000
NC	0.000	0.000	.031	.300	.500	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	41.000	17.000	141.000	241.100	210.000	205.000	205.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	32.000	842.000	65.000	840.000	123.000	835.500	141.000
GR	835.500	141.100	826.700	152.000	822.200	161.000	821.100	171.000	821.000	191.000
GR	821.000	211.000	831.000	241.000	831.000	241.100	839.300	256.000	841.800	241.000
GR	838.000	380.000	837.800	410.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.400	2.500	0.000	75.000	0.000	1400.000	3.000	821.000	821.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	141.000	244.000

X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.900	837.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	846.000	0.000	32.000	844.000	0.000	65.000	842.000	0.000
BT	123.000	841.700	0.000	141.000	841.480	0.000	141.100	841.420	837.900	191.000
BT	841.460	837.900	241.000	841.430	837.900	241.100	841.430	0.000	256.000	841.430
BT	0.000	241.000	841.800	0.000	380.000	838.000	0.000	410.000	837.800	0.000
NC	.036	.036	0.000	.100	.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

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 834.34 ON USGS GUAGE

X1	42.000	25.000	221.000	337.000	1055.000	905.000	925.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
GR	850.300	0.000	847.700	100.000	837.500	221.000	829.300	221.000	829.300	230.000
GR	829.300	232.000	824.400	232.000	824.300	239.000	824.100	248.000	824.000	255.000
GR	824.000	255.000	823.300	258.000	823.300	258.000	823.700	268.500	824.200	281.000
GR	823.600	293.000	823.000	304.000	823.000	304.000	823.300	307.000	823.300	307.000
GR	823.600	325.000	829.300	337.000	829.300	337.000	841.100	400.000	842.100	500.000

X1	42.010	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	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.700	0.000	200.000	846.300	0.000

BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.400	839.000	255.000	846.400	837.500	255.000	846.400
BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.500	846.100	839.000
BT	281.000	845.800	839.500	293.000	845.600	839.000	304.000	845.400	837.500	304.000
BT	845.400	823.000	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	945.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	362.000	843.800	0.000	400.000	842.300	0.000	500.000	843.200	0.000	0.000
X1	42.090	0.000	0.000	0.000	74.000	74.000	74.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.200	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.500	839.000	253.000	846.400	837.500	253.000	846.400
BT	824.000	258.000	846.300	823.600	258.000	846.300	837.500	268.000	846.100	839.000
BT	281.000	844.800	839.500	294.000	845.500	839.000	304.000	845.400	837.500	304.000
BT	845.000	824.100	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	845.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	400.000	842.300	0.000	500.000	843.200	0.000	580.000	843.000	0.000	0.000
NC	0.000	0.000	.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.100	30.000	221.000	337.000	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	846.300	841.100	0.000
GR	850.300	0.000	847.200	100.000	844.100	200.000	844.100	200.000	837.500	221.000
GR	829.300	221.000	829.300	230.000	829.300	232.000	823.100	232.000	823.000	239.000
GR	823.000	248.000	824.000	253.000	824.000	253.000	823.600	258.000	823.600	258.000
GR	825.700	268.000	823.800	281.000	824.000	294.000	824.100	304.000	824.100	304.000
GR	823.300	307.000	823.300	307.000	824.200	325.000	829.300	337.000	829.300	337.000
GR	829.300	337.000	829.900	362.000	829.900	362.000	830.800	400.000	837.600	500.000
NC	0.000	0.000	.027	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	50.000	412.000
X1	43.000	18.000	195.000	305.000	455.000	700.000	580.000	0.000	0.000	0.000
GR	830.000	0.000	840.500	.100	840.000	45.000	838.000	102.000	837.000	115.000
GR	836.000	122.000	834.000	145.000	832.000	180.000	828.400	195.000	825.000	222.000
GR	822.900	250.000	825.000	278.000	828.400	305.000	830.500	369.000	832.000	385.000
GR	836.000	400.000	836.500	412.000	860.000	412.100	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

ROGUE ST. BRIDGE

X1	44.000	24.000	512.000	663.000	1000.000	975.000	925.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
GR	846.600	0.000	843.300	100.000	841.200	200.000	842.000	300.000	841.400	400.000
GR	832.200	500.000	832.200	500.000	830.100	512.000	828.900	530.000	825.400	540.000
GR	824.500	551.000	824.300	555.000	822.400	580.000	823.500	609.000	824.400	613.000
GR	824.200	622.000	828.900	630.000	830.100	652.000	831.000	663.000	831.000	663.000
GR	834.200	700.000	844.200	800.000	844.600	900.000	845.500	1000.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	3.000	0.000	75.000	0.000	1800.000	2.950	822.500	822.500
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000
X1	44.500	25.000	513.000	675.000	72.000	72.000	72.000	.970	0.000	0.000
X2	0.000	0.000	1.000	838.200	842.600	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
BT	10.000	300.000	842.800	0.000	400.000	842.600	0.000	500.000	843.500	0.000
BT	500.000	846.700	0.000	513.000	846.800	830.800	513.000	846.800	838.100	675.000
BT	847.300	838.100	675.000	844.100	833.200	700.000	843.800	0.000	720.000	843.800
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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GR     846.600     0.000   842.500   100.000   839.600   200.000   838.200   300.000   833.800   400.000
GR     831.700   500.000   830.800   513.000   830.800   513.000   830.100   524.000   828.900   542.000
GR     824.700   550.000   824.000   563.000   824.000   567.000   821.700   595.000   823.300   621.000
GR     823.700   625.000   826.700   637.000   828.900   649.000   830.100   664.000   833.200   675.000
GR     833.200   675.000   840.400   700.000   840.700   800.000   844.600   900.000   845.700  1000.000
NC       0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1      45.000    20.000   540.000   645.000   750.000   650.000   660.000     0.000     0.000     0.000
GR     900.000     0.000   850.900      .100   850.000    30.000   848.000   110.000   846.000   140.000
GR     844.000   200.000   842.000   280.000   840.000   325.000   838.000   425.000   837.000   442.000
GR     836.000   475.000   834.000   490.000   828.000   540.000   824.000   564.000   821.800   588.000
GR     824.000   611.000   828.000   635.000   833.000   645.000   834.500   670.000   864.000   670.100
NC       0.000     0.000     0.000      .100      .300     0.000     0.000     0.000     0.000     0.000

X1      46.000    16.000   740.000   884.000  1330.000  1625.000  1550.000     0.000     0.000     0.000
X4       1.000   844.000   335.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR     848.000     0.000   848.800    90.000   848.000   135.000   846.000   210.000   844.000   345.000
GR     836.000   455.000   834.500   540.000   834.000   700.000   832.000   725.000   828.000   740.000
GR     826.000   774.000   824.000   799.000   821.900   829.000   824.000   859.000   828.000   884.000
GR     834.000   925.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       0.000      .064     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

        HAGADORN RD. BRIDGE

        1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

X1      47.000    18.000  1409.000  1495.000   630.000   575.000   625.000     0.000     0.000     0.000
X3      10.000     0.000     0.000     0.000     0.000     0.000     0.000   839.300   843.500     0.000
GR     847.000     0.000   846.500   200.000   846.000   400.000   842.400   600.000   842.700   800.000
GR     839.300  1000.000   839.900  1200.000   843.000  1400.000   826.900  1409.000   823.900  1420.000
GR     821.600  1452.000   821.900  1456.000   823.300  1485.000   825.900  1495.000   846.200  1509.000
GR     843.900  1519.000   846.000  1600.000   849.500  1700.000     0.000     0.000     0.000     0.000
SB       1.050     1.400     3.000     0.000    86.000     4.000  1300.000     0.000   824.400   824.400

X1      47.500    18.000  1409.000  1495.000    59.000    59.000    59.000     0.000     0.000     0.000
X5      -4.000     0.000     0.000     0.000      .360     0.000     0.000     0.000     0.000     0.000
X2       0.000     0.000     1.000   839.500   839.300     0.000     0.000     0.000     0.000     0.000
X3      10.000     0.000     0.000     0.000     0.000     0.000     0.000   839.300   843.500     0.000
BT      20.000     0.000   847.000     0.000   200.000   846.500     0.000   400.000   846.000     0.000
BT     600.000   842.400     0.000   800.000   842.700     0.000  1000.000   839.300     0.000  1200.000
BT     839.700     0.000  1400.000   843.000     0.000  1400.000   845.700     0.000  1409.000   845.800
BT     826.900  1409.000   845.800   839.200  1419.000   846.000     0.000  1464.000   846.100     0.000
BT    1495.000   846.200   839.500  1495.000   846.200   825.900  1509.000   846.200     0.000  1519.000
BT     846.600     0.000  1519.000   843.900     0.000  1600.000   846.000     0.000  1700.000   849.500
BT       0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR     847.000     0.000   846.500   200.000   846.000   400.000   842.400   600.000   842.700   800.000
GR     839.300  1000.000   839.900  1200.000   843.000  1400.000   826.900  1409.000   823.900  1420.000
GR     821.600  1452.000   821.900  1456.000   823.300  1485.000   825.900  1495.000   846.200  1509.000
GR     843.900  1519.000   846.000  1600.000   849.500  1700.000     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

*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 1.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
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   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

        CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

     1.00     16.90    826.40      0.00    826.40    826.52      .12      0.00      0.00    817.70
  11600.       23.    11575.        2.       25.      4131.       8.        0.        0.    825.00
     0.00      .93      2.80       .25      .033      .042      .055     0.000    809.50    123.31
 .000134        0.       0.        0.         0         0         0      0.00    377.89    501.20

*SECNO 2.000

3470 ENCROACHMENT STATIONS=      375.0     1054.0  TYPE=      1  TARGET=     -375.000
     2.00     16.89    826.39      0.00      0.00    826.43      .24       .08       .04    820.00
     7660.      157.     7347.      156.      204.     1828.      116.       29.        3.    818.00
      .03       .77     4.02      1.35      .055      .039      .055      .038    809.50    375.00
 .000358       500.      400.      335.         2         0         0      0.00    314.95    689.95

CCHV=     .300 CEHV=     .500
*SECNO 3.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.10 ELREA=      826.00

        ELM ST. BRIDGE

     3.00     16.94    826.54      0.00      0.00    827.02      .48       .27       .12    817.70
     7660.        0.     7373.       287.        0.     1308.      134.       52.        6.    817.70
      .06      0.00     5.44      2.12      .055      .039      .055      .038    809.60    175.00
 .000713       550.      550.      550.         1         0         0      0.00    129.06    625.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.56      3.00       0.00     80.00      0.00   1441.00       .10    810.00    809.60

*SECNO 3.500

6070:LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   827.421  ELLC=   828.000  PCWSE=   826.543  ELTRD=   826.000

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  826.00 MAX ELLC=  828.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.10 ELREA=      826.00

     3.50     16.04    826.54      0.00      0.00    827.09      .55       .03       .04    817.70
     7660.        0.     7659.        1.        0.     1288.        0.       53.        6.    817.70
      .06      0.00     5.95      2.07      .055      .039      .055      .038    810.50    175.00
 .000811        40.       40.       40.         2         0         0    -66.31    104.01    281.01

*SECNO 4.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
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     Q          QLOB       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

      4.00      20.28     827.08       0.00       0.00     827.48       .40        .35        .05     818.00
     7660.       121.      7186.        353.        58.      1378.       248.        70.         8.     818.00
       .09       2.09       5.21       1.42       .055       .039       .055       .038     806.80     112.04
   .000599        575.       500.       455.          2          0          0       0.00     225.95     338.00

CCHV=     .300 CEHV=     .500
¥SECNO 5.000

3470 ENCROACHMENT STATIONS=      254.1      571.3  TYPE=      1  TARGET=      320.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       830.50 ELREA=       828.30


          PENN CENTRAL R.R. BRIDGE

      5.00      24.56     827.56       0.00       0.00     827.76       .21        .23        .06     825.40
     7660.          0.     7660.          0.          0.     2105.          0.        95.        10.     824.60
       .13       0.00       3.64       0.00       .055       .039       .055       .038     803.00     385.14
   .000282        600.       570.       525.          2          0          0       0.00     145.78     530.91


SPECIAL BRIDGE

SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.25       1.56       2.90       0.00     110.00      44.00    1506.00       1.16     811.00     811.00

¥SECNO 5.100
CLASS A LOW FLOW

3420 BRIDGE W.S.=     827.22 BRIDGE VELOCITY=,       5.57       CALCULATED CHANNEL AREA=,      1376.

  EGPRS       EGLWC        H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                        AREA
      0.00     827.98        .22          0.      7660.      1506.      1489.      828.30     828.30


3470 ENCROACHMENT STATIONS=      256.1      571.3  TYPE=      1  TARGET=      320.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       830.50 ELREA=       828.30

      5.10      23.97     827.77       0.00       0.00     827.98       .21        .22       0.00     826.10
     7660.          0.     7660.          0.          0.     3075.          0.        96.        11.     825.60
       .13       0.00       3.69       0.00       .055       .039       .055       .038     803.80     385.14
   .000303          26.        26.        26.          0          0          0       0.00     145.78     530.92

¥SECNO 6.000

3470 ENCROACHMENT STATIONS=      417.0      945.3  TYPE=      1  TARGET=      610.000
      6.00      17.47     827.87       0.00       0.00     828.05       .19        .06        .01     818.00
     7660.         10.     7650.          0.         15.     2213.          0.       106.        11.     829.90
       .15        .67       3.46       0.00       .055       .039       .055       .038     810.40     534.56
   .000314        195.       195.       195.          2          0          0       0.00     191.77     726.33

¥SECNO 6.010
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3370 NORMAL BRIDGE,NRD= 47 MIN ELTRD= 829.60 MAX ELLC= 854.40

3470 ENCROACHMENT STATIONS= 417.0 945.3 TYPE= 1 TARGET= 610.000

CEDAR ST. BRIDGE

6.01	17.45	827.85	0.00	0.00	828.07	.21	.00	.01	818.00
7660.	1.	7659.	0.	0.	2073.	0.	106.	11.	829.90
.15	1.41	3.49	0.00	.055	.039	.055	.038	810.40	534.56
.000391	1.	1.	1.	1	0	0	-153.47	191.75	726.31

¥SECNO 6.090

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= 50 MIN ELTRD= 829.60 MAX ELLC= 854.00

3470 ENCROACHMENT STATIONS= 417.0 733.1 TYPE= 1 TARGET= 365.000

6.09	18.41	827.91	0.00	0.00	828.09	.18	.02	.01	818.20
7660.	102.	7558.	0.	104.	2193.	0.	109.	12.	100000.00
.15	.98	3.45	0.00	.055	.039	.055	.038	809.50	544.55
.000254	65.	65.	65.	2	0	0	-202.82	188.57	733.13

¥SECNO 6.100

3470 ENCROACHMENT STATIONS= 417.0 945.3 TYPE= 1 TARGET= 528.300

6.10	18.52	828.02	0.00	0.00	828.12	.10	.00	.02	818.20
7660.	167.	7493.	0.	177.	2917.	0.	109.	12.	828.50
.15	.94	2.57	0.00	.055	.039	.055	.038	809.50	596.76
.000140	1.	1.	1.	2	0	0	0.00	256.32	853.09

¥SECNO 8.000

3470 ENCROACHMENT STATIONS= 670.0 1100.0 TYPE= 1 TARGET= 430.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.10 ELREA= 829.00

LYONS ST. BRIDGE

8.00	17.08	827.98	0.00	0.00	828.32	.33	.08	.12	823.30
7660.	0.	7660.	0.	0.	1652.	0.	127.	13.	823.00
.17	0.00	4.44	0.00	.055	.039	.055	.038	810.90	859.00
.000522	400.	335.	287.	2	0	0	0.00	129.00	988.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.54	3.00	0.00	80.00	6.00	784.00	1.65	813.00	813.00

¥SECNO 8.100

3280 CROSS SECTION 8.10 EXTENDED 1.83 FEET

CLASS A LOW FLOW

3420 BRIDGE W.S.= 827.93 BRIDGE VELOCITY= 5.20 CALCULATED CHANNEL AREA= 1473.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	828.39	.04	0.	7660.	786.	1735.	830.00	829.10

3470 ENCROACHMENT STATIONS= 670.0 1100.0 TYPE= 1 TARGET= 430.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.10 ELREA= 829.00

8.10	17.53	828.03	0.00	0.00	828.39	.37	.08	0.00	823.50
7660.	0.	7660.	0.	0.	1570.	0.	129.	13.	823.20
.17	0.00	4.88	0.00	.055	.039	.055	.038	810.50	859.00
.000622	32.	32.	32.	0	0	0	0.00	129.00	988.00

*SECNO 9.000

3470 ENCROACHMENT STATIONS= 170.0 672.7 TYPE= 1 TARGET= 550.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 831.10 ELREA= 831.10

PENN CENTRAL R.R. BRIDGE

9.00	15.78	828.48	0.00	0.00	828.67	.19	.22	.05	828.90
7660.	0.	7660.	0.	0.	2200.	0.	151.	15.	825.90
.22	0.00	3.48	0.00	.055	.039	.055	.038	812.70	347.93
.000299	470.	530.	512.	2	0	0	0.00	179.43	527.37

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	RWC	RWP	AREA	SS	ELCHU	ELCHD
	1.05	1.56	2.80	0.00	113.00	20.00	2084.00	2.90	813.90	812.70

*SECNO 9.100

3280 CROSS SECTION 9.10 EXTENDED 2.41 FEET

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

CLASS A LOW FLOW

3420 BRIDGE W.S.= 829.03 BRIDGE VELOCITY= 3.51 CALCULATED CHANNEL AREA= 2071.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	828.72	.03	0.	7660.	2084.	2048.	828.90	831.20

3470 ENCROACHMENT STATIONS= 170.0 672.7 TYPE= 1 TARGET= 550.000

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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     831.10 ELREA=     831.10

     9.10    14.61   828.51     0.00     0.00   828.72      .21      .05     0.00   828.90
     7660.       0.     7660.       0.       0.     2065.       0.      152.      15.   826.90
      .22     0.00     3.71     0.00     .055     .039     .055     .038   813.90   348.15
  .000349      15.      15.      15.        0        0        0     0.00   179.22   527.37

*SECNO 10.000

3265 DIVIDED FLOW

3280 CROSS SECTION     10.00 EXTENDED      2.32 FEET


3470 ENCROACHMENT STATIONS=       1.0      520.0  TYPE=     1  TARGET=     519.000
    10.00    19.62   828.72     0.00     0.00   828.90      .18      .17      .01   818.20
     7660.     166.     6990.     505.     170.     1960.     832.     187.      20.   826.40
      .27      .97     3.57      .61     .055     .039     .066     .038   809.10     1.00
  .000229      620.     600.     662.        0        0        0     0.00   516.83   520.00

CCHV=     .300 CEHV=     .500
*SECNO 11.000
3280 CROSS SECTION     11.00 EXTENDED       .02 FEET


3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD=  834.40 MAX ELLC=  831.30

        G.T.W.   R.R.   BRIDGE

    11.00    17.22   828.82     0.00     0.00   829.16      .34      .18      .08   817.70
     7660.       0.     6866.     794.       0.     1405.     326.     218.      30.   817.70
      .30     0.00     4.89     2.44     .055     .039     .055     .038   811.60     0.00
  .000615      475.     475.     875.        2        0        0 -1915.57   661.98   661.98

*SECNO 11.400
3280 CROSS SECTION     11.40 EXTENDED      3.03 FEET


3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD=  834.40 MAX ELLC=  831.30

    11.40    16.83   828.83     0.00     0.00   829.19      .35      .02      .01   821.50
     7660.       0.     6812.     848.       0.     1367.     326.     219.      30.   817.70
      .30     0.00     4.98     2.60     .044     .039     .055     .038   812.00     0.00
  .000699       26.      26.      26.        0        0        0 -1501.14   661.99   661.99

*SECNO 12.000
    12.00    17.32   829.29     0.00     0.00   829.37      .08      .11      .08   817.97
     7660.     479.     5797.     1384.     704.     2249.     1485.     248.      40.   817.97
      .36      .68     2.58      .93     .044     .039     .055     .039   811.97   125.73
  .000117      860.     500.      50.        2        0        0     0.00  1028.58  1154.31

*SECNO 12.100
   SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   0         QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA    LEFT/RIGHT
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    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  824.57 MAX ELLC=  825.47

         PENNSYLVANIA AVE. BRIDGE

     12.10     17.28    829.25      0.00      0.00    829.42       .17       .00       .04    817.97
    7660.      267.     5866.     1527.      433.     1607.      913.      248.       40.     817.97
      .36       .62      3.65      1.67      .072      .039      .072      .038    811.97    138.57
  .001097        1.       1.        1.         2         0         0  -1443.45   1015.67   1154.24

¥SECNO 12.400
3280 CROSS SECTION      12.40 EXTENDED       5.04 FEET

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  824.57 MAX ELLC=  825.47

     12.40     17.39    829.36      0.00      0.00    829.51       .15       .08       .01    817.97
    7660.      339.     5575.     1746.      502.     1627.      943.      253.       42.     817.97
      .36       .67      3.43      1.85      .072      .039      .066      .038    811.97     70.00
  .001179       72.      72.       72.         2         0         0  -3560.44   1084.42   1154.42

¥SECNO 12.500
3280 CROSS SECTION      12.50 EXTENDED       5.16 FEET

            MICH DNR 1975 FLOOD HIGH WATER MARK 829.36 AT SECTION 12.5

     12.50     17.51    829.48      0.00      0.00    829.53       .06       .00       .03    817.97
    7660.     1193.     5170.     1296.     2942.     2268.     1548.      253.       42.     817.97
      .36       .41      2.28       .84      .100      .039      .055      .038    811.97     70.00
  .000090        1.       1.        1.         2         0         0      0.00    1084.63   1154.63

¥SECNO 13.000

3470 ENCROACHMENT STATIONS=      160.0     1310.0  TYPE=      1  TARGET=     -160.000
     13.00     18.57    829.54      0.00      0.00    829.57       .03       .03       .01    820.00
    7660.      934.     4412.     2314.     2601.     2519.     3129.      339.       55.     818.40
      .47       .36      1.75       .74      .088      .039      .055      .038    810.97    160.00
  .000051       500.     475.      525.         2         0         0      0.00    1112.16   1272.16

CCHV=     .100 CEHV=     .300
¥SECNO 14.000
     14.00     18.61    829.61      0.00      0.00    829.65       .04       .07       .00    819.50
    7660.      262.     5642.     1756.      433.     3243.     2234.      568.       83.     818.80
      .73       .60      1.74       .79      .055      .039      .055      .038    811.00    106.14
  .000053      1300.     1375.     1510.         2         0         0      0.00     627.71   733.85

1490 NH CARD USED
¥SECNO 14.500
    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
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SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
CONFLUENCE RED CEDAR AND SYCAMORE CREEK									
14.50	17.91	829.71	0.00	0.00	829.71	.01	.06	.00	818.10
7660.	700.	6395.	565.	1443.	10700.	1155.	895.	115.	817.00
1.45	.49	.60	.49	.077	.059	.055	.039	811.80	.53
.000030	1375.	1550.	1255.	2	0	0	0.00	1344.75	1345.28
*SECNO 15.000									
15.00	14.25	829.72	0.00	0.00	829.72	.00	.01	.00	818.47
5940.	4308.	870.	762.	15041.	1214.	2575.	1153.	143.	818.47
1.96	.29	.72	.30	.075	.039	.044	.038	813.47	9.43
.000010	950.	450.	400.	1	0	0	0.00	2222.24	2231.67
CCHV= .300 CEHV= .500									
1490 NH CARD USED									
*SECNO 16.000									
3280 CROSS SECTION 16.00 EXTENDED 8.00 FEET									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 830.00 ELREA= 841.00									
AURELIUS RD. BRIDGE									
16.00	17.70	829.70	0.00	0.00	829.77	.07	.01	.03	819.00
5940.	0.	5940.	0.	0.	2820.	0.	1242.	153.	818.50
2.02	0.00	2.11	0.00	.075	.033	.044	.038	812.00	1905.10
.000104	300.	500.	475.	2	0	0	0.00	189.90	2095.00
1490 NH CARD USED									
SPECIAL BRIDGE									

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	3.00	0.00	81.00	6.00	2821.00	2.04	812.00	812.00

*SECNO 16.500
6840,FLOW IS BY WEIR AND LOW FLOW
3280 CROSS SECTION 16.50 EXTENDED 8.07 FEET

3420 BRIDGE W.S.= 829.70 BRIDGE VELOCITY= 2.98 CALCULATED CHANNEL AREA= 1967.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.00	829.84	.00	113.	5852.	2821.	3150.	837.00	829.14

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 830.00 ELREA= 841.00

16.50	17.77	829.77	0.00	0.00	829.84	.07	.07	0.00	819.00
5940.	0.	5940.	0.	0.	2834.	0.	1246.	153.	818.50
2.03	0.00	2.10	0.00	.075	.033	.044	.038	812.00	1905.10
.000102	65.	65.	65.	2	0	4	0.00	189.90	2095.00

```
1490 NH CARD USED
*SECNO 17.000

3265 DIVIDED FLOW

    17.00    15.73   829.90     0.00     0.00   829.91      .02      .06      .02   820.27
    5940.    3447.    2462.      31.   12127.    1597.     124.    1538.     187.   818.67
     2.41      .28     1.54      .25     .124     .033     .099     .037   814.17    40.41
  .000034    1800.     800.     650.        1        0        0     0.00  1626.34  1694.05

CCHV=    .300 CEHV=    .500
*SECNO 18.000
   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=     800.0    1922.0  TYPE=     1  TARGET=    1122.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.37 ELREA=      833.57

        G.T.W.  R.R.  BRIDGE

    18.00    19.12   829.89     0.00     0.00   830.05      .17      .07      .07   822.67
    5940.       0.    5940.       0.       0.    1820.       0.    1746.     211.   822.27
     2.49     0.00     3.26     0.00     .075     .035     .075     .036   810.77  1325.00
  .000216    1250.     830.     675.        2        0        0     0.00   138.00  1463.00

SPECIAL BRIDGE

SB  XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.91      3.00      0.00     50.00      8.00   1400.00      2.21    811.67    810.77

*SECNO 18.500
PRESSURE FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   830.42    830.07      .02        0.     5940.     1400.     1412.      829.17    833.07

3470 ENCROACHMENT STATIONS=     800.0    1922.0  TYPE=     1  TARGET=    1122.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.07 ELREA=      833.07

    18.50    18.59   830.26     0.00     0.00   830.42      .16      .37     0.00   823.17
    5940.       0.    5940.       0.       0.    1853.       0.    1747.     211.   822.17
     2.49     0.00     3.21     0.00     .075     .039     .075     .036   811.67  1325.00
  .000240      26.      26.      26.        2        0        0     0.00   138.00  1463.00

*SECNO 19.000

3470 ENCROACHMENT STATIONS=     850.0    1619.0  TYPE=     1  TARGET=     769.000
    19.00    16.64   830.51     0.00     0.00   830.54      .02      .07      .04   821.17
```

5940.	3555.	2320.	65.	5898.	1234.	124.	1815.	218.	818.97
2.65	.60	1.88	.52	.090	.039	.075	.036	813.87	850.00
.000068	650.	640.	550.	2	0	0	0.00	734.47	1584.47

¥SECNO 21.000
3280 CROSS SECTION 21.00 EXTENDED 5.14 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 838.57 ELREA= 838.57

C. AND O. R.R. BRIDGE

21.00	15.04	830.61	0.00	0.00	830.75	.14	.15	.06	822.57
5940.	0.	5940.	0.	0.	1997.	0.	1924.	228.	820.77
2.78	0.00	2.97	0.00	.075	.039	.075	.037	815.57	950.00
.000225	700.	1637.	1060.	2	0	0	0.00	162.00	1112.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	2.90	0.00	75.00	7.00	1544.00	3.62	816.07	815.57

¥SECNO 21.500
3280 CROSS SECTION 21.50 EXTENDED 7.67 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
830.97	830.74	.01	0.	5940.	1544.	1368.	828.27	838.27

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 838.57 ELREA= 838.57

21.50	14.77	830.84	0.00	0.00	830.97	.13	.22	0.00	821.67
5940.	0.	5940.	0.	0.	2089.	0.	1925.	228.	820.77
2.78	0.00	2.84	0.00	.075	.035	.075	.037	816.07	950.00
.000155	10.	10.	10.	2	0	0	0.00	162.00	1112.00

¥SECNO 22.000

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
22.00	15.98	830.98	0.00	0.00	831.17	.18	.17	.03	818.00
5940.	164.	5281.	495.	176.	1460.	521.	1971.	232.	820.00
2.86	.93	3.62	.95	.075	.035	.075	.037	815.00	158.00
.000208	975.	950.	930.	2	10	0	0.00	345.95	403.95

¥SECNO 22.010

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 848.80 MAX ELLC= 849.00

I-496 EASTBOUND (BRIDGE OUTLET)

22.01	15.98	830.98	0.00	0.00	831.17	.20	.00	.01	818.00
5940.	175.	5300.	465.	176.	1409.	471.	1971.	232.	820.00
2.86	.99	3.76	.99	.075	.035	.075	.037	815.00	158.00
.000237	1.	1.	1.	0	0	0	-101.74	245.95	403.95

¥SECNO 23.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 849.00 MAX ELLC= 849.70

I-496 WESTBOUND (BRIDGE INLET)

23.00	16.50	831.00	0.00	0.00	831.25	.25	.05	.03	819.00
5940.	153.	5662.	125.	146.	1374.	179.	1979.	233.	825.50
2.87	1.05	4.12	.70	.075	.035	.075	.037	814.50	162.11
.000294	190.	190.	190.	1	0	0	-40.87	194.11	384.47

¥SECNO 23.500

23.50	16.68	831.18	0.00	0.00	831.29	.11	.00	.04	819.00
5940.	152.	5588.	300.	313.	2008.	414.	1979.	233.	825.50
2.87	.72	2.78	.48	.075	.035	.075	.037	814.50	187.78
.000126	1.	1.	1.	2	0	0	0.00	315.01	502.79

¥SECNO 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 845.97 ELREA= 851.97

24.00	14.86	831.33	0.00	0.00	831.55	.22	.21	.05	845.57
5940.	0.	5940.	0.	0.	1574.	0.	2022.	239.	839.11
2.94	0.00	3.77	0.00	.075	.035	.075	.037	816.47	359.68
.000576	850.	880.	940.	2	0	0	0.00	214.00	573.68

¥SECNO 24.500

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	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 849.17 MAX ELLC= 847.57

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 845.97 ELREA= 851.97

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

24.50	14.83	831.30	0.00	0.00	831.58	.28	.00	.03	845.57
5940.	0.	5940.	0.	0.	1397.	0.	2022.	239.	843.47

```
     2.94      0.00      4.25      0.00      .075      .035      .075      .037    816.47    359.74
  .000715         1.        1.        1.         2         0         0    -93.71    185.71    573.68

*SECNO 25.000
3280 CROSS SECTION      25.00 EXTENDED       3.37 FEET

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  850.97 MAX ELLC=  846.47

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       845.97 ELREA=       851.97

         U.S. 127 NORTHBOUND      (BRIDGE INLET)

     25.00     15.97    831.54      0.00      0.00    831.73       .20       .13       .03    828.17
     5940.        0.     5940.        0.        0.     1667.        0.     2029.      240.    830.41
      2.95      0.00      3.56      0.00      .075      .035      .075      .037    815.57    214.00
  .000553      200.      200.      200.         2         0         0    -91.94    237.01    451.01

*SECNO 25.500

3265 DIVIDED FLOW

3280 CROSS SECTION      25.50 EXTENDED       4.93 FEET

     25.50     16.23    831.80      0.00      0.00    831.92       .12       .16       .02    828.17
     5940.      176.     5757.        7.      380.     2046.       23.     2048.      243.    830.41
      2.99       .46      2.81       .32      .090      .035      .090      .037    815.57      0.00
  .000299      460.      400.      410.         0         0         0      0.00    469.47    500.00

*SECNO 27.000
3280 CROSS SECTION      27.00 EXTENDED       6.08 FEET

     27.00     15.98    832.05      0.00      0.00    832.06       .01       .12       .03    819.37
     5940.     3034.     1501.     1406.     7928.      833.     3565.     2260.      280.    816.17
      3.43       .38      1.80       .39      .090      .035      .090      .037    816.07      0.00
  .000050      1400.     1100.     1010.         2         0         0      0.00   2061.84   2061.84

*SECNO 27.100
3280 CROSS SECTION      27.10 EXTENDED       6.08 FEET

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  826.97 MAX ELLC=  829.97

         KALAMAZOO ST. BRIDGE

     27.10     15.98    832.05      0.00      0.00    832.06       .01       .00       .00    819.37
     5940.     4729.      689.      522.     5141.      623.      580.     2260.      280.    816.17
      3.43       .92      1.11       .90      .039      .035      .039      .037    816.07      0.00
  .000116         1.        1.        1.         0         0         0 -5981.38   2061.84   2061.84

*SECNO 27.400
3280 CROSS SECTION      27.40 EXTENDED       6.08 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
27.40	15.99	832.06	0.00	0.00	832.07	.01	.00	.00	819.37
5940.	4730.	689.	522.	5147.	623.	582.	2265.	281.	816.17
3.44	.92	1.10	.90	.039	.035	.039	.037	816.07	0.00
.000116	38.	38.	38.	0	0	0	-5982.34	2061.84	2061.84

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 826.97 MAX ELLC= 829.97

¥SECNO 27.500

Z280 CROSS SECTION 27.50 EXTENDED 6.09 FEET

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

27.50	15.99	832.06	0.00	0.00	832.07	.01	.00	.00	819.37
5940.	2943.	1088.	1909.	7936.	834.	3568.	2266.	282.	816.17
3.44	.37	1.31	.53	.077	.040	.055	.037	816.07	0.00
.000034	1.	1.	1.	0	0	0	0.00	2061.84	2061.84

¥SECNO 28.000

28.00	16.69	832.16	0.00	0.00	832.20	.04	.12	.02	824.17
5940.	534.	2981.	2425.	1052.	1401.	2955.	2665.	353.	827.67
3.82	.51	2.13	.82	.077	.044	.055	.037	815.47	127.37
.000130	1962.	1962.	1962.	2	0	0	0.00	1122.63	1250.00

¥SECNO 30.000

30.00	15.85	832.35	0.00	0.00	832.74	.40	.36	.18	835.00
5940.	0.	5940.	0.	0.	1177.	0.	2762.	371.	833.00
3.89	0.00	5.05	0.00	.060	.040	.060	.038	816.50	30.62
.001000	1220.	1275.	1300.	2	0	0	0.00	126.11	156.73

¥SECNO 31.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.00 ELREA= 835.50

HARRISON RD. BRIDGE

31.00	14.46	833.06	0.00	0.00	833.57	.51	.77	.06	832.80
5940.	0.	5940.	0.	0.	1037.	0.	2781.	373.	826.70
3.92	0.00	5.73	0.00	.060	.040	.060	.038	818.60	315.25
.001066	750.	750.	750.	2	0	0	0.00	96.03	411.28

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	58.00	0.00	1014.00	1.34	819.00	819.00

¥SECNO 31.500

6070;LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 833.764 ELLC= 835.100 PCWSE= 833.063 ELTRD= 835.500

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

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 835.50 MAX ELLC= 835.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.00 ELREA= 835.50

31.50	16.99	833.09	0.00	0.00	833.75	.66	.10	.07	828.30
5940.	0.	5940.	0.	0.	914.	0.	2782.	374.	835.20
3.93	0.00	6.50	0.00	.060	.040	.060	.038	816.10	315.25
.003757	57.	57.	57.	2	0	0	-398.52	96.03	411.28

CCHV= .300 CEHV= .500

¥SECNO 33.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.30 ELREA= 835.30

33.00	15.32	834.22	0.00	0.00	834.27	.05	.34	.18	824.60
5940.	3001.	2939.	0.	2533.	1313.	0.	2840.	383.	824.50
4.08	1.18	2.24	0.00	.044	.042	.044	.038	818.90	7.48
.000120	1240.	875.	600.	2	0	0	0.00	603.52	611.00

¥SECNO 33.010

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 829.30 MAX ELLC= 836.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.30 ELREA= 835.30

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

33.01	15.28	834.18	0.00	0.00	834.30	.12	.00	.03	824.60
5940.	1797.	4143.	0.	1448.	1304.	0.	2841.	383.	824.50
4.08	1.24	3.18	0.00	.044	.042	.044	.038	818.90	8.50
.000283	1.	1.	1.	2	0	0	-1164.25	602.50	611.00

¥SECNO 33.090

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 829.00 MAX ELLC= 836.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 829.30 ELREA= 835.30

33.09	15.29	834.19	0.00	0.00	834.30	.12	.00	.00	824.60
5940.	1799.	4141.	0.	1457.	1305.	0.	2842.	383.	824.50
4.09	1.23	3.17	0.00	.044	.042	.044	.038	818.90	8.32
.000282	16.	16.	16.	0	0	0	-1152.66	602.63	611.00

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*SECNO 33.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      829.30 ELREA=      835.30

    33.10    15.38   834.28     0.00     0.00   834.33      .05      .00      .02   825.50
    5940.    3085.    2855.       0.    2715.    1322.       0.    2842.     383.    825.00
     4.09     1.14     2.16     0.00     .044     .042     .044     .038   818.90     3.10
  .000113       1.       1.       1.        2        0        0     0.00   607.90   611.00

*SECNO 34.000
   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

    34.00    14.69   834.39     0.00     0.00   834.40      .02      .07      .01   828.00
    5940.    4229.    1711.       0.    4874.    1304.       0.    2929.     393.    845.00
     4.34      .87     1.31     0.00     .044     .042     .044     .039   819.70      .09
  .000053     440.    1635.    1965.        2        0        0     0.00   857.06   857.15

*SECNO 36.000
3280 CROSS SECTION     36.00 EXTENDED      2.43 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.00 ELREA=      836.20

        KALAMAZOO ST. BRIDGE

    36.00    14.03   834.43     0.00     0.00   834.46      .04      .05      .01   823.00
    5940.    3584.    2356.       0.    3323.    1189.       0.    3010.     404.    823.00
     4.48     1.08     1.98     0.00     .044     .042     .044     .040   820.40     0.00
  .000104     520.    1110.    1150.        2        0        0     0.00   715.00   715.00

*SECNO 36.100
3280 CROSS SECTION     36.10 EXTENDED      2.33 FEET


3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  832.80 MAX ELLC=  836.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.00 ELREA=      836.20

    36.10    13.93   834.33     0.00     0.00   834.57      .24      .00      .10   823.00
    5940.    1157.    4783.       0.     706.    1108.       0.    3010.     404.    823.00
     4.48     1.64     4.32     0.00     .044     .042     .044     .040   820.40     0.00
  .001327       1.       1.       1.        2        0        0 -2624.30   715.00   715.00

*SECNO 36.400
3280 CROSS SECTION     36.40 EXTENDED      1.03 FEET


3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  832.80 MAX ELLC=  836.10
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.00 ELREA=      836.20

    36.40    14.03   834.43     0.00     0.00   834.65      .22      .07      .01   823.00
    5940.    1315.    4625.       0.      782.    1118.       0.     3012.     405.   823.00
     4.48     1.18     4.14     0.00     .044     .042     .044     .040   820.40     0.00
  .001203       58.      58.      58.        2        0        0  -429.18   715.00   715.00


¥SECNO 36.500
3280 CROSS SECTION      36.50 EXTENDED      1.08 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      833.00 ELREA=      836.20

    36.50    14.08   834.48     0.00     0.00   834.66      .18      .00      .01   823.00
    5940.    1325.    4619.       0.     1159.    1203.       0.     3013.     405.   823.00
     4.48     1.14     3.84     0.00     .044     .042     .044     .040   820.40     0.00
  .000384       1.       1.       1.        2        0        0     0.00   715.00   715.00


CCHV=     .300 CEHV=     .500
¥SECNO 38.000
   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      SSIA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR    TOPWID     ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.90 ELREA=      829.50

    38.00    14.52   834.92     0.00     0.00   835.11      .19      .45      .00   823.60
    5940.       0.    4644.    1296.       0.    1218.     636.     3066.     418.   829.50
     4.57     0.00     3.81     2.04     .044     .042     .044     .040   820.40   322.00
  .000453     1270.    1050.    1070.        2        0        0     0.00   233.09   555.09


¥SECNO 38.010

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  836.90 MAX ELLC=  840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.90 ELREA=      829.50

        MICHIGAN STATE UNIVERSITY FOOTBRIDGE

    38.01    14.51   834.91     0.00     0.00   835.12      .21      .00      .01   823.60
    5940.       0.    4779.    1161.       0.    1219.     559.     3066.     418.   829.50
     4.57     0.00     3.92     2.08     .044     .042     .044     .040   820.40   322.00
  .000479       1.       1.       1.        0        0        0  -78.21   233.11   555.11


¥SECNO 38.090

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  836.90 MAX ELLC=  840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.90 ELREA=      829.50

    38.09    14.52   834.92     0.00     0.00   835.13      .21      .01      .00   823.60
    5940.       0.    4779.    1161.       0.    1219.     559.     3067.     418.   829.50
     4.57     0.00     3.92     2.08     .044     .042     .044     .040   820.40   322.00
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  .000479      17.      17.      17.        0        0        0   -78.22   233.12   555.12

*SECNO 38.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.90 ELREA=      829.50

    38.10    14.54   834.94     0.00     0.00   835.13      .19      .00      .00   823.60
    5940.       0.    4637.    1303.       0.    1221.     640.    3067.     418.    829.50
     4.57     0.00     3.80     2.03     .044     .042     .044     .040   820.40   322.00
  .000449       1.       1.       1.        2        0        0     0.00   233.19   555.19

CCHV=    .100 CEHV=    .300
*SECNO 38.500
    38.50    11.14   835.14     0.00     0.00   835.59      .45      .38      .08   829.60
    5940.     301.    5186.     453.     104.     914.     158.    3086.     420.    829.60
     4.60     2.89     5.68     2.87     .044     .042     .044     .040   824.00   130.31
  .001213     570.     545.     540.        2        0        0     0.00   160.60   290.91

*SECNO 39.000
   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

        MICHIGAN STATE UNIVERSITY DAM   DOWNSTREAM SECTION

    39.00     8.01   834.87     0.00     0.00   835.72      .86      .01      .12   829.60
    5940.     318.    5148.     474.      96.     654.     145.    3086.     420.    829.60
     4.60     3.31     7.87     3.27     .044     .030     .044     .040   826.86   131.33
  .001675      10.      10.      10.        2        0        0     0.00   157.80   289.13

*SECNO 40.000

        MICHIGAN STATE UNIVERSITY DAM   UPSTREAM SECTION

    40.00     7.61   834.91     0.00     0.00   835.76      .85      .03      .00   829.60
    5940.     241.    5299.     400.      77.     682.     126.    3087.     421.    829.60
     4.60     3.14     7.77     3.18     .044     .030     .044     .040   827.30   131.23
  .001712      20.      20.      20.        0        0        0     0.00   158.08   289.31

CCHV=    .300 CEHV=    .500
*SECNO 41.000

        MICHIGAN STATE UNIVERSITY FOOTBRIDGE

    41.00    14.68   835.68     0.00     0.00   836.08      .40      .18      .14   835.50
    5940.       0.    5915.      25.       0.    1169.      20.    3092.     421.    831.00
     4.61      .01     5.06     1.28     .044     .034     .044     .040   821.00   140.26
  .000549     210.     205.     205.        2        0        0     0.00   109.25   249.51

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.40      2.50      0.00     75.00      0.00   1400.00      3.00    821.00    821.00
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*SECNO 41.100

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=     0.000  EGLWC=   834.079  ELLC=   837.900  PCWSE=   835.683  ELTRD=   837.800

3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD=  837.80 MAX ELLC=  837.90

    41.10    14.69   835.69     0.00     0.00   836.09      .40      .01      .00   835.50
     5940.       0.     5940.       0.       0.     1168.       0.     3092.     421.    831.00
     4.61     0.00     5.08     0.00     .044     .034     .044     .040   821.00   140.27
  .000554      17.      17.      17.        0        0        0   -20.00   109.24   249.51

CCHV=    .100 CEHV=    .300
*SECNO 42.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      846.30 ELREA=      841.10

        FARM LANE BRIDGE

        USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

        1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

    42.00    13.26   836.26     0.00     0.00   836.56      .30      .46      .01   837.50
     5940.       0.     5940.       0.       0.     1358.       0.     3119.     424.    829.30
     4.67     0.00     4.37     0.00     .040     .034     .040     .040   823.00   221.00
  .000440     1055.     925.     905.        2        0        0     0.00   116.00   337.00

*SECNO 42.010
   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      YNCH     YNR      WIN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CDRAR    TOPWID     ENDST

3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD=  842.30 MAX ELLC=  840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      846.30 ELREA=      841.10

    42.01    13.23   836.23     0.00     0.00   836.57      .34      .00      .01   837.50
     5940.       0.     5940.       0.       0.     1278.       0.     3119.     424.    829.30
     4.67     0.00     4.65     0.00     .040     .034     .040     .040   823.00   221.00
  .000539        1.       1.       1.        2        0        0  -205.34   116.00   337.00

*SECNO 42.090

3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD=  842.30 MAX ELLC=  840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      846.30 ELREA=      841.10

    42.09    13.26   836.26     0.00     0.00   836.62      .36      .04      .01   837.50
     5940.       0.     5940.       0.       0.     1241.       0.     3121.     424.    829.30
     4.67     0.00     4.79     0.00     .040     .034     .040     .040   823.00   221.00
  .000612       74.      74.      74.        0        0        0  -247.75   116.00   337.00
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*SECNO 42.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      846.30 ELREA=      841.10

     42.10     13.31    836.31      0.00      0.00    836.62       .31       .00       .00    837.50
      5940.        0.      5940.        0.        0.      1320.        0.      3121.      424.    829.30
      4.67      0.00      4.50      0.00      .040      .032      .040      .040    823.00    221.00
   .000441        1.        1.        1.         2         0         0      0.00    116.00    337.00

CCHV=     .300 CEHV=     .500
*SECNO 43.000

3470 ENCROACHMENT STATIONS=      50.0     412.0  TYPE=       1  TARGET=     362.000
     43.00     13.78    836.68      0.00      0.00    836.84       .16       .17       .05    828.40
      5940.      368.     4470.     1102.      266.     1252.      595.     3145.      427.    828.40
      4.73      1.38      3.57      1.85      .040      .030      .040      .039    822.90    117.26
   .000200      655.      580.      700.         2         0         0      0.00    294.74    412.00

CCHV=     .100 CEHV=     .300
*SECNO 44.000

3470 ENCROACHMENT STATIONS=     291.0     698.4  TYPE=       1  TARGET=     420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      842.60 ELREA=      843.80

          BOGUE ST. BRIDGE

     44.00     14.44    836.84      0.00      0.00    837.06       .22       .21       .02    830.10
      5940.        0.      5940.        0.        0.      1579.        0.      3185.      432.    831.00
      4.80      0.00      3.76      0.00      .055      .030      .055      .039    822.40    496.64
   .000246      1000.      925.      975.         2         0         0      0.00    146.47    643.11

SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90         1.56       3.00       0.00     75.00       0.00    1800.00       2.95    822.50     822.50

*SECNO 44.500

6070,LOW FLOW BY NORMAL BRIDGE

EQPRS=       0.000  EQLWC=    837.134  ELLC=    838.200  PCWSE=    836.843  ELTRD=    842.600
    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=  842.60 MAX ELLC=  838.20

3470 ENCROACHMENT STATIONS=      291.0     698.4  TYPE=       1  TARGET=     420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      842.60 ELREA=      843.80

     44.50     15.18    836.88      0.00      0.00    837.08       .20       .02       .00    830.80
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    5940:       0:    5940:       0:       0:    1652:       0:    3188:     432:    833.20
     4.80     0.00     3.60     0.00     .075     .030     .055     .039   821.70   497.61
  .000241      72:      72:      72:        2        0        0   -32.44   157.14   654.75

CCHV=    .300 CEHV=    .500
*SECNO 45.000
    45.00    15.22   837.02     0.00     0.00   837.29      .28      .17      .04   828.00
    5940:     353:    5505:      82:     348:    1257:      82:    3213:     435:    833.00
     4.85     1.01     4.38     1.01     .075     .030     .055     .039   821.80   441.72
  .000287     750:     660:     650:        2        0        0     0.00   228.29   670.01

CCHV=    .100 CEHV=    .300
*SECNO 46.000
3280 CROSS SECTION     46.00 EXTENDED      3.46 FEET

    46.00    15.56   837.46     0.00     0.00   837.57      .11      .26      .02   828.00
    5940:     455:    5237:     247:     939:    1824:     265:    3294:     447:    828.00
     5.01      .49     2.87      .93     .075     .030     .055     .038   821.90   434.96
  .000112    1330:    1550:    1625:        2        0        0     0.00   490.04   925.00

CCHV=    .300 CEHV=    .500
*SECNO 47.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      839.30 ELREA=      843.50

        HAGADORN RD. BRIDGE

        1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

    47.00    15.84   837.44     0.00     0.00   837.81      .37      .11      .13   826.90
    5940:       0:    5940:       0:       0:    1224:       0:    3324:     451:    825.90
     5.05     0.00     4.85     0.00     .075     .030     .070     .038   821.60  1409.00
  .000302     630:     625:     575:        2        0        0     0.00    86.00  1495.00

SPECIAL BRIDGE

SB  XK       XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05     1.40      3.00      0.00     86.00      4.00   1300.00     0.00     824.40    824.40

*SECNO 47.500
CLASS A LOW FLOW

3420 BRIDGE W.S.=    837.39 BRIDGE VELOCITY=,      5.58      CALCULATED CHANNEL AREA=,     1065.

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
     0.00    837.83      .03        0:     5940:     1300:     1238:      839.50    839.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      839.30 ELREA=      843.50

    47.50    15.87   837.47     0.00     0.00   837.83      .36      .02     0.00   826.90
    5940:       0:    5940:       0:       0:    1226:       0:    3326:     451:    825.90
     5.05     0.00     4.84     0.00     .075     .030     .070     .038   821.60  1409.00
  .000301      59:      59:      59:        0        0        0     0.00    86.00  1495.00
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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 FN=1.1

FINAL RED CEDAR RIVER FLOODWAY 7/10/79 YGW

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C
T1      100 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        4.        0.        0.  0.000000      0.00      0.0       0.    831.430     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.000   150.000   300.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .060      .060      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     6.000 10700.000 16600.000 19400.000 26800.000 11600.000 19400.000     0.000     0.000     0.000
NH     5.000      .045   119.500      .030   290.000      .045   340.000      .030   490.000      .050
NH   807.000     0.000     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

        CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

X1      1.000    23.000   129.000   490.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    836.500     0.000   835.500    20.000   833.000   119.000   817.700   129.000   814.000   130.000
GR    810.500   170.000   811.000   220.000   812.000   260.000   818.000   280.000   825.000   290.000
GR    825.500   340.000   817.700   355.000   811.500   380.000   809.500   430.000   815.500   470.000
GR    825.000   490.000   827.500   510.000   828.200   610.000   845.000   610.000   845.000   710.000
GR    828.200   710.000   828.200   807.000   845.000   807.000     0.000     0.000     0.000     0.000
NC       .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     6.000  5500.000  8280.000  9600.000 13000.000  7660.000  9600.000     0.000     0.000     0.000
ET     0.000   375.000   890.000     9.100     9.100     9.100     2.100     0.000   375.000     0.000

X1      2.000    14.000   515.000   655.000   500.000   335.000   400.000     0.000     0.000     0.000
GR    827.000     0.000   824.000   395.000   824.000   505.000   830.000   515.000   817.600   525.000
GR    810.900   550.000   809.500   580.000   815.100   628.000   818.000   655.000   822.000   665.000
GR    824.000   675.000   828.000   700.000   828.300  1055.000   845.000  1056.000     0.000     0.000
NC      0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     0.000     9.100     0.000     1.000   580.000

        ELM ST. BRIDGE

X1      3.000    19.000   175.000   266.000   550.000   550.000   550.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   840.100   824.000     0.000
GR    840.100     0.000   841.200   100.000   839.000   150.000   830.000   155.000   828.400   155.001
GR    817.700   175.000   817.700   175.001   810.400   200.000   807.000   230.000   814.800   262.000
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GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	545.000	827.500	545.100	828.140	603.000	829.700	700.000	841.000	800.000

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

X1	24.500	27.000	334.000	603.000	1.000	1.000	1.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	18.000	334.000	849.270	845.570	334.100	849.270	845.570	339.000	849.170	845.570
BT	391.000	849.170	846.270	391.100	849.170	819.570	395.000	849.170	819.570	395.100
BT	849.170	846.270	474.000	849.170	847.170	474.100	849.170	819.570	478.000	849.170
BT	819.570	478.100	849.170	847.170	561.000	849.170	847.470	561.100	849.170	828.470
BT	545.000	849.170	828.470	565.100	849.170	847.470	598.000	849.170	847.470	603.000
BT	849.170	847.570	603.100	849.170	847.570	0.000	0.000	0.000	0.000	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	545.000	827.500	545.100	842.500	598.000	842.500	603.000	846.600	603.100
GR	829.700	700.000	841.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

U.S. 127 NORTHBOUND (BRIDGE INLET)

X1	25.000	28.000	214.000	480.000	200.000	200.000	200.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	20.000	214.000	850.970	846.470	214.100	850.970	846.470	219.000	850.970	846.470
BT	219.100	850.970	846.470	272.000	850.970	845.670	272.100	850.970	819.570	276.000
BT	850.970	819.570	276.100	850.970	845.970	357.000	850.970	845.970	357.100	850.970
BT	819.570	361.000	850.970	819.570	361.100	850.970	845.970	448.000	850.970	844.170
BT	448.100	850.970	839.670	452.000	850.970	839.670	452.100	850.970	844.170	476.000
BT	850.970	844.690	476.100	850.970	844.770	480.000	850.970	844.770	480.100	850.970
BT	844.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.200	214.000	827.190	214.001	827.190	214.002	827.190	214.003	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	830.200	600.000	830.400	700.000	0.000	0.000	0.000	0.000
NC	.082	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.500	28.000	214.000	480.000	440.000	410.000	400.000	0.000	.970	0.000
GR	825.900	0.000	831.500	100.000	827.500	212.000	827.200	214.000	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	850.000	500.010	850.000	700.000	0.000	0.000	0.000	0.000

Last

X1	27.000	26.000	1436.100	1494.000	1400.000	1010.000	1100.000	.968	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
GR	825.500	0.000	827.000	455.000	825.500	610.000	825.500	700.000	825.500	1130.000
GR	825.300	1230.000	823.200	1330.000	818.400	1436.000	818.400	1436.100	816.200	1462.000
GR	816.200	1462.100	815.500	1466.000	815.500	1466.100	815.200	1480.000	815.100	1490.000
GR	815.100	1490.100	815.200	1494.000	815.200	1494.100	815.400	1507.000	816.900	1518.000
GR	818.400	1520.000	818.400	1520.100	824.800	1532.000	826.500	1630.000	826.300	1730.000
GR	825.000	2130.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

KALAMAZOO ST. BRIDGE

X1	27.100	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	.968	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
BT	26.000	0.000	829.470	0.000	455.000	828.970	0.000	610.000	826.970	0.000
BT	700.000	828.720	0.000	1130.000	828.170	0.000	1230.000	829.270	0.000	1330.000
BT	828.970	0.000	1436.000	829.970	829.970	1436.100	829.970	827.170	1442.000	829.570
BT	827.170	1462.100	829.870	817.170	1466.000	829.870	816.470	1466.100	829.870	827.170
BT	1480.000	829.870	827.170	1490.000	829.870	827.170	1490.100	829.870	816.070	1494.000
BT	829.870	827.170	1494.100	829.870	827.170	1507.000	829.970	827.170	1518.000	829.970
BT	827.170	1520.000	829.870	827.170	1520.100	829.870	829.870	1532.000	830.670	0.000
BT	1630.000	830.970	0.000	1730.000	832.370	0.000	2130.000	831.970	0.000	0.000

X1	27.400	0.000	0.000	0.000	38.000	38.000	38.000	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	826.970	829.970	0.000
NC	.070	.050	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

X1	27.500	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	826.970	829.970	0.000
NC	0.000	0.000	.040	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	9.100	0.000	90.000	1200.000

X1	28.000	20.000	466.000	570.000	1962.000	1962.000	1962.000	0.000	.970	0.000
GR	846.200	0.000	833.700	0.000	832.700	100.000	827.200	200.000	827.600	300.000
GR	829.100	400.000	829.600	439.000	823.200	453.000	823.200	466.000	819.700	470.000
GR	815.500	480.000	814.500	500.000	816.900	530.000	819.700	554.000	826.700	570.000
GR	826.800	700.000	826.800	900.000	824.900	1100.000	827.100	1250.000	850.000	1250.010
NC	.050	.050	.037	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	30.000	15.000	20.000	160.000	1220.000	1300.000	1375.000	0.000	0.000	0.000
GR	855.000	0.000	840.500	.100	840.000	9.000	835.000	20.000	830.000	40.000
GR	829.000	50.000	820.200	65.000	818.000	80.000	816.500	85.000	818.000	110.000
GR	820.200	125.000	830.000	145.000	833.000	160.000	834.000	250.000	854.000	250.000
NC	.040	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

HARRISON RD. BRIDGE

X1	31.000	19.000	325.000	424.000	750.000	750.000	750.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
GR	845.900	0.000	844.200	100.000	842.900	200.000	841.700	268.000	840.600	300.000
GR	840.100	318.000	832.800	325.000	832.800	325.000	820.700	353.000	818.600	361.000
GR	819.700	384.000	819.200	400.000	820.700	406.000	824.700	424.000	826.700	424.000
GR	834.800	434.000	835.500	500.000	835.100	600.000	835.100	700.000	0.000	0.000
SR	.900	1.560	3.000	0.000	58.000	0.000	1014.000	1.340	819.000	819.000

X1	31.500	19.000	325.000	424.000	57.000	57.000	57.000	.970	0.000	0.000
X2	0.000	0.000	1.000	835.100	835.500	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
BT	15.000	0.000	845.900	0.000	100.000	844.200	0.000	200.000	843.700	0.000
BT	298.000	840.600	0.000	300.000	839.200	0.000	300.000	842.700	0.000	325.000
BT	842.100	828.300	325.000	842.100	835.100	424.000	839.900	823.100	424.000	839.900
BT	831.900	444.000	839.400	0.000	444.000	835.900	0.000	500.000	835.600	0.000
BT	600.000	835.500	0.000	700.000	835.500	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 20

GR	845.900	0.000	844.200	100.000	843.700	200.000	840.600	298.000	839.200	300.000
GR	828.300	325.000	828.300	325.000	820.700	338.000	819.500	340.000	819.100	352.000
GR	818.500	366.000	816.100	388.000	820.700	417.000	823.700	424.000	831.900	424.000
GR	835.200	424.000	835.500	500.000	835.500	600.000	835.700	700.000	0.000	0.000
NC	.040	.040	.038	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.000	22.000	517.000	611.000	1240.000	600.000	875.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	829.300	200.000	828.200	300.000	827.100	400.000
GR	827.000	500.000	827.000	500.000	824.600	517.000	824.600	517.000	821.000	529.000
GR	819.000	539.500	819.000	550.000	818.900	562.000	819.400	586.500	821.000	600.000
GR	824.500	611.000	824.500	611.000	833.700	628.000	833.700	628.000	835.300	700.000
GR	835.300	781.000	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	33.010	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	829.300	835.300	0.000
BT	21.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.300	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	839.800	824.600	517.000	839.800	833.600	539.500	840.500
BT	835.800	550.000	840.700	836.500	562.000	841.000	836.200	586.500	840.800	835.900
BT	600.000	840.200	835.000	611.000	840.000	833.700	611.000	840.000	824.500	628.000
BT	839.100	0.000	628.000	835.600	0.000	700.000	835.300	0.000	781.000	835.300
BT	0.000	781.000	855.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	33.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BT	19.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.000	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	840.100	825.500	517.000	840.100	833.600	540.000	840.800
BT	836.000	542.000	841.000	836.200	584.000	840.800	836.000	611.000	840.000	833.700
BT	611.000	840.100	825.000	628.000	839.100	0.000	628.000	835.600	0.000	700.000
BT	834.700	0.000	781.000	834.400	0.000	781.000	855.200	0.000	0.000	0.000
X1	33.100	21.000	517.000	611.000	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	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	826.700	200.000	826.900	300.000	828.200	400.000
GR	831.400	500.000	831.400	500.000	825.500	517.000	825.500	517.000	821.000	527.000
GR	819.700	540.000	818.900	562.000	819.200	584.000	821.000	605.000	825.000	611.000
GR	825.000	611.000	833.900	628.000	833.900	628.000	834.700	700.000	834.000	781.000
GR	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	34.000	15.000	750.000	865.000	440.000	1965.000	1635.000	0.000	0.000	0.000
GR	842.000	0.000	832.500	.100	832.000	20.000	830.000	35.000	828.000	75.000
GR	827.000	410.000	828.000	585.000	828.000	750.000	822.000	770.000	820.500	790.000
GR	819.700	809.000	821.000	829.000	822.000	848.000	845.000	865.000	854.500	890.000

KALAMAZOO ST. BRIDGE

X1	34.000	21.000	622.100	715.000	520.000	1150.000	1110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
GR	832.000	0.000	830.000	65.000	828.500	100.000	828.200	315.000	829.400	415.000
GR	828.500	500.000	828.600	515.000	832.300	575.000	832.000	610.000	823.000	622.000
GR	823.000	622.100	820.400	670.000	820.400	670.100	820.400	674.000	820.400	674.100
GR	821.100	686.000	823.000	715.000	823.000	715.100	828.000	730.000	835.700	738.000
GR	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	36.100	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	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	100.000	832.800	0.000
BT	315.000	832.800	0.000	415.000	833.500	0.000	500.000	833.900	0.000	515.000
BT	834.000	0.000	575.000	835.100	0.000	610.000	835.700	0.000	622.000	835.800
BT	835.800	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200	820.400
BT	674.000	836.200	820.400	674.100	836.200	834.200	715.000	836.100	834.200	715.100
BT	836.100	836.100	785.000	836.800	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.400	17.000	622.100	715.000	58.000	58.000	58.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BT	16.000	0.000	833.400	0.000	65.000	833.000	0.000	315.000	832.800	0.000
BT	415.000	833.500	0.000	515.000	834.000	0.000	604.000	835.700	0.000	622.000
BT	835.900	835.900	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200
BT	820.400	674.000	836.200	820.700	674.100	836.200	834.200	715.000	836.100	834.200
BT	715.100	836.100	836.100	720.000	836.100	0.000	785.000	836.800	0.000	0.000
GR	833.400	0.000	833.000	65.000	832.800	315.000	833.500	415.000	832.200	515.000
GR	831.100	604.000	823.000	622.000	823.000	622.100	820.400	670.000	820.400	670.100
GR	820.700	674.000	820.700	674.100	820.500	686.000	823.000	715.000	823.000	715.100
GR	834.200	720.000	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.500	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	833.000	836.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	38.000	38.000	322.000	416.000	1270.000	1070.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
GR	841.600	0.000	838.500	100.000	835.800	200.000	836.800	300.000	824.300	315.000
GR	823.600	322.000	823.600	322.000	821.700	340.000	821.600	345.500	821.200	360.000
GR	820.400	380.000	820.800	392.500	821.000	400.000	824.300	408.000	829.500	416.000
GR	829.500	416.000	829.500	428.000	829.500	428.000	829.700	448.000	829.900	469.500
GR	829.900	469.500	829.900	470.500	829.900	470.500	830.000	488.500	830.000	506.500
GR	830.000	506.500	830.000	507.500	830.000	507.500	830.800	525.500	831.700	543.500
GR	831.700	543.500	831.700	544.500	831.700	544.500	836.100	559.000	840.500	574.000
GR	842.900	581.000	842.900	581.000	845.500	700.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	38.010	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	836.900	829.500	0.000
BT	33.000	0.000	846.600	0.000	100.000	841.600	0.000	200.000	836.900	0.000
BT	300.000	837.800	0.000	322.000	838.300	823.400	322.000	841.300	835.100	345.500
BT	841.800	836.900	369.000	842.200	837.800	392.500	842.600	837.500	416.000	843.000
BT	836.900	416.000	843.000	829.500	428.000	843.200	829.500	428.000	843.200	837.800
BT	448.000	843.500	839.000	469.500	844.000	838.500	469.500	844.000	829.900	470.500
BT	844.000	829.900	470.500	844.000	839.500	488.500	844.400	839.500	506.500	848.800
BT	839.200	506.500	848.800	830.000	507.500	848.000	830.000	507.500	848.000	839.200
BT	525.500	845.200	840.200	543.500	845.500	840.000	543.500	845.500	831.700	544.500
BT	845.500	831.700	544.500	845.500	840.000	559.000	845.700	840.900	574.000	845.800
BT	840.500	581.000	845.900	0.000	581.000	842.900	0.000	700.000	845.500	0.000
X1	38.090	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
X1	38.100	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	836.900	829.500	0.000

MOORE BUSINESS FORMS, INC. 23

NC	.040	.040	.038	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	38.500	18.000	160.000	242.100	570.000	540.000	545.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	824.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000	838.000	310.000
GR	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

X1	39.000	19.000	160.000	242.100	10.000	10.000	10.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	826.860	201.000	827.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

X1	40.000	19.000	156.000	246.100	20.000	20.000	20.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	156.000	827.350	156.100
GR	827.300	201.000	827.340	246.000	829.600	246.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000
NC	0.000	0.000	.031	.300	.500	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	41.000	17.000	141.000	241.100	210.000	205.000	205.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	32.000	842.000	65.000	840.000	123.000	835.500	141.000
GR	835.500	141.100	826.700	153.000	822.200	161.000	821.100	171.000	821.000	191.000
GR	821.000	211.000	831.000	241.000	831.000	241.100	839.300	256.000	841.800	241.000
GR	838.000	380.000	837.800	410.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.400	2.500	0.000	75.000	0.000	1400.000	3.000	821.000	821.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	141.000	244.000
X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.900	837.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	846.000	0.000	32.000	844.000	0.000	65.000	842.000	0.000
BT	123.000	841.700	0.000	141.000	841.480	0.000	141.100	841.420	837.900	191.000
BT	841.460	837.900	241.000	841.430	837.900	241.100	841.430	0.000	256.000	841.430
BT	0.000	261.000	841.800	0.000	380.000	838.000	0.000	410.000	837.800	0.000
NC	.036	.036	0.000	.100	.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

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

X1	42.000	25.000	221.000	337.000	1055.000	905.000	925.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
GR	850.300	0.000	847.700	100.000	837.500	221.000	829.300	221.000	829.300	230.000
GR	829.300	232.000	824.400	232.000	824.300	239.000	824.100	248.000	824.000	255.000
GR	824.000	255.000	823.300	258.000	823.300	258.000	823.700	268.500	824.200	281.000
GR	823.600	293.000	823.000	304.000	823.000	304.000	823.300	307.000	823.300	307.000
GR	823.600	325.000	829.300	337.000	829.300	337.000	841.100	400.000	843.100	500.000

MOORE BUSINESS FORMS, INC. 23

X1	42.010	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	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.700	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.600	839.000	255.000	846.400	837.500	255.000	846.400
BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.500	846.100	839.000
BT	281.000	845.800	839.500	293.000	845.600	839.000	304.000	845.400	837.500	304.000
BT	845.400	823.000	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	945.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	362.000	843.800	0.000	400.000	842.300	0.000	500.000	843.200	0.000	0.000

X1	42.090	0.000	0.000	0.000	74.000	74.000	74.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.300	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.500	839.000	253.000	846.400	837.500	253.000	846.400
BT	824.000	258.000	846.300	823.600	258.000	846.300	837.500	268.000	846.100	839.000
BT	281.000	844.800	839.500	294.000	845.500	839.000	304.000	845.400	837.500	304.000
BT	845.000	824.100	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	845.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	400.000	842.300	0.000	500.000	843.200	0.000	580.000	843.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	42.100	30.000	221.000	337.000	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	846.300	841.100	0.000
GR	850.300	0.000	847.200	100.000	844.100	200.000	844.100	200.000	837.500	221.000
GR	839.300	221.000	829.300	230.000	839.300	232.000	823.100	232.000	823.000	239.000
GR	823.000	248.000	824.000	253.000	824.000	253.000	823.600	258.000	823.600	258.000
GR	825.700	268.000	823.800	281.000	824.000	294.000	824.100	304.000	824.100	304.000
GR	823.300	307.000	823.300	307.000	824.200	325.000	829.300	327.000	829.300	337.000
GR	829.300	337.000	829.900	362.000	829.900	362.000	830.800	400.000	837.600	500.000
NC	0.000	0.000	.027	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	50.000	412.000

X1	43.000	18.000	195.000	305.000	455.000	700.000	580.000	0.000	0.000	0.000
GR	870.000	0.000	840.500	.100	840.000	45.000	838.000	102.000	837.000	115.000
GR	836.000	122.000	834.000	145.000	832.000	180.000	828.400	195.000	825.000	222.000
GR	822.900	250.000	825.000	278.000	828.400	305.000	830.500	369.000	832.000	385.000
GR	836.000	400.000	836.500	412.000	860.000	412.100	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

ROGUE ST. BRIDGE

X1	44.000	24.000	512.000	443.000	1000.000	975.000	925.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
GR	846.600	0.000	843.300	100.000	841.200	200.000	842.000	300.000	841.400	400.000
GR	832.200	500.000	832.200	500.000	830.100	512.000	828.900	530.000	825.400	540.000
GR	824.500	551.000	824.300	555.000	822.400	580.000	823.500	609.000	824.400	613.000
GR	824.200	622.000	828.900	630.000	830.100	652.000	831.000	663.000	831.000	663.000
GR	834.200	700.000	844.200	800.000	844.600	900.000	845.500	1000.000	0.000	0.000
SR	.900	1.560	3.000	0.000	75.000	0.000	1800.000	2.950	822.500	822.500
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

X1	44.500	25.000	513.000	475.000	72.000	72.000	73.000	.970	0.000	0.000
X2	0.000	0.000	1.000	838.200	842.600	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000

MOORE BUSINESS FORMS, INC. 23

BT	10.000	300.000	842.800	0.000	400.000	842.600	0.000	500.000	843.500	0.000
BT	500.000	846.700	0.000	513.000	846.800	830.800	513.000	846.800	838.100	675.000
BT	847.300	838.100	675.000	844.100	833.200	700.000	843.800	0.000	720.000	843.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.600	0.000	842.500	100.000	839.600	200.000	838.200	300.000	833.800	400.000
GR	831.700	500.000	830.800	513.000	830.800	513.000	830.100	524.000	828.900	542.000
GR	824.700	550.000	824.000	543.000	824.000	567.000	821.700	595.000	823.300	621.000
GR	823.700	625.000	826.700	637.000	828.900	649.000	830.100	664.000	833.200	675.000
GR	833.200	675.000	840.400	700.000	840.700	800.000	844.600	900.000	845.700	1000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	45.000	20.000	540.000	645.000	750.000	650.000	660.000	0.000	0.000	0.000
GR	900.000	0.000	850.900	.100	850.000	30.000	848.000	110.000	846.000	140.000
GR	844.000	200.000	842.000	280.000	840.000	325.000	838.000	435.000	837.000	442.000
GR	836.000	475.000	834.000	490.000	828.000	540.000	824.000	564.000	821.800	588.000
GR	824.000	611.000	838.000	635.000	833.000	645.000	834.500	670.000	864.000	670.100
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	46.000	16.000	740.000	884.000	1330.000	1625.000	1550.000	0.000	0.000	0.000
X4	1.000	844.000	335.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	848.800	90.000	848.000	135.000	846.000	210.000	844.000	345.000
GR	836.000	455.000	834.500	540.000	834.000	700.000	832.000	725.000	828.000	740.000
GR	826.000	774.000	824.000	799.000	821.900	829.000	824.000	859.000	828.000	884.000
GR	834.000	925.000	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

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

X1	47.000	18.000	1409.000	1495.000	630.000	575.000	625.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1508.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	0.000	0.000	0.000	0.000
SB	1.050	1.400	3.000	0.000	86.000	4.000	1300.000	0.000	824.400	824.400

X1	47.500	18.000	1409.000	1495.000	59.000	59.000	59.000	0.000	0.000	0.000
X5	-4.000	0.000	0.000	0.000	.360	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.500	839.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
BT	20.000	0.000	847.000	0.000	200.000	846.500	0.000	400.000	846.000	0.000
BT	600.000	842.400	0.000	800.000	842.700	0.000	1000.000	839.300	0.000	1200.000
BT	839.700	0.000	1400.000	843.000	0.000	1400.000	845.700	0.000	1409.000	845.800
BT	826.900	1409.000	845.800	839.200	1419.000	846.000	0.000	1464.000	846.100	0.000
BT	1495.000	846.200	839.500	1495.000	846.200	825.900	1509.000	846.200	0.000	1519.000
BT	846.600	0.000	1519.000	843.900	0.000	1600.000	846.000	0.000	1700.000	849.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1508.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	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

*PROF 1

CCHV= .100 CEHV= .300

MOORE BUSINESS FORMS, INC. 23

22.01	21.10	836.10	0.00	0.00	836.23	.13	.00	.00	818.00	
7200.	287.	5910.	1003.	343.	1901.	1074.	4245.	324.	820.00	
4.66	.84	3.11	.93	.075	.035	.075	.036	815.00	147.29	
.000108	1.	1.	1.	0	0	0	-143.67	270.89	418.17	

100-YR NATURAL

*SECNO 23.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 849.00 MAX ELLC= 849.70

I-496 WESTBOUND (BRIDGE INLET)

23.00	21.60	836.10	0.00	0.00	836.27	.17	.02	.02	819.00	
7200.	269.	6440.	492.	297.	1864.	552.	4258.	327.	825.50	
4.68	.91	3.45	.89	.075	.035	.075	.036	814.50	151.76	
.000137	190.	190.	190.	1	0	0	-74.51	216.99	396.95	

*SECNO 23.500

23.50	21.73	836.23	0.00	0.00	836.30	.07	.00	.03	819.00	
7200.	260.	6244.	696.	425.	2711.	1170.	4258.	327.	825.50	
4.68	.61	2.30	.59	.075	.035	.075	.036	814.50	173.30	
.000058	1.	1.	1.	2	0	0	0.00	347.55	520.85	

*SECNO 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 845.97 ELREA= 851.97

24.00	19.81	836.28	0.00	0.00	836.40	.11	.08	.02	845.57	
7200.	0.	7200.	0.	0.	2661.	0.	4329.	333.	829.11	
4.77	0.00	2.71	0.00	.075	.035	.075	.036	816.47	349.10	
.000158	850.	880.	940.	2	0	0	0.00	224.58	573.68	

*SECNO 24.500

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	YNL	YNCH	YNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 849.17 MAX ELLC= 847.57

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 845.97 ELREA= 851.97

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

24.50	19.80	836.27	0.00	0.00	836.42	.15	.00	.02	845.57	
7200.	0.	7200.	0.	0.	2318.	0.	4329.	333.	843.47	
4.77	0.00	3.11	0.00	.075	.035	.075	.036	816.47	349.12	
.000226	1.	1.	1.	1	0	0	-146.80	204.05	573.48	

MOORE BUSINESS FORMS, INC. 23

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*SECNO 25.000
3280 CROSS SECTION     25.00 EXTENDED      8.19 FEET

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  850.97 MAX ELLC=  846.47

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      845.97 ELREA=      851.97

          U.S. 127 NORTHBOUND      (BRIDGE INLET)

    25.00    20.79   836.36     0.00     0.00   836.47      .11      .04      .01   828.17
    7200.       0.    7200.       0.       0.    2760.       0.    4341.     334.    830.41
     4.79     0.00     2.61     0.00     .075     .035     .075     .036   815.57   314.00
  .000156     200.     200.     200.        2        0        0  -143.54   237.01   451.01

*SECNO 25.500
3280 CROSS SECTION     25.50 EXTENDED      9.60 FEET

    25.50    20.90   836.47     0.00     0.00   836.53      .05      .04      .02   828.17
    7200.     666.    6479.      55.     1368.    3287.     117.    4377.     337.    830.41
     4.85      .49     1.97      .47      .090     .035     .090     .036   815.57     0.00
  .000078     460.     400.     410.        2        0        0     0.00   500.00   500.00

*SECNO 27.000
3280 CROSS SECTION     27.00 EXTENDED     10.40 FEET

    27.00    20.50   836.57     0.00     0.00   836.57      .00      .03      .02   819.37
    7200.    4121.    1228.    1851.    14209.    1087.    6346.    4757.     374.    816.17
     5.61      .29     1.13      .29      .090     .035     .090     .036   816.07     0.00
  .000014    1400.    1100.    1010.        2        0        0     0.00  2061.84  2061.84

*SECNO 27.100
3280 CROSS SECTION     27.10 EXTENDED     10.60 FEET

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  826.97 MAX ELLC=  829.97

          KALAMAZOO ST. BRIDGE

    27.10    20.50   836.57     0.00     0.00   836.57      .00      .00      .00   819.37
    7200.    5588.     377.    1235.    11423.     874.    3285.    4757.     374.    816.17
     5.61      .49      .43      .38      .039     .035     .039     .036   816.07     0.00
  .000011       1.       1.       1.        0        0        0 -6058.77  2061.84  2061.84

*SECNO 27.400
3280 CROSS SECTION     27.40 EXTENDED     10.60 FEET

   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
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MOORE BUSINESS FORMS, INC. 23

3370 NORMAL BRIDGE;NRD= 26 MIN ELTRD= 826.97 MAX ELLC= 829.97

27.40	20.50	836.57	0.00	0.00	836.57	.00	.00	.00	819.37
7200.	5588.	376.	1235.	11425.	876.	3286.	4771.	376.	816.17
5.63	.49	.43	.38	.039	.035	.039	.036	816.07	0.00
.000011	38.	38.	38.	0	0	0	-6058.77	2041.84	2041.84

*SECNO 27.500
3280 CROSS SECTION 27.50 EXTENDED 10.60 FEET

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

27.50	20.50	836.57	0.00	0.00	836.57	.00	.00	.00	819.37
7200.	3888.	867.	2445.	14212.	1087.	6348.	4771.	376.	816.17
5.63	.27	.80	.39	.077	.040	.055	.036	816.07	0.00
.000009	1.	1.	1.	0	0	0	0.00	2041.84	2041.84

*SECNO 28.000

28.00	21.13	836.60	0.00	0.00	836.61	.01	.03	.00	824.17
7200.	1119.	2309.	3772.	3894.	1861.	5965.	5500.	451.	827.67
6.32	.39	1.24	.63	.077	.044	.055	.037	815.47	0.00
.000030	1962.	1962.	1962.	0	0	0	0.00	1250.00	1250.00

*SECNO 30.000

30.00	20.08	836.58	0.00	0.00	836.81	.23	.10	.11	835.00
7200.	1.	6910.	289.	3.	1755.	277.	5487.	472.	833.00
6.42	.40	3.94	1.04	.060	.040	.060	.037	816.50	16.52
.000410	1320.	1275.	1300.	2	0	0	0.00	233.48	250.00

*SECNO 31.000
3280 CROSS SECTION 31.00 EXTENDED 1.78 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 839.00 ELREA= 835.50

HARRISON RD. BRIDGE

31.00	18.28	836.88	0.00	0.00	837.21	.34	.35	.05	832.80
7200.	0.	6754.	446.	0.	1403.	495.	5721.	478.	826.70
6.46	0.00	4.81	.90	.060	.040	.060	.037	818.60	315.35
.000528	750.	750.	750.	2	0	0	0.00	363.75	679.00

SPECIAL BRIDGE

SR	WK	WKDR	COEQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	58.00	0.00	1014.00	1.34	819.00	819.00

*SECNO 31.500
3280 CROSS SECTION 31.50 EXTENDED 1.60 FEET

MOORE BUSINESS FORMS, INC. 23

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	YNCH	YNR	WIN	ELMIN	SSTA
SLOPE	YLOBL	YLCH	YLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HI	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.10	837.61	0.00	1930.	5314.	1014.	1281.	835.10	835.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 839.00 ELREA= 835.50

31.50	21.20	837.30	0.00	0.00	837.54	.24	.33	0.00	828.30
7200.	0.	6873.	327.	0.	1717.	484.	5724.	478.	835.20
6.47	0.00	4.00	.67	.060	.040	.060	.037	816.10	315.25
.000337	57.	57.	57.	2	0	2	0.00	363.75	679.00

CCHV= .300 CEHV= .500

*SECNO 33.000

33.00	18.78	837.68	0.00	0.00	837.70	.02	.10	.06	824.60
7200.	4239.	2640.	321.	4330.	1640.	569.	5826.	490.	824.50
6.69	.98	1.61	.56	.044	.042	.044	.037	818.90	0.00
.000044	1240.	875.	600.	1	0	0	0.00	781.00	781.00

*SECNO 33.010

3370 NORMAL BRIDGE.NRD= 21 MIN ELTRD= 829.30 MAX ELLC= 836.50

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

33.01	18.77	837.67	0.00	0.00	837.71	.04	.00	.01	824.60
7200.	4510.	2434.	255.	3134.	1434.	353.	5826.	490.	824.50
6.69	1.44	1.70	.72	.044	.042	.044	.037	818.90	0.00
.000154	1.	1.	1.	0	0	0	-1621.71	781.00	781.00

*SECNO 33.090

3370 NORMAL BRIDGE.NRD= 19 MIN ELTRD= 829.00 MAX ELLC= 836.20

33.09	18.77	837.67	0.00	0.00	837.71	.04	.00	.00	824.60
7200.	4525.	2419.	256.	3129.	1425.	357.	5828.	491.	824.50
6.70	1.45	1.70	.72	.044	.042	.044	.037	818.90	0.00
.000155	14.	14.	14.	0	0	0	-1617.99	781.00	781.00

*SECNO 33.100

33.10	18.79	837.69	0.00	0.00	837.71	.02	.00	.00	825.50
7200.	4273.	2555.	371.	4474.	1641.	654.	5828.	491.	825.00
6.70	.96	1.56	.57	.044	.042	.044	.037	818.90	0.00
.000044	1.	1.	1.	1	0	0	0.00	781.00	781.00

*SECNO 34.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

MOORE BUSINESS FORMS, INC. 23

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
34.00	18.03	837.73	0.00	0.00	837.74	.01	.03	.00	828.00
7200.	5540.	1660.	0.	7384.	1667.	0.	5965.	505.	845.00
6.98	.75	1.00	0.00	.044	.042	.044	.039	819.70	.08
.000023	440.	1635.	1965.	2	0	0	0.00	859.55	859.63

*SECNO 36.000
3280 CROSS SECTION 36.00 EXTENDED 5.74 FEET

KALAMAZOO ST. BRIDGE

36.00	17.35	837.75	0.00	0.00	837.77	.02	.02	.00	823.00
7200.	4829.	2125.	246.	5394.	1498.	302.	6086.	516.	823.00
7.16	.90	1.42	.81	.044	.042	.044	.039	820.40	0.00
.000039	520.	1110.	1150.	1	0	0	0.00	785.00	785.00

*SECNO 36.100
3280 CROSS SECTION 36.10 EXTENDED 5.74 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 832.80 MAX ELLC= 836.10

36.1	17.34	837.74	0.00	0.00	837.78	.05	.00	.01	823.00
7200.	4567.	2293.	340.	2763.	1260.	189.	6086.	516.	823.00
7.16	1.65	1.82	1.80	.044	.042	.044	.039	820.40	0.00
.000337	1.	1.	1.	1	0	0	-2970.21	785.00	785.00

*SECNO 36.400
3280 CROSS SECTION 36.40 EXTENDED 4.35 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 832.80 MAX ELLC= 836.10

36.40	17.36	837.76	0.00	0.00	837.80	.05	.02	.00	823.00
7200.	4684.	2392.	122.	2777.	1271.	136.	6091.	518.	823.00
7.17	1.69	1.88	.97	.044	.042	.044	.039	820.40	0.00
.000357	58.	58.	58.	0	0	0	-718.75	785.00	785.00

*SECNO 36.500
3280 CROSS SECTION 36.50 EXTENDED 4.34 FEET

36.50	17.35	837.75	0.00	0.00	837.81	.05	.00	.00	823.00
7200.	3444.	3625.	130.	3199.	1508.	193.	6091.	518.	823.00
7.17	1.08	2.40	.68	.044	.042	.044	.039	820.40	0.00
.000112	1.	1.	1.	0	0	0	0.00	785.00	785.00

CCHV= .300 CEHV= .500
*SECNO 38.000

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

MOORE BUSINESS FORMS, INC. 23

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
38.00	17.48	837.88	0.00	0.00	838.00	.11	.16	.03	823.60
7200.	576.	4674.	1950.	446.	1497.	1064.	6196.	534.	829.50
7.29	1.29	3.12	1.83	.044	.042	.044	.039	820.40	122.79
.000199	1270.	1050.	1070.	2	0	0	0.00	442.29	565.08

*SECNO 38.010

3370 NORMAL BRIDGE.NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

38.01	17.47	837.87	0.00	0.00	838.01	.14	.00	.01	823.60
7200.	45.	4389.	2767.	91.	1416.	940.	6196.	534.	829.50
7.29	.49	3.10	2.94	.044	.042	.044	.039	820.40	123.04
.000523	1.	1.	1.	1	0	0	-557.84	442.02	565.06

*SECNO 38.090

3370 NORMAL BRIDGE.NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

38.09	17.48	837.88	0.00	0.00	838.02	.14	.01	.00	823.60
7200.	45.	4389.	2746.	91.	1416.	940.	6197.	535.	829.50
7.29	.49	3.10	2.94	.044	.042	.044	.039	820.40	123.08
.000524	17.	17.	17.	0	0	0	-557.71	441.98	565.06

*SECNO 38.100

38.10	17.53	837.92	0.00	0.00	838.03	.11	.00	.01	823.60
7200.	591.	4665.	1954.	453.	1501.	1069.	6197.	535.	829.50
7.29	1.28	3.11	1.83	.044	.042	.044	.039	820.40	121.56
.000197	1.	1.	1.	2	0	0	0.00	443.64	565.20

CCHV= .100 CEHV= .300

*SECNO 38.500

38.50	13.95	837.95	0.00	0.00	838.28	.33	.18	.06	829.60
7200.	607.	5698.	894.	227.	1145.	321.	6227.	539.	829.60
7.33	2.68	4.98	2.78	.044	.042	.044	.039	824.00	94.82
.000691	570.	545.	540.	2	0	0	0.00	214.84	309.67

*SECNO 39.000

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	.YNL	YNCH	YNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

39.00	10.96	837.82	0.00	0.00	838.35	.53	.01	.06	829.60
7200.	596.	5722.	882.	218.	896.	313.	6227.	539.	829.60
7.33	2.73	6.39	2.82	.044	.030	.044	.039	826.86	97.01
.000724	10.	10.	10.	2	0	0	0.00	211.78	308.79

*SECNO 40.000

MOORE BUSINESS FORMS, INC. 23

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

40.00	10.53	837.83	0.00	0.00	838.36	.53	.01	.00	829.60
7200.	482.	5950.	748.	187.	947.	281.	6228.	539.	829.60
7.33	2.58	6.29	2.73	.044	.030	.044	.039	827.30	96.78
.000724	20.	20.	20.	0	0	0	0.00	212.10	308.88

CCHV= .300 CEHV= .500
*SECNO 41.000

3265 DIVIDED FLOW

3280 CROSS SECTION 41.00 EXTENDED .32 FEET

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

41.00	17.12	838.12	0.00	0.00	838.51	.39	.11	.04	835.50
7200.	11.	7120.	69.	14.	1413.	52.	6235.	540.	831.00
7.34	.82	5.04	1.32	.044	.034	.044	.039	821.00	130.51
.000423	210.	205.	205.	2	0	0	0.00	157.22	410.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.40	2.50	0.00	75.00	0.00	1400.00	3.00	821.00	821.00

*SECNO 41.100

6070;LOW FLOW BY NORMAL BRIDGE

EGPRS= 838.698 EGLWC= 838.513 ELLC= 837.900 PCWSE= 838.123 ELTRD= 837.800

3265 DIVIDED FLOW

3280 CROSS SECTION 41.10 EXTENDED .32 FEET

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 837.80 MAX ELLC= 837.90

41.10	17.12	838.12	0.00	0.00	838.54	.42	.01	.01	835.50
7200.	0.	7197.	3.	0.	1390.	7.	6235.	540.	831.00
7.34	0.00	5.18	.40	.044	.034	.044	.039	821.00	130.51
.001106	17.	17.	17.	0	0	0	-82.04	157.22	410.00

CCHV= .100 CEHV= .300
*SECNO 42.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 844.30 ELREA= 841.10

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

MOORE BUSINESS FORMS, INC. 23

1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

42.00	15.78	838.78	0.00	0.00	839.08	.30	.53	.01	837.50	
7200.	0.	7200.	0.	0.	1450.	0.	6268.	543.	829.30	
7.40	0.00	4.36	0.00	.040	.034	.040	.039	823.00	221.00	
.000346	1055.	925.	905.	2	0	0	0.00	116.00	337.00	

*SECNO 42.010

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	

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 842.30 MAX ELLC= 840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.01	15.75	838.75	0.00	0.00	839.09	.34	.00	.01	837.50	
7200.	0.	7200.	0.	0.	1531.	0.	6268.	543.	829.30	
7.40	0.00	4.70	0.00	.040	.034	.040	.039	823.00	221.00	
.000527	1.	1.	1.	2	0	0	-353.71	116.00	337.00	

*SECNO 42.090

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 842.30 MAX ELLC= 840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.09	15.77	838.77	0.00	0.00	839.14	.36	.04	.01	837.50	
7200.	0.	7200.	0.	0.	1489.	0.	6270.	543.	829.30	
7.40	0.00	4.84	0.00	.040	.034	.040	.039	823.00	221.00	
.000558	74.	74.	74.	0	0	0	-401.29	116.00	337.00	

*SECNO 42.100

3280 CROSS SECTION 42.10 EXTENDED 1.23 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.10	15.83	838.83	0.00	0.00	839.14	.31	.00	.01	837.50	
7200.	0.	7200.	0.	0.	1613.	0.	6270.	543.	829.30	
7.40	0.00	4.46	0.00	.040	.032	.040	.039	823.00	221.00	
.000341	1.	1.	1.	2	0	0	0.00	116.00	337.00	

CCHV= .300 CEHV= .500

*SECNO 43.000

3470 ENCROACHMENT STATIONS= 50.0 412.0 TYPE= 1 TARGET= 342.000

43.00	16.29	839.19	0.00	0.00	839.31	.13	.12	.05	828.40	
7200.	691.	4968.	1540.	509.	1528.	863.	6302.	546.	828.40	
7.46	1.36	3.25	1.78	.040	.030	.040	.039	822.90	68.16	
.000127	655.	580.	700.	2	0	0	0.00	343.84	412.00	

CCHV= .100 CEHV= .300

MOORE BUSINESS FORMS, INC. 23

*SECNO 44.000

3470 ENCROACHMENT STATIONS= 291.0 698.4 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.60 ELREA= 843.80

ROGUE ST. BRIDGE

44.00	16.87	839.27	0.00	0.00	839.48	.22	.14	.03	830.10
7200.	0.	7200.	0.	0.	1934.	0.	6354.	552.	831.00
7.53	0.00	3.72	0.00	.055	.030	.055	.039	822.40	496.64
.000186	1000.	925.	975.	2	0	0	0.00	146.47	643.11

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	75.00	0.00	1800.00	2.95	822.50	822.50

*SECNO 44.500

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 FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
839.66	839.55	0.00	0.	7200.	1800.	1905.	838.20	842.60

3470 ENCROACHMENT STATIONS= 291.0 698.4 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.60 ELREA= 843.80

44.50	17.77	839.47	0.00	0.00	839.66	.18	.17	0.00	830.80
7200.	0.	7200.	0.	0.	2091.	0.	6358.	552.	833.20
7.54	0.00	3.44	0.00	.075	.030	.055	.039	821.70	497.61
.000164	72.	72.	72.	2	0	0	0.00	157.14	654.75

CCHV= .300 CEHV= .500

*SECNO 45.000

45.00	17.76	839.56	0.00	0.00	839.81	.24	.12	.03	828.00
7200.	647.	6373.	180.	694.	1525.	145.	6392.	556.	833.00
7.59	.93	4.18	1.24	.075	.030	.055	.038	821.80	346.84
.000202	750.	660.	650.	2	0	0	0.00	323.18	670.02

CCHV= .100 CEHV= .300

*SECNO 46.000

3280 CROSS SECTION 46.00 EXTENDED 5.91 FEET

46.00	18.01	839.91	0.00	0.00	840.00	.09	.18	.01	828.00
7200.	960.	5898.	342.	1727.	2177.	365.	6504.	570.	828.00
7.77	.56	3.71	.94	.075	.030	.055	.038	821.90	401.27
.000079	1330.	1550.	1625.	2	0	0	0.00	523.73	825.00

MOORE BUSINESS FORMS, INC. 23

CCHV= .300 CEHV= .500
*SECNO 47.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

47.00	18.24	839.84	0.00	0.00	840.23	.39	.08	.15	826.90
7200.	38.	7162.	0.	104.	1431.	0.	6546.	576.	825.90
7.80	.37	5.01	0.00	.075	.030	.070	.038	821.60	968.18
.000239	630.	625.	575.	2	0	0	0.00	305.37	1495.00

SPECIAL BRIDGE

SB	YK	YKOR	COEQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.40	3.00	0.00	86.00	4.00	1300.00	0.00	824.40	824.40

*SECNO 47.500

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
840.39	840.29	.02	402.	6556.	1300.	1238.	839.50	839.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

47.50	18.42	840.02	0.00	0.00	840.39	.38	.17	0.00	826.90
7200.	48.	7152.	0.	147.	1446.	0.	6548.	576.	825.90
7.81	.33	4.95	0.00	.075	.030	.070	.038	821.60	957.87
.000230	59.	59.	59.	2	0	3	0.00	342.96	1495.00

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01.02
MODIFICATION - 50,51,52,53
****

T1 100 YEAR FLOOD ENCROACHED
T2 STARTING ELEVATION FROM GRAND RIVER PROFILE
T3 RED CEDAR RIVER

MOORE BUSINESS FORMS, INC. 23



1) COUNTY: Ingham

2) STUDY NAME: Lansing + E. Lansing

3) WATERCOURSE: Red Cedar

4) DOCUMENT TYPE: 10-year



FINAL RED CEDAR RIVER
FLOOD INSURANCE 7/10/79 VGW

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01:02
  MODIFICATION -  50:51:52:53
**************************************************

C
T1      10 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        2.        0.        0.  0.000000      0.00      0.0       0.   825.920     0.000

J2  NPROF     IPLOT     PRFUS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    0.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
  150.000   202.000   265.000   321.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                    *********REQUESTED SECTION NUMBERS*********
  -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC    .060      .060      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT   6.000 10700.000 16600.000 19400.000 26800.000 11600.000 19400.000     0.000     0.000     0.000
NH   5.000      .045   119.500      .030   290.000      .045   340.000      .030   490.000      .050
NH 807.000     0.000     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

        CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

X1     1.000    23.000   129.000   490.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   836.500     0.000   835.500    20.000   833.000   119.000   817.700   129.000   814.000   130.000
GR   810.500   170.000   811.000   220.000   812.000   240.000   818.000   280.000   825.000   290.000
GR   825.500   340.000   817.700   355.000   811.500   380.000   809.500   430.000   815.500   470.000
GR   825.000   490.000   827.500   510.000   828.200   610.000   845.000   610.000   845.000   710.000
GR   828.200   710.000   828.200   807.000   845.000   807.000     0.000     0.000     0.000     0.000
NC      .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT   6.000  5500.000  8280.000  9600.000 13000.000  7660.000  9600.000     0.000     0.000     0.000
ET   0.000   375.000   890.000     9.100     9.100     9.100     2.100     0.000   375.000     0.000

X1     2.000    14.000   515.000   655.000   500.000   335.000   400.000     0.000     0.000     0.000
GR   827.000     0.000   826.000   395.000   824.000   505.000   820.000   515.000   817.600   525.000
GR   810.900   550.000   809.500   590.000   815.100   628.000   818.000   655.000   822.000   665.000
GR   824.000   675.000   828.000   700.000   828.300  1055.000   845.000  1056.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
ET   0.000     0.000     0.000     0.000     0.000     0.000     9.100     0.000     1.000   590.000

        ELM ST. BRIDGE

X1     3.000    19.000   175.000   266.000   550.000   550.000   550.000     0.000     0.000     0.000
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X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.100	826.000	0.000
GR	840.100	0.000	841.200	100.000	839.000	140.000	834.000	155.000	828.400	155.001
GR	817.700	175.000	817.700	175.001	810.400	200.000	809.600	230.000	814.800	262.000
GR	817.700	266.000	817.700	266.001	822.300	286.000	829.000	286.001	828.500	300.000
GR	828.700	400.000	830.000	490.000	826.000	635.000	870.000	625.001	0.000	0.000
ET	0.000	1.000	590.000	0.000	0.000	0.000	2.100	0.000	0.000	0.000
SB	0.000	1.560	3.000	0.000	80.000	0.000	1441.000	.100	810.000	809.600

X1	3.500	19.000	175.000	266.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	828.000	826.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.100	826.000	0.000
BT	15.000	0.000	840.100	0.000	100.000	841.300	0.000	155.000	840.600	0.000
BT	155.100	843.600	0.000	175.000	843.100	0.000	175.100	843.100	828.000	266.000
BT	840.200	828.000	266.100	840.200	0.000	286.000	839.500	0.000	286.100	836.500
BT	0.000	300.000	835.900	0.000	400.000	832.900	0.000	485.000	830.000	0.000
BT	625.000	826.000	0.000	625.001	870.000	0.000	0.000	0.000	0.000	0.000
GR	840.100	0.000	841.300	100.000	841.200	125.000	834.000	155.000	825.000	155.001
GR	817.700	175.000	817.700	175.100	810.700	200.000	810.500	230.000	813.900	262.000
GR	817.700	266.000	817.700	266.100	829.500	286.000	832.500	286.100	835.500	298.000
GR	829.300	400.000	828.000	415.000	827.900	625.000	870.000	625.001	0.000	0.000
NC	0.000	0.000	.035	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	9.100	0.000	116.500	539.000

X1	4.000	12.000	122.000	225.000	575.000	455.000	500.000	0.000	0.000	0.000
GR	840.400	0.000	830.000	110.000	820.000	117.000	818.000	122.000	816.900	151.000
GR	806.800	175.000	816.900	220.000	818.000	225.000	820.000	232.000	824.000	240.000
GR	829.500	415.000	829.500	540.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

PENN CENTRAL R.R. BRIDGE

X1	5.000	16.000	391.000	539.000	600.000	525.000	570.000	.985	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
GR	838.200	0.000	829.900	200.000	829.200	300.000	829.400	377.000	825.400	391.000
GR	825.400	391.001	816.100	403.000	803.000	425.000	811.200	450.000	812.600	500.000
GR	816.100	514.000	824.600	539.000	824.600	539.001	827.100	600.000	830.000	710.000
GR	840.000	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.900	0.000	110.000	44.000	1506.000	1.160	811.000	811.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

X1	5.100	18.000	391.000	539.000	26.000	26.000	26.000	.985	0.000	0.000
X2	0.000	0.000	1.000	828.300	828.300	0.000	0.000	0.000	.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
BT	8.000	259.000	830.700	0.000	260.000	830.700	0.000	300.000	830.500	0.000
BT	391.000	830.400	0.000	391.001	833.400	828.300	539.000	832.900	827.900	539.001
BT	829.900	0.000	560.000	829.700	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.200	0.000	830.500	200.000	830.400	300.000	830.500	377.000	824.100	391.000
GR	826.100	391.001	816.100	409.000	803.800	425.000	811.700	450.000	813.100	500.000
GR	816.100	526.000	825.600	539.000	827.900	539.001	829.700	539.002	829.700	539.003
GR	829.420	560.000	870.000	560.010	870.000	2020.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	450.000	1060.000

X1	6.000	45.000	589.100	815.000	195.000	195.000	195.000	.866	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100

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GR   818.000   589.000   818.000   589.100   818.200   639.000   814.400   645.000   814.400   645.100
GR   810.400   649.000   810.400   649.100   812.900   707.000   812.900   707.100   810.600   711.000
GR   810.600   711.100   818.200   741.000   819.300   770.000   819.300   770.100   819.300   774.000
GR   819.300   774.100   829.900   815.000   829.900   815.100   830.100   900.000   829.460  1060.000
ET     0.000   515.000   815.000     9.100     9.100     9.100     2.100     0.000   450.000  1060.000

CEDAR ST. BRIDGE

X1     6.010    51.000   589.100   815.000     1.000     1.000     1.000      .866     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .866     0.000
BT    47.000   204.000   868.000   854.200   269.000   862.900   854.400   269.100   862.900   832.000
BT   273.000   862.900   832.000   273.100   862.900   854.200   332.000   862.200   853.500   332.100
BT   862.200   832.100   336.000   862.200   832.100   336.100   862.200   853.500   396.000   860.900
BT   852.200   396.100   860.900   831.400   400.000   860.900   831.400   400.100   860.900   852.200
BT   458.000   858.900   850.200   458.100   858.900   830.600   462.000   858.900   830.600   462.100
BT   858.900   850.200   522.000   856.400   847.700   522.100   856.400   831.200   526.000   856.400
BT   831.200   526.100   856.400   847.700   585.000   853.900   845.200   585.100   853.900   829.700
BT   589.000   853.900   818.000   589.100   853.900   845.200   645.000   851.200   842.500   645.100
BT   851.200   814.400   649.000   851.200   810.400   649.100   851.200   842.500   707.000   848.200
BT   839.500   707.100   848.200   812.900   711.000   848.200   810.600   711.100   848.200   839.500
BT   770.000   846.400   837.700   770.100   846.400   819.300   774.000   846.400   819.300   774.100
BT   846.400   837.700   815.000   845.000   836.300   815.100   845.000   829.900   900.000   837.600
BT     0.000  1100.000   832.300     0.000  1300.000   830.900     0.000  1500.000   830.400     0.000
BT  1700.000   829.600     0.000  1900.000   832.900     0.000  2100.000   834.900     0.000  2200.000
BT   839.900     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   868.000   204.000   859.200   204.100   833.400   204.200   832.000   269.000   832.000   269.100
GR   832.000   273.000   832.000   273.100   832.100   332.000   832.100   332.100   832.100   336.000
GR   832.100   336.100   831.400   396.000   831.400   396.100   831.400   400.000   831.400   400.100
GR   830.600   458.000   830.600   458.100   830.600   462.000   830.600   462.100   831.200   522.000
GR   831.200   522.100   831.200   526.000   831.200   526.100   829.700   585.000   829.700   585.100
GR   818.000   589.000   818.000   589.100   818.200   639.000   814.400   645.000   814.400   645.100
GR   810.400   649.000   810.400   649.100   812.900   707.000   812.900   707.100   810.600   711.000
GR   810.600   711.100   818.200   741.000   819.300   770.000   819.300   770.100   819.300   774.000
GR   819.300   774.100   829.900   815.000   829.900   815.100   830.100   900.000   829.300  1100.000
GR   830.900  1300.000   830.400  1500.000   829.600  1700.000   832.900  1900.000   834.900  2100.000
GR   839.900  2200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET     0.000   515.000   815.000     9.100     9.100     9.100     2.100     0.000   450.000   815.000

X1     6.090    53.000   637.000   855.000    65.000    65.000    65.000      .866     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000      .866     0.000
BT    50.000   204.000   862.000   854.000   271.000   862.000   854.000   271.100   862.000   832.200
BT   275.000   862.000   832.200   275.100   862.000   854.000   332.000   862.000   853.000   332.100
BT   853.000   832.100   336.000   862.000   832.100   336.100   862.000   853.000   396.000   862.000
BT   852.000   396.100   860.000   831.400   400.000   860.000   831.400   400.100   860.000   852.000
BT   458.000   858.000   850.000   458.100   858.000   830.600   462.000   858.000   830.600   462.100
BT   858.000   850.000   522.000   856.000   847.700   522.100   856.000   831.100   526.000   856.000
BT   831.100   526.100   856.000   847.700   585.000   854.000   845.000   585.100   853.000   829.700
BT   589.000   853.000   829.700   589.100   853.000   845.000   621.000   851.000   844.000   621.100
BT   852.000   822.700   625.000   852.000   822.700   625.100   852.000   844.000   681.000   850.000
BT   842.000   681.100   850.000   810.500   685.000   850.000   809.500   685.100   850.000   842.000
BT   743.000   848.000   839.300   743.100   848.000   809.700   747.000   848.000   810.300   747.100
BT   848.000   839.300   810.000   845.000   836.600   810.100   845.000   818.200   814.000   845.000
BT   818.200   814.100   845.000   836.600   855.000   843.000   835.000   855.100   843.300   828.500
BT   900.000   841.300     0.000  1100.000   836.000     0.000  1300.000   834.600     0.000  1500.000
BT   834.100     0.000  1500.000   830.400     0.000  1700.000   829.600     0.000  1900.000   832.900
BT     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   868.000   204.000   833.000   204.100   832.200   271.000   832.200   271.100   832.200   275.000
GR   832.200   275.100   832.100   332.000   832.100   332.100   832.100   336.000   832.100   336.100
GR   831.400   396.000   831.400   396.100   831.400   400.000   831.400   400.100   830.600   458.000
GR   830.600   458.100   830.600   462.000   830.600   462.100   831.100   522.000   831.100   522.100
GR   831.100   526.000   831.100   526.100   829.700   585.000   829.700   585.100   829.700   589.000
GR   829.700   589.100   822.700   621.000   822.700   621.100   822.700   625.000   822.700   625.000
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GR	818.200	637.000	810.500	681.000	810.500	681.100	809.500	685.000	809.500	685.100
GR	809.700	743.000	809.700	743.100	810.200	747.000	810.200	747.100	818.200	810.000
GR	818.200	810.100	818.200	814.000	818.200	814.100	828.500	855.000	828.500	855.100
GR	830.100	900.000	829.400	1100.000	830.900	1300.000	830.400	1500.000	829.600	1700.000
GR	832.900	1900.000	834.900	2100.000	839.900	2200.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	417.000	945.300
X1	6.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

LYONS ST. BRIDGE

X1	8.000	16.000	859.000	988.000	400.000	287.000	335.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
GR	830.300	670.000	830.800	700.000	833.300	800.000	833.200	837.000	823.300	859.000
GR	823.300	859.000	818.200	880.000	812.500	900.000	811.900	903.000	810.900	924.000
GR	811.400	946.000	811.500	949.000	818.200	974.000	823.000	988.000	823.000	988.000
GR	829.000	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	3.000	0.000	80.000	6.000	786.000	1.650	813.000	813.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000
X1	8.100	22.000	859.000	988.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	830.000	829.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
BT	8.000	670.000	830.500	0.000	700.000	830.800	0.000	800.000	833.300	0.000
BT	859.000	833.600	823.500	859.000	836.600	830.000	988.000	836.600	830.000	988.000
BT	833.600	823.200	1100.000	830.600	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.100	0.000	834.400	100.000	832.000	300.000	830.300	400.000	830.600	500.000
GR	829.100	600.000	830.800	700.000	833.300	800.000	832.100	850.000	823.500	859.000
GR	823.500	859.000	818.200	895.000	816.800	900.000	814.300	903.000	810.500	924.000
GR	811.200	946.000	811.600	949.000	818.200	980.000	823.200	988.000	823.200	988.000
GR	824.600	991.000	826.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000

PENN CENTRAL R.R. BRIDGE

X1	9.000	16.000	364.000	561.000	470.000	512.000	520.000	.914	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
GR	870.000	169.900	830.750	170.000	830.700	200.000	831.000	300.000	828.900	364.000
GR	828.900	364.000	817.800	382.000	815.600	399.000	812.700	415.000	813.500	468.000
GR	814.000	499.000	817.800	533.000	825.900	561.000	825.900	561.000	829.000	600.000
GR	830.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000
SB	1.050	1.560	2.800	0.000	113.000	20.000	2084.000	2.900	813.900	812.700
X1	9.100	16.000	364.000	561.000	14.500	14.500	14.500	.914	0.000	0.000
X2	0.000	0.000	1.000	828.900	831.200	0.000	0.000	0.000	.914	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
BT	11.000	170.000	831.400	0.000	171.000	831.400	0.000	200.000	831.200	0.000
BT	300.000	831.100	0.000	364.000	831.300	828.900	364.000	834.300	828.900	561.000
BT	834.200	828.900	561.000	831.200	826.900	600.000	831.100	0.000	700.000	831.100
BT	0.000	720.000	831.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	870.000	169.900	825.110	170.000	824.600	200.000	827.400	300.000	828.900	364.000
GR	828.900	364.000	817.800	390.000	817.300	393.000	814.200	409.000	813.900	462.000
GR	815.900	499.000	817.800	542.000	826.900	561.000	826.900	561.000	827.700	600.000
GR	826.100	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	1.400	0.000	1.000	520.000

X1	10.000	15.000	50.000	171.000	620.000	662.000	600.000	0.000	0.000	0.000
GR	841.300	0.000	826.200	1.000	825.700	20.000	829.200	29.000	818.200	50.000
GR	814.400	65.000	809.100	100.000	812.200	150.000	818.200	170.000	826.400	171.000
GR	826.500	200.000	826.300	300.000	826.200	400.000	826.400	500.000	826.400	520.000
NC	.050	.050	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

G.T.W. R.R. BRIDGE

X1	11.000	37.000	269.000	406.000	475.000	875.000	475.000	.866	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	1.000	789.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	406.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	828.800	0.000	826.900	100.000	817.700	269.000	817.700	269.100	817.300	300.000
GR	817.300	300.100	814.600	306.000	814.600	306.100	811.600	334.000	813.700	334.100
GR	813.700	340.000	813.700	340.100	814.600	369.000	814.600	369.100	813.700	375.000
GR	813.700	375.100	817.700	406.000	817.700	406.100	825.800	418.000	826.000	500.000
GR	827.000	606.000	827.300	701.000	827.200	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	761.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.400	37.000	269.000	406.000	26.000	26.000	26.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	406.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	825.800	0.000	825.900	100.000	828.200	200.000	821.500	269.000	817.700	273.000
GR	816.700	300.000	816.700	300.100	816.700	306.000	816.700	306.100	814.300	334.000
GR	814.300	334.100	812.000	340.000	812.000	340.100	814.000	369.000	814.000	369.100
GR	814.100	375.000	814.100	375.100	817.700	406.000	817.700	406.100	826.100	427.000
GR	826.700	500.000	827.000	606.000	827.300	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	761.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	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	9.100	0.000	145.000	1165.000

X1	12.000	27.000	756.000	905.000	860.000	50.000	500.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
GR	828.500	70.000	828.100	200.000	827.500	400.000	827.100	600.000	827.300	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.000	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	824.100	1033.000	822.900	1100.000
GR	820.200	1171.000	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.065	.065	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	9.100	0.000	145.000	1165.000

PENNSYLVANIA AVE. BRIDGE

X1	12.100	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	.972	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	754.000	828.870	0.000	754.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
NC	0.000	.060	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	9.100	0.000	115.000	1165.000

X1	12.400	26.000	756.000	905.000	72.000	72.000	72.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	754.000	828.870	0.000	754.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
GR	823.350	70.000	823.000	200.000	822.500	400.000	827.100	600.000	827.200	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.300	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	822.900	1100.000	820.200	1171.000
GR	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.091	.050	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	9.100	0.000	115.000	1165.000

MICH DNR 1975 FLOOD HIGH WATER MARK 829.36 AT SECTION 12.5

X1	12.500	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	828.470	824.970	0.000
NC	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	190.000	1310.000	9.100	9.100	9.100	2.100	0.000	160.000	0.000

X1	13.000	22.000	684.000	840.000	500.000	525.000	475.000	0.000	0.000	0.000
GR	850.000	0.000	850.000	159.900	826.000	160.000	826.000	325.000	824.000	335.000
GR	824.000	620.000	825.000	650.000	820.000	684.000	818.400	690.000	812.970	707.000
GR	810.970	779.000	810.970	784.000	813.970	815.000	818.400	840.000	820.000	867.000
GR	822.000	880.000	822.000	955.000	822.000	1140.000	824.000	1250.000	826.000	1258.000
GR	828.000	1264.000	836.700	1310.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	14.000	30.000	190.000	397.000	1300.000	1510.000	1375.000	0.000	0.000	0.000
GR	850.000	0.000	837.000	0.000	834.000	20.000	832.000	37.000	830.000	77.000
GR	830.000	103.000	830.000	184.000	819.500	190.000	817.500	190.000	817.500	195.000
GR	815.000	211.000	815.500	225.000	813.800	245.000	814.200	255.000	814.200	265.000
GR	812.000	308.000	811.000	312.000	811.000	325.000	814.000	355.000	814.000	375.000
GR	815.000	385.000	817.500	395.000	818.800	397.000	820.000	505.000	822.000	535.000
GR	824.000	618.000	828.000	700.000	832.000	784.000	836.000	818.000	838.000	868.000
NH	7.000	.070	151.000	.050	203.000	.070	583.000	.040	680.000	.070

NH	1055.000	.050	1090.000	.050	1360.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE RED CEDAR AND SYCAMORE CREEK

X1	14.500	21.000	151.000	1090.000	1375.000	1255.000	1550.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	18.000	819.000	150.000	818.100	151.000	815.900	161.000
GR	815.000	181.000	816.100	191.000	818.100	202.000	819.000	203.000	819.000	583.000
GR	815.000	600.000	811.800	620.000	811.800	630.000	815.000	660.000	819.000	680.000
GR	819.000	1050.000	817.000	1055.000	817.000	1090.000	819.000	1095.000	828.000	1360.000
GR	830.000	1360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.068	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	6.000	4120.000	6200.000	7200.000	9740.000	5940.000	7200.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	9.100	9.100	0.000	1.400	0.000	1.000	2470.000

X1	15.000	32.000	1533.000	1615.000	950.000	400.000	450.000	0.000	.970	0.000
GR	836.300	0.000	828.300	10.000	821.800	34.000	820.700	110.000	819.600	210.000
GR	819.300	410.000	818.800	610.000	818.600	810.000	818.600	830.000	817.500	835.000
GR	815.000	854.000	815.200	865.000	817.500	872.000	818.000	874.000	818.000	1010.000
GR	818.400	1210.000	818.100	1310.000	818.500	1410.000	818.300	1510.000	817.500	1533.000
GR	813.700	1540.000	812.500	1560.000	814.500	1603.000	817.500	1615.000	821.600	1624.000
GR	823.700	1710.000	823.600	1810.000	824.300	2010.000	838.300	2210.000	832.500	2410.000
GR	836.500	2510.000	841.400	2610.000	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	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000

AURELIUS RD. BRIDGE

X1	16.000	33.000	1905.100	2095.000	300.000	475.000	500.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
GR	842.300	0.000	837.300	100.000	834.600	200.000	832.400	300.000	827.270	345.500
GR	825.060	400.000	820.060	450.000	818.760	500.000	819.850	550.000	818.150	600.000
GR	817.240	700.000	816.540	800.000	819.220	1200.000	817.700	1300.000	819.500	1347.000
GR	819.000	1905.000	819.000	1905.100	819.000	1930.000	812.000	1947.000	812.000	1965.000
GR	812.000	1965.100	812.000	1968.000	812.000	1968.100	812.000	2035.000	812.000	2035.100
GR	812.000	2038.000	812.000	2038.100	818.200	2055.000	818.500	2095.000	818.500	2095.100
GR	819.100	2150.000	821.190	2435.000	821.700	2500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	3.000	0.000	81.000	6.000	2821.000	2.040	812.000	812.000

X1	16.500	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.000	829.140	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
BT	18.000	0.000	842.300	0.000	100.000	837.300	0.000	200.000	834.600	0.000
BT	300.000	832.400	0.000	700.000	829.140	0.000	1905.000	837.000	0.000	1905.100
BT	837.000	832.900	1965.000	838.300	834.600	1965.100	838.300	812.000	1968.000	838.300
BT	812.000	1968.100	838.300	834.600	2035.000	839.600	836.000	2035.100	839.600	812.000
BT	2038.000	839.600	812.000	2038.100	839.600	836.000	2095.000	840.800	837.000	2095.100
BT	840.800	0.000	2500.000	849.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.120	1040.000	.100	1563.000	.030	1672.000	.090	2250.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000

X1	17.000	22.000	1563.000	1672.000	1800.000	650.000	800.000	0.000	.970	0.000
GR	837.000	0.000	830.000	35.000	822.000	75.000	820.500	300.000	820.000	525.000
GR	820.000	665.000	821.800	835.000	820.000	1040.000	820.500	1485.000	834.700	1516.000
GR	830.800	1521.000	827.300	1539.000	819.300	1563.000	817.700	1564.000	813.200	1576.000
GR	813.500	1601.000	813.700	1631.000	814.000	1651.000	817.700	1672.000	835.000	1706.000

GR	836.000	2040.000	836.000	2250.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.068	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000

G.T.W. R.R. BRIDGE

X1	18.000	25.000	1325.000	1463.000	1250.000	675.000	830.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.370	833.570	0.000
GR	822.000	0.000	820.000	380.000	820.900	1022.000	821.000	1122.000	820.600	1222.000
GR	821.700	1325.000	821.700	1325.000	820.700	1336.000	817.800	1338.000	817.800	1340.000
GR	815.800	1358.000	814.100	1374.000	812.300	1394.000	809.800	1412.000	817.800	1430.000
GR	817.800	1448.000	817.800	1452.000	821.300	1463.000	821.300	1463.000	819.700	1522.000
GR	820.300	1622.000	832.500	1682.000	840.500	1722.000	840.500	1822.000	840.500	1922.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000
SB	1.050	1.910	3.000	0.000	50.000	8.000	1400.000	2.210	811.670	810.770

X1	18.500	24.000	1325.000	1463.000	26.000	26.000	26.000	0.000	.970	0.000
X2	0.000	0.000	1.000	829.170	833.070	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.070	833.070	0.000
BT	15.000	0.000	837.970	0.000	800.000	837.970	0.000	801.000	833.370	0.000
BT	1122.000	833.570	0.000	1222.000	833.370	0.000	1325.000	833.070	823.170	1325.000
BT	833.070	829.170	1463.000	833.070	829.170	1463.000	833.070	822.170	1522.008	33.370
BT	0.000	1622.000	833.570	0.000	1622.000	833.470	0.000	1722.000	841.470	0.000
BT	1882.000	840.500	0.000	1922.000	840.500	0.000	0.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	270.000	820.900	1022.000	821.200	1122.000	821.000	1222.000
GR	822.200	1325.000	822.200	1325.000	819.200	1337.000	817.800	1338.000	815.300	1340.000
GR	810.700	1358.000	813.300	1376.000	814.300	1394.000	817.300	1412.000	817.300	1430.000
GR	817.800	1448.000	817.800	1456.000	821.200	1463.000	820.300	1522.000	820.400	1622.000
GR	832.500	1682.000	840.500	1722.000	840.500	1882.000	840.500	1922.000	0.000	0.000
NC	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	1.400	0.000	850.000	1619.000

X1	19.000	19.000	1475.000	1560.000	650.000	550.000	640.000	0.000	.970	0.000
GR	870.000	0.000	870.000	125.000	870.000	180.000	870.000	849.900	819.300	850.000
GR	819.300	890.000	821.000	970.000	820.000	1100.000	820.000	1310.000	820.000	1310.100
GR	820.200	1475.000	818.000	1480.000	812.900	1499.000	813.900	1529.000	816.000	1549.000
GR	818.000	1560.000	826.000	1574.000	837.500	1608.000	838.600	1619.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C. AND O. R.R. BRIDGE

X1	21.000	17.000	950.000	1112.000	700.000	1060.000	1637.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
GR	824.500	0.000	828.900	650.000	829.200	750.000	828.200	850.000	821.600	950.000
GR	821.600	950.000	818.200	977.000	816.500	990.000	814.600	1028.000	817.000	1035.000
GR	814.700	1065.000	818.200	1076.000	819.800	1112.000	819.800	1112.000	828.700	1150.000
GR	827.600	1250.000	824.600	1350.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.900	0.000	75.000	7.000	1544.000	3.620	816.070	815.570

X1	21.500	17.000	950.000	1112.000	10.000	10.000	10.000	0.000	.970	0.000
X2	0.000	0.000	1.000	828.270	838.270	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
BT	11.000	0.000	839.070	0.000	650.000	838.870	0.000	750.000	838.770	0.000
BT	850.000	838.570	0.000	949.000	838.270	821.670	950.000	838.270	828.270	1112.000
BT	838.170	820.770	1112.100	838.170	828.270	1150.000	838.270	0.000	1250.000	838.570
BT	0.000	1350.000	838.970	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	822.200	0.000	822.700	650.000	825.900	750.000	828.100	850.000	820.700	949.000

GR	820.700	950.000	818.200	970.000	815.600	990.000	815.400	1028.000	815.600	1035.000
GR	815.100	1065.000	818.200	1077.000	819.800	1112.000	819.800	1112.100	829.900	1150.000
GR	827.700	1250.000	825.100	1350.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.000	37.000	216.700	358.000	975.000	930.000	950.000	.707	0.000	0.000
GR	841.000	109.000	846.200	110.000	846.200	126.700	846.200	126.800	846.200	130.000
GR	846.200	130.100	846.200	133.300	818.000	216.700	818.000	216.800	815.800	221.900
GR	815.800	222.000	815.000	236.700	815.700	246.700	815.700	274.700	815.000	300.000
GR	820.000	358.000	820.000	358.100	820.800	363.300	820.800	363.400	824.000	406.700
GR	826.500	413.300	828.300	442.000	828.300	442.100	828.800	445.300	828.800	445.400
GR	829.000	515.000	829.000	515.100	829.000	518.300	829.000	518.400	841.300	566.700
GR	841.300	573.300	841.300	573.400	847.000	576.700	847.100	576.700	847.000	684.700
GR	847.000	700.000	847.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

I-494 EASTBOUND (BRIDGE OUTLET)

X1	22.010	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	.707	0.000
BT	25.000	109.000	857.000	0.000	110.000	855.800	0.000	126.700	855.500	846.200
BT	130.000	855.400	846.200	130.100	855.400	849.000	216.700	854.600	848.000	216.800
BT	854.600	818.000	221.900	855.400	815.000	222.000	855.400	848.000	358.000	853.100
BT	846.700	358.100	853.100	820.000	363.300	853.000	820.800	363.400	853.000	846.600
BT	442.000	852.300	845.700	442.100	852.300	828.300	445.300	852.200	828.800	445.400
BT	852.200	845.600	515.000	851.600	845.000	515.100	851.600	829.000	518.300	851.500
BT	829.000	518.400	851.500	844.900	573.300	851.000	844.300	573.400	851.000	841.300
BT	576.700	850.900	847.000	800.000	848.800	0.000	0.000	0.000	0.000	0.000

I-494 WESTBOUND (BRIDGE INLET)

X1	23.000	36.000	222.700	362.000	190.000	190.000	190.000	.707	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.707	0.000
BT	22.000	99.000	857.500	0.000	100.000	856.500	0.000	136.000	854.200	846.200
BT	139.300	856.100	846.200	139.400	856.100	849.700	222.700	855.300	849.000	222.800
BT	855.300	819.000	226.000	855.200	818.000	226.100	855.200	848.900	362.000	853.900
BT	847.600	362.100	853.900	825.500	365.300	853.800	826.500	365.400	853.800	847.600
BT	502.700	852.400	846.300	502.800	852.400	831.600	506.000	852.300	832.200	506.100
BT	852.300	846.200	548.600	851.900	845.800	548.700	851.900	842.400	552.000	851.800
BT	0.000	700.000	850.520	0.000	900.000	849.000	0.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	842.000	406.800	842.000	446.600
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23.500	36.000	222.700	362.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	828.000	406.800	828.000	406.900
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	24.000	25.000	334.000	603.000	850.000	940.000	880.000	.891	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000

GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	565.000	827.500	565.100	828.140	603.000	829.700	700.000	841.000	800.000

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

X1	24.500	27.000	334.000	603.000	1.000	1.000	1.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	18.000	334.000	849.270	845.570	334.100	849.270	845.570	339.000	849.170	845.570
BT	391.000	849.170	846.270	391.100	849.170	819.570	395.000	849.170	819.570	395.100
BT	849.170	846.270	474.000	849.170	847.170	474.100	849.170	819.570	478.000	849.170
BT	819.570	478.100	849.170	847.170	561.000	849.170	847.470	561.100	849.170	828.470
BT	565.000	849.170	828.470	565.100	849.170	847.470	598.000	849.170	847.470	603.000
BT	849.170	847.570	603.100	849.170	847.570	0.000	0.000	0.000	0.000	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	565.000	827.500	565.100	842.500	598.000	842.500	603.000	846.600	603.100
GR	829.700	700.000	841.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

U.S. 127 NORTHBOUND (BRIDGE INLET)

X1	25.000	28.000	214.000	480.000	200.000	200.000	200.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	20.000	214.000	850.970	846.470	214.100	850.970	846.470	219.000	850.970	846.470
BT	219.100	850.970	846.470	272.000	850.970	845.670	272.100	850.970	819.570	276.000
BT	850.970	819.570	276.100	850.970	845.970	357.000	850.970	845.970	357.100	850.970
BT	819.570	361.000	850.970	819.570	361.100	850.970	845.970	448.000	850.970	844.170
BT	448.100	850.970	829.670	452.000	850.970	829.670	452.100	850.970	844.170	476.000
BT	850.970	844.690	476.100	850.970	844.770	480.000	850.970	844.770	480.100	850.970
BT	844.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.200	214.000	827.190	214.001	827.190	214.002	827.190	214.003	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	829.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	830.200	600.000	830.400	700.000	0.000	0.000	0.000	0.000
NC	.082	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.500	28.000	214.000	480.000	460.000	410.000	400.000	0.000	.970	0.000
GR	825.900	0.000	831.500	100.000	827.500	212.000	827.200	214.000	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	850.000	500.010	850.000	700.000	0.000	0.000	0.000	0.000

X1	27.000	26.000	1436.100	1494.000	1400.000	1010.000	1100.000	.968	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
GR	825.500	0.000	827.000	455.000	825.500	610.000	825.500	700.000	825.500	1130.000
GR	825.300	1230.000	823.200	1330.000	818.400	1436.000	818.400	1436.100	816.200	1462.000
GR	816.200	1462.100	815.500	1466.000	815.500	1466.100	815.200	1480.000	815.100	1490.000
GR	815.100	1490.100	815.200	1494.000	815.200	1494.100	815.400	1507.000	816.300	1518.000
GR	818.400	1520.000	818.400	1520.100	824.800	1532.000	826.500	1630.000	826.300	1730.000
GR	825.000	2130.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

KALAMAZOO ST. BRIDGE

X1	27.100	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	.968	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
BT	26.000	0.000	829.470	0.000	455.000	828.970	0.000	610.000	826.970	0.000
BT	700.000	828.720	0.000	1130.000	828.170	0.000	1230.000	829.270	0.000	1330.000
BT	828.970	0.000	1436.000	829.970	829.970	1436.100	829.970	827.170	1462.000	829.570
BT	827.170	1462.100	829.870	817.170	1466.000	829.870	816.470	1466.100	829.870	827.170
BT	1480.000	829.870	827.170	1490.000	829.870	827.170	1490.100	829.870	816.070	1494.000
BT	829.870	827.170	1494.100	829.870	827.170	1507.000	829.920	827.170	1518.000	829.970
BT	827.170	1520.000	829.870	827.170	1520.100	829.870	829.870	1532.000	830.670	0.000
BT	1630.000	830.970	0.000	1730.000	832.370	0.000	2130.000	831.970	0.000	0.000

X1	27.400	0.000	0.000	0.000	38.000	38.000	38.000	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	826.970	829.970	0.000
NC	.070	.050	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

X1	27.500	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	826.970	829.970	0.000
NC	0.000	0.000	.040	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	9.100	0.000	90.000	1200.000

X1	28.000	20.000	466.000	570.000	1962.000	1962.000	1962.000	0.000	.970	0.000
GR	846.200	0.000	833.700	0.000	832.700	100.000	827.200	200.000	827.400	300.000
GR	829.100	400.000	829.600	439.000	823.200	453.000	823.200	466.000	819.700	470.000
GR	815.500	480.000	814.500	500.000	816.900	520.000	819.700	554.000	826.700	570.000
GR	826.800	700.000	826.800	900.000	826.900	1100.000	827.100	1250.000	850.000	1250.010
NC	.055	.055	.037	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	30.000	15.000	20.000	140.000	1220.000	1300.000	1275.000	0.000	0.000	0.000
GR	855.000	0.000	840.500	.100	840.000	9.000	835.000	20.000	830.000	40.000
GR	828.000	50.000	820.200	65.000	818.000	80.000	816.500	95.000	818.000	110.000
GR	820.200	125.000	830.000	145.000	833.000	160.000	834.000	250.000	854.000	250.000

HARRISON RD. BRIDGE

X1	31.000	19.000	325.000	424.000	750.000	750.000	750.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
GR	845.900	0.000	844.300	100.000	842.900	200.000	841.700	268.000	840.200	300.000
GR	840.100	318.000	832.800	325.000	832.800	325.000	820.700	353.000	818.600	361.000
GR	819.700	384.000	819.200	400.000	820.700	405.000	826.700	424.000	826.700	424.000
GR	834.800	434.000	835.500	500.000	835.100	600.000	835.100	700.000	0.000	0.000
GR	.960	1.340	3.000	0.000	58.000	0.000	1014.000	1.340	819.000	819.960

X1	31.500	19.000	325.000	424.000	82.000	57.000	57.000	.970	0.000	3.000
X2	0.000	0.000	1.000	835.100	835.500	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
BT	15.000	0.000	845.900	0.000	100.000	844.200	0.000	200.000	843.700	0.000
BT	298.000	840.600	0.000	300.000	839.200	0.000	300.000	842.700	0.000	325.000
BT	842.100	828.300	325.000	842.100	835.100	424.000	839.900	823.100	424.000	839.900

BT	831.900	444.000	839.400	0.000	444.000	835.900	0.000	500.000	835.600	0.000
BT	600.000	835.500	0.000	700.000	835.500	0.000	0.000	0.000	0.000	0.000
GR	845.900	0.000	844.200	100.000	843.700	200.000	840.600	298.000	839.200	300.000
GR	828.300	325.000	828.300	325.000	820.700	338.000	819.500	340.000	819.100	352.000
GR	818.500	366.000	816.100	388.000	820.200	417.000	823.700	424.000	831.900	424.000
GR	835.200	424.000	835.500	500.000	835.500	600.000	835.700	700.000	0.000	0.000
NC	.040	.040	.038	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.000	22.000	517.000	611.000	1240.000	600.000	875.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	829.300	200.000	828.200	300.000	827.100	400.000
GR	827.000	500.000	827.000	500.000	824.600	517.000	824.600	517.000	821.000	529.000
GR	819.000	539.500	819.000	550.000	818.900	562.000	819.400	586.500	821.000	600.000
GR	824.500	611.000	824.500	611.000	833.700	628.000	833.700	628.000	835.300	700.000
GR	835.300	781.000	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	33.010	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	829.300	835.300	0.000
BT	21.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.300	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	839.800	824.600	517.000	839.800	833.600	539.500	840.500
BT	835.800	550.000	840.700	836.500	562.000	841.000	836.200	586.500	840.800	835.900
BT	600.000	840.200	835.000	611.000	840.000	833.700	611.000	840.000	824.500	628.000
BT	839.100	0.000	628.000	835.600	0.000	700.000	835.300	0.000	781.000	835.300
BT	0.000	781.000	855.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	33.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BT	19.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.000	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	840.100	825.500	517.000	840.100	833.600	540.000	840.800
BT	836.000	562.000	841.000	836.200	584.000	840.800	836.000	611.000	840.000	833.700
BT	611.000	840.100	825.000	628.000	839.100	0.000	628.000	835.600	0.000	700.000
BT	834.700	0.000	781.000	834.400	0.000	781.000	855.200	0.000	0.000	0.000
X1	33.100	21.000	517.000	611.000	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	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	826.700	200.000	826.900	300.000	828.200	400.000
GR	831.400	500.000	831.400	500.000	825.500	517.000	825.500	517.000	821.000	527.000
GR	819.700	540.000	818.900	562.000	819.200	584.000	821.000	605.000	825.000	611.000
GR	825.000	611.000	833.900	628.000	833.900	628.000	834.700	700.000	834.000	781.000
GR	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	34.000	15.000	750.000	865.000	440.000	1965.000	1635.000	0.000	0.000	0.000
GR	862.000	0.000	832.500	.100	832.000	20.000	830.000	35.000	828.000	75.000
GR	827.000	410.000	828.000	585.000	828.000	750.000	823.000	770.000	820.500	790.000
GR	819.700	809.000	821.000	829.000	822.000	848.000	845.000	865.000	854.500	890.000

KALAMAZOO ST. BRIDGE

X1	34.000	21.000	622.100	715.000	520.000	1150.000	1110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
GR	832.000	0.000	830.000	65.000	828.500	100.000	828.200	315.000	828.400	415.000
GR	828.500	500.000	828.600	515.000	832.300	575.000	832.000	610.000	823.000	622.000
GR	823.000	622.100	820.400	670.000	820.400	670.100	820.400	674.000	820.400	674.100
GR	821.100	688.000	823.000	715.000	823.000	715.100	828.000	730.000	832.700	738.000

GR	836.500	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.100	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	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	100.000	832.800	0.000
BT	315.000	832.800	0.000	415.000	833.500	0.000	500.000	833.900	0.000	515.000
BT	834.000	0.000	575.000	835.100	0.000	610.000	835.700	0.000	622.000	835.800
BT	835.800	622.100	832.900	834.100	670.000	836.200	834.100	670.100	836.200	820.400
BT	674.000	836.200	820.400	674.100	836.200	834.200	715.000	836.100	834.200	715.100
BT	836.100	836.100	785.000	836.800	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.400	17.000	622.100	715.000	58.000	58.000	58.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	315.000	832.800	0.000
BT	415.000	833.500	0.000	515.000	834.000	0.000	604.000	835.700	0.000	622.000
BT	835.900	835.900	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200
BT	820.400	674.000	836.200	820.700	674.100	836.200	834.200	715.000	836.100	834.200
BT	715.100	836.100	836.100	720.000	836.100	0.000	785.000	836.800	0.000	0.000
GR	823.400	0.000	833.000	823.000	832.800	315.000	832.500	415.000	832.200	515.000
GR	831.100	804.000	823.000	822.000	823.000	622.100	820.400	670.000	820.400	670.100
GR	820.700	674.000	820.700	674.100	824.300	824.000	823.000	715.000	824.000	715.100
GR	834.200	720.000	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.300	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	833.000	836.200	0.000
MC	0.000	0.000	0.000	.500	.500	0.000	0.000	0.000	0.000	0.000
X1	36.000	38.000	322.000	416.000	1270.000	1070.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
GR	841.600	0.000	836.500	100.000	835.800	200.000	836.800	300.000	824.300	315.000
GR	823.600	322.000	823.600	322.000	821.700	340.000	821.600	345.500	821.200	360.000
GR	820.400	380.000	820.800	392.500	821.000	400.000	824.300	408.000	829.500	416.000
GR	829.500	416.000	829.500	428.000	829.500	428.000	829.700	448.000	829.900	469.500
GR	829.700	469.500	829.900	470.500	829.900	470.500	830.000	488.500	830.000	506.500
GR	830.000	506.500	830.000	507.500	830.000	507.500	830.800	525.500	831.700	543.500
GR	831.700	543.500	831.700	544.500	831.700	544.500	836.100	559.000	840.500	574.000
GR	842.700	581.000	842.900	581.000	845.500	700.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	38.010	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	836.900	829.500	0.000
BT	33.000	0.000	846.600	0.000	100.000	841.600	0.000	200.000	836.900	0.000
BT	300.000	837.800	0.000	322.000	838.300	823.600	322.000	841.300	835.100	345.500
BT	841.800	836.900	369.000	842.200	837.800	392.500	842.600	837.500	416.000	843.000
BT	836.900	416.000	843.000	829.500	428.000	843.200	829.500	428.000	843.200	837.800
BT	448.000	843.500	839.000	469.500	844.000	838.500	469.500	844.000	829.900	470.500
BT	844.000	829.900	470.500	844.000	838.500	488.500	844.400	839.500	506.500	848.800
BT	839.200	506.500	848.800	830.000	507.500	848.000	830.000	507.500	848.000	839.200
BT	525.500	845.200	840.200	543.500	845.500	840.000	543.500	845.500	831.700	544.500
BT	845.500	831.700	544.500	845.500	840.000	559.000	845.700	840.900	574.000	845.800
BT	840.500	581.000	845.900	0.000	581.000	842.900	0.000	700.000	845.500	0.000
X1	38.070	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000

X1	36.100	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	835.900	829.500	0.000
NC	.040	.040	.038	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	38.500	18.000	160.000	242.100	570.000	540.000	545.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	824.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000	838.000	310.000
GR	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

X1	39.000	19.000	160.000	242.100	10.000	10.000	10.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	826.890	160.100
GR	826.860	201.000	827.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	320.000	840.000	393.000	850.000	393.100	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

X1	40.000	19.000	156.000	246.100	20.000	20.000	20.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	836.000	94.000	836.000	127.000	830.000	150.000	829.600	156.000	827.350	156.100
GR	827.300	201.000	827.340	246.000	829.600	246.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000
NC	0.000	0.000	.031	.300	.500	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	41.000	17.000	141.000	241.100	210.000	205.000	205.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	32.000	842.000	65.000	840.000	123.000	835.500	141.000
GR	835.500	141.100	826.700	152.000	822.200	161.000	821.100	171.000	821.000	191.000
GR	821.000	211.000	831.000	241.000	831.000	241.100	839.300	256.000	841.800	261.000
GR	836.000	380.000	837.800	410.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.400	2.500	0.000	75.000	0.000	1400.000	3.000	821.000	821.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	141.000	244.000
X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.900	837.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	846.000	0.000	32.000	844.000	0.000	65.000	842.000	0.000
BT	123.000	841.700	0.000	141.000	841.680	0.000	141.100	841.420	837.900	191.000
BT	841.460	837.900	241.000	841.430	837.900	241.100	841.430	0.000	256.000	841.430
BT	0.000	261.000	841.800	0.000	380.000	838.000	0.000	410.000	837.800	0.000
NC	.036	.036	0.000	.100	.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

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

X1	42.000	25.000	221.000	337.000	1055.000	905.000	925.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
GR	850.300	0.000	847.700	100.000	837.500	221.000	829.300	221.000	829.300	230.000
GR	829.300	232.000	824.400	232.000	824.300	239.000	824.100	248.000	824.000	255.000
GR	824.000	255.000	823.300	258.000	823.300	258.000	823.700	268.500	824.200	281.000

GR	823.600	293.000	823.000	304.000	823.000	304.000	823.300	307.000	823.300	307.000
GR	823.600	325.000	829.300	337.000	829.300	337.000	841.100	400.000	842.100	500.000
X1	42.010	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	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.700	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.600	839.000	255.000	846.400	837.500	255.000	846.400
BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.500	846.100	839.000
BT	281.000	845.800	839.500	293.000	845.600	839.000	304.000	845.400	837.500	304.000
BT	845.400	823.000	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	945.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	362.000	843.800	0.000	400.000	842.300	0.000	500.000	843.200	0.000	0.000
X1	42.090	0.000	0.000	0.000	74.000	74.000	74.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.200	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.500	839.000	253.000	846.400	837.500	253.000	846.400
BT	824.000	258.000	846.300	823.600	258.000	846.300	837.500	268.000	846.100	839.000
BT	281.000	844.800	839.500	294.000	845.500	839.000	304.000	845.400	837.500	304.000
BT	845.000	824.100	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	845.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	400.000	842.300	0.000	500.000	843.200	0.000	580.000	843.000	0.000	0.000
NC	0.000	0.000	.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.100	30.000	221.000	337.000	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	846.300	841.100	0.000
GR	850.300	0.000	847.200	100.000	844.100	200.000	844.100	200.000	837.500	221.000
GR	829.300	221.000	829.300	230.000	829.300	232.000	823.100	232.000	823.000	239.000
GR	823.000	248.000	824.000	253.000	824.000	253.000	823.600	258.000	823.600	258.000
GR	825.700	268.000	823.800	281.000	824.000	294.000	824.100	304.000	824.100	304.000
GR	823.300	307.000	823.300	307.000	824.200	325.000	829.300	327.000	829.300	337.000
GR	829.300	337.000	829.900	362.000	829.900	362.000	830.800	400.000	837.600	500.000
NC	0.000	0.000	.027	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	50.000	412.000
X1	43.000	18.000	195.000	305.000	655.000	700.000	580.000	0.000	0.000	0.000
GR	870.000	0.000	840.500	.100	840.000	45.000	838.000	102.000	837.000	115.000
GR	836.000	122.000	834.000	145.000	832.000	180.000	828.400	195.000	825.000	222.000
GR	822.900	250.000	825.000	278.000	828.400	305.000	830.500	369.000	832.000	385.000
GR	836.000	400.000	836.500	412.000	840.000	412.100	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000
	ROGUE ST. BRIDGE									
X1	44.000	24.000	512.000	663.000	1000.000	975.000	925.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
GR	846.600	0.000	843.300	100.000	841.200	200.000	842.000	300.000	841.400	400.000
GR	832.200	500.000	832.200	500.000	830.100	512.000	828.900	530.000	825.400	540.000
GR	824.500	551.000	824.300	555.000	822.400	580.000	823.500	609.000	824.400	613.000
GR	824.200	622.000	828.900	630.000	830.100	652.000	831.000	663.000	831.000	663.000
GR	834.200	700.000	844.200	800.000	844.600	900.000	845.500	1000.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	3.000	0.000	75.000	0.000	1800.000	2.950	822.500	822.500
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

X1	44.500	25.000	513.000	675.000	72.000	72.000	72.000	.970	0.000	0.000
X2	0.000	0.000	1.000	839.200	842.600	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
BT	10.000	300.000	842.800	0.000	400.000	842.600	0.000	500.000	843.500	0.000
BT	500.000	846.700	0.000	513.000	846.800	830.900	513.000	846.800	838.100	675.000
BT	847.300	838.100	675.000	844.100	833.200	700.000	843.800	0.000	720.000	843.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.600	0.000	842.500	100.000	839.600	200.000	838.200	300.000	833.800	400.000
GR	831.700	500.000	830.800	513.000	830.800	513.000	830.100	524.000	828.900	542.000
GR	824.700	550.000	824.000	563.000	824.000	567.000	821.700	595.000	823.300	621.000
GR	823.700	625.000	826.700	637.000	828.900	649.000	830.100	664.000	833.200	675.000
GR	833.200	675.000	840.400	700.000	840.700	800.000	844.600	900.000	845.700	1000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	45.000	20.000	540.000	645.000	750.000	650.000	660.000	0.000	0.000	0.000
GR	900.000	0.000	850.900	.100	850.000	30.000	848.000	110.000	846.000	140.000
GR	844.000	200.000	842.000	280.000	840.000	325.000	838.000	425.000	837.000	442.000
GR	836.000	475.000	834.000	490.000	828.000	540.000	824.000	564.000	821.800	588.000
GR	824.000	611.000	828.000	635.000	833.000	645.000	834.500	670.000	864.000	670.100
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	46.000	16.000	740.000	884.000	1330.000	1625.000	1550.000	0.000	0.000	0.000
X4	1.000	844.000	335.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	848.800	90.000	848.000	135.000	846.000	210.000	844.000	345.000
GR	836.000	455.000	834.500	540.000	834.000	700.000	832.000	725.000	828.000	740.000
GR	826.000	774.000	824.000	799.000	821.900	829.000	824.000	859.000	828.000	884.000
GR	834.000	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.064	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

X1	47.000	18.000	1409.000	1495.000	630.000	575.000	625.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	0.000	0.000	0.000	0.000
SB	1.050	1.400	3.000	0.000	86.000	4.000	1300.000	0.000	824.400	824.400

X1	47.500	18.000	1409.000	1495.000	59.000	59.000	59.000	0.000	0.000	0.000
X5	-4.000	0.000	0.000	0.000	.360	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.500	839.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
BT	20.000	0.000	847.000	0.000	200.000	846.500	0.000	400.000	846.000	0.000
BT	600.000	842.400	0.000	800.000	842.700	0.000	1000.000	839.300	0.000	1200.000
BT	839.700	0.000	1400.000	843.000	0.000	1400.000	845.700	0.000	1409.000	845.800
BT	826.900	1409.000	845.800	839.200	1419.000	846.000	0.000	1464.000	846.100	0.000
BT	1495.000	846.200	839.500	1495.000	846.200	825.900	1509.000	846.200	0.000	1519.000
BT	846.600	0.000	1519.000	843.900	0.000	1600.000	846.000	0.000	1700.000	849.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	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: Ingham

2) STUDY NAME: Lansing + E Lansing

3) WATERCOURSE: Red Cedar

4) DOCUMENT TYPE: 50-year

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      50 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
        0.       3.       0.       0.  0.000000     0.00     0.0       0.  829.880    0.000

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
    2.000    0.000   -1.000    0.000    0.000    1.100    0.000    0.000    0.000    0.000
```

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01.02
  MODIFICATION -  50,51,52,53
**************************************************

T1      100 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.        0.        0.  0.000000      0.00      0.0       0.    831.630     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    3.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000
```

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************

T1      500 YEAR FLOOD
T2      STARTINGELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	836.100	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.100	0.000	0.000	0.000	0.000

```
**************************************************
  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

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.000	0.00	0.00	0.00	809.50	10700.00	825.92	0.00	826.03	1.30	2.70	3982.74	9394.91
1.000	0.00	0.00	0.00	809.50	16600.00	829.88	0.00	830.02	1.19	3.03	5873.87	15189.98
1.000	0.00	0.00	0.00	809.50	19400.00	831.63	0.00	831.78	1.12	3.12	6900.30	18362.38
1.000	0.00	0.00	0.00	809.50	26800.00	836.10	0.00	836.25	.92	3.25	9714.80	27968.55
2.000	400.00	0.00	0.00	809.50	5500.00	825.96	0.00	826.10	2.09	3.01	2018.24	3800.96
2.000	400.00	0.00	0.00	809.50	8280.00	829.99	0.00	830.07	1.15	2.68	5259.97	7707.24
2.000	400.00	0.00	0.00	809.50	9600.00	831.73	0.00	831.83	1.15	2.86	5143.70	8957.65
2.000	400.00	0.00	0.00	809.50	13000.00	836.23	0.00	836.29	.67	2.53	8205.65	15884.14
3.000	550.00	0.00	0.00	809.60	5500.00	826.06	0.00	826.32	4.11	4.20	1385.77	2714.24
3.000	550.00	0.00	0.00	809.60	8280.00	829.98	0.00	830.29	3.81	4.65	2301.63	4244.58
3.000	550.00	0.00	0.00	809.60	9600.00	831.74	0.00	832.01	3.20	4.49	3093.51	5369.54
3.000	550.00	0.00	0.00	809.60	13000.00	836.23	0.00	836.40	1.96	3.93	5114.54	9278.17
3.500	40.00	826.00	828.00	810.50	5500.00	826.05	0.00	826.36	4.67	4.42	1244.46	2546.06
3.500	40.00	826.00	828.00	810.50	8280.00	829.92	0.00	830.40	15.37	5.65	1648.03	2111.74
3.500	40.00	826.00	828.00	810.50	9600.00	831.62	0.00	832.18	18.80	6.22	1847.84	2213.87
3.500	40.00	826.00	828.00	810.50	13000.00	836.46	0.00	836.67	2.27	4.22	4658.73	8626.89
4.000	500.00	0.00	0.00	806.80	5500.00	826.35	0.00	826.59	3.81	4.01	1528.06	2816.53
4.000	500.00	0.00	0.00	806.80	8280.00	830.53	0.00	830.75	2.69	4.07	2768.96	5048.02
4.000	500.00	0.00	0.00	806.80	9600.00	832.34	0.00	832.53	2.18	3.93	3574.24	6497.97
4.000	500.00	0.00	0.00	806.80	13000.00	836.63	0.00	836.78	1.40	3.61	5625.80	10985.26
5.000	570.00	0.00	0.00	803.00	5500.00	826.65	0.00	826.77	1.79	2.79	1972.33	4110.61
5.000	570.00	0.00	0.00	803.00	8280.00	830.75	0.00	830.89	1.45	3.01	3424.64	6872.70
5.000	570.00	0.00	0.00	803.00	9600.00	832.49	0.00	832.64	1.43	3.18	3546.22	8039.17
5.000	570.00	0.00	0.00	803.00	13000.00	836.70	0.00	836.85	1.18	3.30	4872.54	11949.62
5.100	26.00	828.30	828.30	803.80	5500.00	826.77	0.00	826.89	1.96	2.85	1928.76	3929.94
5.100	26.00	828.30	828.30	803.80	8280.00	831.24	0.00	831.40	1.65	3.17	2802.47	6440.40
5.100	26.00	828.30	828.30	803.80	9600.00	833.98	0.00	833.14	1.56	3.29	3261.58	7676.68

5.100	26.00	828.30	828.30	803.80	13000.00	837.02	0.00	837.19	1.36	3.47	4455.00	11155.17
6.000	195.00	0.00	0.00	810.40	5500.00	826.82	0.00	826.94	2.15	2.72	2028.22	3748.10
6.000	195.00	0.00	0.00	810.40	8280.00	831.32	0.00	831.44	1.53	2.81	3292.90	6683.41
6.000	195.00	0.00	0.00	810.40	9600.00	833.07	0.00	833.18	1.29	2.78	4216.99	8441.30
6.000	195.00	0.00	0.00	810.40	13000.00	837.14	0.00	837.23	.91	2.70	6365.14	13653.64

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.010	1.00	829.60	854.40	810.40	5500.00	826.81	0.00	826.95	2.68	2.91	1890.12	3360.45
6.010	1.00	829.60	854.40	810.40	8280.00	831.31	0.00	831.45	1.88	2.99	3249.08	6036.12
6.010	1.00	829.60	854.40	810.40	9600.00	833.05	0.00	833.20	1.74	3.11	3292.80	7241.35
6.010	1.00	829.60	854.40	810.40	13000.00	837.11	0.00	837.26	1.71	3.19	4734.29	9928.98
6.090	65.00	829.60	854.00	809.50	5500.00	826.87	0.00	826.97	1.60	2.51	2245.96	4341.61
6.090	65.00	829.60	854.00	809.50	8280.00	831.36	0.00	831.47	1.27	2.70	3499.46	7339.77
6.090	65.00	829.60	854.00	809.50	9600.00	833.07	0.00	833.21	1.46	3.11	3468.68	7935.57
6.090	65.00	829.60	854.00	809.50	13000.00	837.12	0.00	837.27	1.88	3.26	4617.20	9471.55
6.100	1.00	0.00	0.00	809.50	5500.00	826.89	0.00	826.97	1.27	2.33	2430.92	4882.41
6.100	1.00	0.00	0.00	809.50	8280.00	831.38	0.00	831.47	.99	2.49	3836.31	8322.14
6.100	1.00	0.00	0.00	809.50	9600.00	833.16	0.00	833.23	.67	2.20	5199.01	11717.04
6.100	1.00	0.00	0.00	809.50	13000.00	837.23	0.00	837.29	.54	2.25	7344.76	17689.45
8.000	335.00	0.00	0.00	810.90	5500.00	826.90	0.00	827.10	3.58	3.64	1511.46	2907.34
8.000	335.00	0.00	0.00	810.90	8280.00	831.38	0.00	831.56	2.17	3.58	2797.37	5624.44
8.000	335.00	0.00	0.00	810.90	9600.00	833.15	0.00	833.32	1.90	3.59	3413.85	6964.81
8.000	335.00	0.00	0.00	810.90	13000.00	837.21	0.00	837.37	1.40	3.53	5156.94	10991.52
8.100	32.00	829.10	830.00	810.50	5500.00	826.92	0.00	827.15	4.36	3.85	1427.06	2633.58
8.100	32.00	829.10	830.00	810.50	8280.00	833.18	0.00	833.29	1.30	2.89	4490.67	7258.35
8.100	32.00	829.10	830.00	810.50	9600.00	834.49	0.00	834.63	1.51	3.27	3937.98	7806.87
8.100	32.00	829.10	830.00	810.50	13000.00	837.75	0.00	837.89	1.35	3.43	5340.43	11200.46
9.000	520.00	0.00	0.00	812.70	5500.00	827.22	0.00	827.34	2.17	2.78	1974.89	3729.83
9.000	520.00	0.00	0.00	812.70	8280.00	833.26	0.00	833.35	.99	2.49	4100.40	8324.59
9.000	520.00	0.00	0.00	812.70	9600.00	834.61	0.00	834.70	.96	2.57	4750.24	9823.05
9.000	520.00	0.00	0.00	812.70	13000.00	837.87	0.00	837.96	.86	2.72	6327.02	14046.86
9.100	14.50	831.20	828.90	813.90	5500.00	827.24	0.00	827.37	2.74	2.99	1838.82	3324.47
9.100	14.50	831.20	828.90	813.90	8280.00	833.42	0.00	833.48	.82	2.21	4985.37	9147.15
9.100	14.50	831.20	828.90	813.90	9600.00	834.78	0.00	834.84	.78	2.28	5643.01	10838.32
9.100	14.50	831.20	828.90	813.90	13000.00	838.04	0.00	838.11	.71	2.42	7224.58	15478.26
10.000	600.00	0.00	0.00	809.10	5500.00	827.38	0.00	827.51	1.76	2.95	2277.24	4150.83
10.000	600.00	0.00	0.00	809.10	8280.00	833.47	0.00	833.54	.75	2.42	5429.33	9545.69
10.000	600.00	0.00	0.00	809.10	9600.00	834.82	0.00	834.89	.74	2.52	6133.11	11122.44
10.000	600.00	0.00	0.00	809.10	13000.00	838.08	0.00	838.16	.71	2.70	7827.72	15390.91
11.000	475.00	834.40	831.30	811.60	5500.00	827.46	0.00	827.69	4.65	3.94	1526.06	2549.51
11.000	475.00	834.40	831.30	811.60	8280.00	833.45	0.00	833.76	11.65	4.71	1960.90	2425.37
11.000	475.00	834.40	831.30	811.60	9600.00	834.76	0.00	835.18	15.64	5.46	1983.44	2427.14
11.000	475.00	834.40	831.30	811.60	13000.00	838.09	0.00	838.38	16.19	4.94	3619.43	3230.86
11.400	26.00	834.40	831.30	812.00	5500.00	827.47	0.00	827.71	5.32	4.05	1490.03	2385.11
11.400	26.00	834.40	831.30	812.00	8280.00	833.47	0.00	833.80	12.92	4.80	1919.18	2303.15
11.400	26.00	834.40	831.30	812.00	9600.00	834.80	0.00	835.23	17.33	5.56	1943.61	2305.82
11.400	26.00	834.40	831.30	812.00	13000.00	838.16	0.00	838.43	15.80	4.74	3627.54	3270.81
12.000	500.00	0.00	0.00	811.97	5500.00	827.78	0.00	827.85	1.16	2.30	3104.59	5101.91
12.000	500.00	0.00	0.00	811.97	8280.00	833.91	0.00	833.93	.27	1.48	9453.42	15888.53

12.000	500.00	0.00	0.00	811.97	9600.00	835.37	0.00	835.39	.24	1.45	11052.92	19650.52
12.000	500.00	0.00	0.00	811.97	13000.00	838.52	0.00	838.53	.20	1.45	14504.82	29080.84

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.100	1.00	824.57	825.47	811.97	5500.00	827.75	0.00	827.89	6.78	3.11	2131.78	2112.81
12.100	1.00	824.57	825.47	811.97	8280.00	833.91	0.00	833.93	1.52	1.45	7980.42	6715.06
12.100	1.00	824.57	825.47	811.97	9600.00	835.37	0.00	835.39	1.18	1.36	9575.07	8829.87
12.100	1.00	824.57	825.47	811.97	13000.00	838.52	0.00	838.53	.83	1.28	13019.95	14250.29
12.400	72.00	824.57	825.47	811.97	5500.00	827.81	0.00	827.94	6.63	3.03	2188.79	2136.48
12.400	72.00	824.57	825.47	811.97	8280.00	833.92	0.00	833.94	1.47	1.41	7998.40	6829.07
12.400	72.00	824.57	825.47	811.97	9600.00	835.38	0.00	835.40	1.14	1.32	9592.74	8981.85
12.400	72.00	824.57	825.47	811.97	13000.00	838.52	0.00	838.54	.80	1.24	13037.29	14498.91
12.500	1.00	0.00	0.00	811.97	5500.00	827.89	0.00	827.96	1.13	2.27	3153.72	5173.51
12.500	1.00	0.00	0.00	811.97	8280.00	833.92	0.00	833.94	.28	1.51	11592.61	15515.02
12.500	1.00	0.00	0.00	811.97	9600.00	835.38	0.00	835.40	.27	1.54	13190.29	18476.79
12.500	1.00	0.00	0.00	811.97	13000.00	838.52	0.00	838.54	.26	1.65	16639.90	25631.86
13.000	475.00	0.00	0.00	810.97	5500.00	827.98	0.00	828.00	.46	1.55	6512.25	8107.46
13.000	475.00	0.00	0.00	810.97	8280.00	833.94	0.00	833.95	.17	1.19	13189.92	19968.30
13.000	475.00	0.00	0.00	810.97	9600.00	835.40	0.00	835.41	.17	1.22	14860.01	23600.92
13.000	475.00	0.00	0.00	810.97	13000.00	838.54	0.00	838.56	.16	1.32	18467.44	32367.65
14.000	1375.00	0.00	0.00	811.00	5500.00	828.04	0.00	828.06	.43	1.46	4957.06	8404.90
14.000	1375.00	0.00	0.00	811.00	8280.00	833.96	0.00	833.98	.21	1.29	9073.14	18058.07
14.000	1375.00	0.00	0.00	811.00	9600.00	835.42	0.00	835.44	.21	1.34	10226.88	21127.00
14.000	1375.00	0.00	0.00	811.00	13000.00	838.56	0.00	838.58	.21	1.47	12865.19	28659.05
14.500	1550.00	0.00	0.00	811.80	5500.00	828.11	0.00	828.12	.26	.51	11213.53	10724.23
14.500	1550.00	0.00	0.00	811.80	8280.00	834.00	0.00	834.00	.10	.45	19129.60	25663.00
14.500	1550.00	0.00	0.00	811.80	9600.00	835.46	0.00	835.46	.10	.47	21111.84	30030.89
14.500	1550.00	0.00	0.00	811.80	13000.00	838.60	0.00	838.61	.10	.53	25384.79	40403.04
15.000	450.00	0.00	0.00	813.47	4120.00	828.12	0.00	828.13	.09	.63	15357.81	13946.41
15.000	450.00	0.00	0.00	813.47	6200.00	834.01	0.00	834.01	.03	.46	28798.40	37076.67
15.000	450.00	0.00	0.00	813.47	7200.00	835.46	0.00	835.47	.03	.46	32353.52	44608.10
15.000	450.00	0.00	0.00	813.47	9740.00	838.61	0.00	838.61	.02	.49	40111.36	63111.34
16.000	500.00	0.00	0.00	812.00	4120.00	828.11	0.00	828.15	.72	1.63	2521.44	4856.74
16.000	500.00	0.00	0.00	812.00	6200.00	834.01	0.00	834.01	.09	.72	27414.79	20777.77
16.000	500.00	0.00	0.00	812.00	7200.00	835.46	0.00	835.47	.09	.76	30183.81	23926.23
16.000	500.00	0.00	0.00	812.00	9740.00	838.61	0.00	838.61	.10	.86	36410.51	31448.89
16.500	65.00	829.14	837.00	812.00	4120.00	828.11	0.00	828.16	.72	1.63	2520.04	4852.37
16.500	65.00	829.14	837.00	812.00	6200.00	834.05	0.00	834.05	.09	.72	27488.78	20860.40
16.500	65.00	829.14	837.00	812.00	7200.00	835.50	0.00	835.50	.09	.76	30255.87	24009.78
16.500	65.00	829.14	837.00	812.00	9740.00	838.66	0.00	838.66	.10	.86	36512.72	31578.12
17.000	800.00	0.00	0.00	814.17	4120.00	828.20	0.00	828.21	.30	1.34	11110.76	7568.89
17.000	800.00	0.00	0.00	814.17	6200.00	834.06	0.00	834.06	.11	1.06	20737.22	18376.56
17.000	800.00	0.00	0.00	814.17	7200.00	835.51	0.00	835.52	.11	1.10	23189.52	21687.38
17.000	800.00	0.00	0.00	814.17	9740.00	838.67	0.00	838.68	.09	1.43	29649.36	33058.70
18.000	830.00	0.00	0.00	810.77	4120.00	828.21	0.00	828.31	1.61	2.59	1588.49	3244.37
18.000	830.00	0.00	0.00	810.77	6200.00	834.07	0.00	834.08	.15	1.08	11269.78	15770.53
18.000	830.00	0.00	0.00	810.77	7200.00	835.53	0.00	835.53	.15	1.12	12563.17	18622.34
18.000	830.00	0.00	0.00	810.77	9740.00	838.69	0.00	838.69	.05	.72	29068.94	43446.67

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K¥S	VCH	AREA	.01K
18.500	26.00	833.07	829.17	811.67	4120.00	828.22	0.00	828.32	1.96	2.62	1571.25	2940.72
18.500	26.00	833.07	829.17	811.67	6200.00	834.11	0.00	834.12	.17	1.05	11089.24	14912.55
18.500	26.00	833.07	829.17	811.67	7200.00	835.57	0.00	835.58	.17	1.09	12386.01	17672.10
18.500	26.00	833.07	829.17	811.67	9740.00	838.74	0.00	838.75	.06	.72	27793.11	39994.44
19.000	640.00	0.00	0.00	813.87	4120.00	828.40	0.00	828.42	.67	1.68	5710.64	5020.57
19.000	640.00	0.00	0.00	813.87	6200.00	834.12	0.00	834.14	.29	1.41	9927.35	11587.04
19.000	640.00	0.00	0.00	813.87	7200.00	835.58	0.00	835.60	.28	1.47	11016.92	13610.92
19.000	640.00	0.00	0.00	813.87	9740.00	838.74	0.00	838.76	.27	1.60	13405.09	18655.85
21.000	1637.00	0.00	0.00	815.57	4120.00	828.51	0.00	828.60	1.99	2.49	1656.43	2922.85
21.000	1637.00	0.00	0.00	815.57	6200.00	834.15	0.00	834.24	1.09	2.41	2570.35	5947.90
21.000	1637.00	0.00	0.00	815.57	7200.00	835.60	0.00	835.71	1.11	2.57	2806.38	6847.88
21.000	1637.00	0.00	0.00	815.57	9740.00	838.77	0.00	838.79	.20	1.27	16255.38	22034.86
21.500	10.00	838.27	828.27	816.07	4120.00	828.59	0.00	828.68	1.40	2.39	1725.02	3484.16
21.500	10.00	838.27	828.27	816.07	6200.00	834.46	0.00	834.54	.75	2.32	2675.47	7156.30
21.500	10.00	838.27	828.27	816.07	7200.00	836.04	0.00	836.13	.75	2.46	2930.98	8298.71
21.500	10.00	838.27	828.27	816.07	9740.00	839.36	0.00	839.37	.10	1.02	20463.27	31081.30
22.000	950.00	0.00	0.00	815.00	4120.00	828.72	0.00	828.86	1.88	3.07	1623.34	3003.80
22.000	950.00	0.00	0.00	815.00	6200.00	834.53	0.00	834.64	.98	2.86	3042.63	6276.45
22.000	950.00	0.00	0.00	815.00	7200.00	836.11	0.00	836.22	.95	2.99	3484.12	7384.09
22.000	950.00	0.00	0.00	815.00	9740.00	839.32	0.00	839.45	.97	3.33	4376.08	9901.44
22.010	1.00	848.80	849.00	815.00	4120.00	828.72	0.00	828.86	2.14	3.20	1548.31	2818.34
22.010	1.00	848.80	849.00	815.00	6200.00	834.52	0.00	834.64	1.11	2.98	2915.57	5883.28
22.010	1.00	848.80	849.00	815.00	7200.00	836.10	0.00	836.23	1.08	3.11	3317.86	6923.18
22.010	1.00	848.80	849.00	815.00	9740.00	839.31	0.00	839.46	1.10	3.46	4173.63	9296.66
23.000	190.00	849.00	849.70	814.50	4120.00	828.74	0.00	828.93	2.63	3.47	1298.54	2542.50
23.000	190.00	849.00	849.70	814.50	6200.00	834.53	0.00	834.68	1.40	3.30	2387.86	5235.50
23.000	190.00	849.00	849.70	814.50	7200.00	836.10	0.00	836.27	1.37	3.45	2713.06	6145.90
23.000	190.00	849.00	849.70	814.50	9740.00	839.31	0.00	839.51	1.41	3.87	3407.63	8213.09
23.500	1.00	0.00	0.00	814.50	4120.00	828.87	0.00	828.96	1.16	2.38	1941.65	3828.74
23.500	1.00	0.00	0.00	814.50	6200.00	834.64	0.00	834.71	.60	2.21	3763.98	8022.76
23.500	1.00	0.00	0.00	814.50	7200.00	836.23	0.00	836.30	.58	2.30	4306.68	9469.65
23.500	1.00	0.00	0.00	814.50	9740.00	839.46	0.00	839.55	.58	2.56	5464.63	12791.32
24.000	880.00	0.00	0.00	816.47	4120.00	829.02	0.00	829.24	8.74	3.79	1087.74	1393.36
24.000	880.00	0.00	0.00	816.47	6200.00	834.70	0.00	834.82	1.84	2.69	2308.37	4576.14
24.000	880.00	0.00	0.00	816.47	7200.00	836.28	0.00	836.40	1.58	2.71	2660.55	5735.39
24.000	880.00	0.00	0.00	816.47	9740.00	839.51	0.00	839.64	1.33	2.87	3396.72	8432.92
24.500	1.00	849.17	847.57	816.47	4120.00	829.00	0.00	829.26	9.15	4.09	1007.49	1361.85
24.500	1.00	849.17	847.57	816.47	6200.00	834.69	0.00	834.83	2.55	3.08	2014.90	3881.31
24.500	1.00	849.17	847.57	816.47	7200.00	836.27	0.00	836.42	2.24	3.11	2318.42	4793.37
24.500	1.00	849.17	847.57	816.47	9740.00	839.49	0.00	839.66	1.98	3.28	2970.25	6930.18
25.000	200.00	850.97	846.47	815.57	4120.00	829.22	0.00	829.40	4.02	3.41	1209.30	2054.78
25.000	200.00	850.97	846.47	815.57	6200.00	834.79	0.00	834.89	1.81	2.58	2403.26	4602.84
25.000	200.00	850.97	846.47	815.57	7200.00	836.36	0.00	836.47	1.56	2.61	2759.58	5771.26
25.000	200.00	850.97	846.47	815.57	9740.00	839.59	0.00	839.71	1.33	2.79	3489.25	8460.28

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K¥S	VCH	AREA	.01K

25.500	400.00	0.00	0.00	815.57	4120.00	829.42	0.00	829.54	2.40	2.80	1539.81	2659.06
25.500	400.00	0.00	0.00	815.57	6200.00	834.90	0.00	834.96	.95	1.89	3981.47	4350.52
25.500	400.00	0.00	0.00	815.57	7200.00	836.47	0.00	836.53	.78	1.97	4772.51	8155.41
25.500	400.00	0.00	0.00	815.57	9740.00	839.70	0.00	839.76	.62	2.04	6388.96	12417.30
27.000	1100.00	0.00	0.00	816.07	4120.00	829.72	0.00	829.78	1.39	2.69	5395.48	3489.91
27.000	1100.00	0.00	0.00	816.07	6200.00	835.01	0.00	835.01	.17	1.18	18419.81	15143.06
27.000	1100.00	0.00	0.00	816.07	7200.00	836.57	0.00	836.57	.14	1.13	21642.43	19376.91
27.000	1100.00	0.00	0.00	816.07	9740.00	839.80	0.00	839.80	.11	1.11	28321.39	29490.73
27.100	1.00	826.97	829.97	816.07	4120.00	829.73	0.00	829.78	5.28	2.34	2406.35	1792.84
27.100	1.00	826.97	829.97	816.07	6200.00	835.01	0.00	835.01	.17	.50	12361.16	14836.26
27.100	1.00	826.97	829.97	816.07	7200.00	836.57	0.00	836.57	.11	.43	15583.76	21573.92
27.100	1.00	826.97	829.97	816.07	9740.00	839.80	0.00	839.80	.06	.37	22243.46	38792.42
27.400	38.00	826.97	829.97	816.07	4120.00	829.75	0.00	829.80	5.18	2.32	2428.57	1809.61
27.400	38.00	826.97	829.97	816.07	6200.00	835.01	0.00	835.01	.17	.50	12365.33	14844.24
27.400	38.00	826.97	829.97	816.07	7200.00	836.57	0.00	836.57	.11	.43	15587.50	21582.38
27.400	38.00	826.97	829.97	816.07	9740.00	839.80	0.00	839.80	.06	.37	22246.78	38802.03
27.500	1.00	0.00	0.00	816.07	4120.00	829.77	0.00	829.80	1.26	2.24	5463.39	3672.38
27.500	1.00	0.00	0.00	816.07	6200.00	835.01	0.00	835.01	.11	.84	18424.16	18689.59
27.500	1.00	0.00	0.00	816.07	7200.00	836.57	0.00	836.57	.09	.80	21646.19	24065.44
27.500	1.00	0.00	0.00	816.07	9740.00	839.80	0.00	839.80	.07	.78	28305.39	36892.14
28.000	1962.00	0.00	0.00	815.47	4120.00	830.07	0.00	830.14	2.15	2.44	3105.71	2810.00
28.000	1962.00	0.00	0.00	815.47	6200.00	835.04	0.00	835.05	.39	1.33	8777.39	9898.04
28.000	1962.00	0.00	0.00	815.47	7200.00	836.60	0.00	836.61	.30	1.24	10719.89	13087.19
28.000	1962.00	0.00	0.00	815.47	9740.00	839.82	0.00	839.83	.22	1.17	14748.21	20977.05
30.000	1275.00	0.00	0.00	816.50	4120.00	830.43	0.00	830.73	8.04	4.33	952.51	1452.92
30.000	1275.00	0.00	0.00	816.50	6200.00	835.05	0.00	835.29	4.93	3.96	1679.97	2791.95
30.000	1275.00	0.00	0.00	816.50	7200.00	836.58	0.00	836.81	4.10	3.94	2035.12	3555.89
30.000	1275.00	0.00	0.00	816.50	9740.00	839.78	0.00	840.01	3.19	4.04	2792.14	5449.10
31.000	750.00	0.00	0.00	818.60	4120.00	831.05	0.00	831.42	9.46	4.86	847.08	1339.69
31.000	750.00	0.00	0.00	818.60	6200.00	835.40	0.00	835.77	6.24	4.92	1261.09	2482.75
31.000	750.00	0.00	0.00	818.60	7200.00	836.88	0.00	837.21	5.28	4.81	1898.41	3132.31
31.000	750.00	0.00	0.00	818.60	9740.00	840.01	0.00	840.29	3.60	4.64	3062.16	5130.79
31.500	57.00	835.50	835.10	816.10	4120.00	831.14	0.00	831.50	19.31	4.76	865.73	937.53
31.500	57.00	835.50	835.10	816.10	6200.00	835.96	0.00	836.19	3.47	3.88	1713.04	3329.65
31.500	57.00	835.50	835.10	816.10	7200.00	837.30	0.00	837.54	3.37	4.00	2201.19	3920.08
31.500	57.00	835.50	835.10	816.10	9740.00	840.28	0.00	840.50	2.54	4.05	3444.36	6116.12
33.000	875.00	0.00	0.00	818.90	4120.00	831.90	0.00	831.96	1.64	2.31	2554.55	3221.06
33.000	875.00	0.00	0.00	818.90	6200.00	836.34	0.00	836.37	.55	1.66	5487.76	8357.94
33.000	875.00	0.00	0.00	818.90	7200.00	837.68	0.00	837.70	.46	1.61	6539.00	10581.34
33.000	875.00	0.00	0.00	818.90	9740.00	840.61	0.00	840.63	.36	1.57	8819.78	16318.34
33.010	1.00	829.30	836.50	818.90	4120.00	831.85	0.00	832.01	3.51	3.38	1614.85	2200.01
33.010	1.00	829.30	836.50	818.90	6200.00	836.33	0.00	836.37	1.85	1.94	4035.58	4554.43
33.010	1.00	829.30	836.50	818.90	7200.00	837.67	0.00	837.71	1.54	1.70	4910.61	5808.26
33.010	1.00	829.30	836.50	818.90	9740.00	840.60	0.00	840.63	1.09	1.24	6880.08	9348.97

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EB	10K*S	VCH	AREA	.01K
33.090	16.00	829.00	836.20	818.90	4120.00	831.85	0.00	832.01	3.50	3.37	1624.33	2203.07
33.090	16.00	829.00	836.20	818.90	6200.00	836.34	0.00	836.38	1.93	1.90	4036.45	4458.65
33.090	16.00	829.00	836.20	818.90	7200.00	837.67	0.00	837.71	1.55	1.70	4910.81	5784.88
33.090	16.00	829.00	836.20	818.90	9740.00	840.60	0.00	840.64	1.08	1.27	6869.13	9362.90

33.100	1.00	0.00	0.00	818.90	4120.00	831.99	0.00	832.04	1.53	2.23	2712.36	3335.16
33.100	1.00	0.00	0.00	818.90	6200.00	836.36	0.00	836.38	.52	1.61	5734.56	8615.43
33.100	1.00	0.00	0.00	818.90	7200.00	837.69	0.00	837.71	.44	1.56	6768.62	10871.80
33.100	1.00	0.00	0.00	818.90	9740.00	840.62	0.00	840.64	.34	1.52	9055.25	16742.02
34.000	1635.00	0.00	0.00	819.70	4120.00	832.15	0.00	832.16	.79	1.42	4262.28	4626.58
34.000	1635.00	0.00	0.00	819.70	6200.00	836.41	0.00	836.42	.26	1.01	7912.44	12061.34
34.000	1635.00	0.00	0.00	819.70	7200.00	837.73	0.00	837.74	.23	1.00	9051.41	14968.70
34.000	1635.00	0.00	0.00	819.70	9740.00	840.65	0.00	840.66	.19	1.00	11562.91	22257.51
36.000	1110.00	0.00	0.00	820.40	4120.00	832.18	0.00	832.45	6.18	4.21	979.69	1657.11
36.000	1110.00	0.00	0.00	820.40	6200.00	836.43	0.00	836.45	.46	1.45	6159.33	9128.63
36.000	1110.00	0.00	0.00	820.40	7200.00	837.75	0.00	837.77	.39	1.42	7193.99	11506.25
36.000	1110.00	0.00	0.00	820.40	9740.00	840.66	0.00	840.68	.31	1.40	9480.70	17613.22
36.100	1.00	832.80	836.10	820.40	4120.00	832.16	0.00	832.47	7.30	4.42	932.00	1524.88
36.100	1.00	832.80	836.10	820.40	6200.00	836.40	0.00	836.47	5.87	2.24	3171.06	2559.37
36.100	1.00	832.80	836.10	820.40	7200.00	837.74	0.00	837.78	3.37	1.82	4212.69	3921.98
36.100	1.00	832.80	836.10	820.40	9740.00	840.66	0.00	840.69	1.52	1.39	6505.79	7906.04
36.400	58.00	832.80	836.10	820.40	4120.00	832.21	0.00	832.51	6.95	4.36	945.90	1562.45
36.400	58.00	832.80	836.10	820.40	6200.00	836.44	0.00	836.50	6.17	2.31	3151.87	2496.52
36.400	58.00	832.80	836.10	820.40	7200.00	837.76	0.00	837.80	3.57	1.88	4174.00	3812.65
36.400	58.00	832.80	836.10	820.40	9740.00	840.66	0.00	840.70	1.59	1.43	6461.51	7731.59
36.500	1.00	0.00	0.00	820.40	4120.00	832.25	0.00	832.52	5.84	4.13	996.79	1704.92
36.500	1.00	0.00	0.00	820.40	6200.00	836.44	0.00	836.51	1.50	2.64	3868.71	5060.85
36.500	1.00	0.00	0.00	820.40	7200.00	837.75	0.00	837.81	1.12	2.40	4899.60	6816.68
36.500	1.00	0.00	0.00	820.40	9740.00	840.66	0.00	840.70	.69	2.12	7182.97	11692.61
38.000	1050.00	0.00	0.00	820.40	4120.00	832.92	0.00	833.09	4.58	3.47	1397.01	1924.51
38.000	1050.00	0.00	0.00	820.40	6200.00	836.63	0.00	836.76	2.85	3.25	2258.30	3674.45
38.000	1050.00	0.00	0.00	820.40	7200.00	837.88	0.00	838.00	1.99	3.12	3008.20	5101.55
38.000	1050.00	0.00	0.00	820.40	9740.00	840.74	0.00	840.84	1.51	3.03	4426.21	7923.21
38.010	1.00	836.90	840.90	820.40	4120.00	832.92	0.00	833.10	4.76	3.54	1348.87	1888.57
38.010	1.00	836.90	840.90	820.40	6200.00	836.62	0.00	836.76	3.65	3.30	2139.11	3245.91
38.010	1.00	836.90	840.90	820.40	7200.00	837.87	0.00	838.01	5.23	3.10	2447.35	3147.09
38.010	1.00	836.90	840.90	820.40	9740.00	840.71	0.00	840.88	8.31	3.90	3155.25	3378.60
38.090	17.00	836.90	840.90	820.40	4120.00	832.93	0.00	833.10	4.75	3.54	1349.59	1889.83
38.090	17.00	836.90	840.90	820.40	6200.00	836.63	0.00	836.77	3.65	3.30	2139.42	3246.59
38.090	17.00	836.90	840.90	820.40	7200.00	837.88	0.00	838.02	5.24	3.10	2447.10	3146.83
38.090	17.00	836.90	840.90	820.40	9740.00	840.72	0.00	840.90	8.30	3.90	3156.81	3380.37
38.100	1.00	0.00	0.00	820.40	4120.00	832.94	0.00	833.11	4.56	3.47	1399.42	1928.66
38.100	1.00	0.00	0.00	820.40	6200.00	836.64	0.00	836.77	2.84	3.25	2260.25	3678.96
38.100	1.00	0.00	0.00	820.40	7200.00	837.92	0.00	838.03	1.97	3.11	3022.98	5128.81
38.100	1.00	0.00	0.00	820.40	9740.00	840.82	0.00	840.92	1.48	3.01	4469.14	8014.28

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
38.500	545.00	0.00	0.00	824.00	4120.00	833.18	0.00	833.56	12.58	5.09	882.36	1161.42
38.500	545.00	0.00	0.00	824.00	6200.00	836.74	0.00	837.07	7.56	4.90	1450.22	2254.76
38.500	545.00	0.00	0.00	824.00	7200.00	837.95	0.00	838.28	6.91	4.98	1692.86	2739.46
38.500	545.00	0.00	0.00	824.00	9740.00	840.82	0.00	841.12	5.21	4.90	2486.15	4269.21
39.000	10.00	0.00	0.00	826.86	4120.00	832.84	0.00	833.73	34.24	7.79	597.51	836.85
39.000	10.00	0.00	0.00	826.86	6200.00	836.59	0.00	837.14	8.59	6.43	1184.93	2115.54
39.000	10.00	0.00	0.00	826.86	7200.00	837.82	0.00	838.35	7.24	6.39	1426.63	2675.35

39.000	10.00	0.00	0.00	826.86	9740.00	840.72	0.00	841.17	4.85	6.12	2214.76	4421.98
40.000	20.00	0.00	0.00	827.30	4120.00	832.89	0.00	833.78	25.59	7.73	588.10	814.44
40.000	20.00	0.00	0.00	827.30	6200.00	836.61	0.00	837.16	8.66	6.33	1173.24	2106.68
40.000	20.00	0.00	0.00	827.30	7200.00	837.83	0.00	838.36	7.24	6.29	1414.98	2675.11
40.000	20.00	0.00	0.00	827.30	9740.00	840.73	0.00	841.18	4.80	6.02	2203.44	4447.93
41.000	205.00	0.00	0.00	821.00	4120.00	833.87	0.00	834.14	4.47	4.16	996.78	1947.92
41.000	205.00	0.00	0.00	821.00	6200.00	837.00	0.00	837.34	4.17	4.73	1336.85	3036.21
41.000	205.00	0.00	0.00	821.00	7200.00	838.12	0.00	838.51	4.23	5.04	1479.09	3501.64
41.000	205.00	0.00	0.00	821.00	9740.00	840.83	0.00	841.27	4.00	5.51	2048.52	4871.48
41.100	17.00	837.80	837.90	821.00	4120.00	833.88	0.00	834.15	4.49	4.17	989.16	1944.36
41.100	17.00	837.80	837.90	821.00	6200.00	837.00	0.00	837.35	4.23	4.77	1299.71	3012.77
41.100	17.00	837.80	837.90	821.00	7200.00	838.12	0.00	838.54	11.06	5.18	1397.05	2164.58
41.100	17.00	837.80	837.90	821.00	9740.00	840.72	0.00	841.39	18.48	6.69	1590.97	2265.62
42.000	925.00	0.00	0.00	823.00	4120.00	834.33	0.00	834.54	3.78	3.63	1134.43	2118.79
42.000	925.00	0.00	0.00	823.00	6200.00	837.45	0.00	837.72	3.51	4.14	1496.24	3307.39
42.000	925.00	0.00	0.00	823.00	7200.00	838.78	0.00	839.08	3.46	4.36	1650.47	3868.78
42.000	925.00	0.00	0.00	823.00	9740.00	841.69	0.00	841.98	2.89	4.44	2414.80	5731.54
42.010	1.00	842.30	840.90	823.00	4120.00	834.31	0.00	834.54	4.62	3.86	1067.89	1915.82
42.010	1.00	842.30	840.90	823.00	6200.00	837.43	0.00	837.73	4.29	4.40	1409.37	2993.94
42.010	1.00	842.30	840.90	823.00	7200.00	838.75	0.00	839.09	5.27	4.70	1531.17	3136.16
42.010	1.00	842.30	840.90	823.00	9740.00	841.50	0.00	842.06	15.57	6.04	1612.88	2468.76
42.090	74.00	842.30	840.90	823.00	4120.00	834.34	0.00	834.59	5.28	3.98	1036.18	1793.77
42.090	74.00	842.30	840.90	823.00	6200.00	837.45	0.00	837.77	4.89	4.53	1367.55	2804.26
42.090	74.00	842.30	840.90	823.00	7200.00	838.77	0.00	839.14	5.58	4.84	1488.97	3047.30
42.090	74.00	842.30	840.90	823.00	9740.00	841.59	0.00	842.19	16.72	6.21	1568.39	2381.68
42.100	1.00	0.00	0.00	823.00	4120.00	834.37	0.00	834.59	3.88	3.76	1095.07	2092.24
42.100	1.00	0.00	0.00	823.00	6200.00	837.49	0.00	837.77	3.50	4.25	1457.17	3316.08
42.100	1.00	0.00	0.00	823.00	7200.00	838.83	0.00	839.14	3.41	4.46	1613.91	3901.74
42.100	1.00	0.00	0.00	823.00	9740.00	842.10	0.00	842.24	1.45	3.30	3541.84	8100.53
43.000	580.00	0.00	0.00	822.90	4120.00	834.64	0.00	834.78	2.18	3.26	1553.04	2793.21
43.000	580.00	0.00	0.00	822.90	6200.00	837.81	0.00	837.95	1.47	3.25	2454.06	5121.86
43.000	580.00	0.00	0.00	822.90	7200.00	839.19	0.00	839.31	1.27	3.25	2899.42	6377.69
43.000	580.00	0.00	0.00	822.90	9740.00	842.19	0.00	842.32	1.01	3.30	3981.26	9697.83
44.000	925.00	0.00	0.00	822.40	4120.00	834.84	0.00	835.00	2.34	3.21	1284.68	2693.37
44.000	925.00	0.00	0.00	822.40	6200.00	837.92	0.00	838.12	1.96	3.57	1737.13	4429.54
44.000	925.00	0.00	0.00	822.40	7200.00	839.27	0.00	839.48	1.86	3.72	1933.85	5281.59
44.000	925.00	0.00	0.00	822.40	9740.00	842.22	0.00	842.48	1.76	4.12	2365.71	7337.12

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
44.500	72.00	842.60	838.20	821.70	4120.00	834.87	0.00	835.01	2.25	3.06	1346.27	2744.61
44.500	72.00	842.60	838.20	821.70	6200.00	837.96	0.00	838.14	1.93	3.42	1815.21	4460.62
44.500	72.00	842.60	838.20	821.70	7200.00	839.47	0.00	839.66	1.64	3.44	2091.36	5614.13
44.500	72.00	842.60	838.20	821.70	9740.00	842.78	0.00	842.92	.96	3.17	4387.79	9917.69
45.000	660.00	0.00	0.00	821.80	4120.00	835.00	0.00	835.21	2.72	3.77	1280.44	2500.31
45.000	660.00	0.00	0.00	821.80	6200.00	838.07	0.00	838.31	2.28	4.13	1936.15	4108.42
45.000	660.00	0.00	0.00	821.80	7200.00	839.56	0.00	839.81	2.02	4.18	2364.10	5065.87
45.000	660.00	0.00	0.00	821.80	9740.00	842.81	0.00	843.05	1.62	4.29	3575.17	7646.26
46.000	1550.00	0.00	0.00	821.90	4120.00	835.38	0.00	835.48	1.11	2.54	2046.03	3903.37
46.000	1550.00	0.00	0.00	821.90	6200.00	838.43	0.00	838.53	.90	2.70	3511.55	6541.91

	46.000	1550.00	0.00	0.00	821.90	7200.00	839.91	0.00	840.00	.79	2.71	4269.40	8105.82
	46.000	1550.00	0.00	0.00	821.90	9740.00	843.12	0.00	843.21	.65	2.79	6021.69	12111.15
	47.000	625.00	0.00	0.00	821.60	4120.00	835.41	0.00	835.65	2.38	3.93	1049.30	2672.39
	47.000	625.00	0.00	0.00	821.60	6200.00	838.40	0.00	838.75	2.68	4.75	1306.27	3787.27
	47.000	625.00	0.00	0.00	821.60	7200.00	839.84	0.00	840.23	2.39	5.01	1534.71	4658.27
	47.000	625.00	0.00	0.00	821.60	9740.00	843.04	0.00	843.43	2.06	5.23	3299.10	6786.49
	47.500	59.00	839.30	839.50	821.60	4120.00	835.42	0.00	835.66	2.37	3.92	1050.65	2677.87
	47.500	59.00	839.30	839.50	821.60	6200.00	838.42	0.00	838.77	2.67	4.74	1308.33	3796.71
	47.500	59.00	839.30	839.50	821.60	7200.00	840.02	0.00	840.39	2.30	4.95	1592.46	4746.64
*	47.500	59.00	100000.00	100000.00	821.60	9740.00	843.40	0.00	843.75	1.87	5.03	3637.60	7130.30

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	10700.00	825.92	0.00	0.00	0.00	373.73	0.00
1.000	16600.00	829.88	3.96	0.00	0.00	585.96	0.00
1.000	19400.00	831.63	1.75	0.00	0.00	587.10	0.00
1.000	26800.00	836.10	4.47	0.00	0.00	699.00	0.00
2.000	5500.00	825.96	0.00	.04	0.00	290.87	400.00
2.000	8280.00	829.99	4.02	.11	0.00	1055.10	400.00
2.000	9600.00	831.73	1.74	.10	5.76	680.20	400.00
2.000	13000.00	836.23	4.50	.13	10.26	680.47	400.00
3.000	5500.00	826.06	0.00	.09	0.00	112.94	550.00
3.000	8280.00	829.98	3.93	-.00	0.00	448.23	550.00
3.000	9600.00	831.74	1.76	.02	5.69	450.00	550.00
3.000	13000.00	836.23	4.49	.01	10.18	450.00	550.00
3.500	5500.00	826.05	0.00	-.00	0.00	105.19	40.00
3.500	8280.00	829.92	3.87	-.06	0.00	346.25	40.00
3.500	9600.00	831.62	1.70	-.12	5.57	374.27	40.00
3.500	13000.00	836.46	4.84	.23	10.41	450.00	40.00
4.000	5500.00	826.35	0.00	.30	0.00	202.22	500.00
4.000	8280.00	830.53	4.18	.60	0.00	435.56	500.00
4.000	9600.00	832.34	1.81	.71	5.99	454.70	500.00
4.000	13000.00	836.63	4.30	.17	10.28	500.15	500.00
5.000	5500.00	826.65	0.00	.30	0.00	145.78	570.00
5.000	8280.00	830.75	4.11	.23	0.00	419.80	570.00
5.000	9600.00	832.49	1.74	.16	5.85	315.20	570.00
5.000	13000.00	836.70	4.21	.07	10.06	315.20	570.00
5.100	5500.00	826.77	0.00	.12	0.00	145.78	26.00
5.100	8280.00	831.24	4.48	.49	0.00	373.64	26.00
5.100	9600.00	832.98	1.73	.48	6.21	295.50	26.00
5.100	13000.00	837.02	4.04	.31	10.25	295.50	26.00
6.000	5500.00	826.82	0.00	.05	0.00	187.94	195.00
6.000	8280.00	831.32	4.50	.08	4.50	528.26	195.00
6.000	9600.00	833.07	1.75	.09	6.25	528.26	195.00
6.000	13000.00	837.14	4.07	.12	10.31	528.26	195.00
6.010	5500.00	826.81	0.00	-.01	0.00	187.98	1.00

6.010	8280.00	831.31	4.50	-.01	0.00	1210.98	1.00
6.010	9600.00	833.05	1.74	-.02	6.24	528.26	1.00
6.010	13000.00	837.11	4.06	-.03	10.30	528.26	1.00
6.090	5500.00	826.87	0.00	.06	0.00	213.51	65.00
6.090	8280.00	831.36	4.48	.04	0.00	1215.17	65.00
6.090	9600.00	833.07	1.71	.02	6.20	316.09	65.00
6.090	13000.00	837.12	4.05	.01	10.25	316.09	65.00
6.100	5500.00	826.89	0.00	.02	0.00	213.57	1.00
6.100	8280.00	831.38	4.49	.02	4.49	528.30	1.00
6.100	9600.00	833.16	1.78	.10	6.27	528.30	1.00
6.100	13000.00	837.23	4.06	.10	10.34	528.30	1.00

SECNO	θ	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.000	5500.00	826.90	0.00	.01	0.00	129.00	335.00
8.000	8280.00	831.38	4.49	.00	0.00	312.25	335.00
8.000	9600.00	833.15	1.76	-.02	6.25	386.72	335.00
8.000	13000.00	837.21	4.06	-.02	10.31	430.00	335.00
8.100	5500.00	826.92	0.00	.02	0.00	129.00	32.00
8.100	8280.00	833.18	6.27	1.80	0.00	889.30	32.00
8.100	9600.00	834.49	1.30	1.34	7.57	430.00	32.00
8.100	13000.00	837.75	3.26	.54	10.83	430.00	32.00
9.000	5500.00	827.22	0.00	.30	0.00	177.57	520.00
9.000	8280.00	833.26	6.04	.08	0.00	484.43	520.00
9.000	9600.00	834.61	1.35	.12	7.39	484.42	520.00
9.000	13000.00	837.87	3.25	.12	10.65	484.42	520.00
9.100	5500.00	827.24	0.00	.02	0.00	176.50	14.50
9.100	8280.00	833.42	6.19	.16	0.00	484.44	14.50
9.100	9600.00	834.78	1.36	.17	7.54	484.42	14.50
9.100	13000.00	838.04	3.26	.18	10.81	484.42	14.50
10.000	5500.00	827.38	0.00	.14	0.00	510.86	600.00
10.000	8280.00	833.47	6.09	.04	6.09	519.00	600.00
10.000	9600.00	834.82	1.36	.04	7.44	519.00	600.00
10.000	13000.00	838.08	3.26	.04	10.71	519.00	600.00
11.000	5500.00	827.46	0.00	.09	0.00	600.29	475.00
11.000	8280.00	833.45	5.99	-.02	5.99	663.39	475.00
11.000	9600.00	834.76	1.31	-.04	7.30	663.40	475.00
11.000	13000.00	838.09	3.33	.01	10.63	684.14	475.00
11.400	5500.00	827.47	0.00	.01	0.00	627.30	26.00
11.400	8280.00	833.47	6.00	.03	6.00	663.39	26.00
11.400	9600.00	834.80	1.32	.04	7.32	663.40	26.00
11.400	13000.00	838.16	3.37	.07	10.69	684.14	26.00
12.000	5500.00	827.78	0.00	.31	0.00	414.89	500.00
12.000	8280.00	833.91	6.12	.43	6.12	1092.33	500.00
12.000	9600.00	835.37	1.46	.57	7.59	1094.88	500.00
12.000	13000.00	838.52	3.15	.35	10.73	1098.36	500.00
12.100	5500.00	827.75	0.00	-.03	0.00	414.83	1.00
12.100	8280.00	833.91	6.16	-.00	6.16	1092.34	1.00
12.100	9600.00	835.37	1.46	.00	7.62	1094.88	1.00
12.100	13000.00	838.52	3.15	.00	10.77	1098.36	1.00

12.400	5500.00	827.81	0.00	.06	0.00	414.93	72.00
12.400	8280.00	833.92	6.11	.01	6.11	1092.35	72.00
12.400	9600.00	835.38	1.46	.01	7.57	1094.89	72.00
12.400	13000.00	838.52	3.14	.01	10.71	1098.36	72.00
12.500	5500.00	827.89	0.00	.08	0.00	415.07	1.00
12.500	8280.00	833.92	6.03	-.00	6.03	1092.35	1.00
12.500	9600.00	835.38	1.46	-.00	7.49	1094.90	1.00
12.500	13000.00	838.52	3.14	-.00	10.63	1098.36	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13.000	5500.00	827.98	0.00	.09	0.00	1103.94	475.00
13.000	8280.00	833.94	5.96	.02	0.00	1135.44	475.00
13.000	9600.00	835.40	1.46	.02	7.42	1143.16	475.00
13.000	13000.00	838.54	3.14	.02	10.57	1150.00	475.00
14.000	5500.00	828.04	0.00	.06	0.00	581.88	1375.00
14.000	8280.00	833.96	5.92	.02	0.00	780.52	1375.00
14.000	9600.00	835.42	1.46	.02	7.38	802.68	1375.00
14.000	13000.00	838.56	3.14	.02	10.52	868.00	1375.00
14.500	5500.00	828.11	0.00	.08	0.00	1261.88	1550.00
14.500	8280.00	834.00	5.89	.04	0.00	1360.00	1550.00
14.500	9600.00	835.46	1.46	.04	7.35	1360.00	1550.00
14.500	13000.00	838.60	3.14	.04	10.49	1360.00	1550.00
15.000	4120.00	828.12	0.00	.01	0.00	2138.95	450.00
15.000	6200.00	834.01	5.88	.01	0.00	2419.43	450.00
15.000	7200.00	835.46	1.46	.01	7.34	2457.70	450.00
15.000	9740.00	838.61	3.14	.01	10.48	2469.00	450.00
16.000	4120.00	828.11	0.00	-.01	0.00	189.90	500.00
16.000	6200.00	834.01	5.89	.00	0.00	1868.14	500.00
16.000	7200.00	835.46	1.46	.00	7.35	1927.12	500.00
16.000	9740.00	838.61	3.14	-.00	10.50	2021.22	500.00
16.500	4120.00	828.11	0.00	.00	0.00	189.90	65.00
16.500	6200.00	834.05	5.93	.04	0.00	1869.94	65.00
16.500	7200.00	835.50	1.46	.04	7.39	1928.50	65.00
16.500	9740.00	838.66	3.16	.05	10.54	2022.23	65.00
17.000	4120.00	828.20	0.00	.08	0.00	1602.28	800.00
17.000	6200.00	834.06	5.86	.01	0.00	1677.06	800.00
17.000	7200.00	835.51	1.46	.01	7.31	1692.24	800.00
17.000	9740.00	838.67	3.15	.01	10.47	2250.00	800.00
18.000	4120.00	828.21	0.00	.01	0.00	138.00	830.00
18.000	6200.00	834.07	5.86	.01	5.86	884.98	830.00
18.000	7200.00	835.53	1.46	.01	7.32	892.26	830.00
18.000	9740.00	838.69	3.16	.02	10.48	1708.05	830.00
18.500	4120.00	828.22	0.00	.01	0.00	138.00	24.00
18.500	6200.00	834.11	5.89	.04	5.89	885.25	24.00
18.500	7200.00	835.57	1.46	.05	7.35	892.55	24.00
18.500	9740.00	838.74	3.17	.06	10.52	1708.38	24.00
19.000	4120.00	828.40	0.00	.18	0.00	728.22	640.00
19.000	6200.00	834.12	5.73	.01	5.73	745.15	640.00
19.000	7200.00	835.58	1.46	.01	7.18	749.46	640.00
19.000	9740.00	838.74	3.16	.00	10.34	760.80	640.00

21.000	4120.00	828.51	0.00	.11	0.00	162.00	1637.00
21.000	6200.00	834.15	5.64	.03	5.64	162.00	1637.00
21.000	7200.00	835.60	1.45	.02	7.10	162.00	1637.00
21.000	9740.00	838.77	3.17	.03	10.26	1350.00	1637.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
21.500	4120.00	828.59	0.00	.08	0.00	162.00	10.00
21.500	6200.00	834.46	5.87	.31	5.87	162.00	10.00
21.500	7200.00	836.04	1.58	.43	7.44	162.00	10.00
21.500	9740.00	839.36	3.32	.59	10.77	1350.00	10.00
22.000	4120.00	828.72	0.00	.13	0.00	183.68	950.00
22.000	6200.00	834.53	5.81	.07	5.81	263.25	950.00
22.000	7200.00	836.11	1.58	.07	7.38	270.93	950.00
22.000	9740.00	839.32	3.21	-.04	10.59	286.51	950.00
22.010	4120.00	828.72	0.00	-.01	0.00	183.69	1.00
22.010	6200.00	834.52	5.81	-.00	5.81	263.21	1.00
22.010	7200.00	836.10	1.58	-.00	7.38	270.89	1.00
22.010	9740.00	839.31	3.21	-.01	10.59	286.51	1.00
23.000	4120.00	828.74	0.00	.03	0.00	157.12	190.00
23.000	6200.00	834.53	5.78	.00	5.78	209.70	190.00
23.000	7200.00	836.10	1.57	.00	7.36	216.99	190.00
23.000	9740.00	839.31	3.20	-.00	10.56	231.77	190.00
23.500	4120.00	828.87	0.00	.13	0.00	264.90	1.00
23.500	6200.00	834.64	5.77	.11	5.77	337.20	1.00
23.500	7200.00	836.23	1.59	.12	7.36	347.55	1.00
23.500	9740.00	839.46	3.23	.15	10.59	368.67	1.00
24.000	4120.00	829.02	0.00	.15	0.00	201.42	880.00
24.000	6200.00	834.70	5.68	.06	5.68	221.21	880.00
24.000	7200.00	836.28	1.58	.06	7.26	224.58	880.00
24.000	9740.00	839.51	3.23	.05	10.49	231.47	880.00
24.500	4120.00	829.00	0.00	-.02	0.00	171.35	1.00
24.500	6200.00	834.69	5.68	-.02	5.68	199.59	1.00
24.500	7200.00	836.27	1.58	-.02	7.26	206.05	1.00
24.500	9740.00	839.49	3.23	-.02	10.49	219.25	1.00
25.000	4120.00	829.22	0.00	.22	0.00	143.97	200.00
25.000	6200.00	834.79	5.56	.10	5.56	237.01	200.00
25.000	7200.00	836.36	1.57	.09	7.14	237.01	200.00
25.000	9740.00	839.59	3.22	.09	10.36	237.01	200.00
25.500	4120.00	829.42	0.00	.20	0.00	236.13	400.00
25.500	6200.00	834.90	5.48	.11	5.48	500.00	400.00
25.500	7200.00	836.47	1.57	.11	7.05	500.00	400.00
25.500	9740.00	839.70	3.23	.12	10.28	500.00	400.00
27.000	4120.00	829.72	0.00	.30	0.00	1446.19	1100.00
27.000	6200.00	835.01	5.28	.11	5.28	2061.84	1100.00
27.000	7200.00	836.57	1.56	.10	6.85	2061.84	1100.00
27.000	9740.00	839.80	3.23	.09	10.08	2061.84	1100.00
27.100	4120.00	829.73	0.00	.00	0.00	1446.19	1.00
27.100	6200.00	835.01	5.28	.00	5.28	2061.84	1.00
27.100	7200.00	836.57	1.56	.00	6.84	2061.84	1.00

27.100	9740.00	839.80	3.23	.00	10.07	2061.84	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	YLCH
27.400	4120.00	829.75	0.00	.02	0.00	1446.19	38.00
27.400	6200.00	835.01	5.26	.00	5.26	2061.84	38.00
27.400	7200.00	836.57	1.56	.00	6.82	2061.84	38.00
27.400	9740.00	839.80	3.23	.00	10.05	2061.84	38.00
27.500	4120.00	829.77	0.00	.02	0.00	1446.19	1.00
27.500	6200.00	835.01	5.24	.00	5.24	2061.84	1.00
27.500	7200.00	836.57	1.56	.00	6.80	2061.84	1.00
27.500	9740.00	839.80	3.23	.00	10.03	2061.84	1.00
28.000	4120.00	830.07	0.00	.30	0.00	1044.40	1962.00
28.000	6200.00	835.04	4.97	.03	4.97	1250.00	1962.00
28.000	7200.00	836.60	1.56	.03	6.53	1250.00	1962.00
28.000	9740.00	839.82	3.22	.02	9.75	1250.01	1962.00
30.000	4120.00	830.43	0.00	.37	0.00	108.91	1275.00
30.000	6200.00	835.05	4.62	.01	4.62	230.11	1275.00
30.000	7200.00	836.58	1.53	-.01	6.15	233.48	1275.00
30.000	9740.00	839.78	3.19	-.04	9.34	240.51	1275.00
31.000	4120.00	831.05	0.00	.61	0.00	92.10	750.00
31.000	6200.00	835.40	4.35	.35	4.35	96.03	750.00
31.000	7200.00	836.88	1.48	.29	5.83	363.75	750.00
31.000	9740.00	840.01	3.13	.23	8.96	370.46	750.00
31.500	4120.00	831.14	0.00	.09	0.00	96.03	57.00
31.500	6200.00	835.96	4.82	.57	4.82	363.75	57.00
31.500	7200.00	837.30	1.34	.43	6.16	363.75	57.00
31.500	9740.00	840.28	2.98	.27	9.14	389.50	57.00
33.000	4120.00	831.90	0.00	.75	0.00	512.76	875.00
33.000	6200.00	836.34	4.44	.38	4.44	781.00	875.00
33.000	7200.00	837.68	1.34	.37	5.78	781.00	875.00
33.000	9740.00	840.61	2.93	.32	8.71	781.00	875.00
33.010	4120.00	831.85	0.00	-.05	0.00	510.87	1.00
33.010	6200.00	836.33	4.49	-.01	4.49	781.00	1.00
33.010	7200.00	837.67	1.34	-.01	5.83	781.00	1.00
33.010	9740.00	840.60	2.93	-.01	8.76	781.00	1.00
33.090	4120.00	831.85	0.00	.01	0.00	511.04	16.00
33.090	6200.00	836.34	4.48	.00	4.48	781.00	16.00
33.090	7200.00	837.67	1.34	.00	5.82	781.00	16.00
33.090	9740.00	840.60	2.93	.00	8.75	781.00	16.00
33.100	4120.00	831.99	0.00	.14	0.00	548.43	1.00
33.100	6200.00	836.36	4.37	.02	4.37	781.00	1.00
33.100	7200.00	837.69	1.33	.02	5.70	781.00	1.00
33.100	9740.00	840.62	2.93	.02	8.63	781.00	1.00
34.000	4120.00	832.15	0.00	.15	0.00	841.28	1635.00
34.000	6200.00	836.41	4.26	.05	4.26	858.56	1635.00
34.000	7200.00	837.73	1.33	.04	5.59	859.55	1635.00
34.000	9740.00	840.65	2.92	.03	8.51	861.71	1635.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
36.000	4120.00	832.18	0.00	.03	0.00	92.90	1110.00
36.000	6200.00	836.43	4.25	.02	4.25	769.42	1110.00
36.000	7200.00	837.75	1.32	.02	5.57	785.00	1110.00
36.000	9740.00	840.66	2.91	.01	8.49	785.00	1110.00
36.100	4120.00	832.16	0.00	-.01	0.00	92.90	1.00
36.100	6200.00	836.40	4.24	-.02	4.24	768.12	1.00
36.100	7200.00	837.74	1.33	-.01	5.57	785.00	1.00
36.100	9740.00	840.66	2.92	-.01	8.49	785.00	1.00
36.400	4120.00	832.21	0.00	.05	0.00	92.90	58.00
36.400	6200.00	836.44	4.22	.03	4.22	775.79	58.00
36.400	7200.00	837.76	1.32	.02	5.54	785.00	58.00
36.400	9740.00	840.66	2.91	.01	8.45	785.00	58.00
36.500	4120.00	832.25	0.00	.04	0.00	92.90	1.00
36.500	6200.00	836.44	4.18	-.00	4.18	776.01	1.00
36.500	7200.00	837.75	1.32	-.00	5.50	785.00	1.00
36.500	9740.00	840.66	2.91	-.00	8.41	785.00	1.00
38.000	4120.00	832.92	0.00	.67	0.00	226.53	1050.00
38.000	6200.00	836.63	3.70	.19	3.70	238.79	1050.00
38.000	7200.00	837.88	1.26	.13	4.96	442.29	1050.00
38.000	9740.00	840.74	2.86	.08	7.82	547.10	1050.00
38.010	4120.00	832.92	0.00	-.00	0.00	226.53	1.00
38.010	6200.00	836.62	3.70	-.00	3.70	238.79	1.00
38.010	7200.00	837.87	1.25	-.01	4.95	442.02	1.00
38.010	9740.00	840.71	2.84	-.04	7.79	545.77	1.00
38.090	4120.00	832.93	0.00	.01	0.00	226.54	17.00
38.090	6200.00	836.63	3.70	.01	3.70	238.80	17.00
38.090	7200.00	837.88	1.25	.01	4.95	441.98	17.00
38.090	9740.00	840.72	2.84	.01	7.79	546.06	17.00
38.100	4120.00	832.94	0.00	.01	0.00	226.57	1.00
38.100	6200.00	836.64	3.70	.01	3.70	238.82	1.00
38.100	7200.00	837.92	1.28	.04	4.98	443.44	1.00
38.100	9740.00	840.82	2.90	.10	7.88	549.85	1.00
38.500	4120.00	833.18	0.00	.24	0.00	140.14	545.00
38.500	6200.00	836.74	3.56	.10	3.56	186.86	545.00
38.500	7200.00	837.95	1.21	.03	4.77	214.84	545.00
38.500	9740.00	840.82	2.87	.00	7.64	330.89	545.00
39.000	4120.00	832.84	0.00	-.33	0.00	136.59	10.00
39.000	6200.00	836.59	3.75	-.15	3.75	183.44	10.00
39.000	7200.00	837.82	1.22	-.13	4.97	211.78	10.00
39.000	9740.00	840.72	2.91	-.10	7.88	329.68	10.00
40.000	4120.00	832.89	0.00	.05	0.00	136.99	20.00
40.000	6200.00	836.61	3.72	.02	3.72	183.81	20.00
40.000	7200.00	837.83	1.22	.02	4.94	212.10	20.00
40.000	9740.00	840.73	2.90	.01	7.84	329.80	20.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
41.000	4120.00	833.87	0.00	.98	0.00	103.14	205.00

41.000	6200.00	837.00	3.12	.38	3.12	116.85	205.00
41.000	7200.00	838.12	1.13	.29	4.25	157.22	205.00
41.000	9740.00	840.82	2.70	.09	6.95	278.51	205.00
41.100	4120.00	833.88	0.00	.01	0.00	103.14	17.00
41.100	6200.00	837.00	3.12	.00	3.12	116.85	17.00
41.100	7200.00	838.12	1.12	-.00	4.24	157.22	17.00
41.100	9740.00	840.72	2.60	-.10	6.84	272.11	17.00
42.000	4120.00	834.33	0.00	.45	0.00	116.00	925.00
42.000	6200.00	837.45	3.12	.45	3.12	116.00	925.00
42.000	7200.00	838.78	1.33	.66	4.45	116.00	925.00
42.000	9740.00	841.69	2.91	.97	7.36	238.22	925.00
42.010	4120.00	834.31	0.00	-.02	0.00	116.00	1.00
42.010	6200.00	837.43	3.11	-.02	3.11	116.00	1.00
42.010	7200.00	838.75	1.32	-.03	4.43	116.00	1.00
42.010	9740.00	841.50	2.75	-.20	7.18	218.57	1.00
42.090	4120.00	834.34	0.00	.03	0.00	116.00	74.00
42.090	6200.00	837.45	3.11	.02	3.11	116.00	74.00
42.090	7200.00	838.77	1.33	.03	4.43	116.00	74.00
42.090	9740.00	841.59	2.82	.10	7.25	228.23	74.00
42.100	4120.00	834.37	0.00	.03	0.00	116.00	1.00
42.100	6200.00	837.49	3.12	.04	3.12	116.00	1.00
42.100	7200.00	838.83	1.34	.06	4.46	116.00	1.00
42.100	9740.00	842.10	3.27	.51	7.73	279.00	1.00
43.000	4120.00	834.64	0.00	.27	0.00	257.25	580.00
43.000	6200.00	837.81	3.18	.32	3.18	307.59	580.00
43.000	7200.00	839.19	1.37	.35	4.55	343.84	580.00
43.000	9740.00	842.19	3.00	.09	7.55	362.00	580.00
44.000	4120.00	834.84	0.00	.20	0.00	146.47	925.00
44.000	6200.00	837.92	3.09	.11	3.09	146.47	925.00
44.000	7200.00	839.27	1.34	.08	4.43	146.47	925.00
44.000	9740.00	842.22	2.95	.02	7.38	146.47	925.00
44.500	4120.00	834.87	0.00	.03	0.00	157.14	72.00
44.500	6200.00	837.96	3.09	.03	3.09	157.14	72.00
44.500	7200.00	839.47	1.51	.20	4.60	157.14	72.00
44.500	9740.00	842.78	3.31	.57	7.91	363.75	72.00
45.000	4120.00	835.00	0.00	.13	0.00	187.49	660.00
45.000	6200.00	838.07	3.07	.11	3.07	248.29	660.00
45.000	7200.00	839.56	1.50	.09	4.56	323.18	660.00
45.000	9740.00	842.81	3.25	.03	7.81	422.53	660.00
46.000	4120.00	835.38	0.00	.38	0.00	434.71	1550.00
46.000	6200.00	838.43	3.05	.37	3.05	503.44	1550.00
46.000	7200.00	839.91	1.48	.34	4.53	523.73	1550.00
46.000	9740.00	843.12	3.21	.31	7.74	567.88	1550.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
47.000	4120.00	835.41	0.00	.03	0.00	86.00	625.00
47.000	6200.00	838.40	2.99	-.04	2.99	86.00	625.00
47.000	7200.00	839.84	1.44	-.07	4.43	305.37	625.00
47.000	9740.00	843.04	3.20	-.08	7.63	930.39	625.00

	47.500	4120.00	835.42	0.00	.02	0.00	86.00	59.00
	47.500	6200.00	838.42	3.00	.02	3.00	86.00	59.00
	47.500	7200.00	840.02	1.60	.18	4.59	342.96	59.00
*	47.500	9740.00	843.40	3.38	.36	7.97	950.39	59.00

SUMMARY OF ERRORS

NOTE SECNO= 47.500 PROFILE= 4 WSEL BASED ON X5 CARD

FLOOD INSURANCE ZONE DATA FOR RED CEDAR RIVER

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@		
		10_	2_	0.2_
1.000	0.	-5.71	-1.75	4.47
2.000	400.	-5.76	-1.74	4.50
3.000	950.	-5.69	-1.76	4.49
3.500	990.	-5.57	-1.70	4.84
4.000	1490.	-5.99	-1.81	4.30
5.000	2060.	-5.85	-1.74	4.21
5.100	2086.	-6.21	-1.73	4.04
6.000	2281.	-6.25	-1.75	4.07
6.010	2282.	-6.24	-1.74	4.06
6.090	2347.	-6.20	-1.71	4.05
6.100	2348.	-6.27	-1.78	4.06
8.000	2683.	-6.25	-1.76	4.06
8.100	2715.	-7.57	-1.30	3.26
9.000	3235.	-7.39	-1.35	3.25
9.100	3250.	-7.54	-1.36	3.26
10.000	3850.	-7.44	-1.36	3.24
11.000	4325.	-7.30	-1.31	3.33
11.400	4351.	-7.32	-1.32	3.37
12.000	4851.	-7.59	-1.46	3.15
12.100	4852.	-7.62	-1.46	3.15
12.400	4924.	-7.57	-1.46	3.14
12.500	4925.	-7.49	-1.46	3.14
13.000	5400.	-7.42	-1.46	3.14
14.000	6775.	-7.38	-1.46	3.14
14.500	8325.	-7.35	-1.46	3.14
15.000	8775.	-7.34	-1.46	3.14
16.000	9275.	-7.35	-1.46	3.14
16.500	9340.	-7.39	-1.46	3.16
17.000	10140.	-7.31	-1.46	3.15
18.000	10970.	-7.32	-1.46	3.16
18.500	10996.	-7.35	-1.46	3.17
19.000	11636.	-7.18	-1.46	3.16
21.000	13273.	-7.10	-1.45	3.17
21.500	13283.	-7.44	-1.58	3.32
22.000	14233.	-7.38	-1.58	3.21
22.010	14234.	-7.38	-1.58	3.21
23.000	14424.	-7.36	-1.57	3.20
23.500	14425.	-7.36	-1.59	3.23
24.000	15305.	-7.26	-1.58	3.23

24.500	15306.	-7.26	-1.58	3.23
25.000	15506.	-7.14	-1.57	3.22
25.500	15906.	-7.05	-1.57	3.23
27.000	17006.	-6.85	-1.56	3.23
27.100	17007.	-6.84	-1.56	3.23
27.400	17045.	-6.82	-1.56	3.23
27.500	17046.	-6.80	-1.56	3.23
28.000	19008.	-6.53	-1.56	3.22
30.000	20283.	-6.15	-1.53	3.19
31.000	21033.	-5.83	-1.48	3.13
31.500	21090.	-6.16	-1.34	2.98
33.000	21965.	-5.78	-1.34	2.93
33.010	21966.	-5.83	-1.34	2.93
33.090	21982.	-5.82	-1.34	2.93
33.100	21983.	-5.70	-1.33	2.93
34.000	23618.	-5.59	-1.33	2.92
36.000	24728.	-5.57	-1.32	2.91
36.100	24729.	-5.57	-1.33	2.92
36.400	24787.	-5.54	-1.32	2.91
36.500	24788.	-5.50	-1.32	2.91
38.000	25838.	-4.96	-1.24	2.86
38.010	25839.	-4.95	-1.25	2.84
38.090	25856.	-4.95	-1.25	2.84
38.100	25857.	-4.98	-1.28	2.90
38.500	26402.	-4.77	-1.21	2.87
39.000	26412.	-4.97	-1.22	2.91
40.000	26432.	-4.94	-1.22	2.90
41.000	26637.	-4.25	-1.13	2.70
41.100	26654.	-4.24	-1.12	2.60
42.000	27579.	-4.45	-1.33	2.91
42.010	27580.	-4.43	-1.32	2.75
42.090	27654.	-4.43	-1.33	2.82
42.100	27655.	-4.46	-1.34	3.27
43.000	28235.	-4.55	-1.37	3.00
44.000	29160.	-4.43	-1.34	2.95
44.500	29232.	-4.60	-1.51	3.31
45.000	29892.	-4.56	-1.50	3.25
46.000	31442.	-4.53	-1.48	3.21
47.000	32067.	-4.43	-1.44	3.20
47.500	32126.	-4.59	-1.60	3.38
WEIGHTED AVG FOR REACH		-6.28	-1.46	3.23

FHF FOR THE REACH = 065 WITH 45.1% OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A13

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10%	1%	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.				SEC.		1.000
1	100.	825.93	831.64	-5.71	-5.71	055	100.
2	200.	825.94	831.67	-5.73	-5.72	055	100.
3	300.	825.95	831.69	-5.74	-5.73	055	100.
	400.				SEC.		2.000
4	400.	825.96	831.71	-5.75	-5.73	055	100.
5	500.	825.97	831.73	-5.76	-5.74	055	100.

6	600.	825.99	831.73	-5.74	-5.74	055	100.
7	700.	826.01	831.73	-5.72	-5.74	055	100.
8	800.	826.02	831.74	-5.72	-5.73	055	100.
9	900.	826.04	831.74	-5.70	-5.73	055	100.
	950.				SEC.		3.000
	990.				SEC.		3.500
10	1000.	826.05	831.69	-5.64	-5.72	055	100.
11	1100.	826.09	831.71	-5.62	-5.71	055	100.
12	1200.	826.15	831.85	-5.70	-5.71	055	100.
13	1300.	826.21	831.99	-5.78	-5.72	055	100.
14	1400.	826.27	832.14	-5.87	-5.73	055	100.
	1490.				SEC.		4.000
15	1500.	826.33	832.27	-5.94	-5.74	055	100.
16	1600.	826.38	832.35	-5.97	-5.76	060	100.
17	1700.	826.43	832.38	-5.95	-5.77	060	100.
18	1800.	826.48	832.41	-5.93	-5.78	060	100.
19	1900.	826.54	832.43	-5.89	-5.78	060	100.
20	2000.	826.59	832.46	-5.87	-5.79	060	100.
	2060.				SEC.		5.000
	2086.				SEC.		5.100
21	2100.	826.69	832.73	-6.04	-5.80	060	100.
22	2200.	826.79	833.01	-6.22	-5.82	060	100.
	2281.				SEC.		6.000
	2282.				SEC.		6.010
23	2300.	826.81	833.04	-6.23	-5.84	060	100.
	2347.				SEC.		6.090
	2348.				SEC.		6.100
24	2400.	826.86	833.11	-6.25	-5.85	060	100.
25	2500.	826.89	833.16	-6.27	-5.87	060	100.
26	2600.	826.89	833.15	-6.26	-5.88	060	100.
	2683.				SEC.		8.000
27	2700.	826.90	833.51	-6.61	-5.91	060	100.
	2715.				SEC.		8.100
28	2800.	826.94	834.18	-7.24	-5.96	060	96.
29	2900.	827.00	834.52	-7.52	-6.01	060	93.
30	3000.	827.05	834.55	-7.50	-6.06	060	90.
31	3100.	827.11	834.57	-7.46	-6.11	060	87.
32	3200.	827.17	834.59	-7.42	-6.15	060	84.
	3235.				SEC.		9.000
	3250.				SEC.		9.100
33	3300.	827.22	834.69	-7.47	-6.19	060	82.
34	3400.	827.26	834.79	-7.53	-6.23	060	79.
35	3500.	827.28	834.79	-7.51	-6.26	065	80.
36	3600.	827.31	834.80	-7.49	-6.30	065	78.
37	3700.	827.33	834.81	-7.48	-6.33	065	76.
38	3800.	827.35	834.81	-7.46	-6.36	065	74.
	3850.				SEC.		10.000
39	3900.	827.38	834.82	-7.44	-6.39	065	72.
40	4000.	827.40	834.81	-7.41	-6.41	065	73.
41	4100.	827.41	834.80	-7.39	-6.44	065	78.
42	4200.	827.43	834.78	-7.35	-6.46	065	83.
43	4300.	827.45	834.77	-7.32	-6.48	065	88.
	4325.				SEC.		11.000
	4351.				SEC.		11.400
44	4400.	827.48	834.81	-7.33	-6.50	065	93.
45	4500.	827.53	834.91	-7.38	-6.52	065	98.
46	4600.	827.60	835.02	-7.42	-6.54	065	100.
47	4700.	827.66	835.14	-7.48	-6.56	065	100.
48	4800.	827.72	835.25	-7.53	-6.58	065	100.
	4851.				SEC.		12.000
	4852.				SEC.		12.100
49	4900.	827.77	835.34	-7.57	-6.60	065	100.
	4924.				SEC.		12.400
	4925.				SEC.		12.500

50	5000.	827.85	835.38	-7.53	-6.62	065	100.
51	5100.	827.91	835.38	-7.47	-6.63	065	98.
52	5200.	827.93	835.39	-7.46	-6.65	065	96.
53	5300.	827.95	835.39	-7.44	-6.66	065	96.
	5400.				SEC.	13.000	
54	5400.	827.97	835.40	-7.43	-6.68	065	96.
55	5500.	827.98	835.40	-7.42	-6.69	065	96.
56	5600.	827.98	835.40	-7.42	-6.71	065	94.
57	5700.	827.99	835.40	-7.41	-6.72	065	91.
58	5800.	827.99	835.40	-7.41	-6.73	065	88.
59	5900.	828.00	835.41	-7.41	-6.74	065	86.
60	6000.	828.00	835.41	-7.41	-6.75	070	83.
61	6100.	828.00	835.41	-7.41	-6.76	070	82.
62	6200.	828.01	835.41	-7.40	-6.77	070	81.
63	6300.	828.01	835.41	-7.40	-6.78	070	81.
64	6400.	828.02	835.41	-7.39	-6.79	070	80.
65	6500.	828.02	835.41	-7.39	-6.80	070	80.
66	6600.	828.03	835.42	-7.39	-6.81	070	80.
67	6700.	828.03	835.42	-7.39	-6.82	070	81.
	6775.				SEC.	14.000	
68	6800.	828.04	835.42	-7.38	-6.83	070	81.
69	6900.	828.04	835.42	-7.38	-6.84	070	81.
70	7000.	828.05	835.42	-7.37	-6.84	070	81.
71	7100.	828.05	835.43	-7.38	-6.85	070	82.
72	7200.	828.06	835.43	-7.37	-6.86	070	82.
73	7300.	828.06	835.43	-7.37	-6.86	070	82.
74	7400.	828.07	835.43	-7.36	-6.87	070	82.
75	7500.	828.07	835.44	-7.37	-6.88	070	80.
76	7600.	828.07	835.44	-7.37	-6.88	070	80.
77	7700.	828.08	835.44	-7.36	-6.89	070	81.
78	7800.	828.08	835.44	-7.36	-6.90	070	79.
79	7900.	828.09	835.45	-7.36	-6.90	070	80.
80	8000.	828.09	835.45	-7.36	-6.91	070	80.
81	8100.	828.10	835.45	-7.35	-6.91	070	80.
82	8200.	828.10	835.45	-7.35	-6.92	070	80.
83	8300.	828.11	835.46	-7.35	-6.92	070	81.
	8325.				SEC.	14.500	
84	8400.	828.11	835.46	-7.35	-6.93	070	81.
85	8500.	828.12	835.46	-7.34	-6.93	070	81.
86	8600.	828.12	835.46	-7.34	-6.94	070	80.
87	8700.	828.12	835.46	-7.34	-6.94	070	80.
	8775.				SEC.	15.000	
88	8800.	828.12	835.46	-7.34	-6.95	070	80.
89	8900.	828.12	835.46	-7.34	-6.95	070	80.
90	9000.	828.12	835.46	-7.34	-6.96	070	79.
91	9100.	828.12	835.46	-7.34	-6.96	070	79.
92	9200.	828.12	835.46	-7.34	-6.97	070	79.
	9275.				SEC.	16.000	
93	9300.	828.11	835.47	-7.36	-6.97	070	80.
	9340.				SEC.	14.500	
94	9400.	828.12	835.49	-7.37	-6.97	070	80.
95	9500.	828.13	835.50	-7.37	-6.98	070	79.
96	9600.	828.14	835.50	-7.36	-6.98	070	79.
97	9700.	828.15	835.51	-7.36	-6.99	070	79.
98	9800.	828.16	835.51	-7.35	-6.99	070	80.
99	9900.	828.17	835.51	-7.34	-6.99	070	80.
100	10000.	828.18	835.51	-7.33	-7.00	070	80.
101	10100.	828.19	835.51	-7.32	-7.00	070	80.
	10140.				SEC.	17.000	
102	10200.	828.20	835.51	-7.31	-7.00	070	80.
103	10300.	828.20	835.51	-7.31	-7.01	070	100.
104	10400.	828.20	835.52	-7.32	-7.01	070	100.
105	10500.	828.20	835.52	-7.32	-7.01	070	100.
106	10600.	828.20	835.52	-7.32	-7.01	070	100.

107	10700.	828.20	835.52	-7.32	-7.02	070	100.
108	10800.	828.21	835.52	-7.31	-7.02	070	100.
109	10900.	828.21	835.52	-7.31	-7.02	070	100.
	10970.				SEC:	18.000	
	10996.				SEC:	18.500	
110	11000.	828.21	835.55	-7.34	-7.03	070	100.
111	11100.	828.23	835.57	-7.34	-7.03	070	100.
112	11200.	828.26	835.57	-7.31	-7.03	070	100.
113	11300.	828.29	835.58	-7.29	-7.03	070	100.
114	11400.	828.32	835.58	-7.26	-7.04	070	100.
115	11500.	828.35	835.58	-7.23	-7.04	070	100.
116	11600.	828.37	835.58	-7.21	-7.04	070	100.
	11636.				SEC:	19.000	
117	11700.	828.40	835.58	-7.18	-7.04	070	100.
118	11800.	828.41	835.58	-7.17	-7.04	070	100.
119	11900.	828.41	835.58	-7.17	-7.04	070	100.
120	12000.	828.42	835.59	-7.17	-7.04	070	100.
121	12100.	828.43	835.59	-7.16	-7.04	070	100.
122	12200.	828.43	835.59	-7.16	-7.04	070	100.
123	12300.	828.44	835.59	-7.15	-7.05	070	100.
124	12400.	828.45	835.59	-7.14	-7.05	070	100.
125	12500.	828.45	835.59	-7.14	-7.05	070	100.
126	12600.	828.46	835.59	-7.13	-7.05	070	100.
127	12700.	828.47	835.60	-7.13	-7.05	070	100.
128	12800.	828.47	835.60	-7.13	-7.05	070	100.
129	12900.	828.48	835.60	-7.12	-7.05	070	100.
130	13000.	828.49	835.60	-7.11	-7.05	070	100.
131	13100.	828.49	835.60	-7.11	-7.05	070	100.
132	13200.	828.50	835.60	-7.10	-7.05	070	100.
	13273.				SEC:	21.000	
	13283.				SEC:	21.500	
133	13300.	828.55	835.82	-7.27	-7.05	070	100.
134	13400.	828.60	836.04	-7.44	-7.06	070	100.
135	13500.	828.62	836.05	-7.43	-7.06	070	100.
136	13600.	828.63	836.06	-7.43	-7.06	070	100.
137	13700.	828.64	836.06	-7.42	-7.06	070	100.
138	13800.	828.66	836.07	-7.41	-7.07	070	100.
139	13900.	828.67	836.08	-7.41	-7.07	070	100.
140	14000.	828.68	836.09	-7.41	-7.07	070	100.
141	14100.	828.70	836.09	-7.39	-7.07	070	100.
142	14200.	828.71	836.10	-7.39	-7.08	070	100.
	14233.				SEC:	22.000	
	14234.				SEC:	22.010	
143	14300.	828.72	836.10	-7.38	-7.08	070	100.
144	14400.	828.73	836.10	-7.37	-7.08	070	100.
	14424.				SEC:	23.000	
	14425.				SEC:	23.500	
145	14500.	828.81	836.17	-7.36	-7.08	070	100.
146	14600.	828.89	836.23	-7.34	-7.08	070	100.
147	14700.	828.91	836.24	-7.33	-7.09	070	100.
148	14800.	828.93	836.25	-7.32	-7.09	070	100.
149	14900.	828.94	836.25	-7.31	-7.09	070	100.
150	15000.	828.96	836.26	-7.30	-7.09	070	100.
151	15100.	828.98	836.27	-7.29	-7.09	070	100.
152	15200.	828.99	836.27	-7.28	-7.09	070	100.
153	15300.	829.01	836.28	-7.27	-7.09	070	100.
	15305.				SEC:	24.000	
	15306.				SEC:	24.500	
154	15400.	829.06	836.30	-7.24	-7.09	070	100.
155	15500.	829.16	836.34	-7.18	-7.09	070	100.
	15506.				SEC:	25.000	
156	15600.	829.24	836.37	-7.13	-7.10	070	100.
157	15700.	829.30	836.40	-7.10	-7.10	070	100.
158	15800.	829.34	836.43	-7.09	-7.10	070	100.

159	15900:	829:39	836:46	-7:07	-7:09	070	100:
	15906:				SEC:	25.500	
160	16000:	829:43	836:47	-7:04	-7:09	070	100:
161	16100:	829:46	836:48	-7:02	-7:09	070	100:
162	16200:	829:49	836:49	-7:00	-7:09	070	100:
163	16300:	829:52	836:50	-6:98	-7:09	070	100:
164	16400:	829:54	836:51	-6:97	-7:09	070	100:
165	16500:	829:57	836:52	-6:95	-7:09	070	100:
166	16600:	829:60	836:53	-6:93	-7:09	070	100:
167	16700:	829:63	836:54	-6:91	-7:09	070	100:
168	16800:	829:65	836:55	-6:90	-7:09	070	100:
169	16900:	829:68	836:55	-6:87	-7:09	070	100:
170	17000:	829:71	836:56	-6:85	-7:09	070	100:
	17006:				SEC:	27.000	
	17007:				SEC:	27.100	
	17045:				SEC:	27.400	
	17046:				SEC:	27.500	
171	17100:	829:75	836:57	-6:82	-7:08	070	100:
172	17200:	829:79	836:57	-6:78	-7:08	070	100:
173	17300:	829:80	836:57	-6:77	-7:08	070	100:
174	17400:	829:82	836:58	-6:76	-7:08	070	100:
175	17500:	829:83	836:58	-6:75	-7:08	070	100:
176	17600:	829:85	836:58	-6:73	-7:07	070	100:
177	17700:	829:86	836:58	-6:72	-7:07	070	100:
178	17800:	829:88	836:58	-6:70	-7:07	070	100:
179	17900:	829:89	836:58	-6:69	-7:07	070	100:
180	18000:	829:91	836:58	-6:67	-7:07	070	100:
181	18100:	829:92	836:58	-6:66	-7:06	070	100:
182	18200:	829:94	836:59	-6:65	-7:06	070	100:
183	18300:	829:95	836:59	-6:64	-7:06	070	100:
184	18400:	829:97	836:59	-6:62	-7:06	070	100:
185	18500:	829:98	836:59	-6:61	-7:05	070	100:
186	18600:	830:00	836:59	-6:59	-7:05	070	100:
187	18700:	830:01	836:59	-6:58	-7:05	070	100:
188	18800:	830:03	836:59	-6:56	-7:05	070	100:
189	18900:	830:05	836:59	-6:54	-7:04	070	100:
190	19000:	830:06	836:60	-6:54	-7:04	070	100:
	19008:				SEC:	28.000	
191	19100:	830:08	836:60	-6:52	-7:04	070	100:
192	19200:	830:11	836:59	-6:48	-7:04	070	100:
193	19300:	830:14	836:59	-6:45	-7:03	070	100:
194	19400:	830:17	836:59	-6:42	-7:03	070	100:
195	19500:	830:20	836:59	-6:39	-7:03	070	100:
196	19600:	830:22	836:59	-6:37	-7:02	070	100:
197	19700:	830:25	836:59	-6:34	-7:02	070	100:
198	19800:	830:28	836:59	-6:31	-7:02	070	100:
199	19900:	830:31	836:59	-6:28	-7:01	070	100:
200	20000:	830:34	836:59	-6:25	-7:01	070	100:
201	20100:	830:37	836:58	-6:21	-7:00	070	90:
202	20200:	830:40	836:58	-6:18	-7:00	070	90:
	20283:				SEC:	30.000	
203	20300:	830:43	836:59	-6:16	-7:00	070	90:
204	20400:	830:49	836:61	-6:12	-6:99	070	90:
205	20500:	830:57	836:65	-6:08	-6:99	070	90:
206	20600:	830:65	836:69	-6:04	-6:98	070	90:
207	20700:	830:74	836:73	-5:99	-6:98	070	90:
208	20800:	830:82	836:77	-5:95	-6:97	070	90:
209	20900:	830:90	836:80	-5:90	-6:97	070	90:
210	21000:	830:98	836:84	-5:86	-6:96	070	90:
	21033:				SEC:	31.000	
	21090:				SEC:	31.500	
211	21100:	831:09	837:09	-6:00	-6:96	070	90:
212	21200:	831:20	837:33	-6:13	-6:95	070	91:
213	21300:	831:28	837:37	-6:09	-6:95	070	91:

214	21400:	831:37	837:42	-6:05	-6:95	070	91:	
215	21500:	831:45	837:46	-6:01	-6:94	070	91:	
216	21600:	831:54	837:50	-5:96	-6:94	070	91:	
217	21700:	831:63	837:54	-5:91	-6:93	070	91:	
218	21800:	831:71	837:59	-5:88	-6:93	070	91:	
219	21900:	831:80	837:63	-5:83	-6:92	070	90:	
	21965:					SEC:	33:000	
	21966:					SEC:	33:010	
	21982:					SEC:	33:090	
	21983:					SEC:	33:100	
220	22000:	831:92	837:67	-5:75	-6:92	070	90:	
221	22100:	832:00	837:69	-5:69	-6:91	070	90:	
222	22200:	832:01	837:70	-5:69	-6:91	070	90:	
223	22300:	832:02	837:70	-5:68	-6:90	070	90:	
224	22400:	832:03	837:70	-5:67	-6:90	070	89:	
225	22500:	832:04	837:70	-5:66	-6:89	070	89:	
226	22600:	832:04	837:71	-5:67	-6:88	070	89:	
227	22700:	832:05	837:71	-5:66	-6:88	070	89:	
228	22800:	832:06	837:71	-5:65	-6:87	070	89:	
229	22900:	832:07	837:71	-5:64	-6:87	070	89:	
230	23000:	832:08	837:72	-5:64	-6:86	070	89:	
231	23100:	832:09	837:72	-5:63	-6:86	070	89:	
232	23200:	832:10	837:72	-5:62	-6:85	070	88:	
233	23300:	832:11	837:72	-5:61	-6:85	070	88:	
234	23400:	832:12	837:73	-5:61	-6:84	070	88:	
235	23500:	832:13	837:73	-5:60	-6:84	070	87:	
236	23600:	832:14	837:73	-5:59	-6:83	070	87:	
	23618:					SEC:	34:000	
237	23700:	832:15	837:73	-5:58	-6:83	070	87:	
238	23800:	832:15	837:74	-5:59	-6:82	070	87:	
239	23900:	832:15	837:74	-5:59	-6:82	070	86:	
240	24000:	832:15	837:74	-5:59	-6:81	070	86:	
241	24100:	832:16	837:74	-5:58	-6:81	070	85:	
242	24200:	832:16	837:74	-5:58	-6:80	070	85:	
243	24300:	832:16	837:74	-5:58	-6:80	070	85:	
244	24400:	832:17	837:74	-5:57	-6:79	070	84:	
245	24500:	832:17	837:75	-5:58	-6:79	070	84:	
246	24600:	832:17	837:75	-5:58	-6:78	070	84:	
247	24700:	832:17	837:75	-5:58	-6:78	070	84:	
	24728:					SEC:	36:000	
	24729:					SEC:	36:100	
	24787:					SEC:	36:400	
	24788:					SEC:	36:500	
248	24800:	832:22	837:75	-5:53	-6:77	070	83:	
249	24900:	832:29	837:76	-5:47	-6:77	070	83:	
250	25000:	832:36	837:77	-5:41	-6:76	070	83:	
251	25100:	832:42	837:78	-5:37	-6:75	070	84:	
252	25200:	832:48	837:80	-5:32	-6:75	070	83:	
253	25300:	832:55	837:81	-5:26	-6:74	065	84:	
254	25400:	832:61	837:82	-5:21	-6:74	065	83:	
255	25500:	832:68	837:84	-5:16	-6:73	065	84:	
256	25600:	832:74	837:85	-5:11	-6:72	065	84:	
257	25700:	832:80	837:86	-5:06	-6:72	065	84:	
258	25800:	832:87	837:87	-5:00	-6:71	065	84:	
	25838:					SEC:	38:000	
	25839:					SEC:	38:010	
	25856:					SEC:	38:090	
	25857:					SEC:	38:100	
259	25900:	832:93	837:90	-4:97	-6:70	065	84:	
260	26000:	832:98	837:92	-4:94	-6:70	065	84:	
261	26100:	833:02	837:93	-4:91	-6:69	065	84:	
262	26200:	833:07	837:94	-4:87	-6:68	065	84:	
263	26300:	833:11	837:94	-4:83	-6:68	065	84:	
264	26400:	833:16	837:95	-4:79	-6:67	065	84:	

	26402.				SEC.	38.500	
	26412.				SEC.	39.000	
	26432.				SEC.	40.000	
265	26500.	833.20	837.94	-4.74	-6.66	065	85.

ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND

	10.	2.	0.2
WEIGHTED AVG FOR REACH	-6.66	-1.48	3.26

FHF FOR REACH 1 = 065 WITH 85. OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A13

266	26600.	833.46	838.00	-4.54	-4.54	045	100.
	26637.				SEC.	41.000	
	26654.				SEC.	41.100	
267	26700.	833.80	838.11	-4.31	-4.43	045	100.
268	26800.	833.93	838.19	-4.26	-4.37	045	100.
269	26900.	833.98	838.26	-4.28	-4.35	045	100.
270	27000.	834.02	838.33	-4.31	-4.34	045	100.
271	27100.	834.07	838.40	-4.33	-4.34	045	100.
272	27200.	834.12	838.47	-4.35	-4.34	045	100.
273	27300.	834.17	838.55	-4.38	-4.34	045	100.
274	27400.	834.22	838.62	-4.40	-4.35	045	100.
275	27500.	834.27	838.69	-4.42	-4.36	045	100.
	27579.				SEC.	42.000	
	27580.				SEC.	42.010	
276	27600.	834.31	838.74	-4.43	-4.36	045	100.
	27654.				SEC.	42.090	
	27655.				SEC.	42.100	
277	27700.	834.36	838.81	-4.45	-4.37	045	100.
278	27800.	834.41	838.89	-4.48	-4.38	045	100.
279	27900.	834.46	838.95	-4.49	-4.39	045	100.
280	28000.	834.51	839.01	-4.50	-4.40	045	100.
281	28100.	834.55	839.07	-4.52	-4.40	045	100.
282	28200.	834.60	839.14	-4.54	-4.41	045	100.
	28235.				SEC.	43.000	
283	28300.	834.64	839.18	-4.54	-4.42	045	100.
284	28400.	834.66	839.20	-4.54	-4.42	045	100.
285	28500.	834.69	839.21	-4.52	-4.43	045	100.
286	28600.	834.71	839.21	-4.50	-4.43	045	100.
287	28700.	834.73	839.22	-4.49	-4.44	045	100.
288	28800.	834.75	839.23	-4.48	-4.44	045	100.
289	28900.	834.77	839.24	-4.47	-4.44	045	100.
290	29000.	834.79	839.25	-4.46	-4.44	045	100.
291	29100.	834.81	839.26	-4.45	-4.44	045	100.
	29160.				SEC.	44.000	
292	29200.	834.84	839.32	-4.48	-4.44	045	100.
	29232.				SEC.	44.500	
293	29300.	834.87	839.43	-4.56	-4.45	045	100.
294	29400.	834.89	839.49	-4.60	-4.45	045	100.
295	29500.	834.91	839.50	-4.59	-4.46	045	100.
296	29600.	834.93	839.52	-4.59	-4.46	045	100.
297	29700.	834.95	839.53	-4.58	-4.46	045	100.
298	29800.	834.97	839.54	-4.57	-4.47	045	100.
	29892.				SEC.	45.000	
299	29900.	834.99	839.56	-4.57	-4.47	045	100.
300	30000.	835.01	839.58	-4.57	-4.47	045	100.
301	30100.	835.04	839.60	-4.56	-4.48	045	100.
302	30200.	835.06	839.62	-4.56	-4.48	045	100.
303	30300.	835.09	839.64	-4.55	-4.48	045	100.
304	30400.	835.11	839.67	-4.56	-4.48	045	100.
305	30500.	835.14	839.69	-4.55	-4.48	045	100.

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 306     30600.   835.16   839.71    -4.55       -4.48     045        100.
 307     30700.   835.19   839.73    -4.54       -4.49     045        100.
 308     30800.   835.21   839.75    -4.54       -4.49     045        100.
 309     30900.   835.24   839.78    -4.54       -4.49     045        100.
 310     31000.   835.26   839.80    -4.54       -4.49     045        100.
 311     31100.   835.29   839.82    -4.53       -4.49     045        100.
 312     31200.   835.31   839.84    -4.53       -4.49     045        100.
 313     31300.   835.34   839.87    -4.53       -4.49     045        100.
 314     31400.   835.36   839.89    -4.53       -4.49     045        100.
         31442.                                        SEC.      46.000
 315     31500.   835.38   839.90    -4.52       -4.49     045        100.
 316     31600.   835.39   839.90    -4.51       -4.49     045        100.
 317     31700.   835.39   839.89    -4.50       -4.49     045        100.
 318     31800.   835.40   839.87    -4.47       -4.49     045        100.
 319     31900.   835.40   839.86    -4.46       -4.49     045        100.
 320     32000.   835.40   839.85    -4.45       -4.49     045        100.
         32067.                                        SEC.      47.000
 321     32100.   835.41   839.89    -4.48       -4.49     045        100.
         32126.                                        SEC.      47.500
==========================================================================
                            ELEVATION DIFFERENCE
                           BETWEEN BASE FLOOD AND
                          10.        2.        0.2
WEIGHTED AVG FOR REACH  -4.49     -1.40      3.08

FHF FOR REACH   2 = 045 WITH  100. OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 9
==========================================================================


**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************


READY 10:50:28
```



1) COUNTY: Ingham

2) STUDY NAME: Lansing + E. Lansing

3) WATERCOURSE: Red Cedar

4) DOCUMENT TYPE: 100-yr enchroached



J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	7.	0.	0.	0.000000	0.00	0.0	0.	831.730	0.000

J2	NPROF	IPLOT	PREVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.100	0.000	0.000	0.000	0.000

Floodway Run

Note FN = 1.1

*PROF 2

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 1.000
2800 NAT Q1= 18362.38 WSEL= 831.63 ENC Q1= 18362.38 WSEL= 831.73 RATIO= .0000
NAT Q1= 18554. RATIOS LOB,CH,ROB= .0038 .9666 .0296 WSEL= 831.73

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSECK	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= 129.0 750.1 TYPE= 4 TARGET= .010

CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

A

1.00	22.23	831.73	0.00	831.63	831.88	.15	0.00	0.00	817.70
19400.	0.	18939.	461.	0.	4055.	639.	0.	0.	825.00
0.00	0.00	3.13	.72	.033	.042	.055	0.000	809.50	129.00
.000118	0.	0.	0.	0	0	0	0.00	521.12	750.12

*SECNO 2.000

3470 ENCROACHMENT STATIONS= 375.0 890.0 TYPE= 1 TARGET= 515.000

B

2.00	22.32	831.82	0.00	831.73	831.93	.11	.05	.00	820.00
9600.	1026.	7646.	928.	964.	2588.	1062.	52.	5.	818.00
.04	1.06	2.95	.87	.055	.039	.055	.038	809.50	375.00
.000122	500.	400.	335.	2	0	0	0.00	515.00	890.00

CCHV= .300 CEHV= .500
*SECNO 3.000

3470 ENCROACHMENT STATIONS= 1.0 590.0 TYPE= 1 TARGET= 589.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 840.10 ELREA= 826.00

ELM ST. BRIDGE w/s EG

C

3.00	22.24	831.84	0.00	831.74	832.12	.38	.10	.08	817.70
9600.	0.	8155.	1434.	0.	1791.	1160.	100.	10.	817.70
.08	0.00	4.56	1.24	.055	.039	.055	.038	809.60	175.00
.000328	550.	550.	550.	2	0	0	0.00	415.00	590.00

MOORE BUSINESS FORMS, INC. 23

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3470 ENCROACHMENT STATIONS=     164.5     383.1  TYPE=     4  TARGET=        .009

         I-496 WESTBOUND      (BRIDGE INLET)

 23.00    21.67   836.17     0.00   836.10   836.34      .17      .02      .02   819.00
  7200:     248:    6474:     478:     258:    1870:     524:    4199:     309:   825.50
  4.65      .96     3.46      .91      .075     .035     .075     .036   814.50   164.48
 .000137    190:     190:     190:        2        0        0   -64.94   190.38   383.06


*SECNO 23.500
 2800 NAT Q1=    9469.65  WSEL=    836.23  ENC Q1=    9469.65  WSEL=    836.33  RATIO=  0.0000
 NAT Q1=    9565:  RATIOS LOB,CH,ROB=    .0363    .8659    .0978  WSEL=    836.33

3470 ENCROACHMENT STATIONS=     195.2     500.5  TYPE=     4  TARGET=        .010
 23.50    21.79   836.29     0.00   836.23   836.36      .07      .00      .03   819.00
  7200:     230:    6288:     681:     344:    2720:    1117:    4199:     309:   825.50
  4.65      .67     2.31      .61      .075     .035     .075     .036   814.50   195.20
 .000058      1:       1:       1:        2        0        0     0.00   305.30   500.50


*SECNO 24.000
 2800 NAT Q1=    5735.39  WSEL=    836.28  ENC Q1=    5812.39  WSEL=    836.38  RATIO=  -.0134
 NAT Q1=    5812:  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    836.38

3470 ENCROACHMENT STATIONS=     334.0     573.7  TYPE=     4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      845.97 ELREA=      851.97

 24.00    19.88   836.35     0.00   836.28   836.46      .11      .08      .02   845.57
  7200:       0:    7200:       0:       0:    2675:       0:    4269:     314:   829.11
  4.75     0.00     2.69     0.00      .075     .035     .075     .036   814.47   348.96
 .000141    850:     880:     940:        2        0        0     0.00   224.72   573.68


*SECNO 24.500
 2800 NAT Q1=    4793.37  WSEL=    836.27  ENC Q1=    4848.57  WSEL=    836.37  RATIO=  -.0115
 NAT Q1=    4849:  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    836.37
   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= 18 MIN ELTRD=  849.17 MAX ELLC=  847.57

3470 ENCROACHMENT STATIONS=     334.0     573.7  TYPE=     4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      845.97 ELREA=      851.97

         U.S. 127 SOUTHBOUND      (BRIDGE OUTLET)

 24.50    19.86   836.33     0.00   836.27   836.48      .15      .00      .02   845.57
  7200:       0:    7200:       0:       0:    2331:       0:    4269:     314:   843.47
  4.75     0.00     3.09     0.00      .075     .035     .075     .036   814.47   348.98
 .000222      1:       1:       1:        1        0        0  -147.61   206.32   555.30


*SECNO 25.000
 2800 NAT Q1=    5771.24  WSEL=    836.36  ENC Q1=    5848.80  WSEL=    836.46  RATIO=  -.0134
```

MOORE BUSINESS FORMS, INC. 23

```
 NAT Q1=   5849.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    836.46
3280 CROSS SECTION     25.00 EXTENDED      8.26 FEET


3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  850.97 MAX ELLC=  846.47

3470 ENCROACHMENT STATIONS=     214.0     451.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELFOA=     845.97 ELFOA=     851.97


        U.S. 127 NORTHBOUND     (BRIDGE INLET)

   25.00    20.84   836.43     0.00   836.36   836.53      .10      .04      .01   838.17
    7200.       0.    7200.       0.       0.    3775.       0.    4281.     315.   830.41
    4.77     0.00     2.60     0.00     .075     .035     .075     .036   815.57   214.00
  .000158     200.     200.     200.        2        0        0  -144.24   237.01   451.01


*SECNO 25.500
 2800 NAT Q1=   8155.41  WSEL=    836.47  ENC Q1=   8155.41  WSEL=    836.57  RATIO=   .0000
 NAT Q1=   8276.  RATIOS LOB,CH,ROB=   .0935   .8988   .0077  WSEL=    836.57
3280 CROSS SECTION     25.50 EXTENDED      9.66 FEET


3470 ENCROACHMENT STATIONS=       9.7     481.7  TYPE=     4  TARGET=       .015

   25.50    20.96   836.53     0.00   836.47   836.59      .06      .04      .01   828.17
    7200.     627.    6572.       2.    1290.    3304.      10.    4315.     319.   830.41
    4.83      .49     1.99      .19     .090     .035     .090     .036   815.57     9.74
  .000079     460.     400.     410.        2        0        0     0.00   471.93   481.67


*SECNO 27.000
 2800 NAT Q1=  19376.91  WSEL=    836.57  ENC Q1=  19376.91  WSEL=    836.67  RATIO=  0.0000
 NAT Q1=  19663.  RATIOS LOB,CH,ROB=   .5732   .1695   .2573  WSEL=    836.67
3280 CROSS SECTION     27.00 EXTENDED     10.66 FEET


3470 ENCROACHMENT STATIONS=      18.1    2045.2  TYPE=     4  TARGET=       .015

   27.00    20.56   836.63     0.00   836.57   836.64      .00      .03      .02   819.37
    7200.    4132.    1241.    1927.   14116.    1090.    6209.    4691.     355.   816.17
    5.58      .29     1.14      .29     .090     .035     .090     .036   816.07    18.14
  .000014    1400.    1100.    1010.        2        0        0     0.00  2027.03  2045.17


*SECNO 27.100
 2800 NAT Q1=  21573.92  WSEL=    836.57  ENC Q1=  21573.92  WSEL=    836.67  RATIO=   .0000
 NAT Q1=  22049.  RATIOS LOB,CH,ROB=   .7753   .0517   .1730  WSEL=    836.67
3280 CROSS SECTION     27.10 EXTENDED     10.66 FEET


3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  826.97 MAX ELLC=  829.97

3470 ENCROACHMENT STATIONS=      24.6    2011.3  TYPE=     4  TARGET=       .022

        KALAMAZOO ST. BRIDGE

   27.10    20.57   836.64     0.00   836.57   836.64      .00      .00      .00   819.37
```

MOORE BUSINESS FORMS, INC. 23

```
    7200.     5631.      383.     1187.    11337.      880.     3090.     4691.      355.     816.17
     5.58       .50       .43       .38       .039      .035      .039      .036   816.07    24.57
.000011        1.        1.        1.         0         0         0 -5685.94  1986.70  2011.24
```

```
*SECNO 27.400
 2800 NAT Q1=  21582.38  WSEL=    836.57  ENC Q1=  21582.38  WSEL=    836.67  RATIO=  0.0000
 NAT Q1=  22051.  RATIOS LOB,CH,ROB=    .7753    .0517    .1730  WSEL=    836.67
3280 CROSS SECTION     27.40 EXTENDED     10.67 FEET
```

```
   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
```

```
3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  826.97 MAX ELLC=  829.97
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```
3470 ENCROACHMENT STATIONS=      24.3    2011.9  TYPE=     4  TARGET=        .021
    27.40    20.57   836.64      0.00   836.57   836.64       .00       .00       .00   819.37
    7200.     5630.      383.     1188.    11342.      880.     3094.     4704.      357.     816.17
     5.60       .50       .43       .38       .039      .035      .039      .036   816.07    24.26
.000011         38.       38.       38.         0         0         0 -5690.67  1987.66  2011.92
```

```
*SECNO 27.500
 2800 NAT Q1=  24065.44  WSEL=    836.57  ENC Q1=  24065.44  WSEL=    836.67  RATIO=  0.0000
 NAT Q1=  24432.  RATIOS LOB,CH,ROB=    .5406    .1196    .3398  WSEL=    836.67
3280 CROSS SECTION     27.50 EXTENDED     10.67 FEET
```

```
3470 ENCROACHMENT STATIONS=      19.9    2048.8  TYPE=     4  TARGET=        .015
```

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

```
    27.50    20.57   836.64      0.00   836.57   836.64       .00       .00       .00   819.37
    7200.     3895.      876.     2429.    14101.     1090.     4249.     4705.      357.     816.17
     5.60       .28       .80       .39       .077      .040      .055      .036   816.07    19.89
.000009         1.        1.        1.         0         0         0      0.00  2028.92  2048.81
```

```
*SECNO 28.000
```

```
3470 ENCROACHMENT STATIONS=      90.0    1200.0  TYPE=     1  TARGET=    1110.000
AA  28.00    21.19   836.66      0.00   836.60   836.67       .01       .03       .00   824.17
    7200.     1136.     2411.     3653.     2705.     1868.     5578.     5416.      428.     827.67
     6.26       .42      1.29       .65       .077      .044      .055      .037   815.47    90.00
.000033      1962.     1962.     1962.         0         0         0      0.00  1110.00  1200.00
```

```
*SECNO 30.000
 2800 NAT Q1=   3555.89  WSEL=    836.58  ENC Q1=   3555.89  WSEL=    836.68  RATIO=   .0000
 NAT Q1=   3609.  RATIOS LOB,CH,ROB=    .0002    .9581    .0417  WSEL=    836.68

3470 ENCROACHMENT STATIONS=      20.0     214.0  TYPE=     4  TARGET=        .015
AB  30.00    20.15   836.65      0.00   836.58   836.89       .24       .10       .11   835.00
    7200.        0.     7002.      198.        0.     1765.      181.     5593.      447.     833.00
     6.35      0.00      3.97      1.10       .060      .040      .060      .037   816.50    20.00
.000420      1220.     1275.     1300.         2         0         0      0.00   193.99   213.99
```

MOORE BUSINESS FORMS, INC. 23

```
*SECNO 31.000
 2800 NAT Q1=   3132.31  WSEL=    834.88  ENC Q1=   3132.31  WSEL=    834.98  RATIO=    .0000
  NAT Q1=   3180.  RATIOS LOB,CH,ROB=  0.0000    .9338    .0662  WSEL=    834.98
3280 CROSS SECTION      31.00 EXTENDED       1.85 FEET


3470 ENCROACHMENT STATIONS=     315.3     410.7  TYPE=     4  TARGET=         .015

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      839.00 ELREA=      835.50


          HARRISON RD. BRIDGE

AC 31.00    18.35   834.95     0.00   834.88   837.30      .35       .35       .05   832.80
    7200.       0.     6833.     367.       0.     1410.     389.     5625.     451.   826.20
      6.39     0.00     4.85      .94      .060     .040     .060     .037   818.60   315.25
    .000533    750.     750.     750.        2        0        0     0.00   295.40   610.65


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .90       1.56       3.00       0.00      58.00       0.00    1014.00       1.34     819.00     819.00

*SECNO 31.500
 2800 NAT Q1=   3920.08  WSEL=    837.30  ENC Q1=   3920.08  WSEL=    837.40  RATIO=  0.0000
  NAT Q1=   3969.  RATIOS LOB,CH,ROB=  0.0000    .9510    .0490  WSEL=    837.40
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION      31.50 EXTENDED       1.68 FEET

   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=     315.3     602.5  TYPE=     4  TARGET=         .012

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      839.00 ELREA=      835.50

    31.50    21.28   837.38     0.00   837.30   837.62      .24       .02       .03   828.30
    7200.       0.     6939.     261.       0.     1724.     370.     5628.     451.   835.20
      6.40     0.00     4.02      .71      .060     .040     .060     .037   816.10   315.25
    .000340    57.      57.       57.         0        0        2     0.00   287.24   602.49


CCHV=     .300 CEHV=     .500
*SECNO 33.000
 2800 NAT Q1=  10581.34  WSEL=    837.68  ENC Q1=  10581.34  WSEL=    837.78  RATIO=    .0000
  NAT Q1=  10742.  RATIOS LOB,CH,ROB=    .5901    .3643    .0457  WSEL=    837.78

3470 ENCROACHMENT STATIONS=      30.1     728.1  TYPE=     4  TARGET=         .015
AD  33.00    18.86   837.76     0.00   837.68   837.78      .02       .10       .07   824.60
    7200.     4257.     2666.     278.     4255.     1647.     451.     5728.     462.   824.50
      6.62     1.00     1.62      .62      .044     .042     .044     .037   818.90    30.13
    .000047  1240.     875.      600.        2        0        0     0.00   698.00   728.13


*SECNO 33.010
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MOORE BUSINESS FORMS, INC. 23

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 2800 NAT Q1=   5808.26  WSEL=    837.67  ENC Q1=   5808.26  WSEL=    837.77  RATIO=    .0000
 NAT Q1=   5911.  RATIOS LOB,CH,ROB=    .6306   .3322   .0372  WSEL=    837.77

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  829.30 MAX ELLC=  836.50

3470 ENCROACHMENT STATIONS=      21.0     747.3  TYPE=     4  TARGET=        .017

        MICHIGAN STATE UNIVERSITY FOOTBRIDGE

   33.01    18.85   837.75     0.00   837.67   837.79      .04      .00      .01   824.60
    7200.    4552.    2440.     208.    3088.    1434.     283.    5728.     462.   824.50
    6.62     1.47     1.70      .74     .044     .042     .044     .037   818.90    20.97
  .000154       1.       1.       1.        0        0        0 -1631.99   726.35   747.32

*SECNO 33.090
 2800 NAT Q1=   5784.88  WSEL=    837.67  ENC Q1=   5784.88  WSEL=    837.77  RATIO=    .0000
 NAT Q1=   5896.  RATIOS LOB,CH,ROB=    .6328   .3297   .0375  WSEL=    837.77

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  829.00 MAX ELLC=  836.30

3470 ENCROACHMENT STATIONS=      22.2     744.9  TYPE=     4  TARGET=        .019
   33.09    18.85   837.75     0.00   837.67   837.79      .04      .00      .00   824.60
    7200.    4568.    2428.     204.    3089.    1425.     280.    5730.     462.   824.50
    6.62     1.48     1.70      .73     .044     .042     .044     .037   818.90    22.33
  .000156       16.      16.      16.        0        0        0 -1628.37   722.62   744.85

*SECNO 33.100
 2800 NAT Q1=  10871.80  WSEL=    837.69  ENC Q1=  10871.80  WSEL=    837.79  RATIO=    .0000
 NAT Q1=  11069.  RATIOS LOB,CH,ROB=    .5949   .3522   .0529  WSEL=    837.79

3470 ENCROACHMENT STATIONS=      36.6     746.8  TYPE=     4  TARGET=        .018
   33.10    18.87   837.77     0.00   837.69   837.80      .02      .00      .00   825.50
    7200.    4293.    2586.     321.    4367.    1649.     544.    5730.     462.   825.00
    6.62      .98     1.57      .59     .044     .042     .044     .037   818.90    36.56
  .000044       1.       1.       1.        1        0        0     0.00   710.23   746.79

*SECNO 34.000
 2800 NAT Q1=  14968.70  WSEL=    837.73  ENC Q1=  14968.70  WSEL=    837.83  RATIO=  0.0000
 NAT Q1=  15199.  RATIOS LOB,CH,ROB=    .7705   .2295  0.0000  WSEL=    837.83
   SECNO    DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL      QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB      ACH      AROB     VOL     TOA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL       XNCH     XNE      MTN     ELMIN     SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL    IDC      ICONT    CORAR    TOPWID    ENDST

3470 ENCROACHMENT STATIONS=      32.8     865.0  TYPE=     4  TARGET=        .015
   34.00    18.11   837.81     0.00   837.73   837.83      .01      .03      .00   828.00
    7200.    5521.    1679.       0.    7251.    1676.       0.    5863.     475.   845.00
    6.91      .76     1.00      0.00     .044     .042     .044     .039   819.70    32.84
  .000023     440.    1635.    1965.        0        0        0     0.00   826.85   859.69

*SECNO 36.000
 2800 NAT Q1=  11506.25  WSEL=    837.75  ENC Q1=  11506.25  WSEL=    837.85  RATIO=    .0000
 NAT Q1=  11683.  RATIOS LOB,CH,ROB=    .6722   .2935   .0343  WSEL=    837.85
3280 CROSS SECTION     36.00 EXTENDED      5.84 FEET
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MOORE BUSINESS FORMS, INC 23

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3470 ENCROACHMENT STATIONS=      12.2      733.7  TYPE=      4  TARGET=          .015

        KALAMAZOO ST. BRIDGE

 36.00     17.43    837.83      0.00    837.75    837.85      .02       .02       .00    823.00
  7200.     4845.     2141.      214.     5370.     1506.      215.     5982.      486.    823.00
   7.09       .90      1.42       .99      .044      .042      .044      .039    820.40     12.17
  .000039     520.     1110.     1150.        1         0         0      0.00    721.57    733.74


¥SECNO 36.100
 2800 NAT Q1=    3921.98  WSEL=     837.74  ENC Q1=    3921.98  WSEL=     837.84  RATIO=  0.0000
  NAT Q1=    4029.  RATIOS LOB,CH,ROB=    .6389    .3135    .0475  WSEL=     837.84
3280 CROSS SECTION      36.10 EXTENDED       5.82 FEET


3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  832.80 MAX ELLC=  836.10

3470 ENCROACHMENT STATIONS=      13.5      727.9  TYPE=      4  TARGET=          .026
   36.10     17.42    837.82      0.00    837.74    837.84      .05       .00       .01    823.00
    7200.     4671.     2350.      179.     2753.     1248.      106.     5982.      486.    823.00
    7.09      1.70      1.85      1.68      .044      .042      .044      .039    820.40     13.46
  .000347        1.        1.        1.         1         0         0 -2894.54    714.44    727.90


¥SECNO 36.400
 2800 NAT Q1=    3812.65  WSEL=     837.76  ENC Q1=    3812.65  WSEL=     837.86  RATIO=  0.0000
  NAT Q1=    3935.  RATIOS LOB,CH,ROB=    .6560    .3262    .0178  WSEL=     837.86
3280 CROSS SECTION      36.40 EXTENDED       4.44 FEET


3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  832.80 MAX ELLC=  836.10

3470 ENCROACHMENT STATIONS=      14.4      716.3  TYPE=      4  TARGET=          .031
   36.40     17.44    837.84      0.00    837.76    837.89      .05       .02       .00    823.00
    7200.     4759.     2433.        7.     2768.     1079.       12.     5988.      487.    823.00
    7.09      1.72      1.90       .65      .044      .042      .044      .039    820.40     14.36
  .000361       58.       58.       58.         0         0         0  -658.65    701.97    716.32


¥SECNO 36.500
 2800 NAT Q1=    6816.68  WSEL=     837.75  ENC Q1=    6816.68  WSEL=     837.85  RATIO=  0.0000
  NAT Q1=    6957.  RATIOS LOB,CH,ROB=    .4831    .4982    .0187  WSEL=     837.85
3280 CROSS SECTION      36.50 EXTENDED       4.44 FEET


3470 ENCROACHMENT STATIONS=      16.6      728.0  TYPE=      4  TARGET=          .020
   36.50     17.43    837.83      0.00    837.75    837.89      .06       .00       .00    823.00
    7200.     3472.     3668.       60.     3175.     1515.       75.     5988.      487.    823.00
    7.10      1.09      2.42       .81      .044      .042      .044      .039    820.40     16.56
  .000112        1.        1.        1.         0         0         0      0.00    711.47    728.03


CCHV=     .300 CEHV=     .500
¥SECNO 38.000
 2800 NAT Q1=    5101.55  WSEL=     837.88  ENC Q1=    5101.55  WSEL=     837.98  RATIO=    .0000
  NAT Q1=    5184.  RATIOS LOB,CH,ROB=    .0820    .6455    .2725  WSEL=     837.98
    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
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MOORE BUSINESS FORMS, INC. 23

Q	QLOB	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= 207.1 547.0 TYPE= 4 TARGET= .016

38.00	17.57	837.97	0.00	837.88	838.08	.12	.16	.03	823.60
7200.	540.	4730.	1930.	361.	1505.	1026.	6089.	502.	829.50
7.21	1.50	3.14	1.88	.044	.042	.044	.039	820.40	207.13
.000201	1270.	1050.	1070.	2	0	0	0.00	339.85	546.98

AG

*SECNO 38.010

2800 NAT Q1= 3147.09 WSEL= 837.87 ENC Q1= 3147.09 WSEL= 837.97 RATIO= 0.0000

NAT Q1= 3176. RATIOS LOB,CH,ROB= .0078 .6040 .3881 WSEL= 837.97

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

3470 ENCROACHMENT STATIONS= 216.3 555.0 TYPE= 4 TARGET= .009

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

38.01	17.55	837.95	0.00	837.87	838.10	.14	.00	.01	823.60
7200.	23.	4391.	2786.	46.	1416.	934.	6089.	502.	829.50
7.21	.49	3.10	2.99	.044	.042	.044	.039	820.40	216.16
.000524	1.	1.	1.	1	0	0	-508.81	338.86	555.02

*SECNO 38.090

2800 NAT Q1= 3146.83 WSEL= 837.88 ENC Q1= 3146.83 WSEL= 837.98 RATIO= .0000

NAT Q1= 3178. RATIOS LOB,CH,ROB= .0080 .6035 .3885 WSEL= 837.98

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

3470 ENCROACHMENT STATIONS= 221.1 554.5 TYPE= 4 TARGET= .010

38.09	17.56	837.96	0.00	837.88	838.11	.14	.01	.00	823.60
7200.	20.	4394.	2786.	42.	1416.	933.	6090.	502.	829.50
7.21	.49	3.10	2.99	.044	.042	.044	.039	820.40	221.07
.000525	17.	17.	17.	0	0	0	-503.79	333.40	554.47

*SECNO 38.100

2800 NAT Q1= 5128.81 WSEL= 837.92 ENC Q1= 5128.81 WSEL= 838.02 RATIO= .0000

NAT Q1= 5211. RATIOS LOB,CH,ROB= .0826 .6444 .2730 WSEL= 838.02

3470 ENCROACHMENT STATIONS= 205.9 547.1 TYPE= 4 TARGET= .016

38.10	17.60	838.00	0.00	837.92	838.12	.12	.00	.01	823.60
7200.	545.	4721.	1934.	367.	1508.	1031.	6090.	502.	829.50
7.21	1.49	3.13	1.88	.044	.042	.044	.039	820.40	205.92
.000198	1.	1.	1.	2	0	0	0.00	341.19	547.11

CCHV= .100 CEHV= .300

*SECNO 38.500

2800 NAT Q1= 2739.46 WSEL= 837.95 ENC Q1= 2739.46 WSEL= 838.05 RATIO= 0.0000

NAT Q1= 2783. RATIOS LOB,CH,ROB= .0858 .7883 .1259 WSEL= 838.05

3470 ENCROACHMENT STATIONS= 128.7 285.2 TYPE= 4 TARGET= .016

38.50	14.03	838.03	0.00	837.95	838.37	.34	.18	.07	829.60
7200.	572.	5770.	857.	194.	1151.	280.	6119.	505.	829.60

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MOORE BUSINESS FORMS, INC. 23

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 .000696     570.     545.     540.       2        0        0     0.00   156.53   285.24

*SECNO 39.000
 2800 NAT Q1=   2675.35  WSEL=    837.92  ENC Q1=   2675.35  WSEL=    837.92  RATIO=   .0000
 NAT Q1=   2725.  RATIOS LOB,CH,ROB=   .0839   .7923   .1237  WSEL=    837.92
   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      YNL       YNCH      YNR       WTN       ELMIN      SSTA
   SLOPE     YLOBL     YLCH      YLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     131.1     283.4  TYPE=     4  TARGET=         .018

        MICHIGAN STATE UNIVERSITY DAM   DOWNSTREAM SECTION

AI  39.00    11.03   837.89     0.00   837.82   838.44      .55       .01       .06   829.60
    7200.     555.    5812.     833.     183.     902.     267.     6119.     505.    829.60
     7.25     3.03     4.45     3.12     .044     .030     .044     .039   826.86   131.09
 .000732       10.      10.      10.        2        0        0     0.00   152.31   283.40

*SECNO 40.000
 2800 NAT Q1=   2675.11  WSEL=    837.83  ENC Q1=   2675.11  WSEL=    837.93  RATIO=  0.0000
 NAT Q1=   2724.  RATIOS LOB,CH,ROB=   .0680   .8241   .1079  WSEL=    837.93

3470 ENCROACHMENT STATIONS=     131.3     283.2  TYPE=     4  TARGET=         .019

        MICHIGAN STATE UNIVERSITY DAM   UPSTREAM SECTION

AJ  40.00    10.60   837.90     0.00   837.83   838.45      .55       .01       .00   829.60
    7200.     434.    6049.     715.     151.     953.     234.     6120.     505.    829.60
     7.25     2.89     4.35     3.05     .044     .030     .044     .039   827.30   131.33
 .000733       20.      20.      20.        0        0        0     0.00   151.82   283.14

CCHV=     .300 CEHV=     .500
*SECNO 41.000
 2800 NAT Q1=   3501.44  WSEL=    838.12  ENC Q1=   3503.55  WSEL=    838.22  RATIO=  -.0005
 NAT Q1=   3545.  RATIOS LOB,CH,ROB=   .0017   .9883   .0100  WSEL=    838.22
3280 CROSS SECTION     41.00 EXTENDED        .42 FEET

3470 ENCROACHMENT STATIONS=     141.0     241.1  TYPE=     4  TARGET=         .012

        MICHIGAN STATE UNIVERSITY FOOTBRIDGE

AK  41.00    17.22   838.22     0.00   838.12   838.62      .40       .12       .05   835.50
    7200.        0.   7200.        0.       0.    1422.        0.    6126.     506.    831.00
     7.26     0.00     5.06     0.00     .044     .034     .044     .039   821.00   141.00
 .000478      210.     205.     205.        2        0        0     0.00   100.10   241.10


SPECIAL BRIDGE

SB  XK        XKOR      COEQ      RDLEN     BWC       BWP       RAREA     SS        ELCHU     ELCHD
      0.00      1.40      2.50      0.00     75.00      0.00   1400.00      3.00    821.00    821.00

*SECNO 41.100

4070 LOW FLOW BY NORMAL BRIDGE
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MOORE BUSINESS FORMS, INC. 23

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EGPRS=   838.793  EGLWC=   838.414  ELLC=   837.900  PCWSE=   838.218  ELTRD=   837.800
3280 CROSS SECTION      41.10 EXTENDED        .42 FEET


3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  837.80 MAX ELLC=  837.90

3470 ENCROACHMENT STATIONS=     141.0     244.0  TYPE=     1  TARGET=     103.000
    41.10    17.22   838.22     0.00   838.12   838.64      .42      .01      .01   835.50
     7200.       0.    7200.       0.       0.    1390.       0.    6127.     506.    831.00
     7.26     0.00     5.18     0.00     .044     .034     .044     .039   821.00   141.00
  .001128      17.      17.      17.        0        0        0   -50.90   103.00   244.00

CEHV=    .100 CEHV=    .300
 *SECNO 43.000
  2800 NAT Q1=   3868.78  WSEL=    838.78  ENC Q1=   3912.23  WSEL=    838.88  RATIO=  -.0112
  NAT Q1=   3912.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    838.88

3470 ENCROACHMENT STATIONS=     221.0     337.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      846.30 ELREA=      841.10

        FARM LANE BRIDGE

        USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

        1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

    42.00    15.91   838.91     0.00   838.78   839.20      .29      .55      .01   837.50
     7200.       0.    7200.       0.       0.    1667.       0.    6159.     508.    829.30
     7.32     0.00     4.32     0.00     .040     .034     .040     .039   823.00   221.00
  .000369     1055.     925.     905.        1        0        0     0.00   116.00   337.00

*SECNO 42.010
  2800 NAT Q1=   3136.16  WSEL=    838.75  ENC Q1=   3165.97  WSEL=    838.85  RATIO=  -.0095
  NAT Q1=   3166.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    838.85
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
    0         QLOB      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= 26 MIN ELTRD=  842.30 MAX ELLC=  840.90

3470 ENCROACHMENT STATIONS=     221.0     337.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      844.30 ELREA=      841.10

AL  42.01    15.88   838.88     0.00   838.75   839.22      .34      .00      .01   837.50
     7200.       0.    7200.       0.       0.    1543.       0.    6159.     508.    829.30
     7.32     0.00     4.67     0.00     .040     .034     .040     .039   823.00   221.00
  .000559        1.       1.       1.        2        0        0  -118.75   116.00   337.00

*SECNO 42.080
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MOORE BUSINESS FORMS, INC. 23

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 2800 NAT Q1=   3047.30  WSEL=    838.77  ENC Q1=   3075.30  WSEL=    838.87  RATIO=  -.0092
 NAT Q1=   3075.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    838.87

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  842.30 MAX ELLO=  840.90

3470 ENCROACHMENT STATIONS=     221.0     337.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     846.30 ELREA=     841.10

   42.09    15.91   838.91     0.00   838.77   839.27      .36      .04      .01   837.50
  7200.       0.    7200.       0.       0.    1501.       0.    6162.     508.    829.30
    7.32     0.00     4.80     0.00     .040     .034     .040     .039   823.00   221.00
 .000592      74.      74.      74.        1        0        0  -164.77   114.00   337.00

*SECNO 42.100
 2800 NAT Q1=   3901.74  WSEL=    838.83  ENC Q1=   3946.69  WSEL=    838.93  RATIO=  -.0115
 NAT Q1=   3947.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    838.93
3280 CROSS SECTION     42.10 EXTENDED      1.37 FEET

3470 ENCROACHMENT STATIONS=     221.0     337.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     846.30 ELREA=     841.10

   42.10    15.97   838.97     0.00   838.83   839.27      .30      .00      .01   837.50
  7200.       0.    7200.       0.       0.    1629.       0.    6162.     508.    829.30
    7.32     0.00     4.42     0.00     .040     .032     .040     .039   823.00   221.00
 .000362        1.       1.       1.        2        0        0     0.00   114.00   337.00

CCHV=     .300 CEHV=     .500
*SECNO 43.000
 2800 NAT Q1=   6377.69  WSEL=    839.19  ENC Q1=   6377.69  WSEL=    839.29  RATIO=   .0000
 NAT Q1=   6479.  RATIOS LOB,CH,ROB=   .0974   .6874   .2152  WSEL=    839.29

3470 ENCROACHMENT STATIONS=     124.5     397.5  TYPE=     4  TARGET=       .016
AM 43.00    16.41   839.31     0.00   839.19   839.44      .13      .12      .05   828.40
  7200.      658.    5023.    1520.     448.    1542.     831.    6193.     511.    828.40
    7.38     1.47     3.26     1.83     .040     .030     .040     .039   822.90   124.51
 .000126      655.     580.     700.        2        0        0     0.00   272.98   397.49

CCHV=     .100 CEHV=     .300
*SECNO 44.000

3470 ENCROACHMENT STATIONS=     291.0     698.4  TYPE=     1  TARGET=     420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     843.60 ELREA=     843.80

          ROGUE ST. BRIDGE

AN 44.00    17.00   839.40     0.00   839.27   839.61      .21      .14      .02   830.10
  7200.       0.    7200.       0.       0.    1953.       0.    6245.     516.    831.00
    7.45     0.00     3.69     0.00     .055     .030     .055     .039   822.40   496.64
 .000180     1000.     925.     975.        2        0        0     0.00   144.47   443.11


SPECIAL BRIDGE
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MOORE BUSINESS FORMS, INC. 23

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	75.00	0.00	1800.00	2.95	822.50	822.50

*SECNO 44.500

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 FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
839.78	839.68	0.00	0.	7200.	1800.	1905.	838.20	842.60

3470 ENCROACHMENT STATIONS= 291.0 698.4 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.60 ELREA= 843.80

	44.50	17.90	839.60	0.00	839.47	839.78	.18	.18	0.00	830.80
	7200.	0.	7200.	0.	0.	2112.	0.	6248.	516.	833.20
	7.46	0.00	3.41	0.00	.075	.030	.055	.039	821.70	497.61
	.000159	72.	72.	72.	2	0	0	0.00	157.14	654.75

CCHV= .300 CEHV= .500

*SECNO 45.000

AO

	45.00	17.89	839.69	0.00	839.56	839.93	.24	.12	.03	828.00
	7200.	660.	6356.	184.	719.	1538.	149.	6283.	520.	833.00
	7.51	.92	4.13	1.24	.075	.030	.055	.038	821.80	340.38
	.000195	750.	660.	650.	2	0	0	0.00	329.64	670.02

CCHV= .100 CEHV= .300

*SECNO 46.000

3280 CROSS SECTION 46.00 EXTENDED 6.03 FEET

AP

	46.00	18.13	840.03	0.00	839.91	840.12	.09	.18	.01	828.00
	7200.	978.	5879.	344.	1768.	2194.	370.	6397.	534.	828.00
	7.69	.55	3.68	.93	.075	.030	.055	.038	821.90	399.63
	.000076	1330.	1550.	1625.	2	0	0	0.00	525.37	925.00

CCHV= .300 CEHV= .500

*SECNO 47.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

AQ

	47.00	18.36	839.96	0.00	839.84	840.34	.38	.08	.14	826.90
	7200.	44.	7156.	0.	133.	1441.	0.	6439.	540.	825.90

MOORE BUSINESS FORMS, INC. 23

7.73	.33	4.97	0.00	.075	.030	.070	.038	821.60	961.20
.000233	430.	425.	575.	2	0	0	0.00	335.95	1495.00

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.40	3.00	0.00	86.00	4.00	1300.00	0.00	824.40	824.40

*SECNO 47.500

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
840.49	840.39	.02	712.	6445.	1300.	1238.	839.50	839.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

47.50	18.52	840.12	0.00	840.03	840.49	.37	.15	0.00	826.90
7200.	55.	7145.	0.	175.	1455.	0.	6441.	540.	825.90
7.73	.32	4.91	0.00	.075	.030	.070	.038	821.60	951.64
.000225	59.	59.	59.	2	0	3	0.00	356.09	1495.00

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1.000	831.63	0.00	831.78	587.10	73.60	18770.17	556.23	0.00	0.00	129.00	490.00	0.00
1.000	831.73	.10	831.88	521.12	0.00	18938.90	461.10	.01	129.00	129.00	490.00	750.12
2.000	831.73	0.00	831.83	680.20	974.61	7361.72	1263.67	-375.00	375.00	515.00	655.00	1056.00
2.000	831.82	.09	831.93	515.00	1026.29	7645.75	927.96	515.00	375.00	515.00	655.00	890.00
3.000	831.74	0.00	832.01	450.00	0.00	7996.96	1603.04	0.00	0.00	175.00	266.00	0.00
3.000	831.84	.10	832.12	415.00	0.00	8165.79	1434.21	589.00	1.00	175.00	266.00	590.00
3.500	831.62	0.00	832.18	374.27	0.00	8837.48	762.52	0.00	0.00	175.00	266.00	0.00
3.500	831.71	.09	832.30	340.73	0.00	9012.12	587.88	589.00	1.00	175.00	266.00	590.00

MOORE BUSINESS FORMS, INC. 23

Multiple Summar
10-, 50-, 100-
500-yr flow:

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
18.500	26.00	833.07	829.17	811.67	4120.00	828.22	0.00	828.32	1.96	2.62	1571.25	2940.72
18.500	26.00	833.07	829.17	811.67	6200.00	834.11	0.00	834.12	.17	1.05	11089.24	14912.55
18.500	26.00	833.07	829.17	811.67	7200.00	835.57	0.00	835.58	.17	1.09	12386.01	17672.10
18.500	26.00	833.07	829.17	811.67	9740.00	838.74	0.00	838.75	.06	.72	27793.11	38994.44
19.000	640.00	0.00	0.00	813.87	4120.00	828.40	0.00	828.42	.67	1.68	5710.64	5020.57
19.000	640.00	0.00	0.00	813.87	6200.00	834.12	0.00	834.14	.29	1.41	9927.35	11587.04
19.000	640.00	0.00	0.00	813.87	7200.00	835.58	0.00	835.60	.28	1.47	11016.92	13610.93
19.000	640.00	0.00	0.00	813.87	9740.00	838.74	0.00	838.76	.27	1.60	13405.09	18655.85
21.000	1637.00	0.00	0.00	815.57	4120.00	828.51	0.00	828.60	1.99	2.49	1656.43	2922.85
21.000	1637.00	0.00	0.00	815.57	6200.00	834.15	0.00	834.24	1.09	2.41	3570.35	5947.90
21.000	1637.00	0.00	0.00	815.57	7200.00	835.60	0.00	835.71	1.11	2.57	2806.38	6847.88
21.000	1637.00	0.00	0.00	815.57	9740.00	838.77	0.00	838.79	.20	1.27	16255.38	22034.86
21.500	10.00	838.27	828.27	816.07	4120.00	828.59	0.00	828.68	1.40	2.39	1725.02	3486.16
21.500	10.00	838.27	828.27	816.07	6200.00	834.46	0.00	834.54	.75	2.32	2675.47	7156.30
21.500	10.00	838.27	828.27	816.07	7200.00	836.04	0.00	836.13	.75	2.46	2930.98	8298.71
21.500	10.00	838.27	828.27	816.07	9740.00	839.36	0.00	839.37	.10	1.02	20463.27	31081.30
22.000	950.00	0.00	0.00	815.00	4120.00	828.72	0.00	828.86	1.88	3.07	1623.34	3003.80
22.000	950.00	0.00	0.00	815.00	6200.00	834.53	0.00	834.64	.98	2.86	3062.63	6276.45
22.000	950.00	0.00	0.00	815.00	7200.00	836.11	0.00	836.22	.95	2.99	3484.12	7384.09
22.000	950.00	0.00	0.00	815.00	9740.00	839.32	0.00	839.45	.97	3.33	4376.08	9901.44
22.010	1.00	848.80	849.00	815.00	4120.00	828.72	0.00	828.86	2.14	3.20	1548.31	2818.34
22.010	1.00	848.80	849.00	815.00	6200.00	834.52	0.00	834.64	1.11	2.98	2915.57	5883.28
22.010	1.00	848.80	849.00	815.00	7200.00	836.10	0.00	836.23	1.08	3.11	3317.86	6923.18
22.010	1.00	848.80	849.00	815.00	9740.00	839.31	0.00	839.46	1.10	3.46	4173.63	9296.66
23.000	190.00	849.00	849.70	814.50	4120.00	828.74	0.00	828.87	3.63	3.47	1298.54	2542.50
23.000	190.00	849.00	849.70	814.50	6200.00	834.53	0.00	834.68	1.40	3.30	2387.86	5235.50
23.000	190.00	849.00	849.70	814.50	7200.00	836.10	0.00	836.27	1.37	3.45	2713.06	6145.90
23.000	190.00	849.00	849.70	814.50	9740.00	839.31	0.00	839.51	1.41	3.87	3407.63	8213.09
23.500	1.00	0.00	0.00	814.50	4120.00	828.87	0.00	828.96	1.16	2.38	1941.65	3828.76
23.500	1.00	0.00	0.00	814.50	6200.00	834.64	0.00	834.71	.60	2.21	3763.98	8022.76
23.500	1.00	0.00	0.00	814.50	7200.00	836.23	0.00	836.30	.58	2.30	4306.68	9469.65
23.500	1.00	0.00	0.00	814.50	9740.00	839.46	0.00	839.55	.58	2.56	5464.63	12791.32
24.000	880.00	0.00	0.00	816.47	4120.00	829.02	0.00	829.24	8.74	3.79	1087.74	1393.36
24.000	880.00	0.00	0.00	816.47	6200.00	834.70	0.00	834.82	1.84	2.69	2308.37	4576.14
24.000	880.00	0.00	0.00	816.47	7200.00	836.28	0.00	836.40	1.58	2.71	2660.55	5735.39
24.000	880.00	0.00	0.00	816.47	9740.00	839.51	0.00	839.64	1.33	2.87	3396.72	8432.92
24.500	1.00	849.17	847.57	816.47	4120.00	829.00	0.00	829.24	9.15	4.09	1007.49	1361.85
24.500	1.00	849.17	847.57	816.47	6200.00	834.69	0.00	834.83	2.55	3.08	2014.90	3881.71
24.500	1.00	849.17	847.57	816.47	7200.00	836.27	0.00	836.42	2.26	3.11	2318.42	4793.37
24.500	1.00	849.17	847.57	816.47	9740.00	839.49	0.00	839.66	1.98	3.28	2970.25	6930.18
25.000	200.00	850.97	846.47	815.57	4120.00	829.22	0.00	829.40	4.02	3.41	1209.30	2054.78
25.000	200.00	850.97	846.47	815.57	6200.00	834.79	0.00	834.89	1.81	2.58	2403.24	4602.84
25.000	200.00	850.97	846.47	815.57	7200.00	836.36	0.00	836.47	1.56	2.61	2759.58	5771.24
25.000	200.00	850.97	846.47	815.57	9740.00	839.59	0.00	839.71	1.33	2.79	3489.25	8460.28

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K

MOORE BUSINESS FORMS, INC. 23

25.500	400.00	0.00	0.00	815.57	4120.00	829.42	0.00	829.54	2.40	2.80	1539.81	2659.06
25.500	400.00	0.00	0.00	815.57	6200.00	834.90	0.00	834.96	.95	1.99	3981.67	6350.52
25.500	400.00	0.00	0.00	815.57	7200.00	836.47	0.00	836.53	.78	1.97	4772.51	8155.41
25.500	400.00	0.00	0.00	815.57	9740.00	839.70	0.00	839.76	.62	2.04	6388.96	12417.30
27.000	1100.00	0.00	0.00	816.07	4120.00	829.72	0.00	829.78	1.39	2.69	5395.48	3489.91
27.000	1100.00	0.00	0.00	816.07	6200.00	835.01	0.00	835.01	.17	1.18	18419.81	15143.06
27.000	1100.00	0.00	0.00	816.07	7200.00	836.57	0.00	836.57	.14	1.13	21642.43	19376.91
27.000	1100.00	0.00	0.00	816.07	9740.00	839.80	0.00	839.80	.11	1.11	28321.39	29490.73
27.100	1.00	826.97	829.97	816.07	4120.00	829.73	0.00	829.78	5.28	2.34	2406.35	1792.84
27.100	1.00	826.97	829.97	816.07	6200.00	835.01	0.00	835.01	.17	.50	12361.16	14836.26
27.100	1.00	826.97	829.97	816.07	7200.00	836.57	0.00	836.57	.11	.43	15583.76	21573.92
27.100	1.00	826.97	829.97	816.07	9740.00	839.80	0.00	839.80	.06	.37	22247.46	38792.42
27.400	38.00	826.97	829.97	816.07	4120.00	829.75	0.00	829.80	5.18	2.32	2438.57	1809.61
27.400	38.00	826.97	829.97	816.07	6200.00	835.01	0.00	835.01	.17	.50	12365.33	14844.24
27.400	38.00	826.97	829.97	816.07	7200.00	836.57	0.00	836.57	.11	.43	15587.50	21582.38
27.400	38.00	826.97	829.97	816.07	9740.00	839.80	0.00	839.80	.06	.37	22246.78	38802.03
27.500	1.00	0.00	0.00	816.07	4120.00	829.77	0.00	829.80	1.26	2.24	5463.39	3672.38
27.500	1.00	0.00	0.00	816.07	6200.00	835.01	0.00	835.01	.11	.84	18424.16	18489.59
27.500	1.00	0.00	0.00	816.07	7200.00	836.57	0.00	836.57	.09	.80	21646.19	24065.44
27.500	1.00	0.00	0.00	816.07	9740.00	839.80	0.00	839.80	.07	.78	28305.39	36892.14
28.000	1962.00	0.00	0.00	815.47	4120.00	830.07	0.00	830.14	2.15	2.44	3105.71	2810.00
28.000	1962.00	0.00	0.00	815.47	6200.00	835.04	0.00	835.05	.39	1.33	8777.39	9898.04
28.000	1962.00	0.00	0.00	815.47	7200.00	836.60	0.00	836.61	.30	1.24	10719.89	13087.19
28.000	1962.00	0.00	0.00	815.47	9740.00	839.82	0.00	839.83	.22	1.17	14748.21	20977.05
30.000	1275.00	0.00	0.00	816.50	4120.00	830.43	0.00	830.73	8.04	4.33	952.51	1452.92
30.000	1275.00	0.00	0.00	816.50	6200.00	835.05	0.00	835.29	4.93	3.96	1679.97	2791.95
30.000	1275.00	0.00	0.00	816.50	7200.00	836.58	0.00	836.81	4.10	3.94	2035.12	3555.89
30.000	1275.00	0.00	0.00	816.50	9740.00	839.78	0.00	840.01	3.19	4.04	2792.14	5449.10
31.000	750.00	0.00	0.00	818.60	4120.00	831.05	0.00	831.42	9.46	4.86	847.08	1339.69
31.000	750.00	0.00	0.00	818.60	6200.00	835.40	0.00	835.77	6.24	4.92	1261.09	2482.75
31.000	750.00	0.00	0.00	818.60	7200.00	836.88	0.00	837.21	5.28	4.81	1898.41	3132.31
31.000	750.00	0.00	0.00	818.60	9740.00	840.01	0.00	840.29	3.60	4.64	3062.16	5130.79
*31.500	57.00	835.50	835.10	816.10	4120.00	831.14	0.00	831.50	19.31	4.76	865.73	937.53
31.500	57.00	835.50	835.10	816.10	6200.00	835.96	0.00	836.19	3.47	3.88	1713.04	3329.65
31.500	57.00	835.50	835.10	816.10	7200.00	837.30	0.00	837.54	3.37	4.00	2201.19	3920.08
31.500	57.00	835.50	835.10	816.10	9740.00	840.28	0.00	840.50	2.54	4.05	3444.36	6116.12
33.000	875.00	0.00	0.00	818.90	4120.00	831.90	0.00	831.96	1.64	2.31	2554.55	3221.06
33.000	875.00	0.00	0.00	818.90	6200.00	836.34	0.00	836.37	.55	1.66	5487.76	8357.94
33.000	875.00	0.00	0.00	818.90	7200.00	837.68	0.00	837.70	.46	1.61	6539.00	10581.34
33.000	875.00	0.00	0.00	818.90	9740.00	840.61	0.00	840.63	.36	1.57	8819.78	16318.34
33.010	1.00	829.30	836.50	818.90	4120.00	831.85	0.00	832.01	3.51	3.38	1614.85	2200.01
33.010	1.00	829.30	836.50	818.90	6200.00	836.33	0.00	836.37	1.85	1.94	4035.58	4554.43
33.010	1.00	829.30	836.50	818.90	7200.00	837.67	0.00	837.71	1.54	1.70	4910.41	5808.26
33.010	1.00	829.30	836.50	818.90	9740.00	840.60	0.00	840.63	1.09	1.24	6880.08	9348.97

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
33.090	16.00	829.00	836.20	818.90	4120.00	831.85	0.00	832.01	3.50	3.37	1624.33	2203.07
33.090	16.00	829.00	836.20	818.90	6200.00	836.34	0.00	836.38	1.93	1.90	4036.45	4458.65
33.090	16.00	829.00	836.20	818.90	7200.00	837.67	0.00	837.71	1.55	1.70	4910.81	5784.88
33.090	16.00	829.00	836.20	818.90	9740.00	840.60	0.00	840.64	1.08	1.27	6869.13	9362.90

MOORE BUSINESS FORMS, INC. 23

33.100	1.00	0.00	0.00	818.90	4120.00	831.99	0.00	832.04	1.53	2.23	3712.36	3335.16
33.100	1.00	0.00	0.00	818.90	6200.00	836.36	0.00	836.38	.52	1.61	5734.56	8615.43
33.100	1.00	0.00	0.00	818.90	7200.00	837.69	0.00	837.71	.44	1.56	6768.62	10871.80
33.100	1.00	0.00	0.00	818.90	9740.00	840.62	0.00	840.64	.34	1.52	9055.25	16742.02
34.000	1635.00	0.00	0.00	819.70	4120.00	832.15	0.00	832.16	.79	1.42	4262.28	4626.58
34.000	1635.00	0.00	0.00	819.70	6200.00	836.41	0.00	836.42	.26	1.01	7912.44	12041.34
34.000	1635.00	0.00	0.00	819.70	7200.00	837.73	0.00	837.74	.23	1.00	9051.41	14948.70
34.000	1635.00	0.00	0.00	819.70	9740.00	840.65	0.00	840.66	.19	1.00	11562.91	22257.51
36.000	1110.00	0.00	0.00	820.40	4120.00	832.18	0.00	832.45	6.18	4.21	979.69	1657.11
36.000	1110.00	0.00	0.00	820.40	6200.00	836.43	0.00	836.45	.46	1.45	6159.33	9128.63
36.000	1110.00	0.00	0.00	820.40	7200.00	837.75	0.00	837.77	.39	1.42	7193.99	11506.25
36.000	1110.00	0.00	0.00	820.40	9740.00	840.66	0.00	840.68	.31	1.40	9480.70	17613.22
36.100	1.00	832.80	836.10	820.40	4120.00	832.16	0.00	832.47	7.30	4.42	932.00	1524.88
36.100	1.00	832.80	836.10	820.40	6200.00	836.40	0.00	836.47	5.87	2.24	3171.06	2559.37
36.100	1.00	832.80	836.10	820.40	7200.00	837.74	0.00	837.78	3.37	1.82	4212.69	3921.98
36.100	1.00	832.80	836.10	820.40	9740.00	840.66	0.00	840.69	1.52	1.39	6505.79	7906.04
36.400	58.00	832.80	836.10	820.40	4120.00	832.21	0.00	832.51	6.95	4.34	945.90	1562.45
36.400	58.00	832.80	836.10	820.40	6200.00	836.44	0.00	836.50	6.17	2.31	3151.87	2496.52
36.400	58.00	832.80	836.10	820.40	7200.00	837.76	0.00	837.80	3.57	1.88	4174.00	3812.65
36.400	58.00	832.80	836.10	820.40	9740.00	840.66	0.00	840.70	1.59	1.43	6461.51	7731.59
36.500	1.00	0.00	0.00	820.40	4120.00	832.25	0.00	832.52	5.84	4.13	996.79	1704.92
36.500	1.00	0.00	0.00	820.40	6200.00	836.44	0.00	836.51	1.50	2.64	3868.71	5040.85
36.500	1.00	0.00	0.00	820.40	7300.00	837.75	0.00	837.81	1.13	2.40	4899.60	6816.68
36.500	1.00	0.00	0.00	820.40	9740.00	840.66	0.00	840.70	.69	2.12	7182.97	11492.61
38.000	1050.00	0.00	0.00	820.40	4120.00	832.92	0.00	833.09	4.58	3.47	1397.01	1924.51
38.000	1050.00	0.00	0.00	820.40	6200.00	836.63	0.00	836.76	2.85	3.25	2258.30	3674.45
38.000	1050.00	0.00	0.00	820.40	7200.00	837.88	0.00	838.00	1.98	3.12	3008.20	5101.55
38.000	1050.00	0.00	0.00	820.40	9740.00	840.74	0.00	840.84	1.51	3.03	4424.21	7923.21
38.010	1.00	836.90	840.90	820.40	4120.00	832.92	0.00	833.10	4.76	3.54	1348.87	1888.57
38.010	1.00	836.90	840.90	820.40	6200.00	836.62	0.00	836.76	3.65	3.30	2139.11	3245.91
38.010	1.00	836.90	840.90	820.40	7200.00	837.87	0.00	838.01	5.23	3.10	2447.35	3147.09
38.010	1.00	836.90	840.90	820.40	9740.00	840.71	0.00	840.88	8.31	3.90	3155.25	3378.60
38.090	17.00	836.90	840.90	820.40	4120.00	832.93	0.00	833.10	4.75	3.54	1349.59	1889.83
38.090	17.00	836.90	840.90	820.40	6200.00	836.63	0.00	836.77	3.65	3.30	2139.42	3246.59
38.090	17.00	836.90	840.90	820.40	7200.00	837.88	0.00	838.02	5.24	3.10	2447.10	3146.83
38.090	17.00	836.90	840.90	820.40	9740.00	840.72	0.00	840.90	8.30	3.90	3154.81	3380.37
38.100	1.00	0.00	0.00	820.40	4120.00	832.94	0.00	833.11	4.54	3.47	1399.43	1928.66
38.100	1.00	0.00	0.00	820.40	6200.00	836.64	0.00	836.77	2.84	3.25	2260.25	3678.96
38.100	1.00	0.00	0.00	820.40	7200.00	837.92	0.00	838.03	1.97	3.11	3022.98	5128.81
38.100	1.00	0.00	0.00	820.40	9740.00	840.82	0.00	840.93	1.48	3.01	4449.14	8014.28

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K¥S	VCH	AREA	.01K
38.500	545.00	0.00	0.00	824.00	4120.00	833.18	0.00	833.56	12.58	5.09	883.36	1161.42
38.500	545.00	0.00	0.00	824.00	6200.00	836.74	0.00	837.07	7.56	4.90	1450.22	2254.76
38.500	545.00	0.00	0.00	824.00	7200.00	837.95	0.00	838.28	6.91	4.98	1693.86	2739.46
38.500	545.00	0.00	0.00	824.00	9740.00	840.82	0.00	841.12	5.21	4.90	2486.15	4269.21
39.000	10.00	0.00	0.00	826.86	4120.00	832.84	0.00	833.73	24.24	7.79	597.51	834.85
39.000	10.00	0.00	0.00	826.86	6200.00	836.59	0.00	837.14	8.59	6.43	1184.93	2115.54
39.000	10.00	0.00	0.00	826.86	7200.00	837.82	0.00	838.35	7.24	6.39	1424.43	2675.35

MOORE BUSINESS FORMS, INC. 23

39.000	10.00	0.00	0.00	826.86	9740.00	840.72	0.00	841.17	4.85	6.12	2214.76	4421.98
40.000	20.00	0.00	0.00	827.30	4120.00	832.89	0.00	833.78	25.59	7.73	588.10	814.44
40.000	20.00	0.00	0.00	827.30	6200.00	836.61	0.00	837.16	8.66	6.33	1173.24	2106.68
40.000	20.00	0.00	0.00	827.30	7200.00	837.83	0.00	838.36	7.24	6.29	1414.98	2675.11
40.000	20.00	0.00	0.00	827.30	9740.00	840.73	0.00	841.18	4.80	6.02	2203.44	4447.83
41.000	205.00	0.00	0.00	821.00	4120.00	833.87	0.00	834.14	4.47	4.16	996.78	1947.92
41.000	205.00	0.00	0.00	821.00	6200.00	837.00	0.00	837.34	4.17	4.73	1336.85	3036.21
41.000	205.00	0.00	0.00	821.00	7200.00	838.12	0.00	838.51	4.33	5.04	1479.09	3501.64
41.000	205.00	0.00	0.00	821.00	9740.00	840.82	0.00	841.27	4.00	5.51	2048.52	4871.48
41.100	17.00	837.80	837.90	821.00	4120.00	833.88	0.00	834.15	4.49	4.17	989.16	1944.36
41.100	17.00	837.80	837.90	821.00	6200.00	837.00	0.00	837.35	4.23	4.77	1299.71	3012.77
41.100	17.00	837.80	837.90	821.00	7200.00	838.12	0.00	838.54	11.06	5.18	1397.05	3164.58
41.100	17.00	837.80	837.90	821.00	9740.00	840.72	0.00	841.39	18.48	6.69	1590.97	2265.62
42.000	925.00	0.00	0.00	823.00	4120.00	834.33	0.00	834.54	3.78	3.63	1134.43	2118.79
42.000	925.00	0.00	0.00	823.00	6200.00	837.45	0.00	837.72	3.51	4.14	1496.24	3307.39
42.000	925.00	0.00	0.00	823.00	7200.00	838.78	0.00	839.08	3.46	4.36	1650.47	3868.78
42.000	925.00	0.00	0.00	823.00	9740.00	841.69	0.00	841.98	2.89	4.44	2414.80	5731.54
42.010	1.00	842.30	840.90	823.00	4120.00	834.31	0.00	834.54	4.62	3.86	1067.89	1915.82
42.010	1.00	842.30	840.90	823.00	6200.00	837.43	0.00	837.73	4.29	4.40	1409.37	2993.94
42.010	1.00	842.30	840.90	823.00	7200.00	838.75	0.00	839.09	5.27	4.70	1531.17	3136.16
42.010	1.00	842.30	840.90	823.00	9740.00	841.50	0.00	842.06	15.57	6.04	1612.88	2468.76
42.090	74.00	842.30	840.90	823.00	4120.00	834.34	0.00	834.59	5.28	3.98	1036.18	1793.77
42.090	74.00	842.30	840.90	823.00	6200.00	837.45	0.00	837.77	4.89	4.53	1367.55	2804.96
42.090	74.00	842.30	840.90	823.00	7200.00	838.77	0.00	839.14	5.58	4.84	1488.97	3047.30
42.090	74.00	842.30	840.90	823.00	9740.00	841.59	0.00	842.19	16.72	6.21	1568.39	2381.68
42.100	1.00	0.00	0.00	823.00	4120.00	834.37	0.00	834.59	3.88	3.76	1095.07	2093.24
42.100	1.00	0.00	0.00	823.00	6200.00	837.49	0.00	837.77	3.50	4.25	1457.17	3316.08
42.100	1.00	0.00	0.00	823.00	7200.00	838.83	0.00	839.14	3.41	4.44	1612.91	3901.74
42.100	1.00	0.00	0.00	823.00	9740.00	842.10	0.00	842.24	1.45	3.30	3541.84	8100.53
43.000	580.00	0.00	0.00	822.90	4120.00	834.64	0.00	834.78	2.18	3.26	1553.04	2793.21
43.000	580.00	0.00	0.00	822.90	6200.00	837.81	0.00	837.95	1.47	3.25	2454.06	5121.84
43.000	580.00	0.00	0.00	822.90	7200.00	839.19	0.00	839.31	1.27	3.25	2899.42	6377.69
43.000	580.00	0.00	0.00	822.90	9740.00	842.19	0.00	842.32	1.01	3.30	3981.24	9697.83
44.000	925.00	0.00	0.00	822.40	4120.00	834.84	0.00	835.00	2.34	3.21	1284.68	2693.37
44.000	925.00	0.00	0.00	822.40	6200.00	837.92	0.00	838.12	1.96	3.57	1737.13	4429.54
44.000	925.00	0.00	0.00	822.40	7200.00	839.27	0.00	839.48	1.86	3.72	1933.85	5281.59
44.000	925.00	0.00	0.00	822.40	9740.00	842.22	0.00	842.48	1.76	4.12	2365.71	7337.12

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K¥S	VCH	AREA	VOLK
44.500	72.00	842.60	838.20	821.70	4120.00	834.87	0.00	835.01	2.25	3.06	1346.27	2744.61
44.500	72.00	842.60	838.20	821.70	6200.00	837.96	0.00	838.14	1.93	3.42	1815.21	4460.62
44.500	72.00	842.60	838.20	821.70	7200.00	839.47	0.00	839.66	1.64	3.44	2091.36	5614.13
44.500	72.00	842.60	838.20	821.70	9740.00	842.78	0.00	842.92	.96	3.17	4387.79	9917.69
45.000	660.00	0.00	0.00	821.80	4120.00	835.00	0.00	835.21	2.72	3.77	1280.44	2500.31
45.000	660.00	0.00	0.00	821.80	6200.00	838.07	0.00	838.31	2.28	4.13	1936.15	4108.42
45.000	660.00	0.00	0.00	821.80	7200.00	839.56	0.00	839.81	2.02	4.18	2364.10	5065.87
45.000	660.00	0.00	0.00	821.80	9740.00	842.81	0.00	843.05	1.62	4.29	3575.17	7646.26
46.000	1550.00	0.00	0.00	821.90	4120.00	835.38	0.00	835.48	1.11	2.54	2046.03	3903.37
46.000	1550.00	0.00	0.00	821.90	6200.00	838.43	0.00	838.53	.80	2.70	3511.55	6541.81

MOORE BUSINESS FORMS, INC. 23

	46.000	1550.00	0.00	0.00	821.90	7200.00	839.91	0.00	840.00	.79	2.71	4269.40	8105.82
	46.000	1550.00	0.00	0.00	821.90	9740.00	843.12	0.00	843.21	.65	2.79	6021.69	12111.15
	47.000	625.00	0.00	0.00	821.60	4130.00	835.41	0.00	835.65	2.38	3.93	1049.30	2672.39
	47.000	625.00	0.00	0.00	821.60	6200.00	838.40	0.00	838.75	2.68	4.75	1306.27	3787.27
	47.000	625.00	0.00	0.00	821.60	7200.00	839.84	0.00	840.23	2.39	5.01	1534.71	4658.27
	47.000	625.00	0.00	0.00	821.60	9740.00	843.04	0.00	843.43	2.06	5.23	3299.10	6786.49
	47.500	59.00	839.30	839.50	821.60	4130.00	835.42	0.00	835.66	2.37	3.92	1050.65	2677.87
	47.500	59.00	839.30	839.50	821.60	6200.00	838.42	0.00	838.77	2.67	4.74	1308.33	3796.71
	47.500	59.00	839.30	839.50	821.60	7200.00	840.02	0.00	840.39	2.30	4.95	1592.46	4746.64
*	47.500	59.00	100000.00	100000.00	821.60	9740.00	843.40	0.00	843.75	1.87	5.03	3637.60	7130.30

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	10700.00	825.92	0.00	0.00	0.00	373.73	0.00
1.000	16600.00	829.88	3.96	0.00	0.00	585.96	0.00
1.000	19400.00	831.63	1.75	0.00	0.00	587.10	0.00
1.000	24800.00	836.10	4.47	0.00	0.00	699.00	0.00
2.000	5500.00	825.96	0.00	.04	0.00	290.87	400.00
2.000	8280.00	829.99	4.02	.11	0.00	1055.10	400.00
2.000	9600.00	831.73	1.74	.10	5.76	680.20	400.00
2.000	13000.00	836.23	4.50	.13	10.26	680.47	400.00
3.000	5500.00	826.04	0.00	.09	0.00	112.94	550.00
3.000	8280.00	829.98	3.93	-.00	0.00	448.23	550.00
3.000	9600.00	831.74	1.76	.02	5.69	450.00	550.00
3.000	13000.00	836.23	4.49	.01	10.18	450.00	550.00
3.500	5500.00	826.05	0.00	-.00	0.00	105.19	40.00
3.500	8280.00	829.92	3.87	-.04	0.00	344.35	40.00
3.500	9600.00	831.62	1.70	-.12	5.57	374.27	40.00
3.500	13000.00	836.46	4.84	.23	10.41	450.00	40.00
4.000	5500.00	826.35	0.00	.30	0.00	202.22	500.00
4.000	8280.00	830.53	4.18	.60	0.00	435.56	500.00
4.000	9600.00	832.34	1.81	.71	5.99	454.70	500.00
4.000	13000.00	836.63	4.30	.17	10.28	500.15	500.00
5.000	5500.00	826.65	0.00	.30	0.00	145.78	570.00
5.000	8280.00	830.75	4.11	.23	0.00	419.80	570.00
5.000	9600.00	832.49	1.74	.16	5.85	315.20	570.00
5.000	13000.00	836.70	4.21	.07	10.06	315.20	570.00
5.100	5500.00	826.77	0.00	.12	0.00	145.78	26.00
5.100	8280.00	831.24	4.48	.49	0.00	373.64	26.00
5.100	9600.00	832.98	1.73	.48	6.21	295.50	26.00
5.100	13000.00	837.02	4.04	.31	10.35	295.50	26.00
6.000	5500.00	826.82	0.00	.05	0.00	187.94	195.00
6.000	8280.00	831.32	4.50	.08	4.50	528.26	195.00
6.000	9600.00	833.07	1.75	.09	6.25	528.26	195.00
6.000	13000.00	837.14	4.07	.12	10.31	528.26	195.00
6.010	5500.00	826.81	0.00	-.01	0.00	187.98	1.00

MOORE BUSINESS FORMS, INC. 23



1) COUNTY: Ingham

2) STUDY NAME: Lansing + E. Lansing

3) WATERCOURSE: Red Cedar

4) DOCUMENT TYPE: 100-year Final



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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01.02
  MODIFICATION -  50,51,52,53
**************************************************
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FINAL RED CEDAR RIVER FLOODWAY 7/10/79 JGW

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C
T1      100 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.000000      0.00      0.0       0.   831.630     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      0.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .060      .060      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     6.000 10700.000 16600.000 19400.000 26800.000 11600.000 19400.000     0.000     0.000     0.000
NH     5.000      .045   119.500      .030   290.000      .045   340.000      .030   490.000      .050
NH   807.000     0.000     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

          CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

X1     1.000    23.000   129.000   490.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   836.500     0.000   835.500    20.000   833.000   119.000   817.700   129.000   814.000   130.000
GR   810.500   170.000   811.000   220.000   812.000   260.000   818.000   280.000   825.000   290.000
GR   825.500   340.000   817.700   355.000   811.500   380.000   809.500   430.000   815.500   470.000
GR   825.000   490.000   827.500   510.000   828.200   610.000   845.000   610.000   845.000   710.000
GR   828.200   710.000   828.200   807.000   845.000   807.000     0.000     0.000     0.000     0.000
NC      .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     6.000  5500.000  8280.000  9600.000 13000.000  7660.000  9600.000     0.000     0.000     0.000
ET     0.000   375.000   890.000     9.100     9.100     9.100     2.100     0.000   375.000     0.000

X1     2.000    14.000   515.000   655.000   500.000   335.000   400.000     0.000     0.000     0.000
GR   827.000     0.000   826.000   395.000   824.000   505.000   820.000   515.000   817.600   525.000
GR   810.900   550.000   809.500   590.000   815.100   628.000   818.000   655.000   822.000   665.000
GR   824.000   675.000   828.000   700.000   828.300  1055.000   845.000  1056.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     0.000     9.100     0.000     1.000   590.000

          ELM ST. BRIDGE

X1     3.000    19.000   175.000   266.000   550.000   550.000   550.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   840.100   826.000     0.000
GR   840.100     0.000   841.200   100.000   839.000   140.000   834.000   155.000   828.400   155.001
GR   817.700   175.000   817.700   175.001   810.400   200.000   807.000   230.000   814.800   262.000
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GR	817:700	266:000	817:700	266:001	822:300	36:000	829:000	286:001	828:500	300:000
GR	828:700	400:000	830:000	490:000	826:000	625:000	870:000	625:001	0:000	0:000
ET	0:000	1:000	590:000	0:000	0:000	0:000	2:100	0:000	0:000	0:000
SR	0:000	1:560	3:000	0:000	80:000	0:000	1441:000	:100	810:000	809:600
X1	3:500	19:000	175:000	266:000	40:000	40:000	40:000	0:000	0:000	0:000
X2	0:000	0:000	1:000	828:000	826:000	0:000	0:000	0:000	0:000	0:000
X3	10:000	0:000	0:000	0:000	0:000	0:000	0:000	840:100	826:000	0:000
BT	15:000	0:000	840:100	0:000	100:000	841:300	0:000	155:000	840:600	0:000
BT	155:100	843:600	0:000	175:000	843:100	0:000	175:100	843:100	828:000	266:000
BT	840:200	828:000	266:100	840:200	0:000	286:000	839:500	0:000	286:100	836:500
BT	0:000	300:000	835:900	0:000	400:000	832:900	0:000	485:000	830:000	0:000
BT	625:000	826:000	0:000	625:001	870:000	0:000	0:000	0:000	0:000	0:000
GR	840:100	0:000	841:300	100:000	841:200	125:000	834:000	155:000	825:000	155:001
GR	817:700	175:000	817:700	175:100	810:700	200:000	810:500	230:000	813:900	262:000
GR	817:700	266:000	817:700	266:100	829:500	286:000	832:500	286:100	835:500	298:000
GR	829:300	400:000	828:000	615:000	827:900	625:000	870:000	625:001	0:000	0:000
NC	0:000	0:000	:035	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	9:100	0:000	116:500	539:000
X1	4:000	12:000	122:000	225:000	575:000	455:000	500:000	0:000	0:000	0:000
GR	840:400	0:000	830:000	110:000	820:000	117:000	818:000	122:000	816:900	151:000
GR	806:800	175:000	816:900	220:000	818:000	225:000	820:000	232:000	824:000	240:000
GR	829:500	415:000	829:500	540:000	0:000	0:000	0:000	0:000	0:000	0:000
NC	0:000	0:000	:035	:300	:500	0:000	0:000	0:000	0:000	0:000
ET	0:000	320:000	580:000	9:100	9:100	9:100	2:100	0:000	260:000	580:000

PENN CENTRAL R.R. BRIDGE

X1	5:000	16:000	391:000	539:000	600:000	525:000	570:000	:985	0:000	0:000
X3	10:000	0:000	0:000	0:000	0:000	0:000	0:000	830:500	828:300	0:000
GR	838:200	0:000	829:900	200:000	829:200	300:000	829:400	377:000	825:400	391:000
GR	825:400	391:001	816:100	403:000	803:000	425:000	811:200	450:000	812:600	500:000
GR	816:100	514:000	824:600	539:000	824:600	539:001	827:100	600:000	830:000	710:000
GR	840:000	2020:000	0:000	0:000	0:000	0:000	0:000	0:000	0:000	0:000
SR	1:250	1:560	2:900	0:000	110:000	44:000	1506:000	1:160	811:000	811:000
ET	0:000	320:000	580:000	9:100	9:100	9:100	2:100	0:000	260:000	580:000
X1	5:100	18:000	391:000	539:000	26:000	26:000	26:000	:985	0:000	0:000
X2	0:000	0:000	1:000	828:300	828:300	0:000	0:000	0:000	:985	0:000
X3	10:000	0:000	0:000	0:000	0:000	0:000	0:000	830:500	828:300	0:000
BT	8:000	259:000	830:700	0:000	260:000	830:700	0:000	300:000	830:500	0:000
BT	391:000	830:400	0:000	391:001	833:400	828:300	539:000	832:900	827:900	539:001
BT	829:900	0:000	560:000	829:700	0:000	0:000	0:000	0:000	0:000	0:000
GR	838:200	0:000	830:500	200:000	830:400	300:000	830:500	377:000	826:100	391:000
GR	826:100	391:001	816:100	409:000	803:800	425:000	811:700	450:000	813:100	500:000
GR	816:100	526:000	825:600	539:000	827:900	539:001	829:700	539:002	829:700	539:003
GR	829:420	560:000	870:000	560:010	870:000	2020:000	0:000	0:000	0:000	0:000
ET	0:000	9:100	9:100	9:100	9:100	9:100	9:100	0:000	450:000	1060:000
X1	6:000	45:000	589:100	815:000	195:000	195:000	195:000	:866	0:000	0:000
GR	848:000	204:000	859:200	204:100	833:400	204:200	832:000	269:000	832:000	269:100
GR	832:000	273:000	832:000	273:100	832:100	332:000	832:100	332:100	832:100	336:000
GR	832:100	336:100	831:400	396:000	831:400	396:100	831:400	400:000	831:400	400:100
GR	830:600	458:000	830:600	458:100	830:600	462:000	830:600	462:100	831:200	522:000
GR	831:200	522:100	831:200	526:000	831:200	526:100	829:700	585:000	829:700	585:100
GR	818:000	589:000	818:000	589:100	818:200	639:000	814:400	645:000	814:400	645:100
GR	810:400	649:000	810:400	649:100	812:900	707:000	812:900	707:100	810:600	711:000
GR	810:600	711:100	818:200	761:000	819:300	770:000	819:300	770:100	819:300	774:000

GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.460	1060.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	1060.000

CEDAR ST. BRIDGE

X1	6.010	51.000	589.100	815.000	1.000	1.000	1.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	47.000	204.000	868.000	854.200	269.000	862.900	854.400	269.100	862.900	832.000
BT	273.000	862.900	832.000	273.100	862.900	854.200	332.000	862.200	853.500	332.100
BT	862.200	832.100	336.000	862.200	832.100	336.100	862.200	853.500	396.000	860.900
BT	852.200	396.100	860.900	831.400	400.000	860.900	831.400	400.100	860.900	852.200
BT	458.000	858.900	850.200	458.100	858.900	830.600	462.000	858.900	830.600	462.100
BT	858.900	850.200	522.000	856.400	847.700	522.100	856.400	831.200	526.000	856.400
BT	831.200	526.100	856.400	847.700	585.000	853.900	845.200	585.100	853.900	829.700
BT	589.000	853.900	818.000	589.100	853.900	845.200	645.000	851.200	842.500	645.100
BT	851.200	814.400	649.000	851.200	810.400	649.100	851.200	842.500	707.000	848.200
BT	839.500	707.100	848.200	812.900	711.000	848.200	810.600	711.100	848.200	839.500
BT	770.000	846.400	837.700	770.100	846.400	819.300	774.000	846.400	819.300	774.100
BT	846.400	837.700	815.000	845.000	836.300	815.100	845.000	829.900	900.000	837.600
BT	0.000	1100.000	832.300	0.000	1300.000	830.900	0.000	1500.000	830.400	0.000
BT	1700.000	829.600	0.000	1900.000	832.900	0.000	2100.000	834.900	0.000	2200.000
BT	839.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100
GR	818.000	589.000	818.000	589.100	818.200	639.000	814.400	645.000	814.400	645.100
GR	810.400	649.000	810.400	649.100	812.900	707.000	812.900	707.100	810.600	711.000
GR	810.600	711.100	818.200	761.000	819.300	770.000	819.300	770.100	819.300	774.000
GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.300	1100.000
GR	830.900	1300.000	830.400	1500.000	829.600	1700.000	832.900	1900.000	834.900	2100.000
GR	839.900	2200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	815.000

X1	6.090	53.000	637.000	855.000	65.000	65.000	65.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	50.000	204.000	862.000	854.000	271.000	862.000	854.000	271.100	862.000	832.200
BT	275.000	862.000	832.200	275.100	862.000	854.000	332.000	862.000	853.000	332.100
BT	853.000	832.100	336.000	862.000	832.100	336.100	862.000	853.000	396.000	862.000
BT	852.000	396.100	860.000	831.400	400.000	860.000	831.400	400.100	860.000	852.000
BT	458.000	858.000	850.000	458.100	858.000	830.600	462.000	858.000	830.600	462.100
BT	858.000	850.000	522.000	856.000	847.700	522.100	856.000	831.100	526.000	856.000
BT	831.100	526.100	856.000	847.700	585.000	854.000	845.000	585.100	853.000	829.700
BT	589.000	853.000	829.700	589.100	853.000	845.000	621.000	851.000	844.000	621.100
BT	852.000	822.700	625.000	852.000	822.700	625.100	852.000	844.000	681.000	850.000
BT	842.000	681.100	850.000	810.500	685.000	850.000	809.500	685.100	850.000	842.000
BT	743.000	848.000	839.300	743.100	848.000	809.700	747.000	848.000	810.200	747.100
BT	848.000	839.300	810.000	845.000	836.600	810.100	845.000	818.200	814.000	845.000
BT	818.200	814.100	845.000	836.600	855.000	843.000	835.000	855.100	843.300	828.500
BT	900.000	841.300	0.000	1100.000	834.000	0.000	1300.000	834.600	0.000	1500.000
BT	834.100	0.000	1500.000	830.400	0.000	1700.000	829.600	0.000	1900.000	832.900
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	833.000	204.100	832.200	271.000	832.200	271.100	832.200	275.000
GR	832.200	275.100	832.100	332.000	832.100	332.100	832.100	336.000	832.100	336.100
GR	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100	830.600	458.000
GR	830.600	458.100	830.600	462.000	830.600	462.100	831.100	522.000	831.100	522.100
GR	831.100	526.000	831.100	526.100	829.700	585.000	829.700	585.100	829.700	589.000
GR	829.700	589.100	822.700	621.000	822.700	621.100	822.700	625.000	822.700	625.000
GR	818.200	637.000	810.500	681.000	810.500	681.100	809.500	685.000	809.500	685.100
GR	809.700	743.000	809.700	743.100	810.200	747.000	810.200	747.100	818.200	810.000
GR	818.200	810.100	818.200	814.000	818.200	814.100	828.500	855.000	828.500	855.100

GR	830.100	900.000	829.400	1100.000	830.900	1300.000	830.400	1500.000	829.600	1700.000
GR	832.900	1900.000	834.900	2100.000	838.900	2200.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	417.000	945.300
X1	6.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

LYONS ST. BRIDGE

X1	8.000	16.000	859.000	988.000	400.000	287.000	335.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
GR	830.300	670.000	830.800	700.000	833.300	800.000	833.200	837.000	823.300	859.000
GR	823.300	859.000	818.200	880.000	812.500	900.000	811.900	903.000	810.900	924.000
GR	811.400	946.000	811.500	949.000	818.200	974.000	823.000	988.000	823.000	988.000
GR	829.000	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	3.000	0.000	80.000	6.000	786.000	1.650	813.000	813.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000
X1	8.100	22.000	859.000	988.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	830.000	829.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
BT	8.000	670.000	830.500	0.000	700.000	830.800	0.000	800.000	833.300	0.000
BT	859.000	833.600	823.500	859.000	836.600	830.000	988.000	836.600	830.000	988.000
BT	833.600	823.200	1100.000	830.600	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.100	0.000	834.400	100.000	832.000	300.000	830.300	400.000	830.600	500.000
GR	829.100	600.000	830.800	700.000	833.300	800.000	832.100	850.000	823.500	859.000
GR	823.500	859.000	818.200	895.000	816.800	900.000	814.300	903.000	810.500	924.000
GR	811.200	946.000	811.600	949.000	818.200	980.000	823.200	988.000	823.200	988.000
GR	824.600	991.000	826.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000

PENN CENTRAL R.R. BRIDGE

X1	9.000	16.000	364.000	561.000	470.000	512.000	520.000	.914	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
GR	870.000	169.900	830.750	170.000	830.700	200.000	831.000	300.000	828.900	364.000
GR	828.900	364.000	817.800	382.000	815.600	399.000	812.700	415.000	813.500	468.000
GR	814.000	499.000	817.800	533.000	825.900	561.000	825.900	561.000	829.000	600.000
GR	830.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000
SB	1.050	1.560	2.800	0.000	113.000	20.000	2084.000	2.900	813.900	812.700
X1	9.100	16.000	364.000	561.000	14.500	14.500	14.500	.914	0.000	0.000
X2	0.000	0.000	1.000	828.900	831.200	0.000	0.000	0.000	.914	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
BT	11.000	170.000	831.400	0.000	171.000	831.400	0.000	200.000	831.200	0.000
BT	300.000	831.100	0.000	364.000	831.300	828.900	364.000	834.300	828.900	561.000
BT	834.200	828.900	561.000	831.200	826.900	600.000	831.100	0.000	700.000	831.100
BT	0.000	720.000	831.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	870.000	169.900	825.110	170.000	824.600	200.000	827.400	300.000	828.900	364.000
GR	828.900	364.000	817.800	390.000	817.300	393.000	814.200	409.000	813.900	462.000
GR	815.900	499.000	817.800	542.000	826.900	561.000	826.900	561.000	827.700	600.000
GR	826.100	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	1.400	0.000	1.000	520.000
X1	10.000	15.000	50.000	171.000	620.000	662.000	600.000	0.000	0.000	0.000

GR	841.300	0.000	826.200	1.000	825.700	20.000	829.200	29.000	818.200	50.000
GR	814.400	65.000	809.100	100.000	812.200	150.000	818.200	170.000	826.400	171.000
GR	826.500	200.000	826.300	300.000	826.200	400.000	826.400	500.000	826.400	520.000
NC	.050	.050	.040	.300	.500	0.000	0.000	0.000	0.000	0.000

G.T.W. R.R. BRIDGE

X1	11.000	37.000	269.000	406.000	475.000	875.000	475.000	.866	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	1.000	789.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	828.800	0.000	826.900	100.000	817.700	269.000	817.700	269.100	817.300	300.000
GR	817.300	300.100	814.600	306.000	814.600	306.100	811.600	334.000	813.700	334.100
GR	813.700	340.000	813.700	340.100	814.600	369.000	814.600	369.100	813.700	375.000
GR	813.700	375.100	817.700	406.000	817.700	406.100	825.800	418.000	826.000	500.000
GR	827.000	606.000	827.300	701.000	827.200	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	741.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.400	37.000	269.000	406.000	26.000	26.000	26.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	825.800	0.000	825.900	100.000	828.200	200.000	821.500	269.000	817.700	273.000
GR	816.700	300.000	816.700	300.100	816.700	306.000	816.700	306.100	814.300	334.000
GR	814.300	334.100	812.000	340.000	812.000	340.100	814.000	369.000	814.000	369.100
GR	814.100	375.000	814.100	375.100	817.700	406.000	817.700	406.100	826.100	427.000
GR	826.700	500.000	827.000	606.000	827.300	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	741.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	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	9.100	0.000	145.000	1165.000

X1	12.000	27.000	756.000	905.000	860.000	50.000	500.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
GR	828.500	70.000	828.100	200.000	827.500	400.000	827.100	600.000	827.300	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.000	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	824.100	1033.000	822.900	1100.000
GR	820.200	1171.000	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	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	9.100	0.000	145.000	1165.000

PENNSYLVANIA AVE. BRIDGE

X1	12.100	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	.972	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
NC	0.000	.060	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	9.100	0.000	115.000	1165.000

X1	12.400	26.000	756.000	905.000	72.000	72.000	72.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	600.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
GR	823.350	70.000	823.000	200.000	822.500	400.000	827.100	600.000	827.200	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.300	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	822.900	1100.000	820.200	1171.000
GR	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.091	.050	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	9.100	0.000	115.000	1165.000

MICH DNR 1975 FLOOD HIGH WATER MARK 829.36 AT SECTION 12.5

X1	12.500	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	828.470	824.970	0.000
NC	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	190.000	1310.000	9.100	9.100	9.100	2.100	0.000	160.000	0.000

X1	13.000	22.000	684.000	840.000	500.000	525.000	475.000	0.000	0.000	0.000
GR	850.000	0.000	850.000	159.900	826.000	160.000	826.000	325.000	824.000	335.000
GR	824.000	620.000	825.000	650.000	820.000	684.000	818.400	690.000	812.970	707.000
GR	810.970	779.000	810.970	784.000	813.970	815.000	818.400	840.000	820.000	867.000
GR	822.000	880.000	822.000	955.000	822.000	1140.000	824.000	1250.000	826.000	1258.000
GR	828.000	1264.000	836.700	1310.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	14.000	30.000	190.000	397.000	1300.000	1510.000	1375.000	0.000	0.000	0.000
GR	850.000	0.000	837.000	0.000	834.000	20.000	832.000	37.000	830.000	77.000
GR	830.000	103.000	820.000	184.000	819.500	190.000	817.500	190.000	817.500	195.000
GR	815.000	211.000	815.500	225.000	813.800	245.000	814.200	255.000	814.200	265.000
GR	812.000	308.000	811.000	312.000	811.000	325.000	814.000	355.000	814.000	375.000
GR	815.000	385.000	817.500	395.000	818.800	397.000	820.000	505.000	822.000	535.000
GR	824.000	618.000	828.000	700.000	832.000	784.000	836.000	818.000	838.000	868.000
NH	7.000	.070	151.000	.050	203.000	.070	583.000	.040	680.000	.070
NH	1055.000	.050	1090.000	.050	1360.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE RED CEDAR AND SYCAMORE CREEK

X1	14.500	21.000	151.000	1090.000	1375.000	1255.000	1550.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	18.000	819.000	150.000	818.100	151.000	815.900	161.000
GR	815.000	181.000	816.100	191.000	818.100	202.000	819.000	203.000	819.000	583.000
GR	815.000	600.000	811.800	620.000	811.800	630.000	815.000	660.000	819.000	680.000
GR	819.000	1050.000	817.000	1055.000	817.000	1090.000	819.000	1095.000	828.000	1260.000
GR	830.000	1360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.068	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	6.000	4120.000	4200.000	7200.000	9740.000	5940.000	7200.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	9.100	9.100	0.000	1.400	0.000	1.000	2470.000

X1	15.000	32.000	1533.000	1615.000	950.000	400.000	450.000	0.000	.970	0.000
GR	836.300	0.000	828.300	10.000	821.800	34.000	820.700	110.000	819.600	210.000
GR	819.300	410.000	818.800	610.000	818.600	810.000	818.600	830.000	817.500	835.000
GR	815.000	854.000	815.200	865.000	817.500	872.000	818.000	874.000	818.000	1010.000
GR	818.400	1210.000	818.100	1310.000	818.500	1410.000	818.300	1510.000	817.500	1533.000
GR	813.700	1540.000	812.500	1560.000	814.500	1603.000	817.500	1615.000	821.600	1624.000
GR	823.700	1710.000	823.600	1810.000	824.300	2010.000	828.300	2210.000	832.500	2410.000
GR	836.500	2510.000	841.400	2610.000	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	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000

AURELIUS RD. BRIDGE

X1	16.000	33.000	1905.100	2095.000	300.000	475.000	500.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
GR	842.300	0.000	837.300	100.000	834.600	200.000	832.400	300.000	827.270	345.500
GR	825.060	400.000	820.060	450.000	818.760	500.000	819.850	550.000	818.150	600.000
GR	817.240	700.000	816.540	800.000	819.220	1200.000	817.700	1300.000	819.500	1347.000
GR	819.000	1905.000	819.000	1905.100	819.000	1930.000	812.000	1947.000	812.000	1965.000
GR	812.000	1965.100	812.000	1968.000	812.000	1968.100	812.000	2035.000	812.000	2035.100
GR	812.000	2038.000	812.000	2039.100	818.200	2055.000	818.500	2095.000	818.500	2095.100
GR	819.100	2150.000	821.190	2435.000	821.700	2500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	3.000	0.000	81.000	6.000	2821.000	2.040	812.000	812.000

X1	16.500	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.000	829.140	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
BT	18.000	0.000	842.300	0.000	100.000	837.300	0.000	200.000	834.600	0.000
BT	300.000	832.400	0.000	700.000	829.140	0.000	1905.000	837.000	0.000	1905.100
BT	837.000	832.900	1965.000	838.300	834.600	1965.100	838.300	812.000	1968.000	838.300
BT	812.000	1968.100	838.300	834.600	2035.000	839.600	836.000	2035.100	839.600	812.000
BT	2038.000	839.600	812.000	2038.100	839.600	836.000	2095.000	840.800	837.000	2095.100
BT	840.800	0.000	2500.000	849.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.120	1040.000	.100	1563.000	.030	1672.000	.090	2250.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000

X1	17.000	22.000	1563.000	1672.000	1800.000	650.000	800.000	0.000	.970	0.000
GR	837.000	0.000	830.000	35.000	822.000	75.000	820.500	300.000	820.000	525.000
GR	820.000	445.000	821.800	835.000	820.000	1040.000	820.500	1485.000	834.700	1516.000
GR	830.800	1521.000	827.300	1539.000	819.300	1563.000	817.700	1564.000	813.200	1576.000
GR	813.500	1601.000	813.700	1631.000	814.000	1651.000	817.700	1672.000	835.000	1706.000
GR	836.000	2040.000	836.000	2250.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.068	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000

G.T.W. R.R. BRIDGE

X1	18.000	25.000	1325.000	1463.000	1250.000	675.000	830.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.370	833.570	0.000
GR	822.000	0.000	820.000	380.000	820.900	1022.000	821.000	1122.000	820.600	1222.000
GR	821.700	1325.000	821.700	1325.000	820.700	1336.000	817.800	1338.000	817.800	1340.000
GR	815.800	1358.000	814.100	1376.000	812.300	1394.000	809.800	1412.000	817.800	1430.000
GR	817.800	1448.000	817.800	1452.000	821.300	1463.000	821.300	1463.000	819.700	1522.000
GR	820.300	1622.000	832.500	1682.000	840.500	1722.000	840.500	1822.000	840.500	1922.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000
SB	1.050	1.910	3.000	0.000	50.000	8.000	1400.000	2.210	811.670	810.770

X1	18.500	24.000	1325.000	1463.000	24.000	24.000	24.000	0.000	.970	0.000
X2	0.000	0.000	1.000	829.170	833.070	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.070	833.070	0.000
BT	15.000	0.000	837.970	0.000	800.000	837.970	0.000	801.000	833.370	0.000
BT	1122.000	833.570	0.000	1222.000	833.370	0.000	1325.000	833.070	833.170	1325.000
BT	833.070	829.170	1463.000	833.070	829.170	1463.000	833.070	822.170	1522.008	33.370
BT	0.000	1622.000	833.570	0.000	1622.000	833.470	0.000	1722.000	841.470	0.000
BT	1882.000	840.500	0.000	1922.000	840.500	0.000	0.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	270.000	820.900	1022.000	821.200	1122.000	821.000	1222.000
GR	822.200	1325.000	822.200	1325.000	819.200	1337.000	817.800	1338.000	815.300	1340.000
GR	810.700	1358.000	813.300	1376.000	814.300	1394.000	817.300	1412.000	817.300	1430.000
GR	817.800	1448.000	817.800	1456.000	821.200	1463.000	820.300	1522.000	820.400	1622.000
GR	832.500	1682.000	840.500	1722.000	840.500	1882.000	840.500	1922.000	0.000	0.000
NC	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	1.400	0.000	850.000	1619.000

X1	19.000	19.000	1475.000	1560.000	650.000	550.000	640.000	0.000	.970	0.000
GR	870.000	0.000	870.000	125.000	870.000	180.000	870.000	849.900	819.300	850.000
GR	819.300	890.000	821.000	970.000	820.000	1100.000	820.000	1310.000	820.000	1310.100
GR	820.200	1475.000	818.000	1480.000	812.900	1499.000	813.900	1529.000	816.000	1549.000
GR	818.000	1560.000	826.000	1574.000	837.500	1608.000	838.600	1619.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C. AND O. R.R. BRIDGE

X1	21.000	17.000	950.000	1112.000	700.000	1060.000	1637.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
GR	824.500	0.000	828.900	650.000	829.200	750.000	828.200	850.000	821.600	950.000
GR	821.600	950.000	818.200	977.000	814.500	990.000	814.600	1028.000	817.000	1035.000
GR	814.700	1065.000	818.200	1076.000	819.800	1112.000	819.800	1112.000	828.700	1150.000
GR	827.600	1250.000	824.600	1350.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.900	0.000	75.000	7.000	1544.000	3.620	816.070	815.570

X1	21.500	17.000	950.000	1112.000	10.000	10.000	10.000	0.000	.970	0.000
X2	0.000	0.000	1.000	828.270	838.270	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
BT	11.000	0.000	839.070	0.000	650.000	838.870	0.000	750.000	838.770	0.000
BT	850.000	838.570	0.000	949.000	838.270	821.670	950.000	838.270	828.270	1112.000
BT	838.170	820.770	1112.100	838.170	828.270	1150.000	838.270	0.000	1250.000	838.570
BT	0.000	1350.000	838.970	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	822.200	0.000	822.700	650.000	825.900	750.000	828.100	850.000	820.700	949.000
GR	820.700	950.000	818.200	970.000	815.600	990.000	815.400	1028.000	815.600	1035.000
GR	815.100	1065.000	818.200	1077.000	819.800	1112.000	819.800	1112.100	829.900	1150.000
GR	827.700	1250.000	825.100	1350.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.000	37.000	216.700	358.000	975.000	930.000	950.000	.707	0.000	0.000
GR	841.000	109.000	846.200	110.000	846.200	126.700	846.200	126.800	846.200	130.000
GR	846.200	130.100	846.200	133.300	818.000	216.700	818.000	216.800	815.800	221.900
GR	815.800	222.000	815.000	236.700	815.700	246.700	815.700	274.700	815.000	300.000
GR	820.000	358.000	820.000	358.100	820.800	363.300	820.800	363.400	824.000	406.700
GR	826.500	413.300	828.300	442.000	828.300	442.100	828.800	445.300	828.800	445.400
GR	829.000	515.000	829.000	515.100	829.000	518.300	829.000	518.400	841.300	566.700
GR	841.300	573.300	841.300	573.400	847.000	576.700	847.100	576.700	847.000	686.700
GR	847.000	700.000	847.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

I-496 EASTBOUND (BRIDGE OUTLET)

X1	22.010	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	.707	0.000
BT	25.000	109.000	857.000	0.000	110.000	855.800	0.000	126.700	855.500	846.200
BT	130.000	855.400	846.200	130.100	855.400	849.000	216.700	854.600	848.000	216.800
BT	854.600	818.000	221.900	855.400	815.000	222.000	855.400	848.000	358.000	853.100
BT	846.700	358.100	853.100	820.000	363.300	853.000	820.800	363.400	853.000	846.600
BT	442.000	852.300	845.700	442.100	852.300	828.300	445.300	852.200	828.800	445.400
BT	852.200	845.600	515.000	851.600	845.000	515.100	851.600	829.000	518.300	851.500
BT	829.000	518.400	851.500	844.900	573.300	851.000	844.300	573.400	851.000	841.300
BT	576.700	850.900	847.000	800.000	848.800	0.000	0.000	0.000	0.000	0.000

I-496 WESTBOUND (BRIDGE INLET)

X1	23.000	36.000	222.700	362.000	190.000	190.000	190.000	.707	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.707	0.000
BT	22.000	99.000	857.500	0.000	100.000	856.500	0.000	136.000	856.200	846.200
BT	139.300	856.100	846.200	139.400	856.100	849.700	222.700	855.300	849.000	222.800
BT	855.300	819.000	226.000	855.200	818.000	226.100	855.200	848.900	342.000	853.900
BT	847.600	362.100	853.900	825.500	365.300	853.800	824.500	365.400	853.800	847.600
BT	502.700	852.400	846.300	502.800	852.400	831.600	506.000	852.300	832.200	506.100
BT	852.300	846.200	548.600	851.900	845.800	548.700	851.900	842.400	552.000	851.800
BT	0.000	700.000	850.520	0.000	900.000	849.000	0.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.300	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	842.000	406.800	842.000	446.600
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23.500	36.000	222.700	362.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	828.000	406.800	828.000	406.900
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	24.000	25.000	334.000	603.000	850.000	940.000	880.000	.891	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100

GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	565.000	827.500	565.100	828.140	603.000	829.700	700.000	841.000	800.000

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

X1	24.500	27.000	334.000	603.000	1.000	1.000	1.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	18.000	334.000	849.270	845.570	334.100	849.270	845.570	339.000	849.170	845.570
BT	391.000	849.170	846.270	391.100	849.170	819.570	395.000	849.170	819.570	395.100
BT	849.170	846.270	474.000	849.170	847.170	474.100	849.170	819.570	478.000	849.170
BT	819.570	478.100	849.170	847.170	561.000	849.170	847.470	561.100	849.170	828.470
BT	565.000	849.170	828.470	565.100	849.170	847.470	598.000	849.170	847.470	603.000
BT	849.170	847.570	603.100	849.170	847.570	0.000	0.000	0.000	0.000	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	565.000	827.500	565.100	842.500	598.000	842.500	603.000	846.600	603.100
GR	829.700	700.000	841.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

U.S. 127 NORTHBOUND (BRIDGE INLET)

X1	25.000	28.000	214.000	480.000	200.000	200.000	200.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	20.000	214.000	850.970	846.470	214.100	850.970	846.470	219.000	850.970	846.470
BT	219.100	850.970	846.470	272.000	850.970	845.670	272.100	850.970	819.570	276.000
BT	850.970	819.570	276.100	850.970	845.970	357.000	850.970	845.970	357.100	850.970
BT	819.570	361.000	850.970	819.570	361.100	850.970	845.970	448.000	850.970	844.170
BT	448.100	850.970	829.670	452.000	850.970	829.670	452.100	850.970	844.170	476.000
BT	850.970	844.690	476.100	850.970	844.770	480.000	850.970	844.770	480.100	850.970
BT	844.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.200	214.000	827.190	214.001	827.190	214.002	827.190	214.003	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	830.200	600.000	830.400	700.000	0.000	0.000	0.000	0.000
NC	.082	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.500	28.000	214.000	480.000	460.000	410.000	400.000	0.000	.970	0.000
GR	825.900	0.000	831.500	100.000	827.500	212.000	827.200	214.000	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	850.000	500.010	850.000	700.000	0.000	0.000	0.000	0.000

Last

X1	27.000	26.000	1436.100	1494.000	1400.000	1010.000	1100.000	.968	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
GR	825.500	0.000	827.000	455.000	825.500	610.000	825.500	700.000	825.500	1130.000
GR	825.300	1230.000	823.200	1330.000	818.400	1436.000	818.400	1436.100	816.200	1462.000
GR	816.200	1462.100	815.500	1466.000	815.500	1466.100	815.200	1480.000	815.100	1490.000
GR	815.100	1490.100	815.200	1494.000	815.200	1494.100	815.400	1507.000	816.900	1518.000
GR	818.400	1520.000	818.400	1520.100	824.800	1532.000	826.500	1630.000	826.300	1730.000
GR	825.000	2130.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

KALAMAZOO ST. BRIDGE

X1	27.100	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	.968	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
BT	26.000	0.000	829.470	0.000	455.000	828.970	0.000	610.000	826.970	0.000
BT	700.000	828.720	0.000	1130.000	828.170	0.000	1230.000	829.270	0.000	1330.000
BT	828.970	0.000	1436.000	829.970	829.970	1436.100	829.970	827.170	1462.000	829.570
BT	827.170	1462.100	829.870	817.170	1466.000	829.870	816.470	1466.100	829.870	827.170
BT	1480.000	829.870	827.170	1490.000	829.870	827.170	1490.100	829.870	816.070	1494.000
BT	829.870	827.170	1494.100	829.870	827.170	1507.000	829.970	827.170	1518.000	829.970
BT	827.170	1520.000	829.870	827.170	1520.100	829.870	829.870	1532.000	830.670	0.000
BT	1630.000	830.970	0.000	1730.000	832.370	0.000	2130.000	831.970	0.000	0.000

X1	27.400	0.000	0.000	0.000	38.000	38.000	38.000	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	826.970	829.970	0.000
NC	.070	.050	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

X1	27.500	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	826.970	829.970	0.000
NC	0.000	0.000	.040	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	9.100	0.000	90.000	1200.000

X1	28.000	20.000	466.000	570.000	1962.000	1962.000	1962.000	0.000	.970	0.000
GR	846.200	0.000	833.700	0.000	832.700	100.000	827.200	200.000	827.600	300.000
GR	829.100	400.000	829.600	439.000	823.200	453.000	823.200	466.000	819.700	470.000
GR	815.500	480.000	814.500	500.000	816.900	530.000	819.700	554.000	826.700	570.000
GR	826.800	700.000	826.800	900.000	826.900	1100.000	827.100	1250.000	850.000	1250.010
NC	.050	.050	.037	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	30.000	15.000	20.000	160.000	1220.000	1300.000	1275.000	0.000	0.000	0.000
GR	855.000	0.000	840.500	.100	840.000	9.000	835.000	20.000	830.000	40.000
GR	828.000	50.000	820.200	65.000	818.000	80.000	816.500	95.000	818.000	110.000
GR	820.200	125.000	830.000	145.000	833.000	160.000	834.000	250.000	854.000	250.000
NC	.040	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

HARRISON RD. BRIDGE

X1	31.000	19.000	325.000	424.000	750.000	750.000	750.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
GR	845.900	0.000	844.200	100.000	842.900	200.000	841.700	248.000	840.600	300.000
GR	840.100	318.000	832.800	325.000	832.800	325.000	820.700	353.000	818.600	361.000
GR	819.700	384.000	819.200	400.000	820.700	406.000	826.700	424.000	826.700	424.000
GR	834.800	434.000	835.500	500.000	835.100	600.000	835.100	700.000	0.000	0.000
SB	.900	1.560	3.000	0.000	58.000	0.000	1014.000	1.340	819.000	819.000

X1	31.500	19.000	325.000	424.000	57.000	57.000	57.000	.970	0.000	0.000
X2	0.000	0.000	1.000	835.100	835.500	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
BT	15.000	0.000	845.900	0.000	100.000	844.200	0.000	200.000	843.700	0.000
BT	298.000	840.600	0.000	300.000	839.200	0.000	300.000	842.700	0.000	325.000
BT	842.100	828.300	325.000	842.100	835.100	424.000	839.900	823.100	424.000	839.900
BT	831.900	444.000	839.400	0.000	444.000	835.900	0.000	500.000	835.600	0.000
BT	600.000	835.500	0.000	700.000	835.500	0.000	0.000	0.000	0.000	0.000

GR	845.900	0.000	844.200	100.000	843.700	200.000	840.600	298.000	839.200	300.000
GR	828.300	325.000	828.300	325.000	820.700	338.000	819.500	340.000	819.100	352.000
GR	818.500	366.000	816.100	388.000	820.700	417.000	823.700	424.000	831.900	424.000
GR	835.200	424.000	835.500	500.000	835.500	600.000	835.700	700.000	0.000	0.000
NC	.040	.040	.038	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.000	22.000	517.000	611.000	1240.000	600.000	875.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
GR	840.200	0.000	834.400	0.000	829.300	200.000	828.200	300.000	827.100	400.000
GR	827.000	500.000	827.000	500.000	824.600	517.000	824.600	517.000	821.000	529.000
GR	819.000	539.500	819.000	550.000	818.900	562.000	819.400	586.500	821.000	600.000
GR	824.500	611.000	824.500	611.000	833.700	628.000	833.700	628.000	835.300	700.000
GR	835.300	781.000	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	33.010	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	829.300	835.300	0.000
BT	21.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.300	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	839.800	824.600	517.000	839.800	933.600	539.500	840.500
BT	835.800	550.000	840.700	836.500	562.000	841.000	836.200	586.500	840.800	835.900
BT	600.000	840.200	835.000	611.000	840.000	833.700	611.000	840.000	824.500	628.000
BT	839.100	0.000	628.000	835.600	0.000	700.000	835.300	0.000	781.000	835.300
BT	0.000	781.000	855.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	33.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BT	19.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.000	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	840.100	825.500	517.000	840.100	833.600	540.000	840.800
BT	836.000	562.000	841.000	836.200	584.000	840.800	836.000	611.000	840.000	833.700
BT	611.000	840.100	825.000	628.000	839.100	0.000	628.000	835.600	0.000	700.000
BT	834.700	0.000	781.000	834.400	0.000	781.000	855.200	0.000	0.000	0.000
X1	33.100	21.000	517.000	611.000	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	829.300	835.300	0.000
GR	860.200	0.000	834.400	0.000	826.700	200.000	826.900	300.000	828.200	400.000
GR	831.400	500.000	831.400	500.000	825.500	517.000	825.500	517.000	821.000	527.000
GR	819.700	540.000	818.900	562.000	819.200	584.000	821.000	605.000	825.000	611.000
GR	825.000	611.000	833.900	628.000	833.900	628.000	834.700	700.000	834.000	781.000
GR	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	34.000	15.000	750.000	865.000	440.000	1965.000	1635.000	0.000	0.000	0.000
GR	862.000	0.000	832.500	.100	832.000	20.000	830.000	35.000	828.000	75.000
GR	827.000	410.000	828.000	585.000	828.000	750.000	822.000	770.000	820.500	790.000
GR	819.700	809.000	821.000	829.000	822.000	848.000	845.000	865.000	854.500	890.000

KALAMAZOO ST. BRIDGE

X1	36.000	21.000	622.100	715.000	520.000	1150.000	1110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
GR	832.000	0.000	830.000	65.000	828.500	100.000	828.200	315.000	828.400	415.000
GR	828.500	500.000	828.600	515.000	832.300	575.000	832.000	610.000	823.000	622.000
GR	823.000	622.100	820.400	670.000	820.400	670.100	820.400	674.000	820.400	674.100
GR	821.100	686.000	823.000	715.000	823.000	715.100	828.000	730.000	835.700	738.000
GR	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.100	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	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	100.000	832.800	0.000
BT	315.000	832.800	0.000	415.000	833.500	0.000	500.000	833.900	0.000	515.000
BT	834.000	0.000	575.000	835.100	0.000	610.000	835.700	0.000	622.000	835.800
BT	835.800	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200	820.400
BT	674.000	836.200	820.400	674.100	836.200	834.200	715.000	836.100	834.200	715.100
BT	836.100	836.100	785.000	836.800	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.400	17.000	622.100	715.000	58.000	58.000	58.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BT	16.000	0.000	833.400	0.000	65.000	833.000	0.000	315.000	832.800	0.000
BT	415.000	833.500	0.000	515.000	834.000	0.000	604.000	835.700	0.000	622.000
BT	835.900	835.900	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200
BT	820.400	674.000	836.200	820.700	674.100	836.200	834.200	715.000	836.100	834.200
BT	715.100	836.100	836.100	720.000	836.100	0.000	785.000	836.800	0.000	0.000
GR	833.400	0.000	833.000	65.000	832.800	315.000	833.500	415.000	832.200	515.000
GR	831.100	604.000	823.000	622.000	823.000	622.100	820.400	670.000	820.400	670.100
GR	820.700	674.000	820.700	674.100	820.500	686.000	823.000	715.000	823.000	715.100
GR	834.200	720.000	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.500	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	833.000	836.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	38.000	38.000	322.000	416.000	1270.000	1070.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
GR	841.600	0.000	838.500	100.000	835.800	200.000	836.800	300.000	824.300	315.000
GR	823.600	322.000	823.600	322.000	821.700	340.000	821.600	345.500	821.200	360.000
GR	820.400	380.000	820.800	392.500	821.000	400.000	824.300	408.000	829.500	416.000
GR	829.500	416.000	829.500	428.000	829.500	428.000	829.700	448.000	829.900	469.500
GR	829.900	469.500	829.900	470.500	829.900	470.500	830.000	488.500	830.000	506.500
GR	830.000	506.500	830.000	507.500	830.000	507.500	830.800	525.500	831.700	543.500
GR	831.700	543.500	831.700	544.500	831.700	544.500	836.100	559.000	840.500	574.000
GR	842.900	581.000	842.900	581.000	845.500	700.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	38.010	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	836.900	829.500	0.000
BT	33.000	0.000	846.600	0.000	100.000	841.600	0.000	200.000	836.900	0.000
BT	300.000	837.800	0.000	322.000	838.300	823.600	322.000	841.300	835.100	345.500
BT	841.800	836.900	369.000	842.200	837.800	392.500	842.600	837.500	416.000	843.000
BT	836.900	416.000	843.000	829.500	428.000	843.200	829.500	428.000	843.200	837.800
BT	448.000	843.500	839.000	469.500	844.000	838.500	469.500	844.000	829.900	470.500
BT	844.000	829.900	470.500	844.000	838.500	488.500	844.400	839.500	506.500	848.800
BT	839.200	506.500	848.800	830.000	507.500	848.000	830.000	507.500	848.000	839.200
BT	525.500	845.200	840.200	543.500	845.500	840.000	543.500	845.500	831.700	544.500
BT	845.500	831.700	544.500	845.500	840.000	559.000	845.700	840.900	574.000	845.800
BT	840.500	581.000	845.900	0.000	581.000	842.900	0.000	700.000	845.500	0.000
X1	38.090	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
X1	38.100	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	836.900	829.500	0.000

MOORE BUSINESS FORMS, INC. 123

NC	.040	.040	.038	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	38.500	18.000	160.000	242.100	570.000	540.000	545.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	824.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000	838.000	310.000
GR	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

X1	39.000	19.000	160.000	242.100	10.000	10.000	10.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	160.000	826.890	160.100
GR	826.860	201.000	827.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

X1	40.000	19.000	156.000	246.100	20.000	20.000	20.000	0.000	0.000	0.000
GR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
GR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	156.000	827.350	156.100
GR	827.300	201.000	827.340	246.000	829.600	246.100	830.000	250.000	832.000	270.000
GR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000
NC	0.000	0.000	.031	.300	.500	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	41.000	17.000	141.000	241.100	210.000	205.000	205.000	0.000	0.000	0.000
GR	846.000	0.000	844.000	32.000	842.000	65.000	840.000	123.000	835.500	141.000
GR	835.500	141.100	826.700	152.000	822.200	161.000	821.100	171.000	821.000	191.000
GR	821.000	211.000	831.000	241.000	831.000	241.100	839.300	256.000	841.800	261.000
GR	838.000	380.000	837.800	410.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.400	2.500	0.000	75.000	0.000	1400.000	3.000	821.000	821.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	141.000	244.000
X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.900	837.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	846.000	0.000	32.000	844.000	0.000	65.000	842.000	0.000
BT	123.000	841.700	0.000	141.000	841.480	0.000	141.100	841.420	837.900	191.000
BT	841.460	837.900	241.000	841.430	837.900	241.100	841.430	0.000	256.000	841.430
BT	0.000	241.000	841.800	0.000	380.000	838.000	0.000	410.000	837.800	0.000
NC	.036	.036	0.000	.100	.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

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 834.34 ON USGS GUAGE

X1	42.000	25.000	221.000	337.000	1055.000	905.000	925.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	844.300	841.100	0.000
GR	850.300	0.000	847.700	100.000	837.500	221.000	829.300	221.000	829.300	230.000
GR	829.300	232.000	824.400	232.000	824.300	239.000	824.100	248.000	824.000	255.000
GR	824.000	255.000	823.300	258.000	823.300	258.000	823.700	268.500	824.200	281.000
GR	823.600	293.000	823.000	304.000	823.000	304.000	823.300	307.000	823.300	307.000
GR	823.600	325.000	829.300	337.000	829.300	337.000	841.100	400.000	842.100	500.000

MOORE BUSINESS FORMS, INC.

X1	42.010	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	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.700	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.600	839.000	255.000	846.400	837.500	255.000	846.400
BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.500	846.100	839.000
BT	281.000	845.800	839.500	293.000	845.600	839.000	304.000	845.400	837.500	304.000
BT	845.400	823.000	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	945.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	362.000	843.800	0.000	400.000	842.300	0.000	500.000	843.200	0.000	0.000

X1	42.090	0.000	0.000	0.000	74.000	74.000	74.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.200	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.500	839.000	253.000	846.400	837.500	253.000	846.400
BT	824.000	258.000	846.300	823.600	258.000	846.300	837.500	268.000	846.100	839.000
BT	281.000	844.800	839.500	294.000	845.500	839.000	304.000	845.400	837.500	304.000
BT	845.000	824.100	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	845.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	400.000	842.300	0.000	500.000	843.200	0.000	580.000	843.000	0.000	0.000
NC	0.000	0.000	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	42.100	30.000	221.000	337.000	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	846.300	841.100	0.000
GR	850.300	0.000	847.200	100.000	844.100	200.000	844.100	200.000	837.500	221.000
GR	829.300	221.000	829.300	230.000	829.300	232.000	823.100	232.000	823.000	239.000
GR	823.000	248.000	824.000	253.000	824.000	253.000	823.600	258.000	823.600	258.000
GR	825.700	268.000	823.800	281.000	824.000	294.000	824.100	304.000	824.100	304.000
GR	823.300	307.000	823.300	307.000	824.200	325.000	829.300	327.000	829.300	337.000
GR	829.300	337.000	829.900	362.000	829.900	362.000	830.800	400.000	837.600	500.000
NC	0.000	0.000	.027	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	50.000	412.000

X1	43.000	18.000	195.000	305.000	655.000	700.000	580.000	0.000	0.000	0.000
GR	870.000	0.000	840.500	.100	840.000	45.000	838.000	102.000	837.000	115.000
GR	836.000	122.000	834.000	145.000	832.000	180.000	828.400	195.000	825.000	222.000
GR	822.900	250.000	825.000	278.000	828.400	305.000	830.500	369.000	832.000	385.000
GR	836.000	400.000	836.500	412.000	860.000	412.100	0.000	0.000	0.000	0.000
NC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

BOGUE ST. BRIDGE

X1	44.000	24.000	512.000	663.000	1000.000	975.000	925.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
GR	846.600	0.000	843.300	100.000	841.200	200.000	842.000	300.000	841.400	400.000
GR	832.200	500.000	832.200	500.000	830.100	512.000	828.900	530.000	825.400	540.000
GR	824.500	551.000	824.300	555.000	822.400	580.000	823.500	609.000	824.400	613.000
GR	824.200	622.000	828.900	630.000	830.100	652.000	831.000	663.000	831.000	663.000
GR	834.200	700.000	844.200	800.000	844.600	900.000	845.500	1000.000	0.000	0.000
SB	.900	1.560	3.000	0.000	75.000	0.000	1800.000	2.950	822.500	822.500
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

X1	44.500	25.000	513.000	675.000	72.000	72.000	72.000	.970	0.000	0.000
X2	0.000	0.000	1.000	838.200	842.600	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000

BT	10.000	300.000	842.800	0.000	400.000	842.600	0.000	500.000	843.500	0.000
BT	500.000	846.700	0.000	513.000	846.800	830.800	513.000	846.800	838.100	675.000
BT	847.300	838.100	675.000	844.100	833.200	700.000	843.800	0.000	720.000	843.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.600	0.000	842.500	100.000	839.600	200.000	838.200	300.000	833.800	400.000
GR	831.700	500.000	830.800	513.000	830.800	513.000	830.100	524.000	828.900	542.000
GR	824.700	550.000	824.000	563.000	824.000	567.000	821.700	595.000	823.300	621.000
GR	823.700	625.000	826.700	637.000	828.900	649.000	830.100	664.000	833.200	675.000
GR	833.200	675.000	840.400	700.000	840.700	800.000	844.600	900.000	845.700	1000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	45.000	20.000	540.000	645.000	750.000	650.000	660.000	0.000	0.000	0.000
GR	900.000	0.000	850.900	.100	850.000	30.000	848.000	110.000	846.000	140.000
GR	844.000	200.000	842.000	280.000	840.000	325.000	838.000	425.000	837.000	442.000
GR	836.000	475.000	834.000	490.000	828.000	540.000	824.000	564.000	821.800	588.000
GR	824.000	611.000	828.000	635.000	833.000	645.000	834.500	670.000	864.000	670.100
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	46.000	16.000	740.000	884.000	1330.000	1625.000	1550.000	0.000	0.000	0.000
X4	1.000	844.000	335.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	848.800	90.000	848.000	135.000	846.000	210.000	844.000	345.000
GR	836.000	455.000	834.500	540.000	834.000	700.000	832.000	725.000	828.000	740.000
GR	826.000	774.000	824.000	799.000	821.900	829.000	824.000	859.000	828.000	884.000
GR	834.000	925.000	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

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

X1	47.000	18.000	1409.000	1495.000	630.000	575.000	625.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	0.000	0.000	0.000	0.000
SB	1.050	1.400	3.000	0.000	86.000	4.000	1300.000	0.000	824.400	824.400

X1	47.500	18.000	1409.000	1495.000	59.000	59.000	59.000	0.000	0.000	0.000
X5	-4.000	0.000	0.000	0.000	.360	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.500	839.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
BT	20.000	0.000	847.000	0.000	200.000	846.500	0.000	400.000	846.000	0.000
BT	600.000	842.400	0.000	800.000	842.700	0.000	1000.000	839.300	0.000	1200.000
BT	839.700	0.000	1400.000	843.000	0.000	1400.000	845.700	0.000	1409.000	845.800
BT	826.900	1409.000	845.800	839.200	1419.000	846.000	0.000	1464.000	846.100	0.000
BT	1495.000	846.200	839.500	1495.000	846.200	825.900	1509.000	846.200	0.000	1519.000
BT	846.600	0.000	1519.000	843.900	0.000	1600.000	846.000	0.000	1700.000	849.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	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

*PROF 1

CCHV= .100 CEHV= .300

1490 NH CARD USED
¥SECNO 1.000

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	YNL	YNCH	YNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.00	22.13	831.63	0.00	831.63	831.78	.15	0.00	0.00	817.70
19400.	74.	18770.	556.	63.	6019.	818.	0.	0.	825.00
0.00	1.16	3.12	.68	.033	.042	.055	0.000	809.50	119.90
.000112	0.	0.	0.	0	0	0	0.00	587.10	807.00

CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

¥SECNO 2.000

3470 ENCROACHMENT STATIONS= 375.0 1054.0 TYPE= 1 TARGET= -375.000

2.00	22.23	831.73	0.00	0.00	831.83	.10	.05	.00	820.00
9600.	975.	7362.	1264.	951.	2575.	1617.	55.	6.	818.00
.05	1.02	2.84	.78	.055	.039	.055	.038	809.50	375.00
.000115	500.	400.	335.	2	0	0	0.00	680.20	1055.20

CCHV= .300 CEHV= .500
¥SECNO 3.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 840.10 ELREA= 826.00

ELM ST. BRIDGE

3.00	22.14	831.74	0.00	0.00	832.01	.26	.10	.08	817.70
9600.	0.	7997.	1603.	0.	1782.	1312.	107.	13.	817.70
.09	0.00	4.49	1.22	.055	.039	.055	.038	809.60	175.00
.000320	550.	550.	550.	2	0	0	0.00	450.00	625.00

SPECIAL BRIDGE

SB	YK	YKOB	COFQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	3.00	0.00	80.00	0.00	1441.00	.10	810.00	809.60

¥SECNO 3.500

6070-LOW FLOW BY NORMAL BRIDGE

EGPRS= 832.818 EGLWC= 832.407 ELLC= 828.000 PCWSE= 831.743 ELTRD= 826.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE;NRD= 15 MIN ELTRD= 826.00 MAX ELLC= 828.00

3495 OVERBANK AREA 1

X1	3.500	19.000	175.000	266.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	828.000	826.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.100	826.000	0.000
BT	15.000	0.000	840.100	0.000	100.000	841.300	0.000	155.000	840.600	0.000
BT	155.100	843.600	0.000	175.000	843.100	0.000	175.100	843.100	828.000	266.000
BT	840.200	828.000	266.100	840.200	0.000	286.000	839.500	0.000	286.100	836.500
BT	0.000	300.000	835.900	0.000	400.000	832.900	0.000	485.000	830.000	0.000
BT	625.000	826.000	0.000	625.001	870.000	0.000	0.000	0.000	0.000	0.000
GR	840.100	0.000	841.300	100.000	841.200	125.000	834.000	155.000	825.000	155.001
GR	817.700	175.000	817.700	175.100	810.700	200.000	810.500	230.000	813.900	262.000
GR	817.700	266.000	817.700	266.100	829.500	286.000	832.500	286.100	835.500	298.000
GR	829.300	400.000	828.000	615.000	827.900	625.000	870.000	625.001	0.000	0.000
NC	0.000	0.000	.035	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	9.100	0.000	116.500	539.000

X1	4.000	12.000	122.000	225.000	575.000	455.000	500.000	0.000	0.000	0.000
GR	840.400	0.000	830.000	110.000	820.000	117.000	818.000	122.000	816.900	151.000
GR	806.800	175.000	816.900	220.000	818.000	225.000	820.000	232.000	824.000	240.000
GR	829.500	415.000	829.500	540.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

PENN CENTRAL R.R. BRIDGE

X1	5.000	16.000	391.000	539.000	600.000	525.000	570.000	.985	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
GR	838.200	0.000	829.900	200.000	829.200	300.000	829.400	377.000	825.400	391.000
GR	825.400	391.001	816.100	403.000	803.000	425.000	811.200	450.000	812.600	500.000
GR	816.100	514.000	824.600	539.000	824.600	539.001	827.100	600.000	830.000	710.000
GR	840.000	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GB	1.250	1.560	2.900	0.000	110.000	44.000	1506.000	1.160	811.000	811.000
ET	0.000	320.000	580.000	9.100	9.100	9.100	2.100	0.000	260.000	580.000

X1	5.100	18.000	391.000	539.000	26.000	26.000	26.000	.985	0.000	0.000
X2	0.000	0.000	1.000	828.300	828.300	0.000	0.000	0.000	.985	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.500	828.300	0.000
BT	8.000	259.000	830.700	0.000	260.000	830.700	0.000	300.000	830.500	0.000
BT	391.000	830.400	0.000	391.001	833.400	828.300	539.000	832.900	827.900	539.001
BT	829.900	0.000	560.000	829.700	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.200	0.000	830.500	200.000	830.400	300.000	830.500	377.000	824.100	391.000
GR	826.100	391.001	816.100	409.000	803.800	425.000	811.700	450.000	813.100	500.000
GR	816.100	524.000	825.600	539.000	827.900	539.001	829.700	539.002	829.700	539.003
GR	829.420	560.000	870.000	560.010	870.000	2020.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	450.000	1060.000

X1	6.000	45.000	589.100	815.000	195.000	195.000	195.000	.866	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100
GR	818.000	589.000	818.000	589.100	818.200	639.000	814.400	645.000	814.400	645.100
GR	810.400	649.000	810.400	649.100	812.900	707.000	812.900	707.100	810.600	711.000
GR	810.600	711.100	818.200	761.000	819.300	770.000	819.300	770.100	819.300	774.000
GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.460	1060.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	1060.000

CEDAR ST. BRIDGE

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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C
T1      100 YEAR FLOOD
T2      STARTING ELEVATION FROM GRAND RIVER PROFILE
T3      RED CEDAR RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        4.        0.        0.  0.000000      0.00      0.0       0.   831.630     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     0.000     0.000    -1.000     0.000     0.000     1.100     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      .060      .060      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     4.000 10700.000 16600.000 19400.000 26800.000 11600.000 19400.000     0.000     0.000     0.000
NH     5.000      .045   119.500      .030   290.000      .045   340.000      .030   490.000      .050
NH   807.000     0.000     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

        CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

X1     1.000    23.000   129.000   490.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   834.500     0.000   835.500    20.000   833.000   119.000   817.700   129.000   814.000   130.000
GR   810.500   170.000   811.000   220.000   812.000   260.000   818.000   280.000   825.000   290.000
GR   825.500   340.000   817.700   355.000   811.500   380.000   809.500   430.000   815.500   470.000
GR   825.000   490.000   827.500   510.000   828.200   610.000   845.000   610.000   845.000   710.000
GR   828.200   710.000   828.200   807.000   845.000   807.000     0.000     0.000     0.000     0.000
NC      .050      .050      .035     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT     4.000  5500.000  8280.000  9600.000 13000.000  7660.000  9600.000     0.000     0.000     0.000
ET     0.000   375.000   890.000     9.100     9.100     9.100     2.100     0.000   375.000     0.000

X1     2.000    14.000   515.000   655.000   500.000   335.000   400.000     0.000     0.000     0.000
GR   827.000     0.000   826.000   395.000   824.000   505.000   820.000   515.000   817.600   525.000
GR   810.900   550.000   809.500   590.000   815.100   628.000   818.000   655.000   822.000   665.000
GR   824.000   675.000   828.000   700.000   828.300  1055.000   845.000  1056.000     0.000     0.000
NC     0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     0.000     9.100     0.000     1.000   590.000

        ELM ST. BRIDGE

X1     3.000    19.000   175.000   266.000   550.000   550.000   550.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   840.100   826.000     0.000
GR   840.100     0.000   841.200   100.000   839.000   140.000   834.000   155.000   828.400   155.001
GR   817.700   175.000   817.700   175.001   810.400   200.000   809.600   230.000   814.800   262.000
GR   817.700   266.000   817.700   266.001   822.300   284.000   829.000   284.001   828.500   300.000
GR   828.700   400.000   830.000   490.000   826.000   625.000   870.000   625.001     0.000     0.000
ET     0.000     1.000   590.000     0.000     0.000     0.000     2.100     0.000     0.000     0.000
SB     0.000     1.560     3.000     0.000    80.000     0.000  1441.000      .100   810.000   809.600
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X1	6.010	51.000	589.100	815.000	1.000	1.000	1.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	47.000	204.000	868.000	854.200	269.000	862.900	854.400	269.100	862.900	832.000
BT	273.000	862.900	832.000	273.100	862.900	854.200	332.000	862.200	853.500	332.100
BT	862.200	832.100	336.000	862.200	832.100	336.100	862.200	853.500	396.000	860.900
BT	852.200	396.100	860.900	831.400	400.000	860.900	831.400	400.100	860.900	852.200
BT	458.000	858.900	850.200	458.100	858.900	830.600	462.000	858.900	830.600	462.100
BT	858.900	850.200	522.000	856.400	847.700	522.100	856.400	831.200	526.000	856.400
BT	831.200	526.100	856.400	847.700	585.000	853.900	845.200	585.100	853.900	829.700
BT	589.000	853.900	818.000	589.100	853.900	845.200	645.000	851.200	842.500	645.100
BT	851.200	814.400	649.000	851.200	810.400	649.100	851.200	842.500	707.000	848.200
BT	839.500	707.100	848.200	812.900	711.000	848.200	810.600	711.100	848.200	839.500
BT	770.000	846.400	837.700	770.100	846.400	819.300	774.000	846.400	819.300	774.100
BT	846.400	837.700	815.000	845.000	836.300	815.100	845.000	829.900	900.000	837.600
BT	0.000	1100.000	832.300	0.000	1300.000	830.900	0.000	1500.000	830.400	0.000
BT	1700.000	829.600	0.000	1900.000	832.900	0.000	2100.000	834.900	0.000	2200.000
BT	839.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	859.200	204.100	833.400	204.200	832.000	269.000	832.000	269.100
GR	832.000	273.000	832.000	273.100	832.100	332.000	832.100	332.100	832.100	336.000
GR	832.100	336.100	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100
GR	830.600	458.000	830.600	458.100	830.600	462.000	830.600	462.100	831.200	522.000
GR	831.200	522.100	831.200	526.000	831.200	526.100	829.700	585.000	829.700	585.100
GR	818.000	589.000	818.000	589.100	818.200	639.000	814.400	645.000	814.400	645.100
GR	810.400	649.000	810.400	649.100	812.900	707.000	812.900	707.100	810.600	711.000
GR	810.600	711.100	818.200	761.000	819.300	770.000	819.300	770.100	819.300	774.000
GR	819.300	774.100	829.900	815.000	829.900	815.100	830.100	900.000	829.300	1100.000
GR	830.900	1300.000	830.400	1500.000	829.600	1700.000	832.900	1900.000	834.900	2100.000
GR	839.900	2200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	515.000	815.000	9.100	9.100	9.100	2.100	0.000	450.000	815.000

X1	6.090	53.000	637.000	855.000	65.000	65.000	65.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	50.000	204.000	862.000	854.000	271.000	862.000	854.000	271.100	862.000	832.200
BT	275.000	862.000	832.200	275.100	862.000	854.000	332.000	862.000	853.000	332.100
BT	853.000	832.100	336.000	862.000	832.100	336.100	862.000	853.000	396.000	862.000
BT	852.000	396.100	860.000	831.400	400.000	860.000	831.400	400.100	860.000	852.000
BT	458.000	858.000	850.000	458.100	858.000	830.600	462.000	858.000	830.600	462.100
BT	858.000	850.000	522.000	856.000	847.700	522.100	856.000	831.100	526.000	856.000
BT	831.100	526.100	856.000	847.700	585.000	854.000	845.000	585.100	853.000	829.700
BT	589.000	853.000	829.700	589.100	853.000	845.000	621.000	851.000	844.000	621.100
BT	852.000	822.700	625.000	852.000	822.700	625.100	852.000	844.000	681.000	850.000
BT	842.000	681.100	850.000	810.500	685.000	850.000	809.500	685.100	850.000	842.000
BT	743.000	848.000	839.300	743.100	848.000	809.700	747.000	848.000	810.200	747.100
BT	848.000	839.300	810.000	845.000	836.600	810.100	845.000	818.200	814.000	845.000
BT	818.200	814.100	845.000	836.600	855.000	843.000	835.000	855.100	843.300	828.500
BT	900.000	841.300	0.000	1100.000	836.000	0.000	1300.000	834.600	0.000	1500.000
BT	834.100	0.000	1500.000	830.400	0.000	1700.000	829.600	0.000	1900.000	832.900
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.000	204.000	833.000	204.100	832.200	271.000	832.200	271.100	832.200	275.000
GR	832.200	275.100	832.100	332.000	832.100	332.100	832.100	336.000	832.100	336.100
GR	831.400	396.000	831.400	396.100	831.400	400.000	831.400	400.100	830.600	458.000
GR	830.600	458.100	830.600	462.000	830.600	462.100	831.100	522.000	831.100	522.100
GR	831.100	526.000	831.100	526.100	829.700	585.000	829.700	585.100	829.700	589.000
GR	829.700	589.100	822.700	621.000	822.700	621.100	822.700	625.000	822.700	625.000
GR	818.200	637.000	810.500	681.000	810.500	681.100	809.500	685.000	809.500	685.100
GR	809.700	743.000	809.700	743.100	810.200	747.000	810.200	747.100	818.200	810.000
GR	818.200	810.100	818.200	814.000	818.200	814.100	828.500	855.000	828.500	855.100
GR	830.100	900.000	829.400	1100.000	830.900	1300.000	830.400	1500.000	829.600	1700.000
GR	832.900	1900.000	834.900	2100.000	839.900	2200.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	417.000	945.300

X1	6.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC.

ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

LYONS ST. BRIDGE

X1	8.000	16.000	859.000	988.000	400.000	287.000	335.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
GR	830.300	670.000	830.800	700.000	833.300	800.000	833.200	837.000	823.300	859.000
GR	823.300	859.000	818.200	880.000	812.500	900.000	811.900	903.000	810.900	924.000
GR	811.400	946.000	811.500	949.000	818.200	974.000	823.000	988.000	823.000	988.000
GR	829.000	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	3.000	0.000	80.000	6.000	786.000	1.650	813.000	813.000
ET	0.000	780.000	1115.000	9.100	9.100	9.100	2.100	0.000	670.000	1100.000

X1	8.100	22.000	859.000	988.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	830.000	829.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.100	829.000	0.000
BT	8.000	670.000	830.500	0.000	700.000	830.800	0.000	800.000	833.300	0.000
BT	859.000	833.600	823.500	859.000	836.600	830.000	988.000	836.600	830.000	988.000
BT	833.600	823.200	1100.000	830.600	0.000	0.000	0.000	0.000	0.000	0.000
GR	838.100	0.000	834.400	100.000	832.000	300.000	830.300	400.000	830.600	500.000
GR	829.100	600.000	830.800	700.000	833.300	800.000	832.100	850.000	823.500	859.000
GR	823.500	859.000	818.200	895.000	816.800	900.000	814.300	903.000	810.500	924.000
GR	811.200	946.000	811.600	949.000	818.200	980.000	823.200	988.000	823.200	988.000
GR	824.600	991.000	826.200	1100.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000

PENN CENTRAL R.R. BRIDGE

X1	9.000	16.000	364.000	561.000	470.000	512.000	520.000	.914	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
GR	870.000	169.900	830.750	170.000	830.700	200.000	831.000	300.000	828.900	364.000
GR	828.900	364.000	817.800	382.000	815.600	399.000	812.700	415.000	813.500	468.000
GR	814.000	499.000	817.800	533.000	825.900	561.000	825.900	561.000	829.000	600.000
GR	830.000	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	200.000	640.000	9.100	9.100	9.100	2.100	0.000	170.000	720.000
SB	1.050	1.560	2.800	0.000	113.000	20.000	2084.000	2.900	813.900	812.700

X1	9.100	16.000	364.000	561.000	14.500	14.500	14.500	.914	0.000	0.000
X2	0.000	0.000	1.000	828.900	831.200	0.000	0.000	0.000	.914	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	831.100	831.100	0.000
BT	11.000	170.000	831.400	0.000	171.000	831.400	0.000	200.000	831.200	0.000
BT	300.000	831.100	0.000	364.000	831.300	828.900	364.000	834.300	828.900	561.000
BT	834.200	828.900	561.000	831.200	826.900	600.000	831.100	0.000	700.000	831.100
BT	0.000	720.000	831.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	870.000	169.900	825.110	170.000	824.600	200.000	827.400	300.000	828.900	364.000
GR	828.900	364.000	817.800	390.000	817.300	393.000	814.200	409.000	813.900	462.000
GR	815.900	499.000	817.800	542.000	826.900	561.000	826.900	561.000	827.700	600.000
GR	826.100	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	1.400	0.000	1.000	520.000

X1	10.000	15.000	50.000	171.000	620.000	662.000	600.000	0.000	0.000	0.000
GR	841.300	0.000	826.200	1.000	825.700	20.000	829.200	29.000	818.200	50.000
GR	814.400	65.000	809.100	100.000	812.200	150.000	818.200	170.000	826.400	171.000
GR	826.500	200.000	826.300	300.000	826.200	400.000	826.400	500.000	826.400	520.000
NC	.050	.050	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

G.T.W. R.R. BRIDGE

X1	11.000	37.000	269.000	406.000	475.000	875.000	475.000	.866	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	1.000	789.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	828.800	0.000	826.900	100.000	817.700	269.000	817.700	269.100	817.300	300.000
GR	817.300	300.100	814.600	306.000	814.600	306.100	811.600	334.000	813.700	334.100
GR	813.700	340.000	813.700	340.100	814.600	369.000	814.600	369.100	813.700	375.000
GR	813.700	375.100	817.700	406.000	817.700	406.100	825.800	418.000	826.000	500.000
GR	827.000	606.000	827.300	701.000	827.200	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	741.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.400	37.000	269.000	406.000	26.000	26.000	26.000	.866	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.866	0.000
BT	29.000	0.000	834.400	0.000	100.000	834.700	0.000	269.000	835.200	0.000
BT	269.100	835.200	830.100	300.000	835.200	829.900	300.100	835.200	817.300	306.000
BT	835.200	814.600	306.100	835.200	829.900	334.000	835.200	829.700	334.100	835.200
BT	811.600	340.000	835.200	813.700	340.100	835.200	829.700	369.000	835.300	830.000
BT	369.100	835.300	814.600	375.000	835.300	813.700	375.100	835.300	830.000	406.000
BT	835.300	830.200	406.100	835.300	0.000	500.000	835.900	0.000	606.000	835.930
BT	0.000	706.000	837.600	0.000	706.100	837.600	831.100	734.750	837.600	831.100
BT	734.760	837.600	821.000	737.250	837.600	821.000	737.260	837.600	831.100	766.000
BT	837.500	831.300	766.100	837.500	0.000	790.000	837.600	0.000	0.000	0.000
GR	825.800	0.000	825.900	100.000	828.200	200.000	821.500	269.000	817.700	273.000
GR	816.700	300.000	816.700	300.100	816.700	306.000	816.700	306.100	814.300	334.000
GR	814.300	334.100	812.000	340.000	812.000	340.100	814.000	369.000	814.000	369.100
GR	814.100	375.000	814.100	375.100	817.700	406.000	817.700	406.100	826.100	427.000
GR	826.700	500.000	827.000	606.000	827.300	706.000	827.200	706.100	823.500	711.000
GR	823.500	715.000	821.100	715.100	821.100	734.750	821.400	734.760	821.400	737.250
GR	821.000	737.260	821.000	757.000	823.500	757.100	823.500	741.000	831.300	766.000
GR	837.500	766.100	837.600	790.000	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	9.100	0.000	145.000	1165.000

X1	12.000	27.000	756.000	905.000	860.000	50.000	500.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
GR	828.500	70.000	828.100	200.000	827.500	400.000	827.100	600.000	827.300	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.000	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	824.100	1033.000	822.900	1100.000
GR	820.200	1171.000	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	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	9.100	0.000	145.000	1165.000

PENNSYLVANIA AVE. BRIDGE

X1	12.100	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	.972	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000

BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	400.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
NC	0.000	.060	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	9.100	0.000	115.000	1165.000

X1	12.400	26.000	756.000	905.000	72.000	72.000	72.000	.972	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	828.470	824.970	0.000
BT	23.000	70.000	829.470	0.000	200.000	829.070	0.000	400.000	828.470	0.000
BT	400.000	828.070	0.000	700.000	828.270	0.000	756.000	828.870	0.000	756.000
BT	828.870	825.470	802.000	829.270	825.370	802.100	829.270	812.870	806.000	829.270
BT	812.070	806.100	829.270	825.370	855.000	829.570	825.470	855.100	829.570	812.970
BT	859.000	829.570	815.070	859.100	829.570	825.470	905.000	828.970	825.470	905.100
BT	828.970	0.000	915.000	828.970	0.000	1000.000	825.670	0.000	1033.000	825.070
BT	0.000	1100.000	824.570	0.000	1171.000	825.170	0.000	1200.000	837.370	0.000
GR	823.350	70.000	823.000	200.000	822.500	400.000	827.100	600.000	827.200	700.000
GR	827.300	710.000	817.000	756.000	817.000	756.100	812.300	779.000	811.900	802.000
GR	811.900	802.100	811.100	806.000	811.100	806.100	811.000	831.000	812.000	855.000
GR	812.000	855.100	814.100	859.000	814.100	859.100	812.300	877.000	817.000	905.000
GR	817.000	905.100	824.300	945.000	824.300	1000.000	822.900	1100.000	820.200	1171.000
GR	836.400	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.091	.050	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	9.100	0.000	115.000	1165.000

MICH DNR 1975 FLOOD HIGH WATER MARK 829.34 AT SECTION 12.5

X1	12.500	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	828.470	824.970	0.000
NC	.080	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	190.000	1310.000	9.100	9.100	9.100	2.100	0.000	160.000	0.000

X1	13.000	22.000	684.000	840.000	500.000	525.000	475.000	0.000	0.000	0.000
GR	850.000	0.000	850.000	159.900	826.000	160.000	826.000	325.000	824.000	335.000
GR	824.000	620.000	825.000	650.000	820.000	684.000	818.400	690.000	812.970	707.000
GR	810.970	779.000	810.970	784.000	813.970	815.000	818.400	840.000	820.000	867.000
GR	822.000	880.000	822.000	955.000	822.000	1140.000	824.000	1250.000	826.000	1258.000
GR	828.000	1264.000	836.700	1310.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	14.000	30.000	190.000	397.000	1300.000	1510.000	1375.000	0.000	0.000	0.000
GR	850.000	0.000	837.000	0.000	834.000	20.000	832.000	37.000	830.000	77.000
GR	830.000	103.000	820.000	184.000	819.500	190.000	817.500	190.000	817.500	195.000
GR	815.000	211.000	815.500	225.000	813.800	245.000	814.200	255.000	814.200	265.000
GR	812.000	308.000	811.000	312.000	811.000	325.000	814.000	355.000	814.000	375.000
GR	815.000	385.000	817.500	395.000	818.800	397.000	820.000	505.000	822.000	535.000
GR	824.000	618.000	828.000	700.000	832.000	784.000	836.000	818.000	838.000	868.000
NH	7.000	.070	151.000	.050	203.000	.070	583.000	.040	680.000	.070
NH	1055.000	.050	1090.000	.050	1360.000	0.000	0.000	0.000	0.000	0.000

CONFLUENCE RED CEDAR AND SYCAMORE CREEK

X1	14.500	21.000	151.000	1090.000	1375.000	1255.000	1550.000	0.000	0.000	0.000
GR	830.000	0.000	820.000	18.000	819.000	150.000	818.100	151.000	815.900	161.000
GR	815.000	181.000	816.100	191.000	818.100	202.000	819.000	203.000	819.000	583.000
GR	815.000	600.000	811.800	620.000	811.800	630.000	815.000	660.000	819.000	680.000

MOORE BUSINESS FORMS, INC. 23

GR	819.000	1050.000	817.000	1055.000	817.000	1090.000	819.000	1095.000	828.000	1260.000
GR	830.000	1360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.068	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	6.000	4120.000	6200.000	7200.000	9740.000	5940.000	7200.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	9.100	9.100	0.000	1.400	0.000	1.000	2470.000
X1	15.000	32.000	1533.000	1615.000	950.000	400.000	450.000	0.000	.970	0.000
GR	836.300	0.000	828.300	10.000	821.800	34.000	820.700	110.000	819.600	210.000
GR	819.300	410.000	818.800	610.000	818.600	810.000	818.600	830.000	817.500	835.000
GR	815.000	854.000	815.200	865.000	817.500	872.000	818.000	874.000	818.000	1010.000
GR	818.400	1210.000	818.100	1310.000	818.500	1410.000	818.300	1510.000	817.500	1533.000
GR	813.700	1540.000	812.500	1560.000	814.500	1603.000	817.500	1615.000	821.600	1624.000
GR	823.700	1710.000	823.600	1810.000	824.300	2010.000	828.300	2210.000	832.500	2410.000
GR	836.500	2510.000	841.400	2610.000	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	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000

AURELIUS RD. BRIDGE

X1	16.000	33.000	1905.100	2095.000	300.000	475.000	500.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
GR	842.300	0.000	837.300	100.000	834.600	200.000	832.400	300.000	827.270	345.500
GR	825.060	400.000	820.060	450.000	818.760	500.000	819.850	550.000	818.150	600.000
GR	817.240	700.000	816.540	800.000	819.220	1200.000	817.700	1300.000	819.500	1347.000
GR	819.000	1905.000	819.000	1905.100	819.000	1930.000	812.000	1947.000	812.000	1965.000
GR	812.000	1965.100	812.000	1968.000	812.000	1968.100	812.000	2035.000	812.000	2035.100
GR	812.000	2038.000	812.000	2038.100	818.200	2055.000	818.500	2095.000	818.500	2095.100
GR	819.100	2150.000	821.190	2435.000	821.700	2500.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	.120	300.000	.120	400.000	.150	1300.000	.180	1500.000	.200
NH	1965.000	.030	2095.100	.300	2500.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	3.000	0.000	81.000	6.000	2821.000	2.040	812.000	812.000
X1	16.500	0.000	0.000	0.000	65.000	65.000	65.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.000	829.140	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	830.000	841.000	0.000
BT	18.000	0.000	842.300	0.000	100.000	837.300	0.000	200.000	834.600	0.000
BT	300.000	832.400	0.000	700.000	829.140	0.000	1905.000	837.000	0.000	1905.100
BT	837.000	832.900	1965.000	838.300	834.600	1965.100	838.300	812.000	1968.000	838.300
BT	812.000	1968.100	838.300	834.600	2035.000	839.600	836.000	2035.100	839.600	812.000
BT	2038.000	839.600	812.000	2038.100	839.600	836.000	2095.000	840.800	837.000	2095.100
BT	840.800	0.000	2500.000	849.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.120	1040.000	.100	1563.000	.030	1672.000	.090	2250.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000
X1	17.000	22.000	1563.000	1672.000	1800.000	650.000	800.000	0.000	.970	0.000
GR	837.000	0.000	830.000	35.000	822.000	75.000	820.500	300.000	820.000	525.000
GR	820.000	665.000	821.800	835.000	820.000	1040.000	820.500	1485.000	834.700	1516.000
GR	830.800	1521.000	827.300	1539.000	819.300	1563.000	817.700	1564.000	813.200	1576.000
GR	813.500	1601.000	813.700	1631.000	814.000	1651.000	817.700	1672.000	835.000	1706.000
GR	836.000	2040.000	836.000	2250.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.068	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000

G.T.W. R.R. BRIDGE

X1	18.000	25.000	1325.000	1463.000	1250.000	675.000	830.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.370	833.570	0.000

ADOBE BUSINESS FORMS, INC. 23

GR	822.000	0.000	820.000	380.000	820.900	1022.000	821.000	1122.000	820.600	1222.000
GR	821.700	1325.000	821.700	1325.000	820.700	1336.000	817.800	1338.000	817.800	1340.000
GR	815.800	1358.000	814.100	1376.000	812.300	1394.000	809.800	1412.000	817.800	1430.000
GR	817.800	1448.000	817.800	1452.000	821.300	1463.000	821.300	1463.000	819.700	1522.000
GR	820.300	1622.000	832.500	1682.000	840.500	1722.000	840.500	1822.000	840.500	1922.000
NC	0.000	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	9.100	0.000	800.000	1922.000
SB	1.050	1.910	3.000	0.000	50.000	8.000	1400.000	2.210	811.670	810.770

X1	18.500	24.000	1325.000	1463.000	26.000	26.000	26.000	0.000	.970	0.000
X2	0.000	0.000	1.000	829.170	833.070	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.070	833.070	0.000
BT	15.000	0.000	837.970	0.000	800.000	837.970	0.000	801.000	833.370	0.000
BT	1122.000	833.570	0.000	1222.000	833.370	0.000	1325.000	833.070	823.170	1325.000
BT	833.070	829.170	1463.000	833.070	829.170	1463.000	833.070	822.170	1522.008	33.370
BT	0.000	1622.000	833.570	0.000	1622.000	833.470	0.000	1722.000	841.470	0.000
BT	1882.000	840.500	0.000	1922.000	840.500	0.000	0.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	270.000	820.900	1022.000	821.200	1122.000	821.000	1222.000
GR	822.200	1325.000	822.200	1325.000	819.200	1337.000	817.800	1338.000	815.300	1340.000
GR	810.700	1358.000	813.300	1376.000	814.300	1394.000	817.300	1412.000	817.300	1430.000
GR	817.800	1448.000	817.800	1456.000	821.200	1463.000	820.300	1522.000	820.400	1622.000
GR	832.500	1682.000	840.500	1722.000	840.500	1882.000	840.500	1922.000	0.000	0.000
NC	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	0.000	9.100	1.400	0.000	850.000	1619.000

X1	19.000	19.000	1475.000	1560.000	650.000	550.000	640.000	0.000	.970	0.000
GR	870.000	0.000	870.000	125.000	870.000	180.000	870.000	849.900	819.300	850.000
GR	819.300	890.000	821.000	970.000	820.000	1100.000	820.000	1310.000	820.000	1310.100
GR	820.200	1475.000	818.000	1480.000	812.900	1499.000	813.900	1529.000	816.000	1549.000
GR	818.000	1560.000	826.000	1574.000	837.500	1608.000	838.600	1619.000	0.000	0.000
NC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

C. AND O. R.R. BRIDGE

X1	21.000	17.000	950.000	1112.000	700.000	1060.000	1637.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
GR	824.500	0.000	828.900	650.000	829.200	750.000	828.200	850.000	821.600	950.000
GR	821.600	950.000	818.200	977.000	814.500	990.000	814.600	1028.000	817.000	1035.000
GR	814.700	1065.000	818.200	1076.000	819.800	1112.000	819.800	1112.000	828.700	1150.000
GR	827.600	1250.000	824.600	1350.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.900	0.000	75.000	7.000	1544.000	3.620	816.070	815.570

X1	21.500	17.000	950.000	1112.000	10.000	10.000	10.000	0.000	.970	0.000
X2	0.000	0.000	1.000	828.270	838.270	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	838.570	838.570	0.000
BT	11.000	0.000	839.070	0.000	650.000	838.870	0.000	750.000	838.770	0.000
BT	850.000	838.570	0.000	949.000	838.270	821.670	950.000	838.270	828.270	1112.000
BT	838.170	820.770	1112.100	838.170	828.270	1150.000	838.270	0.000	1250.000	838.570
BT	0.000	1350.000	838.970	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	822.200	0.000	822.700	650.000	825.900	750.000	828.100	850.000	820.700	949.000
GR	820.700	950.000	818.200	970.000	815.600	990.000	815.400	1028.000	815.600	1035.000
GR	815.100	1065.000	818.200	1077.000	819.800	1112.000	819.800	1112.100	829.900	1150.000
GR	827.700	1250.000	825.100	1350.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.000	37.000	216.700	358.000	975.000	930.000	950.000	.707	0.000	0.000
GR	841.000	109.000	846.200	110.000	846.200	126.700	846.200	126.800	846.200	130.000
GR	846.200	130.100	846.200	133.300	818.000	216.700	818.000	216.800	815.800	221.900
GR	815.800	222.000	815.000	236.700	815.700	246.700	815.700	274.700	815.000	300.000

GR	820.000	358.000	820.000	358.100	820.800	363.300	820.800	363.400	824.000	406.700
GR	826.500	413.300	828.300	442.000	828.300	442.100	828.800	445.300	828.800	445.400
GR	829.000	515.000	829.000	515.100	829.000	518.300	829.000	518.400	841.300	566.700
GR	841.300	573.300	841.300	573.400	847.000	576.700	847.100	576.700	847.000	686.700
GR	847.000	700.000	847.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

I-496 EASTBOUND (BRIDGE OUTLET)

X1	22.010	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	.707	0.000
BT	25.000	109.000	857.000	0.000	110.000	855.800	0.000	126.700	855.500	846.200
BT	130.000	855.400	846.200	130.100	855.400	849.000	216.700	854.600	848.000	216.800
BT	854.600	818.000	221.900	855.400	815.000	222.000	855.400	848.000	358.000	853.100
BT	846.700	358.100	853.100	820.000	363.300	853.000	820.800	363.400	853.000	846.600
BT	442.000	852.300	845.700	442.100	852.300	828.300	445.300	852.200	828.800	445.400
BT	852.300	845.600	515.000	851.600	845.000	515.100	851.600	829.000	518.300	851.500
BT	829.000	518.400	851.500	844.900	573.300	851.000	844.300	573.400	851.000	841.300
BT	576.700	850.900	847.000	800.000	848.800	0.000	0.000	0.000	0.000	0.000

I-496 WESTBOUND (BRIDGE INLET)

X1	23.000	36.000	222.700	362.000	190.000	190.000	190.000	.707	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.707	0.000
BT	22.000	99.000	857.500	0.000	100.000	856.500	0.000	136.000	856.200	846.200
BT	139.300	856.100	846.200	139.400	856.100	849.700	222.700	855.300	849.000	222.800
BT	855.300	819.000	226.000	855.200	818.000	226.100	855.200	848.900	362.000	853.900
BT	847.600	362.100	853.900	825.500	365.300	853.800	826.500	365.400	853.800	847.600
BT	502.700	852.400	846.300	502.800	852.400	831.600	506.000	852.300	832.200	506.100
BT	852.300	846.200	548.600	851.900	845.800	548.700	851.900	842.400	552.000	851.800
BT	0.000	700.000	850.520	0.000	900.000	849.000	0.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	842.000	406.800	842.000	446.600
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23.500	36.000	222.700	362.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	841.000	99.000	841.000	100.000	846.100	130.000	846.200	136.000	846.100	136.100
GR	846.200	139.300	846.200	144.700	819.000	222.700	819.000	222.800	818.000	226.000
GR	818.000	226.100	814.500	240.700	815.000	317.300	825.500	362.000	825.500	362.100
GR	826.500	365.300	826.500	365.400	828.000	406.700	828.000	406.800	828.000	406.900
GR	828.000	446.700	830.000	458.000	829.000	493.300	828.500	500.000	828.600	502.700
GR	831.600	502.800	831.600	506.000	832.200	506.100	842.000	542.000	848.000	548.600
GR	848.000	548.700	848.000	552.000	848.000	621.300	848.000	700.000	848.000	800.000
GR	848.000	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	24.000	25.000	334.000	603.000	850.000	940.000	880.000	.891	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	541.000	827.500	541.100
GR	827.500	545.000	827.500	545.100	828.140	603.000	829.700	700.000	841.000	800.000

U.S. 127 SOUTHBOUND (BRIDGE OUTLET)

X1	24.500	27.000	334.000	603.000	1.000	1.000	1.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	18.000	334.000	849.270	845.570	334.100	849.270	845.570	339.000	849.170	845.570
BT	391.000	849.170	846.270	391.100	849.170	819.570	395.000	849.170	819.570	395.100
BT	849.170	846.270	474.000	849.170	847.170	474.100	849.170	819.570	478.000	849.170
BT	819.570	478.100	849.170	847.170	561.000	849.170	847.470	561.100	849.170	828.470
BT	565.000	849.170	828.470	565.100	849.170	847.470	598.000	849.170	847.470	603.000
BT	849.170	847.570	603.100	849.170	847.570	0.000	0.000	0.000	0.000	0.000
GR	844.600	334.000	844.600	334.001	844.600	334.002	844.600	334.003	844.600	334.004
GR	840.300	334.100	840.300	339.000	818.600	391.000	818.600	391.100	818.600	395.000
GR	818.600	395.100	815.500	420.000	817.100	460.000	818.600	474.000	818.600	474.100
GR	818.600	478.000	818.600	478.100	828.100	504.000	827.500	561.000	827.500	561.100
GR	827.500	545.000	827.500	565.100	842.500	598.000	842.500	603.000	846.600	603.100
GR	829.700	700.000	841.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000

U.S. 127 NORTHBOUND (BRIDGE INLET)

X1	25.000	28.000	214.000	480.000	200.000	200.000	200.000	.891	.970	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.891	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	845.970	851.970	0.000
BT	20.000	214.000	850.970	846.470	214.100	850.970	846.470	219.000	850.970	846.470
BT	219.100	850.970	846.470	272.000	850.970	845.670	272.100	850.970	819.570	276.000
BT	850.970	819.570	276.100	850.970	845.970	357.000	850.970	845.970	357.100	850.970
BT	819.570	361.000	850.970	819.570	361.100	850.970	845.970	448.000	850.970	844.170
BT	448.100	850.970	829.670	452.000	850.970	829.670	452.100	850.970	844.170	476.000
BT	850.970	844.690	476.100	850.970	844.770	480.000	850.970	844.770	480.100	850.970
BT	844.770	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.200	214.000	827.190	214.001	827.190	214.002	827.190	214.003	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	830.200	600.000	830.400	700.000	0.000	0.000	0.000	0.000
NC	.083	.082	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.500	28.000	214.000	480.000	460.000	410.000	400.000	0.000	.970	0.000
GR	825.900	0.000	831.500	100.000	827.500	212.000	827.200	214.000	827.190	214.100
GR	826.500	219.000	826.450	219.100	818.600	272.000	818.600	272.100	818.600	276.000
GR	818.600	276.100	814.600	302.000	815.600	332.000	818.600	357.000	818.600	357.100
GR	818.600	361.000	818.600	361.100	829.200	377.000	828.700	448.000	828.700	448.100
GR	828.700	452.000	828.700	452.100	829.350	476.000	829.440	480.000	829.440	480.100
GR	829.900	500.000	850.000	500.010	850.000	700.000	0.000	0.000	0.000	0.000

X1	27.000	26.000	1436.100	1494.000	1400.000	1010.000	1100.000	.968	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
GR	825.500	0.000	827.000	455.000	825.500	610.000	825.500	700.000	825.500	1130.000
GR	825.300	1230.000	823.200	1330.000	818.400	1436.000	818.400	1436.100	816.200	1462.000
GR	816.200	1462.100	815.500	1466.000	815.500	1466.100	815.200	1480.000	815.100	1490.000
GR	815.100	1490.100	815.200	1494.000	815.200	1494.100	815.400	1507.000	816.900	1518.000
GR	818.400	1520.000	818.400	1520.100	824.800	1532.000	826.500	1630.000	826.300	1730.000
GR	825.000	2130.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

KALAMAZOO ST. BRIDGE

X1	27.100	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	.968	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.970	829.970	0.000
BT	26.000	0.000	829.470	0.000	455.000	828.970	0.000	610.000	826.970	0.000

BT	700.000	828.720	0.000	1130.000	828.170	0.000	1230.000	829.270	0.000	1330.000
BT	828.870	0.000	1436.000	829.970	829.970	1436.100	829.970	827.170	1462.000	829.570
BT	827.170	1462.100	829.870	817.170	1466.000	829.870	816.470	1466.100	829.870	827.170
BT	1480.000	829.870	827.170	1490.000	829.870	827.170	1490.100	829.870	816.070	1494.000
BT	829.870	827.170	1494.100	829.870	827.170	1507.000	829.970	827.170	1518.000	829.970
BT	827.170	1520.000	829.870	827.170	1520.100	829.870	829.870	1532.000	830.670	0.000
BT	1630.000	830.970	0.000	1730.000	832.370	0.000	2130.000	831.970	0.000	0.000
X1	27.400	0.000	0.000	0.000	38.000	38.000	38.000	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	826.970	829.970	0.000
NC	.070	.050	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

X1	27.500	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	826.970	829.970	0.000
NC	0.000	0.000	.040	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	9.100	0.000	90.000	1200.000
X1	28.000	20.000	466.000	570.000	1962.000	1962.000	1962.000	0.000	.970	0.000
GR	846.200	0.000	833.700	0.000	832.700	100.000	827.200	200.000	827.600	300.000
GR	829.100	400.000	829.600	439.000	823.200	453.000	823.200	466.000	819.700	470.000
GR	815.500	480.000	814.500	500.000	816.900	530.000	819.700	554.000	826.700	570.000
GR	826.800	700.000	826.800	900.000	826.900	1100.000	827.100	1250.000	850.000	1250.010
NC	.055	.055	.037	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	30.000	15.000	20.000	160.000	1220.000	1300.000	1275.000	0.000	0.000	0.000
GR	855.000	0.000	840.500	.100	840.000	9.000	835.000	20.000	830.000	40.000
GR	828.000	50.000	820.200	65.000	818.000	80.000	816.500	95.000	818.000	110.000
GR	820.200	125.000	830.000	145.000	833.000	160.000	834.000	250.000	854.000	250.000

HARRISON RD. BRIDGE

X1	31.000	19.000	325.000	424.000	750.000	750.000	750.000	.970	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
GR	845.900	0.000	844.200	100.000	842.900	200.000	841.700	268.000	840.600	300.000
GR	840.100	318.000	832.800	325.000	832.800	325.000	820.700	353.000	818.600	361.000
GR	819.700	384.000	819.200	400.000	820.700	404.000	824.700	424.000	824.700	424.000
GR	834.800	434.000	835.500	500.000	835.100	600.000	835.100	700.000	0.000	0.000
SB	.900	1.540	3.000	0.000	58.000	0.000	1014.000	1.340	819.000	819.000
X1	31.500	19.000	325.000	424.000	57.000	57.000	57.000	.970	0.000	0.000
X2	0.000	0.000	1.000	835.100	835.500	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.000	835.500	0.000
BT	15.000	0.000	845.900	0.000	100.000	844.200	0.000	200.000	843.700	0.000
BT	298.000	840.600	0.000	300.000	839.200	0.000	300.000	842.700	0.000	325.000
BT	842.100	828.300	325.000	842.100	835.100	424.000	839.900	823.100	424.000	839.900
BT	831.900	444.000	839.400	0.000	444.000	835.900	0.000	500.000	835.600	0.000
BT	600.000	835.500	0.000	700.000	835.500	0.000	0.000	0.000	0.000	0.000
GR	845.900	0.000	844.200	100.000	843.700	200.000	840.600	298.000	839.200	300.000
GR	828.300	325.000	828.300	325.000	820.700	338.000	819.500	340.000	818.100	352.000
GR	818.500	366.000	818.100	388.000	820.700	417.000	823.700	424.000	831.900	424.000
GR	835.200	424.000	835.500	500.000	835.500	600.000	835.700	700.000	0.000	0.000
NC	.040	.040	.038	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	33.000	22.000	517.000	611.000	1240.000	600.000	875.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BR	840.200	0.000	834.400	0.000	829.300	200.000	828.200	300.000	827.100	400.000
BR	827.000	500.000	827.000	500.000	824.600	517.000	824.600	517.000	821.000	529.000
BR	819.000	539.500	819.000	550.000	818.900	562.000	819.400	586.500	821.000	600.000
BR	824.500	611.000	824.500	611.000	833.700	628.000	833.700	628.000	835.300	700.000
BR	835.300	781.000	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	33.010	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	829.300	835.300	0.000
BT	21.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.300	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	839.800	824.600	517.000	839.600	833.400	539.500	840.500
BT	835.800	550.000	840.700	836.500	562.000	841.000	836.200	586.500	840.300	835.900
BT	600.000	840.200	835.000	611.000	840.000	833.700	611.000	840.000	824.500	628.000
BT	839.100	0.000	628.000	835.600	0.000	700.000	835.300	0.000	781.000	835.300
BT	0.000	781.000	855.200	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	33.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	829.300	835.300	0.000
BT	19.000	0.000	860.200	0.000	0.000	834.400	0.000	200.000	829.000	0.000
BT	300.000	830.200	0.000	400.000	830.800	0.000	500.000	835.600	0.000	500.000
BT	839.100	0.000	517.000	840.100	825.500	517.000	840.100	833.600	540.000	840.800
BT	836.000	562.000	841.000	836.200	584.000	840.800	836.000	611.000	840.000	833.700
BT	611.000	840.100	825.000	628.000	839.100	0.000	628.000	835.600	0.000	700.000
BT	834.700	0.000	781.000	834.400	0.000	781.000	855.200	0.000	0.000	0.000

X1	33.100	21.000	517.000	611.000	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	829.300	835.300	0.000
BR	840.200	0.000	834.400	0.000	829.700	200.000	834.900	300.000	829.300	400.000
BR	831.400	500.000	831.400	500.000	825.500	517.000	825.500	517.000	821.000	527.000
BR	819.700	540.000	818.900	562.000	819.200	584.000	821.000	605.000	825.000	611.000
BR	825.000	611.000	833.900	628.000	833.900	628.000	834.700	700.000	834.300	781.000
BR	855.200	781.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.000	13.000	750.000	825.000	440.000	1962.000	1635.000	0.000	0.000	0.000
BR	862.000	0.000	832.500	.100	832.000	20.000	834.000	25.000	828.000	75.000
BR	827.000	410.000	828.000	585.000	828.000	750.000	822.000	770.000	820.500	790.000
BR	819.700	809.000	821.000	829.000	822.000	848.000	845.000	865.000	854.500	890.000

KALAMAZOO ST. BRIDGE

X1	36.000	21.000	622.100	715.000	520.000	1150.000	1110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BR	832.000	0.000	830.000	65.000	828.500	100.000	828.200	315.000	828.400	415.000
BR	828.500	500.000	828.600	515.000	832.300	525.000	832.000	610.000	823.000	622.000
BR	823.000	622.100	820.400	670.000	820.400	670.100	820.400	674.000	820.400	674.100
BR	821.100	686.000	823.000	715.000	823.000	715.100	828.000	730.000	835.700	738.000
BR	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.100	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	833.000	836.200	0.000
BT	18.000	0.000	833.400	0.000	65.000	833.000	0.000	100.000	832.800	0.000
BT	315.000	832.800	0.000	415.000	833.500	0.000	500.000	833.900	0.000	515.000
BT	834.000	0.000	575.000	835.100	0.000	610.000	835.700	0.000	622.000	635.800
BT	835.800	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200	820.400

BT	674.000	836.200	820.400	674.100	836.200	834.200	715.000	836.100	834.200	715.100
BT	836.100	836.100	785.000	834.800	0.000	0.000	0.000	0.600	0.000	0.000
X1	36.400	17.000	622.100	715.000	58.000	58.000	58.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	833.000	836.200	0.000
BT	16.000	0.000	833.400	0.000	65.000	833.000	0.000	315.000	832.800	0.000
BT	415.000	833.500	0.000	515.000	834.000	0.000	604.000	835.700	0.000	622.000
BT	835.900	835.900	622.100	835.900	834.100	670.000	836.200	834.100	670.100	836.200
BT	820.400	674.000	836.200	820.700	674.100	836.200	834.200	715.000	836.100	834.200
BT	715.100	836.100	836.100	720.000	836.100	0.000	785.000	836.800	0.000	0.000
GR	833.400	0.000	833.000	65.000	832.800	315.000	833.500	415.000	832.200	515.000
GR	831.100	604.000	823.000	622.000	823.000	622.100	820.400	670.000	820.400	670.100
GR	820.700	674.000	820.700	674.100	820.500	686.000	823.000	715.000	823.000	715.100
GR	834.200	720.000	836.800	785.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	36.500	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	833.000	836.200	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	38.000	38.000	322.000	416.000	1270.000	1070.000	1050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
GR	841.600	0.000	838.500	100.000	835.800	200.000	836.800	300.000	824.300	315.000
GR	823.600	322.000	823.600	322.000	821.700	340.000	821.600	345.500	821.200	360.000
GR	820.400	380.000	820.800	392.500	821.000	400.000	824.300	408.000	829.500	416.000
GR	829.500	416.000	829.500	428.000	829.500	426.000	829.700	448.000	829.900	469.500
GR	829.900	469.500	829.800	470.500	829.900	470.500	830.000	488.500	830.000	506.500
GR	830.000	506.500	830.000	507.500	830.000	507.500	830.800	525.500	831.700	543.500
GR	831.700	543.500	831.700	544.500	831.700	544.500	836.100	569.000	840.500	574.000
GR	842.900	581.000	842.900	581.000	845.500	700.000	0.000	0.000	0.000	0.000
	MICHIGAN STATE UNIVERSITY FOOTBRIDGE									
X1	38.010	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	836.900	829.500	0.000
BT	33.000	0.000	846.600	0.000	100.000	841.600	0.000	200.000	836.900	0.000
BT	300.000	837.800	0.000	322.000	838.300	823.600	322.000	841.300	835.100	345.500
BT	841.800	836.900	369.000	842.900	837.800	392.500	842.600	837.500	816.000	843.000
BT	836.900	416.000	843.000	229.500	428.000	843.200	829.500	428.000	843.200	837.800
BT	448.000	843.500	839.000	469.500	844.000	838.500	469.300	844.000	829.900	470.500
BT	844.000	829.900	470.500	844.000	838.500	488.500	844.600	839.500	506.500	848.800
BT	839.200	506.500	848.800	830.000	507.500	848.000	850.000	507.500	848.000	839.200
BT	525.500	845.200	840.200	543.500	845.500	840.000	543.500	845.300	831.700	544.500
BT	845.500	831.700	544.500	845.500	840.000	559.000	845.700	840.900	574.000	845.800
BT	840.500	581.000	843.900	0.000	581.000	842.900	0.000	700.000	845.500	0.000
X1	38.090	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	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.900	829.500	0.000
X1	38.100	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	836.900	829.500	0.000
NC	.040	.040	.038	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	38.500	18.000	160.000	242.100	870.000	540.000	545.000	0.000	0.000	0.000
GR	820.000	0.000	842.000	1.000	844.000	32.000	842.000	48.000	820.000	22.000
GR	838.000	94.000	838.000	127.000	830.000	150.000	829.600	160.000	824.000	160.100
GR	824.000	242.000	829.600	242.100	830.000	250.000	832.000	270.000	838.000	220.000

MOORE BUSINESS FORMS, INC. 23

BR	840.000	370.000	840.000	391.000	850.000	393.100	0.000	0.000	0.000	0.000
BE	0.000	0.000	.022	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

X1	39.000	19.000	160.000	242.100	10.000	10.000	10.000	0.000	0.000	0.000
BR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
BR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	150.000	832.890	156.100
BR	826.860	201.000	827.000	242.000	829.200	242.100	836.000	250.000	832.000	270.000
BR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

X1	40.000	19.000	156.000	246.100	20.000	20.000	20.000	0.000	0.000	0.000
BR	850.000	0.000	845.000	1.000	844.000	32.000	842.000	48.000	840.000	72.000
BR	838.000	94.000	836.000	127.000	830.000	150.000	829.600	150.000	827.350	156.100
BR	827.300	201.000	827.540	246.000	829.800	246.100	850.000	250.000	832.000	270.000
BR	838.000	310.000	840.000	370.000	840.000	393.000	850.000	393.100	0.000	0.000
NC	0.000	0.000	.031	.300	.300	0.000	0.000	0.000	0.000	0.000

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

X1	41.000	17.000	141.000	241.100	210.000	205.000	205.000	0.000	0.000	0.000
BR	846.000	0.000	844.000	32.000	842.000	65.000	840.000	123.000	838.500	141.000
BR	835.500	141.100	826.700	152.000	832.200	161.000	821.100	171.000	821.000	191.000
BR	821.000	211.000	831.000	241.000	831.000	241.100	839.300	256.000	841.800	261.000
BR	838.000	380.000	837.800	410.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.400	2.500	0.000	75.000	0.000	1400.000	1.000	821.000	821.000
LT	0.000	0.000	0.000	0.000	0.000	0.000	9.100	0.000	141.000	244.000

X1	41.100	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.900	837.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	844.000	0.000	32.000	844.000	0.000	65.000	842.000	0.000
BT	123.000	841.700	0.000	141.000	841.486	0.000	141.100	841.430	837.900	191.000
BT	841.460	837.900	241.000	841.430	837.900	241.100	841.430	0.000	256.000	841.430
BT	0.000	261.000	841.800	0.000	380.000	839.000	0.000	410.000	837.800	0.000
NC	.036	.034	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
LT	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

X1	42.000	25.000	221.000	337.000	1055.000	905.000	925.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BR	850.300	0.000	847.700	1.000	832.500	221.000	829.300	221.000	829.400	230.000
BR	827.300	232.000	824.400	252.000	824.300	257.000	824.100	248.000	824.000	252.000
BR	824.000	255.000	823.300	258.000	823.300	258.000	823.700	268.500	824.200	281.000
BR	825.600	293.000	823.000	304.000	823.000	304.000	823.300	307.000	823.300	307.000
BR	823.600	325.000	829.300	337.000	829.300	337.000	841.100	400.000	842.100	500.000

X1	42.010	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	846.300	841.100	0.000
BT	26.000	0.000	85.100	0.000	100.000	847.700	0.000	700.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	832.500	230.000	846.800	839.000	239.000
BT	846.700	839.200	240.000	846.600	839.000	255.000	846.400	837.500	255.000	846.400

BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.500	846.100	859.000
BT	281.000	845.800	839.500	294.000	845.400	839.000	304.000	845.400	837.500	304.000
BT	845.400	823.000	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	945.000	829.300	352.000	844.800	0.000	342.000	843.800	0.000
BT	362.000	843.800	0.000	400.000	842.300	0.000	500.000	845.200	0.000	0.000
X1	42.000	0.000	0.000	0.000	74.000	74.000	74.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	846.300	841.100	0.000
BT	26.000	0.000	850.300	0.000	100.000	847.200	0.000	200.000	846.300	0.000
BT	200.000	847.300	0.000	221.000	847.000	837.500	230.000	846.800	839.000	239.000
BT	846.700	839.500	248.000	846.300	839.000	253.000	846.400	837.500	253.000	846.400
BT	824.000	258.000	846.300	823.300	258.000	846.300	837.500	268.000	846.100	859.000
BT	281.000	844.800	839.500	294.000	845.500	839.000	304.000	845.400	837.500	304.000
BT	845.000	824.100	307.000	845.300	823.300	307.000	845.300	840.900	337.000	845.000
BT	840.300	337.000	845.000	829.300	362.000	844.800	0.000	362.000	843.800	0.000
BT	400.000	842.300	0.000	500.000	843.200	0.000	580.000	845.000	0.000	0.000
MC	0.000	0.000	.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	42.100	30.000	221.000	337.000	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	846.300	841.100	0.000
BR	850.300	0.000	847.300	100.000	844.100	200.000	844.100	200.000	837.500	221.000
GR	829.300	221.000	829.300	230.000	829.300	232.000	823.100	232.000	823.000	239.000
GR	823.000	248.000	824.000	253.000	824.000	253.000	823.600	258.000	823.600	258.000
BR	825.700	268.000	823.800	281.000	824.000	294.000	824.100	304.000	824.100	304.000
GR	823.300	307.000	823.300	307.000	824.200	325.000	829.300	327.000	829.300	337.000
GR	829.300	337.000	829.900	362.000	829.900	362.000	830.800	400.000	857.600	500.000
MC	0.000	0.000	.027	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	50.000	412.000
X1	45.000	18.000	195.000	305.000	655.000	700.000	580.000	0.000	0.000	0.000
GR	870.000	0.000	840.500	.100	840.000	45.000	838.000	102.000	837.000	115.000
BR	836.000	122.000	834.000	185.000	832.000	180.000	828.400	195.000	825.000	222.000
GR	822.900	250.000	825.000	278.000	828.400	305.000	830.500	369.000	832.000	385.000
GR	836.000	400.000	836.500	412.000	840.000	412.100	0.000	0.000	0.000	0.000
MC	.050	.050	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000

BOGUE ST. BRIDGE

X1	44.000	24.000	512.000	663.000	1000.000	975.000	925.000	.970	0.000	0.000
X2	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.600	843.800	0.000
GR	846.600	0.000	843.300	100.000	841.200	200.000	842.000	300.000	841.400	400.000
BR	832.200	500.000	832.200	500.000	830.100	512.000	828.900	530.000	825.400	540.000
GR	824.500	551.000	824.300	555.000	822.400	580.000	823.500	609.000	824.400	613.000
GR	824.200	622.000	828.900	630.000	830.100	652.000	831.000	663.000	831.000	663.000
BR	834.200	700.000	844.200	800.000	844.600	900.000	845.500	1000.000	0.000	0.000
MC	.068	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	3.000	0.000	75.000	0.000	1800.000	2.950	822.500	822.500
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	300.000	720.000
X1	44.500	25.000	513.000	675.000	72.000	72.000	72.000	.970	0.000	0.000
X2	0.000	0.000	1.000	838.200	842.600	0.000	0.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.200	843.800	0.000
BT	10.000	300.000	842.800	0.000	400.000	842.600	0.000	500.000	843.500	0.000
BT	500.000	846.700	0.000	513.000	846.800	830.800	513.000	846.800	838.100	675.000
BT	847.300	838.100	675.000	844.100	833.200	700.000	843.800	0.000	720.000	843.800
BT	0.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.600	0.000	842.500	100.000	839.600	200.000	838.200	300.000	833.800	400.000
GR	831.700	500.000	830.800	513.000	830.800	513.000	830.100	524.000	828.900	542.000

MOORE BUSINESS FORMS, INC.

GR	824.700	550.000	824.000	583.000	824.000	587.000	821.700	595.000	823.300	621.000
GR	823.700	625.000	826.700	632.000	828.900	649.000	830.100	664.000	833.200	675.000
GR	833.200	675.000	840.400	700.000	840.700	800.000	844.600	900.000	845.700	1000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	45.000	20.000	540.000	645.000	750.000	650.000	660.000	0.000	0.000	0.000
GR	900.000	0.000	850.900	.100	850.000	30.000	848.000	110.000	846.000	140.000
GR	844.000	200.000	842.000	280.000	840.000	325.000	838.000	425.000	837.000	442.000
GR	836.000	475.000	834.000	490.000	828.000	540.000	824.000	564.000	821.800	588.000
GR	824.000	611.000	828.000	635.000	833.000	645.000	834.500	670.000	844.000	670.100
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	46.000	16.000	740.000	884.000	1330.000	1625.000	1550.000	0.000	0.000	0.000
X4	1.000	844.000	335.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.000	0.000	848.800	90.000	848.000	135.000	846.000	210.000	844.000	345.000
GR	836.000	455.000	834.500	540.000	834.000	700.000	832.000	725.000	828.000	740.000
GR	826.000	774.000	824.000	799.000	821.900	829.000	824.000	859.000	828.000	884.000
GR	834.000	925.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	.064	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

X1	47.000	18.000	1409.000	1495.000	630.000	575.000	625.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	0.000	0.000	0.000	0.000
SB	1.050	1.400	3.000	0.000	86.000	4.000	1300.000	0.000	824.400	824.400

X1	47.500	18.000	1409.000	1495.000	59.000	59.000	59.000	0.000	0.000	0.000
X5	-4.000	0.000	0.000	0.000	.360	0.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	839.500	839.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	839.300	843.500	0.000
BT	20.000	0.000	847.000	0.000	200.000	846.500	0.000	400.000	846.000	0.000
BT	600.000	842.400	0.000	800.000	842.700	0.000	1000.000	839.300	0.000	1200.000
BT	839.700	0.000	1400.000	843.000	0.000	1400.000	845.700	0.000	1409.000	845.800
BT	826.900	1409.000	845.800	839.200	1419.000	846.000	0.000	1464.000	846.100	0.000
BT	1495.000	846.200	839.500	1495.000	846.200	825.900	1509.000	846.200	0.000	1519.000
BT	846.600	0.000	1519.000	843.900	0.000	1600.000	846.000	0.000	1700.000	849.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.000	0.000	846.500	200.000	846.000	400.000	842.400	600.000	842.700	800.000
GR	839.300	1000.000	839.900	1200.000	843.000	1400.000	826.900	1409.000	823.900	1420.000
GR	821.600	1452.000	821.900	1456.000	823.300	1485.000	825.900	1495.000	846.200	1509.000
GR	843.900	1519.000	846.000	1600.000	849.500	1700.000	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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*PROF 1

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
+SECNO 1.000

3265 DIVIDED FLOW

    SECNO    DEPTH    QWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
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MOORE BUSINESS FORMS, INC. 23

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	VTH	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

CONFLUENCE GRAND RIVER AND RED CEDAR RIVER

1.00	22.13	831.63	0.00	831.63	831.78	.15	0.00	0.00	817.70
19400.	74.	18770.	556.	63.	6019.	818.	0.	0.	825.00
0.00	1.16	3.12	.48	.033	.042	.055	0.000	809.50	119.90
.000112	0.	0.	0.	0	0	0	0.00	587.10	807.00

#SECNO 2.000

3470 ENCROACHMENT STATIONS= 375.0 1056.0 TYPE= 1 TARGET= -375.000

2.00	22.23	831.73	0.00	0.00	831.83	.10	.05	.00	820.00
9600.	975.	7362.	1264.	951.	2575.	1617.	55.	4.	818.00
.05	1.02	2.84	.78	.055	.039	.055	.038	809.50	375.00
.000115	500.	400.	335.	2	0	0	0.00	480.20	1055.20

CCHV= .300 CEHV= .500

#SECNO 3.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 840.10 ELREA= 826.00

ELM ST. BRIDGE

3.00	22.14	831.74	0.00	0.00	832.01	.24	.10	.08	817.70
9600.	0.	7997.	1603.	0.	1782.	1312.	107.	13.	817.70
.09	0.00	4.49	1.22	.055	.039	.055	.038	809.60	175.00
.000320	550.	550.	550.	2	0	0	0.00	450.00	625.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.54	3.00	0.00	80.00	0.00	1441.00	.10	810.00	809.40

#SECNO 3.500

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS= 832.818 EGLWC= 832.407 ELLC= 828.000 PCWSE= 831.743 ELTRD= 826.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE.NRD= 15 MIN ELTRD= 826.00 MAX ELLC= 828.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 840.10 ELREA= 826.00

3.50	21.12	831.62	0.00	0.00	832.18	.56	.03	.15	817.70
9600.	0.	8837.	763.	0.	1421.	427.	109.	13.	817.70
.09	0.00	4.22	1.79	.055	.039	.055	.038	810.50	175.00
.001880	40.	40.	40.	2	0	0	-784.00	374.27	625.00

#SECNO 4.000

3280 CROSS SECTION 4.00 EXTENDED 2.84 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
4.00	25.54	832.34	0.00	0.00	832.53	.19	.24	.11	818.00
9600.	309.	7535.	1856.	147.	1920.	1508.	139.	18.	818.00
.13	1.42	3.93	1.23	.055	.039	.055	.039	806.80	85.30
.000218	575.	500.	455.	2	0	0	0.00	454.70	540.00

CCHV= .300 CEHV= .500
¥SECNO 5.000

3470 ENCROACHMENT STATIONS= 256.1 571.3 TYPE= 1 TARGET= 320.000

PENN CENTRAL R.R. BRIDGE

5.00	29.49	832.49	0.00	0.00	832.64	.15	.10	.01	825.40
9600.	317.	8976.	307.	437.	2825.	285.	185.	22.	824.60
.18	.73	3.18	1.08	.055	.039	.055	.039	803.00	254.10
.000143	600.	570.	525.	2	0	0	0.00	315.20	571.30

SPECIAL BRIDGE

SR	YK	YKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.90	0.00	110.00	44.00	1506.00	1.16	811.00	811.00

¥SECNO 5.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.48	832.77	.13	1777.	7781.	1506.	1489.	828.30	828.30

3470 ENCROACHMENT STATIONS= 256.1 571.3 TYPE= 1 TARGET= 320.000

5.10	29.18	832.98	0.00	0.00	833.14	.16	.50	0.00	824.10
9600.	240.	9311.	49.	357.	2834.	71.	187.	23.	825.60
.18	.67	3.29	.69	.055	.039	.055	.039	803.80	254.10
.000156	26.	26.	26.	2	0	3	0.00	295.50	551.60

¥SECNO 6.000
3280 CROSS SECTION 6.00 EXTENDED 7.61 FEET

3470 ENCROACHMENT STATIONS= 417.0 945.3 TYPE= 1 TARGET= 610.000

6.00	22.67	833.07	0.00	0.00	833.18	.11	.03	.01	818.00
9600.	172.	8977.	451.	311.	3224.	462.	204.	24.	829.90
.20	.55	3.78	.66	.055	.039	.055	.039	810.40	417.04
.000129	195.	195.	195.	2	0	0	0.00	528.26	945.30

¥SECNO 6.010

3370 NORMAL BRIDGE.NRD= 47 MIN ELTRD= 829.60 MAX ELLC= 854.40

3470 ENCROACHMENT STATIONS= 417.0 945.3 TYPE= 1 TARGET= 610.000

CEDAR ST. BRIDGE

6.01	22.65	833.05	0.00	0.00	833.20	.15	.00	.02	818.00
9600.	167.	9433.	0.	263.	3030.	0.	204.	24.	829.90
.20	.64	3.11	.44	.055	.039	.055	.039	810.40	417.04
.000176	1.	1.	1.	1	0	0	-919.67	528.26	945.30

¥SECNO 6.090

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

3370 NORMAL BRIDGE.NRD= 50 MIN ELTRD= 829.60 MAX ELLC= 854.00

3470 ENCROACHMENT STATIONS= 417.0 733.1 TYPE= 1 TARGET= 365.000

6.09	23.57	833.07	0.00	0.00	833.21	.14	.01	.00	818.20
9600.	467.	9133.	0.	535.	2934.	0.	209.	25.	100000.00
.21	.87	3.11	0.00	.055	.039	.055	.039	809.50	417.04
.000146	65.	65.	65.	0	0	0	-327.68	316.09	733.13

¥SECNO 6.100

3470 ENCROACHMENT STATIONS= 417.0 945.3 TYPE= 1 TARGET= 528.300

6.10	23.66	833.16	0.00	0.00	833.23	.07	.00	.02	818.20
9600.	571.	8870.	159.	845.	4038.	316.	209.	25.	828.50
.21	.68	2.20	.50	.055	.039	.055	.038	809.50	417.00
.000067	1.	1.	1.	2	0	0	0.00	528.30	945.30

¥SECNO 8.000

3265 DIVIDED FLOW

3280 CROSS SECTION 8.00 EXTENDED 4.15 FEET

3470 ENCROACHMENT STATIONS= 670.0 1100.0 TYPE= 1 TARGET= 430.000

LYONS ST. BRIDGE

8.00	22.25	833.15	0.00	0.00	833.32	.18	.04	.05	823.30
9600.	206.	8315.	1078.	296.	2318.	800.	242.	29.	823.00
.24	.70	3.59	1.35	.055	.039	.055	.038	810.90	670.00
.000190	400.	335.	287.	2	0	0	0.00	386.72	1100.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	3.00	0.00	80.00	6.00	786.00	1.65	813.00	813.00

*SECNO 8.100
3280 CROSS SECTION 8.10 EXTENDED 8.29 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
834.63	833.40	.02	3440.	6150.	784.	1735.	830.00	829.10

3470 ENCROACHMENT STATIONS= 670.0 1100.0 TYPE= 1 TARGET= 430.000

8.10	23.99	834.49	0.00	0.00	834.63	.14	1.31	0.00	823.50
9600.	338.	7849.	1413.	513.	2404.	1022.	245.	29.	823.20
.24	.66	3.27	1.38	.055	.039	.055	.038	810.50	670.00
.000151	32.	32.	32.	2	0	2	0.00	430.00	1100.00

*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 4.61 FEET

3470 ENCROACHMENT STATIONS= 170.0 672.7 TYPE= 1 TARGET= 550.000

PENN CENTRAL R.R. BRIDGE

9.00	21.91	834.61	0.00	0.00	834.70	.09	.06	.01	828.90
9600.	484.	8499.	616.	723.	3304.	723.	296.	34.	825.90
.30	.67	2.57	.85	.055	.039	.055	.038	812.70	169.99
.000096	470.	520.	512.	2	0	0	0.00	484.42	654.41

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	2.80	0.00	113.00	20.00	2084.00	2.90	813.90	812.70

*SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 8.68 FEET

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	TRAPEZOID AREA	ELLC	ELTRD
835.13	834.72	.01	3174.	6430.	2084.	2048.	828.90	831.20

3470 ENCROACHMENT STATIONS= 170.0 672.7 TYPE= 1 TARGET= 550.000

9.10	20.88	834.78	0.00	0.00	834.84	.06	.14	0.00	828.90
9600.	1390.	7283.	926.	1462.	3194.	987.	298.	34.	826.90

```
      .30       .95      2.28       .94      .055      .039      .055      .038    813.90    169.99
  .000078       15.       15.       15.         2         0         4      0.00    484.42    454.41

*SECNO 10.000
3280 CROSS SECTION      10.00 EXTENDED       8.43 FEET


3470 ENCROACHMENT STATIONS=       1.0     520.0  TYPE=     1  TARGET=     519.000
     10.00     25.72    834.82      0.00      0.00    834.89       .07       .05       .00    818.20
      9600.      438.     6791.     2371.      469.     2700.     2965.      382.       42.    826.40
       .39       .93      2.52       .80      .055      .039      .066      .038    809.10      1.00
  .000074       620.      600.      662.         1         0         0      0.00    519.00    520.00

CCHV=    .300 CEHV=    .500
*SECNO 11.000
3280 CROSS SECTION      11.00 EXTENDED       5.96 FEET


3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD=  834.40 MAX ELLC=  831.30

         G.T.W.  R.R.  BRIDGE

     11.00     23.16    834.76      0.00      0.00    835.18       .42       .11       .17    817.70
      9600.        7.     8300.     1293.       23.     1521.      440.      442.       51.    817.70
       .42       .31      5.46      2.94      .055      .039      .055      .038    811.60      0.00
  .001564       475.      475.      875.         2         0         0 -5600.47    663.40    663.40

*SECNO 11.400
3280 CROSS SECTION      11.40 EXTENDED       8.99 FEET


3370 NORMAL BRIDGE,NRD= 29 MIN ELTRD=  834.40 MAX ELLC=  831.30

     11.40     22.80    834.80      0.00      0.00    835.23       .43       .04       .01    821.50
      9600.       11.     8228.     1361.       24.     1479.      440.      443.       52.    817.70
       .42       .45      5.56      3.09      .044      .039      .055      .038    812.00      0.00
  .001733        26.       26.       26.         1         0         0 -5199.48    663.40    663.40

*SECNO 12.000
3280 CROSS SECTION      12.00 EXTENDED       5.90 FEET


     12.00     23.40    835.37      0.00      0.00    835.39       .02       .04       .12    817.97
      9600.     2942.     4540.     2117.     4750.     3129.     3174.      519.       62.    817.97
       .55       .62      1.45       .67      .044      .039      .055      .038    811.97     70.00
  .000024       860.      500.       50.         2         0         0      0.00   1094.88   1164.88

*SECNO 12.100
3280 CROSS SECTION      12.10 EXTENDED       5.90 FEET


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
       0      QLOB      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
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3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  824.57 MAX ELLC=  825.47

          PENNSYLVANIA AVE. BRIDGE

    12.10    23.40   835.37     0.00     0.00   835.39      .02      .00      .00   817.97
    9600.    3623.   3372.    2606.    4504.    2479.    2592.     519.      42.   817.97
      .55      .80    1.36     1.01     .072     .039     .072     .038   811.97    70.00
 .000118       1.       1.       1.        0        0        0 -1478.81  1094.88  1164.88

¥SECNO 12.400
3280 CROSS SECTION      12.40 EXTENDED      11.06 FEET

3370 NORMAL BRIDGE,NRD= 23 MIN ELTRD=  824.57 MAX ELLC=  825.47

    12.40    23.41   835.38     0.00     0.00   835.40      .02      .01      .00   817.97
    9600.    3549.   3285.    2766.    4506.    2491.    2596.     525.      44.   817.97
      .57      .79    1.32     1.07     .072     .039     .066     .038   811.97    70.00
 .000114       72.      72.      72.        0        0        0 -3593.50  1094.89  1164.89

¥SECNO 12.500
3280 CROSS SECTION      12.50 EXTENDED      11.06 FEET

          MICH DNR 1975 FLOOD HIGH WATER MARK 829.36 AT SECTION 12.5

    12.50    23.41   835.38     0.00     0.00   835.40      .02      .00      .00   817.97
    9600.    2514.   4817.    2269.    6878.    3123.    3190.     535.      44.   817.97
      .57      .37    1.54      .71     .100     .039     .055     .038   811.97    70.00
 .000027       1.       1.       1.        0        0        0     0.00  1094.90  1164.90

¥SECNO 13.000

3470 ENCROACHMENT STATIONS=     160.0    1310.0  TYPE=      1  TARGET=     -160.000
    13.00    24.43   835.40     0.00     0.00   835.41      .01      .01      .00   820.00
    9600.    1898.   4205.    3497.    5473.    3434.    5754.     497.      77.   818.40
      .73      .33    1.22      .61     .088     .039     .055     .038   810.97   160.00
 .000017      500.     475.     525.        1        0        0     0.00  1143.16  1303.16

CCHV=    .100 CEHV=    .300
¥SECNO 14.000
    14.00    24.42   835.42     0.00     0.00   835.44      .02      .03      .00   819.50
    9600.     487.   5943.    2950.    1305.    4447.    4475.    1103.     109.   818.80
     1.10      .53    1.34      .66     .055     .039     .055     .038   811.00    10.47
 .000021     1300.    1375.    1510.        0        0        0     0.00   802.68   813.15

1490 NH CARD USED
¥SECNO 14.500
3280 CROSS SECTION      14.50 EXTENDED       5.45 FEET

   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

CONFLUENCE RED CEDAR AND SYCAMORE CREEK

14.50	23.66	835.46	0.00	0.00	835.46	.00	.02	.00	818.10
9600.	872.	7603.	1124.	2311.	16096.	2705.	1629.	144.	817.00
1.99	.38	.47	.42	.077	.058	.055	.038	811.80	0.00
.000010	1375.	1550.	1255.	1	0	0	0.00	1360.00	1360.00

#SECNO 15.000

3470 ENCROACHMENT STATIONS= 1.0 2470.0 TYPE= 1 TARGET= 2469.000

15.00	31.99	835.46	0.00	0.00	835.47	.00	.00	.00	818.47
7200.	4767.	779.	1654.	23811.	1685.	6857.	2049.	173.	818.47
2.73	.20	.46	.24	.075	.039	.044	.038	813.47	2.25
.000003	950.	450.	400.	0	0	0	0.00	2457.70	2459.95

CCHV= .300 CEHV= .500

1490 NH CARD USED

#SECNO 16.000

3280 CROSS SECTION 14.00 EXTENDED 13.77 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 830.00 ELREA= 841.00

AURELIUS RD. BRIDGE

14.00	23.46	835.46	0.00	0.00	835.47	.00	.00	.00	818.00
7200.	4205.	2995.	0.	26268.	3916.	0.	2291.	190.	818.50
2.98	.16	.76	0.00	.180	.033	.044	.038	812.00	167.88
.000009	300.	500.	475.	0	0	0	0.00	1927.12	2095.00

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.56	3.00	0.00	81.00	6.00	2821.00	2.04	812.00	812.00

#SECNO 16.500

6840,FLOW IS BY WEIR AND LOW FLOW

3280 CROSS SECTION 16.50 EXTENDED 13.80 FEET

3420 BRIDGE W.S.= 835.47 BRIDGE VELOCITY= 1.59 CALCULATED CHANNEL AREA= 2883.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.00	835.50	.00	2558.	4571.	2821.	3150.	837.00	829.14

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 830.00 ELREA= 841.00

16.50	23.50	835.50	0.00	0.00	835.50	.00	.04	0.00	819.00
7200.	4206.	2994.	0.	26333.	3923.	0.	2336.	193.	818.50

4.02	.16	.76	0.00	.180	.033	.044	.038	812.00	166.50
.000009	65.	65.	65.	0	0	6	0.00	1928.50	2095.00

1490 NH CARD USED
*SECNO 17.000

3265 DIVIDED FLOW

17.00	21.34	835.51	0.00	0.00	835.52	.01	.01	.00	820.27
7200.	4721.	2426.	53.	20701.	2209.	279.	3366.	264.	818.67
3.78	.23	1.10	.19	.124	.033	.099	.036	814.17	12.30
.000011	1800.	800.	650.	0	0	0	0.00	1692.24	1705.10

CCHV= .300 CEHV= .500
*SECNO 18.000

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= 800.0 1922.0 TYPE= 1 TARGET= 1122.000

G.T.W.	R.R.	BRIDGE							
18.00	24.76	835.53	0.00	0.00	835.53	.01	.01	.00	822.67
7200.	3092.	2920.	1188.	7181.	2598.	2784.	3836.	298.	823.27
4.19	.43	1.12	.43	.075	.035	.075	.035	810.77	800.00
.000015	1250.	830.	675.	0	0	0	0.00	892.26	1692.26

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	RWC	RWP	RAREA	SS	ELCHU	ELCHD
	1.05	1.91	3.00	0.00	50.00	8.00	1400.00	2.21	811.67	810.77

*SECNO 18.500
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	RAREA	TRAPEZOID AREA	ELLC	ELTRD
836.31	835.54	.00	5299.	1900.	1400.	1412.	829.17	833.07

3470 ENCROACHMENT STATIONS= 800.0 1922.0 TYPE= 1 TARGET= 1122.000

18.50	23.90	835.57	0.00	0.00	835.58	.01	.04	0.00	823.17
7200.	3166.	2814.	1220.	7054.	2587.	2744.	3844.	299.	822.17
4.20	.45	1.09	.44	.075	.039	.075	.035	811.67	800.00
.000017	26.	26.	26.	0	0	5	0.00	892.55	1692.55

*SECNO 19.000

3470 ENCROACHMENT STATIONS= 850.0 1619.0 TYPE= 1 TARGET= 769.000

19.00	21.71	835.58	0.00	0.00	835.60	.01	.01	.00	821.17
7200.	4637.	2443.	121.	9066.	1665.	284.	4014.	311.	818.97
4.41	.51	1.47	.42	.090	.039	.075	.035	813.87	850.00
.000028	650.	640.	550.	0	0	0	0.00	749.46	1599.46

```
*SECNO 21.000
3280 CROSS SECTION      21.00 EXTENDED      10.14 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       838.57 ELREA=       838.57

        C. AND O. R.R. BRIDGE

    21.00     20.03    835.60      0.00      0.00    835.71       .10       .07       .04    822.57
    7200.        0.     7200.        0.        0.     2806.        0.     4175.      321.    820.77
     4.56      0.00      2.57      0.00      .075      .039      .075      .036    815.57    950.00
  .000111      700.     1637.     1060.         0         0         0      0.00    162.00   1112.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .90      1.56      2.90      0.00     75.00      7.00   1544.00     3.62    816.07    815.57

*SECNO 21.500
3280 CROSS SECTION      21.50 EXTENDED      12.87 FEET

PRESSURE FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                 AREA
   836.13    835.70      .00         0.     7200.     1544.     1368.      828.27    838.27

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       838.57 ELREA=       838.57

    21.50     19.97    836.04      0.00      0.00    836.13       .09       .42      0.00    821.67
    7200.        0.     7200.        0.        0.     2931.        0.     4175.      321.    820.77
     4.56      0.00      2.46      0.00      .075      .035      .075      .036    816.07    950.00
  .000075       10.       10.       10.         2         0         0      0.00    162.00   1112.00

*SECNO 22.000
   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

    22.00     21.11    836.11      0.00      0.00    836.22       .12       .08       .01    818.00
    7200.      270.     5893.     1037.      343.     1973.     1168.     4245.      326.    820.00
     4.66       .79      2.99       .89      .075      .035      .075      .036    815.00    147.27
  .000095      975.      950.      930.         1         0         0      0.00    270.93    418.20

*SECNO 22.010

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  848.80 MAX ELLC=  849.00

        I-496 EASTBOUND     (BRIDGE OUTLET)
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   22.01    21.10   836.10     0.00     0.00   836.23      .13      .00      .00   818.00
    7200.     287.    5910.    1003.     343.    1901.    1074.    4245.     326.   830.00
    4.66      .84     3.11      .93      .075     .035     .075     .036  815.00   147.29
 .000108       1.       1.       1.        0        0        0  -163.47   270.89   418.17

*SECNO 23.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  849.00 MAX ELLC=  849.70

          I-494 WESTBOUND      (BRIDGE INLET)

   23.00    21.60   836.10     0.00     0.00   836.27      .17      .02      .02   819.00
    7200.     269.    6440.     492.     297.    1864.     552.    4258.     327.   825.50
    4.68      .91     3.45      .89      .075     .035     .075     .036  814.50   151.74
 .000137      190.     190.     190.        1        0        0   -74.51   216.99   396.95

*SECNO 23.500
   23.50    21.73   836.23     0.00     0.00   836.30      .07      .00      .03   819.00
    7200.     260.    6244.     696.     425.    2711.    1170.    4258.     327.   825.50
    4.68      .61     2.30      .59      .075     .035     .075     .036  814.50   173.30
 .000058       1.       1.       1.        2        0        0     0.00   347.55   520.85

*SECNO 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      845.97 ELREA=      851.97

   24.00    19.81   836.28     0.00     0.00   836.40      .11      .08      .02   845.57
    7200.       0.    7200.       0.       0.    2661.       0.    4329.     333.   829.11
    4.77     0.00     2.71     0.00      .075     .035     .075     .036  816.47   349.10
 .000158      850.     880.     940.        2        0        0     0.00   224.58   573.68

*SECNO 24.500

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      WIN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  849.17 MAX ELLC=  847.57

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      845.97 ELREA=      851.97

        U.S. 127 SOUTHBOUND      (BRIDGE OUTLET)

   24.50    19.80   836.27     0.00     0.00   836.42      .15      .00      .02   845.57
    7200.       0.    7200.       0.       0.    2318.       0.    4329.     333.   843.47
    4.77     0.00     3.11     0.00      .075     .035     .075     .036  816.47   349.12
 .000226       1.       1.       1.        1        0        0  -146.90   206.05   573.68
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*SECNO 25.000
3280 CROSS SECTION 25.00 EXTENDED 8.19 FEET

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD= 850.97 MAX ELLC= 846.47

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 845.97 ELREA= 851.97

U.S. 127 NORTHBOUND (BRIDGE INLET)

25.00	20.79	836.36	0.00	0.00	836.47	.11	.04	.01	828.17
7200.	0.	7200.	0.	0.	2760.	0.	4341.	334.	830.41
4.79	0.00	2.61	0.00	.025	.035	.025	.036	815.57	214.00
.000156	200.	200.	200.	2	0	0	-143.54	237.01	451.01

*SECNO 25.500
3280 CROSS SECTION 25.50 EXTENDED 9.60 FEET

25.50	20.90	836.47	0.00	0.00	836.53	.05	.04	.02	828.17
7200.	666.	6479.	55.	1368.	3287.	117.	4377.	337.	830.41
4.85	.49	1.97	.47	.090	.035	.090	.036	815.57	0.00
.000078	460.	400.	410.	2	0	0	0.00	500.00	500.00

*SECNO 27.000
3280 CROSS SECTION 27.00 EXTENDED 10.60 FEET

27.00	20.50	836.57	0.00	0.00	836.57	.00	.03	.02	819.37
7200.	4121.	1228.	1851.	14209.	1087.	6346.	4757.	374.	816.17
5.61	.29	1.13	.29	.090	.035	.090	.036	816.07	0.00
.000014	1400.	1100.	1010.	2	0	0	0.00	2061.84	2061.84

*SECNO 27.100
3280 CROSS SECTION 27.10 EXTENDED 10.60 FEET

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 826.97 MAX ELLC= 829.97

KALAMAZOO ST. BRIDGE

27.10	20.50	836.57	0.00	0.00	836.57	.00	.00	.00	819.37
7200.	5588.	377.	1235.	11423.	876.	3285.	4757.	374.	816.17
5.61	.49	.43	.38	.039	.035	.039	.036	816.07	0.00
.000011	1.	1.	1.	0	0	0	-6058.77	2061.84	2061.84

*SECNO 27.400
3280 CROSS SECTION 27.40 EXTENDED 10.60 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

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 826.97 MAX ELLC= 829.97

27.40	20.50	836.57	0.00	0.00	836.57	.00	.00	.00	819.37
7200.	5588.	376.	1235.	11425.	876.	3286.	4771.	376.	816.17
5.63	.49	.43	.38	.039	.035	.039	.036	816.07	0.00
.000011	38.	38.	38.	0	0	0	-6058.77	2061.84	2061.84

*SECNO 27.500
3280 CROSS SECTION 27.50 EXTENDED 10.60 FEET

MICH DNR 1975 FLOOD HIGH WATER MARK 831.9 AT SECTION 27.5

27.50	20.50	836.57	0.00	0.00	836.57	.00	.00	.00	819.37
7200.	3888.	847.	2445.	14212.	1087.	6348.	4771.	376.	816.17
5.63	.27	.80	.39	.077	.040	.055	.036	816.07	0.00
.000009	1.	1.	1.	0	0	0	0.00	2061.84	2061.84

*SECNO 28.000

28.00	21.13	836.60	0.00	0.00	836.61	.01	.03	.00	824.17
7200.	1119.	2309.	3772.	2894.	1861.	5965.	5500.	451.	827.67
6.32	.39	1.24	.63	.077	.044	.055	.037	815.47	0.00
.000030	1962.	1962.	1962.	0	0	0	0.00	1250.00	1250.00

*SECNO 30.000

30.00	20.08	836.58	0.00	0.00	836.81	.23	.10	.11	835.00
7200.	1.	6910.	289.	3.	1755.	277.	5687.	472.	833.00
6.42	.40	3.94	1.04	.060	.040	.060	.037	816.50	16.52
.000410	1220.	1275.	1300.	2	0	0	0.00	233.48	250.00

*SECNO 31.000
3280 CROSS SECTION 31.00 EXTENDED 1.78 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.00 ELREA= 835.50

HARRISON RD. BRIDGE

31.00	18.28	836.88	0.00	0.00	837.21	.34	.35	.05	832.80
7200.	0.	6754.	446.	0.	1403.	495.	5731.	478.	826.70
6.46	0.00	4.81	.90	.060	.040	.060	.037	818.60	315.25
.000528	750.	750.	750.	2	0	0	0.00	363.75	479.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	58.00	0.00	1014.00	1.34	819.00	819.00

*SECNO 31.500
3280 CROSS SECTION 31.50 EXTENDED 1.60 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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.10	837.61	0.00	1930.	5314.	1014.	1281.	835.10	835.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.00 ELREA= 835.50

31.50	21.20	837.30	0.00	0.00	837.54	.24	.33	0.00	828.30
7200.	0.	6873.	327.	0.	1717.	484.	5724.	478.	835.20
6.47	0.00	4.00	.67	.060	.040	.060	.037	816.10	315.25
.000337	57.	57.	57.	2	0	2	0.00	363.75	679.00

CCHV= .300 CEHV= .500

¥SECNO 33.000

33.00	18.78	837.68	0.00	0.00	837.70	.02	.10	.06	824.60
7200.	4239.	2640.	321.	4330.	1640.	569.	5826.	490.	824.50
6.69	.98	1.61	.54	.044	.042	.044	.037	818.90	0.00
.000046	1240.	875.	600.	1	0	0	0.00	781.00	781.00

¥SECNO 33.010

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 829.30 MAX ELLC= 836.50

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

33.01	18.77	837.67	0.00	0.00	837.71	.04	.00	.01	824.60
7200.	4510.	2434.	255.	3124.	1434.	353.	5826.	490.	824.50
6.69	1.44	1.70	.73	.044	.042	.044	.037	818.90	0.00
.000154	1.	1.	1.	0	0	0	-1621.71	781.00	781.00

¥SECNO 33.090

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 829.00 MAX ELLC= 836.20

33.09	18.77	837.67	0.00	0.00	837.71	.04	.00	.00	824.60
7200.	4525.	2419.	256.	3129.	1425.	357.	5828.	491.	824.50
6.70	1.45	1.70	.72	.044	.042	.044	.037	818.90	0.00
.000155	16.	16.	16.	0	0	0	-1617.99	781.00	781.00

¥SECNO 33.100

33.10	18.79	837.69	0.00	0.00	837.71	.02	.00	.00	825.50
7200.	4273.	2555.	371.	4474.	1641.	654.	5828.	491.	825.00
6.70	.96	1.56	.57	.044	.042	.044	.037	818.90	0.00
.000044	1.	1.	1.	1	0	0	0.00	781.00	781.00

¥SECNO 34.000

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
34.00	18.03	837.73	0.00	0.00	837.74	.01	.03	.00	828.00
7200.	5540.	1660.	0.	7384.	1667.	0.	5965.	505.	845.00
6.98	.75	1.00	0.00	.044	.042	.044	.039	819.70	.08
.000023	440.	1635.	1965.	2	0	0	0.00	859.55	859.63

*SECNO 36.000
3280 CROSS SECTION 36.00 EXTENDED 5.76 FEET

KALAMAZOO ST. BRIDGE

36.00	17.35	837.75	0.00	0.00	837.77	.02	.02	.00	823.00
7200.	4829.	2125.	246.	5394.	1498.	302.	6086.	516.	823.00
7.16	.90	1.42	.81	.044	.042	.044	.039	820.40	0.00
.000039	520.	1110.	1150.	1	0	0	0.00	785.00	785.00

*SECNO 36.100
3280 CROSS SECTION 36.10 EXTENDED 5.74 FEET

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 832.80 MAX ELLC= 836.10

36.1	17.34	837.74	0.00	0.00	837.78	.05	.00	.01	823.00
7200.	4567.	2293.	340.	2763.	1260.	189.	6086.	516.	823.00
7.16	1.65	1.82	1.80	.044	.042	.044	.039	820.40	0.00
.000337	1.	1.	1.	1	0	0	-2970.21	785.00	785.00

*SECNO 36.400
3280 CROSS SECTION 36.40 EXTENDED 4.35 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 832.80 MAX ELLC= 836.10

36.40	17.36	837.76	0.00	0.00	837.80	.05	.02	.00	823.00
7200.	4684.	2392.	122.	2777.	1271.	126.	6091.	518.	823.00
7.17	1.69	1.88	.97	.044	.042	.044	.039	820.40	0.00
.000357	58.	58.	58.	0	0	0	-718.75	785.00	785.00

*SECNO 36.500
3280 CROSS SECTION 36.50 EXTENDED 4.36 FEET

36.50	17.35	837.75	0.00	0.00	837.81	.05	.00	.00	823.00
7200.	3444.	3625.	130.	3199.	1508.	193.	6091.	518.	823.00
7.17	1.08	2.40	.68	.044	.042	.044	.039	820.40	0.00
.000112	1.	1.	1.	0	0	0	0.00	785.00	785.00

CCHV= .300 CEHV= .500
*SECNO 38.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
0	QLOB	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
38.00	17.48	837.88	0.00	0.00	838.00	.11	.16	.03	823.60
7200.	576.	4674.	1950.	446.	1497.	1064.	6196.	534.	829.50
7.29	1.29	3.12	1.83	.044	.042	.044	.039	820.40	122.79
.000199	1270.	1050.	1070.	2	0	0	0.00	442.29	565.08

¥SECNO 38.010

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

38.01	17.47	837.87	0.00	0.00	838.01	.14	.00	.01	823.60
7200.	45.	4389.	2767.	91.	1416.	940.	6196.	534.	829.50
7.29	.49	3.10	2.94	.044	.042	.044	.039	820.40	123.04
.000523	1.	1.	1.	1	0	0	-557.84	442.02	565.06

¥SECNO 38.090

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD= 836.90 MAX ELLC= 840.90

38.09	17.48	837.88	0.00	0.00	838.02	.14	.01	.00	823.60
7200.	45.	4389.	2766.	91.	1416.	940.	6197.	535.	829.50
7.29	.49	3.10	2.94	.044	.042	.044	.039	820.40	123.08
.000524	17.	17.	17.	0	0	0	-557.71	441.98	565.06

¥SECNO 38.100

38.10	17.52	837.92	0.00	0.00	838.03	.11	.00	.01	823.60
7200.	581.	4665.	1954.	453.	1501.	1069.	6197.	535.	829.50
7.29	1.28	3.11	1.83	.044	.042	.044	.039	820.40	121.56
.000197	1.	1.	1.	2	0	0	0.00	443.64	565.20

CCHV= .100 CEHV= .300

¥SECNO 38.500

38.50	13.95	837.95	0.00	0.00	838.28	.33	.18	.06	829.60
7200.	607.	5698.	894.	227.	1145.	321.	6227.	539.	829.60
7.33	2.68	4.98	2.78	.044	.042	.044	.039	824.00	94.82
.000691	570.	545.	540.	2	0	0	0.00	214.84	309.67

¥SECNO 39.000

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	MTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

MICHIGAN STATE UNIVERSITY DAM DOWNSTREAM SECTION

39.00	10.96	837.82	0.00	0.00	838.35	.53	.01	.06	829.60
7200.	596.	5722.	882.	218.	896.	313.	6227.	539.	829.60
7.33	2.73	6.39	2.82	.044	.030	.044	.039	826.86	97.01
.000724	10.	10.	10.	2	0	0	0.00	211.78	308.79

¥SECNO 40.000

MICHIGAN STATE UNIVERSITY DAM UPSTREAM SECTION

40.00	10.53	837.83	0.00	0.00	838.36	.53	.01	.00	829.60
7200.	482.	5950.	768.	187.	947.	281.	6228.	539.	829.60
7.33	2.58	6.29	2.73	.044	.030	.044	.039	827.30	96.78
.000724	20.	20.	20.	0	0	0	0.00	212.10	308.88

CCHV= .300 CEHV= .500
¥SECNO 41.000

3265 DIVIDED FLOW

3280 CROSS SECTION 41.00 EXTENDED .32 FEET

MICHIGAN STATE UNIVERSITY FOOTBRIDGE

41.00	17.12	838.12	0.00	0.00	838.51	.39	.11	.04	835.50
7200.	11.	7120.	69.	14.	1413.	52.	6235.	540.	831.00
7.34	.82	5.04	1.32	.044	.034	.044	.039	821.00	130.51
.000423	210.	205.	205.	2	0	0	0.00	157.22	410.00

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.40	2.50	0.00	75.00	0.00	1400.00	3.00	821.00	821.00

¥SECNO 41.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 838.698 EGLWC= 838.513 ELLC= 837.900 PCWSE= 838.123 ELTRD= 837.800

3265 DIVIDED FLOW

3280 CROSS SECTION 41.10 EXTENDED .32 FEET

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 837.80 MAX ELLC= 837.90

41.10	17.12	838.12	0.00	0.00	838.54	.42	.01	.01	835.50
7200.	0.	7197.	3.	0.	1390.	7.	6235.	540.	831.00
7.34	0.00	5.18	.40	.044	.034	.044	.039	821.00	130.51
.001106	17.	17.	17.	0	0	0	-82.04	157.22	410.00

CCHV= .100 CEHV= .300
¥SECNO 42.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

FARM LANE BRIDGE

USGS GUAGE LOCATED IN LEFT UPSTREAM BRIDGE ABUTMENT

1975 FLOOD RECORDED AT 836.34 ON USGS GUAGE

42.00	15.78	838.78	0.00	0.00	839.08	.30	.53	.01	837.50
7200.	0.	7200.	0.	0.	1650.	0.	6268.	543.	829.30
7.40	0.00	4.36	0.00	.040	.034	.040	.039	823.00	221.00
.000346	1055.	925.	905.	2	0	0	0.00	116.00	337.00

*SECNO 42.010

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= 26 MIN ELTRD= 842.30 MAX ELLC= 840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.01	15.75	838.75	0.00	0.00	839.09	.34	.00	.01	837.50
7200.	0.	7200.	0.	0.	1531.	0.	6268.	543.	829.30
7.40	0.00	4.70	0.00	.040	.034	.040	.039	823.00	221.00
.000527	1.	1.	1.	2	0	0	-353.71	116.00	337.00

*SECNO 42.090

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 842.30 MAX ELLC= 840.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.09	15.77	838.77	0.00	0.00	839.14	.36	.04	.01	837.50
7200.	0.	7200.	0.	0.	1489.	0.	6270.	543.	829.30
7.40	0.00	4.84	0.00	.040	.034	.040	.039	823.00	221.00
.000558	74.	74.	74.	0	0	0	-401.29	116.00	337.00

*SECNO 42.100

3280 CROSS SECTION 42.10 EXTENDED 1.23 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 846.30 ELREA= 841.10

42.10	15.83	838.83	0.00	0.00	839.14	.31	.00	.01	837.50
7200.	0.	7200.	0.	0.	1613.	0.	6270.	543.	829.30
7.40	0.00	4.46	0.00	.040	.032	.040	.039	823.00	221.00
.000341	1.	1.	1.	2	0	0	0.00	116.00	337.00

CCHV= .300 CEHV= .500
*SECNO 43.000

3470 ENCROACHMENT STATIONS= 50.0 412.0 TYPE= 1 TARGET= 362.000

43.00	16.29	839.19	0.00	0.00	839.31	.13	.12	.05	828.40
7200.	691.	4968.	1540.	509.	1528.	863.	6302.	546.	828.40
7.46	1.36	3.25	1.78	.040	.030	.040	.039	822.90	68.16
.000127	655.	580.	700.	2	0	0	0.00	343.84	412.00

CCHV= .100 CEHV= .300

MOORE BUSINESS FORMS, INC. 23

*SECNO 44.000

3470 ENCROACHMENT STATIONS= 291.0 698.4 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.60 ELREA= 843.80

BOGUE ST. BRIDGE

44.00	16.87	839.27	0.00	0.00	839.48	.22	.14	.03	830.10
7200.	0.	7200.	0.	0.	1934.	0.	6354.	552.	831.00
7.53	0.00	3.72	0.00	.055	.030	.055	.039	822.40	496.64
.000186	1000.	925.	975.	2	0	0	0.00	146.47	643.11

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	3.00	0.00	75.00	0.00	1800.00	2.95	822.50	822.50

*SECNO 44.500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
0	QLOB	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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
839.66	839.55	0.00	0.	7200.	1800.	1905.	838.20	842.60

3470 ENCROACHMENT STATIONS= 291.0 698.4 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 842.60 ELREA= 843.80

44.50	17.77	839.47	0.00	0.00	839.66	.18	.17	0.00	830.80
7200.	0.	7200.	0.	0.	2091.	0.	6358.	552.	833.20
7.54	0.00	3.44	0.00	.075	.030	.055	.039	821.70	497.61
.000164	72.	72.	72.	2	0	0	0.00	157.14	654.75

CCHV= .300 CEHV= .500

*SECNO 45.000

45.00	17.76	839.54	0.00	0.00	839.81	.24	.12	.03	828.00
7200.	647.	6372.	180.	694.	1525.	145.	6392.	554.	833.00
7.59	.93	4.18	1.24	.075	.030	.055	.038	821.80	346.84
.000202	750.	660.	650.	2	0	0	0.00	323.18	670.02

CCHV= .100 CEHV= .300

*SECNO 46.000

3280 CROSS SECTION 46.00 EXTENDED 5.91 FEET

46.00	18.01	839.91	0.00	0.00	840.00	.09	.18	.01	828.00
7200.	960.	5898.	342.	1727.	2177.	345.	4504.	570.	828.00
7.77	.56	3.71	.94	.075	.030	.055	.038	821.90	401.27
.000079	1330.	1550.	1625.	2	0	0	0.00	523.73	925.00

CCHV= .300 CEHV= .500
¥SECNO 47.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

HAGADORN RD. BRIDGE

1975 FLOOD HIGH WATER MARK 837.52 AT OUTLET OF HAGADORN BRIDGE

47.00	18.24	839.84	0.00	0.00	840.23	.39	.08	.15	826.90
7200.	38.	7162.	0.	104.	1431.	0.	6546.	576.	825.90
7.80	.37	5.01	0.00	.075	.030	.070	.038	821.60	968.18
.000239	630.	625.	575.	2	0	0	0.00	305.37	1495.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.40	3.00	0.00	84.00	4.00	1300.00	0.00	824.40	824.40

¥SECNO 47.500

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
840.39	840.29	.02	602.	6556.	1300.	1238.	839.50	839.30

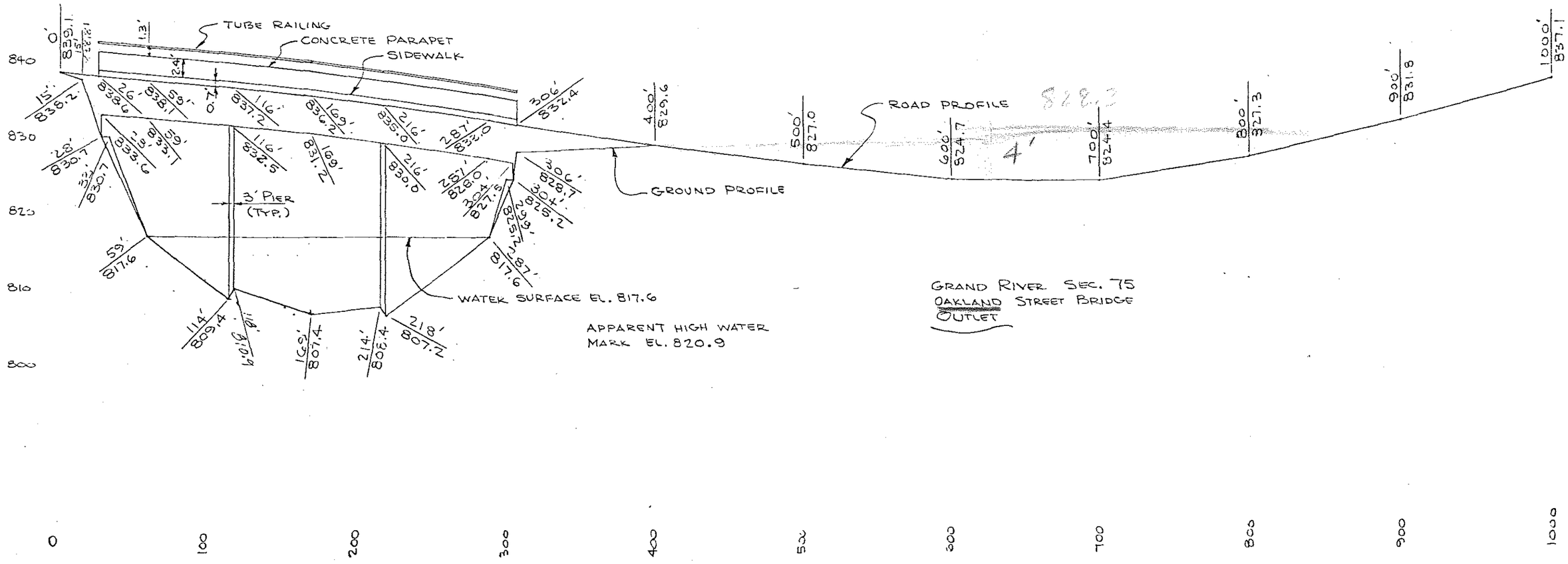
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 839.30 ELREA= 843.50

47.50	18.42	840.02	0.00	0.00	840.39	.38	.17	0.00	826.90
7200.	48.	7152.	0.	147.	1446.	0.	6548.	576.	825.90
7.81	.33	4.95	0.00	.075	.030	.070	.038	821.60	957.87
.000230	59.	59.	59.	2	0	3	0.00	342.96	1495.00

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

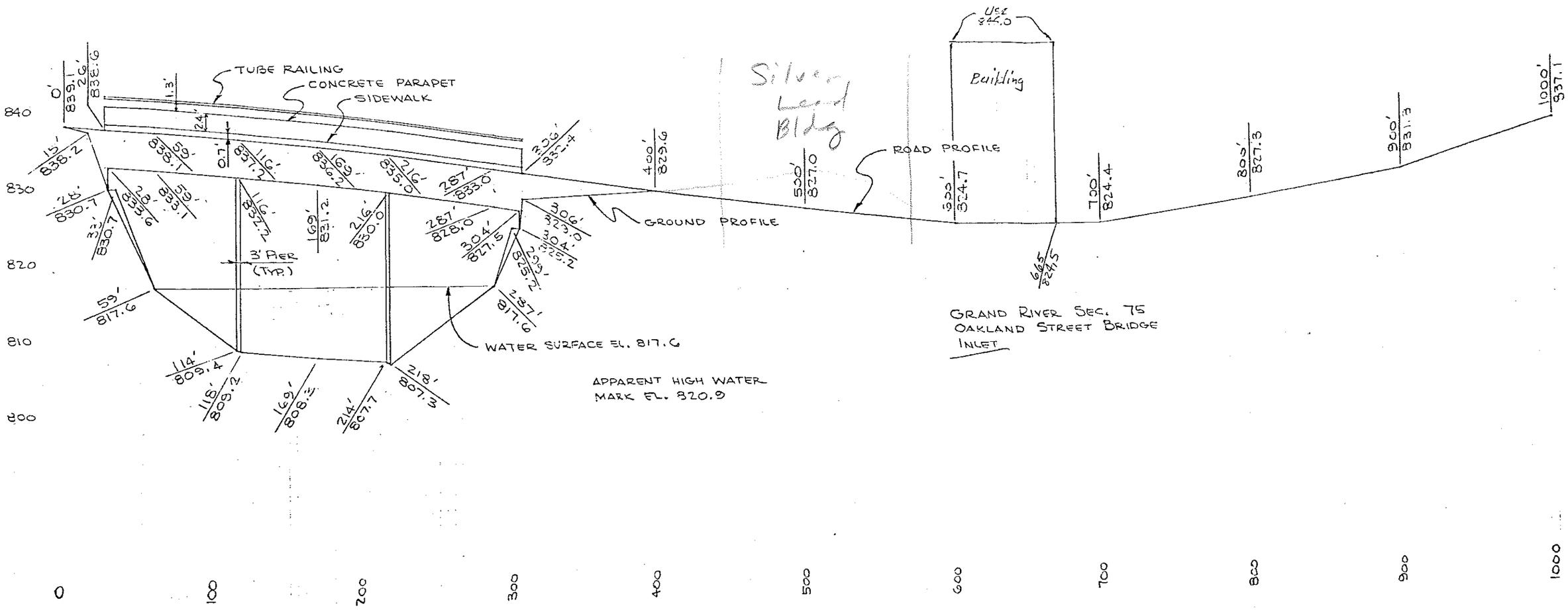
T1 100 YEAR FLOOD ENCROACHED
T2 STARTING ELEVATION FROM GRAND RIVER PROFILE
T3 RED CEDAR RIVER

MOORE BUSINESS FORMS, INC. 23



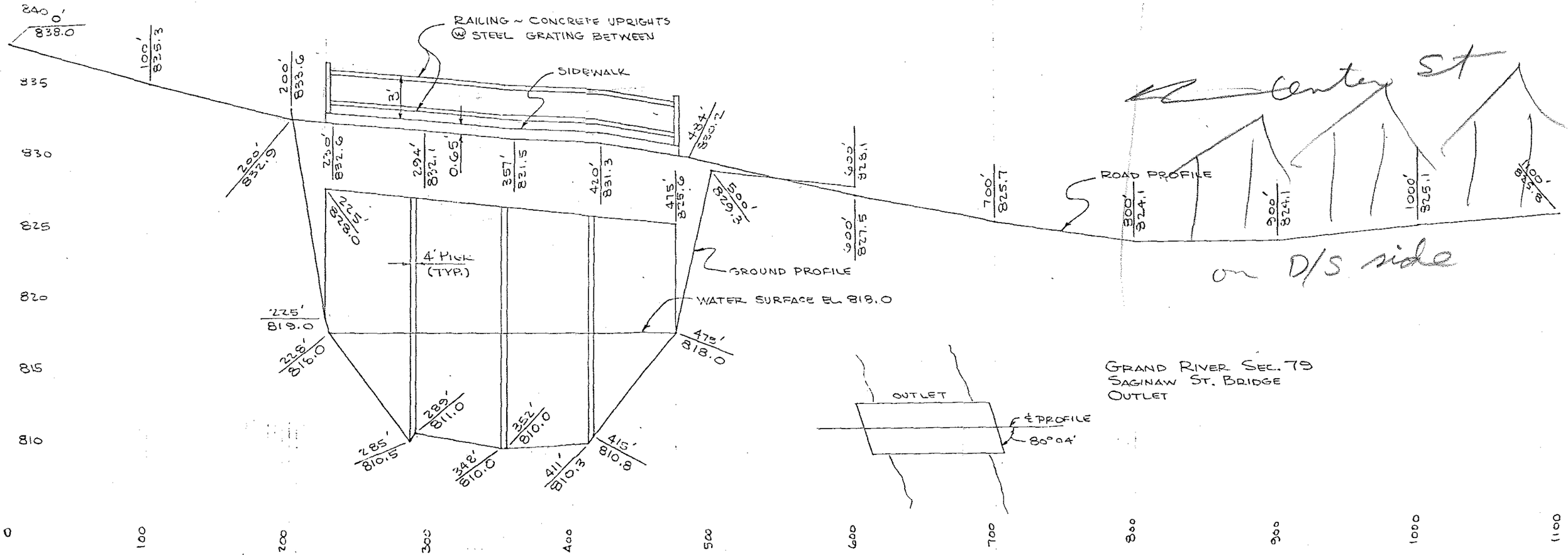
GRAND RIVER SEC. 75
OAKLAND STREET BRIDGE
OUTLET

Filled d/s

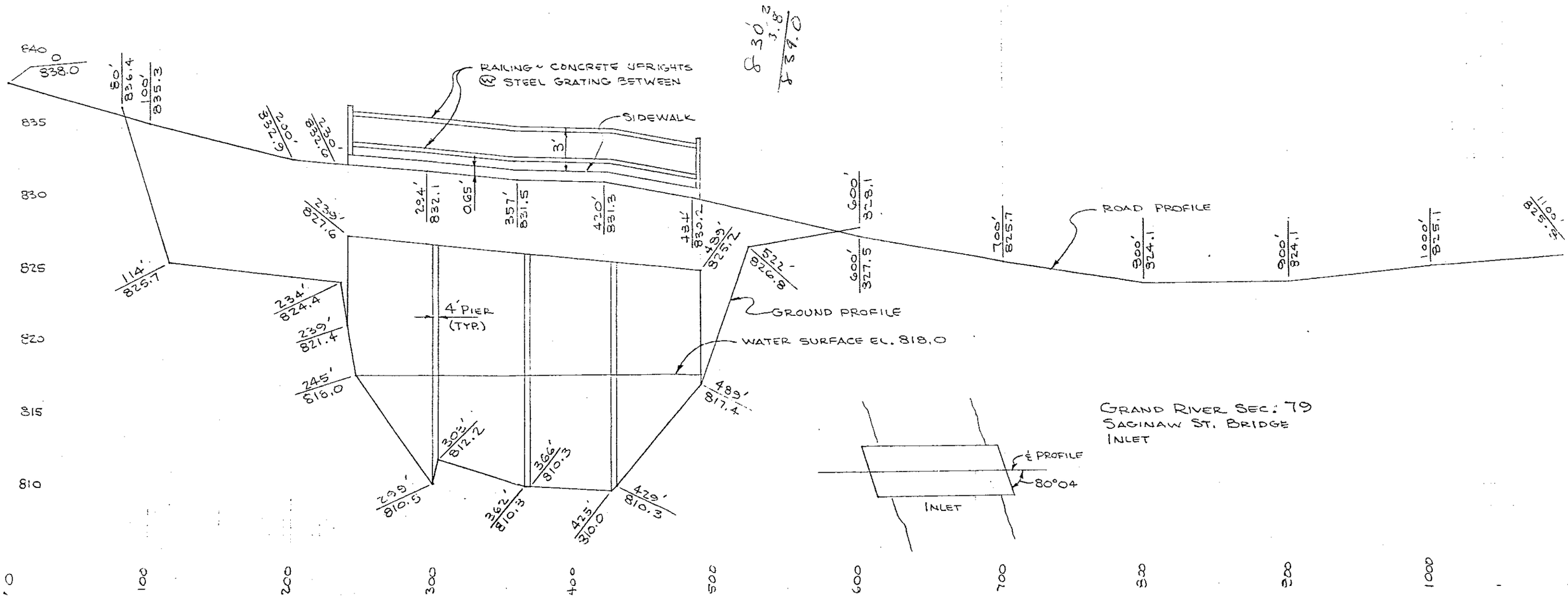


Silver Land Bldg

GRAND RIVER SEC. 75
OAKLAND STREET BRIDGE
INLET



GRAND RIVER SEC. 79
SAGINAW ST. BRIDGE
OUTLET



GRAND RIVER SEC: 79
SAGINAW ST. BRIDGE
INLET

SNELL ENVIRONMENTAL GROUP, INC.

City of Lansing

Flood Insurance Study
Mud Lake Drain

Hydraulic Analysis Report

Snell Environmental Group

Engineering · Planning · Research

LETTER OF TRANSMITTAL

DATE	JOB NO.
10/4/78	17281A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: City of Lansing	
Flood Insurance Studies	
Mud Lake Drain	
Hydraulic Analysis Report	

TO: Mr. Daniel H. Morgan, P.E.
Chief, Flood Insurance Unit
M DNR - 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 ☐ Partial Payment Request ☒ Reports ☐ Prints ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	10/4/78		Hydraulic Analysis Report
1	10/4/78		Computer Printout File

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☐ For review and comment ☐ _____
☐ FOR BIDS USE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS: _____

COPY TO: SEG File No. 17281A

SIGNED: Sam M. Nalluswami
Project Coordinator

1120 May St., Lansing, Mich. 48906 • Telephone (517) 374-6800 • Additional offices in Akron • Indianapolis • Tokyo • Dacca • Amman
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CABLE "SNELL" TELEX 229458

MUD LAKE DRAIN

HYDRAULIC ANALYSIS REPORT

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6. STARTING CONDITIONS

7. SPECIAL PROBLEMS

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Appendix C	Calculations
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Appendix F	Detailed Computer Printout
	10-, 50-, 100-, 500-Year Flood Water Surface Profile With IPLOTS for 100-Year Flood Water Surface Profile

1. INTRODUCTION

Mud Lake Drain is a small stream in the City of Lansing and Delhi Township, Ingham County, Michigan. The detailed hydraulic analysis was performed for a 2.6 mile reach, extending from Sycamore Creek to Willoughby Road. The end product is to be a flood insurance study report, including flood hazard boundary and flood insurance rate maps.

2. FLOOD FLOWS

Flood flows were obtained from a hydrologic analysis using the S.C.S. computer program TR-20 (Reference 1). The TR-20 model was calibrated using the U.S.G.S. stream gage record of the April, 1975 flood. The results were reviewed and approved by the Michigan Department of Natural Resources, Water Management Division. Table 1 gives a summary of the flow as used in this analysis.

TABLE 1

	Q (cfs)			
Reach	10-Year	50-Year	100-Year	500-Year
Sycamore Creek to Penn Central Railroad	180	235	270	385
Penn Central Railroad to I-96	320	420	465	555
I-96 to Cedar Street	110	130	135	145

Qs OK
RCS
10/12/78

3. METHOD OF ANALYSIS

The HEC-2 computer program, developed by the U.S. Army Corps of Engineers, was used to compute water surface profiles (References 2, 3 and 4). Cross-sections (Appendix A) used in the analysis were obtained from field survey or fabricated from 2 ft. contour interval maps. The cross-sections were repreated as required. Cross-section locations were chosen from field inspection, review of available contour maps, and according to the guidelines suggested by the HEC-2 training documents. Cross-sections have been plotted in the computer printout in Appendix F.

4. VARIABLES AND COEFFICIENTS

The "Manning" roughness factors chosen from field inspection are based on values listed on pages 110-113 in Open Channel Hydraulics by Ven Te Chow (Reference 5), the Soil Conservation Service Publication, Guide for Selecting Roughness Coefficient "n" Values for Channels by Guy B. Fasken (Reference

6), and Geological Survey Water Supply Paper No. 1849, Roughness Characteristics of Natural Channels by Harry H. Barnes, Jr. (Reference 7). Roughness coefficients varied to model changes in channel and overbank conditions. Table 2 gives a summary of the "n" values used. These "n" values were selected for mid-spring conditions.

TABLE 2

"n" value	Description
0.012 - 0.033	1. Culverts (CMP)
0.030 - 0.065	2. Channel
0.030 - 0.045	3. Lawns
0.045 - 0.060	4. Meadows
0.070 - 0.100	5. Woods and Brush

The contraction and expansion coefficients used were 0.3 and 0.5 respectively, where transitions were abrupt and 0.1 and 0.3 respectively in reaches of gradual transitions. These coefficients were chosen based on the explanation on pages 461-468 of Open Channel Hydraulics by Ven Te Chow (Reference 5).

4.1 Bridge Analysis

Bridges and culverts were modelled using the special and normal bridge routines of HEC-2. Cross-sections were located according to the HEC-2 Training Document, Application of HEC-2 Bridge Routines (Reference 3). The special bridge routine was used for pressure flow and combination pressure and weir flow. The normal bridge was used for bridges where the friction losses controlled the flow over the roadway and for low flow. The orifice coefficient, XKOR, used in the Special Bridge Routine, was calculated from XKOR = $1. + k_e + k_f$. Calculations have been included in Appendix C. The weir coefficient COFQ, was obtained from page 46 of Bureau of Public Roads Publication, Hydraulics of Bridge Waterways by Joseph N. Bradley (Reference 8). The Manning's "n" values for CMP culverts were taken from page 10-78 of Bureau of Public Roads Publication, Capacity Charts for the Hydraulic Design of Highway Culverts (Reference 9). Bridge sketches and notes are given in Appendix B.

5. HIGH WATER MARKS

The U.S.G.S operated a stream gage on Mud Lake Drain for several years. The gage operation was discontinued in September, 1976. The period of record, although short, included the flood of April, 1975. This flood was slightly greater than the synthetically derived 100-year flood. A search of available records revealed no high water marks were recorded for the 1975 flood on Mud Lake Drain. Accordingly, no calibration of the 1975 flood was possible.

The gage records did provide a rating curve for one section. Fitting the rating curve for the 10-, and 50-year flows required using FN factors of 0.8 and 0.9 respectively. The "n" values for higher flows is thought to be due to increased turbulence caused by shifts of main flow from side to side. Guy B. Fasken suggests that effect may cause a 0.015 increase in "n" values (Reference 6). The rating curve did not extend to the 500-year flood flow. Accordingly, no calibration of the 500-year flow was possible.

6. STARTING CONDITIONS

The watershed of Sycamore Creek is substantially larger than that of Mud Lake Drain. However, the hydrologic models (References 10 and 11) gave similar peak times of flow. Accordingly, flood elevations on Sycamore Creek were used for the starting elevations on Mud Lake Drain.

Not true per R.C.S.

7. SPECIAL PROBLEMS

Jolly Road, Section A, was under high submergence for the 50-, 100-, and 500-year flows. Accordingly, it was coded as a normal bridge. The 10-year flow however, was combined pressure and weir flow. To account for this the 10-year flow was run as a special bridge and the elevation inserted at SECNO 1.5 with an X5 cards.

The culverts under I-96 and the interchange were coded as special bridge. As the 10- and 50-year flows went "low flow by nomal bridge" the reach length used was the equivalent length. This was calculated considering the difference between the channel "n" values and the culvert "n" value. These calculations are included in Appendix C.

The downstream face of the Willoughby Road - South Cedar Street culvert, Section A1, went to critical depth for all flows. This result is thought due to the restrictive size of this culvert.

All sections were plotted using the I-PLOT subroutine of HEC-2. The plots of sections with BT cards are irregular and do not match the input data. Careful checking of the input data and the HEC-2 output led to the conclusion that the problems in the I-PLOT subroutine do not affect the hydraulic computations. Accordingly, the input data was not revised.

REFERENCES

1. U.S. Soil Conservation Service Central Technical Unit, Technical Release No. 20, Computer Program for Project Formulation - Hydrology, May, 1965.

2. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile Users Manual, November, 1976.

3. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Training Document No. 6, Application of the HEC-2 Bridge Routines, June, 1974.

4. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Volume 6, Water Surface Profiles, July, 1975.

5. Chow, V. T., Open Channel Hydraulics, McGraw-Hill, New York, 1959.

6. Fasken, Guy B. Guide for Selecting Roughness Coefficient "n" Values for Channels, Soil Conservation Service - U.S. D.A., December, 1963.

7. Barnes, Harry H., Jr. Roughness Characteristics of Natural Channels, Geological Survey Water Supply Paper 1849, U.S. Department of Interior, 1977.

8. Bradley, Joseph N., Hydraulics of Bridge Waterways, Hydraulic Design Series No. 1, Bureau of Public Roads - U.S. Department of Transportation, 1970.

9. Bureau of Public Roads, Hydraulics Branch, Hydraulic Engineering Circular No. 10, Capacity Charts for the Hydraulic Design of Highway Culverts, March, 1965.

10. Snell Environmental Group, Sycamore Creek - Hydrologic Analysis Report, Revised August 28, 1978.

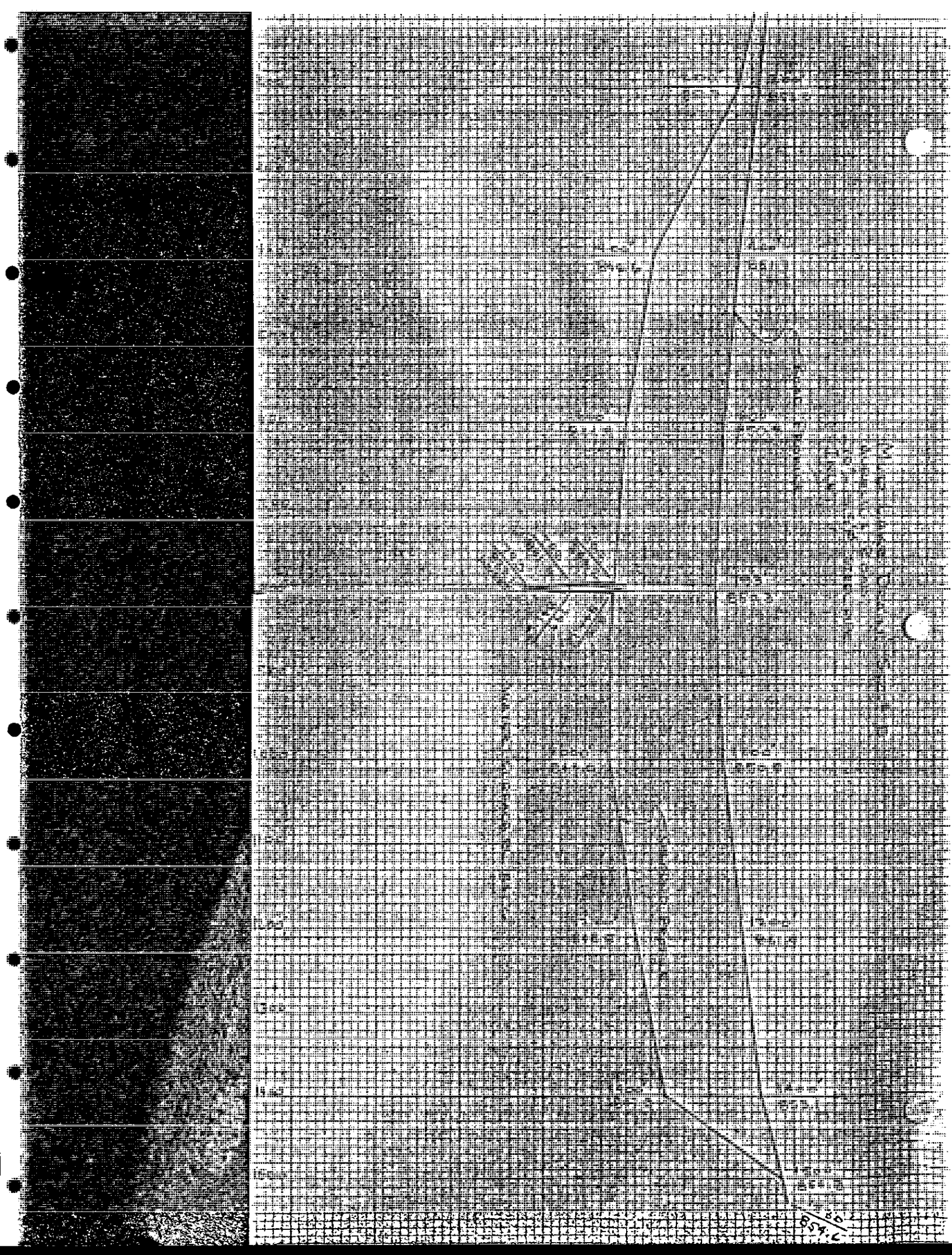
11. Snell Environmental Group, Mud Lake Drain - Hydrologic Analysis Report, Revised September 11, 1978.

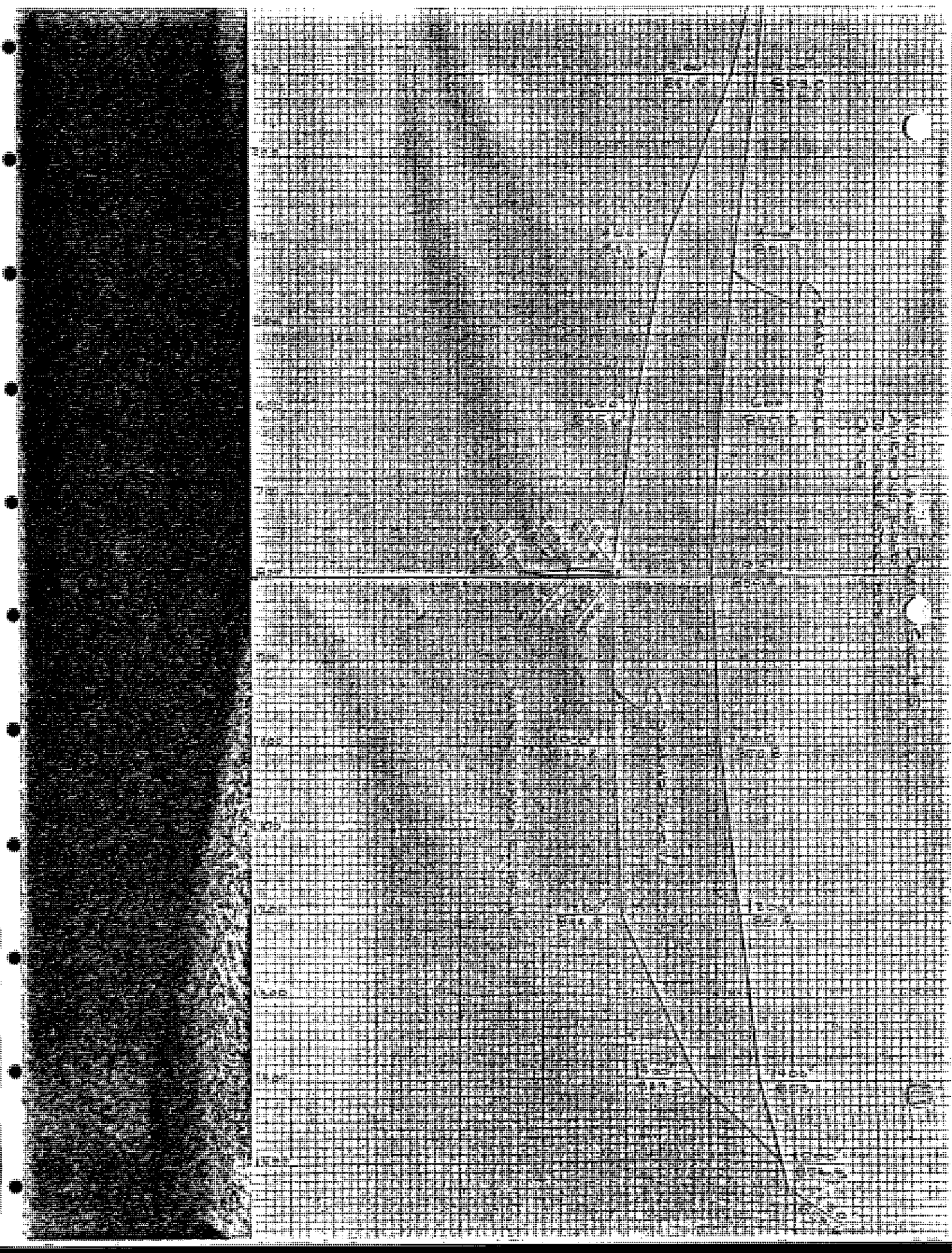
CROSS-SECTION	SECNO	DESCRIPTION
	1.	Repeat of Section A without BT cards, 1 ft. d/s of Jolly Road
	1.1	Repeat of Section A, d/s face of Jolly Road
A	1.4	Surveyed bridge section, u/s face of Jolly Road
	1.5	Repeat of Section A without BT cards, 1 ft. u/s of Jolly Road
	1.6	Fabricated valley section
	1.9	Fabricated valley section
	1.91	Fabricated valley section
	1.92	Fabricated valley section
B	2.0	Surveyed bridge section, d/s face of Aurelius Road
C	2.4	Surveyed bridge section, u/s face of Aurelius Road
	2.41	Repeat of Section C, raised 0.05 ft.
	2.9	Fabricated valley section
D	3.0	Surveyed bridge section, d/s face of campground drive
E	3.09	Surveyed bridge section, u/s face of campground drive
	3.4	Fabricated valley section
	3.49	Section F repeated, section lowered 0.89 ft., section expanded 17%
F	3.50	Surveyed valley section
	3.9	Repeat of Section G, without BT cards, section lowered 0.14 ft.
	4.	Repeat of Section G, without BT cards, 1 ft. d/s of Aurelius Road
G	4.1	Surveyed bridge section, d/s face of Aurelius Road

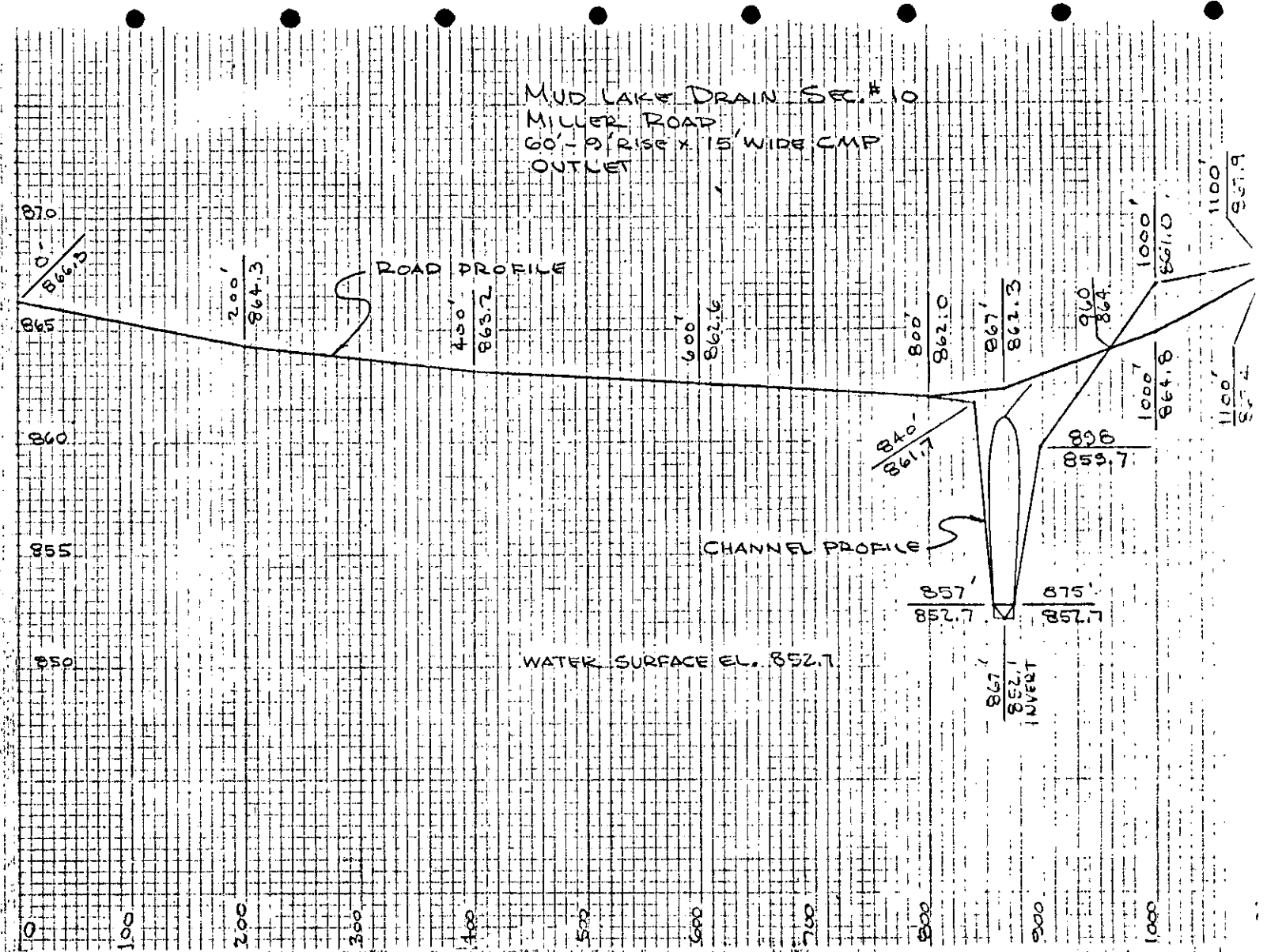
H	4.4	Surveyed bridge section, u/s face of Aurelius Road
	4.5	Repeat of Section H without BT cards, 1 ft. u/s of Aurelius Road
	4.8	Repeat of Section I, section lowered 0.05 ft.
I	4.9	Fabricated valley section
J	5.0	Surveyed bridge section, d/s face of Penn Central Railroad
K	5.4	Surveyed bridge section, u/s face of Penn Central Railroad
	5.9	Fabricated valley section
L	6.	Surveyed bridge section, d/s face of Enterprise Drive
M	6.1	Surveyed bridge section, u/s face of Enterprise Drive
N	7.	Surveyed valley section
	7.9	Repeat of Section O, section lowered 0.20 ft.
O	8.0	Surveyed bridge section, d/s face of private drive
P	8.09	Surveyed bridge section, u/s face of private drive
	8.1	Repeat of Section P without BT cards, section raised 0.33 ft.
Q	8.9	Section from DNR analysis by R. Popp
R	9.	Section from DNR analysis by R. Popp
S	9.1	Section from DNR analysis by R. Popp
T	9.2	Section from DNR analysis by R. Popp
U	9.3	Section from DNR analysis by R. Popp
	10.	Repeat of Section V, without BT Cards 1 ft. d/s of Miller Road
V	10.01	Surveyed bridge section, d/s face of Miller Road

W	10.09	Surveyed bridge section, u/s face of Miller Road
	10.1	Repeat of Section W, without BT cards, 1 ft. u/s of Miller Road
X	11.	Section from DNR analysis by R. Popp
Y	11.1	Section from DNR analysis by R. Popp
Z	11.2	Section from DNR analysis by R. Popp
AA	11.3	Section from DNR analysis by R. Popp
AB	11.4	Section from DNR analysis by R. Popp
AC	11.5	Section from DNR analysis by R. Popp
AD	12.	Surveyed bridge section, d/s face of I-96 Interchange culvert #1
AE	12.4	Surveyed bridge section, u/s face of I-96 Interchange culvert #1
	12.9	Repeat of Section AE, without BT cards, section raised 0.20 ft.
AF	13.	Surveyed bridge section, d/s face of I-96 Interchange culvert #2
AG	13.4	Surveyed bridge section, u/s face of I-96 Interchange culvert #2
	13.9	Repeat of Section AG without BT cards, section lowered 0.20 ft.
AH	14.	Surveyed bridge section, d/s face of I-96
AI	14.4	Surveyed bridge section, u/s face of I-96
	14.8	Fabricated valley section
	14.9	Fabricated valley section
	15.	Repeat of Section AJ without BT cards, 1 ft. d/s of trailer park bridge #1
	15.1	Repeat of Secton AJ, d/s face of trailer park bridge #1

AJ	15.4	Surveyed bridge section, u/s face of trailer park bridge #1
	15.5	Repeat of Section AJ, without BT cards, 1 ft. u/s of trailer park bridge #1
	15.8	Fabricated valley section
	15.9	Fabricated valley section
	16.	Repeat of Section AK without BT cards, 1 ft. d/s of trailer park bridge #2
	16.1	Repeat of Section AK, d/s face of trailer park bridge #2
AK	16.4	Surveyed bridge section, u/s face of trailer park bridge #2
	16.5	Repeat of Section AK without BT cards, 1 ft. u/s of trailer park bridge #2
	16.6	Repeat of Section AK without BT cards, section raised 0.36 ft.
	16.8	Repeat of Section Al without BT cards, section lowered 0.27 ft.
	16.9	Repeat of Section Al without BT cards, section lowered 0.14 ft.
AL	17.	Surveyed bridge section, d/s face of Willoughby Road - S. Cedar Street culvert
AM	18.	Surveyed bridge section, u/s face of Willoughby Road - S. Cedar Street culvert



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MILLER ROAD
60'-9' RISE x 15' WIDE CMP
OUTLET
ROAD PROFILE
CHANNEL PROFILE
WATER SURFACE EL. 852.7
0' 866.3
200' 864.3
400' 863.2
600' 862.6
800' 862.0
867' 862.3
960 864
1000' 861.0
1000' 864.8
1100' 867.9
840' 861.7
898 859.7
857' 852.7
875' 852.7
867' 852.1 INVERT
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860
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850
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100
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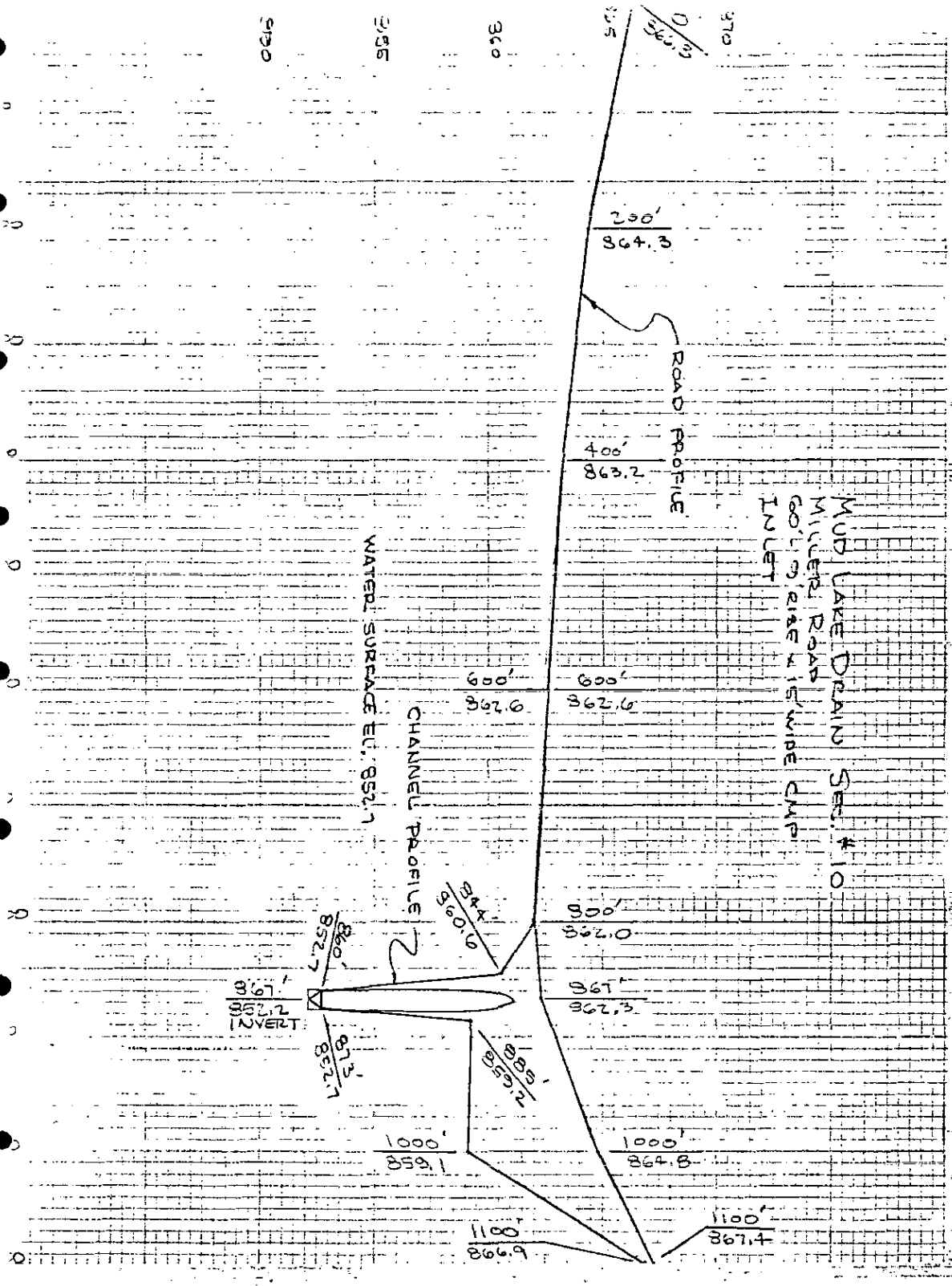
300
400
500
600
700
800
900
1000


MUD LAKE DRAIN SEC. #10
MILLER ROAD
60' 9' RISE x 15' WIDE CMP
INLET
ROAD PROFILE
CHANNEL PROFILE
WATER SURFACE EL. 852.7
200'
864.3
400'
863.2
600'
862.6
600'
862.6
800'
862.0
867'
862.3
1000'
864.8
1100'
867.4
1100'
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INVERT
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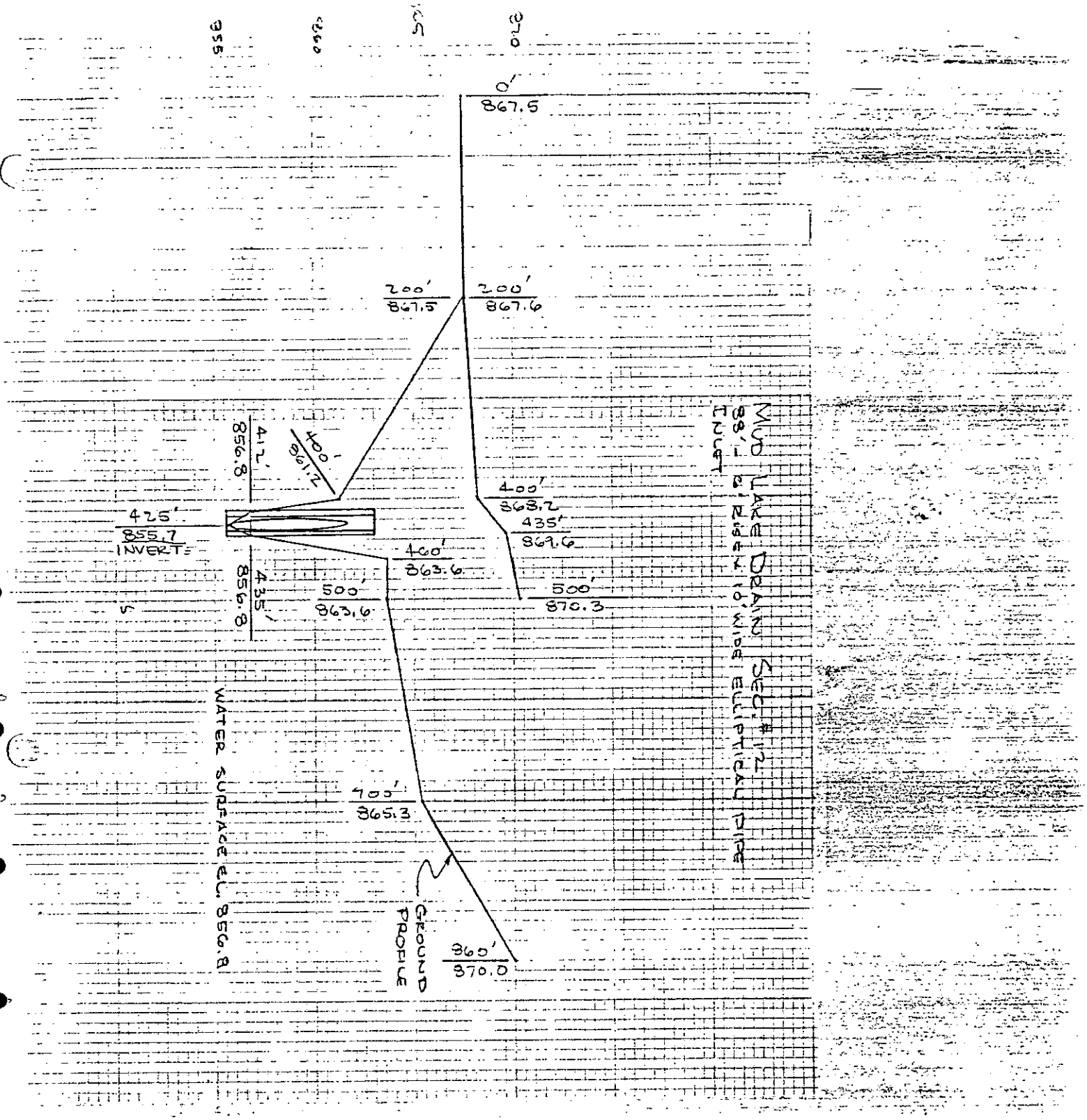
852.7
885
859.2



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200'
867.5
200'
867.6
400'
868.2
435'
869.6
500'
870.3
400'
863.6
500'
863.6
400'
865.3
360'
870.0
412'
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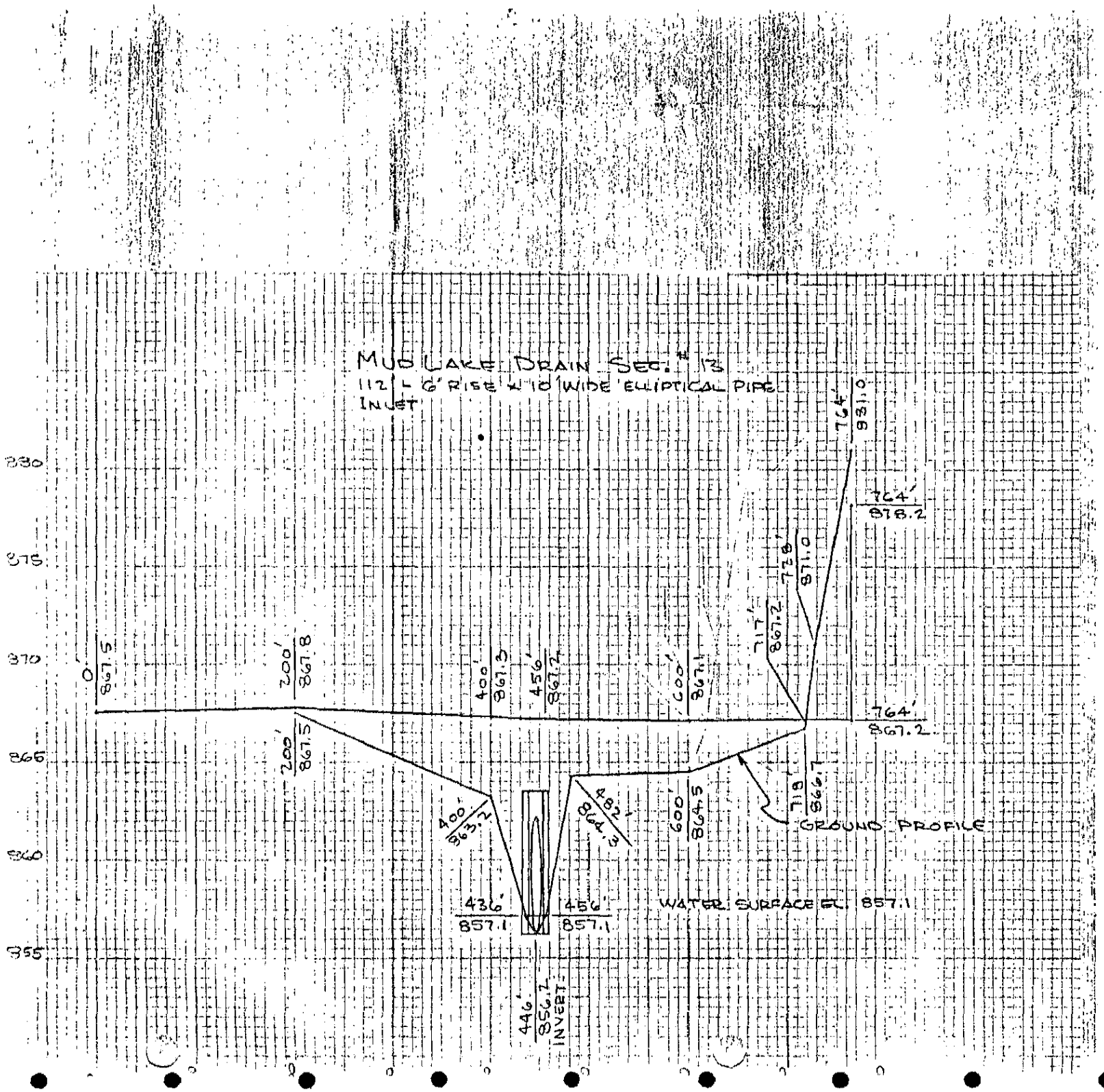
400'
861.2
425'
855.7
INVERT
435'
856.8
WATER SURFACE EL. 856.8
GROUND PROFILE


MUD LAKE DRAIN SEC. # 13
112' - 6' RISE x 10' WIDE ELLIPTICAL PIPE
INLET
880
875
870
865
860
855
0'
867.5
200'
867.8
200'
867.5
400'
867.3
456'
867.2
600'
867.1
717'
867.2
728'
871.0
764'
881.0
764'
878.2
764'
867.2
718'
866.7
600'
864.5
482'
864.3
400'
863.2
436'
857.1
456'
857.1
446'
856.2
INVERT
GROUND PROFILE
WATER SURFACE EL. 857.1

MUD LAKE DRAIN SEC. # 13
112'- 6' RISE x 10' WIDE ELLIPTICAL PIPE
OUTLET

0'
867.5

EXTRAPOLATED K
200'
865.5

200'
867.8

400'
863.4

400'
867.3

436'
857.1

446'
856.1
INVERT

456'
857.1

456'
867.2

488'
865.6

600'
863.3

600'
867.1

717'
867.2

718'
865.1

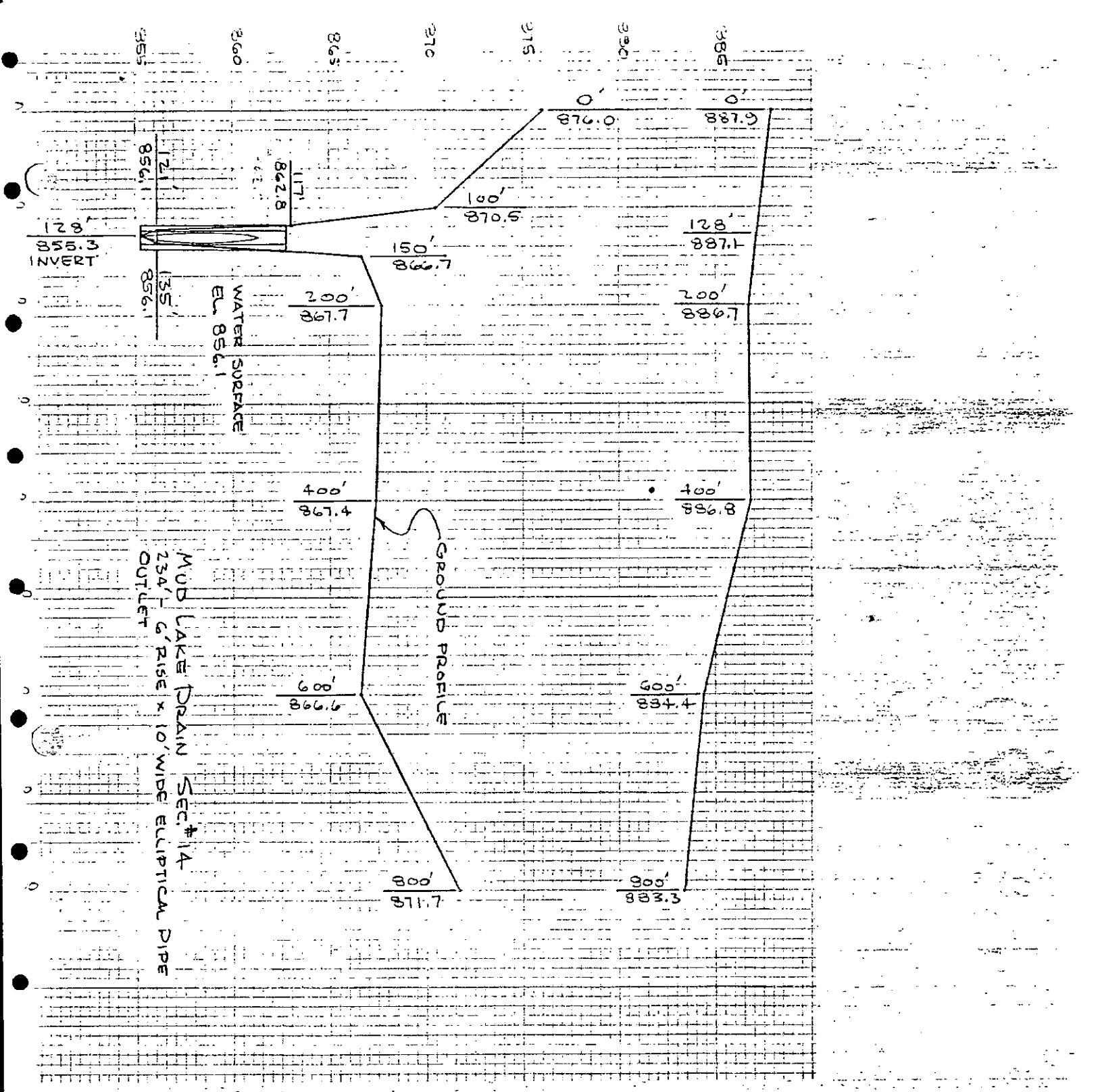
728'
871.0

764'
878.2

764'
867.2

WATER SURFACE EL. 857.1

GROUND PROFILE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234' - 6' RISE x 10' WIDE ELLIPTICAL PIPE OUTLET
GROUND PROFILE
WATER SURFACE EL. 856.1
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855.3
INVERT
135'
856.1
121'
856.1
117'
842.8
100'
870.5
150'
866.7
200'
867.7
400'
867.4
600'
866.6
800'
871.7
0'
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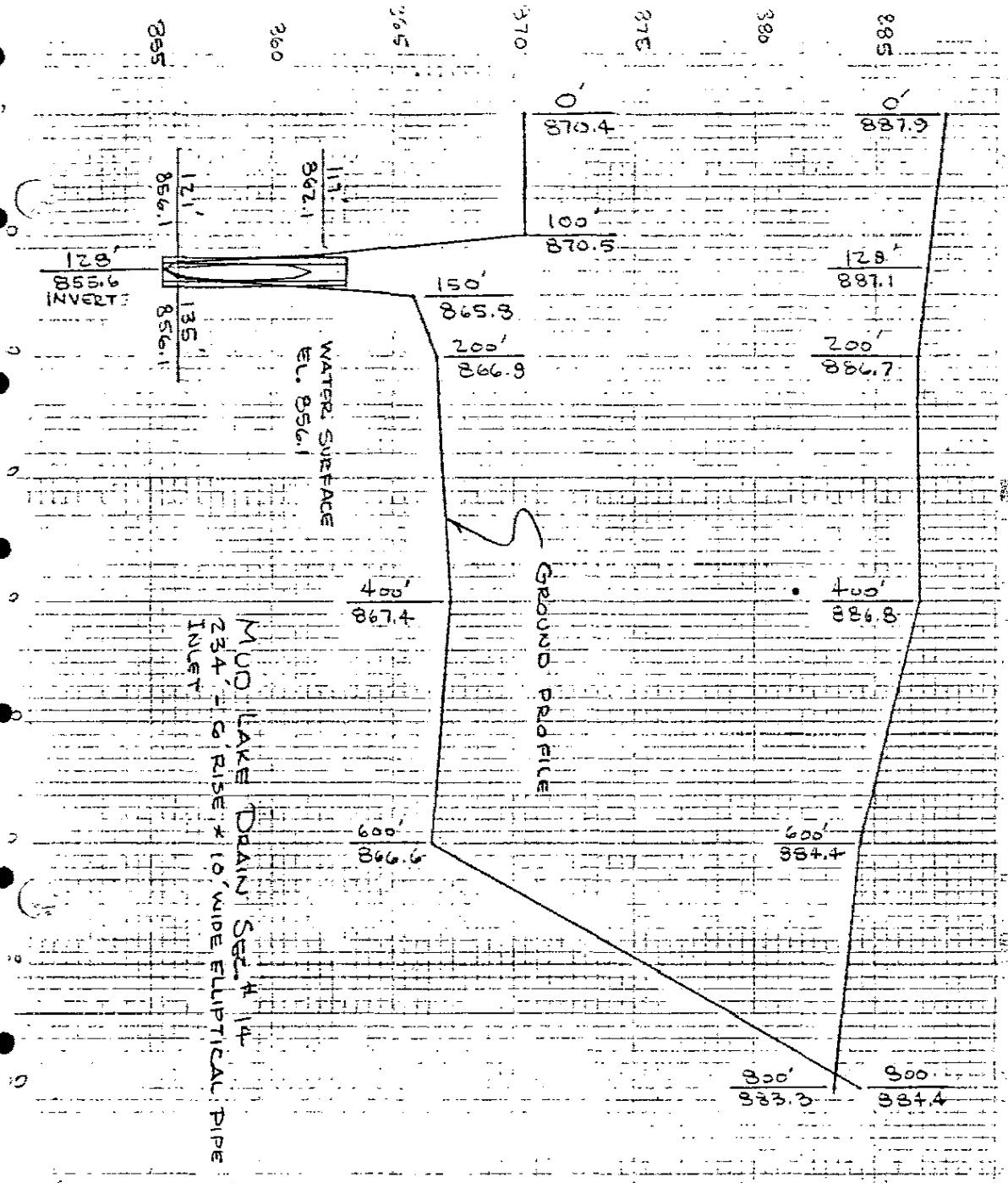

855
860
865
870
875
880
885
0'
870.4
0'
887.9
121'
856.1
117'
862.1
100'
870.5
128'
855.6
INVERT
128'
887.1
150'
865.8
135'
856.1
200'
866.9
200'
886.7
WATER SURFACE
EL. 856.1
GROUND PROFILE
400'
867.4
400'
886.8
MUD LAKE DRAIN SEC # 14
234' - 6' RISE * 10' WIDE ELLIPTICAL PIPE
INLET
600'
866.6
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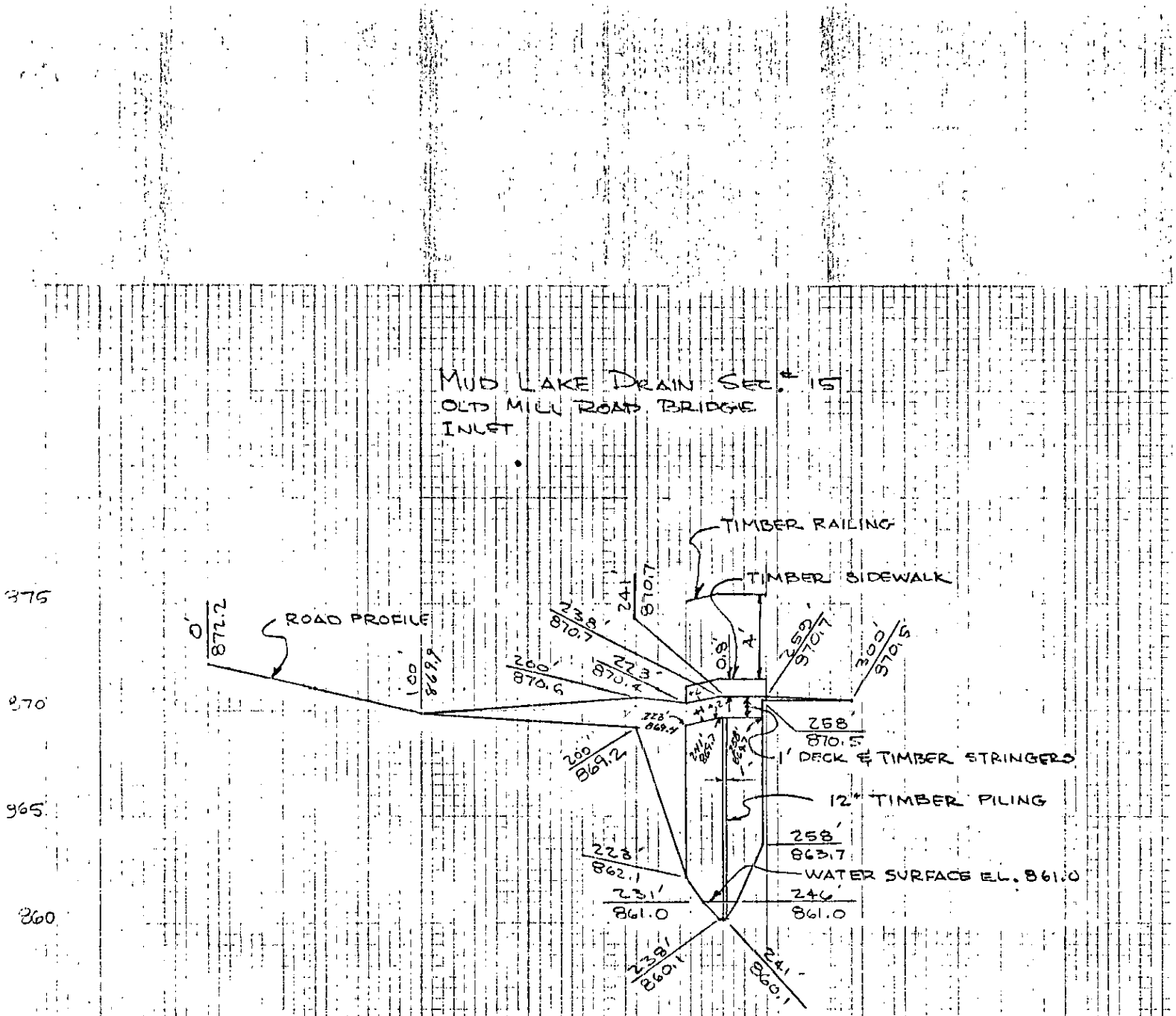
884.4
800'
883.3
800
884.4


MUD LAKE DRAIN SEC. # 15
OLD MILL ROAD BRIDGE
INLET
TIMBER RAILING
TIMBER SIDEWALK
ROAD PROFILE
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200' 870.6
223' 870.4
238' 870.7
241' 870.7
0.8'
4'
259' 870.7
300' 870.5
258' 870.5
1' DECK & TIMBER STRINGERS
12" TIMBER PILING
200' 869.2
258' 863.7
228' 862.1
WATER SURFACE EL. 861.0
231' 861.0
246' 861.0
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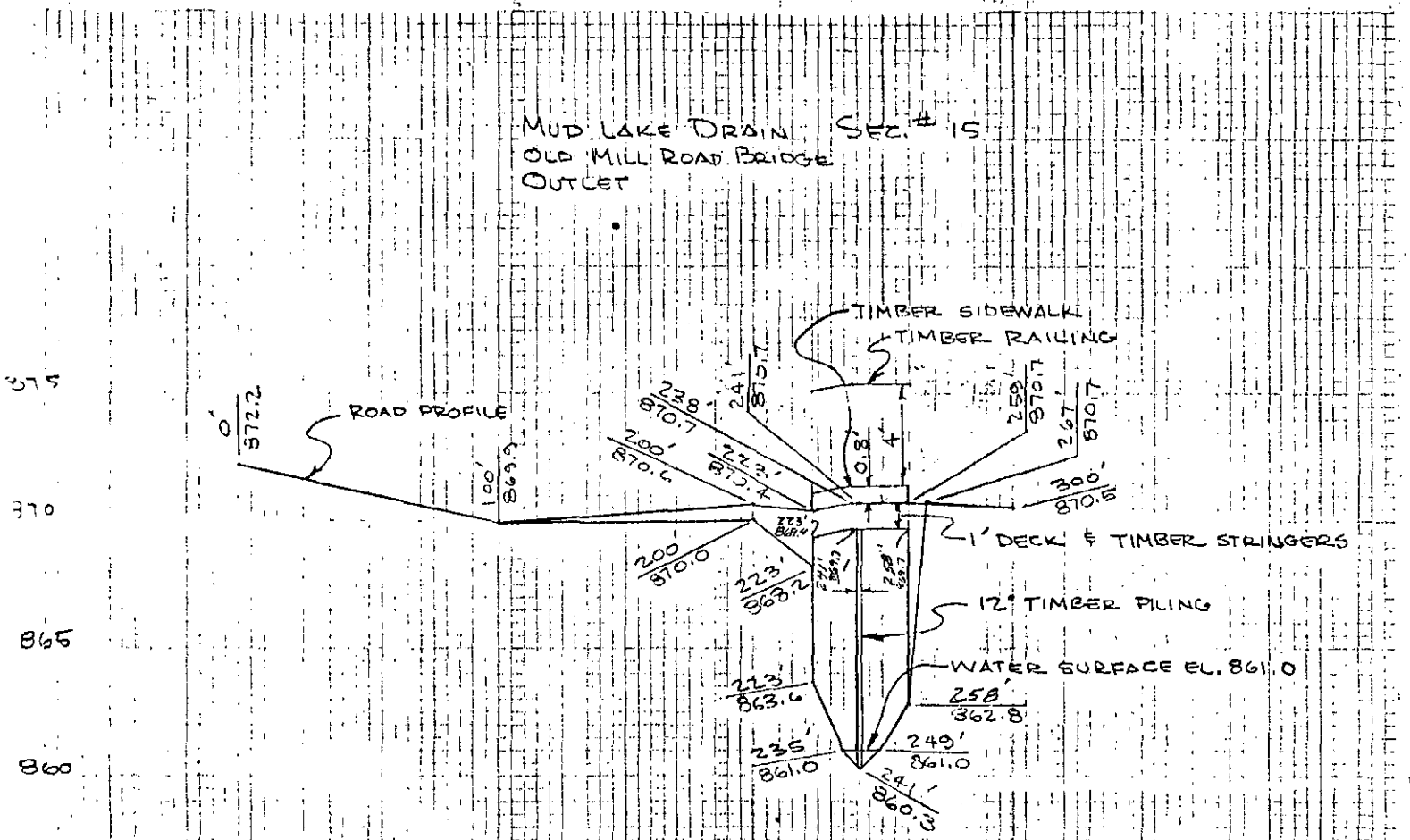
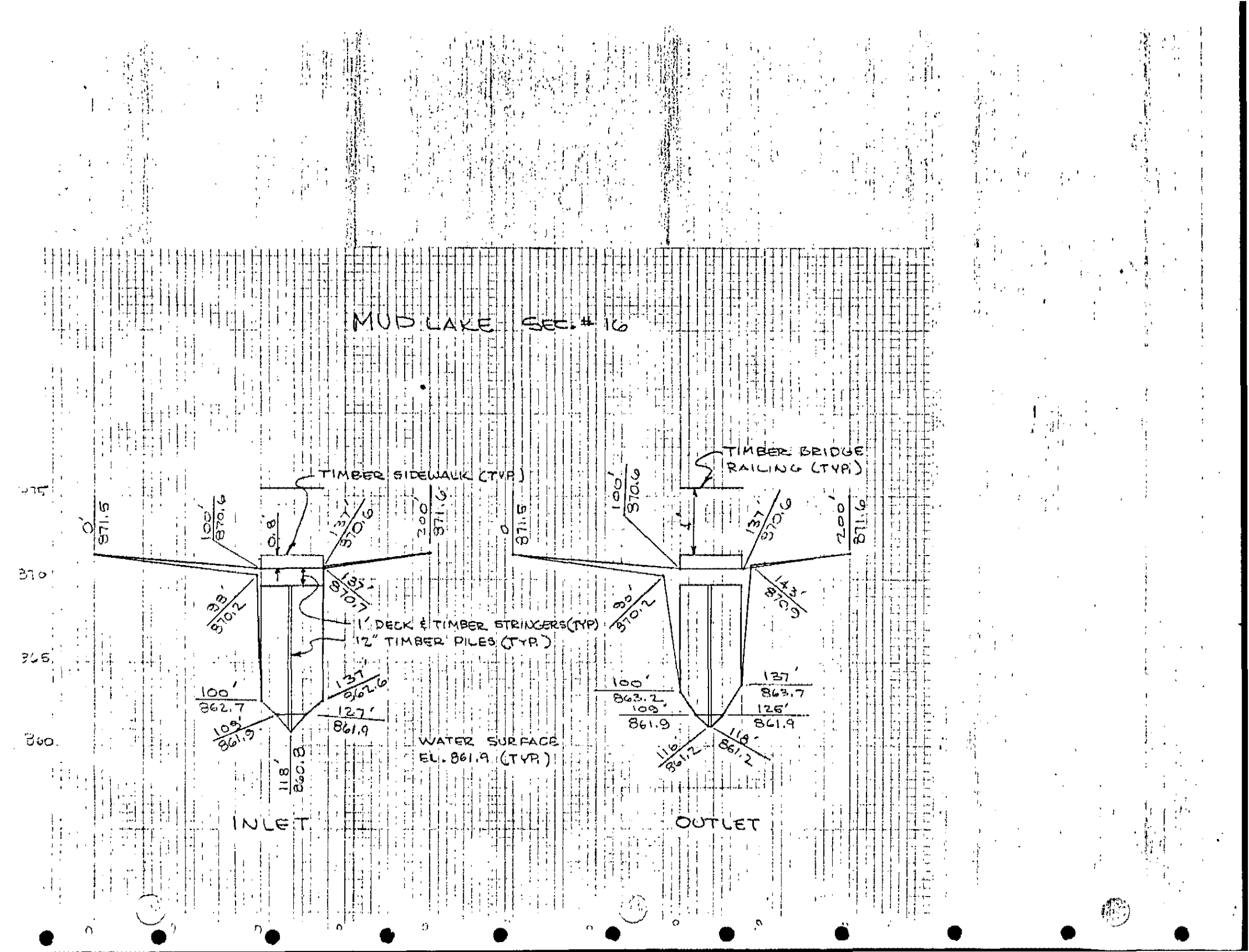
241' 860.1
875
870
865
860


MUD LAKE DRAIN SEC. # 15
OLD MILL ROAD BRIDGE
OUTLET
TIMBER SIDEWALK
TIMBER RAILING
ROAD PROFILE
0' 872.2
100' 869.9
200' 870.6
238' 870.7
241' 870.7
223' 870.4
0.8'
4'
259' 870.7
267' 870.7
300' 870.5
1' DECK & TIMBER STRINGERS
200' 870.0
223' 868.2
12" TIMBER PILING
WATER SURFACE EL. 861.0
223' 863.6
258' 862.8
235' 861.0
249' 861.0
241' 860.3
875
870
865
860


MUD LAKE SEC. # 16
TIMBER SIDEWALK (TYP.)
TIMBER BRIDGE RAILING (TYP.)
1' DECK & TIMBER STRINGERS (TYP.)
12" TIMBER PILES (TYP.)
WATER SURFACE EL. 861.9 (TYP.)
INLET
OUTLET
0' 871.5
100' 870.6
0.8'
137' 870.6
200' 871.6
98' 870.2
143' 870.9
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137' 862.6
109' 861.9
127' 861.9
118' 860.8
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109' 861.9
126' 861.9
116' 861.2
118' 861.2
375
370
365
360

JOHN R. SNELL
ENGINEERS, INC.
221 West Saginaw
Lansing, Michigan 48933

SUBJECT MUD LAKE DRAIN
HYDRAULICS
LANSING, FIA

JOB NUMBER
SHEET NO. OF
COMP. BY KZJ DATE 5/31/78
CHK'D. BY DATE

SECTION #1 JOLLY RD.

$XKOR = 0.1 + K_f + 1.0$

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{(29.1)(0.015)^2\, 70}{(1.125)^{4/3}} = 0.392$$

$R = A/WP = 15.9 / 2\pi\left(\frac{4.5}{2}\right) = 1.125$

$n = 0.015$ DETERIORATED CONCRETE

$XKOR = 0.1 + 0.392 + 1. = 1.492$

$COFQ = 2.9$

SECTION #2 AURELIUS RD.

$XKOR = 0.1 + 1. + K_f$

$$K_f = \frac{29.1\,(0.033)^2\, 44}{(1.127)^{4/3}} = 1.189$$

$R = 17.7 / 15.708 = 1.127$

$XKOR = 2.289$

$COFQ = 2.9$

SECTION #5 PENN CENTRAL R.R.

$XKOR = 1.1 + K_f$

$$K_f = \frac{29.1\,(0.0328)^2\, 68}{(1.375)^{4/3}} = 1.392$$

$R = 23.76 / 17.28 = 1.375$

$XKOR = 2.492$

$COFQ = 2.9$

Snell Environmental Group
Engineering · Planning · Research
Michigan · Ohio · Indiana

SUBJECT FIA - CITY OF LANSING
MUD LAKE DRAIN
HYDRAULICS
FIELD SECTN. 3

JOB NUMBER
SHEET NO. OF
COMP. BY KEJ DATE 6/6/78
CHK'D. BY DATE

BRIDGE TO KOA CAMPGROUND

XHOR

7.02' X 5.09' CMP ARCH

AREA = 28.4 FT²
W.P. = 10.64 FT
n = 0.0325
LENGTH = 66 FT

P = 28.4/10.64 = 2.67

$K_f = \frac{29.1 (0.0325)^2 66}{(2.67)^{4/3}} = 0.5479$

K_e = 0.9 (PROJECTING)

XHOR = 0.9 + 1 + 0.548 = 2.448

COFQ = 2.9

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Michigan · Ohio · Indiana

SUBJECT _____ JOB NUMBER _____
SHEET NO. _____ OF _____
COMP. BY _____ DATE _____
CHK'D. BY _____ DATE _____

B.S. #5

70' LONG
5.5' Ø CMP ½"
$n = 0.0231$
AREA = 23.758
W.P. = 17.279
$R = 1.375$

$$K_f = \frac{29.1 (0.0231)^2 70,}{(1.375)^{4/3}} = 0.711$$

$K_e = 0.5$

$\Sigma K OR = 2.21$

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SUBJECT _____ JOB NUMBER _____
SHEET NO. _____ OF _____
COMP. BY _____ DATE _____
CHK'D. BY _____ DATE _____

B.S. #6

AREA = 33.5 FT^2
W.P. = 21 FT
R = 1.595
N = 0.012
L = 62 FT.

8.3' x 5' CONCRETE PIPE
LONG AXIS HORIZONTAL

XKOR

$K_e = 0.2$

$K_f = \frac{29.1 (0.012)^2 62}{(1.595)^{4/3}} = 0.139$

XKOR = 1. + 0.2 + 0.14 = 1.34

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SUBJECT Mud Lake Drain
Hydraulic Analysis

JOB NUMBER
SHEET NO. OF
COMP. BY DATE
CHK'D. BY DATE

BS #8

LENGTH = 64'
5' x 8' CMP
90° WING WALLS
AREA = 38.0 SQ. FT.
W.P. = 12.17 FT
R = 39/12.17 = 3.122
n = 0.032

$XKOR = 1. + K_e + K_f$

$K_e = 0.5$

$K_f = \frac{29.1 (0.032)^2 64}{(3.122)^{4/3}} = 0.418$

XKOR = 1.918

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SUBJECT MUD LAKE DRAIN HYDRAULICS
JOB NUMBER
SHEET NO. 1 OF 2
COMP. BY KZG DATE 6/29/78
CHK'D. BY DATE

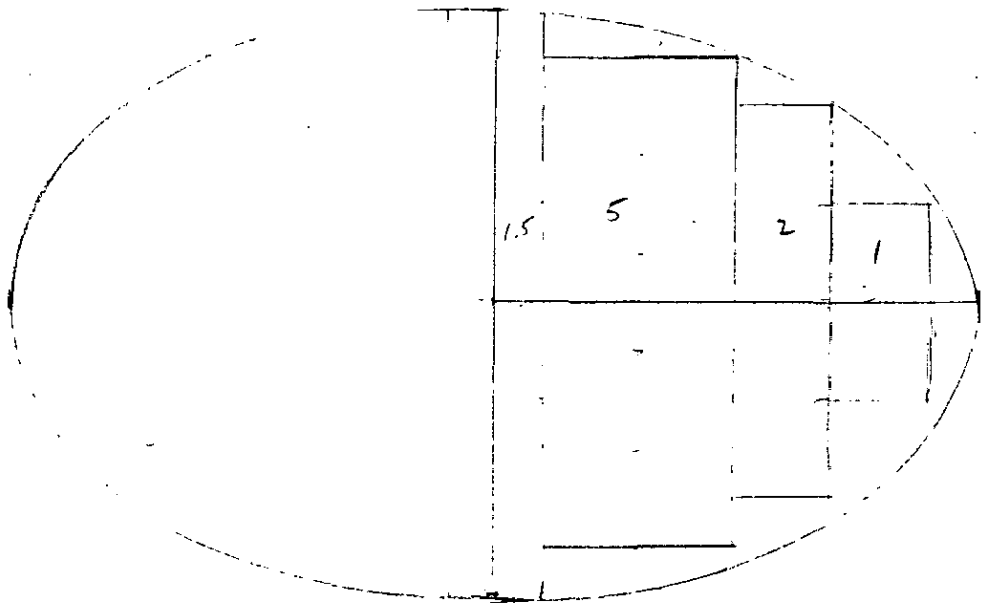
I-96 INTERCHANGE MUD LAKE DRAIN

1.4

>5.9

12.4

10' X 6' OVAL



AREA = $9(1.5+5+2+1+1.9) = 45.6\ FT^2$

W.P. = 25 FT

R = 1.824 FT

n = 0.012 (CONCRETE)

BS. #12

LENGTH = 89'

$XKOR = 1 + K_e + K_f$

$K_e = 0.5$

$K_f = \frac{29.1(0.012)^2 98}{(1.824)^{1.33}} = 0.165$

XKOR = 1.665

EQUIVALENT LENGTH (n = 0.03)

$K_{F_1} = K_{F_2}$ $\qquad K_{F_1} = 0.165 = \frac{29.1(.03)^2 L_e}{(1.824)^{4/3}}$

$L_e = 14.08$ FT

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SUBJECT MUD LAKE DRAIN HYDRAULICS
JOB NUMBER
SHEET NO. 2 OF 2
COMP. BY DATE
CHK'D. BY DATE

B.S. #13

LENGTH = 112'

L_e = 17.95 (n = 0.03)

$K_e = 0.5$

$K_f = \frac{29.1(0.012)^2 112}{(1.824)^{4/3}} = 0.211$

XKOR = 1.711

BS #14

LENGTH = 234'

L_e = 37.44 (n = 0.03)

$K_e = 0.5$

$K_f = \frac{29.1(0.012)^2 234}{(1.824)^{4/3}} = 0.440$

XKOR = 1.94

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SUBJECT F/A - LANSING
MUD LAKE DRAIN

JOB NUMBER
SHEET NO. OF
COMP. BY KEJ DATE 6/15/78
CHK'D. BY DATE

BS #17 & #18

L = 830 FT.
D = 5.5 FT. 66"
MATERIAL CMP ⇒ n = 0.0328 — This appears to have been replaced w/ concrete 5 #6' box per drain [illegible] [illegible]
CONCRETE HEADWALLS 90°
INVERT
U/S 862.1 867.6 FIIC
D/S 861.6

1/20/84

$XKOR = 1. + K_e + K_f$

$K_e = 0.5$

$$K_f = \frac{29.1\,(n)^2\,L}{R^{4/3}}$$

ASSUME FLOWING FULL $R = 23.76/\pi(5.5) = 1.375$

$$K_f = \frac{29.1\,(0.0328)^2\,830}{(1.375)^{4/3}} = 16.99$$

XKOR = 18.495

$Q = A\sqrt{2gH/XKOR} = 44.337\sqrt{H}$

ELEV.	H	Q*
‡862.1	0.5	0
868.0	6.4	112.2
870.0	8.4	128.5
872.0	10.4	143.0
874.0	12.4	156.1
874.7	13.1	160.5

* ASSUMES TAILWATER HAS NO EFFECT AND FRICTION LOSSES CONTROL
‡ U/S INVERT

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

C
T1      FIA FLOOD INSURANCE STUDY
T2      50 YEAR FLOOD
T3 SYCAMORE CREEK LEFT OVERBANK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        2.        0.        0.  0.000000      0.00      0.0       0.   836.190     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

NC      .070      .120      .050      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     4.000  2230.000  2530.000  3120.000  2530.000     0.000     0.000     0.000     0.000     0.000

X1     6.000    23.000   303.000   337.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   835.000     0.000   834.000    10.000   834.000    40.000   836.000    50.000   838.000   130.000
GR   837.000   230.000   837.400   243.000   828.800   270.000   829.500   290.000   831.600   303.000
GR   826.200   316.000   824.700   318.000   824.700   321.000   824.400   325.000   826.200   335.000
GR   827.700   337.000   830.600   360.000   831.700   386.000   832.000   530.000   834.000   540.000
GR   836.000   653.000   838.000   830.000   840.000   850.000     0.000     0.000     0.000     0.000
QT     4.000   850.000  1300.000  2050.000  1300.000     0.000     0.000     0.000     0.000     0.000
NH     5.000      .070    60.000      .040   285.000      .120   465.000      .120   479.000      .120
NH   541.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

X1     7.000    13.000   465.000   479.000   140.000   180.000   220.000     0.000     0.000     0.000
GR   835.000     0.000   836.000    60.000   838.000   210.000   836.000   285.000   832.000   306.000
GR   830.000   408.000   828.000   465.000   826.800   470.000   828.000   479.000   830.000   479.000
GR   832.000   500.000   834.000   510.000   835.000   541.000     0.000     0.000     0.000     0.000
NH     4.000      .120    60.000      .030   114.000      .120   158.000      .120   545.000     0.000

        ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

X1     8.000    13.000   158.000   170.000   350.000   220.000   440.000     0.000     0.000     0.000
GR   833.900     0.000   833.900    60.000   834.000   114.000   834.000   140.000   832.000   150.000
GR   830.000   158.000   828.000   170.000   830.000   180.000   832.000   208.000   834.000   216.000
GR   836.000   425.000   838.000   505.000   838.500   545.000     0.000     0.000     0.000     0.000
QT     4.000   680.000  1050.000  1860.000  1050.000     0.000     0.000     0.000     0.000     0.000
NH     3.000      .120    90.000      .030   130.000      .035   603.000     0.000     0.000     0.000

        MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

X1     9.000     9.000   253.000   353.000   300.000   170.000   250.000     0.000     0.000     0.000
GR   835.000     0.000   835.000    90.000   835.000   130.000   834.100   153.000   833.900   253.000
```

GR	834.600	353.000	837.100	453.000	838.300	553.000	839.600	603.000	0.000	0.000
NH	5.000	.120	80.000	.030	130.000	.030	200.000	.030	385.000	.030
NH	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	9.000	200.000	385.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	835.500	0.000	835.500	80.000	835.000	130.000	834.000	200.000	833.900	300.000
GR	834.000	385.000	836.000	470.000	838.000	550.000	839.400	580.000	0.000	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.000	8.000	120.000	270.000	70.000	70.000	70.000	0.000	0.000	0.000
GR	835.900	0.000	835.700	90.000	835.700	120.000	835.900	270.000	836.000	294.000
GR	835.800	394.000	837.000	494.000	839.000	564.000	0.000	0.000	0.000	0.000
NC	.025	.025	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AURELIUS ROAD

X1	11.100	8.000	120.000	270.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	835.900	0.000	835.700	90.000	835.700	120.000	835.900	270.000	836.000	294.000
GR	835.800	394.000	837.000	494.000	839.000	564.000	0.000	0.000	0.000	0.000
NH	4.000	.035	90.000	.150	200.000	.150	300.000	.150	510.000	0.000
X1	11.500	7.000	200.000	300.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	836.000	0.000	835.700	60.000	835.700	90.000	834.000	110.000	834.000	200.000
GR	834.000	300.000	834.000	510.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.030	70.000	.150	76.000	.150	240.000	.150	445.000	0.000
X1	12.000	11.000	76.000	240.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	836.000	0.000	836.000	70.000	834.000	76.000	832.000	240.000	832.000	330.000
GR	834.000	355.000	834.000	366.000	850.000	376.100	850.000	412.000	834.000	412.100
GR	834.000	445.000	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
QT	4.000	2060.000	2280.000	2930.000	2280.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.030	168.000	.050	210.000	.120	385.000	.060	426.000	.120
NH	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	140.000	620.000
X1	13.000	21.000	385.000	426.000	110.000	310.000	200.000	0.000	0.000	0.000
GR	838.000	0.000	837.800	140.000	836.000	153.000	834.000	168.000	833.300	210.000
GR	832.400	280.000	832.300	300.000	832.100	380.000	829.100	385.000	826.800	395.000
GR	826.500	405.000	827.100	415.000	829.100	423.000	831.100	426.000	832.000	537.000
GR	834.000	760.000	836.000	781.000	838.000	796.000	840.000	825.000	842.000	847.000
GR	844.000	870.000	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

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 1.19 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
6.00	11.79	836.19	0.00	836.19	836.25	.06	0.00	0.00	831.60
2230.	516.	926.	788.	395.	325.	1086.	0.	0.	827.70
0.00	1.31	2.85	.73	.070	.050	.120	0.000	824.40	0.00
.000495	0.	0.	0.	0	0	0	0.00	480.62	669.81

1490 NH CARD USED
*SECNO 7.000

3265 DIVIDED FLOW

3280 CROSS SECTION 7.00 EXTENDED 1.32 FEET

CONFLUENCE MUD LAKE DRAI^ AND SYCAMORE CREEK

7.00	9.52	836.32	0.00	0.00	836.32	.01	.07	.01	828.00
850.	659.	95.	96.	1063.	125.	201.	6.	2.	830.00
.08	.62	.76	.48	.119	.120	.120	.064	826.80	0.00
.000247	140.	220.	180.	2	0	0	0.00	351.88	541.00

1490 NH CARD USED
*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 2.53 FEET

ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

8.00	8.43	836.43	0.00	0.00	836.44	.01	.11	.00	830.00
850.	432.	92.	326.	427.	89.	558.	15.	4.	828.00
.18	1.01	1.03	.58	.064	.120	.120	.066	828.00	0.00
.000486	350.	440.	220.	1	0	0	0.00	442.37	442.37

1490 NH CARD USED
*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 1.51 FEET

MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

9.00	2.61	836.51	0.00	0.00	836.52	.01	.08	.00	833.90
680.	405.	232.	42.	493.	226.	73.	20.	7.	834.60
.27	.82	1.03	.58	.041	.035	.035	.060	833.90	0.00
.000197	300.	250.	170.	0	0	0	0.00	429.53	429.53

1490 NH CARD USED
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.03 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

10.00	2.62	836.52	0.00	0.00	836.53	.01	.01	.00	834.00
680.	158.	437.	85.	288.	477.	135.	22.	8.	834.00
.30	.55	.92	.63	.036	.030	.030	.059	833.90	0.00
.000097	90.	90.	90.	1	0	0	0.00	491.11	491.11

#SECNO 11.000
3280 CROSS SECTION 11.00 EXTENDED .58 FEET

11.00	.78	836.48	0.00	0.00	836.58	.10	.02	.03	835.70
680.	236.	239.	205.	85.	102.	90.	23.	8.	835.90
.31	2.79	2.34	2.27	.030	.035	.030	.057	835.70	0.00
.005052	70.	70.	70.	2	0	0	0.00	450.76	450.76

#SECNO 11.100
3280 CROSS SECTION 11.10 EXTENDED .63 FEET

AURELIUS ROAD

11.10	.83	836.53	0.00	0.00	836.61	.08	.03	.00	835.70
680.	221.	261.	198.	91.	110.	99.	23.	9.	835.90
.31	2.44	2.39	2.00	.025	.025	.025	.056	835.70	0.00
.002449	10.	10.	10.	2	0	0	0.00	454.84	454.84

1490 NH CARD USED
#SECNO 11.500
3280 CROSS SECTION 11.50 EXTENDED 2.63 FEET

11.50	2.63	836.63	0.00	0.00	836.63	.01	.01	.01	834.00
680.	229.	146.	305.	347.	263.	552.	23.	9.	834.00
.31	.66	.56	.55	.109	.150	.150	.056	834.00	0.00
.000871	10.	10.	10.	2	0	0	0.00	510.00	510.00

1490 NH CARD USED
#SECNO 12.000

3265 DIVIDED FLOW

3280 CROSS SECTION 12.00 EXTENDED 2.69 FEET

12.00	4.69	836.69	0.00	0.00	836.69	.00	.06	.00	834.00
680.	42.	300.	338.	58.	605.	635.	26.	10.	832.00
.36	.72	.50	.53	.038	.150	.150	.053	832.00	0.00
.000441	100.	100.	100.	2	0	0	0.00	400.61	445.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 13.000

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

```
 3470 ENCROACHMENT STATIONS=     140.0     620.0  TYPE=    1  TARGET=     480.000
      13.00     10.26    836.76      0.00      0.00    836.79       .03       .09       .01    829.10
      2060.      665.      766.      629.      916.      378.      942.       35.       12.    831.10
        .42       .73      2.03       .67      .099      .060      .120      .047    826.50    147.53
    .000359       110.      200.      310.         2         0         0      0.00    472.47    620.00

 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
   ERROR CORR -  01
   MODIFICATION -  50,51,52
 ***************************************************

 T1       CITY OF LANSING AND DELHI TOWNSHIP
 T2       100 YEAR FLOOD
 T3       LEFT OVERBANK OF SYCAMORE CREEK

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

         0.        3.        0.        0.  0.000000      0.00      0.0         0.    836.990     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

 CCHV=    .100 CEHV=    .300
 *SECNO 6.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION       6.00 EXTENDED       1.99 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

      6.00     12.59    836.99      0.00    836.99    837.04       .05      0.00      0.00    831.60
    2530.      611.      954.      965.      500.      352.     1380.        0.        0.    827.70
      0.00      1.22      2.71       .70       .070      .050      .120     0.000    824.40      0.00
    .000402      0.        0.        0.         0         0         0      0.00    585.93    740.62

 1490 NH CARD USED
 *SECNO 7.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION       7.00 EXTENDED       2.10 FEET
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CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

7.00	10.30	837.10	0.00	0.00	837.11	.01	.06	.00	828.00
1300.	1017.	128.	155.	1313.	136.	250.	8.	2.	830.00
.06	.77	.95	.62	.115	.120	.120	.065	826.80	0.00
.000343	140.	220.	180.	2	0	0	0.00	439.82	541.00

1490 NH CARD USED
*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 3.33 FEET

ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

8.00	9.23	837.23	0.00	0.00	837.25	.02	.13	.00	830.00
1300.	682.	111.	507.	552.	99.	786.	19.	5.	828.00
.15	1.23	1.12	.65	.063	.120	.120	.067	828.00	0.00
.000506	350.	440.	220.	0	0	0	0.00	474.04	474.04

1490 NH CARD USED
*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 2.30 FEET

MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

9.00	3.40	837.30	0.00	0.00	837.32	.01	.07	.00	833.90
1050.	610.	341.	99.	693.	305.	147.	26.	8.	834.60
.23	.88	1.12	.67	.042	.035	.035	.060	833.90	0.00
.000156	300.	250.	170.	2	0	0	0.00	469.97	469.97

1490 NH CARD USED
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.82 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
10.00	3.42	837.32	0.00	0.00	837.33	.01	.01	.00	834.00
1050.	271.	616.	164.	447.	624.	233.	29.	9.	834.00
.26	.60	.99	.70	.038	.030	.030	.059	833.90	0.00
.000078	90.	90.	90.	1	0	0	0.00	522.99	522.99

*SECNO 11.000
3280 CROSS SECTION 11.00 EXTENDED 1.42 FEET

11.00	1.61	837.31	0.00	0.00	837.35	.04	.01	.01	835.70
1050.	318.	334.	397.	185.	228.	268.	30.	9.	835.90
.27	1.72	1.47	1.48	.030	.035	.030	.057	835.70	0.00
.000686	70.	70.	70.	1	0	0	0.00	505.10	505.10

*SECNO 11.100
3280 CROSS SECTION 11.10 EXTENDED 1.41 FEET

AURELIUS ROAD

11.10	1.62	837.32	0.00	0.00	837.35	.04	.01	.00	835.70
1050.	302.	370.	377.	185.	227.	267.	30.	10.	835.90
.27	1.64	1.63	1.41	.025	.025	.025	.057	835.70	0.00
.000433	10.	10.	10.	0	0	0	0.00	504.98	504.98

1490 NH CARD USED
*SECNO 11.500
3280 CROSS SECTION 11.50 EXTENDED 3.35 FEET

11.50	3.35	837.35	0.00	0.00	837.36	.01	.01	.00	834.00
1050.	424.	203.	423.	492.	335.	704.	31.	10.	834.00
.28	.86	.61	.60	.091	.150	.150	.056	834.00	0.00
.000747	10.	10.	10.	2	0	0	0.00	510.00	510.00

1490 NH CARD USED
*SECNO 12.000

3265 DIVIDED FLOW

3280 CROSS SECTION 12.00 EXTENDED 3.41 FEET

12.00	5.41	837.41	0.00	0.00	837.42	.01	.06	.00	834.00
1050.	142.	434.	474.	113.	724.	751.	34.	11.	832.00
.32	1.26	.60	.63	.035	.150	.150	.053	832.00	0.00
.000506	100.	100.	100.	0	0	0	0.00	401.08	445.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

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

3470 ENCROACHMENT STATIONS= 140.0 620.0 TYPE= 1 TARGET= 480.000

13.00	10.98	837.48	0.00	836.76	837.50	.02	.07	.00	829.10
2280.	802.	774.	704.	1089.	407.	1082.	45.	13.	831.10
.37	.74	1.90	.65	.096	.060	.120	.048	826.50	142.33
.000285	110.	200.	310.	2	0	0	0.00	477.67	620.00

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977

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   ERROR CORR -  01
   MODIFICATION -  50,51,52
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T1     CITY OF LANSING AND DELHI TOWNSHIP
T2     500 YEAR FLOOD
T3     LEFT OVERBANK OF SYCAMORE CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
         0.       4.        0.        0.  0.000000      0.00      0.0       0.   839.420     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 3

CCHV=    .100 CEHV=    .300
*SECNO 6.000
3280 CROSS SECTION      6.00 EXTENDED      4.42 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

      6.00     15.02    839.42      0.00    839.42    839.44       .02      0.00      0.00    831.60
     3120.      927.      856.     1338.     1162.      434.     2543.        0.        0.    827.70
      0.00       .80      1.97       .53       .070      .050      .120     0.000    824.40      0.00
   .000160        0.        0.        0.         0         0         0      0.00    844.20    844.20

1490 NH CARD USED
*SECNO 7.000
3280 CROSS SECTION      7.00 EXTENDED      4.46 FEET

          CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

      7.00     12.66    839.46      0.00      0.00    839.47       .01       .03       .00    828.00
     2050.     1706.     128.      216.     2363.      169.      396.       13.        3.    830.00
       .06       .72       .76       .55       .093      .120      .120      .067    826.80      0.00
   .000164      140.      220.      180.         1         0         0      0.00    541.00    541.00

1490 NH CARD USED
*SECNO 8.000
3280 CROSS SECTION      8.00 EXTENDED      5.62 FEET

          ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

      8.00     11.52    839.52      0.00      0.00    839.53       .01       .06       .00    830.00
     2050.     1067.     112.      871.      914.      126.     1591.       33.        6.    828.00
       .16      1.17       .89       .55       .061      .120      .120      .068    828.00      0.00
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.000226	350.	440.	220.	0	0	0	0.00	545.00	545.00

1490 NH CARD USED
*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 4.56 FEET

MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

9.00	5.65	839.55	0.00	0.00	839.56	.01	.03	.00	833.90
1860.	959.	519.	383.	1263.	531.	587.	47.	9.	834.60
.25	.76	.98	.65	.043	.035	.035	.062	833.90	0.00
.000057	300.	250.	170.	1	0	0	0.00	601.35	601.35

1490 NH CARD USED
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 4.06 FEET

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
10.00	5.65	839.55	0.00	0.00	839.56	.01	.00	.00	834.00
1860.	514.	929.	417.	895.	1038.	618.	52.	10.	834.00
.29	.57	.89	.67	.040	.030	.030	.060	833.90	0.00
.000033	90.	90.	90.	0	0	0	0.00	580.00	580.00

*SECNO 11.000
3280 CROSS SECTION 11.00 EXTENDED 3.66 FEET

11.00	3.85	839.55	0.00	0.00	839.57	.02	.00	.00	835.70
1860.	485.	524.	851.	454.	564.	877.	55.	11.	835.90
.30	1.07	.93	.97	.030	.035	.030	.058	835.70	0.00
.000082	70.	70.	70.	0	0	0	0.00	564.00	564.00

*SECNO 11.100
3280 CROSS SECTION 11.10 EXTENDED 3.65 FEET

AURELIUS ROAD

11.10	3.85	839.55	0.00	0.00	839.57	.02	.00	.00	835.70
1860.	463.	584.	813.	453.	563.	876.	56.	11.	835.90
.31	1.02	1.04	.93	.025	.025	.025	.058	835.70	0.00
.000052	10.	10.	10.	0	0	0	0.00	564.00	564.00

1490 NH CARD USED
*SECNO 11.500
3280 CROSS SECTION 11.50 EXTENDED 5.55 FEET

11.50	5.56	839.56	0.00	0.00	839.57	.01	.00	.00	834.00
1860.	922.	306.	632.	932.	555.	1166.	56.	12.	834.00

```
     .31       .99       .55       .54      .075      .150      .150      .057    834.00      0.00
  .000315       10.       10.       10.         0         0         0      0.00    510.00    510.00


1490 NH CARD USED
*SECNO 12.000

3265 DIVIDED FLOW

3280 CROSS SECTION      12.00 EXTENDED       5.58 FEET


    12.00      7.59    839.59      0.00      0.00    839.60       .02       .03       .00    834.00
    1860.      509.      663.      688.      278.     1079.     1101.       62.       13.     832.00
      .34      1.83       .61       .62      .033      .150      .150      .054    832.00      0.00
  .000312      100.      100.      100.         0         0         0      0.00    402.46    445.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 13.000
   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


3470 ENCROACHMENT STATIONS=      140.0      620.0  TYPE=      1  TARGET=      480.000
    13.00     13.13    839.63      0.00    836.76    839.65       .02       .04       .00    829.10
    2930.     1213.      809.      907.     1616.      496.     1499.       77.       15.     831.10
      .40       .75      1.63       .61      .090      .060      .120      .049    826.50    140.00
  .000162      110.      200.      310.         2         0         0      0.00    480.00    620.00


**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************


NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST


ORE CREEK LEFT OVERBANK

SUMMARY PRINTOUT TABLE  150

      SECNO      XLCH      ELTRD      ELLC      ELMIN      Q         CWSEL     CRIWS     EG        10K*S     VCH       AREA      .01K

      6.000      0.00      0.00      0.00     824.40   2230.00    836.19      0.00    836.25      4.95      2.85    1805.62   1002.06
      6.000      0.00      0.00      0.00     824.40   2530.00    836.99      0.00    837.04      4.02      2.71    2232.24   1262.20
      6.000      0.00      0.00      0.00     824.40   3120.00    839.42      0.00    839.44      1.60      1.97    4139.68   2465.79

      7.000    220.00      0.00      0.00     826.80    850.00    836.32      0.00    836.32      2.47       .76    1389.40    540.88
      7.000    220.00      0.00      0.00     826.80   1300.00    837.10      0.00    837.11      3.43       .95    1698.85    702.08
      7.000    220.00      0.00      0.00     826.80   2050.00    839.46      0.00    839.47      1.64       .76    2927.12   1601.44
```

8.000	440.00	0.00	0.00	828.00	850.00	836.43	0.00	836.44	4.86	1.03	1074.04	385.42
8.000	440.00	0.00	0.00	828.00	1300.00	837.23	0.00	837.25	5.06	1.12	1436.81	577.95
8.000	440.00	0.00	0.00	828.00	2050.00	839.52	0.00	839.53	2.26	.89	2631.88	1363.19
9.000	250.00	0.00	0.00	833.90	680.00	836.51	0.00	836.52	1.97	1.03	792.69	484.58
9.000	250.00	0.00	0.00	833.90	1050.00	837.30	0.00	837.32	1.56	1.12	1145.62	839.81
9.000	250.00	0.00	0.00	833.90	1860.00	839.55	0.00	839.56	.57	.98	2380.80	2457.69
10.000	90.00	0.00	0.00	833.90	680.00	836.52	0.00	836.53	.97	.92	900.38	690.74
10.000	90.00	0.00	0.00	833.90	1050.00	837.32	0.00	837.33	.78	.99	1304.46	1186.61
10.000	90.00	0.00	0.00	833.90	1860.00	839.55	0.00	839.56	.33	.89	2551.44	3252.97
11.000	70.00	0.00	0.00	835.70	680.00	836.48	0.00	836.58	50.52	2.34	277.07	95.67
11.000	70.00	0.00	0.00	835.70	1050.00	837.31	0.00	837.35	6.86	1.47	680.65	400.80
11.000	70.00	0.00	0.00	835.70	1860.00	839.55	0.00	839.57	.82	.93	1894.20	2052.66
11.100	10.00	0.00	0.00	835.70	680.00	836.53	0.00	836.61	24.49	2.39	299.27	137.40
11.100	10.00	0.00	0.00	835.70	1050.00	837.32	0.00	837.35	4.33	1.63	678.95	504.45
11.100	10.00	0.00	0.00	835.70	1860.00	839.55	0.00	839.57	.52	1.04	1892.37	2574.81
11.500	10.00	0.00	0.00	834.00	680.00	836.63	0.00	836.63	8.71	.56	1161.12	230.46
11.500	10.00	0.00	0.00	834.00	1050.00	837.35	0.00	837.36	7.47	.61	1531.28	384.19
11.500	10.00	0.00	0.00	834.00	1860.00	839.56	0.00	839.57	3.15	.55	2653.65	1048.27
12.000	100.00	0.00	0.00	832.00	680.00	836.69	0.00	836.69	4.41	.50	1297.96	323.81
12.000	100.00	0.00	0.00	832.00	1050.00	837.41	0.00	837.42	5.06	.60	1587.95	466.68
12.000	100.00	0.00	0.00	832.00	1860.00	839.59	0.00	839.60	3.12	.61	2458.28	1053.10
13.000	200.00	0.00	0.00	826.50	2060.00	836.76	0.00	836.79	3.59	2.03	2236.08	1087.38
13.000	200.00	0.00	0.00	826.50	2280.00	837.48	0.00	837.50	2.85	1.90	2577.83	1349.87
13.000	200.00	0.00	0.00	826.50	2930.00	839.63	0.00	839.65	1.62	1.63	3610.70	2300.04

ORE CREEK LEFT OVERBANK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.000	2230.00	836.19	0.00	0.00	0.00	480.62	0.00
6.000	2530.00	836.99	0.00	0.00	0.00	585.93	0.00
6.000	3120.00	839.42	0.00	0.00	0.00	844.20	0.00
7.000	850.00	836.32	0.00	.13	0.00	351.88	220.00
7.000	1300.00	837.10	0.00	.11	0.00	439.82	220.00
7.000	2050.00	839.46	0.00	.04	0.00	541.00	220.00
8.000	850.00	836.43	0.00	.11	0.00	442.37	440.00
8.000	1300.00	837.23	0.00	.13	0.00	474.04	440.00
8.000	2050.00	839.52	0.00	.06	0.00	545.00	440.00
9.000	680.00	836.51	0.00	.08	0.00	429.53	250.00
9.000	1050.00	837.30	0.00	.07	0.00	469.97	250.00
9.000	1860.00	839.55	0.00	.03	0.00	601.35	250.00
10.000	680.00	836.52	0.00	.01	0.00	491.11	90.00
10.000	1050.00	837.32	0.00	.01	0.00	522.99	90.00
10.000	1860.00	839.55	0.00	.00	0.00	580.00	90.00
11.000	680.00	836.48	0.00	-.04	0.00	450.76	70.00

11.000	1050.00	837.31	0.00	-.01	0.00	505.10	70.00
11.000	1860.00	839.55	0.00	-.00	0.00	564.00	70.00
11.100	680.00	836.53	0.00	.05	0.00	454.84	10.00
11.100	1050.00	837.32	0.00	.01	0.00	504.98	10.00
11.100	1860.00	839.55	0.00	.00	0.00	564.00	10.00
11.500	680.00	836.63	0.00	.10	0.00	510.00	10.00
11.500	1050.00	837.35	0.00	.04	0.00	510.00	10.00
11.500	1860.00	839.56	0.00	.01	0.00	510.00	10.00
12.000	680.00	836.69	0.00	.06	0.00	400.61	100.00
12.000	1050.00	837.41	0.00	.06	0.00	401.08	100.00
12.000	1860.00	839.59	0.00	.03	0.00	402.46	100.00
13.000	2060.00	836.76	0.00	.07	0.00	472.47	200.00
13.000	2280.00	837.48	0.00	.06	.72	477.67	200.00
13.000	2930.00	839.63	0.00	.04	2.87	480.00	200.00

SUMMARY OF ERRORS

****
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
****

READY 16.38.38

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	40.00	0.00	450.00	1.25	835.60	835.60

*SECNO 33.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
846.93	845.90	0.00	0.	2280.	450.	449.	844.40	848.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

33.09	11.10	846.70	0.00	0.00	846.93	.23	.32	0.00	844.30
2280.	0.	2280.	0.	0.	595.	0.	5028.	812.	844.40
22.35	0.00	3.84	0.00	.060	.050	.060	.059	835.60	288.00
.001066	31.	31.	31.	2	0	0	0.00	62.00	350.00

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
****

T1 100 YEAR FLOOD
T2 ENCROACHED RUN
T3 SYCAMORE CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	0.000000	0.00	0.0	0.	835.560	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 2

CCHV= .100 CEHV= .300
*SECNO 1.000
2800 NAT Q1= 16597.68 WSEL= 835.46 ENC Q1= 16597.68 WSEL= 835.56 RATIO= 0.0000
NAT Q1= 16790. RATIOS LOB,CH,ROB= .1233 .1622 .7144 WSEL= 835.56

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

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3470 ENCROACHMENT STATIONS=     283.5    1374.0  TYPE=     4  TARGET=        .011
     1.00    19.59   835.56     0.00   835.46   835.56      .00      0.00      0.00   821.07
     2530.     299.     415.     1817.    2023.    1210.   12413.       0.       0.   820.67
     0.00      .15      .34      .15      .090     .045     .090    0.000   815.97   283.48
   .000002       0.       0.       0.        0        0        0     0.00  1090.49  1373.97


*SECNO 2.000
 2800 NAT Q1=   6674.97  WSEL=    835.46  ENC Q1=   6674.97  WSEL=    835.56  RATIO=   .0000
 NAT Q1=   6758.  RATIOS LOB,CH,ROB=   .4910   .3671   .1419  WSEL=    835.56

3470 ENCROACHMENT STATIONS=      62.2     556.1  TYPE=     4  TARGET=        .012
     2.00    20.06   835.56     0.00   835.46   835.56      .01      .00      .00   818.40
     2530.    1243.     940.     347.    3647.    1085.    1090.     140.      10.   819.00
      .29      .34      .87      .32      .090     .045     .090     .049   815.50    62.19
   .000014      390.     600.     640.        0        0        0     0.00   493.95   556.14


CCHV=    .300 CEHV=    .500
*SECNO 3.000
 2800 NAT Q1=   9330.33  WSEL=    835.47  ENC Q1=   9330.33  WSEL=    835.57  RATIO=  0.0000
 NAT Q1=   9539.  RATIOS LOB,CH,ROB=   .3627   .4140   .2233  WSEL=    835.57

3470 ENCROACHMENT STATIONS=     382.6    1434.3  TYPE=     4  TARGET=        .022
     3.00    20.30   835.57     0.00   835.47   835.57      .00      .01      .00   823.27
     2530.     909.    1071.     549.    2363.    1818.    3449.     234.      21.   823.97
      .70      .38      .59      .16      .035     .045     .090     .048   815.27   382.62
   .000007      660.     650.     500.        0        0        0     0.00  1051.64  1434.27


SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.25      1.56      2.60      0.00     60.00      4.00     787.00     1.05     814.97    814.97

 *SECNO 3.500
  PRESS FLOW BECAUSE EGLWC OF    835.60  EXCEEDS 1.5 DEPTH
  2800 NAT Q1=   8690.27  WSEL=    835.50  ENC Q1=   8690.27  WSEL=    835.60  RATIO=   .0000
  NAT Q1=   8876.  RATIOS LOB,CH,ROB=   .3118   .4712   .2171  WSEL=    835.60
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     376.1    1442.8  TYPE=     4  TARGET=        .021
      3.50    22.23   835.60     0.00   835.50   835.60      .00      .00      .00   823.07
      2530.     778.    1218.     534.    2115.    1884.    3278.     245.      22.   823.37
       .74      .37      .65      .16      .035     .045     .090     .047   813.37   376.06
    .000008       66.      66.      66.        0        0        5     0.00  1066.76  1442.83


 CCHV=    .100 CEHV=    .300
 1490 NH CARD USED
 *SECNO 4.000
 2800 NAT Q1=  29970.00  WSEL=    835.50  ENC Q1=  29970.00  WSEL=    835.60  RATIO=  0.0000
  NAT Q1=  30344.  RATIOS LOB,CH,ROB=   .8050   .0729   .1221  WSEL=    835.60
    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=     229.8    1407.2  TYPE=     4  TARGET=        .012
      4.00    18.90   835.60     0.00   835.50   835.60      .00      .00      .00   819.50
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     2530.     2041.      186.      303.    10474.     1019.     3163.      547.       52.     820.00
      2.71       .19       .18       .10      .035      .045      .080      .055   816.70    229.81
  .000001     1060.     1800.     1200.         0         0         0      0.00  1177.44   1407.25


1490 NH CARD USED
*SECNO 5.000
 2800 NAT Q1=  21537.23  WSEL=    835.50  ENC Q1=  21537.23  WSEL=    835.60  RATIO=    .0000
 NAT Q1=  21828.  RATIOS LOB,CH,ROB=    .2547    .0890    .6563  WSEL=    835.60

3470 ENCROACHMENT STATIONS=     372.2    1792.5  TYPE=     4  TARGET=         .013
     5.00     17.50    835.60      0.00    835.50    835.60       .00       .00       .00    822.00
     2530.     636.      228.     1666.     3272.      942.    12719.     1190.      105.     819.90
     5.87       .19       .24       .13       .035      .045      .080      .058   818.10    372.16
  .000001     1700.     2500.     1750.         0         0         0      0.00  1420.35   1792.50


*SECNO 6.000
 2800 NAT Q1=   6945.38  WSEL=    835.52  ENC Q1=   6945.38  WSEL=    835.62  RATIO=    .0000
 NAT Q1=   7106.  RATIOS LOB,CH,ROB=    .4521    .0394    .5085  WSEL=    835.62

3470 ENCROACHMENT STATIONS=     344.9    1720.6  TYPE=     4  TARGET=         .023
     6.00     11.95    835.62      0.00    835.52    835.62       .00       .01       .00    829.77
     2530.    1142.      102.     1286.     4805.      310.     6074.     2423.      252.     829.27
     11.21      .24       .33       .21       .100      .065      .100      .042   823.67    344.88
  .000013    10000.     1775.     1300.         1         0         0      0.00  1375.77   1720.64


*SECNO 7.000
 2800 NAT Q1=  10773.92  WSEL=    835.53  ENC Q1=  10773.92  WSEL=    835.63  RATIO=    .0000
 NAT Q1=  10965.  RATIOS LOB,CH,ROB=    .4802    .0689    .4508  WSEL=    835.63

3470 ENCROACHMENT STATIONS=      83.5    1765.6  TYPE=     4  TARGET=         .017
     7.00     14.06    835.63      0.00    835.53    835.63       .00       .02       .00    826.17
     2530.    1214.      177.     1139.     8144.      625.     7018.     3028.      320.     826.27
     14.53      .15       .28       .16       .100      .065      .100      .052   821.57     83.54
  .000006     1940.     2825.     1900.         0         0         0      0.00  1682.05   1765.59


*SECNO 8.000
 2800 NAT Q1=   3366.60  WSEL=    835.54  ENC Q1=   3366.60  WSEL=    835.64  RATIO=  0.0000
 NAT Q1=   3464.  RATIOS LOB,CH,ROB=    .4476    .1391    .4133  WSEL=    835.64

3470 ENCROACHMENT STATIONS=     455.4    1623.6  TYPE=     4  TARGET=         .028
     8.00     13.87    835.64      0.00    835.54    835.64       .00       .01       .00    830.07
     2530.    1129.      362.     1039.     3156.      505.     2904.     3236.      346.     830.27
     15.09      .36       .72       .36       .090      .070      .120      .053   821.77    455.41
  .000056      820.      825.      800.         1         0         0      0.00  1168.23   1623.64


*SECNO 9.000
 2800 NAT Q1=   2370.95  WSEL=    835.65  ENC Q1=   2370.95  WSEL=    835.75  RATIO=  0.0000
 NAT Q1=   2420.  RATIOS LOB,CH,ROB=    .1859    .2973    .5168  WSEL=    835.75
    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=     130.0     603.8  TYPE=     4  TARGET=         .020
     9.00     14.78    835.75      0.00    835.65    835.76       .01       .12       .00    827.47
     2530.     455.      769.     1306.      830.      631.     2305.     3414.      374.     827.17
     15.64      .55      1.22       .57       .090      .070      .120      .055   820.97    130.00
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 .000114    1430.    1550.    1550.        1        0        0     0.00   473.81   603.81

*SECNO 10.000
 2800 NAT Q1=   1261.24  WSEL=    835.86  ENC Q1=   1261.24  WSEL=    835.96  RATIO=   .0000
 NAT Q1=   1305.  RATIOS LOB,CH,ROB=   .0629   .5038   .4333  WSEL=    835.96

3470 ENCROACHMENT STATIONS=     694.5    1281.0  TYPE=     4  TARGET=        .034
    10.00    12.89   835.96     0.00   835.86   836.00      .04      .22      .01   829.07
    2530.     120.    1319.    1090.     207.     604.    1556.    3493.     388.   828.67
    15.86      .58     2.18      .70     .090     .065     .120     .056   823.07   694.53
  .000403    1100.    1230.    1100.        2        0        0     0.00   586.50  1281.03

CCHV=    .300 CEHV=    .500
*SECNO 11.000
 2800 NAT Q1=   1489.19  WSEL=    835.99  ENC Q1=   1489.19  WSEL=    836.09  RATIO=   .0000
 NAT Q1=   1538.  RATIOS LOB,CH,ROB=   .3501   .5922   .0577  WSEL=    836.09

3470 ENCROACHMENT STATIONS=     795.2    1359.4  TYPE=     4  TARGET=        .032
    11.00    12.52   836.09     0.00   835.99   836.13      .04      .13      .00   827.47
    2530.     874.    1549.     107.    1148.     804.     122.    3510.     391.   827.47
    15.93      .76     1.93      .88     .080     .065     .090     .057   823.57   795.16
  .000290      50.     450.     475.        2        0        0     0.00   564.24  1359.40
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Cavanaugh Bridge

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SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.56      2.60      0.00     20.00      3.00    550.00      3.70    823.97    823.97

*SECNO 11.500
 2800 NAT Q1=   4793.10  WSEL=    836.06  ENC Q1=   4793.10  WSEL=    836.16  RATIO=   .0000
 NAT Q1=   4907.  RATIOS LOB,CH,ROB=   .7898   .1966   .0136  WSEL=    836.16
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=     388.0    1342.1  TYPE=     4  TARGET=        .023
    11.50    12.49   836.16     0.00   836.06   836.16      .00      .00      .01   827.47
    2530.    2016.     510.       4.    5793.     834.      26.    3514.     392.   827.47
    15.95      .35      .61      .15     .080     .065     .090     .057   823.67   387.96
  .000028      31.      31.      31.        0        0        7     0.00   954.10  1342.05

CCHV=    .100 CEHV=    .300
*SECNO 12.000
 2800 NAT Q1=   2672.24  WSEL=    836.08  ENC Q1=   2672.24  WSEL=    836.18  RATIO=   .0000
 NAT Q1=   2739.  RATIOS LOB,CH,ROB=   .4557   .3154   .2288  WSEL=    836.18

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     226.3    1198.6  TYPE=     4  TARGET=        .024
    12.00    13.58   836.18     0.00   836.08   836.19      .01      .03      .00   826.00
    2530.    1149.     819.     562.    2506.     714.    1239.    3601.     406.   826.00
    16.23      .46     1.15      .45     .100     .065     .100     .057   822.60   226.33
  .000090     680.     690.     680.        1        0        0     0.00   816.48  1198.65

CCHV=    .300 CEHV=    .500
*SECNO 1.100
 2800 NAT Q1=    973.33  WSEL=    836.26  ENC Q1=    973.33  WSEL=    836.36  RATIO=   .0000
 NAT Q1=    992.  RATIOS LOB,CH,ROB=   .1544   .8294   .0162  WSEL=    836.36
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
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     Q          QLOB       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=       474.6       607.7  TYPE=       4  TARGET=          .018
        1.10      13.75     836.35      0.00     836.26     836.48       .12        .23        .06     828.70
      2530.       374.     2139.        16.       372.       706.       18.     3672.        418.      829.70
       16.35       1.01       3.03       .91       .120       .060       .120       .058     822.60     474.63
     .000677     1075.     1260.      1050.          2          0          0       0.00     133.06     607.69


   *SECNO 1.200
    2800 NAT Q1=     529.32  WSEL=     836.17  ENC Q1=     529.32  WSEL=     836.27  RATIO=    .0000
    NAT Q1=     538.  RATIOS LOB,CH,ROB=    .0795    .9205    .0000  WSEL=     836.27

   3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD=  836.90 MAX ELLC=  837.70


   3470 ENCROACHMENT STATIONS=       526.6       605.0  TYPE=       4  TARGET=          .017
        1.20      13.67     836.27      0.00     836.17     836.56       .29        .00        .08     828.70
      2530.       213.     2317.         0.        93.       521.        0.     3672.        418.      829.70
       16.35       2.28       4.44       0.00       .120       .060       .120       .058     822.60     526.57
     .002468          1.         1.         1.          2          0          0   -182.46      78.43     605.00


   *SECNO 1.300
    2800 NAT Q1=     530.64  WSEL=     836.19  ENC Q1=     530.64  WSEL=     836.29  RATIO=    .0000
    NAT Q1=     540.  RATIOS LOB,CH,ROB=    .0797    .9203    .0000  WSEL=     836.29

   3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD=  836.90 MAX ELLC=  837.70


   3470 ENCROACHMENT STATIONS=       526.8       605.0  TYPE=       4  TARGET=          .018
        1.30      13.70     836.30      0.00     836.19     836.59       .29        .02        .00     828.70
      2530.       213.     2317.         0.        94.       523.        0.     3672.        418.      829.70
       16.35       2.28       4.43       0.00       .120       .060       .120       .058     822.60     526.80
     .002450         10.        10.        10.          0          0          0   -181.25      78.21     605.00


   *SECNO 1.400
    2800 NAT Q1=    1005.46  WSEL=     836.43  ENC Q1=    1005.46  WSEL=     836.53  RATIO=    .0000
    NAT Q1=    1024.  RATIOS LOB,CH,ROB=    .1585    .8249    .0167  WSEL=     836.53

   3470 ENCROACHMENT STATIONS=       472.9       608.0  TYPE=       4  TARGET=          .018
        1.40      13.92     836.52      0.00     836.43     836.64       .12        .00        .05     828.70
      2530.       385.     2128.        17.       389.       717.       20.     3672.        418.      829.70
       16.35        .99       2.97       .85       .120       .060       .120       .058     822.60     472.90
     .000637          1.         1.         1.          2          0          0       0.00     135.10     608.01


   *SECNO 2.000

   3470 ENCROACHMENT STATIONS=       215.0       375.0  TYPE=       1  TARGET=       160.000
        2.00      13.93     836.53      0.00     836.44     836.69       .16        .03        .02     828.70
      2530.       198.     2332.         0.       195.       704.        2.     3673.        418.      836.00
       16.35       1.02       3.31       .18       .120       .060       .120       .058     822.60     215.00
     .000949         48.        43.        43.          2          0          0       0.00     160.00     375.00


   CCHV=     .100 CEHV=     .300
   *SECNO 3.000
      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
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NYC RR 3rd C

Q	QLOB	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
3.00	14.38	836.88	0.00	836.80	836.91	.03	.21	.01	829.20
2530.	1142.	826.	562.	1334.	405.	639.	3687.	420.	824.80
16.44	.86	2.04	.88	.120	.070	.120	.058	822.50	223.91
.000343	358.	398.	367.	2	0	0	0.00	359.54	583.45

*SECNO 4.000
3280 CROSS SECTION 4.00 EXTENDED 8.81 FEET

4.00	12.61	837.01	0.00	836.93	837.02	.01	.11	.00	826.60
2530.	777.	542.	1211.	1108.	348.	1807.	3713.	424.	828.50
16.57	.70	1.56	.67	.120	.070	.120	.058	824.40	0.00
.000219	409.	430.	397.	2	0	0	0.00	510.32	510.32

*SECNO 5.000
3280 CROSS SECTION 5.00 EXTENDED 5.04 FEET

5.00	12.64	837.04	0.00	836.96	837.05	.01	.03	.00	828.00
2530.	1043.	970.	517.	1258.	771.	1229.	3727.	426.	828.00
16.63	.83	1.26	.42	.070	.060	.120	.059	824.40	0.00
.000102	240.	231.	132.	2	0	0	0.00	574.94	574.94

*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 2.08 FEET

6.00	12.67	837.07	0.00	836.99	837.12	.05	.06	.01	831.60
2530.	614.	944.	972.	514.	355.	1416.	3747.	430.	827.70
16.69	1.20	2.66	.69	.070	.050	.120	.058	824.40	0.00
.000382	351.	345.	250.	1	0	0	0.00	607.87	748.41

*SECNO 7.000
3280 CROSS SECTION 7.00 EXTENDED 3.08 FEET

7.00	14.18	837.08	0.00	837.00	837.23	.16	.08	.03	832.00
2530.	25.	2003.	502.	51.	565.	473.	3754.	432.	830.00
16.71	.48	3.54	1.06	.120	.040	.070	.058	822.90	541.00
.000383	210.	250.	160.	2	0	0	0.00	179.00	720.00

*SECNO 8.000

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
8.00	14.36	837.26	0.00	837.19	837.30	.05	.06	.01	834.00
1230.	6.	1210.	14.	27.	700.	29.	3758.	432.	833.90
16.74	.22	1.73	.49	.120	.050	.070	.058	822.90	580.19

.000163	200.	200.	200.	2	0	0	0.00	101.94	682.13

*SECNO 9.000

9.00	10.65	837.25	0.00	837.18	837.35	.10	.03	.02	837.60
1230.	0.	1184.	46.	0.	460.	47.	3760.	432.	833.30
16.75	0.00	2.57	.99	.120	.050	.070	.058	826.60	610.51
.000504	140.	120.	100.	2	0	0	0.00	73.21	683.72

*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 3.34 FEET

10.00	11.94	837.34	0.00	837.27	837.38	.04	.03	.01	834.00
1230.	7.	1138.	85.	37.	683.	107.	3762.	433.	830.00
16.78	.19	1.67	.80	.120	.040	.050	.058	825.40	609.26
.000097	90.	140.	160.	2	0	0	0.00	112.74	722.00

CCHV= .300 CEHV= .500
*SECNO 11.000

11.00	10.98	837.33	0.00	837.27	837.40	.07	.01	.01	829.49
1230.	34.	1163.	34.	74.	547.	55.	3763.	433.	829.49
16.79	.46	2.13	.62	.070	.030	.050	.058	826.35	567.94
.000083	75.	70.	80.	2	0	0	0.00	84.38	652.32

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.69	3.00	0.00	40.00	0.00	447.00	1.00	826.35	826.35

Aurelius Rd

*SECNO 11.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.53	837.40	0.00	0.	1230.	447.	469.	835.83	840.30

11.10	11.11	837.46	0.00	837.40	837.53	.07	.13	0.00	829.49
1230.	23.	1183.	23.	76.	554.	56.	3764.	433.	829.49
16.79	.31	2.14	.41	.070	.020	.050	.058	826.35	567.64
.000037	56.	56.	56.	2	0	0	0.00	84.92	652.55

CCHV= .100 CEHV= .300
*SECNO 12.000
3280 CROSS SECTION 12.00 EXTENDED 3.53 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
12.00	11.03	837.53	0.00	837.46	837.54	.02	.00	.01	830.00
1230.	46.	605.	579.	179.	523.	671.	3767.	433.	830.00
16.83	.26	1.16	.86	.120	.040	.040	.058	826.50	445.00
.000048	110.	110.	110.	2	0	0	0.00	212.63	657.63

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

3470 ENCROACHMENT STATIONS= 140.0 620.0 TYPE= 1 TARGET= 480.000

13.00	11.06	837.56	0.00	837.49	837.58	.02	.04	.00	829.10
2280.	809.	766.	704.	1109.	411.	1098.	3781.	436.	831.10
16.91	.73	1.86	.64	.096	.060	.120	.057	826.50	141.73
.000272	270.	300.	360.	2	0	0	0.00	478.27	620.00

CCHV= .300 CEHV= .500
*SECNO 14.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.30 ELREA= 839.00

14.00	9.69	837.59	0.00	837.53	837.71	.12	.08	.05	833.00
2280.	88.	2192.	0.	69.	768.	0.	3793.	438.	832.10
16.94	1.28	2.85	0.00	.030	.030	.100	.057	827.90	40.65
.000259	210.	310.	360.	1	0	0	0.00	135.79	205.74

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.66	3.00	0.00	78.00	3.00	604.20	3.00	827.90	827.90

Jolly Rd

Q *SECNO 14.100

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.96	837.72	.00	38.	2247.	604.	743.	835.50	836.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.30 ELREA= 839.00

Q 14.10	9.93	837.83	0.00	837.77	837.95	.11	.23	0.00	833.00
2280.	97.	2183.	0.	78.	791.	0.	3794.	438.	832.10
16.94	1.25	2.76	0.00	.030	.030	.100	.057	827.90	40.03
.000233	34.	34.	34.	2	0	4	0.00	138.61	205.74

*SECNO 15.000
3280 CROSS SECTION 15.00 EXTENDED 3.95 FEET

3470 ENCROACHMENT STATIONS= 1.0 290.0 TYPE= 1 TARGET= 289.000

15.00	10.85	837.95	0.00	837.89	838.00	.05	.04	.02	828.90
2280.	908.	1173.	200.	780.	520.	248.	3797.	439.	832.70
16.96	1.16	2.25	.81	.090	.070	.120	.057	827.10	18.07
.000564	120.	110.	110.	2	0	0	0.00	271.93	290.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 16.000

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
16.00	12.38	838.18	0.00	838.13	838.20	.01	.19	.00	833.60
2280.	1078.	628.	574.	1539.	415.	1184.	3825.	445.	832.90
17.12	.70	1.51	.48	.102	.070	.120	.057	825.80	33.12
.000266	450.	510.	640.	1	0	0	0.00	711.08	744.21

1490 NH CARD USED
*SECNO 17.000

3265 DIVIDED FLOW

17.00	11.38	838.78	0.00	838.74	838.82	.05	.62	.01	836.10
2280.	715.	1067.	497.	615.	460.	645.	3903.	465.	833.10
17.38	1.16	2.32	.77	.048	.070	.120	.060	827.40	168.06
.000682	980.	2070.	1600.	2	0	0	0.00	687.91	1266.43

*SECNO 20.000
2800 NAT Q1= 857.13 WSEL= 839.61 ENC Q1= 857.13 WSEL= 839.71 RATIO= .0000
NAT Q1= 873. RATIOS LOB,CH,ROB= .1056 .8416 .0529 WSEL= 839.71

3470 ENCROACHMENT STATIONS= 174.6 275.7 TYPE= 4 TARGET= .018

20.00	12.63	839.63	0.00	839.61	839.81	.17	.94	.04	830.00
2280.	221.	1947.	112.	169.	548.	102.	3942.	478.	830.00
17.50	1.31	3.55	1.09	.090	.055	.120	.060	827.00	174.56
.000719	1375.	1350.	1300.	2	0	0	0.00	101.17	275.73

*SECNO 21.000
2800 NAT Q1= 1151.94 WSEL= 840.45 ENC Q1= 1151.94 WSEL= 840.55 RATIO= 0.0000
NAT Q1= 1181. RATIOS LOB,CH,ROB= .2732 .6726 .0543 WSEL= 840.55

3470 ENCROACHMENT STATIONS= 117.8 281.7 TYPE= 4 TARGET= .024

21.00	10.39	840.49	0.00	840.45	840.59	.10	.78	.01	831.70
2280.	605.	1574.	101.	436.	531.	76.	3974.	482.	831.70
17.66	1.39	2.96	1.34	.060	.045	.060	.059	830.10	117.82
.000401	1480.	1475.	1480.	2	0	0	0.00	163.91	281.74

*SECNO 22.000
2800 NAT Q1= 3527.59 WSEL= 840.67 ENC Q1= 3527.59 WSEL= 840.77 RATIO= .0000
NAT Q1= 3625. RATIOS LOB,CH,ROB= .6066 .0992 .2942 WSEL= 840.77

3470 ENCROACHMENT STATIONS= 68.0 708.7 TYPE= 4 TARGET= .027

22.00	9.52	840.72	0.00	840.67	840.72	.01	.12	.01	832.00
2280.	1389.	233.	658.	2588.	274.	1148.	4038.	492.	832.00
18.28	.54	.85	.57	.060	.050	.060	.059	831.20	67.98
.000043	1025.	1700.	925.	2	0	0	0.00	640.70	708.68

*SECNO 23.000
2800 NAT Q1= 762.64 WSEL= 840.71 ENC Q1= 762.64 WSEL= 840.81 RATIO= .0000
NAT Q1= 786. RATIOS LOB,CH,ROB= .0097 .9589 .0314 WSEL= 840.81

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= 315.0 422.9 TYPE= 4 TARGET= .030

23.00	9.36	840.76	0.00	840.71	840.92	.16	.15	.05	837.00
2280.	0.	2252.	28.	0.	696.	21.	4101.	502.	837.00
18.39	0.00	3.24	1.32	.100	.050	.060	.059	831.40	315.00
.000962	1100.	1400.	1100.	2	0	0	0.00	107.90	422.90

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.56	2.60	0.00	30.00	4.00	548.00	1.20	832.00	832.00

*SECNO 23.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.55 BRIDGE VELOCITY=, 7.36 CALCULATED CHANNEL AREA=, 310.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	840.98	.03	0.	2280.	548.	410.	842.60	846.50

23.10	9.64	840.84	0.00	840.74	840.98	.14	.07	0.00	837.00
2280.	33.	2208.	39.	28.	719.	32.	4102.	502.	837.00
18.39	1.19	3.07	1.22	.060	.050	.060	.059	831.20	304.00
.000788	41.	41.	41.	0	0	0	0.00	124.00	428.00

CCHV= .300 CEHV= .500
*SECNO 24.000
2800 NAT Q1= 774.82 WSEL= 840.84 ENC Q1= 796.41 WSEL= 840.94 RATIO= .0279
NAT Q1= 796. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 840.94

3470 ENCROACHMENT STATIONS= 304.0 428.0 TYPE= 4 TARGET= 0.000

24.00	9.63	840.93	0.00	840.84	841.06	.13	.07	.00	847.90
2280.	0.	2280.	0.	0.	793.	0.	4104.	502.	847.20
18.40	0.00	2.87	0.00	.060	.050	.060	.059	831.30	304.00
.000825	90.	90.	90.	1	0	0	0.00	124.00	428.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.50	2.50	0.00	30.00	4.00	713.00	2.24	832.60	832.60

*SECNO 24.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.81 BRIDGE VELOCITY=, 6.25 CALCULATED CHANNEL AREA=, 365.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	841.07	.02	0.	2280.	713.	484.	842.60	846.30

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    24.50     10.06    840.96      0.00    840.86    841.07       .11       .01      0.00    838.70
    2280.       27.     2249.        4.       58.      830.       10.     4105.       503.     838.80
    18.40       .46      2.71       .44      .090      .050      .090      .059    830.90    252.94
  .000669       46.       46.       46.         0         0         0      0.00    184.31    437.25


 CCHV=    .100 CEHV=    .300
 *SECNO 25.000
  2800 NAT Q1=    1409.38  WSEL=     841.13  ENC Q1=    1409.38  WSEL=     841.23  RATIO=  0.0000
  NAT Q1=    1469.  RATIOS LOB,CH,ROB=    .2180    .2092    .5727  WSEL=     841.23

 3470 ENCROACHMENT STATIONS=      123.4     712.8  TYPE=      4  TARGET=        .041
    25.00      9.72   841.22      0.00   841.13   841.24       .02       .16       .01    836.50
    2280.       470.     498.     1312.     574.      279.     1517.     4120.      506.     836.90
    18.51       .82      1.78       .86      .070      .050      .070      .059    831.50    123.35
  .000263       400.     400.      400.         2         0         0      0.00    589.42    712.77


 *SECNO 26.000
  2800 NAT Q1=    2587.08  WSEL=     841.34  ENC Q1=    2587.08  WSEL=     841.44  RATIO=   .0000
  NAT Q1=    2685.  RATIOS LOB,CH,ROB=    .0451    .1068    .8481  WSEL=     841.44
    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     XLOBL     XLCH      XLOBR     ITRIAL     IDC       ICONT     CORAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      142.7    1020.6  TYPE=      4  TARGET=        .037
    26.00      8.73   841.43      0.00   841.34   841.44       .01       .19       .00    838.00
    2280.       64.     253.     1963.      83.      259.     3755.     4227.      530.     835.00
    19.22       .77      .98       .52      .035      .050      .070      .059    832.70    142.67
  .000078      1500.    1800.     1410.         2         0         0      0.00    877.93   1020.60


 *SECNO 27.000
  2800 NAT Q1=    1225.46  WSEL=     841.52  ENC Q1=    1225.46  WSEL=     841.62  RATIO=   .0000
  NAT Q1=    1294.  RATIOS LOB,CH,ROB=    .0988    .2988    .6023  WSEL=     841.62

 3470 ENCROACHMENT STATIONS=      105.1    1057.0  TYPE=      4  TARGET=        .053
    27.00      9.12   841.62      0.00   841.52   841.64       .03       .20       .01    838.60
    2280.       175.     720.     1385.     119.      351.     1962.     4336.      561.     835.40
    19.55      1.47      2.05       .71      .035      .050      .070      .058    832.50    105.14
  .000347       750.     1250.    1500.         2         0         0      0.00    951.82   1056.95


 CCHV=    .300 CEHV=    .500
 *SECNO 28.000
  2800 NAT Q1=     522.74  WSEL=     841.85  ENC Q1=     539.29  WSEL=     841.95  RATIO=  -.0317
  NAT Q1=     539.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     841.95

 3470 ENCROACHMENT STATIONS=      600.0     701.0  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      843.60 ELREA=      843.60

    28.00      9.06   841.96      0.00   841.85   842.23       .27       .47       .12    839.40
    2280.         0.    2280.        0.       0.      542.        0.     4361.      570.     838.40
    19.59      0.00      4.20       0.00      .060      .045      .060      .058    832.90    600.00
  .001917       700.     650.      750.         2         0         0      0.00    101.00    701.00


 SPECIAL BRIDGE
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SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
     1.25        1.56        2.60        0.00       30.00        3.00      434.20        2.83      833.00      833.00

*SECNO 28.500
 2800 NAT Q1=     681.36  WSEL=     842.32  ENC Q1=     699.96  WSEL=     842.42  RATIO=   -.0273
 NAT Q1=     700.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     842.42
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      600.0      703.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       843.60 ELREA=       843.60

     28.50       8.62    842.42       0.00    842.32    842.62       .20        .05        .02    840.30
     2280.          0.    2280.          0.        0.     637.          0.     4361.      570.     839.60
     19.60       0.00       3.58       0.00      .060      .045      .060       .058    833.80    600.00
   .001121        32.        32.        32.         0         0         0       0.00    103.00    703.00


CCHV=     .100 CEHV=     .300
*SECNO 29.000
 2800 NAT Q1=     751.09  WSEL=     843.03  ENC Q1=     751.09  WSEL=     843.13  RATIO=    .0000
 NAT Q1=     775.  RATIOS LOB,CH,ROB=   .3627   .6308   .0065  WSEL=     843.13

3470 ENCROACHMENT STATIONS=       47.3      312.0  TYPE=      4  TARGET=         .031
     29.00       9.34    843.14       0.00    843.03    843.25       .10        .62        .01    838.30
     2280.       823.     1457.          0.      701.      466.          0.     4374.      572.     838.60
     19.66       1.17       3.12       0.00      .090      .055      .090       .058    833.80     47.33
   .000972        600.       590.       600.         2         0         0       0.00    264.67    312.00


*SECNO 30.000
 2800 NAT Q1=    1089.71  WSEL=     844.69  ENC Q1=    1089.71  WSEL=     844.79  RATIO=  0.0000
 NAT Q1=    1129.  RATIOS LOB,CH,ROB=   .5483   .2929   .1588  WSEL=     844.79
   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=      166.2      600.4  TYPE=      4  TARGET=         .035
     30.00      10.71    844.81       0.00    844.69    844.86       .05       1.61        .01    839.00
     2280.      1259.      689.       332.     1470.      291.      125.     4464.      593.     837.60
     20.12        .86       2.37       2.67      .090      .055      .035       .058    834.10    166.22
   .000430       2550.      2650.      2550.         2         0         0       0.00    434.19    600.41


*SECNO 31.000
 2800 NAT Q1=    1900.97  WSEL=     845.08  ENC Q1=    1900.97  WSEL=     845.18  RATIO=  0.0000
 NAT Q1=    1969.  RATIOS LOB,CH,ROB=   .0057   .1483   .8461  WSEL=     845.18

3470 ENCROACHMENT STATIONS=       16.0      532.6  TYPE=      4  TARGET=         .035
     31.00       9.72    845.22       0.00    845.08    845.23       .01        .36        .00    837.90
     2280.          0.      312.      1968.        0.      272.     2288.     4542.      609.     839.90
     20.60       0.00       1.14       .86      .090      .055      .060       .058    835.50     16.00
   .000146       1490.      1750.      1490.         2         0         0       0.00    516.60    532.60


*SECNO 32.000
 2800 NAT Q1=    1298.31  WSEL=     845.91  ENC Q1=    1298.31  WSEL=     846.01  RATIO=   .0000
 NAT Q1=    1358.  RATIOS LOB,CH,ROB=   .2084   .3757   .4158  WSEL=     846.01

3470 ENCROACHMENT STATIONS=       53.5      797.0  TYPE=      4  TARGET=         .044
     32.00       9.14    846.04       0.00    845.91    846.07       .02        .83        .00    839.80
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	2280.	444.	890.	945.	477.	511.	1522.	4772.	665.	843.30
	21.62	.93	1.74	.62	.080	.055	.080	.059	836.90	53.48
	.000300	3100.	5250.	3800.	2	0	0	0.00	743.48	796.96

CCHV= .300 CEHV= .500

*SECNO 33.000

2800 NAT Q1= 581.78 WSEL= 846.31 ENC Q1= 592.95 WSEL= 846.41 RATIO= -.0192

NAT Q1= 593. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 846.41

3470 ENCROACHMENT STATIONS= 288.0 350.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

	33.00	10.14	846.44	0.00	846.31	846.74	.30	.53	.14	842.30
	2280.	0.	2280.	0.	0.	522.	0.	4804.	674.	841.60
	21.68	0.00	4.37	0.00	.060	.050	.060	.059	836.30	288.00
	.001603	920.	900.	950.	2	0	0	0.00	62.00	350.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	40.00	0.00	450.00	1.25	835.60	835.60

*SECNO 33.090

2800 NAT Q1= 698.38 WSEL= 846.70 ENC Q1= 709.91 WSEL= 846.80 RATIO= -.0165

NAT Q1= 710. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 846.80

WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 288.0 350.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

	33.09	11.23	846.83	0.00	846.70	847.06	.22	.04	.02	844.30
	2280.	0.	2280.	0.	0.	603.	0.	4805.	674.	844.40
	21.68	0.00	3.78	0.00	.060	.050	.060	.059	835.60	288.00
	.001066	31.	31.	31.	0	0	0	0.00	62.00	350.00

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SYCAMORE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.000	0.00	0.00	0.00	815.97	2530.00	835.46	0.00	835.46	.02	.34	15809.72	16597.68

1.000	0.00	0.00	0.00	815.97	2530.00	835.56	0.00	835.56	.02	.34	15646.89	16618.90
2.000	600.00	0.00	0.00	815.50	2530.00	835.46	0.00	835.46	.14	.86	6016.04	6674.97
2.000	600.00	0.00	0.00	815.50	2530.00	835.56	0.00	835.56	.14	.87	5822.62	6678.40
3.000	650.00	0.00	0.00	815.27	2530.00	835.47	0.00	835.47	.07	.59	8060.75	9330.33
3.000	650.00	0.00	0.00	815.27	2530.00	835.57	0.00	835.57	.07	.59	7629.95	9322.87
3.500	66.00	822.97	825.97	813.37	2530.00	835.50	0.00	835.50	.08	.64	7672.07	8690.27
3.500	66.00	999999.00	0.00	813.37	2530.00	835.60	0.00	835.60	.08	.65	7277.22	8689.05
4.000	1800.00	0.00	0.00	816.70	2530.00	835.50	0.00	835.50	.01	.18	15153.37	29970.00
4.000	1800.00	0.00	0.00	816.70	2530.00	835.60	0.00	835.60	.01	.18	14655.68	30072.13
5.000	2500.00	0.00	0.00	818.10	2530.00	835.50	0.00	835.50	.01	.24	17880.25	21537.23
5.000	2500.00	0.00	0.00	818.10	2530.00	835.60	0.00	835.60	.01	.24	16933.72	21534.21
6.000	1775.00	0.00	0.00	823.67	2530.00	835.52	0.00	835.52	.13	.33	11596.95	6945.38
6.000	1775.00	0.00	0.00	823.67	2530.00	835.62	0.00	835.62	.13	.33	11188.08	6951.39
7.000	2825.00	0.00	0.00	821.57	2530.00	835.53	0.00	835.53	.06	.28	15918.66	10773.92
7.000	2825.00	0.00	0.00	821.57	2530.00	835.63	0.00	835.63	.06	.28	15787.02	10783.38
8.000	825.00	0.00	0.00	821.77	2530.00	835.54	0.00	835.54	.56	.71	6773.63	3366.60
8.000	825.00	0.00	0.00	821.77	2530.00	835.64	0.00	835.64	.56	.72	6565.19	3373.18
9.000	1550.00	0.00	0.00	820.97	2530.00	835.65	0.00	835.66	1.14	1.21	3919.17	2370.95
9.000	1550.00	0.00	0.00	820.97	2530.00	835.75	0.00	835.76	1.14	1.22	3765.77	2369.99
10.000	1230.00	0.00	0.00	823.07	2530.00	835.86	0.00	835.90	4.02	2.17	2630.64	1261.24
10.000	1230.00	0.00	0.00	823.07	2530.00	835.96	0.00	836.00	4.03	2.18	2366.16	1260.86
11.000	450.00	0.00	0.00	823.57	2530.00	835.99	0.00	836.03	2.89	1.91	2260.76	1489.19
11.000	450.00	0.00	0.00	823.57	2530.00	836.09	0.00	836.13	2.90	1.93	2073.44	1486.93
11.500	31.00	835.17	833.22	823.67	2530.00	836.06	0.00	836.06	.28	.61	6892.62	4793.10
11.500	31.00	999999.00	0.00	823.67	2530.00	836.16	0.00	836.16	.28	.61	6653.08	4789.37

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.000	690.00	0.00	0.00	822.60	2530.00	836.08	0.00	836.09	.90	1.14	4572.85	2672.24
12.000	690.00	0.00	0.00	822.60	2530.00	836.18	0.00	836.19	.90	1.15	4459.14	2669.61
1.100	1260.00	0.00	0.00	822.60	2530.00	836.26	0.00	836.37	6.76	3.01	1215.30	973.33
1.100	1260.00	0.00	0.00	822.60	2530.00	836.35	0.00	836.48	6.77	3.03	1095.90	972.26
1.200	1.00	836.90	837.70	822.60	2530.00	836.17	0.00	836.47	22.85	4.52	607.90	529.32
1.200	1.00	836.90	837.70	822.60	2530.00	836.27	0.00	836.56	24.68	4.44	614.53	509.25
1.300	10.00	836.90	837.70	822.60	2530.00	836.19	0.00	836.49	22.73	4.51	608.84	530.64
1.300	10.00	836.90	837.70	822.60	2530.00	836.30	0.00	836.59	24.50	4.43	616.01	511.14
1.400	1.00	0.00	0.00	822.60	2530.00	836.43	0.00	836.54	6.33	2.94	1250.58	1005.46
1.400	1.00	0.00	0.00	822.60	2530.00	836.52	0.00	836.64	6.37	2.97	1126.46	1002.58
2.000	43.00	0.00	0.00	822.60	2530.00	836.44	0.00	836.60	9.85	3.35	886.29	806.32
2.000	43.00	0.00	0.00	822.60	2530.00	836.53	0.00	836.69	9.49	3.31	901.02	821.14
3.000	398.00	0.00	0.00	822.50	2530.00	836.80	0.00	836.83	3.54	2.07	2348.39	1344.74
3.000	398.00	0.00	0.00	822.50	2530.00	836.88	0.00	836.91	3.43	2.04	2377.08	1366.31

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.000	430.00	0.00	0.00	824.40	2530.00	836.93	0.00	836.94	2.26	1.58	3223.59	1683.38
4.000	430.00	0.00	0.00	824.40	2530.00	837.01	0.00	837.02	2.19	1.56	3263.04	1711.38
5.000	231.00	0.00	0.00	824.40	2530.00	836.96	0.00	836.97	1.05	1.27	3214.45	2463.55
5.000	231.00	0.00	0.00	824.40	2530.00	837.04	0.00	837.05	1.02	1.26	3258.32	2502.37
6.000	345.00	0.00	0.00	824.40	2530.00	836.99	0.00	837.04	3.99	2.70	2239.75	1266.73
6.000	345.00	0.00	0.00	824.40	2530.00	837.07	0.00	837.12	3.82	2.66	2284.76	1293.67
7.000	250.00	0.00	0.00	822.90	2530.00	837.00	0.00	837.16	3.94	3.58	1076.20	1274.38
7.000	250.00	0.00	0.00	822.90	2530.00	837.08	0.00	837.23	3.83	3.54	1089.41	1293.09
8.000	200.00	0.00	0.00	822.90	1230.00	837.19	0.00	837.23	1.67	1.74	748.66	951.46
8.000	200.00	0.00	0.00	822.90	1230.00	837.26	0.00	837.30	1.63	1.73	755.65	962.63
9.000	120.00	0.00	0.00	826.60	1230.00	837.18	0.00	837.28	5.18	2.60	502.31	540.41
9.000	120.00	0.00	0.00	826.60	1230.00	837.25	0.00	837.35	5.04	2.57	507.35	547.89
10.000	140.00	0.00	0.00	825.40	1230.00	837.27	0.00	837.32	.99	1.68	818.84	1234.52
10.000	140.00	0.00	0.00	825.40	1230.00	837.34	0.00	837.38	.97	1.67	826.36	1249.34
11.000	70.00	0.00	0.00	826.35	1230.00	837.27	0.00	837.33	.85	2.14	669.65	1337.53
11.000	70.00	0.00	0.00	826.35	1230.00	837.33	0.00	837.40	.83	2.13	675.29	1352.68
11.100	56.00	840.30	835.83	826.35	1230.00	837.40	0.00	837.47	.37	2.15	680.58	2012.62
11.100	56.00	840.30	835.83	826.35	1230.00	837.46	0.00	837.53	.37	2.14	686.33	2035.04
12.000	110.00	0.00	0.00	826.50	1230.00	837.46	0.00	837.48	.49	1.17	1359.63	1756.96
12.000	110.00	0.00	0.00	826.50	1230.00	837.53	0.00	837.54	.48	1.16	1373.88	1783.70
13.000	300.00	0.00	0.00	826.50	2280.00	837.49	0.00	837.52	2.82	1.89	2586.24	1356.66
13.000	300.00	0.00	0.00	826.50	2280.00	837.56	0.00	837.58	2.72	1.86	2617.79	1382.22
14.000	310.00	0.00	0.00	827.90	2280.00	837.53	0.00	837.65	2.66	2.88	827.89	1397.29
14.000	310.00	0.00	0.00	827.90	2280.00	837.59	0.00	837.71	2.59	2.85	836.58	1418.09
14.100	34.00	836.30	835.50	827.90	2280.00	837.77	0.00	837.88	2.39	2.79	859.59	1473.40
14.100	34.00	836.30	835.50	827.90	2280.00	837.83	0.00	837.95	2.33	2.76	868.62	1495.23
15.000	110.00	0.00	0.00	827.10	2280.00	837.89	0.00	837.94	5.82	2.28	1531.17	945.08
15.000	110.00	0.00	0.00	827.10	2280.00	837.95	0.00	838.00	5.64	2.25	1548.26	959.99
16.000	510.00	0.00	0.00	825.80	2280.00	838.13	0.00	838.14	2.75	1.53	3098.07	1374.42
16.000	510.00	0.00	0.00	825.80	2280.00	838.18	0.00	838.20	2.66	1.51	3137.76	1398.72
17.000	2070.00	0.00	0.00	827.40	2280.00	838.74	0.00	838.79	7.03	2.35	1696.24	859.62
17.000	2070.00	0.00	0.00	827.40	2280.00	838.78	0.00	838.82	6.82	2.32	1719.59	872.92
20.000	1350.00	0.00	0.00	827.00	2280.00	839.61	0.00	839.78	7.08	3.52	859.89	857.13
20.000	1350.00	0.00	0.00	827.00	2280.00	839.63	0.00	839.81	7.19	3.55	819.59	850.11
21.000	1475.00	0.00	0.00	830.10	2280.00	840.45	0.00	840.54	3.92	2.92	1105.80	1151.94
21.000	1475.00	0.00	0.00	830.10	2280.00	840.49	0.00	840.59	4.01	2.96	1043.00	1137.92
22.000	1700.00	0.00	0.00	831.20	2280.00	840.67	0.00	840.67	.42	.84	4159.09	3527.59
22.000	1700.00	0.00	0.00	831.20	2280.00	840.72	0.00	840.72	.43	.85	4010.57	3481.12
23.000	1400.00	0.00	0.00	831.40	2280.00	840.71	0.00	840.86	8.94	3.18	806.54	762.64
23.000	1400.00	0.00	0.00	831.40	2280.00	840.76	0.00	840.92	9.62	3.24	716.70	734.97

23.100	41.00	846.50	842.60	831.20	2280.00	840.74	0.00	840.89	8.28	3.12	766.63	792.37
23.100	41.00	846.50	842.60	831.20	2280.00	840.84	0.00	840.98	7.88	3.07	779.03	812.19
24.000	90.00	0.00	0.00	831.30	2280.00	840.84	0.00	840.97	8.66	2.92	781.63	774.82
24.000	90.00	0.00	0.00	831.30	2280.00	840.93	0.00	841.06	8.25	2.87	793.44	793.63
24.500	46.00	846.30	842.60	830.90	2280.00	840.86	0.00	840.97	7.05	2.76	878.97	858.64
24.500	46.00	846.30	842.60	830.90	2280.00	840.96	0.00	841.07	6.69	2.71	897.27	881.57
25.000	400.00	0.00	0.00	831.50	2280.00	841.13	0.00	841.15	2.62	1.76	2505.19	1409.38
25.000	400.00	0.00	0.00	831.50	2280.00	841.22	0.00	841.24	2.63	1.78	2370.11	1404.94
26.000	1800.00	0.00	0.00	832.70	2280.00	841.34	0.00	841.34	.78	.97	4217.93	2587.08
26.000	1800.00	0.00	0.00	832.70	2280.00	841.43	0.00	841.44	.78	.98	4097.63	2580.95
27.000	1250.00	0.00	0.00	832.50	2280.00	841.52	0.00	841.55	3.46	2.03	2496.23	1225.46
27.000	1250.00	0.00	0.00	832.50	2280.00	841.62	0.00	841.64	3.47	2.05	2432.36	1223.12
28.000	650.00	0.00	0.00	832.90	2280.00	841.85	0.00	842.14	19.02	4.29	531.76	522.74
28.000	650.00	0.00	0.00	832.90	2280.00	841.96	0.00	842.23	19.17	4.20	542.35	520.75
28.500	32.00	844.00	841.50	833.80	2280.00	842.32	0.00	842.52	11.20	3.64	626.02	681.36
28.500	32.00	999999.00	0.00	833.80	2280.00	842.42	0.00	842.62	11.21	3.58	636.75	681.11
29.000	590.00	0.00	0.00	833.80	2280.00	843.03	0.00	843.13	9.21	3.16	1208.63	751.09
29.000	590.00	0.00	0.00	833.80	2280.00	843.14	0.00	843.25	9.72	3.12	1167.31	731.22
30.000	2650.00	0.00	0.00	834.10	2280.00	844.69	0.00	844.73	4.38	2.37	1932.32	1089.71
30.000	2650.00	0.00	0.00	834.10	2280.00	844.81	0.00	844.86	4.30	2.37	1885.55	1099.46
31.000	1750.00	0.00	0.00	835.50	2280.00	845.08	0.00	845.10	1.44	1.28	2615.66	1900.97
31.000	1750.00	0.00	0.00	835.50	2280.00	845.22	0.00	845.23	1.46	1.14	2560.35	1885.82

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
32.000	5250.00	0.00	0.00	836.90	2280.00	845.91	0.00	845.93	3.08	1.74	2594.12	1298.31
32.000	5250.00	0.00	0.00	836.90	2280.00	846.04	0.00	846.07	3.00	1.74	2510.03	1316.10
33.000	900.00	0.00	0.00	836.30	2280.00	846.31	0.00	846.61	15.36	4.44	513.61	581.78
33.000	900.00	0.00	0.00	836.30	2280.00	846.44	0.00	846.74	16.03	4.37	521.93	569.45
33.090	31.00	848.20	844.40	835.60	2280.00	846.70	0.00	846.93	10.66	3.84	594.51	698.38
33.090	31.00	999999.00	0.00	835.60	2280.00	846.83	0.00	847.06	10.66	3.78	602.80	698.37

SYCAMORE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	2530.00	835.46	0.00	0.00	0.00	1157.52	0.00
1.000	2530.00	835.56	0.00	0.00	.10	1090.49	0.00
2.000	2530.00	835.46	0.00	-.00	0.00	662.29	600.00
2.000	2530.00	835.56	0.00	-.00	.10	493.95	600.00

3.000	2530.00	835.47	0.00	.01	0.00	1370.74	650.00
3.000	2530.00	835.57	0.00	.01	.10	1051.64	650.00
3.500	2530.00	835.50	0.00	.03	0.00	1374.94	66.00
3.500	2530.00	835.60	0.00	.03	.10	1066.76	66.00
4.000	2530.00	835.50	0.00	.01	0.00	1364.54	1800.00
4.000	2530.00	835.60	0.00	.01	.10	1177.44	1800.00
5.000	2530.00	835.50	0.00	.00	0.00	1827.30	2500.00
5.000	2530.00	835.60	0.00	.00	.10	1420.35	2500.00
6.000	2530.00	835.52	0.00	.01	0.00	1628.78	1775.00
6.000	2530.00	835.62	0.00	.01	.10	1375.77	1775.00
7.000	2530.00	835.53	0.00	.02	0.00	1744.47	2825.00
7.000	2530.00	835.63	0.00	.02	.10	1682.05	2825.00
8.000	2530.00	835.54	0.00	.01	0.00	1337.64	825.00
8.000	2530.00	835.64	0.00	.01	.10	1168.23	825.00
9.000	2530.00	835.65	0.00	.11	0.00	607.93	1550.00
9.000	2530.00	835.75	0.00	.11	.10	473.81	1550.00
10.000	2530.00	835.86	0.00	.20	0.00	1210.03	1230.00
10.000	2530.00	835.96	0.00	.20	.10	586.50	1230.00
11.000	2530.00	835.99	0.00	.13	0.00	1041.41	450.00
11.000	2530.00	836.09	0.00	.13	.10	564.24	450.00
11.500	2530.00	836.06	0.00	.07	0.00	1164.86	31.00
11.500	2530.00	836.16	0.00	.07	.10	954.10	31.00
12.000	2530.00	836.08	0.00	.03	0.00	880.74	690.00
12.000	2530.00	836.18	0.00	.03	.10	816.48	690.00
1.100	2530.00	836.26	0.00	.17	0.00	199.57	1260.00
1.100	2530.00	836.35	0.00	.17	.10	133.06	1260.00
1.200	2530.00	836.17	0.00	-.09	0.00	198.03	1.00
1.200	2530.00	836.27	0.00	-.08	.10	78.43	1.00
1.300	2530.00	836.19	0.00	.02	0.00	198.28	10.00
1.300	2530.00	836.30	0.00	.03	.11	78.21	10.00
1.400	2530.00	836.43	0.00	.24	0.00	202.63	1.00
1.400	2530.00	836.52	0.00	.22	.09	135.10	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.000	2530.00	836.44	0.00	.01	0.00	161.99	43.00
2.000	2530.00	836.53	0.00	.01	.09	160.00	43.00
3.000	2530.00	836.80	0.00	.36	0.00	343.04	398.00
3.000	2530.00	836.88	0.00	.35	.08	359.54	398.00
4.000	2530.00	836.93	0.00	.13	0.00	507.22	430.00
4.000	2530.00	837.01	0.00	.13	.08	510.32	430.00
5.000	2530.00	836.96	0.00	.03	0.00	570.88	231.00
5.000	2530.00	837.04	0.00	.03	.08	574.94	231.00

6.000	2530.00	836.99	0.00	.03	0.00	587.98	345.00
6.000	2530.00	837.07	0.00	.03	.08	607.87	345.00
7.000	2530.00	837.00	0.00	.01	0.00	179.00	250.00
7.000	2530.00	837.08	0.00	.01	.07	179.00	250.00
8.000	1230.00	837.19	0.00	.18	0.00	101.02	200.00
8.000	1230.00	837.26	0.00	.18	.07	101.94	200.00
9.000	1230.00	837.18	0.00	-.01	0.00	73.01	120.00
9.000	1230.00	837.25	0.00	-.01	.07	73.21	120.00
10.000	1230.00	837.27	0.00	.09	0.00	112.10	140.00
10.000	1230.00	837.34	0.00	.09	.07	112.74	140.00
11.000	1230.00	837.27	0.00	-.01	0.00	84.10	70.00
11.000	1230.00	837.33	0.00	-.01	.07	84.38	70.00
11.100	1230.00	837.40	0.00	.13	0.00	84.64	56.00
11.100	1230.00	837.46	0.00	.13	.07	84.92	56.00
12.000	1230.00	837.46	0.00	.06	0.00	212.30	110.00
12.000	1230.00	837.53	0.00	.06	.07	212.63	110.00
13.000	2280.00	837.49	0.00	.03	0.00	477.79	300.00
13.000	2280.00	837.56	0.00	.03	.07	478.27	300.00
14.000	2280.00	837.53	0.00	.03	0.00	135.01	310.00
14.000	2280.00	837.59	0.00	.03	.06	135.79	310.00
14.100	2280.00	837.77	0.00	.24	0.00	137.82	34.00
14.100	2280.00	837.83	0.00	.24	.07	138.61	34.00
15.000	2280.00	837.89	0.00	.12	0.00	271.84	110.00
15.000	2280.00	837.95	0.00	.12	.06	271.93	110.00
16.000	2280.00	838.13	0.00	.24	0.00	709.46	510.00
16.000	2280.00	838.18	0.00	.23	.06	711.08	510.00
17.000	2280.00	838.74	0.00	.61	0.00	681.30	2070.00
17.000	2280.00	838.78	0.00	.59	.03	687.91	2070.00
20.000	2280.00	839.61	0.00	.87	0.00	131.12	1350.00
20.000	2280.00	839.63	0.00	.86	.02	101.17	1350.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
21.000	2280.00	840.45	0.00	.83	0.00	220.06	1475.00
21.000	2280.00	840.49	0.00	.85	.04	163.91	1475.00
22.000	2280.00	840.67	0.00	.22	0.00	736.75	1700.00
22.000	2280.00	840.72	0.00	.23	.05	640.70	1700.00
23.000	2280.00	840.71	0.00	.04	0.00	313.78	1400.00
23.000	2280.00	840.76	0.00	.04	.05	107.90	1400.00
23.100	2280.00	840.74	0.00	.03	0.00	124.00	41.00
23.100	2280.00	840.84	0.00	.08	.10	124.00	41.00
24.000	2280.00	840.84	0.00	.10	0.00	124.00	90.00

24.000	2280.00	840.93	0.00	.09	.10	124.00	90.00
24.500	2280.00	840.86	0.00	.02	0.00	181.62	46.00
24.500	2280.00	840.96	0.00	.03	.10	184.31	46.00
25.000	2280.00	841.13	0.00	.27	0.00	729.62	400.00
25.000	2280.00	841.22	0.00	.26	.09	589.42	400.00
26.000	2280.00	841.34	0.00	.21	0.00	983.84	1800.00
26.000	2280.00	841.43	0.00	.21	.09	877.93	1800.00
27.000	2280.00	841.52	0.00	.18	0.00	1048.44	1250.00
27.000	2280.00	841.62	0.00	.19	.10	951.82	1250.00
28.000	2280.00	841.85	0.00	.33	0.00	101.00	650.00
28.000	2280.00	841.96	0.00	.34	.10	101.00	650.00
28.500	2280.00	842.32	0.00	.46	0.00	103.00	32.00
28.500	2280.00	842.42	0.00	.46	.10	103.00	32.00
29.000	2280.00	843.03	0.00	.71	0.00	296.28	590.00
29.000	2280.00	843.14	0.00	.72	.12	264.67	590.00
30.000	2280.00	844.69	0.00	1.66	0.00	502.13	2650.00
30.000	2280.00	844.81	0.00	1.67	.13	434.19	2650.00
31.000	2280.00	845.08	0.00	.40	0.00	560.99	1750.00
31.000	2280.00	845.22	0.00	.40	.13	516.60	1750.00
32.000	2280.00	845.91	0.00	.83	0.00	875.50	5250.00
32.000	2280.00	846.04	0.00	.83	.13	743.48	5250.00
33.000	2280.00	846.31	0.00	.40	0.00	62.00	900.00
33.000	2280.00	846.44	0.00	.40	.13	62.00	900.00
33.090	2280.00	846.70	0.00	.39	0.00	62.00	31.00
33.090	2280.00	846.83	0.00	.39	.13	62.00	31.00

SUMMARY OF ERRORS

FLOODWAY DATA; SYCAMORE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	1090.	15647.	.2	835.6	835.5	.1
2.000	494.	5823.	.4	835.6	835.5	.1
3.000	1052.	7630.	.3	835.6	835.5	.1
3.500	1067.	7277.	.3	835.6	835.5	.1
4.000	1177.	14656.	.2	835.6	835.5	.1
5.000	1420.	16934.	.1	835.6	835.5	.1
6.000	1376.	11188.	.2	835.6	835.5	.1
7.000	1682.	15787.	.2	835.6	835.5	.1
8.000	1168.	6565.	.4	835.6	835.5	.1

9.000	474.	3766.	.7	835.8	835.7	.1
10.000	586.	2366.	1.1	836.0	835.9	.1
11.000	564.	2073.	1.2	836.1	836.0	.1
11.500	954.	6653.	.4	836.2	836.1	.1
12.000	816.	4459.	.6	836.2	836.1	.1
1.100	133.	1096.	2.3	836.4	836.3	.1
1.200	78.	615.	4.1	836.3	836.2	.1
1.300	78.	616.	4.1	836.3	836.2	.1
1.400	135.	1126.	2.2	836.5	836.4	.1
2.000	160.	901.	2.8	836.5	836.4	.1
3.000	360.	2377.	1.1	836.9	836.8	.1
4.000	510.	3263.	.8	837.0	836.9	.1
5.000	575.	3258.	.8	837.1	837.0	.1
6.000	608.	2285.	1.1	837.1	837.0	.1
7.000	179.	1089.	2.3	837.1	837.0	.1
8.000	102.	756.	1.6	837.3	837.2	.1
9.000	73.	507.	2.4	837.3	837.2	.1
10.000	113.	826.	1.5	837.4	837.3	.1
11.000	84.	675.	1.8	837.4	837.3	.1
11.100	85.	686.	1.8	837.5	837.4	.1
12.000	213.	1374.	.9	837.6	837.5	.1
13.000	478.	2618.	.9	837.6	837.5	.1
14.000	136.	837.	2.7	837.6	837.5	.1
14.100	139.	869.	2.6	837.9	837.8	.1
15.000	272.	1548.	1.5	838.0	837.9	.1
16.000	711.	3138.	.7	838.2	838.1	.1
17.000	688.	1720.	1.3	838.7	838.7	0.0
20.000	101.	820.	2.8	839.6	839.6	0.0
21.000	164.	1043.	2.2	840.4	840.4	0.0
22.000	641.	4011.	.6	840.7	840.7	0.0
23.000	108.	717.	3.2	840.7	840.7	0.0
23.100	124.	779.	2.9	840.8	840.7	.1
24.000	124.	793.	2.9	840.9	840.8	.1
24.500	184.	897.	2.5	841.0	840.9	.1
25.000	589.	2370.	1.0	841.2	841.1	.1
26.000	878.	4098.	.6	841.4	841.3	.1
27.000	952.	2432.	.9	841.6	841.5	.1
28.000	101.	542.	4.2	842.0	841.9	.1
28.500	103.	637.	3.6	842.4	842.3	.1
29.000	265.	1167.	2.0	843.1	843.0	.1
30.000	434.	1886.	1.2	844.8	844.7	.1

FLOODWAY DATA, SYCAMORE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
31.000	517.	2560.	.9	845.2	845.1	.1
32.000	743.	2510.	.9	846.0	845.9	.1
33.000	62.	522.	4.4	846.4	846.3	.1
33.090	62.	603.	3.8	846.8	846.7	.1

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977

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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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C
T1      FIA FLOOD INSURANCE STUDY
T2      100 YEAR FLOOD
T3 SYCAMORE CREEK LEFT OVERBANK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       3.        0.        0.  0.000000      0.00      0.0       0.   836.990     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

NC      .070      .120      .050      .100      .300    0.000     0.000     0.000     0.000     0.000
QT     4.000  2230.000  2530.000  3120.000  2530.000    0.000     0.000     0.000     0.000     0.000

X1     6.000    23.000   303.000   337.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   835.000     0.000   834.000    10.000   834.000    40.000   836.000    50.000   838.000   130.000
GR   837.000   230.000   837.400   243.000   828.800   270.000   829.500   290.000   831.600   303.000
GR   826.200   316.000   824.700   318.000   824.700   321.000   824.400   325.000   826.200   335.000
GR   827.700   337.000   830.600   360.000   831.700   386.000   832.000   530.000   834.000   540.000
GR   836.000   653.000   838.000   830.000   840.000   850.000     0.000     0.000     0.000     0.000
QT     4.000   850.000  1300.000  2050.000  1300.000     0.000     0.000     0.000     0.000     0.000
NH     5.000      .070    60.000      .040   285.000      .120   465.000      .120   479.000      .120
NH   541.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

X1     7.000    13.000   465.000   479.000   140.000   180.000   220.000     0.000     0.000     0.000
GR   835.000     0.000   836.000    60.000   838.000   210.000   836.000   285.000   832.000   306.000
GR   830.000   408.000   828.000   465.000   826.800   470.000   828.000   479.000   830.000   479.000
GR   832.000   500.000   834.000   510.000   835.000   541.000     0.000     0.000     0.000     0.000
NH     4.000      .120    60.000      .030   114.000      .120   158.000      .120   545.000     0.000

        ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

X1     8.000    13.000   158.000   170.000   350.000   220.000   440.000     0.000     0.000     0.000
GR   833.900     0.000   833.900    60.000   834.000   114.000   834.000   140.000   832.000   150.000
GR   830.000   158.000   828.000   170.000   830.000   180.000   832.000   208.000   834.000   216.000
GR   836.000   425.000   838.000   505.000   838.500   545.000     0.000     0.000     0.000     0.000
QT     4.000   680.000  1050.000  1860.000  1050.000     0.000     0.000     0.000     0.000     0.000
NH     3.000      .120    90.000      .030   130.000      .035   603.000     0.000     0.000     0.000
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MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

X1	9.000	9.000	253.000	353.000	300.000	170.000	250.000	0.000	0.000	0.000
GR	835.000	0.000	835.000	90.000	835.000	130.000	834.100	153.000	833.900	253.000
GR	834.600	353.000	837.100	453.000	838.300	553.000	839.600	603.000	0.000	0.000
NH	5.000	.120	80.000	.030	130.000	.030	200.000	.030	385.000	.030
NH	580.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	9.000	200.000	385.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	835.500	0.000	835.500	80.000	835.000	130.000	834.000	200.000	833.900	300.000
GR	834.000	385.000	836.000	470.000	838.000	550.000	839.400	580.000	0.000	0.000
NC	.030	.030	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.000	8.000	120.000	270.000	70.000	70.000	70.000	0.000	0.000	0.000
GR	835.900	0.000	835.700	90.000	835.700	120.000	835.900	270.000	836.000	294.000
GR	835.800	394.000	837.000	494.000	839.000	564.000	0.000	0.000	0.000	0.000
NC	.025	.025	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

AURELIUS ROAD

X1	11.100	8.000	120.000	270.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	835.900	0.000	835.700	90.000	835.700	120.000	835.900	270.000	836.000	294.000
GR	835.800	394.000	837.000	494.000	839.000	564.000	0.000	0.000	0.000	0.000
NH	4.000	.035	90.000	.150	200.000	.150	300.000	.150	510.000	0.000
X1	11.500	7.000	200.000	300.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	836.000	0.000	835.700	60.000	835.700	90.000	834.000	110.000	834.000	200.000
GR	834.000	300.000	834.000	510.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	4.000	.030	70.000	.150	76.000	.150	240.000	.150	445.000	0.000
X1	12.000	11.000	76.000	240.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	836.000	0.000	836.000	70.000	834.000	76.000	832.000	240.000	832.000	330.000
GR	834.000	355.000	834.000	366.000	850.000	376.100	850.000	412.000	834.000	412.100
GR	834.000	445.000	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
QT	4.000	2060.000	2280.000	2930.000	2280.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.030	168.000	.050	210.000	.120	385.000	.060	426.000	.120
NH	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	140.000	620.000
X1	13.000	21.000	385.000	426.000	110.000	310.000	200.000	0.000	0.000	0.000
GR	838.000	0.000	837.800	140.000	836.000	153.000	834.000	168.000	833.300	210.000
GR	832.400	280.000	832.300	300.000	832.100	380.000	829.100	385.000	826.800	395.000
GR	826.500	405.000	827.100	415.000	829.100	423.000	831.100	426.000	832.000	537.000
GR	834.000	760.000	836.000	781.000	838.000	796.000	840.000	825.000	842.000	847.000
GR	844.000	870.000	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

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 1.99 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
6.00	12.59	836.99	0.00	836.99	837.04	.05	0.00	0.00	831.60
2530.	611.	954.	965.	500.	352.	1380.	0.	0.	827.70
0.00	1.22	2.71	.70	.070	.050	.120	0.000	824.40	0.00
.000402	0.	0.	0.	0	0	0	0.00	585.93	740.62

1490 NH CARD USED
*SECNO 7.000

3265 DIVIDED FLOW

3280 CROSS SECTION 7.00 EXTENDED 2.10 FEET

CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

7.00	10.30	837.10	0.00	0.00	837.11	.01	.06	.00	828.00
1300.	1017.	128.	155.	1313.	136.	250.	8.	2.	830.00
.06	.77	.95	.62	.115	.120	.120	.065	826.80	0.00
.000343	140.	220.	180.	2	0	0	0.00	439.82	541.00

1490 NH CARD USED
*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 3.33 FEET

ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

8.00	9.23	837.23	0.00	0.00	837.25	.02	.13	.00	830.00
1300.	682.	111.	507.	552.	99.	786.	19.	5.	828.00
.15	1.23	1.12	.65	.063	.120	.120	.067	828.00	0.00
.000506	350.	440.	220.	0	0	0	0.00	474.04	474.04

1490 NH CARD USED
*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 2.30 FEET

MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

9.00	3.40	837.30	0.00	0.00	837.32	.01	.07	.00	833.90
1050.	610.	341.	99.	693.	305.	147.	26.	8.	834.60
.23	.88	1.12	.67	.042	.035	.035	.060	833.90	0.00
.000156	300.	250.	170.	2	0	0	0.00	469.97	469.97

1490 NH CARD USED
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.82 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
10.00	3.42	837.32	0.00	0.00	837.33	.01	.01	.00	834.00
1050.	271.	616.	164.	447.	624.	233.	29.	9.	834.00
.26	.60	.99	.70	.038	.030	.030	.059	833.90	0.00
.000078	90.	90.	90.	1	0	0	0.00	522.99	522.99

*SECNO 11.000
3280 CROSS SECTION 11.00 EXTENDED 1.42 FEET

11.00	1.61	837.31	0.00	0.00	837.35	.04	.01	.01	835.70
1050.	318.	334.	397.	185.	228.	268.	30.	9.	835.90
.27	1.72	1.47	1.48	.030	.035	.030	.057	835.70	0.00
.000686	70.	70.	70.	1	0	0	0.00	505.10	505.10

*SECNO 11.100
3280 CROSS SECTION 11.10 EXTENDED 1.41 FEET

AURELIUS ROAD

11.10	1.62	837.32	0.00	0.00	837.35	.04	.01	.00	835.70
1050.	302.	370.	377.	185.	227.	267.	30.	10.	835.90
.27	1.64	1.63	1.41	.025	.025	.025	.057	835.70	0.00
.000433	10.	10.	10.	0	0	0	0.00	504.98	504.98

1490 NH CARD USED
*SECNO 11.500
3280 CROSS SECTION 11.50 EXTENDED 3.35 FEET

11.50	3.35	837.35	0.00	0.00	837.36	.01	.01	.00	834.00
1050.	424.	203.	423.	492.	335.	704.	31.	10.	834.00
.28	.86	.61	.60	.091	.150	.150	.056	834.00	0.00
.000747	10.	10.	10.	2	0	0	0.00	510.00	510.00

1490 NH CARD USED
*SECNO 12.000

3265 DIVIDED FLOW

3280 CROSS SECTION 12.00 EXTENDED 3.41 FEET

12.00	5.41	837.41	0.00	0.00	837.42	.01	.06	.00	834.00
1050.	142.	434.	474.	113.	724.	751.	34.	11.	832.00
.32	1.26	.60	.63	.035	.150	.150	.053	832.00	0.00
.000506	100.	100.	100.	0	0	0	0.00	401.08	445.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

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
3470 ENCROACHMENT STATIONS=		140.0		620.0	TYPE=	1	TARGET=	480.000	
13.00	10.98	837.48	0.00	0.00	837.50	.02	.07	.00	829.10
2280.	802.	774.	704.	1089.	407.	1082.	45.	13.	831.10
.37	.74	1.90	.65	.096	.060	.120	.048	826.50	142.33
.000285	110.	200.	310.	2	0	0	0.00	477.67	620.00

****
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
****

T1 CITY OF LANSING AND DELHI TOWNSHIP
T2 100 YEAR FLOOD
T3 LEFT OVERBANK OF SYCAMORE CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	837.070	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 2

CCHV= .100 CEHV= .300
*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 2.07 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
6.00	12.67	837.07	0.00	837.07	837.12	.05	0.00	0.00	831.60
2530.	614.	945.	971.	512.	355.	1413.	0.	0.	827.70
0.00	1.20	2.66	.69	.070	.050	.120	0.000	824.40	0.00
.000384	0.	0.	0.	0	0	0	0.00	605.73	747.69

1490 NH CARD USED
*SECNO 7.000

3265 DIVIDED FLOW

3280 CROSS SECTION 7.00 EXTENDED 2.18 FEET

CONFLUENCE MUD LAKE DRAIN AND SYCAMORE CREEK

7.00	10.38	837.18	0.00	0.00	837.18	.01	.06	.00	828.00
1300.	1018.	127.	155.	1341.	137.	254.	8.	2.	830.00
.06	.76	.93	.61	.115	.120	.120	.065	826.80	0.00
.000326	140.	220.	180.	2	0	0	0.00	448.27	541.00

1490 NH CARD USED
*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 3.40 FEET

ASSUME DIVIDED FLOW BEGINS AT THIS CROSS SECTION

8.00	9.30	837.30	0.00	0.00	837.31	.02	.13	.00	830.00
1300.	683.	109.	508.	563.	100.	807.	19.	5.	828.00
.15	1.21	1.10	.63	.063	.120	.120	.067	828.00	0.00
.000475	350.	440.	220.	0	0	0	0.00	476.81	476.81

1490 NH CARD USED
*SECNO 9.000
3280 CROSS SECTION 9.00 EXTENDED 2.37 FEET

MUD LAKE DRAIN DISCHARGE SUBTRACTED AT THIS CROSS SECTION

9.00	3.47	837.37	0.00	0.00	837.38	.01	.07	.00	833.90
1050.	608.	340.	103.	709.	312.	155.	27.	8.	834.60
.23	.86	1.09	.66	.042	.035	.035	.060	833.90	0.00
.000145	300.	250.	170.	2	0	0	0.00	475.21	475.21

1490 NH CARD USED
*SECNO 10.000
3280 CROSS SECTION 10.00 EXTENDED 1.89 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
10.00	3.48	837.38	0.00	0.00	837.39	.01	.01	.00	834.00
1050.	272.	612.	166.	460.	636.	241.	29.	9.	834.00
.26	.59	.96	.69	.038	.030	.030	.059	833.90	0.00
.000073	90.	90.	90.	1	0	0	0.00	525.45	525.45

*SECNO 11.000
3280 CROSS SECTION 11.00 EXTENDED 1.48 FEET

11.00	1.67	837.37	0.00	0.00	837.41	.03	.01	.01	835.70
1050.	316.	332.	402.	193.	237.	283.	31.	10.	835.90
.28	1.64	1.40	1.42	.030	.035	.030	.057	835.70	0.00
.000593	70.	70.	70.	1	0	0	0.00	507.28	507.28

*SECNO 11.100
3280 CROSS SECTION 11.10 EXTENDED 1.48 FEET

AURELIUS ROAD

11.10	1.68	837.38	0.00	0.00	837.41	.03	.00	.00	835.70
1050.	300.	368.	381.	192.	236.	282.	31.	10.	835.90
.28	1.56	1.56	1.35	.025	.025	.025	.057	835.70	0.00
.000374	10.	10.	10.	0	0	0	0.00	507.17	507.17

1490 NH CARD USED
*SECNO 11.500
3280 CROSS SECTION 11.50 EXTENDED 3.41 FEET

11.50	3.41	837.41	0.00	0.00	837.42	.01	.00	.00	834.00
1050.	428.	202.	420.	503.	341.	716.	31.	10.	834.00
.28	.85	.59	.59	.091	.150	.150	.056	834.00	0.00
.000696	10.	10.	10.	2	0	0	0.00	510.00	510.00

1490 NH CARD USED
*SECNO 12.000

3265 DIVIDED FLOW

3280 CROSS SECTION 12.00 EXTENDED 3.47 FEET

12.00	5.47	837.47	0.00	0.00	837.48	.01	.06	.00	834.00
1050.	148.	432.	471.	117.	732.	759.	35.	11.	832.00
.32	1.26	.59	.62	.035	.150	.150	.053	832.00	0.00
.000482	100.	100.	100.	0	0	0	0.00	401.11	445.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

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

3470 ENCROACHMENT STATIONS= 140.0 620.0 TYPE= 1 TARGET= 480.000

13.00	11.03	837.53	0.00	837.48	837.55	.02	.07	.00	829.10
2280.	807.	769.	704.	1101.	410.	1092.	46.	13.	831.10
.38	.73	1.88	.65	.096	.060	.120	.048	826.50	141.95
.000277	110.	200.	310.	2	0	0	0.00	478.04	620.00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ORE CREEK LEFT OVERBANK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.000	0.00	0.00	0.00	824.40	2530.00	836.99	0.00	837.04	4.02	2.71	2232.24	1262.20
6.000	0.00	0.00	0.00	824.40	2530.00	837.07	0.00	837.12	3.84	2.66	2279.86	1290.76
7.000	220.00	0.00	0.00	826.80	1300.00	837.10	0.00	837.11	3.43	.95	1698.85	702.08
7.000	220.00	0.00	0.00	826.80	1300.00	837.18	0.00	837.18	3.26	.93	1732.18	720.27
8.000	440.00	0.00	0.00	828.00	1300.00	837.23	0.00	837.25	5.06	1.12	1436.81	577.95
8.000	440.00	0.00	0.00	828.00	1300.00	837.30	0.00	837.31	4.75	1.10	1469.71	596.68
9.000	250.00	0.00	0.00	833.90	1050.00	837.30	0.00	837.32	1.56	1.12	1145.62	839.81
9.000	250.00	0.00	0.00	833.90	1050.00	837.37	0.00	837.38	1.45	1.09	1175.33	872.81
10.000	90.00	0.00	0.00	833.90	1050.00	837.32	0.00	837.33	.78	.99	1304.46	1186.61
10.000	90.00	0.00	0.00	833.90	1050.00	837.38	0.00	837.39	.73	.96	1336.68	1230.01
11.000	70.00	0.00	0.00	835.70	1050.00	837.31	0.00	837.35	6.86	1.47	680.65	400.80
11.000	70.00	0.00	0.00	835.70	1050.00	837.37	0.00	837.41	5.93	1.40	712.09	431.05
11.100	10.00	0.00	0.00	835.70	1050.00	837.32	0.00	837.35	4.33	1.63	678.95	504.45
11.100	10.00	0.00	0.00	835.70	1050.00	837.38	0.00	837.41	3.74	1.56	710.51	542.60
11.500	10.00	0.00	0.00	834.00	1050.00	837.35	0.00	837.36	7.47	.61	1531.28	384.19
11.500	10.00	0.00	0.00	834.00	1050.00	837.41	0.00	837.42	6.96	.59	1560.96	398.08
12.000	100.00	0.00	0.00	832.00	1050.00	837.41	0.00	837.42	5.06	.60	1587.95	466.68
12.000	100.00	0.00	0.00	832.00	1050.00	837.47	0.00	837.48	4.82	.59	1609.09	478.25
13.000	200.00	0.00	0.00	826.50	2280.00	837.48	0.00	837.50	2.85	1.90	2577.83	1349.87
13.000	200.00	0.00	0.00	826.50	2280.00	837.53	0.00	837.55	2.77	1.88	2602.81	1370.06

ORE CREEK LEFT OVERBANK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.000	2530.00	836.99	0.00	0.00	0.00	585.93	0.00
6.000	2530.00	837.07	0.00	0.00	0.00	605.73	0.00
7.000	1300.00	837.10	0.00	.11	0.00	439.82	220.00
7.000	1300.00	837.18	0.00	.11	0.00	448.27	220.00

8.000	1300.00	837.23	0.00	.13	0.00	474.04	440.00
8.000	1300.00	837.30	0.00	.12	0.00	476.81	440.00
9.000	1050.00	837.30	0.00	.07	0.00	469.97	250.00
9.000	1050.00	837.37	0.00	.07	0.00	475.21	250.00
10.000	1050.00	837.32	0.00	.01	0.00	522.99	90.00
10.000	1050.00	837.38	0.00	.01	0.00	525.45	90.00
11.000	1050.00	837.31	0.00	-.01	0.00	505.10	70.00
11.000	1050.00	837.37	0.00	-.01	0.00	507.28	70.00
11.100	1050.00	837.32	0.00	.01	0.00	504.98	10.00
11.100	1050.00	837.38	0.00	.00	0.00	507.17	10.00
11.500	1050.00	837.35	0.00	.04	0.00	510.00	10.00
11.500	1050.00	837.41	0.00	.03	0.00	510.00	10.00
12.000	1050.00	837.41	0.00	.06	0.00	401.08	100.00
12.000	1050.00	837.47	0.00	.06	0.00	401.11	100.00
13.000	2280.00	837.48	0.00	.06	0.00	477.67	200.00
13.000	2280.00	837.53	0.00	.06	.05	478.04	200.00

SUMMARY OF ERRORS

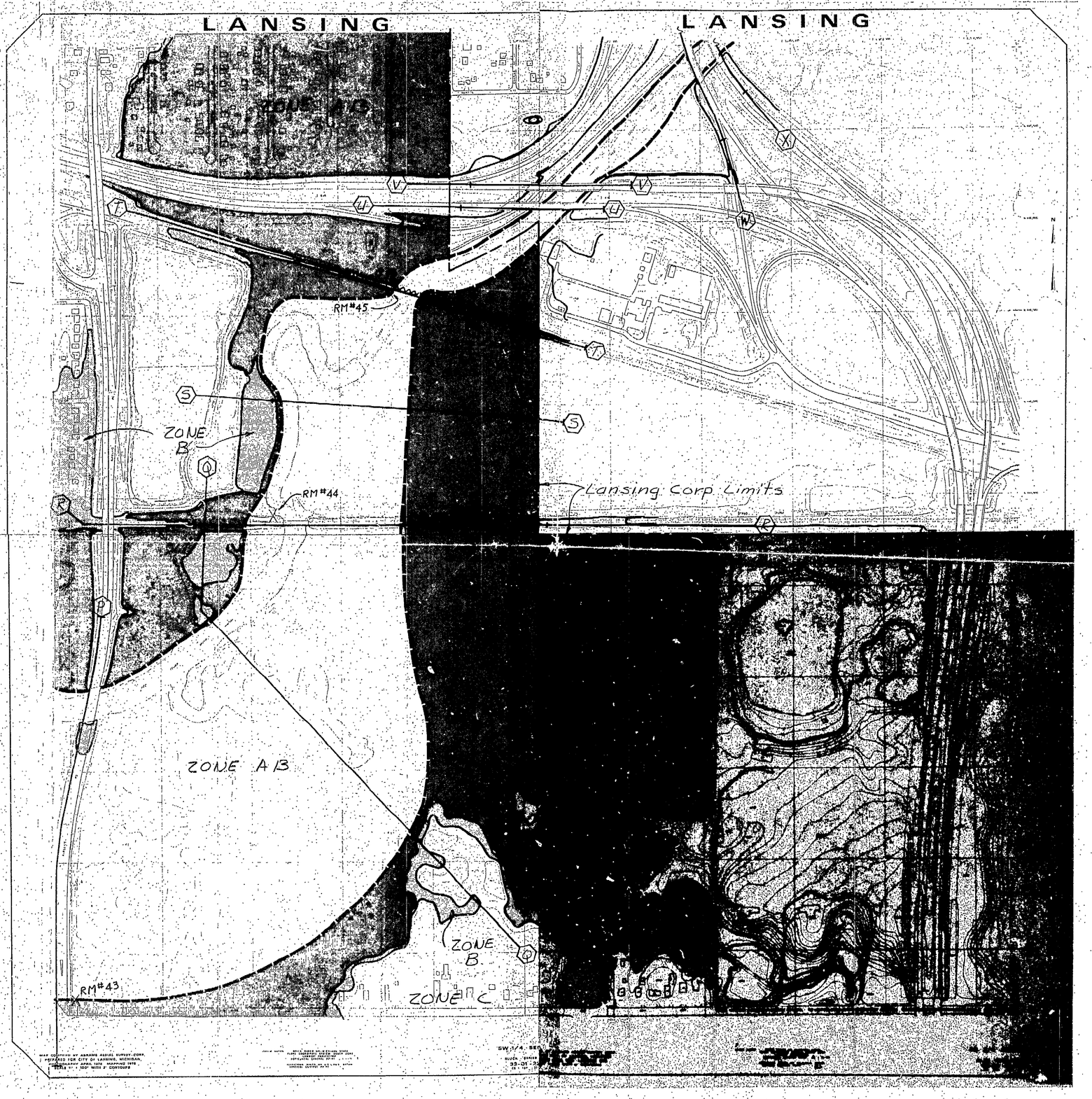
FLOODWAY DATA, ORE CREEK LEFT OVERBANK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
6.000	606.	2280.	1.1	837.1	837.0	.1
7.000	448.	1732.	.8	837.2	837.1	.1
8.000	477.	1470.	.9	837.3	837.2	.1
9.000	475.	1175.	.9	837.4	837.3	.1
10.000	525.	1337.	.8	837.4	837.3	.1
11.000	507.	712.	1.5	837.4	837.3	.1
11.100	507.	711.	1.5	837.4	837.3	.1
11.500	510.	1561.	.7	837.5	837.4	.1
12.000	401.	1609.	.7	837.5	837.4	.1
13.000	478.	2603.	.9	837.6	837.5	.1

****
HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
****



RECEIVED
JUL 09 1979
WATER MANAGEMENT



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

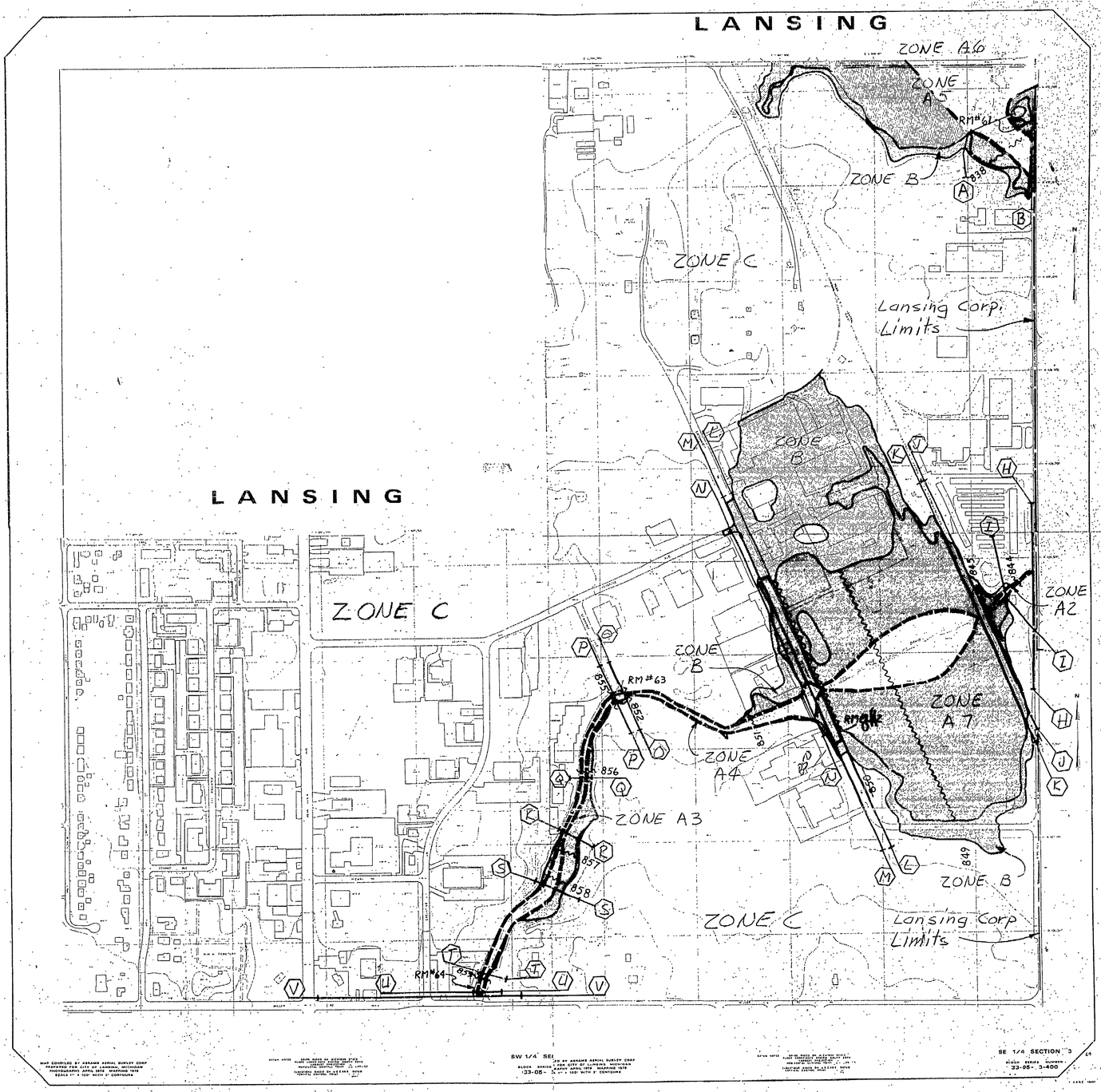
100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — R — R

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE AE / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

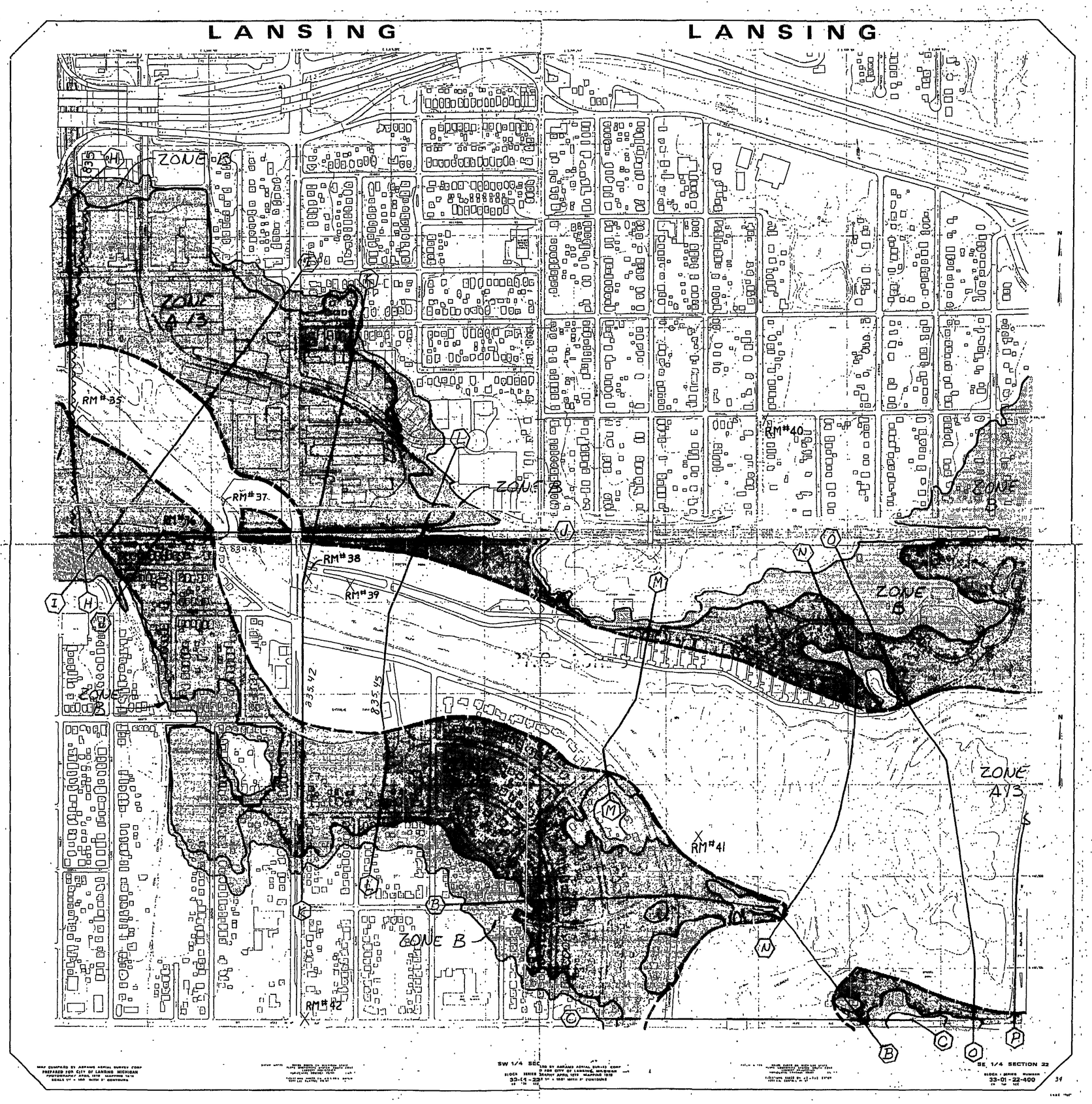
500YR FLOOD BOUNDARY

CROSS SECTION LINE — O — O

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

SCALE 1" = 600'



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A / ZONE B

Base Flood Elevation Line - elevation in Feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY + FLOODWAY FRINGE = FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — K — K

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

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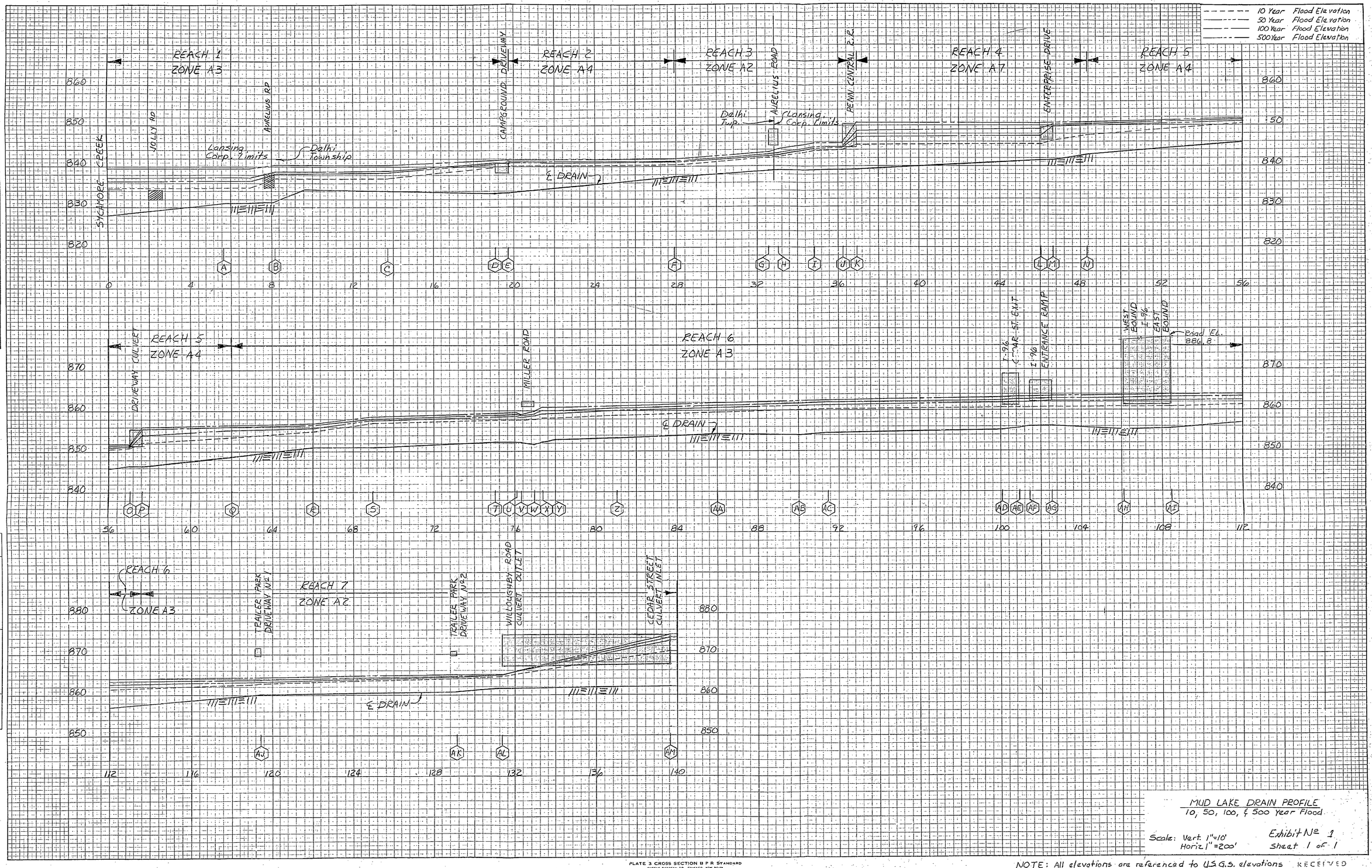
AUG 17 1979
WATER MANAGEMENT



MUD LAKE DRAIN PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz 1"=200'

Exhibit No 1
Sheet 1 of 1

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO-NEW YORK

NOTE: All elevations are referenced to U.S.G.S. elevations

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MAR 12 1980
WATER MANAGEMENT

STREAM DISTANCE IN HUNDREDS OF FEET



KEY TO SYMBOLS

Zone Designation

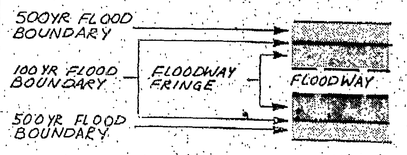


Base Flood Elevation Line - elevation in feet 798

Elev. Reference Mark RM 2 x

KEY TO SYMBOLS

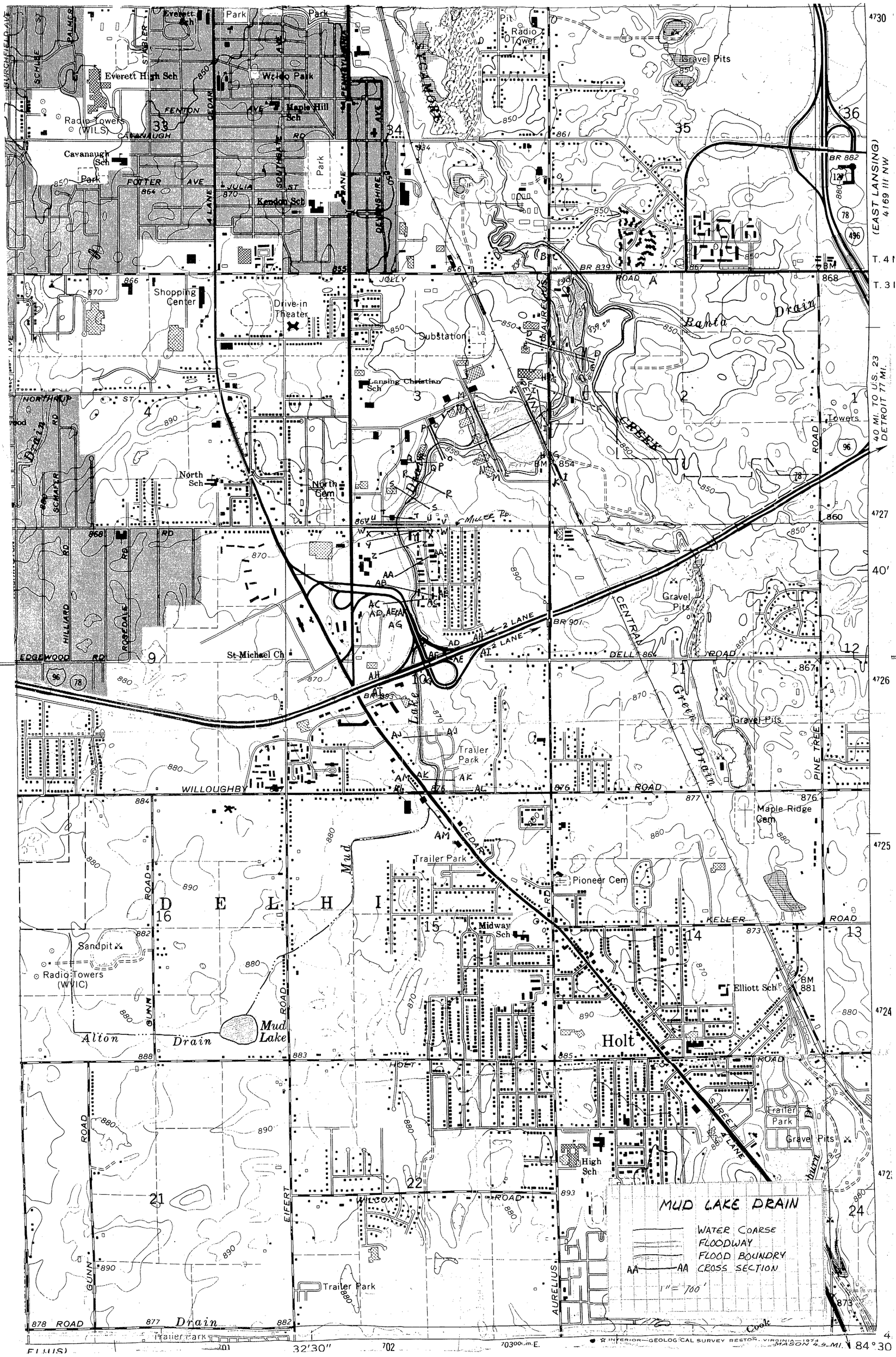
FLOOD BOUNDARY AND FLOODWAY DATA

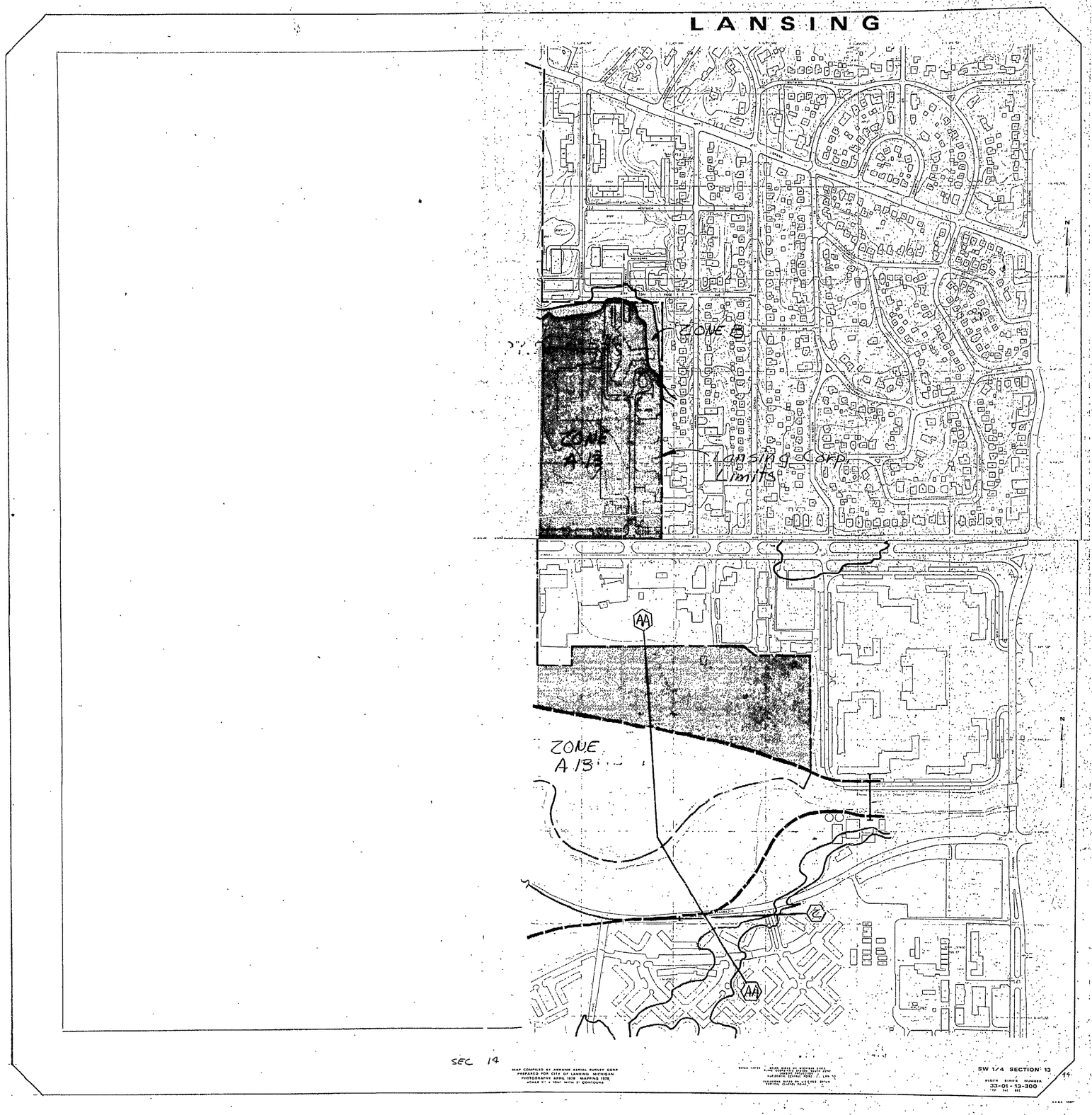


CROSS SECTION LINE A — A

ELEV. REFERENCE MARK RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY


MUD LAKE DRAIN
WATER COARSE
FLOODWAY
FLOOD BOUNDRY
AA——AA CROSS SECTION
1" = 700'
Everett High Sch
Waldo Park
Maple Hill Sch
Radio Towers (WILS)
Cavanaugh Sch
Kendon Sch
Shopping Center
Drive-in Theater
Substation
Lansing Christian Sch
North Sch
North Cem
St Michael Ch
Trailer Park
Gravel Pits
Maple Ridge Cem
Pioneer Cem
Midway Sch
Elliott Sch
Sandpit
Radio Towers (WVIC)
Mud Lake
Alton Drain
Holt
High Sch
Banta Drain
Green Drain
Mud Lake
D E L H I
WILLOUGHBY ROAD
KELLER ROAD
HOLT ROAD
WILCOX ROAD
DELL ROAD
JOLLY ROAD
CENTRAL
CEDAR
AURELIUS
EIFERT
GUNN
PINE TREE
EDGEWOOD RD
NORTHRUP ST
FENTON AVE
FOTTER AVE
JULIA ST
CAVANAUGH RD
SOUTHGATE
DEVONSHIRE
STEAMORE
CREEK
Radio Tower
Gravel Pits
Towers
(EAST LANSING) 4169 III NW
40 MI. TO U.S. 23 DETROIT 77 MI.
T. 4 N
T. 3 N
32'30"
84°30
INTERIOR—GEOLOGICAL SURVEY RESTON, VIRGINIA—1974
MASON 4.4 MI.



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A2 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — AA — AA

ELEV. REFERENCE MARK — RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

RECEIVED
AUG 17 1979
WATER MANAGEMENT

LANSING

LANSING

ZONE C

ZONE B

ZONE A12

ZONE A6

RM #31

RM #29

RM #28

RM #30

RM #24

RM #25

831

832

833

834

835

SW 1/4 SECTION 21

SE 1/4 SECTION 21

33-01-21-300

33-01-21-400

KEY TO SYMBOLS

Zone Designation

ZONE B / ZONE A1 / ZONE A5 / ZONE B

Base Flood Elevation Line - elevation in feet 798

Elev. Reference Mark RM 2 x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100 YR FLOOD BOUNDARY

FLOODWAY FRINGE

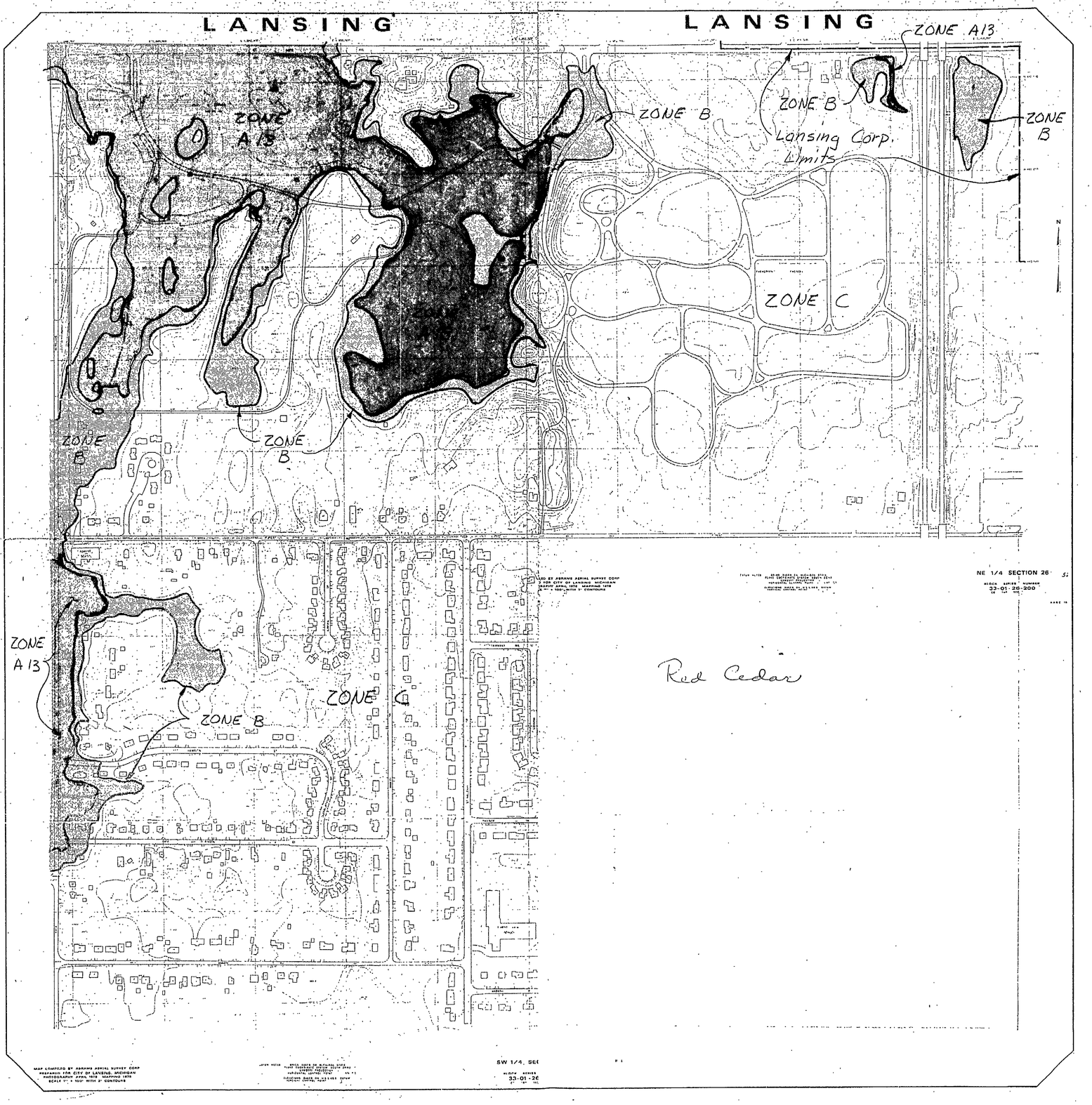
FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE A — A

ELEV. REFERENCE MARK RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY



KEY TO SYMBOLS

Zone Designation — ZONE B / ZONE A1 / ZONE A3 / ZONE B

Base Flood Elevation Line - elevation in feet — 798

Elev. Reference Mark — RM 2x

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

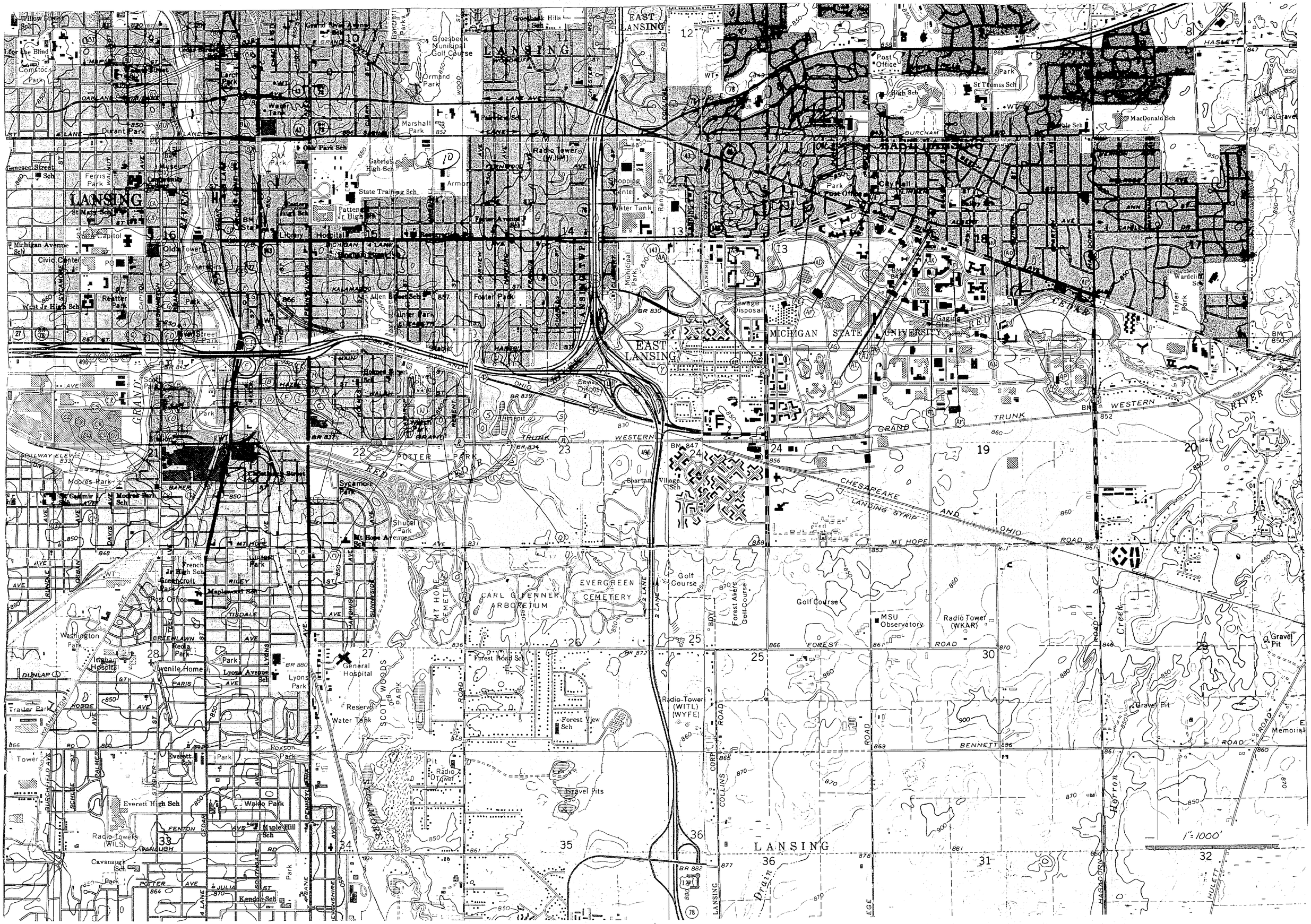
100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE — P — P

ELEV. REFERENCE MARK — RM 2x

APPROXIMATE 100 YEAR FLOOD BOUNDARY


LANSING
EAST LANSING
MICHIGAN STATE UNIVERSITY
Willow Sch
for the Blind
Comstock Park
Durant Park
Genesee Street Sch
Ferris Park
Museum
Michigan Avenue Sch
Civic Center
West Jr High Sch
Reattter Park
Scott Park
Moores Park
Cesmir Sch
Washington Park
Ingham Hospital
Trailer Park
Everett Sch
Everett High Sch
Radio Towers (WILS)
Cavanaugh Sch
Kendon Sch
Sycamore Park
Shubel Park
Mt Hope Avenue Sch
French Jr High Sch
Greenacott Park
Post Office
Maplewood Sch
Reeda Park
Juvenile Home
Lyons Avenue Sch
Lyons Park
Roxson Park
Waldo Park
Maple Hill Sch
Groesbeck Municipal Golf Course
Ormond Park
Marshall Park
Oak Park Sch
Oak Park
Gabriels High Sch
State Training Sch
Armory
Radio Tower (WJIM)
Patten Jr High Sch
State Capitol
Library
Hospital
Olds Tower
Reservoir
Water Tank
Shopping Center
Ranney Park
Municipal Park
Allen Sch
Foster Park
Sewage Disposal
Hunter Park
Street Park
Gladmore Park
Hawkes Sch
Gravel Pit
Shopping
Post Office
City Hall
Park
High Sch
St Thomas Sch
MacDonald Sch
Wardcliff Sch
Trayer Park
Gaging Sta
Spartan Village Sch
Golf Course
Forest Akers Golf Course
MSU Observatory
Radio Tower (WKAR)
CARL G FENNER ARBORETUM
EVERGREEN CEMETERY
MT HOPE CEMETERY
SCOTT WOODS
Forest Road Sch
Forest View Sch
Radio Tower (WITL) (WYFE)
Radio Tower
Gravel Pits
Gravel Pit
Memorial
Herron Creek
Drain
Shiawassee River
Grand River
Red Cedar River
Chesapeake and Ohio Railroad
Grand Trunk Western Railroad
Landing Strip
Grand Avenue
Saginaw Street
Michigan Avenue
Kalamazoo Street
Mt Hope Road
Forest Road
Bennett Road
Burcham Road
Collins Road
Hagadorn Road
Hulett Road
Logan Street
Jolly Road
Dunlap Street
Jenison Avenue
Lansing Avenue
Oakland Avenue
Genesee Street
Durant Park
Potter Park
Pattengill Jr High Sch
Radio Tower (WJIM)
Water Tank
Municipal Park
Sewage Disposal
Post Office
City Hall
Park
High Sch
St Thomas Sch
MacDonald Sch
Wardcliff Sch
Trayer Park
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Moores Park
Cesmir Sch
Washington Park
Ingham Hospital
Trailer Park
Everett Sch
Everett High Sch
Radio Towers (WILS)
Cavanaugh Sch
Kendon Sch
Sycamore Park
Shubel Park
Mt Hope Avenue Sch
French Jr High Sch
Greenacott Park
Post Office
Maplewood Sch
Reeda Park
Juvenile Home
Lyons Avenue Sch
Lyons Park
Roxson Park
Waldo Park
Maple Hill Sch
Groesbeck Municipal Golf Course
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Marshall Park
Radio Tower (WJIM)
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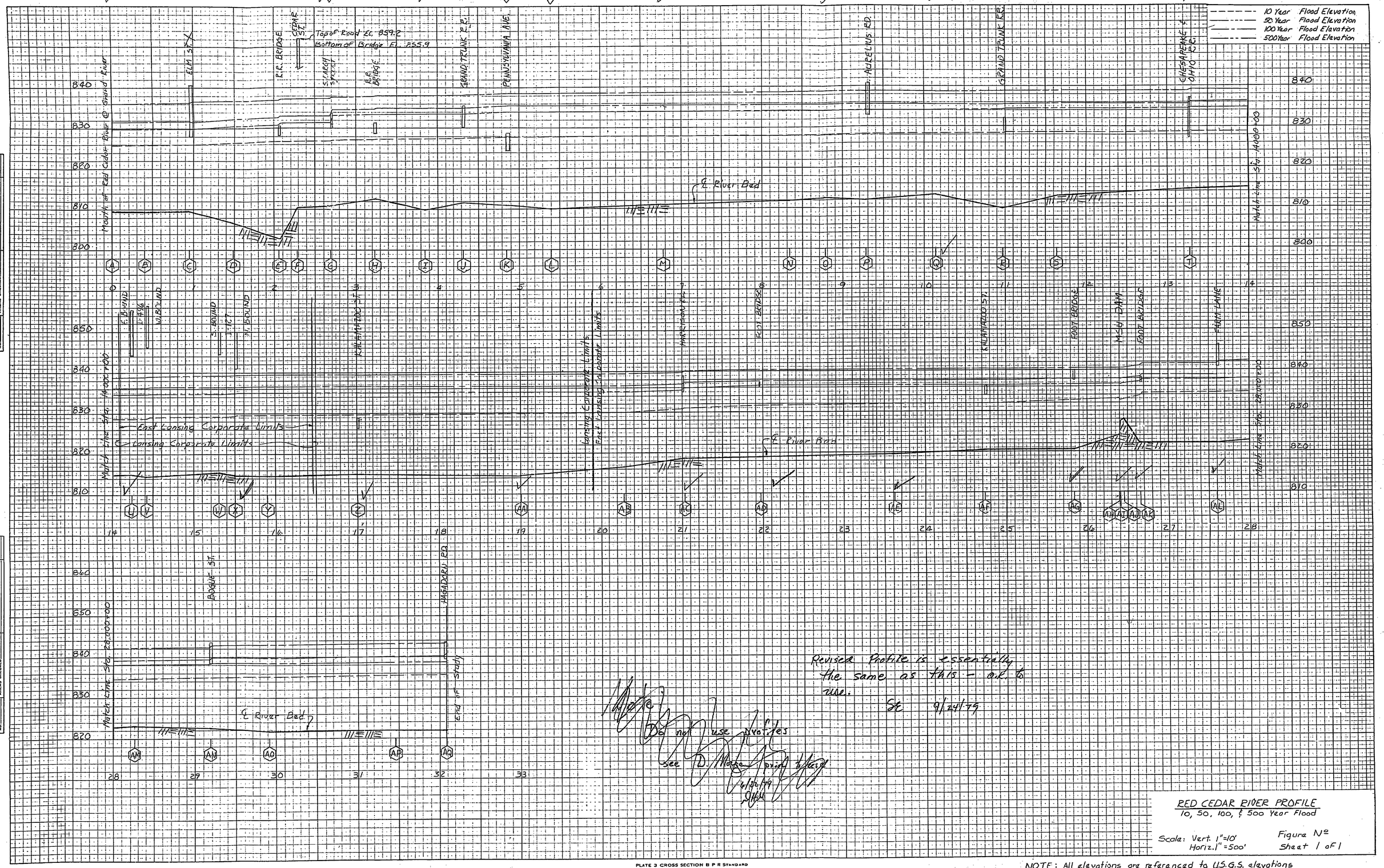
Burcham Road
Collins Road
Hagadorn Road
Hulett Road
Logan Street
Jolly Road
Dunlap Street
Jenison Avenue
Lansing Avenue
Oakland Avenue
Genesee Street
Durant Park
Potter Park
Pattengill Jr High Sch
1" = 1000'



RED CEDAR RIVER PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=500'

Figure No
Sheet 1 of 1

NOTE: All elevations are referenced to U.S.G.S. elevations

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO · NEW YORK

STREAM DISTANCE IN THOUSANDS OF FEET

FINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

ORIGINAL SURVEY — NOTE BOOK NO. — SURVEYED — PLOTTED — TEMPLATE — AREAS — AREAS CHECKED — BY — DATE

84° 30′ 705 000m E. R. 2 W. R. 1 W. 707 27′30″ FLINT 41 MI. VERNON 25 MI. 4169 IV (LAINGSBURG 1:62 500) 711 25′ 712 1 980 000 FEET 713 714 84° 22′ 30″

42° 45′

4734 000m N

42° 30″

T. 4 N.

450 000 FEET

GRAND LEDGE 13 MI.

LANSING (CAPITOL) 2.8 MI.

WILLIAMSTON 5 MI.

LANSING (CAPITOL) 6 MI. 4069 II NE

WILLIAMSTON 4169 III NE

LANSING

MICHIGAN STATE UNIVERSITY

Post Office

Park

St Thomas Sch

High Sch

MacDonald Sch

Gravel Pit

Wardell Sch

Trailer Park

Sewage Disposal

Lake Lansing

Wilkshire Sch

Haslett

Wildlife Lake

Okemos

River Bend Cem

Indian Hills Golf Course

Forest Hills

Okemos Sch

Birchwood Sch

Cornell Sch

Drive-In Theater

Golf Course

Forest Akers Golf Course

MSU Observatory

Radio Tower (WKAR)

Okemos Station

Radio Towers

Okemos High Sch

Water Tank

Kinawa Sch

East Lawn Memorial Gardens

Home for the Aged

County Cem

Gravel Pit

HASLETT ROAD

MT HOPE ROAD

OHIO ROAD

FOREST ROAD

BENNETT ROAD

HATCH RD

TIHART ROAD

MUD LAKE DRAIN

TRUNK GRAND RIVER WESTERN OUTLET

RED CEDAR RIVER

CHESAPEAKE AND OHIO RAILROAD

CHESAPEAKE LANDING STRIP

Cedar River

Red Cedar

Herron Creek

Drain

M E R I D I A N

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE AM — AM

ELEV. REFERENCE MARK RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

CITY OF EAST LANSING, CITY OF LANSING, AND LANSING TWP, MICH

FLOOD BOUNDARY AND FLOODWAY MAP

SCALE: 1″=1000′

DRN. MAY 1974

RECEIVED AUG 1 1974 WATER MANAGEMENT

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************
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Don't Use for FIS
Use "ENCROACHED" output

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T1
T2      100YEAR FLOOD
T3       SYCAMORE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        4.        0.        0.  0.000000      0.00      0.0       0.    835.460   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

NC      .090      .090      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     5.000  1690.000  2230.000  2530.000  3120.000  2530.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     1.000    18.000   421.000   487.000     0.000     0.000     0.000     0.000      .970     0.000
GR   840.000     0.000   836.600   100.000   837.200   200.000   833.500   260.000   819.500   291.000
GR   820.100   421.000   818.100   422.000   815.900   432.000   815.000   452.000   816.100   472.000
GR   818.100   483.000   819.700   487.000   818.800   600.000   820.800   800.000   819.500  1000.000
GR   821.700  1200.000   823.900  1367.000   840.800  1422.000     0.000     0.000     0.000     0.000

X1     2.000    26.000   391.000   450.000   390.000   640.000   600.000     0.000     0.000     0.000
GR   836.000     0.000   834.000    30.000   832.000    50.000   830.000   135.000   828.000   145.000
GR   826.000   205.000   824.000   245.000   822.000   265.000   820.000   275.000   819.400   310.000
GR   818.400   391.000   815.900   401.000   815.500   411.000   816.100   421.000   818.400   432.000
GR   819.000   450.000   820.000   480.000   828.000   505.000   830.000   545.000   833.000   580.000
GR   863.000   580.000   863.000   750.000   834.500   750.000   835.000   815.000   836.000   870.000
GR   838.000   950.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .035     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1     3.000    22.000   802.000   908.000   660.000   500.000   650.000     0.000      .970     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   828.970   828.970     0.000
GR   840.800     0.000   839.000    70.000   835.600   170.000   834.200   270.000   831.400   400.000
GR   829.400   600.000   829.000   643.000   825.100   790.000   822.300   802.000   821.200   808.000
GR   817.400   820.000   814.300   853.000   814.300   857.000   817.400   887.000   822.100   902.000
GR   823.000   908.000   825.700   915.000   828.500  1200.000   829.800  1400.000   834.100  1600.000
GR   838.100  1800.000   840.600  1820.000     0.000     0.000     0.000     0.000     0.000     0.000
SB     1.250     1.560     2.600     0.000    60.000     4.000   787.000     1.050   814.970   814.970

X1     3.500    23.000   802.000   908.000    66.000    66.000    66.000     0.000      .970     0.000
X2     0.000     0.000     1.000   825.970   822.970     0.000     0.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   828.970   828.970     0.000
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Not Regulatory 100yr

BT	17.000	0.000	841.770	0.000	70.000	839.970	0.000	170.000	836.570	0.000
BT	270.000	835.170	0.000	0.000	832.370	0.000	600.000	830.370	0.000	700.000
BT	830.070	0.000	802.000	832.470	823.070	802.000	832.470	825.970	908.000	832.470
BT	825.970	908.000	832.470	823.370	1000.000	828.970	0.000	1200.000	829.470	0.000
BT	1400.000	830.770	0.000	1600.000	835.070	0.000	1800.000	839.070	0.000	1820.000
BT	841.570	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.800	0.000	839.000	70.000	835.600	170.000	834.200	270.000	831.400	400.000
GR	829.400	600.000	829.100	700.000	828.000	790.000	822.100	802.000	821.600	808.000
GR	817.400	820.000	812.400	853.000	813.400	857.000	817.400	887.000	820.800	902.000
GR	822.400	908.000	826.300	920.000	828.000	1000.000	828.500	1200.000	829.800	1400.000
GR	834.100	1600.000	838.100	1800.000	840.600	1820.000	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	9.000	.080	20.000	.800	60.000	.080	100.000	.800	138.000	.080
NH	230.000	.800	280.000	.035	1140.000	.045	1200.000	.080	1445.000	0.000
X1	4.000	24.000	1140.000	1200.000	1060.000	1200.000	1800.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	20.000	836.000	60.000	834.000	100.000	832.500	138.000
GR	831.000	230.000	830.000	360.000	828.000	482.000	826.000	495.000	824.000	680.000
GR	820.000	840.000	819.500	1140.000	818.900	1145.000	817.600	1155.000	816.700	1162.000
GR	817.800	1172.000	819.800	1182.000	820.000	1200.000	820.000	1240.000	819.800	1242.000
GR	819.800	1330.000	820.000	1350.000	823.000	1405.000	840.000	1445.000	0.000	0.000
NH	11.000	.080	35.000	.800	55.000	.080	115.000	.800	135.000	.080
NH	152.000	.800	180.000	.080	272.000	.800	350.000	.035	870.000	.045
NH	930.000	.080	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	20.000	870.000	930.000	1700.000	1750.000	2500.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	35.000	833.000	115.000	833.000	135.000	833.000	152.000
GR	833.000	180.000	832.000	350.000	830.000	715.000	824.000	785.000	822.000	870.000
GR	821.100	887.000	819.000	897.000	818.100	907.000	819.200	917.000	819.800	925.000
GR	819.900	930.000	820.000	1085.000	822.000	1780.000	832.000	1810.000	840.000	2020.000
NC	.100	.100	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	38.000	895.000	928.000	10000.000	1300.000	1775.000	0.000	.970	0.000
GR	841.700	0.000	833.700	200.000	830.100	400.000	825.300	480.000	822.700	500.000
GR	824.300	700.000	828.800	895.000	828.300	899.000	826.700	899.000	826.700	903.000
GR	825.200	904.000	823.700	906.000	823.600	921.000	824.300	923.000	826.700	924.000
GR	826.700	926.000	828.300	926.000	828.300	928.000	827.300	1100.000	829.300	1232.000
GR	829.300	1239.000	826.900	1239.000	826.900	1241.000	826.000	1242.000	823.100	1246.000
GR	823.500	1266.000	823.700	1268.000	823.600	1283.000	826.000	1293.000	826.900	1294.000
GR	826.900	1296.000	829.300	1296.000	829.300	1300.000	825.300	1500.000	826.300	1700.000
GR	839.000	1850.000	834.000	1900.000	842.300	1980.000	0.000	0.000	0.000	0.000
X1	7.000	29.000	1025.000	1075.000	1940.000	1900.000	2825.000	0.000	.970	0.000
GR	841.000	0.000	840.000	20.000	829.000	55.000	829.500	113.000	827.600	125.000
GR	829.900	260.000	825.000	280.000	826.100	400.000	826.000	600.000	826.800	665.000
GR	823.800	670.000	821.800	673.000	821.800	685.000	823.800	688.000	826.200	691.000
GR	824.000	800.000	825.000	1000.000	825.200	1025.000	823.700	1030.000	820.600	1040.000
GR	821.200	1060.000	823.700	1070.000	825.300	1075.000	825.000	1100.000	824.200	1300.000
GR	824.400	1500.000	824.600	1700.000	824.600	1770.000	850.000	1800.000	0.000	0.000
NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.000	23.000	1100.000	1150.000	820.000	800.000	825.000	0.000	.970	0.000
GR	840.900	0.000	837.700	200.000	833.000	400.000	830.300	500.000	829.800	700.000
GR	829.600	900.000	829.100	1100.000	825.500	1111.000	822.300	1121.000	820.800	1131.000
GR	825.500	1142.000	829.300	1150.000	829.500	1173.000	825.500	1181.000	823.600	1200.000
GR	822.300	1300.000	825.500	1312.000	830.700	1320.000	830.600	1400.000	831.100	1600.000
GR	830.200	1650.000	840.700	1700.000	849.700	1800.000	0.000	0.000	0.000	0.000

	X1	9.000	18.000	300.000	346.000	1430.000	1550.000	1550.000	0.000	.970	0.000
	GR	841.100	0.000	833.800	21.000	833.600	100.000	830.900	200.000	830.300	235.000
	GR	825.300	256.000	828.600	275.000	826.500	300.000	821.200	305.000	820.000	318.000
	GR	820.200	325.000	820.000	339.000	821.200	341.000	826.200	346.000	824.600	400.000
	GR	826.400	500.000	826.400	600.000	842.100	650.000	0.000	0.000	0.000	0.000
	NC	0.000	0.000	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	10.000	19.000	844.000	900.000	1100.000	1100.000	1230.000	0.000	.970	0.000
	GR	843.300	0.000	835.000	200.000	834.500	400.000	834.400	600.000	834.200	800.000
	GR	833.500	818.000	828.100	844.000	826.400	847.000	824.900	848.000	822.100	867.000
	GR	824.600	890.000	826.400	894.000	827.700	900.000	829.000	1000.000	833.300	1200.000
	GR	834.000	1400.000	837.200	1600.000	837.500	1800.000	843.400	2000.000	0.000	0.000
	NC	.080	.090	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
	X1	11.000	19.000	1267.000	1339.000	50.000	475.000	450.000	0.000	.970	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
	GR	843.400	0.000	835.100	200.000	835.000	400.000	834.600	600.000	834.300	800.000
	GR	834.200	1000.000	834.200	1021.000	830.400	1200.000	826.500	1267.000	823.400	1274.000
	GR	822.600	1292.000	822.600	1296.000	825.400	1331.000	825.400	1335.000	826.500	1339.000
	GR	830.600	1354.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
	NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SB	1.250	1.560	2.600	0.000	20.000	3.000	550.000	3.700	823.970	823.970
	X1	11.500	19.000	1267.000	1339.000	31.000	31.000	31.000	0.000	.970	0.000
	X2	0.000	0.000	1.000	833.220	835.170	0.000	0.000	0.000	0.000	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
	BT	13.000	0.000	844.370	0.000	200.000	836.070	0.000	400.000	833.370	0.000
	BT	600.000	833.970	0.000	800.000	835.270	0.000	1000.000	835.170	0.000	1021.000
	BT	835.170	0.000	1200.000	835.570	831.370	1267.000	835.770	827.470	1274.000	835.770
	BT	833.020	1354.000	835.870	832.220	1410.000	836.470	0.000	1600.000	841.370	0.000
	GR	843.400	0.000	835.100	200.000	832.400	400.000	828.500	500.000	828.200	1000.000
	GR	828.600	1200.000	826.500	1267.000	823.400	1274.000	822.700	1292.000	822.700	1296.000
	GR	824.200	1331.000	824.200	1335.000	826.500	1339.000	828.000	1354.000	832.200	1354.000
	GR	835.000	1356.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
	NC	.100	.100	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
	X1	12.000	24.000	920.000	978.000	680.000	680.000	690.000	0.000	0.000	0.000
	GR	845.300	0.000	843.000	175.000	828.000	230.000	830.000	350.000	833.000	435.000
	GR	834.000	485.000	836.000	540.000	838.000	603.000	839.000	627.000	834.000	760.000
	GR	831.000	825.000	830.000	865.000	828.000	875.000	826.000	920.000	824.700	930.000
	GR	823.400	937.000	822.600	955.000	824.700	975.000	826.000	978.000	828.000	1000.000
	GR	830.000	1005.000	832.000	1195.000	834.000	1230.000	842.000	1280.000	0.000	0.000
	NC	.120	.120	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
	X1	1.100	30.000	540.000	605.000	1075.000	1050.000	1260.000	0.000	0.000	0.000
	GR	842.700	0.000	836.900	100.000	837.500	200.000	837.500	400.000	829.500	525.000
	GR	829.500	527.000	829.500	527.010	828.700	540.000	826.000	541.000	826.000	541.010
	GR	826.000	543.000	826.000	543.010	822.700	557.000	822.700	557.010	823.700	559.000
	GR	823.700	559.010	822.600	573.000	822.600	573.010	823.200	575.000	823.200	575.000
	GR	828.000	590.000	828.000	590.010	828.400	591.000	828.400	591.010	828.700	592.000
	GR	829.700	605.000	829.700	605.010	829.700	607.000	836.800	620.000	837.600	700.000
	X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
	BT	27.000	0.000	842.700	0.000	100.000	836.900	0.000	200.000	837.500	0.000
	BT	400.000	837.500	0.000	525.000	839.500	0.000	527.000	839.400	829.500	527.010
	BT	839.400	837.300	541.000	839.500	837.300	541.010	839.500	826.000	543.000	839.500
	BT	826.000	543.010	839.500	837.400	557.000	839.500	837.500	557.010	839.500	822.700
	BT	559.000	839.500	822.700	559.010	839.500	837.500	573.000	839.600	837.700	573.010

BT	839.600	822.600	575.000	839.600	823.200	575.010	839.600	837.500	590.000	839.600
BT	837.500	590.010	839.700	828.000	591.000	839.700	828.400	591.010	839.700	837.500
BT	605.000	839.700	837.600	605.000	839.700	829.700	607.000	839.700	0.000	700.000
BT	840.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.300	0.000	0.000	0.000	10.000	10.000	10.000	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	1.400	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	7.100	215.000	375.000	0.000	0.000
X1	2.000	13.000	293.000	368.000	48.000	43.000	43.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	120.000	836.000	240.000	834.000	265.000	832.000	275.000
GR	830.000	285.000	828.700	293.000	822.600	330.000	828.700	350.000	830.000	355.000
GR	832.000	360.000	836.000	368.000	836.700	380.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.070	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	3.000	15.000	465.000	496.000	358.000	367.000	398.000	0.000	0.000	0.000
GR	838.000	0.000	836.700	260.000	836.700	280.000	830.800	288.000	829.200	360.000
GR	829.200	465.000	824.900	467.000	824.200	469.000	822.500	479.000	824.800	496.000
GR	828.000	499.000	829.200	545.000	829.600	562.000	830.000	569.000	840.000	590.000
X1	4.000	16.000	140.000	170.000	409.000	397.000	430.000	0.000	0.000	0.000
GR	828.200	0.000	828.000	26.000	830.400	50.000	829.100	121.000	826.600	140.000
GR	826.000	145.000	825.200	149.000	824.400	158.000	825.100	166.000	828.500	170.000
GR	828.000	270.000	832.000	363.000	834.000	385.000	836.000	470.000	838.000	550.000
GR	840.000	745.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	14.000	164.000	232.000	240.000	132.000	231.000	0.000	0.000	0.000
GR	832.000	0.000	830.000	30.000	828.000	164.000	826.300	170.000	824.400	205.000
GR	826.300	225.000	828.000	232.000	830.000	342.000	834.000	360.000	836.000	420.000
GR	836.000	520.000	838.000	626.000	838.000	749.000	840.000	770.000	0.000	0.000
NC	.070	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	23.000	303.000	337.000	351.000	250.000	345.000	0.000	0.000	0.000
GR	835.000	0.000	834.000	10.000	834.000	40.000	836.000	50.000	838.000	130.000
GR	837.000	230.000	837.400	243.000	828.800	270.000	829.500	290.000	831.600	303.000
GR	826.200	316.000	824.700	318.000	824.700	321.000	824.400	325.000	826.200	335.000
GR	827.700	337.000	830.600	360.000	831.700	386.000	832.000	530.000	834.000	540.000
GR	836.000	653.000	838.000	830.000	840.000	850.000	0.000	0.000	0.000	0.000
NC	.120	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	12.000	558.000	607.000	210.000	160.000	250.000	0.000	0.000	0.000
GR	835.000	541.000	834.000	553.000	832.000	558.000	826.700	566.000	823.900	574.000
GR	822.900	585.000	823.500	591.000	825.000	597.000	826.900	602.000	830.000	607.000
GR	832.000	613.000	834.000	720.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	1520.000	1380.000	1230.000	1070.000	1230.000	0.000	0.000	0.000	0.000
X1	8.000	15.000	602.000	669.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	838.500	545.000	838.000	572.000	836.000	594.000	834.000	602.000	830.000	609.000
GR	826.900	613.000	823.900	623.000	822.900	634.000	823.500	642.000	825.000	650.000
GR	826.900	654.000	828.400	655.000	833.900	669.000	834.600	676.000	839.800	688.000
NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9.000	10.000	610.000	667.000	140.000	100.000	120.000	0.000	0.000	0.000
GR	839.600	603.000	837.600	610.000	829.300	622.000	827.300	625.000	826.900	628.000
GR	826.600	641.000	827.300	653.000	833.300	667.000	834.700	680.000	839.500	687.000
NC	.120	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	12.000	634.000	702.000	90.000	160.000	140.000	0.000	0.000	0.000
GR	839.400	580.000	838.000	603.000	836.000	622.000	834.000	634.000	830.000	640.000
GR	827.500	649.000	826.000	660.000	825.400	672.000	826.000	685.000	827.500	695.000
GR	830.000	702.000	834.000	722.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.050	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.000	11.000	590.100	650.000	75.000	80.000	70.000	.866	0.000	0.000
GR	839.000	564.000	829.490	590.000	829.490	590.100	826.700	596.000	826.350	620.000
GR	826.500	644.000	829.490	650.000	829.490	650.100	840.300	672.000	840.300	672.100
GR	841.000	730.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.000	1.690	3.000	0.000	40.000	0.000	447.000	1.000	826.350	826.350
X1	11.100	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	835.830	840.300	0.000	0.000	0.000	.866	0.000
BT	8.000	564.000	841.600	0.000	590.000	841.680	0.000	590.100	841.680	835.060
BT	650.000	842.450	835.830	650.100	842.450	0.000	672.000	842.900	0.000	672.100
BT	840.300	0.000	730.000	841.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.040	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	12.000	14.000	478.000	532.000	110.000	110.000	110.000	0.000	0.000	0.000
GR	834.000	445.000	832.000	463.000	830.000	478.000	826.800	493.000	826.500	503.000
GR	827.100	513.000	830.000	532.000	830.000	567.000	832.000	610.000	834.000	620.000
GR	836.000	650.000	838.000	660.000	840.000	665.000	842.000	676.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	1520.000	2060.000	2280.000	2930.000	2280.000	0.000	0.000	0.000	0.000
NH	5.000	.030	168.000	.050	210.000	.120	385.000	.060	426.000	.120
NH	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	140.000	620.000
X1	13.000	21.000	385.000	426.000	270.000	360.000	300.000	0.000	0.000	0.000
GR	838.000	0.000	837.800	140.000	836.000	153.000	834.000	168.000	833.300	210.000
GR	832.400	280.000	832.300	300.000	832.100	380.000	829.100	385.000	826.800	395.000
GR	826.500	405.000	827.100	415.000	829.100	423.000	831.100	426.000	832.000	537.000
GR	834.000	760.000	836.000	781.000	838.000	796.000	840.000	825.000	842.000	847.000
GR	844.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.100	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	14.000	20.000	153.100	291.000	210.000	360.000	310.000	.707	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000
GR	852.900	0.000	837.200	59.000	836.300	68.000	839.100	83.000	839.030	105.000
GR	833.000	153.000	833.000	153.100	831.200	165.000	828.300	191.000	827.900	219.000
GR	835.500	219.100	835.500	222.000	827.900	222.100	828.300	241.000	831.200	276.000
GR	832.100	291.000	832.100	291.100	833.400	491.000	835.200	691.000	839.100	891.000
SB	.900	1.660	3.000	0.000	78.000	3.000	604.200	3.000	827.900	827.900
X1	14.100	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	835.500	836.300	0.000	0.000	0.000	.707	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000
BT	12.000	0.000	852.900	0.000	59.000	837.200	0.000	68.000	836.300	0.000

BT	83.000	839.100	0.000	105.000	839.030	0.000	153.000	839.200	0.000	153.100
BT	841.700	835.500	291.000	841.700	835.500	291.100	839.200	0.000	491.000	839.200
BT	0.000	691.000	839.000	0.000	891.000	841.000	0.000	0.000	0.000	0.000
NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.000	18.000	186.000	240.000	120.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1.000	0.000	290.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	15.000	834.000	24.000	832.700	29.000	832.700	105.000
GR	834.000	115.000	836.000	125.000	836.000	135.000	835.500	153.000	829.800	175.000
GR	828.900	186.000	828.600	191.000	827.300	207.000	827.100	220.000	828.600	230.000
GR	832.700	240.000	834.000	350.000	834.000	770.000	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	.120	100.000	.100	330.000	.120	362.000	.070	402.000	.120
NH	833.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R X1	16.000	24.000	362.000	402.000	450.000	640.000	510.000	0.000	0.000	0.000
GR	846.000	0.000	840.000	24.000	838.000	34.000	836.000	54.000	834.000	73.000
GR	832.700	100.000	832.700	330.000	838.000	345.000	838.000	353.000	833.600	362.000
GR	828.800	365.000	827.800	365.100	827.000	370.000	825.800	380.000	827.400	390.000
GR	828.800	397.000	832.900	402.000	833.000	435.000	834.000	490.000	836.000	720.000
GR	838.000	740.000	840.000	788.000	842.000	821.000	844.000	833.000	0.000	0.000
NH	4.000	.040	460.000	.120	984.000	.070	1033.000	.120	1283.000	0.000
5 X1	17.000	26.000	984.000	1033.000	980.000	1600.000	2070.000	0.000	0.000	0.000
GR	841.400	0.000	840.000	165.000	838.000	170.000	835.400	260.000	839.900	460.000
GR	840.000	560.000	839.900	660.000	839.200	760.000	838.500	860.000	836.800	960.000
GR	836.100	984.000	830.400	987.000	827.900	992.000	827.400	1000.000	827.400	1008.000
GR	830.000	1018.000	830.400	1024.000	833.100	1033.000	833.700	1044.000	835.900	1055.000
GR	831.600	1081.000	832.700	1099.000	836.700	1110.000	837.500	1210.000	837.100	1260.000
GR	843.100	1283.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	0.000	.055	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	1.400	0.000	0.000	0.000	0.000
1 X1	20.000	28.000	210.000	260.000	1375.000	1300.000	1350.000	0.000	0.000	0.000
GR	860.000	0.000	858.000	50.000	856.000	60.000	850.000	75.000	848.000	110.000
GR	840.000	155.000	838.000	165.000	836.000	190.000	834.000	200.000	832.000	205.000
GR	830.000	210.000	829.700	211.000	829.000	217.000	828.000	223.000	827.000	225.000
GR	828.000	234.000	829.000	247.000	829.700	256.000	830.000	260.000	836.000	275.000
GR	838.000	280.000	840.000	290.000	850.000	340.000	852.000	405.000	854.000	445.000
GR	856.000	490.000	858.000	520.000	856.000	555.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.000	10.000	213.000	269.000	1480.000	1480.000	1475.000	0.000	0.000	0.000
GR	845.700	0.000	839.000	100.000	834.500	200.000	831.700	213.000	831.300	229.000
GR	830.100	250.000	831.700	269.000	838.400	284.000	844.200	325.000	846.500	340.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.000	23.000	505.000	535.000	1025.000	925.000	1700.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	15.000	840.000	35.000	838.000	45.000	836.000	120.000
GR	834.400	255.000	834.400	285.000	835.000	340.000	834.200	370.000	834.000	390.000
GR	834.000	480.000	832.000	505.000	831.600	509.000	831.200	520.000	831.600	526.000
GR	832.000	535.000	834.000	565.000	834.000	680.000	836.000	695.000	838.000	725.000
GR	840.000	745.000	842.000	805.000	844.000	855.000	0.000	0.000	0.000	0.000
NC	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23.000	15.000	315.000	416.000	1100.000	1100.000	1400.000	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	851.500	0.000	844.600	200.000	840.600	300.000	839.500	304.000	839.500	304.000
GR	837.000	315.000	832.500	364.000	832.200	368.000	831.400	390.000	837.000	416.000
GR	839.400	428.000	839.400	428.000	840.400	430.000	840.400	600.000	846.000	800.000
NC	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	30.000	4.000	548.000	1.200	832.000	832.000
X1	23.100	15.000	315.000	416.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.500	0.000	0.000	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
BT	8.000	0.000	851.500	0.000	200.000	848.600	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	428.000	849.500	841.900	428.000	849.500	839.400	600.000
BT	847.200	0.000	800.000	849.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	845.900	200.000	847.900	304.000	842.600	304.000	839.600	304.000
GR	837.000	315.000	832.000	364.000	832.400	368.000	831.200	390.000	837.000	416.000
GR	839.400	428.000	841.900	428.000	847.100	428.000	844.500	600.000	846.000	800.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	24.000	15.000	304.000	428.000	90.000	90.000	90.000	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	849.300	0.000	845.900	200.000	847.900	304.000	839.600	304.000	837.000	315.000
GR	833.800	340.000	832.600	364.000	832.600	368.000	831.300	390.000	837.000	416.000
GR	839.100	428.000	841.700	428.000	847.200	428.000	844.500	600.000	846.000	800.000
NC	.090	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.500	2.500	0.000	30.000	4.000	713.000	2.240	832.600	832.600
X1	24.500	14.000	304.000	428.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.300	0.000	0.000	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
BT	10.000	0.000	852.500	0.000	200.000	848.900	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	366.000	849.900	842.300	428.000	849.300	841.700	428.000
BT	849.900	838.800	600.000	846.800	0.000	800.000	848.300	0.000	1000.000	849.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	843.300	200.000	838.700	304.000	837.000	315.000	833.500	340.000
GR	832.400	364.000	832.200	368.000	830.900	390.000	837.000	416.000	838.800	428.000
GR	841.600	440.000	841.600	600.000	842.600	800.000	846.500	1000.000	0.000	0.000
NC	.070	.070	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	25.000	17.000	281.000	318.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	847.400	0.000	839.000	100.000	837.600	200.000	836.500	281.000	833.900	291.000
GR	832.300	299.000	831.500	300.000	832.400	305.000	833.900	315.000	836.900	318.000
GR	836.600	350.000	836.600	400.000	837.100	500.000	837.300	600.000	839.300	690.000
GR	840.300	800.000	846.100	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	26.000	22.000	168.000	202.000	1500.000	1410.000	1800.000	0.000	0.000	0.000
GR	851.700	0.000	848.400	92.000	838.400	131.000	838.000	168.000	835.000	170.000
GR	832.700	181.000	833.300	192.000	835.000	202.000	837.700	216.000	837.700	300.000
GR	837.900	400.000	836.300	500.000	835.000	505.000	833.800	525.000	835.000	538.000
GR	836.800	546.000	836.600	600.000	836.700	700.000	836.500	800.000	836.600	900.000
GR	836.700	1000.000	847.900	1250.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	27.000	18.000	150.000	198.000	750.000	1500.000	1250.000	0.000	0.000	0.000
GR	851.000	0.000	841.300	65.000	839.400	100.000	838.600	150.000	835.400	155.000
GR	832.500	169.000	834.200	185.000	835.400	198.000	837.300	219.000	839.100	250.000
GR	839.900	300.000	839.100	400.000	839.300	600.000	839.500	800.000	839.800	1000.000
GR	839.500	1100.000	848.000	1150.000	850.300	1200.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	28.000	15.000	600.000	701.000	700.000	750.000	650.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	839.400	600.000
GR	837.600	620.000	835.900	639.000	836.100	641.000	836.400	660.000	832.900	680.000
GR	835.800	682.000	838.400	701.000	840.500	703.000	838.900	800.000	843.000	1000.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	30.000	3.000	434.200	2.830	833.000	833.000
X1	28.500	16.000	600.000	703.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	841.500	844.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
BT	14.000	0.000	848.500	0.000	200.000	845.400	0.000	400.000	845.200	0.000
BT	500.000	844.700	0.000	600.000	844.000	0.000	620.000	844.000	837.600	620.000
BT	847.700	841.500	639.000	847.700	841.000	680.000	847.700	841.000	701.000	847.700
BT	841.500	701.000	844.000	838.400	800.000	843.600	0.000	1000.000	844.800	0.000
BT	1200.000	848.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	840.300	600.000
GR	836.800	620.000	836.100	639.000	836.100	641.000	834.400	660.000	833.800	680.000
GR	834.700	682.000	838.800	701.000	839.600	703.000	840.300	800.000	844.800	1000.000
GR	848.500	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.055	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	29.000	13.000	253.000	312.000	600.000	600.000	590.000	0.000	0.000	0.000
GR	849.000	0.000	839.800	37.000	840.600	100.000	839.300	200.000	838.300	253.000
GR	836.200	260.000	834.800	276.000	833.800	288.000	835.200	306.000	836.200	310.000
GR	838.600	312.000	846.600	327.000	849.300	335.000	0.000	0.000	0.000	0.000
NC	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.000	18.000	545.000	577.000	2550.000	2550.000	2650.000	0.000	0.000	0.000
GR	849.300	0.000	848.200	50.000	842.600	150.000	841.300	250.000	840.900	350.000
GR	840.700	450.000	840.300	500.000	839.000	545.000	837.600	550.000	835.400	554.000
GR	834.100	560.000	835.100	572.000	837.600	577.000	840.000	590.000	840.700	600.000
GR	847.400	625.000	848.200	650.000	850.100	750.000	0.000	0.000	0.000	0.000
NC	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	31.000	12.000	16.000	49.000	1490.000	1490.000	1750.000	0.000	0.000	0.000
GR	850.500	0.000	837.900	16.000	835.500	25.000	837.200	38.000	837.900	46.000
GR	839.900	49.000	839.500	150.000	838.900	250.000	842.300	350.000	841.200	450.000
GR	841.500	550.000	850.500	595.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.000	14.000	148.000	218.000	3100.000	3800.000	5250.000	0.000	0.000	0.000
GR	852.900	0.000	842.200	45.000	841.100	100.000	839.800	148.000	836.900	156.000
GR	839.100	200.000	839.800	207.000	843.300	218.000	842.400	300.000	843.300	400.000
GR	843.600	600.000	844.200	800.000	845.300	900.000	851.500	950.000	0.000	0.000
NC	.060	.060	.050	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.000	16.000	288.000	350.000	920.000	950.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
GR	854.600	0.000	848.600	100.000	845.700	200.000	842.300	288.000	842.300	288.000
GR	838.900	299.000	838.000	300.000	836.300	319.000	838.000	340.000	838.900	349.000
GR	841.600	350.000	841.600	350.000	843.700	400.000	844.500	500.000	848.300	600.000
GR	852.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.560	2.600	0.000	40.000	0.000	450.000	1.250	835.600	835.600
X1	33.090	14.000	288.000	350.000	31.000	31.000	31.000	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
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
BT	9.000	0.000	852.200	0.000	100.000	850.300	0.000	200.000	848.800	0.000
BT	288.000	848.200	844.300	350.000	848.200	844.400	400.000	848.500	0.000	500.000
BT	849.100	0.000	600.000	850.300	0.000	700.000	852.300	0.000	0.000	0.000
GR	852.600	0.000	848.400	100.000	845.800	200.000	844.300	288.000	838.900	288.000
GR	837.200	300.000	835.600	319.000	837.700	340.000	838.900	350.000	844.400	350.000
GR	843.400	400.000	845.700	500.000	849.100	600.000	852.600	700.000	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

*PROF 1

CCHV= .100 CEHV= .300

A *SECNO 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
1.00	19.49	835.46	0.00	835.46	835.46	.00	0.00	0.00	821.07
2530.	312.	411.	1807.	2165.	1204.	12441.	0.	0.	820.67
0.00	.14	.34	.15	.090	.045	.090	0.000	815.97	243.95
.000002	0.	0.	0.	0	0	0	0.00	1157.52	1401.46

*SECNO 2.000

3265 DIVIDED FLOW

2.00	19.96	835.46	0.00	0.00	835.46	.01	.00	.00	818.40
2530.	1241.	932.	357.	3722.	1079.	1215.	142.	12.	819.00
.29	.33	.86	.29	.090	.045	.090	.049	815.50	8.08
.000014	390.	600.	640.	0	0	0	0.00	662.29	840.37

CCHV= .300 CEHV= .500

*SECNO 3.000

C 3.00	20.20	835.47	0.00	0.00	835.47	.00	.01	.00	823.27
2530.	909.	1060.	561.	2494.	1807.	3760.	240.	25.	823.97
.72	.36	.59	.15	.035	.045	.090	.048	815.27	248.98
.000007	660.	650.	500.	0	0	0	0.00	1370.74	1619.72

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	60.00	4.00	787.00	1.05	814.97	814.97

*SECNO 3.500

PRESS FLOW BECAUSE EGLWC OF 835.47 EXCEEDS 1.5 DEPTH

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
835.72	835.47	.00	1642.	882.	787.	743.	825.97	822.97
3.50	22.13	835.50	0.00	0.00	835.50	.00	.03	0.00	823.07
2530.	778.	1206.	545.	2234.	1874.	3564.	251.	27.	823.37

There are 2 sets of secno's from #2 - #12. Be careful that you are at the proper place in the run.

Caution

.76	.35	.64	.15	.035	.045	.090	.047	813.37	246.51
.000008	66.	66.	66.	0	0	5	0.00	1374.94	1621.44

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 4.000

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
4.00	18.80	835.50	0.00	0.00	835.50	.00	.00	.00	819.50
2530.	2036.	185.	309.	10840.	1013.	3300.	565.	64.	820.00
2.79	.19	.18	.09	.035	.045	.080	.055	816.70	69.88
.000001	1060.	1800.	1200.	0	0	0	0.00	1364.54	1434.43

1490 NH CARD USED
*SECNO 5.000

5.00	17.40	835.50	0.00	0.00	835.50	.00	.00	.00	822.00
2530.	639.	226.	1665.	4030.	937.	12913.	1237.	128.	819.90
6.18	.16	.24	.13	.039	.045	.080	.058	818.10	74.84
.000001	1700.	2500.	1750.	0	0	0	0.00	1827.30	1902.14

*SECNO 6.000

3265 DIVIDED FLOW

6.00	11.85	835.52	0.00	0.00	835.52	.00	.01	.00	829.77
2530.	1145.	100.	1285.	5059.	306.	6232.	2591.	331.	829.27
11.73	.23	.33	.21	.100	.065	.100	.042	823.67	179.07
.000013	10000.	1775.	1300.	0	0	0	0.00	1628.78	1905.18

*SECNO 7.000

7.00	13.96	835.53	0.00	0.00	835.53	.00	.02	.00	826.17
2530.	1213.	175.	1142.	8250.	619.	7049.	3207.	406.	826.27
15.08	.15	.28	.16	.100	.065	.100	.052	821.57	37.30
.000006	1940.	2825.	1900.	0	0	0	0.00	1744.47	1781.77

*SECNO 8.000

8.00	13.77	835.54	0.00	0.00	835.54	.00	.01	.00	830.07
2530.	1123.	356.	1051.	3267.	500.	3007.	3418.	435.	830.27
15.65	.34	.71	.35	.090	.070	.120	.053	821.77	333.17
.000056	820.	825.	800.	0	0	0	0.00	1337.64	1670.81

*SECNO 9.000

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
9.00	14.68	835.65	0.00	0.00	835.66	.01	.12	.00	827.47
2530.	463.	758.	1309.	935.	627.	2357.	3603.	468.	827.17
16.21	.49	1.21	.56	.090	.070	.120	.055	820.97	18.46
.000114	1430.	1550.	1550.	2	0	0	0.00	607.93	626.38

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*SECNO 10.000
    10.00     12.79    835.86      0.00      0.00    835.90      .04       .22       .01    829.07
     2530.      142.      1299.     1089.      359.     598.     1673.     3687.      491.     828.67
    16.44       .40       2.17       .65       .090     .065      .120      .056    823.07    245.38
  .000402     1100.     1230.     1100.         2        0         0      0.00   1210.03   1455.41


CCHV=     .300 CEHV=     .500
*SECNO 11.000
    11.00     12.42    835.99      0.00      0.00    836.03      .04       .13       .00    827.47
     2530.      861.      1524.     145.      1255.     797.     209.      3706.      496.     827.47
    16.51       .69       1.91       .70       .080     .065      .090      .057    823.57    363.08
  .000289       50.      450.      475.         2        0         0      0.00   1041.41   1404.50


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.25       1.56       2.60       0.00      20.00       3.00     550.00      3.70     823.97     823.97

*SECNO 11.500
PRESSURE AND WEIR FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA     TRAPEZOID      ELLC       ELTRD
                                                                      AREA
   836.50     836.03        .00      1597.       941.      550.      474.      833.22     835.17


    11.50     12.39    836.06      0.00      0.00    836.06      .00       .03       0.00    827.47
     2530.     1993.      502.      34.      5944.     827.     121.      3709.      497.     827.47
    16.54       .34       .61       .28       .080     .065      .090      .057    823.67    200.79
  .000028       31.       31.       31.         0        0         7      0.00   1164.86   1365.65


CCHV=     .100 CEHV=     .300
*SECNO 12.000

3265 DIVIDED FLOW

    12.00     13.48    836.08      0.00      0.00    836.09      .01       .03       .00    826.00
     2530.     1148.      807.      575.      2542.     708.     1323.     3799.      513.     826.00
    16.82       .45       1.14       .44       .100     .065      .100      .057    822.60    200.36
  .000090      680.      690.      680.         2        0         0      0.00    880.74   1243.02


CCHV=     .300 CEHV=     .500
*SECNO 1.100
   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

      1.10     13.66    836.26      0.00      0.00    836.37      .12       .23       .06    828.70
     2530.      385.      2105.     40.       463.     700.      52.       3873.      526.     829.70
    16.94       .83       3.01       .77       .120     .060      .120      .058    822.60    419.44
  .000676     1075.     1260.     1050.         2        0         0      0.00    199.57    619.00


*SECNO 1.200

3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD=  836.90 MAX ELLC=  837.70
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1.20	13.57	836.17	0.00	0.00	836.47	.30	.00	.09	828.70
2530.	200.	2330.	0.	92.	516.	0.	3873.	526.	829.70
16.94	2.18	4.52	.01	.120	.060	.120	.058	822.60	420.82
.002285	1.	1.	1.	2	0	0	-589.87	198.03	618.84

*SECNO 1.300

3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD= 836.90 MAX ELLC= 837.70

1.30	13.59	836.19	0.00	0.00	836.49	.30	.02	.00	828.70
2530.	200.	2330.	0.	92.	517.	0.	3873.	526.	829.70
16.94	2.17	4.51	.01	.120	.060	.120	.058	822.60	420.59
.002273	10.	10.	10.	0	0	0	-591.86	198.28	618.87

*SECNO 1.400

1.40	13.83	836.43	0.00	0.00	836.54	.11	.00	.06	828.70
2530.	395.	2093.	41.	485.	711.	55.	3873.	526.	829.70
16.94	.82	2.94	.76	.120	.060	.120	.058	822.60	416.70
.000633	1.	1.	1.	2	0	0	0.00	202.63	619.33

*SECNO 2.000

2.00	13.84	836.44	0.00	0.00	836.60	.16	.03	.02	828.70
2530.	194.	2336.	0.	187.	697.	2.	3874.	526.	836.00
16.95	1.03	3.35	.14	.120	.060	.120	.058	822.60	213.56
.000985	48.	43.	43.	2	0	0	0.00	161.99	375.55

CCHV= .100 CEHV= .300

*SECNO 3.000

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
3.00	14.30	836.80	0.00	0.00	836.83	.03	.21	.01	829.20
2530.	1138.	831.	561.	1315.	402.	632.	3888.	529.	824.80
17.03	.87	2.07	.89	.120	.070	.120	.058	822.50	240.24
.000354	358.	398.	367.	2	0	0	0.00	343.04	583.28

See Caution at beginning of run

*SECNO 4.000

3280 CROSS SECTION 4.00 EXTENDED 8.73 FEET

4.00	12.53	836.93	0.00	0.00	836.94	.01	.11	.00	826.60
2530.	777.	545.	1207.	1097.	346.	1780.	3914.	533.	828.50
17.16	.71	1.58	.68	.120	.070	.120	.058	824.40	0.00
.000226	409.	430.	397.	2	0	0	0.00	507.22	507.22

*SECNO 5.000

3280 CROSS SECTION 5.00 EXTENDED 4.96 FEET

5.00	12.56	836.96	0.00	0.00	836.97	.01	.03	.00	828.00
2530.	1043.	974.	514.	1245.	766.	1203.	3928.	535.	828.00
17.22	.84	1.27	.43	.070	.060	.120	.059	824.40	0.00
.000105	240.	231.	132.	2	0	0	0.00	570.88	570.88

*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED 2.00 FEET

6.00	12.59	836.99	0.00	0.00	837.04	.05	.06	.01	831.60
2530.	612.	952.	966.	502.	352.	1386.	3947.	538.	827.70
17.28	1.22	2.70	.70	.070	.050	.120	.058	824.40	0.00
.000399	351.	345.	250.	1	0	0	0.00	587.98	741.75

*SECNO 7.000

3280 CROSS SECTION 7.00 EXTENDED 3.00 FEET

7.00	14.10	837.00	0.00	0.00	837.16	.16	.09	.03	832.00
2530.	24.	2011.	495.	50.	562.	464.	3954.	540.	830.00
17.30	.48	3.58	1.07	.120	.040	.070	.058	822.90	541.00
.000394	210.	250.	160.	2	0	0	0.00	179.00	720.00

Q input wrong - little impact

*SECNO 8.000

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
8.00	14.29	837.19	0.00	0.00	837.23	.05	.06	.01	834.00
1230.	5.	1211.	14.	25.	695.	28.	3958.	541.	833.90
17.33	.22	1.74	.49	.120	.050	.070	.058	822.90	580.95
.000167	200.	200.	200.	2	0	0	0.00	101.02	681.97

*SECNO 9.000

9.00	10.58	837.18	0.00	0.00	837.28	.10	.03	.02	837.60
1230.	0.	1185.	45.	0.	456.	46.	3960.	541.	833.30
17.34	0.00	2.60	.99	.120	.050	.070	.058	826.60	610.61
.000518	140.	120.	100.	2	0	0	0.00	73.01	683.62

*SECNO 10.000

3280 CROSS SECTION 10.00 EXTENDED 3.27 FEET

10.00	11.87	837.27	0.00	0.00	837.32	.04	.03	.01	834.00
1230.	6.	1139.	85.	35.	678.	105.	3962.	541.	830.00
17.37	.18	1.68	.80	.120	.040	.050	.058	825.40	609.90
.000099	90.	140.	160.	2	0	0	0.00	112.10	722.00

CCHV= .300 CEHV= .500

*SECNO 11.000

11.00	10.92	837.27	0.00	0.00	837.33	.07	.01	.01	829.49
1230.	33.	1163.	33.	72.	544.	54.	3963.	541.	829.49
17.38	.46	2.14	.62	.070	.030	.050	.058	826.35	568.10
.000085	75.	70.	80.	2	0	0	0.00	84.10	652.21

SPECIAL BRIDGE Railroad Bridge

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.69	3.00	0.00	40.00	0.00	447.00	1.00	826.35	826.35

*SECNO 11.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.47	837.34	0.00	0.	1230.	447.	469.	835.83	840.30

	11.10	11.05	837.40	0.00	0.00	837.47	.07	.13	0.00	829.49
	1230.	23.	1184.	23.	75.	550.	56.	3964.	541.	829.49
	17.39	.31	2.15	.42	.070	.020	.050	.058	826.35	567.80
	.000037	56.	56.	56.	2	0	0	0.00	84.64	652.43

CCHV= .100 CEHV= .300
*SECNO 12.000
3280 CROSS SECTION 12.00 EXTENDED 3.46 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

	12.00	10.96	837.46	0.00	0.00	837.48	.02	.00	.01	830.00
	1230.	46.	608.	577.	177.	520.	663.	3967.	542.	830.00
	17.42	.26	1.17	.87	.120	.040	.040	.058	826.50	445.00
	.000049	110.	110.	110.	2	0	0	0.00	212.30	657.30

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

3470 ENCROACHMENT STATIONS= 140.0 620.0 TYPE= 1 TARGET= 480.000

	13.00	10.99	837.49	0.00	0.00	837.52	.02	.04	.00	829.10
	2280.	804.	772.	704.	1093.	408.	1085.	3981.	544.	831.10
	17.50	.74	1.89	.65	.096	.060	.120	.057	826.50	142.20
	.000282	270.	300.	360.	2	0	0	0.00	477.79	620.00

CCHV= .300 CEHV= .500
*SECNO 14.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.30 ELREA= 839.00

	14.00	9.63	837.53	0.00	0.00	837.65	.13	.08	.05	833.00
	2280.	86.	2194.	0.	66.	762.	0.	3992.	546.	832.10
	17.53	1.29	2.88	0.00	.030	.030	.100	.057	827.90	40.82
	.000266	210.	310.	360.	1	0	0	0.00	135.01	205.74

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.66	3.00	0.00	78.00	3.00	604.20	3.00	827.90	827.90

*SECNO 14.100

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
837.89	837.65	.00	35.	2250.	604.	743.	835.50	836.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.30 ELREA= 839.00

Q	14.10	9.87	837.77	0.00	0.00	837.88	.12	.23	0.00	833.00
	2280.	95.	2185.	0.	75.	784.	0.	3993.	546.	832.10
	17.53	1.26	2.79	0.00	.030	.030	.100	.057	827.90	40.21
	.000239	34.	34.	34.	2	0	4	0.00	137.82	205.74

*SECNO 15.000

3280 CROSS SECTION 15.00 EXTENDED 3.89 FEET

3470 ENCROACHMENT STATIONS= 1.0 290.0 TYPE= 1 TARGET= 289.000

	15.00	10.79	837.89	0.00	0.00	837.94	.05	.04	.02	828.90
	2280.	903.	1178.	199.	770.	517.	245.	3996.	547.	832.70
	17.55	1.17	2.28	.81	.090	.070	.120	.057	827.10	18.16
	.000582	120.	110.	110.	2	0	0	0.00	271.84	290.00

CCHV= .100 CEHV= .300

1490 NH CARD USED

*SECNO 16.000

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
16.00	12.33	838.13	0.00	0.00	838.14	.01	.20	.00	833.60
2280.	1077.	634.	569.	1520.	413.	1165.	4024.	553.	832.90
17.71	.71	1.53	.49	.102	.070	.120	.057	825.80	33.40
.000275	450.	510.	640.	1	0	0	0.00	709.46	742.86

1490 NH CARD USED

*SECNO 17.000

3265 DIVIDED FLOW

17.00	11.34	838.74	0.00	0.00	838.79	.05	.64	.01	836.10
2280.	706.	1077.	497.	601.	459.	637.	4101.	574.	833.10
17.97	1.17	2.35	.78	.048	.070	.120	.060	827.40	168.14
.000703	980.	2070.	1600.	2	0	0	0.00	681.30	1266.30

*SECNO 20.000

20.00	12.61	839.61	0.00	0.00	839.78	.17	.95	.03	830.00

2280.	236.	1924.	119.	194.	547.	119.	4141.	586.	830.00
18.08	1.22	3.52	1.00	.090	.055	.120	.060	827.00	156.94
.000708	1375.	1350.	1300.	2	0	0	0.00	131.12	288.06

*SECNO 21.000

21.00	10.35	840.45	0.00	0.00	840.54	.10	.76	.01	831.70
2280.	613.	1544.	122.	481.	529.	96.	4174.	592.	831.70
18.26	1.28	2.92	1.28	.060	.045	.060	.059	830.10	78.41
.000392	1480.	1475.	1480.	2	0	0	0.00	220.06	298.47

*SECNO 22.000

22.00	9.47	840.67	0.00	0.00	840.67	.00	.12	.01	832.00
2280.	1381.	228.	671.	2654.	273.	1232.	4241.	604.	832.00
18.89	.52	.84	.54	.060	.050	.060	.059	831.20	28.31
.000042	1025.	1700.	925.	2	0	0	0.00	736.75	765.06

*SECNO 23.000

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
23.00	9.31	840.71	0.00	0.00	840.86	.15	.14	.04	837.00
2280.	21.	2199.	60.	30.	691.	86.	4307.	618.	837.00
19.00	.71	3.18	.69	.100	.050	.060	.059	831.40	297.27
.000894	1100.	1400.	1100.	2	0	0	0.00	313.78	611.05

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	30.00	4.00	548.00	1.20	832.00	832.00

*SECNO 23.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.50 BRIDGE VELOCITY= 7.41 CALCULATED CHANNEL AREA= 307.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	840.89	.03	0.	2280.	548.	410.	842.60	846.50
23.10	9.54	840.74	0.00	0.00	840.89	.15	.03	0.00	837.00
2280.	32.	2211.	37.	27.	709.	30.	4308.	618.	837.00
19.00	1.19	3.12	1.22	.060	.050	.060	.059	831.20	304.00
.000828	41.	41.	41.	0	0	0	0.00	124.00	428.00

CCHV= .300 CEHV= .500
*SECNO 24.000

24.00	9.54	840.84	0.00	0.00	840.97	.13	.08	.00	847.90
2280.	0.	2280.	0.	0.	782.	0.	4309.	618.	847.20
19.01	0.00	2.92	0.00	.060	.050	.060	.059	831.30	304.00
.000866	90.	90.	90.	1	0	0	0.00	124.00	428.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.50	0.00	30.00	4.00	713.00	2.24	832.60	832.60

*SECNO 24.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.71 BRIDGE VELOCITY=, 6.36 CALCULATED CHANNEL AREA=, 358.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	840.97	.02	0.	2280.	713.	484.	842.60	846.30
24.50	9.96	840.86	0.00	0.00	840.97	.12	.01	0.00	838.70
2280.	24.	2252.	4.	53.	817.	9.	4310.	618.	838.80
19.02	.46	2.76	.44	.090	.050	.090	.059	830.90	255.20
.000705	46.	46.	46.	0	0	0	0.00	181.62	436.82

CCHV= .100 CEHV= .300
*SECNO 25.000

25.00	9.63	841.13	0.00	0.00	841.15	.02	.16	.01	836.50
2280.	493.	486.	1300.	640.	276.	1590.	4326.	622.	836.90
19.13	.77	1.76	.82	.070	.050	.070	.059	831.50	74.67
.000262	400.	400.	400.	2	0	0	0.00	729.62	804.28

*SECNO 26.000

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
26.00	8.64	841.34	0.00	0.00	841.34	.01	.19	.00	838.00
2280.	101.	247.	1932.	133.	255.	3830.	4438.	651.	835.00
19.86	.76	.97	.50	.035	.050	.070	.059	832.70	119.56
.000078	1500.	1800.	1410.	2	0	0	0.00	983.84	1103.41

*SECNO 27.000

27.00	9.02	841.52	0.00	0.00	841.55	.03	.20	.01	838.60
2280.	221.	704.	1355.	168.	347.	1982.	4549.	684.	835.40
20.19	1.32	2.03	.68	.035	.050	.070	.058	832.50	63.48
.000346	750.	1250.	1500.	1	0	0	0.00	1048.44	1111.92

CCHV= .300 CEHV= .500
*SECNO 28.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 843.60 ELREA= 843.60

28.00	8.95	841.85	0.00	0.00	842.14	.29	.46	.13	839.40
2280.	0.	2280.	0.	0.	532.	0.	4574.	694.	838.40
20.23	0.00	4.29	0.00	.060	.045	.060	.058	832.90	600.00
.001902	700.	650.	750.	2	0	0	0.00	101.00	701.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	30.00	3.00	434.20	2.83	833.00	833.00

*SECNO 28.500
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QFR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
842.52	842.13	.04	0.	2280.	434.	434.	841.50	844.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 843.60 ELREA= 843.60

28.50	8.52	842.32	0.00	0.00	842.52	.21	.38	0.00	840.30
2280.	0.	2280.	0.	0.	626.	0.	4574.	694.	839.60
20.24	0.00	3.64	0.00	.060	.045	.060	.058	833.80	600.00
.001120	32.	32.	32.	2	0	0	0.00	103.00	703.00

CCHV= .100 CEHV= .300
*SECNO 29.000

29.00	9.23	843.03	0.00	0.00	843.13	.11	.60	.01	838.30
2280.	812.	1453.	14.	731.	460.	18.	4587.	697.	838.60
20.30	1.11	3.16	.78	.090	.055	.090	.058	833.80	24.02
.000921	600.	590.	600.	2	0	0	0.00	296.28	320.30

*SECNO 30.000

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
30.00	10.59	844.69	0.00	0.00	844.73	.05	1.59	.01	839.00
2280.	1239.	679.	362.	1496.	287.	150.	4680.	720.	837.60
20.77	.83	2.37	2.42	.090	.055	.035	.058	834.10	112.74
.000438	2550.	2650.	2550.	3	0	0	0.00	502.13	614.87

*SECNO 31.000

31.00	9.58	845.08	0.00	0.00	845.10	.01	.36	.00	837.90
2280.	13.	343.	1924.	33.	268.	2315.	4759.	739.	839.90
21.25	.40	1.28	.83	.090	.055	.060	.058	835.50	6.89
.000144	1490.	1750.	1490.	2	0	0	0.00	560.99	567.88

*SECNO 32.000

32.00	9.01	845.91	0.00	0.00	845.93	.02	.84	.00	839.80
2280.	480.	875.	925.	525.	502.	1567.	4995.	802.	843.30
22.29	.91	1.74	.59	.080	.055	.080	.059	836.90	29.40
.000308	3100.	5250.	3800.	2	0	0	0.00	875.50	904.91

CCHV= .300 CEHV= .500
*SECNO 33.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

33.00	10.01	846.31	0.00	0.00	846.61	.31	.54	.14	842.30
2280.	0.	2280.	0.	0.	514.	0.	5028.	812.	841.60
22.35	0.00	4.44	0.00	.060	.050	.060	.059	836.30	288.00
.001536	920.	900.	950.	2	0	0	0.00	62.00	350.00

Recd 8/15/79

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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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T1      1975 FLOOD
T2      STARTING WSEL FROM RED CEDAR RIVER
T3       SYCAMORE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        7.        0.        0.  0.000000      0.00      0.0        0.   829.710     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

NC      .090      .090      .045      .100      .300    0.000     0.000     0.000     0.000     0.000
QT     5.000  1690.000  2230.000  2530.000  3120.000  2530.000  2320.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     1.000    18.000   421.000   487.000     0.000     0.000     0.000     0.000      .970     0.000
GR   840.000     0.000   836.600   100.000   837.200   200.000   833.500   260.000   819.500   291.000
GR   820.100   421.000   818.100   422.000   815.900   432.000   815.000   452.000   816.100   472.000
GR   818.100   483.000   819.700   487.000   818.800   600.000   820.800   800.000   819.500  1000.000
GR   821.700  1200.000   823.900  1367.000   840.800  1422.000     0.000     0.000     0.000     0.000

X1     2.000    26.000   391.000   450.000   390.000   640.000   600.000     0.000     0.000     0.000
GR   836.000     0.000   834.000    30.000   832.000    50.000   830.000   135.000   828.000   145.000
GR   826.000   205.000   824.000   245.000   822.000   265.000   820.000   275.000   819.400   310.000
GR   818.400   391.000   815.900   401.000   815.500   411.000   816.100   421.000   818.400   432.000
GR   819.000   450.000   820.000   480.000   828.000   505.000   830.000   545.000   833.000   580.000
GR   863.000   580.000   863.000   750.000   834.500   750.000   835.000   815.000   836.000   870.000
GR   838.000   950.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .035     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1     3.000    22.000   802.000   908.000   660.000   500.000   650.000     0.000      .970     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   828.970   828.970     0.000
GR   840.800     0.000   839.000    70.000   835.600   170.000   834.200   270.000   831.400   400.000
GR   829.400   600.000   829.000   643.000   825.100   790.000   822.300   802.000   821.200   808.000
GR   817.400   820.000   814.300   853.000   814.300   857.000   817.400   887.000   822.100   902.000
GR   823.000   908.000   825.700   915.000   828.500  1200.000   829.800  1400.000   834.100  1600.000
GR   838.100  1800.000   840.600  1820.000     0.000     0.000     0.000     0.000     0.000     0.000
SB     1.250     1.560     2.600     0.000    60.000     4.000   787.000     1.050   814.970   814.970

X1     3.500    23.000   802.000   908.000    66.000    66.000    66.000     0.000      .970     0.000
X2     0.000     0.000     1.000   825.970   822.970     0.000     0.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   828.970   828.970     0.000
BT    17.000     0.000   841.770     0.000    70.000   839.970     0.000   170.000   836.570     0.000
BT   270.000   835.170     0.000   400.000   832.370     0.000   600.000   830.370     0.000   700.000
BT   830.070     0.000   802.000   832.470   823.070   802.000   832.470   825.970   908.000   832.470
BT   825.970   908.000   832.470   823.370  1000.000   828.970     0.000  1200.000   829.470     0.000
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BT	1400.000	830.770	0.000	1600.000	835.070	0.000	1800.000	839.070	0.000	1820.000
BT	841.570	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.800	0.000	839.000	70.000	835.600	170.000	834.200	270.000	831.400	400.000
GR	829.400	600.000	829.100	700.000	828.000	790.000	822.100	802.000	821.600	808.000
GR	817.400	820.000	812.400	853.000	813.400	857.000	817.400	887.000	820.800	902.000
GR	822.400	908.000	826.300	920.000	828.000	1000.000	828.500	1200.000	829.800	1400.000
GR	834.100	1600.000	838.100	1800.000	840.600	1820.000	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	9.000	.080	20.000	.800	60.000	.080	100.000	.800	138.000	.080
NH	230.000	.800	280.000	.035	1140.000	.045	1200.000	.080	1445.000	0.000
X1	4.000	24.000	1140.000	1200.000	1060.000	1200.000	1800.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	20.000	836.000	60.000	834.000	100.000	832.500	138.000
GR	831.000	230.000	830.000	360.000	828.000	482.000	826.000	495.000	824.000	680.000
GR	820.000	840.000	819.500	1140.000	818.900	1145.000	817.600	1155.000	816.700	1162.000
GR	817.800	1172.000	819.800	1182.000	820.000	1200.000	820.000	1240.000	819.800	1242.000
GR	819.800	1330.000	820.000	1350.000	823.000	1405.000	840.000	1445.000	0.000	0.000
NH	11.000	.080	35.000	.800	55.000	.080	115.000	.800	135.000	.080
NH	152.000	.800	180.000	.080	272.000	.800	350.000	.035	870.000	.045
NH	930.000	.080	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	20.000	870.000	930.000	1700.000	1750.000	2500.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	35.000	833.000	115.000	833.000	135.000	833.000	152.000
GR	833.000	180.000	832.000	350.000	830.000	715.000	824.000	785.000	822.000	870.000
GR	821.100	887.000	819.000	897.000	818.100	907.000	819.200	917.000	819.800	925.000
GR	819.900	930.000	820.000	1085.000	822.000	1780.000	832.000	1810.000	840.000	2020.000
NC	.100	.100	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	38.000	895.000	928.000	10000.000	1300.000	1775.000	0.000	.970	0.000
GR	841.700	0.000	833.700	200.000	830.100	400.000	825.300	480.000	822.700	500.000
GR	824.300	700.000	828.800	895.000	828.300	899.000	826.700	899.000	826.700	903.000
GR	825.200	904.000	823.700	906.000	823.600	921.000	824.300	923.000	826.700	924.000
GR	826.700	926.000	828.300	926.000	828.300	928.000	827.300	1100.000	829.300	1232.000
GR	829.300	1239.000	826.900	1239.000	826.900	1241.000	826.000	1242.000	823.100	1246.000
GR	823.500	1266.000	823.700	1268.000	823.600	1283.000	826.000	1293.000	826.900	1294.000
GR	826.900	1296.000	829.300	1296.000	829.300	1300.000	825.300	1500.000	826.300	1700.000
GR	839.000	1850.000	834.000	1900.000	842.300	1980.000	0.000	0.000	0.000	0.000
X1	7.000	29.000	1025.000	1075.000	1940.000	1900.000	2825.000	0.000	.970	0.000
GR	841.000	0.000	840.000	20.000	829.000	55.000	829.500	113.000	827.600	125.000
GR	829.900	260.000	825.000	280.000	826.100	400.000	826.000	600.000	826.800	665.000
GR	823.800	670.000	821.800	673.000	821.800	685.000	823.800	688.000	826.200	691.000
GR	824.000	800.000	825.000	1000.000	825.200	1025.000	823.700	1030.000	820.600	1040.000
GR	821.200	1060.000	823.700	1070.000	825.300	1075.000	825.000	1100.000	824.200	1300.000
GR	824.400	1500.000	824.600	1700.000	824.600	1770.000	850.000	1800.000	0.000	0.000
NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.000	23.000	1100.000	1150.000	820.000	800.000	825.000	0.000	.970	0.000
GR	840.900	0.000	837.700	200.000	833.000	400.000	830.300	500.000	829.800	700.000
GR	829.600	900.000	829.100	1100.000	825.500	1111.000	822.300	1121.000	820.800	1131.000
GR	825.500	1142.000	829.300	1150.000	829.500	1173.000	825.500	1181.000	823.600	1200.000
GR	822.300	1300.000	825.500	1312.000	830.700	1320.000	830.600	1400.000	831.100	1600.000
GR	830.200	1650.000	840.700	1700.000	849.700	1800.000	0.000	0.000	0.000	0.000
X1	9.000	18.000	300.000	346.000	1430.000	1550.000	1550.000	0.000	.970	0.000
GR	841.100	0.000	833.800	21.000	833.600	100.000	830.900	200.000	830.300	235.000
GR	825.300	256.000	828.600	275.000	826.500	300.000	821.200	305.000	820.000	318.000
GR	820.200	325.000	820.000	339.000	821.200	341.000	826.200	346.000	824.600	400.000

GR	826.400	500.000	826.400	600.000	842.100	650.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	19.000	844.000	900.000	1100.000	1100.000	1230.000	0.000	.970	0.000
GR	843.300	0.000	835.000	200.000	834.500	400.000	834.400	600.000	834.200	800.000
GR	833.500	818.000	828.100	844.000	826.400	847.000	824.900	848.000	822.100	867.000
GR	824.600	890.000	826.400	894.000	827.700	900.000	829.000	1000.000	833.300	1200.000
GR	834.000	1400.000	837.200	1600.000	837.500	1800.000	843.400	2000.000	0.000	0.000
NC	.080	.090	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.000	19.000	1267.000	1339.000	50.000	475.000	450.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
GR	843.400	0.000	835.100	200.000	835.000	400.000	834.600	600.000	834.300	800.000
GR	834.200	1000.000	834.200	1021.000	830.400	1200.000	826.500	1267.000	823.400	1274.000
GR	822.600	1292.000	822.600	1296.000	825.400	1331.000	825.400	1335.000	826.500	1339.000
GR	830.600	1354.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	20.000	3.000	550.000	3.700	823.970	823.970
X1	11.500	19.000	1267.000	1339.000	31.000	31.000	31.000	0.000	.970	0.000
X2	0.000	0.000	1.000	833.220	835.170	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
BT	13.000	0.000	844.370	0.000	200.000	836.070	0.000	400.000	833.370	0.000
BT	600.000	833.970	0.000	800.000	835.270	0.000	1000.000	835.170	0.000	1021.000
BT	835.170	0.000	1200.000	835.570	831.370	1267.000	835.770	827.470	1274.000	835.770
BT	833.020	1354.000	835.870	832.220	1410.000	836.470	0.000	1600.000	841.370	0.000
GR	843.400	0.000	835.100	200.000	832.400	400.000	828.500	500.000	828.200	1000.000
GR	828.600	1200.000	826.500	1267.000	823.400	1274.000	822.700	1292.000	822.700	1296.000
GR	824.200	1331.000	824.200	1335.000	826.500	1339.000	828.000	1354.000	832.200	1354.000
GR	835.000	1356.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
NC	.100	.100	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	12.000	24.000	920.000	978.000	680.000	680.000	690.000	0.000	0.000	0.000
GR	845.300	0.000	843.000	175.000	828.000	230.000	830.000	350.000	833.000	435.000
GR	834.000	485.000	836.000	540.000	838.000	603.000	839.000	627.000	834.000	760.000
GR	831.000	825.000	830.000	865.000	828.000	875.000	826.000	920.000	824.700	930.000
GR	823.400	937.000	822.600	955.000	824.700	975.000	826.000	978.000	828.000	1000.000
GR	830.000	1005.000	832.000	1195.000	834.000	1230.000	842.000	1280.000	0.000	0.000
NC	.120	.120	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
(13) X1	1.100	30.000	540.000	605.000	1075.000	1050.000	1260.000	0.000	0.000	0.000
GR	842.700	0.000	836.900	100.000	837.500	200.000	837.500	400.000	829.500	525.000
GR	829.500	527.000	829.500	527.010	828.700	540.000	826.000	541.000	826.000	541.010
GR	826.000	543.000	826.000	543.010	822.700	557.000	822.700	557.010	823.700	559.000
GR	823.700	559.010	822.600	573.000	822.600	573.010	823.200	575.000	823.200	575.000
GR	828.000	590.000	828.000	590.010	828.400	591.000	828.400	591.010	828.700	592.000
GR	829.700	605.000	829.700	605.010	829.700	607.000	836.800	620.000	837.600	700.000
(13.5) X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	27.000	0.000	842.700	0.000	100.000	836.900	0.000	200.000	837.500	0.000
BT	400.000	837.500	0.000	525.000	839.500	0.000	527.000	839.400	829.500	527.010
BT	839.400	837.300	541.000	839.500	837.300	541.010	839.500	826.000	543.000	839.500
BT	826.000	543.010	839.500	837.400	557.000	839.500	837.500	557.010	839.500	822.700
BT	559.000	839.500	822.700	559.010	839.500	837.500	573.000	839.600	837.700	573.010
BT	839.600	822.600	575.000	839.600	823.200	575.010	839.600	837.500	590.000	839.600
BT	837.500	590.010	839.700	828.000	591.000	839.700	828.400	591.010	839.700	837.500
BT	605.000	839.700	837.600	605.000	839.700	829.700	607.000	839.700	0.000	700.000
BT	840.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	1.300	0.000	0.000	0.000	10.000	10.000	10.000	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	1.400	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	7.100	215.000	375.000	0.000	0.000
X1	2.000	13.000	293.000	368.000	48.000	43.000	43.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	120.000	836.000	240.000	834.000	265.000	832.000	275.000
GR	830.000	285.000	828.700	293.000	822.600	330.000	828.700	350.000	830.000	355.000
GR	832.000	360.000	836.000	368.000	836.700	380.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.070	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	3.000	15.000	465.000	496.000	358.000	367.000	398.000	0.000	0.000	0.000
GR	838.000	0.000	836.700	260.000	836.700	280.000	830.800	288.000	829.200	360.000
GR	829.200	465.000	824.900	467.000	824.200	469.000	822.500	479.000	824.800	496.000
GR	828.000	499.000	829.200	545.000	829.600	562.000	830.000	569.000	840.000	590.000
X1	4.000	16.000	140.000	170.000	409.000	397.000	430.000	0.000	0.000	0.000
GR	828.200	0.000	828.000	26.000	830.400	50.000	829.100	121.000	826.600	140.000
GR	826.000	145.000	825.200	149.000	824.400	158.000	825.100	166.000	828.500	170.000
GR	828.000	270.000	832.000	363.000	834.000	385.000	836.000	470.000	838.000	550.000
GR	840.000	745.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	14.000	164.000	232.000	240.000	132.000	231.000	0.000	0.000	0.000
GR	832.000	0.000	830.000	30.000	828.000	164.000	826.300	170.000	824.400	205.000
GR	826.300	225.000	828.000	232.000	830.000	342.000	834.000	360.000	836.000	420.000
GR	836.000	520.000	838.000	626.000	838.000	749.000	840.000	770.000	0.000	0.000
NC	.070	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	23.000	303.000	337.000	351.000	250.000	345.000	0.000	0.000	0.000
GR	835.000	0.000	834.000	10.000	834.000	40.000	836.000	50.000	838.000	130.000
GR	837.000	230.000	837.400	243.000	828.800	270.000	829.500	290.000	831.600	303.000
GR	826.200	316.000	824.700	318.000	824.700	321.000	824.400	325.000	826.200	335.000
GR	827.700	337.000	830.600	360.000	831.700	386.000	832.000	530.000	834.000	540.000
GR	836.000	653.000	838.000	830.000	840.000	850.000	0.000	0.000	0.000	0.000
NC	.120	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	12.000	558.000	607.000	210.000	160.000	250.000	0.000	0.000	0.000
GR	835.000	541.000	834.000	553.000	832.000	558.000	826.700	566.000	823.900	574.000
GR	822.900	585.000	823.500	591.000	825.000	597.000	826.900	602.000	830.000	607.000
GR	832.000	613.000	834.000	720.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	6.000	1520.000	1380.000	1230.000	1070.000	1230.000	1500.000	0.000	0.000	0.000
X1	8.000	15.000	602.000	669.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	838.500	545.000	838.000	572.000	836.000	594.000	834.000	602.000	830.000	609.000
GR	826.900	613.000	823.900	623.000	822.900	634.000	823.500	642.000	825.000	650.000
GR	826.900	654.000	828.400	655.000	833.900	669.000	834.600	676.000	839.800	688.000
NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.000	10.000	610.000	667.000	140.000	100.000	120.000	0.000	0.000	0.000
GR	839.600	603.000	837.600	610.000	829.300	622.000	827.300	625.000	826.900	628.000

NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	691.000	839.000	0.000	0.000	841.000	891.000	0.000	0.000	0.000
BT	841.700	835.500	291.000	841.700	835.500	291.100	839.200	0.000	491.000	839.200
BT	83.000	839.100	0.000	105.000	839.030	0.000	153.000	839.200	0.000	153.100
BT	12.000	0.000	852.900	0.000	59.000	837.200	68.000	836.300	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000
X2	0.000	0.000	1.000	835.500	836.300	0.000	0.000	0.000	.707	0.000
X1	14.100	0.000	0.000	0.000	34.000	34.000	0.000	0.000	0.000	0.000

SB	.900	1.660	3.000	0.000	78.000	3.000	604.200	3.000	827.900	827.900
GR	832.100	291.000	832.100	291.100	833.400	491.000	835.200	691.100	839.100	891.000
GR	835.500	219.100	835.500	222.000	827.900	222.100	828.300	241.000	831.200	276.000
GR	833.000	153.000	833.000	153.100	831.200	165.000	828.300	191.000	827.900	219.000
GR	852.900	0.000	837.200	59.000	836.300	68.000	839.100	83.000	839.030	105.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000
XI	14.000	20.000	153.100	291.000	210.000	360.000	310.000	.707	0.000	0.000

NC	.030	.100	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
GR	844.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	834.000	760.000	836.000	781.000	838.000	796.000	840.000	825.000	842.000	847.000
GR	826.500	405.000	827.100	415.000	829.100	423.000	831.100	426.000	832.000	537.000
GR	832.400	280.000	832.300	300.000	832.100	380.000	829.100	385.000	826.800	395.000
GR	838.000	0.000	837.800	140.000	836.000	153.000	834.000	168.000	833.300	210.000
XI	13.000	21.000	385.000	426.000	270.000	360.000	300.000	0.000	0.000	0.000

ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	140.000	620.000
NH	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.030	168.000	.050	210.000	.120	385.000	.060	426.000	.120
QT	5.000	1520.000	2060.000	2280.000	2930.000	2280.000	2160.000	0.000	0.000	0.000

NC	.120	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	826.600	641.000	827.300	653.000	833.300	667.000	834.700	680.000	839.500	687.000

SB	1.000	1.690	3.000	0.000	40.000	0.000	447.000	1.000	826.350	826.350
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	841.000	730.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	826.500	644.000	829.490	650.000	829.490	650.100	840.300	672.000	840.300	672.100
GR	839.000	564.000	829.490	590.000	829.490	590.100	826.700	596.000	826.350	620.000
XI	11.000	11.000	590.100	650.000	75.000	80.000	70.000	.866	0.000	0.000

NC	.070	.050	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
GR	830.000	702.000	834.000	722.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.500	649.000	826.000	660.000	825.400	672.000	826.000	685.000	827.500	695.000
GR	839.400	580.000	838.000	603.000	836.000	622.000	834.000	634.000	830.000	640.000
XI	10.000	12.000	634.000	702.000	90.000	160.000	140.000	0.000	0.000	0.000

NC	.120	.040	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
BT	840.300	0.000	730.000	841.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	650.000	842.450	835.830	650.100	842.450	0.000	672.000	842.900	0.000	672.100
BT	8.000	564.000	841.600	0.000	590.000	841.680	0.000	590.100	841.680	835.060
X2	0.000	0.000	1.000	835.830	840.300	0.000	0.000	0.000	.866	0.000
XI	11.100	0.000	0.000	0.000	56.000	56.000	56.000	0.000	0.000	0.000

X1	15.000	18.000	186.000	240.000	120.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1.000	0.000	290.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	15.000	834.000	24.000	832.700	29.000	832.700	105.000
GR	834.000	115.000	836.000	125.000	836.000	135.000	835.500	153.000	829.800	175.000
GR	828.900	186.000	828.600	191.000	827.300	207.000	827.100	220.000	828.600	230.000
GR	832.700	240.000	834.000	350.000	834.000	770.000	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	.120	100.000	.100	330.000	.120	362.000	.070	402.000	.120
NH	833.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	16.000	24.000	362.000	402.000	450.000	640.000	510.000	0.000	0.000	0.000
GR	846.000	0.000	840.000	24.000	838.000	34.000	836.000	54.000	834.000	73.000
GR	832.700	100.000	832.700	330.000	838.000	345.000	838.000	353.000	833.600	362.000
GR	828.800	365.000	827.800	365.100	827.000	370.000	825.800	380.000	827.400	390.000
GR	828.800	397.000	832.900	402.000	833.000	435.000	834.000	490.000	836.000	720.000
GR	838.000	740.000	840.000	788.000	842.000	821.000	844.000	833.000	0.000	0.000
NH	4.000	.040	460.000	.120	984.000	.070	1033.000	.120	1283.000	0.000

X1	17.000	26.000	984.000	1033.000	980.000	1600.000	2070.000	0.000	0.000	0.000
GR	841.400	0.000	840.000	165.000	838.000	170.000	835.400	260.000	839.900	460.000
GR	840.000	560.000	839.900	660.000	839.200	760.000	838.500	860.000	836.800	960.000
GR	836.100	984.000	830.400	987.000	827.900	992.000	827.400	1000.000	827.400	1008.000
GR	830.000	1018.000	830.400	1024.000	833.100	1033.000	833.700	1044.000	835.900	1055.000
GR	831.600	1081.000	832.700	1099.000	836.700	1110.000	837.500	1210.000	837.100	1260.000
GR	843.100	1283.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	0.000	.055	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	1.400	0.000	0.000	0.000	0.000

X1	20.000	28.000	210.000	260.000	1375.000	1300.000	1350.000	0.000	0.000	0.000
GR	860.000	0.000	858.000	50.000	856.000	60.000	850.000	75.000	848.000	110.000
GR	840.000	155.000	838.000	165.000	836.000	190.000	834.000	200.000	832.000	205.000
GR	830.000	210.000	829.700	211.000	829.000	217.000	828.000	223.000	827.000	225.000
GR	828.000	234.000	829.000	247.000	829.700	256.000	830.000	260.000	836.000	275.000
GR	838.000	280.000	840.000	290.000	850.000	340.000	852.000	405.000	854.000	445.000
GR	856.000	490.000	858.000	520.000	856.000	555.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	21.000	10.000	213.000	269.000	1480.000	1480.000	1475.000	0.000	0.000	0.000
GR	845.700	0.000	839.000	100.000	834.500	200.000	831.700	213.000	831.300	229.000
GR	830.100	250.000	831.700	269.000	838.400	284.000	844.200	325.000	846.500	340.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.000	23.000	505.000	535.000	1025.000	925.000	1700.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	15.000	840.000	35.000	838.000	45.000	836.000	120.000
GR	834.400	255.000	834.400	285.000	835.000	340.000	834.200	370.000	834.000	390.000
GR	834.000	480.000	832.000	505.000	831.600	509.000	831.200	520.000	831.600	526.000
GR	832.000	535.000	834.000	565.000	834.000	680.000	836.000	695.000	838.000	725.000
GR	840.000	745.000	842.000	805.000	844.000	855.000	0.000	0.000	0.000	0.000
NC	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23.000	15.000	315.000	416.000	1100.000	1100.000	1400.000	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	851.500	0.000	844.600	200.000	840.600	300.000	839.500	304.000	839.500	304.000
GR	837.000	315.000	832.500	364.000	832.200	368.000	831.400	390.000	837.000	416.000
GR	839.400	428.000	839.400	428.000	840.400	430.000	840.400	600.000	846.000	800.000
NC	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SB	1.250	1.560	2.600	0.000	30.000	4.000	548.000	1.200	832.000	832.000
X1	23.100	15.000	315.000	416.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.500	0.000	0.000	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
BT	8.000	0.000	851.500	0.000	200.000	848.600	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	428.000	849.500	841.900	428.000	849.500	839.400	600.000
BT	847.200	0.000	800.000	849.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	845.900	200.000	847.900	304.000	842.600	304.000	839.600	304.000
GR	837.000	315.000	832.000	364.000	832.400	368.000	831.200	390.000	837.000	416.000
GR	839.400	428.000	841.900	428.000	847.100	428.000	844.500	600.000	846.000	800.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	24.000	15.000	304.000	428.000	90.000	90.000	90.000	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	849.300	0.000	845.900	200.000	847.900	304.000	839.600	304.000	837.000	315.000
GR	833.800	340.000	832.600	364.000	832.600	368.000	831.300	390.000	837.000	416.000
GR	839.100	428.000	841.700	428.000	847.200	428.000	844.500	600.000	846.000	800.000
NC	.090	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.500	2.500	0.000	30.000	4.000	713.000	2.240	832.600	832.600
X1	24.500	14.000	304.000	428.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.300	0.000	0.000	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
BT	10.000	0.000	852.500	0.000	200.000	848.900	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	366.000	849.900	842.300	428.000	849.300	841.700	428.000
BT	849.900	838.800	600.000	846.800	0.000	800.000	848.300	0.000	1000.000	849.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	843.300	200.000	838.700	304.000	837.000	315.000	833.500	340.000
GR	832.400	364.000	832.200	368.000	830.900	390.000	837.000	416.000	838.800	428.000
GR	841.600	440.000	841.600	600.000	842.600	800.000	846.500	1000.000	0.000	0.000
NC	.070	.070	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	25.000	17.000	281.000	318.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	847.400	0.000	839.000	100.000	837.600	200.000	836.500	281.000	833.900	291.000
GR	832.300	299.000	831.500	300.000	832.400	305.000	833.900	315.000	836.900	318.000
GR	836.600	350.000	836.600	400.000	837.100	500.000	837.300	600.000	839.300	690.000
GR	840.300	800.000	846.100	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	26.000	22.000	168.000	202.000	1500.000	1410.000	1800.000	0.000	0.000	0.000
GR	851.700	0.000	848.400	92.000	838.400	131.000	838.000	168.000	835.000	170.000
GR	832.700	181.000	833.300	192.000	835.000	202.000	837.700	216.000	837.700	300.000
GR	837.900	400.000	836.300	500.000	835.000	505.000	833.800	525.000	835.000	538.000
GR	836.800	546.000	836.600	600.000	836.700	700.000	836.500	800.000	836.600	900.000
GR	836.700	1000.000	847.900	1250.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	27.000	18.000	150.000	198.000	750.000	1500.000	1250.000	0.000	0.000	0.000
GR	851.000	0.000	841.300	65.000	839.400	100.000	838.600	150.000	835.400	155.000
GR	832.500	169.000	834.200	185.000	835.400	198.000	837.300	219.000	839.100	250.000
GR	839.900	300.000	839.100	400.000	839.300	600.000	839.500	800.000	839.800	1000.000
GR	839.500	1100.000	848.000	1150.000	850.300	1200.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	28.000	15.000	600.000	701.000	700.000	750.000	650.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	839.400	600.000

	GR	837.600	620.000	835.900	639.000	836.100	641.000	836.400	660.000	832.900	680.000
	GR	835.800	682.000	838.400	701.000	840.500	703.000	838.900	800.000	843.000	1000.000
	NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SB	1.250	1.560	2.600	0.000	30.000	3.000	434.200	2.830	833.000	833.000
	X1	28.500	16.000	600.000	703.000	32.000	32.000	32.000	0.000	0.000	0.000
	X2	0.000	0.000	1.000	841.500	844.000	0.000	0.000	0.000	0.000	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
	BT	14.000	0.000	848.500	0.000	200.000	845.400	0.000	400.000	845.200	0.000
	BT	500.000	844.700	0.000	600.000	844.000	0.000	620.000	844.000	837.600	620.000
	BT	847.700	841.500	639.000	847.700	841.000	680.000	847.700	841.000	701.000	847.700
	BT	841.500	701.000	844.000	838.400	800.000	843.600	0.000	1000.000	844.800	0.000
	BT	1200.000	848.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	840.300	600.000
	GR	836.800	620.000	836.100	639.000	836.100	641.000	834.400	660.000	833.800	680.000
	GR	834.700	682.000	838.800	701.000	839.600	703.000	840.300	800.000	844.800	1000.000
	GR	848.500	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NC	.090	.090	.055	.100	.300	0.000	0.000	0.000	0.000	0.000
	X1	29.000	13.000	253.000	312.000	600.000	600.000	590.000	0.000	0.000	0.000
	GR	849.000	0.000	839.800	37.000	840.600	100.000	839.300	200.000	838.300	253.000
	GR	836.200	260.000	834.800	276.000	833.800	288.000	835.200	306.000	836.200	310.000
	GR	838.600	312.000	846.600	327.000	849.300	335.000	0.000	0.000	0.000	0.000
	NC	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	30.000	18.000	545.000	577.000	2550.000	2550.000	2650.000	0.000	0.000	0.000
	GR	849.300	0.000	848.200	50.000	842.600	150.000	841.300	250.000	840.900	350.000
	GR	840.700	450.000	840.300	500.000	839.000	545.000	837.600	550.000	835.400	554.000
	GR	834.100	560.000	835.100	572.000	837.600	577.000	840.000	590.000	840.700	600.000
	GR	847.400	625.000	848.200	650.000	850.100	750.000	0.000	0.000	0.000	0.000
	NC	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	31.000	12.000	16.000	49.000	1490.000	1490.000	1750.000	0.000	0.000	0.000
	GR	850.500	0.000	837.900	16.000	835.500	25.000	837.200	38.000	837.900	46.000
	GR	839.900	49.000	839.500	150.000	838.900	250.000	842.300	350.000	841.200	450.000
	GR	841.500	550.000	850.500	595.000	0.000	0.000	0.000	0.000	0.000	0.000
	NC	.080	.080	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	32.000	14.000	148.000	218.000	3100.000	3800.000	5250.000	0.000	0.000	0.000
	GR	852.900	0.000	842.200	45.000	841.100	100.000	839.800	148.000	836.900	156.000
	GR	839.100	200.000	839.800	207.000	843.300	218.000	842.400	300.000	843.300	400.000
	GR	843.600	600.000	844.200	800.000	845.300	900.000	851.500	950.000	0.000	0.000
	NC	.060	.060	.050	.300	.500	0.000	0.000	0.000	0.000	0.000
	X1	33.000	16.000	288.000	350.000	920.000	950.000	900.000	0.000	0.000	0.000
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
	GR	854.600	0.000	848.600	100.000	845.700	200.000	842.300	288.000	842.300	288.000
	GR	838.900	299.000	838.000	300.000	836.300	319.000	838.000	340.000	838.900	349.000
	GR	841.600	350.000	841.600	350.000	843.700	400.000	844.500	500.000	848.300	600.000
	GR	852.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	SB	0.000	1.560	2.600	0.000	40.000	0.000	450.000	1.250	835.600	835.600
	X1	33.090	14.000	288.000	350.000	31.000	31.000	31.000	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
	X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
	BT	9.000	0.000	852.200	0.000	100.000	850.300	0.000	200.000	848.800	0.000
	BT	288.000	848.200	844.300	350.000	848.200	844.400	400.000	848.500	0.000	500.000

BT	849.100	0.000	600.000	850.300	0.000	700.000	852.300	0.000	0.000	0.000
GR	852.600	0.000	848.400	100.000	845.800	200.000	844.300	288.000	838.900	288.000
GR	837.200	300.000	835.600	319.000	837.700	340.000	838.900	350.000	844.400	350.000
GR	843.400	400.000	845.700	500.000	849.100	600.000	852.600	700.000	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

*PROF 1

CCHV= .100 CEHV= .300

*SECNO 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
1.00	13.74	829.71	0.00	829.71	829.71	.00	0.00	0.00	821.07
2320.	280.	463.	1577.	1257.	824.	7236.	0.	0.	820.67
0.00	.22	.56	.22	.090	.045	.090	0.000	815.97	270.54
.000010	0.	0.	0.	0	0	0	0.00	1112.21	1382.75

*SECNO 2.000

2.00	14.21	829.71	0.00	0.00	829.73	.02	.01	.00	818.40
2320.	1011.	1055.	254.	1807.	740.	479.	81.	10.	819.00
.16	.56	1.43	.53	.090	.045	.090	.048	815.50	136.42
.000065	390.	600.	640.	0	0	0	0.00	402.89	539.31

CCHV= .300 CEHV= .500

*SECNO 3.000

3.00	14.48	829.75	0.00	0.00	829.79	.04	.05	.01	823.27
2320.	235.	1962.	123.	315.	1201.	513.	117.	17.	823.97
.28	.75	1.63	.24	.035	.045	.090	.047	815.27	651.56
.000098	660.	650.	500.	1	0	0	0.00	590.43	1241.99

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	60.00	4.00	787.00	1.05	814.97	814.97

*SECNO 3.500

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
829.91	829.79	.00	307.	2023.	787.	743.	825.97	822.97

3.50	16.50	829.87	0.00	0.00	829.91	.04	.12	0.00	823.07
2320.	53.	2192.	74.	79.	1277.	336.	120.	17.	823.37
.30	.67	1.72	.22	.035	.045	.090	.047	813.37	716.47
.000101	66.	66.	66.	2	0	4	0.00	544.86	1261.33

HIGH WATER MARK
CITY OF LANSING
PUBLIC SERVICE DEPT
829.76

CCHV= .100 CEHV= .300

1490 NH CARD USED

*SECNO 4.000

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
4.00	13.23	829.93	0.00	0.00	829.93	.00	.01	.00	819.50
2320.	1788.	213.	319.	5386.	679.	2029.	260.	39.	820.00
1.62	.33	.31	.16	.035	.045	.080	.051	816.70	364.29
.000004	1060.	1800.	1200.	2	0	0	0.00	1057.01	1421.30

1490 NH CARD USED
*SECNO 5.000

5.00	11.84	829.94	0.00	0.00	829.94	.00	.01	.00	822.00
2320.	303.	256.	1761.	796.	602.	7856.	616.	83.	819.90
3.49	.38	.42	.22	.035	.045	.080	.056	818.10	715.71
.000008	1700.	2500.	1750.	2	0	0	0.00	1088.11	1803.82

*SECNO 6.000

3265 DIVIDED FLOW

6.00	6.37	830.04	0.00	0.00	830.04	.01	.10	.00	829.77
2320.	1331.	114.	875.	1824.	125.	1657.	1073.	182.	829.27
5.34	.73	.91	.53	.100	.065	.100	.041	823.67	417.21
.000336	10000.	1775.	1300.	2	0	0	0.00	1277.48	1732.68

*SECNO 7.000

3265 DIVIDED FLOW

7.00	8.72	830.29	0.00	0.00	830.29	.00	.25	.00	826.17
2320.	937.	240.	1143.	3129.	357.	3360.	1308.	247.	826.27
6.88	.30	.67	.34	.100	.065	.100	.051	821.57	53.98
.000065	1940.	2825.	1900.	2	0	0	0.00	1663.34	1775.58

*SECNO 8.000

3265 DIVIDED FLOW

8.00	8.62	830.39	0.00	0.00	830.47	.08	.15	.02	830.07
2320.	5.	680.	1635.	21.	242.	834.	1382.	266.	830.27
6.99	.23	2.80	1.96	.090	.070	.120	.052	821.77	971.42
.002299	820.	825.	800.	2	0	0	0.00	337.43	1318.03

*SECNO 9.000

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
9.00	10.98	831.95	0.00	0.00	831.99	.04	1.51	.00	827.47
2320.	205.	973.	1142.	242.	456.	1341.	1438.	279.	827.17
7.29	.85	2.13	.85	.090	.070	.120	.054	820.97	197.06
.000540	1430.	1550.	1550.	2	0	0	0.00	417.52	614.58

*SECNO 10.000

10.00	9.87	832.94	0.00	0.00	833.11	.17	1.08	.04	829.07

2320.	40.	1671.	609.	36.	435.	567.	1478.	289.	828.67
7.40	1.11	3.84	1.07	.090	.065	.120	.055	823.07	825.36
.001926	1100.	1230.	1100.	2	0	0	0.00	312.81	1138.17

CCHV= .300 CEHV= .500
*SECNO 11.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 835.17 ELREA= 835.17

11.00	10.13	833.70	0.00	0.00	833.91	.21	.78	.02	827.47
2320.	0.	2320.	0.	0.	632.	0.	1487.	291.	827.47
7.43	0.00	3.67	0.00	.080	.065	.090	.056	823.57	1267.00
.001556	50.	450.	475.	2	0	0	0.00	72.00	1339.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.25	1.56	2.60	0.00	20.00	3.00	550.00	3.70	823.97	823.97

*SECNO 11.500
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
834.13	833.91	.02	0.	2320.	550.	474.	833.22	835.17

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 835.17 ELREA= 835.17

11.50	10.28	833.95	0.00	0.00	834.13	.18	.22	0.00	827.47
2320.	0.	2320.	0.	0.	675.	0.	1487.	291.	827.47
7.44	0.00	3.44	0.00	.080	.065	.090	.056	823.67	1267.00
.001262	31.	31.	31.	2	0	0	0.00	72.00	1339.00

CCHV= .100 CEHV= .300
*SECNO 12.000

3265 DIVIDED FLOW

12.00	11.80	834.40	0.00	0.00	834.41	.02	.27	.02	826.00
2320.	957.	912.	451.	1683.	610.	884.	1517.	297.	826.00
7.64	.57	1.50	.51	.100	.065	.100	.056	822.60	206.55
.000188	680.	690.	680.	2	0	0	0.00	772.31	1232.47

CCHV= .300 CEHV= .500
*SECNO 1.100

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
1.10	12.17	834.77	0.00	0.00	834.92	.15	.44	.07	828.70
2320.	269.	2023.	28.	301.	603.	34.	1570.	309.	829.70
7.75	.89	3.36	.82	.120	.060	.120	.056	822.60	442.69
.001025	1075.	1260.	1050.	2	0	0	0.00	173.59	616.28

*SECNO 1.200

3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD= 836.90 MAX ELLC= 837.70

1.20	12.07	834.67	0.00	0.00	835.02	.35	.00	.10	828.70
2320.	162.	2158.	0.	72.	440.	0.	1570.	309.	829.70
7.75	2.24	4.90	.01	.120	.060	.120	.056	822.60	444.21
.003323	1.	1.	1.	2	0	0	-408.02	171.89	616.10

*SECNO 1.300

3370 NORMAL BRIDGE,NRD= 27 MIN ELTRD= 836.90 MAX ELLC= 837.70

1.30	12.11	834.71	0.00	0.00	835.06	.35	.03	.00	828.70
2320.	163.	2157.	0.	73.	442.	0.	1570.	309.	829.70
7.75	2.23	4.88	.01	.120	.060	.120	.056	822.60	443.77
.003285	10.	10.	10.	1	0	0	-411.13	172.39	616.15

*SECNO 1.400

1.40	12.37	834.97	0.00	0.00	835.12	.14	.00	.06	828.70
2320.	281.	2010.	29.	322.	616.	36.	1570.	309.	829.70
7.75	.87	3.26	.80	.120	.060	.120	.056	822.60	439.45
.000940	1.	1.	1.	2	0	0	0.00	177.21	616.66

*SECNO 2.000

2.00	12.40	835.00	0.00	0.00	835.20	.20	.05	.03	828.70
2320.	130.	2190.	0.	111.	590.	0.	1571.	309.	836.00
7.76	1.17	3.71	0.00	.120	.060	.120	.056	822.60	252.55
.001453	48.	43.	43.	2	0	0	0.00	113.44	365.99

CCHV= .100 CEHV= .300

*SECNO 3.000

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
3.00	12.99	835.49	0.00	0.00	835.53	.04	.31	.02	829.20
2320.	984.	839.	497.	1070.	361.	519.	1583.	311.	824.80
7.83	.92	2.32	.96	.120	.070	.120	.057	822.50	281.64
.000515	358.	398.	367.	2	0	0	0.00	298.88	580.52

*SECNO 4.000

3280 CROSS SECTION 4.00 EXTENDED 7.48 FEET

4.00	11.28	835.68	0.00	0.00	835.70	.02	.17	.00	826.60
2320.	712.	548.	1060.	922.	308.	1390.	1604.	315.	828.50
7.95	.77	1.78	.76	.120	.070	.120	.057	824.40	0.00
.000335	409.	430.	397.	2	0	0	0.00	456.36	456.36

*SECNO 5.000

3280 CROSS SECTION 5.00 EXTENDED 3.72 FEET

5.00	11.32	835.72	0.00	0.00	835.74	.02	.04	.00	828.00

2320.	932.	958.	430.	1043.	682.	851.	1616.	316.	828.00
8.00	.89	1.40	.51	.070	.060	.120	.057	824.40	0.00
.000150	240.	231.	132.	2	0	0	0.00	411.69	411.69

*SECNO 6.000

3265 DIVIDED FLOW

3280 CROSS SECTION 6.00 EXTENDED .77 FEET

6.00	11.37	835.77	0.00	0.00	835.85	.08	.09	.02	831.60
2320.	523.	1015.	782.	350.	310.	952.	1630.	319.	827.70
8.04	1.49	3.27	.82	.070	.050	.120	.057	824.40	0.00
.000691	351.	345.	250.	2	0	0	0.00	440.56	639.85

HIGH WATER MARK
CITY OF LANSING
PUBLIC SERVICE DEPT.
835.27

*SECNO 7.000

3280 CROSS SECTION 7.00 EXTENDED 1.82 FEET

7.00	12.92	835.82	0.00	0.00	836.02	.20	.14	.04	832.00
2320.	13.	1972.	335.	30.	504.	331.	1636.	321.	830.00
8.06	.43	3.91	1.01	.120	.040	.070	.057	822.90	541.00
.000545	210.	250.	160.	2	0	0	0.00	179.00	720.00

*SECNO 8.000

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
8.00	13.14	836.04	0.00	0.00	836.13	.09	.09	.01	834.00
1500.	2.	1490.	8.	8.	618.	15.	1639.	321.	833.90
8.08	.24	2.41	.56	.120	.050	.070	.057	822.90	593.57
.000374	200.	200.	200.	2	0	0	0.00	85.76	679.32

*SECNO 9.000

9.00	9.43	836.03	0.00	0.00	836.24	.21	.08	.04	837.60
1500.	0.	1468.	32.	0.	392.	28.	1641.	321.	833.30
8.09	0.00	3.74	1.17	.120	.050	.070	.057	826.60	612.27
.001258	140.	120.	100.	2	0	0	0.00	69.66	681.94

*SECNO 10.000

3280 CROSS SECTION 10.00 EXTENDED 2.24 FEET

10.00	10.84	836.24	0.00	0.00	836.32	.08	.06	.01	834.00
1500.	3.	1407.	90.	15.	608.	85.	1643.	322.	830.00
8.11	.21	2.31	1.06	.120	.040	.050	.057	825.40	619.75
.000218	90.	140.	160.	2	0	0	0.00	102.25	722.00

CCHV= .300 CEHV= .500

*SECNO 11.000

11.00	9.88	836.23	0.00	0.00	836.35	.13	.01	.02	829.49
1500.	33.	1433.	33.	54.	490.	40.	1644.	322.	829.49
8.12	.61	2.93	.83	.070	.030	.050	.057	826.35	570.57
.000182	75.	70.	80.	2	0	0	0.00	79.81	650.38

HIGH WATER MARK
CITY OF LANSING
PUBLIC SERVICE DEPT.
836.14

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.00	1.69	3.00	0.00	40.00	0.00	447.00	1.00	826.35	826.35

*SECNO 11.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
836.52	836.36	0.00	0.	1500.	447.	469.	835.83	840.30

11.10	10.04	836.39	0.00	0.00	836.52	.13	.17	0.00	829.49
1500.	23.	1453.	23.	57.	498.	42.	1644.	322.	829.49
8.12	.41	2.92	.55	.070	.020	.050	.057	826.35	570.17
.000078	56.	56.	56.	2	0	0	0.00	80.50	650.68

CCHV= .100 CEHV= .300
*SECNO 12.000
3280 CROSS SECTION 12.00 EXTENDED 2.51 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

12.00	10.01	836.51	0.00	0.00	836.54	.03	.01	.01	830.00
1500.	52.	782.	666.	146.	469.	546.	1647.	322.	830.00
8.14	.35	1.67	1.22	.120	.040	.040	.057	826.50	445.00
.000115	110.	110.	110.	2	0	0	0.00	207.54	652.54

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 13.000

3470 ENCROACHMENT STATIONS= 140.0 620.0 TYPE= 1 TARGET= 480.000

13.00	10.08	836.58	0.00	0.00	836.61	.03	.07	.00	829.10
2160.	680.	823.	657.	874.	371.	908.	1659.	325.	831.10
8.21	.78	2.22	.72	.099	.060	.120	.056	826.50	148.81
.000442	270.	300.	360.	2	0	0	0.00	471.19	620.00

CCHV= .300 CEHV= .500
*SECNO 14.000

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 836.30 ELREA= 839.00

14.00	8.74	836.64	0.00	0.00	836.79	.15	.12	.06	833.00
2160.	53.	2107.	0.	38.	676.	0.	1668.	327.	832.10
8.24	1.38	3.12	0.00	.030	.030	.100	.056	827.90	45.58
.000366	210.	310.	360.	1	0	0	0.00	121.95	205.74

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.66	3.00	0.00	78.00	3.00	604.20	3.00	827.90	827.90

*SECNO 14.100

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
836.97	836.80	.00	4.	2162.	604.	743.	835.50	836.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.30 ELREA= 839.00

14.10	8.93	836.83	0.00	0.00	836.97	.14	.18	0.00	833.00
2160.	58.	2102.	0.	43.	693.	0.	1669.	327.	832.10
8.24	1.35	3.03	0.00	.030	.030	.100	.056	827.90	44.30
.000334	34.	34.	34.	2	0	4	0.00	124.95	205.74

*SECNO 15.000

3280 CROSS SECTION 15.00 EXTENDED 2.98 FEET

3470 ENCROACHMENT STATIONS= 1.0 290.0 TYPE= 1 TARGET= 289.000

15.00	9.88	836.98	0.00	0.00	837.05	.07	.06	.02	828.90
2160.	785.	1203.	172.	618.	468.	199.	1672.	327.	832.70
8.26	1.27	2.57	.86	.090	.070	.120	.056	827.10	19.52
.000846	120.	110.	110.	2	0	0	0.00	270.48	290.00

CCHV= .100 CEHV= .300

1490 NH CARD USED

*SECNO 16.000

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	IDC	ICONT	CORAR	TOPWID	ENDST
16.00	11.53	837.33	0.00	0.00	837.35	.02	.29	.00	833.60
2160.	1007.	685.	468.	1269.	381.	899.	1694.	333.	832.90
8.39	.79	1.80	.52	.102	.070	.120	.056	825.80	40.73
.000419	450.	510.	640.	2	0	0	0.00	681.25	733.27

1490 NH CARD USED

*SECNO 17.000

3265 DIVIDED FLOW

17.00	10.86	838.26	0.00	0.00	838.33	.07	.97	.01	836.10

2160.	534.	1165.	461.	429.	435.	525.	1759.	353.	833.10
8.62	1.24	2.68	.88	.047	.070	.120	.059	827.40	169.34
.000980	980.	2070.	1600.	2	0	0	0.00	608.34	1264.46

*SECNO 20.000

20.00	12.31	839.31	0.00	0.00	839.47	.16	1.12	.03	830.00
2160.	212.	1839.	109.	178.	532.	111.	1793.	364.	830.00
8.74	1.19	3.46	.98	.090	.055	.120	.059	827.00	158.43
.000709	1375.	1350.	1300.	2	0	0	0.00	128.14	286.57

*SECNO 21.000

21.00	10.06	840.16	0.00	0.00	840.26	.10	.78	.01	831.70
2160.	555.	1494.	112.	443.	513.	88.	1825.	370.	831.70
8.91	1.25	2.91	1.28	.060	.045	.060	.058	830.10	82.72
.000406	1480.	1475.	1480.	2	0	0	0.00	213.71	296.43

*SECNO 22.000

22.00	9.19	840.39	0.00	0.00	840.39	.00	.13	.01	832.00
2160.	1302.	222.	636.	2521.	264.	1169.	1888.	381.	832.00
9.54	.52	.84	.54	.060	.050	.060	.058	831.20	31.12
.000044	1025.	1700.	925.	2	0	0	0.00	725.51	756.64

*SECNO 23.000

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
23.00	9.03	840.43	0.00	0.00	840.59	.15	.15	.04	837.00
2160.	18.	2107.	35.	26.	663.	34.	1950.	395.	837.00
9.66	.69	3.18	1.05	.100	.050	.060	.058	831.40	300.60
.000941	1100.	1400.	1100.	2	0	0	0.00	300.64	601.24

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	30.00	4.00	548.00	1.20	832.00	832.00

*SECNO 23.100
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.22 BRIDGE VELOCITY=, 7.32 CALCULATED CHANNEL AREA=, 295.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	840.61	.03	0.	2160.	548.	410.	842.60	846.50
23.10	9.27	840.47	0.00	0.00	840.61	.14	.02	0.00	837.00
2160.	27.	2101.	32.	24.	682.	27.	1951.	395.	837.00
9.66	1.13	3.08	1.17	.060	.050	.060	.058	831.20	304.00
.000854	41.	41.	41.	0	0	0	0.00	124.00	428.00

CCHV= .300 CEHV= .500

*SECNO 24.000

24.00	9.26	840.56	0.00	0.00	840.69	.13	.08	.00	847.90

2160.	0.	2160.	0.	0.	748.	0.	1952.	395.	847.20
9.67	0.00	2.89	0.00	.060	.050	.060	.058	831.30	304.00
.000895	90.	90.	90.	1	0	0	0.00	124.00	426.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.50	0.00	30.00	4.00	713.00	2.24	832.60	832.60

*SECNO 24.500
CLASS A LOW FLOW

3420 BRIDGE W.S.= 840.44 BRIDGE VELOCITY= 6.32 CALCULATED CHANNEL AREA= 342.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	840.70	.02	0.	2160.	713.	484.	842.60	846.30

24.50	9.69	840.59	0.00	0.00	840.70	.11	.01	0.00	838.70
2160.	17.	2140.	3.	40.	784.	7.	1953.	395.	838.80
9.67	.43	2.73	.41	.090	.050	.090	.058	830.90	261.34
.000733	46.	46.	46.	0	0	0	0.00	174.32	435.66

CCHV= .100 CEHV= .300
*SECND 25.000

25.00	9.37	840.87	0.00	0.00	840.89	.02	.18	.01	836.50
2160.	457.	486.	1217.	587.	266.	1463.	1968.	399.	836.90
9.78	.78	1.83	.83	.070	.050	.070	.058	831.50	77.77
.000294	400.	400.	400.	2	0	0	0.00	725.17	802.94

*SECNO 26.000

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
26.00	8.39	841.09	0.00	0.00	841.10	.01	.21	.00	838.00
2160.	91.	243.	1827.	121.	247.	3613.	2073.	428.	835.00
10.51	.75	.98	.51	.035	.050	.070	.058	832.70	120.51
.000084	1500.	1800.	1410.	2	0	0	0.00	977.51	1098.01

*SECNO 27.000

27.00	8.80	841.30	0.00	0.00	841.33	.03	.22	.01	838.60
2160.	200.	724.	1236.	149.	336.	1780.	2176.	461.	835.40
10.82	1.34	2.15	.69	.035	.050	.070	.057	832.50	64.96
.000406	750.	1250.	1500.	1	0	0	0.00	1045.66	1110.62

CCHV= .300 CEHV= .500
*SECNO 28.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 843.60 ELREA= 843.60

28.00	8.79	841.69	0.00	0.00	841.97	.27	.52	.12	839.40
2160.	0.	2160.	0.	0.	515.	0.	2199.	471.	838.40
10.86	0.00	4.19	0.00	.060	.045	.060	.057	832.90	600.00
.001894	700.	650.	750.	2	0	0	0.00	101.00	701.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.60	0.00	30.00	3.00	434.20	2.83	833.00	833.00

*SECNO 28.500
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QFR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
842.29	841.96	.04	0.	2160.	434.	434.	841.50	844.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 843.60 ELREA= 843.60

28.50	8.29	842.09	0.00	0.00	842.29	.20	.33	0.00	840.30
2160.	0.	2160.	0.	0.	603.	0.	2200.	471.	839.60
10.86	0.00	3.58	0.00	.060	.045	.060	.057	833.80	600.00
.001138	32.	32.	32.	2	0	0	0.00	103.00	703.00

CCHV= .100 CEHV= .300
*SECNO 29.000

29.00	9.01	842.81	0.00	0.00	842.92	.11	.61	.01	838.30
2160.	737.	1410.	13.	681.	447.	17.	2211.	473.	838.60
10.93	1.08	3.16	.77	.090	.055	.090	.057	833.80	24.90
.000953	600.	590.	600.	2	0	0	0.00	294.99	319.89

*SECNO 30.000

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
30.00	10.41	844.51	0.00	0.00	844.56	.05	1.63	.01	839.00
2160.	1153.	663.	343.	1420.	281.	143.	2300.	497.	837.60
11.40	.81	2.36	2.40	.090	.055	.035	.057	834.10	115.87
.000446	2550.	2650.	2550.	3	0	0	0.00	498.35	614.22
31.00	9.41	844.91	0.00	0.00	844.92	.01	.36	.00	837.90
2160.	12.	332.	1816.	31.	262.	2227.	2376.	515.	839.90
11.89	.39	1.27	.82	.090	.055	.060	.057	835.50	7.10
.000145	1490.	1750.	1490.	2	0	0	0.00	559.92	567.03
32.00	8.86	845.76	0.00	0.00	845.78	.02	.85	.00	839.80
2160.	461.	857.	842.	507.	491.	1462.	2601.	578.	843.30
12.92	.91	1.75	.58	.080	.055	.080	.058	836.90	30.05
.000318	3100.	5250.	3800.	2	0	0	0.00	873.62	903.67

CCHV= .300 CEHV= .500
*SECNO 33.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

33.00	9.87	846.17	0.00	0.00	846.45	.28	.54	.13	842.30
2160.	0.	2160.	0.	0.	505.	0.	2633.	588.	841.60
12.98	0.00	4.28	0.00	.060	.050	.060	.058	836.30	288.00
.001455	920.	900.	950.	2	0	0	0.00	62.00	350.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.60	0.00	40.00	0.00	450.00	1.25	835.60	835.60

*SECNO 33.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
846.72	845.74	0.00	0.	2160.	450.	449.	844.40	848.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 848.20 ELREA= 848.20

33.09	10.91	846.51	0.00	0.00	846.72	.21	.27	0.00	844.30
2160.	0.	2160.	0.	0.	583.	0.	2633.	588.	844.40
12.98	0.00	3.71	0.00	.060	.050	.060	.058	835.60	288.00
.001019	31.	31.	31.	2	0	0	0.00	62.00	350.00

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HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
ERROR CORR - 01
MODIFICATION - 50,51,52
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READY 14.36.36

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************


T1
T2      10 YEAR FLOOD
T3        SYCAMORE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        2.        0.        0.  0.000000      0.00      0.0       0.   828.110     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   203.000    89.000   120.000   271.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT    NUMSEC                    ********REQUESTED SECTION NUMBERS*********

     -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .090      .090      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT      5.000  1690.000  2230.000  2530.000  3120.000  2530.000     0.000     0.000     0.000     0.000

X1      1.000    18.000   421.000   487.000     0.000     0.000     0.000     0.000      .970     0.000
GR    840.000     0.000   836.600   100.000   837.200   200.000   833.500   260.000   819.500   291.000
GR    820.100   421.000   818.100   422.000   815.900   432.000   815.000   452.000   816.100   472.000
GR    818.100   483.000   819.700   487.000   818.800   600.000   820.800   800.000   819.500  1000.000
GR    821.700  1200.000   823.900  1367.000   840.800  1422.000     0.000     0.000     0.000     0.000

X1      2.000    26.000   391.000   450.000   390.000   640.000   600.000     0.000     0.000     0.000
GR    836.000     0.000   834.000    30.000   832.000    50.000   830.000   135.000   828.000   145.000
GR    826.000   205.000   824.000   245.000   822.000   265.000   820.000   275.000   819.400   310.000
GR    818.400   391.000   815.900   401.000   815.500   411.000   816.100   421.000   818.400   432.000
GR    819.000   450.000   820.000   480.000   828.000   505.000   830.000   545.000   833.000   580.000
GR    863.000   580.000   863.000   750.000   834.500   750.000   835.000   815.000   836.000   870.000
GR    838.000   950.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC       .035     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000

X1      3.000    22.000   802.000   908.000   660.000   500.000   650.000     0.000      .970     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   828.970   828.970     0.000
GR    840.800     0.000   839.000    70.000   835.600   170.000   834.200   270.000   831.400   400.000
GR    829.400   600.000   829.000   643.000   825.100   790.000   822.300   802.000   821.200   808.000
GR    817.400   820.000   814.300   853.000   814.300   857.000   817.400   887.000   822.100   902.000
GR    823.000   908.000   825.700   915.000   828.500  1200.000   829.800  1400.000   834.100  1600.000
GR    838.100  1800.000   840.600  1820.000     0.000     0.000     0.000     0.000     0.000     0.000
SB      1.250     1.560     2.600     0.000    60.000     4.000   787.000     1.050   814.970   814.970

X1      3.500    23.000   802.000   908.000    66.000    66.000    66.000     0.000      .970     0.000
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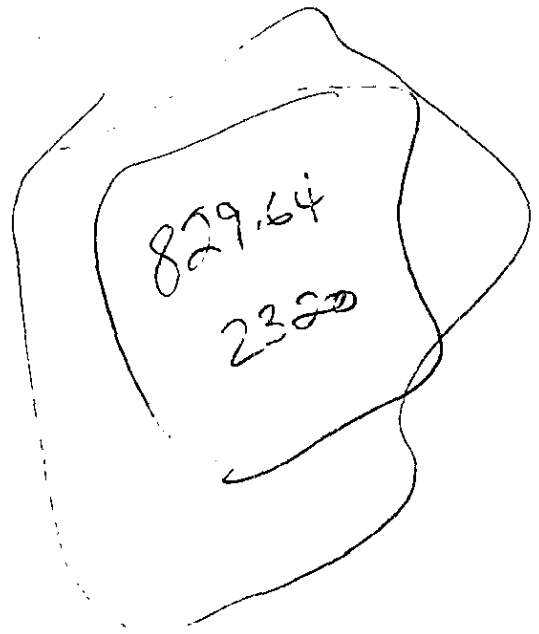
X2	0.000	0.000	1.000	825.970	822.970	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	[illegible]	[illegible]	0.000
BT	17.000	0.000	841.770	0.000	70.000	839.970	0.000	170.000	836.570	0.000
BT	270.000	835.170	0.000	400.000	832.370	0.000	600.000	830.370	0.000	700.000
BT	830.070	0.000	802.000	832.470	823.070	802.000	832.470	825.970	908.000	832.470
BT	825.970	908.000	832.470	823.370	1000.000	828.970	0.000	1200.000	829.470	0.000
BT	1400.000	830.770	0.000	1600.000	835.070	0.000	1800.000	839.070	0.000	1820.000
BT	841.570	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.800	0.000	839.000	70.000	835.600	170.000	834.200	270.000	831.400	400.000
GR	829.400	600.000	829.100	700.000	828.000	790.000	822.100	802.000	821.600	808.000
GR	817.400	820.000	812.400	853.000	813.400	857.000	817.400	887.000	820.800	902.000
GR	822.400	908.000	826.300	920.000	828.000	1000.000	828.500	1200.000	829.800	1400.000
GR	834.100	1600.000	838.100	1800.000	840.600	1820.000	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	9.000	.080	20.000	.800	60.000	.080	100.000	.800	138.000	.080
NH	230.000	.800	280.000	.035	1140.000	.045	1200.000	.080	1445.000	0.000
X1	4.000	24.000	1140.000	1200.000	1060.000	1200.000	1800.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	20.000	836.000	60.000	834.000	100.000	832.500	138.000
GR	831.000	230.000	830.000	360.000	828.000	482.000	826.000	495.000	824.000	680.000
GR	820.000	840.000	819.500	1140.000	818.900	1145.000	817.600	1155.000	816.700	1162.000
GR	817.800	1172.000	819.800	1182.000	820.000	1200.000	820.000	1240.000	819.800	1242.000
GR	819.800	1330.000	820.000	1350.000	823.000	1405.000	840.000	1445.000	0.000	0.000
NH	11.000	.080	35.000	.800	55.000	.080	115.000	.800	135.000	.080
NH	152.000	.800	180.000	.080	272.000	.800	350.000	.035	870.000	.045
NH	930.000	.080	2020.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	20.000	870.000	930.000	1700.000	1750.000	2500.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	35.000	833.000	115.000	833.000	135.000	833.000	152.000
GR	833.000	180.000	832.000	350.000	830.000	715.000	824.000	785.000	822.000	870.000
GR	821.100	887.000	819.000	897.000	818.100	907.000	819.200	917.000	819.800	925.000
GR	819.900	930.000	820.000	1085.000	822.000	1780.000	832.000	1810.000	840.000	2020.000
NC	.100	.100	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	38.000	895.000	928.000	10000.000	1300.000	1775.000	0.000	.970	0.000
GR	841.700	0.000	833.700	200.000	830.100	400.000	825.300	480.000	822.700	500.000
GR	824.300	700.000	828.800	895.000	828.300	899.000	826.700	899.000	826.700	903.000
GR	825.200	904.000	823.700	906.000	823.600	921.000	824.300	923.000	826.700	924.000
GR	826.700	926.000	828.300	926.000	828.300	928.000	827.300	1100.000	829.300	1232.000
GR	829.300	1239.000	826.900	1239.000	826.900	1241.000	826.000	1242.000	823.100	1246.000
GR	823.500	1266.000	823.700	1268.000	823.600	1283.000	826.000	1293.000	826.900	1294.000
GR	826.900	1296.000	829.300	1296.000	829.300	1300.000	825.300	1500.000	826.300	1700.000
GR	839.000	1850.000	834.000	1900.000	842.300	1980.000	0.000	0.000	0.000	0.000
X1	7.000	29.000	1025.000	1075.000	1940.000	1900.000	2825.000	0.000	.970	0.000
GR	841.000	0.000	840.000	20.000	829.000	55.000	829.500	113.000	827.600	125.000
GR	829.900	260.000	825.000	280.000	826.100	400.000	826.000	600.000	826.800	665.000
GR	823.800	670.000	821.800	673.000	821.800	685.000	823.800	688.000	826.200	691.000
GR	824.000	800.000	825.000	1000.000	825.200	1025.000	823.700	1030.000	820.600	1040.000
GR	821.200	1060.000	823.700	1070.000	825.300	1075.000	825.000	1100.000	824.200	1300.000
GR	824.400	1500.000	824.600	1700.000	824.600	1770.000	850.000	1800.000	0.000	0.000
NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.000	23.000	1100.000	1150.000	820.000	800.000	825.000	0.000	.970	0.000
GR	840.900	0.000	837.700	200.000	833.000	400.000	830.300	500.000	829.800	700.000
GR	829.600	900.000	829.100	1100.000	825.500	1111.000	822.300	1121.000	820.800	1131.000
GR	825.500	1142.000	829.300	1150.000	829.500	1173.000	825.500	1181.000	823.600	1200.000
GR	822.300	1300.000	825.500	1312.000	830.700	1320.000	830.600	1400.000	831.100	1600.000
GR	830.200	1650.000	840.700	1700.000	849.700	1800.000	0.000	0.000	0.000	0.000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X1	9.000	18.000	300.000	346.000	1430.000	1550.000	1550.000	0.000	.970	0.000
GR	841.100	0.000	833.800	21.000	833.600	100.000	830.900	200.000	830.300	235.000
GR	825.300	256.000	828.600	275.000	826.500	300.000	821.200	305.000	820.000	318.000
GR	820.200	325.000	820.000	339.000	821.200	341.000	826.200	346.000	824.600	400.000
GR	826.400	500.000	826.400	600.000	842.100	650.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	19.000	844.000	900.000	1100.000	1100.000	1230.000	0.000	.970	0.000
GR	843.300	0.000	835.000	200.000	834.500	400.000	834.400	600.000	834.200	800.000
GR	833.500	818.000	828.100	844.000	826.400	847.000	824.900	848.000	822.100	867.000
GR	824.600	890.000	826.400	894.000	827.700	900.000	829.000	1000.000	833.300	1200.000
GR	834.000	1400.000	837.200	1600.000	837.500	1800.000	843.400	2000.000	0.000	0.000
NC	.080	.090	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.000	19.000	1267.000	1339.000	50.000	475.000	450.000	0.000	.970	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
GR	843.400	0.000	835.100	200.000	835.000	400.000	834.600	600.000	834.300	800.000
GR	834.200	1000.000	834.200	1021.000	830.400	1200.000	826.500	1267.000	823.400	1274.000
GR	822.600	1292.000	822.600	1296.000	825.400	1331.000	825.400	1335.000	826.500	1339.000
GR	830.600	1354.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	20.000	3.000	550.000	3.700	823.970	823.970
X1	11.500	19.000	1267.000	1339.000	31.000	31.000	31.000	0.000	.970	0.000
X2	0.000	0.000	1.000	833.220	835.170	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	835.170	835.170	0.000
BT	13.000	0.000	844.370	0.000	200.000	836.070	0.000	400.000	833.370	0.000
BT	600.000	833.970	0.000	800.000	835.270	0.000	1000.000	835.170	0.000	1021.000
BT	835.170	0.000	1200.000	835.570	831.370	1267.000	835.770	827.470	1274.000	835.770
BT	833.020	1354.000	835.870	832.220	1410.000	836.470	0.000	1600.000	841.370	0.000
GR	843.400	0.000	835.100	200.000	832.400	400.000	828.500	500.000	828.200	1000.000
GR	828.600	1200.000	826.500	1267.000	823.400	1274.000	822.700	1292.000	822.700	1296.000
GR	824.200	1331.000	824.200	1335.000	826.500	1339.000	828.000	1354.000	832.200	1354.000
GR	835.000	1356.000	835.500	1410.000	840.400	1600.000	844.600	1700.000	0.000	0.000
NC	.100	.100	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	12.000	24.000	920.000	978.000	680.000	680.000	690.000	0.000	0.000	0.000
GR	845.300	0.000	843.000	175.000	828.000	230.000	830.000	350.000	833.000	435.000
GR	834.000	485.000	836.000	540.000	838.000	603.000	839.000	627.000	834.000	760.000
GR	831.000	825.000	830.000	865.000	828.000	875.000	826.000	920.000	824.700	930.000
GR	823.400	937.000	822.600	955.000	824.700	975.000	826.000	978.000	828.000	1000.000
GR	830.000	1005.000	832.000	1195.000	834.000	1230.000	842.000	1280.000	0.000	0.000
NC	.120	.120	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	1.100	30.000	540.000	605.000	1075.000	1050.000	1260.000	0.000	0.000	0.000
GR	842.700	0.000	836.900	100.000	837.500	200.000	837.500	400.000	829.500	525.000
GR	829.500	527.000	829.500	527.010	828.700	540.000	826.000	541.000	826.000	541.010
GR	826.000	543.000	826.000	543.010	822.700	557.000	822.700	557.010	823.700	559.000
GR	823.700	559.010	822.600	573.000	822.600	573.010	823.200	575.000	823.200	575.000
GR	828.000	590.000	828.000	590.010	828.400	591.000	828.400	591.010	828.700	592.000
GR	829.700	605.000	829.700	605.010	829.700	607.000	836.800	620.000	837.600	700.000
X1	1.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	27.000	0.000	842.700	0.000	100.000	836.900	0.000	200.000	837.500	0.000
BT	400.000	837.500	0.000	525.000	839.500	0.000	527.000	839.400	829.500	527.010
BT	839.400	837.300	541.000	839.500	837.300	541.010	839.500	826.000	543.000	839.500

BT	826.000	543.010	839.500	837.400	557.000	839.500	837.500	557.010	839.500	822.700
BT	559.000	839.500	822.700	559.010	839.500	837.500	573.000	839.600	837.700	573.010
BT	839.600	822.600	575.000	839.600	823.200	575.010	839.600	837.500	590.000	839.600
BT	837.500	590.010	839.700	828.000	591.000	839.700	828.400	591.010	839.700	837.500
BT	605.000	839.700	837.600	605.000	839.700	829.700	607.000	839.700	0.000	700.000
BT	840.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.300	0.000	0.000	0.000	10.000	10.000	10.000	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	1.400	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	2.000	13.000	293.000	368.000	48.000	43.000	43.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	120.000	836.000	240.000	834.000	265.000	832.000	275.000
GR	830.000	285.000	828.700	293.000	822.600	330.000	828.700	350.000	830.000	355.000
GR	832.000	360.000	836.000	368.000	836.700	380.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.070	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	3.000	15.000	465.000	496.000	358.000	367.000	398.000	0.000	0.000	0.000
GR	838.000	0.000	836.700	260.000	836.700	280.000	830.800	288.000	829.200	360.000
GR	829.200	465.000	824.900	467.000	824.200	469.000	822.500	479.000	824.800	496.000
GR	828.000	499.000	829.200	545.000	829.600	562.000	830.000	569.000	840.000	590.000
X1	4.000	16.000	140.000	170.000	409.000	397.000	430.000	0.000	0.000	0.000
GR	828.200	0.000	828.000	26.000	830.400	50.000	829.100	121.000	826.600	140.000
GR	826.000	145.000	825.200	149.000	824.400	158.000	825.100	166.000	828.500	170.000
GR	828.000	270.000	832.000	363.000	834.000	385.000	836.000	470.000	838.000	550.000
GR	840.000	745.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	14.000	164.000	232.000	240.000	132.000	231.000	0.000	0.000	0.000
GR	832.000	0.000	830.000	30.000	828.000	164.000	826.300	170.000	824.400	205.000
GR	826.300	225.000	828.000	232.000	830.000	342.000	834.000	360.000	836.000	420.000
GR	836.000	520.000	838.000	626.000	838.000	749.000	840.000	770.000	0.000	0.000
NC	.070	.120	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	23.000	303.000	337.000	351.000	250.000	345.000	0.000	0.000	0.000
GR	835.000	0.000	834.000	10.000	834.000	40.000	836.000	50.000	838.000	130.000
GR	837.000	230.000	837.400	243.000	828.800	270.000	829.500	290.000	831.600	303.000
GR	826.200	316.000	824.700	318.000	824.700	321.000	824.400	325.000	826.200	335.000
GR	827.700	337.000	830.600	360.000	831.700	386.000	832.000	530.000	834.000	540.000
GR	836.000	653.000	838.000	830.000	840.000	850.000	0.000	0.000	0.000	0.000
NC	.120	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	12.000	558.000	607.000	210.000	160.000	250.000	0.000	0.000	0.000
GR	835.000	541.000	834.000	553.000	832.000	558.000	826.700	566.000	823.900	574.000
GR	822.900	585.000	823.500	591.000	825.000	597.000	826.900	602.000	830.000	607.000
GR	832.000	613.000	834.000	720.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	1520.000	1380.000	1230.000	1070.000	1230.000	0.000	0.000	0.000	0.000
X1	8.000	15.000	602.000	669.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	838.500	545.000	838.000	572.000	836.000	594.000	834.000	602.000	830.000	609.000
GR	826.900	613.000	823.900	623.000	822.900	634.000	823.500	642.000	825.000	650.000
GR	826.900	654.000	828.400	655.000	833.900	669.000	834.600	676.000	839.800	688.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000	
X2	0.000	0.000	1.000	835.500	836.300	0.000	0.000	.707	0.000	
X1	14.100	0.000	0.000	0.000	34.000	34.000	0.000	0.000	0.000	
SB	.900	1.660	3.000	0.000	78.000	3.000	604.200	827.900	827.900	
GR	832.100	291.000	832.100	291.100	833.400	491.000	835.200	691.000	839.100	891.000
GR	835.500	219.100	835.500	222.000	827.900	222.100	828.300	241.000	831.200	276.000
GR	833.000	153.000	833.000	153.100	831.200	165.000	828.300	191.000	827.900	219.000
GR	852.900	0.000	837.200	59.000	836.300	68.000	839.100	83.000	839.030	105.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	836.300	839.000	0.000
X1	14.000	20.000	153.100	291.000	210.000	360.000	310.000	.707	0.000	0.000
NC	.030	.100	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
GR	844.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	834.000	760.000	836.000	781.000	838.000	796.000	840.000	825.000	842.000	847.000
GR	826.500	405.000	827.100	415.000	829.100	423.000	831.100	426.000	832.000	537.000
GR	832.400	280.000	832.300	300.000	832.100	380.000	829.100	385.000	826.800	395.000
GR	838.000	837.800	0.000	140.000	836.000	153.000	834.000	168.000	833.300	210.000
X1	13.000	21.000	385.000	426.000	270.000	360.000	300.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	140.000	620.000
NH	870.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.030	168.000	.050	210.000	.120	385.000	.060	426.000	.120
DT	5.000	1520.000	2060.000	2280.000	2930.000	2280.000	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
GR	836.000	650.000	838.000	660.000	840.000	665.000	842.000	676.000	0.000	0.000
GR	827.100	513.000	830.000	532.000	830.000	567.000	832.000	610.000	834.000	620.000
GR	834.000	445.000	832.000	463.000	830.000	478.000	826.800	493.000	826.500	503.000
XI	12.000	14.000	478.000	532.000	110.000	110.000	110.000	0.000	0.000	0.000

NC	.120	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.000	10.000	610.000	667.000	140.000	100.000	120.000	0.000	0.000	0.000
GR	839.600	603.000	837.600	610.000	829.300	622.000	827.300	625.000	826.900	628.000
GR	826.600	641.000	827.300	653.000	833.300	667.000	834.700	680.000	839.500	687.000
NC	.120	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	12.000	634.000	702.000	90.000	160.000	140.000	0.000	0.000	0.000
GR	839.400	580.000	838.000	603.000	836.000	622.000	834.000	634.000	830.000	640.000
GR	827.500	649.000	826.000	660.000	825.400	672.000	826.000	685.000	827.500	695.000
GR	830.000	702.000	834.000	722.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.050	.030	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.000	11.000	590.100	650.000	75.000	80.000	70.000	.866	0.000	0.000
GR	839.000	564.000	829.490	590.000	829.490	590.100	826.700	596.000	826.350	620.000
GR	826.500	644.000	829.490	650.000	829.490	650.100	840.300	672.000	840.300	672.100
GR	841.000	730.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.000	1.690	3.000	0.000	40.000	0.000	447.000	1.000	826.350	826.350
X1	11.100	0.000	0.000	56.000	56.000	56.000	56.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	835.830	840.300	0.000	0.000	0.000	.866	0.000
BT	8.000	564.000	841.600	0.000	590.000	841.680	0.000	590.100	841.680	835.060
BT	650.000	842.450	835.830	650.100	842.450	0.000	672.000	842.900	0.000	672.100
BT	840.300	0.000	730.000	841.000	.300	.100	.040	.040	0.000	0.000
NC	.120	.040	.040	.100	.300	0.000	0.000	0.000	0.000	0.000

BT	12.000	0.000	852.900	0.000	59.000	837.200	0.000	68.000	836.300	0.000
BT	83.000	839.100	0.000	105.000	839.030	0.000	153.000	839.200	0.000	153.100
BT	841.700	835.500	291.000	841.700	835.500	291.100	839.200	0.000	491.000	839.200
BT	0.000	691.000	839.000	0.000	891.000	841.000	0.000	0.000	0.000	0.000
NC	.090	.120	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.000	18.000	186.000	240.000	120.000	110.000	110.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1.000	0.000	290.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	15.000	834.000	24.000	832.700	29.000	832.700	105.000
GR	834.000	115.000	836.000	125.000	836.000	135.000	835.500	153.000	829.800	175.000
GR	828.900	186.000	828.600	191.000	827.300	207.000	827.100	220.000	828.600	230.000
GR	832.700	240.000	834.000	350.000	834.000	770.000	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	.120	100.000	.100	330.000	.120	362.000	.070	402.000	.120
NH	833.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.000	24.000	362.000	402.000	450.000	640.000	510.000	0.000	0.000	0.000
GR	846.000	0.000	840.000	24.000	838.000	34.000	836.000	54.000	834.000	73.000
GR	832.700	100.000	832.700	330.000	838.000	345.000	838.000	353.000	833.600	362.000
GR	828.800	365.000	827.800	365.100	827.000	370.000	825.800	380.000	827.400	390.000
GR	828.800	397.000	832.900	402.000	833.000	435.000	834.000	490.000	836.000	720.000
GR	838.000	740.000	840.000	788.000	842.000	821.000	844.000	833.000	0.000	0.000
NH	4.000	.040	460.000	.120	984.000	.070	1033.000	.120	1283.000	0.000
X1	17.000	26.000	984.000	1033.000	980.000	1600.000	2070.000	0.000	0.000	0.000
GR	841.400	0.000	840.000	165.000	838.000	170.000	835.400	260.000	839.900	460.000
GR	840.000	560.000	839.900	660.000	839.200	760.000	838.500	860.000	836.800	960.000
GR	836.100	984.000	830.400	987.000	827.900	992.000	827.400	1000.000	827.400	1008.000
GR	830.000	1018.000	830.400	1024.000	833.100	1033.000	833.700	1044.000	835.900	1055.000
GR	831.600	1081.000	832.700	1099.000	836.700	1110.000	837.500	1210.000	837.100	1260.000
GR	843.100	1283.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20.000	28.000	210.000	260.000	1375.000	1300.000	1350.000	0.000	0.000	0.000
GR	860.000	0.000	858.000	50.000	856.000	60.000	850.000	75.000	848.000	110.000
GR	840.000	155.000	838.000	165.000	836.000	190.000	834.000	200.000	832.000	205.000
GR	830.000	210.000	829.700	211.000	829.000	217.000	828.000	223.000	827.000	225.000
GR	828.000	234.000	829.000	247.000	829.700	256.000	830.000	260.000	836.000	275.000
GR	838.000	280.000	840.000	290.000	850.000	340.000	852.000	405.000	854.000	445.000
GR	856.000	490.000	858.000	520.000	856.000	555.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.000	10.000	213.000	269.000	1480.000	1480.000	1475.000	0.000	0.000	0.000
GR	845.700	0.000	839.000	100.000	834.500	200.000	831.700	213.000	831.300	229.000
GR	830.100	250.000	831.700	269.000	838.400	284.000	844.200	325.000	846.500	340.000
NC	0.000	0.000	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.000	23.000	505.000	535.000	1025.000	925.000	1700.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	15.000	840.000	35.000	838.000	45.000	836.000	120.000
GR	834.400	255.000	834.400	285.000	835.000	340.000	834.200	370.000	834.000	390.000
GR	834.000	480.000	832.000	505.000	831.600	509.000	831.200	520.000	831.600	526.000
GR	832.000	535.000	834.000	565.000	834.000	680.000	836.000	695.000	838.000	725.000
GR	840.000	745.000	842.000	805.000	844.000	855.000	0.000	0.000	0.000	0.000
NC	.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23.000	15.000	315.000	416.000	1100.000	1100.000	1400.000	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	851.500	0.000	844.600	200.000	840.600	300.000	839.500	304.000	839.500	304.000
GR	837.000	315.000	832.500	364.000	832.200	368.000	831.400	390.000	837.000	416.000
GR	839.400	428.000	839.400	428.000	840.400	430.000	840.400	600.000	846.000	800.000
NC	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	30.000	4.000	548.000	1.200	832.000	832.000
X1	23.100	15.000	315.000	416.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.500	0.000	0.000	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
BT	8.000	0.000	851.500	0.000	200.000	848.600	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	428.000	849.500	841.900	428.000	849.500	839.400	600.000
BT	847.200	0.000	800.000	849.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	845.900	200.000	847.900	304.000	842.600	304.000	839.600	304.000
GR	837.000	315.000	832.000	364.000	832.400	368.000	831.200	390.000	837.000	416.000
GR	839.400	428.000	841.900	428.000	847.100	428.000	844.500	600.000	846.000	800.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	24.000	15.000	304.000	428.000	90.000	90.000	90.000	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	849.300	0.000	845.900	200.000	847.900	304.000	839.600	304.000	837.000	315.000
GR	833.800	340.000	832.600	364.000	832.600	368.000	831.300	390.000	837.000	416.000
GR	839.100	428.000	841.700	428.000	847.200	428.000	844.500	600.000	846.000	800.000
NC	.090	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.500	2.500	0.000	30.000	4.000	713.000	2.240	832.600	832.600
X1	24.500	14.000	304.000	428.000	46.000	46.000	46.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.600	846.300	0.000	0.000	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
BT	10.000	0.000	852.500	0.000	200.000	848.900	0.000	304.000	850.200	839.600
BT	304.000	850.200	842.600	366.000	849.900	842.300	428.000	849.300	841.700	428.000
BT	849.900	838.800	600.000	846.800	0.000	800.000	848.300	0.000	1000.000	849.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.300	0.000	843.300	200.000	838.700	304.000	837.000	315.000	833.500	340.000
GR	832.400	364.000	832.200	368.000	830.900	390.000	837.000	416.000	838.800	428.000
GR	841.600	440.000	841.600	600.000	842.600	800.000	846.500	1000.000	0.000	0.000
NC	.070	.070	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	25.000	17.000	281.000	318.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	847.400	0.000	839.000	100.000	837.600	200.000	836.500	281.000	833.900	291.000
GR	832.300	299.000	831.500	300.000	832.400	305.000	833.900	315.000	836.900	318.000
GR	836.600	350.000	836.600	400.000	837.100	500.000	837.300	600.000	839.300	690.000
GR	840.300	800.000	846.100	830.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	26.000	22.000	168.000	202.000	1500.000	1410.000	1800.000	0.000	0.000	0.000
GR	851.700	0.000	848.400	92.000	838.400	131.000	838.000	168.000	835.000	170.000
GR	832.700	181.000	833.300	192.000	835.000	202.000	837.700	216.000	837.700	300.000
GR	837.900	400.000	836.300	500.000	835.000	505.000	833.800	525.000	835.000	538.000
GR	836.800	546.000	836.600	600.000	836.700	700.000	836.500	800.000	836.600	900.000
GR	836.700	1000.000	847.900	1250.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	27.000	18.000	150.000	198.000	750.000	1500.000	1250.000	0.000	0.000	0.000
GR	851.000	0.000	841.300	65.000	839.400	100.000	838.600	150.000	835.400	155.000
GR	832.500	169.000	834.200	185.000	835.400	198.000	837.300	219.000	839.100	250.000
GR	839.900	300.000	839.100	400.000	839.300	600.000	839.500	800.000	839.800	1000.000
GR	839.500	1100.000	848.000	1150.000	850.300	1200.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	28.000	15.000	600.000	701.000	700.000	750.000	650.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	839.400	600.000
GR	837.600	620.000	835.900	639.000	836.100	641.000	836.400	660.000	832.900	680.000
GR	835.800	682.000	838.400	701.000	840.500	703.000	838.900	800.000	843.000	1000.000
NC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	30.000	3.000	434.200	2.830	833.000	833.000
X1	28.500	16.000	600.000	703.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	841.500	844.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	843.600	843.600	0.000
BT	14.000	0.000	848.500	0.000	200.000	845.400	0.000	400.000	845.200	0.000
BT	500.000	844.700	0.000	600.000	844.000	0.000	620.000	844.000	837.600	620.000
BT	847.700	841.500	639.000	847.700	841.000	680.000	847.700	841.000	701.000	847.700
BT	841.500	701.000	844.000	838.400	800.000	843.600	0.000	1000.000	844.800	0.000
BT	1200.000	848.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	848.500	0.000	845.400	200.000	845.200	400.000	839.000	500.000	840.300	600.000
GR	836.800	620.000	836.100	639.000	836.100	641.000	834.400	660.000	833.800	680.000
GR	834.700	682.000	838.800	701.000	839.600	703.000	840.300	800.000	844.800	1000.000
GR	848.500	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.055	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	29.000	13.000	253.000	312.000	600.000	600.000	590.000	0.000	0.000	0.000
GR	849.000	0.000	839.800	37.000	840.600	100.000	839.300	200.000	838.300	253.000
GR	836.200	260.000	834.800	276.000	833.800	288.000	835.200	306.000	836.200	310.000
GR	838.600	312.000	846.600	327.000	849.300	335.000	0.000	0.000	0.000	0.000
NC	0.000	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.000	18.000	545.000	577.000	2550.000	2550.000	2650.000	0.000	0.000	0.000
GR	849.300	0.000	848.200	50.000	842.600	150.000	841.300	250.000	840.900	350.000
GR	840.700	450.000	840.300	500.000	839.000	545.000	837.600	550.000	835.400	554.000
GR	834.100	560.000	835.100	572.000	837.600	577.000	840.000	590.000	840.700	600.000
GR	847.400	625.000	848.200	650.000	850.100	750.000	0.000	0.000	0.000	0.000
NC	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	31.000	12.000	16.000	49.000	1490.000	1490.000	1750.000	0.000	0.000	0.000
GR	850.500	0.000	837.900	16.000	835.500	25.000	837.200	38.000	837.900	46.000
GR	839.900	49.000	839.500	150.000	838.900	250.000	842.300	350.000	841.200	450.000
GR	841.500	550.000	850.500	595.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	32.000	14.000	148.000	218.000	3100.000	3800.000	5250.000	0.000	0.000	0.000
GR	852.900	0.000	842.200	45.000	841.100	100.000	839.800	148.000	836.900	156.000
GR	839.100	200.000	839.800	207.000	843.300	218.000	842.400	300.000	843.300	400.000
GR	843.600	600.000	844.200	800.000	845.300	900.000	851.500	950.000	0.000	0.000
NC	.060	.060	.050	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	33.000	16.000	288.000	350.000	920.000	950.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
GR	854.600	0.000	848.600	100.000	845.700	200.000	842.300	288.000	842.300	288.000
GR	838.900	299.000	838.000	300.000	836.300	319.000	838.000	340.000	838.900	349.000
GR	841.600	350.000	841.600	350.000	843.700	400.000	844.500	500.000	848.300	600.000
GR	852.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.560	2.600	0.000	40.000	0.000	450.000	1.250	835.600	835.600
X1	33.090	14.000	288.000	350.000	31.000	31.000	31.000	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
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	848.200	848.200	0.000
BT	9.000	0.000	852.200	0.000	100.000	850.300	0.000	200.000	848.800	0.000
BT	288.000	848.200	844.300	350.000	848.200	844.400	400.000	848.500	0.000	500.000
BT	849.100	0.000	600.000	850.300	0.000	700.000	852.300	0.000	0.000	0.000
GR	852.600	0.000	848.400	100.000	845.800	200.000	844.300	288.000	838.900	288.000
GR	837.200	300.000	835.600	319.000	837.700	340.000	838.900	350.000	844.400	350.000
GR	843.400	400.000	845.700	500.000	849.100	600.000	852.600	700.000	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 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1
T2      50 YEAR FLOOD
T3      SYCAMORE CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.000000	0.00	0.0	0.	834.000	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

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1
T2      100 YEAR FLOOD
T3      SYCAMORE CREEK
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	835.460	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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

T1
T2      500 YEAR FLOOD
T3      SYCAMORE CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.      5.        0.        0.  0.000000      0.00      0.0       0.   838.600     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

**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

 SYCAMORE CREEK

SUMMARY PRINTOUT TABLE  150

     SECNO      XLCH      ELTRD     ELLC      ELMIN      Q         CWSEL     CRIWS     EG        10K*S     VCH       AREA      .01K
     1.000      0.00      0.00      0.00      815.97   1690.00    828.11     0.00     828.11      .11       .52     7544.70   5182.12
     1.000      0.00      0.00      0.00      815.97   2230.00    834.00     0.00     834.00      .03       .34    14138.94  13900.55
     1.000      0.00      0.00      0.00      815.97   2530.00    835.46     0.00     835.46      .02       .34    15809.72  16597.68
     1.000      0.00      0.00      0.00      815.97   3120.00    838.60     0.00     838.60      .02       .34    19627.41  23111.01

     2.000    600.00      0.00      0.00      815.50   1690.00    828.11     0.00     828.13      .61      1.27     2413.60   2158.23
     2.000    600.00      0.00      0.00      815.50   2230.00    834.00     0.00     834.00      .16       .87     5145.02   5518.49
     2.000    600.00      0.00      0.00      815.50   2530.00    835.46     0.00     835.46      .14       .86     6016.04   6674.97
     2.000    600.00      0.00      0.00      815.50   3120.00    838.60     0.00     838.60      .10       .81     8331.77   9728.27

     3.000    650.00      0.00      0.00      815.27   1690.00    828.15     0.00     828.20     1.25      1.64     1031.07   1512.43
     3.000    650.00      0.00      0.00      815.27   2230.00    834.01     0.00     834.01      .11       .67     6170.85   6755.84
     3.000    650.00      0.00      0.00      815.27   2530.00    835.47     0.00     835.47      .07       .59     8060.75   9330.33
     3.000    650.00      0.00      0.00      815.27   3120.00    838.61     0.00     838.61      .03       .44    12874.33  17020.69

     3.500     66.00    828.97    825.97      813.37   1690.00    828.16     0.00     828.20     1.02      1.54     1095.39   1671.69
     3.500     66.00    822.97    825.97      813.37   2230.00    834.04     0.00     834.04      .13       .75     5778.92   6232.69
     3.500     66.00    822.97    825.97      813.37   2530.00    835.50     0.00     835.50      .08       .64     7672.07   8690.27
     3.500     66.00    822.97    825.97      813.37   3120.00    838.63     0.00     838.63      .04       .48    12490.28  16153.32

     4.000   1800.00      0.00      0.00      816.70   1690.00    828.22     0.00     828.22      .04       .29     6377.58   8534.83
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4.000	1800.00	0.00	0.00	816.70	2230.00	834.04	0.00	834.04	.01	.19	13192.54	24534.79
4.000	1800.00	0.00	0.00	816.70	2530.00	835.50	0.00	835.50	.01	.18	15153.37	29970.00
4.000	1800.00	0.00	0.00	816.70	3120.00	838.64	0.00	838.64	.01	.17	19533.73	43415.96
5.000	2500.00	0.00	0.00	818.10	1690.00	828.23	0.00	828.23	.08	.39	7413.22	5802.45
5.000	2500.00	0.00	0.00	818.10	2230.00	834.05	0.00	834.05	.02	.25	15260.35	17249.19
5.000	2500.00	0.00	0.00	818.10	2530.00	835.50	0.00	835.50	.01	.24	17880.25	21537.23
5.000	2500.00	0.00	0.00	818.10	3120.00	838.64	0.00	838.64	.01	.22	23805.88	32523.54
6.000	1775.00	0.00	0.00	823.67	1690.00	828.35	0.00	828.37	10.14	1.31	1781.43	530.68
6.000	1775.00	0.00	0.00	823.67	2230.00	834.06	0.00	834.06	.20	.36	9291.85	4991.18
6.000	1775.00	0.00	0.00	823.67	2530.00	835.52	0.00	835.52	.13	.33	11596.95	6945.38
6.000	1775.00	0.00	0.00	823.67	3120.00	838.65	0.00	838.65	.06	.28	16975.88	12257.57
7.000	2825.00	0.00	0.00	821.57	1690.00	828.88	0.00	828.88	1.14	.77	4619.83	1581.67
7.000	2825.00	0.00	0.00	821.57	2230.00	834.09	0.00	834.09	.07	.30	13401.18	8169.49
7.000	2825.00	0.00	0.00	821.57	2530.00	835.53	0.00	835.53	.06	.28	15918.66	10773.92
7.000	2825.00	0.00	0.00	821.57	3120.00	838.65	0.00	838.65	.03	.25	21384.35	17382.83

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.000	825.00	0.00	0.00	821.77	1690.00	829.09	0.00	829.16	27.54	2.73	827.52	322.05
8.000	825.00	0.00	0.00	821.77	2230.00	834.10	0.00	834.10	1.09	.89	4892.35	2135.59
8.000	825.00	0.00	0.00	821.77	2530.00	835.54	0.00	835.54	.56	.71	6773.63	3366.60
8.000	825.00	0.00	0.00	821.77	3120.00	838.66	0.00	838.66	.20	.51	11174.12	7004.70
9.000	1550.00	0.00	0.00	820.97	1690.00	830.80	0.00	830.83	5.71	2.02	1588.00	707.08
9.000	1550.00	0.00	0.00	820.97	2230.00	834.29	0.00	834.30	1.58	1.33	3126.82	1774.31
9.000	1550.00	0.00	0.00	820.97	2530.00	835.65	0.00	835.66	1.14	1.21	3919.17	2370.95
9.000	1550.00	0.00	0.00	820.97	3120.00	838.70	0.00	838.71	.57	.98	5800.74	4115.35
10.000	1230.00	0.00	0.00	823.07	1690.00	831.87	0.00	832.04	20.87	3.62	732.57	369.97
10.000	1230.00	0.00	0.00	823.07	2230.00	834.59	0.00	834.65	6.76	2.59	1634.61	857.44
10.000	1230.00	0.00	0.00	823.07	2530.00	835.86	0.00	835.90	4.02	2.17	2630.64	1261.24
10.000	1230.00	0.00	0.00	823.07	3120.00	838.78	0.00	838.79	.88	1.19	6744.67	3331.77
11.000	450.00	0.00	0.00	823.57	1690.00	832.62	0.00	832.76	12.61	3.05	554.04	475.85
11.000	450.00	0.00	0.00	823.57	2230.00	834.90	0.00	835.05	9.52	3.10	718.67	722.62
11.000	450.00	0.00	0.00	823.57	2530.00	835.99	0.00	836.03	2.89	1.91	2260.76	1489.19
11.000	450.00	0.00	0.00	823.57	3120.00	838.80	0.00	838.81	.70	1.09	5856.54	3738.54
11.500	31.00	835.17	833.22	823.67	1690.00	832.63	0.00	832.77	10.87	2.91	580.47	512.50
11.500	31.00	835.17	833.22	823.67	2230.00	834.91	0.00	835.05	8.52	3.00	744.56	763.98
11.500	31.00	835.17	833.22	823.67	2530.00	836.06	0.00	836.06	.28	.61	6892.62	4793.10
11.500	31.00	835.17	833.22	823.67	3120.00	838.85	0.00	838.85	.13	.48	10462.30	8648.98
12.000	690.00	0.00	0.00	822.60	1690.00	833.06	0.00	833.08	2.34	1.52	2212.76	1105.15
12.000	690.00	0.00	0.00	822.60	2230.00	835.22	0.00	835.23	1.09	1.20	3833.43	2135.40
12.000	690.00	0.00	0.00	822.60	2530.00	836.08	0.00	836.09	.90	1.14	4572.85	2672.24
12.000	690.00	0.00	0.00	822.60	3120.00	838.86	0.00	838.86	.41	.88	7285.76	4898.04
1.100	1260.00	0.00	0.00	822.60	1690.00	833.51	0.00	833.63	9.57	2.94	732.88	546.41
1.100	1260.00	0.00	0.00	822.60	2230.00	835.43	0.00	835.55	7.21	2.95	1056.76	830.40
1.100	1260.00	0.00	0.00	822.60	2530.00	836.26	0.00	836.37	6.76	3.01	1215.30	973.33
1.100	1260.00	0.00	0.00	822.60	3120.00	838.93	0.00	839.00	3.55	2.53	2425.22	1656.42
1.200	1.00	836.90	837.70	822.60	1690.00	833.44	0.00	833.70	29.88	4.20	434.75	309.15
1.200	1.00	836.90	837.70	822.60	2230.00	835.35	0.00	835.63	23.65	4.35	556.16	458.55
1.200	1.00	836.90	837.70	822.60	2530.00	836.17	0.00	836.47	22.85	4.52	607.90	529.32
1.200	1.00	836.90	837.70	822.60	3120.00	838.86	0.00	839.07	36.50	4.13	1248.68	516.45

	1.300	10.00	836.90	837.70	822.60	1690.00	833.47	0.00	833.73	29.53	4.18	436.38	311.00
	1.300	10.00	836.90	837.70	822.60	2230.00	835.38	0.00	835.65	23.52	4.34	557.14	459.85
	1.300	10.00	836.90	837.70	822.60	2530.00	836.19	0.00	836.49	22.73	4.51	608.84	530.64
	1.300	10.00	836.90	837.70	822.60	3120.00	838.91	0.00	839.11	35.93	4.10	1265.44	520.52
	1.400	1.00	0.00	0.00	822.60	1690.00	833.66	0.00	833.78	8.91	2.87	755.98	566.29
	1.400	1.00	0.00	0.00	822.60	2230.00	835.59	0.00	835.70	6.77	2.89	1086.75	857.25
	1.400	1.00	0.00	0.00	822.60	2530.00	836.43	0.00	836.54	6.33	2.94	1250.58	1005.46
	1.400	1.00	0.00	0.00	822.60	3120.00	839.09	0.00	839.15	3.32	2.46	2523.17	1712.66
	2.000	43.00	0.00	0.00	822.60	1690.00	833.68	0.00	833.84	13.49	3.27	564.51	460.08
	2.000	43.00	0.00	0.00	822.60	2230.00	835.61	0.00	835.76	10.58	3.29	773.01	685.64
	2.000	43.00	0.00	0.00	822.60	2530.00	836.44	0.00	836.60	9.85	3.35	886.29	806.32
	2.000	43.00	0.00	0.00	822.60	3120.00	839.08	0.00	839.20	5.51	2.96	1533.75	1329.42

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3.000	398.00	0.00	0.00	822.50	1690.00	834.13	0.00	834.17	5.34	2.18	1548.49	731.28
3.000	398.00	0.00	0.00	822.50	2230.00	835.98	0.00	836.01	3.84	2.06	2096.99	1137.75
3.000	398.00	0.00	0.00	822.50	2530.00	836.80	0.00	836.83	3.54	2.07	2348.39	1344.74
3.000	398.00	0.00	0.00	822.50	3120.00	839.31	0.00	839.33	2.05	1.77	3673.94	2179.22
4.000	430.00	0.00	0.00	824.40	1690.00	834.33	0.00	834.35	3.58	1.68	2043.73	892.77
4.000	430.00	0.00	0.00	824.40	2230.00	836.12	0.00	836.13	2.52	1.59	2825.38	1405.93
4.000	430.00	0.00	0.00	824.40	2530.00	836.93	0.00	836.94	2.26	1.58	3223.59	1683.38
4.000	430.00	0.00	0.00	824.40	3120.00	839.38	0.00	839.39	1.33	1.37	4643.49	2710.09
5.000	231.00	0.00	0.00	824.40	1690.00	834.38	0.00	834.39	1.53	1.29	2049.25	1364.44
5.000	231.00	0.00	0.00	824.40	2230.00	836.15	0.00	836.17	1.15	1.26	2770.73	2077.78
5.000	231.00	0.00	0.00	824.40	2530.00	836.96	0.00	836.97	1.05	1.27	3214.45	2463.55
5.000	231.00	0.00	0.00	824.40	3120.00	839.40	0.00	839.41	.63	1.12	4902.84	3925.00
6.000	345.00	0.00	0.00	824.40	1690.00	834.42	0.00	834.52	8.85	3.33	1078.95	568.11
6.000	345.00	0.00	0.00	824.40	2230.00	836.19	0.00	836.25	4.96	2.85	1804.25	1001.20
6.000	345.00	0.00	0.00	824.40	2530.00	836.99	0.00	837.04	3.99	2.70	2239.75	1266.73
6.000	345.00	0.00	0.00	824.40	3120.00	839.42	0.00	839.44	1.59	1.97	4149.52	2473.16
7.000	250.00	0.00	0.00	822.90	1690.00	834.52	0.00	834.70	5.32	3.54	634.30	732.36
7.000	250.00	0.00	0.00	822.90	2230.00	836.22	0.00	836.38	4.23	3.54	935.58	1083.81
7.000	250.00	0.00	0.00	822.90	2530.00	837.00	0.00	837.16	3.94	3.58	1076.20	1274.38
7.000	250.00	0.00	0.00	822.90	3120.00	839.39	0.00	839.52	2.57	3.28	1504.08	1945.40
8.000	200.00	0.00	0.00	822.90	1520.00	834.69	0.00	834.82	6.58	2.88	532.12	592.66
8.000	200.00	0.00	0.00	822.90	1380.00	836.39	0.00	836.46	2.78	2.13	672.58	827.66
8.000	200.00	0.00	0.00	822.90	1230.00	837.19	0.00	837.23	1.67	1.74	748.66	951.46
8.000	200.00	0.00	0.00	822.90	1070.00	839.54	0.00	839.56	.60	1.20	1044.90	1380.42
9.000	120.00	0.00	0.00	826.60	1520.00	834.68	0.00	835.02	24.99	4.73	328.71	304.05
9.000	120.00	0.00	0.00	826.60	1380.00	836.38	0.00	836.54	9.09	3.26	445.00	457.61
9.000	120.00	0.00	0.00	826.60	1230.00	837.18	0.00	837.28	5.18	2.60	502.31	540.41
9.000	120.00	0.00	0.00	826.60	1070.00	839.54	0.00	839.58	1.59	1.70	686.11	847.31
10.000	140.00	0.00	0.00	825.40	1520.00	835.04	0.00	835.16	3.74	2.75	590.84	786.30
10.000	140.00	0.00	0.00	825.40	1380.00	836.54	0.00	836.60	1.64	2.05	738.91	1076.64
10.000	140.00	0.00	0.00	825.40	1230.00	837.27	0.00	837.32	.99	1.68	818.84	1234.52
10.000	140.00	0.00	0.00	825.40	1070.00	839.57	0.00	839.59	.36	1.15	1109.60	1792.39
11.000	70.00	0.00	0.00	826.35	1520.00	835.03	0.00	835.21	2.99	3.43	492.18	878.31
11.000	70.00	0.00	0.00	826.35	1380.00	836.53	0.00	836.63	1.38	2.60	608.71	1175.79
11.000	70.00	0.00	0.00	826.35	1230.00	837.27	0.00	837.33	.85	2.14	669.65	1337.53
11.000	70.00	0.00	0.00	826.35	1070.00	839.57	0.00	839.60	.31	1.49	874.03	1907.35

11.100	56.00	840.30	835.83	826.35	1520.00	835.04	0.00	835.23	1.42	3.55	428.33	1273.37
11.100	56.00	840.30	835.83	826.35	1380.00	836.68	0.00	836.78	.60	2.60	620.79	1781.97
11.100	56.00	840.30	835.83	826.35	1230.00	837.40	0.00	837.47	.37	2.15	680.58	2012.62
11.100	56.00	840.30	835.83	826.35	1070.00	839.68	0.00	839.72	.14	1.51	884.27	2831.16
12.000	110.00	0.00	0.00	826.50	1520.00	835.21	0.00	835.27	2.40	2.17	897.81	980.72
12.000	110.00	0.00	0.00	826.50	1380.00	836.77	0.00	836.79	.85	1.47	1214.25	1493.21
12.000	110.00	0.00	0.00	826.50	1230.00	837.46	0.00	837.48	.49	1.17	1359.63	1756.96
12.000	110.00	0.00	0.00	826.50	1070.00	839.71	0.00	839.72	.15	.74	1847.27	2764.61

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13.000	300.00	0.00	0.00	826.50	1520.00	835.34	0.00	835.38	5.38	2.22	1572.85	655.59
13.000	300.00	0.00	0.00	826.50	2060.00	836.82	0.00	836.85	3.44	1.99	2267.11	1110.15
13.000	300.00	0.00	0.00	826.50	2280.00	837.49	0.00	837.52	2.82	1.89	2586.24	1356.66
13.000	300.00	0.00	0.00	826.50	2930.00	839.73	0.00	839.74	1.56	1.61	3653.42	2344.13
14.000	310.00	0.00	0.00	827.90	1520.00	835.43	0.00	835.55	3.57	2.73	556.86	804.43
14.000	310.00	0.00	0.00	827.90	2060.00	836.87	0.00	837.00	2.97	2.87	742.12	1194.83
14.000	310.00	0.00	0.00	827.90	2280.00	837.53	0.00	837.65	2.66	2.88	827.89	1397.29
14.000	310.00	0.00	0.00	827.90	2930.00	839.75	0.00	839.79	.82	1.89	3294.25	3231.77
14.100	34.00	836.30	835.50	827.90	1520.00	835.48	0.00	835.60	3.48	2.71	561.58	815.23
14.100	34.00	836.30	835.50	827.90	2060.00	837.05	0.00	837.17	2.73	2.80	764.13	1246.46
14.100	34.00	836.30	835.50	827.90	2280.00	837.77	0.00	837.88	2.39	2.79	859.59	1473.40
14.100	34.00	836.30	835.50	827.90	2930.00	839.98	0.00	840.02	.74	1.82	3431.46	3406.65
15.000	110.00	0.00	0.00	827.10	1520.00	835.60	0.00	835.67	9.86	2.47	920.12	484.14
15.000	110.00	0.00	0.00	827.10	2060.00	837.18	0.00	837.23	6.91	2.36	1337.70	783.88
15.000	110.00	0.00	0.00	827.10	2280.00	837.89	0.00	837.94	5.82	2.28	1531.17	945.08
15.000	110.00	0.00	0.00	827.10	2930.00	839.99	0.00	840.04	3.81	2.11	2105.15	1500.37
16.000	510.00	0.00	0.00	825.80	1520.00	836.02	0.00	836.05	5.91	1.93	1681.41	625.35
16.000	510.00	0.00	0.00	825.80	2060.00	837.46	0.00	837.48	3.47	1.65	2640.78	1105.86
16.000	510.00	0.00	0.00	825.80	2280.00	838.13	0.00	838.14	2.75	1.53	3098.07	1374.42
16.000	510.00	0.00	0.00	825.80	2930.00	840.15	0.00	840.15	1.50	1.28	4594.68	2391.20
17.000	2070.00	0.00	0.00	827.40	1520.00	837.32	0.00	837.40	11.25	2.66	877.55	453.20
17.000	2070.00	0.00	0.00	827.40	2060.00	838.26	0.00	838.32	8.90	2.55	1390.66	690.64
17.000	2070.00	0.00	0.00	827.40	2280.00	838.74	0.00	838.79	7.03	2.35	1696.24	859.62
17.000	2070.00	0.00	0.00	827.40	2930.00	840.42	0.00	840.44	2.79	1.65	3193.10	1755.41
20.000	1350.00	0.00	0.00	827.00	1520.00	838.30	0.00	838.40	5.20	2.77	696.17	666.36
20.000	1350.00	0.00	0.00	827.00	2060.00	839.23	0.00	839.38	6.65	3.33	810.44	798.71
20.000	1350.00	0.00	0.00	827.00	2280.00	839.61	0.00	839.78	7.08	3.52	859.89	857.13
20.000	1350.00	0.00	0.00	827.00	2930.00	840.88	0.00	841.08	7.52	3.90	1034.39	1068.74
21.000	1475.00	0.00	0.00	830.10	1520.00	838.98	0.00	839.06	3.82	2.57	805.98	777.85
21.000	1475.00	0.00	0.00	830.10	2060.00	840.03	0.00	840.13	3.94	2.84	1016.49	1037.54
21.000	1475.00	0.00	0.00	830.10	2280.00	840.45	0.00	840.54	3.92	2.92	1105.80	1151.94
21.000	1475.00	0.00	0.00	830.10	2930.00	841.73	0.00	841.83	3.57	3.03	1405.12	1551.03
22.000	1700.00	0.00	0.00	831.20	1520.00	839.20	0.00	839.20	.46	.78	3108.15	2249.74
22.000	1700.00	0.00	0.00	831.20	2060.00	840.26	0.00	840.26	.43	.82	3857.81	3142.32
22.000	1700.00	0.00	0.00	831.20	2280.00	840.67	0.00	840.67	.42	.84	4159.09	3527.59
22.000	1700.00	0.00	0.00	831.20	2930.00	841.93	0.00	841.94	.37	.85	5122.96	4836.41
23.000	1400.00	0.00	0.00	831.40	1520.00	839.27	0.00	839.39	9.19	2.76	569.66	501.50
23.000	1400.00	0.00	0.00	831.40	2060.00	840.30	0.00	840.45	9.18	3.10	699.55	679.76
23.000	1400.00	0.00	0.00	831.40	2280.00	840.71	0.00	840.86	8.94	3.18	806.54	762.64

23.000	1400.00	0.00	0.00	831.40	2930.00	841.97	0.00	842.10	6.86	3.12	1248.60	1118.52
23.100	41.00	846.50	842.60	831.20	1520.00	839.30	0.00	839.40	8.23	2.66	587.70	529.88
23.100	41.00	846.50	842.60	831.20	2060.00	840.33	0.00	840.47	8.32	3.00	716.29	714.00
23.100	41.00	846.50	842.60	831.20	2280.00	840.74	0.00	840.89	8.28	3.12	766.63	792.37
23.100	41.00	846.50	842.60	831.20	2930.00	841.99	0.00	842.16	7.73	3.36	921.61	1054.12

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
24.000	90.00	0.00	0.00	831.30	1520.00	839.39	0.00	839.48	8.83	2.52	602.30	511.50
24.000	90.00	0.00	0.00	831.30	2060.00	840.43	0.00	840.55	8.75	2.82	731.33	696.44
24.000	90.00	0.00	0.00	831.30	2280.00	840.84	0.00	840.97	8.66	2.92	781.63	774.82
24.000	90.00	0.00	0.00	831.30	2930.00	842.08	0.00	842.24	8.00	3.13	937.49	1035.59
24.500	46.00	846.30	842.60	830.90	1520.00	839.40	0.00	839.49	7.37	2.38	643.17	560.03
24.500	46.00	846.30	842.60	830.90	2060.00	840.45	0.00	840.56	7.19	2.67	807.13	768.40
24.500	46.00	846.30	842.60	830.90	2280.00	840.86	0.00	840.97	7.05	2.76	878.97	858.64
24.500	46.00	846.30	842.60	830.90	2930.00	842.11	0.00	842.23	6.17	2.89	1233.44	1179.44
25.000	400.00	0.00	0.00	831.50	1520.00	839.70	0.00	839.73	4.70	2.05	1501.22	701.29
25.000	400.00	0.00	0.00	831.50	2060.00	840.73	0.00	840.75	3.03	1.83	2214.15	1182.82
25.000	400.00	0.00	0.00	831.50	2280.00	841.13	0.00	841.15	2.62	1.76	2505.19	1409.38
25.000	400.00	0.00	0.00	831.50	2930.00	842.35	0.00	842.36	1.75	1.59	3408.20	2217.13
26.000	1800.00	0.00	0.00	832.70	1520.00	840.02	0.00	840.02	1.05	.99	2947.84	1482.65
26.000	1800.00	0.00	0.00	832.70	2060.00	840.96	0.00	840.96	.84	.97	3848.13	2241.36
26.000	1800.00	0.00	0.00	832.70	2280.00	841.34	0.00	841.34	.78	.97	4217.93	2587.08
26.000	1800.00	0.00	0.00	832.70	2930.00	842.50	0.00	842.50	.60	.93	5382.35	3791.79
27.000	1250.00	0.00	0.00	832.50	1520.00	840.29	0.00	840.36	8.76	2.85	1216.39	513.57
27.000	1250.00	0.00	0.00	832.50	2060.00	841.17	0.00	841.20	4.36	2.20	2128.83	986.92
27.000	1250.00	0.00	0.00	832.50	2280.00	841.52	0.00	841.55	3.46	2.03	2496.23	1225.46
27.000	1250.00	0.00	0.00	832.50	2930.00	842.63	0.00	842.64	1.86	1.64	3666.81	2146.30
28.000	650.00	0.00	0.00	832.90	1520.00	841.00	0.00	841.18	15.27	3.41	445.10	389.02
28.000	650.00	0.00	0.00	832.90	2060.00	841.59	0.00	841.85	18.43	4.08	505.03	479.85
28.000	650.00	0.00	0.00	832.90	2280.00	841.85	0.00	842.14	19.02	4.29	531.76	522.74
28.000	650.00	0.00	0.00	832.90	2930.00	842.76	0.00	843.10	18.58	4.70	623.05	679.80
28.500	32.00	844.00	841.50	833.80	1520.00	841.02	0.00	841.18	11.03	3.09	492.53	457.75
28.500	32.00	844.00	841.50	833.80	2060.00	841.94	0.00	842.14	11.27	3.51	587.69	613.62
28.500	32.00	844.00	841.50	833.80	2280.00	842.32	0.00	842.52	11.20	3.64	626.02	681.36
28.500	32.00	844.00	841.50	833.80	2930.00	843.81	0.00	843.86	3.11	2.23	2030.77	1661.71
29.000	590.00	0.00	0.00	833.80	1520.00	841.71	0.00	841.82	10.46	2.98	824.40	470.07
29.000	590.00	0.00	0.00	833.80	2060.00	842.65	0.00	842.76	9.63	3.13	1098.21	663.98
29.000	590.00	0.00	0.00	833.80	2280.00	843.03	0.00	843.13	9.21	3.16	1208.63	751.09
29.000	590.00	0.00	0.00	833.80	2930.00	844.06	0.00	844.16	8.27	3.26	1517.09	1018.65
30.000	2650.00	0.00	0.00	834.10	1520.00	843.55	0.00	843.60	4.78	2.26	1377.40	695.09
30.000	2650.00	0.00	0.00	834.10	2060.00	844.37	0.00	844.42	4.50	2.34	1775.00	970.62
30.000	2650.00	0.00	0.00	834.10	2280.00	844.69	0.00	844.73	4.38	2.37	1932.32	1089.71
30.000	2650.00	0.00	0.00	834.10	2930.00	845.57	0.00	845.62	4.03	2.42	2384.24	1460.19
31.000	1750.00	0.00	0.00	835.50	1520.00	843.97	0.00	843.98	1.46	1.17	1999.66	1255.91
31.000	1750.00	0.00	0.00	835.50	2060.00	844.77	0.00	844.79	1.45	1.25	2442.35	1708.36
31.000	1750.00	0.00	0.00	835.50	2280.00	845.08	0.00	845.10	1.44	1.28	2615.66	1900.97
31.000	1750.00	0.00	0.00	835.50	2930.00	845.94	0.00	845.96	1.39	1.35	3103.25	2486.40
32.000	5250.00	0.00	0.00	836.90	1520.00	844.89	0.00	844.92	3.74	1.73	1714.78	785.89
32.000	5250.00	0.00	0.00	836.90	2060.00	845.63	0.00	845.65	3.26	1.75	2348.68	1141.62

32.000	5250.00	0.00	0.00	836.90	2280.00	845.91	0.00	845.93	3.08	1.74	2594.12	1298.31
32.000	5250.00	0.00	0.00	836.90	2930.00	846.70	0.00	846.72	2.66	1.74	3290.82	1796.53

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
33.000	900.00	0.00	0.00	836.30	1520.00	845.34	0.00	845.52	10.11	3.35	453.93	477.99
33.000	900.00	0.00	0.00	836.30	2060.00	846.05	0.00	846.31	13.87	4.14	497.59	553.23
33.000	900.00	0.00	0.00	836.30	2280.00	846.31	0.00	846.61	15.36	4.44	513.61	581.78
33.000	900.00	0.00	0.00	836.30	2930.00	847.02	0.00	847.45	19.54	5.25	557.68	662.80
33.090	31.00	848.20	844.40	835.60	1520.00	845.49	0.00	845.62	7.28	2.93	519.32	563.50
33.090	31.00	848.20	844.40	835.60	2060.00	846.35	0.00	846.55	9.77	3.59	573.13	659.02
33.090	31.00	848.20	844.40	835.60	2280.00	846.70	0.00	846.93	10.66	3.84	594.51	698.38
33.090	31.00	848.20	844.40	835.60	2930.00	847.74	0.00	848.04	12.73	4.45	658.83	821.30

SYCAMORE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	1690.00	828.11	0.00	0.00	0.00	1103.46	0.00
1.000	2230.00	834.00	0.00	0.00	0.00	1135.67	0.00
1.000	2530.00	835.46	0.00	0.00	0.00	1157.52	0.00
1.000	3120.00	838.60	0.00	0.00	0.00	1341.98	0.00
2.000	1690.00	828.11	0.00	.00	0.00	362.89	600.00
2.000	2230.00	834.00	0.00	-.00	0.00	550.02	600.00
2.000	2530.00	835.46	0.00	-.00	0.00	662.29	600.00
2.000	3120.00	838.60	0.00	-.00	0.00	780.00	600.00
3.000	1690.00	828.15	0.00	.04	0.00	106.00	650.00
3.000	2230.00	834.01	0.00	.01	0.00	1226.38	650.00
3.000	2530.00	835.47	0.00	.01	0.00	1370.74	650.00
3.000	3120.00	838.61	0.00	.01	0.00	1666.44	650.00
3.500	1690.00	828.16	0.00	.00	0.00	106.00	66.00
3.500	2230.00	834.04	0.00	.03	0.00	1229.73	66.00
3.500	2530.00	835.50	0.00	.03	0.00	1374.94	66.00
3.500	3120.00	838.63	0.00	.03	0.00	1668.92	66.00
4.000	1690.00	828.22	0.00	.06	0.00	948.56	1800.00
4.000	2230.00	834.04	0.00	.01	0.00	1332.03	1800.00
4.000	2530.00	835.50	0.00	.01	0.00	1364.54	1800.00
4.000	3120.00	838.64	0.00	.00	0.00	1428.17	1800.00
5.000	1690.00	828.23	0.00	.01	0.00	1063.01	2500.00
5.000	2230.00	834.05	0.00	.00	0.00	1765.68	2500.00
5.000	2530.00	835.50	0.00	.00	0.00	1827.30	2500.00
5.000	3120.00	838.64	0.00	.00	0.00	1960.48	2500.00
6.000	1690.00	828.35	0.00	.12	0.00	808.98	1775.00
6.000	2230.00	834.06	0.00	.02	0.00	1546.12	1775.00
6.000	2530.00	835.52	0.00	.01	0.00	1628.78	1775.00
6.000	3120.00	838.65	0.00	.01	0.00	1805.60	1775.00
7.000	1690.00	828.88	0.00	.53	0.00	1526.03	2825.00

7.000	2230.00	834.09	0.00	.02	0.00	1738.16	2825.00
7.000	2530.00	835.53	0.00	.02	0.00	1744.47	2825.00
7.000	3120.00	838.65	0.00	.01	0.00	1758.08	2825.00
8.000	1690.00	829.09	0.00	.21	0.00	184.77	825.00
8.000	2230.00	834.10	0.00	.01	0.00	1269.35	825.00
8.000	2530.00	835.54	0.00	.01	0.00	1337.64	825.00
8.000	3120.00	838.66	0.00	.00	0.00	1485.16	825.00
9.000	1690.00	830.80	0.00	1.71	0.00	373.87	1550.00
9.000	2230.00	834.29	0.00	.19	0.00	511.68	1550.00
9.000	2530.00	835.65	0.00	.11	0.00	607.93	1550.00
9.000	3120.00	838.70	0.00	.04	0.00	626.41	1550.00
10.000	1690.00	831.87	0.00	1.07	0.00	257.77	1230.00
10.000	2230.00	834.59	0.00	.30	0.00	475.21	1230.00
10.000	2530.00	835.86	0.00	.20	0.00	1210.03	1230.00
10.000	3120.00	838.78	0.00	.08	0.00	1678.30	1230.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.000	1690.00	832.62	0.00	.75	0.00	72.00	450.00
11.000	2230.00	834.90	0.00	.32	0.00	72.00	450.00
11.000	2530.00	835.99	0.00	.13	0.00	1041.41	450.00
11.000	3120.00	838.80	0.00	.02	0.00	1366.44	450.00
11.500	1690.00	832.63	0.00	.02	0.00	72.00	31.00
11.500	2230.00	834.91	0.00	.01	0.00	72.00	31.00
11.500	2530.00	836.06	0.00	.07	0.00	1164.86	31.00
11.500	3120.00	838.85	0.00	.04	0.00	1369.24	31.00
12.000	1690.00	833.06	0.00	.42	0.00	659.29	690.00
12.000	2230.00	835.22	0.00	.30	0.00	824.89	690.00
12.000	2530.00	836.08	0.00	.03	0.00	880.74	690.00
12.000	3120.00	838.86	0.00	.01	0.00	1063.60	690.00
1.100	1690.00	833.51	0.00	.45	0.00	151.60	1260.00
1.100	2230.00	835.43	0.00	.21	0.00	185.18	1260.00
1.100	2530.00	836.26	0.00	.17	0.00	199.57	1260.00
1.100	3120.00	838.93	0.00	.07	0.00	635.03	1260.00
1.200	1690.00	833.44	0.00	-.07	0.00	150.43	1.00
1.200	2230.00	835.35	0.00	-.08	0.00	183.80	1.00
1.200	2530.00	836.17	0.00	-.09	0.00	198.03	1.00
1.200	3120.00	838.86	0.00	-.07	0.00	633.86	1.00
1.300	1690.00	833.47	0.00	.03	0.00	150.88	10.00
1.300	2230.00	835.38	0.00	-.02	0.00	184.07	10.00
1.300	2530.00	836.19	0.00	.02	0.00	198.28	10.00
1.300	3120.00	838.91	0.00	.04	0.00	634.59	10.00
1.400	1690.00	833.66	0.00	.19	0.00	154.24	1.00
1.400	2230.00	835.59	0.00	.21	0.00	187.99	1.00
1.400	2530.00	836.43	0.00	.24	0.00	202.63	1.00
1.400	3120.00	839.09	0.00	.18	0.00	637.68	1.00
2.000	1690.00	833.68	0.00	.03	0.00	96.79	43.00
2.000	2230.00	835.61	0.00	.01	0.00	122.28	43.00
2.000	2530.00	836.44	0.00	.01	0.00	161.99	43.00
2.000	3120.00	839.08	0.00	-.01	0.00	324.76	43.00

3.000	1690.00	834.13	0.00	.45	0.00	294.19	398.00
3.000	2230.00	835.98	0.00	.37	0.00	300.57	398.00
3.000	2530.00	836.80	0.00	.36	0.00	343.04	398.00
3.000	3120.00	839.31	0.00	.23	0.00	588.55	398.00
4.000	1690.00	834.33	0.00	.20	0.00	399.07	430.00
4.000	2230.00	836.12	0.00	.14	0.00	474.78	430.00
4.000	2530.00	836.93	0.00	.13	0.00	507.22	430.00
4.000	3120.00	839.38	0.00	.08	0.00	684.94	430.00
5.000	1690.00	834.38	0.00	.05	0.00	371.36	231.00
5.000	2230.00	836.15	0.00	.03	0.00	528.08	231.00
5.000	2530.00	836.96	0.00	.03	0.00	570.88	231.00
5.000	3120.00	839.40	0.00	.02	0.00	763.80	231.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.000	1690.00	834.42	0.00	.04	0.00	347.62	345.00
6.000	2230.00	836.19	0.00	.03	0.00	480.24	345.00
6.000	2530.00	836.99	0.00	.03	0.00	587.98	345.00
6.000	3120.00	839.42	0.00	.02	0.00	844.32	345.00
7.000	1690.00	834.52	0.00	.10	0.00	173.32	250.00
7.000	2230.00	836.22	0.00	.03	0.00	179.00	250.00
7.000	2530.00	837.00	0.00	.01	0.00	179.00	250.00
7.000	3120.00	839.39	0.00	-.03	0.00	179.00	250.00
8.000	1520.00	834.69	0.00	.17	0.00	76.98	200.00
8.000	1380.00	836.39	0.00	.17	0.00	90.45	200.00
8.000	1230.00	837.19	0.00	.18	0.00	101.02	200.00
8.000	1070.00	839.54	0.00	.15	0.00	142.40	200.00
9.000	1520.00	834.68	0.00	-.01	0.00	65.58	120.00
9.000	1380.00	836.38	0.00	-.01	0.00	70.69	120.00
9.000	1230.00	837.18	0.00	-.01	0.00	73.01	120.00
9.000	1070.00	839.54	0.00	-.00	0.00	83.77	120.00
10.000	1520.00	835.04	0.00	.37	0.00	94.26	140.00
10.000	1380.00	836.54	0.00	.15	0.00	105.11	140.00
10.000	1230.00	837.27	0.00	.09	0.00	112.10	140.00
10.000	1070.00	839.57	0.00	.03	0.00	142.00	140.00
11.000	1520.00	835.03	0.00	-.01	0.00	74.90	70.00
11.000	1380.00	836.53	0.00	-.01	0.00	81.06	70.00
11.000	1230.00	837.27	0.00	-.01	0.00	84.10	70.00
11.000	1070.00	839.57	0.00	-.00	0.00	92.25	70.00
11.100	1520.00	835.04	0.00	.00	0.00	74.90	56.00
11.100	1380.00	836.68	0.00	.15	0.00	81.67	56.00
11.100	1230.00	837.40	0.00	.13	0.00	84.64	56.00
11.100	1070.00	839.68	0.00	.12	0.00	92.44	56.00
12.000	1520.00	835.21	0.00	.17	0.00	193.15	110.00
12.000	1380.00	836.77	0.00	.09	0.00	208.85	110.00
12.000	1230.00	837.46	0.00	.06	0.00	212.30	110.00
12.000	1070.00	839.71	0.00	.03	0.00	219.29	110.00
13.000	1520.00	835.34	0.00	.13	0.00	462.04	300.00
13.000	2060.00	836.82	0.00	.05	1.48	472.95	300.00
13.000	2280.00	837.49	0.00	.03	2.16	477.79	300.00
13.000	2930.00	839.73	0.00	.01	4.39	480.00	300.00

14.000	1520.00	835.43	0.00	.09	0.00	95.44	310.00
14.000	2060.00	836.87	0.00	.05	1.44	125.67	310.00
14.000	2280.00	837.53	0.00	.03	2.09	135.01	310.00
14.000	2930.00	839.75	0.00	.02	4.32	595.00	310.00
14.100	1520.00	835.48	0.00	.05	0.00	95.44	34.00
14.100	2060.00	837.05	0.00	.18	1.57	128.53	34.00
14.100	2280.00	837.77	0.00	.24	2.29	137.82	34.00
14.100	2930.00	839.98	0.00	.23	4.50	595.62	34.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15.000	1520.00	835.60	0.00	.12	0.00	242.13	110.00
15.000	2060.00	837.18	0.00	.13	1.58	270.77	110.00
15.000	2280.00	837.89	0.00	.12	2.29	271.84	110.00
15.000	2930.00	839.99	0.00	.01	4.39	274.99	110.00
16.000	1520.00	836.02	0.00	.42	0.00	648.79	510.00
16.000	2060.00	837.46	0.00	.28	1.44	684.58	510.00
16.000	2280.00	838.13	0.00	.24	2.11	709.46	510.00
16.000	2930.00	840.15	0.00	.15	4.12	766.97	510.00
17.000	1520.00	837.32	0.00	1.30	0.00	439.55	2070.00
17.000	2060.00	838.26	0.00	.80	.94	608.61	2070.00
17.000	2280.00	838.74	0.00	.61	1.42	681.30	2070.00
17.000	2930.00	840.42	0.00	.28	3.10	1157.48	2070.00
20.000	1520.00	838.30	0.00	.97	0.00	117.98	1350.00
20.000	2060.00	839.23	0.00	.97	.93	127.29	1350.00
20.000	2280.00	839.61	0.00	.87	1.31	131.12	1350.00
20.000	2930.00	840.88	0.00	.46	2.58	144.35	1350.00
21.000	1520.00	838.98	0.00	.68	0.00	187.55	1475.00
21.000	2060.00	840.03	0.00	.80	1.06	210.95	1475.00
21.000	2280.00	840.45	0.00	.83	1.47	220.06	1475.00
21.000	2930.00	841.73	0.00	.85	2.75	248.18	1475.00
22.000	1520.00	839.20	0.00	.22	0.00	697.92	1700.00
22.000	2060.00	840.26	0.00	.22	1.06	720.21	1700.00
22.000	2280.00	840.67	0.00	.22	1.47	736.75	1700.00
22.000	2930.00	841.93	0.00	.21	2.74	787.35	1700.00
23.000	1520.00	839.27	0.00	.08	0.00	122.35	1400.00
23.000	2060.00	840.30	0.00	.05	1.03	128.73	1400.00
23.000	2280.00	840.71	0.00	.04	1.44	313.78	1400.00
23.000	2930.00	841.97	0.00	.03	2.69	390.04	1400.00
23.100	1520.00	839.30	0.00	.02	0.00	122.19	41.00
23.100	2060.00	840.33	0.00	.03	1.04	124.00	41.00
23.100	2280.00	840.74	0.00	.03	1.44	124.00	41.00
23.100	2930.00	841.99	0.00	.03	2.69	124.00	41.00
24.000	1520.00	839.39	0.00	.09	0.00	123.07	90.00
24.000	2060.00	840.43	0.00	.09	1.04	124.00	90.00
24.000	2280.00	840.84	0.00	.10	1.45	124.00	90.00
24.000	2930.00	842.08	0.00	.09	2.70	124.00	90.00
24.500	1520.00	839.40	0.00	.02	0.00	142.48	46.00
24.500	2060.00	840.45	0.00	.02	1.05	170.65	46.00
24.500	2280.00	840.86	0.00	.02	1.46	181.62	46.00

24.500	2930.00	842.11	0.00	.02	2.70	474.64	46.00
25.000	1520.00	839.70	0.00	.30	0.00	642.66	400.00
25.000	2060.00	840.73	0.00	.28	1.02	722.77	400.00
25.000	2280.00	841.13	0.00	.27	1.43	729.62	400.00
25.000	2930.00	842.35	0.00	.24	2.65	750.46	400.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
26.000	1520.00	840.02	0.00	.32	0.00	949.39	1800.00
26.000	2060.00	840.96	0.00	.23	.94	973.94	1800.00
26.000	2280.00	841.34	0.00	.21	1.32	983.84	1800.00
26.000	2930.00	842.50	0.00	.15	2.48	1014.40	1800.00
27.000	1520.00	840.29	0.00	.27	0.00	1021.07	1250.00
27.000	2060.00	841.17	0.00	.21	.88	1042.56	1250.00
27.000	2280.00	841.52	0.00	.18	1.23	1048.44	1250.00
27.000	2930.00	842.63	0.00	.13	2.34	1062.40	1250.00
28.000	1520.00	841.00	0.00	.71	0.00	101.00	650.00
28.000	2060.00	841.59	0.00	.42	.59	101.00	650.00
28.000	2280.00	841.85	0.00	.33	.86	101.00	650.00
28.000	2930.00	842.76	0.00	.13	1.76	101.00	650.00
28.500	1520.00	841.02	0.00	.02	0.00	103.00	32.00
28.500	2060.00	841.94	0.00	.35	.92	103.00	32.00
28.500	2280.00	842.32	0.00	.46	1.30	103.00	32.00
28.500	2930.00	843.81	0.00	1.05	2.79	533.60	32.00
29.000	1520.00	841.71	0.00	.69	0.00	288.53	590.00
29.000	2060.00	842.65	0.00	.71	.94	294.07	590.00
29.000	2280.00	843.03	0.00	.71	1.31	296.28	590.00
29.000	2930.00	844.06	0.00	.25	2.34	302.35	590.00
30.000	1520.00	843.55	0.00	1.84	0.00	477.68	2650.00
30.000	2060.00	844.37	0.00	1.72	.82	495.32	2650.00
30.000	2280.00	844.69	0.00	1.66	1.13	502.13	2650.00
30.000	2930.00	845.57	0.00	1.51	2.02	521.20	2650.00
31.000	1520.00	843.97	0.00	.42	0.00	554.07	1750.00
31.000	2060.00	844.77	0.00	.40	.80	559.05	1750.00
31.000	2280.00	845.08	0.00	.40	1.11	560.99	1750.00
31.000	2930.00	845.94	0.00	.37	1.97	566.42	1750.00
32.000	1520.00	844.89	0.00	.92	0.00	828.93	5250.00
32.000	2060.00	845.63	0.00	.86	.74	872.06	5250.00
32.000	2280.00	845.91	0.00	.83	1.02	875.50	5250.00
32.000	2930.00	846.70	0.00	.76	1.81	885.21	5250.00
33.000	1520.00	845.34	0.00	.45	0.00	62.00	900.00
33.000	2060.00	846.05	0.00	.42	.70	62.00	900.00
33.000	2280.00	846.31	0.00	.40	.96	62.00	900.00
33.000	2930.00	847.02	0.00	.32	1.67	62.00	900.00
33.090	1520.00	845.49	0.00	.14	0.00	62.00	31.00
33.090	2060.00	846.35	0.00	.31	.87	62.00	31.00
33.090	2280.00	846.70	0.00	.39	1.21	62.00	31.00
33.090	2930.00	847.74	0.00	.72	2.25	62.00	31.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR SYCAMORE CREEK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
1.000	0.	-7.3	-1.5	3.1
2.000	600.	-7.3	-1.5	3.1
3.000	1250.	-7.3	-1.5	3.1
3.500	1316.	-7.3	-1.5	3.1
4.000	3116.	-7.3	-1.5	3.1
5.000	5616.	-7.3	-1.5	3.1
6.000	7391.	-7.2	-1.5	3.1
7.000	10216.	-6.7	-1.4	3.1
8.000	11041.	-6.5	-1.4	3.1
9.000	12591.	-4.9	-1.4	3.0
10.000	13821.	-4.0	-1.3	2.9
11.000	14271.	-3.4	-1.1	2.8
11.500	14302.	-3.4	-1.1	2.8
12.000	14992.	-3.0	-.9	2.8
1.100	16252.	-2.7	-.8	2.7
1.200	16253.	-2.7	-.8	2.7
1.300	16263.	-2.7	-.8	2.7
1.400	16264.	-2.8	-.8	2.7
2.000	16307.	-2.8	-.8	2.6
3.000	16705.	-2.7	-.8	2.5
4.000	17135.	-2.6	-.8	2.5
5.000	17366.	-2.6	-.8	2.4
6.000	17711.	-2.6	-.8	2.4
7.000	17961.	-2.5	-.8	2.4
8.000	18161.	-2.5	-.8	2.4
9.000	18281.	-2.5	-.8	2.4
10.000	18421.	-2.2	-.7	2.3
11.000	18491.	-2.2	-.7	2.3
11.100	18547.	-2.4	-.7	2.3
12.000	18657.	-2.2	-.7	2.3
13.000	18957.	-2.2	-.7	2.2
14.000	19267.	-2.1	-.7	2.2
14.100	19301.	-2.3	-.7	2.2
15.000	19411.	-2.3	-.7	2.1
16.000	19921.	-2.1	-.7	2.0
17.000	21991.	-1.4	-.5	1.7
20.000	23341.	-1.3	-.4	1.3
21.000	24816.	-1.5	-.4	1.3
22.000	26516.	-1.5	-.4	1.3
23.000	27916.	-1.4	-.4	1.3
23.100	27957.	-1.4	-.4	1.2
24.000	28047.	-1.5	-.4	1.2
24.500	28093.	-1.5	-.4	1.2
25.000	28493.	-1.4	-.4	1.2
26.000	30293.	-1.3	-.4	1.2
27.000	31543.	-1.2	-.4	1.1
28.000	32193.	-.9	-.3	.9
28.500	32225.	-1.3	-.4	1.5

29.000	32815.	-1.3	-.4	1.0
30.000	35465.	-1.1	-.3	.9
31.000	37215.	-1.1	-.3	.9
32.000	42465.	-1.0	-.3	.8
33.000	43365.	-1.0	-.3	.7
33.090	43396.	-1.2	-.3	1.0
WEIGHTED AVG FOR REACH		-3.2	-.8	2.0

FHF FOR THE REACH = 030 WITH 11.4% OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 6

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10%	1%	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.				SEC.		1.000
1	160.	828.1	835.5	-7.3	-7.3	075	100.
2	320.	828.1	835.5	-7.3	-7.3	075	100.
3	480.	828.1	835.5	-7.3	-7.3	075	100.
	600.				SEC.		2.000
4	640.	828.1	835.5	-7.3	-7.3	075	100.
5	800.	828.1	835.5	-7.3	-7.3	075	100.
6	960.	828.1	835.5	-7.3	-7.3	075	100.
7	1120.	828.1	835.5	-7.3	-7.3	075	100.
	1250.				SEC.		3.000
8	1280.	828.2	835.5	-7.3	-7.3	075	100.
	1316.				SEC.		3.500
9	1440.	828.2	835.5	-7.3	-7.3	075	100.
10	1600.	828.2	835.5	-7.3	-7.3	075	100.
11	1760.	828.2	835.5	-7.3	-7.3	075	100.
12	1920.	828.2	835.5	-7.3	-7.3	075	100.
13	2080.	828.2	835.5	-7.3	-7.3	075	100.
14	2240.	828.2	835.5	-7.3	-7.3	075	100.
15	2400.	828.2	835.5	-7.3	-7.3	075	100.
16	2560.	828.2	835.5	-7.3	-7.3	075	100.
17	2720.	828.2	835.5	-7.3	-7.3	075	100.
18	2880.	828.2	835.5	-7.3	-7.3	075	100.
19	3040.	828.2	835.5	-7.3	-7.3	075	100.
	3116.				SEC.		4.000
20	3200.	828.2	835.5	-7.3	-7.3	075	100.
21	3360.	828.2	835.5	-7.3	-7.3	075	100.
22	3520.	828.2	835.5	-7.3	-7.3	075	100.
23	3680.	828.2	835.5	-7.3	-7.3	075	100.
24	3840.	828.2	835.5	-7.3	-7.3	075	100.
25	4000.	828.2	835.5	-7.3	-7.3	075	100.
26	4160.	828.2	835.5	-7.3	-7.3	075	100.
27	4320.	828.2	835.5	-7.3	-7.3	075	100.
28	4480.	828.2	835.5	-7.3	-7.3	075	100.
29	4640.	828.2	835.5	-7.3	-7.3	075	100.
30	4800.	828.2	835.5	-7.3	-7.3	075	100.
31	4960.	828.2	835.5	-7.3	-7.3	075	100.
32	5120.	828.2	835.5	-7.3	-7.3	075	100.
33	5280.	828.2	835.5	-7.3	-7.3	075	100.
34	5440.	828.2	835.5	-7.3	-7.3	075	100.
35	5600.	828.2	835.5	-7.3	-7.3	075	100.
	5616.				SEC.		5.000

36	5760.	828.2	835.5	-7.3	-7.3	075	100.
37	5920.	828.2	835.5	-7.3	-7.3	075	100.
38	6080.	828.3	835.5	-7.3	-7.3	075	100.
39	6240.	828.3	835.5	-7.2	-7.3	075	100.
40	6400.	828.3	835.5	-7.2	-7.3	075	100.
41	6560.	828.3	835.5	-7.2	-7.3	075	100.
42	6720.	828.3	835.5	-7.2	-7.3	075	100.
43	6880.	828.3	835.5	-7.2	-7.3	075	100.
44	7040.	828.3	835.5	-7.2	-7.3	075	100.
45	7200.	828.3	835.5	-7.2	-7.3	075	100.
46	7360.	828.3	835.5	-7.2	-7.3	075	100.
	7391.				SEC.		6.000
47	7520.	828.4	835.5	-7.2	-7.3	075	100.
48	7680.	828.4	835.5	-7.1	-7.3	075	100.
49	7840.	828.4	835.5	-7.1	-7.3	075	100.
50	8000.	828.5	835.5	-7.1	-7.3	075	100.
51	8160.	828.5	835.5	-7.0	-7.3	075	100.
52	8320.	828.5	835.5	-7.0	-7.3	075	100.
53	8480.	828.5	835.5	-7.0	-7.3	075	100.
54	8640.	828.6	835.5	-7.0	-7.2	070	100.
55	8800.	828.6	835.5	-6.9	-7.2	070	100.
56	8960.	828.6	835.5	-6.9	-7.2	070	100.
57	9120.	828.7	835.5	-6.9	-7.2	070	100.
58	9280.	828.7	835.5	-6.8	-7.2	070	100.
59	9440.	828.7	835.5	-6.8	-7.2	070	100.
60	9600.	828.8	835.5	-6.8	-7.2	070	100.
61	9760.	828.8	835.5	-6.7	-7.2	070	100.
62	9920.	828.8	835.5	-6.7	-7.2	070	100.
63	10080.	828.8	835.5	-6.7	-7.2	070	100.
	10216.				SEC.		7.000
64	10240.	828.9	835.5	-6.7	-7.2	070	100.
65	10400.	828.9	835.5	-6.6	-7.2	070	100.
66	10560.	828.9	835.5	-6.6	-7.2	070	100.
67	10720.	829.0	835.5	-6.6	-7.2	070	100.
68	10880.	829.0	835.5	-6.5	-7.1	070	100.
69	11040.	829.1	835.5	-6.5	-7.1	070	100.
	11041.				SEC.		8.000
70	11200.	829.2	835.5	-6.4	-7.1	070	100.
71	11360.	829.4	835.6	-6.2	-7.1	070	100.
72	11520.	829.5	835.6	-6.0	-7.1	070	100.
73	11680.	829.7	835.6	-5.9	-7.1	070	100.
74	11840.	829.9	835.6	-5.7	-7.1	070	100.
75	12000.	830.1	835.6	-5.5	-7.0	070	100.
76	12160.	830.2	835.6	-5.4	-7.0	070	100.
77	12320.	830.4	835.6	-5.2	-7.0	070	94.
78	12480.	830.6	835.6	-5.1	-7.0	070	92.
	12591.				SEC.		9.000
79	12640.	830.8	835.7	-4.9	-6.9	070	91.
80	12800.	830.9	835.7	-4.8	-6.9	070	90.
81	12960.	831.0	835.7	-4.7	-6.9	070	89.
82	13120.	831.2	835.7	-4.5	-6.9	070	89.
83	13280.	831.3	835.8	-4.4	-6.8	070	88.
84	13440.	831.5	835.8	-4.3	-6.8	070	87.
85	13600.	831.6	835.8	-4.2	-6.8	070	86.
86	13760.	831.7	835.8	-4.1	-6.7	065	85.
	13821.				SEC.		10.000
87	13920.	831.9	835.9	-3.9	-6.7	065	85.
88	14080.	832.2	835.9	-3.7	-6.7	065	84.
89	14240.	832.4	836.0	-3.5	-6.6	065	83.
	14271.				SEC.		11.000
	14302.				SEC.		11.500

ELEVATION DIFFERENCE
BETWEEN BASE FLOOD AND

				10_	2_	0.2_		
WEIGHTED AVG FOR REACH				-6.6	-1.4	3.1		

FHF FOR REACH 1 = 065 WITH 83._ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A13

90	14400.	832.7	836.1	-3.4	-3.4	035	100.
91	14560.	832.7	836.1	-3.3	-3.4	035	100.
92	14720.	832.8	836.1	-3.2	-3.3	035	100.
93	14880.	832.9	836.1	-3.1	-3.3	035	100.
	14992.				SEC.		12.000
94	15040.	833.0	836.1	-3.1	-3.2	030	100.
95	15200.	833.1	836.1	-3.0	-3.2	030	100.
96	15360.	833.2	836.1	-3.0	-3.2	030	100.
97	15520.	833.2	836.1	-2.9	-3.1	030	100.
98	15680.	833.3	836.2	-2.9	-3.1	030	100.
99	15840.	833.3	836.2	-2.9	-3.1	030	100.
100	16000.	833.4	836.2	-2.8	-3.1	030	100.
101	16160.	833.4	836.2	-2.8	-3.0	030	100.
	16252.				SEC.		1.100
	16253.				SEC.		1.200
	16263.				SEC.		1.300
	16264.				SEC.		1.400
	16307.				SEC.		2.000
102	16320.	833.7	836.4	-2.8	-3.0	030	100.
103	16480.	833.8	836.5	-2.7	-3.0	030	100.
104	16640.	834.0	836.7	-2.7	-3.0	030	100.
	16705.				SEC.		3.000
105	16800.	834.1	836.8	-2.7	-3.0	030	100.
106	16960.	834.2	836.9	-2.6	-2.9	030	100.
107	17120.	834.3	836.9	-2.6	-2.9	030	100.
	17135.				SEC.		4.000
108	17280.	834.3	836.9	-2.6	-2.9	030	100.
	17366.				SEC.		5.000
109	17440.	834.4	837.0	-2.6	-2.9	030	100.
110	17600.	834.4	837.0	-2.6	-2.9	030	100.
	17711.				SEC.		6.000
111	17760.	834.4	837.0	-2.6	-2.9	030	100.
112	17920.	834.5	837.0	-2.5	-2.8	030	100.
	17961.				SEC.		7.000
113	18080.	834.6	837.1	-2.5	-2.8	030	100.
	18161.				SEC.		8.000
114	18240.	834.7	837.1	-2.5	-2.8	030	100.
	18281.				SEC.		9.000
115	18400.	834.8	837.2	-2.4	-2.8	030	100.
	18421.				SEC.		10.000
	18491.				SEC.		11.000
	18547.				SEC.		11.100
116	18560.	835.0	837.4	-2.4	-2.8	030	100.
	18657.				SEC.		12.000
117	18720.	835.1	837.4	-2.3	-2.8	030	100.
118	18880.	835.3	837.5	-2.2	-2.7	025	100.
	18957.				SEC.		13.000
119	19040.	835.3	837.5	-2.2	-2.7	025	100.
120	19200.	835.4	837.5	-2.1	-2.7	025	100.
	19267.				SEC.		14.000
	19301.				SEC.		14.100

	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-2.7	-.8	2.5

FHF FOR REACH 2 = 025 WITH 100.% OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 5

121	19360.	835.5	837.8	-2.3	-2.3	025	100.
	19411.				SEC.		15.000
122	19520.	835.6	837.9	-2.3	-2.3	025	100.
123	19680.	835.8	838.0	-2.2	-2.3	025	100.
124	19840.	835.9	838.1	-2.2	-2.2	020	100.
	19921.				SEC.		16.000
125	20000.	836.0	838.1	-2.1	-2.2	020	100.
126	20160.	836.1	838.2	-2.1	-2.2	020	100.
127	20320.	836.2	838.2	-2.0	-2.2	020	100.
128	20480.	836.3	838.3	-1.9	-2.1	020	100.
129	20640.	836.4	838.3	-1.9	-2.1	020	100.
130	20800.	836.5	838.4	-1.8	-2.1	020	100.
131	20960.	836.6	838.4	-1.8	-2.1	020	100.
132	21120.	836.7	838.5	-1.7	-2.0	020	100.
133	21280.	836.8	838.5	-1.7	-2.0	020	100.
134	21440.	836.9	838.6	-1.6	-2.0	020	100.
135	21600.	837.0	838.6	-1.6	-1.9	020	100.
136	21760.	837.1	838.6	-1.5	-1.9	020	100.
137	21920.	837.2	838.7	-1.5	-1.9	020	100.
	21991.				SEC.		17.000
138	22080.	837.3	838.8	-1.4	-1.9	020	100.
139	22240.	837.4	838.9	-1.4	-1.8	020	100.
140	22400.	837.6	839.0	-1.4	-1.8	020	100.
141	22560.	837.7	839.1	-1.4	-1.8	020	100.
142	22720.	837.8	839.2	-1.4	-1.8	020	99.
143	22880.	837.9	839.3	-1.4	-1.8	020	99.
144	23040.	838.0	839.4	-1.3	-1.7	015	99.
145	23200.	838.1	839.5	-1.3	-1.7	015	99.
	23341.				SEC.		20.000
146	23360.	838.3	839.6	-1.3	-1.7	015	98.
147	23520.	838.3	839.7	-1.3	-1.7	015	98.
148	23680.	838.4	839.8	-1.3	-1.7	015	98.
149	23840.	838.5	839.8	-1.4	-1.7	015	98.
150	24000.	838.6	839.9	-1.4	-1.7	015	98.
151	24160.	838.6	840.0	-1.4	-1.7	015	97.
152	24320.	838.7	840.1	-1.4	-1.6	015	97.
153	24480.	838.8	840.2	-1.4	-1.6	015	97.
154	24640.	838.9	840.3	-1.4	-1.6	015	97.
155	24800.	838.9	840.4	-1.5	-1.6	015	97.
	24816.				SEC.		21.000
156	24960.	839.0	840.5	-1.5	-1.6	015	97.
157	25120.	839.0	840.5	-1.5	-1.6	015	97.
158	25280.	839.0	840.5	-1.5	-1.6	015	97.
159	25440.	839.0	840.5	-1.5	-1.6	015	97.
160	25600.	839.1	840.5	-1.5	-1.6	015	97.
161	25760.	839.1	840.6	-1.5	-1.6	015	96.
162	25920.	839.1	840.6	-1.5	-1.6	015	96.
163	26080.	839.1	840.6	-1.5	-1.6	015	96.
164	26240.	839.1	840.6	-1.5	-1.6	015	96.
165	26400.	839.2	840.6	-1.5	-1.6	015	96.
	26516.				SEC.		22.000
166	26560.	839.2	840.7	-1.5	-1.6	015	96.
167	26720.	839.2	840.7	-1.5	-1.6	015	96.
168	26880.	839.2	840.7	-1.5	-1.6	015	96.
169	27040.	839.2	840.7	-1.5	-1.6	015	96.
170	27200.	839.2	840.7	-1.5	-1.6	015	96.
171	27360.	839.2	840.7	-1.5	-1.6	015	96.
172	27520.	839.2	840.7	-1.5	-1.6	015	97.
173	27680.	839.3	840.7	-1.4	-1.6	015	97.
174	27840.	839.3	840.7	-1.4	-1.6	015	97.

	27916.				SEC.	23.000	
	27957.				SEC.	23.100	
175	28000.	839.3	840.8	-1.4	-1.6	015	97.
	28047.				SEC.	24.000	
	28093.				SEC.	24.500	
176	28160.	839.4	840.9	-1.5	-1.6	015	97.
177	28320.	839.5	841.0	-1.4	-1.6	015	97.
178	28480.	839.6	841.1	-1.4	-1.6	015	97.
	28493.				SEC.	25.000	
179	28640.	839.7	841.1	-1.4	-1.6	015	97.
180	28800.	839.7	841.2	-1.4	-1.6	015	97.
181	28960.	839.8	841.2	-1.4	-1.6	015	97.
182	29120.	839.8	841.2	-1.4	-1.6	015	96.
183	29280.	839.8	841.2	-1.4	-1.6	015	96.
184	29440.	839.9	841.2	-1.4	-1.5	015	96.
185	29600.	839.9	841.2	-1.4	-1.5	015	96.
186	29760.	839.9	841.3	-1.4	-1.5	015	96.
187	29920.	839.9	841.3	-1.3	-1.5	015	96.
188	30080.	840.0	841.3	-1.3	-1.5	015	96.
189	30240.	840.0	841.3	-1.3	-1.5	015	96.
	30293.				SEC.	26.000	
190	30400.	840.0	841.3	-1.3	-1.5	015	96.
191	30560.	840.1	841.4	-1.3	-1.5	015	96.
192	30720.	840.1	841.4	-1.3	-1.5	015	96.
193	30880.	840.1	841.4	-1.3	-1.5	015	96.
194	31040.	840.2	841.4	-1.3	-1.5	015	96.
195	31200.	840.2	841.5	-1.3	-1.5	015	96.
196	31360.	840.2	841.5	-1.2	-1.5	015	96.
197	31520.	840.3	841.5	-1.2	-1.5	015	96.
	31543.				SEC.	27.000	
198	31680.	840.4	841.6	-1.2	-1.5	015	96.
199	31840.	840.5	841.6	-1.1	-1.5	015	96.
200	32000.	840.7	841.7	-1.0	-1.5	015	96.
201	32160.	840.9	841.8	-.9	-1.5	015	96.
	32193.				SEC.	28.000	
	32225.				SEC.	28.500	
202	32320.	841.1	842.4	-1.3	-1.5	015	96.
203	32480.	841.2	842.5	-1.3	-1.5	015	96.
204	32640.	841.4	842.7	-1.3	-1.5	015	96.
205	32800.	841.6	842.9	-1.3	-1.5	015	96.
	32815.				SEC.	29.000	
206	32960.	841.8	843.1	-1.3	-1.5	015	96.
207	33120.	841.9	843.2	-1.3	-1.5	015	96.
208	33280.	842.0	843.3	-1.3	-1.5	015	96.
209	33440.	842.1	843.4	-1.3	-1.5	015	96.
210	33600.	842.2	843.5	-1.3	-1.5	015	96.
211	33760.	842.3	843.6	-1.3	-1.5	015	96.
212	33920.	842.4	843.7	-1.2	-1.5	015	96.
213	34080.	842.5	843.8	-1.2	-1.5	015	96.
214	34240.	842.6	843.9	-1.2	-1.5	015	96.
215	34400.	842.8	844.0	-1.2	-1.5	015	96.
216	34560.	842.9	844.1	-1.2	-1.5	015	96.
217	34720.	843.0	844.2	-1.2	-1.4	015	96.
218	34880.	843.1	844.3	-1.2	-1.4	015	95.
219	35040.	843.2	844.4	-1.2	-1.4	015	95.
220	35200.	843.3	844.5	-1.2	-1.4	015	95.
221	35360.	843.4	844.6	-1.1	-1.4	015	95.
	35465.				SEC.	30.000	
222	35520.	843.5	844.7	-1.1	-1.4	015	95.
223	35680.	843.6	844.7	-1.1	-1.4	015	96.
224	35840.	843.6	844.8	-1.1	-1.4	015	96.
225	36000.	843.7	844.8	-1.1	-1.4	015	96.
226	36160.	843.7	844.8	-1.1	-1.4	015	96.
227	36320.	843.7	844.9	-1.1	-1.4	015	96.

228	36480.	843.8	844.9	-1.1	-1.4	015	96.
229	36640.	843.8	844.9	-1.1	-1.4	015	96.
230	36800.	843.9	845.0	-1.1	-1.4	015	96.
231	36960.	843.9	845.0	-1.1	-1.4	015	96.
232	37120.	843.9	845.0	-1.1	-1.4	015	96.
	37215.				SEC.	31.000	
233	37280.	844.0	845.1	-1.1	-1.4	015	96.
234	37440.	844.0	845.1	-1.1	-1.4	015	96.
235	37600.	844.0	845.1	-1.1	-1.4	015	96.
236	37760.	844.1	845.2	-1.1	-1.4	015	96.
237	37920.	844.1	845.2	-1.1	-1.4	015	96.
238	38080.	844.1	845.2	-1.1	-1.4	015	96.
239	38240.	844.1	845.2	-1.1	-1.4	015	96.
240	38400.	844.2	845.3	-1.1	-1.4	015	96.
241	38560.	844.2	845.3	-1.1	-1.4	015	96.
242	38720.	844.2	845.3	-1.1	-1.4	015	96.
243	38880.	844.2	845.3	-1.1	-1.4	015	96.
244	39040.	844.3	845.4	-1.1	-1.4	015	96.
245	39200.	844.3	845.4	-1.1	-1.4	015	96.
246	39360.	844.3	845.4	-1.1	-1.4	015	96.
247	39520.	844.4	845.4	-1.1	-1.4	015	96.
248	39680.	844.4	845.5	-1.1	-1.4	015	96.
249	39840.	844.4	845.5	-1.1	-1.4	015	96.
250	40000.	844.4	845.5	-1.1	-1.4	015	96.
251	40160.	844.5	845.5	-1.1	-1.4	015	96.
252	40320.	844.5	845.6	-1.1	-1.4	015	96.
253	40480.	844.5	845.6	-1.1	-1.4	015	96.
254	40640.	844.6	845.6	-1.1	-1.4	015	96.
255	40800.	844.6	845.6	-1.1	-1.4	015	96.
256	40960.	844.6	845.7	-1.0	-1.3	015	96.
257	41120.	844.6	845.7	-1.0	-1.3	015	96.
258	41280.	844.7	845.7	-1.0	-1.3	015	96.
259	41440.	844.7	845.7	-1.0	-1.3	015	96.
260	41600.	844.7	845.8	-1.0	-1.3	015	96.
261	41760.	844.8	845.8	-1.0	-1.3	015	96.
262	41920.	844.8	845.8	-1.0	-1.3	015	96.
263	42080.	844.8	845.8	-1.0	-1.3	015	96.
264	42240.	844.8	845.9	-1.0	-1.3	015	96.
265	42400.	844.9	845.9	-1.0	-1.3	015	96.
	42465.				SEC.	32.000	
266	42560.	844.9	845.9	-1.0	-1.3	015	96.
267	42720.	845.0	846.0	-1.0	-1.3	015	96.
268	42880.	845.1	846.1	-1.0	-1.3	015	96.
269	43040.	845.1	846.1	-1.0	-1.3	015	96.
270	43200.	845.2	846.2	-1.0	-1.3	015	96.
271	43360.	845.3	846.3	-1.0	-1.3	015	96.
	43365.				SEC.	33.000	
	43396.				SEC.	33.090	

	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND		
	10_	2_	0.2_
WEIGHTED AVG FOR REACH	-1.3	-.4	1.2

FHF FOR REACH 3 = 015 WITH 96._ OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 3

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     HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
     ERROR CORR -  01
     MODIFICATION -  50,51,52
   ***************************************************

  READY 11.41.39
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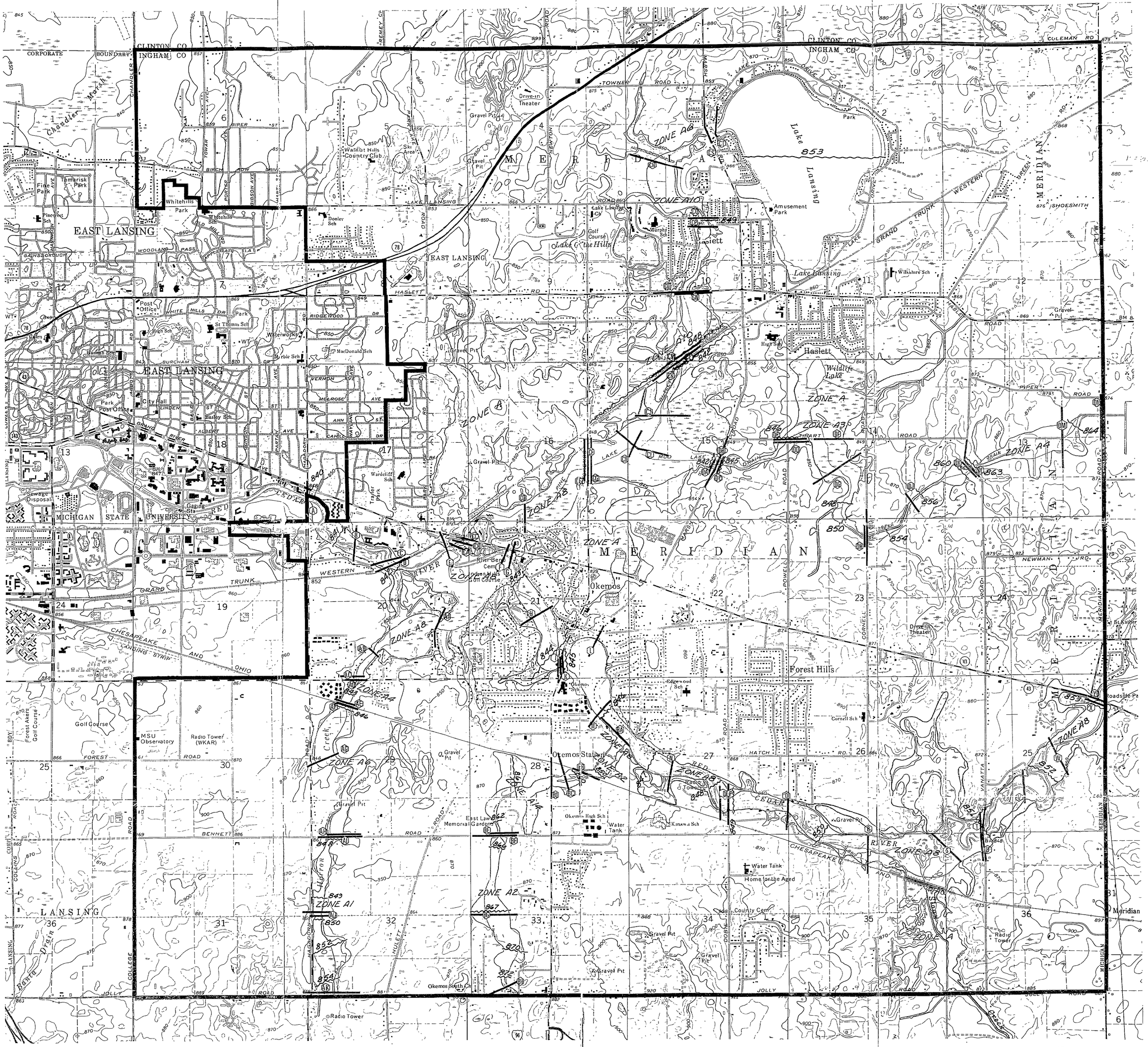

CLINTON CO
INGHAM CO
CORPORATE BOUNDARY
EAST LANSING
MICHIGAN STATE UNIVERSITY
LANSING
Lake Lansing
Lake o' the Hills
Wildlife Lake
Okemos
Haslett
Forest Hills
MERIDIAN
ZONE A
ZONE AB
ZONE AA
ZONE A1
ZONE A2
ZONE A3
ZONE A4
Chandler Marsh
Walnut Hills Country Club
Drive-in Theater
Amusement Park
Golf Course
Gravel Pit
Trailer Park
Cemetery
Radio Tower
Water Tank
Home for the Aged
Okemos High Sch
Okemos South Ch
Okemos Station
Edgewood Sch
Cornell Sch
Kinawa Sch
Wilshire Sch
Donley Sch
Whitehills Sch
Murphy Sch
Bailey Sch
Hannah Sch
Burcham Sch
Marble Sch
MacDonald Sch
St Thomas Sch
Pinecrest Sch
Wardcliff Sch
Fire Station
Post Office
City Hall
Park
Sewage Disposal
Gaging Sta
MSU Observatory
Golf Courses
Forest Akers Golf Course
East Lawn Memorial Gardens
River Bend Cemetery
Roadside Park
Meridian
Lake
Creek
Drain
Marsh
Grand Trunk Western
Chesapeake and Ohio
Landing Strip
Towner Road
Haslett Road
Hatch Rd.
Jolly Road
Coleman Rd
Piper Road
Newman Rd.
Bennett Road
Forest Road
Cedar River
Red Cedar River
Sycamore Creek
Lake Lansing Drive
Park Lake Drive
Mt. Hope
Aurelius
Dobie
Powell
Cornell
Vanatta
Collins
Hagadorn
Hulett
College
Okemos
Newton
Towar
Park Lake
Jolly
Dobie
Michigan
Meridian
Chandler
Birch
Burcham
Woodland Pass
Haslett
Wilshire
Ridgewood
White Hills
Vernon
Melrose
Ann
Cahill
Mayfield
Linden
Albert
Grand River
Shaw Lane
Abbot
Kendon
Hagadorn
Harrison
Park Lake
Towar
Abbot
Kendon
Dunsten
Hulett
Okemos
Newton
Dobie
Powell
Cornell
Vanatta
Meridian
Michigan
Collins
College
Hagadorn
Hulett
Dobie

MATCH LINE – C

MATCH LINE – C

N

0 400'
Scale

MATCH LINE – D

Mud Lake Drain

MATCH LINE – B

MATCH LINE – B

MATCH LINE – D

Mud Lake Dr.

REVISION NO.	DESCRIPTION	DATE	BY

DRAWN BY CHG — DATE 2/94
CHECKED BY — DATE
APPROVED BY — DATE
CADFILE

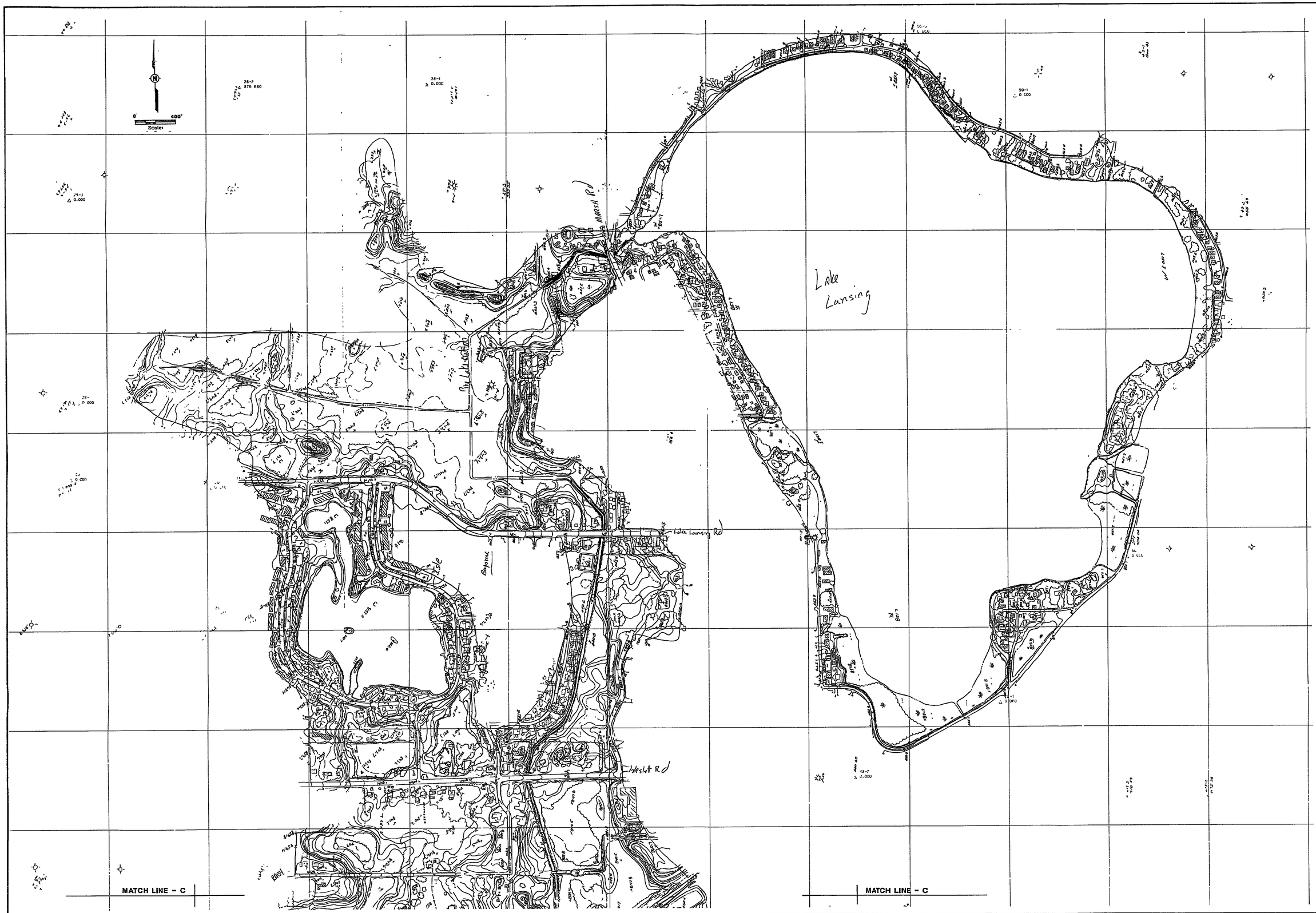
FLOOD INSURANCE STUDY
WORK MAP
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN.

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NUMBER
71869 I
STS PROJECT FILE

SCALE
1" = 400'

SHEET NUMBER
3



REVISION NO	DESCRIPTION	DATE	BY

DRAWN BY CHG DATE 2/94

CHECKED BY DATE

APPROVED BY DATE

CADFILE

FLOOD INSURANCE STUDY
WORK MAP
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN.

STS Consultants Ltd
Consulting Engineers

STS PROJECT NUMBER
71869 I

STS PROJECT FILE

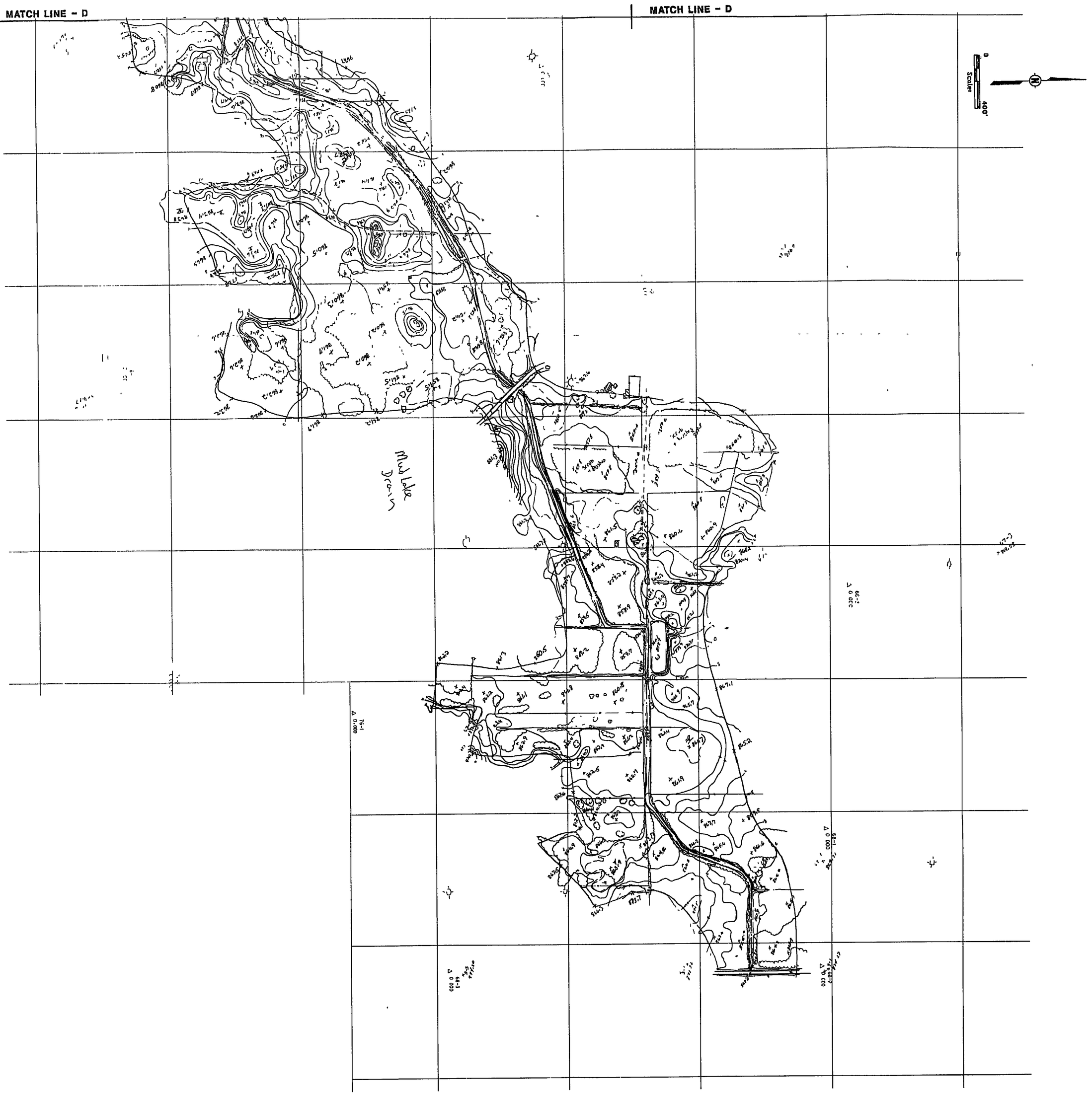
SCALE
1" = 400'

SHEET NUMBER
4

WHEELING REPRODUCTIONS, 652873

MATCH LINE - D

MATCH LINE - D

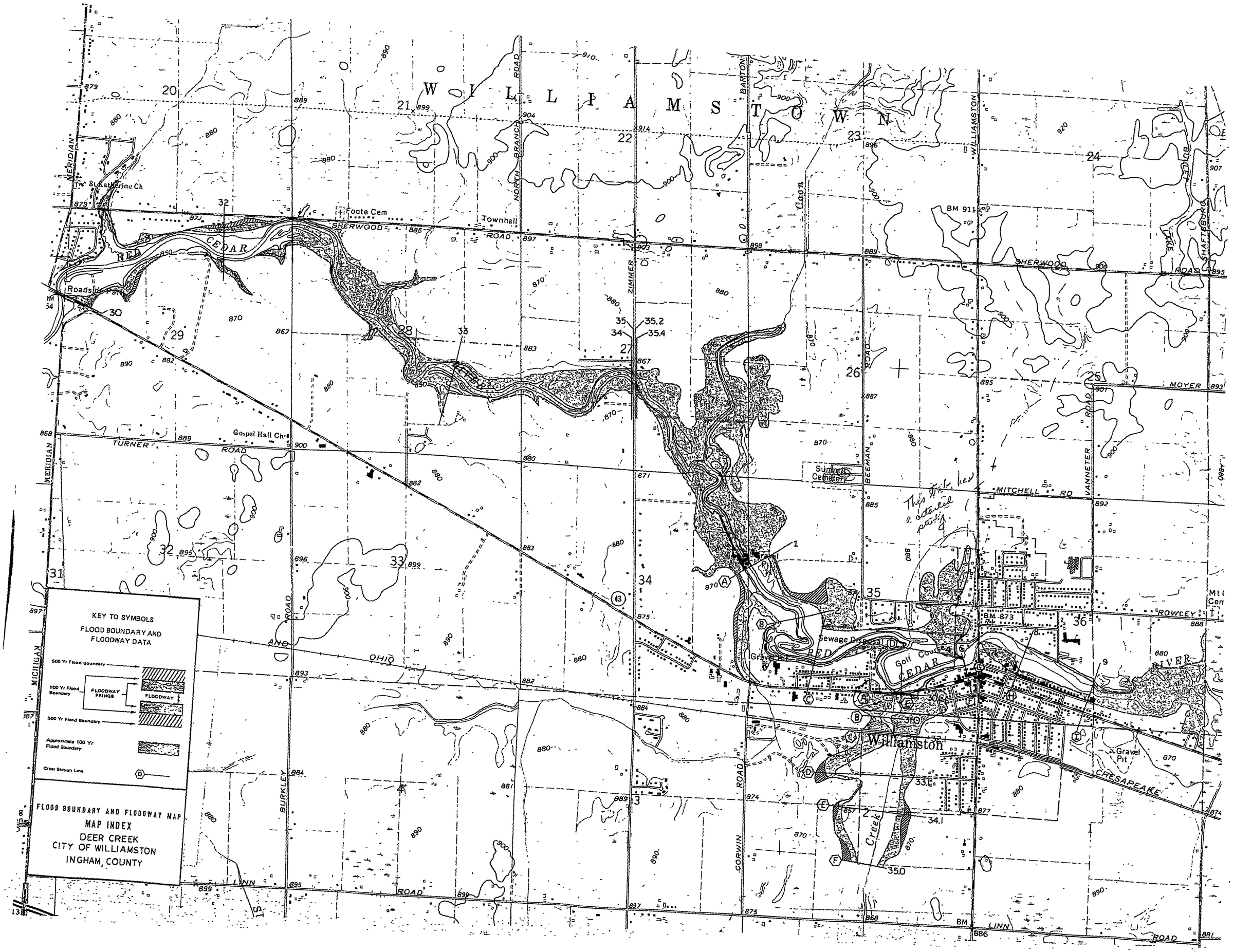


Mud Lake Dr.

STS PROJECT NUMBER: 71869 I	DRAWN BY: CHG	DATE: 2/94	REVISION NO / DESCRIPTION / DATE / BY
STS PROJECT FILE	CHECKED BY	DATE	
SCALE: 1" = 400'	APPROVED BY	DATE	
SHEET NUMBER: 5	CADFILE		

STS Consultants Ltd.
Consulting Engineers

FLOOD INSURANCE STUDY
WORK MAP
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN.



WILLIAMSTOWN
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500 Yr Flood Boundary
100 Yr Flood Boundary
FLOODWAY FRINGE
FLOODWAY
500 Yr Flood Boundary
Approximate 100 Yr Flood Boundary
Cross Section Line
FLOOD BOUNDARY AND FLOODWAY MAP
MAP INDEX
DEER CREEK
CITY OF WILLIAMSTON
INGHAM, COUNTY
Williamston
Foote Cem
Townhall
Gospel Hall Ch
Summit Cemetery
Sewage Disposal
Golf Course
Gravel Pit
RED CEDAR RIVER
SHERWOOD ROAD
TURNER ROAD
MITCHELL RD
MOYER
ROWLEY
LINN ROAD
CHESAPEAKE
MERIDIAN
MICHIGAN
BURKLEY ROAD
CORWIN ROAD
ZIMMER
NORTH BRANCH ROAD
BARTON
WILLIAMSTON
BEEMAN ROAD
VANNETER ROAD
SHAFTSBURG
BUILT LAKE
Coon Creek

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500 Yr Flood Boundary

100 Yr Flood Boundary

FLOODWAY FRINGE

FLOODWAY

500 Yr Flood Boundary

Approximate 100 Yr Flood Boundary

Cross Section Line

FLOOD BOUNDARY AND FLOODWAY MAP

MAP INDEX

UNNAMED TRIBUTARY

WILLIAMSTOWN TOWNSHIP

Locke Twp



KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500 Yr Flood Boundary

100 Yr Flood Boundary — FLOODWAY FRINGE — FLOODWAY

500 Yr Flood Boundary

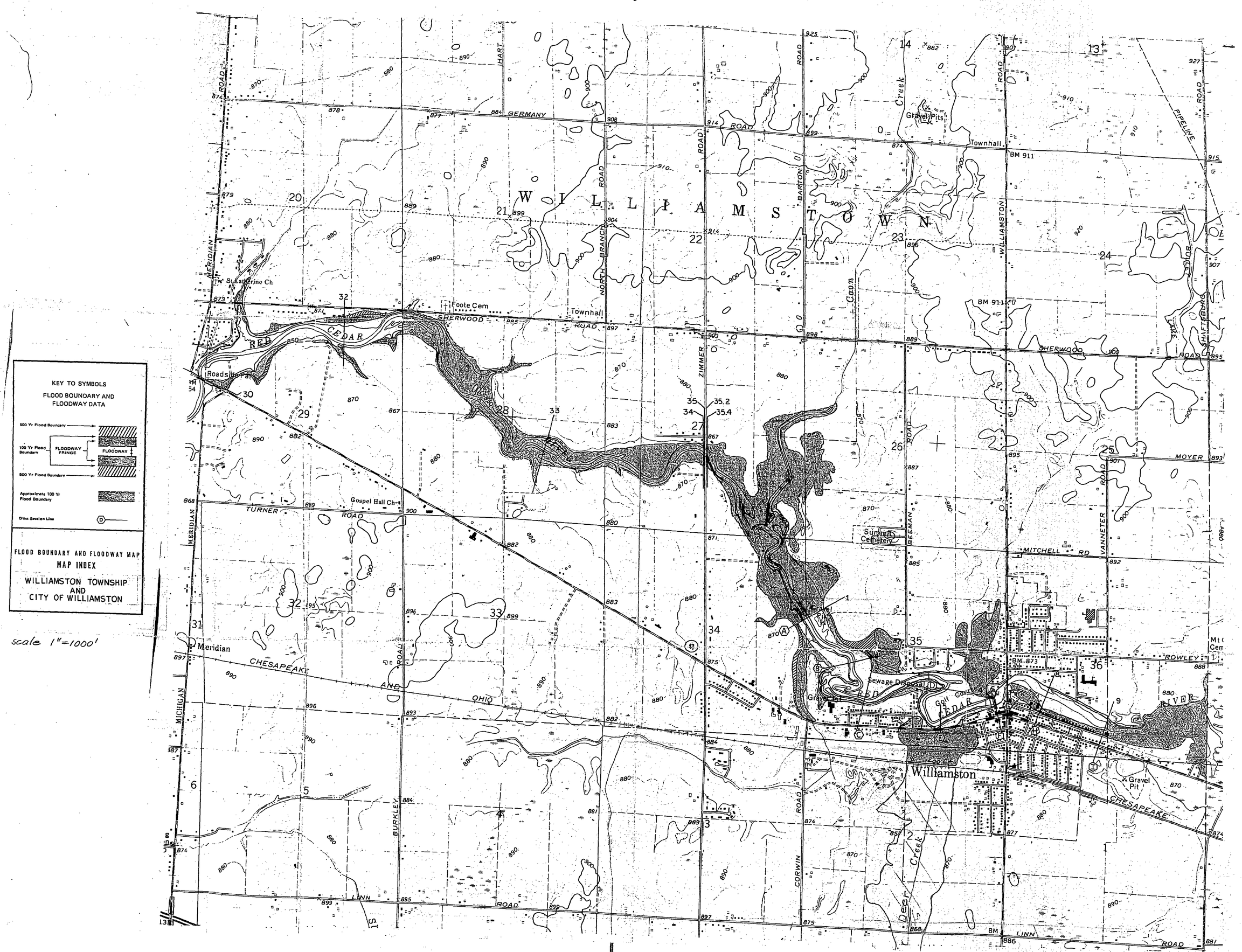
Approximate 100 Yr Flood Boundary

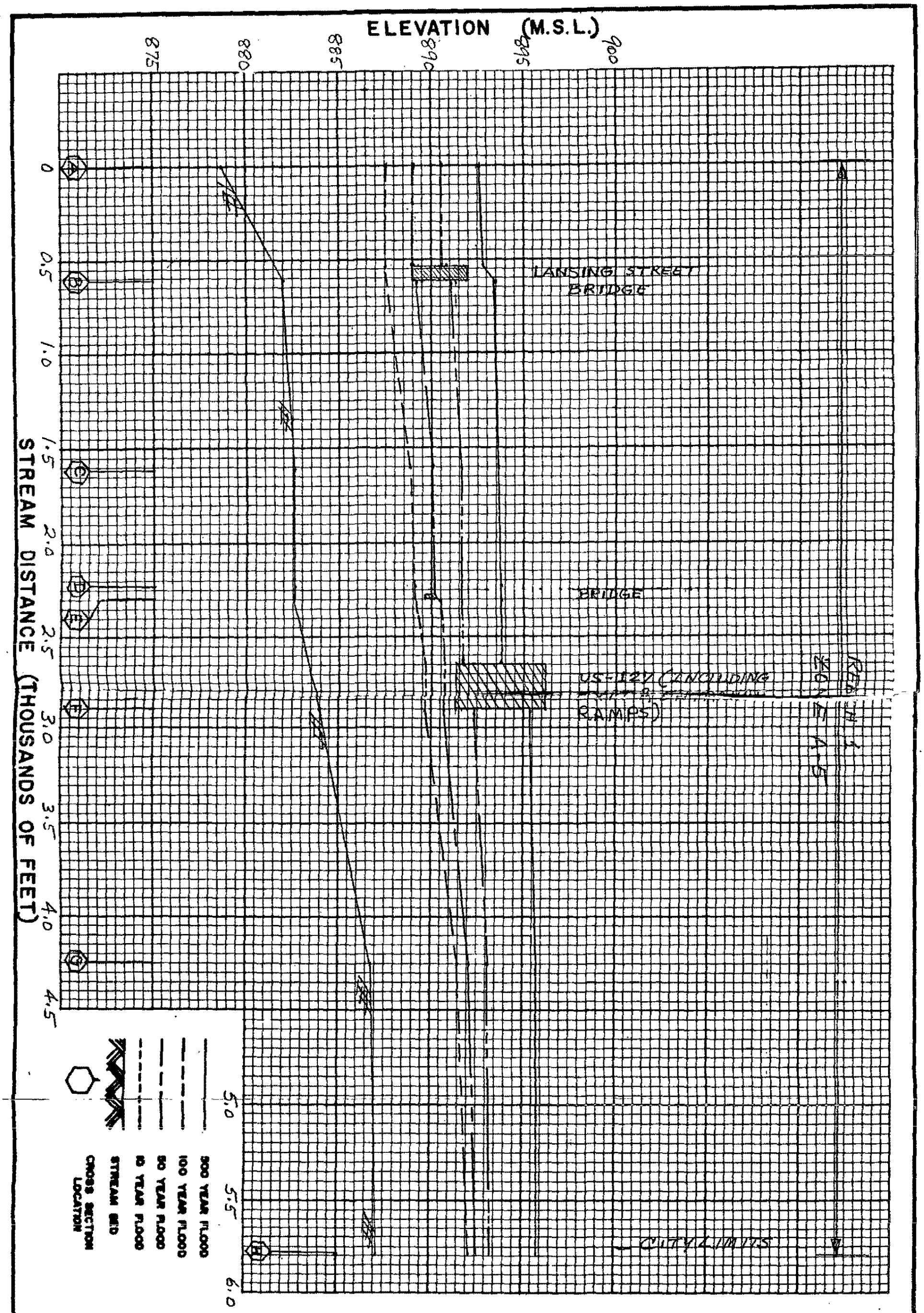
Cross Section Line

FLOOD BOUNDARY AND FLOODWAY MAP

MAP INDEX

LOCKE TOWNSHIP


KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500 Yr Flood Boundary
100 Yr Flood Boundary
FLOODWAY FRINGE
FLOODWAY
500 Yr Flood Boundary
Approximate 100 Yr Flood Boundary
Cross Section Line
FLOOD BOUNDARY AND FLOODWAY MAP
MAP INDEX
WILLIAMSTON TOWNSHIP
AND
CITY OF WILLIAMSTON
scale 1"=1000'
WILLIAMSTOWN
Williamston
Meridian
Gravel Pits
Gravel Pit
Sewage Disposal
Summit Cemetery
Foote Cem
Townhall
Gospel Hall Ch
St Katherine Ch
Roads de Park
RED CEDAR RIVER
GERMANY ROAD
SHERWOOD ROAD
TURNER ROAD
CHESAPEAKE AND OHIO
MITCHELL RD
MOYER
ROWLEY
LINN ROAD
MERIDIAN ROAD
MICHIGAN
BURKLEY ROAD
CORWIN ROAD
BEEMAN ROAD
VANNETER ROAD
WILLIAMSTON ROAD
BARTON ROAD
NORTH BRANCH ROAD
ZIMMER ROAD
HART
PIPELINE ROAD
SHAFTSBURG
Deer Creek
Caon Creek

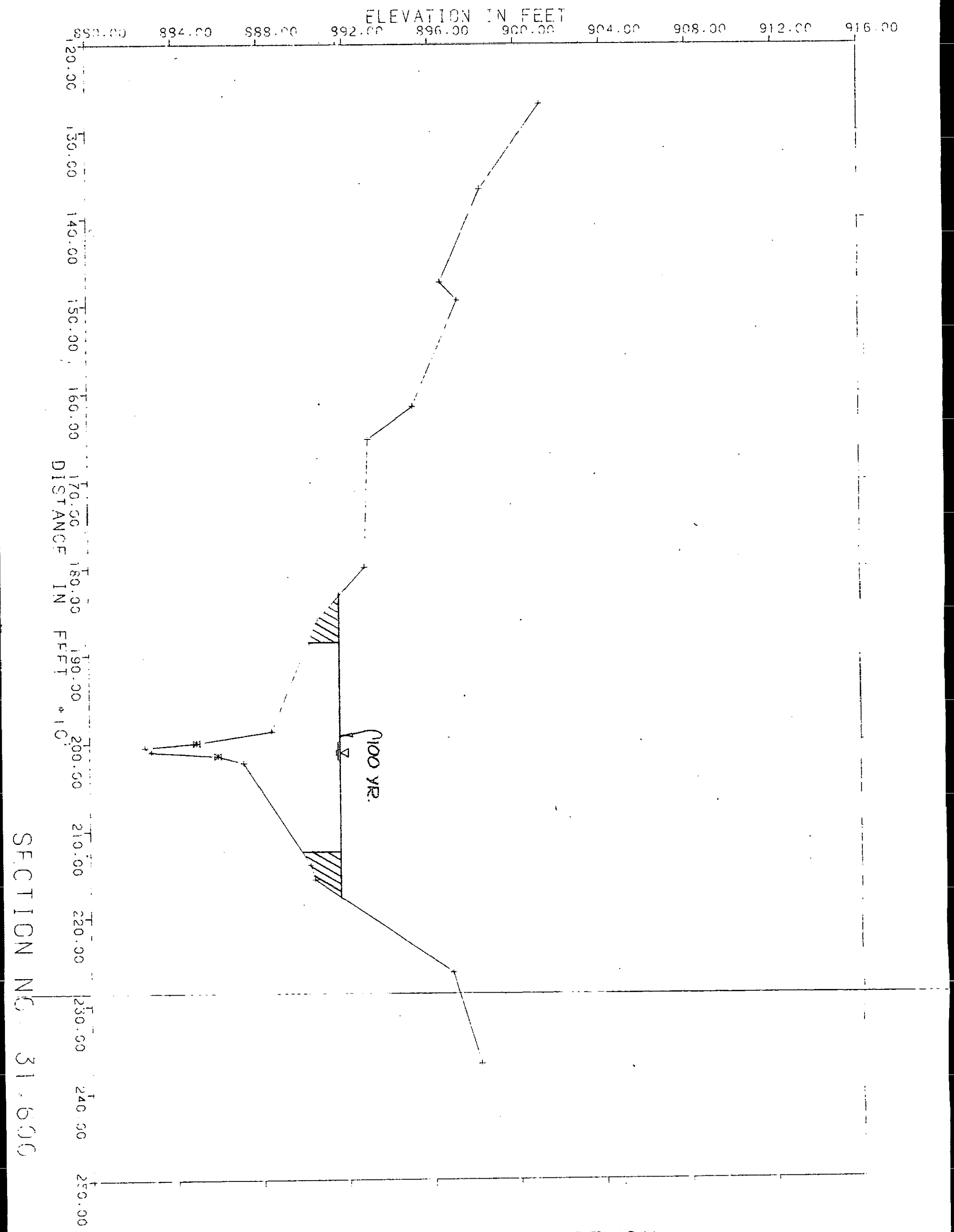


CITY OF MASON
INGHAM CO., MI

WILLOW CREEK

FLOOD PROFILE

Revised 5/21/80

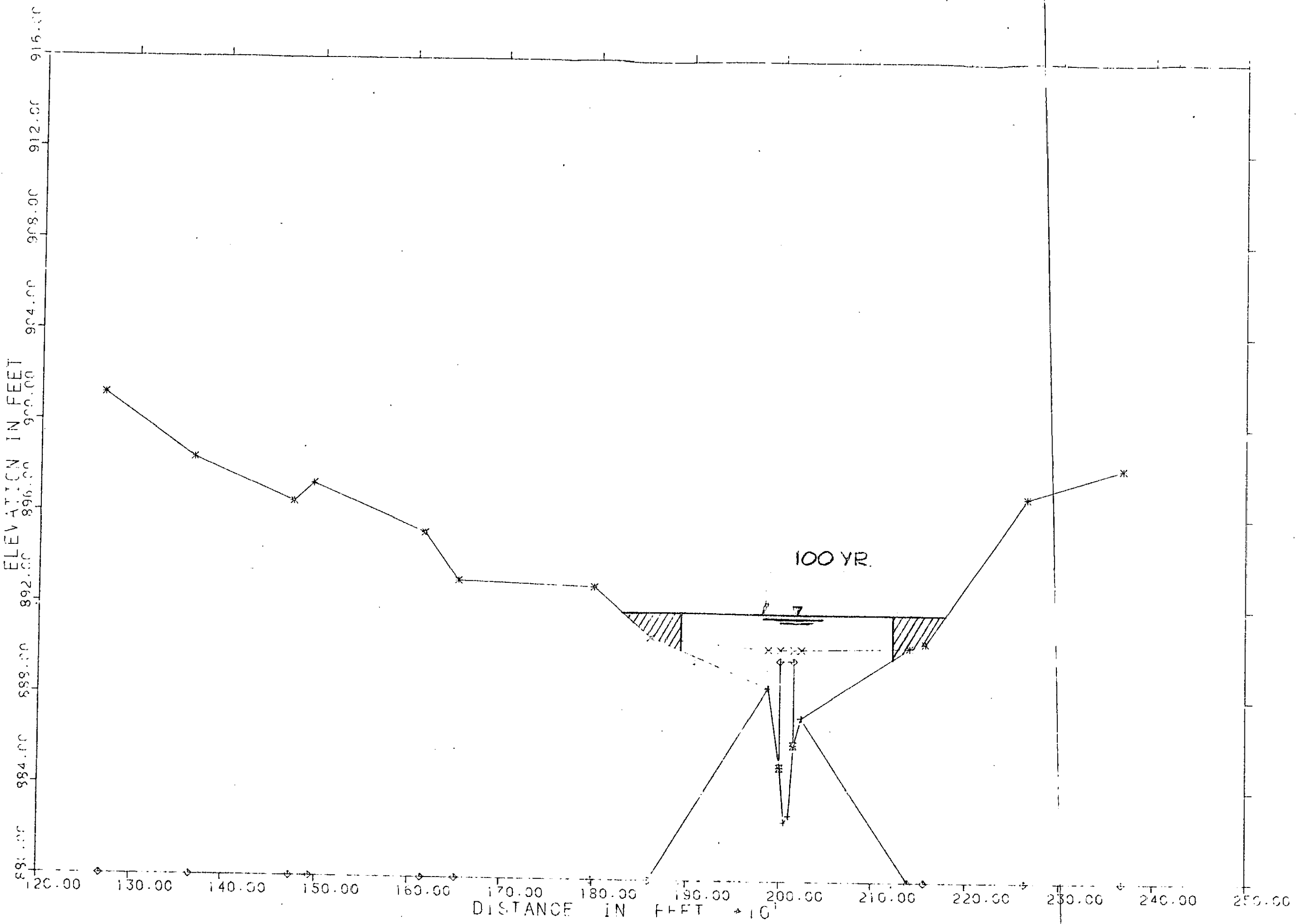


FLOOD INSURANCE STUDY

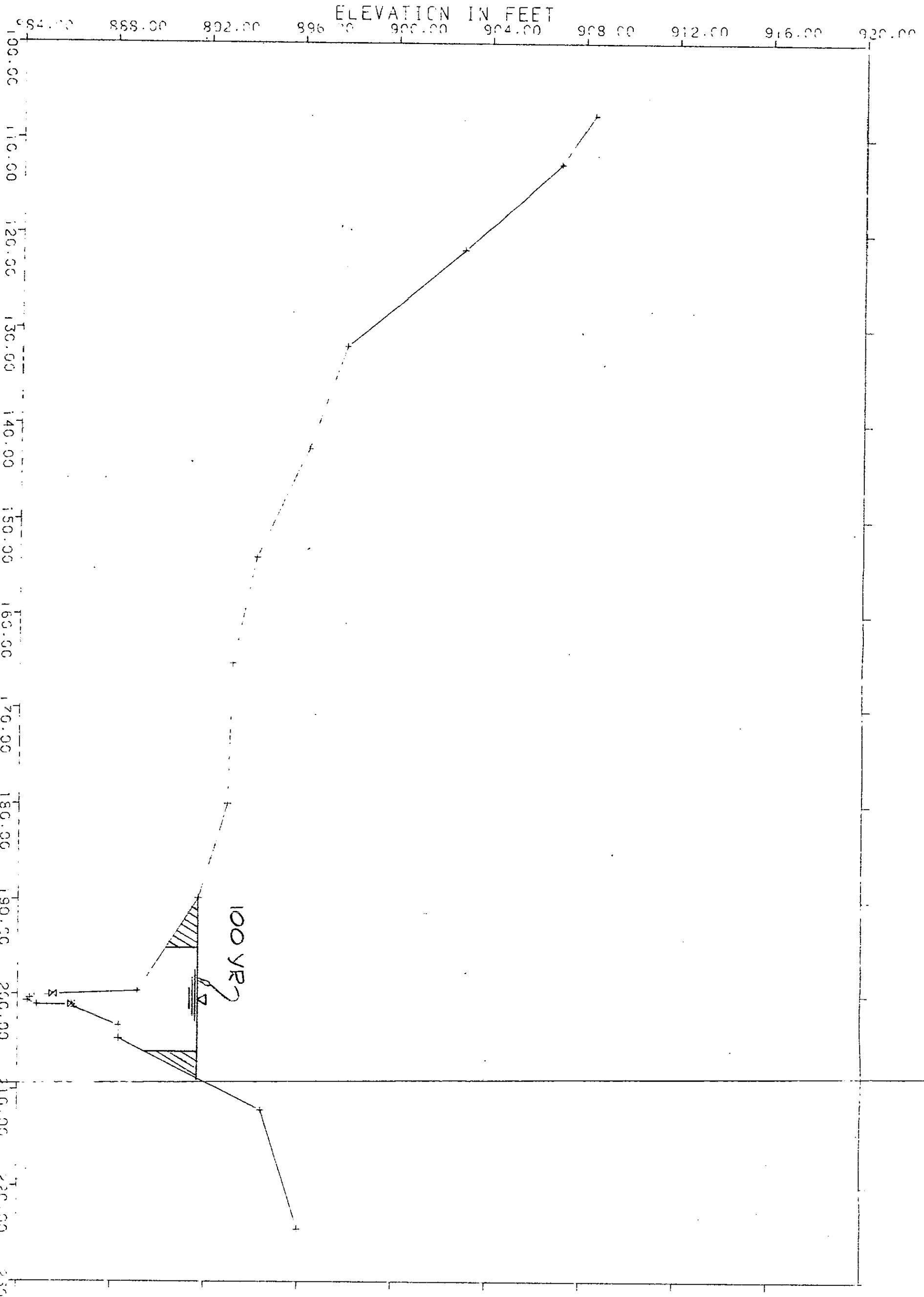
WILLOW CREEK AT MASON

FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON



SECTION NO 31.800

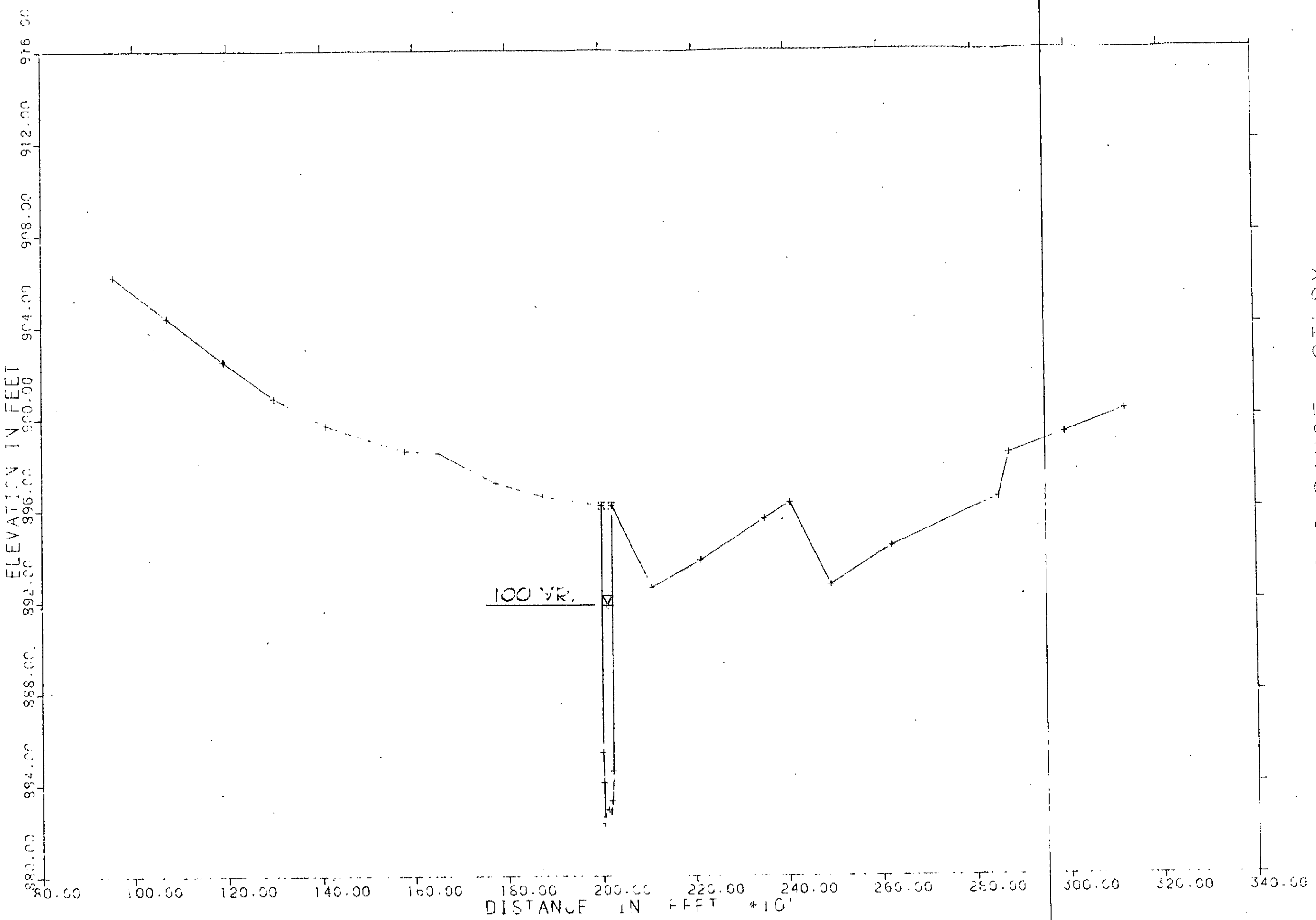


FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON

WILLOW CREEK AT MASON

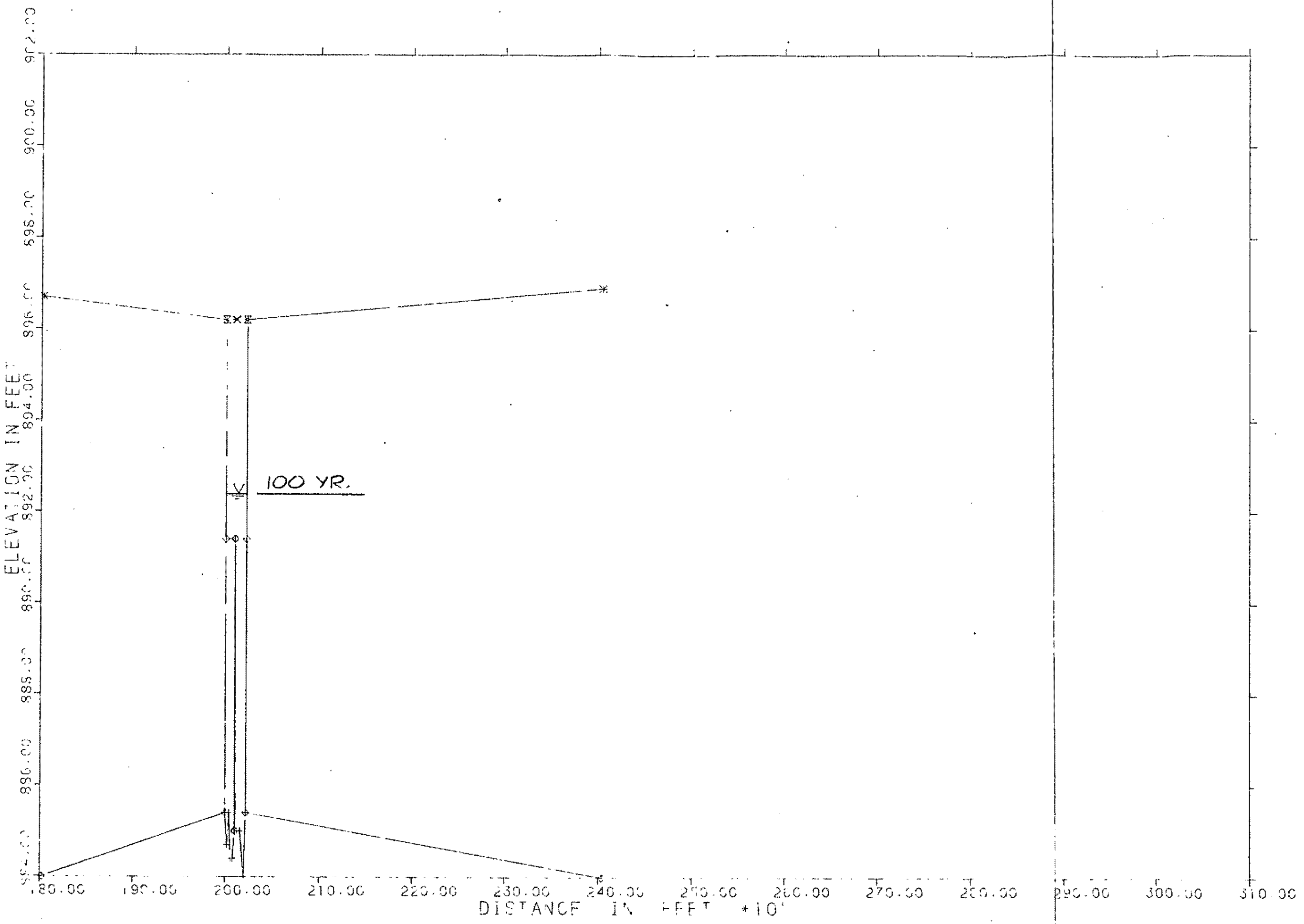
FLOOD INSURANCE STUDY



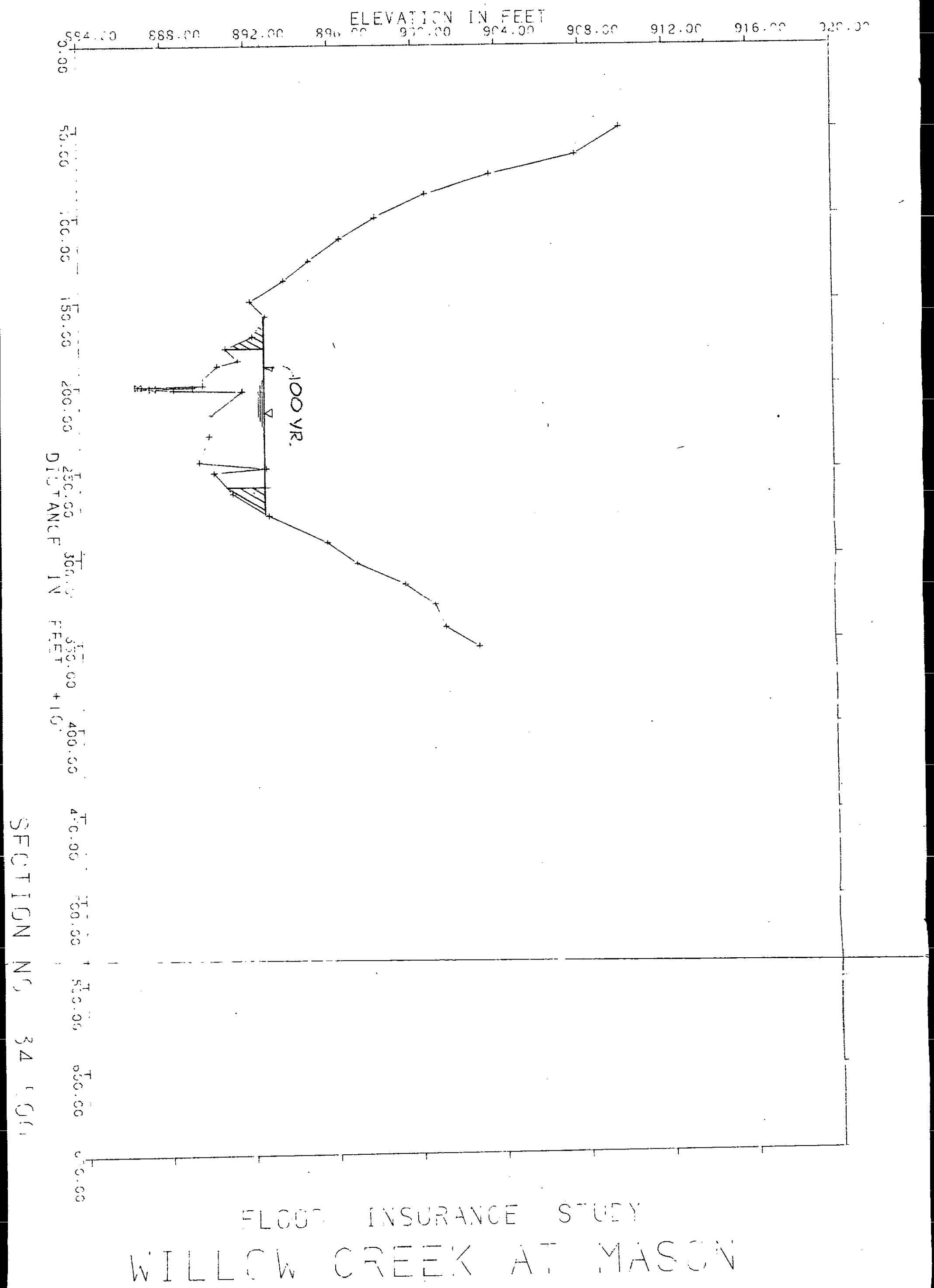
SECTION NO. 32,900

FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON



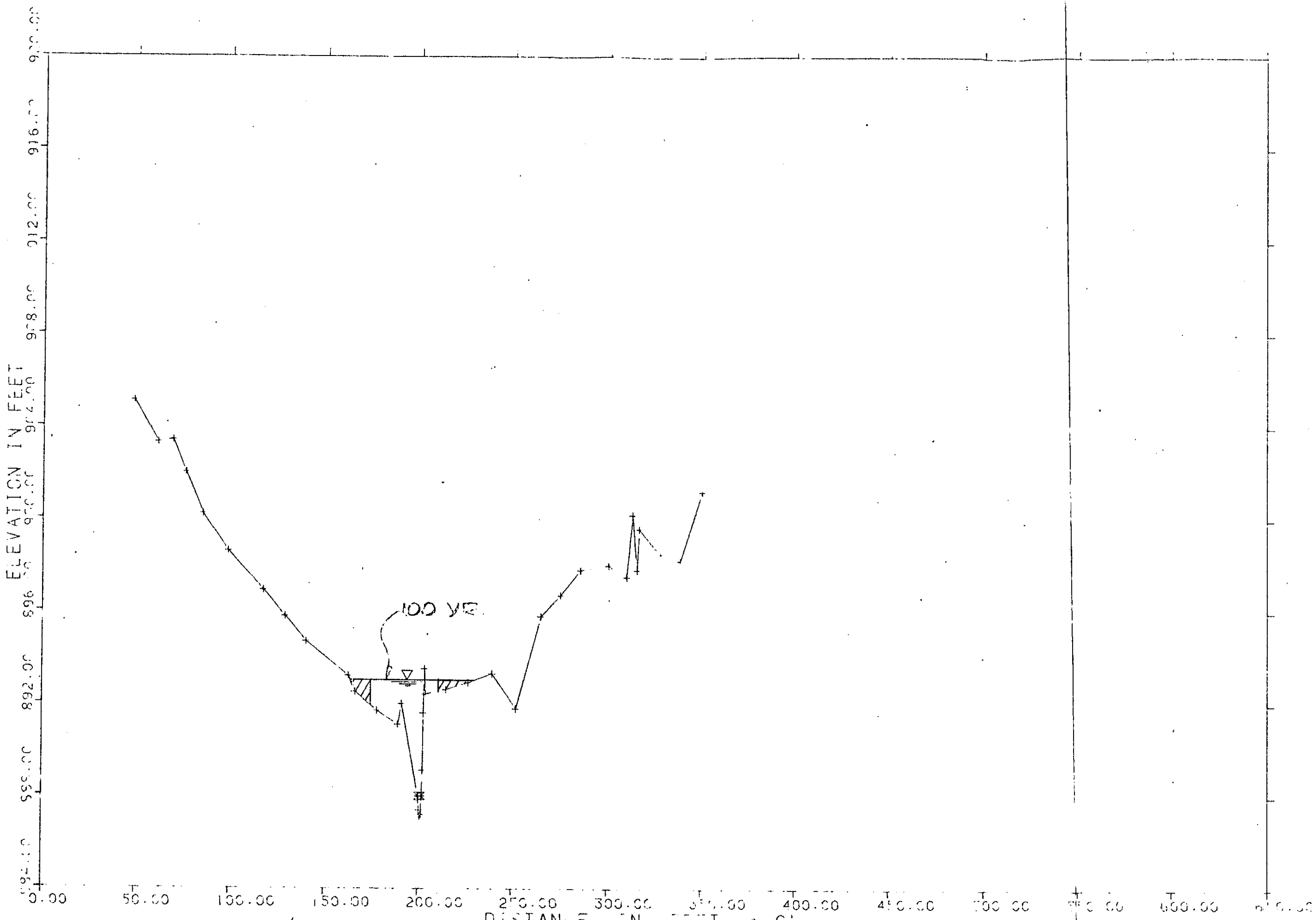
SECTION NO 33.100


ELEVATION IN FEET
884.00
888.00
892.00
904.00
908.00
912.00
916.00
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
100 YR.
DISTANCE IN FEET +10'
SECTION NO. 34 100
FLOOD INSURANCE STUDY
WILLOW CREEK AT MASON

WILLOW CREEK

FLOOD INSURANCE STUDY

AT MASON



DISTANCE IN FEET

SECTION NO. 3

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01.02.03.04
  MODIFICATION -  50.51.52.53.54
**************************************************

C
T1      NORMAL BACKWATER STARTING WSL KNOWN
T2      100 YR FLOOD NATURAL PROFILE
T3      RAYNER CK. CITY OF MASON
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	875.250	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

	110.000	200.000	38.000	1.000	53.000	21.000	22.000	54.000	4.000	39.000

NC	.060	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	6.000	1010.000	1345.000	1545.000	2205.000	1545.000	1648.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

VALLEY SECTION AT CONFLUENCE OF RAYNER CR AND SYCAMORE CR (A)

X1	39.000	25.000	2000.000	2025.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	877.300	1892.000	876.200	1907.000	877.800	1932.000	873.300	1966.000	871.200	1972.000
GR	870.100	1979.000	871.700	1985.000	871.100	2000.000	870.100	2004.000	869.400	2007.000
GR	868.500	2012.000	869.300	2015.000	871.100	2020.000	874.900	2025.000	877.400	2032.000
GR	876.000	2049.000	873.700	2134.000	872.700	2209.000	873.200	2319.000	873.600	2423.000
GR	876.000	2444.000	877.000	2545.000	877.500	2593.000	877.300	2618.000	881.100	2730.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	39.800	20.000	1555.000	2012.000	250.000	250.000	250.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.300	1821.000	873.800	1958.000	873.300	1977.000	874.100	1990.000
GR	870.400	2000.000	869.500	2001.000	869.000	2005.000	868.500	2009.000	870.000	2012.000
GR	874.400	2022.000	874.100	2094.000	871.700	2161.000	875.300	2252.000	873.200	2335.000
GR	873.300	2447.000	878.700	2485.000	883.600	2525.000	885.700	2600.000	885.800	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	39.900	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.000	38.000	1556.000	2012.000	1.000	1.000	1.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.300	1821.000	874.400	1935.000	873.800	1958.000	873.300	1977.000
GR	874.100	1990.000	870.400	2000.000	870.100	2001.000	869.150	2005.000	868.580	2005.700
GR	868.500	2006.400	868.300	2008.400	868.290	2009.000	869.150	2009.900	870.000	2012.000
GR	874.400	2022.000	874.100	2094.000	871.700	2161.000	875.300	2252.000	873.200	2335.000
GR	873.300	2447.000	878.700	2485.000	883.600	2525.000	885.700	2600.000	885.800	2629.000
GR	883.300	2682.000	883.700	2689.000	883.800	2694.000	883.000	2696.000	884.500	2750.000
GR	883.700	2796.000	884.500	2889.000	884.300	2912.000	885.000	2913.000	885.100	2920.000
GR	886.100	2925.000	886.300	2949.000	887.900	3061.000	0.000	0.000	0.000	0.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	4.940	2.800	0.000	4.090	0.000	17.600	0.000	868.490	868.290

TREATMENT PLANT CULVERT (B)

X1	40.100	25.000	1556.000	2012.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	872.800	874.200	0.000	0.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
BT	23.000	1709.000	874.200	0.000	1821.000	875.500	0.000	1935.000	874.600	0.000
BT	1958.000	874.000	0.000	1977.000	873.500	0.000	1990.000	874.300	0.000	2000.000
BT	874.300	0.000	2001.000	874.300	0.000	2005.000	874.400	869.350	2005.000	874.400
BT	871.370	2006.400	874.400	872.800	2008.400	874.400	872.800	2009.900	874.400	871.370
BT	2009.900	874.400	869.350	2012.000	874.400	0.000	2022.000	874.500	0.000	2094.000
BT	874.300	0.000	2161.000	871.900	0.000	2252.000	875.500	0.000	2335.000	873.400
BT	0.000	2447.000	873.500	0.000	2485.000	878.900	0.000	2525.000	838.800	0.000
GR	880.000	1540.000	875.400	1821.000	874.600	1935.000	874.000	1958.000	873.500	1977.000
GR	874.300	1990.000	870.600	2000.000	870.300	2001.000	869.350	2005.000	868.780	2005.700
GR	868.700	2006.400	868.500	2008.400	868.490	2009.000	869.350	2009.900	870.200	2012.000
GR	874.600	2022.000	874.300	2094.000	871.900	2161.000	875.400	2252.000	873.400	2335.000
GR	873.500	2447.000	878.900	2485.000	883.800	2525.000	885.800	2600.000	885.900	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.200	25.000	2001.000	2012.000	1.000	1.000	1.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.400	1821.000	874.600	1935.000	874.000	1958.000	873.500	1977.000
GR	874.300	1990.000	870.600	2000.000	870.300	2001.000	869.350	2005.000	868.780	2005.700
GR	868.700	2006.400	868.500	2008.400	868.490	2009.000	869.350	2009.900	870.200	2012.000
GR	874.600	2022.000	874.300	2094.000	871.900	2161.000	875.400	2252.000	873.400	2335.000

MOORE BUSINESS FORMS INC. 77

GR	873.500	2447.000	878.900	2485.000	883.800	2525.000	885.800	2600.000	885.900	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.100	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	6.000	170.000	245.000	295.000	435.000	295.000	399.000	0.000	0.000	0.000
X1	40.800	20.000	1995.000	2020.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.000	1940.000	875.000	1980.000	872.000	1995.000	871.000	2000.000
GR	870.000	2004.000	869.500	2008.000	869.300	2010.000	870.500	2016.000	872.000	2020.000
GR	874.000	2028.000	876.800	2038.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
NC	.050	.050	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2010.000
X1	40.900	30.000	2000.000	2010.000	80.000	80.000	80.000	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	882.600	1258.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.900	1987.000	876.600	1990.000	876.500	1993.000	876.800	1996.000
GR	877.100	2000.000	870.500	2000.000	870.100	2004.000	869.700	2006.000	869.400	2008.000
GR	869.400	2010.000	877.100	2010.000	876.100	2011.000	875.600	2013.000	875.200	2016.000
GR	875.800	2017.000	876.400	2020.000	877.000	2023.000	877.200	2036.000	877.100	2112.000
GR	877.800	2210.000	879.400	2312.000	881.300	2414.000	883.200	2534.000	884.200	2645.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	41.000	21.000	2000.000	2010.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.840	1668.000	876.600	1774.000
GR	876.400	1876.000	876.700	1940.000	876.900	1980.000	877.000	1995.000	877.040	2000.000
GR	870.500	2000.000	870.100	2004.000	869.700	2006.000	869.400	2008.000	869.400	2010.000
GR	877.100	2010.000	877.000	2020.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
GR	881.300	2414.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.490	2.800	0.000	9.160	0.000	52.200	0.000	869.400	869.400

JEFFERSON AVE. BRIDGE (C)

X1	41.100	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	875.100	876.400	0.000	0.000	0.000	0.000	0.000
BT	19.000	1352.000	879.900	0.000	1459.000	877.800	0.000	1565.000	877.100	0.000
BT	1668.000	876.840	0.000	1774.000	876.600	0.000	1876.000	876.400	0.000	1940.000
BT	876.700	0.000	1980.000	876.900	0.000	1995.000	877.000	0.000	2000.000	877.040
BT	0.000	2000.000	877.040	875.100	2010.000	877.100	875.100	2010.000	877.100	0.000
BT	2020.000	877.000	0.000	2112.000	877.100	0.000	2210.000	877.800	0.000	2312.000
BT	879.400	0.000	2414.000	881.300	0.000	2534.000	883.200	0.000	0.000	0.000
NC	.050	.050	.040	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	1.410	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, II

X1	41.200	25.000	2000.000	2010.000	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
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.900	1970.000	876.900	1986.000	876.000	1990.000	874.700	1992.000
GR	877.100	2000.000	870.400	2000.000	870.100	2004.000	869.800	2005.000	869.600	2007.000
GR	869.500	2010.000	877.100	2010.000	876.100	2011.000	876.100	2016.000	876.400	2024.000
GR	876.400	2030.000	877.000	2042.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	0.000	9.100	0.000	1955.000	2060.000
X1	41.300	20.000	1995.000	2020.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	880.100	1352.000	878.000	1459.000	877.300	1565.000	877.000	1668.000	876.800	1774.000
GR	876.600	1876.000	876.200	1940.000	875.200	1980.000	872.200	1995.000	871.200	2000.000
GR	870.200	2004.000	869.700	2008.000	869.500	2010.000	870.700	2016.000	872.200	2020.000
GR	874.200	2028.000	877.000	2038.000	877.300	2112.000	878.000	2210.000	879.600	2312.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.800	19.000	2000.000	2008.000	1400.000	1350.000	1382.000	0.000	0.000	0.000
GR	880.900	1858.000	878.200	1902.000	875.800	1990.000	871.300	2000.000	870.800	2000.000
GR	870.800	2003.000	870.700	2006.000	871.000	2008.000	877.200	2019.000	877.500	2041.000
GR	875.000	2074.000	875.000	2089.000	875.700	2096.000	877.000	2164.000	876.200	2261.000
GR	874.300	2273.000	874.000	2296.000	879.200	2439.000	880.600	2565.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	43.900	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.530	2.800	0.000	6.280	0.000	25.100	0.000	870.700	870.700

OKEMCS RD. BRIDGE (D)

X1	44.100	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	874.400	877.800	0.000	0.000	0.000	0.000	0.000
BT	20.000	1858.000	880.900	0.000	1902.000	878.200	0.000	1990.000	877.800	875.800
BT	2000.000	877.800	870.800	2000.000	877.800	871.300	2001.000	877.800	873.100	2002.000
BT	877.800	873.900	2003.000	877.800	874.300	2004.000	877.800	874.400	2005.000	877.800
BT	874.300	2006.000	877.800	873.900	2007.000	877.800	873.100	2008.000	877.800	871.300
BT	2008.000	877.800	871.000	2019.000	877.800	877.200	2041.000	877.800	877.500	2164.000
BT	877.800	877.000	2261.000	877.800	876.200	2439.000	879.200	0.000	2565.000	880.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	44.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC. 27

X1	46.800	20.000	2000.000	2008.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	880.500	1409.000	879.600	1508.000	880.900	1624.000	879.800	1672.000	879.800	1777.000
GR	879.300	1881.000	877.600	1991.000	872.400	2000.000	871.900	2003.000	872.000	2006.000
GR	872.400	2008.000	878.900	2023.000	879.800	2091.000	879.500	2095.000	879.700	2128.000
GR	880.700	2223.000	881.200	2333.000	881.500	2437.000	880.700	2543.000	880.300	2646.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	46.900	0.000	0.000	0.000	150.000	150.000	150.000	0.000	0.000	0.000
NC	.040	.040	.030	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	9.100	0.000	0.000	1496.000	2129.000
SB	0.000	2.780	2.800	0.000	6.400	0.000	26.900	0.000	871.900	871.900

ROGERS ST. BRIDGE (E)

X1	47.100	0.000	0.000	0.000	66.500	66.500	66.500	0.000	0.000	0.000
X2	0.000	0.000	1.000	876.400	879.400	0.000	0.000	0.000	0.000	0.000
BT	25.000	1409.000	880.500	0.000	1508.000	879.600	0.000	1624.000	880.900	0.000
BT	1672.000	879.400	0.000	1777.000	879.800	0.000	1881.000	879.400	879.300	1991.000
BT	879.400	877.600	2000.000	879.400	872.400	2001.000	879.400	875.000	2002.000	879.400
BT	875.800	2003.000	879.400	876.200	2004.000	879.400	876.400	2005.000	879.400	876.200
BT	2006.000	879.400	875.800	2007.000	879.400	875.000	2008.000	879.400	872.400	2023.000
BT	879.400	878.900	2091.000	879.800	0.000	2095.000	879.500	0.000	2128.000	879.700
BT	0.000	2223.000	880.700	0.000	2333.000	881.200	0.000	2437.000	881.500	0.000
BT	2543.000	880.700	0.000	2646.000	880.300	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	1950.000	2058.000
X1	47.300	20.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	892.600	1267.000	889.100	1361.000	884.800	1461.000	882.700	1542.000	880.900	1648.000
GR	879.900	1743.000	879.500	1845.000	879.400	1951.000	879.400	1956.000	878.900	1995.000
GR	872.400	2000.000	871.900	2002.000	871.900	2004.000	871.900	2006.000	872.200	2008.000
GR	879.300	2016.000	880.300	2154.000	884.300	2232.000	882.900	2335.000	885.900	2429.000
NC	.070	.070	.040	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	1.410	0.000	0.000	0.000	0.000
X1	49.800	23.000	2000.000	2007.000	700.000	800.000	750.000	0.000	0.000	0.000
GR	888.900	1683.000	887.900	1769.000	886.100	1818.000	884.800	1866.000	883.400	1888.000
GR	882.500	1911.000	880.600	1969.000	880.200	1988.000	879.800	1991.000	873.700	2000.000
GR	873.300	2002.000	873.100	2005.000	873.700	2007.000	881.200	2021.000	881.000	2023.000
GR	881.300	2069.000	882.500	2107.000	884.900	2200.000	887.000	2293.000	890.200	2416.000
GR	891.800	2430.000	893.400	2434.000	894.000	2445.000	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
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2008.000

MOORE BUSINESS FORMS INC. 77

X1	49.900	25.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	886.600	1500.000	889.100	1583.000	887.700	1765.000	884.200	1828.000	884.400	1867.000
GR	883.300	1877.000	882.600	1909.000	884.900	1934.000	880.500	1978.000	880.300	1989.000
GR	879.400	1997.000	873.400	2000.000	873.500	2004.000	873.700	2008.000	880.000	2010.000
GR	880.000	2012.000	880.800	2015.000	881.500	2038.000	882.600	2069.000	881.700	2082.000
GR	884.800	2177.000	886.600	2184.000	887.800	2245.000	891.600	2263.000	892.500	2297.000
NC	.040	.040	.030	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	9.100	0.000	0.000	1989.750	2012.810

X1	50.000	35.000	2000.000	2008.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	886.700	1500.000	889.100	1583.000	887.700	1765.000	884.200	1828.000	884.400	1867.000
GR	883.300	1877.000	882.600	1909.000	884.900	1934.000	880.500	1978.000	880.300	1989.000
GR	879.400	1997.000	878.500	2000.000	873.400	2000.000	873.400	2001.000	873.400	2002.000
GR	873.500	2003.000	873.500	2004.000	873.500	2005.000	873.600	2006.000	873.700	2007.000
GR	873.700	2008.000	878.500	2008.000	880.000	2010.000	880.000	2012.000	880.800	2015.000
GR	881.500	2038.000	882.600	2069.000	881.700	2082.000	884.800	2177.000	886.600	2184.000
GR	887.800	2245.000	891.600	2263.000	892.500	2297.000	892.500	2335.000	892.600	2417.000
SB	0.000	4.600	2.800	0.000	6.520	0.000	26.700	0.000	874.300	873.400

COLUMBIA-MATTHEWS ST BR. (F)

X1	50.100	20.000	2000.000	2008.000	184.000	184.000	184.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	878.400	883.700	0.000	0.000	0.000	0.000	0.000
BT	27.000	1567.000	887.970	0.000	1567.000	887.970	0.000	1567.000	887.970	0.000
BT	1567.000	887.970	0.000	1672.000	888.420	0.000	1672.000	888.420	0.000	1672.000
BT	888.420	0.000	1781.000	886.600	0.000	1885.000	884.550	0.000	1943.000	884.300
BT	0.000	1988.000	882.700	0.000	2000.000	883.700	0.000	2000.000	883.700	875.100
BT	2001.000	883.700	877.000	2002.000	883.700	877.800	2003.000	883.700	878.300	2004.000
BT	883.700	878.400	2005.000	883.700	878.300	2006.000	883.700	877.800	2007.000	883.700
BT	877.000	2008.000	883.700	874.300	2008.000	883.700	0.000	2021.000	883.800	0.000
BT	2070.000	883.700	0.000	2179.000	884.300	0.000	2296.000	886.200	0.000	2399.000
BT	887.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	887.970	1567.000	888.420	1672.000	886.600	1781.000	884.550	1885.000	884.300	1943.000
GR	882.700	1988.000	875.100	2000.000	874.600	2001.000	874.500	2002.000	874.300	2003.000
GR	874.300	2004.000	874.300	2005.000	874.300	2006.000	874.300	2007.000	874.300	2008.000
GR	883.800	2021.000	883.700	2070.000	884.300	2179.000	886.200	2296.000	887.800	2399.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1953.000	2111.000

X1	50.200	23.000	2000.000	2008.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	894.400	1452.000	894.000	1608.000	893.300	1639.000	888.200	1825.000	886.900	1934.000
GR	884.300	1943.000	882.700	1988.000	875.100	2000.000	874.600	2001.000	874.300	2008.000
GR	883.800	2021.000	883.700	2035.000	883.000	2076.000	883.100	2143.000	882.900	2151.000
GR	883.100	2177.000	889.500	2205.000	884.500	2338.000	886.000	2468.000	890.400	2610.000
GR	889.600	2635.000	889.500	2652.000	895.400	2714.000	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
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 27

X1	50.300	18.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	898.000	1500.000	890.000	1750.000	888.300	1850.000	886.900	1935.000	884.200	1943.000
GR	882.700	1988.000	880.000	1998.000	875.500	2000.000	875.000	2001.000	874.500	2004.000
GR	875.000	2007.000	875.500	2008.000	883.900	2021.000	883.900	2035.000	883.000	2076.000
GR	884.000	2120.000	890.000	2160.000	892.100	2250.000	0.000	0.000	0.000	0.000
NC	.060	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	52.800	54.000	2000.000	2006.000	1140.000	1140.000	1140.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1781.000	885.300	3019.000	898.500	0.000	0.000	0.000
GR	886.600	665.000	887.100	691.000	888.900	808.000	890.000	903.000	891.400	1027.000
GR	892.600	1124.000	892.000	1199.000	889.300	1215.000	889.100	1248.000	892.800	1289.000
GR	892.600	1335.000	890.100	1437.000	885.900	1453.000	880.600	1459.000	879.800	1468.000
GR	879.000	1483.000	878.300	1503.000	878.200	1517.000	877.700	1539.000	877.800	1559.000
GR	877.800	1573.000	877.900	1589.000	878.300	1603.000	879.100	1617.000	880.700	1625.000
GR	883.300	1646.000	883.100	1664.000	885.000	1716.000	885.300	1781.000	885.200	1882.000
GR	884.300	1974.000	880.900	1991.000	880.800	1998.000	880.100	2000.000	879.800	2003.000
GR	879.800	2006.000	884.900	2016.000	885.400	2063.000	889.400	2132.000	889.200	2177.000
GR	889.800	2202.000	889.500	2210.000	891.000	2317.000	892.200	2418.000	893.700	2511.000
GR	895.100	2701.000	896.400	2804.000	897.800	2914.000	898.500	3019.000	898.100	3121.000
GR	897.400	3226.000	897.500	3305.000	897.400	3389.000	897.900	3511.000	0.000	0.000

MAPLE AVENUE BRIDGE (G)

X1	52.900	43.000	2000.000	2007.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	890.900	504.000	887.000	605.000	886.100	672.000	886.300	776.000	887.100	879.000
GR	887.400	585.000	887.800	1092.000	887.900	1173.000	888.600	1268.000	888.100	1375.000
GR	887.400	1483.000	886.700	1579.000	885.900	1683.000	885.200	1785.000	885.500	1883.000
GR	885.700	1917.000	885.500	1956.000	885.100	1984.000	880.300	2000.000	880.000	2001.000
GR	879.800	2002.000	879.600	2003.500	879.600	2005.000	879.600	2006.000	880.500	2007.000
GR	883.600	2016.000	885.100	2032.000	885.400	2059.000	887.900	2093.000	888.900	2113.000
GR	889.500	2210.000	891.000	2317.000	892.200	2418.000	893.700	2511.000	895.100	2701.000
GR	896.400	2804.000	897.800	2914.000	898.500	3019.000	898.100	3121.000	897.400	3226.000
GR	897.500	3305.000	897.400	3389.000	897.900	3511.000	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

MOORE BUSINESS FORMS, INC 27

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= .100 CEHV= .300
*SECNO 39.000

3265 DIVIDED FLOW

VALLEY SECTION AT CONFLUENCE OF RAYNER CR AND SYCAMORE CR (A)

39.00	6.75	875.25	0.00	875.25	875.35	.10	0.00	0.00	871.10
1545.	332.	478.	735.	148.	122.	656.	0.	0.	874.90
0.00	2.24	3.92	1.12	.060	.040	.080	0.000	868.50	1951.27
.001483	0.	0.	0.	0	0	0	0.00	435.43	2437.44

1490 NH CARD USED
*SECNO 39.800

39.80	7.79	875.49	0.00	0.00	875.50	.01	.14	.01	872.30
1545.	5.	966.	574.	10.	923.	846.	8.	4.	870.00
.08	.54	1.05	.68	.060	.049	.060	.040	867.70	1548.79
.000296	250.	250.	250.	2	0	0	0.00	913.59	2462.38

1490 NH CARD USED
*SECNO 39.900

39.90	7.80	875.50	0.00	0.00	875.51	.01	.01	.00	872.30
1545.	5.	965.	575.	10.	930.	853.	10.	5.	870.00
.09	.53	1.04	.67	.060	.049	.060	.040	867.70	1548.76
.000290	50.	50.	50.	2	0	0	0.00	913.73	2462.49

1490 NH CARD USED
*SECNO 40.000

40.00	7.80	875.50	0.00	0.00	875.51	.01	.00	.00	871.30
1545.	8.	951.	585.	14.	901.	853.	10.	5.	870.00
.09	.62	1.06	.69	.060	.049	.060	.040	867.70	1548.76
.000300	1.	1.	1.	0	0	0	0.00	913.73	2462.49

1490 NH CARD USED

MOORE BUSINESS FORMS INC 22

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	IWA	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	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	4.94	2.80	0.00	4.09	0.00	17.60	0.00	868.49	868.29

*SECNO 40.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1466.62	876.30	0.00	1533.	17.	18.	18.	872.80	874.20

TREATMENT PLANT CULVERT (B)

40.10	7.86	875.56	0.00	0.00	875.58	.01	.06	0.00	871.30
1545.	9.	984.	552.	14.	894.	801.	14.	7.	870.20
.12	.65	1.10	.69	.060	.049	.060	.040	867.70	1548.63
.000325	100.	100.	100.	1	0	9	0.00	912.92	2461.56

1490 NH CARD USED
*SECNO 40.200

40.20	7.86	875.56	0.00	0.00	875.58	.02	.00	.00	870.30
1545.	851.	139.	515.	836.	69.	798.	14.	7.	870.20
.12	1.07	2.03	.64	.050	.040	.060	.040	867.70	1548.65
.000286	1.	1.	1.	0	0	0	0.00	912.86	2461.51

1490 NH CARD USED
*SECNO 40.300

40.30	7.87	875.57	0.00	0.00	875.59	.02	.01	.00	870.40
1545.	905.	142.	498.	810.	68.	759.	16.	8.	870.30
.13	1.12	2.10	.66	.050	.040	.060	.039	867.70	1548.82
.000313	50.	50.	50.	0	0	0	0.00	912.08	2460.89

CCHV= .100 CEHV= .300
*SECNO 40.800

40.80	6.30	875.60	0.00	0.00	875.65	.05	.05	.01	872.00
295.	28.	244.	22.	39.	129.	25.	19.	10.	872.00
.16	.73	1.90	.87	.050	.040	.050	.040	869.30	1955.65
.000306	150.	150.	150.	1	0	0	0.00	78.09	2033.75

MOORE BUSINESS FORMS INC. 27

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= .300 CEHV= .500
*SECNO 40.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 877.10 ELREA= 877.10

40.90	6.07	875.47	0.00	0.00	875.90	.43	.06	.19	877.10
295.	0.	295.	0.	0.	56.	0.	19.	10.	877.10
.16	0.00	5.29	0.00	.050	.040	.050	.040	869.40	2000.00
.005542	80.	80.	80.	2	0	0	0.00	10.00	2010.00

*SECNO 41.000

41.00	6.08	875.48	0.00	0.00	875.91	.43	.00	.00	877.04
295.	0.	295.	0.	0.	56.	0.	19.	10.	877.10
.16	0.00	5.28	0.00	.040	.030	.040	.039	869.40	2000.00
.003113	1.	1.	1.	0	0	0	0.00	10.00	2010.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.49	2.80	0.00	9.16	0.00	52.20	0.00	869.40	869.40

*SECNO 41.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
876.21	875.91	0.00	0.	295.	52.	52.	875.10	876.40

JEFFERSON AVE. BRIDGE (C)

41.10	6.43	875.83	0.00	0.00	876.21	.38	.31	0.00	877.04
295.	0.	295.	0.	0.	59.	0.	19.	10.	877.10
.16	0.00	4.96	0.00	.040	.030	.040	.039	869.40	2000.00
.002643	24.	24.	24.	2	0	0	0.00	10.00	2010.00

*SECNO 41.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 877.10 ELREA= 877.10

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
41.20	6.33	875.83	0.00	0.00	876.22	.38	.00	.00	877.10
295.	0.	295.	0.	0.	59.	0.	19.	10.	877.10
.16	0.00	4.97	0.00	.050	.040	.050	.039	869.50	2000.00
.004719	1.	1.	1.	0	0	0	0.00	10.00	2010.00

CCHV= .100 CEHV= .300
*SECNO 41.300

3470 ENCROACHMENT STATIONS= 1955.0 2060.0 TYPE= 1 TARGET= 105.000

41.30	6.74	876.24	0.00	0.00	876.28	.04	.03	.03	872.20
295.	32.	242.	22.	56.	139.	32.	19.	10.	872.20
.17	.56	1.73	.68	.060	.040	.060	.039	869.50	1955.00
.000228	50.	50.	50.	2	0	0	0.00	80.30	2035.30

*SECNO 43.800

3265 DIVIDED FLOW

43.80	5.95	876.65	0.00	0.00	876.69	.03	.40	.00	871.30
295.	29.	107.	158.	45.	47.	289.	29.	16.	871.00
.49	.66	2.29	.55	.070	.040	.070	.040	870.70	1958.57
.000390	1400.	1382.	1350.	3	0	0	0.00	316.94	2369.08

CCHV= .300 CEHV= .500
*SECNO 43.900

3265 DIVIDED FLOW

43.90	5.97	876.67	0.00	0.00	876.71	.03	.02	.00	871.30
295.	29.	107.	159.	45.	47.	292.	29.	17.	871.00
.51	.65	2.27	.54	.070	.040	.070	.040	870.70	1958.11
.000383	50.	50.	50.	0	0	0	0.00	320.06	2369.42

SPECIAL BRIDGE

MOORE BUSINESS FORMS INC.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.53	2.80	0.00	6.28	0.00	25.10	0.00	870.70	870.70

*SECNO 44.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.25	876.70	0.00	167.	129.	25.	23.	874.40	877.80

OKEMCS RD. BRIDGE (D)

44.10	7.43	878.13	0.00	0.00	878.13	.00	1.43	0.00	871.30
295.	35.	44.	216.	146.	59.	821.	31.	17.	871.00
.59	.24	.74	.26	.040	.030	.040	.039	870.70	1904.49
.000017	100.	100.	100.	0	0	7	0.00	505.13	2409.63

CCHV= .100 CEHV= .300
*SECNO 44.300

44.30	7.43	878.13	0.00	0.00	878.13	.00	.00	.00	871.30
295.	36.	41.	218.	146.	59.	824.	32.	18.	871.00
.63	.24	.70	.26	.050	.040	.050	.039	870.70	1904.21
.000027	50.	50.	50.	0	0	0	0.00	505.64	2409.85

*SECNO 46.800

46.80	6.14	878.04	0.00	0.00	878.19	.15	.01	.05	872.40
295.	50.	180.	64.	34.	48.	37.	34.	19.	872.40
.65	1.51	3.79	1.75	.050	.040	.050	.039	871.90	1962.68
.000977	150.	150.	150.	2	0	0	0.00	58.33	2021.01

CCHV= .300 CEHV= .500
*SECNO 46.900

46.90	6.30	878.20	0.00	0.00	878.33	.14	.14	.01	872.40
295.	54.	176.	65.	40.	49.	39.	35.	19.	872.40
.66	1.34	3.61	1.67	.050	.040	.050	.039	871.90	1952.38
.000857	150.	150.	150.	2	0	0	0.00	69.00	2021.38

MOORE BUSINESS FORMS INC. 77

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	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.78	2.80	0.00	6.40	0.00	26.90	0.00	871.90	871.90

*SECNO 47.100

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
883.39	878.34	0.00	137.	161.	27.	29.	876.40	879.40

ROGERS ST. BRIDGE (E)

47.10	7.81	879.71	0.00	0.00	879.74	.03	1.41	0.00	872.40
295.	109.	123.	63.	201.	61.	90.	35.	20.	872.40
.68	.54	2.01	.70	.040	.030	.040	.039	871.90	1495.47
.000112	67.	67.	67.	2	0	7	0.00	349.43	2129.32

CCHV= .100 CEHV= .300

*SECNO 47.300

3470 ENCROACHMENT STATIONS= 1950.0 2058.0 TYPE= 1 TARGET= 108.000

47.30	7.73	879.63	0.00	0.00	879.79	.16	.01	.04	872.40
295.	30.	223.	42.	40.	61.	39.	35.	20.	872.20
.68	.76	3.65	1.07	.060	.040	.060	.039	871.90	1950.00
.000652	50.	50.	50.	2	0	0	0.00	108.00	2058.00

*SECNO 49.800

49.80	7.11	880.21	0.00	0.00	880.40	.19	.60	.01	873.70
295.	42.	200.	53.	32.	48.	40.	37.	21.	873.70
.75	1.32	4.16	1.35	.070	.040	.070	.039	873.10	1987.61
.000985	700.	750.	800.	2	0	0	0.00	31.54	2019.15

CCHV= .300 CEHV= .500

MOORE BUSINESS FORMS, INC. 27

SECNO / Q / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / IWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 49.900									
49.90	6.77	880.17	0.00	0.00	880.56	.39	.06	.10	873.40
295.	15.	275.	6.	14.	53.	7.	38.	21.	873.70
.75	1.04	5.17	.80	.070	.040	.070	.039	873.40	1990.15
.001550	50.	50.	50.	2	0	0	0.00	22.49	2012.64
*SECNO 50.000									
50.00	6.76	880.16	0.00	0.00	880.58	.42	.00	.01	878.50
295.	10.	282.	3.	6.	53.	2.	38.	21.	878.50
.75	1.66	5.30	1.38	.040	.030	.040	.039	873.40	1990.20
.002679	1.	1.	1.	1	0	0	0.00	22.42	2012.62

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	4.60	2.80	0.00	6.52	0.00	26.70	0.00	874.30	873.40

*SECNO 50.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
888.88	881.22	0.00	102.	195.	27.	27.	878.40	883.70

COLUMBIA-MATTHEWS ST BR. (F)

50.10	9.62	883.92	0.00	0.00	883.97	.05	3.40	0.00	875.10
295.	65.	169.	61.	81.	76.	77.	38.	21.	874.30
.78	.80	2.22	.79	.040	.030	.040	.039	874.30	1953.55
.000102	184.	184.	184.	2	0	7	0.00	157.28	2110.83

*SECNO 50.200

3470 ENCROACHMENT STATIONS= 1953.0 2111.0 TYPE= 1 TARGET= 158.000

50.20	9.63	883.93	0.00	0.00	883.97	.05	.00	.00	875.10
295.	58.	168.	69.	81.	75.	121.	38.	21.	874.30
.78	.72	2.23	.57	.060	.040	.060	.039	874.30	1953.51
.000184	1.	1.	1.	0	0	0	0.00	157.48	2111.00

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= .100 CEHV= .300
*SECNO 50.300

50.30	9.42	883.92	0.00	0.00	883.99	.08	.01	.01	875.50
295.	37.	195.	64.	61.	72.	94.	38.	22.	875.50
.79	.60	2.69	.68	.060	.040	.060	.039	874.50	1951.22
.000292	50.	50.	50.	1	0	0	0.00	165.53	2116.75

*SECNO 52.800

3470 ENCROACHMENT STATIONS= 1781.0 3019.0 TYPE= 1 TARGET= 1238.000
ELENCL= 885.30 ELENCR= 898.50

52.80	4.74	884.54	0.00	0.00	884.69	.16	.68	.02	880.10
295.	140.	123.	33.	70.	28.	22.	43.	25.	879.80
.90	2.00	4.39	1.48	.060	.040	.070	.039	879.80	1949.60
.001796	1140.	1140.	1140.	2	0	0	0.00	65.69	2015.29

*SECNO 52.900 MAPLE AVENUE BRIDGE (G)

52.90	4.94	884.54	0.00	0.00	884.85	.31	.11	.05	880.30
295.	.65.	181.	49.	30.	33.	27.	43.	25.	880.50
.90	2.16	5.47	1.81	.060	.040	.070	.039	879.60	1985.86
.002948	49.	49.	49.	2	0	0	0.00	40.18	2026.04

MOORE BUSINESS FORMS

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1      CITY OF MASON
T2      ENCROACHMENT RUN
T3      RAYNER CREEK

J1  ICHECK    INQ     NINV     IDIR     STRT    METRIC   HVINS      Q        WSEL      FQ
      -10.      6.       0.       0.  0.000000    0.00     0.0       0.    875.250   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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MOORE BUSINESS FORMS INC 27

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    G          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        IWA    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=     .100 CEHV=     .300
 *SECNO 39.000
  2800 NAT Q1=     401.15  WSEL=     875.25  ENC Q1=     401.15  WSEL=     875.35  RATIO=  0.0000
  NAT Q1=     426.  RATIOS LOB,CH,ROB=    .2119   .3017   .4864  WSEL=     875.35

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1971.2     2404.0  TYPE=      4  TARGET=          .058
                VALLEY SECTION AT CONFLUENCE OF RAYNER CR AND SYCAMORE CR (A)

      39.00       6.75    875.25       0.00    875.25    875.37       .12       0.00       0.00    871.10
      1545.        304.      507.       734.       119.      122.      612.         0.         0.    874.90
        0.00       2.55      4.15       1.20       .060      .040      .080      0.000    868.50   1971.15
    .001667         0.        0.         0.          0         0         0       0.00    382.07   2403.96


 1490 NH CARD USED
 *SECNO 39.800
  2800 NAT Q1=     898.50  WSEL=     875.49  ENC Q1=     898.50  WSEL=     875.59  RATIO=  0.0000
  NAT Q1=     959.  RATIOS LOB,CH,ROB=    .0035   .6192   .3773  WSEL=     875.59

 3470 ENCROACHMENT STATIONS=     1555.0     2396.1  TYPE=      4  TARGET=          .063
      39.80       7.82    875.52       0.00    875.49    875.53       .01        .16        .01    872.30
      1545.         0.      1027.      518.         0.      938.      729.         7.         4.    870.00
        .07       0.00      1.09        .71       .060      .049      .060       .040    867.70   1555.00
    .000323        250.      250.       250.          2         0         0       0.00    841.08   2396.08


 1490 NH CARD USED
 *SECNO 39.900
  2800 NAT Q1=     907.62  WSEL=     875.50  ENC Q1=     907.62  WSEL=     875.60  RATIO=  0.0000
  NAT Q1=     968.  RATIOS LOB,CH,ROB=    .0035   .6183   .3782  WSEL=     875.60

 3470 ENCROACHMENT STATIONS=     1555.0     2396.7  TYPE=      4  TARGET=          .063
      39.90       7.84    875.54       0.00    875.50    875.55       .01        .02        .00    872.30
      1545.         0.      1025.      520.         0.      945.      736.         9.         4.    870.00
        .09       0.00      1.08        .71       .060      .049      .060       .040    867.70   1555.00
    .000316         50.       50.        50.          0         0         0       0.00    841.70   2396.70
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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

1490 NH CARD USED
*SECNO 40.000
2800 NAT Q1= 892.01 WSEL= 875.50 ENC Q1= 892.01 WSEL= 875.60 RATIO= 0.0000
NAT Q1= 952. RATIOS LOB,CH,ROB= .0055 .6098 .3847 WSEL= 875.60

3470 ENCROACHMENT STATIONS= 1556.0 2399.2 TYPE= 4 TARGET= .063

40.00	7.84	875.54	0.00	875.50	875.55	.01	.00	.00	871.30
1545.	0.	996.	549.	0.	917.	743.	9.	4.	870.00
.09	0.00	1.09	.74	.060	.048	.060	.040	867.70	1556.00
.000346	1.	1.	1.	0	0	0	0.00	843.23	2399.23

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	4.94	2.80	0.00	4.09	0.00	17.60	0.00	868.49	868.29

*SECNO 40.100
3700. BRIDGE STENCL= 1556.00 STENCR= 2399.23
2800 NAT Q1= 857.06 WSEL= 875.56 ENC Q1= 857.06 WSEL= 875.66 RATIO= 0.0000
NAT Q1= 909. RATIOS LOB,CH,ROB= .0039 .6314 .3646 WSEL= 875.66
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1466.65	876.34	0.00	1540.	20.	18.	18.	872.80	874.20

3470 ENCROACHMENT STATIONS= 1556.0 2399.2 TYPE= 4 TARGET= .058
TREATMENT PLANT CULVERT (B)

40.10	7.92	875.62	0.00	875.56	875.64	.02	.09	0.00	871.30
1545.	0.	1024.	521.	0.	918.	707.	13.	6.	870.20
.11	0.00	1.12	.74	.060	.048	.060	.040	867.70	1556.00
.000364	100.	100.	100.	2	0	11	0.00	843.23	2399.23

1490 NH CARD USED
*SECNO 40.200
2800 NAT Q1= 913.66 WSEL= 875.56 ENC Q1= 913.66 WSEL= 875.66 RATIO= 0.0000
NAT Q1= 970. RATIOS LOB,CH,ROB= .5718 .0869 .3413 WSEL= 875.66

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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

 3470 ENCROACHMENT STATIONS=     1556.8     2422.1  TYPE=      4  TARGET=          .058
     40.20       7.92     875.62      0.00     875.56     875.64       .02        .00        .00     870.30
    1545.        906.       141.      497.       845.       69.       757.        13.         6.     870.20
       .12       1.07       2.04       .66       .050       .040       .060       .040    867.70   1556.76
  .000287         1.         1.         1.          0          0          0       0.00    865.36   2422.12

 1490 NH CARD USED
 *SECNO 40.300
  2800 NAT Q1=      873.22  WSEL=     875.57  ENC Q1=     873.22  WSEL=     875.67  RATIO=  0.0000
  NAT Q1=     928.  RATIOS LOB,CH,ROB=    .5801    .0887    .3312  WSEL=     875.67

 3470 ENCROACHMENT STATIONS=     1556.8     2420.4  TYPE=      4  TARGET=          .059
     40.30       7.93     875.63      0.00     875.57     875.65       .02        .01        .00     870.40
    1545.        921.       145.      480.       819.       68.       717.        15.         7.     870.30
       .13       1.12       2.12       .67       .050       .040       .060       .039    867.70   1556.81
  .000314        50.        50.        50.          0          0          0       0.00    863.58   2420.39

 CCHV=      .100 CEHV=      .300
 *SECNO 40.800
  2800 NAT Q1=      168.73  WSEL=     875.60  ENC Q1=     168.73  WSEL=     875.70  RATIO=  0.0000
  NAT Q1=     175.  RATIOS LOB,CH,ROB=    .1016    .8211    .0772  WSEL=     875.70

 3470 ENCROACHMENT STATIONS=     1983.6     2027.6  TYPE=      4  TARGET=          .037
     40.80       6.36     875.66      0.00     875.60     875.71       .05        .05        .01     872.00
     295.         26.       251.       18.        29.       130.        21.        18.         9.     872.00
       .15        .89       1.93       .87       .050       .040       .050       .040    869.30   1983.56
  .000311        150.       150.       150.          1          0          0       0.00     44.00   2027.56

 CCHV=      .300 CEHV=      .500
 *SECNO 40.900

 3470 ENCROACHMENT STATIONS=     2000.0     2010.0  TYPE=      1  TARGET=        10.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       877.10 ELREA=    100000.00

     40.90       6.14     875.54      0.00     875.47     875.96       -.42        .06        .19     877.10
     295.          0.       295.       0.         0.        56.         0.        18.         9.  100000.00
       .16       0.00       5.22       0.00       .050       .040       .050       .040    869.40   2000.00
  .005374        80.        80.        80.          2          0          0       0.00     10.00   2010.00
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
G	QLOB	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 41.000									
41.00	6.14	875.54	0.00	875.48	875.97	.42	.00	.00	877.04
295.	0.	295.	0.	0.	57.	0.	18.	9.	877.10
.16	0.00	5.22	0.00	.040	.030	.040	.039	869.40	2000.00
.003018	1.	1.	1.	0	0	0	0.00	10.00	2010.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.49	2.80	0.00	9.16	0.00	52.20	0.00	869.40	869.40

*SECNO 41.100
PRESSURE FLOW

EGPRS	EGLOC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
876.28	875.97	0.00	0.	295.	52.	52.	875.10	876.40

JEFFERSON AVE. BRIDGE (C)

41.10	6.51	875.91	0.00	875.83	876.28	.37	.32	0.00	877.04
295.	0.	295.	0.	0.	60.	0.	18.	9.	877.10
.16	0.00	4.90	0.00	.040	.030	.040	.039	869.40	2000.00
.002557	24.	24.	24.	2	0	0	0.00	10.00	2010.00

*SECNO 41.200
2800 NAT Q1= 42.94 WSEL= 875.83 ENC Q1= 43.89 WSEL= 875.93 RATIO= .0220
NAT Q1= 44. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 875.93

3470 ENCROACHMENT STATIONS= 2000.0 2010.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 877.10 ELREA= 877.10

41.20	6.41	875.91	0.00	875.83	876.28	.37	.00	.00	877.10
295.	0.	295.	0.	0.	60.	0.	18.	9.	877.10
.16	0.00	4.91	0.00	.050	.040	.050	.039	869.50	2000.00
.004564	1.	1.	1.	0	0	0	0.00	10.00	2010.00

```
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       GCH        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 41.300
  2800 NAT Q1=      195.37  WSEL=     876.24  ENC Q1=      195.37  WSEL=     876.34  RATIO=  0.0000
  NAT Q1=     203.  RATIOS LOB,CH,ROB=    .1149    .8105    .0746  WSEL=     876.34

 3470 ENCROACHMENT STATIONS=     1977.1     2027.9  TYPE=      4  TARGET=          .040
     41.30       6.81     876.31       0.00     876.24     876.35       .04        .03        .03     872.20
       295.        29.        250.        17.        42.       141.        25.        18.         9.     872.20
        .17        .68       1.77        .68       .060       .040       .060       .039     869.50    1977.10
   .000234        50.        50.        50.          2          0          0       0.00      50.82    2027.93

 *SECNO 43.800
  2800 NAT Q1=      149.32  WSEL=     876.65  ENC Q1=      149.32  WSEL=     876.75  RATIO=  0.0000
  NAT Q1=     160.  RATIOS LOB,CH,ROB=    .1003    .3484    .5513  WSEL=     876.75

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1993.2     2324.1  TYPE=      4  TARGET=          .068
     43.80       6.03     876.73       0.00     876.65     876.76       .04        .41        .00     871.30
       295.        22.        111.       162.        27.        47.       268.        27.        14.     871.00
        .47        .82       2.34        .60       .070       .040       .070       .040     870.70    1993.16
   .000401       1400.      1382.      1350.          2          0          0       0.00     250.62    2324.14

 CCHV=     .300 CEHV=     .500
 *SECNO 43.900
  2800 NAT Q1=      150.67  WSEL=     876.67  ENC Q1=      150.67  WSEL=     876.77  RATIO=  0.0000
  NAT Q1=     163.  RATIOS LOB,CH,ROB=    .1005    .3453    .5543  WSEL=     876.77

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1993.5     2323.6  TYPE=      4  TARGET=          .073
     43.90       6.05     876.75       0.00     876.67     876.78       .04        .02        .00     871.30
       295.        21.        111.       163.        26.        48.       272.        27.        14.     871.00
        .48        .82       2.33        .60       .070       .040       .070       .040     870.70    1993.46
   .000395        50.        50.        50.          0          0          0       0.00     253.23    2323.60
```

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

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.53	2.80	0.00	6.28	0.00	25.10	0.00	870.70	870.70

*SECNO 44.100
3700. BRIDGE SIENCL= 1993.46 SIENCR= 2323.61
2800 NAT Q1= 712.89 WSEL= 878.13 ENC Q1= 712.89 WSEL= 878.23 RATIO= 0.0000
NAT Q1= 759. RATIOS LOB,CH,ROB= .1211 .1418 .7371 WSEL= 878.23
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.32	876.77	0.00	169.	127.	25.	23.	874.40	877.80

3470 ENCROACHMENT STATIONS= 1993.5 2323.6 TYPE= 4 TARGET= .061
OKEMCS RD. BRIDGE (D)

44.10	7.45	878.15	0.00	878.13	878.16	.00	1.37	0.00	871.30	
295.	14.	52.	229.	35.	59.	693.	29.	15.	871.00	
.54	.39	.88	.33	.040	.030	.040	.039	870.70	1993.46	
.000024	100.	100.	100.	2	0	6	0.00	330.15	2323.60	

CCHV= .100 CEHV= .300
*SECNO 44.300
2800 NAT Q1= 567.92 WSEL= 878.13 ENC Q1= 567.92 WSEL= 878.23 RATIO= -.0000
NAT Q1= 602. RATIOS LOB,CH,ROB= .1222 .1341 .7437 WSEL= 878.23

3470 ENCROACHMENT STATIONS= 1970.3 2344.0 TYPE= 4 TARGET= .057

44.30	7.46	878.16	0.00	878.13	878.16	.00	.00	.00	871.30
295.	30.	43.	222.	87.	59.	750.	30.	15.	871.00
.58	.34	.73	.30	.050	.040	.050	.039	870.70	1970.34
.000029	50.	50.	50.	0	0	0	0.00	373.64	2343.98

*SECNO 46.800
2800 NAT Q1= 94.36 WSEL= 878.04 ENC Q1= 94.36 WSEL= 878.14 RATIO= 0.0000
NAT Q1= 98. RATIOS LOB,CH,ROB= .1780 .6031 .2189 WSEL= 878.14

3470 ENCROACHMENT STATIONS= 1991.5 2016.6 TYPE= 4 TARGET= .040

SECNO / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / CCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
46.80	6.16	878.06	0.00	878.04	878.22	.16	.01	.05	872.40
295.	48.	184.	62.	27.	48.	33.	31.	16.	872.40
.59	1.77	3.86	1.92	.050	.040	.050	.039	871.90	1991.46
.001011	150.	150.	150.	2	0	0	0.00	25.10	2016.56

CCHV= .300 CEHV= .500

*SECNO 46.900

2800 NAT Q1= 100.78 WSEL= 878.20 ENC Q1= 100.78 WSEL= 878.30 RATIO= 0.0000

NAT Q1= 105. RATIOS LOB,CH,ROB= .1908 .5890 .2202 WSEL= 878.30

3470 ENCROACHMENT STATIONS= 1990.1 2016.8 TYPE= 4 TARGET= .041

46.90	6.32	878.22	0.00	878.20	878.37	.15	.14	.00	872.40
295.	51.	181.	63.	30.	49.	34.	32.	16.	872.40
.61	1.73	3.69	1.83	.050	.040	.050	.039	871.90	1990.07
.000891	150.	150.	150.	2	0	0	0.00	26.68	2016.75

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.78	2.80	0.00	6.40	0.00	26.90	0.00	871.90	871.90

*SECNO 47.100

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
883.41	878.36	0.00	138.	160.	27.	29.	876.40	879.40

3470 ENCROACHMENT STATIONS= 1496.0 2129.0 TYPE= 1 TARGET= 633.000
ROGERS ST. BRIDGE (E)

47.10	7.82	879.72	0.00	879.71	879.74	.03	1.38	0.00	872.40
295.	109.	123.	63.	201.	61.	90.	32.	16.	872.40
.62	.54	2.01	.70	.040	.030	.040	.039	871.90	1496.00
.000111	67.	67.	67.	2	0	7	0.00	349.14	2129.00

```
    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=     .100 CEHV=     .300
*SECNO 47.300

3470 ENCROACHMENT STATIONS=     1950.0     2058.0  TYPE=       1  TARGET=      108.000
     47.30       7.74     879.64      0.00     879.63     879.80       .16        .01        .04     872.40
      295.        30.        223.       42.       40.        61.       39.        32.        16.      872.20
       .63        .76       3.65      1.07       .060       .040      .060       .039     871.90    1950.00
   .000651        50.        50.        50.          2          0         0       0.00     108.00    2058.00

*SECNO 49.800
 2800 NAT Q1=       93.99  WSEL=     880.21  ENC Q1=       93.99  WSEL=     880.31  RATIO=  0.0000
 NAT Q1=       97.  RATIOS LOB,CH,ROB=    .1451    .6729    .1820  WSEL=     880.31

3470 ENCROACHMENT STATIONS=     1992.5     2015.6  TYPE=       4  TARGET=         .030
     49.80       7.11     880.21      0.00     880.21     880.41       .20        .60        .01     873.70
      295.        40.        203.       52.       30.        48.       36.        35.        18.      873.70
       .69       1.35       4.21      1.43       .070       .040      .070       .039     873.10    1992.46
   .001008       700.        750.       800.          1          0         0       0.00      23.14    2015.60

CCHV=     .300 CEHV=     .500
*SECNO 49.900

3470 ENCROACHMENT STATIONS=     2000.0     2008.0  TYPE=       1  TARGET=         8.000
     49.90       6.77     880.17      0.00     880.17     880.65       .48        .10        .14     873.40
      295.          0.        295.        0.         0.        53.       0.        35.        18.   100000.00
       .69       0.00       5.55      0.00       .070       .040      .070       .039     873.40    2000.00
   .006560        50.        50.        50.          2          0         0       0.00       8.00    2008.00

*SECNO 50.000

3470 ENCROACHMENT STATIONS=     1989.8     2012.8  TYPE=       1  TARGET=        23.060
     50.00       6.89     880.29      0.00     880.16     880.68       .39        .00        .03     878.50
      295.        13.        278.        4.         8.        54.       3.        35.        18.      878.50
       .69       1.69       5.14      1.40       .040       .030      .040       .039     873.40    1989.75
   .002456          1.          1.         1.          2          0         0       0.00      23.06    2012.81
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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	4.60	2.80	0.00	6.52	0.00	26.70	0.00	874.30	873.40

*SECNO 50.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
889.01	881.35	0.00	106.	192.	27.	27.	878.40	883.70

COLUMBIA-MATTHEWS ST BR. (F)

50.10	9.63	883.93	0.00	883.92	883.98	.05	3.30	0.00	875.10
295.	65.	169.	61.	82.	76.	78.	35.	18.	874.30
.72	.80	2.22	.79	.040	.030	.040	.039	874.30	1953.27
.000102	184.	184.	184.	2	0	7	0.00	159.36	2112.64

*SECNO 50.200

3470 ENCROACHMENT STATIONS= 1953.0 2111.0 TYPE= 1 TARGET= 158.000

50.20	9.64	883.94	0.00	883.93	883.98	.05	.00	.00	875.10
295.	58.	168.	69.	82.	75.	122.	35.	18.	874.30
.72	.71	2.22	.56	.060	.040	.060	.039	874.30	1953.24
.000183	1.	1.	1.	0	0	0	0.00	157.76	2111.00

CCHV= .100 CEHV= .300
*SECNO 50.300
2800 NAT Q1= 172.63 WSEL= 883.92 ENC Q1= 172.63 WSEL= 884.02 RATIO= 0.0000
NAT Q1= 179. RATIOS LOB,CH,ROB= .1287 .6455 .2258 WSEL= 884.02

3470 ENCROACHMENT STATIONS= 1983.3 2077.2 TYPE= 4 TARGET= .037

50.30	9.42	883.92	0.00	883.92	884.01	.08	.01	.01	875.50
295.	33.	201.	61.	43.	72.	76.	36.	18.	875.50
.73	.76	2.78	.81	.060	.040	.060	.039	874.50	1983.30
.000312	50.	50.	50.	2	0	0	0.00	93.94	2077.23

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 52.800

3470 ENCROACHMENT STATIONS= 1781.0 3019.0 TYPE= 1 TARGET= 1238.000
ELENCL= 885.30 ELENCR= 898.50

52.80	4.77	884.57	0.00	884.54	884.73	.15	.70	.02	880.10
295.	140.	122.	33.	72.	28.	22.	40.	20.	879.80
.84	1.95	4.32	1.46	.060	.040	.070	.039	879.80	1945.70
.001726	1140.	1140.	1140.	2	0	0	0.00	69.66	2015.37

*SECNO 52.900
2800 NAT Q1= 54.33 WSEL= 884.54 ENC Q1= 54.33 WSEL= 884.64 RATIO= 0.0000
NAT Q1= 57. RATIOS LOB,CH,ROB= .2222 .6061 .1717 WSEL= 884.64

3470 ENCROACHMENT STATIONS= 1991.8 2016.1 TYPE= 4 TARGET= .047
MAPLE AVENUE BRIDGE (G)

52.90	4.95	884.55	0.00	884.54	884.89	.34	.11	.06	880.30
295.	61.	186.	47.	25.	33.	23.	40.	20.	880.50
.84	2.46	5.61	2.09	.060	.040	.070	.039	879.60	1991.76
.003089	49.	49.	49.	2	0	0	0.00	24.33	2016.09

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RAYNER CK. CITY OF MASON

SUMMARY PRINTOUT

SECNO	CHSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
39.000	875.25	1951.27	2000.00	2025.00	2437.44	435.43	0.00
39.000	875.25	1971.15	2000.00	2025.00	2403.96	382.07	0.00
39.800	875.49	1548.79	1555.00	2012.00	2462.38	913.59	250.00
39.800	875.52	1555.00	1555.00	2012.00	2396.08	841.08	250.00
39.900	875.50	1548.76	1555.00	2012.00	2462.49	913.73	50.00
39.900	875.54	1555.00	1555.00	2012.00	2396.70	841.70	50.00
40.000	875.50	1548.76	1556.00	2012.00	2462.49	913.73	1.00
40.000	875.54	1556.00	1556.00	2012.00	2399.23	843.23	1.00
40.100	875.56	1548.63	1556.00	2012.00	2461.56	912.92	100.00
40.100	875.62	1556.00	1556.00	2012.00	2399.23	843.23	100.00
40.200	875.56	1548.65	2001.00	2012.00	2461.51	912.86	1.00
40.200	875.62	1556.76	2001.00	2012.00	2422.12	865.36	1.00
40.300	875.57	1548.82	2001.00	2012.00	2460.89	912.08	50.00
40.300	875.63	1556.81	2001.00	2012.00	2420.39	863.58	50.00
40.800	875.60	1955.65	1995.00	2020.00	2033.75	78.09	150.00
40.800	875.66	1983.56	1995.00	2020.00	2027.56	44.00	150.00
40.900	875.47	2000.00	2000.00	2010.00	2010.00	10.00	80.00
40.900	875.54	2000.00	2000.00	2010.00	2010.00	10.00	80.00
41.000	875.48	2000.00	2000.00	2010.00	2010.00	10.00	1.00
41.000	875.54	2000.00	2000.00	2010.00	2010.00	10.00	1.00
41.100	875.83	2000.00	2000.00	2010.00	2010.00	10.00	24.00
41.100	875.91	2000.00	2000.00	2010.00	2010.00	10.00	24.00

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
41.200	875.83	2000.00	2000.00	2010.00	2010.00	10.00	1.00
41.200	875.91	2000.00	2000.00	2010.00	2010.00	10.00	1.00
41.300	876.24	1955.00	1995.00	2020.00	2035.30	80.30	50.00
41.300	876.31	1977.10	1995.00	2020.00	2027.93	50.82	50.00
43.800	876.65	1958.57	2000.00	2008.00	2369.08	316.94	1382.00
43.800	876.73	1993.16	2000.00	2008.00	2324.14	250.62	1382.00
43.900	876.67	1958.11	2000.00	2008.00	2369.42	320.06	50.00
43.900	876.75	1993.46	2000.00	2008.00	2323.60	253.23	50.00
44.100	878.13	1904.49	2000.00	2008.00	2409.63	505.13	100.00
44.100	878.15	1993.46	2000.00	2008.00	2323.60	330.15	100.00
44.300	878.13	1904.21	2000.00	2008.00	2409.85	505.64	50.00
44.300	878.16	1970.34	2000.00	2008.00	2343.98	373.64	50.00
46.800	878.04	1962.68	2000.00	2008.00	2021.01	58.33	150.00
46.800	878.06	1991.46	2000.00	2008.00	2016.56	25.10	150.00
46.900	878.20	1952.38	2000.00	2008.00	2021.38	69.00	150.00
46.900	878.22	1990.07	2000.00	2008.00	2016.75	26.68	150.00
47.100	879.71	1495.47	2000.00	2008.00	2129.32	349.43	66.50
47.100	879.72	1496.00	2000.00	2008.00	2129.00	349.14	66.50
47.300	879.63	1950.00	2000.00	2008.00	2058.00	108.00	50.00
47.300	879.64	1950.00	2000.00	2008.00	2058.00	108.00	50.00
49.800	880.21	1987.61	2000.00	2007.00	2019.15	31.54	750.00
49.800	880.21	1992.46	2000.00	2007.00	2015.60	23.14	750.00
49.900	880.17	1990.15	2000.00	2008.00	2012.64	22.49	50.00
49.900	880.17	2000.00	2000.00	2008.00	2008.00	8.00	50.00
50.000	880.16	1990.20	2000.00	2008.00	2012.62	22.42	1.00
50.000	880.29	1989.75	2000.00	2008.00	2012.81	23.06	1.00
50.100	883.92	1953.55	2000.00	2008.00	2110.83	157.28	184.00
50.100	883.93	1953.27	2000.00	2008.00	2112.64	159.36	184.00
50.200	883.93	1953.51	2000.00	2008.00	2111.00	157.48	1.00
50.200	883.94	1953.24	2000.00	2008.00	2111.00	157.76	1.00
50.300	883.92	1951.22	2000.00	2008.00	2116.75	165.53	50.00
50.300	883.92	1983.30	2000.00	2008.00	2077.23	93.94	50.00
52.800	884.54	1949.60	2000.00	2006.00	2015.29	65.69	1140.00
52.800	884.57	1945.70	2000.00	2006.00	2015.37	69.66	1140.00

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
52.900	884.54	1985.86	2000.00	2007.00	2026.04	40.18	49.00
52.900	884.55	1991.76	2000.00	2007.00	2016.09	24.33	49.00

RAYNER CK. CITY OF MASON

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
39.000	875.25	0.00	875.35	435.43	332.12	478.29	734.59	0.00	0.00	2000.00	2025.00	0.00
39.000	875.25	0.00	875.37	382.07	304.08	506.97	733.96	.06	1971.15	2000.00	2025.00	2403.96
39.800	875.49	0.00	875.50	913.59	5.31	966.18	573.51	0.00	0.00	1555.00	2012.00	0.00
39.800	875.52	.03	875.53	841.08	0.00	1026.79	518.21	.06	1555.00	1555.00	2012.00	2396.08
39.900	875.50	0.00	875.51	913.73	5.33	964.67	575.01	0.00	0.00	1555.00	2012.00	0.00
39.900	875.54	.03	875.55	841.70	0.00	1024.73	520.27	.06	1555.00	1555.00	2012.00	2396.71
40.000	875.50	0.00	875.51	913.73	8.44	951.36	585.21	0.00	0.00	1556.00	2012.00	0.00
40.000	875.54	.03	875.55	843.23	0.00	995.82	549.18	.06	1556.00	1556.00	2012.00	2399.23
40.100	875.56	0.00	875.58	912.92	9.20	983.59	552.21	0.00	0.00	1556.00	2012.00	0.00
40.100	875.62	.06	875.64	843.23	0.00	1023.98	521.02	.06	1556.00	1556.00	2012.00	2399.23
40.200	875.56	0.00	875.58	912.86	891.30	138.90	514.80	0.00	0.00	2001.00	2012.00	0.00
40.200	875.62	.06	875.64	865.36	906.45	141.33	497.23	.06	1556.76	2001.00	2012.00	2422.12
40.300	875.57	0.00	875.59	912.08	904.89	141.96	498.14	0.00	0.00	2001.00	2012.00	0.00
40.300	875.63	.06	875.65	863.58	920.67	144.55	479.79	.06	1556.81	2001.00	2012.00	2420.39
40.800	875.60	0.00	875.65	78.09	28.42	244.41	22.17	0.00	0.00	1995.00	2020.00	0.00
40.800	875.66	.06	875.71	44.00	25.71	251.31	17.98	.04	1983.56	1995.00	2020.00	2027.56
40.900	875.47	0.00	875.90	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
40.900	875.54	.07	875.96	10.00	0.00	295.00	0.00	10.00	2000.00	2000.00	2010.00	2010.00
41.000	875.48	0.00	875.91	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
41.000	875.54	.07	875.97	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
41.100	875.83	0.00	876.21	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
41.100	875.91	.08	876.28	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
41.200	875.83	0.00	876.22	10.00	0.00	295.00	0.00	0.00	0.00	2000.00	2010.00	0.00
41.200	875.91	.08	876.28	10.00	0.00	295.00	0.00	0.00	2000.00	2000.00	2010.00	2010.00
41.300	876.24	0.00	876.28	80.30	31.75	241.73	21.51	105.00	1955.00	1995.00	2020.00	2060.00
41.300	876.31	.06	876.35	50.82	28.71	249.52	16.77	.04	1977.10	1995.00	2020.00	2027.91
43.800	876.65	0.00	876.69	316.94	29.31	107.32	158.38	0.00	0.00	2000.00	2008.00	0.0
43.800	876.73	.07	876.76	250.62	21.93	110.97	162.11	.07	1993.16	2000.00	2008.00	2324.1
43.900	876.67	0.00	876.71	320.06	29.34	106.73	158.93	0.00	0.00	2000.00	2008.00	0.0
43.900	876.75	.07	876.78	253.23	21.20	110.71	163.09	.07	1993.46	2000.00	2008.00	2323.6
44.100	878.13	0.00	878.13	505.13	35.25	43.56	216.19	0.00	0.00	2000.00	2008.00	0.0
44.100	878.15	.02	878.16	330.15	13.81	51.69	229.50	.06	1993.46	2000.00	2008.00	2323.6

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
44.300	878.13	0.00	878.13	505.64	35.60	41.08	218.31	0.00	0.00	2000.00	2008.00	0.00
44.300	878.16	.03	878.16	373.64	29.51	43.06	222.43	.06	1970.34	2000.00	2008.00	2343.98
46.800	878.04	0.00	878.19	58.33	50.49	180.30	64.20	0.00	0.00	2000.00	2008.00	0.00
46.800	878.06	.02	878.22	25.10	48.32	184.35	62.33	.04	1991.46	2000.00	2008.00	2016.56
46.900	878.20	0.00	878.33	69.00	53.83	176.42	64.75	0.00	0.00	2000.00	2008.00	0.00
46.900	878.22	.02	878.37	26.68	51.14	180.95	62.90	.04	1990.07	2000.00	2008.00	2016.76
47.100	879.71	0.00	879.74	349.43	108.83	122.87	63.30	0.00	0.00	2000.00	2008.00	0.00
47.100	879.72	.00	879.74	349.14	108.90	122.79	63.31	633.00	1496.00	2000.00	2008.00	2129.00
47.300	879.63	0.00	879.79	108.00	30.44	223.02	41.54	108.00	1950.00	2000.00	2008.00	2058.00
47.300	879.64	.00	879.80	108.00	30.48	222.96	41.56	108.00	1950.00	2000.00	2008.00	2058.00
49.800	880.21	0.00	880.40	31.54	41.95	199.87	53.18	0.00	0.00	2000.00	2007.00	0.00
49.800	880.21	.00	880.41	23.14	40.39	202.61	51.99	.03	1992.46	2000.00	2007.00	2015.60
49.900	880.17	0.00	880.56	22.49	14.56	274.78	5.66	0.00	0.00	2000.00	2008.00	0.00
49.900	880.17	.00	880.65	8.00	0.00	295.00	0.00	8.00	2000.00	2000.00	2008.00	2008.00
50.000	880.16	0.00	880.58	22.42	10.39	281.56	3.05	0.00	0.00	2000.00	2008.00	0.00
50.000	880.29	.14	880.68	23.06	12.73	278.30	3.96	23.06	1989.75	2000.00	2008.00	2012.81
50.100	883.92	0.00	883.97	157.28	65.10	169.14	60.76	0.00	0.00	2000.00	2008.00	0.00
50.100	883.93	.01	883.98	159.36	65.21	168.88	60.91	0.00	0.00	2000.00	2008.00	0.00
50.200	883.93	0.00	883.97	157.48	58.33	168.04	68.64	158.00	1953.00	2000.00	2008.00	2111.00
50.200	883.94	.01	883.98	157.76	58.39	167.70	68.91	158.00	1953.00	2000.00	2008.00	2111.00
50.300	883.92	0.00	883.99	165.53	36.55	194.52	63.93	0.00	0.00	2000.00	2008.00	0.00
50.300	883.92	.00	884.01	93.94	32.84	200.88	61.28	.04	1983.30	2000.00	2008.00	2077.24
52.800	884.54	0.00	884.69	65.69	139.64	122.77	32.59	1238.00	1781.00	2000.00	2006.00	3019.00
52.800	884.57	.04	884.73	69.66	140.37	121.99	32.64	1238.00	1781.00	2000.00	2006.00	3019.00
52.900	884.54	0.00	884.85	40.18	64.68	181.27	49.05	0.00	0.00	2000.00	2007.00	0.00
52.900	884.55	.01	884.89	24.33	61.30	186.44	47.27	.05	1991.76	2000.00	2007.00	2016.09

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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C
T1      CITY OF MASON
T2      10 YEAR FLOW
T3      RAYNER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	874.400	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 VARIABLE CODES FOR SUMMARY PRINTOUT

	150.000	201.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

	-10.000	-10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	6.000	1010.000	1345.000	1545.000	2205.000	1545.000	1648.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

VALLEY SECTION AT CONFLUENCE OF RAYNER CR AND SYCAMORE CR (A)

X1	39.000	25.000	2000.000	2025.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	877.300	1892.000	876.200	1907.000	877.800	1932.000	873.300	1966.000	871.200	1972.000
GR	870.100	1979.000	871.700	1985.000	871.100	2000.000	870.100	2004.000	869.400	2007.000
GR	868.500	2012.000	869.300	2015.000	871.100	2020.000	874.900	2025.000	877.400	2032.000
GR	876.000	2049.000	873.700	2134.000	872.700	2209.000	873.200	2319.000	873.600	2423.000
GR	876.000	2444.000	877.000	2545.000	877.500	2593.000	877.300	2618.000	881.100	2730.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	39.800	20.000	1555.000	2012.000	250.000	250.000	250.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.300	1821.000	873.800	1958.000	873.300	1977.000	874.100	1990.000
GR	870.400	2000.000	869.500	2001.000	869.000	2005.000	868.500	2009.000	870.000	2012.000
GR	874.400	2022.000	874.100	2094.000	871.700	2161.000	875.300	2252.000	873.200	2335.000
GR	873.300	2447.000	878.700	2485.000	883.600	2525.000	885.700	2600.000	885.800	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	39.900	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.000	38.000	1556.000	2012.000	1.000	1.000	1.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.300	1821.000	874.400	1935.000	873.800	1958.000	873.300	1977.000
GR	874.100	1990.000	870.400	2000.000	870.100	2001.000	869.150	2005.000	868.580	2005.700
GR	868.500	2006.400	868.300	2008.400	868.290	2009.000	869.150	2009.900	870.000	2012.000
GR	874.400	2022.000	874.100	2094.000	871.700	2161.000	875.300	2252.000	873.200	2335.000
GR	873.300	2447.000	878.700	2485.000	883.600	2525.000	885.700	2600.000	885.800	2629.000
GR	883.300	2682.000	883.700	2689.000	883.800	2694.000	883.000	2696.000	884.500	2750.000
GR	883.700	2796.000	884.500	2889.000	884.300	2912.000	885.000	2913.000	885.100	2920.000
GR	886.100	2925.000	886.300	2949.000	887.900	3061.000	0.000	0.000	0.000	0.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	4.940	2.800	0.000	4.090	0.000	17.600	0.000	868.490	868.290

TREATMENT PLANT CULVERT (8)

X1	40.100	25.000	1556.000	2012.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	872.800	874.200	0.000	0.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
BT	23.000	1709.000	874.200	0.000	1821.000	875.500	0.000	1935.000	874.600	0.000
BT	1958.000	874.000	0.000	1977.000	873.500	0.000	1990.000	874.300	0.000	2000.000
BT	874.300	0.000	2001.000	874.300	0.000	2005.000	874.400	869.350	2005.000	874.400
BT	871.370	2006.400	874.400	872.800	2008.400	874.400	872.800	2009.900	874.400	871.370
BT	2009.900	874.400	869.350	2012.000	874.400	0.000	2022.000	874.500	0.000	2094.000
BT	874.300	0.000	2161.000	871.900	0.000	2252.000	875.500	0.000	2335.000	873.400
BT	0.000	2447.000	873.500	0.000	2485.000	878.900	0.000	2525.000	838.800	0.000
GR	880.000	1540.000	875.400	1821.000	874.600	1935.000	874.000	1958.000	873.500	1977.000
GR	874.300	1990.000	870.600	2000.000	870.300	2001.000	869.350	2005.000	868.780	2005.700
GR	868.700	2006.400	868.500	2008.400	868.490	2009.000	869.350	2009.900	870.200	2012.000
GR	874.600	2022.000	874.300	2094.000	871.900	2161.000	875.400	2252.000	873.400	2335.000
GR	873.500	2447.000	878.900	2485.000	883.800	2525.000	885.800	2600.000	885.900	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.200	25.000	2001.000	2012.000	1.000	1.000	1.000	0.000	0.000	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
GR	880.000	1540.000	875.400	1821.000	874.600	1935.000	874.000	1958.000	873.500	1977.000
GR	874.300	1990.000	870.600	2000.000	870.300	2001.000	869.350	2005.000	868.780	2005.700
GR	868.700	2006.400	868.500	2008.400	868.490	2009.000	869.350	2009.900	870.200	2012.000
GR	874.600	2022.000	874.300	2094.000	871.900	2161.000	875.400	2252.000	873.400	2335.000

MOORE BUSINESS FORMS INC

GR	873.500	2447.000	878.900	2485.000	883.800	2525.000	885.800	2600.000	885.900	2629.000
NH	5.000	.060	1556.000	.040	1580.000	.060	2000.000	.040	2012.000	.060
NH	2629.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	40.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.100	0.000
X4	9.000	872.300	1555.000	871.300	1556.000	869.400	1557.000	867.700	1563.000	867.700
X4	1580.000	871.700	1585.000	872.000	1620.000	873.300	1650.000	874.000	1709.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	6.000	170.000	245.000	295.000	435.000	295.000	399.000	0.000	0.000	0.000
X1	40.800	20.000	1995.000	2020.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.000	1940.000	875.000	1980.000	872.000	1995.000	871.000	2000.000
GR	870.000	2004.000	869.500	2008.000	869.300	2010.000	870.500	2016.000	872.000	2020.000
GR	874.000	2028.000	876.800	2038.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
NC	.050	.050	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2010.000
X1	40.900	30.000	2000.000	2010.000	80.000	80.000	80.000	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	882.600	1258.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.900	1987.000	876.600	1990.000	876.500	1993.000	876.800	1996.000
GR	877.100	2000.000	870.500	2000.000	870.100	2004.000	869.700	2006.000	869.400	2008.000
GR	869.400	2010.000	877.100	2010.000	876.100	2011.000	875.600	2013.000	875.200	2016.000
GR	875.800	2017.000	876.400	2020.000	877.000	2023.000	877.200	2036.000	877.100	2112.000
GR	877.800	2210.000	879.400	2312.000	881.300	2414.000	883.200	2534.000	884.200	2645.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	41.000	21.000	2000.000	2010.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.840	1668.000	876.600	1774.000
GR	876.400	1876.000	876.700	1940.000	876.900	1980.000	877.000	1995.000	877.040	2000.000
GR	870.500	2000.000	870.100	2004.000	869.700	2006.000	869.400	2008.000	869.400	2010.000
GR	877.100	2010.000	877.000	2020.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
GR	881.300	2414.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.490	2.800	0.000	9.160	0.000	52.200	0.000	869.400	869.400

JEFFERSON AVE. BRIDGE (C)

X1	41.100	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	875.100	876.400	0.000	0.000	0.000	0.000	0.000
BT	19.000	1352.000	879.900	0.000	1459.000	877.800	0.000	1565.000	877.100	0.000
BT	1668.000	876.840	0.000	1774.000	876.600	0.000	1876.000	876.400	0.000	1940.000
BT	876.700	0.000	1980.000	876.900	0.000	1995.000	877.000	0.000	2000.000	877.040
BT	0.000	2000.000	877.040	875.100	2010.000	877.100	875.100	2010.000	877.100	0.000
BT	2020.000	877.000	0.000	2112.000	877.100	0.000	2210.000	877.800	0.000	2312.000
BT	879.400	0.000	2414.000	881.300	0.000	2534.000	883.200	0.000	0.000	0.000
NC	.050	.050	.040	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	1.410	0.000	0.000	0.000	0.000

X1	41.200	25.000	2000.000	2010.000	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
GR	879.900	1352.000	877.800	1459.000	877.100	1565.000	876.800	1668.000	876.600	1774.000
GR	876.400	1876.000	876.900	1970.000	876.900	1986.000	876.000	1990.000	874.700	1992.000
GR	877.100	2000.000	870.400	2000.000	870.100	2004.000	869.800	2005.000	869.600	2007.000
GR	869.500	2010.000	877.100	2010.000	876.100	2011.000	876.100	2016.000	876.400	2024.000
GR	876.400	2030.000	877.000	2042.000	877.100	2112.000	877.800	2210.000	879.400	2312.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	0.000	9.100	0.000	1955.000	2060.000
X1	41.300	20.000	1995.000	2020.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	880.100	1352.000	878.000	1459.000	877.300	1565.000	877.000	1668.000	876.800	1774.000
GR	876.600	1876.000	876.200	1940.000	875.200	1980.000	872.200	1995.000	871.200	2000.000
GR	870.200	2004.000	869.700	2008.000	869.500	2010.000	870.700	2016.000	872.200	2020.000
GR	874.200	2028.000	877.000	2038.000	877.300	2112.000	878.000	2210.000	879.600	2312.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	43.800	19.000	2000.000	2008.000	1400.000	1350.000	1382.000	0.000	0.000	0.000
GR	880.900	1858.000	878.200	1902.000	875.800	1990.000	871.300	2000.000	870.800	2000.000
GR	870.800	2003.000	870.700	2006.000	871.000	2008.000	877.200	2019.000	877.500	2041.000
GR	875.000	2074.000	875.000	2089.000	875.700	2096.000	877.000	2164.000	876.200	2261.000
GR	874.300	2273.000	874.000	2296.000	879.200	2439.000	880.600	2565.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	43.900	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.530	2.800	0.000	6.280	0.000	25.100	0.000	870.700	870.700

OKEMCS RD. BRIDGE (D)

X1	44.100	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	874.400	877.800	0.000	0.000	0.000	0.000	0.000
BT	20.000	1858.000	880.900	0.000	1902.000	878.200	0.000	1990.000	877.800	875.800
BT	2000.000	877.800	870.800	2000.000	877.800	871.300	2001.000	877.800	873.100	2002.000
BT	877.800	873.900	2003.000	877.800	874.300	2004.000	877.800	874.400	2005.000	877.800
BT	874.300	2006.000	877.800	873.900	2007.000	877.800	873.100	2008.000	877.800	871.300
BT	2008.000	877.800	871.000	2019.000	877.800	877.200	2041.000	877.800	877.500	2164.000
BT	877.800	877.000	2261.000	877.800	876.200	2439.000	879.200	0.000	2565.000	880.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	44.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 77

X1	46.800	20.000	2000.000	2008.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	880.500	1409.000	879.600	1508.000	880.900	1624.000	879.800	1672.000	879.800	1777.000
GR	879.300	1881.000	877.600	1991.000	872.400	2000.000	871.900	2003.000	872.000	2006.000
GR	872.400	2008.000	878.900	2023.000	879.800	2091.000	879.500	2095.000	879.700	2128.000
GR	880.700	2223.000	881.200	2333.000	881.500	2437.000	880.700	2543.000	880.300	2646.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	46.900	0.000	0.000	0.000	150.000	150.000	150.000	0.000	0.000	0.000
NC	.040	.040	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.780	2.800	0.000	6.400	0.000	26.900	0.000	871.900	871.900

ROGERS ST. BRIDGE (E)

X1	47.100	0.000	0.000	0.000	66.500	66.500	66.500	0.000	0.000	0.000
X2	0.000	0.000	1.000	876.400	879.400	0.000	0.000	0.000	0.000	0.000
BT	25.000	1409.000	880.500	0.000	1508.000	879.600	0.000	1624.000	880.900	0.000
BT	1672.000	879.400	0.000	1777.000	879.800	0.000	1881.000	879.400	879.300	1991.000
BT	879.400	877.600	2000.000	879.400	872.400	2001.000	879.400	875.000	2002.000	879.400
BT	875.800	2003.000	879.400	876.200	2004.000	879.400	876.400	2005.000	879.400	876.200
BT	2006.000	879.400	875.800	2007.000	879.400	875.000	2008.000	879.400	872.400	2023.000
BT	879.400	878.900	2091.000	879.800	0.000	2095.000	879.500	0.000	2128.000	879.700
BT	0.000	2223.000	880.700	0.000	2333.000	881.200	0.000	2437.000	881.500	0.000
BT	2543.000	880.700	0.000	2646.000	880.300	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	0.000	1950.000	2058.000
X1	47.300	20.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	892.600	1267.000	889.100	1361.000	884.800	1461.000	882.700	1542.000	880.900	1648.000
GR	879.900	1743.000	879.500	1845.000	879.400	1951.000	879.400	1956.000	878.900	1995.000
GR	872.400	2000.000	871.900	2002.000	871.900	2004.000	871.900	2006.000	872.200	2008.000
GR	879.300	2016.000	880.300	2154.000	884.300	2232.000	882.900	2335.000	885.900	2429.000
NC	.070	.070	.040	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	1.410	0.000	0.000	0.000	0.000
X1	49.800	23.000	2000.000	2007.000	700.000	800.000	750.000	0.000	0.000	0.000
GR	888.900	1683.000	887.900	1769.000	886.100	1818.000	884.800	1866.000	883.400	1888.000
GR	882.500	1911.000	880.600	1969.000	880.200	1988.000	879.800	1991.000	873.700	2000.000
GR	873.300	2002.000	873.100	2005.000	873.700	2007.000	881.200	2021.000	881.000	2023.000
GR	881.300	2069.000	882.500	2107.000	884.900	2200.000	887.000	2293.000	890.200	2416.000
GR	891.800	2430.000	893.400	2434.000	894.000	2445.000	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
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	2000.000	2008.000

"MORE BUSINESS FORMS"

X1	49.900	25.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	886.600	1500.000	889.100	1583.000	887.700	1765.000	884.200	1828.000	884.400	1867.000
GR	883.300	1877.000	882.600	1909.000	884.900	1934.000	880.500	1978.000	880.300	1989.000
GR	879.400	1997.000	873.400	2000.000	873.500	2004.000	873.700	2008.000	880.000	2010.000
GR	880.000	2012.000	880.800	2015.000	881.500	2038.000	882.600	2069.000	881.700	2082.000
GR	884.800	2177.000	886.600	2184.000	887.800	2245.000	891.600	2263.000	892.500	2297.000
NC	.040	.040	.030	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	9.100	0.000	0.000	1989.750	2012.810

X1	50.000	35.000	2000.000	2008.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	886.700	1500.000	889.100	1583.000	887.700	1765.000	884.200	1828.000	884.400	1867.000
GR	883.300	1877.000	882.600	1909.000	884.900	1934.000	880.500	1978.000	880.300	1989.000
GR	879.400	1997.000	878.500	2000.000	873.400	2000.000	873.400	2001.000	873.400	2002.000
GR	873.500	2003.000	873.500	2004.000	873.500	2005.000	873.600	2006.000	873.700	2007.000
GR	873.700	2008.000	878.500	2008.000	880.000	2010.000	880.000	2012.000	880.800	2015.000
GR	881.500	2038.000	882.600	2069.000	881.700	2082.000	884.800	2177.000	886.600	2184.000
GR	887.800	2245.000	891.600	2263.000	892.500	2297.000	892.500	2335.000	892.600	2417.000
SB	0.000	4.600	2.800	0.000	6.520	0.000	26.700	0.000	874.300	873.400

COLUMBIA-MATTHEWS ST BR. (F)

X1	50.100	20.000	2000.000	2008.000	184.000	184.000	184.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	878.400	883.700	0.000	0.000	0.000	0.000	0.000
BT	27.000	1567.000	887.970	0.000	1567.000	887.970	0.000	1567.000	887.970	0.000
BT	1567.000	887.970	0.000	1672.000	888.420	0.000	1672.000	888.420	0.000	1672.000
BT	888.420	0.000	1781.000	886.600	0.000	1885.000	884.550	0.000	1943.000	884.300
BT	0.000	1988.000	882.700	0.000	2000.000	883.700	0.000	2000.000	883.700	875.100
BT	2001.000	883.700	877.000	2002.000	883.700	877.800	2003.000	883.700	878.300	2004.000
BT	883.700	878.400	2005.000	883.700	878.300	2006.000	883.700	877.800	2007.000	883.700
BT	877.000	2008.000	883.700	874.300	2008.000	883.700	0.000	2021.000	883.800	0.000
BT	2070.000	883.700	0.000	2179.000	884.300	0.000	2296.000	886.200	0.000	2399.000
BT	887.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	887.970	1567.000	888.420	1672.000	886.600	1781.000	884.550	1885.000	884.300	1943.000
GR	882.700	1988.000	875.100	2000.000	874.600	2001.000	874.500	2002.000	874.300	2003.000
GR	874.300	2004.000	874.300	2005.000	874.300	2006.000	874.300	2007.000	874.300	2008.000
GR	883.800	2021.000	883.700	2070.000	884.300	2179.000	886.200	2296.000	887.800	2399.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1953.000	2111.000

X1	50.200	23.000	2000.000	2008.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	894.400	1452.000	894.000	1608.000	893.300	1639.000	888.200	1825.000	886.900	1934.000
GR	884.300	1943.000	882.700	1988.000	875.100	2000.000	874.600	2001.000	874.300	2008.000
GR	883.800	2021.000	883.700	2035.000	883.000	2076.000	883.100	2143.000	882.900	2151.000
GR	883.100	2177.000	889.500	2205.000	884.500	2338.000	886.000	2468.000	890.400	2610.000
GR	889.600	2635.000	889.500	2652.000	895.400	2714.000	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
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	50.300	18.000	2000.000	2008.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	898.000	1500.000	890.000	1750.000	888.300	1850.000	886.900	1935.000	884.200	1943.000
GR	882.700	1988.000	880.000	1998.000	875.500	2000.000	875.000	2001.000	874.500	2004.000
GR	875.000	2007.000	875.500	2008.000	883.900	2021.000	883.900	2035.000	883.000	2076.000
GR	884.000	2120.000	890.000	2160.000	892.100	2250.000	0.000	0.000	0.000	0.000
NC	.060	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	52.800	54.000	2000.000	2006.000	1140.000	1140.000	1140.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1781.000	885.300	3019.000	898.500	0.000	0.000	0.000
GR	886.600	665.000	887.100	691.000	888.900	808.000	890.000	903.000	891.400	1027.000
GR	892.600	1124.000	892.000	1199.000	889.300	1215.000	889.100	1248.000	892.800	1289.000
GR	892.600	1335.000	890.100	1437.000	885.900	1453.000	880.600	1459.000	879.800	1468.000
GR	879.000	1483.000	878.300	1503.000	878.200	1517.000	877.700	1539.000	877.800	1559.000
GR	877.800	1573.000	877.900	1589.000	878.300	1603.000	879.100	1617.000	880.700	1625.000
GR	883.300	1646.000	883.100	1664.000	885.000	1716.000	885.300	1781.000	885.200	1882.000
GR	884.300	1974.000	880.900	1991.000	880.800	1998.000	880.100	2000.000	879.800	2003.000
GR	879.800	2006.000	884.900	2016.000	885.400	2063.000	889.400	2132.000	889.200	2177.000
GR	889.800	2202.000	889.500	2210.000	891.000	2317.000	892.200	2418.000	893.700	2511.000
GR	895.100	2701.000	896.400	2804.000	897.800	2914.000	898.500	3019.000	898.100	3121.000
GR	897.400	3226.000	897.500	3305.000	897.400	3389.000	897.900	3511.000	0.000	0.000

MAPLE AVENUE BRIDGE (G)

X1	52.900	43.000	2000.000	2007.000	49.000	49.000	49.000	0.000	0.000	0.000
GR	890.900	504.000	887.000	605.000	886.100	672.000	886.300	776.000	887.100	879.000
GR	887.400	985.000	887.800	1092.000	887.900	1173.000	888.600	1268.000	888.100	1375.000
GR	887.400	1483.000	886.700	1579.000	885.900	1683.000	885.200	1785.000	885.500	1883.000
GR	885.700	1917.000	885.500	1956.000	885.100	1984.000	880.300	2000.000	880.000	2001.000
GR	879.800	2002.000	879.600	2003.500	879.600	2005.000	879.600	2006.000	880.500	2007.000
GR	883.600	2016.000	885.100	2032.000	885.400	2059.000	887.900	2093.000	888.900	2113.000
GR	889.500	2210.000	891.000	2317.000	892.200	2418.000	893.700	2511.000	895.100	2701.000
GR	896.400	2804.000	897.800	2914.000	898.500	3019.000	898.100	3121.000	897.400	3226.000
GR	897.500	3305.000	897.400	3389.000	897.900	3511.000	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

MOORE BUSINESS FORMS 27

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1      CITY OF MASON
T2      50 YEAR FLOW
T3      RAYNER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	874.900	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

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1      CITY OF MASON
T2      100 YEAR LEVEL
T3      RAYNER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	875.250	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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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54.
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T1      CITY OF MASON
T2      500 YEAR LEVEL
T3      RAYNER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	876.650	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

MOORE BUSINESS FORMS, INC. 27

****
HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01,02,03,04
MODIFICATION - 50,51,52,53,54
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RAYNER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
39.000	0.00	0.00	0.00	868.50	1010.00	874.40	0.00	874.53	19.96	4.09	576.14	226.05
39.000	0.00	0.00	0.00	868.50	1345.00	874.90	0.00	875.01	17.53	4.05	777.22	321.24
39.000	0.00	0.00	0.00	868.50	1545.00	875.25	0.00	875.35	14.83	3.92	926.19	401.15
39.000	0.00	0.00	0.00	868.50	2205.00	876.65	0.00	876.71	7.15	3.22	1607.95	824.67
39.800	250.00	0.00	0.00	867.70	1010.00	874.67	0.00	874.69	2.75	1.29	1081.85	609.00
39.800	250.00	0.00	0.00	867.70	1345.00	875.14	0.00	875.16	2.58	1.23	1466.13	837.93
39.800	250.00	0.00	0.00	867.70	1545.00	875.49	0.00	875.50	2.96	1.05	1778.25	898.50
39.800	250.00	0.00	0.00	867.70	2205.00	876.77	0.00	876.78	1.46	.84	2959.65	1825.74
39.900	50.00	0.00	0.00	867.70	1010.00	874.68	0.00	874.70	2.69	1.28	1093.22	615.38
39.900	50.00	0.00	0.00	867.70	1345.00	875.15	0.00	875.17	2.53	1.22	1477.44	845.05
39.900	50.00	0.00	0.00	867.70	1545.00	875.50	0.00	875.51	2.90	1.04	1792.22	907.62
39.900	50.00	0.00	0.00	867.70	2205.00	876.78	0.00	876.79	1.44	.83	2973.03	1837.92
40.000	1.00	0.00	0.00	867.70	1010.00	874.68	0.00	874.70	2.74	1.32	1075.33	610.07
40.000	1.00	0.00	0.00	867.70	1345.00	875.15	0.00	875.17	2.61	1.26	1453.22	832.53
40.000	1.00	0.00	0.00	867.70	1545.00	875.50	0.00	875.51	3.00	1.06	1767.67	892.01
40.000	1.00	0.00	0.00	867.70	2205.00	876.78	0.00	876.79	1.49	.84	2941.78	1809.35
40.100	100.00	874.20	872.80	867.70	1010.00	874.74	0.00	874.76	2.89	1.38	1018.94	593.79
40.100	100.00	874.20	872.80	867.70	1345.00	875.21	0.00	875.23	2.78	1.32	1388.07	806.96
40.100	100.00	874.20	872.80	867.70	1545.00	875.56	0.00	875.58	3.25	1.10	1709.44	857.06
40.100	100.00	874.20	872.80	867.70	2205.00	876.84	0.00	876.85	1.56	.86	2888.27	1763.95
40.200	1.00	0.00	0.00	867.70	1010.00	874.74	0.00	874.76	3.43	2.02	1019.13	545.24
40.200	1.00	0.00	0.00	867.70	1345.00	875.21	0.00	875.23	3.35	2.11	1388.30	734.84
40.200	1.00	0.00	0.00	867.70	1545.00	875.56	0.00	875.58	2.86	2.03	1702.98	913.66
40.200	1.00	0.00	0.00	867.70	2205.00	876.84	0.00	876.85	1.49	1.66	2879.58	1807.69
40.300	50.00	0.00	0.00	867.70	1010.00	874.76	0.00	874.78	3.74	2.09	971.71	522.09
40.300	50.00	0.00	0.00	867.70	1345.00	875.23	0.00	875.25	3.65	2.18	1329.65	704.04
40.300	50.00	0.00	0.00	867.70	1545.00	875.57	0.00	875.59	3.13	2.10	1636.78	873.22
40.300	50.00	0.00	0.00	867.70	2205.00	876.85	0.00	876.86	1.60	1.70	2806.59	1742.66

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
40.800	150.00	0.00	0.00	869.30	170.00	874.81	0.00	874.83	2.03	1.39	143.91	119.19
40.800	150.00	0.00	0.00	869.30	245.00	875.27	0.00	875.31	2.81	1.74	169.24	146.18
40.800	150.00	0.00	0.00	869.30	295.00	875.60	0.00	875.65	3.06	1.90	193.05	168.73
40.800	150.00	0.00	0.00	869.30	435.00	876.86	0.00	876.89	2.12	1.83	408.62	298.81
40.900	80.00	0.00	0.00	869.40	170.00	874.77	0.00	874.95	26.34	3.49	48.75	33.12
40.900	80.00	0.00	0.00	869.40	245.00	875.18	0.00	875.51	44.08	4.63	52.87	36.90
40.900	80.00	0.00	0.00	869.40	295.00	875.47	0.00	875.90	55.42	5.29	55.81	39.63
40.900	80.00	0.00	0.00	869.40	435.00	876.60	0.00	877.25	74.71	6.48	67.08	50.33
41.000	1.00	0.00	0.00	869.40	170.00	874.77	0.00	874.96	14.81	3.49	48.77	44.18
41.000	1.00	0.00	0.00	869.40	245.00	875.18	0.00	875.51	24.77	4.63	52.90	49.23
41.000	1.00	0.00	0.00	869.40	295.00	875.48	0.00	875.91	31.13	5.28	55.84	52.87
41.000	1.00	0.00	0.00	869.40	435.00	877.37	0.00	877.43	6.93	2.76	395.56	165.25
41.100	24.00	876.40	875.10	869.40	170.00	874.82	0.00	875.00	24.54	3.45	49.27	34.32
41.100	24.00	876.40	875.10	869.40	245.00	875.38	0.00	875.69	22.42	4.46	54.93	51.74
41.100	24.00	876.40	875.10	869.40	295.00	875.83	0.00	876.21	26.43	4.96	59.44	57.38
41.100	24.00	876.40	875.10	869.40	435.00	877.37	0.00	877.43	6.72	2.72	401.71	167.78
41.200	1.00	0.00	0.00	869.50	170.00	874.82	0.00	875.00	25.72	3.46	49.19	33.52
41.200	1.00	0.00	0.00	869.50	245.00	875.38	0.00	875.69	40.04	4.47	54.84	38.72
41.200	1.00	0.00	0.00	869.50	295.00	875.83	0.00	876.22	47.19	4.97	59.35	42.94
41.200	1.00	0.00	0.00	869.50	435.00	877.40	0.00	877.44	8.39	2.28	455.02	150.22
41.300	50.00	0.00	0.00	869.50	170.00	875.02	0.00	875.05	2.10	1.41	144.34	117.34
41.300	50.00	0.00	0.00	869.50	245.00	875.71	0.00	875.75	2.41	1.67	185.89	157.71
41.300	50.00	0.00	0.00	869.50	295.00	876.24	0.00	876.28	2.28	1.73	227.70	195.37
41.300	50.00	0.00	0.00	869.50	435.00	877.41	0.00	877.46	2.12	1.90	331.97	298.86
43.800	1382.00	0.00	0.00	870.70	170.00	875.47	0.00	875.54	7.00	2.64	149.01	64.26
43.800	1382.00	0.00	0.00	870.70	245.00	876.18	0.00	876.23	5.32	2.52	258.34	106.23
43.800	1382.00	0.00	0.00	870.70	295.00	876.65	0.00	876.69	3.90	2.29	380.27	149.32
43.800	1382.00	0.00	0.00	870.70	435.00	877.72	0.00	877.73	1.81	1.74	819.00	323.57
43.900	50.00	0.00	0.00	870.70	170.00	875.51	0.00	875.58	6.70	2.59	152.72	65.66
43.900	50.00	0.00	0.00	870.70	245.00	876.21	0.00	876.26	5.18	2.50	261.97	107.60
43.900	50.00	0.00	0.00	870.70	295.00	876.67	0.00	876.71	3.83	2.27	384.21	150.67
43.900	50.00	0.00	0.00	870.70	435.00	877.73	0.00	877.74	1.77	1.72	825.36	326.55
44.100	100.00	877.80	874.40	870.70	170.00	877.84	0.00	877.84	.08	.51	881.22	587.49
44.100	100.00	877.80	874.40	870.70	245.00	878.04	0.00	878.04	.13	.65	979.76	672.36
44.100	100.00	877.80	874.40	870.70	295.00	878.13	0.00	878.13	.17	.74	1025.04	712.89
44.100	100.00	877.80	874.40	870.70	435.00	878.32	0.00	878.32	.29	.99	1120.57	802.97
44.300	50.00	0.00	0.00	870.70	170.00	877.84	0.00	877.84	.13	.48	885.00	467.60
44.300	50.00	0.00	0.00	870.70	245.00	878.04	0.00	878.04	.21	.61	982.49	534.66
44.300	50.00	0.00	0.00	870.70	295.00	878.13	0.00	878.13	.27	.70	1029.01	567.92
44.300	50.00	0.00	0.00	870.70	435.00	878.32	0.00	878.32	.47	.93	1121.29	637.45

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
46.800	150.00	0.00	0.00	871.90	170.00	877.81	0.00	877.87	3.91	2.33	106.11	86.01
46.800	150.00	0.00	0.00	871.90	245.00	877.97	0.00	878.08	7.10	3.20	114.25	91.97
46.800	150.00	0.00	0.00	871.90	295.00	878.04	0.00	878.19	9.77	3.79	117.81	94.36
46.800	150.00	0.00	0.00	871.90	435.00	878.12	0.00	878.43	19.80	5.44	123.08	97.75
46.900	150.00	0.00	0.00	871.90	170.00	877.87	0.00	877.92	3.72	2.29	108.81	88.09
46.900	150.00	0.00	0.00	871.90	245.00	878.09	0.00	878.19	6.47	3.10	120.78	96.29
46.900	150.00	0.00	0.00	871.90	295.00	878.20	0.00	878.33	8.57	3.61	127.95	100.78
46.900	150.00	0.00	0.00	871.90	435.00	878.48	0.00	878.71	14.64	4.86	149.92	113.70
47.100	66.50	879.40	876.40	871.90	170.00	879.45	0.00	879.46	.51	1.33	280.94	238.53
47.100	66.50	879.40	876.40	871.90	245.00	879.64	0.00	879.67	.84	1.74	328.47	267.00
47.100	66.50	879.40	876.40	871.90	295.00	879.71	0.00	879.74	1.12	2.01	351.62	279.22
47.100	66.50	879.40	876.40	871.90	435.00	879.83	0.00	879.88	2.07	2.77	400.14	302.38
47.300	50.00	0.00	0.00	871.90	170.00	879.42	0.00	879.48	2.53	2.23	119.21	106.83
47.300	50.00	0.00	0.00	871.90	245.00	879.59	0.00	879.70	4.66	3.08	134.93	113.47
47.300	50.00	0.00	0.00	871.90	295.00	879.63	0.00	879.79	6.52	3.65	139.96	115.55
47.300	50.00	0.00	0.00	871.90	435.00	879.65	0.00	879.99	13.97	5.36	141.89	116.38
49.800	750.00	0.00	0.00	873.10	170.00	879.66	0.00	879.74	4.64	2.70	103.51	78.92
49.800	750.00	0.00	0.00	873.10	245.00	880.01	0.00	880.15	7.70	3.61	113.31	88.31
49.800	750.00	0.00	0.00	873.10	295.00	880.21	0.00	880.40	9.85	4.16	119.34	93.99
49.800	750.00	0.00	0.00	873.10	435.00	880.77	0.00	881.08	15.02	5.42	144.88	112.23
49.900	50.00	0.00	0.00	873.40	170.00	879.65	0.00	879.80	6.91	3.27	64.62	64.67
49.900	50.00	0.00	0.00	873.40	245.00	879.99	0.00	880.27	11.86	4.44	70.24	71.13
49.900	50.00	0.00	0.00	873.40	295.00	880.17	0.00	880.56	15.50	5.17	74.16	74.92
49.900	50.00	0.00	0.00	873.40	435.00	880.69	0.00	881.36	25.02	6.90	90.17	86.97
50.000	1.00	0.00	0.00	873.40	170.00	879.64	0.00	879.82	12.40	3.41	52.22	48.28
50.000	1.00	0.00	0.00	873.40	245.00	879.97	0.00	880.29	20.86	4.58	57.73	53.65
50.000	1.00	0.00	0.00	873.40	295.00	880.16	0.00	880.58	26.79	5.30	61.64	57.00
50.000	1.00	0.00	0.00	873.40	435.00	880.78	0.00	881.39	36.93	6.60	81.48	71.58
50.100	184.00	883.70	878.40	874.30	170.00	882.50	0.00	882.53	.72	1.68	154.06	200.12
50.100	184.00	883.70	878.40	874.30	245.00	883.74	0.00	883.78	.79	1.92	209.73	276.24
50.100	184.00	883.70	878.40	874.30	295.00	883.92	0.00	883.97	1.02	2.22	234.02	291.71
50.100	184.00	883.70	878.40	874.30	435.00	884.20	0.00	884.28	1.83	3.03	284.51	321.31
50.200	1.00	0.00	0.00	874.30	170.00	882.50	0.00	882.54	1.42	1.76	153.38	142.56
50.200	1.00	0.00	0.00	874.30	245.00	883.74	0.00	883.78	1.46	1.95	249.93	203.08
50.200	1.00	0.00	0.00	874.30	295.00	883.93	0.00	883.97	1.84	2.23	277.85	217.23
50.200	1.00	0.00	0.00	874.30	435.00	884.20	0.00	884.28	3.23	3.01	320.86	241.99
50.300	50.00	0.00	0.00	874.50	170.00	882.50	0.00	882.55	2.31	2.13	120.04	111.76
50.300	50.00	0.00	0.00	874.50	245.00	883.74	0.00	883.80	2.31	2.36	200.49	161.34
50.300	50.00	0.00	0.00	874.50	295.00	883.92	0.00	883.99	2.92	2.69	226.76	172.66
50.300	50.00	0.00	0.00	874.50	435.00	884.19	0.00	884.32	5.06	3.60	272.02	193.36

MOORE BUSINESS FORMS

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
52.800	1140.00	0.00	0.00	879.80	170.00	883.05	0.00	883.25	31.90	4.54	61.97	30.10
52.800	1140.00	0.00	0.00	879.80	245.00	884.24	0.00	884.38	16.82	4.06	104.81	59.73
52.800	1140.00	0.00	0.00	879.80	295.00	884.54	0.00	884.69	17.96	4.39	119.86	69.61
52.800	1140.00	0.00	0.00	879.80	435.00	885.17	0.00	885.34	19.40	4.96	185.36	98.75
52.900	49.00	0.00	0.00	879.60	170.00	883.13	0.00	883.48	45.69	5.39	46.85	25.15
52.900	49.00	0.00	0.00	879.60	245.00	884.25	0.00	884.52	27.15	5.03	79.26	47.02
52.900	49.00	0.00	0.00	879.60	295.00	884.54	0.00	884.85	29.48	5.47	90.28	54.33
52.900	49.00	0.00	0.00	879.60	435.00	885.12	0.00	885.55	37.18	6.63	115.84	71.34

RAYNER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
39.000	1010.00	874.40	0.00	0.00	0.00	388.52	0.00
39.000	1345.00	874.90	.50	0.00	0.00	415.81	0.00
39.000	1545.00	875.25	.35	0.00	0.00	435.43	0.00
39.000	2205.00	876.65	1.40	0.00	0.00	570.92	0.00
39.800	1010.00	874.67	0.00	.27	0.00	752.93	250.00
39.800	1345.00	875.14	.47	.24	0.00	871.79	250.00
39.800	1545.00	875.49	.35	.24	0.00	913.59	250.00
39.800	2205.00	876.77	1.28	.12	0.00	925.13	250.00
39.900	1010.00	874.68	0.00	.01	0.00	756.72	50.00
39.900	1345.00	875.15	.47	.01	0.00	875.05	50.00
39.900	1545.00	875.50	.35	.01	0.00	913.73	50.00
39.900	2205.00	876.78	1.28	.01	0.00	925.26	50.00
40.000	1010.00	874.68	0.00	-.00	0.00	734.96	1.00
40.000	1345.00	875.15	.47	-.00	0.00	869.93	1.00
40.000	1545.00	875.50	.35	.00	0.00	913.73	1.00
40.000	2205.00	876.78	1.28	.00	0.00	925.20	1.00
40.100	1010.00	874.74	0.00	.06	0.00	713.91	100.00
40.100	1345.00	875.21	.47	.06	0.00	854.64	100.00
40.100	1545.00	875.56	.35	.06	0.00	912.92	100.00
40.100	2205.00	876.84	1.28	.06	0.00	924.45	100.00
40.200	1010.00	874.74	0.00	-.00	0.00	714.00	1.00
40.200	1345.00	875.21	.47	-.00	0.00	854.72	1.00
40.200	1545.00	875.56	.35	-.00	0.00	912.86	1.00
40.200	2205.00	876.84	1.28	-.00	0.00	924.37	1.00
40.300	1010.00	874.76	0.00	.02	0.00	692.71	50.00
40.300	1345.00	875.23	.47	.02	0.00	830.70	50.00
40.300	1545.00	875.57	.35	.01	0.00	912.08	50.00
40.300	2205.00	876.85	1.28	.01	0.00	923.53	50.00
40.800	170.00	874.81	0.00	.05	0.00	49.94	150.00
40.800	245.00	875.27	.46	.04	0.00	63.43	150.00
40.800	295.00	875.60	.33	.03	0.00	78.09	150.00
40.800	435.00	876.86	1.26	.01	0.00	407.66	150.00
40.900	170.00	874.77	0.00	-.04	0.00	10.00	80.00
40.900	245.00	875.18	.41	-.09	0.00	10.00	80.00
40.900	295.00	875.47	.29	-.13	0.00	10.00	80.00
40.900	435.00	876.60	1.13	-.26	0.00	10.00	80.00

ACCOUNT BUSINESS FORMS

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
41.000	170.00	874.77	0.00	.00	0.00	10.00	1.00
41.000	245.00	875.18	.41	.00	0.00	10.00	1.00
41.000	295.00	875.48	.29	.00	0.00	10.00	1.00
41.000	435.00	877.37	1.89	.77	0.00	623.51	1.00
41.100	170.00	874.82	0.00	.05	0.00	10.00	24.00
41.100	245.00	875.38	.56	.20	0.00	10.00	24.00
41.100	295.00	875.83	.45	.36	0.00	10.00	24.00
41.100	435.00	877.37	1.54	.00	0.00	626.37	24.00
41.200	170.00	874.82	0.00	.00	0.00	10.00	1.00
41.200	245.00	875.38	.56	.00	0.00	10.00	1.00
41.200	295.00	875.83	.45	.00	0.00	10.00	1.00
41.200	435.00	877.40	1.57	.03	0.00	634.77	1.00
41.300	170.00	875.02	0.00	.20	0.00	50.01	50.00
41.300	245.00	875.71	.70	.33	.70	73.99	50.00
41.300	295.00	876.24	.53	.41	1.23	80.30	50.00
41.300	435.00	877.41	1.17	.01	2.40	105.00	50.00
43.800	170.00	875.47	0.00	.46	0.00	122.19	1382.00
43.800	245.00	876.18	.71	.47	.71	199.03	1382.00
43.800	295.00	876.65	.47	.41	1.18	316.94	1382.00
43.800	435.00	877.72	1.06	.30	2.24	478.25	1382.00
43.900	170.00	875.51	0.00	.04	0.00	124.03	50.00
43.900	245.00	876.21	.70	.03	.70	201.65	50.00
43.900	295.00	876.67	.46	.02	1.16	320.06	50.00
43.900	435.00	877.73	1.05	.01	2.21	479.10	50.00
44.100	170.00	877.84	0.00	2.33	0.00	486.52	100.00
44.100	245.00	878.04	.20	1.83	.20	499.35	100.00
44.100	295.00	878.13	.09	1.46	.29	505.13	100.00
44.100	435.00	878.32	.19	.59	.47	514.72	100.00
44.300	170.00	877.84	0.00	.00	0.00	487.02	50.00
44.300	245.00	878.04	.20	.00	.20	499.70	50.00
44.300	295.00	878.13	.09	.00	.29	505.64	50.00
44.300	435.00	878.32	.19	.00	.48	514.78	50.00
46.800	170.00	877.81	0.00	-.04	0.00	42.82	150.00
46.800	245.00	877.97	.17	-.07	.17	54.09	150.00
46.800	295.00	878.04	.06	-.09	.23	58.33	150.00
46.800	435.00	878.12	.09	-.19	.32	64.09	150.00
46.900	170.00	877.87	0.00	.06	0.00	46.86	150.00
46.900	245.00	878.09	.22	.11	.22	61.64	150.00
46.900	295.00	878.20	.11	.16	.33	69.00	150.00
46.900	435.00	878.48	.28	.35	.61	87.79	150.00

MOODY BUSINESS FORMS, INC. 21

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
47.100	170.00	879.45	0.00	1.58	0.00	216.36	66.50
47.100	245.00	879.64	.19	1.56	.19	303.57	66.50
47.100	295.00	879.71	.07	1.52	.27	349.43	66.50
47.100	435.00	879.83	.12	1.36	.38	516.09	66.50
47.300	170.00	879.42	0.00	-.03	0.00	82.55	50.00
47.300	245.00	879.59	.17	-.06	.17	105.61	50.00
47.300	295.00	879.63	.05	-.08	.21	108.00	50.00
47.300	435.00	879.65	.02	-.18	.23	108.00	50.00
49.800	170.00	879.66	0.00	.24	0.00	26.91	750.00
49.800	245.00	880.01	.35	.42	.35	29.35	750.00
49.800	295.00	880.21	.20	.57	.55	31.54	750.00
49.800	435.00	880.77	.57	1.12	1.12	56.55	750.00
49.900	170.00	879.65	0.00	-.01	0.00	15.10	50.00
49.900	245.00	879.99	.34	-.02	.34	18.20	50.00
49.900	295.00	880.17	.19	-.04	.52	22.49	50.00
49.900	435.00	880.69	.52	-.09	1.04	38.46	50.00
50.000	170.00	879.64	0.00	-.01	0.00	14.69	1.00
50.000	245.00	879.97	.33	-.01	.33	18.12	1.00
50.000	295.00	880.16	.19	-.01	.52	22.42	1.00
50.000	435.00	880.78	.62	.09	1.14	39.77	1.00
50.100	170.00	882.50	0.00	2.87	0.00	30.92	184.00
50.100	245.00	883.74	1.24	3.77	1.24	91.46	184.00
50.100	295.00	883.92	.18	3.77	1.42	157.28	184.00
50.100	435.00	884.20	.27	3.41	1.69	214.30	184.00
50.200	170.00	882.50	0.00	-.00	0.00	30.92	1.00
50.200	245.00	883.74	1.24	.00	1.24	144.54	1.00
50.200	295.00	883.93	.18	.00	1.42	157.48	1.00
50.200	435.00	884.20	.28	.01	1.70	158.00	1.00
50.300	170.00	882.50	0.00	-.01	0.00	30.10	50.00
50.300	245.00	883.74	1.24	-.01	1.24	130.60	50.00
50.300	295.00	883.92	.18	-.01	1.42	165.53	50.00
50.300	435.00	884.19	.27	-.01	1.69	177.90	50.00
52.800	170.00	883.05	0.00	.56	0.00	32.21	1140.00
52.800	245.00	884.24	1.19	.50	1.19	40.42	1140.00
52.800	295.00	884.54	.30	.62	1.48	65.69	1140.00
52.800	435.00	885.17	.63	.98	2.11	156.19	1140.00
52.900	170.00	883.13	0.00	.08	0.00	24.12	49.00
52.900	245.00	884.25	1.12	.01	1.12	36.14	49.00
52.900	295.00	884.54	.29	.00	1.41	40.18	49.00
52.900	435.00	885.12	.58	-.05	1.99	51.04	49.00

FLOOD INSURANCE ZONE DATA FOR RAYNER CREEK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
39.000	0.	-.85	-.35	1.40
39.800	250.	-.82	-.35	1.28
39.900	300.	-.82	-.35	1.28
40.000	301.	-.82	-.35	1.28
40.100	401.	-.82	-.35	1.28
40.200	402.	-.82	-.35	1.28
40.300	452.	-.82	-.35	1.28
40.800	602.	-.79	-.33	1.26
40.900	682.	-.71	-.29	1.13
41.000	683.	-.71	-.29	1.89
41.100	707.	-1.01	-.45	1.54
41.200	708.	-1.02	-.45	1.57
41.300	758.	-1.23	-.53	1.17
43.800	2140.	-1.18	-.47	1.06
43.900	2190.	-1.16	-.46	1.05
44.100	2290.	-.29	-.09	.19
44.300	2340.	-.29	-.09	.19
46.800	2490.	-.23	-.06	.09
46.900	2640.	-.33	-.11	.28
47.100	2707.	-.27	-.07	.12
47.300	2757.	-.21	-.05	.02
49.800	3507.	-.55	-.20	.57
49.900	3557.	-.52	-.19	.52
50.000	3558.	-.52	-.19	.62
50.100	3742.	-1.42	-.18	.27
50.200	3743.	-1.42	-.18	.28
50.300	3793.	-1.42	-.18	.27
52.800	4933.	-1.48	-.30	.63
52.900	4982.	-1.41	-.29	.58
WEIGHTED AVG FOR REACH		-.97	-.30	.72

FHF FOR THE REACH = 010 WITH 75.6 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

MOORE BUSINESS FORMS C 27

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10	1	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.						
	100.	874.45	875.30	-.85		SEC.	39.000
1	200.	874.56	875.39	-.83	-.85	010	100.
2	250.				-.84	010	100.
	300.					SEC.	39.800
3	301.	874.65	875.47	-.82	-.83	010	100.
	400.					SEC.	39.900
	401.					SEC.	40.000
4	402.	874.71	875.53	-.82	-.83	010	100.
	452.					SEC.	40.100
	500.					SEC.	40.200
5	600.	874.76	875.57	-.81	-.83	010	100.
6	602.	874.79	875.59	-.80	-.82	010	100.
	682.					SEC.	40.800
	683.					SEC.	40.900
	700.					SEC.	41.000
7	707.	874.80	875.66	-.86	-.83	010	100.
	708.					SEC.	41.100
	758.					SEC.	41.200
	800.					SEC.	41.300
8	900.	874.92	875.99	-1.07	-.86	010	100.
9	1000.	875.05	876.27	-1.22	-.90	010	100.
10	1100.	875.08	876.30	-1.22	-.93	010	100.
11	1200.	875.11	876.33	-1.22	-.96	010	100.
12	1300.	875.15	876.36	-1.21	-.98	010	100.
13	1400.	875.18	876.39	-1.21	-1.00	010	100.
14	1500.	875.21	876.42	-1.21	-1.01	010	100.
15	1600.	875.25	876.45	-1.20	-1.02	010	100.
16	1700.	875.28	876.48	-1.20	-1.03	010	100.
17	1800.	875.31	876.51	-1.20	-1.04	010	100.
18	1900.	875.35	876.54	-1.19	-1.05	010	100.
19	2000.	875.38	876.57	-1.19	-1.06	010	100.
20	2100.	875.41	876.60	-1.19	-1.07	010	100.
21	2140.	875.44	876.63	-1.19	-1.07	010	100.
	2190.					SEC.	43.800
	2200.					SEC.	43.900
22	2290.	875.60	876.73	-1.13	-1.07	010	100.
	2300.					SEC.	44.100
23	2340.	876.79	877.47	-.68	-1.06	010	100.
	2400.					SEC.	44.300
24	2490.	877.83	878.11	-.28	-1.02	010	96.
	2500.					SEC.	46.800
25	2600.	877.82	878.07	-.25	-.99	010	92.
26	2640.	877.83	878.10	-.27	-.97	010	88.
	2700.					SEC.	46.900
27	2707.	878.57	878.86	-.29	-.94	010	85.
						SEC.	47.100

MOORE BUSINESS FORMS

	2757.					SEC.	47.300	
28	2800.	879.36	879.62	-.26	-.92	010		82.
29	2900.	879.45	879.71	-.26	-.89	010		79.
30	3000.	879.48	879.78	-.30	-.87	010		77.
31	3100.	879.51	879.86	-.35	-.86	010		74.
32	3200.	879.54	879.94	-.40	-.84	010		78.
33	3300.	879.58	880.01	-.43	-.83	010		79.
34	3400.	879.61	880.09	-.48	-.82	010		79.
35	3500.	879.64	880.16	-.52	-.81	010		80.
	3507.					SEC.	49.800	
	3557.					SEC.	49.900	
	3558.					SEC.	50.000	
36	3600.	879.98	880.62	-.64	-.81	010		81.
37	3700.	881.08	882.05	-.97	-.81	010		81.
	3742.					SEC.	50.100	
	3743.					SEC.	50.200	
	3793.					SEC.	50.300	
38	3800.	882.18	883.50	-1.32	-.82	010		82.
39	3900.	882.52	883.95	-1.43	-.84	010		79.
40	4000.	882.57	884.00	-1.43	-.85	010		78.
41	4100.	882.62	884.06	-1.44	-.87	010		73.
42	4200.	882.67	884.11	-1.44	-.88	010		71.
43	4300.	882.72	884.17	-1.45	-.90	010		70.
44	4400.	882.77	884.22	-1.45	-.91	010		66.
45	4500.	882.82	884.27	-1.45	-.92	010		64.
46	4600.	882.87	884.33	-1.46	-.93	010		67.
47	4700.	882.92	884.38	-1.46	-.94	010		68.
48	4800.	882.97	884.44	-1.47	-.95	010		73.
49	4900.	883.01	884.49	-1.48	-.97	010		78.
	4933.					SEC.	52.800	
	4982.					SEC.	52.900	

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 38 49
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	WEIGHTED AVG DIFFERENCE BETWEEN BASE FLOOD AND 10	1	0.2
38	3800.	-.82	-.32	.81

FHF FOR REACH 1 = 010 WITH 82. PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

49	4900.	-1.45	-.24	.45

33.
Maps enclosed
w/ Sycamore Creek
Mason, City of
(large binder)

HYDRAULIC ANALYSIS REPORT

RAYNER CREEK AT THE CITY OF MASON

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

SEPTEMBER, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for Rayner Creek within the corporate boundary of the city of Mason, Michigan. Rayner Creek flows in a northwesterly direction through the city limits. The reach studied in detail began at its confluence with Sycamore Creek and extended about 5,000 feet upstream to Maple Avenue. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in November, 1978. In addition to field cross section data, a 7.5 minute series topographic map with 10-foot intervals was used.

The flows for 10-, 50-, 100-, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The high intensity 1975 storm was used to verify the performance of the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated May 16, 1979.

Analysis of the hydraulic characteristics of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. The roughness coefficients chosen were based primarily on sensitivity runs. These values were required to match the high-water marks recorded for the April, 1975 flood.

Manning's Roughness Coefficient

For channel	.03-.04
For overbanks	.06

Coefficients for

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

During the 1975 flood, high-water marks were recorded at the Jefferson Avenue and the Columbia-Mathews Street bridges. Wolverine Engineering Company of Mason, Michigan supplied the recorded elevations listed in the table below. Commonwealth Associates made a sensitivity run with an estimated flow for the 1975 flood (399 cfs) to verify the method of analysis. As shown below, our analysis compared favorably with the high-water marks.

Location	HEC-2 Section Number	Recorded High-Water Mark	HEC-2 Computed High-Water Mark
Jefferson Avenue	41.1	875.8	875.95
Columbia-Matthews Street	50.1	884.3	884.14

A copy of the computer printout matching the high-water marks is contained in Appendix B. Also, photographs of the 1975 flood at several areas along Rayner Creek are shown in Appendix B.

STARTING CONDITIONS

Rayner Creek, a tributary to Sycamore Creek, is not in coincidence with the main stream for the 100-year flood. Figure 1 in Appendix A verifies this condition and indicates the corresponding flow on Sycamore Creek when Rayner Creek peaks. The two flows were added together and the resulting flow was plotted on the Sycamore Creek graph (see Appendix A) to obtain a starting water surface elevation.

SPECIAL PROBLEMS

Only one problem developed in analyzing Rayner Creek. Starting at the confluence with Sycamore Creek and running about 500 feet upstream it was found the 100-year flood level covered all the area between the two creeks. For this reason, Rayner Creek was analyzed using the Sycamore Creek cross sections and flows (corresponding to the Rayner Creek 100-year peak) for the first 500 feet.

REFERENCES

1. Guide for Selecting Roughness Coefficient "n" Values for Channels, United States Department of Agriculture, Soil Conservation Service, December, 1963.

2. Design of Small Dams, Bureau of Reclamation, 1973.

3. Applied Hydraulics in Engineering, Morris and Wiggert, Second Edition, 1972.

APPENDIX A

Starting water surface elevation calaculations.

APPENDIX B

Calculations

APPENDIX C

Water surface profiles indicating 10, 50, 100 and 500-year floods.

APPENDIX D

Cross section reference and plots

APPENDIX E

The final HEC-2 printouts for the multiprofile run, 100-year natural and encroachment run. Also, a map indicating the 100-year flood plain, floodway, and location of the cross sections.

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209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

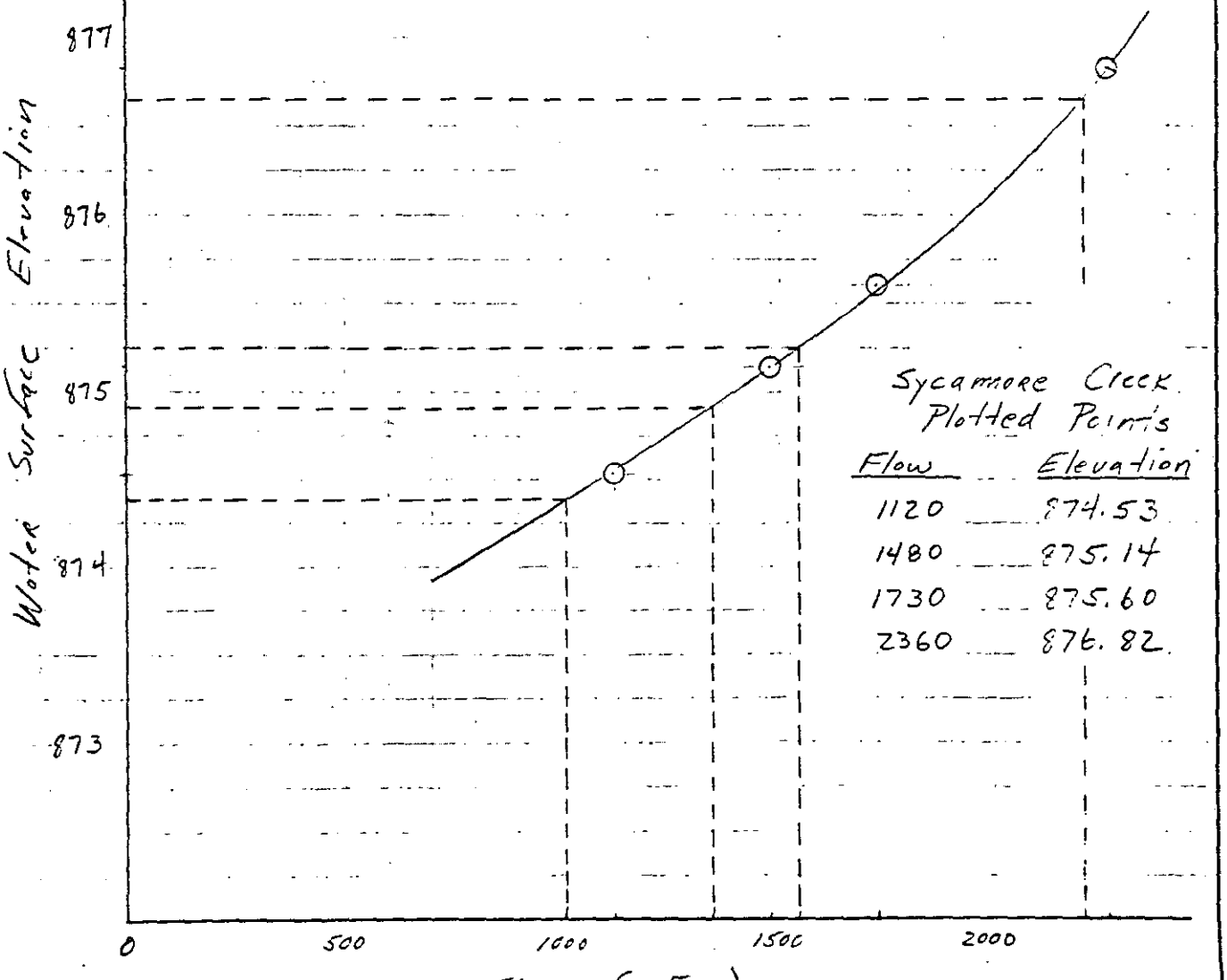
REV.

CLIENT/OWNER F.E.M.A. Flood Insurance Study City of Mason	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Starting W.S. for Rayner Creek
SHEET OF / BOOK NO.	

Revised

Starting W.S. for Rayner Creek

	*Flow (cfs)	Elevation
10-year	1010	874.40
50	1345	874.90
100	1545	875.25
500	2205	876.65



Sycamore Creek Plotted Points

Flow	Elevation
1120	874.53
1480	875.14
1730	875.60
2360	876.82

* Flow = Peak Flow for Rayner plus corresponding Flow on Sycamore Creek

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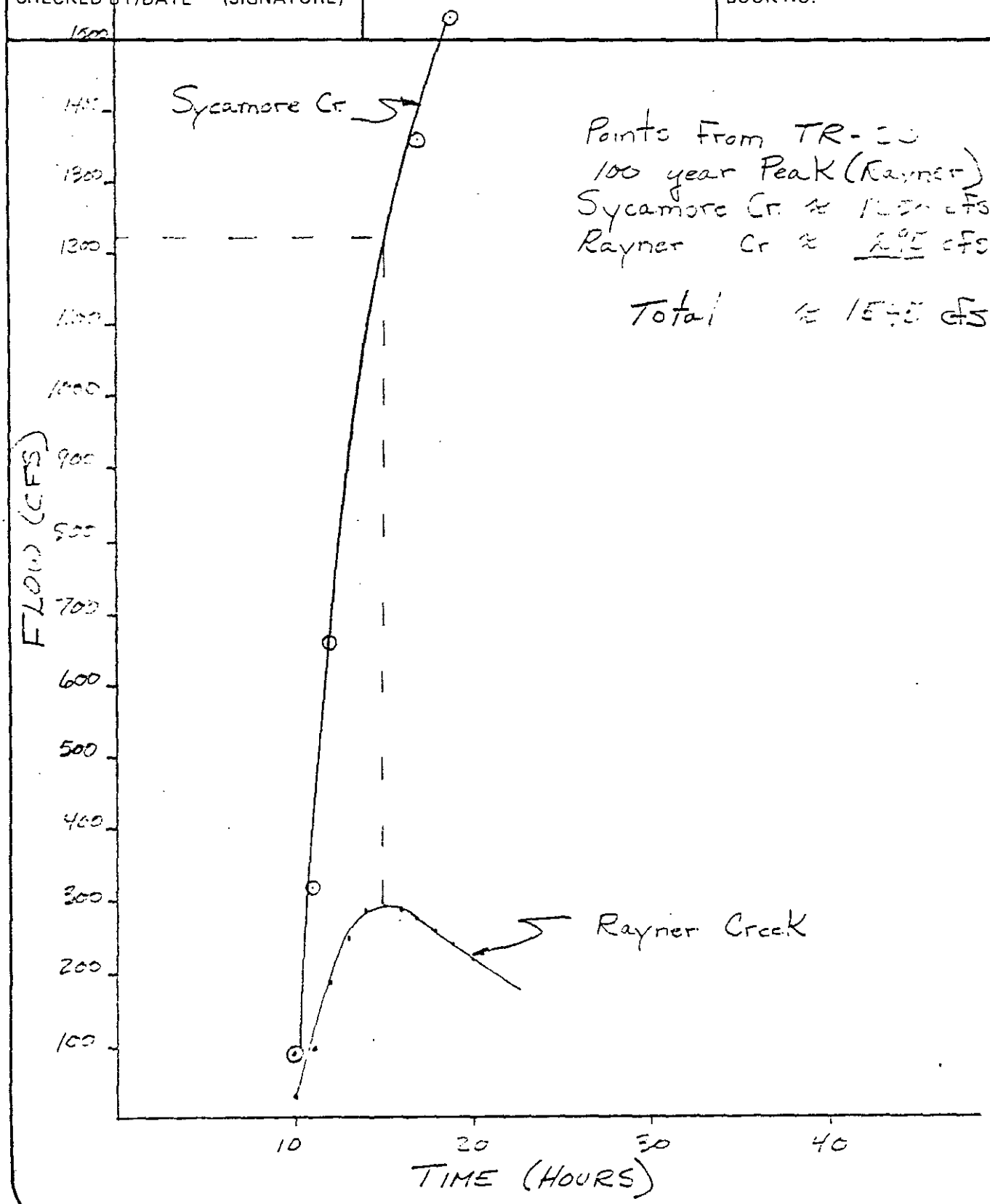
REV.

CLIENT/OWNER	FILING CODE
	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT
CHECKED BY/DATE (SIGNATURE)	SHEET OF
	BOOK NO.



Points From TR-20
100 year Peak (Rayner)
Sycamore Cr. ≈ 1150 cfs
Rayner Cr ≈ 495 cfs
Total ≈ 1545 cfs

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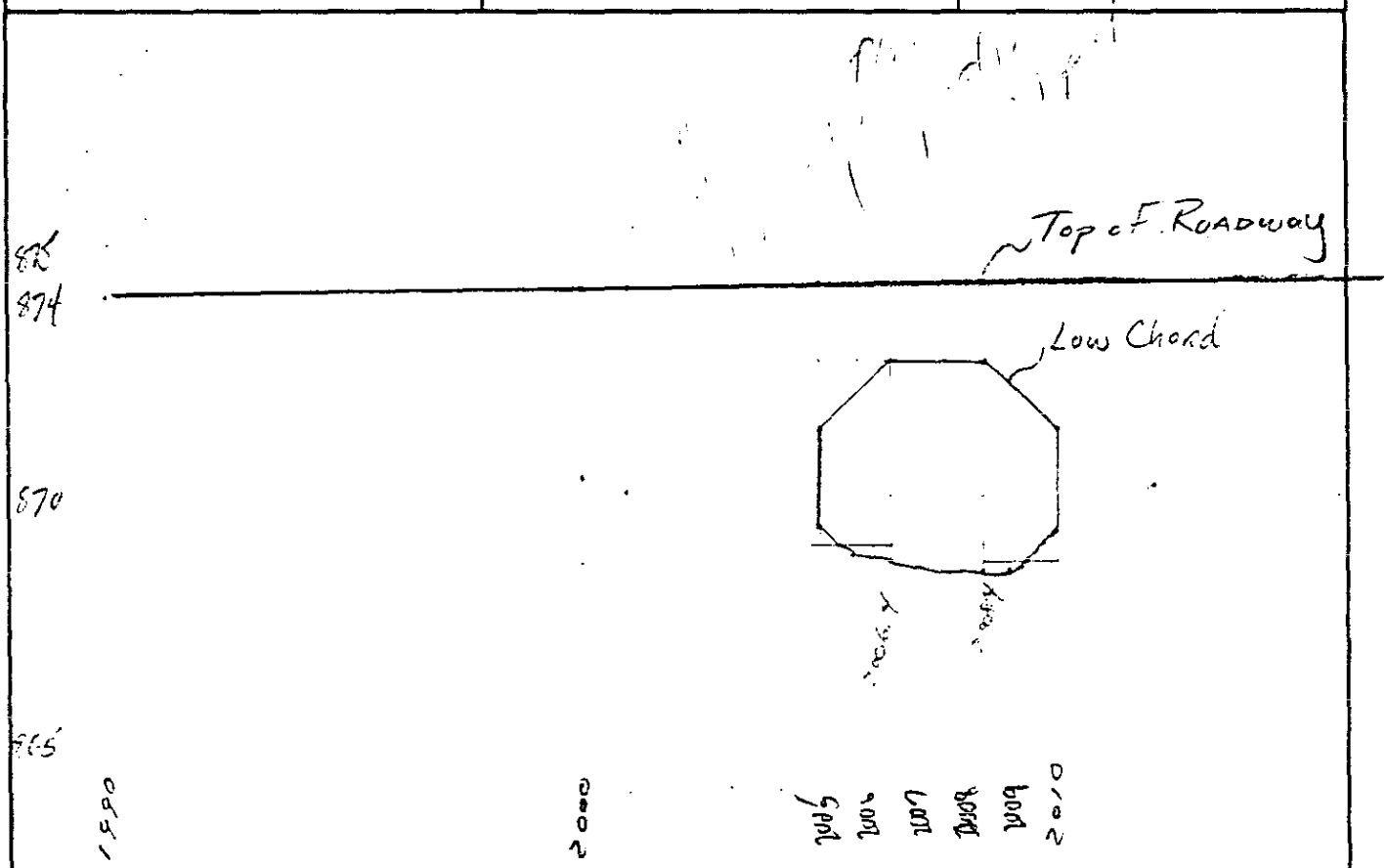
CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study City of Mason Rayner Creek	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Treatment Plant Culvert (B)
	SHEET OF / BOOK NO.



$$\text{Area} = A_1 + A_2 + A_3$$

$$1.4\left(\frac{3.8+2.4}{2}\right) + 2(4.2) + 1.6\left(\frac{4.1+2.7}{2}\right)$$

$$\text{Area} = 18.18$$

$$\text{Wetted Perimeter} = 2 + 1.7 + 2.0 + 1.7 + 2.0 + 2.1 + 2.0 + 2.0$$
$$= 15.5$$

$$XKQR = \frac{29.1\,(.038)^2\,(100)}{\left(\frac{18.2}{15.5}\right)^{\frac{4}{3}}} = 3.39 + 1 + .55 = \underline{4.94}$$

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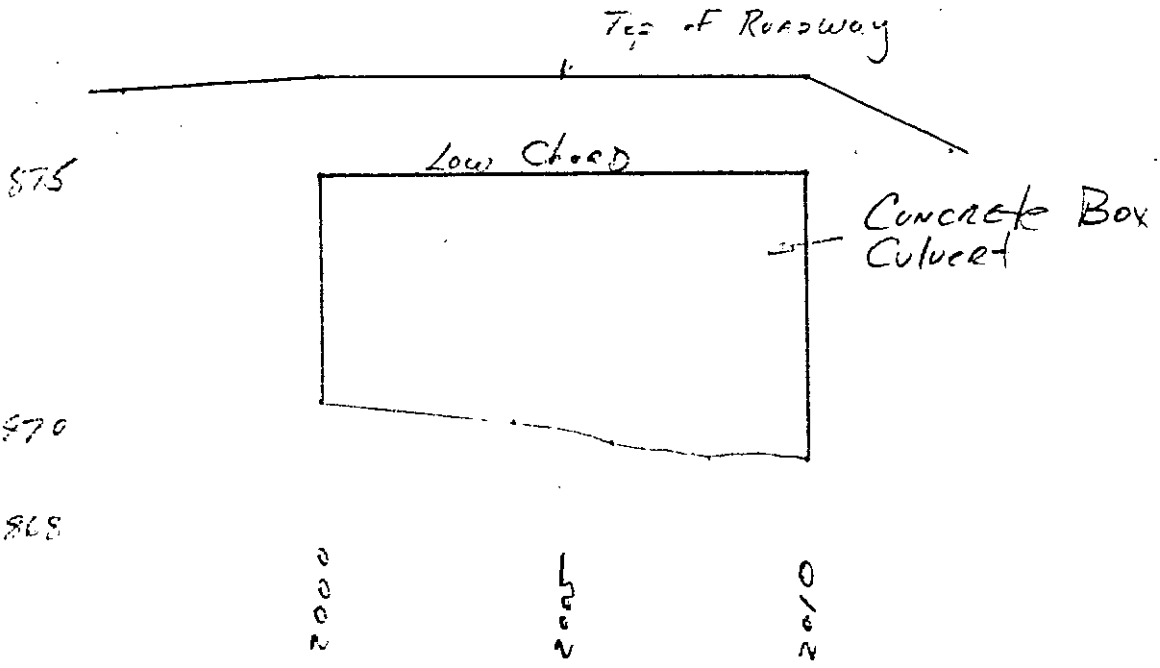
REV.

CLIENT/OWNER Flood Insurance Study City of Mason Rayner Creek	FILING CODE
	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Jefferson Ave. Bridge
CHECKED BY/DATE (SIGNATURE)	SHEET OF
	BOOK NO.



$$\text{Area} = \left(\frac{4.6+5.8}{2}\right)10 = 52$$

$$\text{Wetted Perimeter} = 4.6+10+5.8+10 = 30.4$$

$$h_f = \frac{29.1(.017)^2(24)}{\left(\frac{52}{30.4}\right)^{\frac{4}{3}}} = .098$$

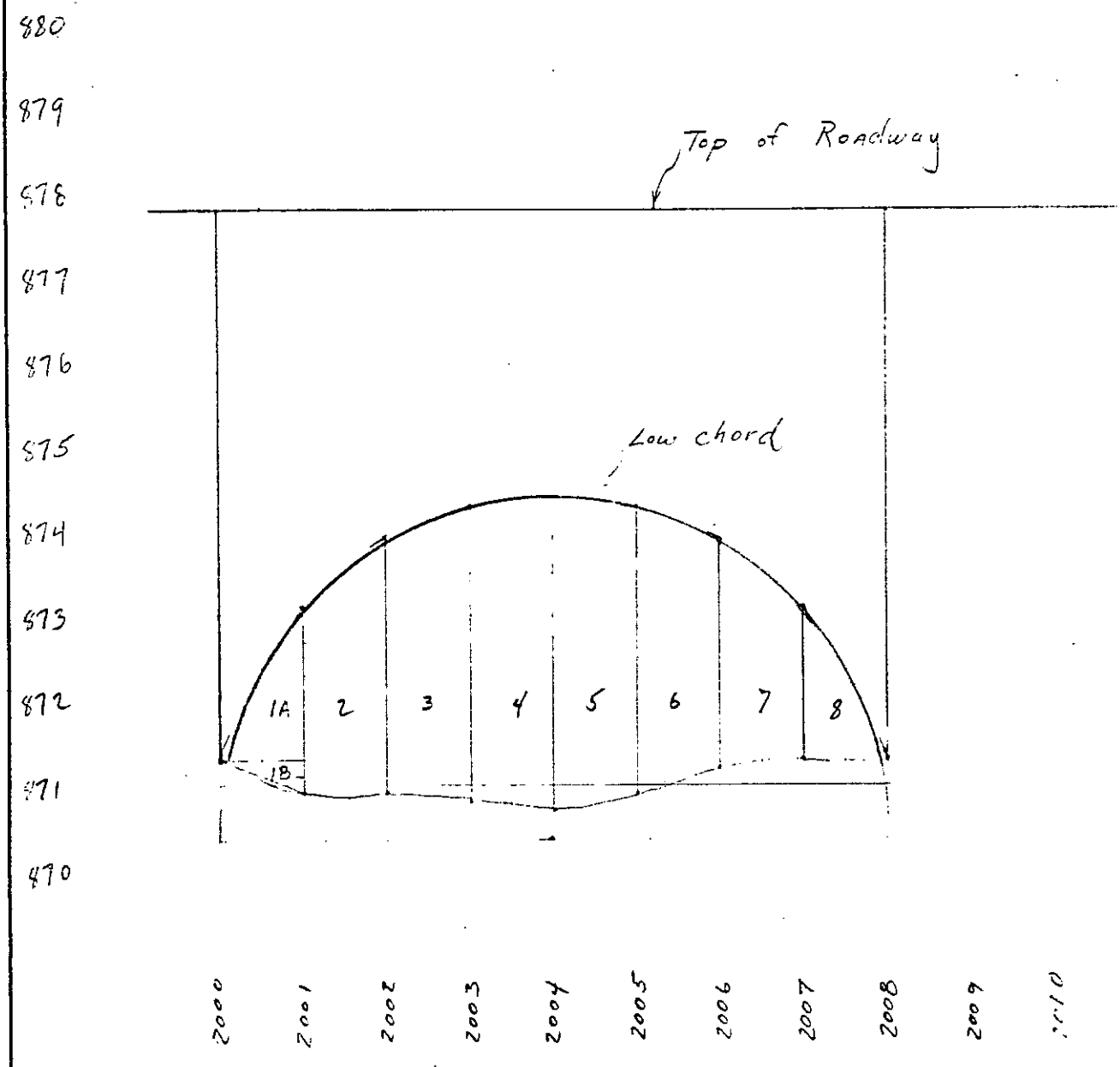
$$XKOR = 1+.09+.4 = \underline{1.498}$$

Wingwalls at 30° – 75° bareilled

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study, City of Mason, Rayner Creek		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Okemos Road Bridge	SHEET / OF / BOOK NO.



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CALCULATION SHEET REV.

CLIENT/OWNER: Flood Insurance Study City of Mason Rayner Creek		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Okemos Rd. Bridge	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

$A_T = A_{1A} + A_{1B} + A_2 + A_3 + A_3 + A_4 + A_5 + A_6 + \ldots$ &

$A_T = 1.8(1)\frac{1}{2} + (.4)(\frac{1}{2})(1) + \left(\frac{3+2.2}{2}\right)1 + \left(\frac{3+3.5}{2}\right)(1) + 3.6(1)$

$+ \left(\frac{3.7+3.4}{2}\right)1 + \left(\frac{3.4+2.7}{2}\right)1 + \left(\frac{2.7+1.8}{2}\right)1 + 1.8(1)$

$A_T = .9 + .2 + 2.6 + 3.25 + 3.6 + 3.55 + 3.05 + 2.25 + .9$

$A_T = 20.3$

Wetted Perimeter

$= 2.0 + 1.3 + 1.1 + 1 + 1 + 1.1 + 1.3 + 2 + 8$

$= 18.8$

$h_f = \frac{2.9.1 (.027)^2 (100)}{\left(\frac{20.3}{18.8}\right)^{4/3}} = .96$

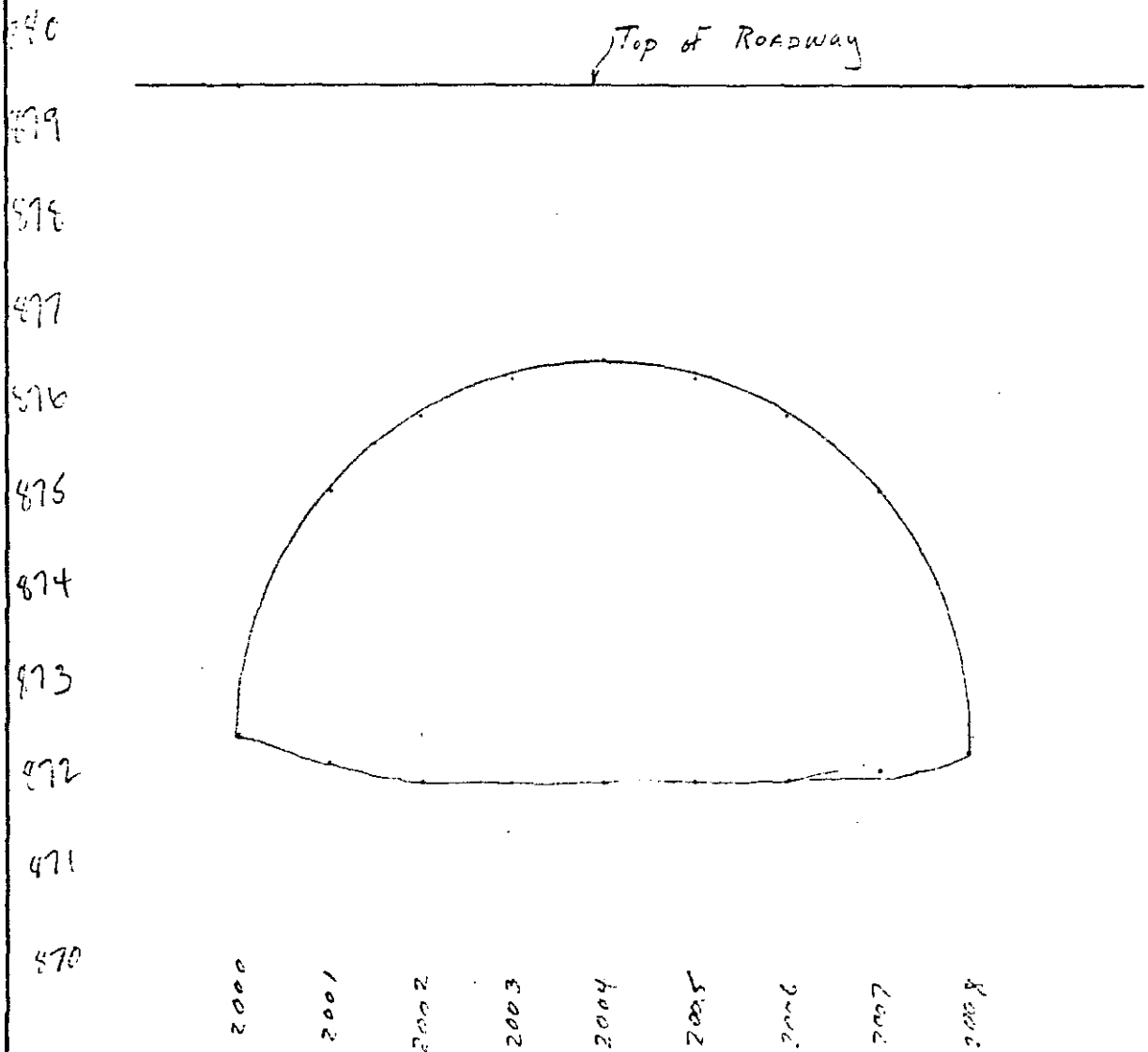
$XKOR = 1.96 + 1 + .55 = 3.51$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study City of Mason Rayner Creek	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Rogers St. Bridge
	SHEET OF / BOOK NO.



CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study City of Mason Rayner Creek		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Hayes Street	SHEET OF
CHECKED BY/DATE (SIGNATURE)	BRIDGE	BOOK NO.

$$\text{Area} = \frac{1}{2}\pi R^2 = \frac{1}{2}(3.14)(4)^2 = 25.1$$

$$2\left(\frac{1}{2}\right)(.5) = .5$$

$$4(.5) = 2.0$$

$$\left(\frac{24.5}{2}\right)2 = .7$$

$$28.3$$

Wetted Perimeter

$$\pi R + 8 = 20.56$$

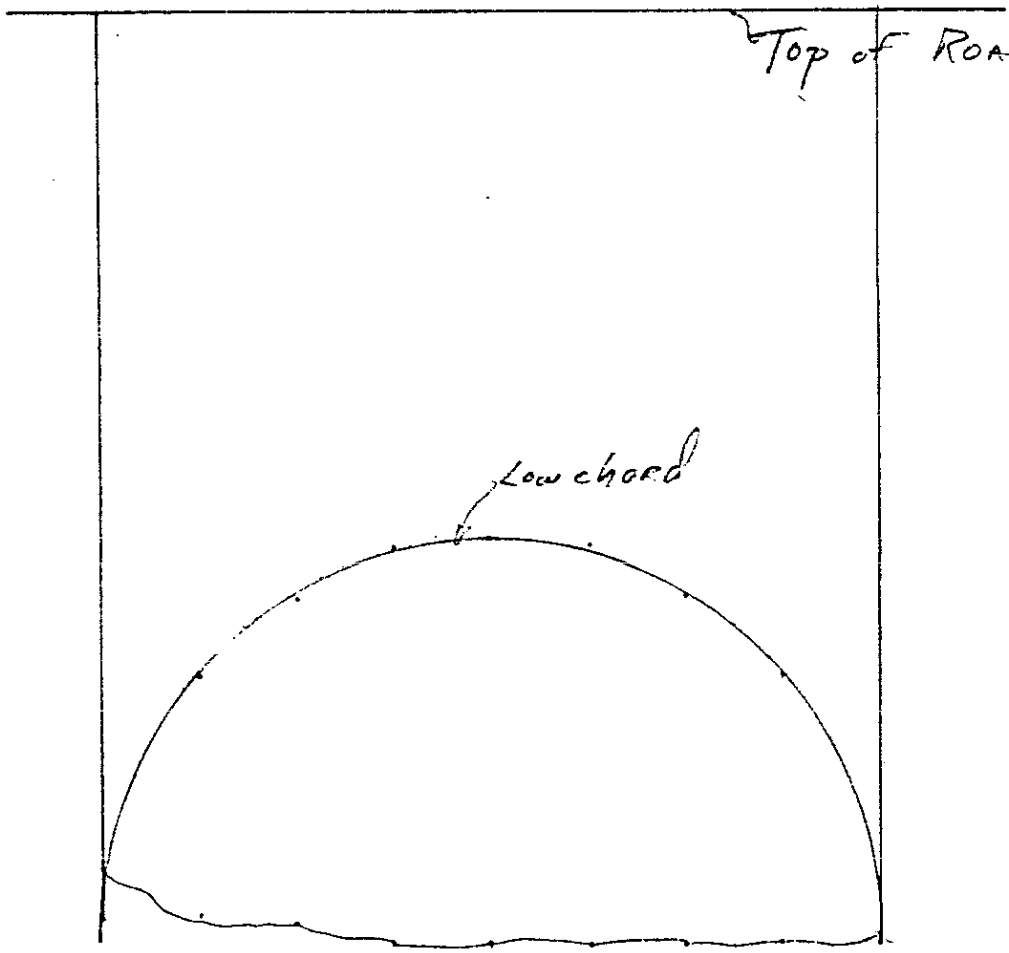
$$h_f = \frac{29.1\,(.031)^2\,66.5}{\left(\frac{283}{2056}\right)^{\frac{4}{3}}} = 1.14$$

$$\underline{XKOR} = 1.14 + 14.6 = \underline{\underline{27.4}}$$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV:

CLIENT/OWNER: Flood Insurance Study City of MASON RAYNER CREEK		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Columbia - Mathews	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.



Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study City of Mason Rayner Creek		FILING CODE JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Columbia Mathews	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Area = $\frac{1}{2}\left(\frac{\pi D^2}{4}\right) = 25.1$

Wetted Perimeter

$2\pi R\left(\frac{1}{2}\right) = 12.56 + 8 = 20.56$

$h_f = \frac{29.1\,(.027)^2\,(184)}{\left(\frac{25.1}{20.56}\right)^{\frac{4}{3}}} = 3.19$

XKOR = $14.5 + 3.19 = \underline{4.69}$

FORM CAI/DCP 112 (9/78)

80/09/16. 16.36.24.

RAYNER CK. CITY OF MASON

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
39.000	1648.00	875.25	0.00	0.00	0.00	435.43	0.00
39.800	1648.00	875.52	0.00	.27	0.00	913.85	250.00
39.900	1648.00	875.53	0.00	.02	0.00	914.00	50.00
40.000	1648.00	875.53	0.00	.00	0.00	914.00	1.00
40.100	1648.00	875.59	0.00	.06	0.00	913.23	100.00
40.200	1648.00	875.59	0.00	-.00	0.00	913.16	1.00
40.300	1648.00	875.61	0.00	.02	0.00	912.39	50.00
40.800	399.00	875.62	0.00	.01	0.00	78.50	150.00
40.900	399.00	875.37	0.00	-.25	0.00	10.00	80.00
41.000	399.00	875.38	0.00	.01	0.00	10.00	1.00
41.100	399.00	875.95	0.00	.57	0.00	10.00	24.00
41.200	399.00	875.96	0.00	.01	0.00	10.00	1.00
41.300	399.00	876.68	0.00	.72	0.00	81.85	50.00
43.800	399.00	877.35	0.00	.67	0.00	35.00	1382.00
43.900	399.00	877.20	0.00	-.15	0.00	8.00	50.00
44.000	399.00	877.22	0.00	.01	0.00	8.00	1.00
44.100	399.00	877.52	0.00	.30	0.00	8.00	100.00
44.200	399.00	877.53	0.00	.01	0.00	8.00	1.00
44.300	399.00	878.58	0.00	1.04	0.00	115.00	50.00
46.800	399.00	878.90	0.00	.33	0.00	116.53	150.00
46.900	399.00	878.76	0.00	-.14	0.00	8.00	150.00
47.000	399.00	878.77	0.00	.01	0.00	8.00	1.00
47.100	399.00	879.14	0.00	.37	0.00	8.00	66.50
47.200	399.00	879.15	0.00	.01	0.00	8.00	1.00

80/09/16. 16.36.24.

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
47.300	399.00	879.82	0.00	.67	0.00	108.00	50.00
49.800	399.00	880.67	0.00	.85	0.00	104.31	750.00
49.900	399.00	880.55	0.00	-.12	0.00	36.61	50.00
50.000	399.00	880.56	0.00	.01	0.00	36.63	1.00
50.100	399.00	884.14	0.00	3.58	0.00	201.56	184.00
50.200	399.00	884.16	0.00	.03	0.00	234.77	1.00
50.300	399.00	884.14	0.00	-.03	0.00	176.01	50.00
52.800	399.00	885.02	0.00	.89	0.00	127.69	1140.00
52.900	399.00	884.99	0.00	-.03	0.00	46.50	49.00

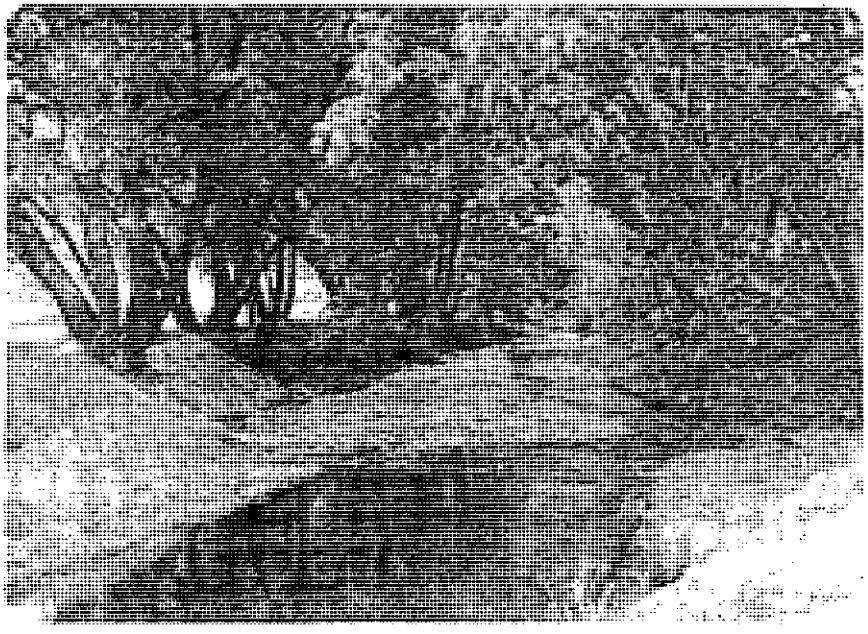
1975 FLOOD - RAYNER CREEK



25. South Rogers Street Bridge looking East at Rayner Creek.



26. Flooded condition between Rogers Street and Columbia Street. Looking East from Rogers Street.



27. Flood washout, looking NW downstream from intersection of Matthews and Columbia Streets. Taken June 1975 during normal flow.

CROSS SECTION REFERENCE

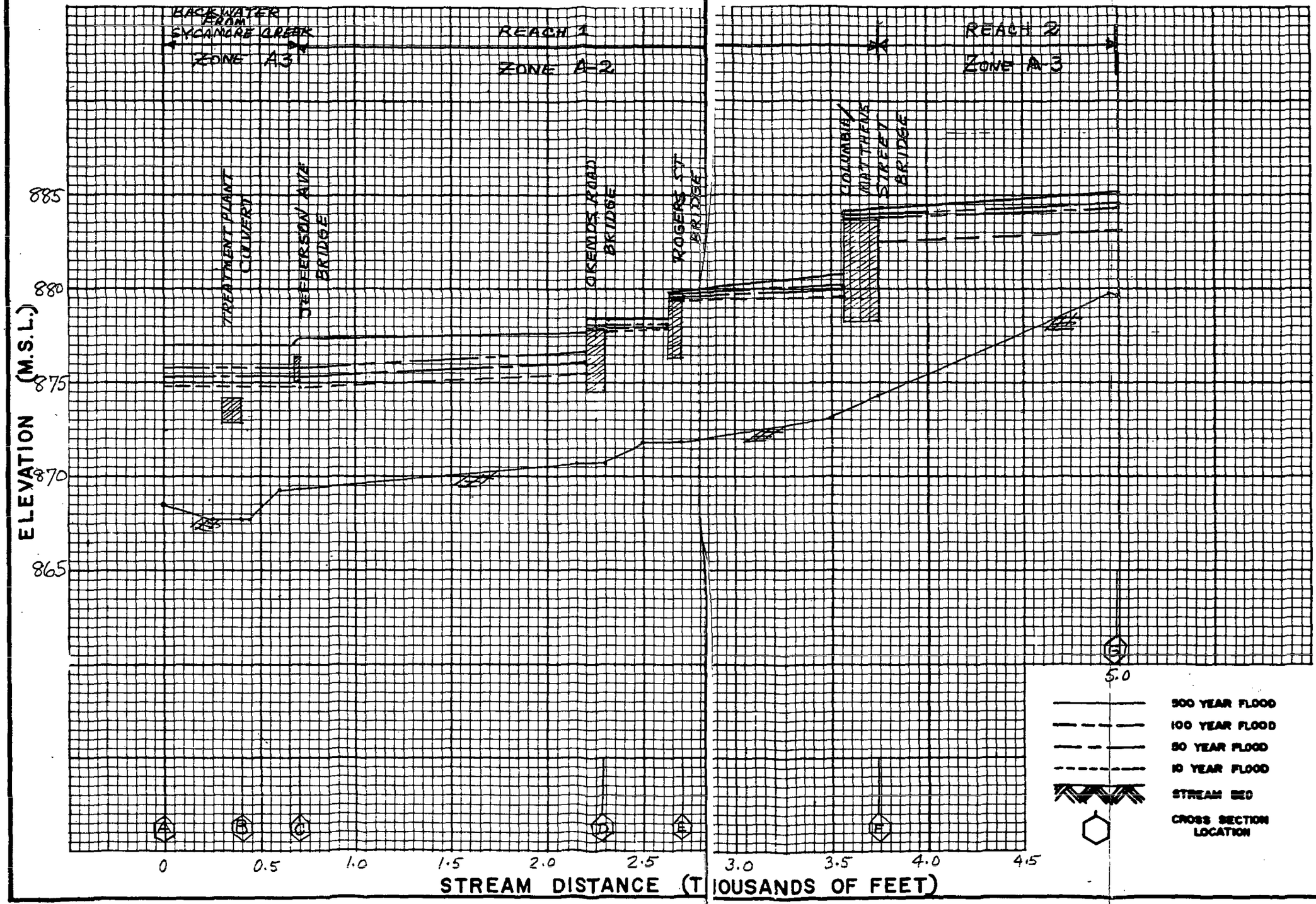
Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	39.0	Valley Section at confluence with Sycamore Creek
B	40.1	Upstream Face of treatment plant culvert
C	41.1	Upstream Face of Jefferson Avenue bridge
D	44.1	Upstream Face of Okemos Road bridge
E	47.1	Upstream Face of Rogers St. bridge
F	50.1	Upstream Face of Columbia-Matthews St. culvert
G	52.9	Upstream Face of Maple St. bridge

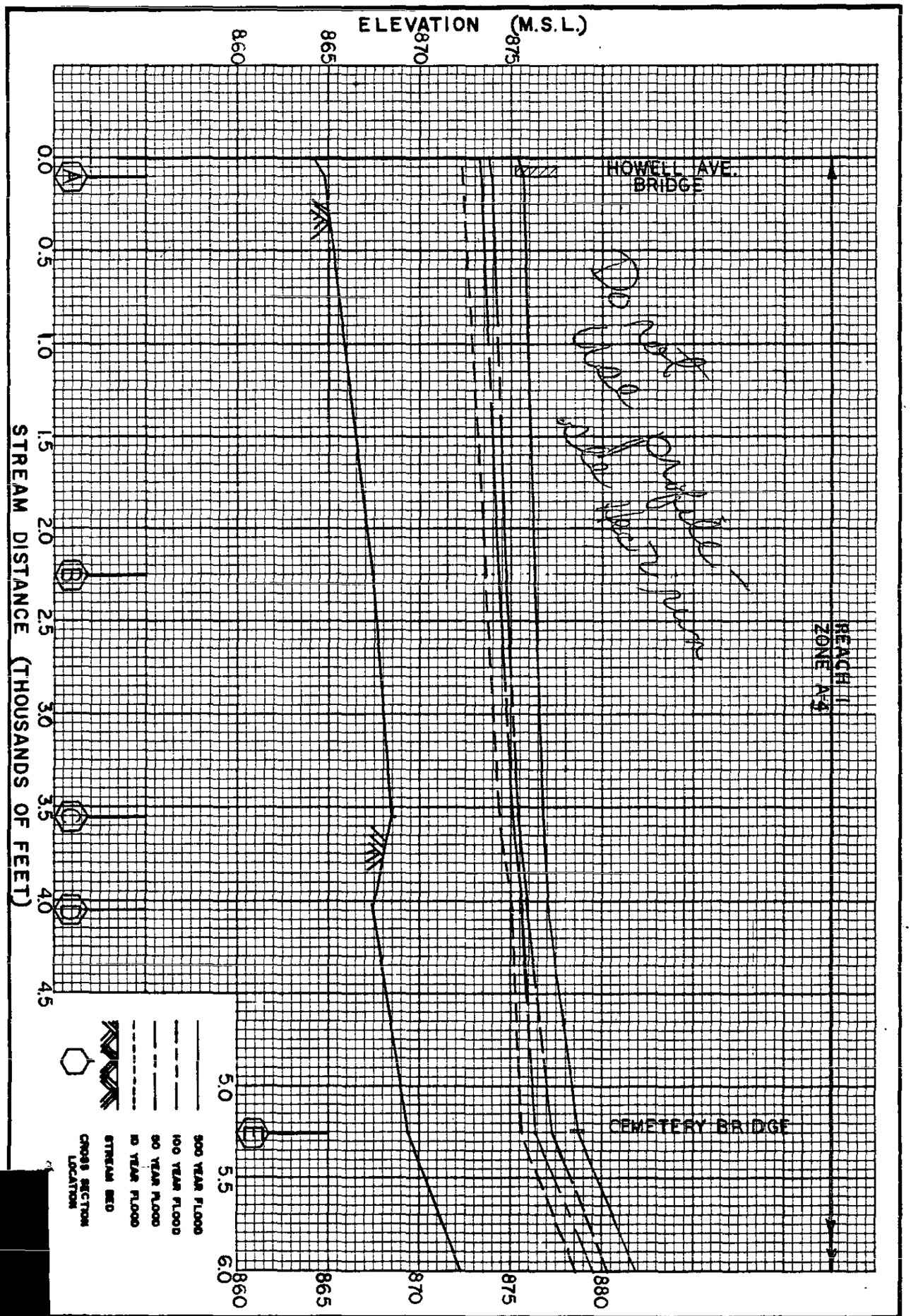
FLOOD PROFILE

RAYNER CREEK

CITY OF MASON
INGHAM CO., MI

Revised 5/20/81



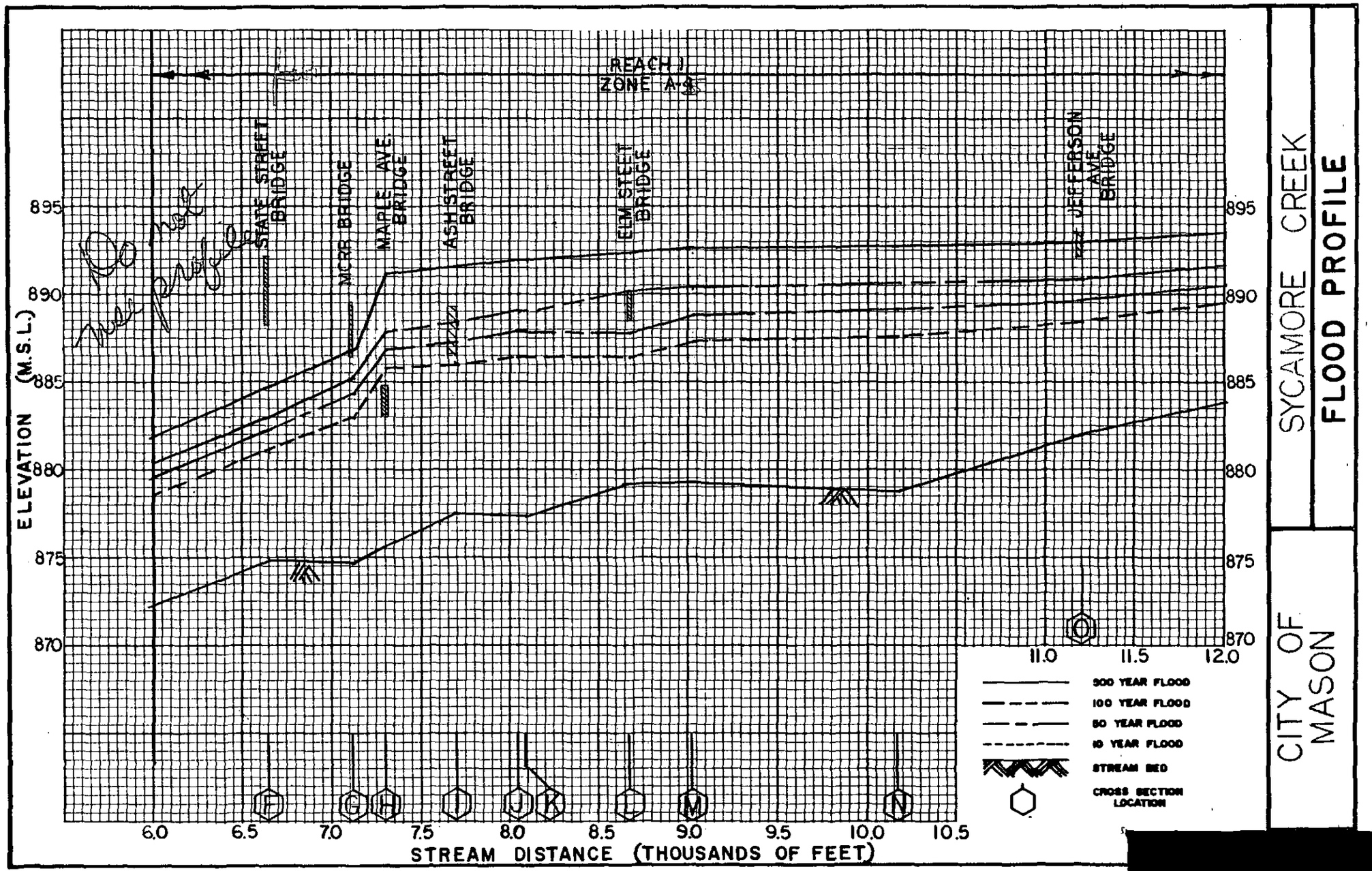


CITY OF MASON

SYCAMORE CREEK

FLOOD PROFILE

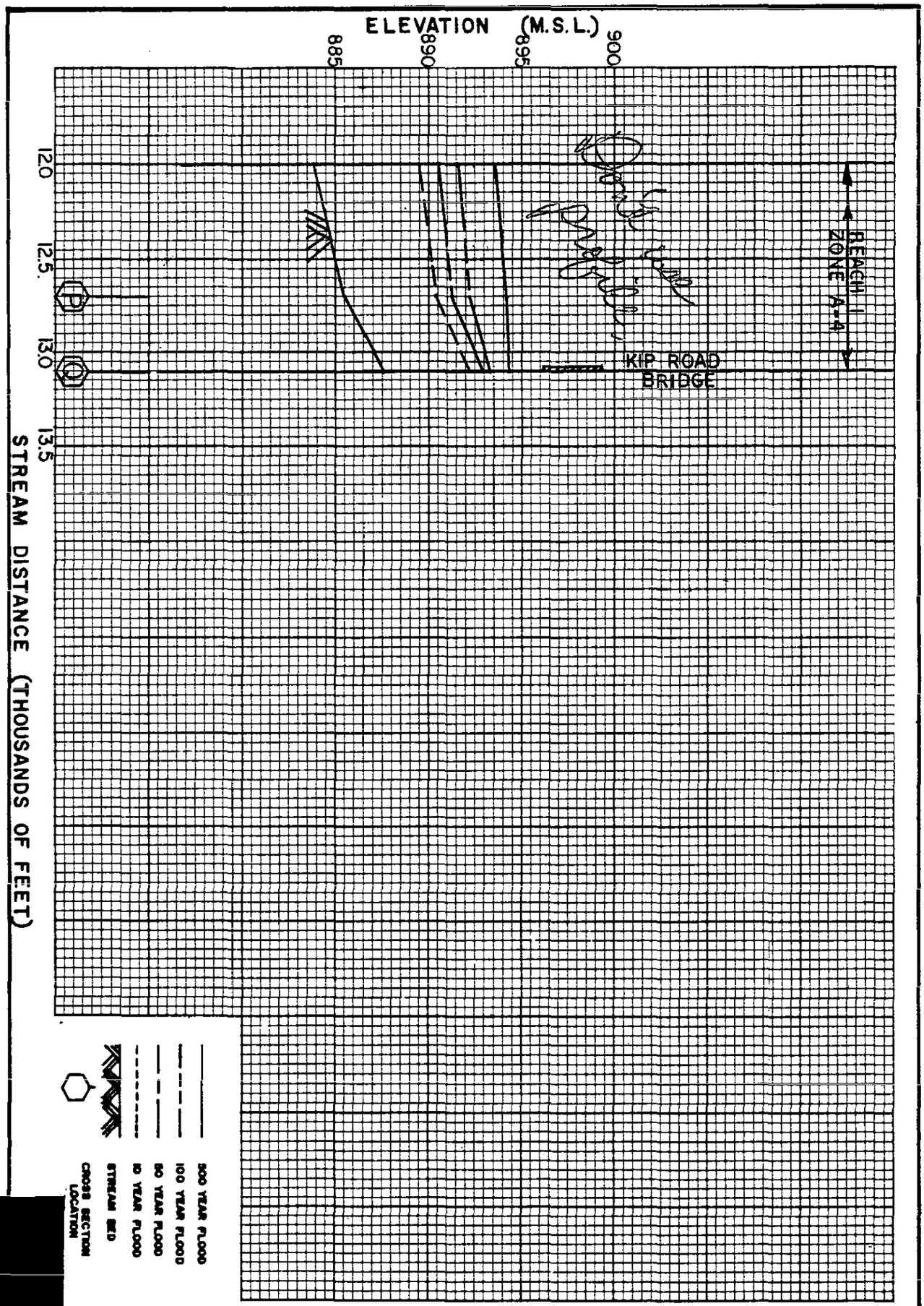
See Corrected ~~Enter~~ Profiles in the Front of this Hydraulic Report



SYCAMORE CREEK

FLOOD PROFILE

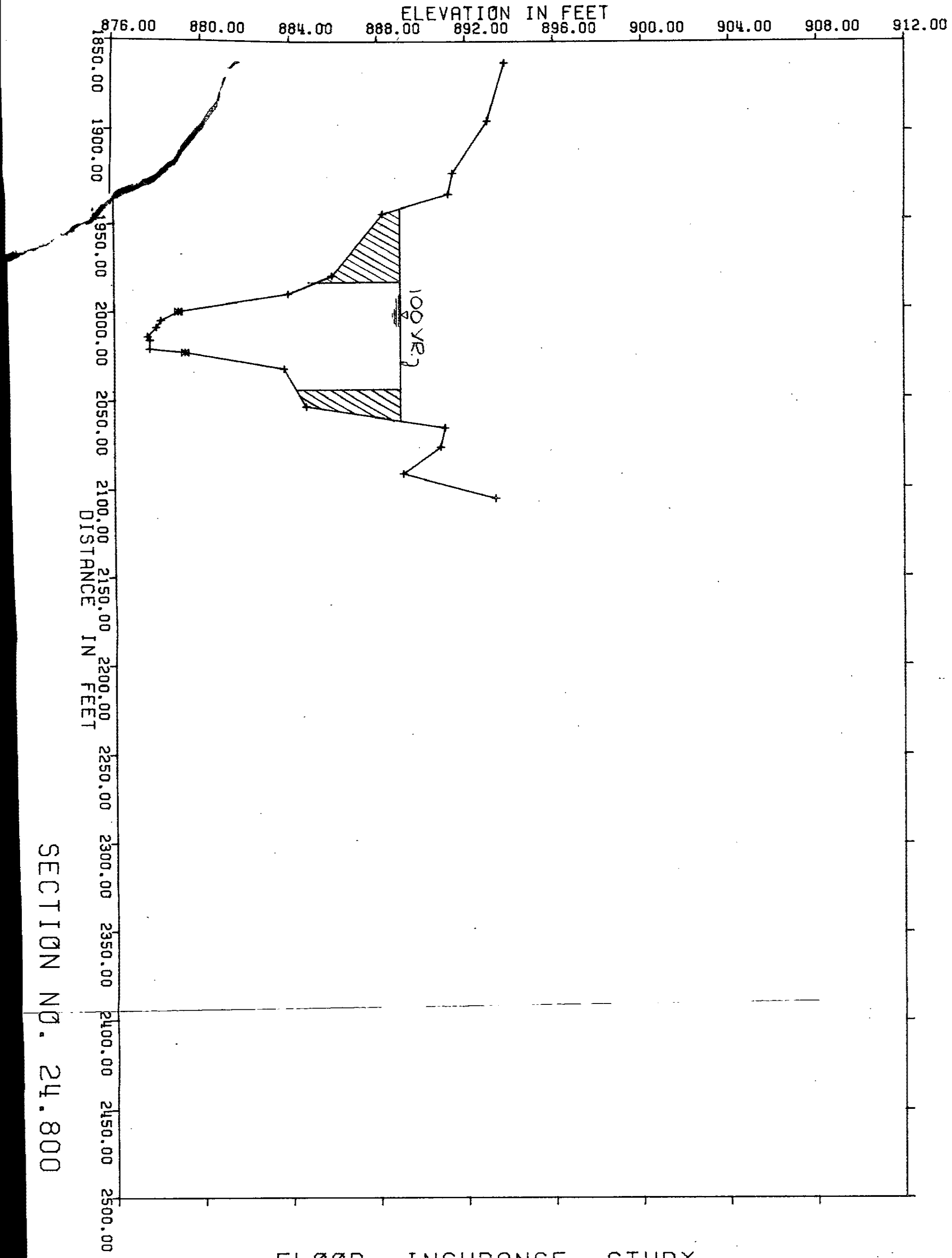
CITY OF MASON



CITY OF MASON

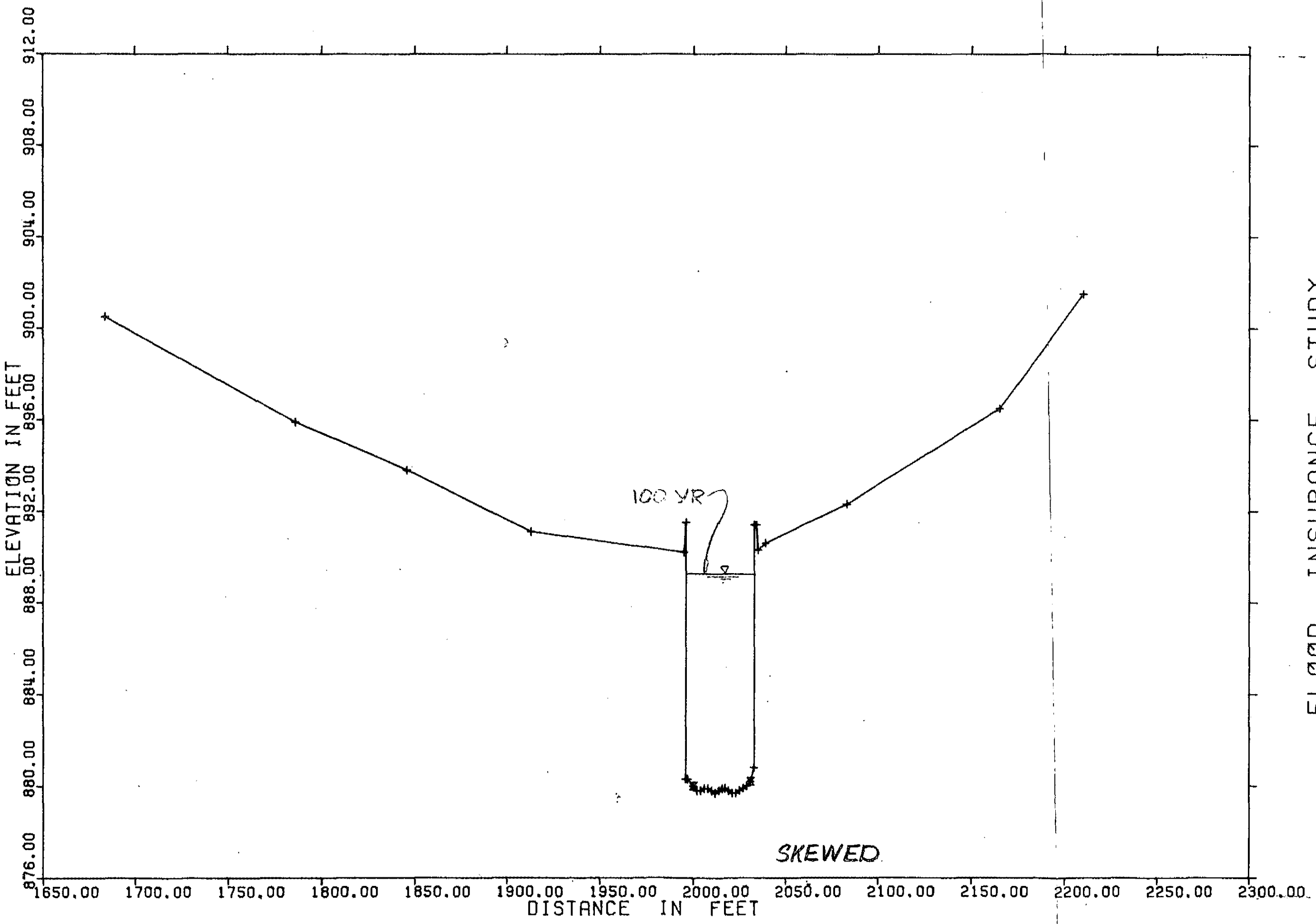
SYCAMORE CREEK

FLOOD PROFILE



FLOOD INSURANCE STUDY

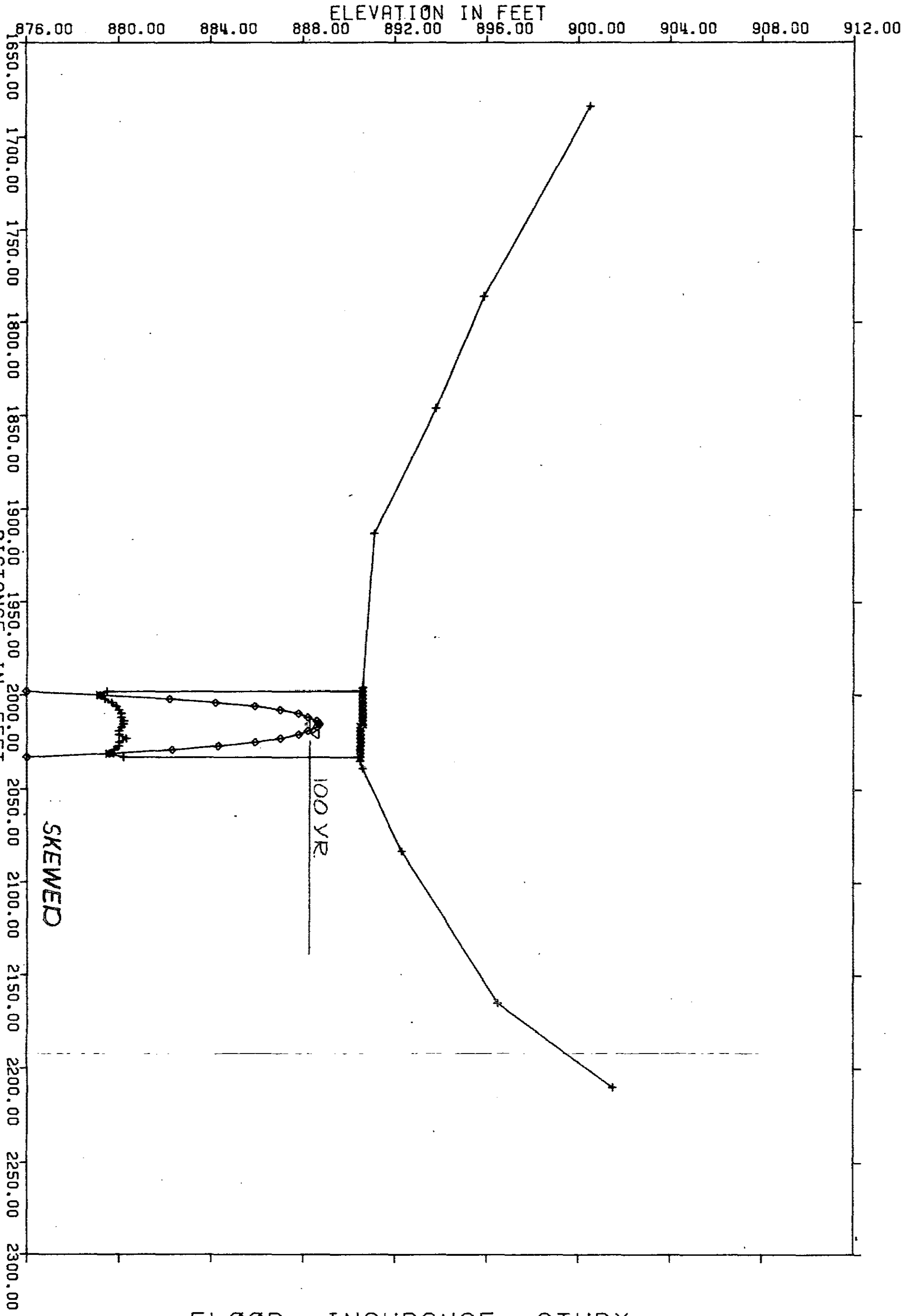
SYCAMORE CREEK AT MASON



FLOOD INSURANCE STUDY

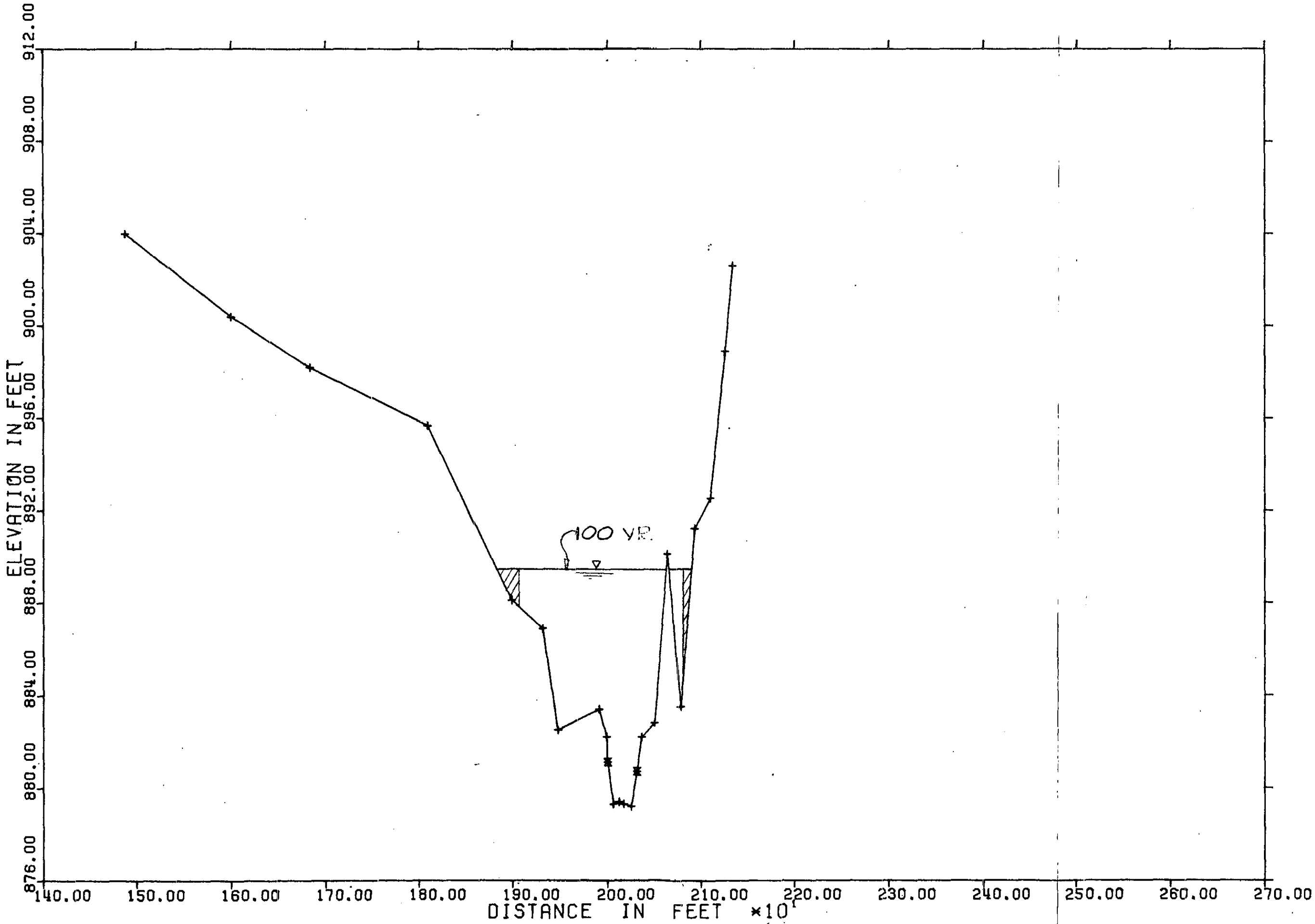
SYCAMORE CREEK AT MASON

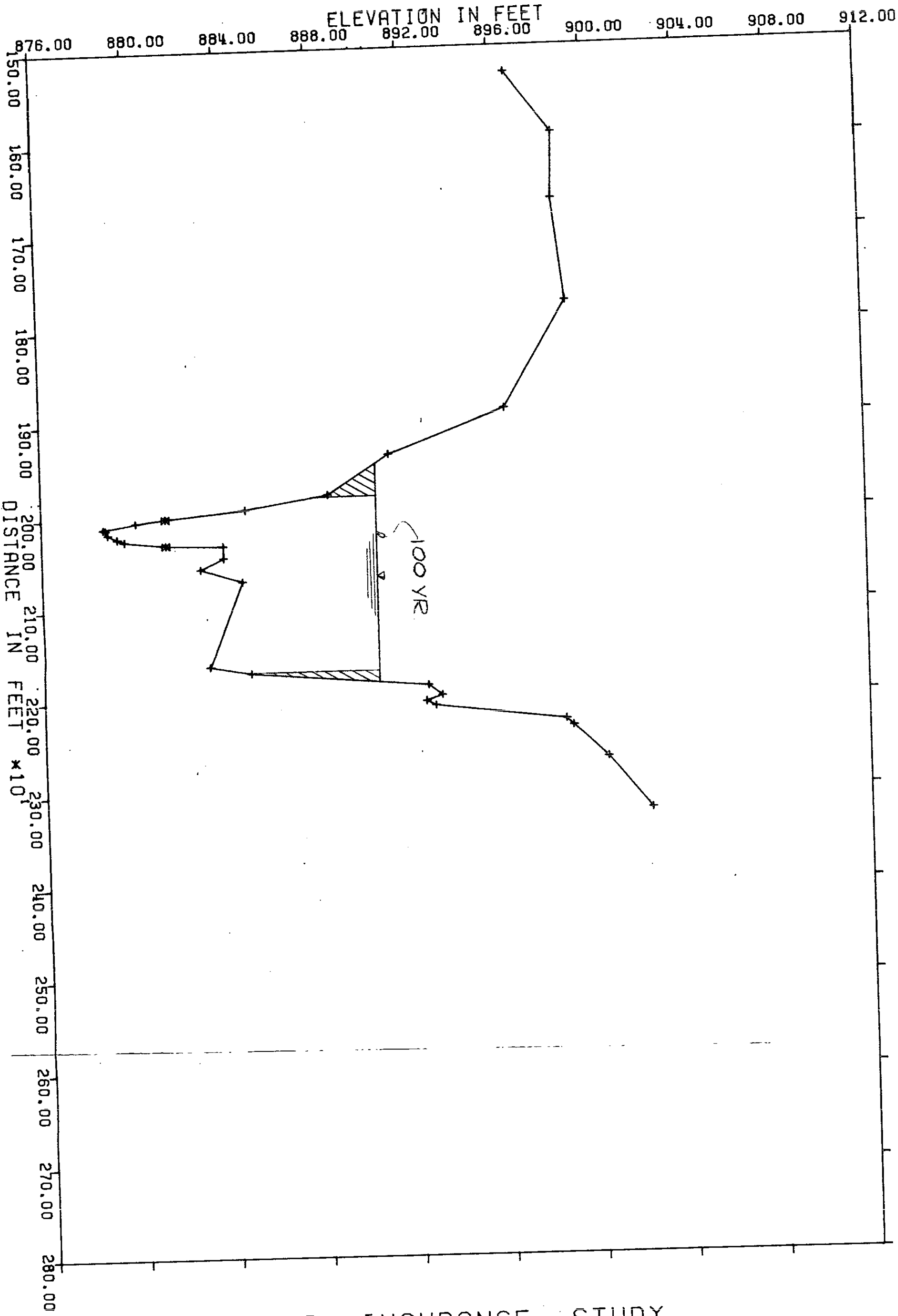
SECTION NO. 24.900



FLOOD INSURANCE STUDY

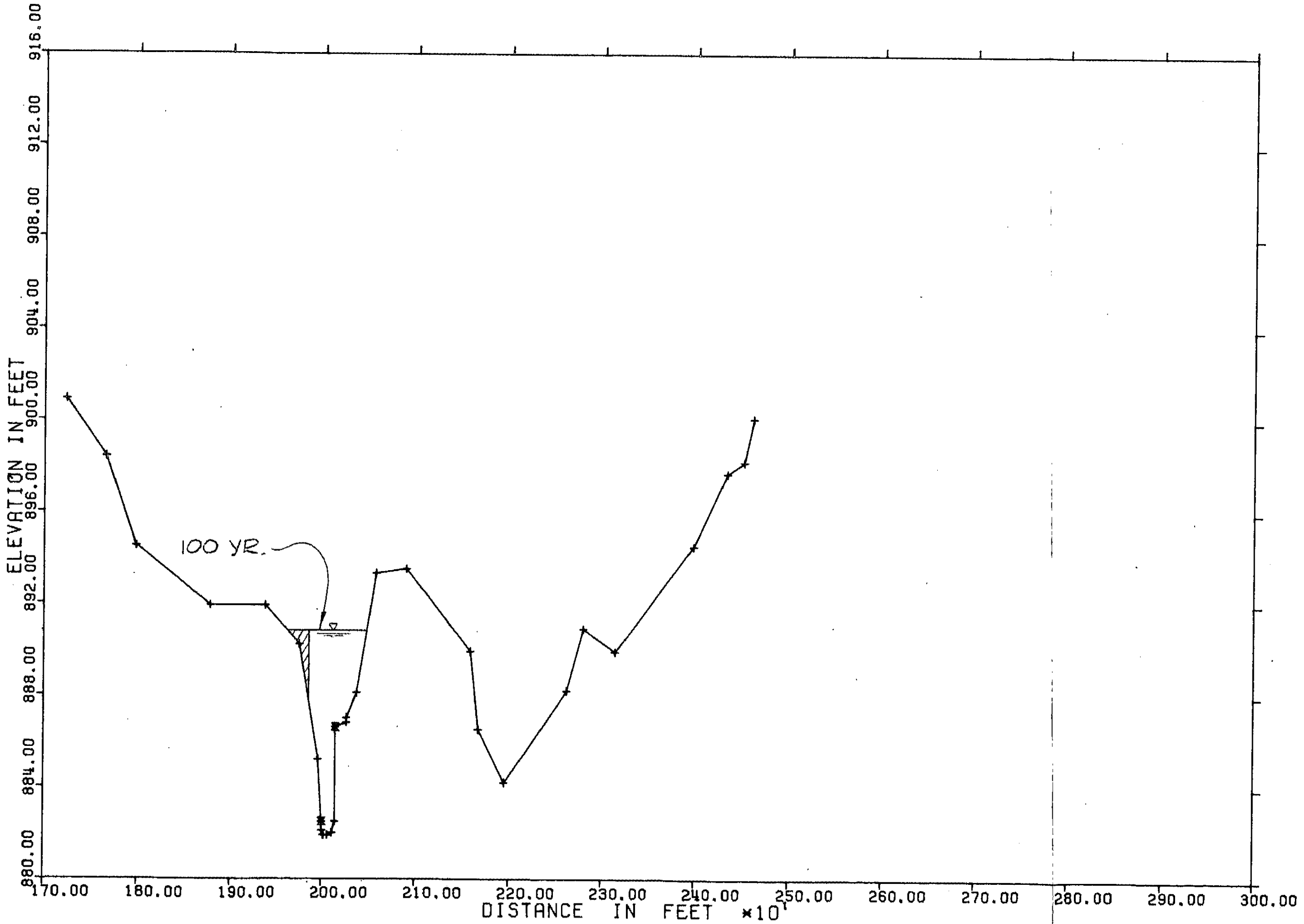
SYCAMORE CREEK AT MASON


FLOOD INSURANCE STUDY
SYCAMORE CREEK AT MASON
ELEVATION IN FEET
912.00
908.00
904.00
900.00
896.00
892.00
888.00
884.00
880.00
876.00
100 YR.
140.00
150.00
160.00
170.00
180.00
190.00
200.00
210.00
220.00
230.00
240.00
250.00
260.00
270.00
DISTANCE IN FEET ×10
SECTION NO. 27.000



FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



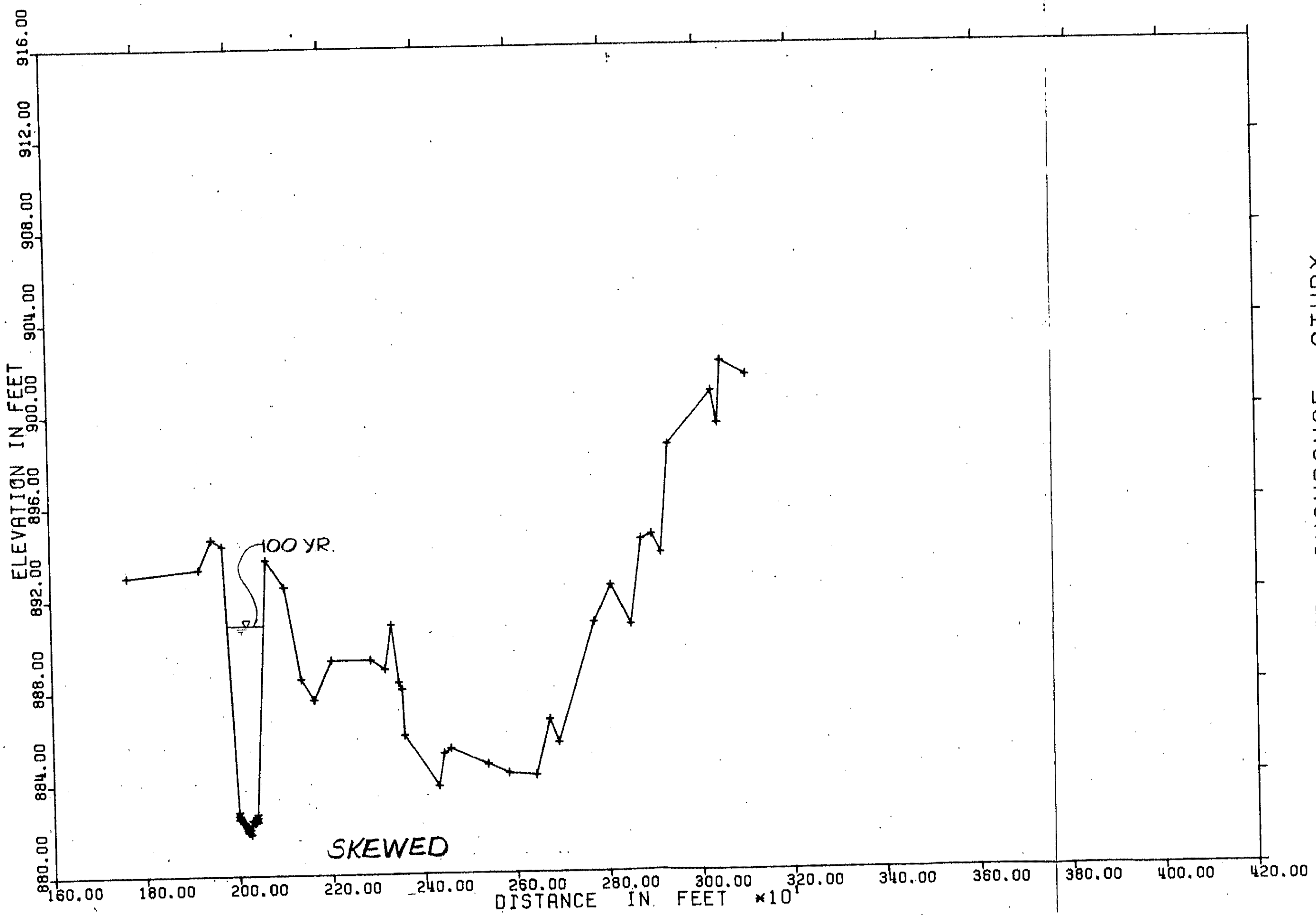
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

SECTION NO. 60.800

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY



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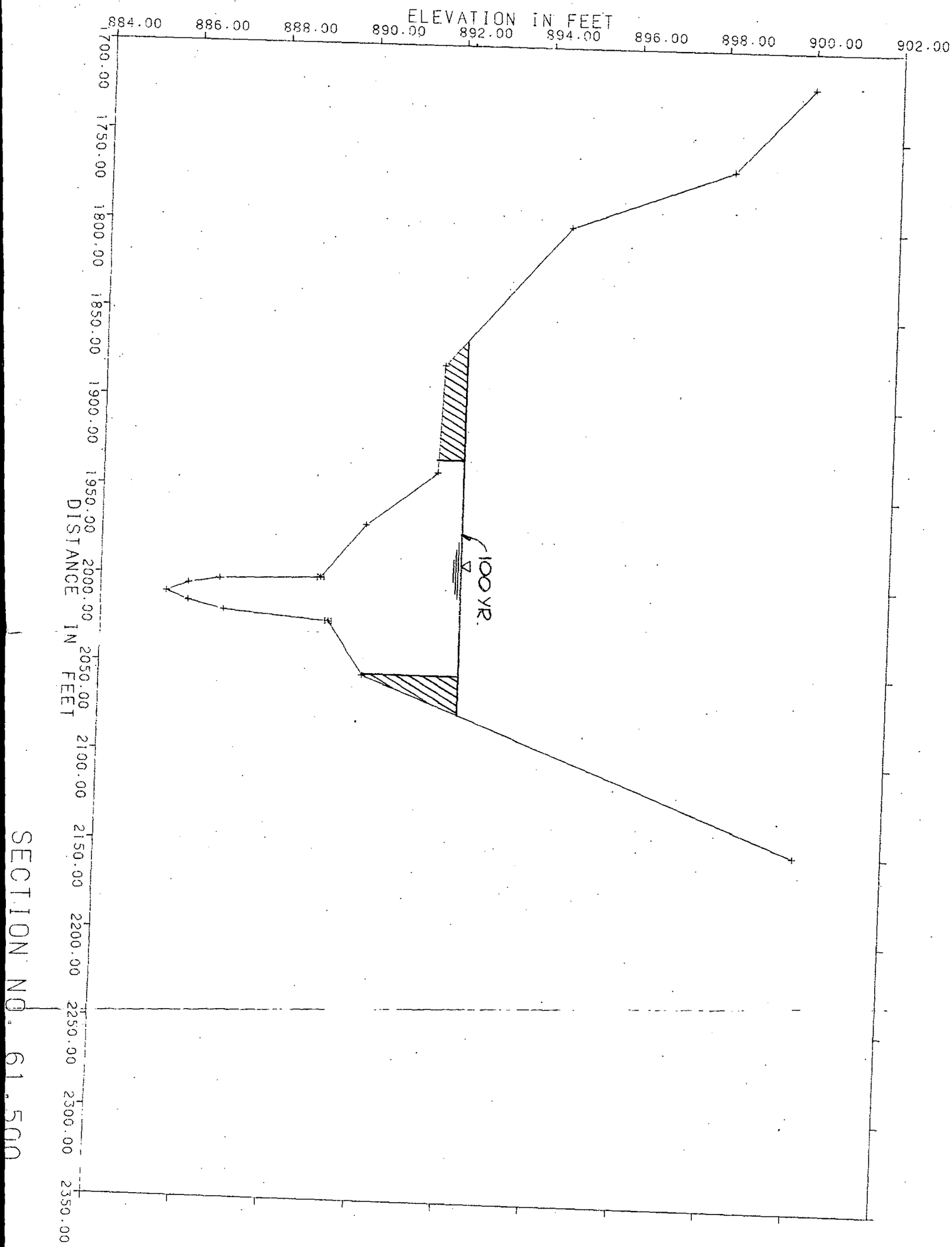

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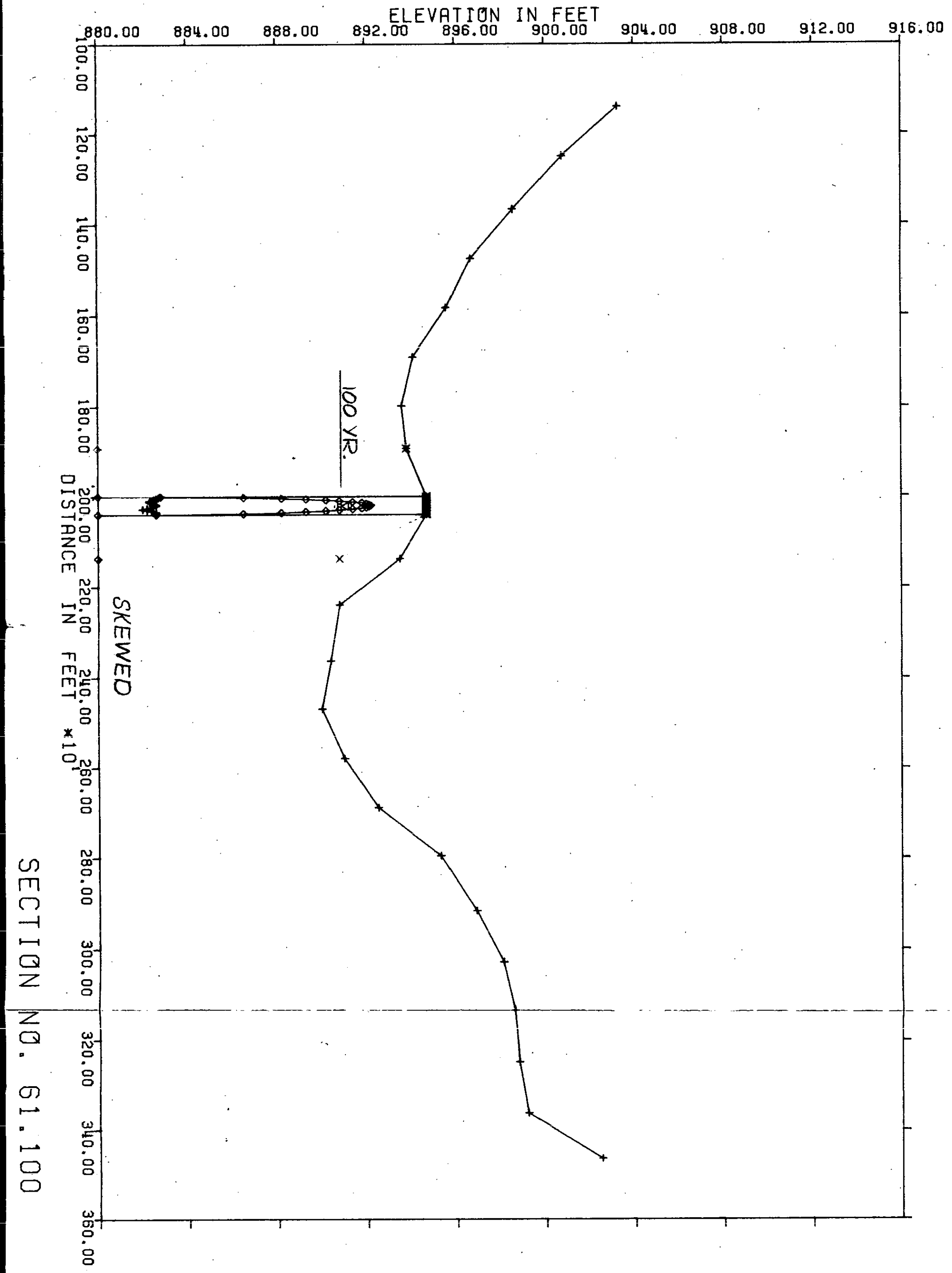
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

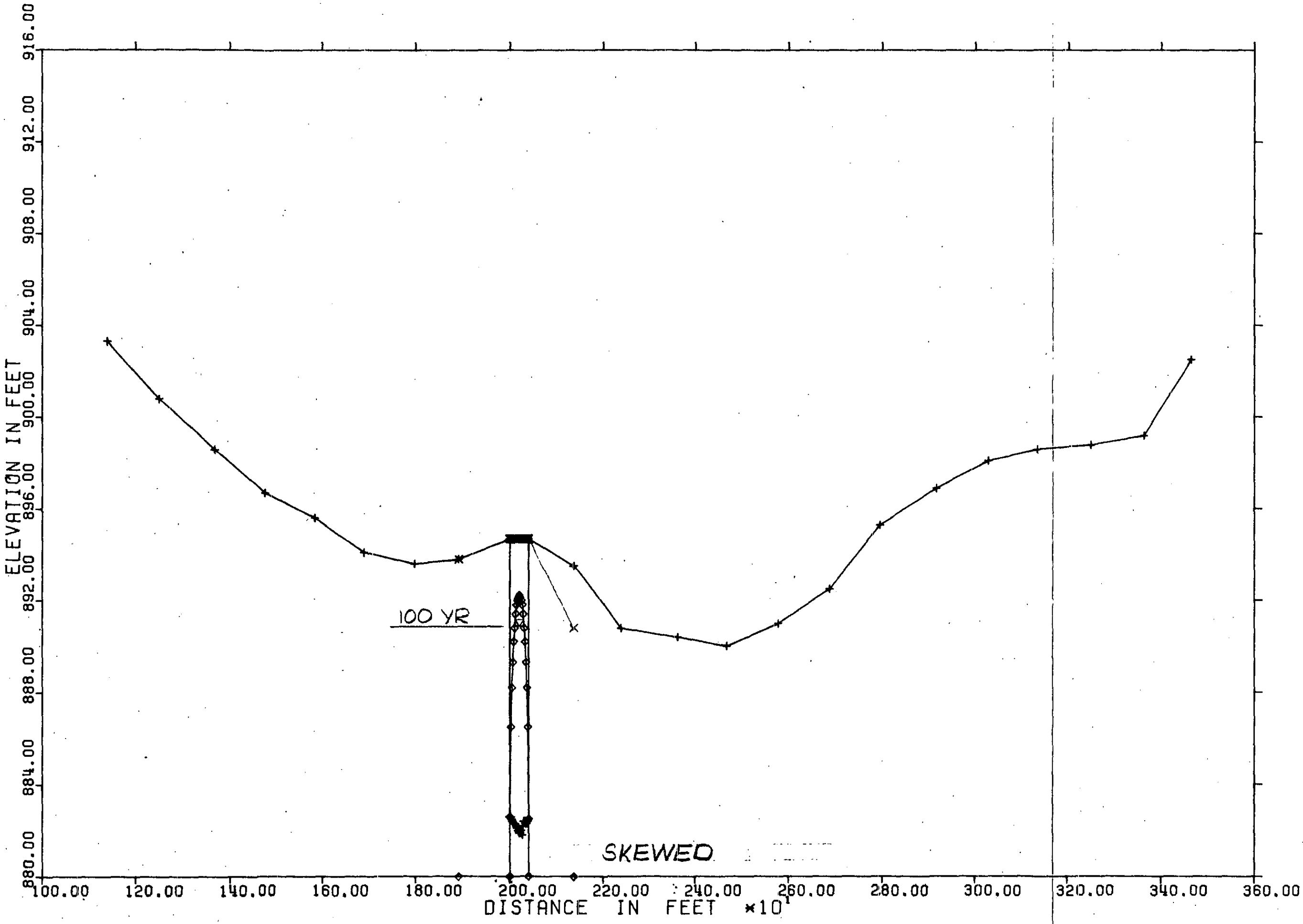


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY

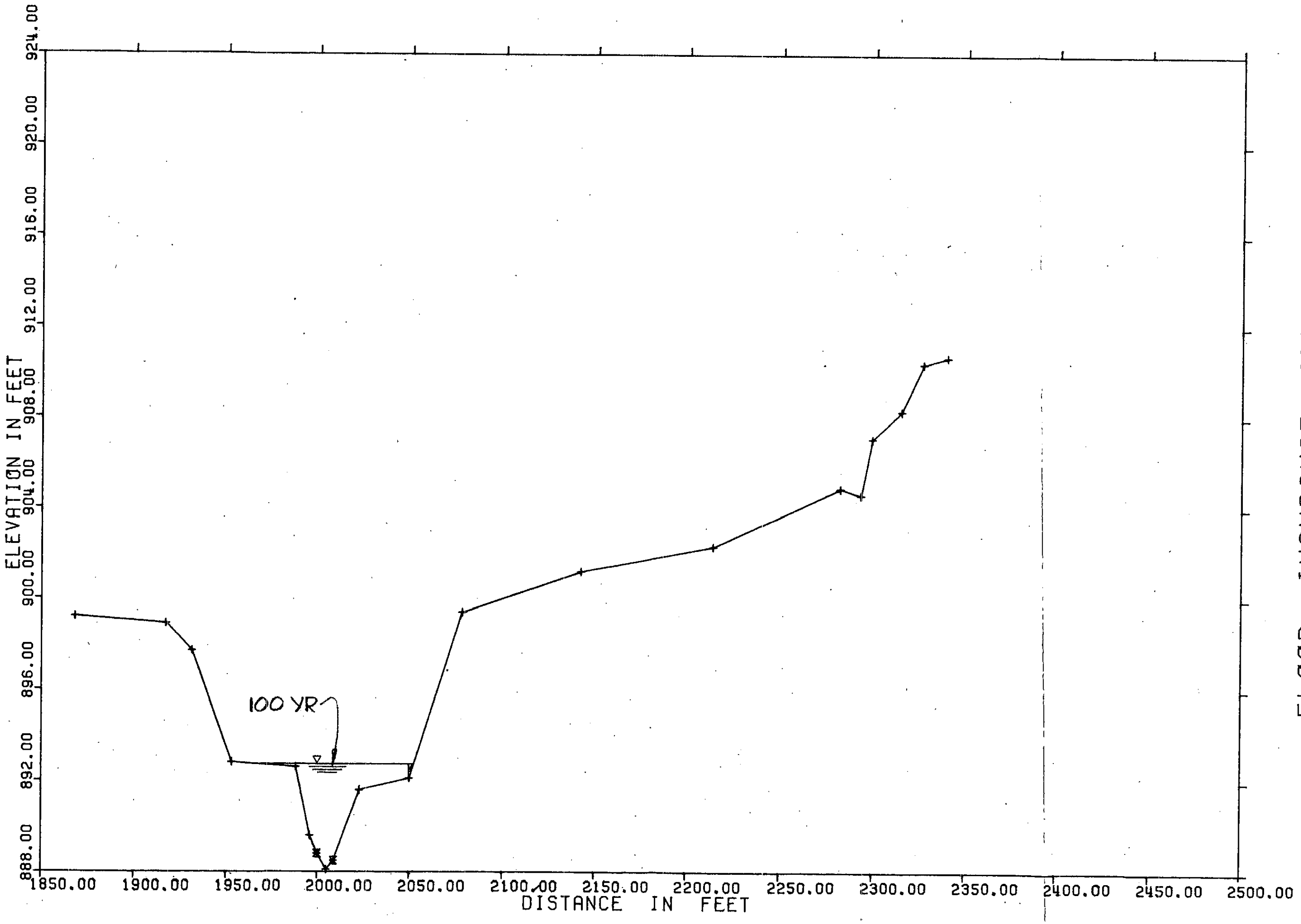
SYCAMORE CREEK AT MASON



SECTION NO. 61.000

FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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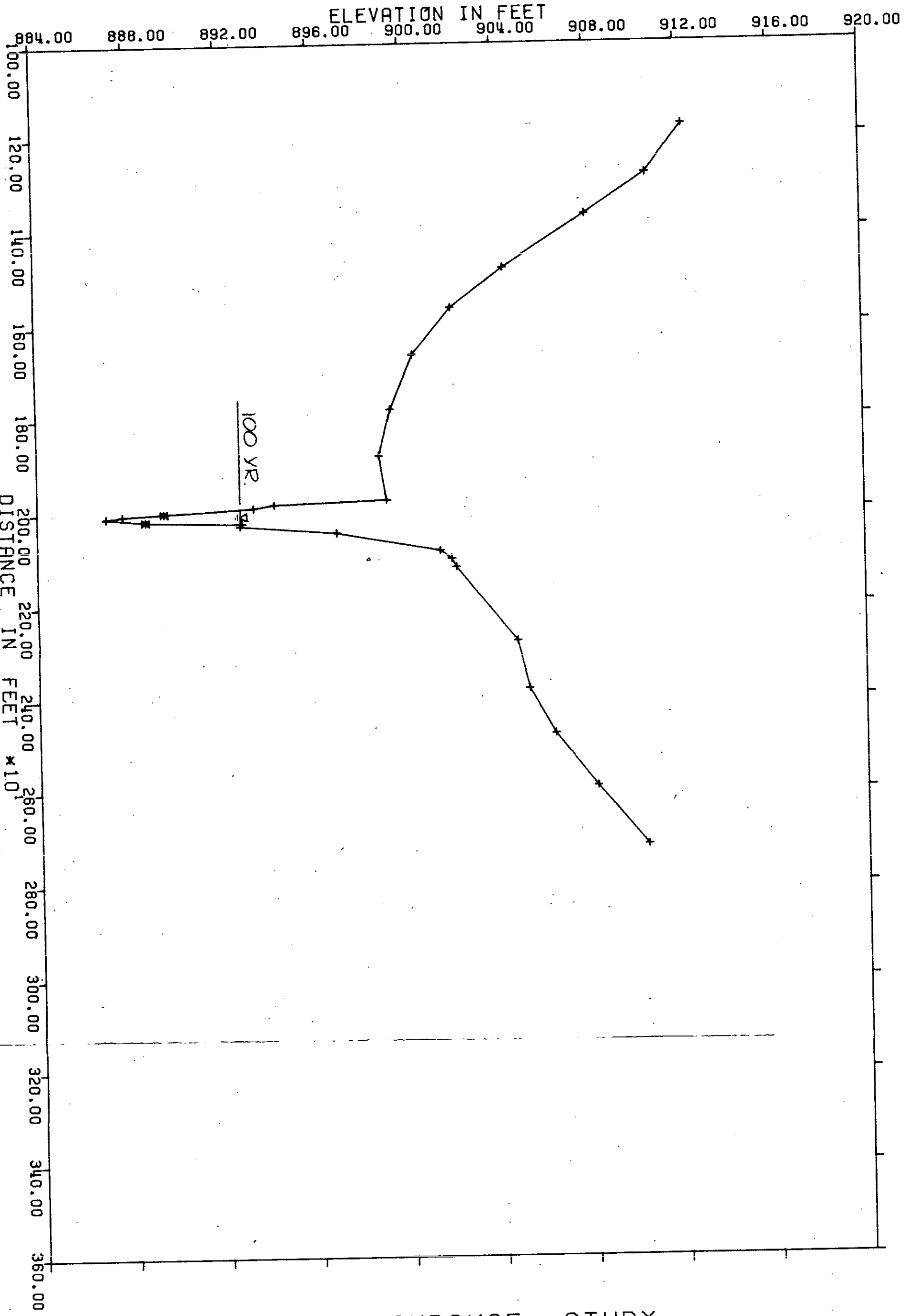
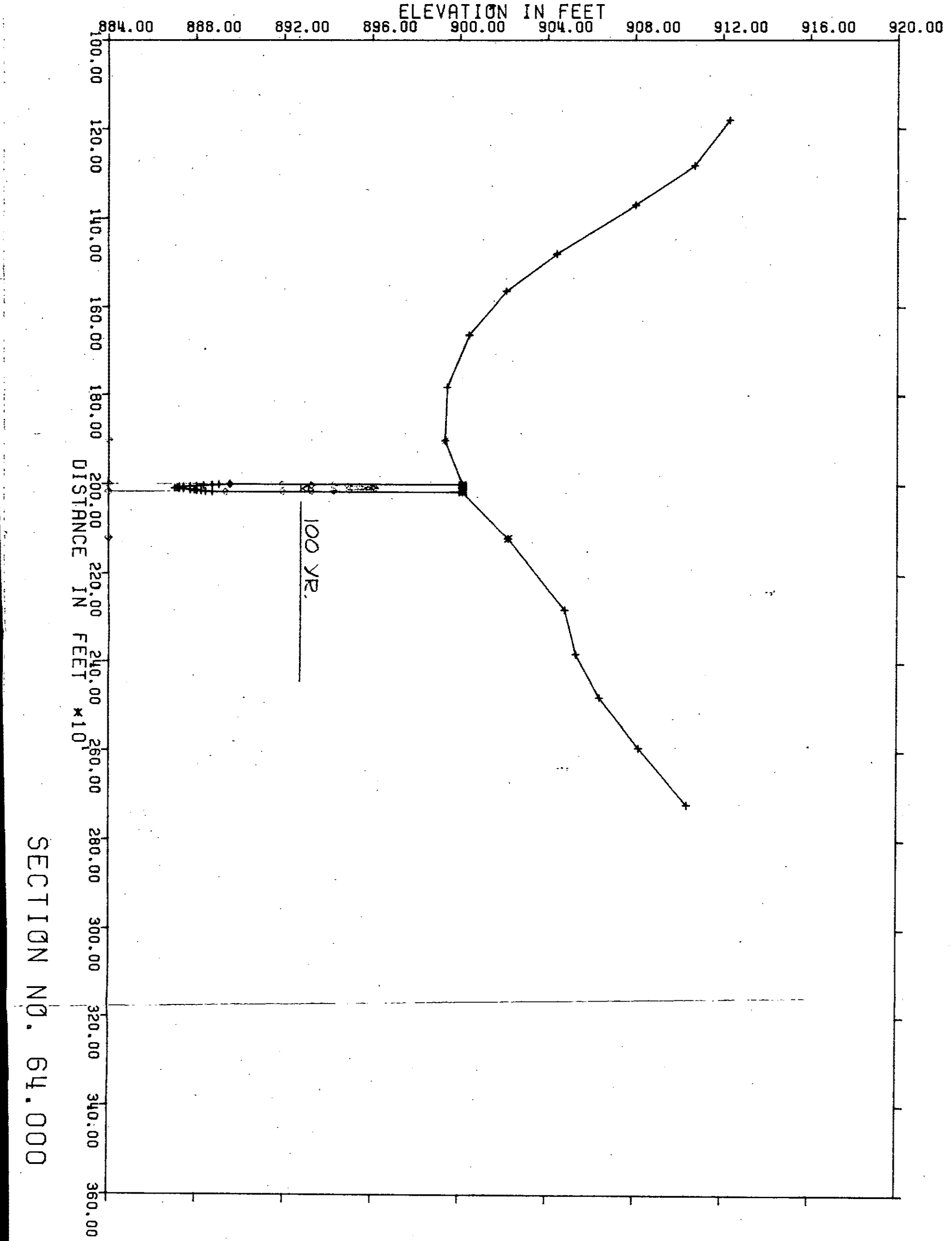


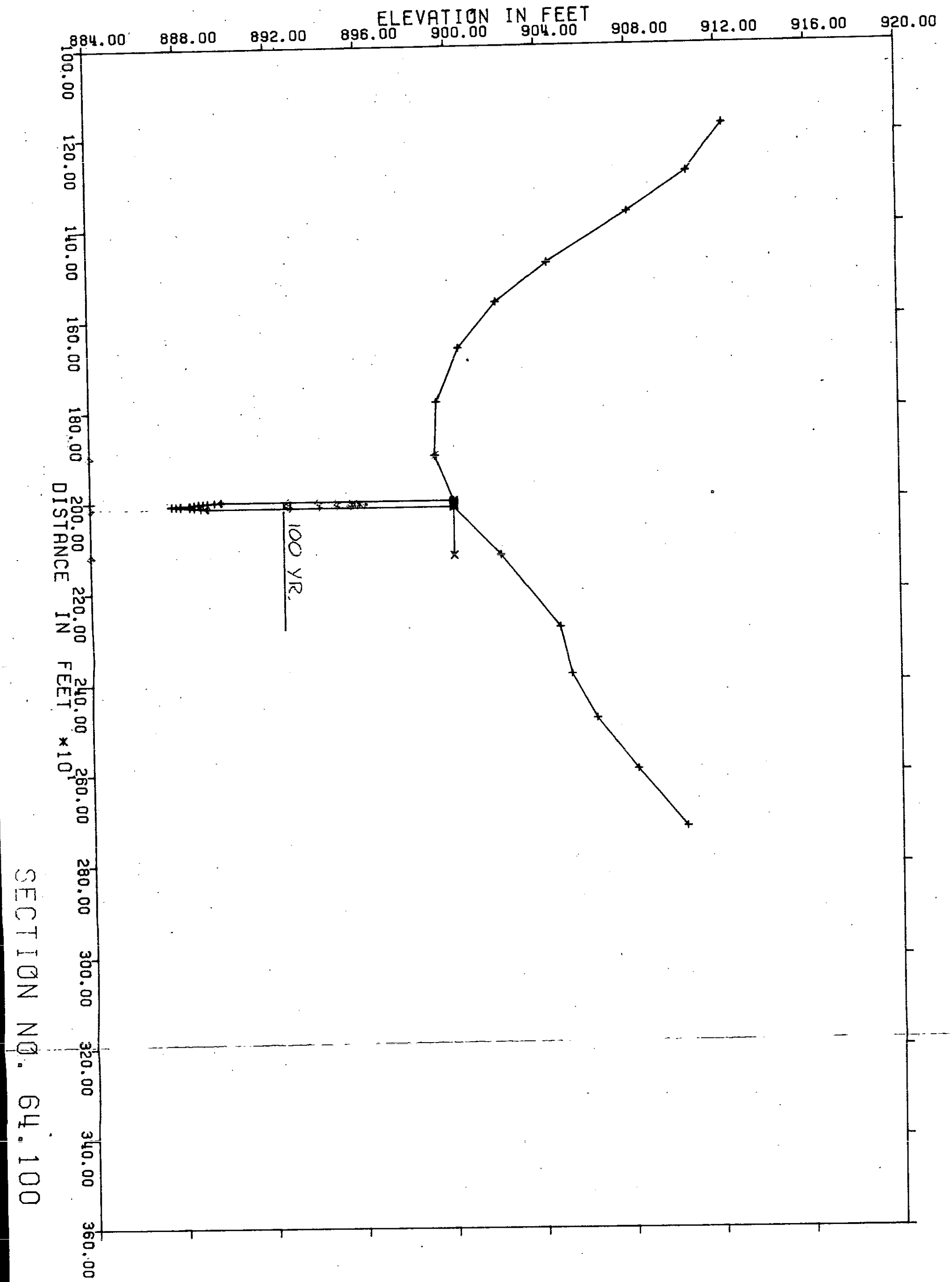
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



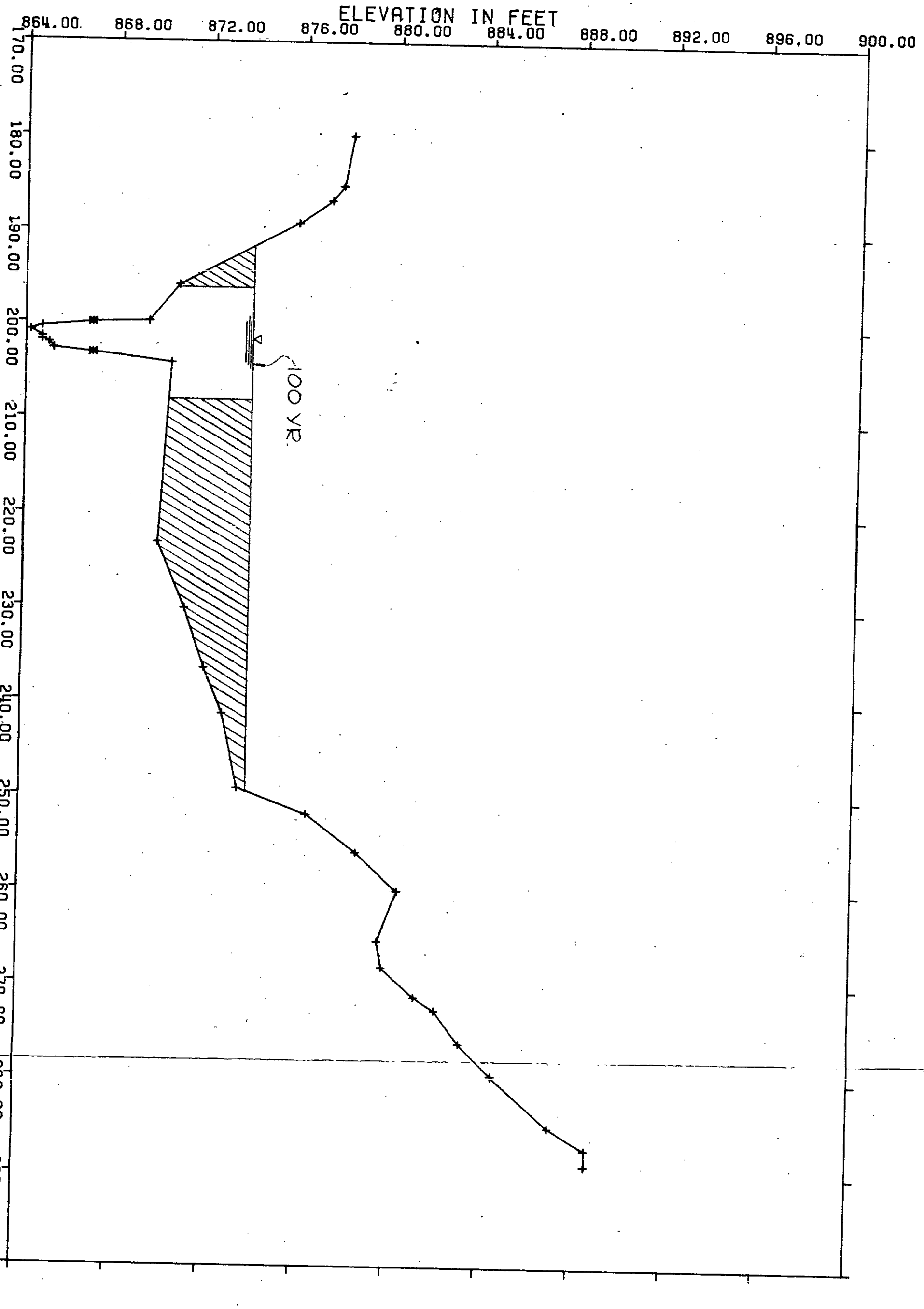
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



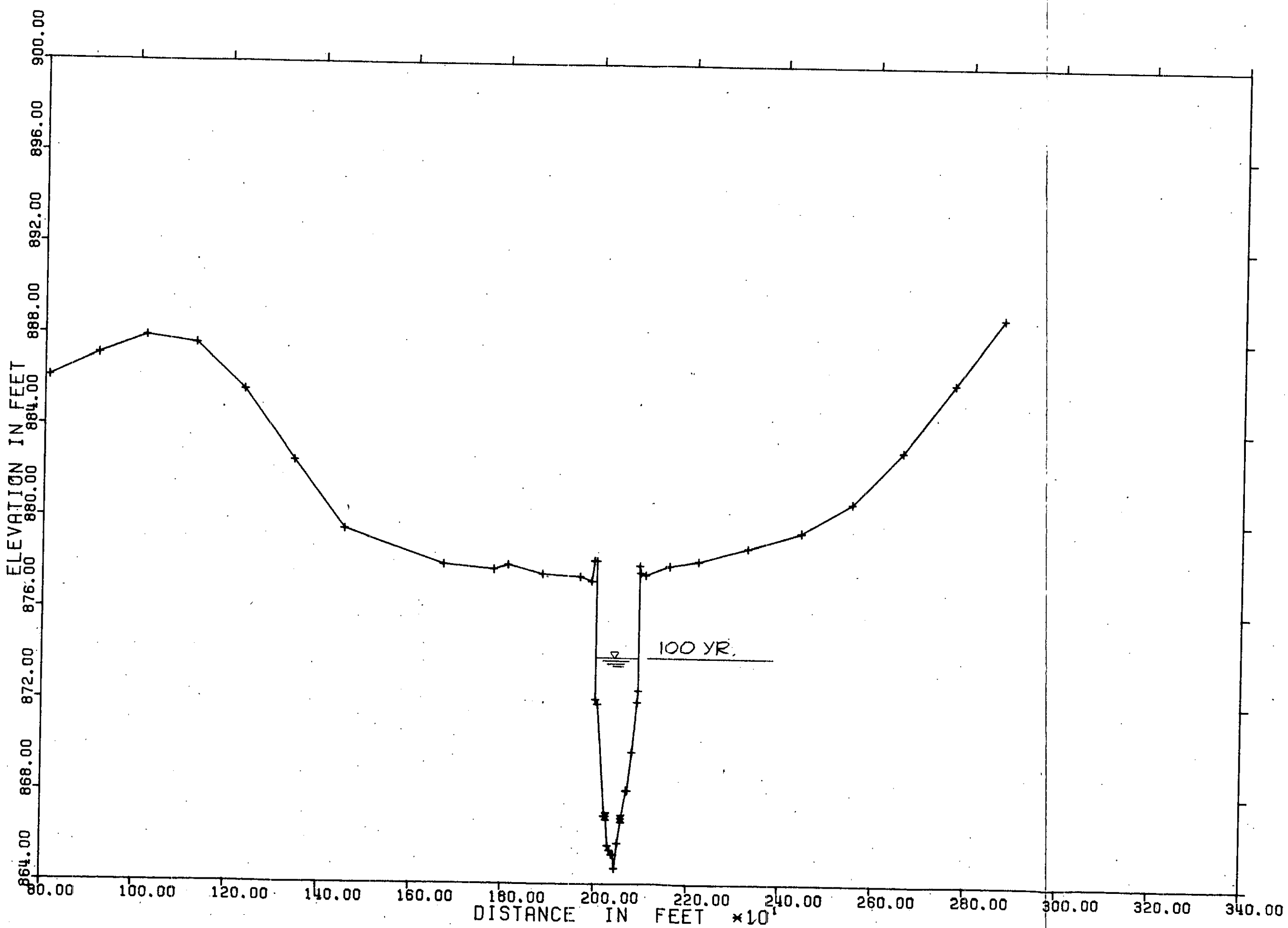
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

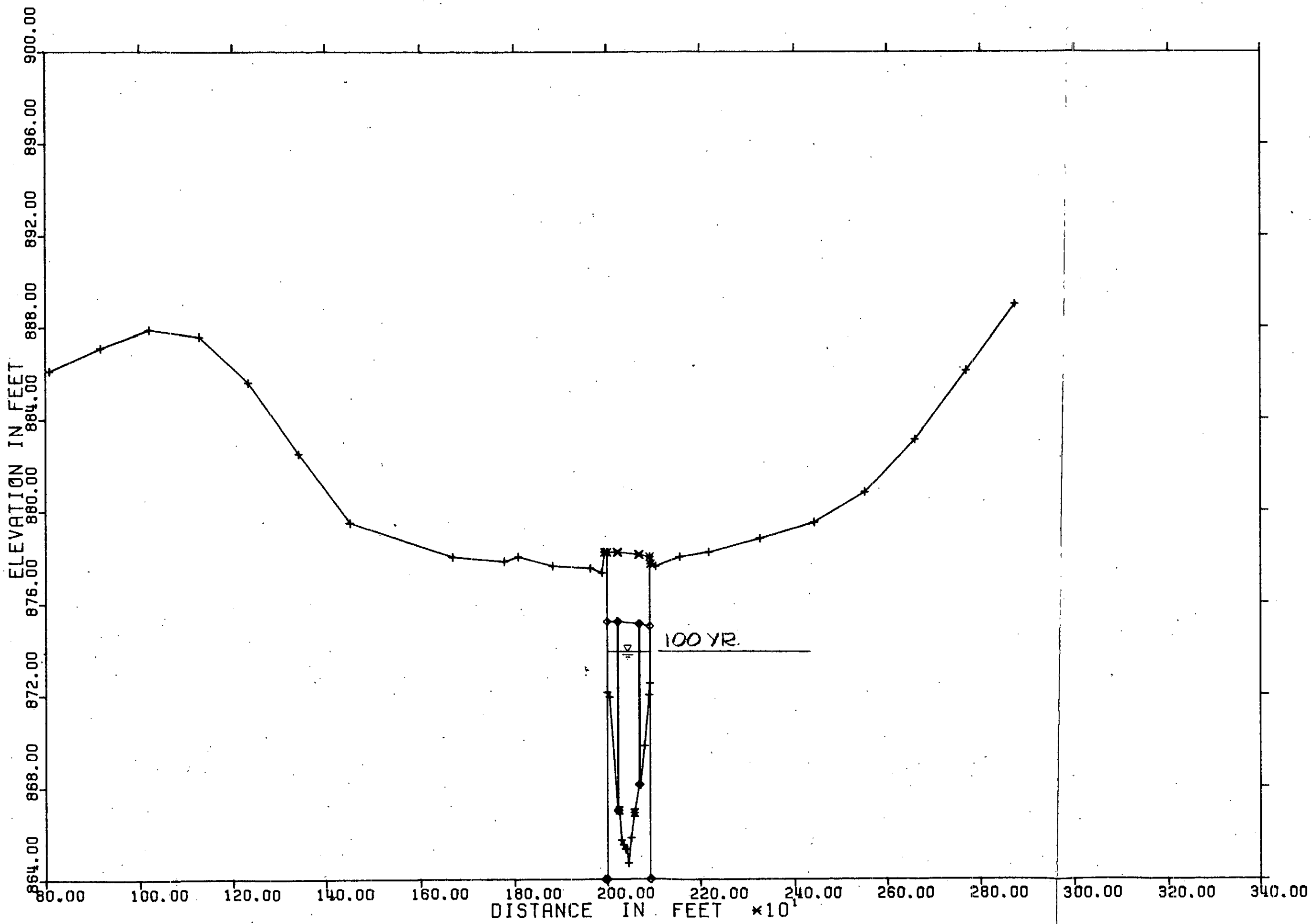


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

SECTION NO. 1.900

FLOOD INSURANCE STUDY
SYCAMORE CREEK AT MASON



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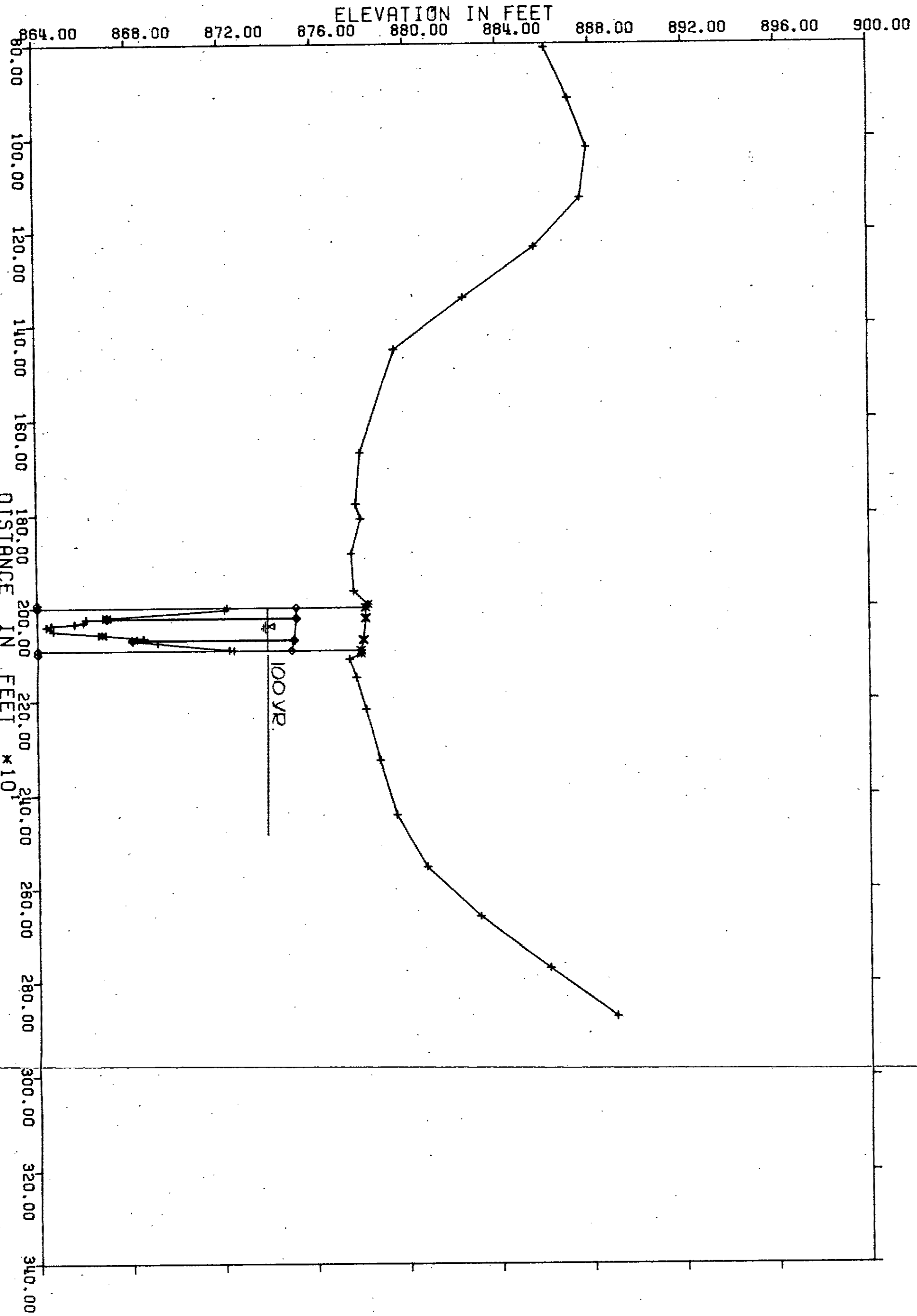

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FLOOD INSURANCE STUDY

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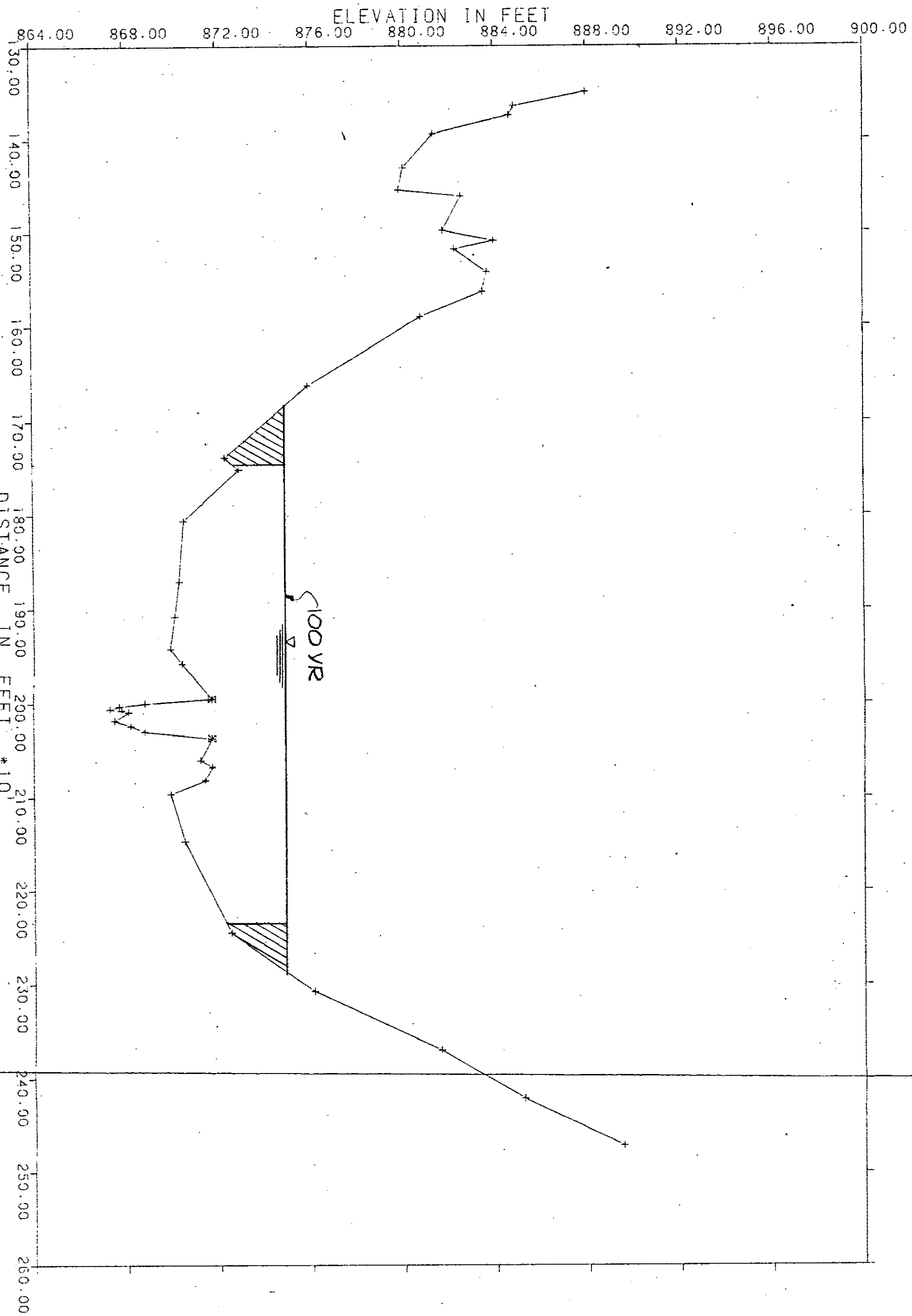

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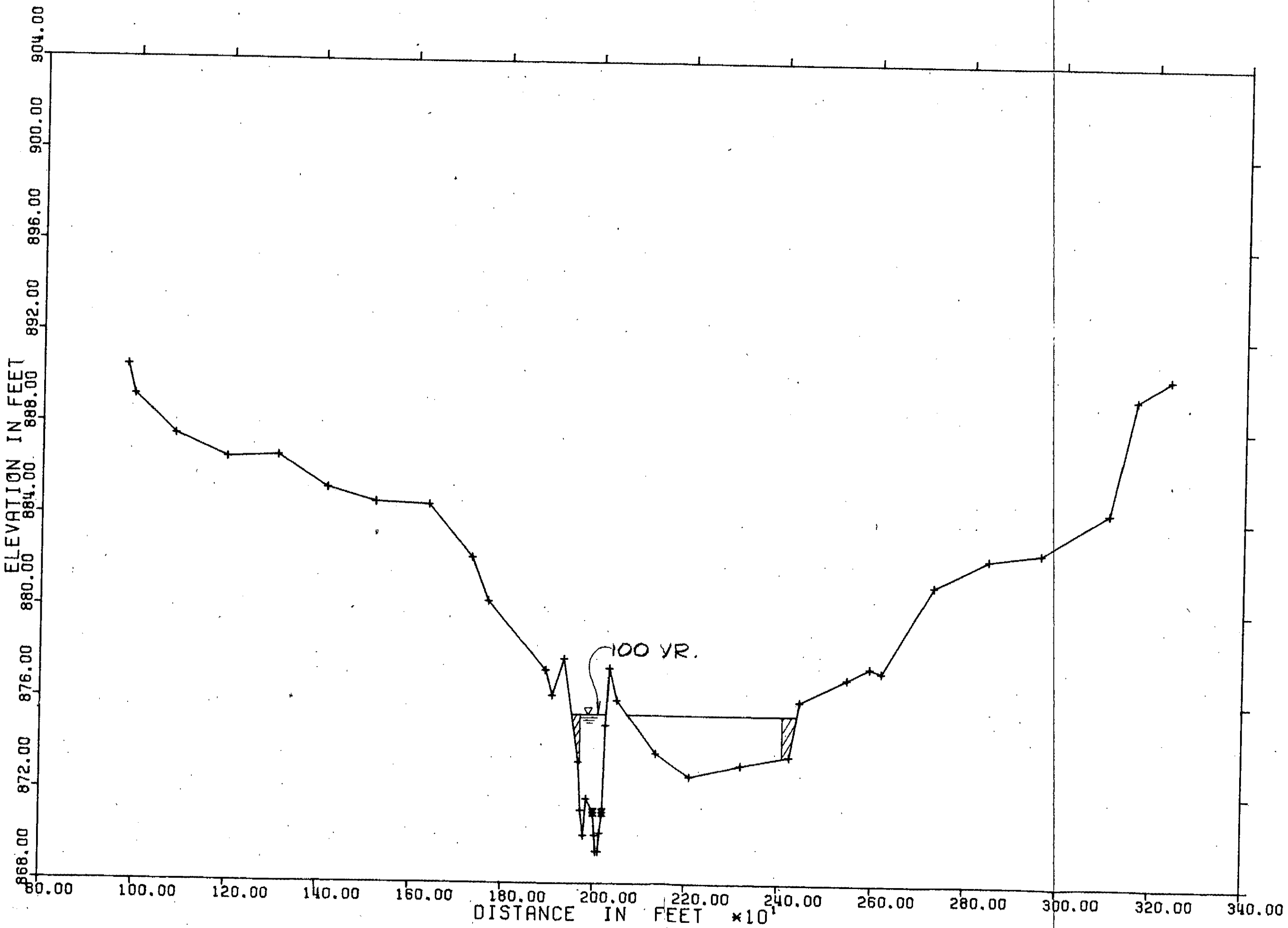
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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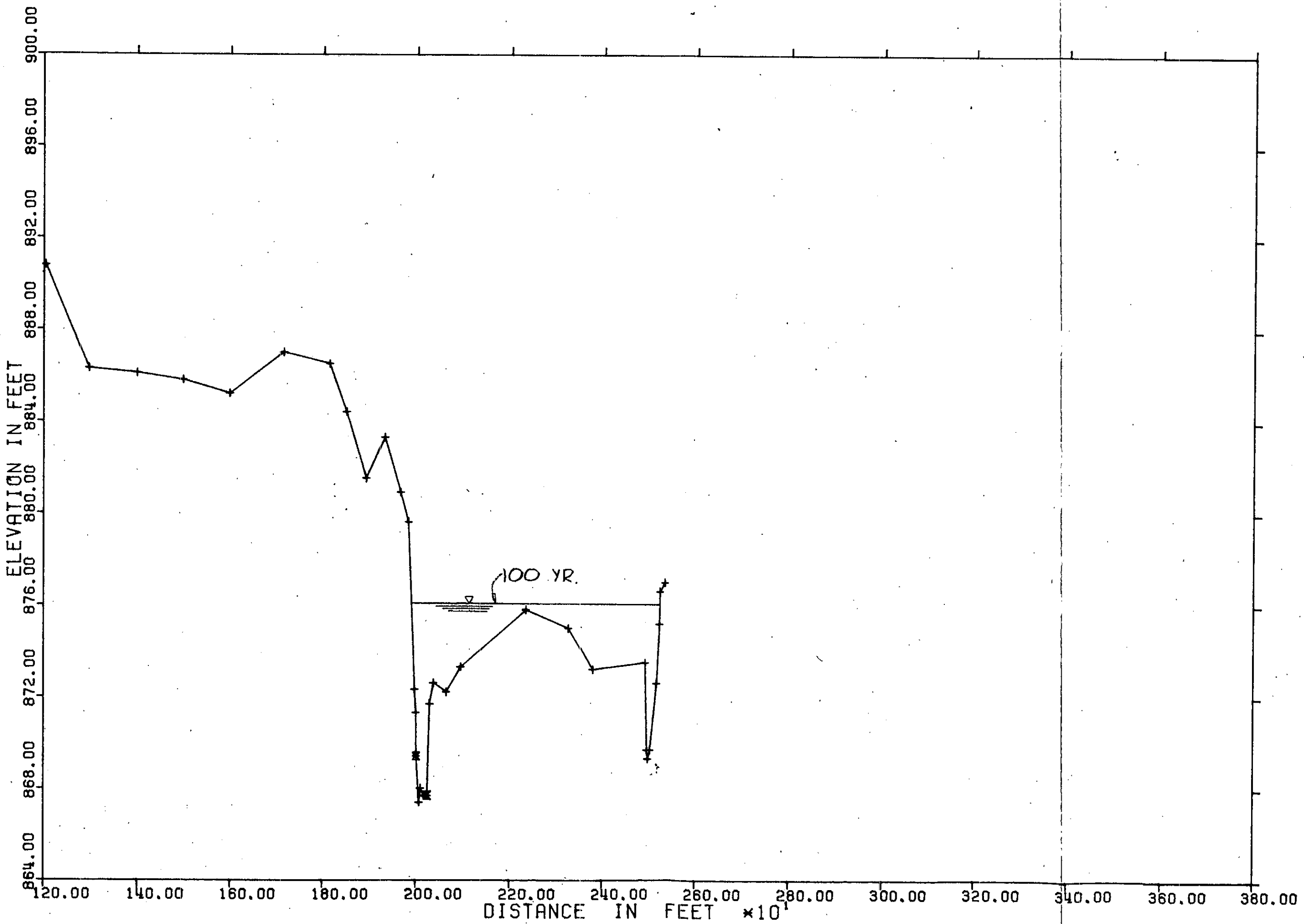
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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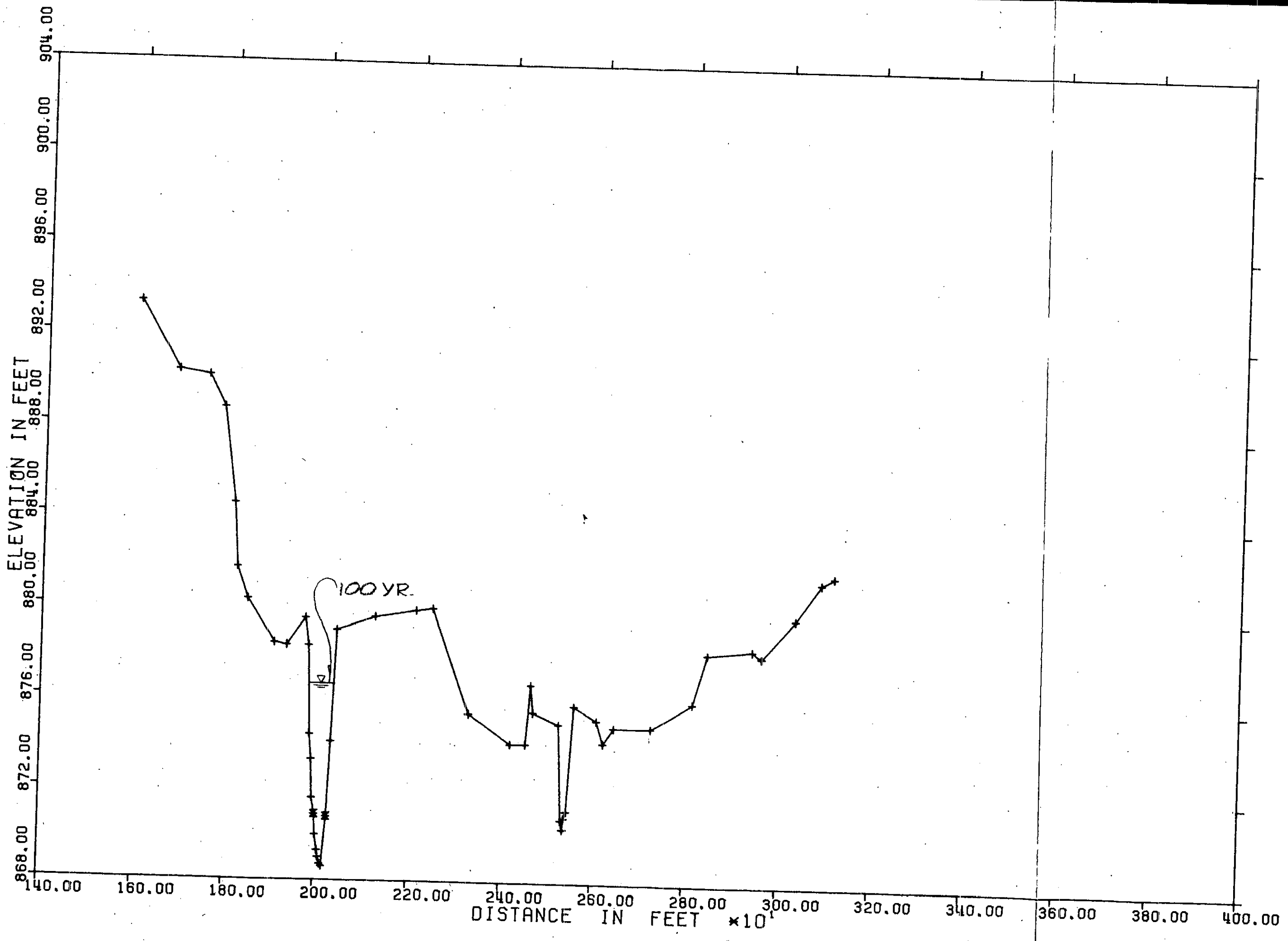
FLOOD INSURANCE STUDY
SYCAMORE CREEK AT MASON



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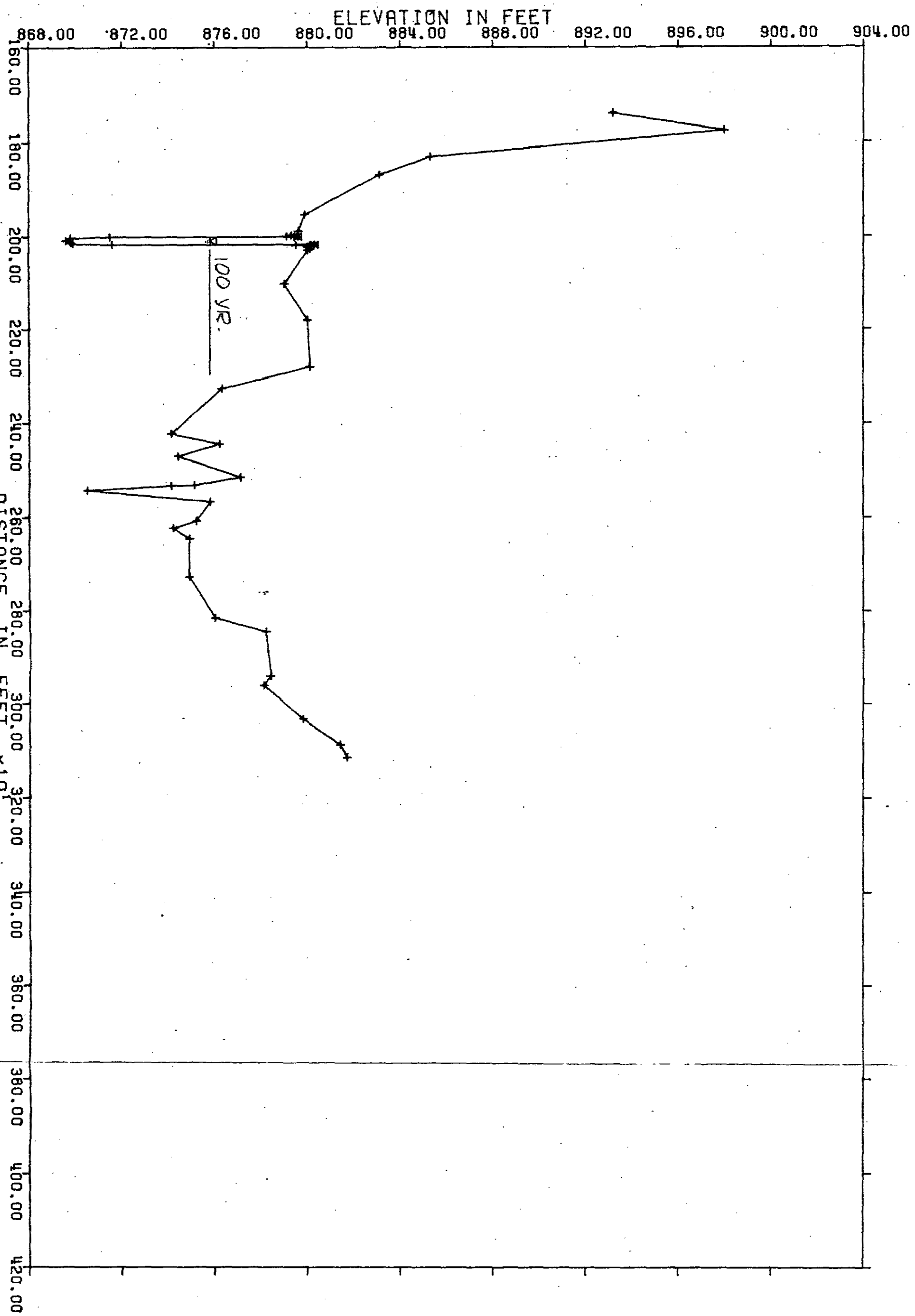
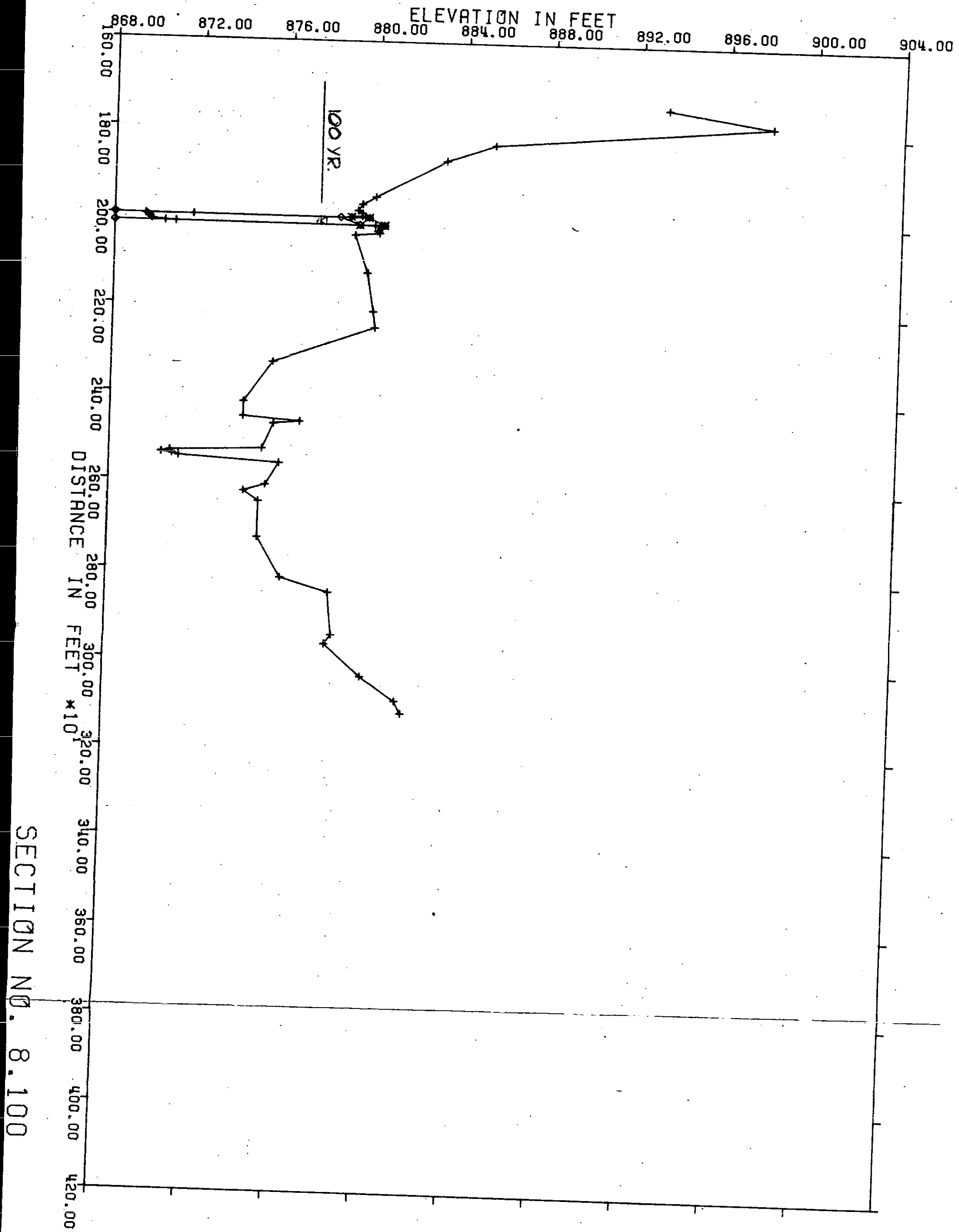


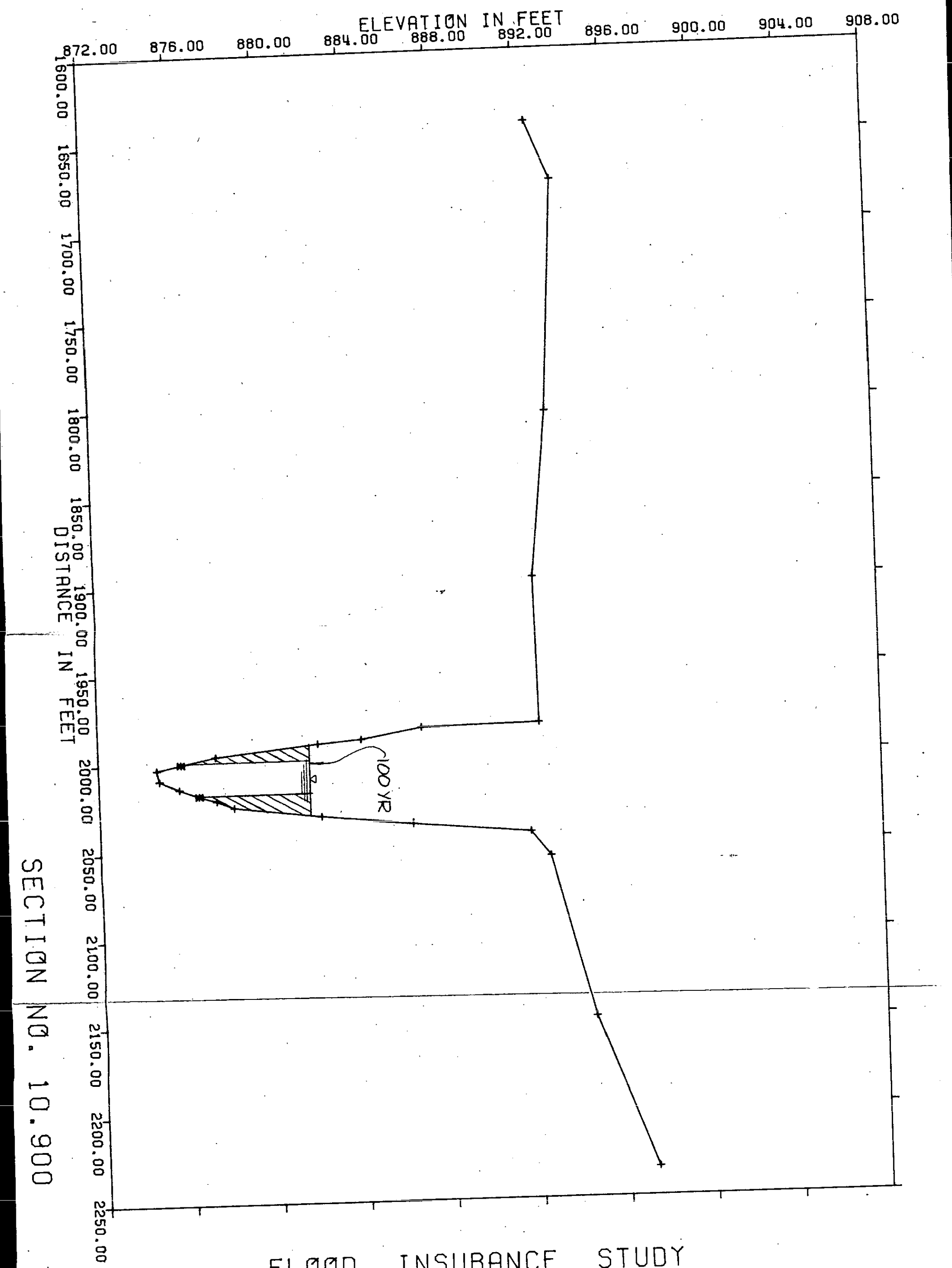
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



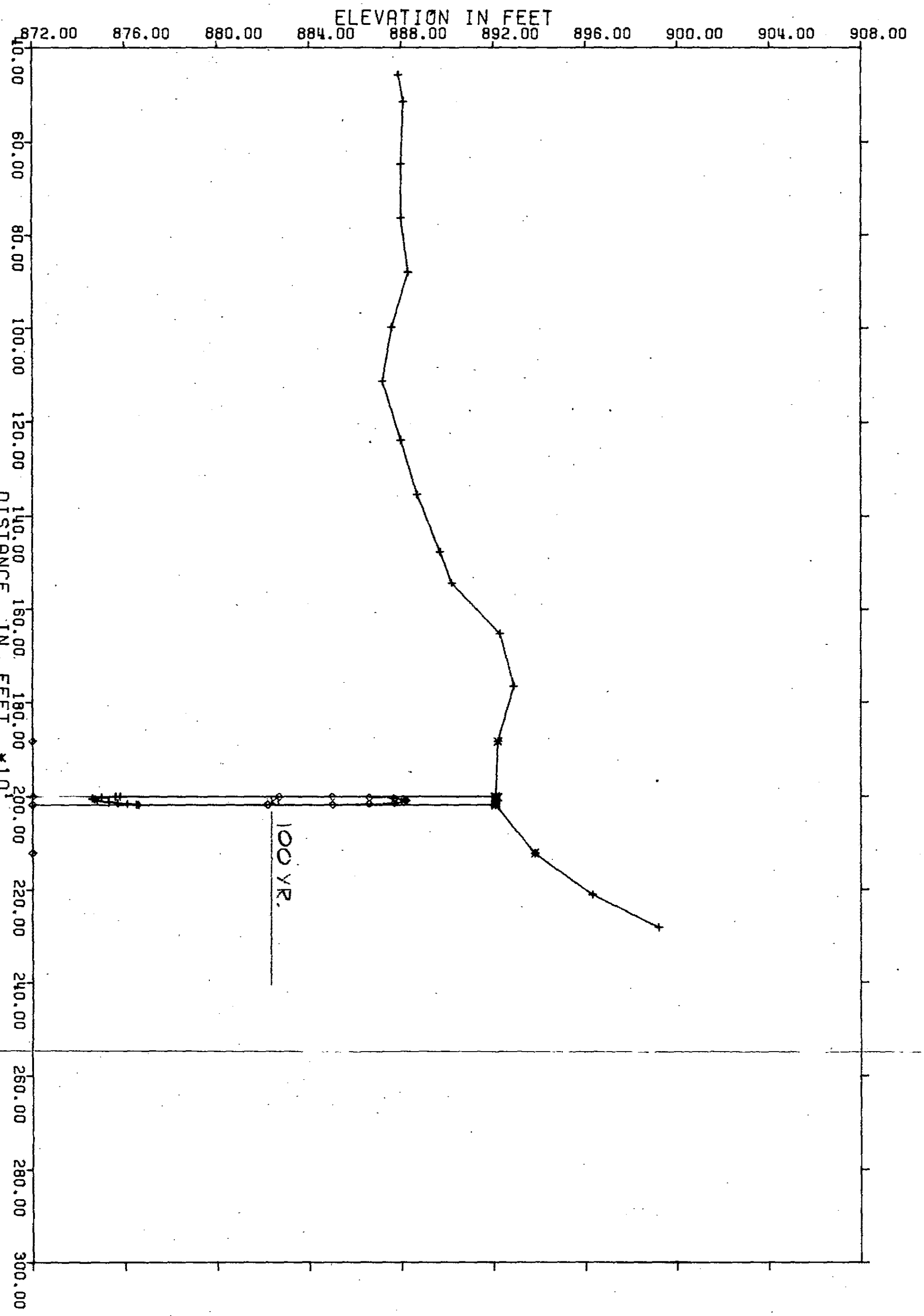
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



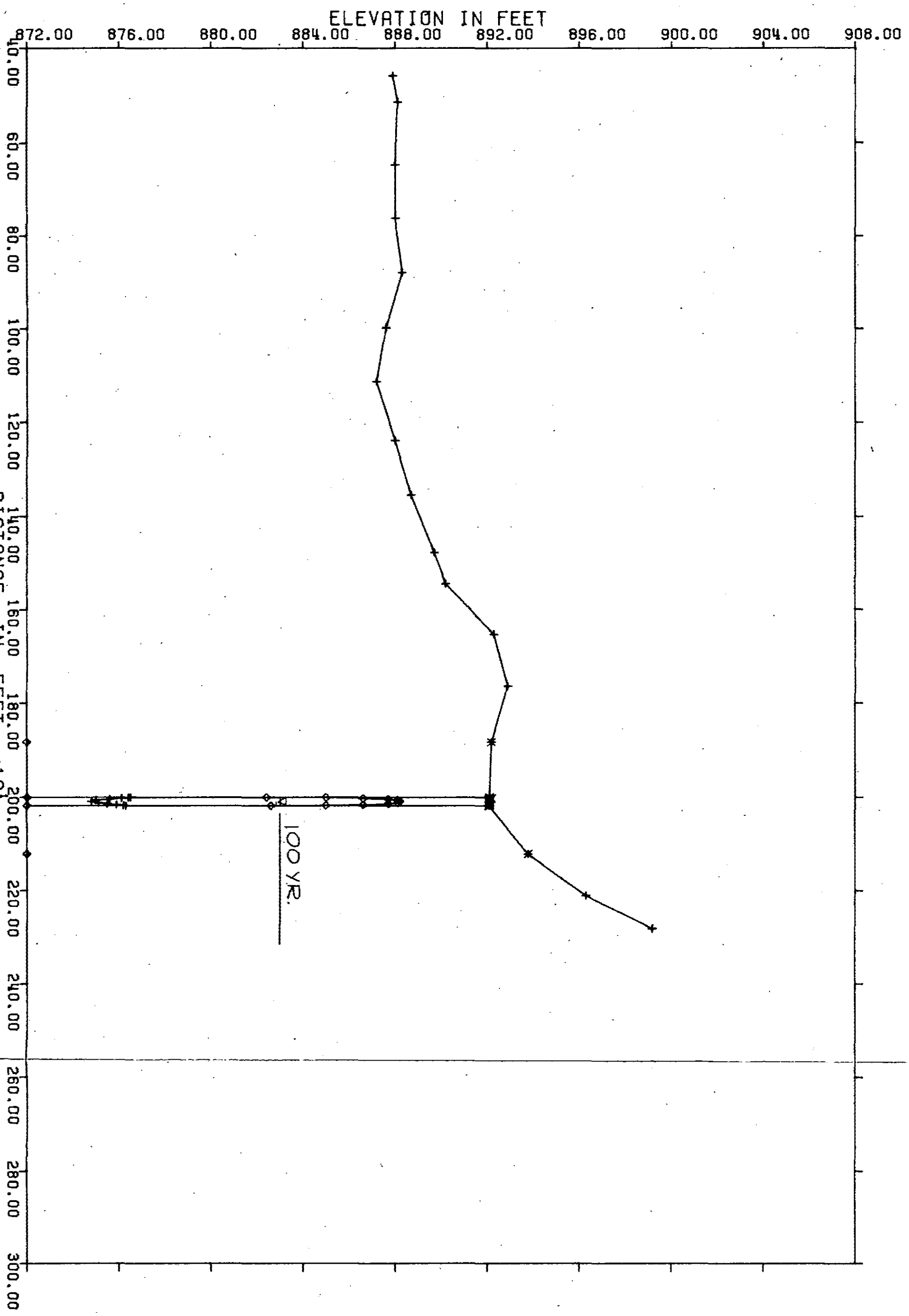
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

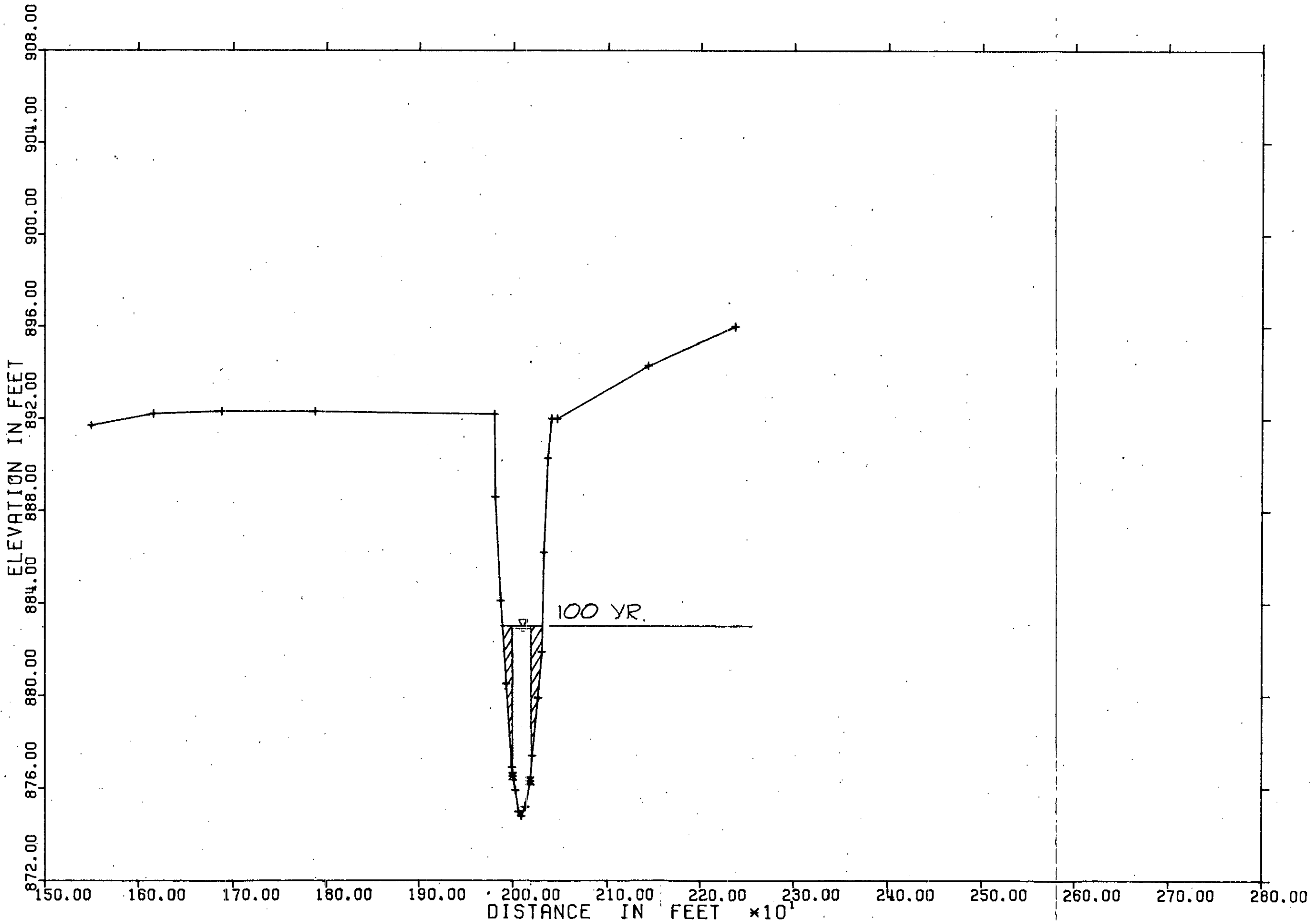


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY



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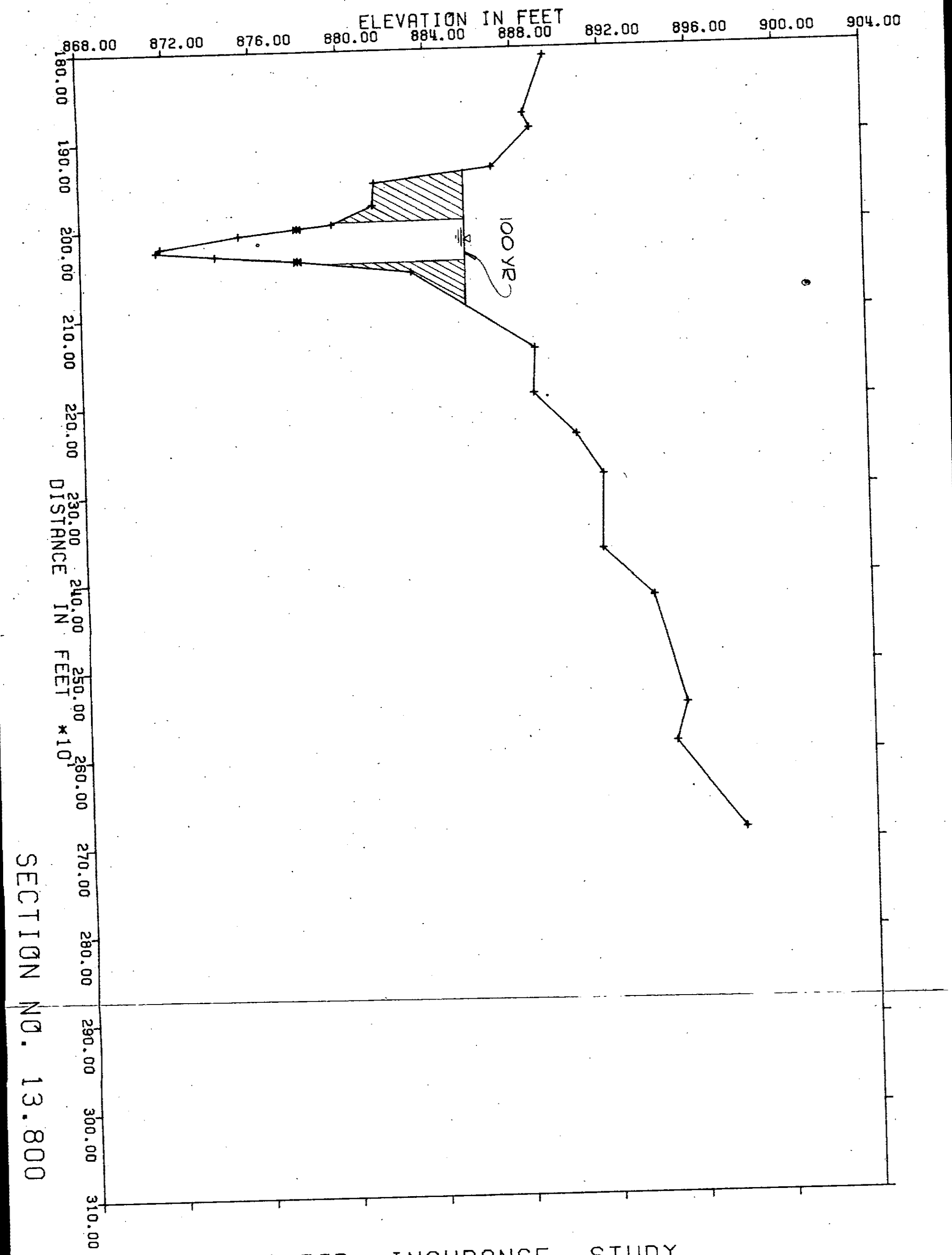
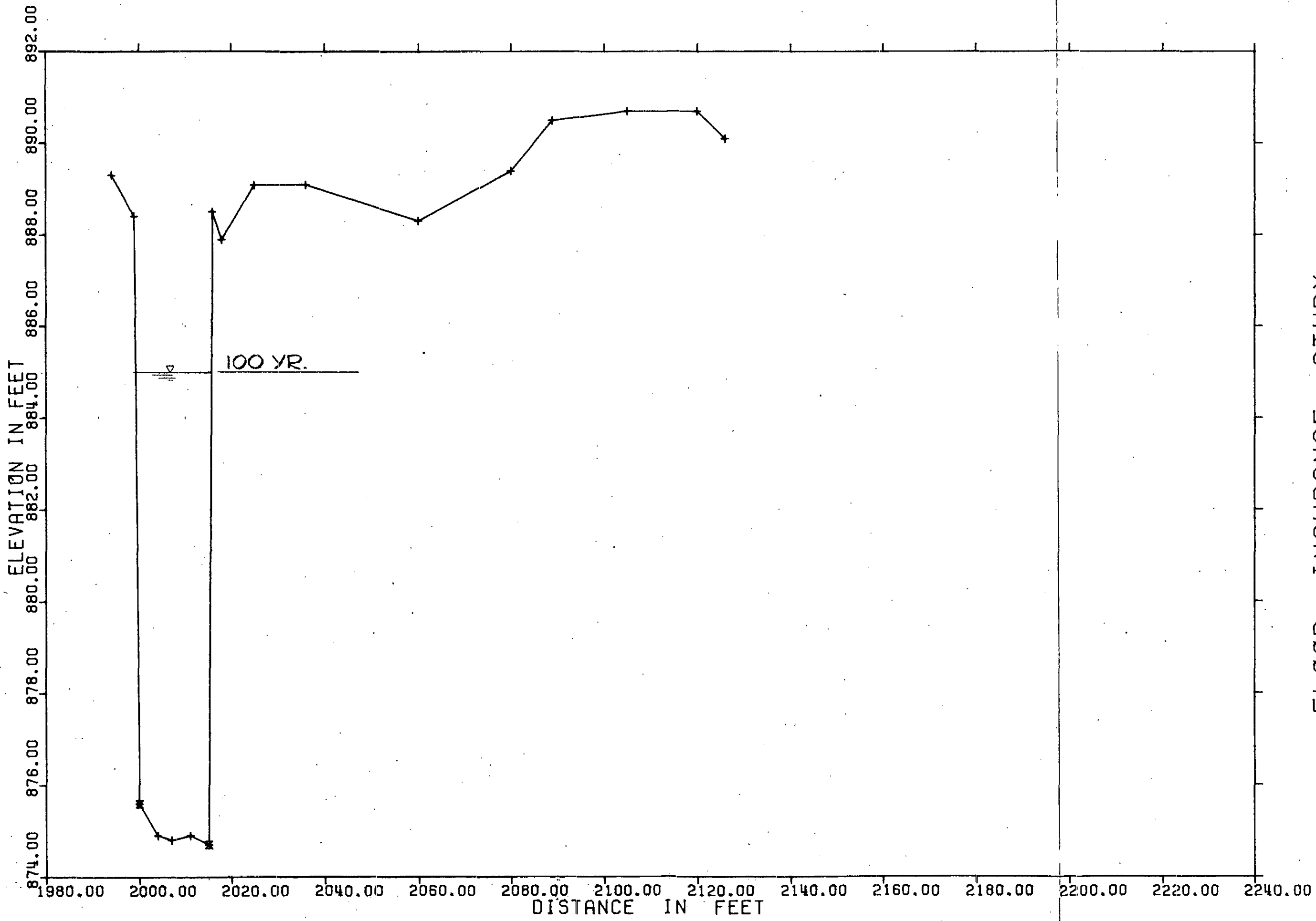


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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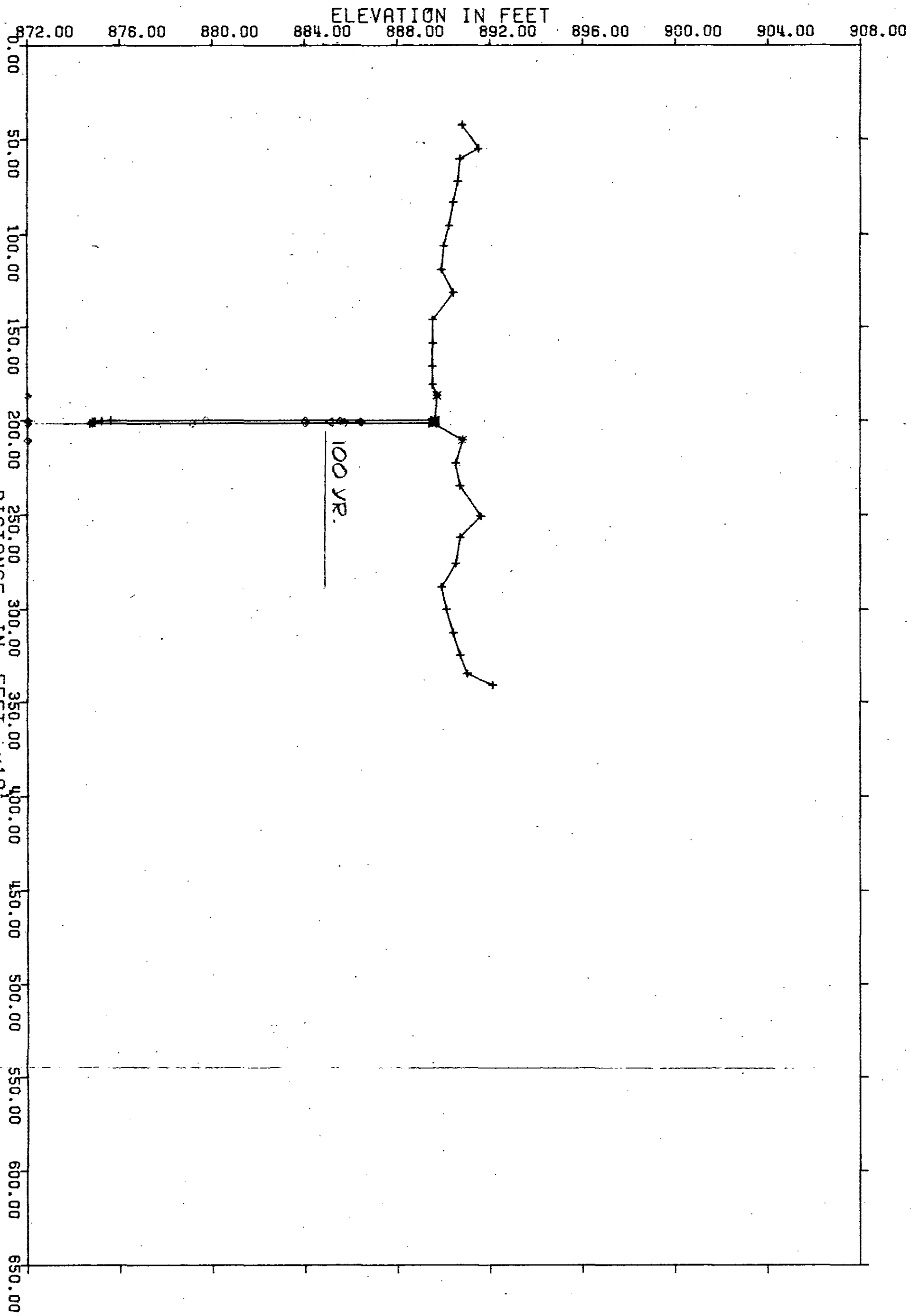
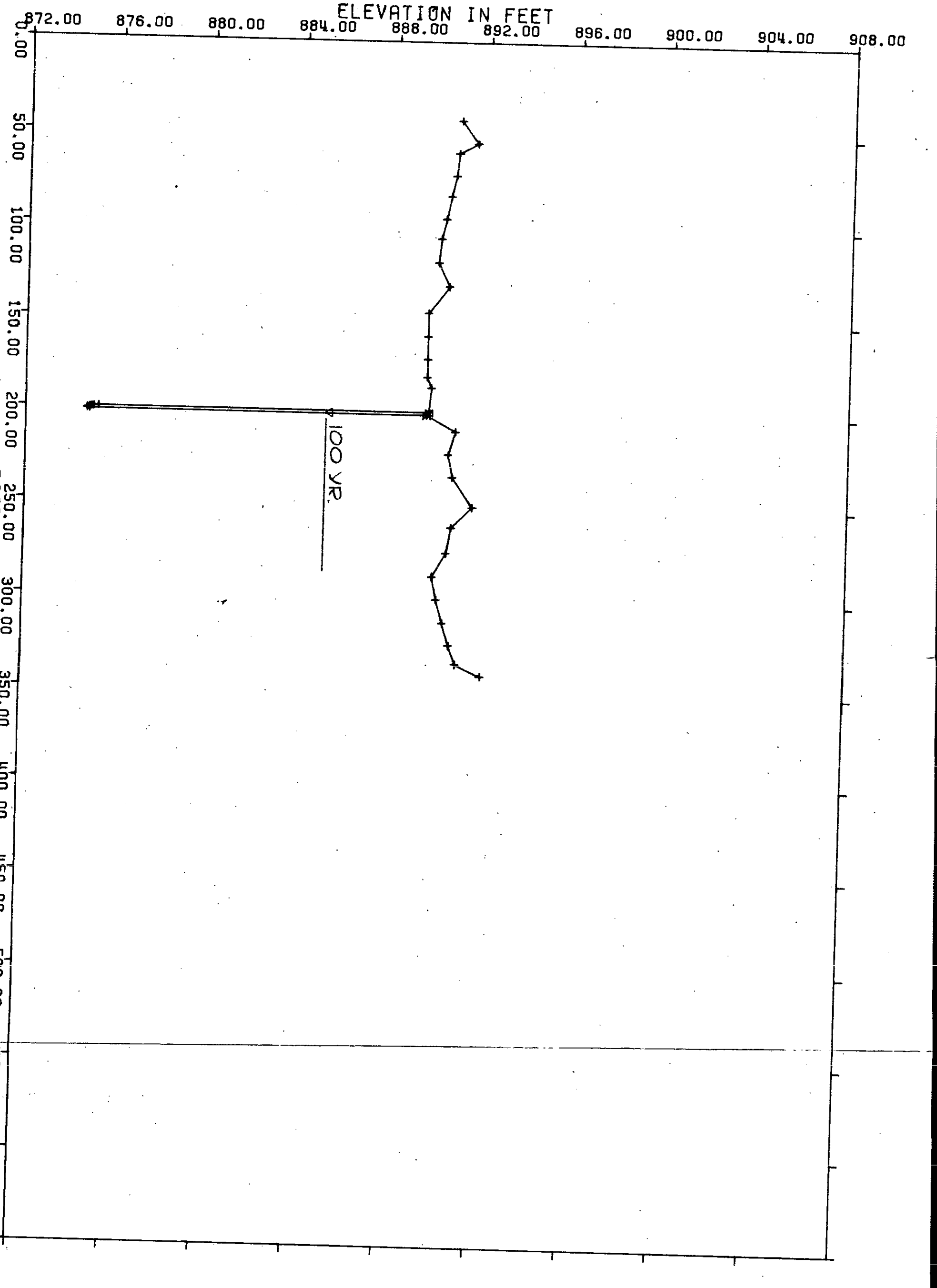


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

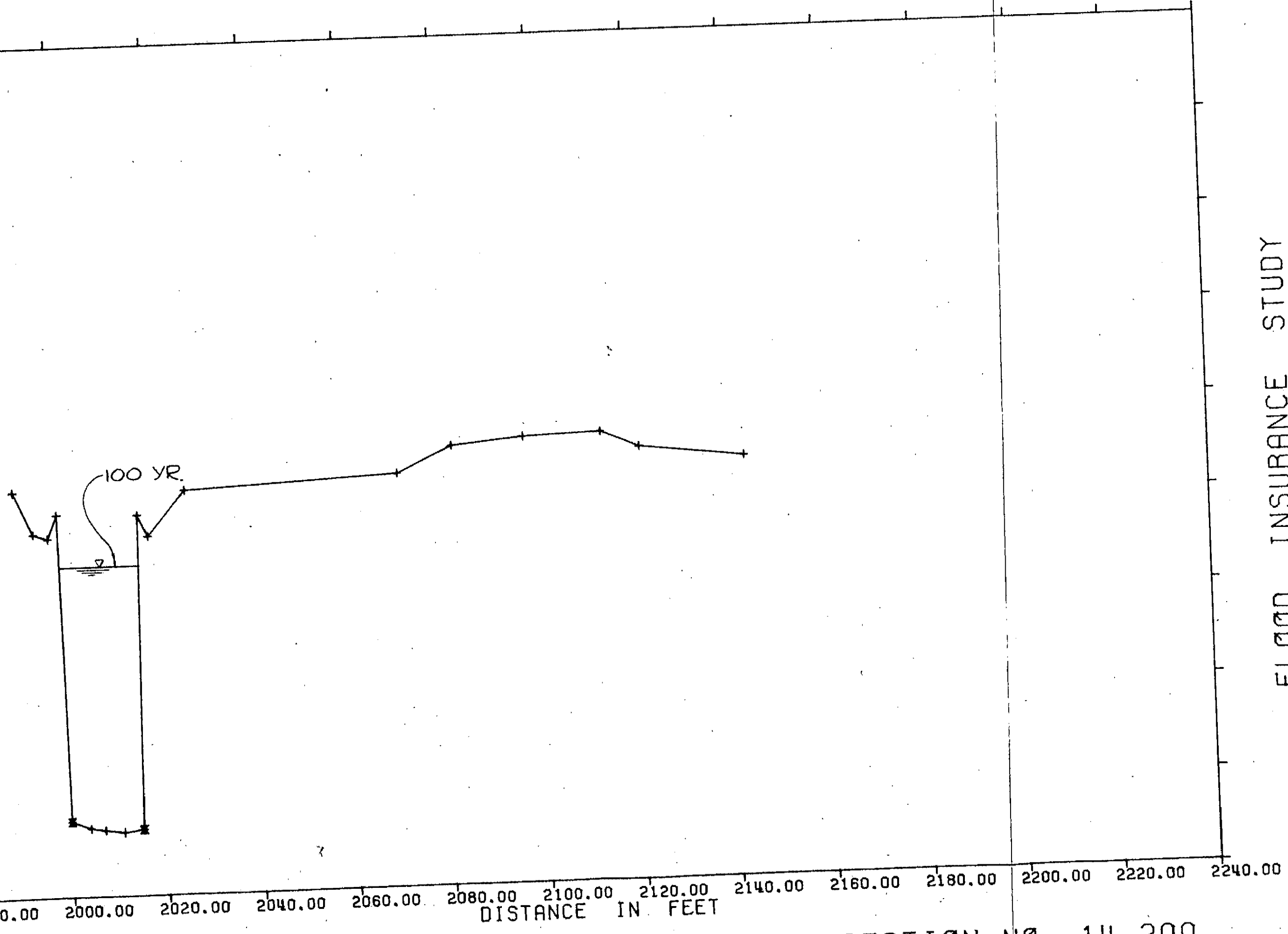


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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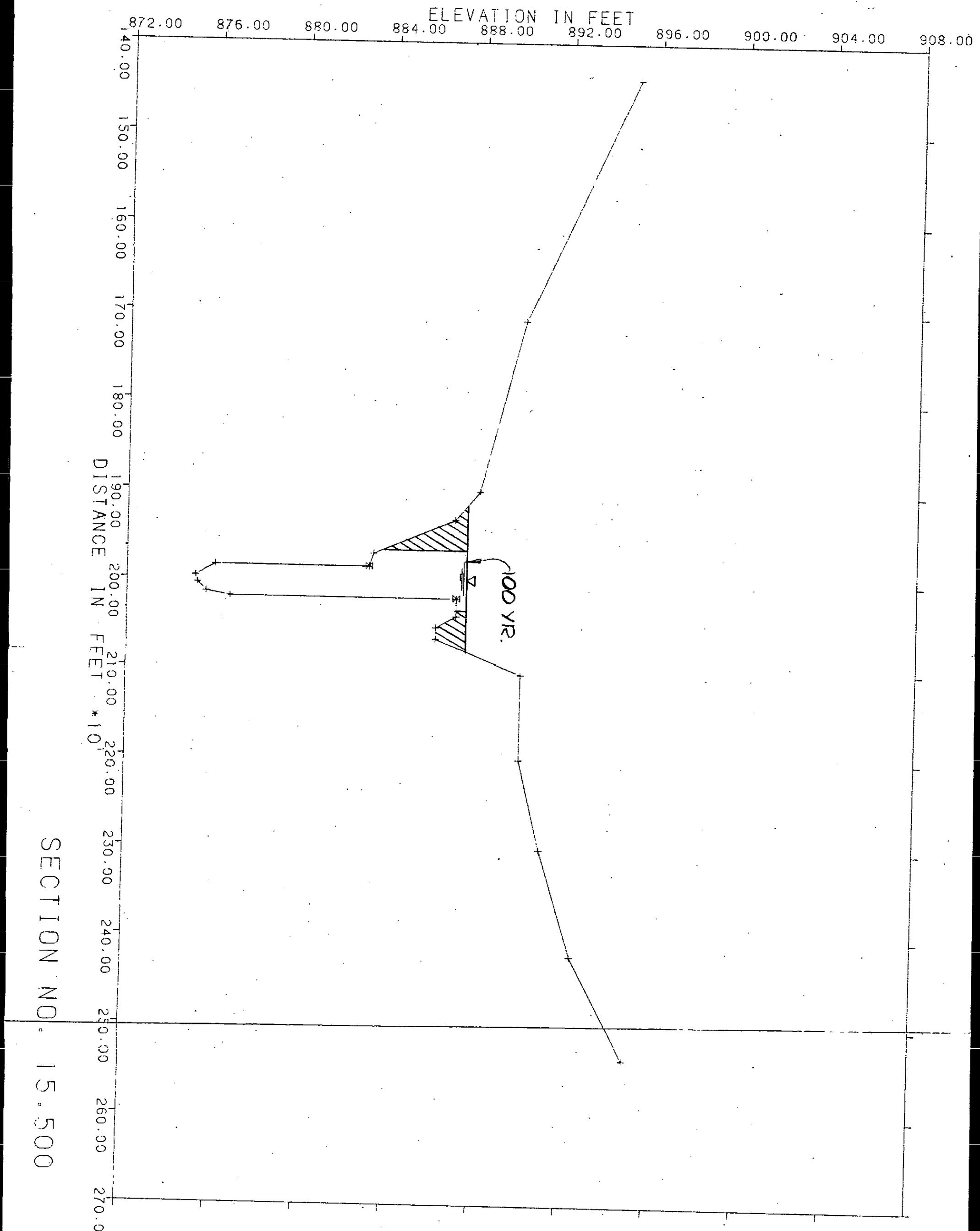
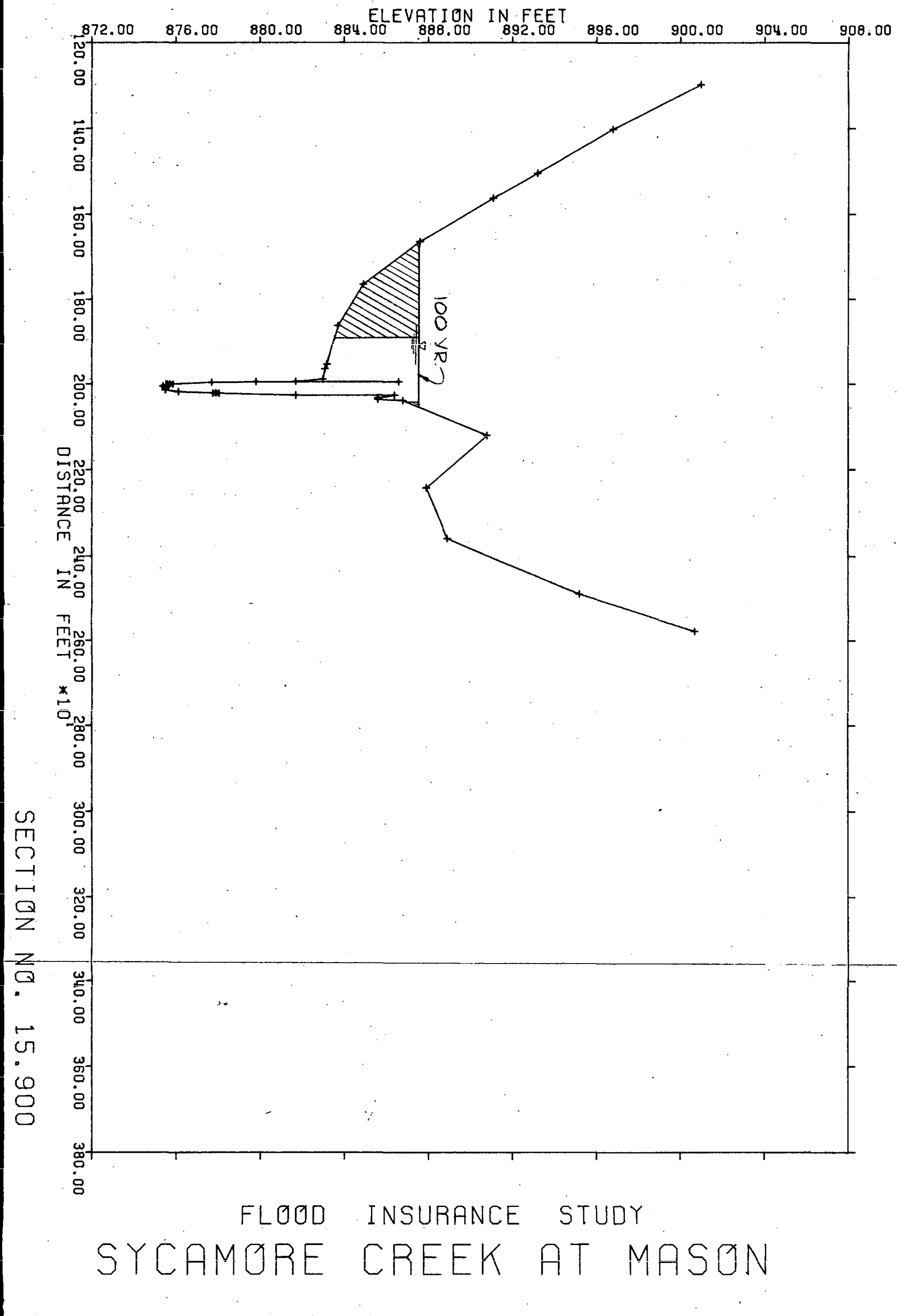


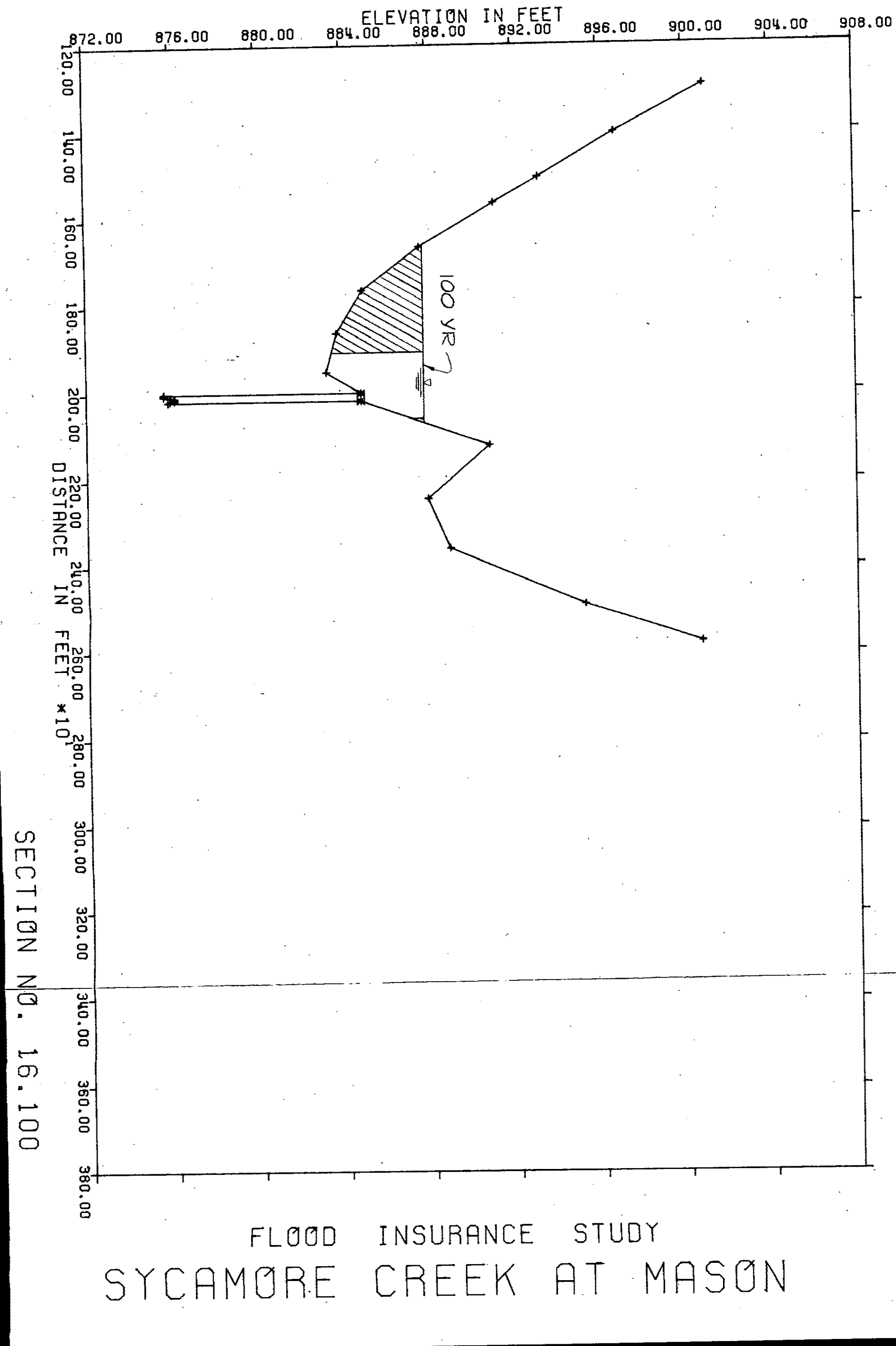
FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



FLOOD INSURANCE STUDY

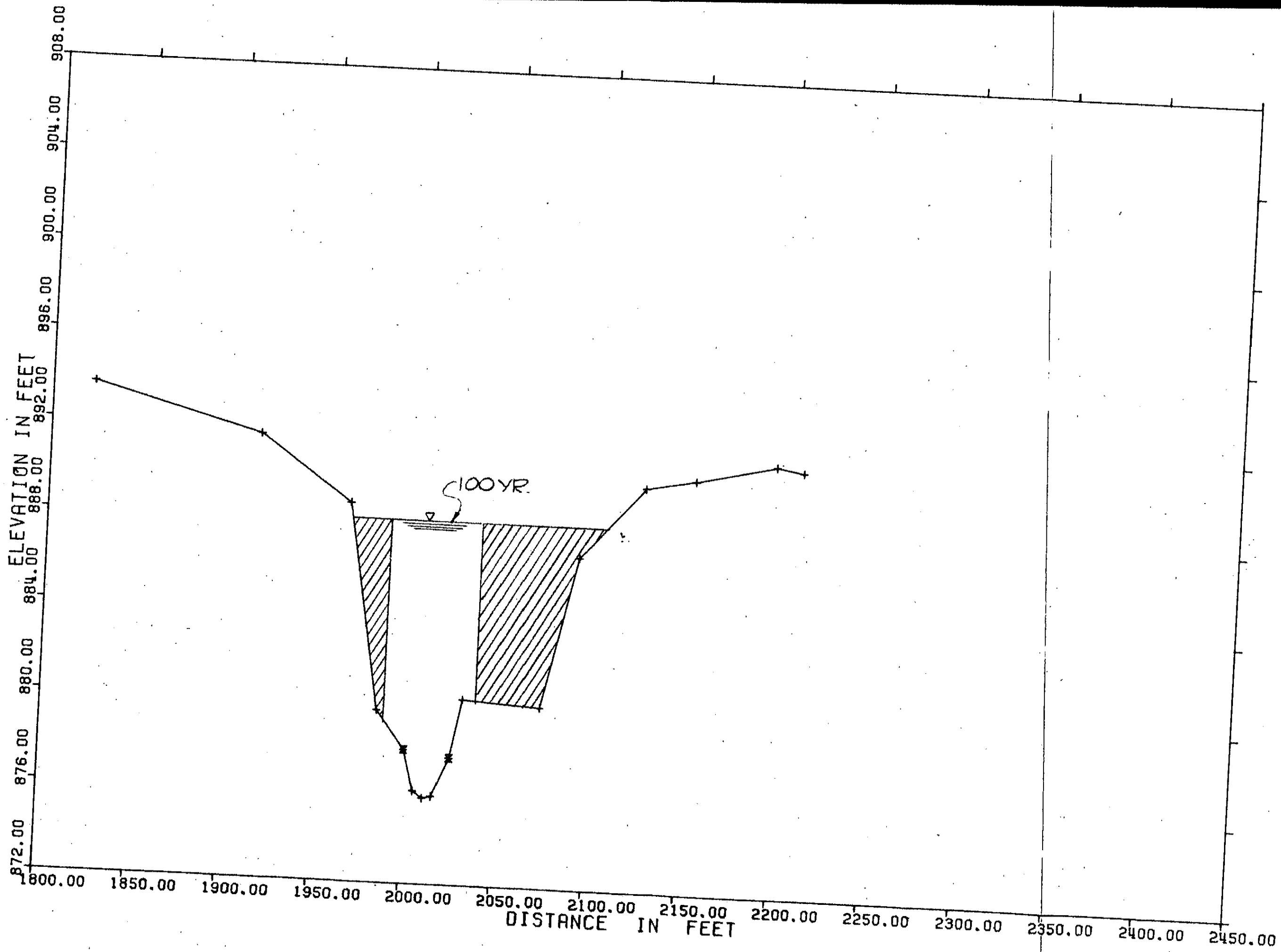
SYCAMORE CREEK AT MASON



FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY
SYCAMORE CREEK AT MASON



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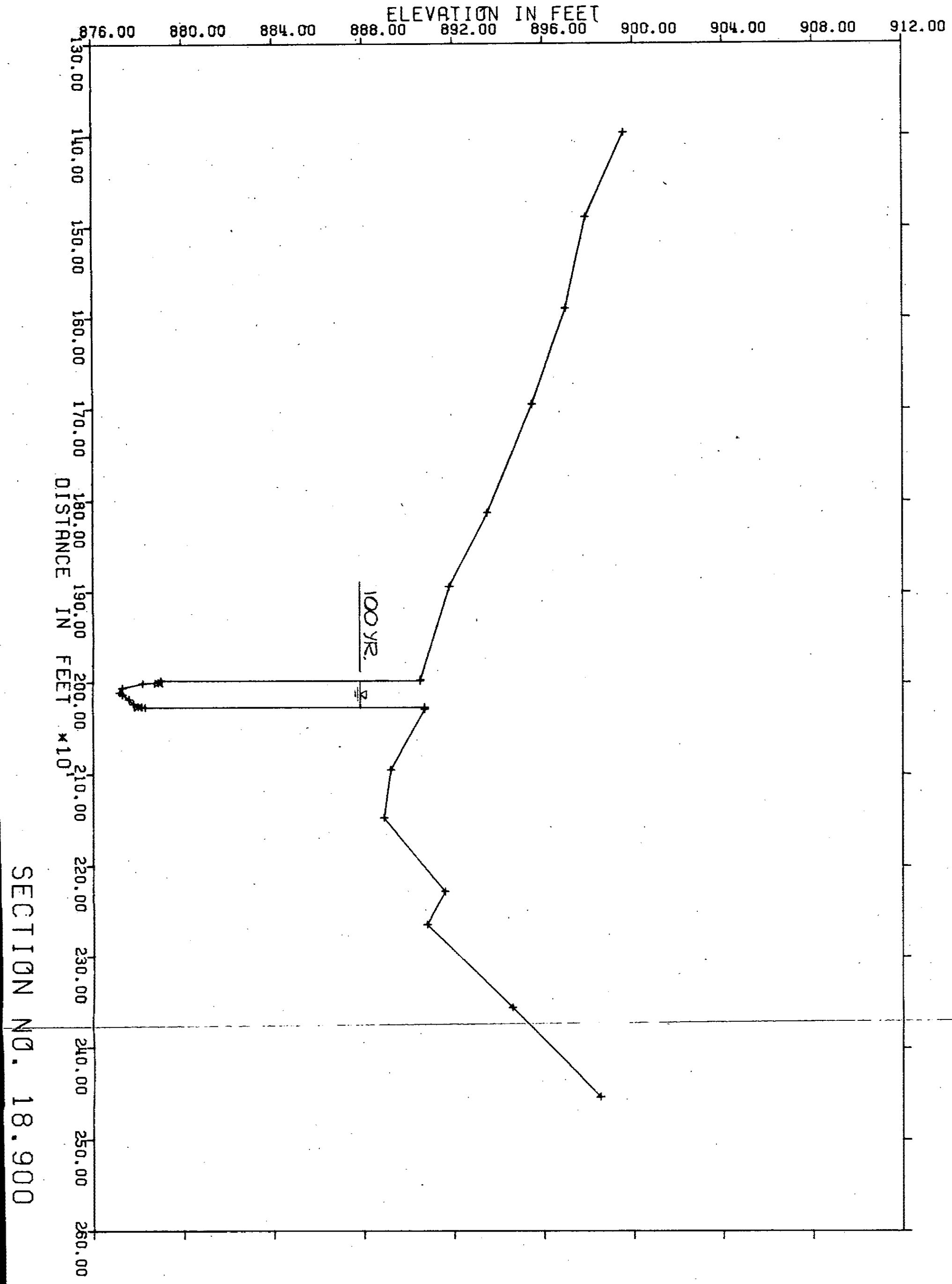
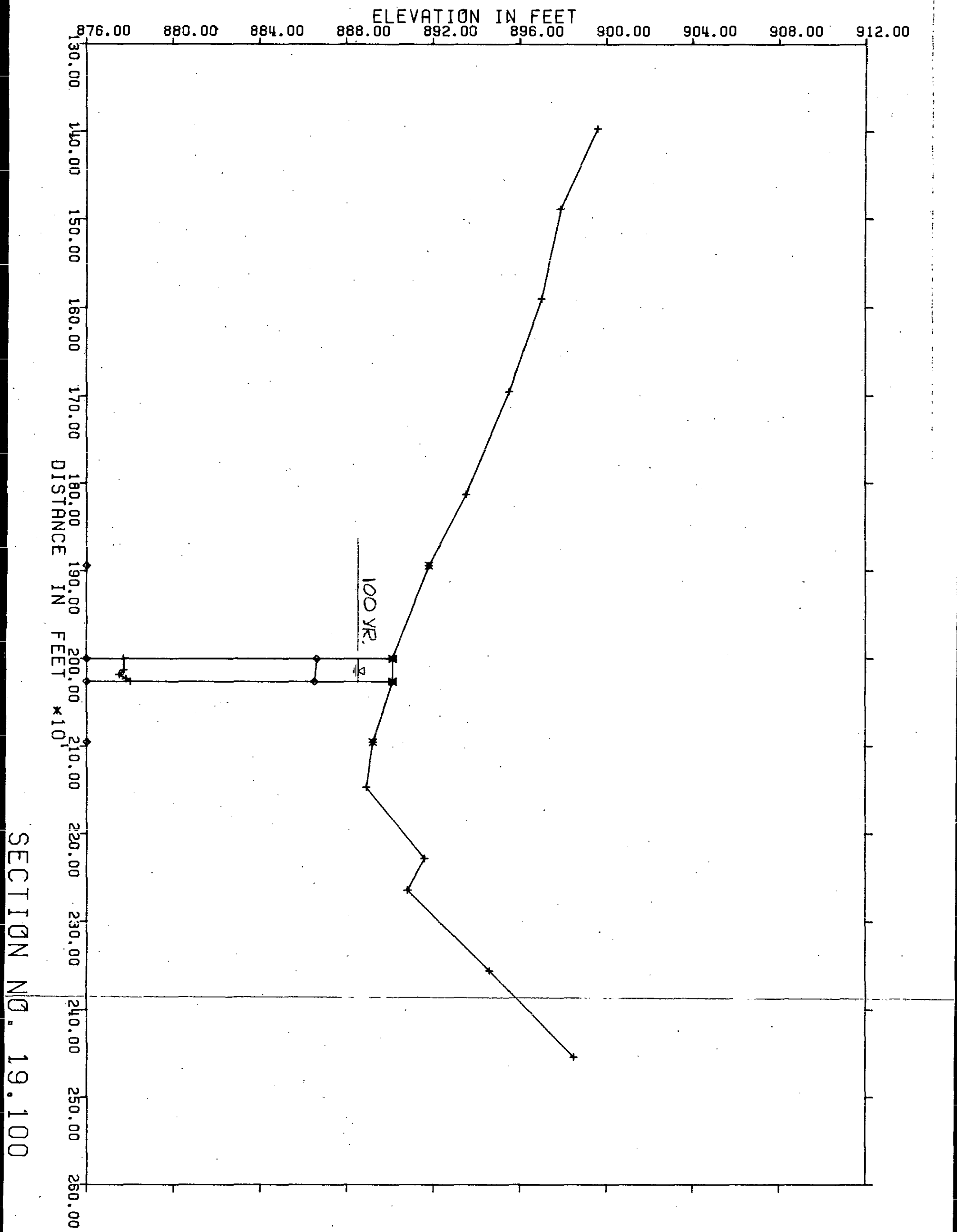


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

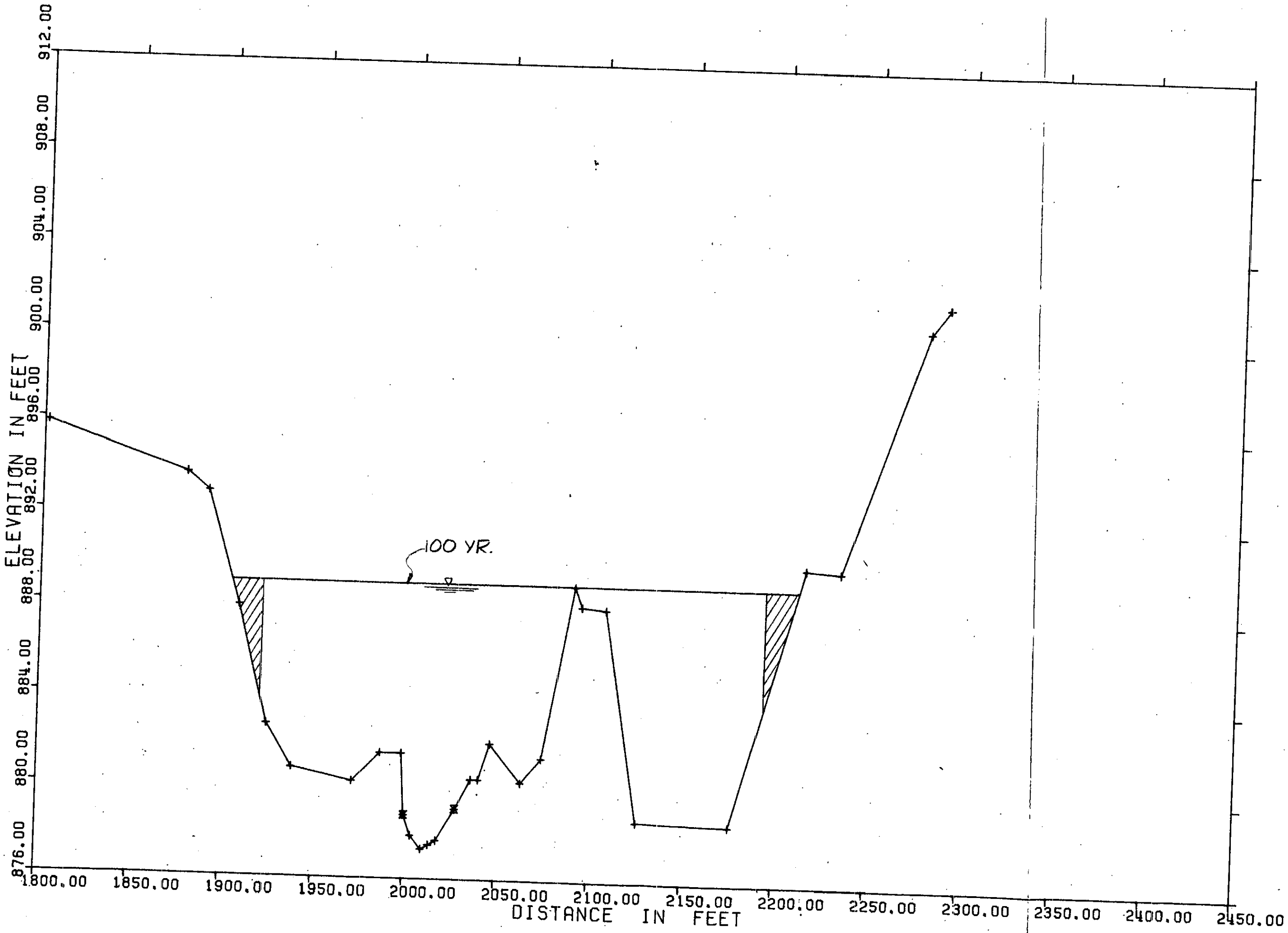


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON



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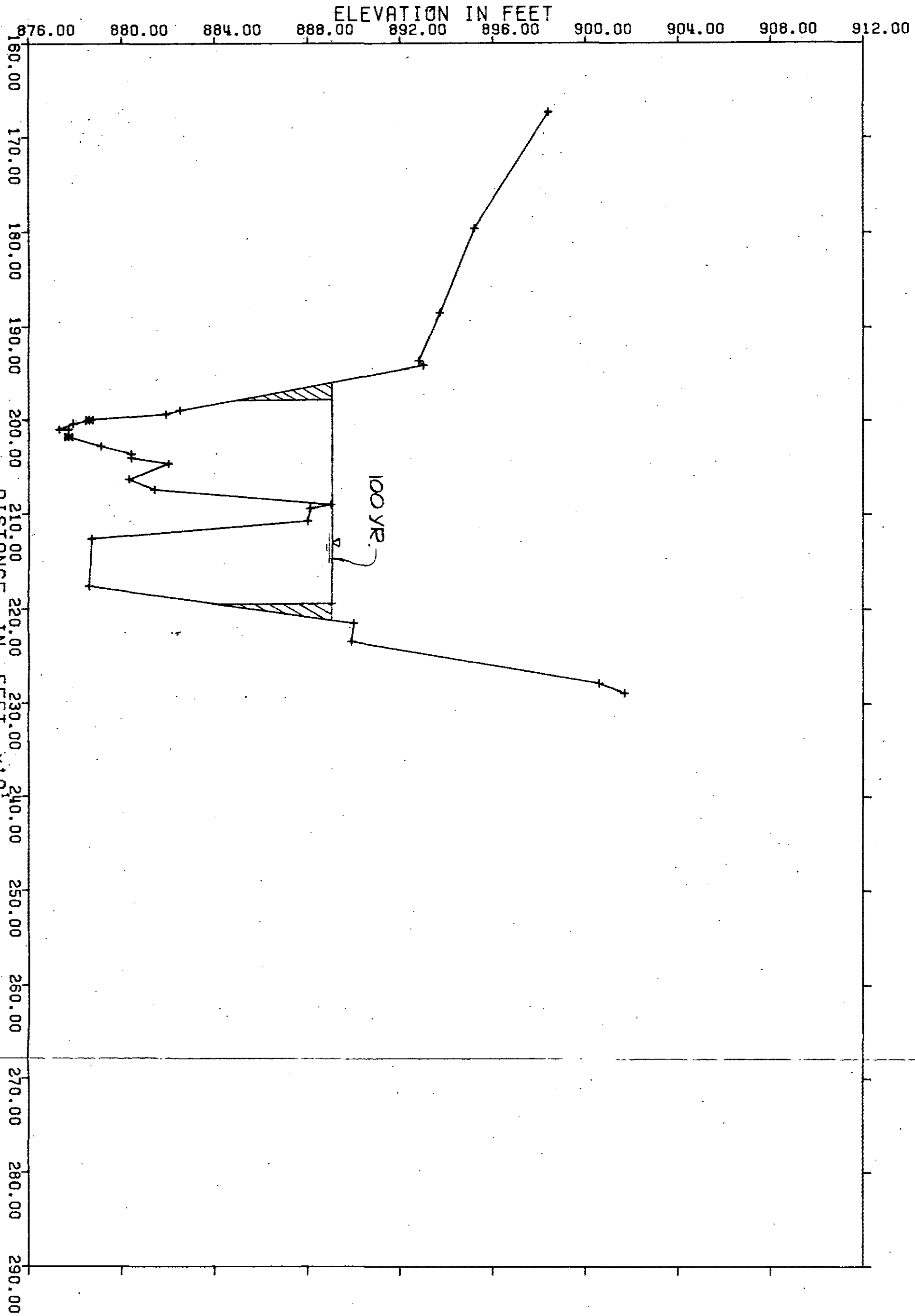
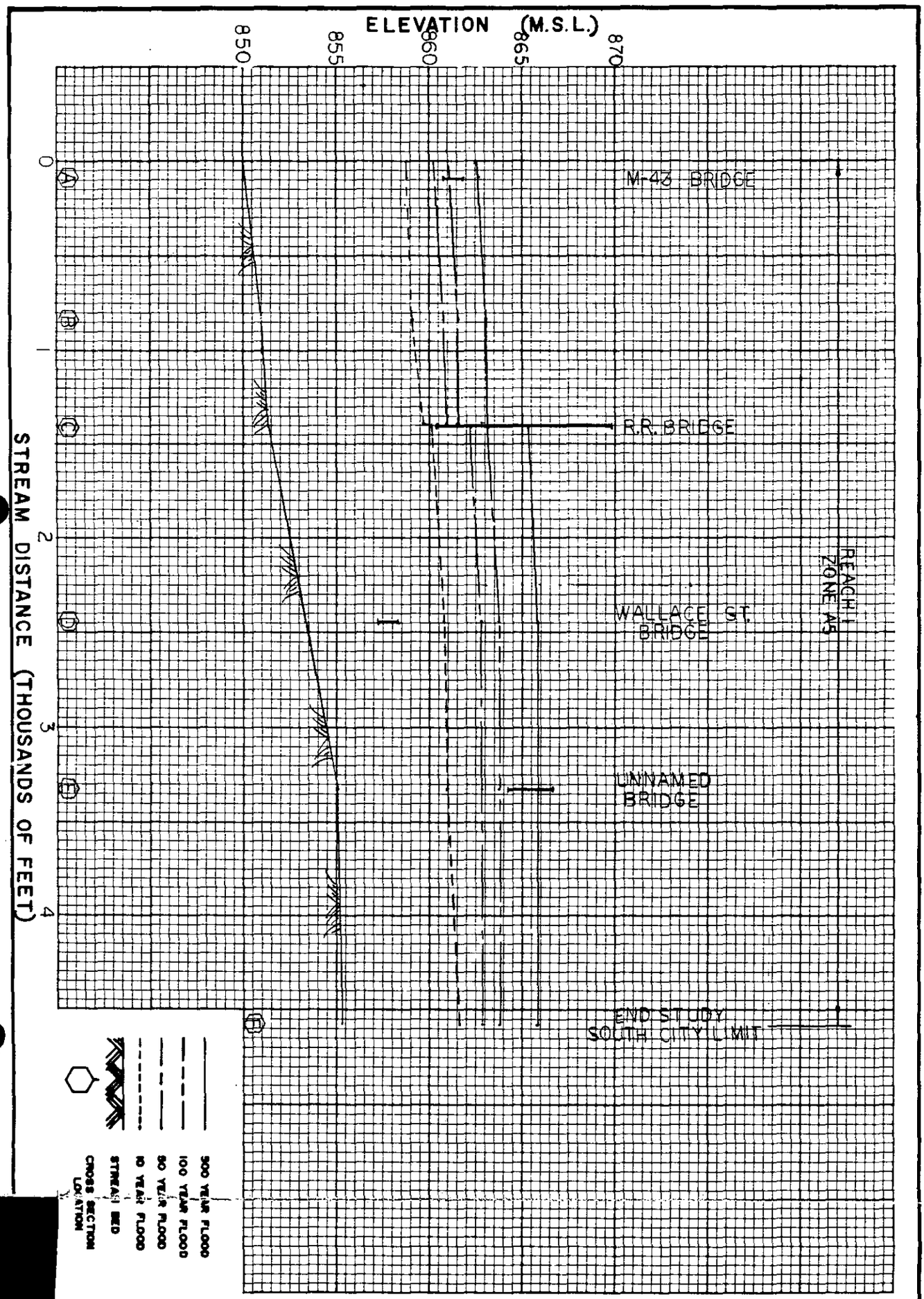


FLOOD INSURANCE STUDY

SYCAMORE CREEK AT MASON

APPENDIX D



CITY OF WILLIAMSTON

DEER CREEK

FLOOD PROFILE

APPENDIX E

Profiles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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

C
T1      NORMAL BACKWATER STARTING WSL ~~UNREADABLE~~
T2      10 YEAR LEVEL
T3      SYCAMORE CK.  CITY OF MASON

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        2.        0.        0.  0.000000      0.00      0.0       0.   871.050   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   201.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J5  LPRNT     NUMSEC                          *********REQUESTED SECTION NUMBERS*********
   -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT    6.000  1120.000  1480.000  1730.000  2360.000  1730.000  1648.000     0.000     0.000     0.000
NC     .080      .080      .040      .100      .300     0.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     0.000     0.000     0.000  1953.000  2135.000

X1    1.200    21.000  2004.000  2028.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  873.600  1953.000   873.600  1953.000   873.600  1953.000   873.600  1953.000   873.600  1953.000
GR  869.200  1961.000   868.200  1976.000   868.800  2000.000   867.500  2004.000   865.600  2005.000
GR  864.300  2010.000   864.300  2016.000   864.500  2021.000   865.600  2027.000   868.100  2028.000
GR  866.840  2107.000   867.100  2173.000   867.800  2436.000   877.200  2470.000   880.500  2483.000
GR  881.650  2516.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     9.100     0.000     0.000  1960.000  2080.000

X1    1.800    32.000  1998.000  2042.000  1000.000  1150.000  1100.000     0.000     0.000     0.000
GR  878.000  1798.000   877.600  1851.000   877.100  1867.000   875.700  1892.000   870.600  1959.000
GR  869.300  1998.000   866.900  2000.000   864.700  2005.000   864.200  2009.000   864.700  2016.000
GR  864.700  2019.000   865.000  2022.000   865.200  2028.000   866.900  2032.000   870.300  2042.000
GR  869.800  2232.000   871.000  2302.000   871.900  2366.000   872.700  2414.000   873.400  2492.000
GR  876.400  2519.000   878.600  2559.000   880.400  2600.000   879.600  2654.000   879.800  2682.000
GR  881.200  2713.000   882.100  2727.000   883.200  2762.000   884.600  2796.000   887.100  2849.000
GR  888.700  2872.000   888.700  2890.000     0.000     0.000     0.000     0.000     0.000     0.000
NH    5.000      .080  1884.000      .050  2005.000      .025  2057.000      .050  2093.000      .080
NH 2552.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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X1	1.900	35.000	2000.000	2093.000	50.000	50.000	50.000	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	877.600	1884.000	877.700	1965.000	878.300	1993.000	878.200	2000.000	872.200	2000.000
GR	872.100	2005.000	867.000	2021.000	867.000	2022.000	867.000	2022.100	867.000	2023.700
GR	867.000	2023.800	866.100	2024.000	866.000	2031.000	865.600	2034.000	864.700	2037.000
GR	864.700	2040.000	864.700	2049.000	866.800	2057.000	868.600	2065.000	868.300	2067.000
GR	868.100	2068.300	868.100	2068.400	868.100	2070.000	868.100	2070.100	869.200	2075.000
GR	872.300	2091.000	872.500	2093.000	878.100	2093.000	878.000	2099.000	877.500	2111.000
GR	877.800	2151.000	878.200	2218.000	878.800	2327.000	879.500	2442.000	880.800	2552.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	22.000	1884.000	877.600	0.000	1965.000	877.700	0.000	1993.000	878.300	0.000
BT	2000.000	878.200	872.200	2000.000	878.200	875.200	2022.000	878.200	875.200	2022.100
BT	878.200	867.000	2023.700	878.200	867.000	2023.800	878.200	875.200	2068.300	878.200
BT	875.200	2068.400	878.200	868.100	2070.000	878.200	868.100	2070.100	878.200	875.200
BT	2093.000	878.100	875.200	2093.000	878.100	872.500	2099.000	878.000	0.000	2111.000
BT	877.500	0.000	2151.000	877.800	0.000	2218.000	878.200	0.000	2327.000	878.800
BT	0.000	2442.000	879.500	0.000	2552.000	880.800	0.000	0.000	0.000	0.000

HOWELL AVE. BRIDGE

X1	2.100	0.000	0.000	0.000	58.000	58.000	58.000	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	2.200	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
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2142.000
X1	2.300	30.000	1998.000	2042.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	878.300	1798.000	877.900	1851.000	877.400	1867.000	876.000	1892.000	870.900	1959.000
GR	869.600	1998.000	867.200	2000.000	865.000	2005.000	864.500	2009.000	865.000	2016.000
GR	865.000	2019.000	865.300	2022.000	865.500	2028.000	867.200	2032.000	870.600	2042.000
GR	870.100	2232.000	871.300	2302.000	872.200	2366.000	873.000	2414.000	873.700	2492.000
GR	876.700	2519.000	878.900	2559.000	880.700	2600.000	879.900	2654.000	880.100	2682.000
GR	881.500	2713.000	882.400	2727.000	883.500	2762.000	884.900	2796.000	887.400	2849.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	4.000	41.000	1995.000	2037.000	2270.000	1900.000	2100.000	0.000	0.000	0.000
GR	888.000	1349.000	884.900	1364.000	884.700	1374.000	881.400	1394.000	880.100	1431.000
GR	879.900	1454.000	882.600	1461.000	881.800	1498.000	884.000	1509.000	882.300	1518.000
GR	883.700	1542.000	883.500	1563.000	880.800	1590.000	875.900	1662.000	872.300	1738.000
GR	872.900	1751.000	870.500	1806.000	870.300	1871.000	870.100	1908.000	869.900	1942.000
GR	870.400	1958.000	871.700	1995.000	868.800	2000.000	867.700	2003.000	867.300	2006.000
GR	867.800	2007.000	868.100	2009.000	867.500	2018.000	868.200	2024.000	868.800	2030.000

GR	871.700	2037.000	871.200	2060.000	871.700	2067.000	871.400	2081.000	869.900	2096.000
GR	870.500	2147.000	872.500	2245.000	876.100	2307.000	881.600	2369.000	885.200	2421.000
GR	889.500	2471.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.110	.140	.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	40.000	2000.000	2025.000	1325.000	1300.000	1300.000	0.000	0.000	0.000
GR	890.500	980.000	889.200	996.000	887.500	1085.000	886.500	1197.000	886.600	1309.000
GR	885.200	1417.000	884.600	1521.000	884.500	1636.000	882.200	1730.000	880.300	1766.000
GR	877.300	1892.000	876.200	1907.000	877.800	1932.000	873.300	1966.000	871.200	1972.000
GR	870.100	1979.000	871.700	1985.000	871.100	2000.000	870.100	2004.000	869.400	2007.000
GR	868.800	2012.000	869.300	2015.000	871.100	2020.000	874.900	2025.000	877.400	2032.000
GR	876.000	2049.000	873.700	2134.000	872.700	2209.000	873.200	2319.000	873.600	2423.000
GR	876.000	2444.000	877.000	2545.000	877.500	2593.000	877.300	2618.000	881.100	2730.000
GR	882.300	2848.000	882.600	2961.000	884.400	3108.000	889.400	3163.000	890.300	3237.000
QT	6.000	1010.000	1330.000	1550.000	2100.000	1550.000	1403.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1989.000	2524.000
NC	.090	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	34.000	2001.000	2029.000	495.000	535.000	507.000	0.000	0.000	0.000
GR	890.800	1204.000	886.300	1297.000	886.100	1399.000	885.800	1497.000	885.200	1598.000
GR	887.000	1715.000	886.500	1814.000	884.400	1851.000	881.500	1893.000	883.300	1932.000
GR	880.900	1966.000	879.600	1983.000	872.300	1997.000	871.300	2000.000	869.400	2001.000
GR	867.700	2007.000	868.000	2010.000	867.700	2017.000	867.700	2024.000	871.700	2029.000
GR	872.600	2037.000	872.200	2064.000	873.300	2095.000	875.800	2234.000	875.000	2327.000
GR	873.200	2379.000	873.500	2492.000	869.700	2496.000	869.300	2498.000	869.700	2503.000
GR	872.600	2517.000	875.200	2523.000	876.600	2524.000	877.000	2535.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1990.000	2035.000
X1	7.800	48.000	2000.000	2026.000	1150.000	1130.000	1130.000	0.000	0.000	0.000
GR	893.300	1596.000	890.300	1682.000	890.100	1749.000	888.700	1785.000	884.500	1812.000
GR	881.700	1821.000	880.300	1845.000	878.400	1905.000	878.300	1932.000	879.500	1972.000
GR	878.300	1980.000	874.400	1986.000	873.300	1991.000	871.600	1994.000	870.900	2000.000
GR	870.000	2003.000	869.700	2008.000	869.400	2010.000	869.300	2014.000	869.500	2018.000
GR	870.800	2026.000	874.100	2032.000	879.000	2040.000	879.600	2122.000	879.900	2209.000
GR	880.000	2245.000	875.400	2327.000	874.100	2419.000	874.100	2453.000	876.700	2462.000
GR	875.500	2468.000	875.000	2525.000	870.800	2534.000	870.400	2538.000	870.900	2540.000
GR	871.200	2545.000	875.800	2557.000	875.200	2607.000	874.200	2622.000	874.900	2645.000
GR	874.900	2726.000	876.000	2815.000	878.200	2845.000	878.400	2941.000	878.100	2961.000
GR	879.800	3032.000	881.400	3087.000	881.700	3115.000	0.000	2000.000	0.000	2000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1996.000	2030.000
X1	7.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1991.000	2018.100	0.000	0.000

X1	7.820	21.000	1999.000	2018.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	885.300	1831.000	883.100	1869.000	879.900	1953.000	879.300	1970.000	878.300	1980.000
GR	874.400	1986.000	873.300	1991.000	871.600	1999.000	871.600	1999.000	869.400	2001.000
GR	869.500	2004.000	869.600	2008.000	869.700	2013.000	870.300	2016.000	870.800	2017.000
GR	871.500	2018.000	874.100	2032.000	879.000	2040.000	879.600	2122.000	879.900	2209.000
GR	880.000	2245.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.900	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.570	2.800	0.000	19.000	0.000	175.000	0.000	869.400	869.600

CEMETERY BRIDGE

X1	8.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
BT	16.000	1831.000	885.300	0.000	1869.000	883.100	0.000	1953.000	879.900	0.000
BT	1970.000	879.300	0.000	1980.000	879.200	878.300	1986.000	879.200	874.400	1991.000
BT	879.200	873.300	1999.000	879.200	871.600	1999.000	879.200	878.400	2018.000	879.300
BT	878.400	2018.000	879.300	871.500	2032.000	879.400	874.100	2040.000	879.000	0.000
BT	2122.000	879.600	0.000	2209.000	879.900	0.000	2245.000	880.000	0.000	0.000
NH	5.000	.040	1972.000	.090	2000.000	.040	2018.000	.080	2040.000	.050
NH	2240.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2069.000
X1	8.300	22.000	1980.000	2032.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	895.600	1760.000	890.600	1790.000	880.600	1880.000	879.300	1905.000	879.200	1932.000
GR	880.400	1972.000	879.200	1980.000	875.300	1986.000	874.200	1991.000	872.500	1994.000
GR	871.800	2000.000	870.900	2003.000	870.200	2008.000	869.900	2010.000	869.600	2014.000
GR	869.500	2018.000	871.700	2026.000	875.000	2032.000	879.900	2040.000	880.500	2122.000
GR	880.600	2160.000	890.600	2240.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1987.000	2032.000
X1	10.800	25.000	2000.000	2018.000	1250.000	1250.000	1250.000	0.000	0.000	0.000
GR	897.500	1781.000	896.300	1789.000	893.800	1867.000	892.800	1868.000	892.100	1901.000
GR	889.300	1956.000	881.500	1974.000	878.900	1990.000	876.000	2000.000	875.300	2005.000
GR	874.500	2008.000	875.100	2013.000	875.600	2014.000	876.000	2018.000	878.500	2029.000
GR	879.500	2031.000	881.400	2051.000	886.700	2063.000	888.700	2082.000	884.900	2092.000
GR	888.300	2118.000	894.300	2146.000	894.500	2179.000	896.200	2210.000	899.800	2271.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1992.000	2025.000

X1	10.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1997.000	2020.000
X1	10.820	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	10.900	19.000	2000.000	2018.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.750	890.750	0.000
GR	891.200	1602.000	892.300	1652.000	892.900	1765.000	892.200	1883.000	892.100	2000.000
GR	875.800	2000.000	875.600	2000.500	875.000	2002.000	874.600	2004.000	874.700	2006.000
GR	874.800	2009.000	875.300	2012.000	875.700	2014.000	876.100	2016.000	876.500	2017.500
GR	876.600	2018.000	892.100	2018.000	893.800	2121.000	896.300	2211.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.000	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	888.200	892.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.750	890.750	0.000
BT	15.000	1883.000	892.200	0.000	2000.000	892.100	0.000	2000.000	892.100	882.700
BT	2000.500	892.100	885.000	2002.000	892.200	886.600	2004.000	892.100	887.700	2006.000
BT	892.100	888.100	2009.000	892.100	888.200	2012.000	892.100	888.100	2014.000	892.100
BT	887.700	2016.000	892.100	886.600	2017.500	892.100	885.000	2018.000	892.100	882.200
BT	2018.000	892.100	0.000	2121.000	893.800	0.000	0.000	0.000	0.000	0.000

STATE ST. BRIDGE

X1	11.100	19.000	2000.000	2018.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	888.200	892.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.390	893.390	0.000
BT	15.000	1883.000	892.200	0.000	2000.000	892.100	0.000	2000.000	892.100	882.400
BT	2000.500	892.100	885.000	2002.000	892.200	886.600	2004.000	892.100	887.700	2006.000
BT	892.100	888.100	2009.000	892.100	888.200	2012.000	892.100	888.100	2014.000	892.100
BT	887.700	2016.000	892.100	886.600	2017.500	892.100	885.000	2018.000	892.100	882.600
BT	2018.000	892.100	0.000	2121.000	893.800	0.000	0.000	0.000	0.000	0.000
GR	891.200	1602.000	892.300	1652.000	892.900	1765.000	892.200	1883.000	892.100	2000.000
GR	876.500	2000.000	876.400	2000.500	876.100	2002.000	875.600	2004.000	875.000	2006.000
GR	874.800	2009.000	875.100	2012.000	875.500	2014.000	875.900	2016.000	876.200	2017.500
GR	876.300	2018.000	892.100	2018.000	893.800	2121.000	896.300	2211.000	899.200	2282.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.200	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	893.390	893.390	0.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1949.000	2067.000

MOORE BUSINESS FORMS, INC. 23

X1	14.200	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	889.600	889.500	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1967.000	2034.000
X1	15.500	20.000	1985.000	2020.000	26.000	26.000	26.000	0.000	0.000	0.000
GR	895.000	1440.000	890.000	1710.000	888.000	1900.000	886.900	1932.000	883.200	1970.000
GR	883.000	1985.000	876.000	1985.000	875.100	1997.000	875.200	2005.000	875.600	2015.000
GR	876.700	2020.000	887.000	2020.000	887.000	2040.000	886.100	2053.000	886.100	2066.000
GR	890.000	2105.000	890.000	2200.000	891.000	2300.000	892.500	2420.000	895.000	2535.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1896.000	2120.000
X1	15.900	24.000	2000.000	2018.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	883.950	883.950	0.000
GR	901.000	1297.000	896.800	1402.000	893.200	1505.000	891.100	1563.000	887.600	1664.000
GR	884.900	1764.000	883.700	1863.000	883.200	1953.000	884.800	2000.000	875.700	2000.000
GR	875.500	2002.500	875.400	2005.000	875.400	2007.000	875.500	2009.000	875.500	2011.500
GR	875.500	2014.000	875.800	2016.000	876.100	2018.000	884.800	2018.000	890.800	2121.000
GR	887.900	2242.000	888.900	2359.000	895.200	2490.000	900.700	2579.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1910.000	2110.000
SB	0.000	2.980	2.800	0.000	11.900	0.000	90.000	0.000	875.600	875.400

MAPLE AVE. BRIDGE

X1	16.100	24.000	2000.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	883.100	884.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	884.800	884.800	0.000
BT	13.000	1953.000	883.200	0.000	2000.000	884.800	0.000	2000.000	884.800	878.800
BT	2002.500	884.800	881.100	2005.000	884.800	882.500	2007.000	884.800	883.000	2009.000
BT	884.800	883.100	2011.500	884.800	882.900	2014.000	884.800	882.000	2016.000	884.800
BT	880.800	2018.000	884.800	878.800	2018.000	884.800	0.000	2121.000	890.800	0.000
GR	901.000	1297.000	896.800	1402.000	893.200	1505.000	891.100	1563.000	887.600	1664.000
GR	884.900	1764.000	883.700	1863.000	883.200	1953.000	884.800	2000.000	875.600	2000.000
GR	875.600	2002.500	875.600	2005.000	875.900	2007.000	876.100	2009.000	876.100	2011.500
GR	876.100	2014.000	875.900	2016.000	875.800	2018.000	884.800	2018.000	890.800	2121.000
GR	887.900	2242.000	888.900	2359.000	895.200	2490.000	900.700	2579.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1920.000	2095.000
X1	16.300	16.000	1984.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	893.500	1823.000	891.500	1915.000	888.600	1965.000	879.500	1984.000	877.800	2000.000
GR	876.000	2006.000	875.700	2011.000	875.800	2016.000	877.500	2025.000	880.100	2031.000
GR	879.900	2073.000	886.600	2091.000	889.800	2125.000	890.200	2152.000	891.000	2196.000
GR	890.800	2211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1988.000	2037.000

MOORE BUSINESS FORMS, INC.

X1	18.800	16.000	2000.000	2025.000	243.000	243.000	243.000	0.000	0.000	0.000
GR	893.600	1823.000	891.600	1915.000	888.700	1965.000	879.600	1984.000	877.900	2000.000
GR	876.100	2006.000	875.800	2011.000	875.900	2016.000	877.600	2025.000	880.200	2031.000
GR	880.000	2073.000	886.700	2091.000	889.900	2125.000	890.300	2152.000	891.100	2196.000
GR	890.900	2211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	18.900	22.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	888.400	888.400	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1894.000	890.100	2000.000	878.900	2000.000	878.200	2001.000	877.300	2006.000
GR	877.200	2011.000	877.300	2013.000	877.600	2018.000	877.800	2023.000	878.000	2026.000
GR	890.100	2026.000	889.200	2095.000	888.900	2147.000	891.600	2228.000	890.800	2264.000
GR	894.600	2355.000	898.500	2453.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	2.800	0.000	26.000	0.000	233.000	0.000	877.500	877.300

ASH ST. BRIDGE

X1	19.100	19.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	886.600	889.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.700	890.700	0.000
BT	6.000	1894.000	891.800	0.000	2000.000	890.100	0.000	2000.000	893.700	886.600
BT	2026.000	893.700	886.600	2026.000	890.100	0.000	2095.000	889.200	0.000	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1894.000	890.100	2000.000	877.700	2000.000	877.700	2013.000	877.500	2018.000
GR	877.800	2023.000	878.000	2026.000	890.100	2026.000	889.200	2095.000	888.900	2147.000
GR	891.600	2228.000	890.800	2264.000	894.600	2355.000	898.500	2453.000	0.000	0.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2076.000
X1	19.300	25.000	1997.000	2047.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1893.000	889.600	1938.000	886.700	1963.000	883.600	1983.000	879.700	1997.000
GR	877.900	1999.000	877.700	2000.000	877.700	2013.000	877.500	2018.000	877.800	2023.000
GR	878.000	2026.000	877.800	2028.000	879.700	2047.000	885.200	2093.000	887.400	2114.000
GR	888.900	2147.000	891.600	2228.000	890.800	2264.000	894.600	2355.000	898.500	2453.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	21.000	29.000	2000.000	2028.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	895.800	1802.000	893.700	1878.000	892.900	1890.000	887.900	1908.000	882.700	1924.000
GR	880.800	1938.000	880.240	1971.000	881.500	1986.000	881.500	1998.000	878.800	2000.000
GR	877.900	2004.000	877.300	2010.000	877.500	2014.000	877.700	2018.000	879.100	2028.000
GR	880.400	2036.000	880.400	2040.000	882.000	2046.000	880.300	2063.000	881.400	2074.000
GR	889.000	2090.000	888.100	2094.000	888.000	2107.000	878.700	2126.000	878.600	2176.000
GR	890.000	2215.000	889.900	2234.000	900.600	2279.000	901.700	2289.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 23

X1	22.000	27.000	2000.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	898.400	1674.000	895.200	1796.000	893.700	1885.000	892.800	1936.000	893.000	1941.000
GR	882.500	1990.000	881.900	1994.000	878.600	2000.000	877.900	2004.000	877.300	2010.000
GR	877.700	2010.000	877.700	2018.000	879.100	2028.000	880.400	2036.000	880.400	2040.000
GR	882.000	2046.000	880.300	2063.000	881.400	2074.000	889.000	2090.000	888.100	2094.000
GR	888.000	2107.000	878.700	2126.000	878.600	2176.000	890.000	2215.000	889.900	2234.000
GR	900.600	2279.000	901.700	2289.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1985.000	2045.000
X1	24.800	20.000	1991.000	2033.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	893.800	1862.000	893.000	1894.000	891.400	1923.000	891.200	1935.000	888.200	1946.000
GR	885.900	1981.000	883.900	1991.000	878.900	2000.000	878.100	2005.000	877.900	2009.000
GR	877.500	2014.000	877.600	2016.000	877.600	2021.000	879.200	2023.000	883.700	2033.000
GR	884.700	2054.000	891.000	2066.000	890.800	2077.000	889.100	2092.000	893.300	2106.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	24.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	24.820	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	24.900	33.000	1997.000	2033.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	889.000	889.000	0.000
GR	900.500	1684.000	895.900	1786.000	893.800	1846.000	891.100	1913.000	888.200	1946.000
GR	885.900	1981.000	883.900	1991.000	881.500	1997.000	880.300	1997.000	880.000	2000.000
GR	879.800	2002.000	879.800	2004.000	879.400	2006.000	879.200	2008.000	879.800	2010.000
GR	879.700	2012.000	879.600	2014.000	879.900	2015.500	879.900	2017.000	879.800	2019.000
GR	879.700	2021.000	879.700	2023.000	879.800	2025.000	879.900	2027.000	880.000	2029.000
GR	880.200	2031.000	880.800	2033.000	881.500	2033.000	884.700	2054.000	891.000	2066.000
GR	892.300	2083.000	896.500	2165.000	901.500	2210.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.630	2.800	0.000	24.000	0.000	223.000	0.000	879.200	879.700

ELM ST. BRIDGE

X1	25.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	889.500	889.500	0.000
BT	33.000	1684.000	900.500	0.000	1786.000	895.900	0.000	1846.000	893.800	0.000
BT	1913.000	891.100	0.000	1946.000	891.000	888.200	1981.000	890.500	885.900	1991.000
BT	890.300	883.900	1997.000	890.200	880.300	1997.000	890.200	881.500	2000.000	890.200
BT	881.500	2002.000	890.200	882.500	2004.000	890.300	884.300	2006.000	890.200	885.800
BT	2008.000	890.200	886.900	2010.000	890.200	887.700	2012.000	890.200	888.100	2014.000
BT	890.200	888.400	2015.500	890.200	888.500	2017.000	890.300	888.400	2019.000	890.300
BT	888.100	2021.000	890.300	887.700	2023.000	890.300	886.900	2025.000	890.300	885.800
BT	2027.000	890.300	884.500	2029.000	890.300	882.700	2031.000	890.300	881.500	2033.000
BT	890.300	881.500	2033.000	890.300	880.800	2054.000	891.000	884.700	2066.000	891.000

MOORE BUSINESS FORMS, INC.

BT	0.000	2083.000	892.300	0.000	2165.000	896.500	0.000	2210.000	901.500	0.000
NC	.090	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1948.000	2083.000
X1	25.300	20.000	1981.000	2033.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	895.300	1862.000	894.500	1894.000	892.900	1923.000	892.700	1935.000	889.700	1946.000
GR	887.600	1981.000	885.600	1991.000	880.600	2000.000	879.800	2005.000	879.600	2009.000
GR	879.200	2014.000	879.300	2016.000	879.300	2021.000	880.900	2023.000	885.400	2033.000
GR	886.400	2054.000	892.700	2066.000	892.500	2077.000	890.600	2092.000	894.800	2106.000
NC	.090	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	27.000	23.000	1999.000	2036.000	280.000	335.000	304.000	0.000	0.000	0.000
GR	904.000	1488.000	900.400	1600.000	898.200	1683.000	895.700	1809.000	888.100	1899.000
GR	886.900	1932.000	882.500	1948.000	883.400	1991.000	882.200	1999.000	881.100	2000.000
GR	879.300	2006.000	879.400	2012.000	879.300	2017.000	879.200	2025.000	880.700	2031.000
GR	882.200	2036.000	882.800	2050.000	890.100	2064.000	883.500	2078.000	891.200	2093.000
GR	892.500	2110.000	898.900	2126.000	902.600	2134.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	28.000	30.000	1992.000	2031.000	1140.000	1070.000	1150.000	0.000	0.000	0.000
GR	896.700	1529.000	898.700	1594.000	898.600	1666.000	899.100	1776.000	896.300	1890.000
GR	891.200	1936.000	888.500	1978.000	884.900	1992.000	881.400	2000.000	880.100	2004.000
GR	878.700	2010.000	878.800	2011.000	878.900	2016.000	879.300	2021.000	879.600	2024.000
GR	881.400	2029.000	883.900	2031.000	883.900	2044.000	882.900	2056.000	884.700	2070.000
GR	883.200	2162.000	885.000	2170.000	892.700	2186.000	893.300	2197.000	892.600	2203.000
GR	893.000	2208.000	898.700	2225.000	899.000	2232.000	900.500	2266.000	902.400	2322.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	6.000	655.000	845.000	980.000	1300.000	980.000	943.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1985.000	2055.000
X1	60.800	29.000	1996.000	2014.000	960.000	920.000	905.000	0.000	0.000	0.000
GR	900.900	1723.000	898.400	1766.000	894.500	1798.000	891.900	1878.000	891.900	1938.000
GR	890.200	1975.000	885.200	1996.000	882.500	2000.000	882.100	2000.500	881.900	2002.000
GR	881.900	2006.000	882.000	2011.000	882.500	2014.000	886.600	2014.000	886.800	2026.000
GR	887.000	2026.000	888.100	2037.000	893.300	2057.000	893.500	2090.000	889.900	2158.000
GR	886.500	2167.000	884.200	2195.000	888.200	2262.000	890.900	2280.000	889.900	2314.000
GR	894.500	2398.000	897.700	2434.000	898.200	2452.000	900.100	2462.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	60.900	55.000	2000.000	2040.000	50.000	50.000	50.000	.740	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.450	893.450	0.000
GR	893.000	1766.000	893.300	1922.000	894.600	1951.000	894.300	1973.000	882.600	2000.000
GR	882.600	2002.000	882.500	2004.000	882.400	2006.000	882.300	2008.000	882.300	2010.000
GR	882.300	2012.000	882.200	2014.000	882.100	2016.000	882.000	2018.000	881.900	2020.000
GR	881.900	2022.000	882.000	2024.000	881.800	2026.000	882.200	2028.000	882.400	2030.000
GR	882.400	2032.000	882.300	2034.000	882.300	2036.000	882.400	2038.000	882.500	2040.000
GR	893.700	2067.000	892.500	2105.000	888.500	2138.000	887.600	2165.000	889.300	2203.000
GR	889.300	2287.000	888.900	2318.000	890.800	2333.000	888.300	2348.000	888.000	2355.000

MOORE BUSINESS FORMS, INC 23

GR	886.000	2359.000	883.800	2432.000	885.200	2444.000	885.400	2458.000	884.700	2539.000
GR	884.300	2584.000	884.200	2642.000	886.600	2673.000	885.600	2692.000	890.800	2772.000
GR	892.400	2808.000	890.700	2849.000	894.400	2873.000	894.600	2896.000	893.800	2916.000
GR	898.500	2934.000	900.800	3028.000	899.400	3040.000	902.100	3048.000	901.500	3104.000
X1	61.000	39.000	2000.000	2040.000	1.000	1.000	1.000	.740	0.000	0.000
X2	0.000	0.000	0.000	892.200	893.500	0.000	0.000	0.000	.740	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.450	893.450	0.000
BT	25.000	1893.000	893.800	0.000	2000.000	894.700	0.000	2000.000	894.700	882.600
BT	2002.000	894.700	886.500	2004.000	894.700	888.200	2006.000	894.700	889.300	2008.000
BT	894.700	890.200	2010.000	894.700	890.800	2012.000	894.700	891.400	2014.000	894.700
BT	891.800	2016.000	894.700	892.000	2018.000	894.700	892.100	2020.000	894.700	892.200
BT	2022.000	894.700	892.100	2024.000	894.700	892.000	2026.000	894.700	891.800	2028.000
BT	894.700	891.400	2030.000	894.700	890.800	2032.000	894.700	890.200	2034.000	894.700
BT	889.300	2036.000	894.700	888.200	2038.000	894.700	886.500	2040.000	894.700	882.500
BT	2040.000	894.700	0.000	2137.000	893.500	0.000	0.000	0.000	0.000	0.000
GR	893.800	1893.000	894.100	1929.000	894.400	1965.000	894.700	2000.000	882.600	2000.000
GR	882.600	2002.000	882.500	2004.000	882.400	2006.000	882.300	2008.000	882.300	2010.000
GR	882.300	2012.000	882.200	2014.000	882.100	2016.000	882.000	2018.000	881.900	2020.000
GR	881.900	2022.000	882.000	2024.000	881.800	2026.000	882.200	2028.000	882.400	2030.000
GR	882.400	2032.000	882.300	2034.000	882.300	2036.000	882.400	2038.000	882.500	2040.000
GR	894.700	2040.000	893.500	2137.000	890.800	2239.000	890.400	2362.000	890.000	2468.000
GR	891.000	2578.000	892.500	2688.000	895.300	2795.000	896.900	2916.000	898.100	3028.000
GR	898.600	3135.000	898.800	3249.000	899.200	3363.000	902.500	3464.000	0.000	0.000

JEFFERSON AVE. BRIDGE

X1	61.100	39.000	2000.000	2040.000	66.000	66.000	66.000	.740	0.000	0.000
X2	0.000	0.000	0.000	892.200	893.500	0.000	0.000	0.000	.740	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	894.700	894.700	0.000
BT	25.000	1893.000	893.800	0.000	2000.000	894.700	0.000	2000.000	894.700	882.800
BT	2002.000	894.700	886.500	2004.000	894.700	888.200	2006.000	894.700	889.300	2008.000
BT	894.700	890.200	2010.000	894.700	890.800	2012.000	894.700	891.400	2014.000	894.700
BT	891.800	2016.000	894.700	892.000	2018.000	894.700	892.100	2020.000	894.700	892.200
BT	2022.000	894.700	892.100	2024.000	894.700	892.000	2026.000	894.700	891.800	2028.000
BT	894.700	891.400	2030.000	894.700	890.800	2032.000	894.700	890.200	2034.000	894.700
BT	889.300	2036.000	894.700	888.200	2038.000	894.700	886.500	2040.000	894.700	882.600
BT	2040.000	894.700	0.000	2137.000	893.500	0.000	0.000	0.000	0.000	0.000
GR	893.800	1893.000	894.100	1929.000	894.400	1965.000	894.700	2000.000	882.800	2000.000
GR	882.700	2002.000	882.600	2004.000	882.500	2006.000	882.400	2008.000	882.300	2010.000
GR	882.300	2012.000	882.400	2014.000	882.500	2016.000	882.600	2018.000	882.600	2020.000
GR	882.500	2022.000	882.400	2024.000	882.200	2026.000	882.000	2028.000	882.200	2030.000
GR	882.400	2032.000	882.600	2034.000	882.600	2036.000	882.600	2038.000	882.600	2040.000
GR	894.700	2040.000	893.500	2137.000	890.800	2239.000	890.400	2362.000	890.000	2468.000
GR	891.000	2578.000	892.500	2688.000	895.300	2795.000	896.900	2916.000	898.100	3028.000
GR	898.600	3135.000	898.800	3249.000	899.200	3363.000	902.500	3464.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	61.200	55.000	2000.000	2040.000	1.000	1.000	1.000	.740	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	894.700	894.700	0.000
GR	903.300	1139.000	900.800	1249.000	898.600	1367.000	896.700	1475.000	895.600	1583.000
GR	894.100	1690.000	894.000	1715.000	890.400	1767.000	889.600	1800.000	890.500	1890.000
GR	894.200	1932.000	894.300	1970.000	882.800	2000.000	882.700	2002.000	882.600	2004.000
GR	882.500	2006.000	882.400	2008.000	882.300	2010.000	882.300	2012.000	882.400	2014.000
GR	882.500	2016.000	882.600	2018.000	882.600	2020.000	882.500	2022.000	882.400	2024.000
GR	882.200	2026.000	882.000	2028.000	882.200	2030.000	882.400	2032.000	882.600	2034.000
GR	882.600	2036.000	882.600	2038.000	882.600	2040.000	894.600	2066.000	891.600	2196.000
GR	887.300	2243.000	887.700	2336.000	889.900	2350.000	885.700	2363.000	883.500	2415.000
GR	883.900	2442.000	884.300	2531.000	884.300	2533.000	888.800	2560.000	889.700	2616.000
GR	890.600	2710.000	893.500	2770.000	895.800	2829.000	898.000	2894.000	897.300	2936.000
GR	899.700	3028.000	900.000	3066.000	900.000	3078.000	902.300	3084.000	903.500	3143.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1761.340	1857.540
X1	61.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.090	.090	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	61.500	15.000	2000.000	2025.000	1400.000	1000.000	1450.000	0.000	0.000	0.000
GR	900.000	1720.000	898.200	1767.000	894.500	1800.000	891.700	1880.000	891.600	1940.000
GR	890.000	1970.000	889.000	2000.000	886.700	2002.000	886.000	2005.000	885.500	2010.000
GR	886.000	2015.000	886.800	2020.000	889.200	2025.000	890.000	2055.000	900.000	2150.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1953.000	2050.000
X1	63.800	20.000	1988.000	2023.000	270.000	320.000	280.000	0.000	0.000	0.000
GR	899.200	1868.000	898.900	1917.000	897.700	1931.000	891.500	1953.000	891.000	1988.000
GR	888.100	1996.000	887.300	2000.000	886.600	2005.000	887.000	2009.000	891.600	2023.000
GR	892.100	2050.000	899.400	2078.000	901.200	2142.000	902.300	2214.000	904.900	2282.000
GR	904.600	2293.000	907.100	2299.000	908.300	2315.000	910.400	2327.000	910.700	2340.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2017.100	0.000	0.000
X1	63.900	20.000	2000.000	2017.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	898.100	898.100	0.000
GR	899.200	1868.000	898.900	1917.000	897.700	1931.000	891.500	1953.000	891.000	1988.000
GR	889.500	2000.000	887.700	2005.000	887.000	2009.000	888.700	2017.000	891.600	2023.000
GR	892.100	2050.000	899.400	2078.000	901.200	2142.000	902.300	2214.000	904.900	2282.000
GR	904.600	2293.000	907.100	2299.000	908.300	2315.000	910.400	2327.000	910.700	2340.000
NC	0.000	0.000	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	64.000	34.000	2000.000	2017.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	896.100	899.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	898.100	898.100	0.000
BT	22.000	1901.000	899.300	0.000	2000.000	900.100	0.000	2000.000	900.100	889.500
BT	2001.000	900.100	891.900	2002.000	900.100	893.200	2003.000	900.100	894.200	2004.000

MOORE BUSINESS FORMS, INC 23

BT	900.100	894.900	2005.000	900.100	895.400	2006.000	900.100	895.800	2007.000	900.100
BT	896.000	2008.000	900.100	896.100	2009.000	900.100	896.100	2010.000	900.100	896.000
BT	2011.000	900.100	895.800	2012.000	900.100	895.400	2013.000	900.100	894.900	2014.000
BT	900.100	894.200	2015.000	900.100	893.200	2016.000	900.100	891.900	2017.000	900.100
BT	889.300	2017.000	900.100	0.000	2120.000	902.200	0.000	0.000	0.000	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	900.100	2000.000	889.500	2000.000
GR	889.000	2001.000	888.700	2002.000	888.300	2003.000	888.000	2004.000	887.700	2005.000
GR	887.400	2006.000	887.200	2007.000	887.100	2008.000	887.000	2009.000	887.200	2010.000
GR	887.400	2011.000	887.700	2012.000	887.900	2013.000	888.000	2014.000	888.200	2015.000
GR	888.400	2016.000	888.700	2017.000	900.100	2017.000	902.200	2120.000	904.800	2279.000
GR	905.300	2381.000	906.400	2479.000	908.200	2592.000	910.400	2720.000	0.000	0.000

KIPP RD. BRIDGE

X1	64.100	31.000	2000.000	2017.000	66.000	66.000	66.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	896.100	899.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	900.100	900.100	0.000
X4	3.000	888.900	2014.000	889.000	2015.000	889.100	2016.000	0.000	0.000	0.000
BT	22.000	1901.000	899.300	0.000	2000.000	900.100	0.000	2000.000	900.100	889.800
BT	2001.000	900.100	891.900	2002.000	900.100	893.200	2003.000	900.100	894.200	2004.000
BT	900.100	894.900	2005.000	900.100	895.400	2006.000	900.100	895.800	2007.000	900.100
BT	896.000	2008.000	900.100	896.100	2009.000	900.100	896.100	2010.000	900.100	896.000
BT	2011.000	900.100	895.800	2012.000	900.100	895.400	2013.000	900.100	894.900	2014.000
BT	900.100	894.200	2015.000	900.100	893.200	2016.000	900.100	891.900	2017.000	900.100
BT	889.300	2017.000	900.100	0.000	2120.000	902.200	0.000	0.000	0.000	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	900.100	2000.000	889.800	2000.000
GR	889.500	2001.000	889.200	2002.000	889.000	2003.000	888.800	2004.000	888.600	2005.000
GR	888.400	2006.000	888.000	2007.000	887.600	2008.000	887.800	2009.000	888.000	2010.000
GR	888.400	2011.000	888.600	2012.000	888.700	2013.000	889.200	2017.000	900.100	2017.000
GR	902.200	2120.000	904.800	2279.000	905.300	2381.000	906.400	2479.000	908.200	2592.000
GR	910.400	2720.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	64.200	24.000	2000.000	2017.000	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	900.100	900.100	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	899.200	1906.000	899.100	1984.000
G9	889.800	2000.000	888.400	2006.000	887.600	2008.000	889.200	2017.000	891.900	2022.000
GR	899.300	2036.000	901.200	2080.000	902.400	2111.000	904.200	2188.000	904.800	2279.000
GR	905.300	2381.000	906.400	2479.000	908.200	2592.000	910.400	2720.000	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

MOORE BUSINESS FORMS, INC. 77

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR =  01,02,03,04
  MODIFICATION =  50,51,52,53,54
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T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	871.950	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

MOORE BUSINESS FORMS, INC. 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	873.500	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

WOODL BUSINESS FORMS INC 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**************************************************

T1
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      5.        0.        0.  0.000000      0.00      0.0       0.   875.210   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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MOORE BUSINESS FORMS INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.000	2100.00	0.00	0.00	867.30	1120.00	873.46	0.00	873.48	3.65	1.97	1398.23	586.19
4.000	2100.00	0.00	0.00	867.30	1480.00	874.19	0.00	874.21	3.13	2.01	1808.71	836.94
4.000	2100.00	0.00	0.00	867.30	1730.00	874.99	0.00	875.01	2.21	1.85	2285.34	1163.67
4.000	2100.00	0.00	0.00	867.30	2360.00	876.49	0.00	876.51	1.52	1.76	3235.40	1913.72
5.000	1300.00	0.00	0.00	868.80	1120.00	874.53	0.00	874.72	50.71	4.97	626.17	157.27
5.000	1300.00	0.00	0.00	868.80	1480.00	875.10	0.00	875.26	42.25	4.87	861.75	227.70
5.000	1300.00	0.00	0.00	868.80	1730.00	875.64	0.00	875.77	31.40	4.51	1099.63	308.72
5.000	1300.00	0.00	0.00	868.80	2360.00	876.92	0.00	877.00	17.62	3.91	1767.69	562.22
6.000	507.00	0.00	0.00	867.70	1010.00	875.37	0.00	875.42	5.62	2.50	956.42	425.94
6.000	507.00	0.00	0.00	867.70	1330.00	875.90	0.00	875.96	5.92	2.69	1221.61	546.89
6.000	507.00	0.00	0.00	867.70	1550.00	876.32	0.00	876.37	5.46	2.68	1444.62	663.11
6.000	507.00	0.00	0.00	867.70	2100.00	877.38	0.00	877.42	4.25	2.57	2014.30	1018.92
7.800	1130.00	0.00	0.00	869.30	1010.00	876.17	0.00	876.53	16.52	5.13	233.85	248.46
7.800	1130.00	0.00	0.00	869.30	1330.00	876.73	0.00	877.24	21.06	6.13	259.13	289.83
7.800	1130.00	0.00	0.00	869.30	1550.00	877.06	0.00	877.67	24.14	6.77	274.06	315.47
7.800	1130.00	0.00	0.00	869.30	2100.00	877.81	0.00	878.70	31.10	8.21	307.77	376.54
7.810	20.00	0.00	0.00	869.30	1010.00	876.15	0.00	876.63	20.65	5.72	201.05	222.26
7.810	20.00	0.00	0.00	869.30	1330.00	876.68	0.00	877.38	27.33	6.95	219.11	254.41
7.810	20.00	0.00	0.00	869.30	1550.00	876.98	0.00	877.86	32.14	7.76	229.38	273.43
7.810	20.00	0.00	0.00	869.30	2100.00	877.66	0.00	879.00	43.67	9.60	252.35	317.78
7.820	20.00	0.00	0.00	869.40	1010.00	876.00	0.00	876.90	44.36	7.91	145.28	151.65
7.820	20.00	0.00	0.00	869.40	1330.00	876.44	0.00	877.78	60.26	9.66	157.37	171.33
7.820	20.00	0.00	0.00	869.40	1550.00	876.67	0.00	878.35	72.63	10.85	163.64	181.87
7.820	20.00	0.00	0.00	869.40	2100.00	877.10	0.00	879.81	108.01	13.79	175.28	202.06
7.900	10.00	0.00	0.00	869.40	1010.00	875.89	0.00	877.10	56.51	8.82	114.45	134.36
7.900	10.00	0.00	0.00	869.40	1330.00	876.24	0.00	878.11	80.99	10.98	121.18	147.79
7.900	10.00	0.00	0.00	869.40	1550.00	876.38	0.00	878.81	102.21	12.51	123.88	153.31
7.900	10.00	0.00	0.00	869.40	2100.00	877.08	877.08	880.73	134.02	15.32	137.04	181.40
8.100	14.00	879.00	878.40	869.40	1010.00	876.01	0.00	877.18	33.51	8.65	116.77	174.46
8.100	14.00	879.00	878.40	869.40	1330.00	876.55	0.00	878.25	46.07	10.47	127.02	195.99
8.100	14.00	879.00	878.40	869.40	1550.00	876.99	0.00	879.03	52.63	11.45	135.32	213.66
8.100	14.00	879.00	878.40	869.40	2100.00	878.60	0.00	881.21	107.19	12.95	162.10	202.83
8.300	50.00	0.00	0.00	869.50	1010.00	877.35	0.00	877.58	17.62	3.79	270.30	240.62
8.300	50.00	0.00	0.00	869.50	1330.00	878.56	0.00	878.82	16.91	4.04	336.69	323.38
8.300	50.00	0.00	0.00	869.50	1550.00	879.43	0.00	879.70	15.74	4.13	387.54	390.65
8.300	50.00	0.00	0.00	869.50	2100.00	881.84	0.00	882.04	10.15	3.83	639.41	659.10
10.800	1250.00	0.00	0.00	874.50	1010.00	880.54	0.00	881.44	57.86	8.43	169.97	132.78
10.800	1250.00	0.00	0.00	874.50	1330.00	881.50	0.00	882.50	53.16	9.02	212.66	182.42
10.800	1250.00	0.00	0.00	874.50	1550.00	882.12	0.00	883.18	50.50	9.37	240.42	218.12
10.800	1250.00	0.00	0.00	874.50	2100.00	883.49	0.00	884.71	46.86	10.20	302.29	306.77

MOORE BUSINESS FORMS INC 23

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10.810	20.00	0.00	0.00	874.50	1010.00	880.56	0.00	881.66	66.62	9.06	148.19	123.74
	10.810	20.00	0.00	0.00	874.50	1330.00	881.43	0.00	882.80	68.11	10.15	176.95	161.15
	10.810	20.00	0.00	0.00	874.50	1550.00	881.99	0.00	883.54	68.72	10.80	195.40	186.98
	10.810	20.00	0.00	0.00	874.50	2100.00	883.21	0.00	885.22	71.68	12.34	235.68	248.03
	10.820	20.00	0.00	0.00	874.50	1010.00	880.48	0.00	882.05	88.14	10.31	113.77	107.58
	10.820	20.00	0.00	0.00	874.50	1330.00	881.24	0.00	883.32	96.69	11.84	131.37	135.26
	10.820	20.00	0.00	0.00	874.50	1550.00	881.72	0.00	884.14	101.29	12.77	142.50	154.01
	10.820	20.00	0.00	0.00	874.50	2100.00	882.73	0.00	886.06	115.35	15.00	165.43	195.53
	10.900	10.00	0.00	0.00	874.60	1010.00	880.49	0.00	882.27	157.47	10.73	94.12	80.49
	10.900	10.00	0.00	0.00	874.60	1330.00	881.22	0.00	883.60	189.33	12.40	107.30	96.66
	10.900	10.00	0.00	0.00	874.60	1550.00	881.67	0.00	884.47	209.72	13.42	115.52	107.03
*	10.900	10.00	0.00	0.00	874.60	2100.00	882.72	882.72	886.51	255.55	15.64	134.26	131.37
	11.000	1.00	892.10	888.20	874.60	1010.00	880.51	0.00	882.29	88.37	10.71	94.34	107.44
*	11.000	1.00	892.10	888.20	874.60	1330.00	881.46	880.78	883.67	100.45	11.92	111.54	132.70
	11.000	1.00	892.10	888.20	874.60	1550.00	882.30	0.00	884.62	99.18	12.23	126.73	155.64
	11.000	1.00	892.10	888.20	874.60	2100.00	884.23	0.00	886.87	93.62	13.06	160.80	217.03
	11.100	36.00	892.10	888.20	874.80	1010.00	881.11	0.00	882.65	73.78	9.96	101.36	117.59
	11.100	36.00	892.10	888.20	874.80	1330.00	882.25	0.00	884.10	80.86	10.92	121.81	147.91
	11.100	36.00	892.10	888.20	874.80	1550.00	883.00	0.00	885.04	82.47	11.46	135.28	170.68
	11.100	36.00	892.10	888.20	874.80	2100.00	884.76	0.00	887.24	84.98	12.65	166.03	227.81
	11.200	1.00	0.00	0.00	874.80	1010.00	881.12	0.00	882.66	127.66	9.96	101.43	89.30
	11.200	1.00	0.00	0.00	874.80	1330.00	882.27	0.00	884.11	132.93	10.90	122.00	115.30
	11.200	1.00	0.00	0.00	874.80	1550.00	883.01	0.00	885.05	135.92	11.44	135.45	132.95
	11.200	1.00	0.00	0.00	874.80	2100.00	884.91	0.00	887.29	136.66	12.36	169.85	179.66
	11.300	50.00	0.00	0.00	875.20	1010.00	883.05	0.00	883.17	5.85	2.83	419.30	417.56
	11.300	50.00	0.00	0.00	875.20	1330.00	884.58	0.00	884.69	4.16	2.79	594.31	652.11
	11.300	50.00	0.00	0.00	875.20	1550.00	885.57	0.00	885.68	3.49	2.79	710.72	829.55
	11.300	50.00	0.00	0.00	875.20	2100.00	887.90	0.00	888.01	2.54	2.81	986.10	1317.99
	13.800	350.00	0.00	0.00	874.20	1010.00	883.21	0.00	883.38	5.56	3.37	325.81	428.44
	13.800	350.00	0.00	0.00	874.20	1330.00	884.68	0.00	884.89	5.37	3.72	392.40	573.99
	13.800	350.00	0.00	0.00	874.20	1550.00	885.63	0.00	885.86	5.25	3.92	435.30	676.55
	13.800	350.00	0.00	0.00	874.20	2100.00	887.90	0.00	888.18	4.92	4.33	537.46	947.00
	13.900	50.00	0.00	0.00	874.70	1010.00	882.80	0.00	883.94	87.32	8.57	117.82	108.01
	13.900	50.00	0.00	0.00	874.70	1330.00	884.13	0.00	885.58	100.33	9.65	137.88	132.71
	13.900	50.00	0.00	0.00	874.70	1550.00	885.00	0.00	886.64	108.02	10.27	150.89	149.11
	13.900	50.00	0.00	0.00	874.70	2100.00	887.08	0.00	889.14	123.18	11.53	182.11	189.29
	14.000	1.00	889.50	886.40	874.70	1010.00	882.75	0.00	884.00	56.30	8.98	112.48	134.66
	14.000	1.00	889.50	886.40	874.70	1330.00	884.01	0.00	885.71	71.17	10.47	127.08	157.66
	14.000	1.00	889.50	886.40	874.70	1550.00	884.80	0.00	886.85	85.48	11.48	134.98	167.66
	14.000	1.00	889.50	886.40	874.70	2100.00	886.48	0.00	889.77	163.73	14.56	144.20	164.11

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14.100	20.00	889.50	886.40	874.70	1010.00	882.96	0.00	884.13	52.01	8.68	116.36	140.05
14.100	20.00	889.50	886.40	874.70	1330.00	884.29	0.00	885.88	66.67	10.13	131.35	162.89
14.100	20.00	889.50	886.40	874.70	1550.00	885.12	0.00	887.05	81.13	11.15	139.01	172.09
14.100	20.00	889.50	886.40	874.70	2100.00	886.88	0.00	890.11	161.02	14.43	145.50	165.49
14.200	1.00	0.00	0.00	874.70	1010.00	883.17	0.00	884.18	74.75	8.08	125.06	116.82
14.200	1.00	0.00	0.00	874.70	1330.00	884.76	0.00	886.00	82.33	8.93	148.95	146.58
14.200	1.00	0.00	0.00	874.70	1550.00	885.87	0.00	887.23	85.53	9.37	165.46	167.60
14.200	1.00	0.00	0.00	874.70	2100.00	889.17	0.00	890.65	81.79	9.77	214.95	232.21
15.500	26.00	0.00	0.00	875.10	1010.00	884.32	0.00	884.48	6.59	3.22	330.23	393.30
15.500	26.00	0.00	0.00	875.10	1330.00	886.19	0.00	886.36	5.90	3.38	429.15	547.68
15.500	26.00	0.00	0.00	875.10	1550.00	887.45	0.00	887.62	5.36	3.43	502.67	669.40
15.500	26.00	0.00	0.00	875.10	2100.00	890.92	0.00	891.07	3.64	3.35	734.71	1101.22
15.900	100.00	0.00	0.00	875.40	1010.00	884.22	0.00	884.78	14.44	6.15	220.38	265.80
15.900	100.00	0.00	0.00	875.40	1330.00	886.18	0.00	886.49	7.98	5.13	471.89	470.88
15.900	100.00	0.00	0.00	875.40	1550.00	887.49	0.00	887.69	5.26	4.50	675.38	675.77
15.900	100.00	0.00	0.00	875.40	2100.00	891.04	0.00	891.12	1.91	3.22	1380.99	1521.18
16.100	50.00	884.80	883.10	875.60	1010.00	885.71	0.00	885.98	7.18	4.59	367.85	377.01
16.100	50.00	884.80	883.10	875.60	1330.00	886.81	0.00	887.06	6.63	4.73	513.42	516.40
16.100	50.00	884.80	883.10	875.60	1550.00	887.81	0.00	888.01	5.29	4.48	664.73	673.78
16.100	50.00	884.80	883.10	875.60	2100.00	891.20	0.00	891.29	2.11	3.34	1295.47	1446.49
16.300	50.00	0.00	0.00	875.70	1010.00	886.00	0.00	886.05	.67	2.00	747.71	1236.37
16.300	50.00	0.00	0.00	875.70	1330.00	887.06	0.00	887.12	.75	2.29	876.86	1537.01
16.300	50.00	0.00	0.00	875.70	1550.00	887.99	0.00	888.06	.72	2.38	996.34	1830.11
16.300	50.00	0.00	0.00	875.70	2100.00	891.24	0.00	891.30	.48	2.32	1478.01	3046.69
18.800	243.00	0.00	0.00	875.80	1010.00	885.98	0.00	886.10	3.60	3.13	404.39	532.19
18.800	243.00	0.00	0.00	875.80	1330.00	887.02	0.00	887.19	4.35	3.69	455.30	637.56
18.800	243.00	0.00	0.00	875.80	1550.00	887.94	0.00	888.13	4.43	3.93	500.46	736.56
18.800	243.00	0.00	0.00	875.80	2100.00	891.16	0.00	891.37	3.51	4.13	658.17	1120.81
18.900	50.00	0.00	0.00	877.20	1010.00	885.90	0.00	886.24	6.82	4.68	215.83	386.86
18.900	50.00	0.00	0.00	877.20	1330.00	886.90	0.00	887.37	8.61	5.50	241.91	453.2
18.900	50.00	0.00	0.00	877.20	1550.00	887.80	0.00	888.33	9.07	5.84	265.41	514.76
18.900	50.00	0.00	0.00	877.20	2100.00	891.11	0.00	891.47	5.58	5.18	666.46	888.81
19.100	50.00	889.20	886.60	877.50	1010.00	885.94	0.00	886.28	11.11	4.71	214.24	303.06
19.100	50.00	889.20	886.60	877.50	1330.00	887.26	0.00	887.70	8.24	5.35	248.77	463.4
19.100	50.00	889.20	886.60	877.50	1550.00	888.42	0.00	888.90	8.18	5.56	278.82	541.9
19.100	50.00	889.20	886.60	877.50	2100.00	891.55	0.00	891.83	4.57	4.71	813.02	981.8
19.300	50.00	0.00	0.00	877.50	1010.00	886.33	0.00	886.39	1.89	2.05	640.89	735.6
19.300	50.00	0.00	0.00	877.50	1330.00	887.77	0.00	887.84	1.76	2.21	808.18	1001.7
19.300	50.00	0.00	0.00	877.50	1550.00	888.98	0.00	889.04	1.52	2.22	958.83	1255.6
19.300	50.00	0.00	0.00	877.50	2100.00	891.85	0.00	891.91	1.14	2.25	1320.90	1963.7

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
21.000	300.00	0.00	0.00	877.30	1010.00	886.42	0.00	886.43	.95	1.49	1512.19	1038.0
21.000	300.00	0.00	0.00	877.30	1330.00	887.86	0.00	887.88	.85	1.57	1905.07	1444.0
21.000	300.00	0.00	0.00	877.30	1550.00	889.06	0.00	889.07	.71	1.55	2261.99	1835.9
21.000	300.00	0.00	0.00	877.30	2100.00	891.92	0.00	891.94	.49	1.50	3215.29	3000.0
22.000	50.00	0.00	0.00	877.30	1010.00	886.42	0.00	886.44	1.65	1.97	1166.20	786.7
22.000	50.00	0.00	0.00	877.30	1330.00	887.86	0.00	887.88	1.50	2.08	1475.35	1087.4
22.000	50.00	0.00	0.00	877.30	1550.00	889.06	0.00	889.08	1.26	2.06	1764.95	1379.9
22.000	50.00	0.00	0.00	877.30	2100.00	891.92	0.00	891.94	.86	1.98	2561.14	2268.6
24.800	500.00	0.00	0.00	877.50	1010.00	886.46	0.00	886.63	6.73	3.36	333.46	389.2
24.800	500.00	0.00	0.00	877.50	1330.00	887.87	0.00	888.07	6.14	3.62	417.59	536.6
24.800	500.00	0.00	0.00	877.50	1550.00	889.05	0.00	889.25	5.29	3.67	487.95	673.7
24.800	500.00	0.00	0.00	877.50	2100.00	891.87	0.00	892.08	3.99	3.79	657.27	1050.7
24.810	20.00	0.00	0.00	877.50	1010.00	886.49	0.00	886.65	6.45	3.29	361.29	397.6
24.810	20.00	0.00	0.00	877.50	1330.00	887.92	0.00	888.09	5.43	3.42	502.26	570.6
24.810	20.00	0.00	0.00	877.50	1550.00	889.12	0.00	889.27	4.33	3.34	640.85	744.6
24.810	20.00	0.00	0.00	877.50	2100.00	891.99	0.00	892.11	2.65	3.11	1074.44	1290.5
24.820	20.00	0.00	0.00	877.50	1010.00	886.50	0.00	886.66	6.37	3.28	363.20	400.0
24.820	20.00	0.00	0.00	877.50	1330.00	887.94	0.00	888.10	5.40	3.42	503.54	572.1
24.820	20.00	0.00	0.00	877.50	1550.00	889.13	0.00	889.28	4.32	3.33	642.00	746.1
24.820	20.00	0.00	0.00	877.50	2100.00	892.00	0.00	892.12	2.64	3.11	1075.69	1292.1
24.900	10.00	0.00	0.00	879.20	1010.00	886.45	0.00	886.73	11.32	4.24	238.40	300.1
24.900	10.00	0.00	0.00	879.20	1330.00	887.86	0.00	888.19	10.31	4.60	289.17	414.1
24.900	10.00	0.00	0.00	879.20	1550.00	889.12	0.00	889.29	5.34	3.65	638.89	670.7
24.900	10.00	0.00	0.00	879.20	2100.00	892.00	0.00	892.12	3.13	3.34	1069.37	1187.0
25.100	33.00	890.20	888.50	879.20	1010.00	886.39	0.00	886.89	22.93	5.71	177.03	210.9
25.100	33.00	890.20	888.50	879.20	1330.00	887.72	0.00	888.44	32.52	6.79	195.82	233.2
25.100	33.00	890.20	888.50	879.20	1550.00	890.18	0.00	890.33	1.62	3.46	779.06	1216.5
25.100	33.00	890.20	888.50	879.20	2100.00	892.35	0.00	892.51	1.38	3.62	1137.80	1785.4
25.300	50.00	0.00	0.00	879.20	1010.00	886.79	0.00	887.06	16.34	4.19	256.53	249.8
25.300	50.00	0.00	0.00	879.20	1330.00	888.45	0.00	888.67	10.47	3.90	385.90	411.0
25.300	50.00	0.00	0.00	879.20	1550.00	890.19	0.00	890.35	5.63	3.37	569.55	653.4
25.300	50.00	0.00	0.00	879.20	2100.00	892.37	0.00	892.53	4.09	3.38	821.17	1038.9
27.000	304.00	0.00	0.00	879.20	1010.00	887.21	0.00	887.29	3.72	2.64	642.28	523.7
27.000	304.00	0.00	0.00	879.20	1330.00	888.76	0.00	888.84	2.83	2.62	912.72	790.3
27.000	304.00	0.00	0.00	879.20	1550.00	890.40	0.00	890.45	1.83	2.36	1249.13	1144.6
27.000	304.00	0.00	0.00	879.20	2100.00	892.55	0.00	892.61	1.45	2.38	1765.67	1742.5
28.000	1150.00	0.00	0.00	878.70	1010.00	887.61	0.00	887.66	2.85	2.22	814.40	598.6
28.000	1150.00	0.00	0.00	878.70	1330.00	889.07	0.00	889.11	2.12	2.17	1106.90	913.4
28.000	1150.00	0.00	0.00	878.70	1550.00	890.60	0.00	890.63	1.40	1.96	1447.30	1311.8
28.000	1150.00	0.00	0.00	878.70	2100.00	892.72	0.00	892.75	1.11	1.99	1980.23	1994.5

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	60.800	905.00	0.00	0.00	881.90	655.00	887.76	0.00	888.33	43.26	6.31	125.21	99.58
	60.800	905.00	0.00	0.00	881.90	845.00	889.18	0.00	889.59	24.88	5.61	201.10	169.40
	60.800	905.00	0.00	0.00	881.90	980.00	890.67	0.00	890.93	13.56	4.72	288.81	265.1
	60.800	905.00	0.00	0.00	881.90	1300.00	892.77	0.00	892.98	8.63	4.39	427.23	442.4
	60.900	50.00	0.00	0.00	881.80	655.00	888.32	0.00	888.52	8.70	3.64	179.90	222.0
	60.900	50.00	0.00	0.00	881.80	845.00	889.46	0.00	889.70	8.16	3.95	213.71	295.8
	60.900	50.00	0.00	0.00	881.80	980.00	890.75	0.00	890.99	6.34	3.89	251.93	389.1
	60.900	50.00	0.00	0.00	881.80	1300.00	892.77	0.00	893.04	5.47	4.17	312.03	555.8
	61.000	1.00	893.50	892.20	881.80	655.00	888.30	0.00	888.54	18.88	3.96	165.32	150.7
	61.000	1.00	893.50	892.20	881.80	845.00	889.43	0.00	889.74	22.14	4.45	190.06	179.5
	61.000	1.00	893.50	892.20	881.80	980.00	890.71	0.00	891.04	23.69	4.60	213.07	201.3
	61.000	1.00	893.50	892.20	881.80	1300.00	892.66	0.00	893.16	46.66	5.69	228.66	190.3
	61.100	66.00	893.50	892.20	882.00	655.00	888.42	0.00	888.68	20.22	4.04	162.14	145.6
	61.100	66.00	893.50	892.20	882.00	845.00	889.58	0.00	889.89	23.58	4.52	186.91	174.0
	61.100	66.00	893.50	892.20	882.00	980.00	890.86	0.00	891.20	25.47	4.68	209.32	194.1
	61.100	66.00	893.50	892.20	882.00	1300.00	892.97	0.00	893.50	50.74	5.84	222.59	182.5
	61.200	1.00	0.00	0.00	882.00	655.00	888.48	0.00	888.69	8.94	3.67	178.45	219.1
	61.200	1.00	0.00	0.00	882.00	845.00	889.68	0.00	889.92	8.15	3.95	213.72	295.9
	61.200	1.00	0.00	0.00	882.00	980.00	891.01	0.00	891.24	6.24	3.87	253.09	392.2
	61.200	1.00	0.00	0.00	882.00	1300.00	893.33	0.00	893.58	4.93	4.04	321.81	585.4
	61.300	50.00	0.00	0.00	882.00	655.00	888.61	0.00	888.75	6.59	3.19	243.60	255.1
	61.300	50.00	0.00	0.00	882.00	845.00	889.82	0.00	889.98	5.73	3.36	307.52	353.1
	61.300	50.00	0.00	0.00	882.00	980.00	891.15	0.00	891.29	4.19	3.21	383.00	478.6
	61.300	50.00	0.00	0.00	882.00	1300.00	893.50	0.00	893.63	3.07	3.22	523.75	741.5
	61.500	1450.00	0.00	0.00	885.50	655.00	890.47	0.00	890.98	59.92	6.04	155.03	84.6
	61.500	1450.00	0.00	0.00	885.50	845.00	891.35	0.00	891.73	38.47	5.55	252.60	136.2
	61.500	1450.00	0.00	0.00	885.50	980.00	892.22	0.00	892.45	21.87	4.68	405.91	209.5
	61.500	1450.00	0.00	0.00	885.50	1300.00	894.17	0.00	894.26	7.28	3.29	890.37	481.7
	63.800	280.00	0.00	0.00	886.60	655.00	891.96	0.00	892.38	41.95	5.31	147.55	101.1
	63.800	280.00	0.00	0.00	886.60	845.00	892.41	0.00	892.90	42.81	5.83	190.72	129.1
	63.800	280.00	0.00	0.00	886.60	980.00	892.84	0.00	893.32	37.52	5.85	232.61	159.9
	63.800	280.00	0.00	0.00	886.60	1300.00	894.31	0.00	894.66	20.17	5.23	375.79	289.4
	63.900	50.00	0.00	0.00	887.00	655.00	891.70	0.00	893.34	137.49	10.29	63.68	55.8
*	63.900	50.00	0.00	0.00	887.00	845.00	892.18	892.18	894.33	152.70	11.75	71.90	68.3
*	63.900	50.00	0.00	0.00	887.00	980.00	892.62	892.62	894.99	147.95	12.35	79.33	80.5
*	63.900	50.00	0.00	0.00	887.00	1300.00	893.59	893.59	896.45	138.95	13.57	95.78	110.2
	64.000	1.00	899.30	896.10	887.00	655.00	891.66	891.45	893.40	126.35	10.57	61.95	58.2
*	64.000	1.00	899.30	896.10	887.00	845.00	892.10	892.10	894.47	159.71	12.35	68.40	66.8
*	64.000	1.00	899.30	896.10	887.00	980.00	892.52	892.52	895.21	170.74	13.15	74.54	75.0
*	64.000	1.00	899.30	896.10	887.00	1300.00	893.43	893.43	896.93	204.62	15.01	86.63	90.8

MOORE BUSINESS FORMS, INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
64.100	66.00	899.30	896.10	887.60	655.00	892.51	892.21	894.26	132.52	10.60	61.77	56.9(
64.100	66.00	899.30	896.10	887.60	845.00	893.66	0.00	895.54	124.90	11.01	76.76	75.6
64.100	66.00	899.30	896.10	887.60	980.00	894.23	0.00	896.38	137.90	11.76	83.36	83.4
64.100	66.00	899.30	896.10	887.60	1300.00	895.49	894.18	898.42	196.88	13.74	94.64	92.6
64.200	1.00	0.00	0.00	887.60	655.00	893.59	0.00	894.51	52.22	7.71	84.95	90.6
64.200	1.00	0.00	0.00	887.60	845.00	894.82	0.00	895.81	42.00	8.00	105.66	130.3
64.200	1.00	0.00	0.00	887.60	980.00	895.69	0.00	896.72	36.48	8.13	120.48	162.2
64.200	1.00	0.00	0.00	887.60	1300.00	897.95	0.00	898.99	25.50	8.18	158.92	257.4

MOORE BUSINESS FORMS, INC.

SYCAMORE CK. CITY OF MA

SUMMARY PRINTOUT TABLE 150

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.200	1120.00	871.05	0.00	0.00	0.00	177.36	0.00
1.200	1480.00	871.95	.90	0.00	.90	179.00	0.00
1.200	1730.00	873.50	1.55	0.00	2.45	181.82	0.00
1.200	2360.00	875.21	1.71	0.00	4.16	182.00	0.00
1.800	1120.00	872.00	0.00	.95	0.00	120.00	1100.00
1.800	1480.00	872.85	.85	.90	.85	120.00	1100.00
1.800	1730.00	874.04	1.19	.54	2.04	120.00	1100.00
1.800	2360.00	875.66	1.62	.45	3.66	120.00	1100.00
1.900	1120.00	872.09	0.00	.09	0.00	84.87	50.00
1.900	1480.00	872.94	.85	.09	.85	93.00	50.00
1.900	1730.00	874.10	1.16	.07	2.02	93.00	50.00
1.900	2360.00	875.72	1.62	.06	3.63	93.00	50.00
2.000	1120.00	872.08	0.00	-.01	0.00	84.88	1.00
2.000	1480.00	872.93	.85	-.01	.85	93.00	1.00
2.000	1730.00	874.09	1.16	-.01	2.01	93.00	1.00
2.000	2360.00	875.69	1.60	-.03	3.61	93.00	1.00
2.100	1120.00	872.11	0.00	.03	0.00	85.40	58.00
2.100	1480.00	872.97	.85	.04	.85	93.00	58.00
2.100	1730.00	874.12	1.15	.03	2.01	93.00	58.00
2.100	2360.00	875.75	1.63	.06	3.64	93.00	58.00
2.200	1120.00	872.13	0.00	.01	0.00	86.07	1.00
2.200	1480.00	872.98	.86	.02	.86	93.00	1.00
2.200	1730.00	874.14	1.15	.01	2.01	93.00	1.00
2.200	2360.00	875.80	1.67	.05	3.68	93.00	1.00
2.300	1120.00	872.14	0.00	.01	0.00	192.00	50.00
2.300	1480.00	873.01	.88	.03	.88	192.00	50.00
2.300	1730.00	874.18	1.17	.05	2.04	192.00	50.00
2.300	2360.00	875.88	1.69	.07	3.74	192.00	50.00
4.000	1120.00	873.46	0.00	1.32	0.00	547.88	2100.00
4.000	1480.00	874.19	.73	1.17	.73	575.88	2100.00
4.000	1730.00	874.99	.81	.81	1.54	606.78	2100.00
4.000	2360.00	876.49	1.50	.61	3.03	658.07	2100.00
5.000	1120.00	874.53	0.00	1.07	0.00	395.65	1300.00
5.000	1480.00	875.10	.58	.91	.58	427.21	1300.00
5.000	1730.00	875.64	.54	.65	1.11	457.37	1300.00
5.000	2360.00	876.92	1.28	.43	2.40	612.47	1300.00

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.000	1010.00	875.37	0.00	.85	0.00	458.44	507.00
6.000	1330.00	875.90	.53	.80	.53	533.40	507.00
6.000	1550.00	876.32	.41	.68	.95	534.50	507.00
6.000	2100.00	877.38	1.06	.46	2.01	535.00	507.00
7.800	1010.00	876.17	0.00	.80	0.00	45.00	1130.00
7.800	1330.00	876.73	.56	.83	.56	45.00	1130.00
7.800	1550.00	877.06	.33	.74	.88	45.00	1130.00
7.800	2100.00	877.81	.75	.42	1.63	45.00	1130.00
7.810	1010.00	876.15	0.00	-.02	0.00	34.00	20.00
7.810	1330.00	876.68	.53	-.05	.53	34.00	20.00
7.810	1550.00	876.98	.30	-.07	.83	34.00	20.00
7.810	2100.00	877.66	.67	-.15	1.51	34.00	20.00
7.820	1010.00	876.00	0.00	-.15	0.00	27.10	20.00
7.820	1330.00	876.44	.44	-.24	.44	27.10	20.00
7.820	1550.00	876.67	.23	-.31	.67	27.10	20.00
7.820	2100.00	877.10	.43	-.55	1.11	27.10	20.00
7.900	1010.00	875.89	0.00	-.11	0.00	19.00	10.00
7.900	1330.00	876.24	.35	-.20	.35	19.00	10.00
7.900	1550.00	876.38	.14	-.29	.49	19.00	10.00
7.900	2100.00	877.08	.70	-.02	1.19	19.00	10.00
8.100	1010.00	876.01	0.00	.12	0.00	19.00	14.00
8.100	1330.00	876.55	.53	.30	.53	19.00	14.00
8.100	1550.00	876.99	.45	.61	.98	19.00	14.00
8.100	2100.00	878.60	1.61	1.52	2.59	19.00	14.00
8.300	1010.00	877.35	0.00	1.34	0.00	53.00	50.00
8.300	1330.00	878.56	1.21	2.02	1.21	56.83	50.00
8.300	1550.00	879.43	.87	2.44	2.08	60.79	50.00
8.300	2100.00	881.84	2.40	3.23	4.48	119.00	50.00
10.800	1010.00	880.54	0.00	3.19	0.00	45.00	1250.00
10.800	1330.00	881.50	.96	2.94	.96	45.00	1250.00
10.800	1550.00	882.12	.62	2.68	1.58	45.00	1250.00
10.800	2100.00	883.49	1.37	1.65	2.95	45.00	1250.00
10.810	1010.00	880.56	0.00	.02	0.00	33.00	20.00
10.810	1330.00	881.43	.87	-.07	.87	33.00	20.00
10.810	1550.00	881.99	.56	-.13	1.43	33.00	20.00
10.810	2100.00	883.21	1.22	-.28	2.65	33.00	20.00
10.820	1010.00	880.48	0.00	-.08	0.00	23.00	20.00
10.820	1330.00	881.24	.76	-.19	.76	23.00	20.00
10.820	1550.00	881.72	.48	-.27	1.24	23.00	20.00
10.820	2100.00	882.73	1.00	-.49	2.25	23.00	20.00

	SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.900	1010.00	880.49	0.00	.01	0.00	18.00	10.00
	10.900	1330.00	881.22	.73	-.02	.73	18.00	10.00
	10.900	1550.00	881.67	.46	-.05	1.19	18.00	10.00
*	10.900	2100.00	882.72	1.04	-.01	2.23	18.00	10.00
	11.000	1010.00	880.51	0.00	.02	0.00	18.00	1.00
*	11.000	1330.00	881.46	.95	.25	.95	18.00	1.00
	11.000	1550.00	882.30	.84	.63	1.79	18.00	1.00
	11.000	2100.00	884.23	1.92	1.51	3.72	18.00	1.00
	11.100	1010.00	881.11	0.00	.60	0.00	18.00	36.00
	11.100	1330.00	882.25	1.14	.79	1.14	18.00	36.00
	11.100	1550.00	883.00	.75	.69	1.89	18.00	36.00
	11.100	2100.00	884.76	1.76	.53	3.65	18.00	36.00
	11.200	1010.00	881.12	0.00	.01	0.00	18.00	1.00
	11.200	1330.00	882.27	1.15	.02	1.15	18.00	1.00
	11.200	1550.00	883.01	.75	.02	1.89	18.00	1.00
	11.200	2100.00	884.91	1.90	.15	3.80	18.00	1.00
	11.300	1010.00	883.05	0.00	1.93	0.00	108.37	50.00
	11.300	1330.00	884.58	1.54	2.32	1.54	118.00	50.00
	11.300	1550.00	885.57	.99	2.56	2.52	118.00	50.00
	11.300	2100.00	887.90	2.33	2.99	4.86	118.00	50.00
	13.800	1010.00	883.21	0.00	.16	0.00	45.00	350.00
	13.800	1330.00	884.68	1.47	.10	1.47	45.00	350.00
	13.800	1550.00	885.63	.95	.06	2.42	45.00	350.00
	13.800	2100.00	887.90	2.27	-.00	4.69	45.00	350.00
	13.900	1010.00	882.80	0.00	-.41	0.00	15.00	50.00
	13.900	1330.00	884.13	1.34	-.55	1.34	15.00	50.00
	13.900	1550.00	885.00	.87	-.63	2.20	15.00	50.00
	13.900	2100.00	887.08	2.08	-.82	4.28	15.00	50.00
	14.000	1010.00	882.75	0.00	-.05	0.00	15.00	1.00
	14.000	1330.00	884.01	1.26	-.12	1.26	15.00	1.00
	14.000	1550.00	884.80	.79	-.19	2.06	15.00	1.00
	14.000	2100.00	886.48	1.67	-.60	3.73	15.00	1.00
	14.100	1010.00	882.96	0.00	.21	0.00	15.00	20.00
	14.100	1330.00	884.29	1.33	.28	1.33	15.00	20.00
	14.100	1550.00	885.12	.83	.32	2.16	15.00	20.00
	14.100	2100.00	886.88	1.76	.40	3.92	15.00	20.00
	14.200	1010.00	883.17	0.00	.21	0.00	15.00	1.00
	14.200	1330.00	884.76	1.59	.47	1.59	15.00	1.00
	14.200	1550.00	885.87	1.11	.75	2.70	15.00	1.00
	14.200	2100.00	889.17	3.30	2.29	5.99	15.00	1.00

MOORE BUSINESS FORMS INC 23

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15.500	1010.00	884.32	0.00	1.15	0.00	53.00	26.00
15.500	1330.00	886.19	1.86	1.43	1.86	53.00	26.00
15.500	1550.00	887.45	1.27	1.58	3.13	67.00	26.00
15.500	2100.00	890.92	3.47	1.75	6.59	67.00	26.00
15.900	1010.00	884.22	0.00	-.11	0.00	104.98	100.00
15.900	1330.00	886.18	1.97	-.00	1.97	145.81	100.00
15.900	1550.00	887.49	1.30	.04	3.27	168.07	100.00
15.900	2100.00	891.04	3.55	.12	6.82	224.00	100.00
16.100	1010.00	885.71	0.00	1.50	0.00	123.69	50.00
16.100	1330.00	886.81	1.09	.62	1.09	142.47	50.00
16.100	1550.00	887.81	1.00	.32	2.10	159.66	50.00
16.100	2100.00	891.20	3.39	.16	5.49	200.00	50.00
16.300	1010.00	886.00	0.00	.29	0.00	118.96	50.00
16.300	1330.00	887.06	1.06	.25	1.06	126.78	50.00
16.300	1550.00	887.99	.94	.18	1.99	128.73	50.00
16.300	2100.00	891.24	3.25	.04	5.24	175.00	50.00
18.800	1010.00	885.98	0.00	-.02	0.00	49.00	243.00
18.800	1330.00	887.02	1.04	-.04	1.04	49.00	243.00
18.800	1550.00	887.94	.92	-.05	1.96	49.00	243.00
18.800	2100.00	891.16	3.22	-.08	5.18	49.00	243.00
18.900	1010.00	885.90	0.00	-.08	0.00	26.00	50.00
18.900	1330.00	886.90	1.00	-.12	1.00	26.00	50.00
18.900	1550.00	887.80	.90	-.14	1.91	26.00	50.00
18.900	2100.00	891.11	3.30	-.05	5.21	297.04	50.00
19.100	1010.00	885.94	0.00	.04	0.00	26.00	50.00
19.100	1330.00	887.26	1.32	.36	1.32	26.00	50.00
19.100	1550.00	888.42	1.16	.61	2.48	26.00	50.00
19.100	2100.00	891.55	3.14	.45	5.62	369.23	50.00
19.300	1010.00	886.33	0.00	.40	0.00	110.63	50.00
19.300	1330.00	887.77	1.44	.51	1.44	122.25	50.00
19.300	1550.00	888.98	1.20	.56	2.64	126.00	50.00
19.300	2100.00	891.85	2.87	.30	5.52	126.00	50.00
21.000	1010.00	886.42	0.00	.08	0.00	264.50	300.00
21.000	1330.00	887.86	1.44	.09	1.44	279.87	300.00
21.000	1550.00	889.06	1.20	.08	2.64	307.94	300.00
21.000	2100.00	891.92	2.87	.07	5.51	349.04	300.00
22.000	1010.00	886.42	0.00	-.00	0.00	205.43	50.00
22.000	1330.00	887.86	1.44	-.00	1.44	223.09	50.00
22.000	1550.00	889.06	1.20	-.00	2.64	252.42	50.00
22.000	2100.00	891.92	2.87	-.00	5.50	296.52	50.00

MOORE BUSINESS FORMS INC. 23

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
24.800	1010.00	886.46	0.00	.05	0.00	60.00	500.00
24.800	1330.00	887.87	1.41	.01	1.41	60.00	500.00
24.800	1550.00	889.05	1.17	-.01	2.58	60.00	500.00
24.800	2100.00	891.87	2.82	-.05	5.41	60.00	500.00
24.810	1010.00	886.49	0.00	.03	0.00	85.19	20.00
24.810	1330.00	887.92	1.44	.05	1.44	109.93	20.00
24.810	1550.00	889.12	1.19	.07	2.63	119.99	20.00
24.810	2100.00	891.99	2.88	.12	5.51	189.40	20.00
24.820	1010.00	886.50	0.00	.01	0.00	85.57	20.00
24.820	1330.00	887.94	1.43	.01	1.43	110.13	20.00
24.820	1550.00	889.13	1.19	.01	2.62	120.16	20.00
24.820	2100.00	892.00	2.87	.01	5.50	189.54	20.00
24.900	1010.00	886.45	0.00	-.05	0.00	36.00	10.00
24.900	1330.00	887.86	1.41	-.07	1.41	36.00	10.00
24.900	1550.00	889.12	1.26	-.00	2.67	127.03	10.00
24.900	2100.00	892.00	2.87	-.00	5.55	188.47	10.00
25.100	1010.00	886.39	0.00	-.06	0.00	36.00	33.00
25.100	1330.00	887.72	1.33	-.14	1.33	36.00	33.00
25.100	1550.00	890.18	2.45	1.05	3.79	140.93	33.00
25.100	2100.00	892.35	2.18	.35	5.96	202.10	33.00
25.300	1010.00	886.79	0.00	.40	0.00	69.73	50.00
25.300	1330.00	888.45	1.65	.72	1.65	91.14	50.00
25.300	1550.00	890.19	1.74	.01	3.40	113.23	50.00
25.300	2100.00	892.37	2.18	.02	5.58	122.28	50.00
27.000	1010.00	887.21	0.00	.41	0.00	150.00	304.00
27.000	1330.00	888.76	1.56	.32	1.56	191.71	304.00
27.000	1550.00	890.40	1.63	.21	3.19	219.61	304.00
27.000	2100.00	892.55	2.16	.18	5.35	263.89	304.00
28.000	1010.00	887.61	0.00	.40	0.00	193.92	1150.00
28.000	1330.00	889.07	1.46	.31	1.46	209.30	1150.00
28.000	1550.00	890.60	1.53	.20	2.99	236.24	1150.00
28.000	2100.00	892.72	2.12	.16	5.11	266.41	1150.00
60.800	655.00	887.76	0.00	.15	0.00	48.30	905.00
60.800	845.00	889.18	1.43	.11	1.43	56.17	905.00
60.800	980.00	890.67	1.49	.07	2.91	61.88	905.00
60.800	1300.00	892.77	2.10	.05	5.01	69.96	905.00
60.900	655.00	888.32	0.00	.56	0.00	29.60	50.00
60.900	845.00	889.46	1.14	.28	1.14	29.60	50.00
60.900	980.00	890.75	1.29	.08	2.44	29.60	50.00
60.900	1300.00	892.77	2.02	.00	4.46	29.60	50.00

MOORE BUSINESS FORMS INC.

	SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	61.000	655.00	888.30	0.00	-.02	0.00	29.60	1.00
	61.000	845.00	889.43	1.13	-.03	1.13	29.60	1.00
	61.000	980.00	890.71	1.28	-.05	2.41	29.60	1.00
	61.000	1300.00	892.66	1.95	-.11	4.36	29.60	1.00
	61.100	655.00	888.42	0.00	.12	0.00	29.60	66.00
	61.100	845.00	889.58	1.15	.15	1.15	29.60	66.00
	61.100	980.00	890.86	1.29	.16	2.44	29.60	66.00
	61.100	1300.00	892.97	2.10	.31	4.54	29.60	66.00
	61.200	655.00	888.48	0.00	.06	0.00	29.60	1.00
	61.200	845.00	889.68	1.19	.10	1.19	29.60	1.00
	61.200	980.00	891.01	1.33	.14	2.52	29.60	1.00
	61.200	1300.00	893.33	2.32	.36	4.84	29.60	1.00
	61.300	655.00	888.61	0.00	.12	0.00	50.44	50.00
	61.300	845.00	889.82	1.22	.15	1.22	54.74	50.00
	61.300	980.00	891.15	1.33	.15	2.55	58.11	50.00
	61.300	1300.00	893.50	2.35	.17	4.89	61.87	50.00
	61.500	655.00	890.47	0.00	1.86	0.00	98.05	1450.00
	61.500	845.00	891.35	.88	1.52	.88	122.99	1450.00
	61.500	980.00	892.22	.87	1.06	1.75	211.02	1450.00
	61.500	1300.00	894.17	1.96	.67	3.71	285.34	1450.00
	63.800	655.00	891.96	0.00	1.49	0.00	89.41	280.00
	63.800	845.00	892.41	.45	1.06	.45	97.00	280.00
	63.800	980.00	892.84	.43	.62	.88	97.00	280.00
	63.800	1300.00	894.31	1.47	.14	2.35	97.00	280.00
	63.900	655.00	891.70	0.00	-.26	0.00	17.00	50.00
*	63.900	845.00	892.18	.48	-.23	.48	17.00	50.00
*	63.900	980.00	892.62	.44	-.22	.92	17.00	50.00
*	63.900	1300.00	893.59	.97	-.72	1.89	17.00	50.00
	64.000	655.00	891.66	0.00	-.03	0.00	17.00	1.00
*	64.000	845.00	892.10	.43	-.09	.43	17.00	1.00
*	64.000	980.00	892.52	.43	-.10	.86	17.00	1.00
*	64.000	1300.00	893.43	.91	-.16	1.76	17.00	1.00
	64.100	655.00	892.51	0.00	.85	0.00	17.00	66.00
	64.100	845.00	893.66	1.15	1.56	1.15	17.00	66.00
	64.100	980.00	894.23	.57	1.71	1.72	17.00	66.00
	64.100	1300.00	895.49	1.26	2.06	2.98	17.00	66.00
	64.200	655.00	893.59	0.00	1.08	0.00	17.00	1.00
	64.200	845.00	894.82	1.23	1.16	1.23	17.00	1.00
	64.200	980.00	895.69	.87	1.46	2.10	17.00	1.00
	64.200	1300.00	897.95	2.26	2.46	4.36	17.00	1.00

MOORE BUSINESS FORMS, INC. 23

SUMMARY OF ERRORS

CAUTION	SECNO=	7.900	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	7.900	PROFILE= 4	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	10.900	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	10.900	PROFILE= 4	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	11.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	63.900	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	63.900	PROFILE= 2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	63.900	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	63.900	PROFILE= 3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	63.900	PROFILE= 3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	63.900	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	63.900	PROFILE= 4	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	64.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	64.000	PROFILE= 2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	64.000	PROFILE= 3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	64.000	PROFILE= 3	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	64.000	PROFILE= 4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	64.000	PROFILE= 4	MINIMUM SPECIFIC ENERGY

FLOOD INSURANCE ZONE DATA FOR SYCAMORE CK. CITY OF MA

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
1.200	0.	-2.45	-1.55	1.71
1.800	1100.	-2.04	-1.19	1.62
1.900	1150.	-2.02	-1.16	1.62
2.000	1151.	-2.01	-1.16	1.60
2.100	1209.	-2.01	-1.15	1.63
2.200	1210.	-2.01	-1.15	1.67
2.300	1260.	-2.04	-1.17	1.69
4.000	3360.	-1.54	-.81	1.50
5.000	4660.	-1.11	-.54	1.28
6.000	5167.	-.95	-.41	1.06
7.800	6297.	-.88	-.33	.75
7.810	6317.	-.83	-.30	.67
7.820	6337.	-.67	-.23	.43
7.900	6347.	-.49	-.14	.70
8.100	6361.	-.98	-.45	1.61
8.300	6411.	-2.08	-.87	2.40
10.800	7661.	-1.58	-.62	1.37
10.810	7681.	-1.43	-.56	1.22
10.820	7701.	-1.24	-.48	1.00
10.900	7711.	-1.19	-.46	1.04
11.000	7712.	-1.79	-.84	1.92
11.100	7748.	-1.89	-.75	1.76
11.200	7749.	-1.89	-.75	1.90
11.300	7799.	-2.52	-.99	2.33
13.800	8149.	-2.42	-.95	2.27
13.900	8199.	-2.20	-.87	2.08
14.000	8200.	-2.06	-.79	1.67
14.100	8220.	-2.16	-.83	1.76
14.200	8221.	-2.70	-1.11	3.30
15.500	8247.	-3.13	-1.27	3.47
15.900	8347.	-3.27	-1.30	3.55
16.100	8397.	-2.10	-1.00	3.39
16.300	8447.	-1.99	-.94	3.25
18.800	8690.	-1.96	-.92	3.22
18.900	8740.	-1.91	-.90	3.30
19.100	8790.	-2.48	-1.16	3.14
19.300	8840.	-2.64	-1.20	2.87
21.000	9140.	-2.64	-1.20	2.87
22.000	9190.	-2.64	-1.20	2.87
24.800	9690.	-2.58	-1.17	2.82
24.810	9710.	-2.63	-1.19	2.88
24.820	9730.	-2.62	-1.19	2.87
24.900	9740.	-2.67	-1.26	2.87
25.100	9773.	-3.79	-2.45	2.18

MOORE BUSINESS FORMS INC 23

25.300	9823.	-3.40	-1.74	2.18
27.000	10127.	-3.19	-1.63	2.16
28.000	11277.	-2.99	-1.53	2.12
60.800	12182.	-2.91	-1.49	2.10
60.900	12232.	-2.44	-1.29	2.02
61.000	12233.	-2.41	-1.28	1.95
61.100	12299.	-2.44	-1.29	2.10
61.200	12300.	-2.52	-1.33	2.32
61.300	12350.	-2.55	-1.33	2.35
61.500	13800.	-1.75	-.87	1.96
63.800	14080.	-.88	-.43	1.47
63.900	14130.	-.92	-.44	.97
64.000	14131.	-.86	-.43	.91
64.100	14197.	-1.72	-.57	1.26
64.200	14198.	-2.10	-.87	2.26
WEIGHTED AVG FOR REACH		-2.03	-1.02	1.87

FHF FOR THE REACH = 020 WITH 79.7 PERCENT OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 4

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	AVG ELEVATION DATA 10	1	DIFF.	WTD. AVG.	FHF	PERCENT WITHIN
	0.					SEC.	1.200
1	100.	871.09	873.52	-2.43	-2.43	025	100.
2	200.	871.18	873.57	-2.39	-2.41	025	100.
3	300.	871.27	873.62	-2.35	-2.39	025	100.
4	400.	871.35	873.67	-2.32	-2.37	025	100.
5	500.	871.44	873.72	-2.28	-2.35	025	100.
6	600.	871.52	873.77	-2.25	-2.34	025	100.
7	700.	871.61	873.82	-2.21	-2.32	025	100.
8	800.	871.70	873.86	-2.16	-2.30	025	100.
9	900.	871.78	873.91	-2.13	-2.28	025	100.
10	1000.	871.87	873.96	-2.09	-2.26	025	100.
	1100.					SEC.	1.800
11	1100.	871.96	874.01	-2.05	-2.24	020	100.
	1150.					SEC.	1.900
	1151.					SEC.	2.000
12	1200.	872.05	874.08	-2.03	-2.22	020	100.
	1209.					SEC.	2.100
	1210.					SEC.	2.200
	1260.					SEC.	2.300
13	1300.	872.14	874.16	-2.02	-2.21	020	100.
14	1400.	872.20	874.22	-2.02	-2.20	020	100.
15	1500.	872.26	874.26	-2.00	-2.18	020	100.
16	1600.	872.32	874.30	-1.98	-2.17	020	100.

17	1700.	872.38	874.33	-1.95	-2.16	020	100.
18	1800.	872.45	874.37	-1.92	-2.14	020	100.
19	1900.	872.51	874.41	-1.90	-2.13	020	100.
20	2000.	872.57	874.45	-1.88	-2.12	020	100.
21	2100.	872.63	874.49	-1.86	-2.11	020	100.
22	2200.	872.70	874.53	-1.83	-2.09	020	100.
23	2300.	872.76	874.57	-1.81	-2.08	020	100.
24	2400.	872.82	874.60	-1.78	-2.07	020	100.
25	2500.	872.89	874.64	-1.75	-2.06	020	100.
26	2600.	872.95	874.68	-1.73	-2.04	020	100.
27	2700.	873.01	874.72	-1.71	-2.03	020	100.
28	2800.	873.07	874.76	-1.69	-2.02	020	100.
29	2900.	873.14	874.80	-1.66	-2.01	020	100.
30	3000.	873.20	874.83	-1.63	-1.99	020	100.
31	3100.	873.26	874.87	-1.61	-1.98	020	100.
32	3200.	873.32	874.91	-1.59	-1.97	020	100.
33	3300.	873.39	874.95	-1.56	-1.96	020	100.
	3360.				SEC.		4.000
34	3400.	873.45	874.99	-1.54	-1.94	020	100.
35	3500.	873.53	875.04	-1.51	-1.93	020	100.
36	3600.	873.61	875.09	-1.48	-1.92	020	97.
37	3700.	873.70	875.14	-1.44	-1.91	020	97.
38	3800.	873.78	875.19	-1.41	-1.89	020	97.
39	3900.	873.86	875.24	-1.38	-1.88	020	95.
40	4000.	873.94	875.29	-1.35	-1.87	020	93.
41	4100.	874.02	875.34	-1.32	-1.85	020	93.
42	4200.	874.11	875.39	-1.28	-1.84	020	88.
43	4300.	874.19	875.44	-1.25	-1.83	020	86.
44	4400.	874.27	875.49	-1.22	-1.81	020	84.
45	4500.	874.35	875.54	-1.19	-1.80	020	82.
46	4600.	874.44	875.59	-1.15	-1.78	020	83.
	4660.				SEC.		5.000
47	4700.	874.53	875.65	-1.12	-1.77	020	79.
48	4800.	874.68	875.76	-1.08	-1.76	020	77.
49	4900.	874.84	875.89	-1.05	-1.74	015	76.
50	5000.	875.01	876.03	-1.02	-1.73	015	74.
51	5100.	875.18	876.16	-.98	-1.71	015	75.
	5167.				SEC.		6.000
52	5200.	875.33	876.28	-.95	-1.70	015	71.
53	5300.	875.43	876.37	-.94	-1.68	015	72.
54	5400.	875.50	876.44	-.94	-1.67	015	70.
55	5500.	875.57	876.50	-.93	-1.66	015	69.
56	5600.	875.64	876.57	-.93	-1.64	015	68.
57	5700.	875.71	876.63	-.92	-1.63	015	67.
58	5800.	875.78	876.70	-.92	-1.62	015	66.
59	5900.	875.86	876.76	-.90	-1.61	015	64.
60	6000.	875.93	876.83	-.90	-1.59	015	63.
61	6100.	876.00	876.90	-.90	-1.58	015	62.
62	6200.	876.07	876.96	-.89	-1.57	015	61.
	6297.				SEC.		7.800
63	6300.	876.14	877.02	-.88	-1.56	015	60.
	6317.				SEC.		7.810
	6337.				SEC.		7.820
	6347.				SEC.		7.900

MOORE BUSINESS FORMS, INC. 23

	6361.				SEC.	8.100	
64	6400.	876.61	877.97	-1.36	-1.56	015	61.
	6411.				SEC.	8.300	
65	6500.	877.32	879.26	-1.94	-1.56	015	62.
66	6600.	877.71	879.73	-2.02	-1.57	015	62.
67	6700.	877.96	879.95	-1.99	-1.58	015	63.
68	6800.	878.22	880.16	-1.94	-1.58	015	63.
69	6900.	878.47	880.38	-1.91	-1.59	015	64.
70	7000.	878.73	880.59	-1.86	-1.59	015	64.
71	7100.	878.98	880.81	-1.83	-1.59	015	65.
72	7200.	879.24	881.02	-1.78	-1.60	015	65.
73	7300.	879.49	881.24	-1.75	-1.60	015	66.
74	7400.	879.75	881.45	-1.70	-1.60	015	66.
75	7500.	880.00	881.67	-1.67	-1.60	015	67.
76	7600.	880.26	881.88	-1.62	-1.60	015	67.
	7661.				SEC.	10.800	
	7681.				SEC.	10.810	
77	7700.	880.43	881.86	-1.43	-1.60	015	68.
	7701.				SEC.	10.820	
	7711.				SEC.	10.900	
	7712.				SEC.	11.000	
	7748.				SEC.	11.100	
	7749.				SEC.	11.200	
	7799.				SEC.	11.300	
78	7800.	881.76	883.65	-1.89	-1.60	015	68.
79	7900.	883.07	885.58	-2.51	-1.61	015	67.
80	8000.	883.12	885.60	-2.48	-1.63	015	66.
81	8100.	883.16	885.61	-2.45	-1.64	015	65.
	8149.				SEC.	13.800	
	8199.				SEC.	13.900	
82	8200.	882.97	885.21	-2.24	-1.64	015	65.
	8200.				SEC.	14.000	
	8220.				SEC.	14.100	
	8221.				SEC.	14.200	
	8247.				SEC.	15.500	
83	8300.	883.51	886.14	-2.63	-1.65	015	64.
	8347.				SEC.	15.900	
	8397.				SEC.	16.100	
84	8400.	885.00	887.65	-2.65	-1.67	015	63.
	8447.				SEC.	16.300	
85	8500.	885.86	887.90	-2.04	-1.67	015	64.
86	8600.	885.99	887.97	-1.98	-1.67	015	64.
	8690.				SEC.	18.800	
87	8700.	885.98	887.94	-1.96	-1.68	015	64.
	8740.				SEC.	18.900	
	8790.				SEC.	19.100	
88	8800.	885.99	888.22	-2.23	-1.68	015	64.
	8840.				SEC.	19.300	
89	8900.	886.18	888.76	-2.58	-1.69	015	63.
90	9000.	886.36	889.01	-2.65	-1.70	015	61.
91	9100.	886.39	889.03	-2.64	-1.72	015	62.
	9140.				SEC.	21.000	
	9190.				SEC.	22.000	
92	9200.	886.41	889.05	-2.64	-1.73	015	61.

MOORE BUSINESS FORMS, INC 23

93	9300.	886.42	889.05	-2.63	-1.73	015	60.
94	9400.	886.43	889.05	-2.62	-1.74	015	61.
95	9500.	886.44	889.05	-2.61	-1.75	020	61.
96	9600.	886.45	889.05	-2.60	-1.76	020	59.
	9690.				SEC.		24.800
97	9700.	886.46	889.06	-2.60	-1.77	020	59.
	9710.				SEC.		24.810
	9730.				SEC.		24.820
	9740.				SEC.		24.900
	9773.				SEC.		25.100
98	9800.	886.54	889.63	-3.09	-1.78	020	59.
	9823.				SEC.		25.300
99	9900.	886.75	890.21	-3.46	-1.80	020	58.
100	10000.	886.97	890.27	-3.30	-1.82	020	58.
101	10100.	887.10	890.34	-3.24	-1.83	020	56.
	10127.				SEC.		27.000
102	10200.	887.20	890.39	-3.19	-1.84	020	56.
103	10300.	887.25	890.42	-3.17	-1.86	020	55.
104	10400.	887.28	890.43	-3.15	-1.87	020	54.
105	10500.	887.32	890.45	-3.13	-1.88	020	53.
106	10600.	887.35	890.47	-3.12	-1.89	020	53.
107	10700.	887.39	890.49	-3.10	-1.90	020	52.
108	10800.	887.42	890.50	-3.08	-1.91	020	52.
109	10900.	887.46	890.52	-3.06	-1.93	020	51.
110	11000.	887.49	890.54	-3.05	-1.94	020	50.
111	11100.	887.53	890.56	-3.03	-1.95	020	50.
112	11200.	887.56	890.57	-3.01	-1.95	020	49.
	11277.				SEC.		28.000
113	11300.	887.59	890.59	-3.00	-1.96	020	49.
114	11400.	887.62	890.60	-2.98	-1.97	020	48.
115	11500.	887.63	890.61	-2.98	-1.98	020	49.
116	11600.	887.65	890.62	-2.97	-1.99	020	47.
117	11700.	887.67	890.63	-2.96	-2.00	020	76.
118	11800.	887.68	890.63	-2.95	-2.01	020	77.
119	11900.	887.70	890.64	-2.94	-2.01	020	77.
120	12000.	887.72	890.65	-2.93	-2.02	020	78.
121	12100.	887.73	890.66	-2.93	-2.03	020	78.
	12182.				SEC.		60.800
122	12200.	887.85	890.68	-2.83	-2.04	020	78.
	12232.				SEC.		60.900
	12233.				SEC.		61.000
	12299.				SEC.		61.100
123	12300.	888.22	890.85	-2.63	-2.04	020	78.
	12300.				SEC.		61.200
	12350.				SEC.		61.300
124	12400.	888.58	891.10	-2.52	-2.04	020	78.
125	12500.	888.74	891.23	-2.49	-2.05	020	79.
126	12600.	888.86	891.30	-2.44	-2.05	020	79.
127	12700.	888.99	891.37	-2.38	-2.05	020	80.
128	12800.	889.12	891.45	-2.33	-2.06	020	80.
129	12900.	889.25	891.52	-2.27	-2.06	020	80.
130	13000.	889.38	891.59	-2.21	-2.06	020	80.
131	13100.	889.51	891.67	-2.16	-2.06	020	80.
132	13200.	889.63	891.74	-2.11	-2.06	020	80.

MOORE BUSINESS FORMS INC. 23

133	13300.	889.76	891.81	-2.05	-2.06	020	80.
134	13400.	889.89	891.89	-2.00	-2.06	020	81.
135	13500.	890.02	891.96	-1.94	-2.06	020	81.
136	13600.	890.15	892.03	-1.88	-2.06	020	81.
137	13700.	890.28	892.11	-1.83	-2.06	020	81.
	13800.				SEC.	61.500	
138	13800.	890.40	892.18	-1.78	-2.05	020	81.
139	13900.	890.73	892.33	-1.60	-2.05	020	81.
140	14000.	891.27	892.55	-1.28	-2.05	020	81.
	14080.				SEC.	63.800	
141	14100.	891.69	892.71	-1.02	-2.04	020	80.
	14130.				SEC.	63.900	
	14131.				SEC.	64.000	
	14197.				SEC.	64.100	
	14198.				SEC.	64.200	

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 141 141
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

CONTINUOUS FLOOD HAZARD FACTORS BY EVEN INCREMENTS

INC NO.	TOTAL LENGTH	WEIGHTED AVG DIFFERENCE BETWEEN BASE FLOOD AND		
		10	1	0.2
141	14100.	-2.04	-1.02	1.86

FHF FOR REACH 1 = 020 WITH 80. PERCENT OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 4

THIS REACH CAN BE SUBDIVIDED BY INC NO. TO MEET FIA REQUIREMENTS
INPUT 20N WHERE N IS THE NUMBER OF REACHES AND THEN INPUT THE END
OF EACH REACH BY INC NO. FOR EXAMPLE 202 141 141
A NEGATIVE INC NO. WILL SUPPRESS INTERMEDIATE INC OUTPUT.

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -   01,02,03,04
  MODIFICATION -  50,51,52,53,54
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MOORE BUSINESS FORMS, INC.

Sensitivity of Starting Elevations on the 100yr WSEL
At Corporate Boundary

THIS RUN EXECUTED 05/21/81

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

Section 1.2 is at city Limits and just 100' U/s of RR

T1 Mason, MI
T2
T3 Sycamore Creek

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ	
	0.	4.	0.	0.	0.001000	0.0	0.0	0.	869.500	0.0	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE	
	1.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.080	0.080	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0	0.0
QT	6.000	1120.000	1480.000	1730.000	2360.000	1730.000	1648.000	0.0	0.0	0.0	
X1	0.300	12.000	2000.000	2020.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	873.600	1650.000	870.000	1750.000	866.700	1770.000	865.900	1920.000	866.500	2000.000	
GR	864.300	2005.000	864.000	2008.000	863.100	2012.000	864.000	2017.000	866.500	2020.000	
GR	865.600	2090.000	871.200	2110.000	0.0	0.0	0.0	0.0	0.0	0.0	
X1	0.500	0.0	0.0	0.0	2000.000	2000.000	2000.000	0.0	0.0	0.0	
X1	0.800	5.000	2000.000	2035.000	1200.000	1200.000	1200.000	0.0	0.0	0.0	
GR	874.200	2000.000	862.100	2000.000	864.100	2017.000	864.500	2035.000	874.000	2035.000	
SB	0.900	1.670	2.800	0.0	35.000	0.0	192.500	0.0	863.000	863.000	
X1	1.000	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0	
X2	0.0	0.0	1.000	869.400	874.000	0.0	0.0	0.0	0.0	0.0	
BT	4.000	2000.000	874.200	862.100	2000.000	874.200	869.400	2035.000	874.000	869.000	
BT	2035.000	874.000	864.500	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ET	0.0	9.100	9.100	9.100	9.100	0.0	0.0	0.0	1953.000	2135.000	
X1	1.200	21.000	2004.000	2028.000	100.000	100.000	100.000	0.0	0.0	0.0	
GR	873.600	1953.000	873.600	1953.000	873.600	1953.000	873.600	1953.000	873.600	1953.000	
GR	869.200	1961.000	868.200	1976.000	868.800	2000.000	867.500	2004.000	865.600	2005.000	
GR	864.300	2010.000	864.300	2016.000	864.500	2021.000	865.600	2027.000	868.100	2028.000	
GR	866.840	2107.000	867.100	2173.000	867.800	2436.000	877.200	2470.000	880.500	2483.000	
GR	881.650	2516.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ET	0.0	9.100	9.100	9.100	9.100	9.100	0.0	0.0	1960.000	2080.000	
X1	1.800	32.000	1998.000	2042.000	1000.000	1150.000	1100.000	0.0	0.0	0.0	
GR	878.000	1798.000	877.600	1851.000	877.100	1867.000	875.700	1892.000	870.600	1959.000	
GR	869.300	1998.000	866.900	2000.000	864.700	2005.000	864.200	2009.000	864.700	2016.000	
GR	864.700	2019.000	865.000	2022.000	865.200	2028.000	866.900	2032.000	870.300	2042.000	
GR	869.800	2232.000	871.000	2302.000	871.900	2366.000	872.700	2414.000	873.400	2492.000	
GR	876.400	2519.000	878.600	2559.000	880.400	2600.000	879.600	2654.000	879.800	2682.000	
GR	881.200	2713.000	882.100	2727.000	883.200	2762.000	884.600	2796.000	887.100	2849.000	

GR	888.700	2872.000	888.700	2890.000	0.0	0.0	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO .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
0.30	6.47	869.57	0.0	869.50	869.63	0.06	0.0	0.0	866.50
1730.	1015.	352.	362.	785.	104.	274.	0.	0.	866.50
0.0	1.29	3.38	1.32	0.080	0.040	0.080	0.0	863.10	1752.61
0.001013	0.	0.	0.	0	0	3	0.0	351.56	2104.17

*SECNO .500

0.50	7.67	870.77	0.0	0.0	870.80	0.03	1.17	0.00	866.50
1730.	1057.	305.	368.	1093.	128.	378.	63.	17.	866.50
0.46	0.97	2.38	0.97	0.080	0.040	0.080	0.040	863.10	1728.60
0.000380	2000.	2000.	2000.	3	0	0	0.0	379.87	2108.47

*SECNO .800

3301 HV CHANGED MORE THAN HVINS

0.80	9.25	871.35	0.0	0.0	872.01	0.65	1.02	0.19	874.20
1730.	0.	1730.	0.	0.	267.	0.	89.	23.	874.00
0.51	0.0	6.47	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.003352	1200.	1200.	1200.	2	0	0	0.0	35.00	2035.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.90	1.67	2.80	0.0	35.00	0.0	192.50	0.0	863.00	863.00

*SECNO 1.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRD
873.45	872.78	0.0	0.	1730.	193.	224.	869.40	874.00

1.00	10.91	873.01	0.0	0.0	873.45	0.44	1.44	0.0	874.20
1730.	0.	1730.	0.	0.	325.	0.	89.	23.	874.00
0.51	0.0	5.32	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.001895	20.	20.	20.	2	0	0	0.0	35.00	2035.00

*SECNO 1.200

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= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

MOORE BUSINESS FORMS INC 23

1.20	9.20	873.50	0.0	0.0	873.57	0.07	0.08	0.04	867.50
1730.	253.	635.	842.	230.	208.	661.	91.	23.	868.10
0.52	1.10	3.05	1.27	0.080	0.040	0.080	0.040	864.30	1953.18
0.000448	100.	100.	100.	2	0	0	0.0	181.81	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	9.83	874.03	0.0	0.0	874.23	0.19	0.62	0.04	869.30
1730.	189.	1376.	165.	156.	354.	144.	113.	27.	870.30
0.62	1.22	3.89	1.15	0.080	0.040	0.080	0.040	864.20	1960.00
0.000733	1000.	1100.	1150.	2	0	0	0.0	120.00	2080.00

THIS RUN EXECUTED 05/21/81

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01,02
  MODIFICATION =  50,51,52,53
**************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     SIRT     METRIC   HVINS    Q        WSEL     FQ
      -10.      4.       0.       0.  0.0          0.0      0.0      0.   869.000   0.0
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     2.000    0.0      -1.000   0.0      0.0      0.0      0.0      0.0      0.0      0.0

*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO .300
    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

      0.30      5.90    869.00      0.0    869.00    869.09     0.09      0.0       0.0     866.50
    1730.      984.      388.      358.      645.       93.      227.       0.        0.     866.50
      0.0       1.53      4.18      1.57     0.080     0.040    0.080     0.0     863.10   1756.06
 0.001804       0.        0.        0.         0         0        0       0.0     346.08   2102.14

*SECNO .500
      0.50      7.51    870.61      0.0       0.0     870.64     0.03      1.55      0.01     866.50
    1730.     1052.      310.      368.     1050.      125.      364.       57.       17.     866.50
      0.44      1.00      2.48      1.01     0.080     0.040    0.080     0.040   863.10   1733.03
 0.000427    2000.     2000.     2000.         4         0        0       0.0     374.86   2107.90

*SECNO .800

3301 HV CHANGED MORE THAN HVINS

      0.80      9.19    871.29      0.0       0.0     871.95     0.66      1.12      0.19     874.20
    1730.        0.     1730.        0.        0.      265.        0.       82.       22.     874.00
      0.49      0.0       6.53      0.0      0.080     0.040    0.080     0.040   862.10   2000.00
 0.003435    1200.     1200.     1200.         2         0        0       0.0      35.00   2035.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       AREA      SS        ELCHU     ELCHD
      0.90      1.67      2.80      0.0      35.00      0.0     192.50      0.0     863.00    863.00

*SECNO 1.000
PRESSURE FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRD
873.38	872.72	0.0	0.	1730.	193.	224.	869.40	874.00

1.00	10.84	872.94	0.0	0.0	873.38	0.45	1.43	0.0	874.20
1730.	0.	1730.	0.	0.	323.	0.	82.	22.	874.00
0.49	0.0	5.36	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.001938	20.	20.	20.	2	0	0	0.0	35.00	2035.00

*SECNO 1.200

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=			1953.0	2135.0	TYPE=	1	TARGET=	182.000	
1.20	9.13	873.43	0.0	873.50	873.50	0.07	0.08	0.04	867.50
1730.	252.	637.	841.	227.	206.	654.	84.	22.	868.10
0.50	1.11	3.09	1.29	0.080	0.040	0.080	0.040	864.30	1953.30
0.000462	100.	100.	100.	2	0	0	0.0	181.70	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS=			1960.0	2080.0	TYPE=	1	TARGET=	120.000	
1.80	9.79	873.99	0.0	874.03	874.18	0.19	0.64	0.04	869.30
1730.	188.	1379.	163.	154.	352.	142.	106.	26.	870.30
0.60	1.22	3.92	1.15	0.080	0.040	0.080	0.040	864.20	1960.00
0.000751	1000.	1100.	1150.	2	0	0	0.0	120.00	2080.00

MOORE BUSINESS FORMS INC. 23

THIS RUN EXECUTED 05/21/81

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*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ
     -10.      4.       0.       0.   0.0          0.0       0.0       0.   870.000    0.0
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN        ALLDC     IBW      CHNIM    ITRACE
     15.000    0.0     -1.000    0.0      0.0      0.0       0.0       0.0      0.0      0.0

*PROF 3

CCHV=   0.100 CEHV=   0.300
*SECNO .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

     0.30     6.90   870.00     0.0    870.00   870.04     0.04     0.0      0.0     866.50
    1730.    1032.     332.     365.     892.     113.     311.      0.       0.     866.50
      0.0     1.16     2.94     1.17    0.080    0.040    0.080     0.0    863.10   1750.00
 0.000691      0.       0.       0.        0        0        0      0.0    355.71   2105.71

*SECNO .500
     0.50     7.85   870.95     0.0      0.0    870.98     0.03     0.93     0.00     866.50
    1730.    1061.     300.     369.    1141.     132.     394.      68.      17.     866.50
     0.48     0.93     2.27     0.94    0.080    0.040    0.080    0.040   863.10   1723.69
 0.000336    2000.    2000.    2000.        2        0        0      0.0    385.41   2109.10

*SECNO .800

3301 HV CHANGED MORE THAN HVINS

     0.80     9.35   871.45     0.0      0.0    872.08     0.64     0.92     0.18     874.20
    1730.      0.     1730.      0.       0.     271.       0.      95.      23.     874.00
     0.53     0.0      6.40     0.0    0.080    0.040    0.080    0.040   862.10   2000.00
 0.003238    1200.    1200.    1200.        2        0        0      0.0     35.00   2035.00

SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     0.90     1.67     2.80     0.0     35.00     0.0    192.50     0.0     863.00   863.00

*SECNO 1.000
PRESSURE FLOW
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EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRD
873.54	872.86	0.0	0.	1730.	193.	224.	869.40	874.00

1.00	11.01	873.11	0.0	0.0	873.54	0.43	1.46	0.0	874.20
1730.	0.	1730.	0.	0.	329.	0.	95.	23.	874.00
0.53	0.0	5.26	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.001837	20.	20.	20.	2	0	0	0.0	35.00	2035.00

*SECNO 1.200

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= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	9.29	873.59	0.0	873.50	873.65	0.07	0.08	0.04	867.50
1730.	255.	631.	843.	235.	210.	671.	97.	23.	868.10
0.55	1.09	3.01	1.26	0.080	0.040	0.080	0.040	864.30	1953.02
0.000428	100.	100.	100.	2	0	0	0.0	181.98	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	9.90	874.10	0.0	874.03	874.29	0.19	0.60	0.04	869.30
1730.	191.	1372.	167.	158.	357.	146.	119.	27.	870.30
0.64	1.21	3.85	1.14	0.080	0.040	0.080	0.040	864.20	1960.00
0.000709	1000.	1100.	1150.	2	0	0	0.0	120.00	2080.00

THIS RUN EXECUTED 05/21/81

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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

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.300	0.0	0.0	0.0	863.10	1730.00	869.57	0.0	869.63	10.13	3.38	1163.43	543.5
0.300	0.0	0.0	0.0	863.10	1730.00	869.00	0.0	869.09	18.04	4.18	965.03	407.3
0.300	0.0	0.0	0.0	863.10	1730.00	870.00	0.0	870.04	6.91	2.94	1315.93	657.9
0.500	2000.00	0.0	0.0	863.10	1730.00	870.77	0.0	870.80	3.80	2.38	1599.35	887.4
0.500	2000.00	0.0	0.0	863.10	1730.00	870.61	0.0	870.64	4.27	2.48	1539.04	837.2
0.500	2000.00	0.0	0.0	863.10	1730.00	870.95	0.0	870.98	3.36	2.27	1666.90	944.4
0.800	1200.00	0.0	0.0	862.10	1730.00	871.35	0.0	872.01	33.52	6.47	267.35	298.8
0.800	1200.00	0.0	0.0	862.10	1730.00	871.29	0.0	871.95	34.35	6.53	265.12	295.1
0.800	1200.00	0.0	0.0	862.10	1730.00	871.45	0.0	872.08	32.38	6.40	270.52	304.0
1.000	20.00	874.00	869.40	862.10	1730.00	873.01	0.0	873.45	18.95	5.32	325.29	397.4
1.000	20.00	874.00	869.40	862.10	1730.00	872.94	0.0	873.38	19.38	5.36	322.74	392.9
1.000	20.00	874.00	869.40	862.10	1730.00	873.11	0.0	873.54	18.37	5.26	328.81	403.6
1.200	100.00	0.0	0.0	864.30	1730.00	873.50	0.0	873.57	4.48	3.05	1099.03	817.1
1.200	100.00	0.0	0.0	864.30	1730.00	873.43	0.0	873.50	4.62	3.09	1087.31	804.5
1.200	100.00	0.0	0.0	864.30	1730.00	873.59	0.0	873.65	4.28	3.01	1115.37	836.1
1.800	1100.00	0.0	0.0	864.20	1730.00	874.03	0.0	874.23	7.33	3.89	653.45	638.9
1.800	1100.00	0.0	0.0	864.20	1730.00	873.99	0.0	874.18	7.51	3.92	647.67	631.3
1.800	1100.00	0.0	0.0	864.20	1730.00	874.10	0.0	874.29	7.09	3.85	661.48	649.3

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.300	1730.00	869.57	0.0	0.0	0.07	351.56	0.0
0.300	1730.00	869.00	-0.57	0.0	0.0	346.08	0.0
0.300	1730.00	870.00	1.00	0.0	0.0	355.71	0.0
0.500	1730.00	870.77	0.0	1.20	0.0	379.87	2000.00
0.500	1730.00	870.61	-0.16	1.61	0.0	374.86	2000.00
0.500	1730.00	870.95	0.34	0.95	0.0	385.41	2000.00
0.800	1730.00	871.35	0.0	0.58	0.0	35.00	1200.00
0.800	1730.00	871.29	-0.07	0.68	0.0	35.00	1200.00
0.800	1730.00	871.45	0.16	0.49	0.0	35.00	1200.00
1.000	1730.00	873.01	0.0	1.66	0.0	35.00	20.00
1.000	1730.00	872.94	-0.07	1.65	0.0	35.00	20.00
1.000	1730.00	873.11	0.17	1.66	0.0	35.00	20.00
1.200	1730.00	873.50	0.0	0.49	0.0	181.81	100.00
1.200	1730.00	873.43	-0.06	0.50	-0.06	181.70	100.00
1.200	1730.00	873.59	0.15	0.48	0.09	181.98	100.00
1.800	1730.00	874.03	0.0	0.54	0.0	120.00	1100.00
1.800	1730.00	873.99	-0.05	0.55	-0.05	120.00	1100.00
1.800	1730.00	874.10	0.11	0.51	0.07	120.00	1100.00

SUMMARY OF ERRORS

THIS RUN EXECUTED 05/21/81

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************
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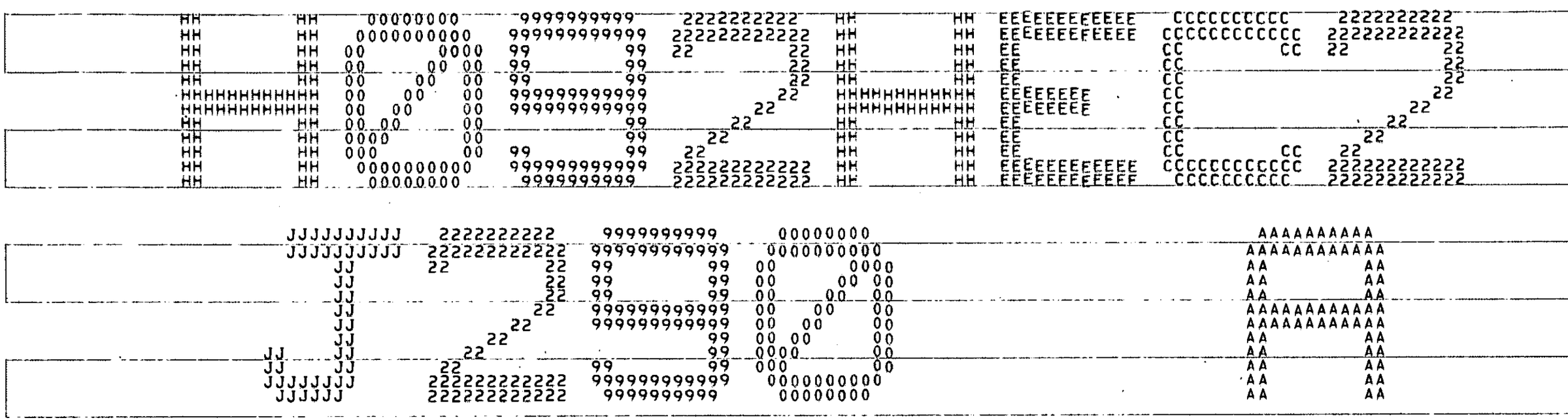
MOORE BUSINESS FORMS INC



****A END JOB 290 H092HEC2 V.DANUSHKODI ROOM 1.56.03 PM 21 MAY 81 R10.PR1 SYS IPO1 JOB 290 END A**
****A END JOB 290 H092HEC2 V.DANUSHKODI ROOM 1.56.03 PM 21 MAY 81 R10.PR1 SYS IPO1 JOB 290 END A**
****A END JOB 290 H092HEC2 V.DANUSHKODI ROOM 1.56.03 PM 21 MAY 81 R10.PR1 SYS IPO1 JOB 290 END A**

THIS RUN EXECUTED 05/21/81

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************
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Sec 1.2 is @ city limits

T1 MASON, MI. SYCAMORE CREEK STARTING ELEVATIONS AT CORPORATE LIMITS
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.001000	0.0	0.0	0.	865.000	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	0.080	0.080	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0
QT	6.000	1120.000	1480.000	1730.000	2360.000	1730.000	1648.000	0.0	0.0	0.0
X1	0.300	12.000	2000.000	2020.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	873.600	1650.000	870.000	1750.000	866.700	1770.000	865.900	1920.000	866.500	2000.000
GR	864.300	2005.000	864.000	2008.000	863.100	2012.000	864.000	2017.000	866.500	2020.000
GR	865.600	2090.000	871.200	2110.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	0.500	0.0	0.0	0.0	2000.000	2000.000	2000.000	0.0	0.0	0.0
X1	0.800	5.000	2000.000	2035.000	1200.000	1200.000	1200.000	0.0	0.0	0.0
GR	874.200	2000.000	862.100	2000.000	864.100	2017.000	864.500	2035.000	874.000	2035.000
SB	0.900	1.670	2.800	0.0	35.000	0.0	192.500	0.0	863.500	863.500
X1	1.000	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	869.400	874.200	0.0	0.0	0.0	0.0	0.0
BT	8.000	1900.000	880.000	0.0	1900.000	973.600	0.0	2000.000	874.200	0.0
BT	2000.000	874.200	869.400	2035.000	874.200	869.000	2035.000	874.200	0.0	2100.000
BT	874.200	0.0	2100.000	880.000	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	0.0	0.0	0.0	1953.000	2135.000
X1	1.200	21.000	2004.000	2028.000	100.000	100.000	100.000	0.0	0.0	0.0
GR	873.600	1953.000	873.600	1953.000	873.600	1953.000	873.600	1953.000	873.600	1953.000
GR	869.200	1961.000	868.200	1976.000	868.800	2000.000	867.500	2004.000	865.600	2005.000
GR	864.300	2010.000	864.300	2016.000	864.500	2021.000	865.600	2027.000	868.100	2028.000
GR	866.840	2107.000	867.100	2173.000	867.800	2436.000	877.200	2470.000	880.500	2483.000
GR	881.650	2516.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	9.100	0.0	0.0	1960.000	2080.000
X1	1.800	32.000	1998.000	2042.000	1000.000	1150.000	1100.000	0.0	0.0	0.0
GR	878.000	1798.000	877.600	1851.000	877.100	1867.000	875.700	1892.000	870.600	1959.000
GR	869.300	1998.000	866.900	2000.000	864.700	2005.000	864.200	2009.000	864.700	2016.000
GR	864.700	2019.000	865.000	2022.000	865.200	2028.000	866.900	2032.000	870.300	2042.000
GR	869.800	2232.000	871.000	2302.000	871.900	2366.000	872.700	2414.000	873.400	2492.000
GR	876.400	2519.000	878.600	2559.000	880.400	2600.000	879.600	2654.000	879.800	2682.000

MOORE BUSINESS FORMS, INC. 23

	[illegible]	[illegible]	[illegible]	[illegible]	883.200	2762.000	884.600	2796.000	887.100	2849.000
GR	888.700	2872.000	888.700	2890.000	0.0	0.0	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO .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	ICCNT	CORAR	TCPWID	ENDST
0.30	5.65	868.75	0.0	865.00	868.80	0.05	0.0	0.0	866.50
1120.	626.	264.	230.	585.	88.	207.	0.	0.	866.50
0.0	1.07	3.01	1.11	0.080	0.040	0.080	0.0	863.10	1757.57
0.001006	0.	0.	0.	0	0	7	0.0	343.69	2101.26

*SECNO .500

0.50	6.75	869.85	0.0	0.0	869.87	0.02	1.07	0.00	866.50
1120.	665.	219.	236.	854.	110.	298.	49.	16.	866.50
0.54	0.78	2.00	0.79	0.080	0.040	0.080	0.040	863.10	1750.92
0.000330	2000.	2000.	2000.	3	0	0	0.0	354.26	2105.17

*SECNO .800

0.80	8.32	870.42	0.0	0.0	870.78	0.35	0.81	0.10	874.20
1120.	0.	1120.	0.	0.	235.	0.	70.	21.	874.00
0.61	0.0	4.77	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.002065	1200.	1200.	1200.	2	0	0	0.0	35.00	2035.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.90	1.67	2.80	0.0	35.00	0.0	192.50	0.0	863.50	863.50

*SECNO 1.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 871.300 EGLWC= 872.064 ELLC= 869.400 PCWSE= 870.422 ELTRD= 874.200

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 874.20 MAX ELLC= 869.40

1.00	8.27	870.37	0.0	0.0	870.90	0.53	0.07	0.05	874.20
1120.	0.	1120.	0.	0.	192.	0.	70.	21.	874.00
0.62	0.0	5.84	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.008238	20.	20.	20.	2	0	0	-41.05	35.00	2035.00

*SECNO 1.200

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= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	6.75	871.05	0.0	0.0	871.14	0.09	0.20	0.04	867.50
1120.	109.	503.	508.	111.	149.	399.	71.	22.	868.10
0.63	0.99	3.38	1.27	0.080	0.040	0.080	0.040	864.30	1957.64
0.000853	100.	100.	100.	2	0	0	0.0	177.36	2135.00

MOORE BUSINESS FORMS, INC. 23

*SECNO 1.800

3470 ENCROACHMENT STATIONS=			1960.0	2080.0	TYPE=	1	TARGET=	120.000	
1.80	7.80	872.00	0.0	0.0	872.19	0.19	1.02	0.03	869.30
1120.	73.	991.	55.	79.	265.	67.	84.	25.	870.30
0.72	0.93	3.75	0.83	0.080	0.040	0.080	0.040	864.20	1960.00
0.001002	1000.	1100.	1150.	3	0	0	0.0	120.00	2080.00

THIS RUN EXECUTED 05/21/81

WES2*RELEASE*DATED*NOV*78*UPDATEDAUG1977******

ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	EQ
	-10.	3.	0.	0.	0.001000	0.0	0.0	0.	865.000	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*PROF 2

CCHV= 0.100 CEHV= 0.300

*SECNO .300

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
0.30	6.15	869.25	0.0	865.00	869.30	0.05	0.0	0.0	866.50
1480.	855.	317.	308.	706.	98.	248.	0.	0.	866.50
0.0	1.21	3.24	1.24	0.080	0.040	0.080	0.0	863.10	1754.56
0.001015	0.	0.	0.	0	0	7	0.0	348.47	2103.03

*SECNO .500

0.50	7.31	870.41	0.0	0.0	870.44	0.02	1.14	0.00	866.50
1480.	895.	271.	314.	998.	121.	347.	58.	16.	866.50
0.49	0.90	2.23	0.91	0.080	0.040	0.080	0.040	863.10	1738.47
0.000362	2000.	2000.	2000.	3	0	0	0.0	368.73	2107.20

*SECNO .800

0.80	8.91	871.01	0.0	0.0	871.53	0.52	0.94	0.15	874.20
1480.	0.	1480.	0.	0.	255.	0.	82.	22.	874.00
0.54	0.0	5.80	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.002813	1200.	1200.	1200.	2	0	0	0.0	35.00	2035.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.90	1.67	2.80	0.0	35.00	0.0	192.50	0.0	863.50	863.50

*SECNO 1.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 872.540 EGLWC= 872.775 ELLC= 869.400 PCWSE= 871.008 ELTRD= 874.200

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 874.20 MAX ELLC= 869.40

1.00	8.74	870.84	0.0	0.0	871.76	0.92	0.11	0.12	874.20
1480.	0.	1480.	0.	0.	192.	0.	82.	22.	874.00
0.54	0.0	7.71	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.014596	20.	20.	20.	2	0	0	-57.24	35.00	2035.00

*SECNO 1,200

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ARCB	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= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	7.65	871.95	0.0	871.05	872.05	0.10	0.21	0.08	867.50
1480.	177.	606.	697.	154.	171.	496.	83.	22.	868.10
0.56	1.15	3.55	1.41	0.080	0.040	0.080	0.040	864.30	1956.00
0.000788	100.	100.	100.	2	0	0	0.0	179.00	2135.00

*SECNO 1,800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	8.65	872.85	0.0	872.00	873.07	0.23	0.99	0.04	869.30
1480.	129.	1245.	106.	111.	302.	99.	100.	26.	870.30
0.64	1.16	4.13	1.07	0.080	0.040	0.080	0.040	864.20	1960.00
0.001022	1000.	1100.	1150.	4	0	0	0.0	120.00	-2080.00

MOORE BUSINESS FORMS, INC. 23

THIS RUN EXECUTED 05/21/81

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -10.       4.       0.       0.  0.001000    0.0      0.0      0.    865.000    0.0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     3.000     0.0     -1.000    0.0      0.0      0.0      0.0      0.0      0.0      0.0

*PROF 3

CCHV=   0.100 CEHV=   0.300
*SECNO .300
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      ARCB     VOL      TWA      LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICCNT    CORAR    TOPWID     ENDST

     0.30     6.48   869.58     0.0    865.00   869.64     0.06     0.0      0.0     866.50
    1730.    1016.     352.     363.     788.     104.     276.      0.       0.     866.50
     0.0      1.29     3.37     1.32    0.080    0.040    0.080    0.0     863.10   1752.53
 0.001000      0.       0.       0.       0        0        8      0.0     351.69   2104.22

*SECNO .500
     0.50     7.67   870.77     0.0      0.0    870.80     0.03     1.16     0.00     866.50
    1730.    1057.     305.     368.    1094.     128.     379.      64.      17.     866.50
     0.46     0.97     2.37     0.97    0.080    0.040    0.080    0.040    863.10   1728.47
 0.000379    2000.    2000.    2000.       3        0        0      0.0     380.02   2108.48

*SECNO .800

3301 HV CHANGED MORE THAN HVINS

     0.80     9.26   871.36     0.0      0.0    872.01     0.65     1.02     0.19     874.20
    1730.      0.     1730.      0.       0.     267.       0.      89.      23.     874.00
     0.51     0.0      6.47     0.0     0.080    0.040    0.080    0.040    862.10   2000.00
 0.003349    1200.    1200.    1200.       2        0        0      0.0     35.00   2035.00

SPECIAL BRIDGE

SB  XK       XKOR     COEQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     0.90     1.67     2.80     0.0     35.00     0.0     192.50    0.0     863.50   863.50

*SECNO 1.000
PRESSURE FLOW
```

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRO
873.45	873.22	0.0	0.	1730.	193.	206.	869.40	874.20

1.00	10.91	873.01	0.0	0.0	873.45	0.44	1.44	0.0	874.20
1730.	0.	1730.	0.	0.	325.	0.	89.	23.	874.00
0.51	0.0	5.32	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.001893	20.	20.	20.	2	0	0	0.0	35.00	2035.00

*SECNO 1.200

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= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	9.20	873.50	0.0	871.05	873.57	0.07	0.08	0.04	867.50
1730.	253.	634.	842.	230.	208.	661.	91.	23.	868.10
0.52	1.10	3.05	1.27	0.080	0.040	0.080	0.040	864.30	1953.18
0.000447	100.	100.	100.	2	0	0	0.0	181.82	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	9.84	874.04	0.0	872.00	874.23	0.19	0.62	0.04	869.30
1730.	189.	1376.	165.	156.	354.	144.	113.	27.	870.30
0.62	1.21	3.89	1.15	0.080	0.040	0.080	0.040	864.20	1960.00
0.000733	1000.	1100.	1150.	2	0	0	0.0	120.00	2080.00

MOORE BUSINESS FORMS INC 23

MOORE BUSINESS FORMS, INC. 23

THIS RUN EXECUTED 05/21/81

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -10.      5.       0.       0.  0.001000     0.0      0.0      0.   865.000    0.0
J2  NPRCE     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     15.000    0.0     -1.000    0.0      0.0      0.0      0.0      0.0      0.0      0.0
*PROF 4

CCHV=   0.100 CEHV=   0.300
*SECNO .300
   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

     0.30     7.21   870.31     0.0    865.00   870.37     0.07     0.0      0.0    866.50
    2360.    1423.     437.     500.     970.     119.     338.      0.       0.    866.50
     0.0      1.47     3.67     1.48    0.080    0.040    0.080     0.0    863.10  1741.47
 0.001002      0.       0.       0.        0        0        8     0.0    365.34  2106.81

*SECNO .500
3280 CROSS SECTION      0.50 EXTENDED      0.37 FEET

     0.50     8.47   871.57     0.0      0.0   871.60     0.03     1.23     0.00    866.50
    2360.    1467.     387.     506.    1319.     144.     450.      77.      18.    866.50
     0.40     1.11     2.68     1.13    0.080    0.040    0.080    0.040   863.10  1706.41
 0.000414    2000.    2000.    2000.        3        0        0      0.0   403.59  2110.00

*SECNO .800

3301 HV CHANGED MORE THAN HVINS

     0.80     9.97   872.07     0.0      0.0   873.08     1.01     1.19     0.29    874.20
    2360.      0.     2360.      0.       0.     293.       0.      107.      24.    874.00
     0.45     0.0      8.07     0.0    0.080    0.040    0.080    0.040   862.10  2000.00
 0.004795    1200.    1200.    1200.        2        0        0      0.0    35.00  2035.00

SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
     0.90     1.67     2.80     0.0     35.00     0.0    192.50     0.0    863.50   863.50
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*SECNO 1.000
3280 CROSS SECTION 1.00 EXTENDED 0.55 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
875.97	874.22	0.0	259.	2096.	193.	206.	869.40	874.20

1.00	12.45	874.55	0.0	0.0	875.15	0.60	2.06	0.0	874.20
2360.	0.	2360.	0.	0.	379.	0.	107.	24.	874.00
0.45	0.0	6.22	0.0	0.080	0.040	0.080	0.040	862.10	2000.00
0.002277	20.	20.	20.	2	0	2	0.0	35.00	2035.00

*SECNO 1.200

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	ICCNT	CORAR	TCPWID	ENDST

3470 ENCROACHMENT STATIONS= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	10.91	875.21	0.0	871.05	875.28	0.07	0.08	0.05	867.50
2360.	395.	797.	1168.	317.	249.	844.	109.	24.	868.10
0.46	1.25	3.20	1.38	0.080	0.040	0.080	0.040	864.30	1953.00
0.000388	100.	100.	100.	2	0	0	0.0	182.00	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	11.46	875.66	0.0	872.00	875.87	0.21	0.55	0.04	869.30
2360.	306.	1777.	277.	217.	425.	205.	138.	28.	870.30
0.55	1.41	4.18	1.35	0.080	0.040	0.080	0.040	864.20	1960.00
0.000663	1000.	1100.	1150.	2	0	0	0.0	120.00	2080.00

THIS RUN EXECUTED 05/21/81

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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

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01
0.300	0.0	0.0	0.0	863.10	1120.00	868.75	0.0	868.80	10.06	3.01	879.37	353.
0.300	0.0	0.0	0.0	863.10	1480.00	869.25	0.0	869.30	10.15	3.24	1051.18	464.
0.300	0.0	0.0	0.0	863.10	1730.00	869.58	0.0	869.64	10.00	3.37	1168.13	546.
0.300	0.0	0.0	0.0	863.10	2360.00	870.31	0.0	870.37	10.02	3.67	1426.60	745.
0.500	2000.00	0.0	0.0	863.10	1120.00	869.85	0.0	869.87	3.30	2.00	1262.30	616.
0.500	2000.00	0.0	0.0	863.10	1480.00	870.41	0.0	870.44	3.62	2.23	1466.31	777.
0.500	2000.00	0.0	0.0	863.10	1730.00	870.77	0.0	870.80	3.79	2.37	1601.12	888.
0.500	2000.00	0.0	0.0	863.10	2360.00	871.57	0.0	871.60	4.14	2.68	1912.56	1159.
0.800	1200.00	0.0	0.0	862.10	1120.00	870.42	0.0	870.78	20.65	4.77	234.66	246.
0.800	1200.00	0.0	0.0	862.10	1480.00	871.01	0.0	871.53	28.13	5.80	255.18	279.
0.800	1200.00	0.0	0.0	862.10	1730.00	871.36	0.0	872.01	33.49	6.47	267.43	298.
0.800	1200.00	0.0	0.0	862.10	2360.00	872.07	0.0	873.08	47.95	8.07	292.53	340.
1.000	20.00	874.20	869.40	862.10	1120.00	870.37	0.0	870.90	82.38	5.84	191.89	123.
1.000	20.00	874.20	869.40	862.10	1480.00	870.84	0.0	871.76	145.96	7.71	191.89	122.
1.000	20.00	874.20	869.40	862.10	1730.00	873.01	0.0	873.45	18.93	5.32	325.37	397.
1.000	20.00	874.20	869.40	862.10	2360.00	874.55	0.0	875.15	22.77	6.22	379.12	494.
1.200	100.00	0.0	0.0	864.30	1120.00	871.05	0.0	871.14	8.53	3.38	658.83	383.
1.200	100.00	0.0	0.0	864.30	1480.00	871.95	0.0	872.05	7.88	3.55	819.85	527.
1.200	100.00	0.0	0.0	864.30	1730.00	873.50	0.0	873.57	4.47	3.05	1099.47	818.
1.200	100.00	0.0	0.0	864.30	2360.00	875.21	0.0	875.28	3.88	3.20	1409.74	1198.
1.800	1100.00	0.0	0.0	864.20	1120.00	872.00	0.0	872.19	10.02	3.75	410.11	353.
1.800	1100.00	0.0	0.0	864.20	1480.00	872.85	0.0	873.07	10.22	4.13	511.12	463.
1.800	1100.00	0.0	0.0	864.20	1730.00	874.04	0.0	874.23	7.33	3.89	653.61	639.
1.800	1100.00	0.0	0.0	864.20	2360.00	875.66	0.0	875.87	6.63	4.18	848.12	916.

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.300	1120.00	868.75	0.0	0.0	3.75	343.69	0.0
0.300	1480.00	869.25	0.50	0.0	4.25	348.47	0.0
0.300	1730.00	869.58	0.33	0.0	4.58	351.69	0.0
0.300	2360.00	870.31	0.72	0.0	5.31	365.34	0.0
0.500	1120.00	869.85	0.0	1.10	0.0	354.26	2000.00
0.500	1480.00	870.41	0.57	1.17	0.0	368.73	2000.00
0.500	1730.00	870.77	0.36	1.19	0.0	380.02	2000.00
0.500	2360.00	871.57	0.79	1.26	0.0	403.59	2000.00
0.800	1120.00	870.42	0.0	0.57	0.0	35.00	1200.00
0.800	1480.00	871.01	0.59	0.59	0.0	35.00	1200.00
0.800	1730.00	871.36	0.35	0.58	0.0	35.00	1200.00
0.800	2360.00	872.07	0.72	0.50	0.0	35.00	1200.00
1.000	1120.00	870.37	0.0	-0.05	0.0	35.00	20.00
1.000	1480.00	870.84	0.46	-0.17	0.0	35.00	20.00
1.000	1730.00	873.01	2.18	1.66	0.0	35.00	20.00
1.000	2360.00	874.55	1.53	2.47	0.0	35.00	20.00
1.200	1120.00	871.05	0.0	0.68	0.0	177.36	100.00
1.200	1480.00	871.95	0.90	1.12	0.90	179.00	100.00
1.200	1730.00	873.50	1.55	0.49	2.45	181.82	100.00
1.200	2360.00	875.21	1.70	0.66	4.16	182.00	100.00
1.800	1120.00	872.00	0.0	0.95	0.0	120.00	1100.00
1.800	1480.00	872.85	0.85	0.90	0.85	120.00	1100.00
1.800	1730.00	874.04	1.19	0.53	2.04	120.00	1100.00
1.800	2360.00	875.66	1.62	0.45	3.66	120.00	1100.00

SUMMARY OF ERRORS

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR =  01,02,03,04
  MODIFICATION -  50,51,52,53,54
**********************************************************

C
T1      CITY OF MASON, INGHAM CO., MICHIGAN,
T2      100-YEAR FLOOD    FLOODWAY CALCULATIONS
T3      SYCAMORE CREEK

J1  ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       0.         4.         0.         0.  0.000000       0.00       0.0        0.       873.500     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      1.000     42.000     41.000     40.000     53.000     27.000     21.000     22.000     28.000

   54.000      4.000     39.000      0.000    150.000    200.000      0.000      0.000      0.000      0.000

QT      6.000   1120.000   1480.000   1730.000   2360.000   1730.000   1648.000      0.000      0.000      0.000
NC       .080       .080       .040       .100       .300      0.000      0.000      0.000      0.000      0.000
ET      0.000      9.100      9.100      9.100      9.100      9.100      0.000      0.000   1953.000   2135.000

X1      1.200     21.000   2004.000   2028.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    873.600   1953.000    873.600   1953.000    873.600   1953.000    873.600   1953.000    873.600   1953.000
GR    869.200   1961.000    868.200   1976.000    868.800   2000.000    867.500   2004.000    865.600   2005.000
GR    864.300   2010.000    864.300   2016.000    864.500   2021.000    865.600   2027.000    868.100   2028.000
GR    866.840   2107.000    867.100   2173.000    867.800   2436.000    877.200   2470.000    880.500   2483.000
GR    881.650   2516.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      9.100      9.100      9.100      9.100      9.100      0.000      0.000   1960.000   2080.000

X1      1.800     32.000   1998.000   2042.000   1000.000   1150.000   1100.000      0.000      0.000      0.000
GR    878.000   1798.000    877.600   1851.000    877.100   1867.000    875.700   1892.000    870.600   1959.000
GR    869.300   1998.000    866.900   2000.000    864.700   2005.000    864.200   2009.000    864.700   2016.000
GR    864.700   2019.000    865.000   2022.000    865.200   2028.000    866.900   2032.000    870.300   2042.000
GR    869.800   2232.000    871.000   2302.000    871.900   2366.000    872.700   2414.000    873.400   2492.000
GR    876.400   2519.000    878.600   2559.000    880.400   2600.000    879.600   2654.000    879.800   2682.000
GR    881.200   2713.000    882.100   2727.000    883.200   2762.000    884.600   2796.000    887.100   2849.000
GR    888.700   2872.000    888.700   2890.000      0.000      0.000      0.000      0.000      0.000      0.000
NH      5.000       .080   1884.000       .050   2005.000       .025   2057.000       .050   2093.000       .080
NH   2552.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1	1.900	35.000	2000.000	2093.000	50.000	50.000	50.000	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	877.600	1884.000	877.700	1965.000	878.300	1993.000	878.200	2000.000	872.200	2000.000
GR	872.100	2005.000	867.000	2021.000	867.000	2022.000	867.000	2022.100	867.000	2023.700
GR	867.000	2023.800	866.100	2024.000	866.000	2031.000	865.600	2034.000	864.700	2037.000
GR	864.700	2040.000	864.700	2049.000	866.800	2057.000	868.600	2065.000	868.300	2067.000
GR	868.100	2068.300	868.100	2068.400	868.100	2070.000	868.100	2070.100	869.200	2075.000
GR	872.300	2091.000	872.500	2093.000	878.100	2093.000	878.000	2099.000	877.500	2111.000
GR	877.800	2151.000	878.200	2218.000	878.800	2327.000	879.500	2442.000	880.800	2552.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	22.000	1884.000	877.600	0.000	1965.000	877.700	0.000	1993.000	878.300	0.000
BT	2000.000	878.200	872.200	2000.000	878.200	875.200	2022.000	878.200	875.200	2022.100
BT	878.200	867.000	2023.700	878.200	867.000	2023.800	878.200	875.200	2068.300	878.200
BT	875.200	2068.400	878.200	868.100	2070.000	878.200	868.100	2070.100	878.200	875.200
BT	2093.000	878.100	875.200	2093.000	878.100	872.500	2099.000	878.000	0.000	2111.000
BT	877.500	0.000	2151.000	877.800	0.000	2218.000	878.200	0.000	2327.000	878.800
BT	0.000	2442.000	879.500	0.000	2552.000	880.800	0.000	0.000	0.000	0.000

HOWELL AVE. BRIDGE

X1	2.100	0.000	0.000	0.000	58.000	58.000	58.000	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	2.200	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
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2142.000

X1	2.300	30.000	1998.000	2042.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	878.300	1798.000	877.900	1851.000	877.400	1867.000	876.000	1892.000	870.900	1959.000
GR	869.600	1998.000	867.200	2000.000	865.000	2005.000	864.500	2009.000	865.000	2016.000
GR	865.000	2019.000	865.300	2022.000	865.500	2028.000	867.200	2032.000	870.600	2042.000
GR	870.100	2232.000	871.300	2302.000	872.200	2366.000	873.000	2414.000	873.700	2492.000
GR	876.700	2519.000	878.900	2559.000	880.700	2600.000	879.900	2654.000	880.100	2682.000
GR	881.500	2713.000	882.400	2727.000	883.500	2762.000	884.900	2796.000	887.400	2849.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

X1	4.000	41.000	1995.000	2037.000	2270.000	1900.000	2100.000	0.000	0.000	0.000
GR	888.000	1349.000	884.900	1364.000	884.700	1374.000	881.400	1394.000	880.100	1431.000
GR	879.900	1454.000	882.600	1461.000	881.800	1498.000	884.000	1509.000	882.300	1518.000
GR	883.700	1542.000	883.500	1563.000	880.800	1590.000	875.900	1662.000	872.300	1738.000
GR	872.900	1751.000	870.500	1806.000	870.300	1871.000	870.100	1908.000	869.900	1942.000
GR	870.400	1958.000	871.700	1995.000	868.800	2000.000	867.700	2003.000	867.300	2006.000
GR	867.800	2007.000	868.100	2009.000	867.500	2018.000	868.200	2024.000	868.800	2030.000

MOORE BUSINESS FORMS INC 23

GR	871.700	2037.000	871.200	2060.000	871.700	2067.000	871.400	2081.000	869.900	2096.000
GR	870.500	2147.000	872.500	2245.000	876.100	2307.000	881.600	2369.000	885.200	2421.000
GR	889.500	2471.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.110	.140	.053	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	40.000	2000.000	2025.000	1325.000	1300.000	1300.000	0.000	0.000	0.000
GR	890.500	980.000	889.200	996.000	887.500	1085.000	886.500	1197.000	886.600	1309.000
GR	885.200	1417.000	884.600	1521.000	884.500	1636.000	882.200	1730.000	880.300	1766.000
GR	877.300	1892.000	876.200	1907.000	877.800	1932.000	873.300	1966.000	871.200	1972.000
GR	870.100	1979.000	871.700	1985.000	871.100	2000.000	870.100	2004.000	869.400	2007.000
GR	868.800	2012.000	869.300	2015.000	871.100	2020.000	874.900	2025.000	877.400	2032.000
GR	876.000	2049.000	873.700	2134.000	872.700	2209.000	873.200	2319.000	873.600	2423.000
GR	876.000	2444.000	877.000	2545.000	877.500	2593.000	877.300	2618.000	881.100	2730.000
GR	882.300	2848.000	882.600	2961.000	884.400	3108.000	889.400	3163.000	890.300	3237.000
QT	6.000	1010.000	1330.000	1550.000	2100.000	1550.000	1403.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1989.000	2524.000
NC	.090	.090	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	34.000	2001.000	2029.000	495.000	535.000	507.000	0.000	0.000	0.000
GR	890.800	1204.000	886.300	1297.000	886.100	1399.000	885.800	1497.000	885.200	1598.000
GR	887.000	1715.000	886.500	1814.000	884.400	1851.000	881.500	1893.000	883.300	1932.000
GR	880.900	1966.000	879.600	1983.000	872.300	1997.000	871.300	2000.000	869.400	2001.000
GR	867.700	2007.000	868.000	2010.000	867.700	2017.000	867.700	2024.000	871.700	2029.000
GR	872.600	2037.000	872.200	2064.000	873.300	2095.000	875.800	2234.000	875.000	2327.000
GR	873.200	2379.000	873.500	2492.000	869.700	2496.000	869.300	2498.000	869.700	2503.000
GR	872.600	2517.000	875.200	2523.000	876.600	2524.000	877.000	2535.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1990.000	2035.000
X1	7.800	48.000	2000.000	2026.000	1150.000	1130.000	1130.000	0.000	0.000	0.000
GR	893.300	1596.000	890.300	1682.000	890.100	1749.000	888.700	1785.000	884.500	1812.000
GR	881.700	1821.000	880.300	1845.000	878.400	1905.000	878.300	1932.000	879.500	1972.000
GR	878.300	1980.000	874.400	1986.000	873.300	1991.000	871.600	1994.000	870.900	2000.000
GR	870.000	2003.000	869.700	2008.000	869.400	2010.000	869.300	2014.000	869.500	2018.000
GR	870.800	2026.000	874.100	2032.000	879.000	2040.000	879.600	2122.000	879.900	2209.000
GR	880.000	2245.000	875.400	2327.000	874.100	2419.000	874.100	2453.000	876.700	2462.000
GR	875.500	2468.000	875.000	2525.000	870.800	2534.000	870.400	2538.000	870.900	2540.000
GR	871.200	2545.000	875.800	2557.000	875.200	2607.000	874.200	2622.000	874.900	2645.000
GR	874.900	2726.000	876.000	2815.000	878.200	2845.000	878.400	2941.000	878.100	2961.000
GR	879.800	3032.000	881.400	3087.000	881.700	3115.000	0.000	2000.000	0.000	2000.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1996.000	2030.000
X1	7.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1991.000	2018.100	0.000	0.000

X1	7.820	21.000	1999.000	2018.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	885.300	1831.000	883.100	1869.000	879.900	1953.000	879.300	1970.000	878.300	1980.000
GR	874.400	1986.000	873.300	1991.000	871.600	1999.000	871.600	1999.000	869.400	2001.000
GR	869.500	2004.000	869.600	2008.000	869.700	2013.000	870.300	2016.000	870.800	2017.000
GR	871.500	2018.000	874.100	2032.000	879.000	2040.000	879.600	2122.000	879.900	2209.000
GR	880.000	2245.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.900	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.570	2.800	0.000	19.000	0.000	175.000	0.000	869.400	869.600

CEMETERY BRIDGE

X1	8.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	878.800	878.800	0.000
BT	16.000	1831.000	885.300	0.000	1869.000	883.100	0.000	1953.000	879.900	0.000
BT	1970.000	879.300	0.000	1980.000	879.200	878.300	1986.000	879.200	874.400	1991.000
BT	879.200	873.300	1999.000	879.200	871.600	1999.000	879.200	878.400	2018.000	879.300
BT	878.400	2018.000	879.300	871.500	2032.000	879.400	874.100	2040.000	879.000	0.000
BT	2122.000	879.600	0.000	2209.000	879.900	0.000	2245.000	880.000	0.000	0.000
NH	5.000	.040	1972.000	.090	2000.000	.040	2018.000	.080	2040.000	.050
NH	2240.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2069.000
X1	8.300	22.000	1980.000	2032.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	895.600	1760.000	890.600	1790.000	880.600	1880.000	879.300	1905.000	879.200	1932.000
GR	880.400	1972.000	879.200	1980.000	875.300	1986.000	874.200	1991.000	872.500	1994.000
GR	871.800	2000.000	870.900	2003.000	870.200	2008.000	869.900	2010.000	869.600	2014.000
GR	869.500	2018.000	871.700	2026.000	875.000	2032.000	879.900	2040.000	880.500	2122.000
GR	880.600	2160.000	890.600	2240.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1987.000	2032.000
X1	10.800	25.000	2000.000	2018.000	1250.000	1250.000	1250.000	0.000	0.000	0.000
GR	897.500	1781.000	896.300	1789.000	893.800	1867.000	892.800	1868.000	892.100	1901.000
GR	889.300	1956.000	881.500	1974.000	878.900	1990.000	876.000	2000.000	875.300	2005.000
GR	874.500	2008.000	875.100	2013.000	875.600	2014.000	876.000	2018.000	878.500	2029.000
GR	879.500	2031.000	881.400	2051.000	886.700	2063.000	888.700	2082.000	884.900	2092.000
GR	888.300	2118.000	894.300	2146.000	894.500	2179.000	896.200	2210.000	899.800	2271.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1992.000	2025.000

MOORE BUSINESS FORMS, INC.

X1	10.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1997.000	2020.000
X1	10.820	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	10.900	19.000	2000.000	2018.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.750	890.750	0.000
GR	891.200	1602.000	892.300	1652.000	892.900	1765.000	892.200	1883.000	892.100	2000.000
GR	875.800	2000.000	875.600	2000.500	875.000	2002.000	874.600	2004.000	874.700	2006.000
GR	874.800	2009.000	875.300	2012.000	875.700	2014.000	876.100	2016.000	876.500	2017.500
GR	876.600	2018.000	892.100	2018.000	893.800	2121.000	896.300	2211.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.000	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	888.200	892.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.750	890.750	0.000
BT	15.000	1883.000	892.200	0.000	2000.000	892.100	0.000	2000.000	892.100	882.700
BT	2000.500	892.100	885.000	2002.000	892.200	886.600	2004.000	892.100	887.700	2006.000
BT	892.100	888.100	2009.000	892.100	888.200	2012.000	892.100	888.100	2014.000	892.100
BT	887.700	2016.000	892.100	886.600	2017.500	892.100	885.000	2018.000	892.100	882.200
BT	2018.000	892.100	0.000	2121.000	893.800	0.000	0.000	0.000	0.000	0.000

STATE ST. BRIDGE

X1	11.100	19.000	2000.000	2018.000	36.000	36.000	36.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	888.200	892.100	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.390	893.390	0.000
BT	15.000	1883.000	892.200	0.000	2000.000	892.100	0.000	2000.000	892.100	882.400
BT	2000.500	892.100	885.000	2002.000	892.200	886.600	2004.000	892.100	887.700	2006.000
BT	892.100	888.100	2009.000	892.100	888.200	2012.000	892.100	888.100	2014.000	892.100
BT	887.700	2016.000	892.100	886.600	2017.500	892.100	885.000	2018.000	892.100	882.600
BT	2018.000	892.100	0.000	2121.000	893.800	0.000	0.000	0.000	0.000	0.000
GR	891.200	1602.000	892.300	1652.000	892.900	1765.000	892.200	1883.000	892.100	2000.000
GR	876.500	2000.000	876.400	2000.500	876.100	2002.000	875.600	2004.000	875.000	2006.000
GR	874.800	2009.000	875.100	2012.000	875.500	2014.000	875.900	2016.000	876.200	2017.500
GR	876.300	2018.000	892.100	2018.000	893.800	2121.000	896.300	2211.000	899.200	2282.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.200	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	893.390	893.390	0.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1949.000	2067.000

SOOHOO BUSINESS FORMS, INC 23

X1	11.300	20.000	1970.000	2030.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	850.000	1870.000	884.000	1936.000	880.000	1970.000	877.700	1985.000	876.000	1994.000
GR	875.300	2000.000	875.200	2003.000	875.500	2008.000	878.000	2019.000	880.000	2030.000
GR	882.800	2055.000	885.500	2080.000	888.700	2113.000	890.000	2130.000	892.000	2163.000
GR	893.600	2202.000	895.300	2250.000	896.700	2300.000	898.000	2350.000	900.000	2440.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1995.000	2040.000
X1	13.800	23.000	2000.000	2037.000	350.000	350.000	350.000	0.000	0.000	0.000
GR	889.500	1810.000	888.500	1874.000	888.800	1890.000	887.000	1934.000	881.600	1949.000
GR	881.500	1975.000	879.600	1996.000	878.000	2000.000	875.300	2007.000	874.600	2020.000
GR	874.500	2024.000	874.200	2030.000	878.000	2037.000	883.200	2052.000	888.800	2141.000
GR	888.700	2192.000	890.600	2238.000	891.800	2284.000	891.700	2369.000	894.000	2423.000
GR	895.400	2545.000	894.900	2588.000	898.000	2687.000	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	13.900	17.000	2000.000	2015.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	888.000	887.950	0.000
GR	869.300	1994.000	889.600	2000.000	875.600	2000.000	874.900	2004.000	874.800	2007.000
GR	874.900	2011.000	874.700	2015.000	889.500	2015.000	889.900	2018.000	889.100	2025.000
GR	889.100	2036.000	888.300	2060.000	889.400	2080.000	890.500	2089.000	890.700	2105.000
GR	890.700	2120.000	890.100	2126.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14.000	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	886.400	889.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	888.000	887.950	0.000
X4	2.000	875.200	2002.000	874.700	2013.000	0.000	0.000	0.000	0.000	0.000
BT	11.000	1865.000	889.700	0.000	2000.000	889.600	0.000	2000.000	889.600	879.700
BT	2002.000	889.600	884.000	2004.000	889.600	885.500	2007.000	889.600	886.400	2011.000
BT	889.500	885.700	2013.000	889.500	884.000	2015.000	889.500	879.100	2015.000	889.500
BT	0.000	2102.000	890.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MCRR BRIDGE

X1	14.100	18.000	2000.000	2015.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	886.400	889.500	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	889.600	889.500	0.000
X4	2.000	875.000	2002.000	874.700	2013.000	0.000	0.000	0.000	0.000	0.000
BT	11.000	1865.000	889.700	0.000	2000.000	889.600	0.000	2000.000	889.600	879.700
BT	2002.000	889.600	884.000	2004.000	889.600	885.500	2007.000	889.600	886.400	2011.000
BT	889.500	885.700	2013.000	889.500	884.000	2015.000	889.500	879.100	2015.000	889.500
BT	0.000	2102.000	890.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	889.200	1990.000	889.400	1994.000	889.200	1997.000	889.600	2000.000	875.200	2000.000
GR	874.900	2004.000	874.800	2007.000	874.700	2011.000	874.800	2015.000	889.500	2015.000
GR	887.200	2018.000	889.100	2026.000	889.500	2070.500	890.600	2082.000	890.900	2097.000
GR	891.000	2113.000	890.300	2121.000	889.800	2143.000	0.000	0.000	0.000	0.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	14.200	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	889.600	889.500	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1967.000	2034.000
X1	15.500	20.000	1985.000	2020.000	26.000	26.000	26.000	0.000	0.000	0.000
GR	895.000	1440.000	890.000	1710.000	888.000	1900.000	886.900	1932.000	883.200	1970.000
GR	883.000	1985.000	876.000	1985.000	875.100	1997.000	875.200	2005.000	875.600	2015.000
GR	876.700	2020.000	887.000	2020.000	887.000	2040.000	886.100	2053.000	886.100	2066.000
GR	890.000	2105.000	890.000	2200.000	891.000	2300.000	892.500	2420.000	895.000	2535.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1896.000	2120.000
X1	15.900	24.000	2000.000	2018.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	883.950	883.950	0.000
GR	901.000	1297.000	896.800	1402.000	893.200	1505.000	891.100	1563.000	887.600	1664.000
GR	884.900	1764.000	883.700	1863.000	883.200	1953.000	884.800	2000.000	875.700	2000.000
GR	875.500	2002.500	875.400	2005.000	875.400	2007.000	875.500	2009.000	875.500	2011.500
GR	875.500	2014.000	875.800	2016.000	876.100	2018.000	884.800	2018.000	890.800	2121.000
GR	887.900	2242.000	888.900	2359.000	895.200	2490.000	900.700	2579.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1910.000	2110.000
SB	0.000	2.980	2.800	0.000	11.900	0.000	90.000	0.000	875.600	875.400

MAPLE AVE. BRIDGE

X1	16.100	24.000	2000.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	883.100	884.800	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	884.800	884.800	0.000
BT	13.000	1553.000	883.200	0.000	2000.000	884.800	0.000	2000.000	884.800	878.800
BT	2002.500	884.800	881.100	2005.000	884.800	882.500	2007.000	884.800	883.000	2009.000
BT	884.800	883.100	2011.500	884.800	882.900	2014.000	884.800	882.000	2016.000	884.800
BT	880.800	2018.000	884.800	878.800	2018.000	884.800	0.000	2121.000	890.800	0.000
GR	901.000	1297.000	896.800	1402.000	893.200	1505.000	891.100	1563.000	887.600	1664.000
GR	884.900	1764.000	883.700	1863.000	883.200	1953.000	884.800	2000.000	875.600	2000.000
GR	875.600	2002.500	875.600	2005.000	875.900	2007.000	876.100	2009.000	876.100	2011.500
GR	876.100	2014.000	875.900	2016.000	875.800	2018.000	884.800	2018.000	890.800	2121.000
GR	887.900	2242.000	888.900	2359.000	895.200	2490.000	900.700	2579.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1920.000	2095.000
X1	16.300	16.000	1984.000	2031.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	893.500	1823.000	891.500	1915.000	888.600	1965.000	879.500	1984.000	877.800	2000.000
GR	876.000	2006.000	875.700	2011.000	875.800	2016.000	877.500	2025.000	880.100	2031.000
GR	879.900	2073.000	886.600	2091.000	889.800	2125.000	890.200	2152.000	891.000	2196.000
GR	890.800	2211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1988.000	2037.000

MOORE BUSINESS FORMS, INC.

X1	18.800	16.000	2000.000	2025.000	243.000	243.000	243.000	0.000	0.000	0.000
GR	893.600	1823.000	891.600	1915.000	888.700	1965.000	879.600	1984.000	877.900	2000.000
GR	876.100	2006.000	875.800	2011.000	875.900	2016.000	877.600	2025.000	880.200	2031.000
GR	880.000	2073.000	886.700	2091.000	889.900	2125.000	890.300	2152.000	891.100	2196.000
GR	890.900	2211.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	18.900	22.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	888.400	888.400	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1894.000	890.100	2000.000	878.900	2000.000	878.200	2001.000	877.300	2006.000
GR	877.200	2011.000	877.300	2013.000	877.600	2018.000	877.800	2023.000	878.000	2026.000
GR	890.100	2026.000	889.200	2095.000	888.900	2147.000	891.600	2228.000	890.800	2264.000
GR	894.600	2355.000	898.500	2453.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	2.800	0.000	26.000	0.000	233.000	0.000	877.500	877.300

ASH ST. BRIDGE

X1	19.100	19.000	2000.000	2026.000	50.000	50.000	50.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	886.600	889.200	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	890.700	890.700	0.000
BT	6.000	1894.000	891.800	0.000	2000.000	890.100	0.000	2000.000	893.700	886.600
BT	2026.000	893.700	886.600	2026.000	890.100	0.000	2095.000	889.200	0.000	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1894.000	890.100	2000.000	877.700	2000.000	877.700	2013.000	877.500	2018.000
GR	877.800	2023.000	878.000	2026.000	890.100	2026.000	889.200	2095.000	888.900	2147.000
GR	891.600	2228.000	890.800	2264.000	894.600	2355.000	898.500	2453.000	0.000	0.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1950.000	2076.000
X1	19.300	25.000	1997.000	2047.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	899.600	1397.000	897.900	1489.000	897.000	1590.000	895.500	1695.000	893.500	1813.000
GR	891.800	1893.000	889.600	1938.000	886.700	1963.000	883.600	1983.000	879.700	1997.000
GR	877.900	1999.000	877.700	2000.000	877.700	2013.000	877.500	2018.000	877.800	2023.000
GR	878.000	2026.000	877.800	2028.000	879.700	2047.000	885.200	2093.000	887.400	2114.000
GR	888.900	2147.000	891.600	2228.000	890.800	2264.000	894.600	2355.000	898.500	2453.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	21.000	29.000	2000.000	2028.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	895.800	1802.000	893.700	1878.000	892.900	1890.000	887.900	1908.000	882.700	1924.000
GR	880.800	1938.000	880.240	1971.000	881.500	1986.000	881.500	1998.000	878.800	2000.000
GR	877.900	2004.000	877.300	2010.000	877.500	2014.000	877.700	2018.000	879.100	2028.000
GR	880.400	2036.000	880.400	2040.000	882.000	2046.000	880.300	2063.000	881.400	2074.000
GR	889.000	2090.000	888.100	2094.000	888.000	2107.000	878.700	2126.000	878.600	2176.000
GR	890.000	2215.000	889.900	2234.000	900.600	2279.000	901.700	2289.000	0.000	0.000

X1	22.000	27.000	2000.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	898.400	1674.000	895.200	1796.000	893.700	1885.000	892.800	1936.000	893.000	1941.000
GR	882.500	1990.000	881.900	1994.000	878.600	2000.000	877.900	2004.000	877.300	2010.000
GR	877.700	2010.000	877.700	2018.000	879.100	2028.000	880.400	2036.000	880.400	2040.000
GR	882.000	2046.000	880.300	2063.000	881.400	2074.000	889.000	2090.000	888.100	2094.000
GR	888.000	2107.000	878.700	2126.000	878.600	2176.000	890.000	2215.000	889.900	2234.000
GR	900.600	2279.000	901.700	2289.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1985.000	2045.000
X1	24.800	20.000	1991.000	2033.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	893.800	1862.000	893.000	1894.000	891.400	1923.000	891.200	1935.000	888.200	1946.000
GR	885.900	1981.000	883.900	1991.000	878.900	2000.000	878.100	2005.000	877.900	2009.000
GR	877.500	2014.000	877.600	2016.000	877.600	2021.000	879.200	2023.000	883.700	2033.000
GR	884.700	2054.000	891.000	2066.000	890.800	2077.000	889.100	2092.000	893.300	2106.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	24.810	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	24.820	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X1	24.900	33.000	1997.000	2033.000	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	889.000	889.000	0.000
GR	900.500	1684.000	895.900	1786.000	893.800	1846.000	891.100	1913.000	888.200	1946.000
GR	885.900	1981.000	883.900	1991.000	881.500	1997.000	880.300	1997.000	880.000	2000.000
GR	879.800	2002.000	879.800	2004.000	879.400	2006.000	879.200	2008.000	879.800	2010.000
GR	879.700	2012.000	879.600	2014.000	879.900	2015.500	879.900	2017.000	879.800	2019.000
GR	879.700	2021.000	879.700	2023.000	879.800	2025.000	879.900	2027.000	880.000	2029.000
GR	880.200	2031.000	880.800	2033.000	881.500	2033.000	884.700	2054.000	891.000	2066.000
GR	892.300	2083.000	896.500	2165.000	901.500	2210.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.630	2.800	0.000	24.000	0.000	223.000	0.000	879.200	879.700

ELM ST. BRIDGE

X1	25.100	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	889.500	889.500	0.000
BT	33.000	1684.000	900.500	0.000	1786.000	895.900	0.000	1846.000	893.800	0.000
BT	1913.000	891.100	0.000	1946.000	891.000	888.200	1981.000	890.500	885.900	1991.000
BT	850.300	883.900	1997.000	890.200	880.300	1997.000	890.200	881.500	2000.000	890.200
BT	881.500	2002.000	890.200	882.500	2004.000	890.300	884.300	2006.000	890.200	885.800
BT	2008.000	890.200	886.900	2010.000	890.200	887.700	2012.000	890.200	888.100	2014.000
BT	890.200	888.400	2015.500	890.200	888.500	2017.000	890.300	888.400	2019.000	890.300
BT	888.100	2021.000	890.300	887.700	2023.000	890.300	886.900	2025.000	890.300	885.800
BT	2027.000	890.300	884.500	2029.000	890.300	882.700	2031.000	890.300	881.500	2033.000
BT	890.300	881.500	2033.000	890.300	880.800	2054.000	891.000	884.700	2066.000	891.000

BT	0.000	2083.000	892.300	0.000	2165.000	896.500	0.000	2210.000	901.500	0.000
NC	.090	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1948.000	2083.000
X1	25.300	20.000	1981.000	2033.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	895.300	1862.000	894.500	1894.000	892.900	1923.000	892.700	1935.000	889.700	1946.000
GR	887.600	1981.000	885.600	1991.000	880.600	2000.000	879.800	2005.000	879.600	2009.000
GR	879.200	2014.000	879.300	2016.000	879.300	2021.000	880.900	2023.000	885.400	2033.000
GR	886.400	2054.000	892.700	2066.000	892.500	2077.000	890.600	2092.000	894.800	2106.000
NC	.090	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	27.000	23.000	1999.000	2036.000	280.000	335.000	304.000	0.000	0.000	0.000
GR	904.000	1488.000	900.400	1600.000	898.200	1683.000	895.700	1809.000	888.100	1899.000
GR	886.900	1932.000	882.500	1948.000	883.400	1991.000	882.200	1999.000	881.100	2000.000
GR	879.300	2006.000	879.400	2012.000	879.300	2017.000	879.200	2025.000	880.700	2031.000
GR	882.200	2036.000	882.800	2050.000	890.100	2064.000	883.500	2078.000	891.200	2093.000
GR	892.500	2110.000	898.900	2126.000	902.600	2134.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	28.000	30.000	1992.000	2031.000	1140.000	1070.000	1150.000	0.000	0.000	0.000
GR	896.700	1529.000	898.700	1594.000	898.600	1666.000	899.100	1776.000	896.300	1890.000
GR	891.200	1936.000	888.500	1978.000	884.900	1992.000	881.400	2000.000	880.100	2004.000
GR	878.700	2010.000	878.800	2011.000	878.900	2016.000	879.300	2021.000	879.600	2024.000
GR	881.400	2029.000	883.900	2031.000	883.900	2044.000	882.900	2056.000	884.700	2070.000
GR	883.200	2162.000	885.000	2170.000	892.700	2186.000	893.300	2197.000	892.600	2203.000
GR	893.000	2208.000	898.700	2225.000	899.000	2232.000	900.500	2266.000	902.400	2322.000
NC	.060	.060	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	6.000	655.000	845.000	980.000	1300.000	980.000	943.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1985.000	2055.000
X1	60.800	29.000	1996.000	2014.000	960.000	920.000	905.000	0.000	0.000	0.000
GR	900.900	1723.000	898.400	1766.000	894.500	1798.000	891.900	1878.000	891.900	1938.000
GR	890.200	1975.000	885.200	1996.000	882.500	2000.000	882.100	2000.500	881.900	2002.000
GR	881.900	2006.000	882.000	2011.000	882.500	2014.000	886.600	2014.000	886.800	2026.000
GR	887.000	2026.000	888.100	2037.000	893.300	2057.000	893.500	2090.000	889.900	2158.000
GR	886.500	2167.000	884.200	2195.000	888.200	2262.000	890.900	2280.000	889.900	2314.000
GR	894.500	2398.000	897.700	2434.000	898.200	2452.000	900.100	2462.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	60.900	55.000	2000.000	2040.000	50.000	50.000	50.000	.740	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.450	893.450	0.000
GR	893.000	1766.000	893.300	1922.000	894.600	1951.000	894.300	1973.000	882.600	2000.000
GR	882.600	2002.000	882.500	2004.000	882.400	2006.000	882.300	2008.000	882.300	2010.000
GR	882.300	2012.000	882.200	2014.000	882.100	2016.000	882.000	2018.000	881.900	2020.000
GR	881.900	2022.000	882.000	2024.000	881.800	2026.000	882.200	2028.000	882.400	2030.000
GR	882.400	2032.000	882.300	2034.000	882.300	2036.000	882.400	2038.000	882.500	2040.000
GR	893.700	2067.000	892.500	2105.000	888.500	2138.000	887.600	2165.000	889.300	2203.000
GR	889.300	2287.000	888.900	2318.000	890.800	2333.000	888.300	2348.000	888.000	2355.000

GR	886.000	2359.000	883.800	2432.000	885.200	2444.000	885.400	2458.000	884.700	2539.000
GR	884.300	2584.000	884.200	2642.000	886.600	2673.000	885.600	2692.000	890.800	2772.000
GR	892.400	2808.000	890.700	2849.000	894.400	2873.000	894.600	2896.000	893.800	2916.000
GR	898.500	2934.000	900.800	3028.000	899.400	3040.000	902.100	3048.000	901.500	3104.000
X1	61.000	39.000	2000.000	2040.000	1.000	1.000	1.000	.740	0.000	0.000
X2	0.000	0.000	0.000	892.200	893.500	0.000	0.000	0.000	.740	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	893.450	893.450	0.000
BT	25.000	1893.000	893.800	0.000	2000.000	894.700	0.000	2000.000	894.700	882.600
BT	2002.000	894.700	886.500	2004.000	894.700	888.200	2006.000	894.700	889.300	2008.000
BT	894.700	890.200	2010.000	894.700	890.800	2012.000	894.700	891.400	2014.000	894.700
BT	891.800	2016.000	894.700	892.000	2018.000	894.700	892.100	2020.000	894.700	892.200
BT	2022.000	894.700	892.100	2024.000	894.700	892.000	2026.000	894.700	891.800	2028.000
BT	894.700	891.400	2030.000	894.700	890.800	2032.000	894.700	890.200	2034.000	894.700
BT	889.300	2036.000	894.700	888.200	2038.000	894.700	886.500	2040.000	894.700	882.500
BT	2040.000	894.700	0.000	2137.000	893.500	0.000	0.000	0.000	0.000	0.000
GR	893.800	1893.000	894.100	1929.000	894.400	1965.000	894.700	2000.000	882.600	2000.000
GR	882.600	2002.000	882.500	2004.000	882.400	2006.000	882.300	2008.000	882.300	2010.000
GR	882.300	2012.000	882.200	2014.000	882.100	2016.000	882.000	2018.000	881.900	2020.000
GR	881.900	2022.000	882.000	2024.000	881.800	2026.000	882.200	2028.000	882.400	2030.000
GR	882.400	2032.000	882.300	2034.000	882.300	2036.000	882.400	2038.000	882.500	2040.000
GR	894.700	2040.000	893.500	2137.000	890.800	2239.000	890.400	2362.000	890.000	2468.000
GR	891.000	2578.000	892.500	2688.000	895.300	2795.000	896.900	2916.000	898.100	3028.000
GR	898.600	3135.000	898.800	3249.000	899.200	3363.000	902.500	3464.000	0.000	0.000

JEFFERSON AVE. BRIDGE

X1	61.100	39.000	2000.000	2040.000	66.000	66.000	66.000	.740	0.000	0.000
X2	0.000	0.000	0.000	892.200	893.500	0.000	0.000	0.000	.740	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	894.700	894.700	0.000
BT	25.000	1893.000	893.800	0.000	2000.000	894.700	0.000	2000.000	894.700	882.800
BT	2002.000	894.700	886.500	2004.000	894.700	888.200	2006.000	894.700	889.300	2008.000
BT	894.700	890.200	2010.000	894.700	890.800	2012.000	894.700	891.400	2014.000	894.700
BT	891.800	2016.000	894.700	892.000	2018.000	894.700	892.100	2020.000	894.700	892.200
BT	2022.000	894.700	892.100	2024.000	894.700	892.000	2026.000	894.700	891.800	2028.000
BT	894.700	891.400	2030.000	894.700	890.800	2032.000	894.700	890.200	2034.000	894.700
BT	889.300	2036.000	894.700	888.200	2038.000	894.700	886.500	2040.000	894.700	882.600
BT	2040.000	894.700	0.000	2137.000	893.500	0.000	0.000	0.000	0.000	0.000
GR	893.800	1893.000	894.100	1929.000	894.400	1965.000	894.700	2000.000	882.800	2000.000
GR	882.700	2002.000	882.600	2004.000	882.500	2006.000	882.400	2008.000	882.300	2010.000
GR	882.300	2012.000	882.400	2014.000	882.500	2016.000	882.600	2018.000	882.600	2020.000
GR	882.500	2022.000	882.400	2024.000	882.200	2026.000	882.000	2028.000	882.200	2030.000
GR	882.400	2032.000	882.600	2034.000	882.600	2036.000	882.600	2038.000	882.600	2040.000
GR	894.700	2040.000	893.500	2137.000	890.800	2239.000	890.400	2362.000	890.000	2468.000
GR	891.000	2578.000	892.500	2688.000	895.300	2795.000	896.900	2916.000	898.100	3028.000
GR	898.600	3135.000	898.800	3249.000	899.200	3363.000	902.500	3464.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	61.200	55.000	2000.000	2040.000	1.000	1.000	1.000	.740	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	894.700	894.700	0.000
GR	903.300	1139.000	900.800	1249.000	898.600	1367.000	896.700	1475.000	895.600	1583.000
GR	894.100	1690.000	894.000	1715.000	890.400	1767.000	889.600	1800.000	890.500	1890.000
GR	894.200	1932.000	894.300	1970.000	882.800	2000.000	882.700	2002.000	882.600	2004.000
GR	882.500	2006.000	882.400	2008.000	882.300	2010.000	882.300	2012.000	882.400	2014.000
GR	882.500	2016.000	882.600	2018.000	882.600	2020.000	882.500	2022.000	882.400	2024.000
GR	882.200	2026.000	882.000	2028.000	882.200	2030.000	882.400	2032.000	882.600	2034.000
GR	882.600	2036.000	882.600	2038.000	882.600	2040.000	894.600	2066.000	891.600	2196.000
GR	887.300	2243.000	887.700	2336.000	889.900	2350.000	885.700	2363.000	883.500	2415.000
GR	883.900	2442.000	884.300	2531.000	884.300	2533.000	888.800	2560.000	889.700	2616.000
GR	890.600	2710.000	893.500	2770.000	895.800	2829.000	898.000	2894.000	897.300	2936.000
GR	899.700	3028.000	900.000	3066.000	900.000	3078.000	902.300	3084.000	903.500	3143.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1761.340	1857.540
X1	61.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.090	.090	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	61.500	15.000	2000.000	2025.000	1400.000	1000.000	1450.000	0.000	0.000	0.000
GR	900.000	1720.000	898.200	1767.000	894.500	1800.000	891.700	1880.000	891.600	1940.000
GR	890.000	1970.000	889.000	2000.000	886.700	2002.000	886.000	2005.000	885.500	2010.000
GR	886.000	2015.000	886.800	2020.000	889.200	2025.000	890.000	2055.000	900.000	2150.000
NC	.090	.090	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1953.000	2050.000
X1	63.800	20.000	1988.000	2023.000	270.000	320.000	280.000	0.000	0.000	0.000
GR	899.200	1868.000	898.900	1917.000	897.700	1931.000	891.500	1953.000	891.000	1988.000
GR	888.100	1996.000	887.300	2000.000	886.600	2005.000	887.000	2009.000	891.600	2023.000
GR	892.100	2050.000	899.400	2078.000	901.200	2142.000	902.300	2214.000	904.900	2282.000
GR	904.600	2293.000	907.100	2299.000	908.300	2315.000	910.400	2327.000	910.700	2340.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2017.100	0.000	0.000
X1	63.900	20.000	2000.000	2017.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	898.100	898.100	0.000
GR	899.200	1868.000	898.900	1917.000	897.700	1931.000	891.500	1953.000	891.000	1988.000
GR	889.500	2000.000	887.700	2005.000	887.000	2009.000	888.700	2017.000	891.600	2023.000
GR	892.100	2050.000	899.400	2078.000	901.200	2142.000	902.300	2214.000	904.900	2282.000
GR	904.600	2293.000	907.100	2299.000	908.300	2315.000	910.400	2327.000	910.700	2340.000
NC	0.000	0.000	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	64.000	34.000	2000.000	2017.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	896.100	899.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	898.100	898.100	0.000
BT	22.000	1901.000	899.300	0.000	2000.000	900.100	0.000	2000.000	900.100	889.500
BT	2001.000	900.100	891.900	2002.000	900.100	893.200	2003.000	900.100	894.200	2004.000

BT	900.100	894.900	2005.000	900.100	895.400	2006.000	900.100	895.800	2007.000	900.100
BT	896.000	2008.000	900.100	896.100	2009.000	900.100	896.100	2010.000	900.100	896.000
BT	2011.000	900.100	895.800	2012.000	900.100	895.400	2013.000	900.100	894.900	2014.000
BT	900.100	894.200	2015.000	900.100	893.200	2016.000	900.100	891.900	2017.000	900.100
BT	889.300	2017.000	900.100	0.000	2120.000	902.200	0.000	0.000	0.000	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	900.100	2000.000	889.500	2000.000
GR	889.000	2001.000	888.700	2002.000	888.300	2003.000	888.000	2004.000	887.700	2005.000
GR	887.400	2006.000	887.200	2007.000	887.100	2008.000	887.000	2009.000	887.200	2010.000
GR	887.400	2011.000	887.700	2012.000	887.900	2013.000	888.000	2014.000	888.200	2015.000
GR	888.400	2016.000	888.700	2017.000	900.100	2017.000	902.200	2120.000	904.800	2279.000
GR	905.300	2381.000	906.400	2479.000	908.200	2592.000	910.400	2720.000	0.000	0.000

KIPP RD. BRIDGE

X1	64.100	31.000	2000.000	2017.000	66.000	66.000	66.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	896.100	899.300	0.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	900.100	900.100	0.000
X4	3.000	888.900	2014.000	889.000	2015.000	889.100	2016.000	0.000	0.000	0.000
BT	22.000	1901.000	899.300	0.000	2000.000	900.100	0.000	2000.000	900.100	889.800
BT	2001.000	900.100	891.900	2002.000	900.100	893.200	2003.000	900.100	894.200	2004.000
BT	900.100	894.900	2005.000	900.100	895.400	2006.000	900.100	895.800	2007.000	900.100
BT	896.000	2008.000	900.100	896.100	2009.000	900.100	896.100	2010.000	900.100	896.000
BT	2011.000	900.100	895.800	2012.000	900.100	895.400	2013.000	900.100	894.900	2014.000
BT	900.100	894.200	2015.000	900.100	893.200	2016.000	900.100	891.900	2017.000	900.100
BT	889.300	2017.000	900.100	0.000	2120.000	902.200	0.000	0.000	0.000	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	900.100	2000.000	889.800	2000.000
GR	889.500	2001.000	889.200	2002.000	889.000	2003.000	888.800	2004.000	888.600	2005.000
GR	888.400	2006.000	888.000	2007.000	887.600	2008.000	887.800	2009.000	888.000	2010.000
GR	888.400	2011.000	888.600	2012.000	888.700	2013.000	889.200	2017.000	900.100	2017.000
GR	902.200	2120.000	904.800	2279.000	905.300	2381.000	906.400	2479.000	908.200	2592.000
GR	910.400	2720.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	64.200	24.000	2000.000	2017.000	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	900.100	900.100	0.000
GR	912.300	1180.000	910.700	1283.000	908.000	1370.000	904.400	1480.000	902.100	1564.000
GR	900.400	1664.000	899.400	1782.000	899.300	1901.000	899.200	1906.000	899.100	1984.000
G9	889.800	2000.000	888.400	2006.000	887.600	2008.000	889.200	2017.000	891.900	2022.000
GR	899.300	2036.000	901.200	2080.000	902.400	2111.000	904.200	2188.000	904.800	2279.000
GR	905.300	2381.000	906.400	2479.000	908.200	2592.000	910.400	2720.000	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
G	QLOB	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= .100 CEHV= .300

*SECNO 1.200

3470 ENCROACHMENT STATIONS= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	9.20	873.50	0.00	0.00	873.57	.07	0.00	0.00	867.50
1730.	253.	635.	842.	230.	208.	661.	0.	0.	868.10
0.00	1.10	3.05	1.27	.080	.040	.080	0.000	864.30	1953.18
.000447	0.	0.	0.	0	0	0	0.00	181.82	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	9.84	874.04	0.00	0.00	874.23	.19	.62	.04	869.30
1730.	189.	1376.	165.	156.	354.	144.	22.	4.	870.30
.09	1.21	3.89	1.15	.080	.040	.080	.040	864.20	1960.00
.000732	1000.	1100.	1150.	2	0	0	0.00	120.00	2080.00

1490 NH CARD USED

*SECNO 1.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.20 ELREA= 878.10

1.90	9.40	874.10	0.00	0.00	874.25	.15	.02	.00	878.20
1730.	0.	1730.	0.	0.	557.	0.	23.	4.	878.10
.10	0.00	3.11	0.00	.080	.050	.080	.040	864.70	2000.00
.000317	50.	50.	50.	2	0	0	0.00	93.00	2093.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 877.50 MAX ELLC= 875.20

2.00	9.39	874.09	0.00	0.00	874.26	.16	.00	.00	878.20
1730.	0.	1730.	0.	0.	535.	0.	23.	4.	878.10
.10	0.00	3.24	0.00	.080	.025	.080	.040	864.70	2000.00
.000430	1.	1.	1.	0	0	0	-22.10	93.00	2093.00

SECNO / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / GCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 2.100									
3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 877.50 MAX ELLC= 875.20									
HOWELL AVE. BRIDGE									
2.10	9.42	874.12	0.00	0.00	874.28	.16	.02	.00	878.20
1730.	0.	1730.	0.	0.	536.	0.	24.	4.	878.10
.10	0.00	3.23	0.00	.080	.025	.080	.039	864.70	2000.00
.000427	58.	58.	58.	0	0	0	-22.14	93.00	2093.00
*SECNO 2.200									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.20 ELREA= 878.10									
2.20	9.44	874.14	0.00	0.00	874.28	.15	.00	.00	878.20
1730.	0.	1730.	0.	0.	559.	0.	24.	4.	878.10
.10	0.00	3.10	0.00	.080	.025	.080	.039	864.70	2000.00
.000270	1.	1.	1.	1	0	0	0.00	93.00	2093.00
*SECNO 2.300									
3470 ENCROACHMENT STATIONS= 1950.0 2142.0 TYPE= 1 TARGET= 192.000									
2.30	9.68	874.18	0.00	0.00	874.31	.12	.02	.00	869.60
1730.	188.	1162.	381.	180.	347.	372.	24.	4.	870.60
.11	1.04	3.35	1.02	.080	.040	.080	.039	864.50	1950.00
.000556	50.	50.	50.	2	0	0	0.00	192.00	2142.00
CCHV= .100 CEHV= .300									
*SECNO 4.000									
4.00	7.69	874.99	0.00	0.00	875.01	.02	.70	.01	871.70
1730.	727.	494.	509.	1158.	268.	860.	101.	23.	871.70
.71	.63	1.85	.59	.090	.040	.090	.040	867.30	1681.15
.000221	2270.	2100.	1900.	2	0	0	0.00	606.78	2287.93
*SECNO 5.000									
3265 DIVIDED FLOW									

ACME BUSINESS FORMS INC. 23

SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / GCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
5.00	6.84	875.64	0.00	0.00	875.77	.13	.72	.03	871.10
1730.	313.	590.	827.	168.	131.	801.	152.	39.	874.90
.86	1.86	4.51	1.03	.110	.053	.140	.043	868.80	1948.31
.003140	1325.	1300.	1300.	2	0	0	0.00	457.37	2440.86

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 1989.0 2524.0 TYPE= 1 TARGET= 535.000

6.00	8.62	876.32	0.00	0.00	876.37	.05	.59	.01	869.40
1550.	27.	602.	921.	35.	225.	1185.	167.	45.	871.70
.96	.78	2.68	.78	.090	.050	.090	.044	867.70	1989.30
.000546	495.	507.	535.	2	0	0	0.00	534.50	2523.80

*SECNO 7.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1990.0 2035.0 TYPE= 1 TARGET= 45.000

7.80	7.76	877.06	0.00	0.00	877.67	.61	1.14	.17	870.90
1550.	183.	1272.	95.	52.	188.	34.	190.	53.	870.80
1.01	3.49	6.77	2.79	.060	.040	.060	.043	869.30	1990.00
.002414	1150.	1130.	1130.	2	0	0	0.00	45.00	2035.00

CCHV= .300 CEHV= .500
*SECNO 7.810

3470 ENCROACHMENT STATIONS= 1996.0 2030.0 TYPE= 1 TARGET= 34.000

7.81	7.68	876.98	0.00	0.00	877.86	.87	.06	.13	870.90
1550.	59.	1440.	51.	23.	186.	20.	190.	53.	870.80
1.01	2.54	7.76	2.50	.060	.040	.060	.043	869.30	1996.00
.003214	20.	20.	20.	2	0	0	0.00	34.00	2030.00

*SECNO 7.820

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1991.0 2018.1 TYPE= 1 TARGET= 27.100

SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
7.82	7.27	876.67	0.00	0.00	878.35	1.68	.09	.40	871.60
1550.	146.	1404.	0.	34.	129.	1.	190.	53.	871.50
1.01	4.32	10.85	.45	.060	.040	.060	.043	869.40	1991.00
.007263	20.	20.	20.	2	0	0	0.00	27.10	2018.10

*SECNO 7.900

3301 HV CHANGED MCRE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.80 ELREA= 878.80

7.90	6.98	876.38	0.00	0.00	878.81	2.43	.09	.37	871.60
1550.	0.	1550.	0.	0.	124.	0.	190.	53.	871.50
1.01	0.00	12.51	0.00	.060	.040	.060	.043	869.40	1999.00
.010221	10.	10.	10.	2	0	0	0.00	19.00	2018.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.57	2.80	0.00	19.00	0.00	175.00	0.00	869.40	869.60

*SECNO 8.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 878.295 EGLWC= 878.818 ELLC= 878.400 PCWSE= 876.383 ELTRD= 879.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 879.00 MAX ELLC= 878.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.80 ELREA= 878.80

CEMETERY BRIDGE

8.10	7.59	876.99	0.00	0.00	879.03	2.04	.10	.12	871.60
1550.	0.	1550.	0.	0.	135.	0.	190.	53.	871.50
1.01	0.00	11.45	0.00	.060	.025	.060	.043	869.40	1999.00
.005263	14.	14.	14.	4	0	0	-58.66	19.00	2018.00

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

1490 NH CARD USED
*SECNO 8.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			1950.0	2069.0	TYPE=	1	TARGET=	119.000	
8.30	9.93	879.43	0.00	0.00	879.70	.26	.13	.53	879.20
1550.	0.	1532.	18.	0.	371.	16.	190.	53.	875.00
1.01	.16	4.13	1.13	.090	.075	.080	.043	869.50	1978.45
.001574	50.	50.	50.	3	0	0	0.00	60.79	2039.24

CCHV= .100 CEHV= .300
*SECNO 10.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			1987.0	2032.0	TYPE=	1	TARGET=	45.000	
10.80	7.62	882.12	0.00	0.00	883.18	1.06	3.24	.24	876.00
1550.	183.	1149.	218.	56.	123.	62.	199.	55.	876.00
1.06	3.29	9.37	3.51	.080	.040	.080	.042	874.50	1987.00
.005050	1250.	1250.	1250.	2	0	0	0.00	45.00	2032.00

CCHV= .300 CEHV= .500
*SECNO 10.810

3470 ENCROACHMENT STATIONS=			1992.0	2025.0	TYPE=	1	TARGET=	33.000	
10.81	7.49	881.99	0.00	0.00	883.54	1.55	.12	.24	876.00
1550.	130.	1300.	120.	39.	120.	36.	199.	55.	876.00
1.06	3.36	10.80	3.30	.080	.040	.080	.042	874.50	1992.00
.006872	20.	20.	20.	2	0	0	0.00	33.00	2025.00

*SECNO 10.820

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			1997.0	2020.0	TYPE=	1	TARGET=	23.000	
10.82	7.22	881.72	0.00	0.00	884.14	2.42	.17	.43	876.00
1550.	47.	1476.	27.	16.	116.	11.	199.	55.	876.00
1.06	2.96	12.77	2.45	.080	.040	.080	.042	874.50	1997.00
.010129	20.	20.	20.	2	0	0	0.00	23.00	2020.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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 10.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 890.75 ELREA= 890.75

10.90	7.07	881.67	0.00	0.00	884.47	2.80	.14	.19	892.10
1550.	0.	1550.	0.	0.	116.	0.	199.	55.	892.10
1.06	0.00	13.42	0.00	.080	.040	.080	.042	874.60	2000.00
.020972	10.	10.	10.	2	0	0	0.00	18.00	2018.00

*SECNO 11.000

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 892.10 MAX ELLC= 888.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.75 ELREA= 890.75

11.00	7.70	882.30	0.00	0.00	884.62	2.32	.01	.14	892.10
1550.	0.	1550.	0.	0.	127.	0.	199.	55.	892.10
1.06	0.00	12.23	0.00	.080	.025	.080	.042	874.60	2000.00
.009918	1.	1.	1.	12	0	0	-.00	18.00	2018.00

*SECNO 11.100

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 892.10 MAX ELLC= 888.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.39 ELREA= 893.39

STATE ST. BRIDGE

11.10	8.20	883.00	0.00	0.00	885.04	2.04	.32	.09	892.10
1550.	0.	1550.	0.	0.	135.	0.	199.	55.	892.10
1.06	0.00	11.46	0.00	.080	.025	.080	.042	874.80	2000.00
.008247	36.	36.	36.	2	0	0	-.05	18.00	2018.00

*SECNO 11.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.39 ELREA= 893.39

11.20	8.21	883.01	0.00	0.00	885.05	2.03	.01	.00	892.10
1550.	0.	1550.	0.	0.	135.	0.	199.	55.	892.10
1.06	0.00	11.44	0.00	.080	.040	.080	.042	874.80	2000.00
.013592	1.	1.	1.	0	0	0	0.00	18.00	2018.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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 11.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		1949.0	2067.0	TYPE=	1	TARGET=	118.000		
11.30	10.37	885.57	0.00	0.00	885.68	.11	.05	.58	880.00
1550.	76.	1367.	107.	91.	490.	130.	200.	55.	880.00
1.07	.84	2.79	.82	.080	.040	.080	.042	875.20	1949.00
.000349	50.	50.	50.	3	0	0	0.00	118.00	2067.00

CCHV= .100 CEHV= .300

*SECNO 13.800

3470 ENCROACHMENT STATIONS=		1995.0	2040.0	TYPE=	1	TARGET=	45.000		
13.80	11.43	885.63	0.00	0.00	885.86	.23	.15	.04	878.00
1550.	42.	1493.	15.	33.	381.	21.	205.	55.	878.00
1.09	1.27	3.92	.72	.080	.040	.080	.042	874.20	1995.00
.000525	350.	350.	350.	2	0	0	0.00	45.00	2040.00

CCHV= .300 CEHV= .500

*SECNO 13.900

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.00 ELREA= 887.95

13.90	10.30	885.00	0.00	0.00	886.64	1.64	.07	.70	889.60
1550.	0.	1550.	0.	0.	151.	0.	205.	55.	889.50
1.09	0.00	10.27	0.00	.080	.040	.080	.042	874.70	2000.00
.010802	50.	50.	50.	2	0	0	0.00	15.00	2015.00

*SECNO 14.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 889.50 MAX ELLC= 886.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.00 ELREA= 887.95

SECNO / C / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
14.00	10.10	884.80	0.00	0.00	886.85	2.05	.01	.20	889.60
1550.	0.	1550.	0.	0.	135.	0.	205.	55.	889.50
1.09	0.00	11.48	0.00	.080	.025	.080	.042	874.70	2000.00
.008548	1.	1.	1.	2	0	0	-13.22	15.00	2015.00

*SECNO 14.100

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 889.50 MAX ELLC= 886.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 889.60 ELREA= 889.50

MCRR BRIDGE

14.10	10.42	885.12	0.00	0.00	887.05	1.93	.17	.04	889.60
1550.	0.	1550.	0.	0.	139.	0.	205.	55.	889.50
1.09	0.00	11.15	0.00	.080	.025	.080	.042	874.70	2000.00
.008113	20.	20.	20.	2	0	0	-15.27	15.00	2015.00

*SECNO 14.200

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 889.60 ELREA= 889.50

14.20	11.17	885.87	0.00	0.00	887.23	1.36	.01	.17	889.60
1550.	0.	1550.	0.	0.	165.	0.	205.	55.	889.50
1.09	0.00	9.37	0.00	.060	.040	.060	.042	874.70	2000.00
.008553	1.	1.	1.	3	0	0	0.00	15.00	2015.00

*SECNO 15.500

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1967.0 2034.0 TYPE= 1 TARGET= 67.000

15.50	12.35	887.45	0.00	0.00	887.62	.17	.04	.36	883.00
1550.	110.	1437.	2.	78.	419.	6.	205.	55.	887.00
1.10	1.42	3.43	.33	.060	.040	.060	.042	875.10	1967.00
.000536	26.	26.	26.	2	0	0	0.00	67.00	2034.00

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 15.900

3470 ENCROACHMENT STATIONS=		1896.0	2120.0	TYPE=	1	TARGET=	224.000		
15.90	12.09	887.49	0.00	0.00	887.69	.21	.05	.02	884.80
1550.	542.	965.	43.	399.	215.	62.	207.	56.	884.80
1.10	1.36	4.50	.69	.060	.025	.060	.042	875.40	1896.00
.000526	100.	100.	100.	2	0	0	0.00	168.07	2064.07

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.98	2.80	0.00	11.90	0.00	90.00	0.00	875.60	875.40

*SECNO 16.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
901.21	887.89	0.00	1249.	303.	90.	89.	883.10	884.80

3470 ENCROACHMENT STATIONS=		1910.0	2110.0	TYPE=	1	TARGET=	200.000		
MAPLE AVE. BRIDGE									
16.10	12.21	887.81	0.00	0.00	888.01	.20	.32	0.00	884.80
1550.	529.	962.	58.	372.	215.	78.	207.	56.	884.80
1.11	1.42	4.48	.75	.060	.025	.060	.042	875.60	1910.00
.000529	50.	50.	50.	2	0	5	0.00	159.66	2069.66

*SECNO 16.300

3470 ENCROACHMENT STATIONS=		1920.0	2095.0	TYPE=	1	TARGET=	175.000		
16.30	12.29	887.99	0.00	0.00	888.06	.07	.01	.04	879.50
1550.	39.	1180.	331.	75.	495.	426.	208.	56.	880.10
1.12	.51	2.38	.78	.060	.025	.060	.042	875.70	1966.27
.000072	50.	50.	50.	2	0	0	0.00	128.73	2095.00

CCHV= .100 CEHV= .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

*SECNO 18.800

3470 ENCROACHMENT STATIONS= 1988.0 2037.0 TYPE= 1 TARGET= 49.000

18.80	12.14	887.94	0.00	0.00	888.13	.19	.04	.04	877.90
1550.	218.	1128.	205.	113.	287.	101.	212.	56.	877.60
1.14	1.93	3.93	2.03	.050	.040	.050	.042	875.80	1988.00
.000443	243.	243.	243.	2	0	0	0.00	49.00	2037.00

CCHV= .300 CEHV= .500

*SECNO 18.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.40 ELREA= 888.40

18.90	10.60	887.80	0.00	0.00	888.33	.53	.03	.17	890.10
1550.	0.	1550.	0.	0.	265.	0.	213.	57.	890.10
1.14	0.00	5.84	0.00	.050	.025	.050	.042	877.20	2000.00
.000907	50.	50.	50.	2	0	0	0.00	26.00	2026.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.80	0.00	26.00	0.00	233.00	0.00	877.50	877.30

*SECNO 19.100

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
888.90	888.61	0.00	0.	1550.	233.	237.	886.60	889.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.70 ELREA= 890.70

ASH ST. BRIDGE

19.10	10.92	888.42	0.00	0.00	888.90	.48	.56	0.00	890.10
1550.	0.	1550.	0.	0.	279.	0.	213.	57.	890.10
1.14	0.00	5.56	0.00	.050	.025	.050	.041	877.50	2000.00
.000818	50.	50.	50.	2	0	0	0.00	26.00	2026.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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 19.300

3470 ENCROACHMENT STATIONS= 1950.0 2076.0 TYPE= 1 TARGET= 126.000

19.30	11.48	888.98	0.00	0.00	889.04	.06	.01	.13	879.70
1550.	154.	1201.	194.	199.	541.	219.	214.	57.	879.70
1.15	.78	2.22	.89	.070	.040	.070	.041	877.50	1950.00
.000152	50.	50.	50.	2	0	0	0.00	126.00	2076.00

CCHV= .100 CEHV= .300

*SECNO 21.000

21.00	11.76	889.06	0.00	0.00	889.07	.01	.03	.00	878.80
1550.	363.	482.	705.	678.	311.	1274.	225.	58.	879.10
1.24	.54	1.55	.55	.090	.040	.090	.041	877.30	1903.84
.000071	300.	300.	300.	2	0	0	0.00	307.94	2211.77

*SECNO 22.000

22.00	11.76	889.06	0.00	0.00	889.08	.02	.00	.00	878.60
1550.	97.	418.	1035.	181.	203.	1381.	227.	58.	877.70
1.26	.54	2.06	.75	.090	.040	.090	.041	877.30	1959.38
.000126	50.	50.	50.	0	0	0	0.00	252.42	2211.79

*SECNO 24.800

3470 ENCROACHMENT STATIONS= 1985.0 2045.0 TYPE= 1 TARGET= 60.000

24.80	11.55	889.05	0.00	0.00	889.25	.20	.11	.05	883.90
1550.	20.	1469.	61.	27.	400.	61.	240.	60.	883.70
1.30	.74	3.67	1.01	.090	.040	.080	.041	877.50	1985.00
.000529	500.	500.	500.	2	0	0	0.00	60.00	2045.00

CCHV= .300 CEHV= .500

*SECNO 24.810

3265 DIVIDED FLOW

24.81	11.62	889.12	0.00	0.00	889.27	.15	.01	.01	883.90
1550.	78.	1345.	127.	116.	403.	122.	240.	60.	883.70
1.30	.67	3.34	1.04	.090	.040	.080	.041	877.50	1942.64
.000433	20.	20.	20.	2	0	0	0.00	119.99	2092.06

SECNO / Q / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 24.820									
3265 DIVIDED FLOW									
24.82	11.63	889.13	0.00	0.00	889.28	.15	.01	.00	883.90
1550.	78.	1345.	127.	117.	403.	122.	241.	60.	883.70
1.30	.67	3.33	1.04	.090	.040	.080	.041	877.50	1942.60
.000432	20.	20.	20.	0	0	0	0.00	120.16	2092.09
*SECNO 24.900									
24.90	9.92	889.12	0.00	0.00	889.29	.17	.00	.01	881.50
1550.	136.	1222.	191.	159.	335.	145.	241.	60.	881.50
1.30	.86	3.65	1.32	.090	.040	.080	.041	879.20	1935.41
.000534	10.	10.	10.	0	0	0	0.00	127.03	2062.44
SPECIAL BRIDGE									

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.80	0.00	24.00	0.00	223.00	0.00	879.20	879.70

*SECNO 25.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
890.35	889.46	0.00	3.	1541.	223.	223.	888.50	890.20

ELM ST. BRIDGE

25.10	10.98	890.18	0.00	0.00	890.33	.16	1.04	0.00	881.50
1550.	121.	1288.	141.	229.	373.	177.	241.	60.	881.50
1.30	.53	3.46	.80	.090	.025	.080	.041	879.20	1923.50
.000162	33.	33.	33.	2	0	2	0.00	140.93	2064.43
*SECNO 25.300									
3470 ENCROACHMENT STATIONS=		1948.0	2083.0	TYPE=	1	TARGET=		135.000	
25.30	10.99	890.19	0.00	0.00	890.35	.16	.01	.00	887.60
1550.	28.	1392.	130.	53.	413.	104.	242.	61.	885.40
1.31	.53	3.37	1.25	.090	.040	.070	.041	879.20	1948.00
.000563	50.	50.	50.	0	0	0	0.00	113.23	2061.23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	CCH	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 27.000

27.00	11.20	890.40	0.00	0.00	890.45	.05	.09	.01	882.20
1550.	439.	916.	195.	599.	388.	262.	249.	62.	882.20
1.36	.73	2.36	.74	.090	.040	.080	.041	879.20	1871.82
.000183	280.	304.	335.	2	0	0	0.00	219.61	2091.43

*SECNO 28.000

28.00	11.90	890.60	0.00	0.00	890.63	.03	.18	.00	884.90
1550.	37.	774.	740.	89.	394.	965.	283.	68.	883.90
1.59	.41	1.96	.77	.080	.040	.080	.041	878.70	1945.39
.000140	1140.	1150.	1070.	2	0	0	0.00	236.24	2181.63

*SECNO 60.800

3470 ENCROACHMENT STATIONS= 1985.0 2055.0 TYPE= 1 TARGET= 70.000

60.80	8.77	890.67	0.00	0.00	890.93	.27	.23	.07	885.20
980.	91.	701.	188.	46.	148.	95.	301.	71.	886.60
1.65	1.99	4.72	1.98	.060	.040	.060	.041	881.90	1985.00
.001356	960.	905.	920.	2	0	0	0.00	61.88	2046.88

CCHV= .300 CEHV= .500

*SECNO 60.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.45 ELREA= 893.45

60.90	8.95	890.75	0.00	0.00	890.99	.23	.04	.01	882.60
980.	0.	980.	0.	0.	252.	0.	302.	71.	882.50
1.66	0.00	3.89	0.00	.060	.040	.060	.041	881.80	1939.16
.000634	50.	50.	50.	2	0	0	0.00	29.60	1968.76

*SECNO 61.000

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 893.50 MAX ELLC= 892.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.45 ELREA= 893.45

61.00	8.91	890.71	0.00	0.00	891.04	.33	.00	.05	894.70
980.	0.	980.	0.	0.	213.	0.	302.	71.	894.70
1.66	0.00	4.60	0.00	.060	.040	.060	.041	881.80	1972.18
.002369	1.	1.	1.	2	0	0	-37.51	29.60	2001.78

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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 61.100

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 893.50 MAX ELLC= 892.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 894.70 ELREA= 894.70

JEFFERSON AVE. BRIDGE

61.10	8.86	890.86	0.00	0.00	891.20	.34	.16	.01	894.70
980.	0.	980.	0.	0.	209.	0.	302.	71.	894.70
1.66	0.00	4.68	0.00	.060	.040	.060	.041	882.00	1972.18
.002547	66.	66.	66.	2	0	0	-39.59	29.60	2001.78

*SECNO 61.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 894.70 ELREA= 894.70

61.20	9.01	891.01	0.00	0.00	891.24	.23	.00	.03	882.80
980.	0.	980.	0.	0.	253.	0.	302.	71.	882.60
1.66	0.00	3.87	0.00	.060	.040	.060	.041	882.00	1776.14
.000624	1.	1.	1.	2	0	0	0.00	29.60	1805.74

*SECNO 61.300

3470 ENCROACHMENT STATIONS= 1761.3 1857.5 TYPE= 1 TARGET= 96.200

61.30	9.15	891.15	0.00	0.00	891.29	.14	.03	.03	882.80
980.	83.	826.	70.	67.	257.	59.	302.	71.	882.60
1.67	1.25	3.21	1.20	.060	.040	.060	.041	882.00	1761.34
.000419	50.	50.	50.	2	0	0	0.00	58.11	1819.45

CCHV= .100 CEHV= .300

*SECNO 61.500

61.50	6.72	892.22	0.00	0.00	892.45	.24	1.13	.03	889.00
980.	184.	661.	135.	163.	141.	102.	314.	75.	889.20
1.77	1.13	4.68	1.32	.090	.045	.090	.042	885.50	1865.09
.002187	1400.	1450.	1000.	2	0	0	0.00	211.02	2076.11

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

CCHV= .100 CEHV= .300
*SECNO 63.800

3470 ENCROACHMENT STATIONS= 1953.0 2050.0 TYPE= 1 TARGET= 97.000

63.80	6.24	892.84	0.00	0.00	893.32	.48	.79	.07	891.00
980.	75.	879.	26.	56.	150.	27.	316.	76.	891.60
1.79	1.34	5.85	.99	.090	.040	.090	.042	886.60	1953.00
.003752	270.	280.	320.	2	0	0	0.00	97.00	2050.00

CCHV= .300 CEHV= .500
*SECNO 63.900

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 2000.0 2017.1 TYPE= 1 TARGET= 17.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.10 ELREA= 898.10

63.90	5.62	892.62	892.62	0.00	894.99	2.37	.33	.94	889.50
980.	0.	980.	0.	0.	79.	0.	317.	76.	888.70
1.79	0.00	12.35	0.00	.090	.040	.090	.042	887.00	2000.00
.014795	50.	50.	50.	20	11	0	0.00	17.00	2017.00

*SECNO 64.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 899.30 MAX ELLC= 896.10

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.10 ELREA= 898.10

64.00	5.52	892.52	892.52	0.00	895.21	2.68	.02	.16	900.10
980.	0.	980.	0.	0.	75.	0.	317.	76.	900.10
1.79	0.00	13.15	0.00	.090	.030	.090	.042	887.00	2000.00
.017074	1.	1.	1.	2	15	0	-4.04	17.00	2017.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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 64.100

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 899.30 MAX ELLC= 896.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.10 ELREA= 900.10

KIPP RD. BRIDGE

64.10	6.63	894.23	0.00	0.00	896.38	2.15	1.01	.16	900.10
980.	0.	980.	0.	0.	83.	0.	317.	76.	900.10
1.79	0.00	11.76	0.00	.090	.030	.090	.041	887.60	2000.00
.013790	66.	66.	66.	4	0	0	-11.42	17.00	2017.00

*SECNO 64.200

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.10 ELREA= 900.10

64.20	8.09	895.69	0.00	0.00	896.72	1.03	.01	.34	889.80
980.	0.	980.	0.	0.	120.	0.	317.	76.	889.20
1.79	0.00	8.13	0.00	.090	.040	.090	.041	887.60	2000.00
.003648	1.	1.	1.	4	0	0	0.00	17.00	2017.00

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	0.000000	0.00	0.0	0.	873.500	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= .100 CEHV= .300

*SECNO 1.200

3470 ENCROACHMENT STATIONS= 1953.0 2135.0 TYPE= 1 TARGET= 182.000

1.20	9.20	873.50	0.00	873.50	873.57	.07	0.00	0.00	867.50
1730.	253.	635.	842.	230.	208.	661.	0.	0.	868.10
0.00	1.10	3.05	1.27	.080	.040	.080	0.000	864.30	1953.18
.000447	0.	0.	0.	0	0	0	0.00	181.82	2135.00

*SECNO 1.800

3470 ENCROACHMENT STATIONS= 1960.0 2080.0 TYPE= 1 TARGET= 120.000

1.80	9.84	874.04	0.00	874.04	874.23	.19	.62	.04	869.30
1730.	189.	1376.	165.	156.	354.	144.	22.	4.	870.30
.09	1.21	3.89	1.15	.080	.040	.080	.040	864.20	1960.00
.000732	1000.	1100.	1150.	2	0	0	0.00	120.00	2080.00

1490 NH CARD USED

*SECNO 1.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.20 ELREA= 878.10

1.90	9.40	874.10	0.00	874.10	874.25	.15	.02	.00	878.20
1730.	0.	1730.	0.	0.	557.	0.	23.	4.	878.10
.10	0.00	3.11	0.00	.080	.050	.080	.040	864.70	2000.00
.000317	50.	50.	50.	2	0	0	0.00	93.00	2093.00

*SECNO 2.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 877.50 MAX ELLC= 875.20

2.00	9.39	874.09	0.00	874.09	874.26	.16	.00	.00	878.20
1730.	0.	1730.	0.	0.	535.	0.	23.	4.	878.10
.10	0.00	3.24	0.00	.080	.025	.080	.040	864.70	2000.00
.000430	1.	1.	1.	0	0	0	-22.10	93.00	2093.00

SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 2.100									
3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 877.50 MAX ELLC= 875.20									
HOWELL AVE. BRIDGE									
2.10	9.42	874.12	0.00	874.12	874.28	.16	.02	.00	878.20
1730.	0.	1730.	0.	0.	536.	0.	24.	4.	878.10
.10	0.00	3.23	0.00	.080	.025	.080	.039	864.70	2000.00
.000427	58.	58.	58.	0	0	0	-22.14	93.00	2093.00
*SECNO 2.200									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.20 ELREA= 878.10									
2.20	9.44	874.14	0.00	874.14	874.28	.15	.00	.00	878.20
1730.	0.	1730.	0.	0.	559.	0.	24.	4.	878.10
.10	0.00	3.10	0.00	.080	.025	.080	.039	864.70	2000.00
.000270	1.	1.	1.	1	0	0	0.00	93.00	2093.00
*SECNO 2.300									
3470 ENCROACHMENT STATIONS= 1950.0 2142.0 TYPE= 1 TARGET= 192.000									
2.30	9.68	874.18	0.00	874.18	874.31	.12	.02	.00	869.60
1730.	188.	1162.	381.	180.	347.	372.	24.	4.	870.60
.11	1.04	3.35	1.02	.080	.040	.080	.039	864.50	1950.00
.000556	50.	50.	50.	2	0	0	0.00	192.00	2142.00
CCHV= .100 CEHV= .300									
*SECNO 4.000									
2800 NAT Q1= 1163.67 WSEL= 874.99 ENC Q1= 1163.67 WSEL= 875.09 RATIO= 0.0000									
NAT Q1= 1208. RATIOS LOB,CH,ROB= .4213 .2825 .2963 WSEL= 875.09									
3470 ENCROACHMENT STATIONS= 1742.9 2235.2 TYPE= 4 TARGET= .037									
4.00	7.71	875.01	0.00	874.99	875.04	.02	.72	.01	871.70
1730.	722.	511.	497.	1074.	269.	785.	97.	21.	871.70
.67	.67	1.90	.63	.090	.040	.090	.040	867.30	1742.86
.000233	2270.	2100.	1900.	2	0	0	0.00	492.39	2235.25

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

*SECNO 5.000
2800 NAT Q1= 308.72 WSEL= 875.64 ENC Q1= 308.72 WSEL= 875.74 RATIO= 0.0000
NAT Q1= 325. RATIOS LOB,CH,ROB= .1790 .3340 .4870 WSEL= 875.74

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1970.1 2409.2 TYPE= 4 TARGET= .051

5.00	6.89	875.69	0.00	875.64	875.83	.14	.76	.04	871.10
1730.	281.	614.	835.	136.	132.	773.	145.	34.	874.90
.82	2.06	4.65	1.08	.110	.053	.140	.043	868.80	1970.11
.003293	1325.	1300.	1300.	3	0	0	0.00	406.00	2409.20

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 1989.0 2524.0 TYPE= 1 TARGET= 535.000

6.00	8.68	876.38	0.00	876.32	876.42	.05	.58	.01	869.40
1550.	27.	594.	929.	36.	226.	1214.	160.	40.	871.70
.92	.76	2.62	.77	.090	.050	.090	.044	867.70	1989.18
.000519	495.	507.	535.	2	0	0	0.00	534.65	2523.84

*SECNO 7.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1990.0 2035.0 TYPE= 1 TARGET= 45.000

7.80	7.77	877.07	0.00	877.06	877.69	.61	1.09	.17	870.90
1550.	183.	1272.	95.	52.	188.	34.	183.	47.	870.80
.97	3.49	6.76	2.79	.060	.040	.060	.043	869.30	1990.00
.002404	1150.	1130.	1130.	3	0	0	0.00	45.00	2035.00

CCHV= .300 CEHV= .500
*SECNO 7.810

3470 ENCROACHMENT STATIONS= 1996.0 2030.0 TYPE= 1 TARGET= 34.000

7.81	7.70	877.00	0.00	876.98	877.87	.87	.06	.13	870.90
1550.	59.	1440.	51.	23.	186.	20.	183.	47.	870.80
.97	2.53	7.74	2.49	.060	.040	.060	.043	869.30	1996.00
.003186	20.	20.	20.	2	0	0	0.00	34.00	2030.00

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

*SECNO 7.820

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1991.0 2018.1 TYPE= 1 TARGET= 27.100

7.82	7.29	876.69	0.00	876.67	878.36	1.67	.09	.40	871.60
1550.	146.	1404.	0.	34.	130.	1.	183.	47.	871.50
.97	4.30	10.82	.44	.060	.040	.060	.043	869.40	1991.00
.007187	20.	20.	20.	2	0	0	0.00	27.10	2018.10

*SECNO 7.900

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.80 ELREA= 878.80

7.90	7.01	876.41	0.00	876.38	878.82	2.41	.08	.37	871.60
1550.	0.	1550.	0.	0.	124.	0.	183.	47.	871.50
.97	0.00	12.47	0.00	.060	.040	.060	.043	869.40	1999.00
.010103	10.	10.	10.	2	0	0	0.00	19.00	2018.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.57	2.80	0.00	19.00	0.00	175.00	0.00	869.40	869.60

*SECNO 8.100

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 878.318 EGLWC= 878.824 ELLC= 878.400 PCWSE= 876.406 ELTRD= 879.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 879.00 MAX ELLC= 878.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 878.80 ELREA= 878.80

CEMETERY BRIDGE

8.10	7.60	877.00	0.00	876.99	879.03	2.03	.10	.11	871.60
1550.	0.	1550.	0.	0.	135.	0.	183.	47.	871.50
.97	0.00	11.45	0.00	.060	.025	.060	.043	869.40	1999.00
.005251	14.	14.	14.	4	0	0	-58.75	19.00	2018.00

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	GCH	VROB	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 8.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		1950.0	2069.0	TYPE=	1	TARGET=		119.000	
8.30	9.94	879.44	0.00	879.43	879.70	.26	.13	.53	879.20
1550.	0.	1532.	18.	0.	371.	16.	183.	47.	875.00
.97	.16	4.13	1.13	.090	.075	.080	.043	869.50	1978.45
.001574	50.	50.	50.	3	0	0	0.00	60.79	2039.24

CCHV= .100 CEHV= .300
*SECNO 10.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		1987.0	2032.0	TYPE=	1	TARGET=		45.000	
10.80	7.62	882.12	0.00	882.12	883.18	1.06	3.24	.24	876.00
1550.	183.	1149.	218.	56.	123.	62.	192.	49.	876.00
1.02	3.29	9.37	3.51	.080	.040	.080	.042	874.50	1987.00
.005050	1250.	1250.	1250.	2	0	0	0.00	45.00	2032.00

CCHV= .300 CEHV= .500
*SECNO 10.810

3470 ENCROACHMENT STATIONS=		1992.0	2025.0	TYPE=	1	TARGET=		33.000	
10.81	7.49	881.99	0.00	881.99	883.54	1.55	.12	.24	876.00
1550.	130.	1300.	120.	39.	120.	36.	192.	49.	876.00
1.02	3.36	10.80	3.30	.080	.040	.080	.042	874.50	1992.00
.006872	20.	20.	20.	2	0	0	0.00	33.00	2025.00

*SECNO 10.820

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=		1997.0	2020.0	TYPE=	1	TARGET=		23.000	
10.82	7.22	881.72	0.00	881.72	884.14	2.42	.17	.43	876.00
1550.	47.	1476.	27.	16.	116.	11.	193.	49.	876.00
1.02	2.96	12.77	2.45	.080	.040	.080	.042	874.50	1997.00
.010129	20.	20.	20.	2	0	0	0.00	23.00	2020.00

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

*SECNO 10.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.75 ELREA= 890.75

10.90	7.07	881.67	0.00	881.67	884.47	2.80	.14	.19	892.10
1550.	0.	1550.	0.	0.	116.	0.	193.	49.	892.10
1.02	0.00	13.42	0.00	.080	.040	.080	.042	874.60	2000.00
.020972	10.	10.	10.	2	0	0	0.00	18.00	2018.00

*SECNO 11.000

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 892.10 MAX ELLC= 888.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.75 ELREA= 890.75

11.00	7.70	882.30	0.00	882.30	884.62	2.32	.01	.14	892.10
1550.	0.	1550.	0.	0.	127.	0.	193.	49.	892.10
1.02	0.00	12.23	0.00	.080	.025	.080	.042	874.60	2000.00
.009917	1.	1.	1.	12	0	0	-.00	18.00	2018.00

*SECNO 11.100

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 892.10 MAX ELLC= 888.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.39 ELREA= 893.39

STATE ST. BRIDGE

11.10	8.20	883.00	0.00	883.00	885.04	2.04	.32	.09	892.10
1550.	0.	1550.	0.	0.	135.	0.	193.	49.	892.10
1.02	0.00	11.46	0.00	.080	.025	.080	.042	874.80	2000.00
.008247	36.	36.	36.	2	0	0	-.05	18.00	2018.00

*SECNO 11.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.39 ELREA= 893.39

11.20	8.21	883.01	0.00	883.01	885.05	2.03	.01	.00	892.10
1550.	0.	1550.	0.	0.	135.	0.	193.	49.	892.10
1.02	0.00	11.44	0.00	.080	.040	.080	.042	874.80	2000.00
.013592	1.	1.	1.	0	0	0	0.00	18.00	2018.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	GCH	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 11.300

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1949.0 2067.0 TYPE= 1 TARGET= 118.000

11.30	10.37	885.57	0.00	885.57	885.68	.11	.05	.58	880.00
1550.	76.	1367.	107.	91.	490.	130.	193.	49.	880.00
1.03	.84	2.79	.82	.080	.040	.080	.042	875.20	1949.00
.000349	50.	50.	50.	3	0	0	0.00	118.00	2067.00

CCHV= .100 CEHV= .300
*SECNO 13.800

3470 ENCROACHMENT STATIONS= 1995.0 2040.0 TYPE= 1 TARGET= 45.000

13.80	11.43	885.63	0.00	885.63	885.86	.23	.15	.04	878.00
1550.	42.	1493.	15.	33.	381.	21.	198.	50.	878.00
1.05	1.27	3.92	.72	.080	.040	.080	.042	874.20	1995.00
.000525	350.	350.	350.	2	0	0	0.00	45.00	2040.00

CCHV= .300 CEHV= .500
*SECNO 13.900

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.00 ELREA= 887.95

13.90	10.30	885.00	0.00	885.00	886.64	1.64	.07	.70	889.60
1550.	0.	1550.	0.	0.	151.	0.	198.	50.	889.50
1.05	0.00	10.27	0.00	.080	.040	.080	.042	874.70	2000.00
.010802	50.	50.	50.	2	0	0	0.00	15.00	2015.00

*SECNO 14.000

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 889.50 MAX ELLC= 886.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.00 ELREA= 887.95

SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOEL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
14.00	10.10	884.80	0.00	884.80	886.85	2.05	.01	.20	889.60
1550.	0.	1550.	0.	0.	135.	0.	198.	50.	889.50
1.05	0.00	11.48	0.00	.080	.025	.080	.042	874.70	2000.00
.008548	1.	1.	1.	2	0	0	-13.22	15.00	2015.00

*SECNO 14.100

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 889.50 MAX ELLC= 886.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 889.60 ELREA= 889.50

MCRR BRIDGE

14.10	10.42	885.12	0.00	885.12	887.05	1.93	.17	.04	889.60
1550.	0.	1550.	0.	0.	139.	0.	198.	50.	889.50
1.05	0.00	11.15	0.00	.080	.025	.080	.042	874.70	2000.00
.008113	20.	20.	20.	2	0	0	-15.27	15.00	2015.00

*SECNO 14.200

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 889.60 ELREA= 889.50

14.20	11.17	885.87	0.00	885.87	887.23	1.36	.01	.17	889.60
1550.	0.	1550.	0.	0.	165.	0.	198.	50.	889.50
1.05	0.00	9.37	0.00	.060	.040	.060	.042	874.70	2000.00
.008553	1.	1.	1.	3	0	0	0.00	15.00	2015.00

*SECNO 15.500

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1967.0 2034.0 TYPE= 1 TARGET= 67.000

15.50	12.35	887.45	0.00	887.45	887.62	.17	.04	.36	883.00
1550.	110.	1437.	2.	78.	419.	6.	198.	50.	887.00
1.06	1.42	3.43	.33	.060	.040	.060	.042	875.10	1967.00
.000536	26.	26.	26.	2	0	0	0.00	67.00	2034.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
G	QLOE	GCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOE	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOEL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 15.900

3470 ENCROACHMENT STATIONS=			1896.0	2120.0	TYPE=	1	TARGET=	224.000	
15.90	12.09	887.49	0.00	887.49	887.69	.21	.05	.02	884.80
1550.	542.	965.	43.	399.	215.	62.	200.	50.	884.80
1.06	1.36	4.50	.69	.060	.025	.060	.042	875.40	1896.00
.000526	100.	100.	100.	2	0	0	0.00	168.07	2064.07

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.98	2.80	0.00	11.90	0.00	90.00	0.00	875.60	875.40

*SECNO 16.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
901.21	887.89	0.00	1249.	303.	90.	89.	883.10	884.80

3470 ENCROACHMENT STATIONS=			1910.0	2110.0	TYPE=	1	TARGET=	200.000	
MAPLE AVE. BRIDGE									
16.10	12.21	887.81	0.00	887.81	888.01	.20	.32	0.00	884.80
1550.	529.	962.	58.	372.	215.	78.	201.	50.	884.80
1.07	1.42	4.48	.75	.060	.025	.060	.042	875.60	1910.00
.000529	50.	50.	50.	2	0	5	0.00	159.66	2069.66

*SECNO 16.300

3470 ENCROACHMENT STATIONS=			1920.0	2095.0	TYPE=	1	TARGET=	175.000	
16.30	12.29	887.99	0.00	887.99	888.06	.07	.01	.04	879.50
1550.	39.	1180.	331.	75.	495.	426.	201.	50.	880.10
1.08	.51	2.38	.78	.060	.025	.060	.042	875.70	1966.27
.000072	50.	50.	50.	2	0	0	0.00	128.73	2095.00

CCHV= .100 CEHV= .300

SECNC	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	CCH	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 18.800

3470 ENCROACHMENT STATIONS= 1988.0 2037.0 TYPE= 1 TARGET= 49.000

18.80	12.14	887.94	0.00	887.94	888.13	.19	.04	.04	877.90
1550.	218.	1128.	205.	113.	287.	101.	206.	51.	877.60
1.10	1.93	3.93	2.03	.050	.040	.050	.042	875.80	1988.00
.000443	243.	243.	243.	2	0	0	0.00	49.00	2037.00

CCHV= .300 CEHV= .500
*SECNO 18.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 888.40 ELREA= 888.40

18.90	10.60	887.80	0.00	887.80	888.33	.53	.03	.17	890.10
1550.	0.	1550.	0.	0.	265.	0.	206.	51.	890.10
1.10	0.00	5.84	0.00	.050	.025	.050	.042	877.20	2000.00
.000907	50.	50.	50.	2	0	0	0.00	26.00	2026.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.80	0.00	26.00	0.00	233.00	0.00	877.50	877.30

*SECNO 19.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
888.90	888.61	0.00	0.	1550.	233.	237.	886.60	889.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 890.70 ELREA= 890.70

ASH ST. BRIDGE

19.10	10.92	888.42	0.00	888.42	888.90	.48	.56	0.00	890.10
1550.	0.	1550.	0.	0.	279.	0.	206.	51.	890.10
1.10	0.00	5.56	0.00	.050	.025	.050	.041	877.50	2000.00
.000818	50.	50.	50.	2	0	0	0.00	26.00	2026.00

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
      G        QLOB       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 19.300

  3470 ENCROACHMENT STATIONS=    1950.0     2076.0  TYPE=      1  TARGET=       126.000
      19.30      11.48     888.98       0.00     888.98     889.04        .06        .01        .13     879.70
      1550.       154.       1201.       194.       199.       541.       219.       207.        51.     879.70
       1.11        .78       2.22        .89        .070       .040       .070       .041     877.50    1950.00
    .000152       50.        50.         50.          2          0          0       0.00     126.00    2076.00

  CCHV=     .100 CEHV=     .300
  *SECNO 21.000
   2800 NAT Q1=    1835.94  WSEL=     889.06  ENC Q1=    1835.94  WSEL=     889.16  RATIO=   0.0000
   NAT Q1=    1871.  RATIOS LOB,CH,ROB=    .2347    .3096    .4556  WSEL=     889.16

  3470 ENCROACHMENT STATIONS=    1920.8     2193.3  TYPE=      4  TARGET=        .019
      21.00      11.76     889.06       0.00     889.06     889.07        .02        .03        .00     878.80
      1550.       394.       491.       705.       634.       311.      1223.       218.        52.     879.10
       1.20        .56       1.58        .58        .090       .040       .090       .041     877.30    1920.82
    .000074       300.       300.        300.          2          0          0       0.00     272.44    2193.26

  *SECNO 22.000
   2800 NAT Q1=    1379.92  WSEL=     889.06  ENC Q1=    1379.92  WSEL=     889.16  RATIO=   0.0000
   NAT Q1=    1404.  RATIOS LOB,CH,ROB=    .0632    .2687    .6680  WSEL=     889.16

  3470 ENCROACHMENT STATIONS=    1979.4     2195.4  TYPE=      4  TARGET=        .017
      22.00      11.75     889.05       0.00     889.06     889.08        .03        .00        .00     878.60
      1550.        84.       426.      1040.       138.       203.      1342.       220.        53.     877.70
       1.21        .61       2.10        .78        .090       .040       .090       .041     877.30    1979.35
    .000131       50.        50.         50.          0          0          0       0.00     216.01    2195.36

  *SECNO 24.800

  3470 ENCROACHMENT STATIONS=    1985.0     2045.0  TYPE=      1  TARGET=        60.000
      24.80      11.55     889.05       0.00     889.05     889.25        .20        .12        .05     883.90
      1550.        20.      1469.        61.        27.       400.        61.       233.        54.     883.70
       1.25        .74       3.67       1.01        .090       .040       .080       .041     877.50    1985.00
    .000529       500.       500.        500.          2          0          0       0.00      60.00    2045.00

  CCHV=     .300 CEHV=     .500
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SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / QCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 24.810									
3265 DIVIDED FLOW									
24.81	11.62	889.12	0.00	889.12	889.27	.15	.01	.01	883.90
1550.	78.	1345.	127.	116.	403.	122.	233.	54.	883.70
1.25	.67	3.34	1.04	.090	.040	.080	.041	877.50	1942.62
.000433	20.	20.	20.	2	0	0	0.00	120.05	2092.07
*SECNO 24.820									
3265 DIVIDED FLOW									
24.82	11.63	889.13	0.00	889.13	889.28	.15	.01	.00	883.90
1550.	78.	1345.	127.	117.	403.	122.	233.	54.	883.70
1.26	.67	3.33	1.04	.090	.040	.080	.041	877.50	1942.59
.000431	20.	20.	20.	0	0	0	0.00	120.22	2092.10
*SECNO 24.900									
24.90	9.93	889.13	0.00	889.12	889.29	.17	.00	.01	881.50
1550.	137.	1222.	191.	159.	335.	145.	233.	54.	881.50
1.26	.86	3.65	1.32	.090	.040	.080	.041	879.20	1935.37
.000533	10.	10.	10.	0	0	0	0.00	127.08	2062.45

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.80	0.00	24.00	0.00	223.00	0.00	879.20	879.70

*SECNO 25.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
890.35	889.46	0.00	3.	1541.	223.	223.	888.50	890.20

ELM ST. BRIDGE

25.10	10.98	890.18	0.00	890.18	890.34	.16	1.04	0.00	881.50
1550.	121.	1288.	141.	230.	373.	177.	234.	55.	881.50
1.26	.53	3.46	.79	.090	.025	.080	.041	879.20	1923.47
.000162	33.	33.	33.	2	0	2	0.00	140.97	2064.44

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	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 25.300

3470 ENCROACHMENT STATIONS= 1948.0 2083.0 TYPE= 1 TARGET= 135.000

25.30	10.99	890.19	0.00	890.19	890.35	.16	.01	.00	887.60
1550.	28.	1392.	130.	53.	413.	104.	235.	55.	885.40
1.26	.53	3.37	1.25	.090	.040	.070	.041	879.20	1948.00
.000562	50.	50.	50.	0	0	0	0.00	113.23	2061.23

CCHV= .100 CEHV= .300

*SECNO 27.000

2800 NAT Q1= 1144.68 WSEL= 890.40 ENC Q1= 1144.68 WSEL= 890.50 RATIO= 0.0000

NAT Q1= 1169. RATIOS LOB,CH,ROB= .2855 .5878 .1267 WSEL= 890.50

3470 ENCROACHMENT STATIONS= 1904.4 2080.6 TYPE= 4 TARGET= .021

27.00	11.20	890.40	0.00	890.40	890.45	.06	.09	.01	882.20
1550.	434.	936.	180.	555.	388.	232.	241.	56.	882.20
1.31	.78	2.41	.78	.090	.040	.080	.041	879.20	1904.37
.000191	280.	304.	335.	2	0	0	0.00	176.20	2080.57

*SECNO 28.000

2800 NAT Q1= 1311.82 WSEL= 890.60 ENC Q1= 1311.82 WSEL= 890.70 RATIO= 0.0000

NAT Q1= 1340. RATIOS LOB,CH,ROB= .0246 .4965 .4788 WSEL= 890.70

3470 ENCROACHMENT STATIONS= 1981.6 2171.8 TYPE= 4 TARGET= .021

28.00	11.91	890.61	0.00	890.60	890.64	.04	.19	.00	884.90
1550.	22.	786.	741.	46.	394.	943.	273.	60.	883.90
1.54	.49	1.99	.79	.080	.040	.080	.041	878.70	1981.57
.000144	1140.	1150.	1070.	2	0	0	0.00	190.22	2171.79

*SECNO 60.800

3470 ENCROACHMENT STATIONS= 1985.0 2055.0 TYPE= 1 TARGET= 70.000

60.80	8.79	890.69	0.00	890.67	890.95	.26	.24	.07	885.20
980.	91.	700.	188.	46.	149.	95.	291.	63.	886.60
1.60	1.99	4.71	1.98	.060	.040	.060	.041	881.90	1985.00
.001343	960.	905.	920.	2	0	0	0.00	61.95	2046.95

CCHV= .300 CEHV= .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
*SECNO 60.900									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.45 ELREA= 893.45									
60.90	8.97	890.77	0.00	890.75	891.00	.23	.04	.01	882.60
980.	0.	980.	0.	0.	252.	0.	291.	63.	882.50
1.60	0.00	3.88	0.00	.060	.040	.060	.041	881.80	1939.16
.000630	50.	50.	50.	2	0	0	0.00	29.60	1968.76
*SECNO 61.000									
3370 NORMAL BRIDGE,NRC= 25 MIN ELTRD= 893.50 MAX ELLC= 892.20									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 893.45 ELREA= 893.45									
61.00	8.92	890.72	0.00	890.71	891.05	.33	.00	.05	894.70
980.	0.	980.	0.	0.	213.	0.	291.	63.	894.70
1.60	0.00	4.59	0.00	.060	.040	.060	.041	881.80	1972.18
.002365	1.	1.	1.	2	0	0	-37.74	29.60	2001.78
*SECNO 61.100									
3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 893.50 MAX ELLC= 892.20									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 894.70 ELREA= 894.70									
JEFFERSON AVE. BRIDGE									
61.10	8.88	890.88	0.00	890.86	891.22	.34	.16	.01	894.70
980.	0.	980.	0.	0.	210.	0.	291.	63.	894.70
1.61	0.00	4.68	0.00	.060	.040	.060	.041	882.00	1972.18
.002543	66.	66.	66.	2	0	0	-39.83	29.60	2001.78
*SECNO 61.200									
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 894.70 ELREA= 894.70									
61.20	9.02	891.02	0.00	891.01	891.25	.23	.00	.03	882.80
980.	0.	980.	0.	0.	254.	0.	291.	63.	882.60
1.61	0.00	3.87	0.00	.060	.040	.060	.041	882.00	1776.14
.000620	1.	1.	1.	2	0	0	0.00	29.60	1805.74

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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

 *SECNO 61.300

 3470 ENCROACHMENT STATIONS=     1761.3     1857.5  TYPE=      1  TARGET=       96.200
     61.30       9.17     891.17       0.00     891.15     891.31       .14        .03        .03     882.80
       980.        84.        826.        70.        67.        258.       59.        292.       63.      882.60
      1.61       1.24       3.20       1.19       .060       .040       .060       .041     882.00   1761.34
   .000416         50.        50.        50.          2          0          0       0.00      58.14   1819.48

 CCHV=     .100 CEHV=     .300
 *SECNO 61.500
  2800 NAT Q1=      209.55  WSEL=      892.22  ENC Q1=      209.55  WSEL=      892.32  RATIO=  0.0000
  NAT Q1=      219.  RATIOS LOB,CH,ROB=    .1968    .6627    .1405  WSEL=      892.32

 3470 ENCROACHMENT STATIONS=     1934.0     2056.4  TYPE=      4  TARGET=        .045
     61.50       6.73     892.23       0.00     892.22     892.49       .26       1.15        .04     889.00
       980.       173.        685.       122.       129.       142.       82.        303.       66.      889.20
      1.72       1.35       4.83       1.49       .090       .045       .090       .042     885.50   1933.97
   .002327       1400.      1450.      1000.          2          0          0       0.00     122.39   2056.37

 CCHV=     .100 CEHV=     .300
 *SECNO 63.800

 3470 ENCROACHMENT STATIONS=     1953.0     2050.0  TYPE=      1  TARGET=       97.000
     63.80       6.30     892.90       0.00     892.84     893.36       .46        .80        .06     891.00
       980.        77.        875.        28.        58.        152.       28.        305.       67.      891.60
      1.73       1.34       5.75       1.00       .090       .040       .090       .042     886.60   1953.00
   .003562        270.       280.       320.          2          0          0       0.00      97.00   2050.00

 CCHV=     .300 CEHV=     .500
 *SECNO 63.900

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     2000.0     2017.1  TYPE=      1  TARGET=       17.100

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      898.10 ELREA=      898.10
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SECNO / G / TIME / SLOPE	DEPTH / QLOB / VLOB / XLOBL	CWSEL / GCH / VCH / XLCH	CRIWS / QROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	HL / VOL / WTN / CORAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
63.90	5.62	892.62	892.62	892.62	894.99	2.37	.32	.95	889.50
980.	0.	980.	0.	0.	79.	0.	305.	67.	888.70
1.73	0.00	12.35	0.00	.090	.040	.090	.042	887.00	2000.00
.014774	50.	50.	50.	5	11	0	0.00	17.00	2017.00

*SECNO 64.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 899.30 MAX ELLC= 896.10

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 898.10 ELREA= 898.10

64.00	5.52	892.52	892.52	892.52	895.21	2.68	.02	.16	900.10
980.	0.	980.	0.	0.	75.	0.	305.	67.	900.10
1.73	0.00	13.15	0.00	.090	.030	.090	.041	887.00	2000.00
.017074	1.	1.	1.	2	15	0	-4.04	17.00	2017.00

900.1

*SECNO 64.100

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 899.30 MAX ELLC= 896.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 900.10 ELREA= 900.10

KIPP RD. BRIDGE

64.10	6.63	894.23	0.00	894.23	896.38	2.15	1.01	.16	900.10
980.	0.	980.	0.	0.	83.	0.	305.	67.	900.10
1.73	0.00	11.76	0.00	.090	.030	.090	.041	887.60	2000.00
.013790	66.	66.	66.	4	0	0	-11.42	17.00	2017.00

*SECNO 64.200

3301 HV CHANGED MORE THAN HVINS

MOORE BUSINESS FORMS, INC. 23

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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= 900.10 ELREA= 900.10

64.20	8.09	895.69	0.00	895.69	896.72	1.03	.01	.34	889.80
980.	0.	980.	0.	0.	120.	0.	305.	67.	889.20
1.73	0.00	8.13	0.00	.090	.040	.090	.041	887.60	2000.00
.003648	1.	1.	1.	4	0	0	0.00	17.00	2017.00

MOORE BUSINESS FORMS INC. 23

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -   01,02,03,04
  MODIFICATION -   50,51,52,53,54
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SYCAMORE CREEK

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
1.200	873.50	864.30	0.00	0.00	1953.18	1953.00	2004.00	2028.00	2135.00	2135.00	181.82	0.0
1.200	873.50	864.30	0.00	0.00	1953.18	1953.00	2004.00	2028.00	2135.00	2135.00	181.82	0.0
1.800	874.04	864.20	0.00	0.00	1960.00	1960.00	1998.00	2042.00	2080.00	2080.00	120.00	1100.0
1.800	874.04	864.20	0.00	0.00	1960.00	1960.00	1998.00	2042.00	2080.00	2080.00	120.00	1100.0
1.900	874.10	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	50.0
1.900	874.10	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	50.0
2.000	874.09	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.0
2.000	874.09	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.0
2.100	874.12	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	58.0
2.100	874.12	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	58.0
2.200	874.14	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.0
2.200	874.14	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.0
2.300	874.18	864.50	0.00	0.00	1950.00	1950.00	1998.00	2042.00	2142.00	2142.00	192.00	50.0
2.300	874.18	864.50	0.00	0.00	1950.00	1950.00	1998.00	2042.00	2142.00	2142.00	192.00	50.0
4.000	874.99	867.30	0.00	0.00	1681.15	0.00	1995.00	2037.00	0.00	2287.93	606.78	2100.0
4.000	875.01	867.30	0.00	0.00	1742.86	1742.86	1995.00	2037.00	2235.25	2235.25	492.39	2100.0
5.000	875.64	868.80	0.00	0.00	1948.31	0.00	2000.00	2025.00	0.00	2440.86	457.37	1300.0
5.000	875.69	868.80	0.00	0.00	1970.11	1970.11	2000.00	2025.00	2409.20	2409.20	406.00	1300.0
6.000	876.32	867.70	0.00	0.00	1989.30	1989.00	2001.00	2029.00	2524.00	2523.80	534.50	507.0
6.000	876.38	867.70	0.00	0.00	1989.18	1989.00	2001.00	2029.00	2524.00	2523.84	534.65	507.0
7.800	877.06	869.30	0.00	0.00	1990.00	1990.00	2000.00	2026.00	2035.00	2035.00	45.00	1130.0
7.800	877.07	869.30	0.00	0.00	1990.00	1990.00	2000.00	2026.00	2035.00	2035.00	45.00	1130.0

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCFL	STCFR	STENCR	ENDST	TOPWID	XLCF
7.810	876.98	869.30	0.00	0.00	1996.00	1996.00	2000.00	2026.00	2030.00	2030.00	34.00	20.0
7.810	877.00	869.30	0.00	0.00	1996.00	1996.00	2000.00	2026.00	2030.00	2030.00	34.00	20.0
7.820	876.67	869.40	0.00	0.00	1991.00	1991.00	1999.00	2018.00	2018.10	2018.10	27.10	20.0
7.820	876.69	869.40	0.00	0.00	1991.00	1991.00	1999.00	2018.00	2018.10	2018.10	27.10	20.0
7.900	876.38	869.40	0.00	0.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	10.0
7.900	876.41	869.40	0.00	0.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	10.0
8.100	876.99	869.40	878.40	879.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	14.0
8.100	877.00	869.40	878.40	879.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	14.0
8.300	879.43	869.50	0.00	0.00	1978.45	1950.00	1980.00	2032.00	2069.00	2039.24	60.79	50.0
8.300	879.44	869.50	0.00	0.00	1978.45	1950.00	1980.00	2032.00	2069.00	2039.24	60.79	50.0
10.800	882.12	874.50	0.00	0.00	1987.00	1987.00	2000.00	2018.00	2032.00	2032.00	45.00	1250.0
10.800	882.12	874.50	0.00	0.00	1987.00	1987.00	2000.00	2018.00	2032.00	2032.00	45.00	1250.0
10.810	881.99	874.50	0.00	0.00	1992.00	1992.00	2000.00	2018.00	2025.00	2025.00	33.00	20.0
10.810	881.99	874.50	0.00	0.00	1992.00	1992.00	2000.00	2018.00	2025.00	2025.00	33.00	20.0
10.820	881.72	874.50	0.00	0.00	1997.00	1997.00	2000.00	2018.00	2020.00	2020.00	23.00	20.0
10.820	881.72	874.50	0.00	0.00	1997.00	1997.00	2000.00	2018.00	2020.00	2020.00	23.00	20.0
10.900	881.67	874.60	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	10.0
10.900	881.67	874.60	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	10.0
11.000	882.30	874.60	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.0
11.000	882.30	874.60	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.0
11.100	883.00	874.80	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	36.0
11.100	883.00	874.80	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	36.0
11.200	883.01	874.80	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.0
11.200	883.01	874.80	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.0
11.300	885.57	875.20	0.00	0.00	1949.00	1949.00	1970.00	2030.00	2067.00	2067.00	118.00	50.0
11.300	885.57	875.20	0.00	0.00	1949.00	1949.00	1970.00	2030.00	2067.00	2067.00	118.00	50.0
13.800	885.63	874.20	0.00	0.00	1995.00	1995.00	2000.00	2037.00	2040.00	2040.00	45.00	350.0
13.800	885.63	874.20	0.00	0.00	1995.00	1995.00	2000.00	2037.00	2040.00	2040.00	45.00	350.0
13.900	885.00	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	50.0
13.900	885.00	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	50.0
14.000	884.80	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.0
14.000	884.80	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.0
14.100	885.12	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	20.0
14.100	885.12	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	20.0

SECNO	CWSEL	ELMIN	ELLC	ELTRO	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLC
14.200	885.87	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.
14.200	885.87	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.
15.500	887.45	875.10	0.00	0.00	1967.00	1967.00	1985.00	2020.00	2034.00	2034.00	67.00	26.
15.500	887.45	875.10	0.00	0.00	1967.00	1967.00	1985.00	2020.00	2034.00	2034.00	67.00	26.
15.900	887.49	875.40	0.00	0.00	1896.00	1896.00	2000.00	2018.00	2120.00	2064.07	168.07	100.
15.900	887.49	875.40	0.00	0.00	1896.00	1896.00	2000.00	2018.00	2120.00	2064.07	168.07	100.
16.100	887.81	875.60	883.10	884.80	1910.00	1910.00	2000.00	2018.00	2110.00	2069.66	159.66	50.
16.100	887.81	875.60	883.10	884.80	1910.00	1910.00	2000.00	2018.00	2110.00	2069.66	159.66	50.
16.300	887.99	875.70	0.00	0.00	1966.27	1920.00	1984.00	2031.00	2095.00	2095.00	128.73	50.
16.300	887.99	875.70	0.00	0.00	1966.27	1920.00	1984.00	2031.00	2095.00	2095.00	128.73	50.
18.800	887.94	875.80	0.00	0.00	1988.00	1988.00	2000.00	2025.00	2037.00	2037.00	49.00	243.
18.800	887.94	875.80	0.00	0.00	1988.00	1988.00	2000.00	2025.00	2037.00	2037.00	49.00	243.
18.900	887.80	877.20	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.
18.900	887.80	877.20	0.00	0.00	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.
19.100	888.42	877.50	886.60	889.20	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.
19.100	888.42	877.50	886.60	889.20	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.
19.300	888.98	877.50	0.00	0.00	1950.00	1950.00	1997.00	2047.00	2076.00	2076.00	126.00	50.
19.300	888.98	877.50	0.00	0.00	1950.00	1950.00	1997.00	2047.00	2076.00	2076.00	126.00	50.
21.000	889.06	877.30	0.00	0.00	1903.84	0.00	2000.00	2028.00	0.00	2211.77	307.94	300.
21.000	889.06	877.30	0.00	0.00	1920.82	1920.82	2000.00	2028.00	2193.26	2193.26	272.44	300.
22.000	889.06	877.30	0.00	0.00	1959.38	0.00	2000.00	2018.00	0.00	2211.79	252.42	50.
22.000	889.05	877.30	0.00	0.00	1979.35	1979.35	2000.00	2018.00	2195.36	2195.36	216.01	50.
24.800	889.05	877.50	0.00	0.00	1985.00	1985.00	1991.00	2033.00	2045.00	2045.00	60.00	500.
24.800	889.05	877.50	0.00	0.00	1985.00	1985.00	1991.00	2033.00	2045.00	2045.00	60.00	500.
24.810	889.12	877.50	0.00	0.00	1942.64	0.00	1991.00	2033.00	0.00	2092.06	119.99	20.
24.810	889.12	877.50	0.00	0.00	1942.62	0.00	1991.00	2033.00	0.00	2092.07	120.05	20.
24.820	889.13	877.50	0.00	0.00	1942.60	0.00	1991.00	2033.00	0.00	2092.09	120.16	20.
24.820	889.13	877.50	0.00	0.00	1942.59	0.00	1991.00	2033.00	0.00	2092.10	120.22	20.
24.900	889.12	879.20	0.00	0.00	1935.41	0.00	1997.00	2033.00	0.00	2062.44	127.03	10.
24.900	889.13	879.20	0.00	0.00	1935.37	0.00	1997.00	2033.00	0.00	2062.45	127.08	10.
25.100	890.18	879.20	888.50	890.20	1923.50	0.00	1997.00	2033.00	0.00	2064.43	140.93	33.
25.100	890.18	879.20	888.50	890.20	1923.47	0.00	1997.00	2033.00	0.00	2064.44	140.97	33.
25.300	890.19	879.20	0.00	0.00	1948.00	1948.00	1981.00	2033.00	2083.00	2061.23	113.23	50.
25.300	890.19	879.20	0.00	0.00	1948.00	1948.00	1981.00	2033.00	2083.00	2061.23	113.23	50.

MOORE BUSINESS FORMS, INC. 23

	SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
	27.000	890.40	879.20	0.00	0.00	1871.82	0.00	1999.00	2036.00	0.00	2091.43	219.61	304.00
	27.000	890.40	879.20	0.00	0.00	1904.37	1904.37	1999.00	2036.00	2080.57	2080.57	176.20	304.00
	28.000	890.60	878.70	0.00	0.00	1945.39	0.00	1992.00	2031.00	0.00	2181.63	236.24	1150.00
	28.000	890.61	878.70	0.00	0.00	1981.57	1981.57	1992.00	2031.00	2171.79	2171.79	190.22	1150.00
	60.800	890.67	881.90	0.00	0.00	1985.00	1985.00	1996.00	2014.00	2055.00	2046.88	61.88	905.00
	60.800	890.69	881.90	0.00	0.00	1985.00	1985.00	1996.00	2014.00	2055.00	2046.95	61.95	905.00
	60.900	890.75	881.80	0.00	0.00	1939.16	0.00	1939.16	1968.76	0.00	1968.76	29.60	50.00
	60.900	890.77	881.80	0.00	0.00	1939.16	0.00	1939.16	1968.76	0.00	1968.76	29.60	50.00
	61.000	890.71	881.80	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	1.00
	61.000	890.72	881.80	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	1.00
	61.100	890.86	882.00	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	66.00
	61.100	890.88	882.00	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	66.00
	61.200	891.01	882.00	0.00	0.00	1776.14	0.00	1776.14	1805.74	0.00	1805.74	29.60	1.00
	61.200	891.02	882.00	0.00	0.00	1776.14	0.00	1776.14	1805.74	0.00	1805.74	29.60	1.00
	61.300	891.15	882.00	0.00	0.00	1761.34	1761.34	1776.14	1805.74	1857.54	1819.45	58.11	50.00
	61.300	891.17	882.00	0.00	0.00	1761.34	1761.34	1776.14	1805.74	1857.54	1819.48	58.14	50.00
	61.500	892.22	885.50	0.00	0.00	1865.09	0.00	2000.00	2025.00	0.00	2076.11	211.02	1450.00
	61.500	892.23	885.50	0.00	0.00	1933.97	1933.97	2000.00	2025.00	2056.37	2056.37	122.39	1450.00
	63.800	892.84	886.60	0.00	0.00	1953.00	1953.00	1988.00	2023.00	2050.00	2050.00	97.00	280.00
	63.800	892.90	886.60	0.00	0.00	1953.00	1953.00	1988.00	2023.00	2050.00	2050.00	97.00	280.00
*	63.900	892.62	887.00	0.00	0.00	2000.00	2000.00	2000.00	2017.00	2017.10	2017.00	17.00	50.00
*	63.900	892.62	887.00	0.00	0.00	2000.00	2000.00	2000.00	2017.00	2017.10	2017.00	17.00	50.00
*	64.000	892.52	887.00	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00
*	64.000	892.52	887.00	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00
	64.100	894.23	887.60	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	66.00
	64.100	894.23	887.60	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	66.00
	64.200	895.69	887.60	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00
	64.200	895.69	887.60	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00

SYCAMORE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.200	0.00	0.00	0.00	864.30	1730.00	873.50	0.00	873.57	4.47	3.05	1099.26	817.9
1.200	0.00	0.00	0.00	864.30	1730.00	873.50	0.00	873.57	4.47	3.05	1099.26	817.9
1.800	1100.00	0.00	0.00	864.20	1730.00	874.04	0.00	874.23	7.32	3.89	653.64	639.2
1.800	1100.00	0.00	0.00	864.20	1730.00	874.04	0.00	874.23	7.32	3.89	653.64	639.2
1.900	50.00	0.00	0.00	864.70	1730.00	874.10	0.00	874.25	3.17	3.11	556.63	970.9
1.900	50.00	0.00	0.00	864.70	1730.00	874.10	0.00	874.25	3.17	3.11	556.63	970.9
2.000	1.00	877.50	875.20	864.70	1730.00	874.09	0.00	874.26	4.30	3.24	534.58	834.3
2.000	1.00	877.50	875.20	864.70	1730.00	874.09	0.00	874.26	4.30	3.24	534.58	834.3
2.100	58.00	877.50	875.20	864.70	1730.00	874.12	0.00	874.28	4.27	3.23	535.72	836.8
2.100	58.00	877.50	875.20	864.70	1730.00	874.12	0.00	874.28	4.27	3.23	535.72	836.8
2.200	1.00	0.00	0.00	864.70	1730.00	874.14	0.00	874.28	2.70	3.10	558.92	1052.2
2.200	1.00	0.00	0.00	864.70	1730.00	874.14	0.00	874.28	2.70	3.10	558.92	1052.2
2.300	50.00	0.00	0.00	864.50	1730.00	874.18	0.00	874.31	5.56	3.35	898.65	733.4
2.300	50.00	0.00	0.00	864.50	1730.00	874.18	0.00	874.31	5.56	3.35	898.65	733.4
4.000	2100.00	0.00	0.00	867.30	1730.00	874.99	0.00	875.01	2.21	1.85	2285.34	1163.6
4.000	2100.00	0.00	0.00	867.30	1730.00	875.01	0.00	875.04	2.33	1.90	2128.13	1132.2
5.000	1300.00	0.00	0.00	868.80	1730.00	875.64	0.00	875.77	31.40	4.51	1099.63	308.7
5.000	1300.00	0.00	0.00	868.80	1730.00	875.69	0.00	875.83	32.93	4.65	1040.93	301.4
6.000	507.00	0.00	0.00	867.70	1550.00	876.32	0.00	876.37	5.46	2.68	1444.62	663.1
6.000	507.00	0.00	0.00	867.70	1550.00	876.38	0.00	876.42	5.19	2.62	1475.69	680.3
7.800	1130.00	0.00	0.00	869.30	1550.00	877.06	0.00	877.67	24.14	6.77	274.06	315.4
7.800	1130.00	0.00	0.00	869.30	1550.00	877.07	0.00	877.69	24.04	6.76	274.46	316.1
7.810	20.00	0.00	0.00	869.30	1550.00	876.98	0.00	877.86	32.14	7.76	229.38	273.4
7.810	20.00	0.00	0.00	869.30	1550.00	877.00	0.00	877.87	31.86	7.74	230.02	274.6
7.820	20.00	0.00	0.00	869.40	1550.00	876.67	0.00	878.35	72.63	10.85	163.64	181.8
7.820	20.00	0.00	0.00	869.40	1550.00	876.69	0.00	878.36	71.87	10.82	164.21	182.8
7.900	10.00	0.00	0.00	869.40	1550.00	876.38	0.00	878.81	102.21	12.51	123.88	153.3
7.900	10.00	0.00	0.00	869.40	1550.00	876.41	0.00	878.82	101.03	12.47	124.31	154.2
8.100	14.00	879.00	878.40	869.40	1550.00	876.99	0.00	879.03	52.63	11.45	135.32	213.6
8.100	14.00	879.00	878.40	869.40	1550.00	877.00	0.00	879.03	52.51	11.45	135.43	213.9
8.300	50.00	0.00	0.00	869.50	1550.00	879.43	0.00	879.70	15.74	4.13	387.54	390.6
8.300	50.00	0.00	0.00	869.50	1550.00	879.44	0.00	879.70	15.74	4.13	387.55	390.6

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOKAS	VCH	AREA	.01K
10.800	1250.00	0.00	0.00	874.50	1550.00	882.12	0.00	883.18	50.50	9.37	240.42	218.12
10.800	1250.00	0.00	0.00	874.50	1550.00	882.12	0.00	883.18	50.50	9.37	240.42	218.12
10.810	20.00	0.00	0.00	874.50	1550.00	881.99	0.00	883.54	68.72	10.80	195.40	186.98
10.810	20.00	0.00	0.00	874.50	1550.00	881.99	0.00	883.54	68.72	10.80	195.40	186.98
10.820	20.00	0.00	0.00	874.50	1550.00	881.72	0.00	884.14	101.29	12.77	142.50	154.01
10.820	20.00	0.00	0.00	874.50	1550.00	881.72	0.00	884.14	101.29	12.77	142.50	154.01
10.900	10.00	0.00	0.00	874.60	1550.00	881.67	0.00	884.47	209.72	13.42	115.52	107.03
10.900	10.00	0.00	0.00	874.60	1550.00	881.67	0.00	884.47	209.72	13.42	115.52	107.03
11.000	1.00	892.10	888.20	874.60	1550.00	882.30	0.00	884.62	99.18	12.23	126.73	155.64
11.000	1.00	892.10	888.20	874.60	1550.00	882.30	0.00	884.62	99.17	12.23	126.74	155.65
11.100	36.00	892.10	888.20	874.80	1550.00	883.00	0.00	885.04	82.47	11.46	135.28	170.68
11.100	36.00	892.10	888.20	874.80	1550.00	883.00	0.00	885.04	82.47	11.46	135.28	170.68
11.200	1.00	0.00	0.00	874.80	1550.00	883.01	0.00	885.05	135.92	11.44	135.45	132.95
11.200	1.00	0.00	0.00	874.80	1550.00	883.01	0.00	885.05	135.92	11.44	135.45	132.95
11.300	50.00	0.00	0.00	875.20	1550.00	885.57	0.00	885.68	3.49	2.79	710.72	829.53
11.300	50.00	0.00	0.00	875.20	1550.00	885.57	0.00	885.68	3.49	2.79	710.72	829.53
13.800	350.00	0.00	0.00	874.20	1550.00	885.63	0.00	885.86	5.25	3.92	435.30	676.55
13.800	350.00	0.00	0.00	874.20	1550.00	885.63	0.00	885.86	5.25	3.92	435.30	676.55
13.900	50.00	0.00	0.00	874.70	1550.00	885.00	0.00	886.64	108.02	10.27	150.89	149.13
13.900	50.00	0.00	0.00	874.70	1550.00	885.00	0.00	886.64	108.02	10.27	150.89	149.13
14.000	1.00	889.50	886.40	874.70	1550.00	884.80	0.00	886.85	85.48	11.48	134.98	167.65
14.000	1.00	889.50	886.40	874.70	1550.00	884.80	0.00	886.85	85.48	11.48	134.98	167.65
14.100	20.00	889.50	886.40	874.70	1550.00	885.12	0.00	887.05	81.13	11.15	139.01	172.09
14.100	20.00	889.50	886.40	874.70	1550.00	885.12	0.00	887.05	81.13	11.15	139.01	172.09
14.200	1.00	0.00	0.00	874.70	1550.00	885.87	0.00	887.23	85.53	9.37	165.46	167.60
14.200	1.00	0.00	0.00	874.70	1550.00	885.87	0.00	887.23	85.53	9.37	165.46	167.60
15.500	26.00	0.00	0.00	875.10	1550.00	887.45	0.00	887.62	5.36	3.43	502.67	669.40
15.500	26.00	0.00	0.00	875.10	1550.00	887.45	0.00	887.62	5.36	3.43	502.67	669.40
15.900	100.00	0.00	0.00	875.40	1550.00	887.49	0.00	887.69	5.26	4.50	675.38	675.77
15.900	100.00	0.00	0.00	875.40	1550.00	887.49	0.00	887.69	5.26	4.50	675.38	675.77
16.100	50.00	884.80	883.10	875.60	1550.00	887.81	0.00	888.01	5.29	4.48	664.73	673.78
16.100	50.00	884.80	883.10	875.60	1550.00	887.81	0.00	888.01	5.29	4.48	664.73	673.78
16.300	50.00	0.00	0.00	875.70	1550.00	887.99	0.00	888.06	.72	2.38	996.34	1830.11
16.300	50.00	0.00	0.00	875.70	1550.00	887.99	0.00	888.06	.72	2.38	996.34	1830.11

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
18.800	243.00	0.00	0.00	875.80	1550.00	887.94	0.00	888.13	4.43	3.93	500.46	736.56
18.800	243.00	0.00	0.00	875.80	1550.00	887.94	0.00	888.13	4.43	3.93	500.46	736.56
18.900	50.00	0.00	0.00	877.20	1550.00	887.80	0.00	888.33	9.07	5.84	265.41	514.76
18.900	50.00	0.00	0.00	877.20	1550.00	887.80	0.00	888.33	9.07	5.84	265.41	514.76
19.100	50.00	889.20	886.60	877.50	1550.00	888.42	0.00	888.90	8.18	5.56	278.82	541.95
19.100	50.00	889.20	886.60	877.50	1550.00	888.42	0.00	888.90	8.18	5.56	278.82	541.95
19.300	50.00	0.00	0.00	877.50	1550.00	888.98	0.00	889.04	1.52	2.22	958.83	1255.64
19.300	50.00	0.00	0.00	877.50	1550.00	888.98	0.00	889.04	1.52	2.22	958.83	1255.64
21.000	300.00	0.00	0.00	877.30	1550.00	889.06	0.00	889.07	.71	1.55	2261.99	1835.94
21.000	300.00	0.00	0.00	877.30	1550.00	889.06	0.00	889.07	.74	1.58	2167.84	1800.37
22.000	50.00	0.00	0.00	877.30	1550.00	889.06	0.00	889.08	1.26	2.06	1764.95	1379.92
22.000	50.00	0.00	0.00	877.30	1550.00	889.05	0.00	889.08	1.31	2.10	1682.49	1355.97
24.800	500.00	0.00	0.00	877.50	1550.00	889.05	0.00	889.25	5.29	3.67	487.95	673.76
24.800	500.00	0.00	0.00	877.50	1550.00	889.05	0.00	889.25	5.29	3.67	488.15	674.16
24.810	20.00	0.00	0.00	877.50	1550.00	889.12	0.00	889.27	4.33	3.34	640.85	744.61
24.810	20.00	0.00	0.00	877.50	1550.00	889.12	0.00	889.27	4.33	3.34	641.24	745.15
24.820	20.00	0.00	0.00	877.50	1550.00	889.13	0.00	889.28	4.32	3.33	642.00	746.15
24.820	20.00	0.00	0.00	877.50	1550.00	889.13	0.00	889.28	4.31	3.33	642.39	746.66
24.900	10.00	0.00	0.00	879.20	1550.00	889.12	0.00	889.29	5.34	3.65	638.89	670.71
24.900	10.00	0.00	0.00	879.20	1550.00	889.13	0.00	889.29	5.33	3.65	639.30	671.20
25.100	33.00	890.20	888.50	879.20	1550.00	890.18	0.00	890.33	1.62	3.46	779.06	1216.50
25.100	33.00	890.20	888.50	879.20	1550.00	890.18	0.00	890.34	1.62	3.46	779.49	1217.29
25.300	50.00	0.00	0.00	879.20	1550.00	890.19	0.00	890.35	5.63	3.37	569.55	653.4
25.300	50.00	0.00	0.00	879.20	1550.00	890.19	0.00	890.35	5.62	3.37	569.89	653.8
27.000	304.00	0.00	0.00	879.20	1550.00	890.40	0.00	890.45	1.83	2.36	1249.13	1144.6
27.000	304.00	0.00	0.00	879.20	1550.00	890.40	0.00	890.45	1.91	2.41	1175.02	1120.4
28.000	1150.00	0.00	0.00	878.70	1550.00	890.60	0.00	890.63	1.40	1.96	1447.30	1311.8
28.000	1150.00	0.00	0.00	878.70	1550.00	890.61	0.00	890.64	1.44	1.99	1382.59	1293.0
60.800	905.00	0.00	0.00	881.90	980.00	890.67	0.00	890.93	13.56	4.72	288.81	266.1
60.800	905.00	0.00	0.00	881.90	980.00	890.69	0.00	890.95	13.43	4.71	289.91	267.4
60.900	50.00	0.00	0.00	881.80	980.00	890.75	0.00	890.99	6.34	3.89	251.93	389.1
60.900	50.00	0.00	0.00	881.80	980.00	890.77	0.00	891.00	6.30	3.88	252.41	390.3
61.000	1.00	893.50	892.20	881.80	980.00	890.71	0.00	891.04	23.69	4.60	213.07	201.3
61.000	1.00	893.50	892.20	881.80	980.00	890.72	0.00	891.05	23.65	4.59	213.31	201.5

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
	61.100	66.00	893.50	892.20	882.00	980.00	890.86	0.00	891.20	25.47	4.68	209.32	194.1
	61.100	66.00	893.50	892.20	882.00	980.00	890.88	0.00	891.22	25.43	4.68	209.55	194.3
	61.200	1.00	0.00	0.00	882.00	980.00	891.01	0.00	891.24	6.24	3.87	253.09	392.2
	61.200	1.00	0.00	0.00	882.00	980.00	891.02	0.00	891.25	6.20	3.87	253.55	393.4
	61.300	50.00	0.00	0.00	882.00	980.00	891.15	0.00	891.29	4.19	3.21	383.00	478.6
	61.300	50.00	0.00	0.00	882.00	980.00	891.17	0.00	891.31	4.16	3.20	383.89	480.2
	61.500	1450.00	0.00	0.00	885.50	980.00	892.22	0.00	892.45	21.87	4.68	405.91	209.5
	61.500	1450.00	0.00	0.00	885.50	980.00	892.23	0.00	892.49	23.27	4.83	352.40	203.1
	63.800	280.00	0.00	0.00	886.60	980.00	892.84	0.00	893.32	37.52	5.85	232.61	159.9
	63.800	280.00	0.00	0.00	886.60	980.00	892.90	0.00	893.36	35.62	5.75	237.98	164.2
*	63.900	50.00	0.00	0.00	887.00	980.00	892.62	892.62	894.99	147.95	12.35	79.33	80.5
*	63.900	50.00	0.00	0.00	887.00	980.00	892.62	892.62	894.99	147.74	12.35	79.37	80.6
*	64.000	1.00	899.30	896.10	887.00	980.00	892.52	892.52	895.21	170.74	13.15	74.54	75.0
*	64.000	1.00	899.30	896.10	887.00	980.00	892.52	892.52	895.21	170.74	13.15	74.54	75.0
	64.100	66.00	899.30	896.10	887.60	980.00	894.23	0.00	896.38	137.90	11.76	83.36	83.4
	64.100	66.00	899.30	896.10	887.60	980.00	894.23	0.00	896.38	137.90	11.76	83.36	83.4
	64.200	1.00	0.00	0.00	887.60	980.00	895.69	0.00	896.72	36.48	8.13	120.48	162.2
	64.200	1.00	0.00	0.00	887.60	980.00	895.69	0.00	896.72	36.48	8.13	120.48	162.2

MOORE BUSINESS FORMS INC 93

SYCAMORE CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	G	CwSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.200	1730.00	873.50	0.00	0.00	0.00	181.82	0.00
1.200	1730.00	873.50	0.00	0.00	0.00	181.82	0.00
1.800	1730.00	874.04	0.00	.54	0.00	120.00	1100.00
1.800	1730.00	874.04	0.00	.54	0.00	120.00	1100.00
1.900	1730.00	874.10	0.00	.07	0.00	93.00	50.00
1.900	1730.00	874.10	0.00	.07	0.00	93.00	50.00
2.000	1730.00	874.09	0.00	-.01	0.00	93.00	1.00
2.000	1730.00	874.09	0.00	-.01	0.00	93.00	1.00
2.100	1730.00	874.12	0.00	.03	0.00	93.00	58.00
2.100	1730.00	874.12	0.00	.03	0.00	93.00	58.00
2.200	1730.00	874.14	0.00	.01	0.00	93.00	1.00
2.200	1730.00	874.14	0.00	.01	0.00	93.00	1.00
2.300	1730.00	874.18	0.00	.05	0.00	192.00	50.00
2.300	1730.00	874.18	0.00	.05	0.00	192.00	50.00
4.000	1730.00	874.99	0.00	.81	0.00	606.78	2100.00
4.000	1730.00	875.01	.02	.83	.02	492.39	2100.00
5.000	1730.00	875.64	0.00	.65	0.00	457.37	1300.00
5.000	1730.00	875.69	.05	.68	.05	406.00	1300.00
6.000	1550.00	876.32	0.00	.68	0.00	534.50	507.00
6.000	1550.00	876.38	.06	.68	.06	534.65	507.00
7.800	1550.00	877.06	0.00	.74	0.00	45.00	1130.00
7.800	1550.00	877.07	.02	.70	.02	45.00	1130.00
7.810	1550.00	876.98	0.00	-.07	0.00	34.00	20.00
7.810	1550.00	877.00	.02	-.07	.02	34.00	20.00
7.820	1550.00	876.67	0.00	-.31	0.00	27.10	20.00
7.820	1550.00	876.69	.02	-.31	.02	27.10	20.00
7.900	1550.00	876.38	0.00	-.29	0.00	19.00	10.00
7.900	1550.00	876.41	.02	-.29	.02	19.00	10.00
8.100	1550.00	876.99	0.00	.61	0.00	19.00	14.00
8.100	1550.00	877.00	.00	.59	.00	19.00	14.00
8.300	1550.00	879.43	0.00	2.44	0.00	60.79	50.00
8.300	1550.00	879.44	.00	2.44	.00	60.79	50.00

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10.800	1550.00	882.12	0.00	2.68	0.00	45.00	1250.00
10.800	1550.00	882.12	-.00	2.68	-.00	45.00	1250.00
10.810	1550.00	881.99	0.00	-.13	0.00	33.00	20.00
10.810	1550.00	881.99	-.00	-.13	-.00	33.00	20.00
10.820	1550.00	881.72	0.00	-.27	0.00	23.00	20.00
10.820	1550.00	881.72	-.00	-.27	-.00	23.00	20.00
10.900	1550.00	881.67	0.00	-.05	0.00	18.00	10.00
10.900	1550.00	881.67	-.00	-.05	-.00	18.00	10.00
11.000	1550.00	882.30	0.00	.63	0.00	18.00	1.00
11.000	1550.00	882.30	.00	.63	.00	18.00	1.00
11.100	1550.00	883.00	0.00	.69	0.00	18.00	36.00
11.100	1550.00	883.00	-.00	.69	-.00	18.00	36.00
11.200	1550.00	883.01	0.00	.02	0.00	18.00	1.00
11.200	1550.00	883.01	-.00	.02	-.00	18.00	1.00
11.300	1550.00	885.57	0.00	2.56	0.00	118.00	50.00
11.300	1550.00	885.57	-.00	2.56	-.00	118.00	50.00
13.800	1550.00	885.63	0.00	.06	0.00	45.00	350.00
13.800	1550.00	885.63	-.00	.06	-.00	45.00	350.00
13.900	1550.00	885.00	0.00	-.63	0.00	15.00	50.00
13.900	1550.00	885.00	-.00	-.63	-.00	15.00	50.00
14.000	1550.00	884.80	0.00	-.19	0.00	15.00	1.00
14.000	1550.00	884.80	-.00	-.19	-.00	15.00	1.00
14.100	1550.00	885.12	0.00	.32	0.00	15.00	20.00
14.100	1550.00	885.12	-.00	.32	-.00	15.00	20.00
14.200	1550.00	885.87	0.00	.75	0.00	15.00	1.00
14.200	1550.00	885.87	-.00	.75	-.00	15.00	1.00
15.500	1550.00	887.45	0.00	1.58	0.00	67.00	26.00
15.500	1550.00	887.45	-.00	1.58	-.00	67.00	26.00
15.900	1550.00	887.49	0.00	.04	0.00	168.07	100.00
15.900	1550.00	887.49	-.00	.04	-.00	168.07	100.00
16.100	1550.00	887.81	0.00	.32	0.00	159.66	50.00
16.100	1550.00	887.81	-.00	.32	-.00	159.66	50.00
16.300	1550.00	887.99	0.00	.18	0.00	128.73	50.00
16.300	1550.00	887.99	-.00	.18	-.00	128.73	50.00

MOORE BUSINESS FORMS, INC. 23

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
18.800	1550.00	887.94	0.00	-.05	0.00	49.00	243.00
18.800	1550.00	887.94	-.00	-.05	-.00	49.00	243.00
18.900	1550.00	887.80	0.00	-.14	0.00	26.00	50.00
18.900	1550.00	887.80	-.00	-.14	-.00	26.00	50.00
19.100	1550.00	888.42	0.00	.61	0.00	26.00	50.00
19.100	1550.00	888.42	-.00	.61	-.00	26.00	50.00
19.300	1550.00	888.98	0.00	.56	0.00	126.00	50.00
19.300	1550.00	888.98	-.00	.56	-.00	126.00	50.00
21.000	1550.00	889.06	0.00	.08	0.00	307.94	300.00
21.000	1550.00	889.06	-.00	.08	-.00	272.44	300.00
22.000	1550.00	889.06	0.00	-.00	0.00	252.42	50.00
22.000	1550.00	889.05	-.00	-.00	-.00	216.01	50.00
24.800	1550.00	889.05	0.00	-.01	0.00	60.00	500.00
24.800	1550.00	889.05	.00	-.00	.00	60.00	500.00
24.810	1550.00	889.12	0.00	.07	0.00	119.99	20.00
24.810	1550.00	889.12	.00	.07	.00	120.05	20.00
24.820	1550.00	889.13	0.00	.01	0.00	120.16	20.00
24.820	1550.00	889.13	.00	.01	.00	120.22	20.00
24.900	1550.00	889.12	0.00	-.00	0.00	127.03	10.00
24.900	1550.00	889.13	.00	-.00	.00	127.08	10.00
25.100	1550.00	890.18	0.00	1.05	0.00	140.93	33.00
25.100	1550.00	890.18	.00	1.05	.00	140.97	33.00
25.300	1550.00	890.19	0.00	.01	0.00	113.23	50.00
25.300	1550.00	890.19	.00	.01	.00	113.23	50.00
27.000	1550.00	890.40	0.00	.21	0.00	219.61	304.00
27.000	1550.00	890.40	.00	.21	.00	176.20	304.00
28.000	1550.00	890.60	0.00	.20	0.00	236.24	1150.00
28.000	1550.00	890.61	.01	.21	.01	190.22	1150.00
60.800	980.00	890.67	0.00	.07	0.00	61.88	905.00
60.800	980.00	890.69	.02	.08	.02	61.95	905.00
60.900	980.00	890.75	0.00	.08	0.00	29.60	50.00
60.900	980.00	890.77	.02	.08	.02	29.60	50.00
61.000	980.00	890.71	0.00	-.05	0.00	29.60	1.00
61.000	980.00	890.72	.02	-.05	.02	29.60	1.00

	SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	61.100	980.00	890.86	0.00	.16	0.00	29.60	66.00
	61.100	980.00	890.88	.02	.16	.02	29.60	66.00
	61.200	980.00	891.01	0.00	.14	0.00	29.60	1.00
	61.200	980.00	891.02	.02	.14	.02	29.60	1.00
	61.300	980.00	891.15	0.00	.15	0.00	58.11	50.00
	61.300	980.00	891.17	.02	.15	.02	58.14	50.00
	61.500	980.00	892.22	0.00	1.06	0.00	211.02	1450.00
	61.500	980.00	892.23	.02	1.06	.02	122.39	1450.00
	63.800	980.00	892.84	0.00	.62	0.00	97.00	280.00
	63.800	980.00	892.90	.06	.66	.06	97.00	280.00
*	63.900	980.00	892.62	0.00	-.22	0.00	17.00	50.00
*	63.900	980.00	892.62	.00	-.27	.00	17.00	50.00
*	64.000	980.00	892.52	0.00	-.10	0.00	17.00	1.00
*	64.000	980.00	892.52	0.00	-.10	0.00	17.00	1.00
	64.100	980.00	894.23	0.00	1.71	0.00	17.00	66.00
	64.100	980.00	894.23	0.00	1.71	0.00	17.00	66.00
	64.200	980.00	895.69	0.00	1.46	0.00	17.00	1.00
	64.200	980.00	895.69	0.00	1.46	0.00	17.00	1.00

SUMMARY OF ERRORS

```
CAUTION  SECNO=   63.900  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   63.900  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   63.900  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=   63.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   63.900  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=   64.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   64.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   64.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   64.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, SYCAMORE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.200	182.	1099.	1.6	873.5	873.5	0.0
1.800	120.	654.	2.6	874.0	874.0	0.0
1.900	93.	557.	3.1	874.1	874.1	0.0
2.000	93.	535.	3.2	874.1	874.1	0.0
2.100	93.	536.	3.2	874.1	874.1	0.0
2.200	93.	559.	3.1	874.1	874.1	0.0
2.300	192.	899.	1.9	874.2	874.2	0.0
4.000	492.	2128.	.8	875.0	875.0	0.0
5.000	439.	1041.	1.7	875.7	875.6	.1
6.000	535.	1476.	1.1	876.4	876.3	.1
7.800	45.	274.	5.6	877.1	877.1	0.0
7.810	34.	230.	6.7	877.0	877.0	0.0
7.820	27.	164.	9.4	876.7	876.7	0.0
7.900	19.	124.	12.5	876.4	876.4	0.0
8.100	19.	135.	11.4	877.0	877.0	0.0
8.300	61.	388.	4.0	879.4	879.4	0.0
10.800	45.	240.	6.4	882.1	882.1	0.0
10.810	33.	195.	7.9	882.0	882.0	0.0
10.820	23.	143.	10.9	881.7	881.7	0.0
10.900	18.	116.	13.4	881.7	881.7	0.0
11.000	18.	127.	12.2	882.3	882.3	0.0
11.100	18.	135.	11.5	883.0	883.0	0.0
11.200	18.	135.	11.4	883.0	883.0	0.0
11.300	118.	711.	2.2	885.6	885.6	0.0
13.800	45.	435.	3.6	885.6	885.6	0.0
13.900	15.	151.	10.3	885.0	885.0	0.0
14.000	15.	135.	11.5	884.8	884.8	0.0
14.100	15.	139.	11.1	885.1	885.1	0.0
14.200	15.	165.	9.4	885.9	885.9	0.0
15.500	67.	503.	3.1	887.5	887.5	0.0
15.900	168.	675.	2.3	887.5	887.5	0.0
16.100	160.	665.	2.3	887.8	887.8	0.0
16.300	129.	996.	1.6	888.0	888.0	0.0
18.800	49.	500.	3.1	887.9	887.9	0.0
18.900	26.	265.	5.8	887.8	887.8	0.0
19.100	26.	279.	5.6	888.4	888.4	0.0
19.300	166.	959.	1.6	889.0	889.0	0.0
21.000	272.	2168.	.7	889.1	889.1	0.0
22.000	216.	1682.	.9	889.1	889.1	0.0
24.800	60.	488.	3.2	889.0	889.0	0.0
24.810	149.	641.	2.4	889.1	889.1	0.0
24.820	150.	642.	2.4	889.1	889.1	0.0

FLOODWAY DATA, SYCAMORE CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
24.900	127.	639.	2.4	889.1	889.1	0.0
25.100	141.	779.	2.0	890.2	890.2	0.0
25.300	113.	570.	2.7	890.2	890.2	0.0
27.000	176.	1175.	1.3	890.4	890.4	0.0
28.000	190.	1383.	1.1	890.6	890.6	0.0
60.800	62.	290.	3.4	890.7	890.7	0.0
60.900	30.	252.	3.9	890.8	890.8	0.0
61.000	30.	213.	4.6	890.7	890.7	0.0
61.100	30.	210.	4.7	890.9	890.9	0.0
61.200	30.	254.	3.9	891.0	891.0	0.0
61.300	58.	384.	2.6	891.2	891.2	0.0
61.500	122.	352.	2.8	892.2	892.2	0.0
63.800	97.	238.	4.1	892.9	892.8	.1
63.900	17.	79.	12.3	892.6	892.6	0.0
64.000	17.	75.	13.1	892.5	892.5	0.0
64.100	17.	83.	11.8	894.2	894.2	0.0
64.200	17.	120.	8.1	895.7	895.7	0.0

HYDRAULIC ANALYSIS REPORT

SYCAMORE CREEK AT THE CITY OF MASON

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

SEPTEMBER, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for Sycamore Creek within the corporate boundary of the city of Mason, Michigan. Sycamore Creek flows in a northerly direction through the city limits. The reach studied in detail began at the northern city limits and extended about 13,100 feet upstream to the south corporate boundary line. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in November, 1978. In addition to field cross section data, a 7.5 minute series topographic map with 10-foot intervals was used.

The flows for 10-year, 50-year, 100-year, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The high intensity 1975 storm was used to verify the performance of the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated May 16, 1979.

Analysis of the hydraulic characteristic of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. The roughness coefficients chosen were based primarily on sensitivity runs. These values were required to match the high-water marks recorded for the April, 1975 flood.

Manning's Roughness Coefficient

For channel	.025-.05
For overbanks	.06-.09

Coefficients for

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

During April, 1975, the city of Mason experienced an intense rainstorm which resulted in the most devastating flood since 1904. During the time of flooding, various high-water marks were recorded. The corresponding elevations were supplied by Wolverine Engineering Company of Mason. They are listed below.

Location	Corresponding HEC-2 No.	Elevation
Howell Road Bridge	2.1	872.3
Dept. of Public Works Bldg.	5.0	875.4
Cemetery Street Bridge	8.3	878.4
State Street Bridge	11.0	881.2
Maple St. and Lansing St.	16.0	884.3
Lansing Street Bridge	28.0	889.4
Jefferson Street Bridge	61.0	889.2
Kipp Road Bridge	64.1	893.9

Sensitivity runs with an estimated flow for the 1975 flood were made. Our analysis compares favorably with the high-water marks. A copy of the computer printout showing this data is contained in Appendix A.

STARTING CONDITIONS

The starting water surface elevations were specified by the slope area method. A starting slope of .001 foot per foot was used. The starting water surface elevation was varied by plus and minus 1 foot from the slope-area depth to ensure that the water surface converged at the downstream limit of the study. A copy of the convergence run printout is contained in Appendix A.

SPECIAL PROBLEMS

There were no special problems associated with this study. However, we would like to call your attention to a few conditions. Calculations are contained in Appendix A to verify the critical depth condition at Kipp Road.

Also, in matching high-water marks for the 1975 flood, our analysis was consistent with the high-water marks except for the high-water mark located at Maple and Lansing roads. The recorded elevation of 884.3 is lower than the top of the roadway. As shown in the photograph contained in Appendix A, the water level covered the roadway in the 1975 flood. Therefore, our analysis appears to be reasonable.

1975 Q

Below Rayner Ck = 1650 cfs

below Willow Ck = 1402

Above Willow Ck = 943

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
	1.8	Valley Section
	1.9	Valley Section, 1 foot downstream
	2.0	Bridge Section, downstream face
A	2.1	Upstream Face, Howell bridge
	2.2	1 Foot upstream
	2.3	Valley Section
B	4.0	Valley Section
C	5.0	Valley Section
D	6.0	Valley Section
	7.8	Valley Section
	7.81	Valley Section
	7.82	Valley Section
	7.9	Bridge Section, downstream face
E	8.1	Upstream Face, cemetery bridge
	8.3	Valley Section
	10.8	Valley Section
	10.81	Valley Section
	10.82	Valley Section
	10.9	1 Foot downstream
	11.0	Bridge Section, downstream face
F	11.1	Upstream Face, State Street
	11.2	1 Foot upstream
	11.3	Valley Section
	13.8	Valley Section
	13.9	1 Foot downstream
	14.0	Bridge Section
G	14.1	Upstream Face, MCRR bridge
	14.2	1 Foot upstream
	15.5	Valley Section
	~~18.9~~ 16.0	Bridge Section
H	16.1	Upstream Face, Maple Avenue
	16.3	Valley Section
	18.8	Valley Section
	18.9	Bridge Section
I	19.1	Upstream Face, Ash Street
	19.3	Valley Section
J	21.0	Valley Section
K	22.0	Valley Section
	24.8	Valley Section
	24.9	Bridge Section
L	25.1	Elm Street
	25.3	Valley Section

CROSS SECTION REFERENCE (Cont'd)

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
M	27.0	Valley Section
N	28.0	Valley Section
	60.8	Valley Section
	60.9	1 Foot downstream
	61.0	Bridge Section
O	61.1	Upstream Face, Jefferson Ave.
	61.2	1 Foot upstream
	61.3	Valley Section
P	61.5	Valley Section
	63.8	Valley Section
	63.9	1 Foot downstream
	64.0	Bridge Section
Q	64.1	Upstream Face, Kipp Road
	64.2	Valley Section

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix C.

PROFILES

Copies of the water surface profiles are contained in Appendix D.

MAP

A copy of the 100-year flood plain and floodway showing cross section location is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for multi-profile run and floodway run are contained in Appendix E.

1975 FLOOD - SYCAMORE CREEK



11. Intersection of Lansing and Maple Streets, looking West from Railroad Tracks.



12. Intersection of Lansing and Maple Streets, looking West across Maple Street Bridge.

Flood Flow



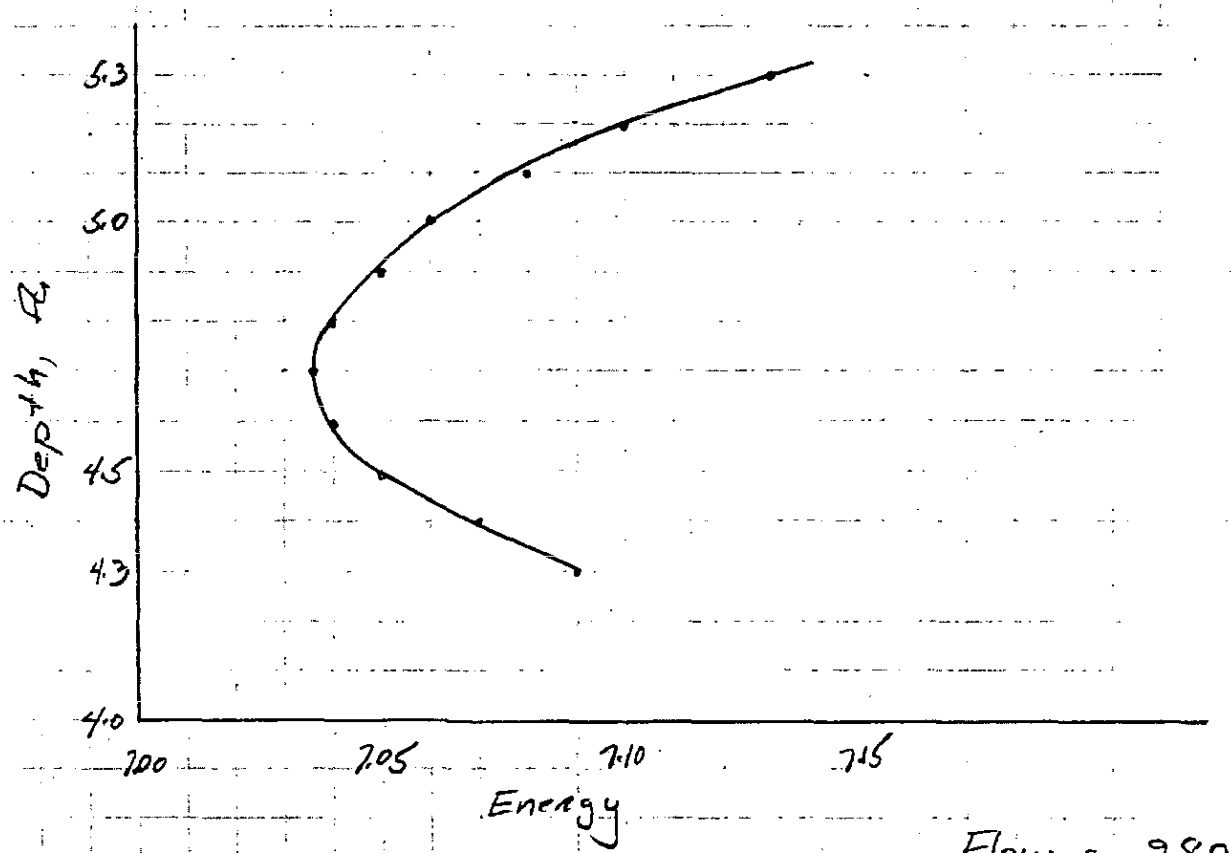
13. South Lansing Street, looking North from the Ash Street Bridge.

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study, City of Mason, Sycamore Creek	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Critical Depth Calculation
	SHEET OF / BOOK NO.



Flow = 980
Width = 17'

Depth	V	$\frac{V^2}{2g}$	$D + \frac{V^2}{2g}$
4.8	12.0	2.24	7.04
4.9	11.76	2.15	7.05
5.0	11.53	2.06	7.06
5.1	11.30	1.98	7.08
5.2	11.08	1.91	7.11
5.3	10.87	1.84	7.13
5.4	10.68	1.77	7.16
5.5	10.48	1.71	7.20
4.7	12.26	2.33	7.03
4.6	12.53	2.43	7.04
4.5	12.81	2.55	7.05
4.4	13.10	2.66	7.07
4.3	13.40	2.79	7.09

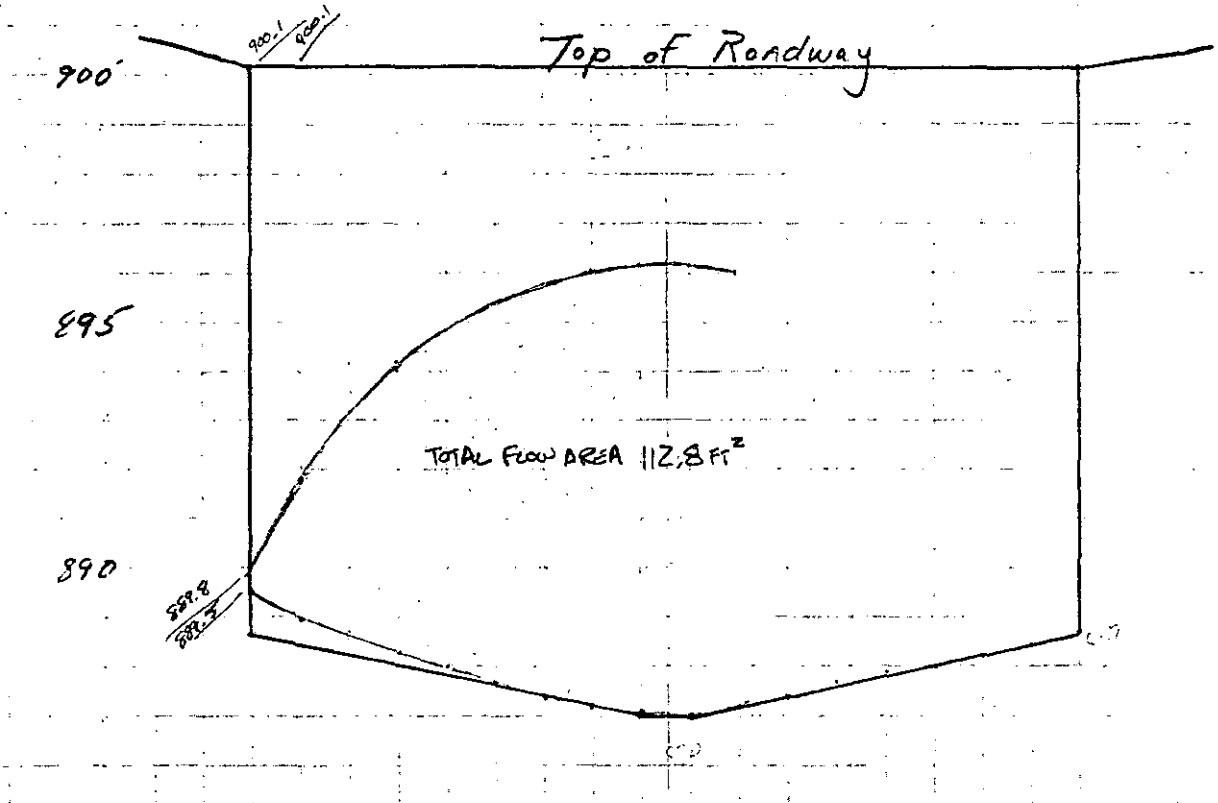
$d_c = 4.7 + 887.85$
$d_c = 892.55$
This checks with computer printout

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study Sycamore Creek City of Mason	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) Mark Guisfredi / CHECKED BY/DATE (SIGNATURE)	SUBJECT Critical Depth Kipp Rd. Bridge
	SHEET OF / BOOK NO.



$$\text{AREA} = \frac{888.71 + 887.0}{2} = (887.85 - \text{water level})\ 17$$

REACH 1
ZONE AE

CITY LIMITS

HOWELL AVE BRIDGE

ELEVATION (M.S.L.)

880
875
870
865
860

0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0

STREAM DISTANCE (THOUSANDS OF FEET)

A B C D

500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

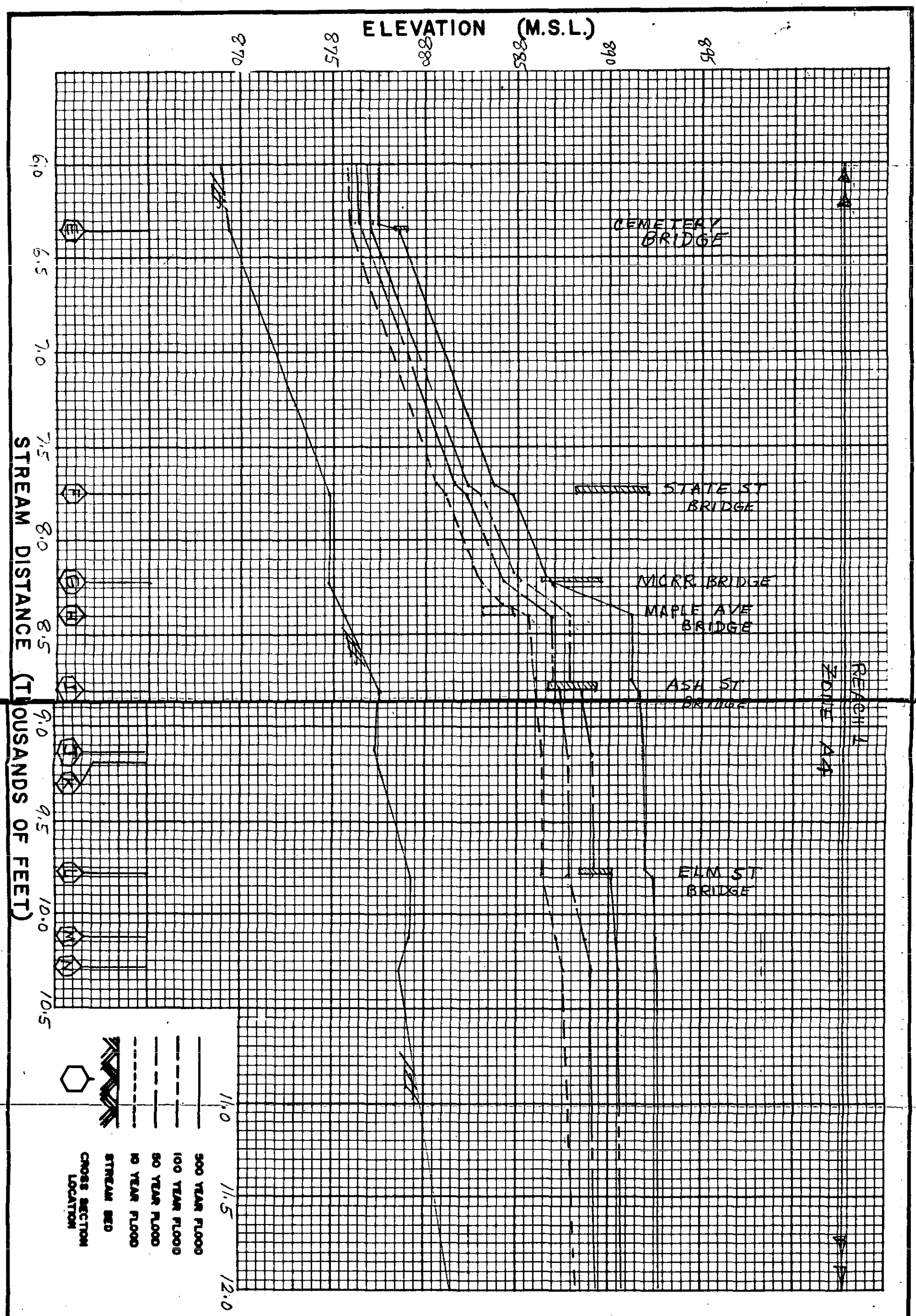
SYCAMORE CREEK

FLOOD PROFILE

CITY OF MASON
INGHAM CO., MI

1/3

Revised 5/12/81



CITY OF MASON
INGHAM CO., MI

SYCAMORE CREEK 2/3

FLOOD PROFILE

Revised 5/22/81

ELEVATION (M.S.L.)

088
588
608
628
908
900

12.0
12.5
13.0
13.5
14.0
14.5
15.0

STREAM DISTANCE (THOUSANDS OF FEET)

JEFFERSON AVE BRIDGE

KIP ROAD BRIDGE

REACH 1
ZONE AE

500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

CITY OF MASON
INGHAM CO., MI

SYCAMORE CREEK 3/3

FLOOD PROFILE

Revised 5/22/81

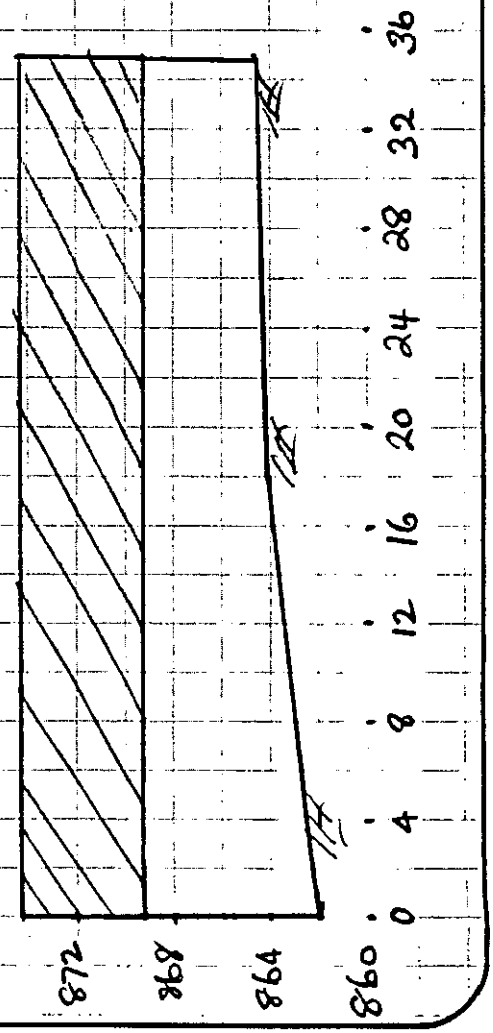
Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Sycamore Creek RR Bridge 100'	SHEET OF / BOOK NO.

D/S of Corporate Boundary



FORM CAI/DCP 112 (9/78)

CALCULATION SHEET REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT
	SHEET OF / BOOK NO.

$$\text{Area} = \frac{7.3+5.1}{2} \times 17.5' + \frac{5.1+4.5}{2} \times 17.5'$$

869.4 869.2 869.0
862.1 864.1 864.5
7.3 5.1 4.5

$$= 108.5 + 84 = 192.5 \text{ ft}^2$$

$$P = 35 + 35 + 7.3 + 4.5 = 81.8$$

$$R = 2.35$$

$L = 20$ ft
$n = 0.03$

$$\frac{29.1\, n^2 L}{R^{4/3}} = 0.17$$

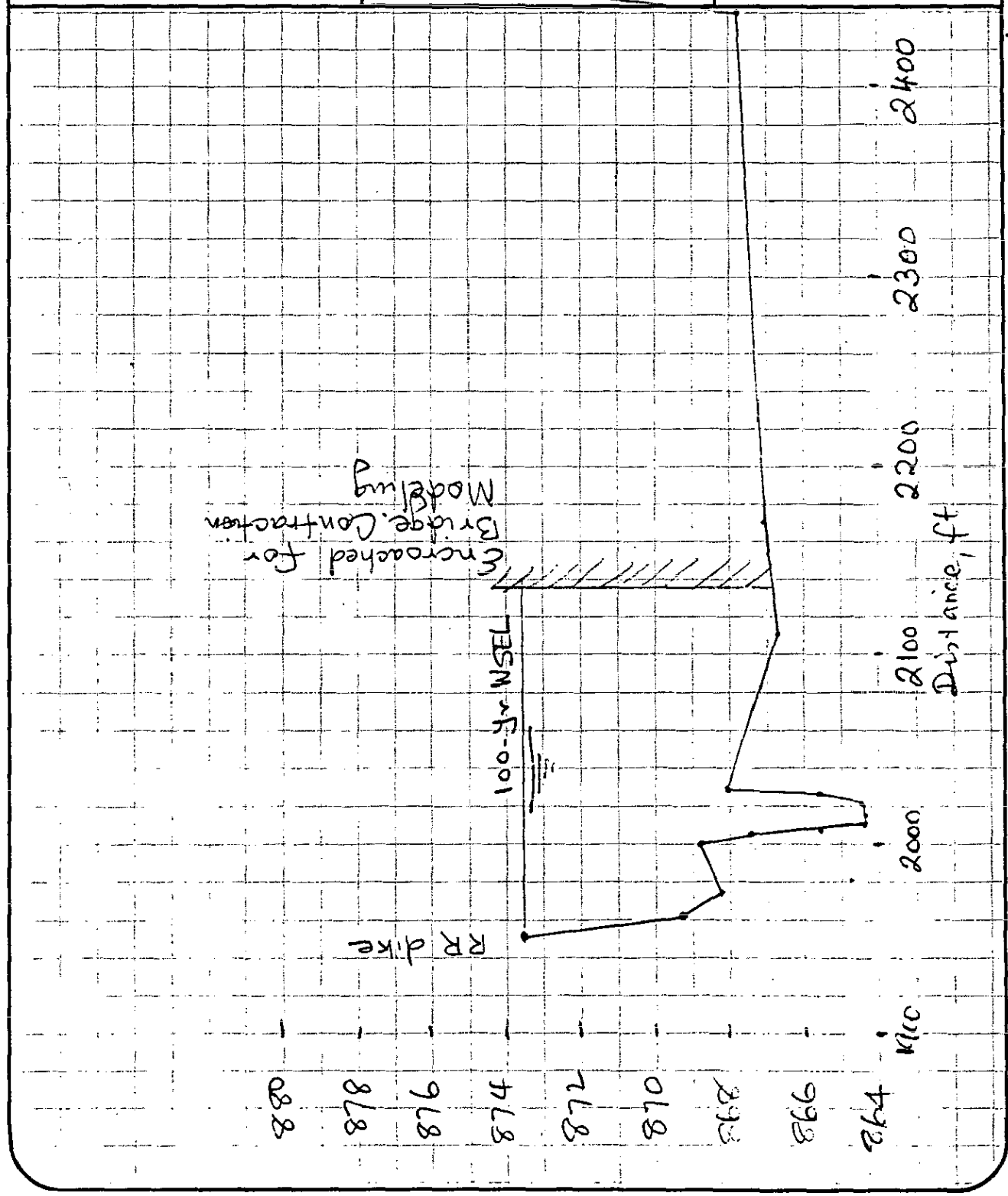
$$\Sigma K_{OR} = 1.0 + 0.5 + 0.17 = 1.67$$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

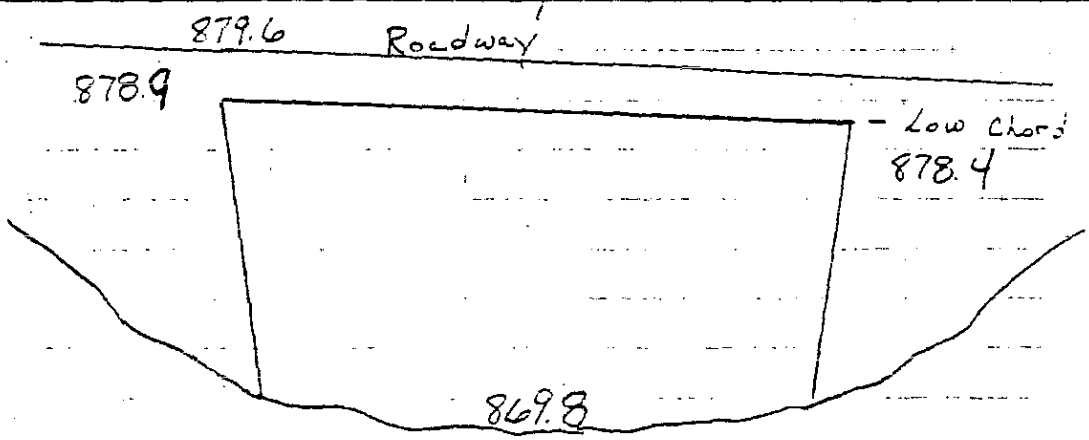
CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT
	SHEET OF / BOOK NO.



Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT	SHEET OF
CHECKED BY/DATE (SIGNATURE)	Cemetery Rd	BOOK NO.



$$\text{Area} = 2(\tfrac{1}{2})(1)(8.6) + \tfrac{1}{2}(19)(.5) + (8.6)(19)$$

$$= 176.75 \text{ ft}^2$$

$$\text{Wetted Perimeter} = 2(8.7) + 2(19) = 55.4$$

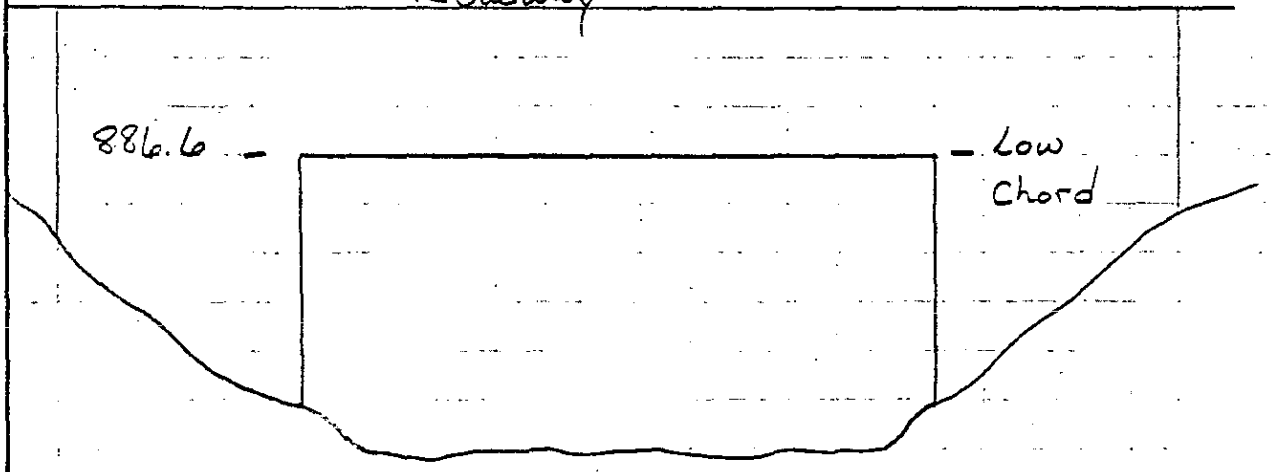
$$XKOR = 1.57$$

CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Area - Ash St Bridge	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Roadway



$$\text{Area} = (886.6 - 878.00)(26) + \tfrac{1}{2}(878.0 - 877.3)(26)$$
$$= 232.7 \text{ ft}^2$$

Wetted Perimeter $= 2(8.6) + 26 + 26 = 69.2$

$$R = A/P = 232.7/69.2 = 3.36$$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Loss Coefficient (xKoR) - Ash St. Br.	SHEET / OF / BOOK NO.

Intake = .1 to .9 use .5

No_Piers = 0

Friction (K_f) = $\frac{29.1 n^2 L}{R^{4/3}}$

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ $n = .025$, $L = 16$, $R = 3.36$

$K_f = .09$

$XKoR = 1 + .5 + .09 = 1.59$

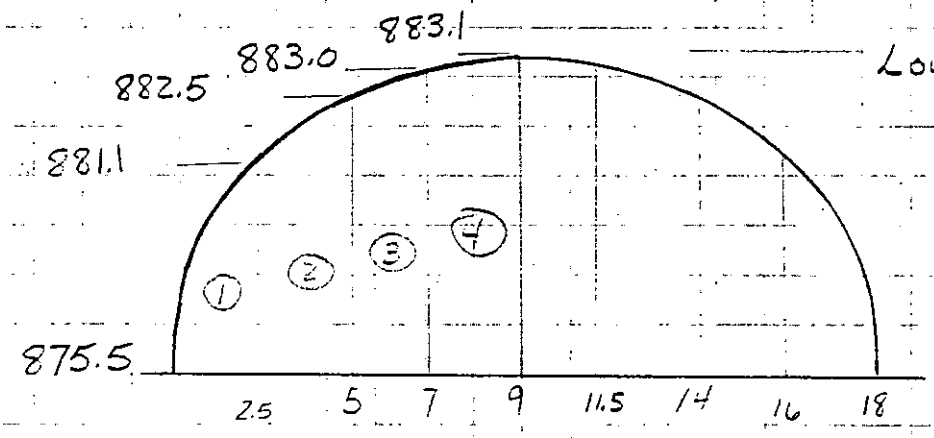
Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: AREA - Maple Ave Bridge (Sec. 16.0)
	SHEET OF / BOOK NO.

Roadway



$$\text{Area} = 2\left[(2.5 * 2.8) + (2.5 * 6.3) + (2 * 7.25) + (2 * 8.55)\right]$$

$$= 89.8 \approx 90 \text{ ft}^2$$

$$\text{Wetted Perimeter} \approx \pi\sqrt{\frac{a^2+b^2}{2}} + 18$$

$$\approx 46.0$$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

875.5

CALCULATION SHEET REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Loss Coefficient (XKOR) - Maple Ave. Bridge	SHEET OF / BOOK NO.

Intake .1 to .90
No Piers
Friction K_f

$XKOR = 1 + \Sigma K$

Intake $K_e = .5$ (Bureau of Public Roads, Appendix B Table 1, Entrance Loss Coefficients)

Friction $K_f = \frac{29.1 n^2 L}{R^{4/3}}$ $R = A/P = 1.96$

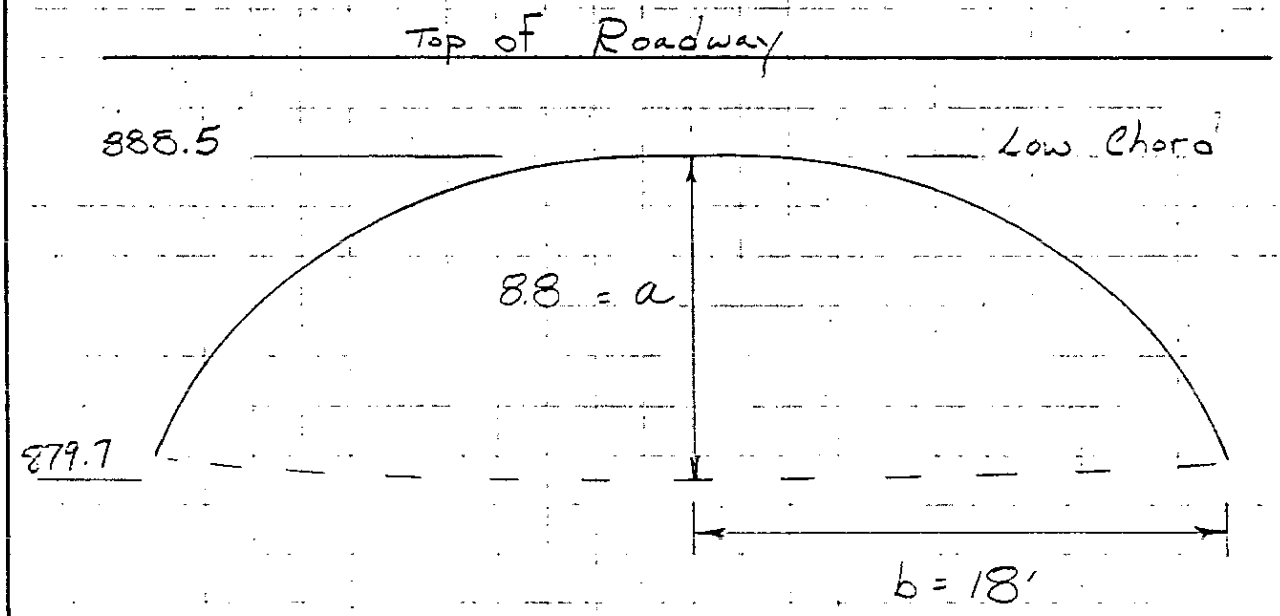
$A = 90$
$P = 46$

$K_f = \frac{(29.1)(.025)^2(200)}{(1.96)^{4/3}}$

$= 1.48$

$XKOR = 1 + .5 + 1.48 = 2.98$

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Area - Elm St. Bridge (Sec 25.0)	SHEET OF / BOOK NO.



Area = ½ Area of Ellipse = ½ πab

$= \frac{1}{2}\pi(8.8)(18) = 248.81$

Wetted Perimeter $= \frac{1}{2}\left[2\pi\sqrt{\frac{(2a)^2+b^2}{2}}\right] + 18$

$= 73.92$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Elm St Bridge — XKOR	SHEET OF / BOOK NO.

Intake .1 to .9
No Piers
Friction K_F

$XKOR = 1 + \Sigma K$

Intake $K_e = .5$

$K_F = \frac{29.1 n^2 L}{R^{4/3}}$ $L = 36$ $n = .025$ $R = A/P = 3.37$

$K_F = .12$

$XKOR = 1 + .5 + .11 = 1.61$ 1.63

1975 Flood

****
HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CORR - 01.02.03.04
MODIFICATION - 50.51.52.53.54
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

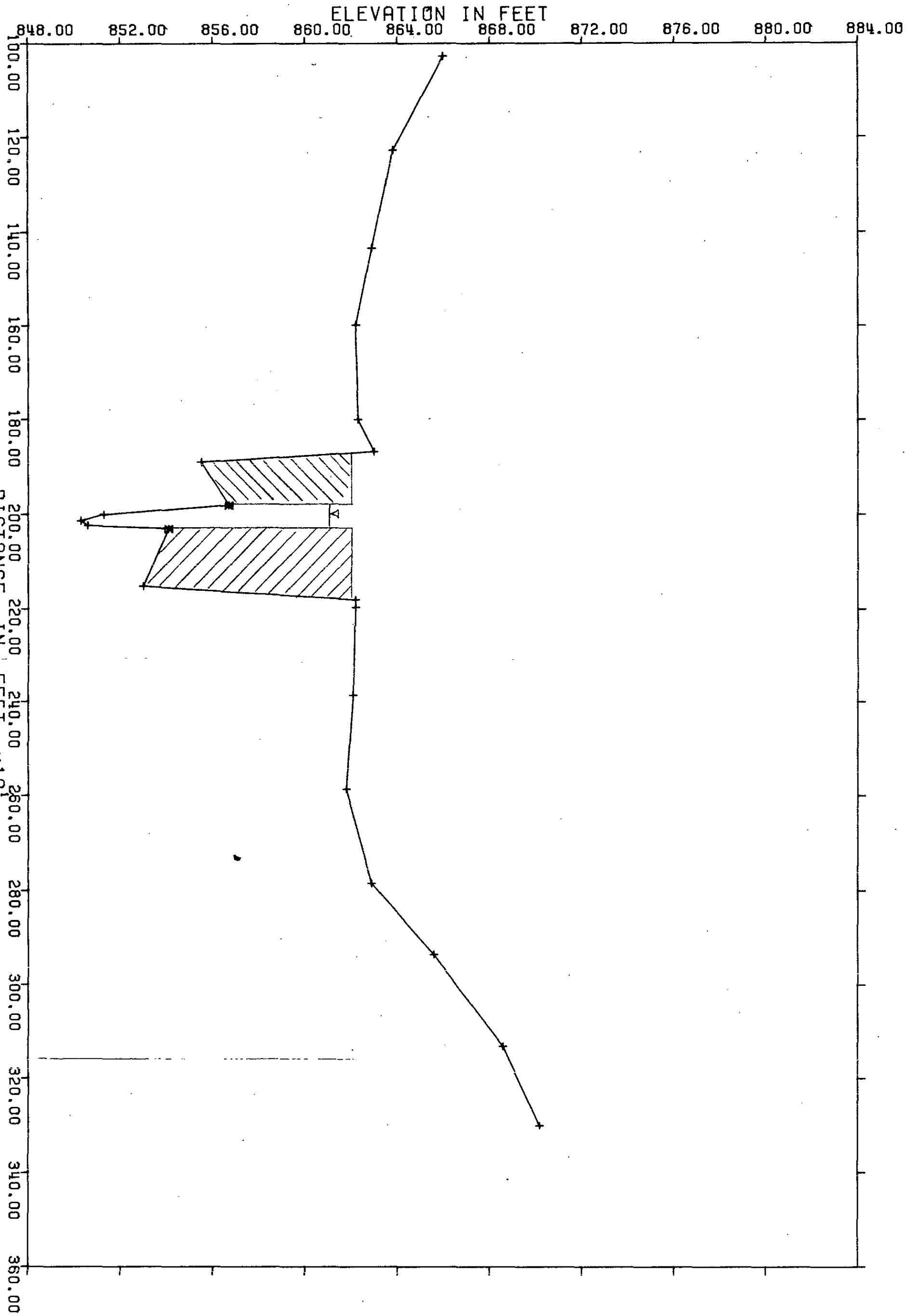
SYCAMORE Ck. CITY OF MA

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	FLTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
.500	869.08	863.10	0.00	0.00	1755.58	0.00	12000.00	2020.00	0.00	2102.43	346.85	0.00
.800	871.18	863.50	0.00	0.00	2000.00	0.00	2000.00	2035.00	0.00	2035.00	35.00	1200.00
.900	870.85	863.50	869.40	874.00	2000.00	0.00	2000.00	2035.00	0.00	2035.00	35.00	1.00
1.000	871.11	863.50	869.40	874.00	2000.00	0.00	2000.00	2035.00	0.00	2035.00	35.00	20.00
1.100	871.94	863.50	0.00	0.00	2000.00	0.00	2000.00	2035.00	0.00	2035.00	35.00	1.00
1.200	872.57	864.30	0.00	0.00	1751.39	0.00	2004.00	2028.00	0.00	2453.24	697.18	100.00
1.800	872.69	864.20	0.00	0.00	1931.43	0.00	1998.00	2042.00	0.00	2413.90	482.47	1100.00
1.900	872.60	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	50.00
2.000	872.58	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.00
2.100	872.64	864.70	875.20	877.50	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	58.00
2.200	872.67	864.70	0.00	0.00	2000.00	0.00	2000.00	2093.00	0.00	2093.00	93.00	1.00
2.300	872.84	864.50	0.00	0.00	1933.45	0.00	1998.00	2042.00	0.00	2404.68	471.23	50.00
4.000	874.05	867.30	0.00	0.00	1701.02	0.00	1995.00	2037.00	0.00	2271.72	570.71	2100.00
5.000	875.11	868.50	0.00	0.00	1952.29	0.00	2000.00	2025.00	0.00	2436.25	427.84	1300.00
6.000	875.74	867.40	0.00	0.00	1990.40	0.00	2001.00	2029.00	0.00	2523.38	522.48	507.00
7.800	876.36	869.30	0.00	0.00	1982.98	0.00	2000.00	2026.00	0.00	2819.96	560.02	1130.00
7.810	876.38	869.30	0.00	0.00	1982.96	0.00	2000.00	2026.00	0.00	2820.11	560.48	20.00

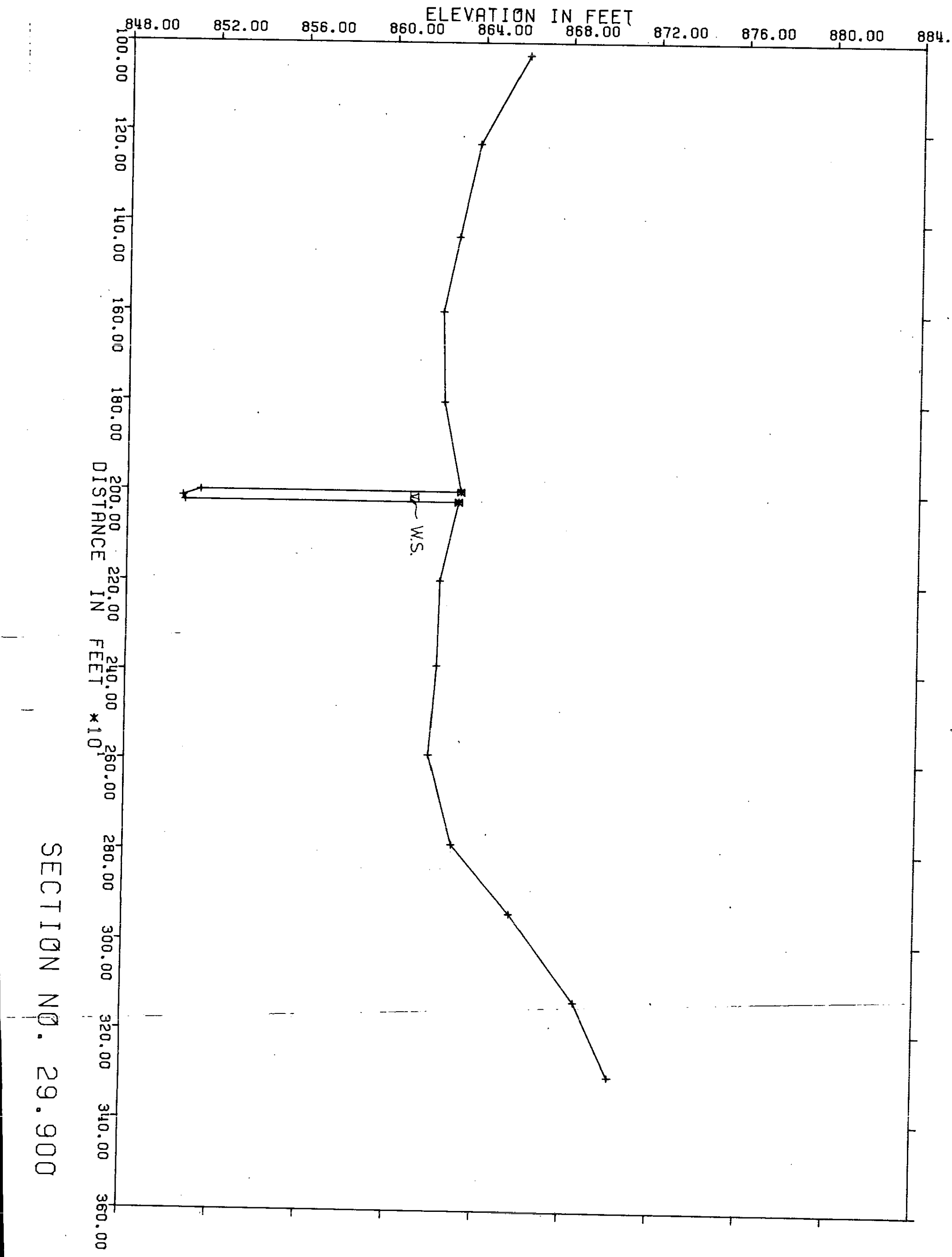
SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
7.820	875.92	869.40	0.00	0.00	1983.65	0.00	1999.00	2018.00	0.00	2034.98	51.33	20.00
7.900	875.38	869.40	0.00	0.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	10.00
8.100	876.85	869.40	878.40	879.00	1999.00	0.00	1999.00	2018.00	0.00	2018.00	19.00	14.00
8.300	878.91	869.50	0.00	0.00	1980.45	0.00	1980.00	2032.00	0.00	2038.38	57.94	50.00
10.800	881.70	874.50	0.00	0.00	1973.54	0.00	2000.00	2018.00	0.00	2051.67	78.13	1250.00
10.810	881.91	874.50	0.00	0.00	1973.04	0.00	2000.00	2018.00	0.00	2052.17	79.13	20.00
10.820	882.07	874.50	0.00	0.00	1972.68	0.00	2000.00	2018.00	0.00	2052.52	79.84	20.00
10.900	881.15	874.60	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	10.00
11.000	881.97	874.60	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.00
11.100	882.53	874.80	888.20	892.10	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	36.00
11.200	882.55	874.80	0.00	0.00	2000.00	0.00	2000.00	2018.00	0.00	2018.00	18.00	1.00
11.300	884.93	875.20	0.00	0.00	1925.80	0.00	1970.00	2030.00	0.00	2074.70	148.90	50.00
13.800	885.04	874.20	0.00	0.00	1939.43	0.00	2000.00	2037.00	0.00	2081.33	141.90	350.00
13.900	884.40	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	50.00
14.000	884.26	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.00
14.100	884.55	874.70	886.40	889.50	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	20.00
14.200	885.10	874.70	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.00
15.500	886.61	875.10	0.00	0.00	1934.91	0.00	1985.00	2020.00	0.00	2071.17	110.72	26.00
16.000	886.81	875.40	883.10	884.80	1693.32	0.00	2000.00	2018.00	0.00	2052.48	359.16	100.00
16.100	887.39	875.60	883.10	884.80	1671.67	0.00	2000.00	2018.00	0.00	2062.51	390.85	50.00
16.300	887.40	875.70	0.00	0.00	1967.49	0.00	1984.00	2031.00	0.00	2099.58	132.09	50.00
16.800	887.44	875.80	0.00	0.00	1967.64	0.00	2000.00	2025.00	0.00	2098.81	131.17	243.00
17.600	887.21	877.20	886.60	889.20	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.00
17.100	887.65	877.50	886.60	889.20	2000.00	0.00	2000.00	2026.00	0.00	2026.00	26.00	50.00
19.300	888.18	877.50	0.00	0.00	1950.20	0.00	1997.00	2047.00	0.00	2131.27	181.07	50.00
21.000	888.26	877.30	0.00	0.00	1906.71	0.00	2000.00	2028.00	0.00	2209.04	297.47	300.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
22.000	886.26	877.30	0.00	0.00	1963.10	0.00	2000.00	2018.00	0.00	2209.06	241.14	50.00
24.000	888.28	877.50	0.00	0.00	1945.70	0.00	1991.00	2033.00	0.00	2060.82	115.12	500.00
24.010	888.29	877.50	0.00	0.00	1945.68	0.00	1991.00	2033.00	0.00	2060.83	115.15	20.00
24.020	888.30	877.50	0.00	0.00	1945.63	0.00	1991.00	2033.00	0.00	2060.86	115.23	20.00
24.900	888.22	879.20	0.00	0.00	1997.00	0.00	1997.00	2033.00	0.00	2033.00	36.00	10.00
25.100	888.06	879.20	888.50	890.20	1948.10	0.00	1997.00	2033.00	0.00	2060.40	112.30	33.00
25.300	888.87	879.20	0.00	0.00	1959.70	0.00	1981.00	2033.00	0.00	2058.72	99.02	50.00
27.000	889.16	879.20	0.00	0.00	1886.41	0.00	1999.00	2036.00	0.00	2089.03	198.83	304.00
28.000	889.51	878.70	0.00	0.00	1962.36	0.00	1992.00	2031.00	0.00	2179.36	217.00	1650.00
60.800	889.74	881.90	0.00	0.00	1976.92	0.00	1996.00	2014.00	0.00	2272.29	180.28	905.00
60.900	889.67	881.80	0.00	0.00	1939.16	0.00	1939.16	1968.76	0.00	1968.76	29.60	50.00
61.000	889.63	881.80	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	1.00
61.100	889.80	882.00	892.20	893.50	1972.18	0.00	1972.18	2001.78	0.00	2001.78	29.60	66.00
61.200	889.93	882.00	0.00	0.00	1776.14	0.00	1776.14	1805.74	0.00	1805.74	29.60	1.00
61.300	890.29	882.00	0.00	0.00	1607.09	0.00	1776.14	1805.74	0.00	2277.55	474.24	50.00
* 61.500	890.49	885.50	0.00	0.00	1960.79	0.00	2000.00	2025.00	0.00	2059.66	98.87	1450.00
63.800	892.65	886.60	0.00	0.00	1948.95	0.00	1988.00	2023.00	0.00	2052.07	103.12	280.00
* 63.850	892.51	887.00	0.00	0.00	1949.43	0.00	2000.00	2017.00	0.00	2051.55	102.12	20.00
63.900	893.46	887.00	0.00	0.00	1946.03	0.00	2000.00	2017.00	0.00	2055.23	109.21	30.00
64.000	892.42	887.00	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00
* 64.100	893.20	887.60	896.10	899.30	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	66.00
* 64.200	895.43	887.60	0.00	0.00	2000.00	0.00	2000.00	2017.00	0.00	2017.00	17.00	1.00



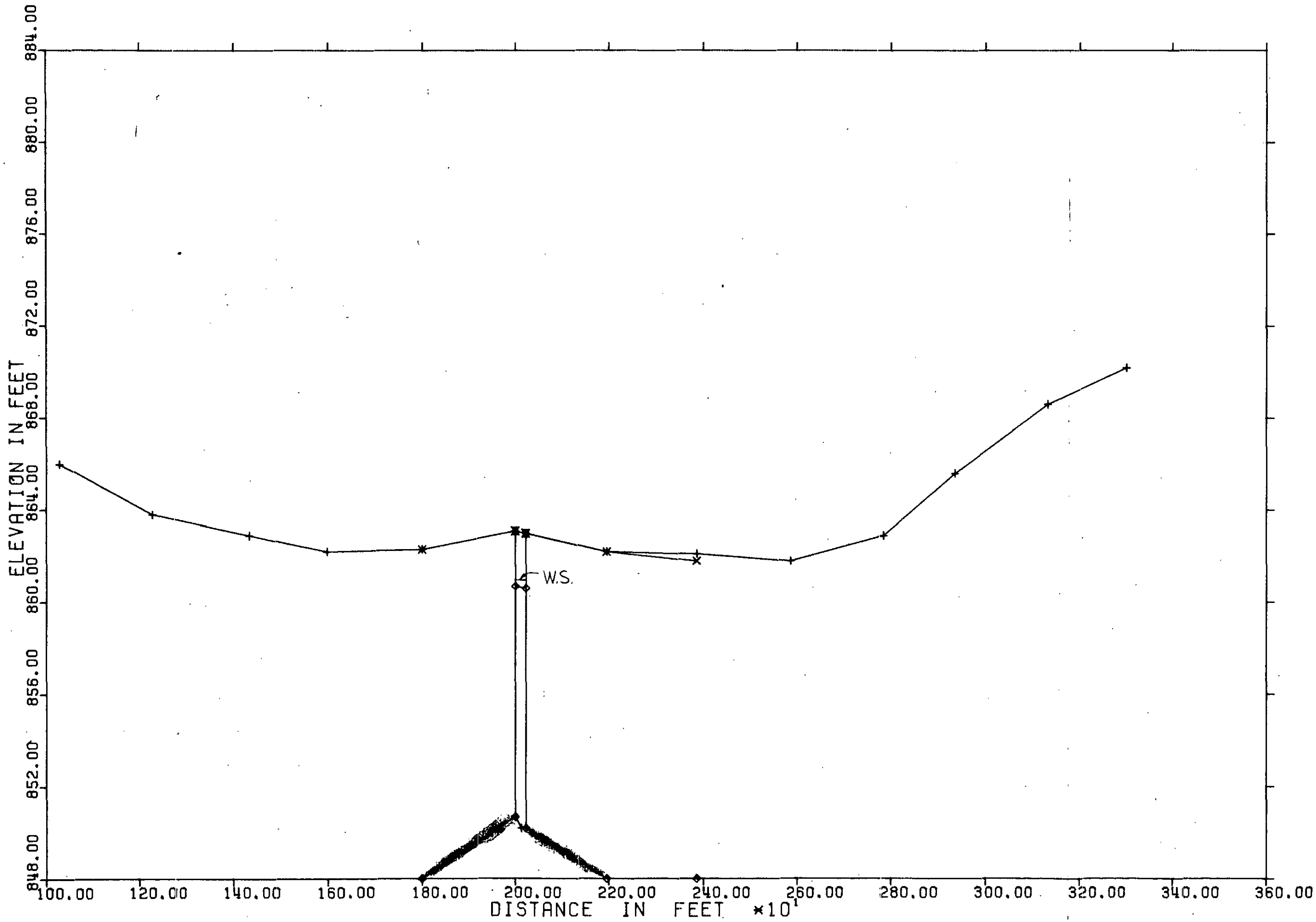
FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON



FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON

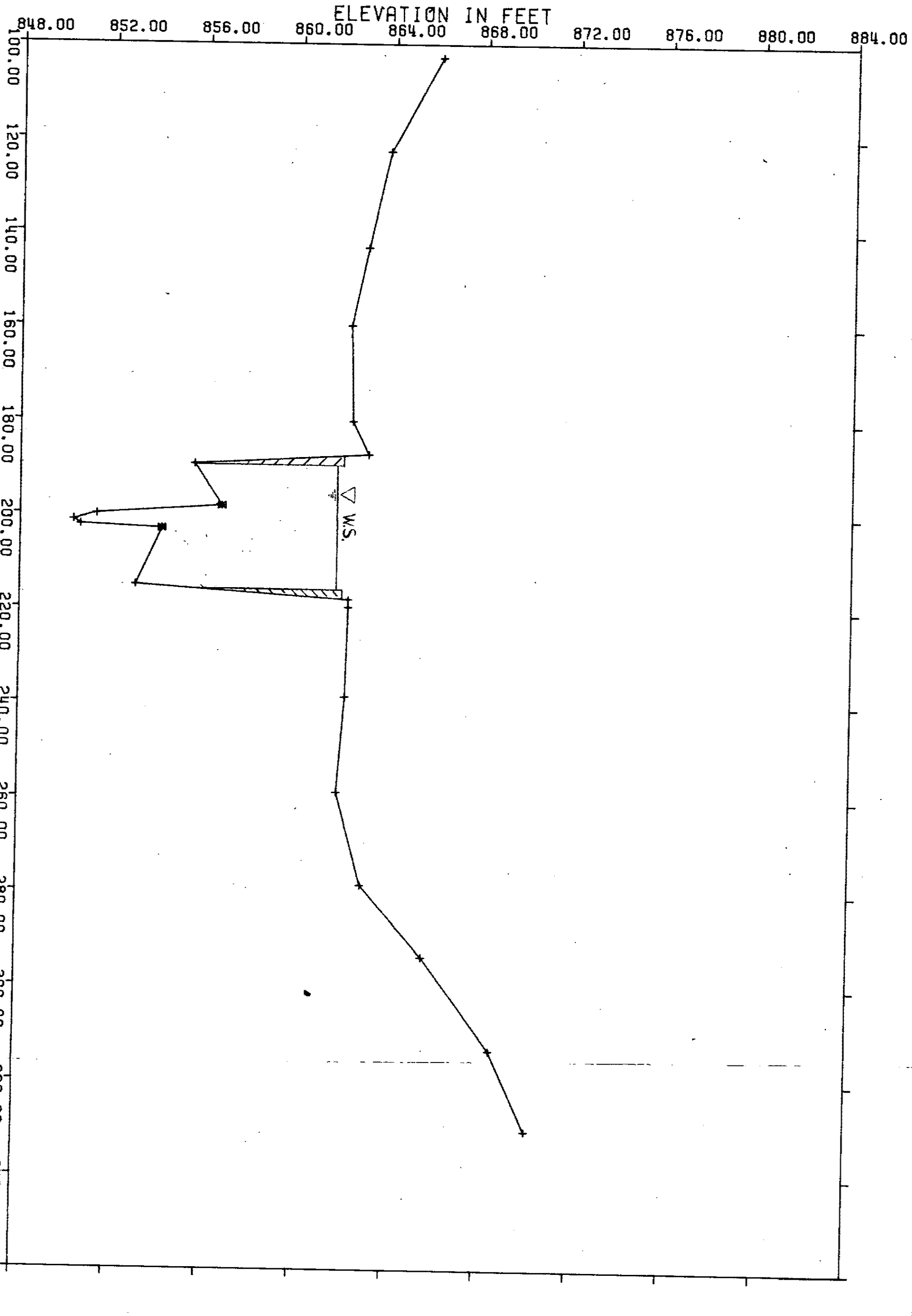


FLOOD INSURANCE STUDY

WILLIAMSTON

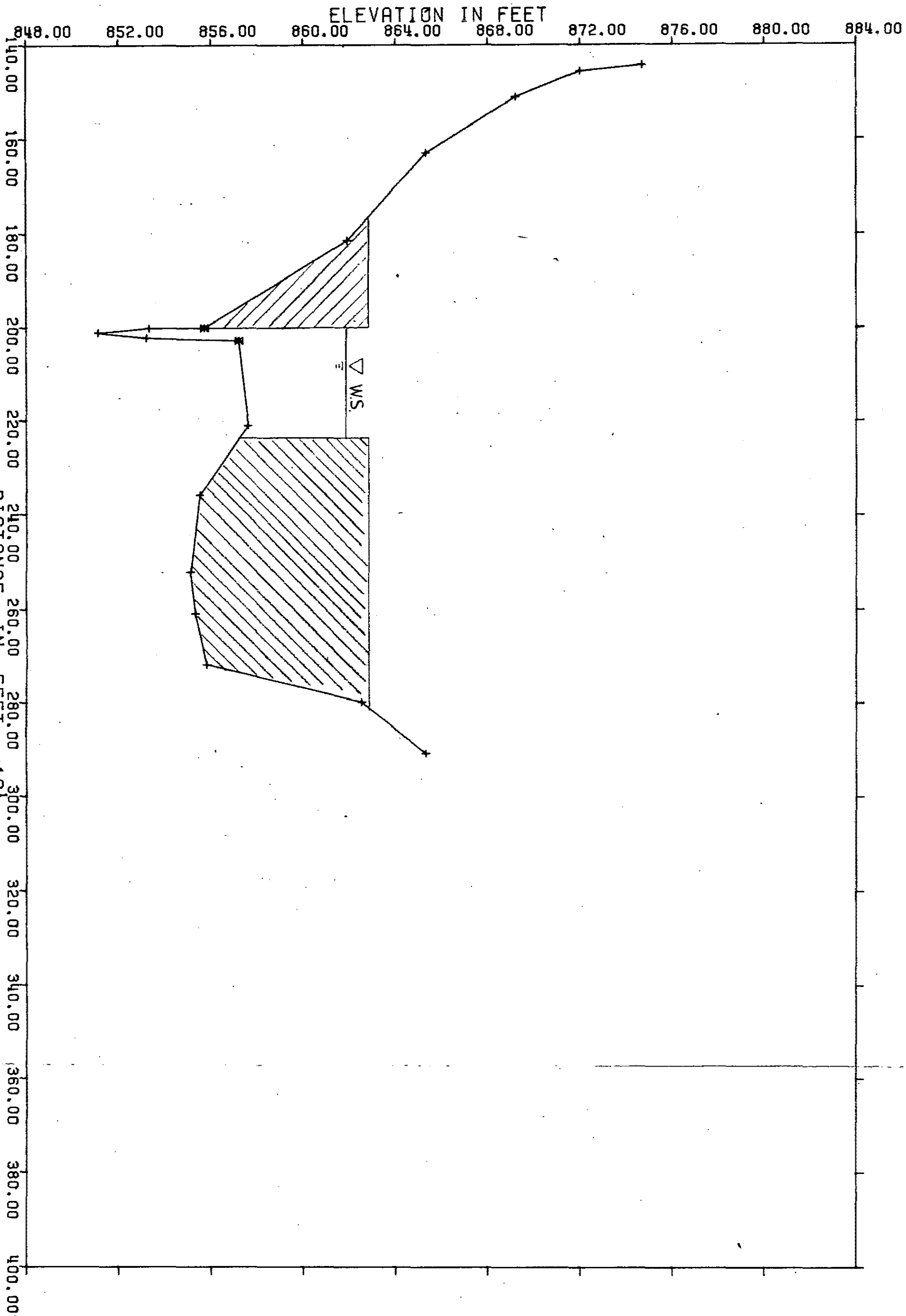
DEER CREEK AT

SECTION NO. 30.100



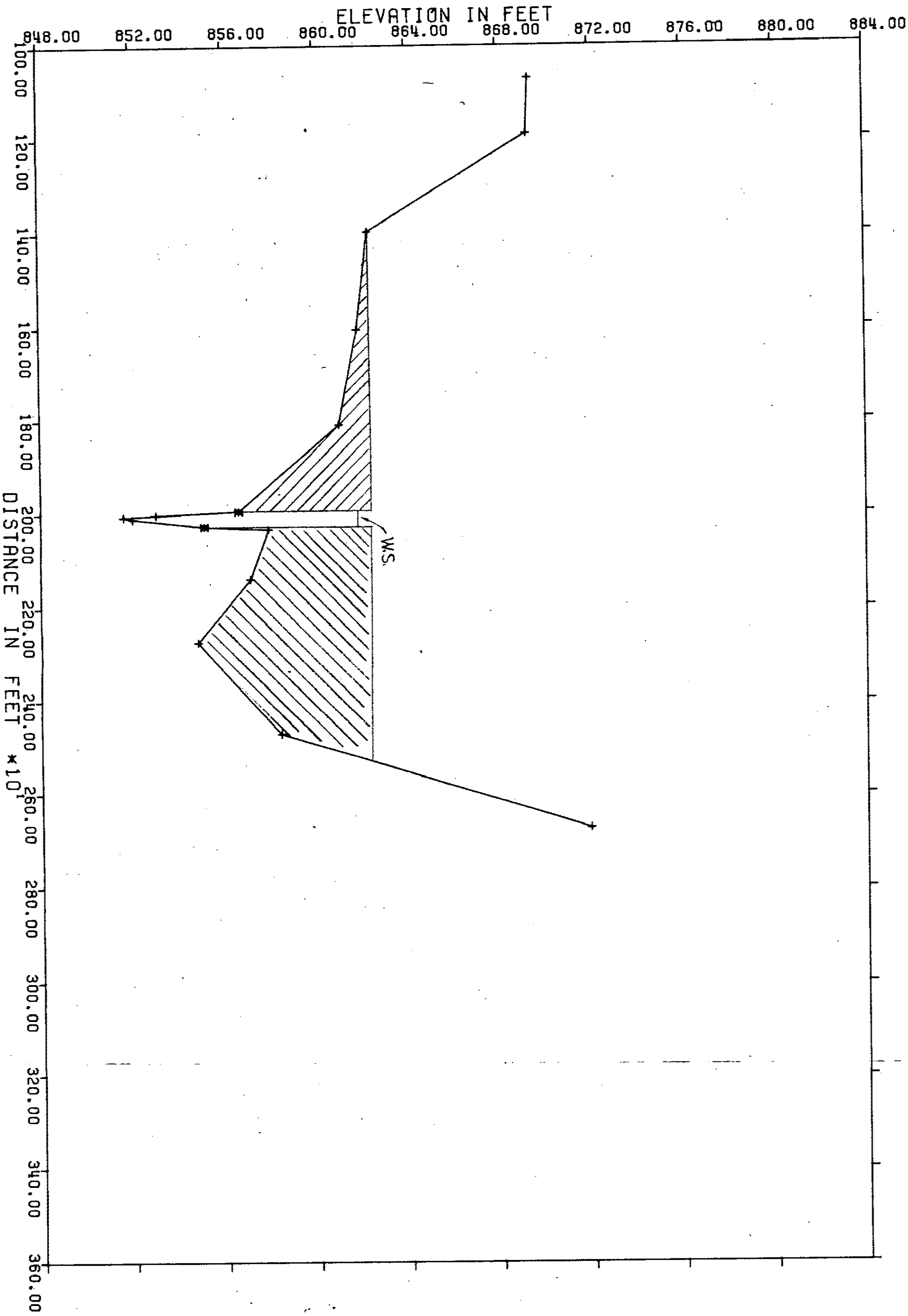
FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON



FLOOD INSURANCE STUDY

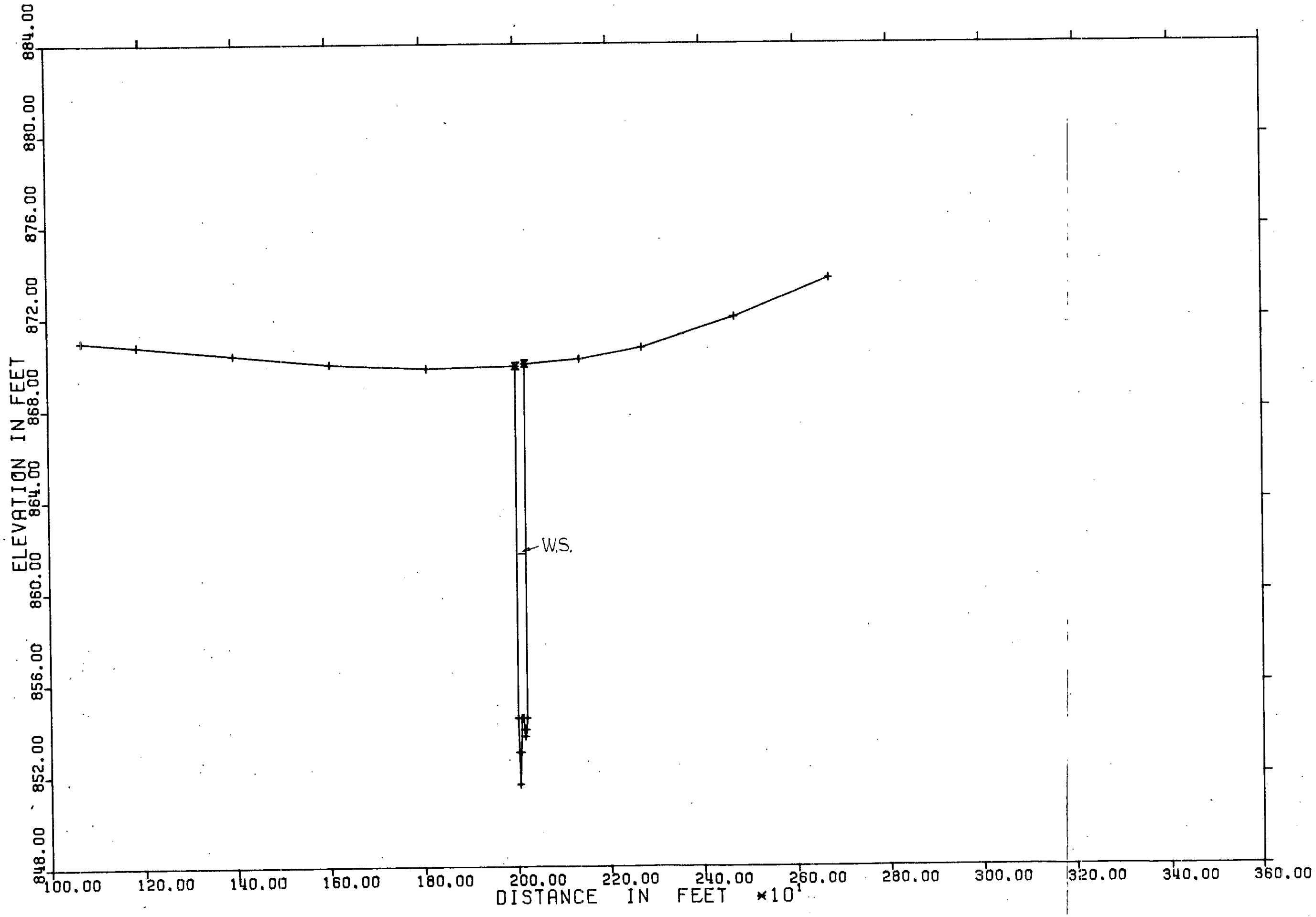
DEER CREEK AT WILLIAMSTON



SECTION NO. 31.800

FLOOD INSURANCE STUDY

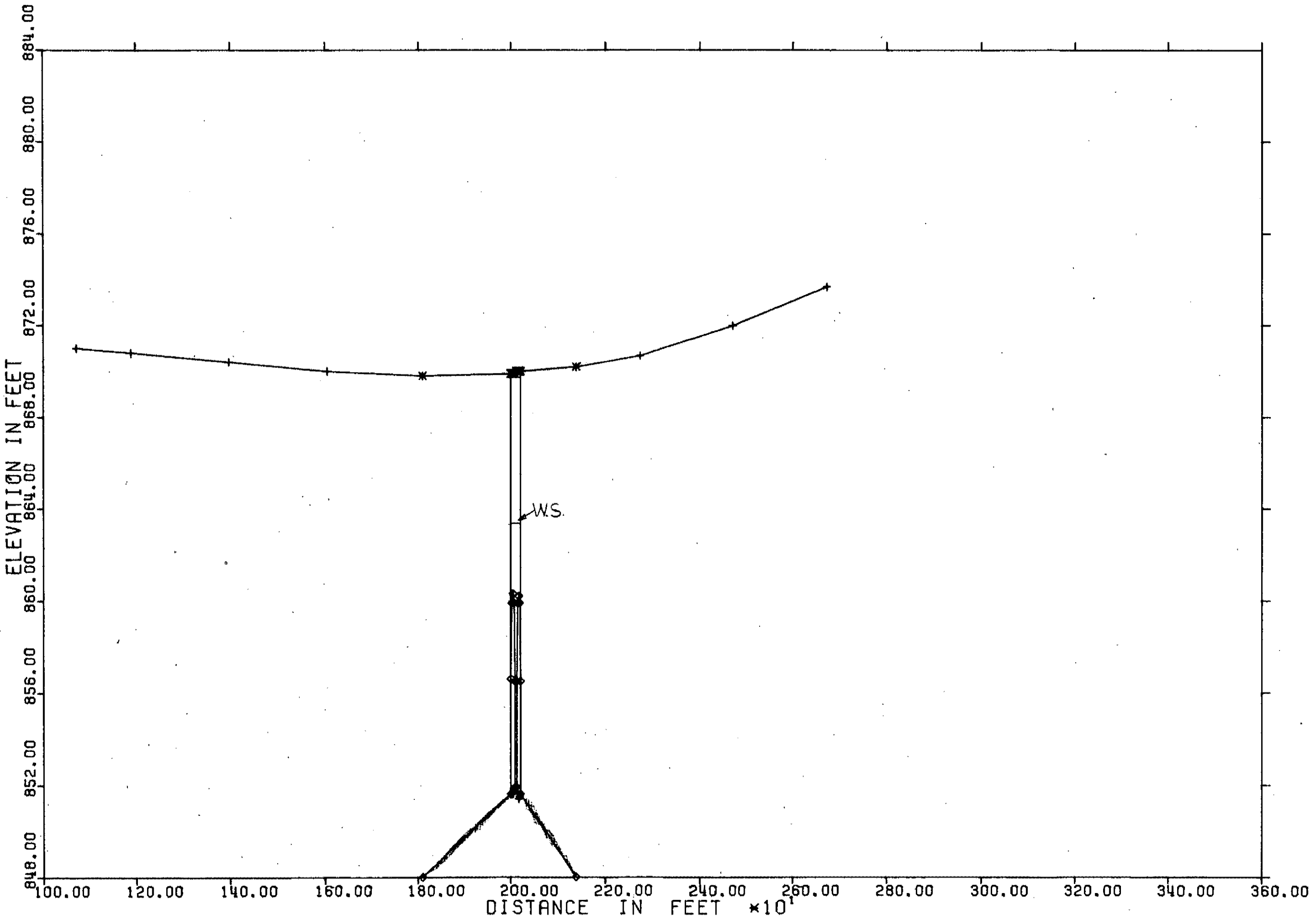
DEER CREEK AT WILLIAMSTON



FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON

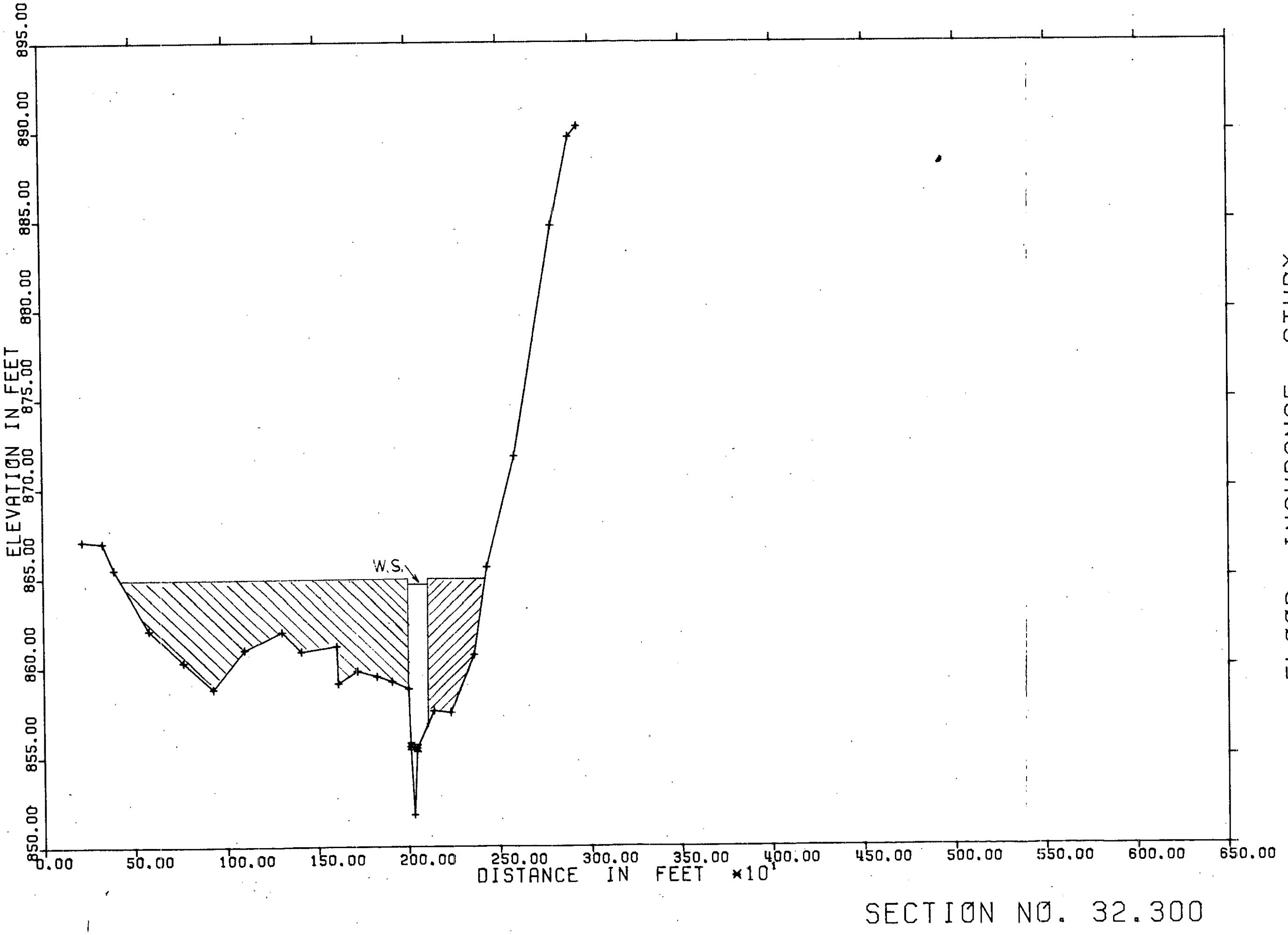
SECTION NO. 31.900



FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON

SECTION NO. 32.100



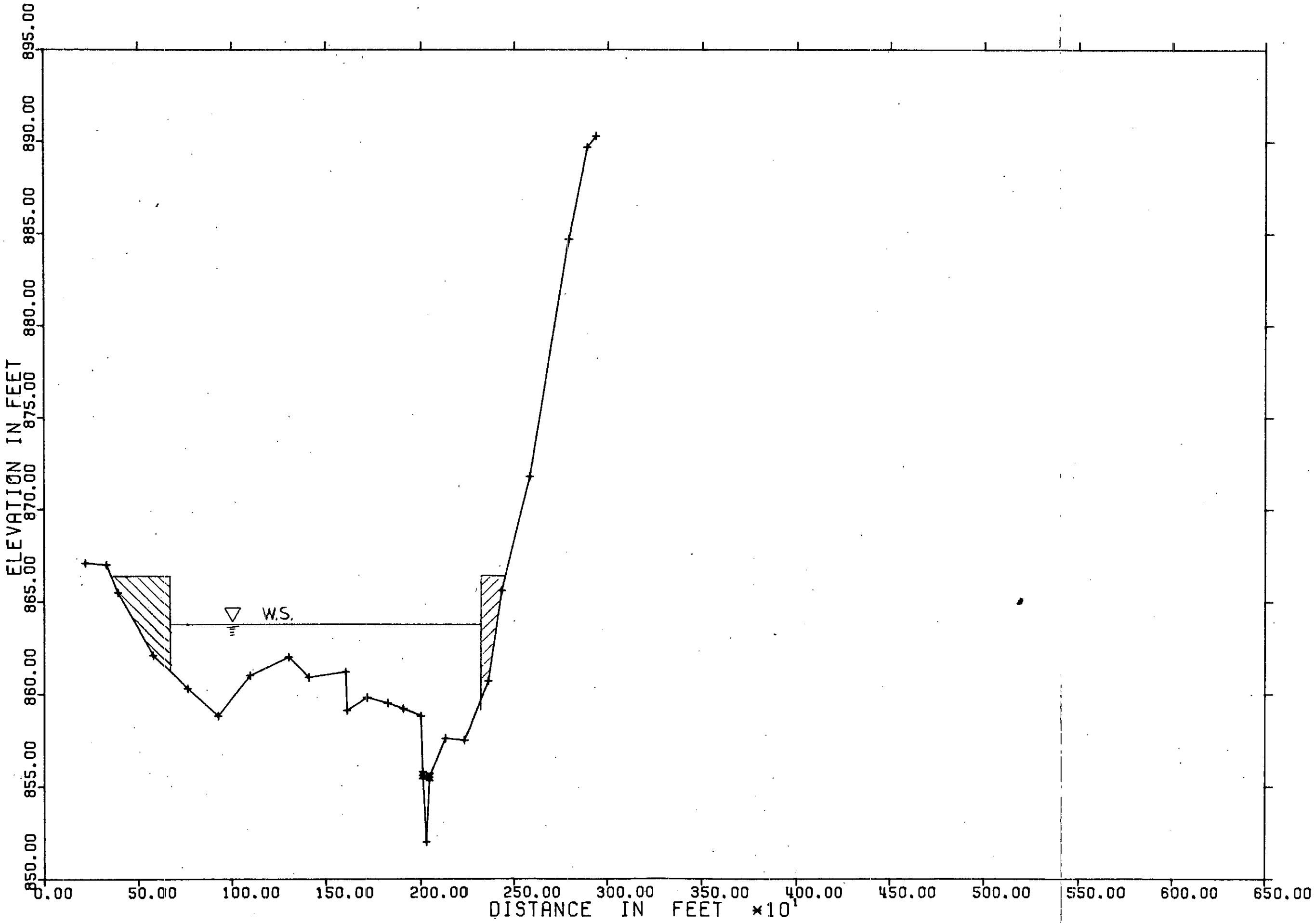
DEER CREEK AT WILLIAMSTON

FLOOD INSURANCE STUDY

SECTION NO. 32.300

DEER CREEK AT WILLIAMSTON

FLOOD INSURANCE STUDY



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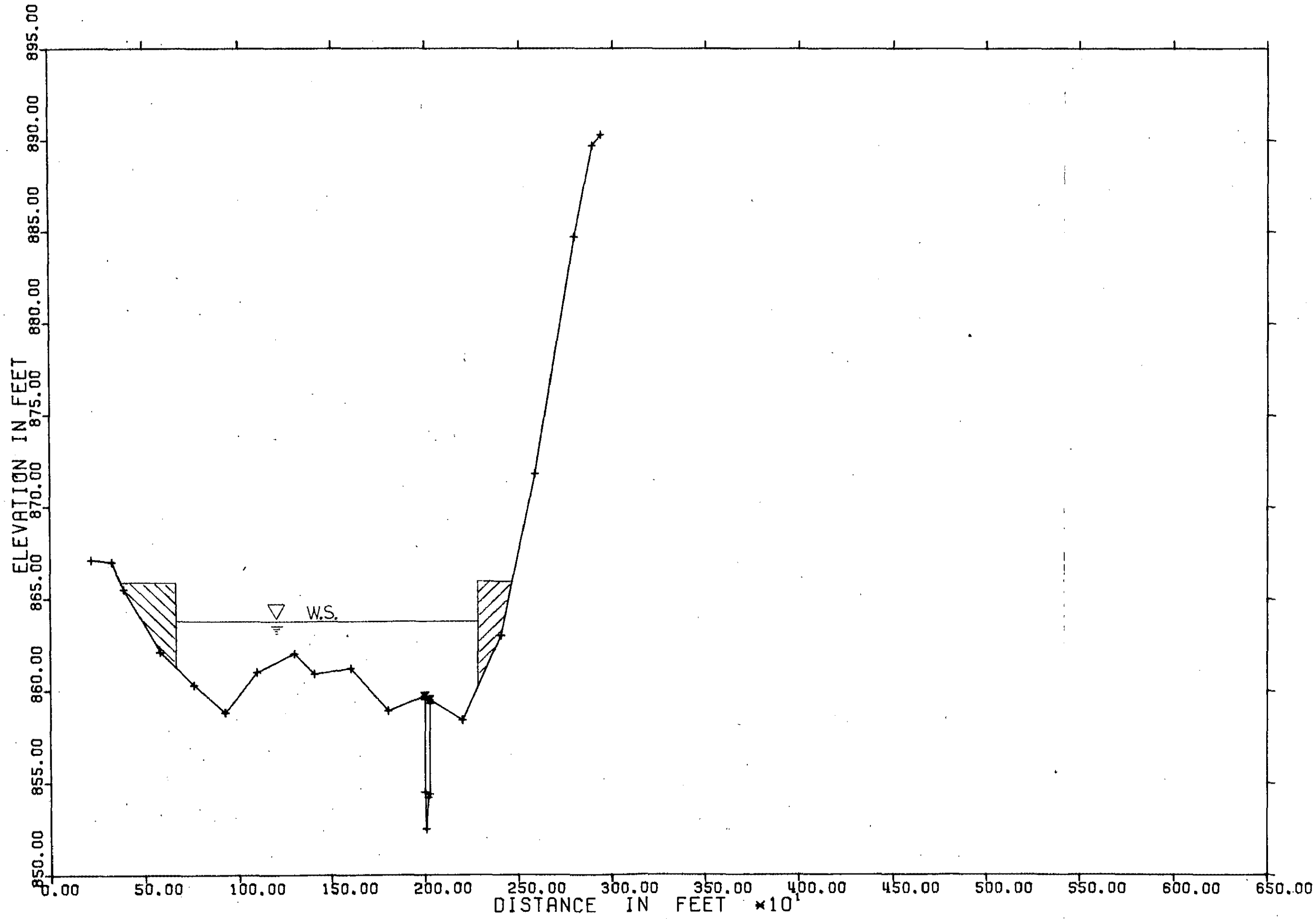
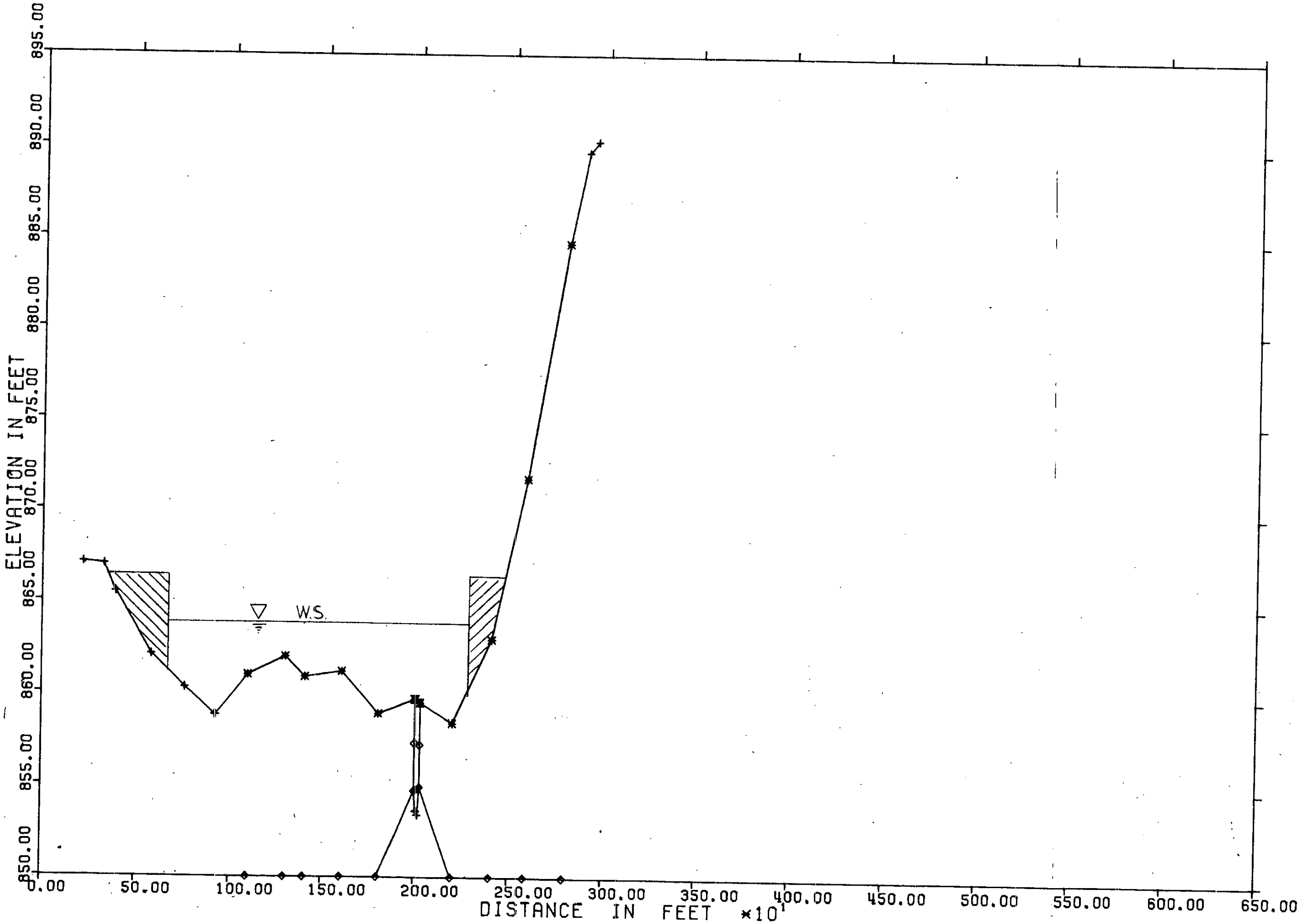


FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON

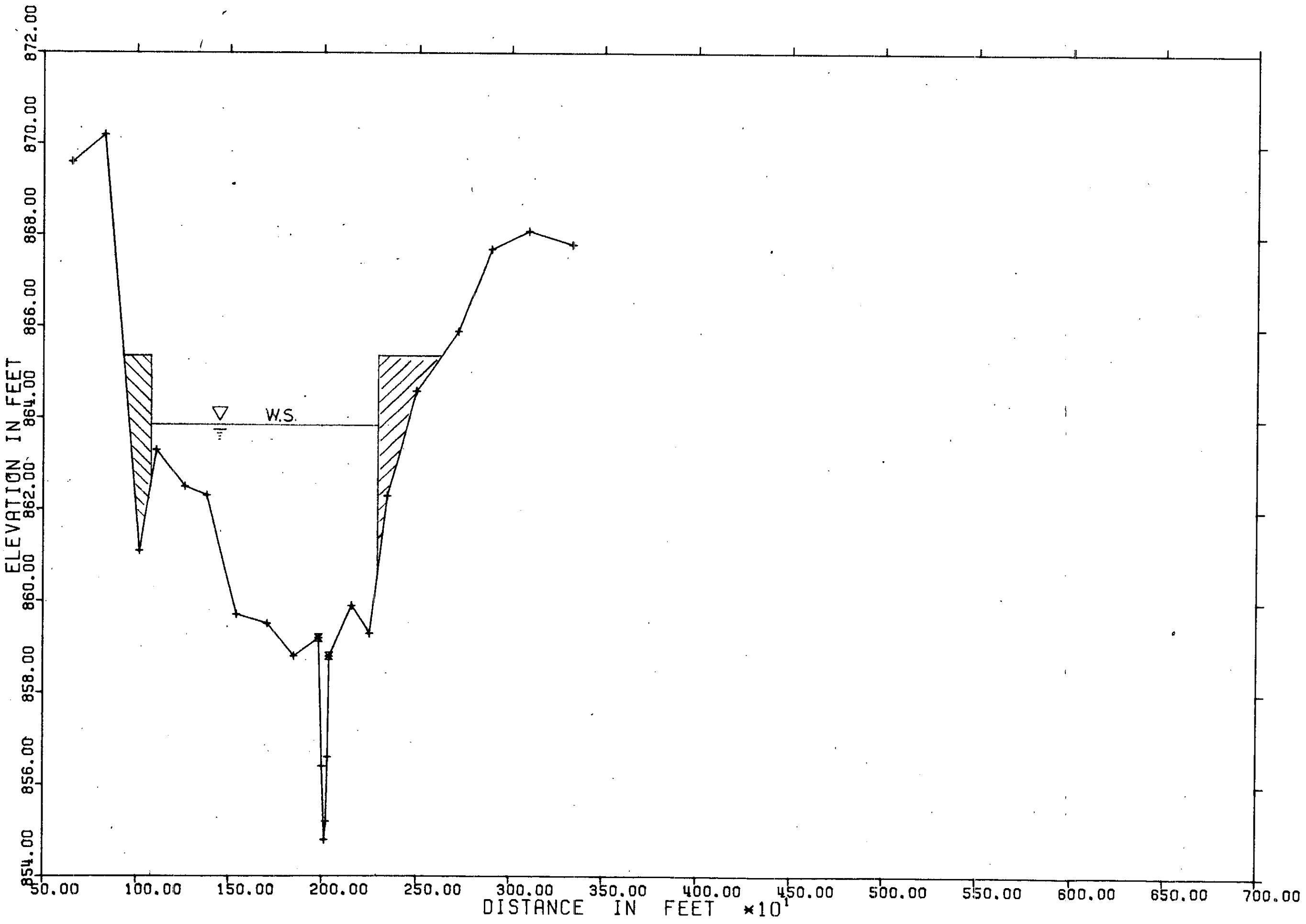
SECTION NO. 32.900



FLOOD INSURANCE STUDY

DEER CREEK AT WILLIAMSTON

SECTION NO. 33.100



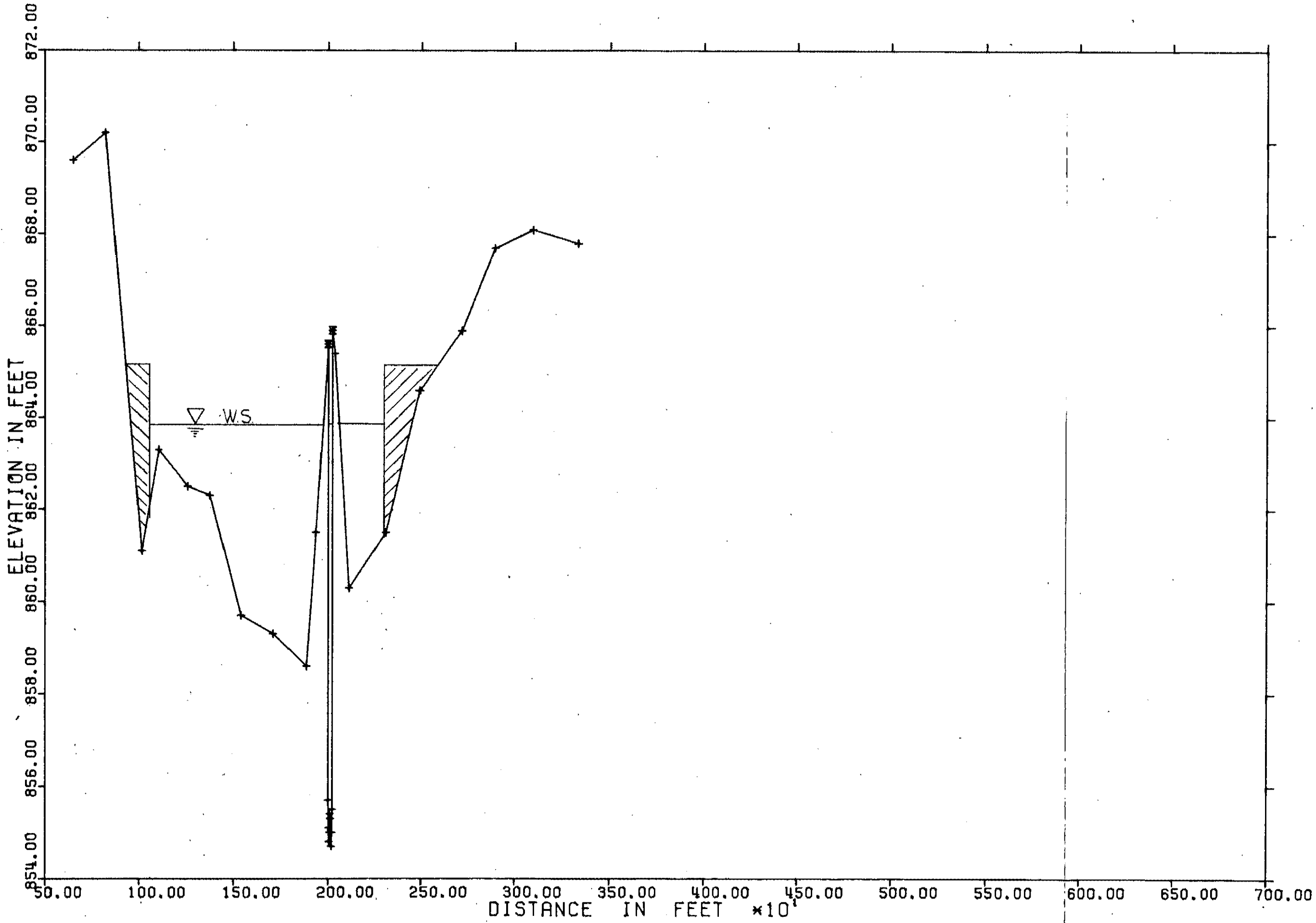
DEER CREEK AT WILLIAMSTON

FLOOD INSURANCE STUDY

SECTION NO. 33.800

DEER CREEK AT WILLIAMSTON

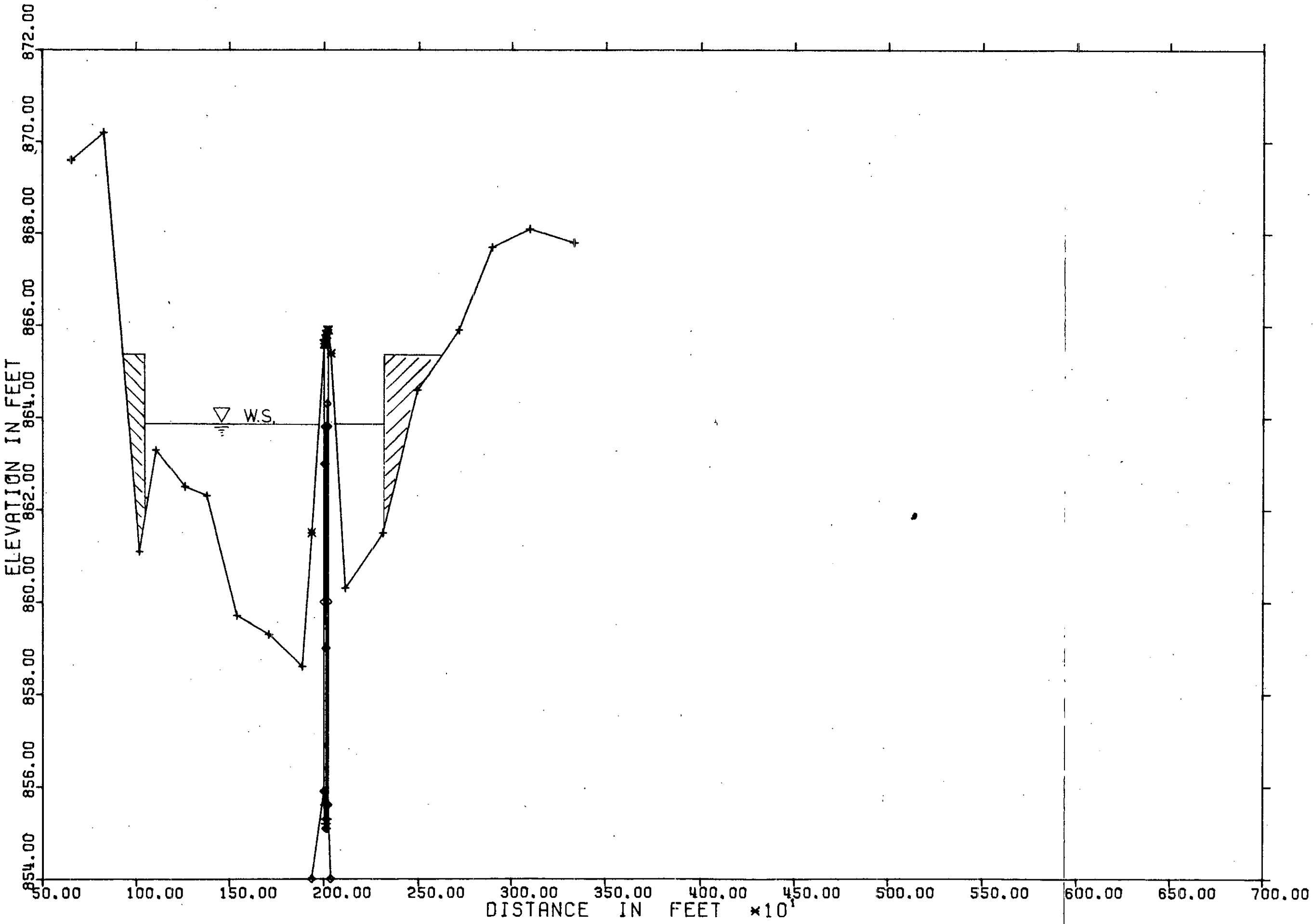
FLOOD INSURANCE STUDY



SECTION NO. 33.900

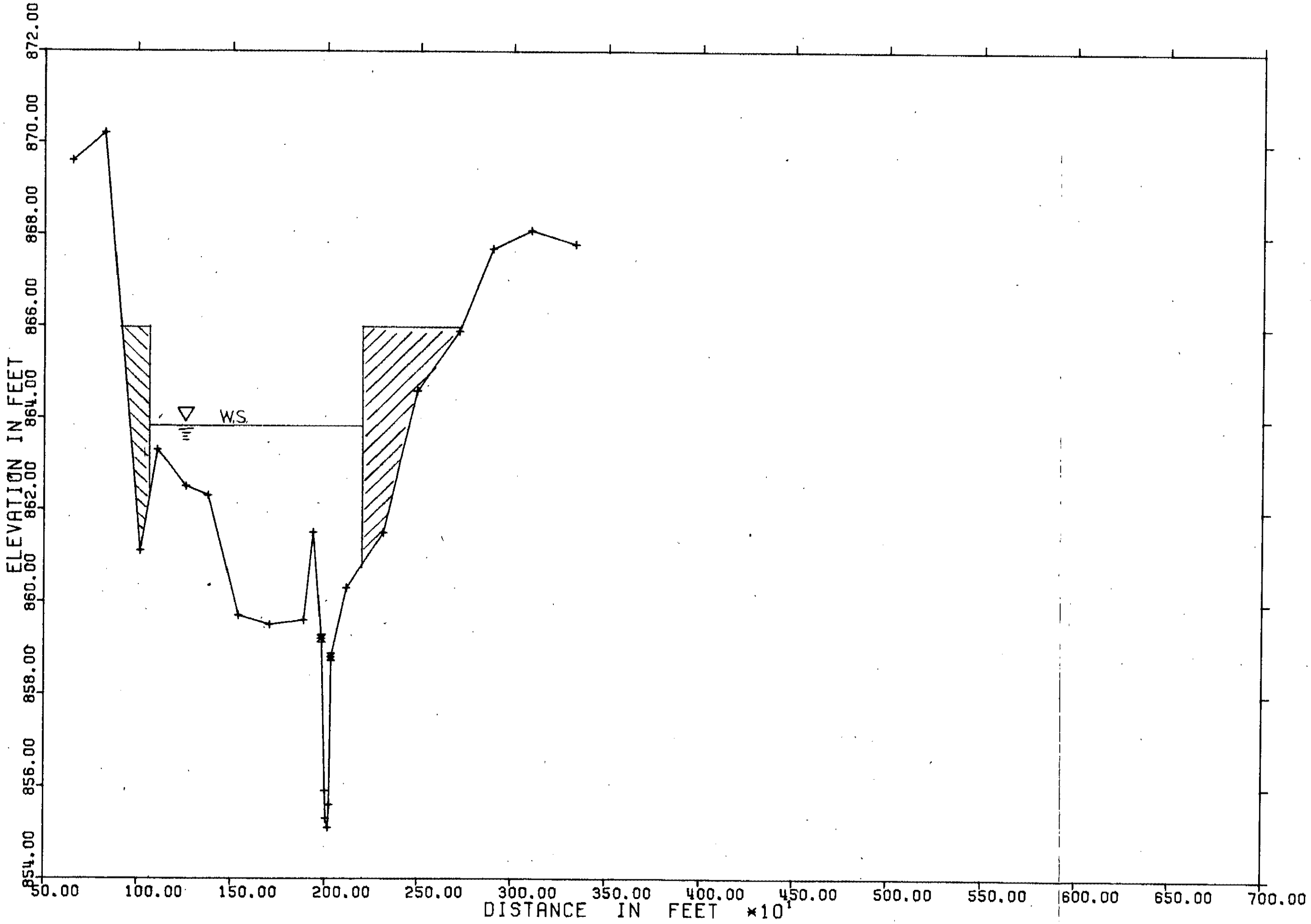
DEER CREEK AT WILLIAMSTON

FLOOD INSURANCE STUDY



SECTION NO. 34.000

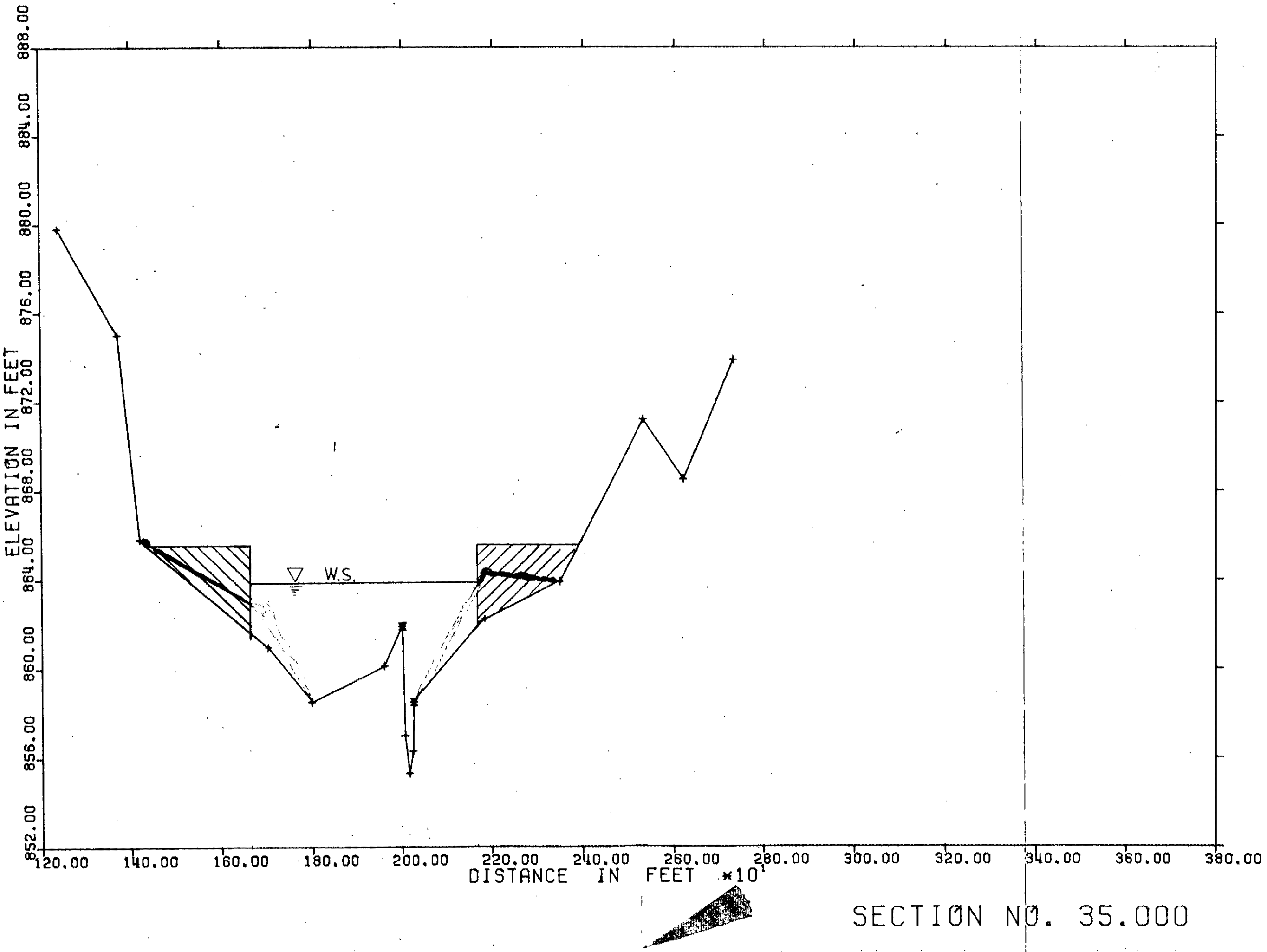
DEER CREEK AT WILLIAMSTON
FLOOD INSURANCE STUDY



SECTION NO. 34.300

DEER CREEK AT WILLIAMSTON

FLOOD INSURANCE STUDY



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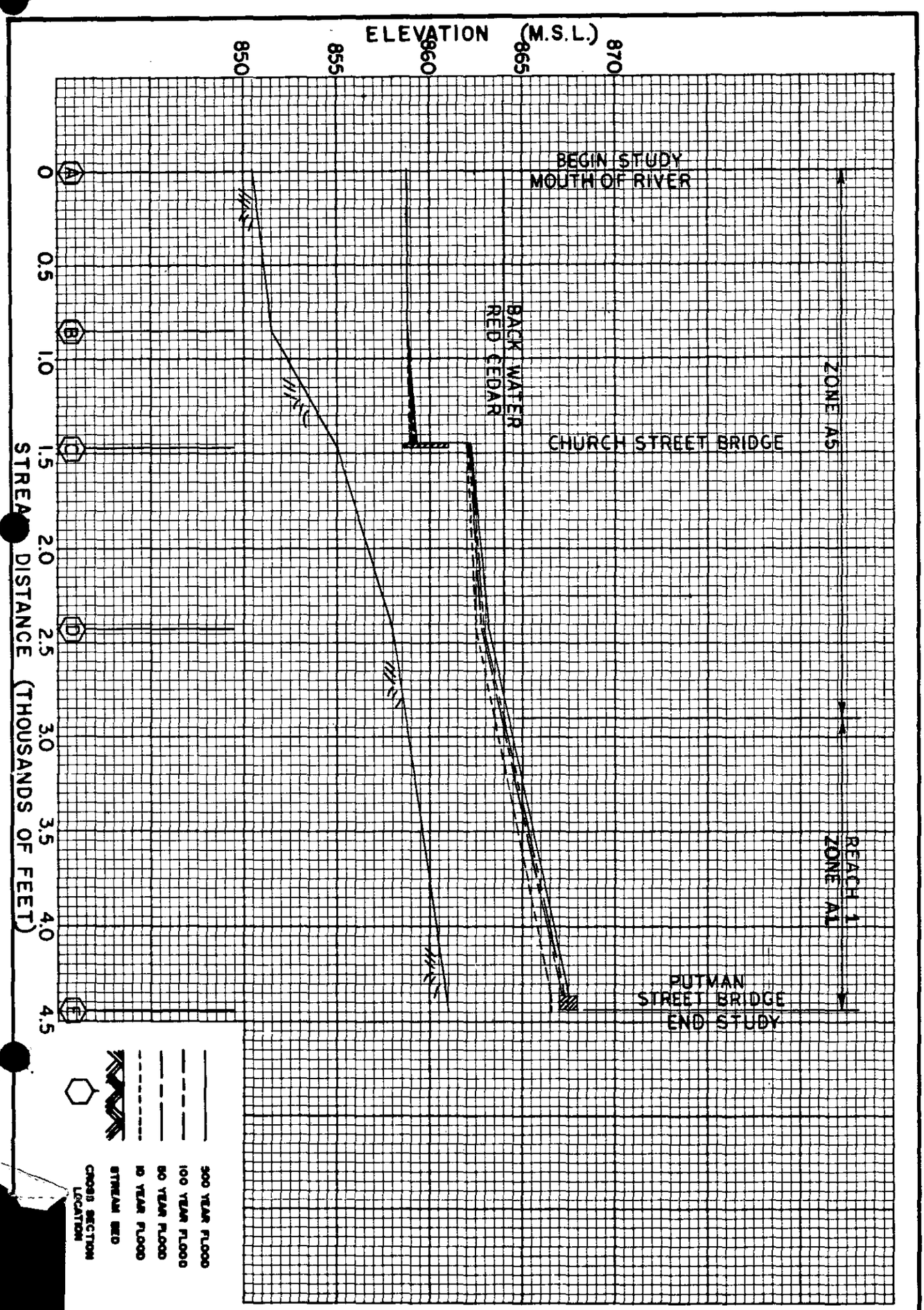

TOWNSHIP OF WILLIAMSTOWN

UNNAMED TRIBUTARY

FLOOD PROFILE

City of Mason Willow Creek Profiles Revised 5/20/

THIS RUN EXECUTED 05/20/81

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1      NORMAL BACKWATER STARTING WSL KNOWN
T2      10 YEAR LEVEL
T3      WILLOW CK. CITY OF MASON

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.  0.0          0.0       0.0       0.   887.610     0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   201.000   0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

J5  LPRNT     NUMSEC                  ********REQUESTED SECTION NUMBERS********

    -10.000   -10.000   0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NC      0.060     0.080     0.040     0.100     0.300     0.0       0.0       0.0       0.0       0.0
ET      0.0       0.0       0.0       0.0       0.0       1.400     0.0       0.0       0.0       0.0
QT      6.000   345.000   457.000   570.000   820.000   570.000   681.000     0.0       0.0       0.0

X1     28.000    30.000  2000.000  2029.000     0.0       0.0       0.0       0.0       0.0       0.0
GR    896.700  1529.000   898.700  1596.000   898.600  1666.000   899.100  1776.000   896.300  1890.000
GR    891.200  1936.000   888.500  1978.000   884.900  1992.000   881.400  2000.000   880.100  2004.000
GR    878.700  2010.000   878.800  2011.000   878.900  2016.000   879.300  2021.000   879.600  2024.000
GR    881.400  2029.000   883.900  2031.000   883.900  2044.000   882.900  2056.000   884.700  2070.000
GR    883.200  2162.000   885.000  2170.000   892.700  2186.000   893.300  2197.000   892.600  2203.000
GR    893.000  2208.000   898.700  2225.000   899.000  2232.000   900.500  2266.000   902.400  2322.000
ET      0.0       7.100     7.100     7.100     7.100     7.100  1993.000  2108.000     0.0       0.0

X1     29.800    19.000  2000.000  2015.000   450.000   550.000   500.000     0.0       0.0       0.0
GR    903.700  1541.000   901.300  1660.000   900.000  1724.000   898.600  1804.000   899.000  1877.000
GR    887.000  1959.000   886.000  1993.000   884.800  1997.000   882.700  2000.000   882.000  2005.000
GR    881.900  2010.000   882.700  2015.000   885.000  2016.000   884.600  2089.000   889.100  2097.000
GR    890.800  2173.000   891.300  2309.000   891.800  2409.000   891.900  2534.000     0.0       0.0
NC      0.0       0.0       0.0       0.300     0.500     0.0       0.0       0.0       0.0       0.0

X1     29.900    27.000  2000.000  2015.000    50.000    50.000    50.000     0.0       0.0       0.0
X3     10.000     0.0       0.0       0.0       0.0       0.0       0.0     891.500   891.500     0.0
GR    908.000  1289.000   906.200  1358.000   903.800  1465.000   901.500  1571.000   897.700  1772.000
GR    895.800  1876.000   893.100  1928.000   891.000  1979.000   890.300  1999.000   890.300  2000.000
GR    881.900  2000.000   882.100  2003.000   882.100  2007.000   882.000  2010.000   882.200  2015.000
GR    890.300  2015.000   890.300  2016.000   890.200  2028.000   890.100  2077.000   892.000  2119.000
GR    891.300  2168.000   891.800  2347.000   891.800  2401.000   891.900  2549.000   891.900  2621.000
GR    892.500  2769.000   893.600  2909.000     0.0       0.0       0.0       0.0       0.0       0.0
NC      0.0       0.0       0.020     0.0       0.0       0.0       0.0       0.0       0.0       0.0
SB      0.0       1.750     3.000     0.0      14.500     0.0     102.000     0.0     881.900   882.000

X1     30.100    20.000  2000.000  2015.000    66.500    66.500    66.500     0.0       0.0       0.0
X2      0.0       0.0       1.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0
BT      6.000  1889.000   895.100     0.0    2000.000   893.100     0.0    2000.000   893.100   889.000
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MOORE BUSINESS FORMS, INC. 23

BT	2015.000	893.100	889.100	2015.000	893.100	0.0	2119.000	892.000	0.0	0.0
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.100	1889.000	893.100	2000.000	882.400	2000.000	882.200	2007.000	882.100	2010.000
GR	882.000	2015.000	893.100	2015.000	892.000	2119.000	891.300	2168.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	7.100	1990.000	2030.000	0.0	0.0
X1	30.300	25.000	2000.000	2015.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.400	1887.000	891.500	1890.000	890.800	1999.000	890.800	2000.000	882.400	2000.000
GR	882.200	2007.000	882.100	2010.000	882.000	2015.000	890.300	2015.000	890.300	2016.000
GR	891.400	2080.000	890.100	2160.000	890.500	2237.000	891.900	2249.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	31.500	39.000	2000.000	2013.000	940.000	940.000	960.000	0.0	0.0	0.0
GR	905.200	1110.000	902.500	1184.000	902.800	1205.000	901.200	1268.000	898.400	1366.000
GR	896.500	1473.000	897.300	1494.000	895.200	1615.000	897.200	1733.000	896.800	1785.000
GR	894.800	1876.000	892.600	1886.000	888.200	1943.000	888.500	1987.000	884.100	2000.000
GR	882.600	2005.000	882.900	2009.000	884.200	2013.000	887.200	2023.000	886.100	2052.000
GR	885.900	2065.000	887.600	2112.000	890.300	2131.000	890.500	2157.000	896.900	2264.000
GR	898.200	2363.000	899.200	2461.000	898.700	2509.000	900.800	2611.000	901.200	2708.000
GR	902.000	2749.000	900.500	2779.000	900.300	2894.000	901.700	3012.000	902.500	3117.000
GR	903.100	3216.000	904.100	3319.000	904.000	3428.000	904.900	3553.000	0.0	0.0
X1	31.600	18.000	2000.000	2015.000	600.000	600.000	600.000	0.0	0.0	0.0
GR	901.200	1268.000	898.400	1366.000	896.500	1473.000	897.300	1494.000	895.200	1615.000
GR	893.100	1652.000	892.900	1799.000	890.700	1860.000	888.500	1987.000	885.000	2000.000
GR	882.600	2005.000	882.900	2010.000	886.000	2015.000	887.200	2023.000	890.300	2140.000
GR	890.500	2157.000	896.900	2264.000	898.200	2368.000	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	31.700	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	1.550	3.000	0.0	12.800	0.0	91.000	0.0	882.600	882.600
X1	31.800	0.0	0.0	0.0	15.000	15.000	15.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	18.000	1268.000	901.200	0.0	1366.000	898.400	0.0	1473.000	896.500	0.0
BT	1494.000	897.300	0.0	1615.000	895.200	0.0	1652.000	893.100	0.0	1799.000
BT	892.900	0.0	1860.000	890.700	0.0	1987.000	890.200	888.500	2000.000	890.200
BT	885.000	2000.000	890.200	889.700	2015.000	890.200	889.700	2015.000	890.200	886.000
BT	2023.000	890.200	887.200	2140.000	890.300	0.0	2157.000	890.500	0.0	2264.000
BT	896.900	0.0	2368.000	898.200	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	31.900	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	32.800	21.000	2000.000	2011.000	260.000	260.000	260.000	0.0	0.0	0.0
GR	908.400	1075.000	907.000	1127.000	902.900	1217.000	897.900	1319.000	896.300	1426.000
GR	894.100	1540.000	893.100	1652.000	892.900	1799.000	891.700	1898.000	889.100	1996.000
GR	885.500	2000.000	884.700	2003.000	884.500	2004.000	884.400	2007.000	884.800	2011.000
GR	886.300	2011.000	886.400	2014.000	888.300	2032.000	888.300	2046.000	894.400	2121.000
GR	896.000	2244.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	32.900	30.000	2000.000	2022.000	50.000	50.000	50.000	0.890	0.0	0.0

MOORE BUSINESS FORMS, INC 73

GR	906.200	955.000	904.400	1071.000	902.500	1191.000	900.900	1299.000	899.700	1409.000
GR	898.600	1578.000	898.500	1654.000	897.200	1774.000	896.600	1876.000	896.200	2000.000
GR	885.400	2000.000	884.100	2002.000	882.300	2003.000	882.600	2004.000	882.800	2010.000
GR	882.900	2012.000	882.800	2017.000	883.300	2020.000	884.600	2022.000	896.200	2022.000
GR	892.600	2107.000	893.800	2213.000	895.600	2349.000	896.300	2405.000	892.700	2492.000
GR	894.400	2623.000	896.500	2848.000	898.400	2871.000	899.300	2993.000	900.300	3123.000
NC	0.0	0.0	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	1.050	2.640	3.000	0.0	17.000	0.890	120.000	0.0	884.000	882.300
X1	33.100	14.000	2000.000	2022.000	250.000	250.000	250.000	0.890	0.0	0.0
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.890	0.0
BT	10.000	1802.000	896.700	0.0	2000.000	896.200	885.400	2000.000	896.200	891.400
BT	2010.000	896.200	891.400	2010.000	896.200	885.000	2011.000	896.200	885.000	2011.000
BT	896.200	891.400	2022.000	896.200	891.400	2022.000	896.200	885.400	2404.000	896.900
BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	896.700	1802.000	896.200	2000.000	885.400	2000.000	884.700	2002.000	885.400	2004.000
GR	884.400	2006.000	884.400	2008.000	885.000	2010.000	885.000	2011.000	885.000	2016.000
GR	884.000	2020.000	885.400	2022.000	896.200	2022.000	896.900	2404.000	0.0	0.0
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	34.300	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
X1	34.500	35.000	2000.000	2010.000	1350.000	1250.000	1300.000	0.0	0.0	0.0
GR	909.900	492.000	907.800	650.000	903.700	764.000	900.600	878.000	898.200	1010.000
GR	896.500	1132.000	895.000	1263.000	893.800	1376.000	892.200	1498.000	892.900	1585.000
GR	892.300	1704.000	891.000	1775.000	891.600	1848.000	890.600	1878.000	889.900	1956.000
GR	889.900	1996.000	886.800	2000.000	889.400	2005.000	887.000	2009.000	887.500	2010.000
GR	888.500	2021.000	891.800	2030.000	890.300	2165.000	893.200	2289.000	893.700	2444.000
GR	893.000	2481.000	893.400	2506.000	893.300	2626.000	893.000	2755.000	895.800	2915.000
GR	897.200	3040.000	899.500	3163.000	900.900	3284.000	901.400	3417.000	903.000	3536.000
X1	35.000	38.000	2000.000	2020.000	1500.000	1500.000	1525.000	0.0	0.0	0.0
GR	905.100	486.000	903.300	614.000	903.400	693.000	902.000	764.000	900.200	855.000
GR	898.600	990.000	896.900	1172.000	895.800	1285.000	894.700	1400.000	893.200	1627.000
GR	892.500	1658.000	891.700	1776.000	891.100	1890.000	892.000	1910.000	888.000	2000.000
GR	887.400	2005.000	887.100	2010.000	887.200	2015.000	888.000	2020.000	889.100	2023.000
GR	891.600	2027.000	893.500	2032.000	892.400	2038.000	892.600	2147.000	892.900	2263.000
GR	893.300	2392.000	891.800	2520.000	895.800	2651.000	896.700	2752.000	897.800	2855.000
GR	898.000	3003.000	897.500	3099.000	900.200	3130.000	897.800	3155.000	899.600	3166.000
GR	898.500	3275.000	898.200	3384.000	901.200	3500.000	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

THIS RUN EXECUTED 05/20/81

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
      -10.      3.       0.       0.  0.0          0.0      0.0      0.  889.070   0.0
J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
     2.000    0.0      -1.000   0.0      0.0      0.0      0.0      0.0      0.0      0.0
```

THIS RUN EXECUTED 05/20/81

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.0	0.0	0.0	0.	890.600	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

THIS RUN EXECUTED 05/20/81

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q		WSEL	FQ
	-10.	5.	0.	0.	0.0	0.0	0.0	0.		892.720	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW		CHNIM	ITRACE
	15.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0		0.0	0.0

THIS RUN EXECUTED 05/20/81

****
HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WILLOW CK. CITY OF MASON

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01
28.000	0.0	0.0	0.0	878.70	345.00	887.61	0.0	887.62	0.33	0.84	815.82	601.
28.000	0.0	0.0	0.0	878.70	457.00	889.07	0.0	889.08	0.25	0.82	1107.25	909.
28.000	0.0	0.0	0.0	878.70	570.00	890.60	0.0	890.60	0.19	0.79	1448.16	1305.
28.000	0.0	0.0	0.0	878.70	820.00	892.72	0.0	892.73	0.17	0.84	1981.33	1994.
29.800	500.00	0.0	0.0	881.90	345.00	887.63	0.0	887.67	3.62	2.17	320.18	181.
29.800	500.00	0.0	0.0	881.90	457.00	889.08	0.0	889.11	2.11	1.94	469.68	314.
29.800	500.00	0.0	0.0	881.90	570.00	890.61	0.0	890.63	1.35	1.78	643.75	490.
29.800	500.00	0.0	0.0	881.90	820.00	892.72	0.0	892.75	1.08	1.84	887.39	790.
29.900	50.00	0.0	0.0	881.90	345.00	887.55	0.0	887.82	27.54	4.20	82.18	65.
29.900	50.00	0.0	0.0	881.90	457.00	888.97	0.0	889.27	25.72	4.42	103.51	90.
29.900	50.00	0.0	0.0	881.90	570.00	890.48	0.0	890.80	23.46	4.52	126.13	117.
29.900	50.00	0.0	0.0	881.90	820.00	892.73	0.0	892.77	4.68	2.37	1053.49	379.
30.100	66.50	892.00	889.10	882.00	345.00	887.63	0.0	887.91	6.99	4.23	81.63	130.
30.100	66.50	892.00	889.10	882.00	457.00	889.23	0.0	889.52	6.07	4.33	105.58	185.
30.100	66.50	892.00	889.10	882.00	570.00	891.04	0.0	891.33	5.14	4.29	132.82	251.
30.100	66.50	892.00	889.10	882.00	820.00	893.41	0.0	893.47	1.72	2.68	1335.25	625.
30.300	50.00	0.0	0.0	882.00	345.00	887.70	0.0	887.97	26.85	4.17	82.82	66.
30.300	50.00	0.0	0.0	882.00	457.00	889.29	0.0	889.57	23.66	4.29	106.63	93.
30.300	50.00	0.0	0.0	882.00	570.00	891.11	0.0	891.38	18.72	4.20	147.25	131.
30.300	50.00	0.0	0.0	882.00	820.00	893.33	0.0	893.59	14.86	4.34	235.80	212.
31.500	960.00	0.0	0.0	882.60	345.00	888.76	0.0	888.80	4.10	2.30	350.78	170.
31.500	960.00	0.0	0.0	882.60	457.00	890.02	0.0	890.05	1.95	1.82	600.15	327.
31.500	960.00	0.0	0.0	882.60	570.00	891.61	0.0	891.62	0.85	1.38	991.76	619.
31.500	960.00	0.0	0.0	882.60	820.00	893.73	0.0	893.74	0.46	1.18	1641.87	1211.
31.600	600.00	0.0	0.0	882.60	345.00	889.05	0.0	889.17	8.48	3.13	204.29	118.
31.600	600.00	0.0	0.0	882.60	457.00	890.17	0.0	890.23	4.58	2.61	417.57	213.
31.600	600.00	0.0	0.0	882.60	570.00	891.67	0.0	891.69	1.42	1.67	875.19	478.
31.600	600.00	0.0	0.0	882.60	820.00	893.76	0.0	893.77	0.52	1.17	1796.64	1141.
31.700	50.00	0.0	0.0	882.60	345.00	889.10	0.0	889.21	8.18	3.08	209.18	120.
31.700	50.00	0.0	0.0	882.60	457.00	890.19	0.0	890.25	4.52	2.59	420.92	214.
31.700	50.00	0.0	0.0	882.60	570.00	891.68	0.0	891.69	1.41	1.66	877.00	479.
31.700	50.00	0.0	0.0	882.60	820.00	893.76	0.0	893.77	0.51	1.17	1797.90	1142.

MOORE BUSINESS FORMS INC. 23

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
31.800	15.00	890.20	889.70	882.60	345.00	888.99	886.28	889.34	6.16	4.84	81.77	138.9
31.800	15.00	890.20	889.70	882.60	457.00	890.46	0.0	890.55	1.47	3.04	491.84	377.0
31.800	15.00	890.20	889.70	882.60	570.00	891.68	0.0	891.73	0.77	2.46	877.56	648.0
31.800	15.00	890.20	889.70	882.60	820.00	893.78	0.0	893.80	0.34	1.92	1806.41	1397.1
31.900	50.00	0.0	0.0	882.60	345.00	889.37	0.0	889.45	6.06	2.75	253.55	140.1
31.900	50.00	0.0	0.0	882.60	457.00	890.54	0.0	890.58	3.06	2.21	515.92	261.3
31.900	50.00	0.0	0.0	882.60	570.00	891.72	0.0	891.74	1.35	1.63	894.10	491.0
31.900	50.00	0.0	0.0	882.60	820.00	893.80	0.0	893.81	0.50	1.16	1813.05	1154.2
32.800	260.00	0.0	0.0	884.40	345.00	889.55	0.0	889.76	20.50	4.39	141.60	76.2
32.800	260.00	0.0	0.0	884.40	457.00	890.62	0.0	890.75	11.63	3.77	257.62	134.0
32.800	260.00	0.0	0.0	884.40	570.00	891.75	0.0	891.82	5.87	3.02	445.10	235.1
32.800	260.00	0.0	0.0	884.40	820.00	893.81	0.0	893.83	1.66	1.91	1160.66	635.6
32.900	50.00	0.0	0.0	882.30	345.00	889.74	0.0	889.85	7.62	2.66	129.81	124.5
32.900	50.00	0.0	0.0	882.30	457.00	890.66	0.0	890.81	9.37	3.09	147.77	149.2
32.900	50.00	0.0	0.0	882.30	570.00	891.74	0.0	891.91	10.15	3.37	168.96	178.8
32.900	50.00	0.0	0.0	882.30	820.00	893.74	0.0	893.94	10.78	3.72	321.38	249.7
33.100	250.00	896.20	891.40	884.00	345.00	889.74	0.0	889.94	7.38	3.56	96.79	127.0
33.100	250.00	896.20	891.40	884.00	457.00	890.67	0.0	890.91	7.92	3.98	114.91	162.1
33.100	250.00	896.20	891.40	884.00	570.00	892.44	0.0	892.66	5.91	3.81	149.50	234.5
33.100	250.00	896.20	891.40	884.00	820.00	895.41	0.0	895.65	5.04	3.95	207.76	365.2
34.300	50.00	0.0	0.0	884.00	345.00	889.80	0.0	890.00	18.23	3.52	97.99	80.6
34.300	50.00	0.0	0.0	884.00	457.00	890.74	0.0	890.98	19.66	3.93	116.20	103.0
34.300	50.00	0.0	0.0	884.00	570.00	892.48	0.0	892.71	14.92	3.79	150.28	147.5
34.300	50.00	0.0	0.0	884.00	820.00	895.45	0.0	895.69	12.78	3.93	208.52	229.1
34.500	1300.00	0.0	0.0	886.80	345.00	891.52	0.0	891.54	8.16	2.22	398.10	120.6
34.500	1300.00	0.0	0.0	886.80	457.00	892.06	0.0	892.07	4.48	1.82	662.90	215.9
34.500	1300.00	0.0	0.0	886.80	570.00	893.10	0.0	893.10	1.16	1.08	1380.00	528.9
34.500	1300.00	0.0	0.0	886.80	820.00	895.75	0.0	895.75	0.09	0.39	5305.08	2788.2
35.000	1525.00	0.0	0.0	887.10	345.00	892.17	0.0	892.20	2.68	1.71	436.97	210.7
35.000	1525.00	0.0	0.0	887.10	457.00	892.56	0.0	892.58	2.64	1.79	604.65	281.2
35.000	1525.00	0.0	0.0	887.10	570.00	893.28	0.0	893.29	1.36	1.40	1144.46	489.1
35.000	1525.00	0.0	0.0	887.10	820.00	895.77	0.0	895.77	0.14	0.57	4061.48	2199.6

MOORE BUSINESS FORMS, INC. 23

WILLOW CK, CITY OF MASON

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
28.000	345.00	887.61	0.0	0.0	0.0	193.96	0.0
28.000	457.00	889.07	1.46	0.0	0.0	209.33	0.0
28.000	570.00	890.60	1.53	0.0	0.0	236.31	0.0
28.000	820.00	892.72	2.12	0.0	0.0	266.60	0.0
29.800	345.00	887.63	0.0	0.02	0.0	101.38	500.00
29.800	457.00	889.08	1.46	0.01	1.46	103.97	500.00
29.800	570.00	890.61	1.53	0.01	2.98	115.00	500.00
29.800	820.00	892.72	2.12	0.00	5.10	115.00	500.00
29.900	345.00	887.55	0.0	-0.08	0.0	15.00	50.00
29.900	457.00	888.97	1.42	-0.11	1.42	15.00	50.00
29.900	570.00	890.48	1.51	-0.13	2.93	15.00	50.00
29.900	820.00	892.73	2.25	0.00	5.18	860.91	50.00
30.100	345.00	887.63	0.0	0.08	0.0	15.00	66.50
30.100	457.00	889.23	1.60	0.25	1.60	15.00	66.50
30.100	570.00	891.04	1.82	0.56	3.41	15.00	66.50
30.100	820.00	893.41	2.37	0.68	5.78	901.46	66.50
30.300	345.00	887.70	0.0	0.07	0.0	15.00	50.00
30.300	457.00	889.29	1.59	0.06	1.59	15.00	50.00
30.300	570.00	891.11	1.82	0.06	3.41	40.00	50.00
30.300	820.00	893.33	2.22	-0.08	5.63	40.00	50.00
31.500	345.00	888.76	0.0	1.06	0.0	184.41	960.00
31.500	457.00	890.02	1.27	0.74	1.27	209.71	960.00
31.500	570.00	891.61	1.59	0.50	2.85	276.56	960.00
31.500	820.00	893.73	2.12	0.41	4.97	330.17	960.00
31.600	345.00	889.05	0.0	0.29	0.0	138.07	600.00
31.600	457.00	890.17	1.12	0.14	1.12	244.52	600.00
31.600	570.00	891.67	1.50	0.06	2.62	343.46	600.00
31.600	820.00	893.76	2.09	0.03	4.71	571.21	600.00
31.700	345.00	889.10	0.0	0.05	0.0	141.41	50.00
31.700	457.00	890.19	1.09	0.02	1.09	245.82	50.00
31.700	570.00	891.68	1.49	0.01	2.58	343.69	50.00
31.700	820.00	893.76	2.09	0.00	4.67	571.28	50.00
31.800	345.00	888.99	0.0	-0.11	0.0	131.45	15.00
31.800	457.00	890.46	1.47	0.26	1.47	279.13	15.00
31.800	570.00	891.68	1.22	-0.00	2.69	343.77	15.00
31.800	820.00	893.78	2.10	0.01	4.79	571.79	15.00
31.900	345.00	889.37	0.0	0.39	0.0	168.73	50.00
31.900	457.00	890.54	1.17	0.08	1.17	288.46	50.00
31.900	570.00	891.72	1.18	0.05	2.35	345.90	50.00
31.900	820.00	893.80	2.08	0.02	4.43	572.19	50.00
32.800	345.00	889.55	0.0	0.17	0.0	81.77	260.00
32.800	457.00	890.62	1.07	0.08	1.07	135.22	260.00
32.800	570.00	891.75	1.14	0.03	2.21	194.76	260.00
32.800	820.00	893.81	2.06	0.01	4.27	541.48	260.00

MOORE BUSINESS FORMS, INC. 2J

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
32.900	345.00	889.74	0.0	0.19	0.0	19.58	50.00
32.900	457.00	890.66	0.92	0.04	0.92	19.58	50.00
32.900	570.00	891.74	1.08	-0.02	2.00	19.58	50.00
32.900	820.00	893.74	2.00	-0.08	4.00	226.61	50.00
33.100	345.00	889.74	0.0	0.01	0.0	19.58	250.00
33.100	457.00	890.67	0.93	0.01	0.93	19.58	250.00
33.100	570.00	892.44	1.77	0.70	2.69	19.58	250.00
33.100	820.00	895.41	2.98	1.67	5.67	19.58	250.00
34.300	345.00	889.80	0.0	0.06	0.0	19.58	50.00
34.300	457.00	890.74	0.93	0.07	0.93	19.58	50.00
34.300	570.00	892.48	1.75	0.05	2.68	19.58	50.00
34.300	820.00	895.45	2.97	0.04	5.65	19.58	50.00
34.500	345.00	891.52	0.0	1.71	0.0	432.79	1300.00
34.500	457.00	892.06	0.54	1.32	0.54	523.34	1300.00
34.500	570.00	893.10	1.04	0.61	1.58	913.73	1300.00
34.500	820.00	895.75	2.66	0.30	4.23	1714.60	1300.00
35.000	345.00	892.17	0.0	0.65	0.0	368.19	1525.00
35.000	457.00	892.56	0.39	0.50	0.39	553.93	1525.00
35.000	570.00	893.28	0.72	0.18	1.11	943.20	1525.00
35.000	820.00	895.77	2.49	0.02	3.60	1361.71	1525.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR WILLOW CK. CITY OF MASON

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND¢ 10¢	2¢	0.2¢
28.000	0.	-2.99	-1.53	2.12
29.800	500.	-2.98	-1.53	2.12
29.900	550.	-2.93	-1.51	2.25
30.100	617.	-3.41	-1.82	2.37
30.300	667.	-3.41	-1.82	2.22
31.500	1627.	-2.85	-1.59	2.12
31.600	2227.	-2.62	-1.50	2.09
31.700	2277.	-2.58	-1.49	2.09
31.800	2292.	-2.69	-1.22	2.10
31.900	2342.	-2.35	-1.18	2.08
32.800	2602.	-2.21	-1.14	2.06
32.900	2652.	-2.00	-1.08	2.00
33.100	2902.	-2.69	-1.77	2.98
34.300	2952.	-2.68	-1.75	2.97
34.500	4252.	-1.58	-1.04	2.66
35.000	5777.	-1.11	-0.72	2.49
WEIGHTED AVG FOR REACH		-2.28	-1.33	2.43

FHF FOR THE REACH = 025 WITH 99.1¢ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A S

City of Mason Willow Creek Floodway Revised 5/

THIS RUN EXECUTED 05/20/81

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      NORMAL BACKWATER STARTING WSL KNOWN
T2      100 YR FLOOD NATURAL PROFILE
T3      WILLOW CK, CITY OF MASON

J1  ICHECK    INQ     NINV    IDIR    SIRT    METRIC  HVINS   Q       WSEL    FQ
        0.      4.      0.      0.  0.0         0.0     0.0     0.  890.600   0.0

J2  NPROF     IPLOT   PRFVS   XSECV   XSECH   FN      ALLDC   IBW     CHNIM   ITRACE
    1.000     0.0     -1.000  0.0     0.0     0.0     0.0     0.0     0.0     0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT
    38.000  1.000   42.000  41.000  40.000  53.000  27.000  21.000  22.000  28.000

    54.000  4.000   39.000  0.0     150.000 200.000 0.0     0.0     0.0     0.0

NC  0.060   0.080   0.040   0.100   0.300   0.0     0.0     0.0     0.0     0.0
ET  0.0     0.0     0.0     0.0     0.0     1.400   0.0     0.0     0.0     0.0
QT  6.000   345.000 457.000 570.000 820.000 570.000 681.000 0.0     0.0     0.0

X1  28.000  30.000  2000.000 2029.000 0.0     0.0     0.0     0.0     0.0     0.0
GR  896.700 1529.000 898.700 1596.000 898.600 1666.000 899.100 1776.000 896.300 1890.000
GR  891.200 1936.000 888.500 1978.000 884.900 1992.000 881.400 2000.000 880.100 2004.000
GR  878.700 2010.000 878.800 2011.000 878.900 2016.000 879.300 2021.000 879.600 2024.000
GR  881.400 2029.000 883.900 2031.000 883.900 2044.000 882.900 2056.000 884.700 2070.000
GR  883.200 2162.000 885.000 2170.000 892.700 2186.000 893.300 2197.000 892.600 2203.000
GR  893.000 2208.000 898.700 2225.000 899.000 2232.000 900.500 2266.000 902.400 2322.000
ET  0.0     7.100   7.100   7.100   7.100   7.100   1993.000 2108.000 0.0     0.0

X1  29.800  19.000  2000.000 2015.000 450.000 550.000 500.000 0.0     0.0     0.0
GR  903.700 1541.000 901.300 1660.000 900.000 1724.000 898.600 1804.000 899.000 1877.000
GR  887.000 1959.000 886.000 1993.000 884.800 1997.000 882.700 2000.000 882.000 2005.000
GR  881.900 2010.000 882.700 2015.000 885.000 2016.000 884.600 2089.000 889.100 2097.000
GR  890.800 2173.000 891.300 2309.000 891.800 2409.000 891.900 2534.000 0.0     0.0
NC  0.0     0.0     0.0     0.300   0.500   0.0     0.0     0.0     0.0     0.0

X1  29.900  27.000  2000.000 2015.000 50.000  50.000  50.000  0.0     0.0     0.0
X3  10.000  0.0     0.0     0.0     0.0     0.0     0.0     891.500 891.500 0.0
GR  908.000 1289.000 906.200 1358.000 903.800 1465.000 901.500 1571.000 897.700 1772.000
GR  895.800 1876.000 893.100 1928.000 891.000 1979.000 890.300 1999.000 890.300 2000.000
GR  881.900 2000.000 882.100 2003.000 882.100 2007.000 882.000 2010.000 882.200 2015.000
GR  890.300 2015.000 890.300 2016.000 890.200 2028.000 890.100 2077.000 892.000 2119.000
GR  891.300 2168.000 891.800 2347.000 891.800 2401.000 891.900 2549.000 891.900 2621.000
GR  892.500 2769.000 893.600 2909.000 0.0     0.0     0.0     0.0     0.0     0.0
NC  0.0     0.0     0.020   0.0     0.0     0.0     0.0     0.0     0.0     0.0
SB  0.0     1.750   3.000   0.0     14.500  0.0     102.000 0.0     881.900 882.000
```

X1	30.100	20.000	2000.000	2015.000	66.500	66.500	66.500	0.0	0.0	0.0
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	6.000	1889.000	895.100	0.0	2000.000	893.100	0.0	2000.000	893.100	889.000
BT	2015.000	893.100	889.100	2015.000	893.100	0.0	2119.000	892.000	0.0	0.0
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.100	1889.000	893.100	2000.000	882.400	2000.000	882.200	2007.000	882.100	2010.000
GR	882.000	2015.000	893.100	2015.000	892.000	2119.000	891.300	2168.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	7.100	1990.000	2030.000	0.0	0.0
X1	30.300	25.000	2000.000	2015.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.400	1887.000	891.500	1890.000	890.800	1999.000	890.800	2000.000	882.400	2000.000
GR	882.200	2007.000	882.100	2010.000	882.000	2015.000	890.300	2015.000	890.300	2016.000
GR	891.400	2080.000	890.100	2160.000	890.500	2237.000	891.900	2249.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	31.500	39.000	2000.000	2013.000	940.000	940.000	960.000	0.0	0.0	0.0
GR	905.200	1110.000	902.500	1184.000	902.800	1205.000	901.200	1268.000	898.400	1366.000
GR	896.500	1473.000	897.300	1494.000	895.200	1615.000	897.200	1733.000	896.800	1785.000
GR	894.800	1876.000	892.600	1886.000	888.200	1943.000	888.500	1987.000	884.100	2000.000
GR	882.600	2005.000	882.900	2009.000	884.200	2013.000	887.200	2023.000	886.100	2052.000
GR	885.900	2065.000	887.600	2112.000	890.300	2131.000	890.500	2157.000	896.900	2264.000
GR	898.200	2363.000	899.200	2461.000	898.700	2509.000	900.800	2611.000	901.200	2708.000
GR	902.000	2749.000	900.500	2779.000	900.300	2894.000	901.700	3012.000	902.500	3117.000
GR	903.100	3216.000	904.100	3319.000	904.000	3428.000	904.900	3553.000	0.0	0.0
X1	31.600	18.000	2000.000	2015.000	600.000	600.000	600.000	0.0	0.0	0.0
GR	901.200	1268.000	898.400	1366.000	896.500	1473.000	897.300	1494.000	895.200	1615.000
GR	893.100	1652.000	892.900	1799.000	890.700	1860.000	888.500	1987.000	885.000	2000.000
GR	882.600	2005.000	882.900	2010.000	886.000	2015.000	887.200	2023.000	890.300	2140.000
GR	890.500	2157.000	896.900	2264.000	898.200	2368.000	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	31.700	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.020	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	1.550	3.000	0.0	12.800	0.0	91.000	0.0	882.600	882.600
X1	31.800	0.0	0.0	0.0	15.000	15.000	15.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	18.000	1268.000	901.200	0.0	1366.000	898.400	0.0	1473.000	896.500	0.0
BT	1494.000	897.300	0.0	1615.000	895.200	0.0	1652.000	893.100	0.0	1799.000
BT	892.900	0.0	1860.000	890.700	0.0	1987.000	890.200	888.500	2000.000	890.200
BT	885.000	2000.000	890.200	889.700	2015.000	890.200	889.700	2015.000	890.200	886.000
BT	2023.000	890.200	887.200	2140.000	890.300	0.0	2157.000	890.500	0.0	2264.000
BT	896.900	0.0	2368.000	898.200	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	31.900	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	32.800	21.000	2000.000	2011.000	260.000	260.000	260.000	0.0	0.0	0.0
GR	908.400	1075.000	907.000	1127.000	902.900	1217.000	897.900	1319.000	896.300	1426.000
GR	894.100	1540.000	893.100	1652.000	892.900	1799.000	891.700	1898.000	889.100	1996.000
GR	885.500	2000.000	884.700	2003.000	884.500	2004.000	884.400	2007.000	884.800	2011.000
GR	886.300	2011.000	886.400	2014.000	888.300	2032.000	888.300	2046.000	894.400	2121.000
GR	896.000	2244.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MOORE BUSINESS FORMS, INC. 23

NC	0.0	0.0	0.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.0
X1	32.900	30.000	2000.000	2022.000	50.000	50.000	50.000	0.890	0.0	0.0
GR	906.200	955.000	904.400	1071.000	902.500	1191.000	900.900	1299.000	899.700	1409.000
GR	898.600	1578.000	898.500	1654.000	897.200	1774.000	896.600	1876.000	896.200	2000.000
GR	885.400	2000.000	884.100	2002.000	882.300	2003.000	882.600	2004.000	882.800	2010.000
GR	882.900	2012.000	882.800	2017.000	883.300	2020.000	884.600	2022.000	896.200	2022.000
GR	892.600	2107.000	893.800	2213.000	895.600	2349.000	896.300	2405.000	892.700	2492.000
GR	894.400	2623.000	896.500	2848.000	898.400	2871.000	899.300	2993.000	900.300	3123.000
NC	0.0	0.0	0.025	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	1.050	2.640	3.000	0.0	17.000	0.890	120.000	0.0	884.000	882.300
X1	33.100	14.000	2000.000	2022.000	250.000	250.000	250.000	0.890	0.0	0.0
X2	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.890	0.0
BT	10.000	1802.000	896.700	0.0	2000.000	896.200	885.400	2000.000	896.200	891.400
BT	2010.000	896.200	891.400	2010.000	896.200	885.000	2011.000	896.200	885.000	2011.000
BT	896.200	891.400	2022.000	896.200	891.400	2022.000	896.200	885.400	2404.000	896.900
BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	896.700	1802.000	896.200	2000.000	885.400	2000.000	884.700	2002.000	885.400	2004.000
GR	884.400	2006.000	884.400	2008.000	885.000	2010.000	885.000	2011.000	885.000	2016.000
GR	884.000	2020.000	885.400	2022.000	896.200	2022.000	896.900	2404.000	0.0	0.0
NC	0.0	0.0	0.040	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	34.300	0.0	0.0	0.0	50.000	50.000	50.000	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0
X1	34.500	35.000	2000.000	2010.000	1350.000	1250.000	1300.000	0.0	0.0	0.0
GR	909.900	492.000	907.800	650.000	903.700	764.000	900.600	878.000	898.200	1010.000
GR	896.500	1132.000	895.000	1263.000	893.800	1376.000	892.200	1498.000	892.900	1585.000
GR	892.300	1704.000	891.000	1775.000	891.600	1848.000	890.600	1878.000	889.900	1956.000
GR	889.900	1996.000	886.800	2000.000	889.400	2005.000	887.000	2009.000	887.500	2010.000
GR	888.500	2021.000	891.800	2030.000	890.300	2165.000	893.200	2289.000	893.700	2444.000
GR	893.000	2481.000	893.400	2506.000	893.300	2626.000	893.000	2755.000	895.800	2915.000
GR	897.200	3040.000	899.500	3163.000	900.900	3284.000	901.400	3417.000	903.000	3536.000
X1	35.000	38.000	2000.000	2020.000	1500.000	1500.000	1525.000	0.0	0.0	0.0
GR	905.100	486.000	903.300	614.000	903.400	693.000	902.000	764.000	900.200	855.000
GR	898.600	990.000	896.900	1172.000	895.800	1285.000	894.700	1400.000	893.200	1627.000
GR	892.500	1658.000	891.700	1776.000	891.100	1890.000	892.000	1910.000	888.000	2000.000
GR	887.400	2005.000	887.100	2010.000	887.200	2015.000	888.000	2020.000	889.100	2023.000
GR	891.600	2027.000	893.500	2032.000	892.400	2038.000	892.600	2147.000	892.900	2263.000
GR	893.300	2392.000	891.800	2520.000	895.800	2651.000	896.700	2752.000	897.800	2855.000
GR	898.000	3003.000	897.500	3099.000	900.200	3130.000	897.800	3155.000	899.600	3166.000
GR	898.500	3275.000	898.200	3384.000	901.200	3500.000	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

```
*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 28.000
   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

    28.00     11.90    890.60      0.0     890.60    890.60      0.00      0.0       0.0     881.40
     570.       41.      251.      277.      149.      319.      981.       0.        0.     881.40
      0.0      0.28      0.79      0.28     0.060     0.040     0.080      0.0     878.70   1945.33
 0.000019        0.        0.        0.         0         0         0      0.0     236.31   2181.64

*SECNO 29.800

3470 ENCROACHMENT STATIONS=     1993.0     2108.0  TYPE=      1  TARGET=      115.000
    29.80      8.71    890.61      0.0       0.0    890.63      0.02      0.02      0.01     882.70
     570.       29.      224.      317.       41.      126.      476.       13.        2.     882.70
     0.13      0.71      1.78      0.66     0.060     0.040     0.080     0.038    881.90   1993.00
 0.000135      450.      500.      550.         0         0         0      0.0     115.00   2108.00

CCHV=   0.300 CEHV=   0.500
*SECNO 29.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       891.50 ELREA=       891.50

    29.90      8.58    890.48      0.0       0.0    890.80      0.32      0.02      0.15     890.30
     570.        0.      570.        0.        0.      126.        0.       13.        2.     890.30
     0.13      0.0      4.52      0.0     0.060     0.040     0.080     0.038    881.90   2000.00
 0.002346       50.       50.       50.         2         0         0      0.0      15.00   2015.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.0       1.75      3.00       0.0      14.50      0.0     102.00      0.0      881.90    882.00

*SECNO 30.100
PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR      QPR       BAREA    TRAPEZCID      ELLC      ELTRD
                                                                  AREA
   891.33    890.80     0.0         0.       570.      102.      104.      889.10     892.00

    30.10      9.04    891.04      0.0       0.0    891.33      0.29      0.53      0.0     893.10
     570.        0.      570.        0.        0.      133.        0.       13.        2.     893.10
     0.14      0.0      4.29      0.0     0.060     0.020     0.080     0.036    882.00   2000.00
 0.000514       67.       67.       67.         2         0         0      0.0      15.00   2015.00

*SECNO 30.300
   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
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3470 ENCROACHMENT STATIONS= 1990.0 2030.0 TYPE= 1 TARGET= 40.000

30.30	9.11	891.11	0.0	0.0	891.38	0.27	0.04	0.00	890.80
570.	1.	562.	6.	3.	134.	10.	14.	2.	890.30
0.14	0.46	4.20	0.62	0.060	0.040	0.080	0.037	882.00	1990.00
0.001872	50.	50.	50.	0	0	0	0.0	40.00	2030.00

CCHV= 0.100 CEHV= 0.300

*SECNO 31.500

31.50	9.01	891.61	0.0	0.0	891.62	0.01	0.22	0.03	884.10
570.	142.	150.	278.	287.	109.	596.	26.	6.	884.20
0.51	0.49	1.38	0.47	0.060	0.040	0.080	0.039	882.60	1898.90
0.000085	940.	960.	940.	2	0	0	0.0	276.56	2175.46

*SECNO 31.600

31.60	9.07	891.67	0.0	0.0	891.69	0.02	0.06	0.00	885.00
570.	182.	200.	188.	340.	120.	415.	39.	10.	886.00
0.70	0.53	1.67	0.45	0.060	0.040	0.080	0.039	882.60	1833.10
0.000142	600.	600.	600.	2	0	0	0.0	343.46	2176.56

CCHV= 0.300 CEHV= 0.500

*SECNO 31.700

31.70	9.08	891.68	0.0	0.0	891.69	0.02	0.01	0.00	885.00
570.	182.	200.	188.	341.	120.	416.	40.	10.	886.00
0.71	0.53	1.66	0.45	0.060	0.040	0.080	0.039	882.60	1832.96
0.000141	50.	50.	50.	0	0	0	0.0	343.69	2176.65

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.55	3.00	0.0	12.80	0.0	91.00	0.0	882.60	882.60

*SECNO 31.800

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
892.62	891.69	0.0	438.	131.	91.	91.	889.70	890.20

31.80	9.08	891.68	0.0	0.0	891.73	0.05	0.03	0.0	885.00
570.	135.	296.	139.	341.	120.	416.	40.	10.	886.00
0.72	0.40	2.46	0.33	0.060	0.020	0.080	0.039	882.60	1832.91
0.000077	15.	15.	15.	2	0	7	0.0	343.77	2176.68

*SECNO 31.900

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

31.90	9.12	891.72	0.0	0.0	891.74	0.02	0.01	0.01	885.00
570.	184.	197.	189.	349.	121.	424.	41.	11.	886.00
0.73	0.53	1.63	0.45	0.060	0.040	0.080	0.039	882.60	1831.58
0.000135	50.	50.	50.	2	0	0	0.0	345.90	2177.48

CCHV= 0.100 CEHV= 0.300

*SECNO 32.800

32.80	7.35	891.75	0.0	0.0	891.82	0.07	0.06	0.01	885.50
570.	121.	234.	215.	150.	78.	217.	45.	12.	886.30
0.77	0.80	3.02	0.99	0.060	0.040	0.080	0.039	884.40	1893.69
0.000587	260.	260.	260.	0	0	0	0.0	194.76	2088.45

CCHV= 0.300 CEHV= 0.500

*SECNO 32.900

32.90	9.44	891.74	0.0	0.0	891.91	0.18	0.04	0.06	896.20
570.	0.	570.	0.	0.	169.	0.	45.	13.	896.20
0.78	0.0	3.37	0.0	0.060	0.040	0.080	0.039	882.30	1885.05
0.001015	50.	50.	50.	2	0	0	0.0	19.58	1904.63

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	2.64	3.00	0.0	17.00	0.89	120.00	0.0	884.00	882.30

*SECNO 33.100

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRD
892.66	892.02	0.01	0.	570.	120.	119.	891.40	896.20

33.10	8.44	892.44	0.0	0.0	892.66	0.23	0.75	0.0	896.20
570.	0.	570.	0.	0.	149.	0.	46.	13.	896.20
0.79	0.0	3.81	0.0	0.060	0.025	0.080	0.038	884.00	1978.22
0.000591	250.	250.	250.	2	0	0	0.0	19.58	1997.80

*SECNO 34.300

34.30	8.48	892.48	0.0	0.0	892.71	0.22	0.04	0.00	896.20
570.	0.	570.	0.	0.	150.	0.	46.	13.	896.20
0.80	0.0	3.79	0.0	0.060	0.040	0.080	0.038	884.00	1978.22
0.001492	50.	50.	50.	0	0	0	0.0	19.58	1997.80

CCHV= 0.100 CEHV= 0.300

*SECNO 34.500

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

34.50	6.30	893.10	0.0	0.0	893.10	0.00	0.37	0.02	886.80
570.	341.	54.	175.	800.	50.	529.	69.	27.	887.50
1.59	0.43	1.08	0.33	0.060	0.040	0.080	0.038	886.80	1429.57
0.000116	1350.	1300.	1250.	3	0	0	0.0	913.73	2760.57

*SECNO 35.000

3265 DIVIDED FLOW

35.00	6.18	893.28	0.0	0.0	893.29	0.01	0.19	0.00	888.00
570.	343.	164.	63.	697.	117.	330.	113.	59.	888.00
2.17	0.49	1.40	0.19	0.060	0.040	0.080	0.039	887.10	1614.99
0.000136	1500.	1525.	1500.	3	0	0	0.0	943.20	2568.44

THIS RUN EXECUTED : 05/20/81

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       6.        0.        0.  0.0           0.0       0.0       0.   890.600      0.0
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     15,000     0.0       -1.000    0.0       0.0       0.0       0.0       0.0       0.0       0.0

*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO 28.000
 2800 NAT Q1=   1305.49  WSEL=    890.60  ENC Q1=   1305.49  WSEL=    890.70  RATIO=   0.0
  NAT Q1=   1334.  RATIOS LOB,CH,ROB=  0.0738  0.4381  0.4881  WSEL=    890.70
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       ARCB      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=    1978.8    2171.8  TYPE=      4  TARGET=       0.021
    28.00     11.90   890.60      0.0   890.60   890.61     0.01      0.0       0.0   881.40
      570.       37.      256.      278.      112.      319.      958.       0.        0.   881.40
      0.0      0.32     0.80      0.29     0.060     0.040     0.080     0.0    878.70  1978.80
 0.000020        0.        0.        0.         0         0         0     0.0    193.01  2171.81

*SECNO 29.800

3470 ENCROACHMENT STATIONS=    1993.0    2108.0  TYPE=      1  TARGET=     115.000
    29.80      8.71   890.61      0.0   890.61   890.63     0.02      0.02      0.01   882.70
      570.       29.      224.      317.       41.      126.      476.       12.        2.   882.70
     0.13      0.71     1.78      0.66     0.060     0.040     0.080     0.038  881.90  1993.00
 0.000135       450.      500.      550.         0         0         0     0.0    115.00  2108.00

CCHV=   0.300 CEHV=   0.500
*SECNO 29.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      891.50 ELREA=      891.50

    29.90      8.58   890.48      0.0   890.48   890.80     0.32      0.02      0.15   890.30
      570.        0.      570.        0.        0.      126.        0.       13.        2.   890.30
     0.13      0.0      4.52      0.0      0.060     0.040     0.080     0.038  881.90  2000.00
 0.002345       50.       50.       50.         2         0         0     0.0     15.00  2015.00
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SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.75	3.00	0.0	14.50	0.0	102.00	0.0	881.90	882.00

*SECNO 30.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
891.33	890.81	0.0	0.	570.	102.	104.	889.10	892.00

30.10	9.04	891.04	0.0	891.04	891.33	0.29	0.53	0.0	893.10
570.	0.	570.	0.	0.	133.	0.	13.	2.	893.10
0.14	0.0	4.29	0.0	0.060	0.020	0.080	0.036	882.00	2000.00
0.000514	67.	67.	67.	2	0	0	0.0	15.00	2015.00

*SECNO 30.300

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

3470 ENCROACHMENT STATIONS= 1990.0 2030.0 TYPE= 1 TARGET= 40.000

30.30	9.11	891.11	0.0	891.11	891.38	0.27	0.04	0.00	890.80
570.	1.	562.	7.	3.	134.	11.	13.	2.	890.30
0.14	0.46	4.20	0.62	0.060	0.040	0.080	0.037	882.00	1990.00
0.001871	50.	50.	50.	0	0	0	0.0	40.00	2030.00

CCHV= 0.100 CEHV= 0.300

*SECNO 31.500
2800 NAT Q1= 619.86 WSEL= 891.61 ENC Q1= 619.86 WSEL= 891.71 RATIO= 0.0000
NAT Q1= 644. RATIOS LOB,CH,ROB= 0.2527 0.2590 0.4884 WSEL= 891.71

3470 ENCROACHMENT STATIONS= 1931.4 2127.5 TYPE= 4 TARGET= 0.037

31.50	9.02	891.62	0.0	891.61	891.63	0.01	0.23	0.03	884.10
570.	137.	155.	278.	247.	109.	550.	25.	5.	884.20
0.49	0.55	1.42	0.51	0.060	0.040	0.080	0.039	882.60	1931.43
0.000090	940.	960.	940.	2	0	0	0.0	196.07	2127.50

*SECNO 31.600
2800 NAT Q1= 478.28 WSEL= 891.67 ENC Q1= 478.28 WSEL= 891.77 RATIO= 0.0
NAT Q1= 502. RATIOS LOB,CH,ROB= 0.3254 0.3416 0.3330 WSEL= 891.77

3470 ENCROACHMENT STATIONS= 1888.7 2127.7 TYPE= 4 TARGET= 0.047

31.60	9.08	891.68	0.0	891.67	891.70	0.02	0.07	0.00	885.00
570.	178.	208.	184.	294.	120.	365.	36.	8.	886.00
0.66	0.61	1.73	0.50	0.060	0.040	0.080	0.039	882.60	1888.67
0.000153	600.	600.	600.	0	0	0	0.0	239.03	2127.70

CCHV= 0.300 CEHV= 0.500

*SECNO 31.700
2800 NAT Q1= 479.50 WSEL= 891.68 ENC Q1= 479.50 WSEL= 891.78 RATIO= 0.0000
NAT Q1= 503. RATIOS LOB,CH,ROB= 0.3259 0.3410 0.3332 WSEL= 891.78

3470 ENCROACHMENT STATIONS= 1888.9 2127.4 TYPE= 4 TARGET= 0.047

31.70	9.09	891.69	0.0	891.68	891.71	0.02	0.01	0.00	885.00
570.	178.	208.	184.	294.	120.	365.	37.	8.	886.00
0.67	0.61	1.73	0.50	0.060	0.040	0.080	0.039	882.60	1888.87
0.000152	50.	50.	50.	0	0	0	0.0	238.49	2127.36

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.55	3.00	0.0	12.80	0.0	91.00	0.0	882.60	882.60

*SECNO 31.800
2800 NAT Q1= 648.01 WSEL= 891.68 ENC Q1= 648.01 WSEL= 891.78 RATIO= 0.0
NAT Q1= 675. RATIOS LOB,CH,ROB= 0.2430 0.5086 0.2485 WSEL= 891.78
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 1892.0 2123.7 TYPE= 4 TARGET= 0.040

31.80	9.09	891.69	0.0	891.68	891.75	0.06	0.00	0.02	885.00	
570.	130.	306.	134.	289.	120.	359.	37.	8.	886.00	
0.67	0.45	2.54	0.37	0.060	0.020	0.080	0.039	882.60	1891.97	
0.000082	15.	15.	15.	0	0	7	0.0	231.71	2123.69	

*SECNO 31.900
2800 NAT Q1= 491.08 WSEL= 891.72 ENC Q1= 491.08 WSEL= 891.82 RATIO= 0.0
NAT Q1= 515. RATIOS LOB,CH,ROB= 0.3289 0.3366 0.3345 WSEL= 891.82

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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1886.5 2129.7 TYPE= 4 TARGET= 0.046

31.90	9.14	891.74	0.0	891.72	891.76	0.02	0.01	0.01	885.00
570.	180.	205.	185.	304.	121.	375.	38.	8.	886.00
0.69	0.59	1.69	0.49	0.060	0.040	0.080	0.039	882.60	1886.47
0.000144	50.	50.	50.	2	0	0	0.0	243.24	2129.71

CCHV= 0.100 CEHV= 0.300
*SECNO 32.800
2800 NAT Q1= 235.30 WSEL= 891.75 ENC Q1= 235.30 WSEL= 891.85 RATIO= 0.0000
NAT Q1= 248. RATIOS LOB,CH,ROB= 0.2241 0.3999 0.3760 WSEL= 891.85

3470 ENCROACHMENT STATIONS= 1950.9 2060.3 TYPE= 4 TARGET= 0.050

32.80	7.37	891.77	0.0	891.75	891.85	0.08	0.07	0.02	885.50
570.	117.	243.	210.	111.	78.	186.	42.	9.	886.30
0.73	1.05	3.12	1.13	0.060	0.040	0.080	0.039	884.40	1950.95
0.000627	260.	260.	260.	2	0	0	0.0	109.34	2060.28

CCHV= 0.300 CEHV= 0.500
*SECNO 32.900
2800 NAT Q1= 178.89 WSEL= 891.74 ENC Q1= 181.66 WSEL= 891.84 RATIO= -0.0155
NAT Q1= 182. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 891.84

3470 ENCROACHMENT STATIONS= 1885.0 1904.6 TYPE= 4 TARGET= 0.0

32.90	9.46	891.76	0.0	891.74	891.94	0.18	0.04	0.05	896.20
570.	0.	570.	0.	0.	169.	0.	42.	9.	896.20
0.73	0.0	3.36	0.0	0.060	0.040	0.080	0.039	882.30	1885.05
0.001008	50.	50.	50.	2	0	0	0.0	19.58	1904.63

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	2.64	3.00	0.0	17.00	0.89	120.00	0.0	884.00	882.30

*SECNO 33.100

CLASS A LOW FLOW

3420 BRIDGE W.S.= 892.59 BRIDGE VELOCITY= 3.75 CALCULATED CHANNEL AREA= 138.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZCID AREA	ELLC	ELTRD
892.69	892.76	0.01	0.	570.	120.	119.	891.40	896.20

33.10	8.54	892.54	0.0	892.44	892.76	0.22	0.82	0.0	896.20
570.	0.	570.	0.	0.	151.	0.	43.	9.	896.20
0.75	0.0	3.76	0.0	0.060	0.025	0.080	0.038	884.00	1978.22
0.000571	250.	250.	250.	0	0	0	0.0	19.58	1997.80

*SECNO 34.300

2800 NAT Q1= 147.55 WSEL= 892.48 ENC Q1= 150.39 WSEL= 892.58 RATIO= -0.0193

NAT Q1= 150. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 892.58

3470 ENCROACHMENT STATIONS= 1978.2 1997.8 TYPE= 4 TARGET= 0.0

34.30	8.58	892.58	0.0	892.48	892.80	0.22	0.04	0.00	896.20
570.	0.	570.	0.	0.	152.	0.	43.	9.	896.20
0.75	0.0	3.74	0.0	0.060	0.040	0.080	0.038	884.00	1978.22
0.001435	50.	50.	50.	0	0	0	0.0	19.58	1997.80

CCHV= 0.100 CEHV= 0.300

*SECNO 34.500

2800 NAT Q1= 528.92 WSEL= 893.10 ENC Q1= 528.92 WSEL= 893.20 RATIO= 0.0

NAT Q1= 571. RATIOS LOB,CH,ROB= 0.6028 0.0913 0.3059 WSEL= 893.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	IWA	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= 1654.3 2191.1 TYPE= 4 TARGET= 0.073

34.50	6.39	893.19	0.0	893.10	893.19	0.00	0.37	0.02	886.80
570.	348.	56.	166.	727.	51.	440.	64.	18.	887.50
1.46	0.48	1.10	0.38	0.060	0.040	0.080	0.038	886.80	1654.26
0.000117	1350.	1300.	1250.	3	0	0	0.0	536.85	2191.11

*SECNO 35.000

2800 NAT Q1= 489.31 WSEL= 893.28 ENC Q1= 489.31 WSEL= 893.38 RATIO= 0.0

NAT Q1= 528. RATIOS LOB,CH,ROB= 0.6018 0.2741 0.1241 WSEL= 893.38

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1717.9 2464.4 TYPE= 4 TARGET= 0.074

35.00	6.27	893.37	0.0	893.28	893.39	0.01	0.19	0.00	888.00
570.	348.	170.	52.	648.	119.	267.	103.	40.	888.00
2.01	0.54	1.43	0.20	0.060	0.040	0.080	0.039	887.10	1717.85
0.000139	1500.	1525.	1500.	0	0	0	0.0	745.43	2464.39

THIS RUN EXECUTED 05/20/81

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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

WILLOW CK, CITY OF MASON

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
28.000	890.60	878.70	0.0	0.0	1945.33	0.0	2000.00	2029.00	0.0	2181.64	236.31	0.0
28.000	890.60	878.70	0.0	0.0	1978.80	1978.80	2000.00	2029.00	2171.81	2171.81	193.01	0.0
29.800	890.61	881.90	0.0	0.0	1993.00	1993.00	2000.00	2015.00	2108.00	2108.00	115.00	500.0
29.800	890.61	881.90	0.0	0.0	1993.00	1993.00	2000.00	2015.00	2108.00	2108.00	115.00	500.0
29.900	890.48	881.90	0.0	0.0	2000.00	0.0	2000.00	2015.00	0.0	2015.00	15.00	50.0
29.900	890.48	881.90	0.0	0.0	2000.00	0.0	2000.00	2015.00	0.0	2015.00	15.00	50.0
30.100	891.04	882.00	889.10	892.00	2000.00	0.0	2000.00	2015.00	0.0	2015.00	15.00	66.5
30.100	891.04	882.00	889.10	892.00	2000.00	0.0	2000.00	2015.00	0.0	2015.00	15.00	66.5
30.300	891.11	882.00	0.0	0.0	1990.00	1990.00	2000.00	2015.00	2030.00	2030.00	40.00	50.0
30.300	891.11	882.00	0.0	0.0	1990.00	1990.00	2000.00	2015.00	2030.00	2030.00	40.00	50.0
31.500	891.61	882.60	0.0	0.0	1898.90	0.0	2000.00	2013.00	0.0	2175.46	276.56	960.0
31.500	891.62	882.60	0.0	0.0	1931.43	1931.43	2000.00	2013.00	2127.50	2127.50	196.07	960.0
31.600	891.67	882.60	0.0	0.0	1833.10	0.0	2000.00	2015.00	0.0	2176.56	343.46	600.0
31.600	891.68	882.60	0.0	0.0	1888.67	1888.67	2000.00	2015.00	2127.70	2127.70	239.03	600.0
31.700	891.68	882.60	0.0	0.0	1832.96	0.0	2000.00	2015.00	0.0	2176.65	343.69	50.0
31.700	891.69	882.60	0.0	0.0	1888.87	1888.87	2000.00	2015.00	2127.36	2127.36	238.49	50.0
31.800	891.68	882.60	889.70	890.20	1832.91	0.0	2000.00	2015.00	0.0	2176.68	343.77	15.0
31.800	891.69	882.60	0.0	999999.00	1891.97	1891.98	2000.00	2015.00	2123.69	2123.69	231.71	15.0
31.900	891.72	882.60	0.0	0.0	1831.58	0.0	2000.00	2015.00	0.0	2177.48	345.90	50.0
31.900	891.74	882.60	0.0	0.0	1886.47	1886.47	2000.00	2015.00	2129.71	2129.71	243.24	50.0
32.800	891.75	884.40	0.0	0.0	1893.69	0.0	2000.00	2011.00	0.0	2088.45	194.76	260.0
32.800	891.77	884.40	0.0	0.0	1950.95	1950.95	2000.00	2011.00	2060.29	2060.28	109.34	260.0
32.900	891.74	882.30	0.0	0.0	1885.05	0.0	1885.05	1904.63	0.0	1904.63	19.58	50.0
32.900	891.76	882.30	0.0	0.0	1885.05	1885.05	1885.05	1904.63	1904.63	1904.63	19.58	50.0
33.100	892.44	884.00	891.40	896.20	1978.22	0.0	1978.22	1997.80	0.0	1997.80	19.58	250.0
33.100	892.54	884.00	891.40	896.20	1978.22	0.0	1978.22	1997.80	0.0	1997.80	19.58	250.0

SECND	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
34.300	892.48	884.00	0.0	0.0	1978.22	0.0	1978.22	1997.80	0.0	1997.80	19.58	50.0
34.300	892.58	884.00	0.0	0.0	1978.22	1978.22	1978.22	1997.80	1997.80	1997.80	19.58	50.0
34.500	893.10	886.80	0.0	0.0	1429.57	0.0	2000.00	2010.00	0.0	2760.57	913.73	1300.0
34.500	893.19	886.80	0.0	0.0	1654.26	1654.26	2000.00	2010.00	2191.11	2191.11	536.85	1300.0
35.000	893.28	887.10	0.0	0.0	1614.99	0.0	2000.00	2020.00	0.0	2568.44	943.20	1525.0
35.000	893.37	887.10	0.0	0.0	1717.85	1717.85	2000.00	2020.00	2464.40	2464.39	745.43	1525.0

WILLOW CK, CITY OF MASON

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
28.000	0.0	0.0	0.0	878.70	570.00	890.60	0.0	890.60	0.19	0.79	1448.16	1305.4
28.000	0.0	0.0	0.0	878.70	570.00	890.60	0.0	890.61	0.20	0.80	1388.85	1283.9
29.800	500.00	0.0	0.0	881.90	570.00	890.61	0.0	890.63	1.35	1.78	643.75	490.7
29.800	500.00	0.0	0.0	881.90	570.00	890.61	0.0	890.63	1.35	1.78	643.78	490.7
29.900	50.00	0.0	0.0	881.90	570.00	890.48	0.0	890.80	23.46	4.52	126.13	117.6
29.900	50.00	0.0	0.0	881.90	570.00	890.48	0.0	890.80	23.45	4.52	126.14	117.7
30.100	66.50	892.00	889.10	882.00	570.00	891.04	0.0	891.33	5.14	4.29	132.82	251.3
30.100	66.50	892.00	889.10	882.00	570.00	891.04	0.0	891.33	5.14	4.29	132.83	251.3
30.300	50.00	0.0	0.0	882.00	570.00	891.11	0.0	891.38	18.72	4.20	147.25	131.7
30.300	50.00	0.0	0.0	882.00	570.00	891.11	0.0	891.38	18.71	4.20	147.27	131.7
31.500	960.00	0.0	0.0	882.60	570.00	891.61	0.0	891.62	0.85	1.38	991.76	619.8
31.500	960.00	0.0	0.0	882.60	570.00	891.62	0.0	891.63	0.90	1.42	906.69	601.4
31.600	600.00	0.0	0.0	882.60	570.00	891.67	0.0	891.69	1.42	1.67	875.19	478.2
31.600	600.00	0.0	0.0	882.60	570.00	891.68	0.0	891.70	1.53	1.73	779.22	461.4
31.700	50.00	0.0	0.0	882.60	570.00	891.68	0.0	891.69	1.41	1.66	877.00	479.5
31.700	50.00	0.0	0.0	882.60	570.00	891.69	0.0	891.71	1.52	1.73	779.45	462.1
31.800	15.00	890.20	889.70	882.60	570.00	891.68	0.0	891.73	0.77	2.46	877.56	648.0
31.800	15.00	999999.00	0.0	882.60	570.00	891.69	0.0	891.75	0.82	2.54	768.33	628.1
31.900	50.00	0.0	0.0	882.60	570.00	891.72	0.0	891.74	1.35	1.63	894.10	491.0
31.900	50.00	0.0	0.0	882.60	570.00	891.74	0.0	891.76	1.44	1.69	799.84	474.4
32.800	260.00	0.0	0.0	884.40	570.00	891.75	0.0	891.82	5.87	3.02	445.10	235.3
32.800	260.00	0.0	0.0	884.40	570.00	891.77	0.0	891.85	6.27	3.12	375.00	227.6
32.900	50.00	0.0	0.0	882.30	570.00	891.74	0.0	891.91	10.15	3.37	168.96	178.8
32.900	50.00	0.0	0.0	882.30	570.00	891.76	0.0	891.94	10.08	3.36	169.45	179.5
33.100	250.00	896.20	891.40	884.00	570.00	892.44	0.0	892.66	5.91	3.81	149.50	234.4
33.100	250.00	896.20	891.40	884.00	570.00	892.54	0.0	892.76	5.71	3.76	151.45	238.6
34.300	50.00	0.0	0.0	884.00	570.00	892.48	0.0	892.71	14.92	3.79	150.28	147.5
34.300	50.00	0.0	0.0	884.00	570.00	892.58	0.0	892.80	14.35	3.74	152.43	150.7
34.500	1300.00	0.0	0.0	886.80	570.00	893.10	0.0	893.10	1.16	1.08	1380.00	528.9
34.500	1300.00	0.0	0.0	886.80	570.00	893.19	0.0	893.19	1.17	1.10	1218.70	526.2
35.000	1525.00	0.0	0.0	887.10	570.00	893.28	0.0	893.29	1.36	1.40	1144.46	489.2
35.000	1525.00	0.0	0.0	887.10	570.00	893.37	0.0	893.39	1.39	1.43	1034.22	483.1

WILLOW CK, CITY OF MASON

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
28.000	570.00	890.60	0.0	0.0	0.0	236.31	0.0
28.000	570.00	890.60	0.0	0.0	0.0	193.01	0.0
29.800	570.00	890.61	0.0	0.01	0.0	115.00	500.00
29.800	570.00	890.61	0.00	0.01	0.00	115.00	500.00
29.900	570.00	890.48	0.0	-0.13	0.0	15.00	50.00
29.900	570.00	890.48	0.00	-0.13	0.00	15.00	50.00
30.100	570.00	891.04	0.0	0.56	0.0	15.00	66.50
30.100	570.00	891.04	0.00	0.56	0.00	15.00	66.50
30.300	570.00	891.11	0.0	0.06	0.0	40.00	50.00
30.300	570.00	891.11	0.00	0.06	0.00	40.00	50.00
31.500	570.00	891.61	0.0	0.50	0.0	276.56	960.00
31.500	570.00	891.62	0.01	0.51	0.01	196.07	960.00
31.600	570.00	891.67	0.0	0.06	0.0	343.46	600.00
31.600	570.00	891.68	0.01	0.06	0.01	239.03	600.00
31.700	570.00	891.68	0.0	0.01	0.0	343.69	50.00
31.700	570.00	891.69	0.01	0.01	0.01	238.49	50.00
31.800	570.00	891.68	0.0	-0.00	0.0	343.77	15.00
31.800	570.00	891.69	0.01	-0.00	0.01	231.71	15.00
31.900	570.00	891.72	0.0	0.05	0.0	345.90	50.00
31.900	570.00	891.74	0.02	0.05	0.02	243.24	50.00
32.800	570.00	891.75	0.0	0.03	0.0	194.76	260.00
32.800	570.00	891.77	0.02	0.03	0.02	109.34	260.00
32.900	570.00	891.74	0.0	-0.02	0.0	19.58	50.00
32.900	570.00	891.76	0.02	-0.01	0.02	19.58	50.00
33.100	570.00	892.44	0.0	0.70	0.0	19.58	250.00
33.100	570.00	892.54	0.10	0.77	0.10	19.58	250.00
34.300	570.00	892.48	0.0	0.05	0.0	19.58	50.00
34.300	570.00	892.58	0.10	0.05	0.10	19.58	50.00
34.500	570.00	893.10	0.0	0.61	0.0	913.73	1300.00
34.500	570.00	893.19	0.09	0.61	0.09	536.85	1300.00
35.000	570.00	893.28	0.0	0.18	0.0	943.20	1525.00
35.000	570.00	893.37	0.09	0.19	0.09	745.43	1525.00

SUMMARY OF ERRORS

FLOODWAY DATA, WILLOW CK, CITY OF MASON
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
28,000	193.	1389.	0.4	890.6	890.6	0.0
29,800	115.	644.	0.9	890.6	890.6	0.0
29,900	15.	126.	4.5	890.5	890.5	0.0
30,100	15.	133.	4.3	891.0	891.0	0.0
30,300	40.	147.	3.9	891.1	891.1	0.0
31,500	196.	907.	0.6	891.6	891.6	0.0
31,600	239.	779.	0.7	891.7	891.7	0.0
31,700	238.	779.	0.7	891.7	891.7	0.0
31,800	232.	768.	0.7	891.7	891.7	0.0
31,900	243.	800.	0.7	891.7	891.7	0.0
32,800	109.	375.	1.5	891.8	891.8	0.0
32,900	20.	169.	3.4	891.7	891.7	0.0
33,100	20.	151.	3.8	892.5	892.4	0.1
34,300	20.	152.	3.7	892.6	892.5	0.1
34,500	537.	1219.	0.5	893.2	893.1	0.1
35,000	747.	1034.	0.6	893.4	893.3	0.1

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  HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
  ERROR CORR -  01,02,03,04
  MODIFICATION -  50,51,52,53,54
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T1      NORMAL BACKWATER STARTING WSL KNOWN
T2      100 YR FLOOD NATURAL PROFILE
T3      WILLOW CK. CITY OF MASON

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       7.        0.        0.  0.000000      0.00      0.0       0.   889.580     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     1.000    42.000    41.000    40.000    53.000    27.000    21.000    22.000    28.000

    54.000     4.000    39.000     0.000   150.000   200.000     0.000     0.000     0.000     0.000

NC      .060      .080      .040      .100      .300      0.000     0.000     0.000     0.000     0.000
ET    0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000
QT    6.000   345.000   457.000   570.000   820.000   570.000   681.000     0.000     0.000     0.000

X1   28.000    30.000  2000.000  2029.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  896.700  1529.000   898.700  1596.000   898.600  1666.000   899.100  1776.000   896.300  1890.000
GR  891.200  1936.000   888.500  1978.000   884.900  1992.000   881.400  2000.000   880.100  2004.000
GR  878.700  2010.000   878.800  2011.000   878.900  2016.000   879.300  2021.000   879.600  2024.000
GR  881.400  2029.000   883.900  2031.000   883.900  2044.000   882.900  2056.000   884.700  2070.000
GR  883.200  2162.000   885.000  2170.000   892.700  2186.000   893.300  2197.000   892.600  2203.000
GR  893.000  2208.000   898.700  2225.000   899.000  2232.000   900.500  2266.000   902.400  2322.000
ET    0.000     7.100     7.100     7.100     7.100     7.100  1993.000  2108.000     0.000     0.000

X1   29.800    19.000  2000.000  2015.000   450.000   550.000   500.000     0.000     0.000     0.000
GR  903.700  1541.000   901.300  1660.000   900.000  1724.000   898.600  1804.000   899.000  1877.000
GR  887.000  1959.000   886.000  1993.000   884.800  1997.000   882.700  2000.000   882.000  2005.000
GR  881.900  2010.000   882.700  2015.000   885.000  2016.000   884.600  2089.000   889.100  2097.000
GR  890.800  2173.000   891.300  2309.000   891.800  2409.000   891.900  2534.000     0.000     0.000
NC    0.000     0.000     0.000      .300      .500     0.000     0.000     0.000     0.000     0.000
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MOORE BUSINESS FORMS, INC. 27

X1	29.900	27.000	2000.000	2015.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.500	891.500	0.000
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.800	1876.000	893.100	1928.000	891.000	1979.000	890.300	1999.000	890.300	2000.000
GR	881.900	2000.000	862.100	2003.000	882.100	2007.000	882.000	2010.000	882.200	2015.000
GR	890.300	2015.000	890.300	2016.000	890.200	2028.000	890.100	2077.000	892.000	2119.000
GR	891.300	2168.000	891.800	2347.000	891.800	2401.000	891.900	2549.000	891.900	2621.000
GR	892.500	2769.000	893.600	2909.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	3.000	0.000	14.500	0.000	102.000	0.000	881.900	882.000

X1	30.100	20.000	2000.000	2015.000	66.500	66.500	66.500	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	6.000	1889.000	895.100	0.000	2000.000	893.100	0.000	2000.000	893.100	889.000
BT	2015.000	893.100	889.100	2015.000	893.100	0.000	2119.000	892.000	0.000	0.000
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.100	1889.000	893.100	2000.000	882.400	2000.000	882.200	2007.000	882.100	2010.000
GR	882.000	2015.000	893.100	2015.000	892.000	2119.000	891.300	2168.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1990.000	2030.000	0.000	0.000

X1	30.300	25.000	2000.000	2015.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	908.000	1289.000	906.200	1358.000	903.800	1465.000	901.500	1571.000	897.700	1772.000
GR	895.400	1887.000	891.500	1890.000	890.800	1999.000	890.800	2000.000	882.400	2000.000
GR	882.200	2007.000	882.100	2010.000	882.000	2015.000	890.300	2015.000	890.300	2016.000
GR	891.400	2080.000	890.100	2160.000	890.500	2237.000	891.900	2249.000	891.800	2347.000
GR	891.800	2401.000	891.900	2549.000	891.900	2621.000	892.500	2769.000	893.600	2909.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	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

X1	31.500	39.000	2000.000	2013.000	940.000	940.000	960.000	0.000	0.000	0.000
GR	905.200	1110.000	902.500	1184.000	902.800	1205.000	901.200	1268.000	898.400	1366.000
GR	896.500	1473.000	897.300	1494.000	895.200	1615.000	897.200	1733.000	896.800	1785.000
GR	894.800	1876.000	892.600	1886.000	888.200	1943.000	888.500	1987.000	884.100	2000.000
GR	882.600	2005.000	882.900	2009.000	884.200	2013.000	887.200	2023.000	886.100	2052.000
GR	885.900	2065.000	887.600	2112.000	890.300	2131.000	890.500	2157.000	896.900	2264.000
GR	898.200	2363.000	899.200	2461.000	898.700	2509.000	900.800	2611.000	901.200	2708.000
GR	902.000	2749.000	900.500	2779.000	900.300	2894.000	901.700	3012.000	902.500	3117.000
GR	903.100	3216.000	904.100	3319.000	904.000	3428.000	904.900	3553.000	0.000	0.000

X1	31.600	18.000	2000.000	2015.000	600.000	600.000	600.000	0.000	0.000	0.000
GR	901.200	1268.000	898.400	1366.000	896.500	1473.000	897.300	1494.000	895.200	1615.000
GR	893.100	1652.000	892.900	1799.000	890.700	1860.000	888.500	1987.000	885.000	2000.000
GR	882.600	2005.000	882.900	2010.000	886.000	2015.000	887.200	2023.000	890.300	2140.000
GR	890.500	2157.000	896.900	2264.000	898.200	2368.000	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

MOORE BUSINESS FORMS INC 27

X1	31.700	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.550	3.000	0.000	12.800	0.000	91.000	0.000	882.600	882.600
X1	31.800	0.000	0.000	0.000	15.000	15.000	15.000	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	18.000	1268.000	901.200	0.000	1366.000	898.400	0.000	1473.000	896.500	0.000
BT	1494.000	897.300	0.000	1615.000	895.200	0.000	1652.000	893.100	0.000	1799.000
BT	892.900	0.000	1860.000	890.700	0.000	1987.000	890.200	888.500	2000.000	890.200
BT	885.000	2000.000	890.200	889.700	2015.000	890.200	889.700	2015.000	890.200	886.000
BT	2023.000	890.200	887.200	2140.000	890.300	0.000	2157.000	890.500	0.000	2264.000
BT	896.900	0.000	2368.000	898.200	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	31.900	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.000	0.000	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	32.800	21.000	2000.000	2011.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	908.400	1075.000	907.000	1127.000	902.900	1217.000	897.900	1319.000	896.300	1426.000
GR	894.100	1540.000	893.100	1652.000	892.900	1799.000	891.700	1898.000	889.100	1996.000
GR	885.500	2000.000	884.700	2003.000	884.500	2004.000	884.400	2007.000	884.800	2011.000
GR	886.300	2011.000	886.400	2014.000	888.300	2032.000	888.300	2046.000	894.400	2121.000
GR	896.000	2244.000	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	32.900	30.000	2000.000	2022.000	50.000	50.000	50.000	.890	0.000	0.000
GR	906.200	955.000	904.400	1071.000	902.500	1191.000	900.900	1299.000	899.700	1409.000
GR	898.600	1578.000	898.500	1654.000	897.200	1774.000	896.600	1876.000	896.200	2000.000
GR	885.400	2000.000	884.100	2002.000	882.300	2003.000	882.600	2004.000	882.800	2010.000
GR	882.900	2012.000	882.800	2017.000	883.300	2020.000	884.600	2022.000	896.200	2022.000
GR	892.600	2107.000	893.800	2213.000	895.600	2349.000	896.300	2405.000	892.700	2492.000
GR	894.400	2623.000	896.500	2848.000	898.400	2871.000	899.300	2993.000	900.300	3123.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	2.600	3.000	0.000	17.000	.890	120.000	0.000	884.000	882.300
X1	33.100	14.000	2000.000	2022.000	150.000	150.000	150.000	.890	0.000	0.000
X2	0.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000	.890	0.000
BT	10.000	1802.000	896.700	0.000	2000.000	896.200	885.400	2000.000	896.200	891.400
BT	2010.000	896.200	891.400	2010.000	896.200	885.000	2011.000	896.200	885.000	2011.000
BT	896.200	891.400	2022.000	896.200	891.400	2022.000	896.200	885.400	2404.000	896.900
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	896.700	1802.000	896.200	2000.000	885.400	2000.000	884.700	2002.000	885.400	2004.000
GR	884.400	2006.000	884.400	2008.000	885.000	2010.000	885.000	2011.000	885.000	2016.000
GR	884.000	2020.000	885.400	2022.000	896.200	2022.000	896.900	2404.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS, INC. 27

X1	34.300	0.000	0.000	0.000	50.000	50.000	50.000	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
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	34.500	35.000	2000.000	2010.000	1350.000	1250.000	1300.000	0.000	0.000	0.000
GR	909.900	492.000	907.800	650.000	903.700	764.000	900.600	878.000	898.200	1010.000
GR	896.500	1132.000	895.000	1263.000	893.800	1376.000	892.200	1498.000	892.900	1585.000
GR	892.300	1704.000	891.000	1775.000	891.600	1848.000	890.600	1878.000	889.900	1956.000
GR	889.900	1996.000	886.800	2000.000	889.400	2005.000	887.000	2009.000	887.500	2010.000
GR	888.500	2021.000	891.800	2030.000	890.300	2165.000	893.200	2289.000	893.700	2444.000
GR	893.000	2481.000	893.400	2506.000	893.300	2626.000	893.000	2755.000	895.800	2915.000
GR	897.200	3040.000	899.500	3163.000	900.900	3284.000	901.400	3417.000	903.000	3536.000
X1	35.000	38.000	2000.000	2020.000	1500.000	1500.000	1525.000	0.000	0.000	0.000
GR	905.100	486.000	903.300	614.000	903.400	693.000	902.000	764.000	900.200	855.000
GR	898.600	990.000	896.900	1172.000	895.800	1285.000	894.700	1400.000	893.200	1627.000
GR	892.500	1658.000	891.700	1776.000	891.100	1890.000	892.000	1910.000	888.000	2000.000
GR	887.400	2005.000	887.100	2010.000	887.200	2015.000	888.000	2020.000	889.100	2023.000
GR	891.600	2027.000	893.500	2032.000	892.400	2038.000	892.600	2147.000	892.900	2263.000
GR	893.300	2392.000	891.800	2520.000	895.800	2651.000	896.700	2752.000	897.800	2855.000
GR	898.000	3003.000	897.500	3099.000	900.200	3130.000	897.800	3155.000	899.600	3166.000
GR	898.500	3275.000	898.200	3384.000	901.200	3500.000	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

MOORE BUSINESS FORMS, INC 27

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

ROF 1

HV= .100 CEHV= .300
ECNO 28.000

28.00	10.88	889.58	0.00	889.58	889.59	.01	0.00	0.00	881.40
681.	41.	323.	317.	101.	289.	826.	0.	0.	881.40
0.00	.41	1.12	.38	.060	.040	.080	0.000	878.70	1961.20
.000043	0.	0.	0.	0	0	0	0.00	218.32	2179.52

ECNO 29.800

29.80	7.71	889.61	0.00	0.00	889.64	.03	.04	.01	882.70
681.	133.	243.	304.	163.	111.	384.	11.	2.	882.70
.11	.82	2.19	.79	.060	.040	.080	.039	881.90	1941.22
.000244	450.	500.	550.	0	0	0	0.00	178.21	2119.43

HV= .300 CEHV= .500
ECNO 29.900

01 HV CHANGED MORE THAN HVINS

95 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 891.50 ELREA= 891.50

29.90	7.46	889.36	0.00	0.00	889.96	.60	.03	.28	890.30
681.	0.	681.	0.	0.	109.	0.	12.	2.	890.30
.11	0.00	6.23	0.00	.060	.040	.080	.039	881.90	2000.00
.004933	50.	50.	50.	2	0	0	0.00	15.00	2015.00

ECIAL BRIDGE

XK	XKOR	CUFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.75	3.00	0.00	14.50	0.00	102.00	0.00	881.90	882.00

ECNO 30.100
ESSURE 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

SPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
890.57	885.98	0.00	0.	681.	102.	104.	889.10	892.00
30.10	8.05	890.05	0.00	0.00	890.57	.52	.61	0.00	893.10
681.	0.	681.	0.	0.	118.	0.	12.	2.	893.10
.12	0.00	5.77	0.00	.060	.020	.080	.037	882.00	2000.00
001002	67.	67.	67.	2	0	0	0.00	15.00	2015.00

CNO 30.300

5 DIVIDED FLOW

30.30	8.16	890.16	0.00	0.00	890.66	.50	.09	.00	890.80
681.	0.	681.	0.	0.	120.	0.	12.	3.	890.30
.12	0.00	5.70	.08	.060	.040	.080	.037	882.00	2000.00
003875	50.	50.	50.	2	0	0	0.00	29.15	2170.72

HV= .100 CEHV= .300

CNO 31.500

31.50	8.53	891.13	0.00	0.00	891.15	.02	.45	.05	884.10
681.	158.	194.	329.	241.	103.	521.	23.	6.	884.20
.38	.66	1.89	.63	.060	.040	.080	.039	882.60	1904.98
000171	940.	960.	940.	3	0	0	0.00	262.64	2167.62

CNO 31.600

31.60	8.66	891.26	0.00	0.00	891.29	.04	.13	.01	885.00
681.	196.	270.	215.	273.	114.	349.	34.	10.	886.00
.51	.72	2.37	.62	.060	.040	.080	.039	882.60	1844.69
000309	600.	600.	600.	2	0	0	0.00	324.89	2169.58

HV= .300 CEHV= .500

CNO 31.700

31.70	8.67	891.27	0.00	0.00	891.31	.04	.02	.00	885.00
681.	197.	269.	215.	275.	114.	351.	35.	10.	886.00
.52	.72	2.36	.61	.060	.040	.080	.039	882.60	1844.28
000304	50.	50.	50.	0	0	0	0.00	325.55	2169.82

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
C	QLOB	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

CIAL BRIDGE

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.55	3.00	0.00	12.80	0.00	91.00	0.00	882.60	882.60

CNO 31.800
SSURE AND WEIR FLOW

PRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
892.62	891.31	0.00	518.	165.	91.	91.	889.70	890.20

31.80	8.65	891.25	0.00	0.00	891.35	.10	.04	0.00	885.00
681.	140.	387.	154.	272.	114.	348.	35.	10.	886.00
.52	.52	3.40	.44	.060	.020	.080	.039	882.60	1844.84
.000159	15.	15.	15.	2	0	7	0.00	324.64	2169.48

CNO 31.900

31.90	8.75	891.35	0.00	0.00	891.38	.04	.01	.02	885.00
681.	201.	262.	217.	287.	115.	364.	36.	11.	886.00
.53	.70	2.28	.60	.060	.040	.080	.039	882.60	1842.08
.000280	50.	50.	50.	2	0	0	0.00	329.07	2171.15

V= .100 CEHV= .300
CNO 32.800

32.80	6.98	891.38	0.00	0.00	891.51	.13	.10	.03	885.50
681.	121.	305.	255.	115.	74.	189.	38.	12.	886.30
.55	1.06	4.15	1.34	.060	.040	.080	.039	884.40	1909.89
.001191	200.	200.	200.	1	0	0	0.00	174.04	2083.93

V= .300 CEHV= .500
CNO 32.900

32.90	9.08	891.38	0.00	0.00	891.65	.27	.07	.07	896.20
681.	0.	681.	0.	0.	162.	0.	39.	12.	896.20
.56	0.00	4.21	0.00	.060	.040	.080	.039	882.30	1885.05
.001624	50.	50.	50.	2	0	0	0.00	19.58	1904.63

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	XLOEL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CIAL BRIDGE

XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
1.05	2.60	3.00	0.00	17.00	.89	120.00	0.00	884.00	882.30

CNO 33.100
SSURE FLOW

SPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
892.68	891.83	.02	0.	681.	120.	119.	891.40	896.20

33.10	8.35	892.35	0.00	0.00	892.68	.33	1.03	0.00	896.20
681.	0.	681.	0.	0.	148.	0.	39.	12.	896.20
.57	0.00	4.61	0.00	.060	.025	.080	.038	884.00	1978.22
000871	150.	150.	150.	2	0	0	0.00	19.58	1997.80

CNO 34.300

34.30	8.42	892.42	0.00	0.00	892.74	.32	.07	.00	896.20
681.	0.	681.	0.	0.	149.	0.	39.	12.	896.20
.57	0.00	4.57	0.00	.060	.040	.080	.038	884.00	1978.22
002180	50.	50.	50.	0	0	0	0.00	19.58	1997.80

HV= .100 CEHV= .300
CNO 34.500

5 DIVIDED FLOW

34.50	6.42	893.22	0.00	0.00	893.23	.00	.45	.03	886.80
681.	411.	61.	208.	878.	52.	580.	64.	28.	887.50
1.30	.47	1.18	.36	.060	.040	.080	.039	886.80	1419.24
000134	1350.	1300.	1250.	3	0	0	0.00	1020.24	2768.31

CNO 35.000

5 DIVIDED FLOW

35.00	6.33	893.43	0.00	0.00	893.45	.01	.22	.00	888.00
681.	409.	182.	90.	758.	120.	415.	113.	62.	888.00
1.85	.54	1.51	.22	.060	.040	.080	.039	887.10	1591.61
000153	1500.	1525.	1500.	3	0	0	0.00	981.37	2573.51

EC2 RELEASE DATED NOV 76 UPDATED APRI 1980
RROR CORR - 01,02,03,04
ODIFICATION - 50,51,52,53,54

E- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

LOW CK. CITY OF MASON

MARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
28.000	889.58	878.70	0.00	0.00	1961.20	0.00	2000.00	2029.00	0.00	2179.52	218.32	0.00
29.800	889.61	881.90	0.00	0.00	1941.22	0.00	2000.00	2015.00	0.00	2119.43	178.21	500.00
29.900	889.36	881.90	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	50.00
30.100	890.05	882.00	889.10	892.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	66.50
30.300	890.16	882.00	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2170.72	29.15	50.00
31.500	891.13	882.60	0.00	0.00	1904.98	0.00	2000.00	2013.00	0.00	2167.62	262.64	960.00
31.600	891.26	882.60	0.00	0.00	1844.69	0.00	2000.00	2015.00	0.00	2169.58	324.89	600.00
31.700	891.27	882.60	0.00	0.00	1844.28	0.00	2000.00	2015.00	0.00	2169.82	325.55	50.00
31.800	891.25	882.60	889.70	890.20	1844.84	0.00	2000.00	2015.00	0.00	2169.48	324.64	15.00
31.900	891.35	882.60	0.00	0.00	1842.08	0.00	2000.00	2015.00	0.00	2171.15	329.07	50.00
32.800	891.38	884.40	0.00	0.00	1909.89	0.00	2000.00	2011.00	0.00	2083.93	174.04	200.00
32.900	891.38	882.30	0.00	0.00	1885.05	0.00	1885.05	1904.63	0.00	1904.63	19.58	50.00
33.100	892.35	884.00	891.40	896.20	1978.22	0.00	1978.22	1997.80	0.00	1997.80	19.58	150.00
34.300	892.42	884.00	0.00	0.00	1978.22	0.00	1978.22	1997.80	0.00	1997.80	19.58	50.00
34.500	893.22	886.80	0.00	0.00	1419.24	0.00	2000.00	2010.00	0.00	2768.31	1020.24	1300.00
35.000	893.43	887.10	0.00	0.00	1591.61	0.00	2000.00	2020.00	0.00	2573.51	981.37	1525.00

LOW CK. CITY OF MASON

MARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
28.000	0.00	0.00	0.00	878.70	681.00	889.58	0.00	889.59	.43	1.12	1216.28	1033.09
29.800	500.00	0.00	0.00	881.90	681.00	889.61	0.00	889.64	2.44	2.19	657.89	436.01
29.900	50.00	0.00	0.00	881.90	681.00	889.36	0.00	889.96	49.33	6.23	109.30	96.96
30.100	66.50	892.00	889.10	882.00	681.00	890.05	0.00	890.57	10.02	5.77	118.01	215.10
30.300	50.00	0.00	0.00	882.00	681.00	890.16	0.00	890.66	38.75	5.70	119.93	109.40
31.500	960.00	0.00	0.00	882.60	681.00	891.13	0.00	891.15	1.71	1.89	865.24	520.61
31.600	600.00	0.00	0.00	882.60	681.00	891.26	0.00	891.29	3.09	2.37	735.55	387.42
31.700	50.00	0.00	0.00	882.60	681.00	891.27	0.00	891.31	3.04	2.36	740.40	390.46
31.800	15.00	890.20	889.70	882.60	681.00	891.25	0.00	891.35	1.59	3.40	733.75	539.64
31.900	50.00	0.00	0.00	882.60	681.00	891.35	0.00	891.38	2.80	2.28	766.30	406.84
32.800	200.00	0.00	0.00	884.40	681.00	891.38	0.00	891.51	11.91	4.15	377.69	197.31
32.900	50.00	0.00	0.00	882.30	681.00	891.38	0.00	891.65	16.24	4.21	161.94	168.97
33.100	150.00	896.20	891.40	884.00	681.00	892.35	0.00	892.68	8.71	4.61	147.81	230.76
34.300	50.00	0.00	0.00	884.00	681.00	892.42	0.00	892.74	21.80	4.57	149.01	145.84
34.500	1300.00	0.00	0.00	886.80	681.00	893.22	0.00	893.23	1.34	1.18	1510.52	587.44
35.000	1525.00	0.00	0.00	887.10	681.00	893.43	0.00	893.45	1.53	1.51	1293.76	550.91

LOW CK. CITY OF MASON

MARY PRINTOUT TABLE 150

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
28.000	681.00	889.58	0.00	0.00	0.00	218.32	0.00
29.800	681.00	889.61	0.00	.03	0.00	178.21	500.00
29.900	681.00	889.36	0.00	-.25	0.00	15.00	50.00
30.100	681.00	890.05	0.00	.69	0.00	15.00	66.50
30.300	681.00	890.16	0.00	.11	0.00	29.15	50.00
31.500	681.00	891.13	0.00	.98	0.00	262.64	960.00
31.600	681.00	891.26	0.00	.12	0.00	324.89	600.00
31.700	681.00	891.27	0.00	.02	0.00	325.55	50.00
31.800	681.00	891.25	0.00	-.02	0.00	324.64	15.00
31.900	681.00	891.35	0.00	.10	0.00	329.07	50.00
32.800	681.00	891.38	0.00	.03	0.00	174.04	200.00
32.900	681.00	891.38	0.00	-.00	0.00	19.58	50.00
33.100	681.00	892.35	0.00	.97	0.00	19.58	150.00
34.300	681.00	892.42	0.00	.07	0.00	19.58	50.00
34.500	681.00	893.22	0.00	.80	0.00	1020.24	1300.00
35.000	681.00	893.43	0.00	.21	0.00	981.37	1525.00

**** HASP USERS MUST CHANGE THEIR /*SIGNON CARD BY NOVEMBER 2, 1980 ****
**** SEE EKS USERS MEMO 123 OR MSG.RJE ****

YOU HAVE DIFFICULTY WITH OUR SYSTEM, CALL YOUR LOCAL BCS REPRESENTATIVE OR CONTACT MAINSTREAM-EKS CONSULTATION ON THE
TOMER SERVICES NUMBERS LISTED BELOW.

APRIL 9,1980
MAINSTREAM-EKS SERVICE SCHEDULE, EXCLUSIVE OF HOLIDAYS
(TIMES GIVEN IN LOCAL PACIFIC TIME)

REGULAR SERVICE SCHEDULE FOR MAINSTREAM-EKS COMPUTER SERVICE (BATCH, RJE, AND KIT) AND CONSULTATION.

OF WEEK	MAINSTREAM-EKS SERVICE	EKS CONSULTATION	CAD/CAM SERVICE
NDAY	0000-2400	0500-1730	0300-2400
ESDAY THROUGH FRIDAY	0000-2400	0500-1730	0000-2400
TURDAY	0500-1800	0800-1700	0500-1800
NDAY	0500-1800	CLOSED	0500-1800

TE: DUE TO SYSTEM MAINTENANCE REQUIREMENTS, KIT OR RJE SERVICE MAY BE BRIEFLY INTERRUPTED (WITH ADVANCE WARNING)
TWEEN 6:00 PM AND 5:00 AM ON WEEKDAYS.

R MAINSTREAM-EKS CUSTOMER SERVICES, THE TELEPHONE NUMBERS ARE:

ALING WITHIN SEATTLE AREA	206-237-5611
LL-FREE DIALING WITHIN WASHINGTON STATE	800-562-0307
LL-FREE DIALING OUTSIDE WASHINGTON STATE	800-426-7676
LL-FREE DIALING FROM ALASKA AND HAWAII	800-426-6353

K FOR EKS CONSULTATION. OFF-HOURS ASSISTANCE IS PROVIDED BY THE OPERATIONS STAFF.

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IYEOW. 81/01/22.EKS1 175H.N0501.21AA 81/01/18.DS-0 11.08.31. 81/01/22.


32.36.TESTJOE.T010,CM160000,P02.
32.36.*
32.36.*****************************************
32.36.* M A I L I N G  I N F O R M A T I O N *
32.36.*.....................................*
32.36.*                                       *
32.36.* NAME     - 62-0147-711(6221)          *
32.36.* PHONE    - (517)7883889               *
32.36.* MAIL TO - JACKSON,MICH.              *
32.36.*                                       *
32.36.*****************************************
32.36.*
32.36.USER,GCAHEC,.      62-0147-711(6221)/(51
32.36.7)7883889/JACKSON,MICH.
33.51. CHARGE LIMITS OVERRIDDEN
33.51.
33.56. JOB ENTRY 81/01/22. 13.59.10.
33.57.* M.G. GUISFREDI 209 E. WASHINGTON
33.57.GET,HEC2/UN=EKSAPP.
43.23.HEC2.
01.37./PRG USED/HEC2
04.38.     STOP
04.38.       .814 CP SECONDS EXECUTION TIME
04.40.
04.40. RUN DATE  81/01/22.  RUT SECS      7.194
04.40. UNITS          NUMBER       CCUS   PERCENT
04.40. CPU SECS        0.879      6.671    48.470
04.40. CMP UNITS       0.667      3.535    25.684
04.40. DISK REQS         177      1.908    13.863
04.40. DISK SECT        2204      0.295     2.143
04.40. JOB INITIATION             1.350     9.808
04.40. JOB PROCESSING CCUS       13.763
04.40.
04.40. AVERAGE CM USED (DECIMAL)           29731
04.40. AVERAGE CM USED (OCTAL)             72043
04.40. ITEMS CHARGED SEPARATELY
04.40. PRINT SECT         67
05.01.
05.01. PRIORITY REQUESTED          2
05.01. PRIORITY BILLED             2
```

33.

Map enclosed w/ Sycamore Creek Mason, City of (large binder)

HYDRAULIC ANALYSIS REPORT

WILLOW CREEK AT THE CITY OF MASON

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

SEPTEMBER, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for Willow Creek within the corporate boundary of the city of Mason. Willow Creek flows in an easterly direction within the city limits. The reach studied in detail began at its confluence with Sycamore Creek and extended about 5,600 feet upstream to the southeast corporate boundary line. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in November, 1978. In addition to field cross section data, a 7.5 minute series topographic map with a 10-foot contour interval was used.

The flows for the 10-year, 50-year, 100-year, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated May 16, 1979.

Analysis of the hydraulic characteristic of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was V. Danushkodi, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material. Without an in-depth study, an "n" value can only be estimated. The roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. The roughness coefficients chosen were based primarily on sensitivity runs. These values were required to match the high-water marks recorded for the April, 1975 flood.

Manning's Roughness Coefficient

For channel	.02-.04
For overbanks	.06-.08

Coefficients for

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

During the 1975 flood, high-water marks were recorded at Lansing Road bridge and near Eugenia Drive. The corresponding elevations were supplied by Wolverine Engineering Company of Mason, Michigan. Sensitivity runs with an estimated flow for the 1975 flood were made. Our analysis compares favorably with the high-water marks. A copy of the computer printout matching the high-water marks is contained in Appendix A.

Location	Corresponding HEC-2 No.	Elevation	HWM (comp)
Lansing St. bridge	30.0	889.40	889.14
Eugenia Drive	34.2	892.5	892.2

STARTING CONDITIONS

What is the 1975 Q? 681 cfs

Willow Creek, a tributary to Sycamore Creek, has coincident 100-year floods with the main stream. Figure 1 verifies this condition. Therefore, the starting water surface elevations for Willow Creek are based on the Sycamore Creek elevations.

SPECIAL PROBLEMS

There were no special problems associated with this study.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	28.0	Valley Section
	29.8	Valley Section
	29.9	Bridge Section
B	30.1	Upstream Face, Lansing St. bridge
	30.3	Valley Section
C	31.5	Valley Section
D	31.6	Valley Section
	31.7	Bridge Section
E	31.8	Upstream Face, unnamed bridge
	31.9	Valley Section
	32.8	Valley Section
	32.9	Bridge Section
F	33.1	Upstream Face, U.S. 127
	34.3	Valley Section
G	33.5	Valley Section
H	35.0	Valley Section

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix C.

PROFILES

Copies of the water surface profiles are contained in Appendix D.

MAP

A copy of the 100-year flood plain and floodway showing cross section location is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for multi-profile run and floodway run are contained in Appendix E.

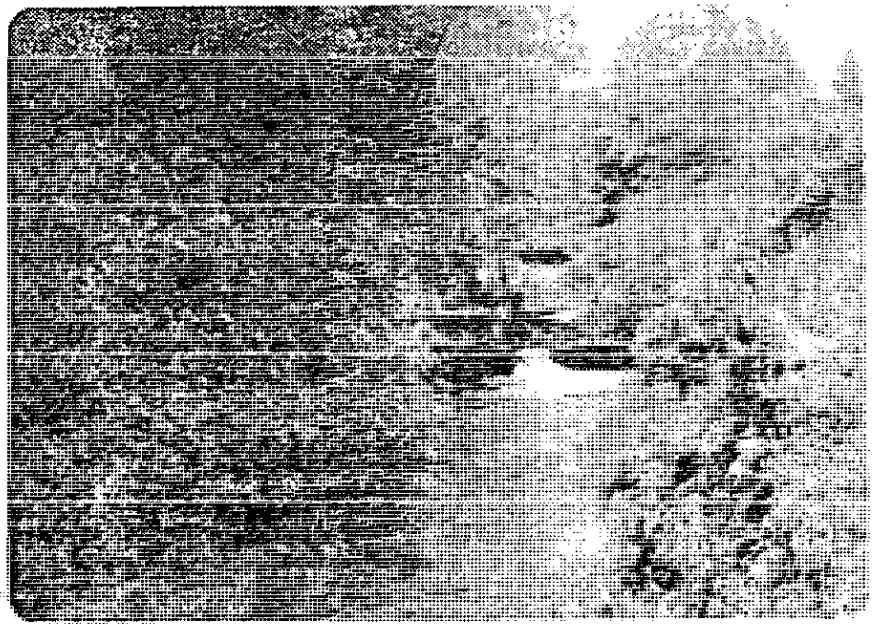
1975 FLOOD - WILLOW CREEK



31. Back of House No. 1102 Eugenia Drive, looking South during Willow Creek Highwater.



32. Willow Creek flood area on East side of Lansing Street, looking South from Lansing Street North of Willow Creek Bridge.



33. Looking SW upstream in Willow Creek at its junction with Sycamore Creek.

1975 Flood

****
HEC2 RELEASE DATED NOV 76 UPDATED APRI 1980
ERROR CODE = 01.02.03.04
MODIFICATION = 50.51.52.53.54
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WILLOW Cr. CITY OF MASON

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
28.000	889.50	878.70	0.00	0.00	1962.44	0.00	2000.00	2029.00	0.00	2179.35	216.91	0.00
29.800	889.53	881.90	0.00	0.00	1941.76	0.00	2000.00	2015.00	0.00	2115.89	174.13	500.00
29.900	889.14	881.90	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	50.00
30.000	889.14	881.90	889.10	892.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	1.00
30.100	890.07	882.00	889.10	892.00	2000.00	0.00	2000.00	2015.00	0.00	2015.00	15.00	66.50
30.200	890.29	882.00	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2195.96	62.46	1.00
30.300	890.51	882.00	0.00	0.00	2000.00	0.00	2000.00	2015.00	0.00	2237.04	129.86	50.00
31.500	891.36	882.60	0.00	0.00	1902.04	0.00	2000.00	2013.00	0.00	2171.41	269.37	960.00
32.800	891.61	884.40	0.00	0.00	1901.52	0.00	2000.00	2011.00	0.00	2086.66	185.14	1075.00
32.900	891.59	882.30	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	22.00	50.00
33.000	891.58	882.30	891.40	892.60	2000.00	0.00	2000.00	2022.00	0.00	2022.00	22.00	1.00
33.100	892.10	884.00	891.40	893.90	2000.00	0.00	2000.00	2022.00	0.00	2022.00	22.00	150.00
34.200	892.19	884.00	0.00	0.00	2000.00	0.00	2000.00	2022.00	0.00	2022.00	22.00	1.00
34.500	892.77	886.80	0.00	0.00	1454.21	0.00	2000.00	2010.00	0.00	2737.87	1240.40	1300.00
34.300	892.78	886.80	0.00	0.00	1454.14	0.00	2000.00	2010.00	0.00	2737.95	1240.88	50.00
35.000	892.97	887.10	0.00	0.00	1636.97	0.00	2000.00	2020.00	0.00	2558.47	784.63	1525.00

1975 Flood

80/09/11. 14.28.15. PAGE 10

WILLOW CR. CITY OF MASON

SUMMARY PRINTOUT TABLE 150

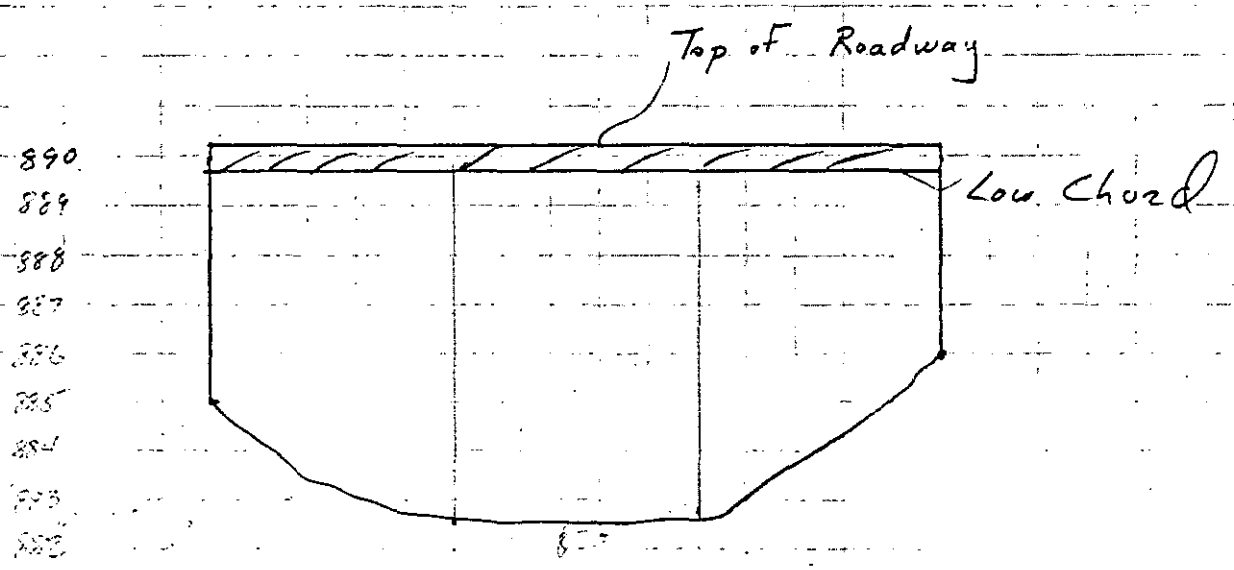
SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
29.000	0.00	0.00	0.00	878.70	681.00	889.50	0.00	889.51	.45	1.13	1198.87	1013.19
29.800	500.00	0.00	0.00	881.90	681.00	889.53	0.00	889.56	2.58	2.24	643.95	424.15
29.900	50.00	0.00	0.00	881.90	681.00	889.14	0.00	889.78	53.44	6.42	106.09	93.16
30.000	1.00	892.00	889.10	881.90	681.00	889.14	0.00	889.79	139.50	6.50	104.70	57.66
30.100	66.50	892.00	889.10	882.00	681.00	890.07	0.00	890.75	145.51	6.61	102.95	56.46
30.200	1.00	0.00	0.00	882.00	681.00	890.29	0.00	890.77	37.00	5.60	125.94	111.95
30.300	50.00	0.00	0.00	882.00	681.00	890.51	0.00	890.95	33.49	5.39	147.00	117.67
31.500	960.00	0.00	0.00	882.60	681.00	891.36	0.00	891.37	1.44	1.76	925.62	567.32
32.800	1075.00	0.00	0.00	884.40	681.00	891.61	0.00	891.71	9.64	3.81	417.58	219.34
32.900	50.00	0.00	0.00	882.30	681.00	891.59	0.00	891.80	11.20	3.65	186.61	203.53
33.000	1.00	892.60	891.40	882.30	681.00	891.58	0.00	891.80	29.44	3.76	181.35	125.51
33.100	150.00	893.90	891.40	884.00	681.00	892.10	0.00	892.45	59.65	4.71	144.70	88.17
34.200	1.00	0.00	0.00	884.00	681.00	892.19	0.00	892.46	17.25	4.17	163.14	163.97
34.500	1300.00	0.00	0.00	886.80	681.00	892.77	0.00	892.77	.83	.87	2125.73	748.57
34.300	50.00	0.00	0.00	886.80	681.00	892.78	0.00	892.78	.83	.87	2126.93	749.13
35.000	1525.00	0.00	0.00	887.10	681.00	892.97	0.00	893.00	3.09	2.04	882.35	387.22

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study, City of Mason, Willow Creek		FILING CODE
		JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Abandoned BRIDGE	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.



$$\text{AREA} = \left(\frac{4.7+7}{2}\right)5 + 7(5) + \left(\frac{3.7+7}{2}\right)5$$

29.25 35 26.75

AREA = 91

Wetted Perimeter =

$4.7+5+5+5+3.7+15 = 38.4$

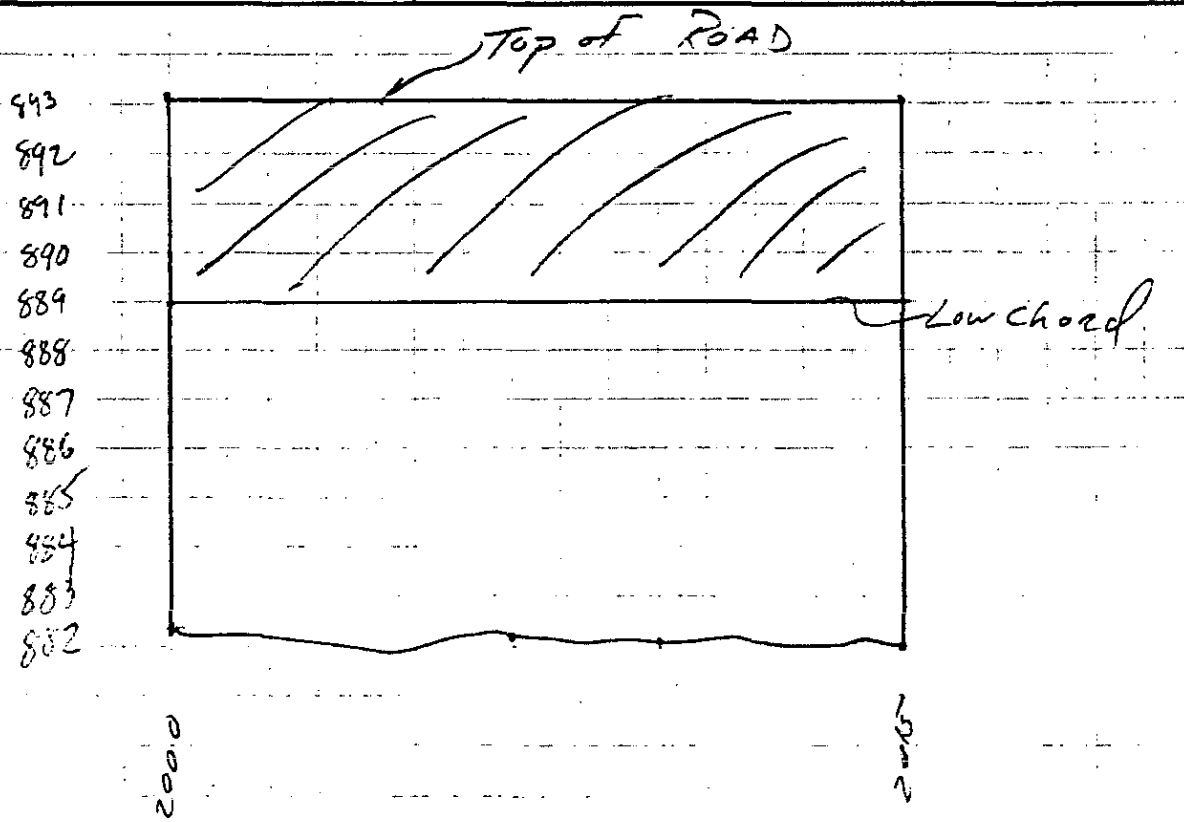
$$XKOR = \frac{29.1\,(.02)^2\,(15)}{\left(\frac{91}{38.4}\right)^{1/3}} = .05$$

$XKOR = 1.0 + .5 + .05 = 1.55$

FORM CAI/DCP 112 (9/78)

CALCULATION SHEET REV.

CLIENT/OWNER: Flood Insurance Study, City of Mason, Willow Creek		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: Lansing St. Bridge	SHEET OF / BOOK NO.



$$\text{Area} = \left(\frac{6.6+7.0}{2}\right)15 = 102$$

$$\text{Wetted Perimeter} = 66/15+7+15 = 43.6$$

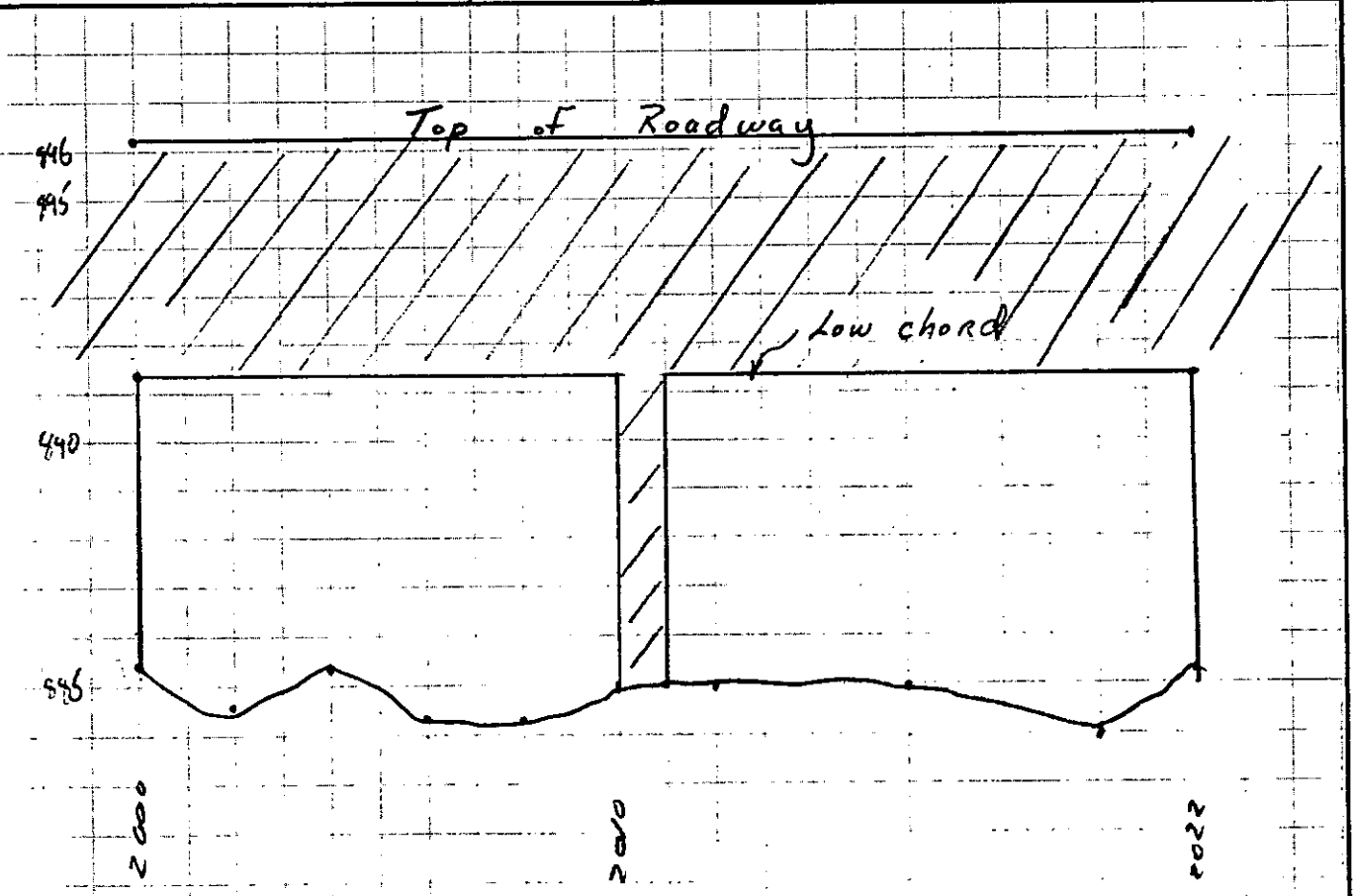
$$XKOE = \frac{29.1\,(n^2)(L)}{R^{\frac{4}{3}}} = \frac{(29.1)(.02)^2(66.5)}{3.11} = .25$$

$$XKOR = 1+.5+.25 = 1.75$$

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study City of Mason Willow Creek	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT U.S. 127
	SHEET OF / BOOK NO.



Skew ∠ 27° Cos 27° = .89

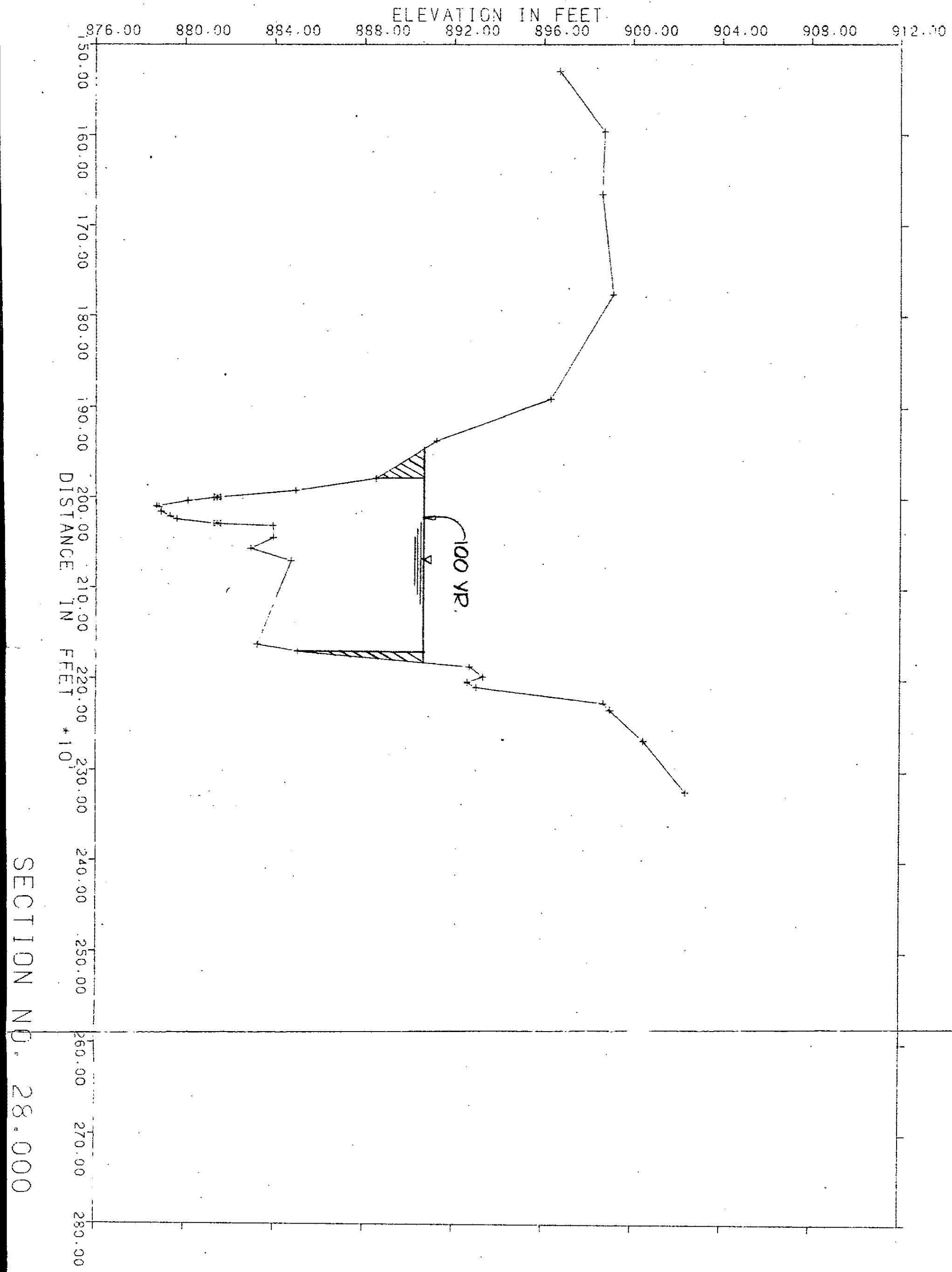
$$\text{AREA} = (10+11)(891.4-885) = 134.4(.89) = 119.6$$

$$\text{Wetted Perimeter} = 2(6.4)+(10)(.89)(2)+2(11)(.89)+2(6.4) = 62.98$$

$$R^{\frac{4}{3}} = \frac{119.6}{62.98} = 1.9$$

$$XKOR = \frac{29.1\,(.02)^2\,(250)}{(1.9)^{\frac{4}{3}}} = \frac{1.24}{1.24}$$

$$XKOR = .4 + 1 + 1.24 = 2.64$$

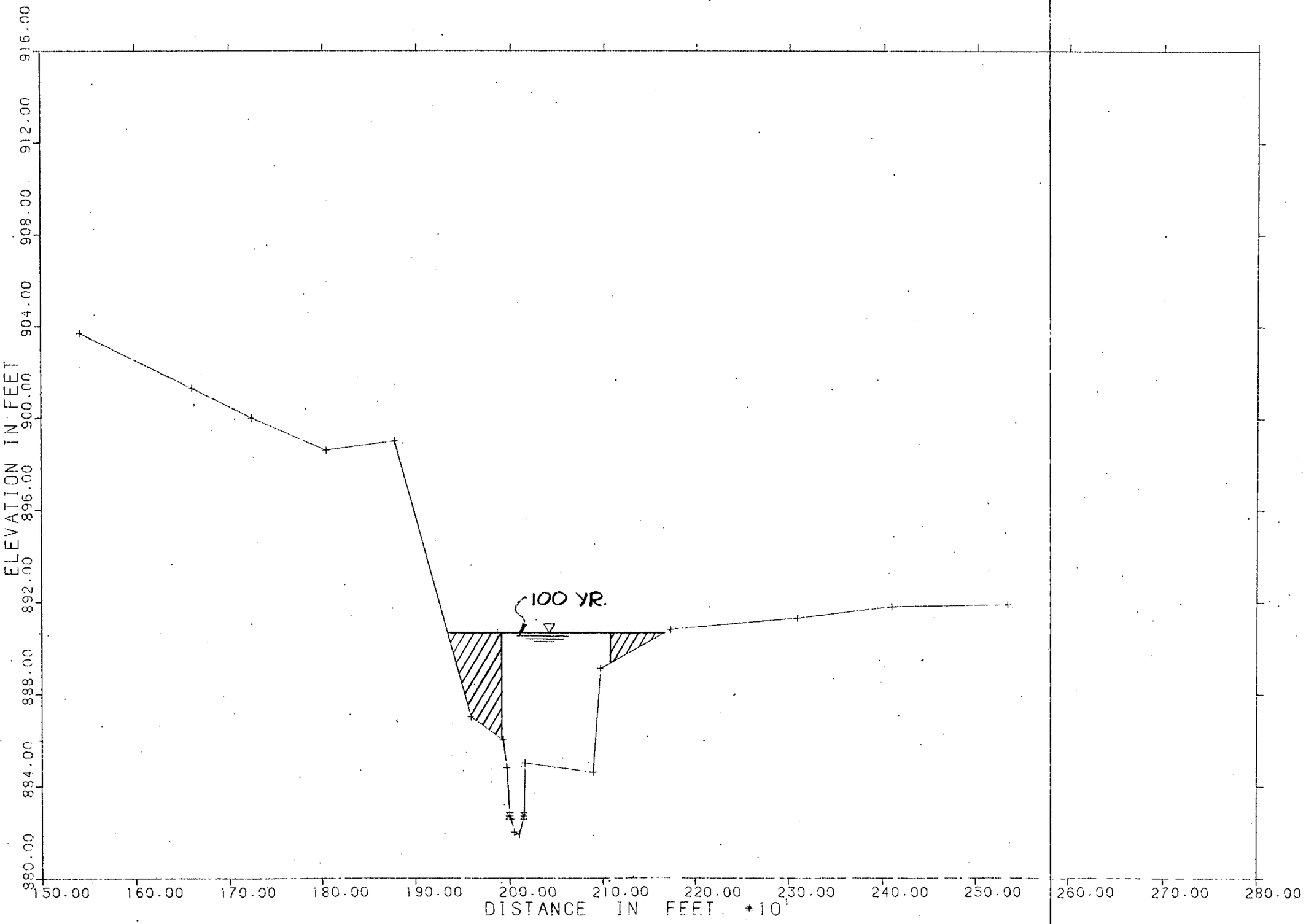


FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON

WILLOW CREEK AT MASON

FLOOD INSURANCE STUDY



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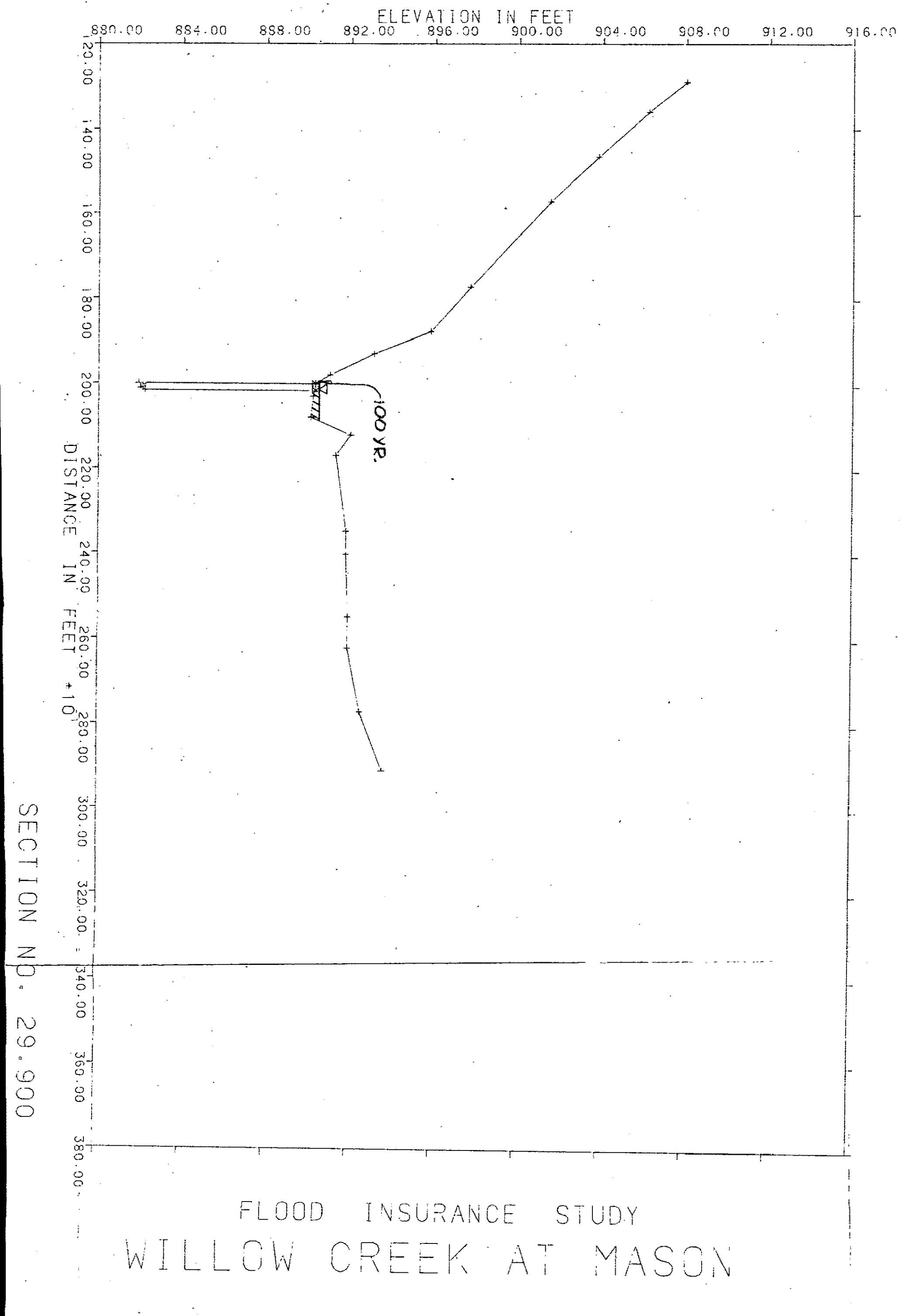
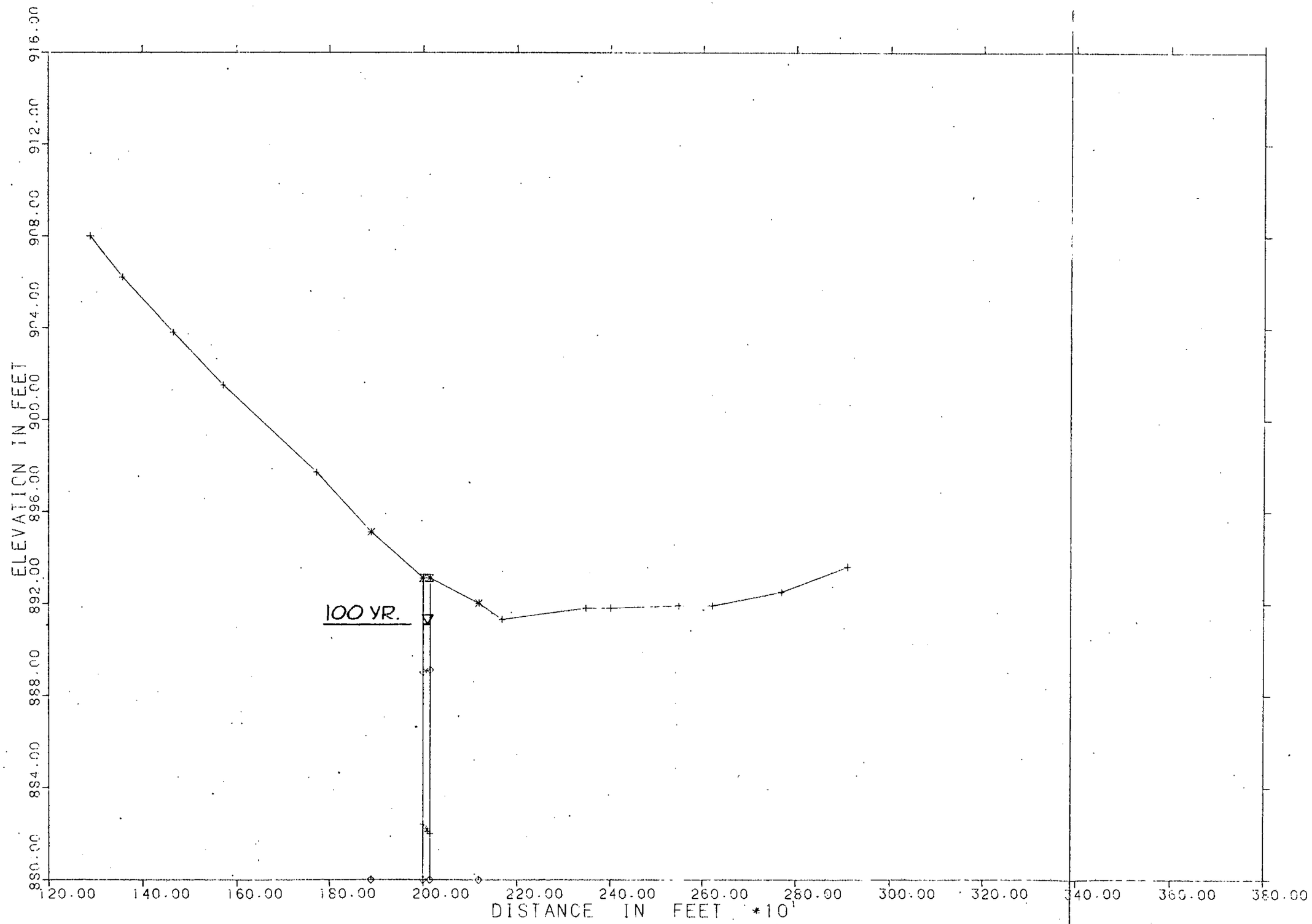


FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON

FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON



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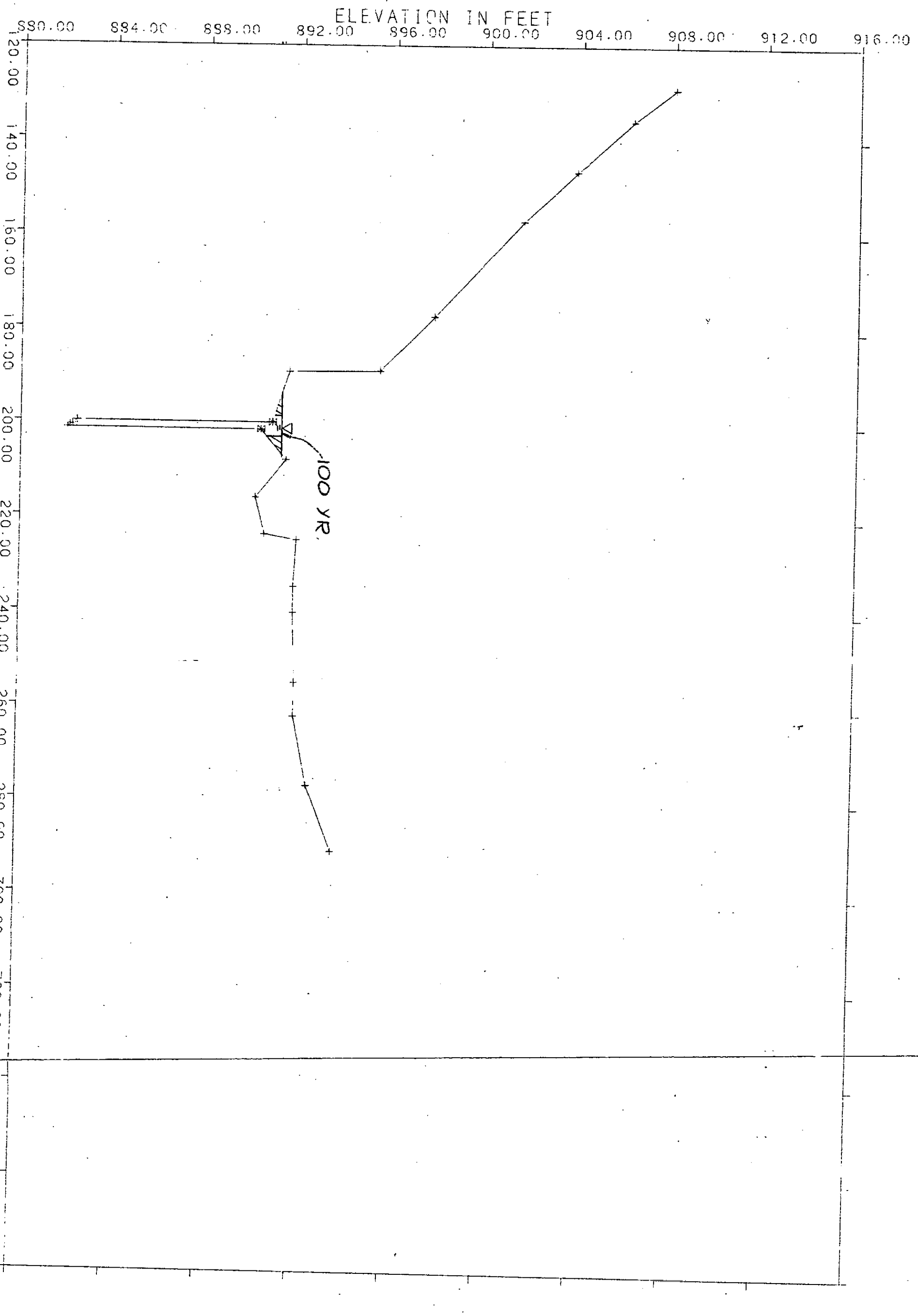
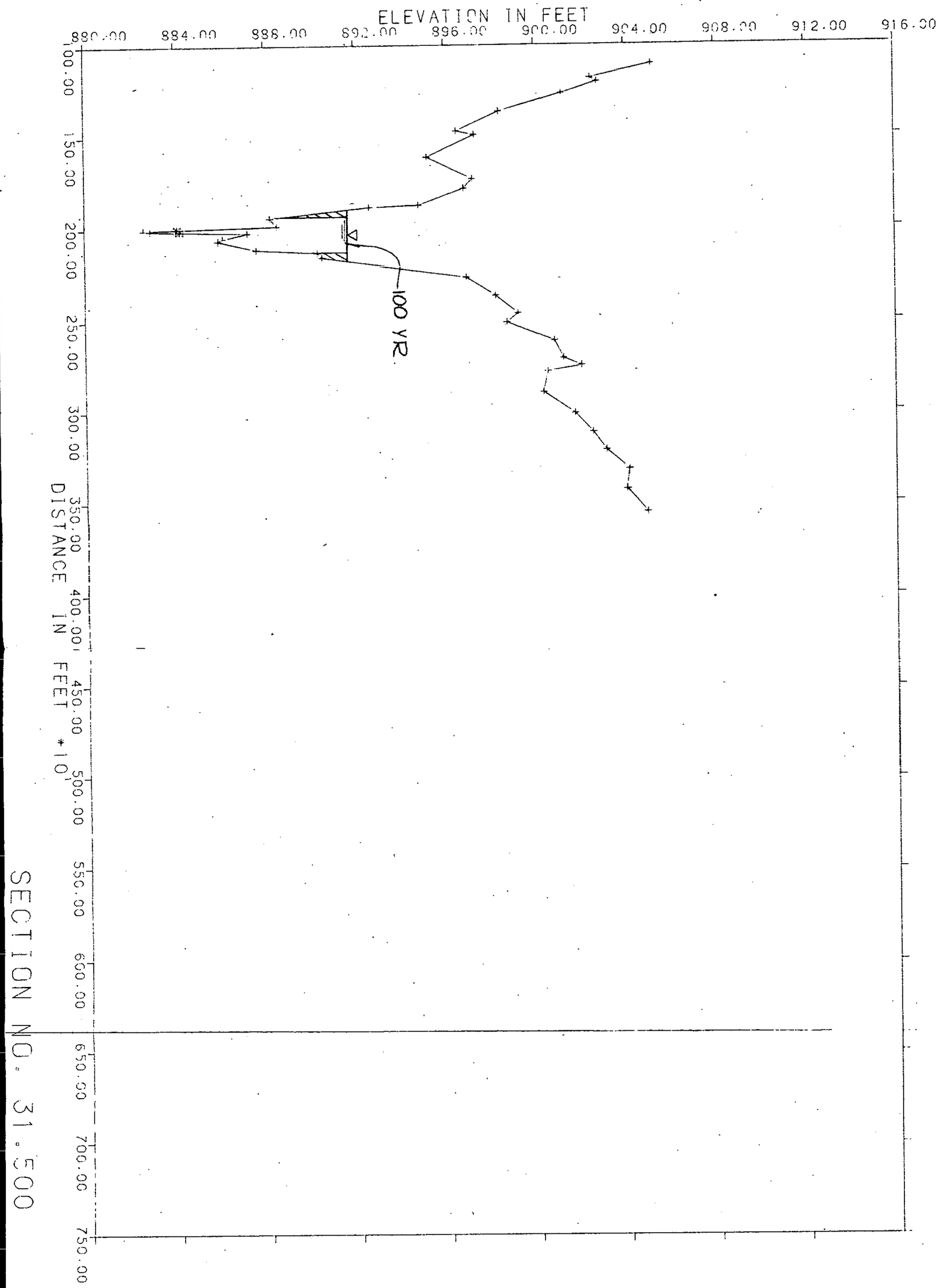


FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON



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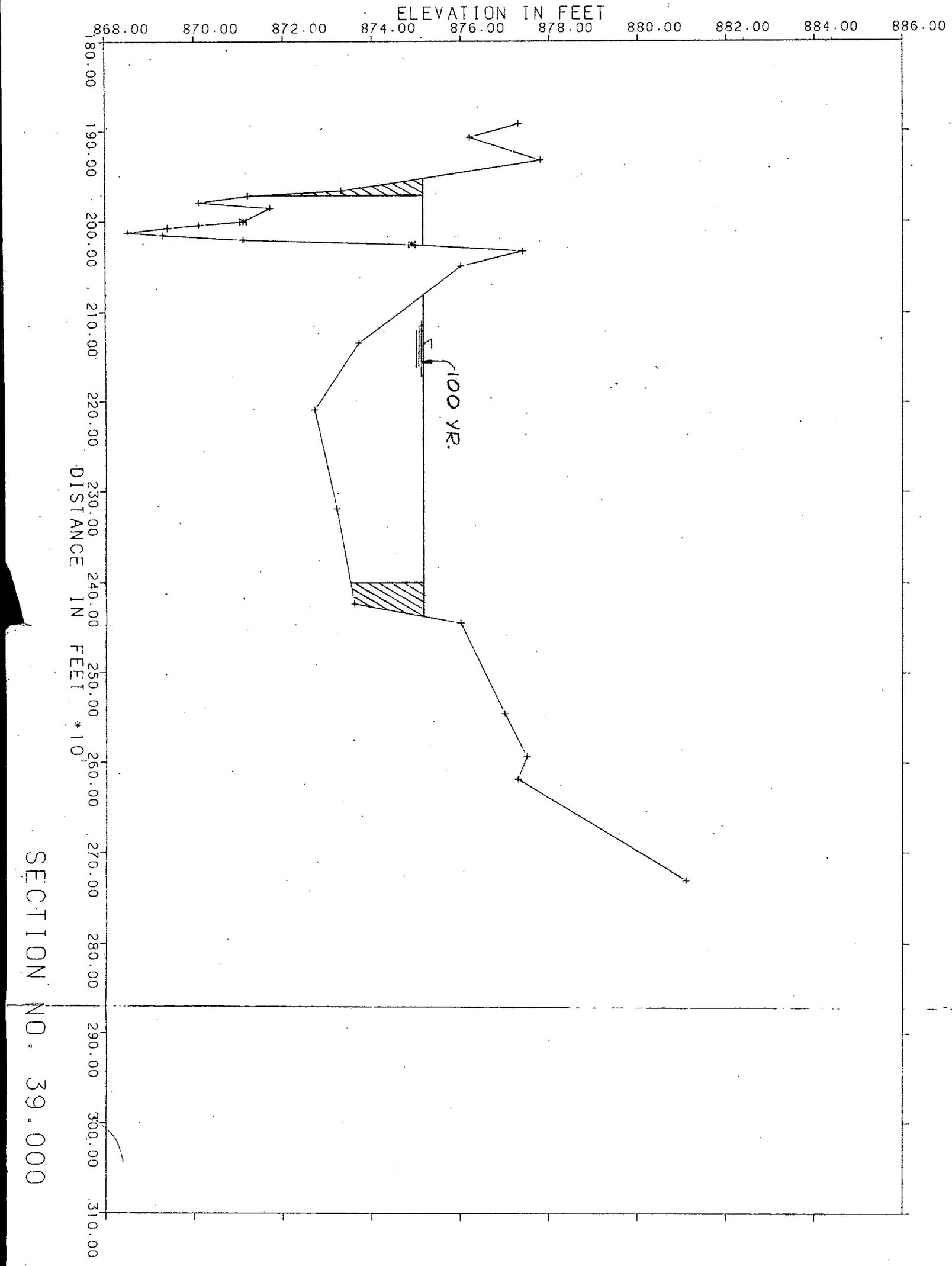
FLOOD INSURANCE STUDY

WILLOW CREEK AT MASON



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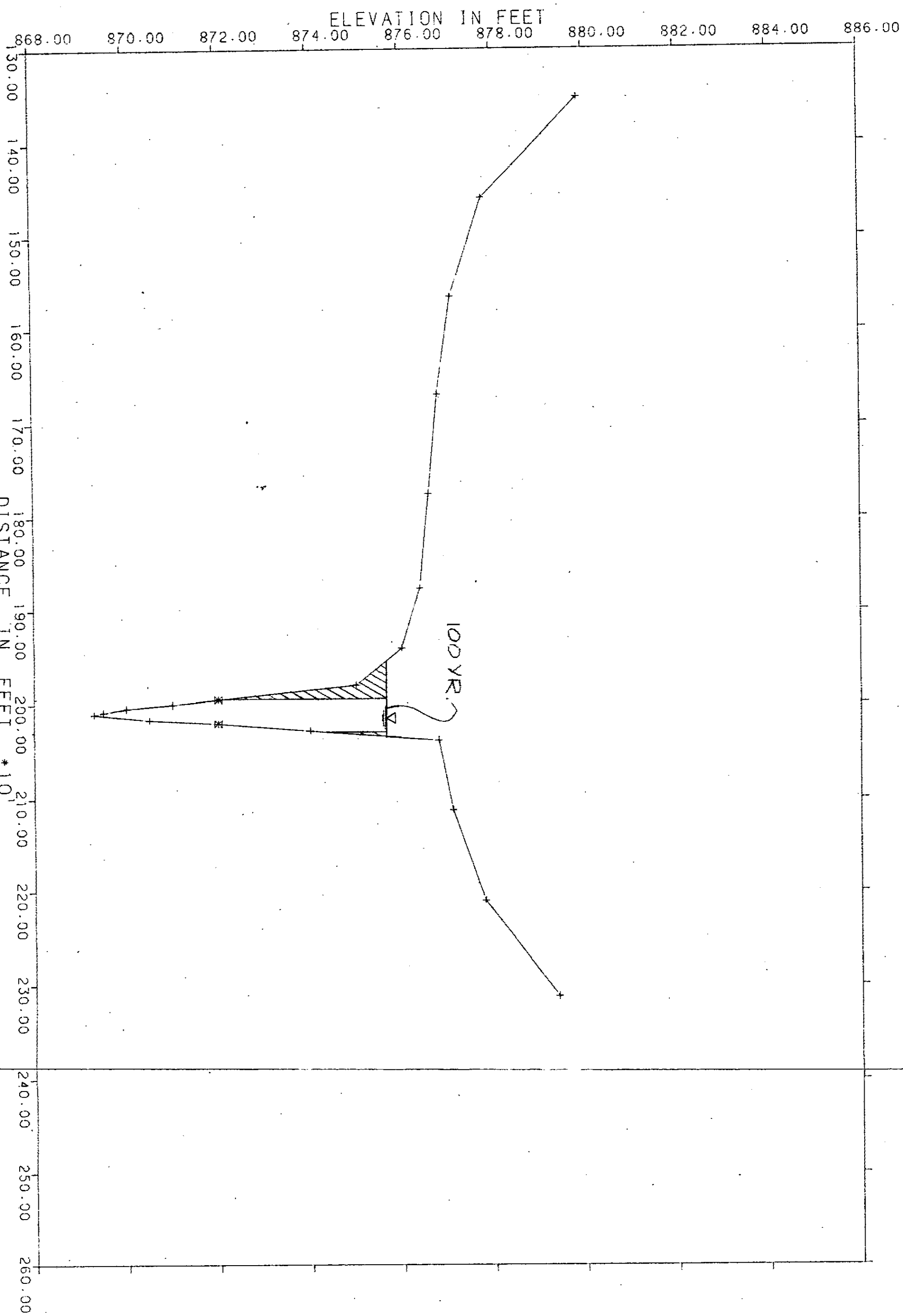
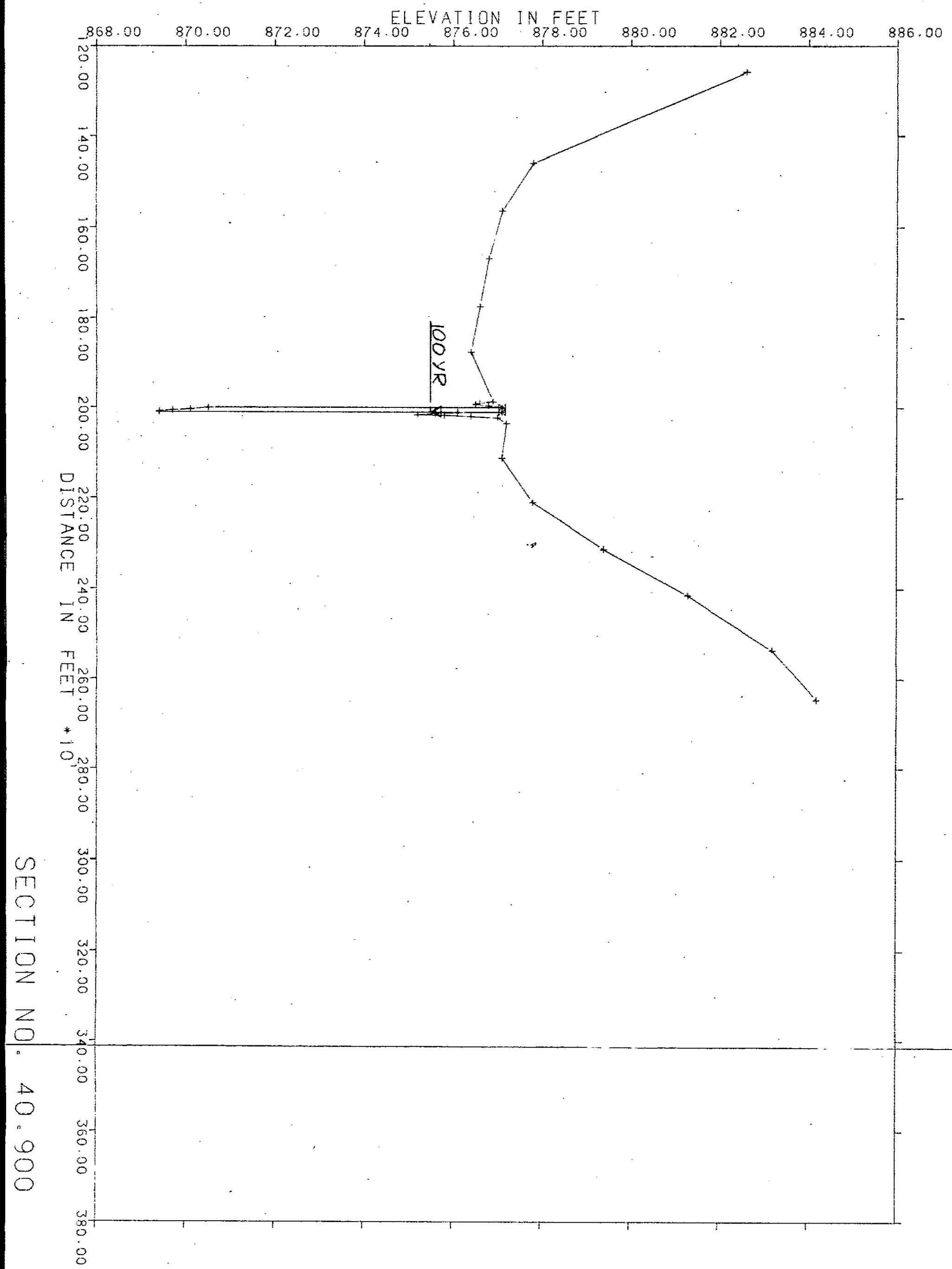
FLOOD INSURANCE STUDY

CITY OF MASCN - RAYNER CREEK



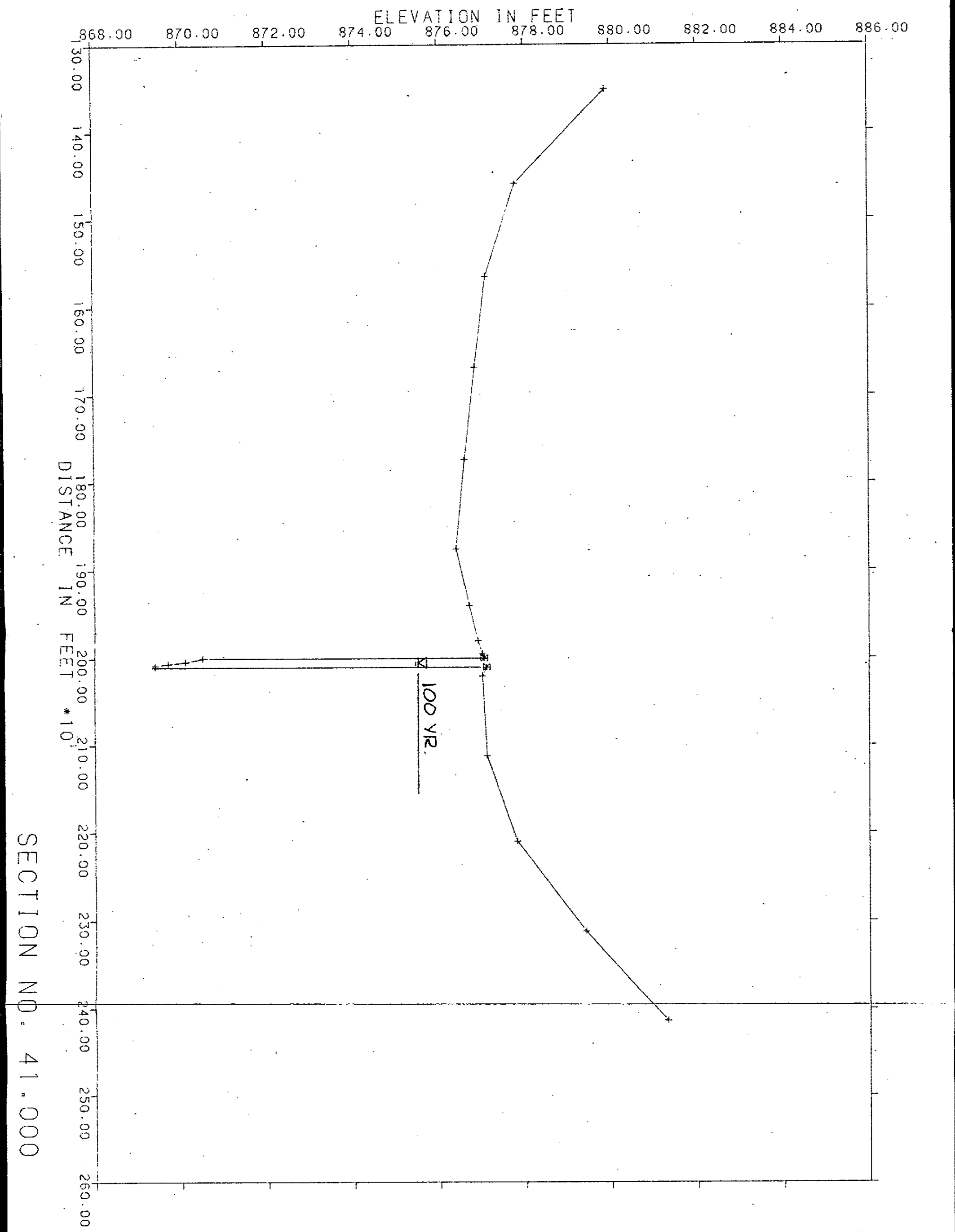
FLOOD INSURANCE STUDY

CITY OF MASCN - RAYNER CREEK



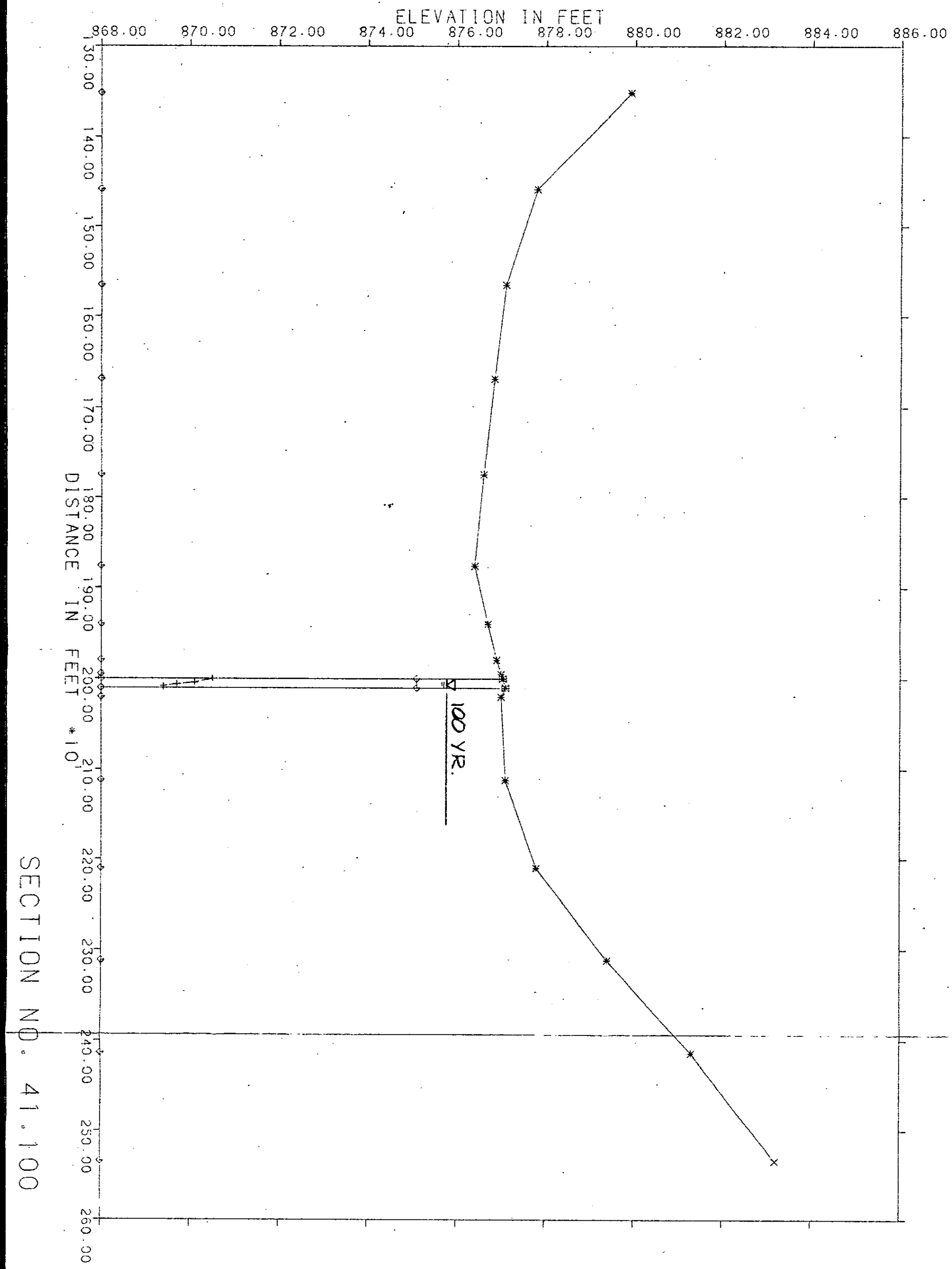
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



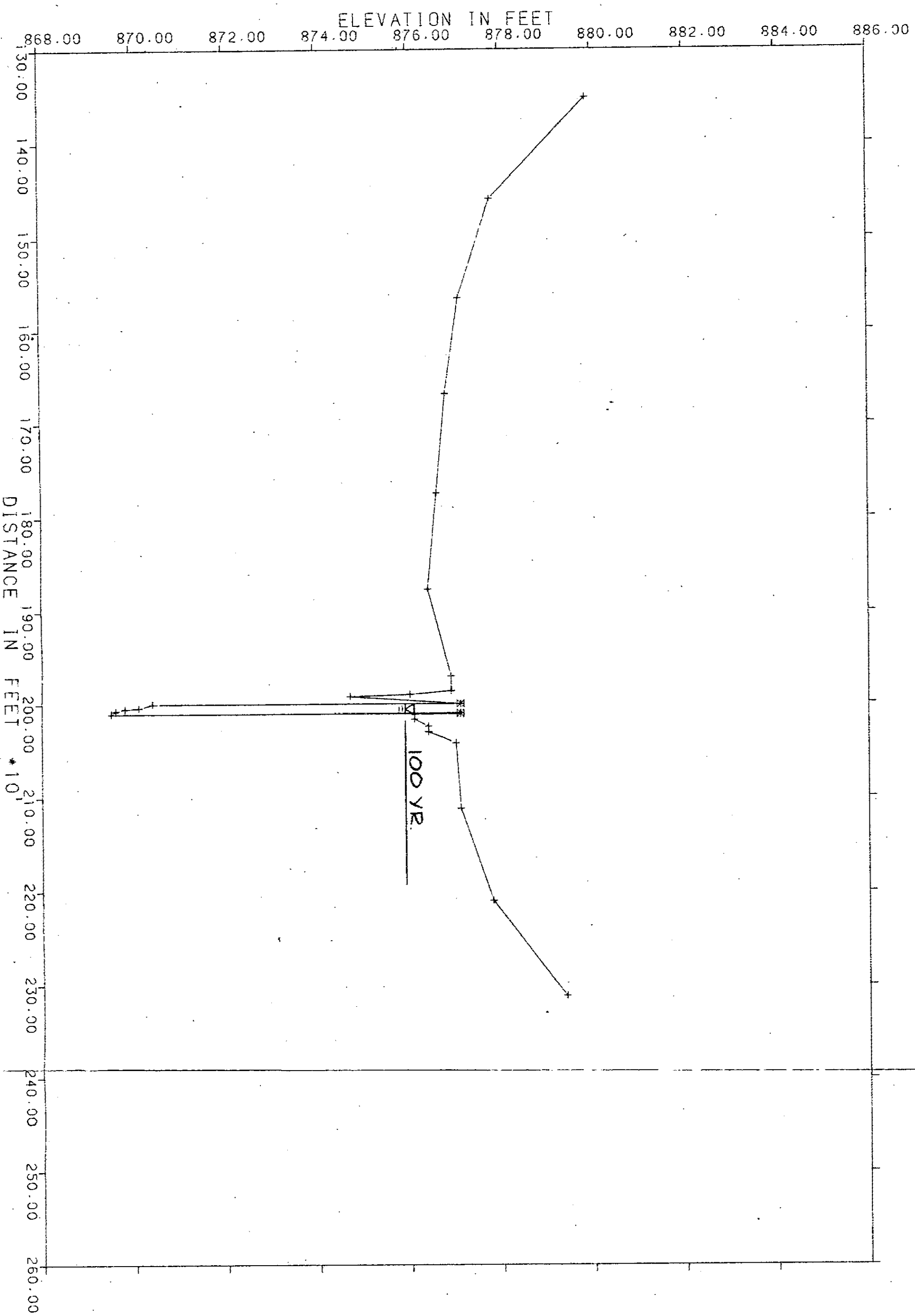
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



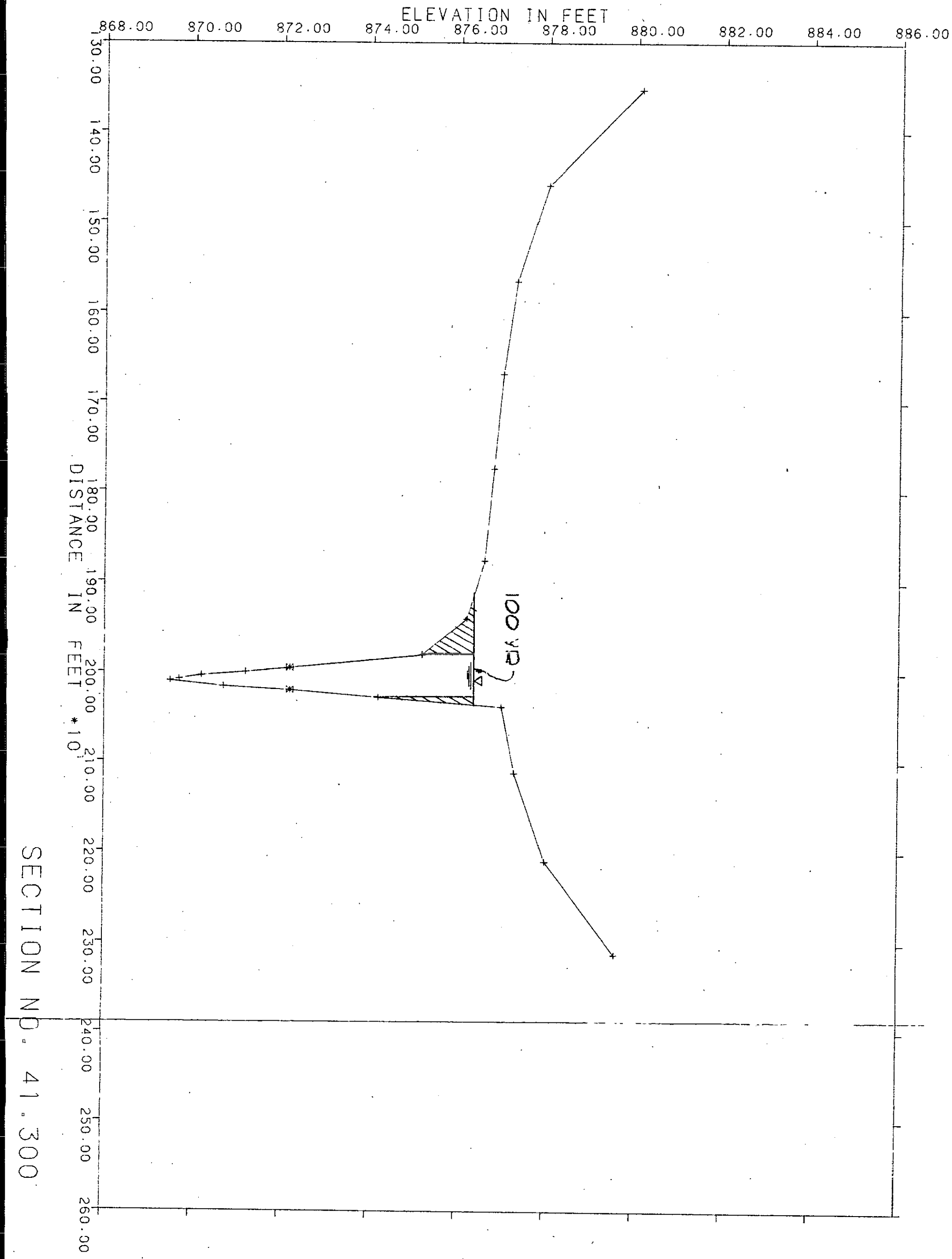
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK

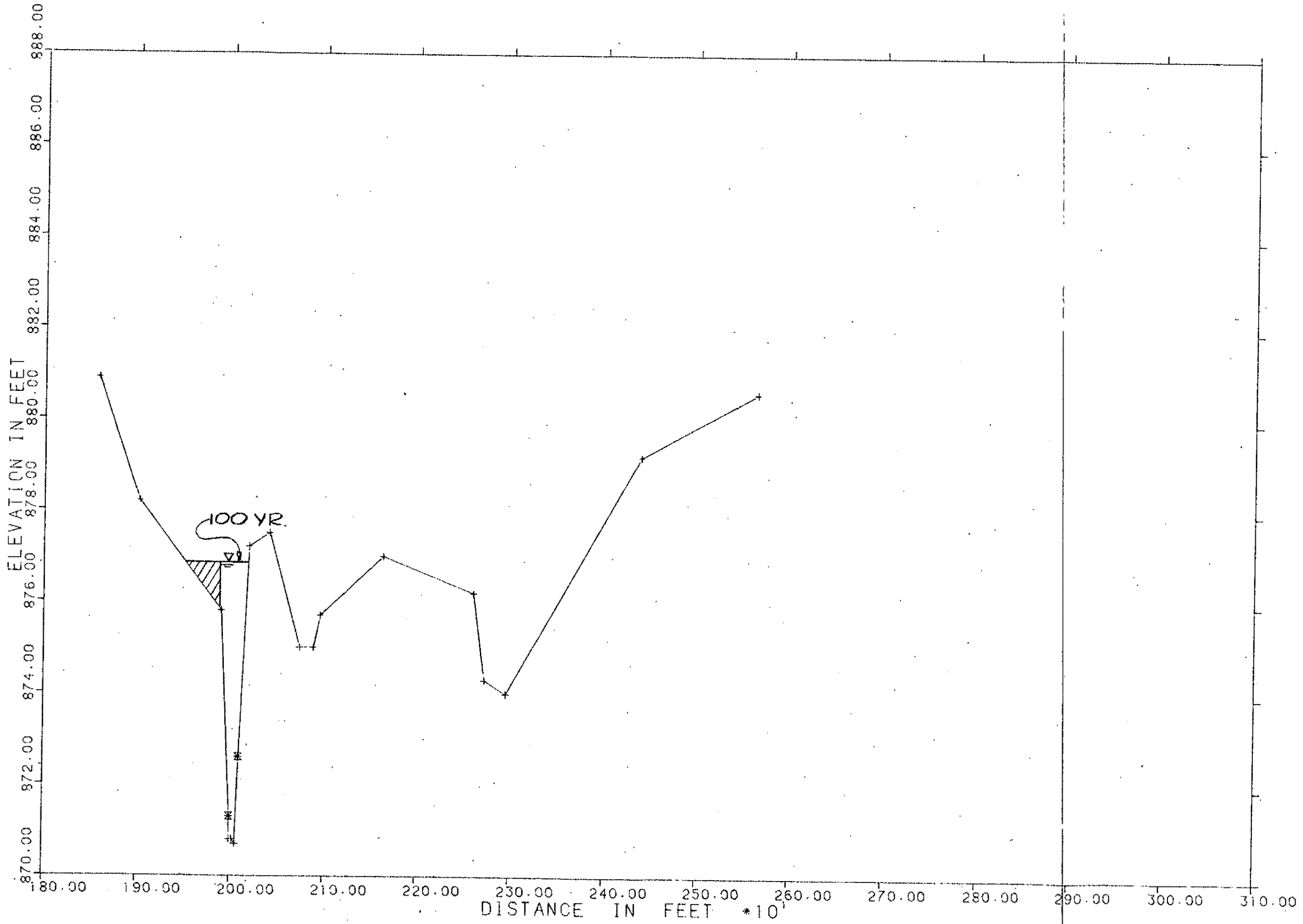


FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK

CITY OF MASON - FLOOD INSURANCE STUDY

RAYNER CREEK



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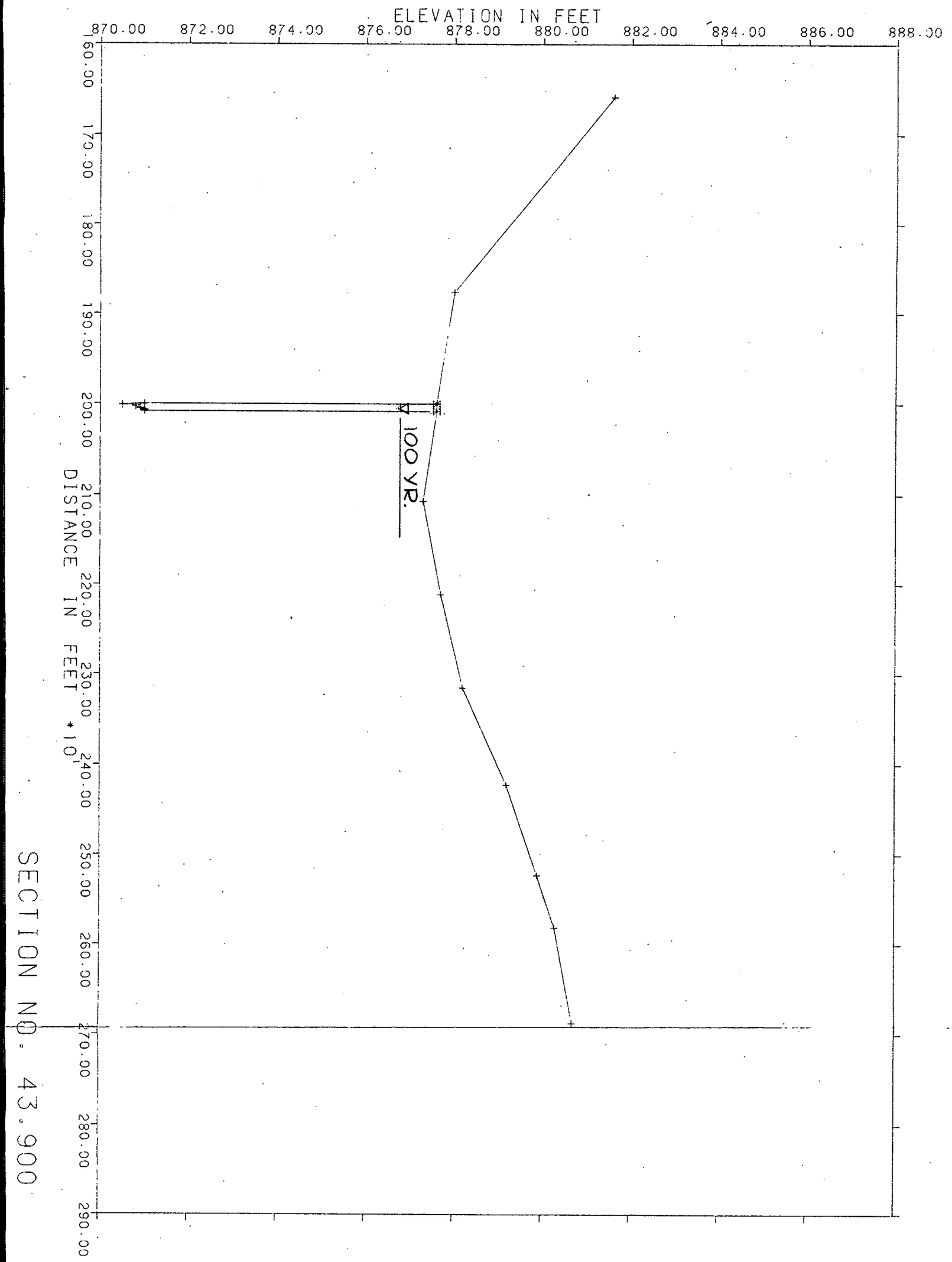

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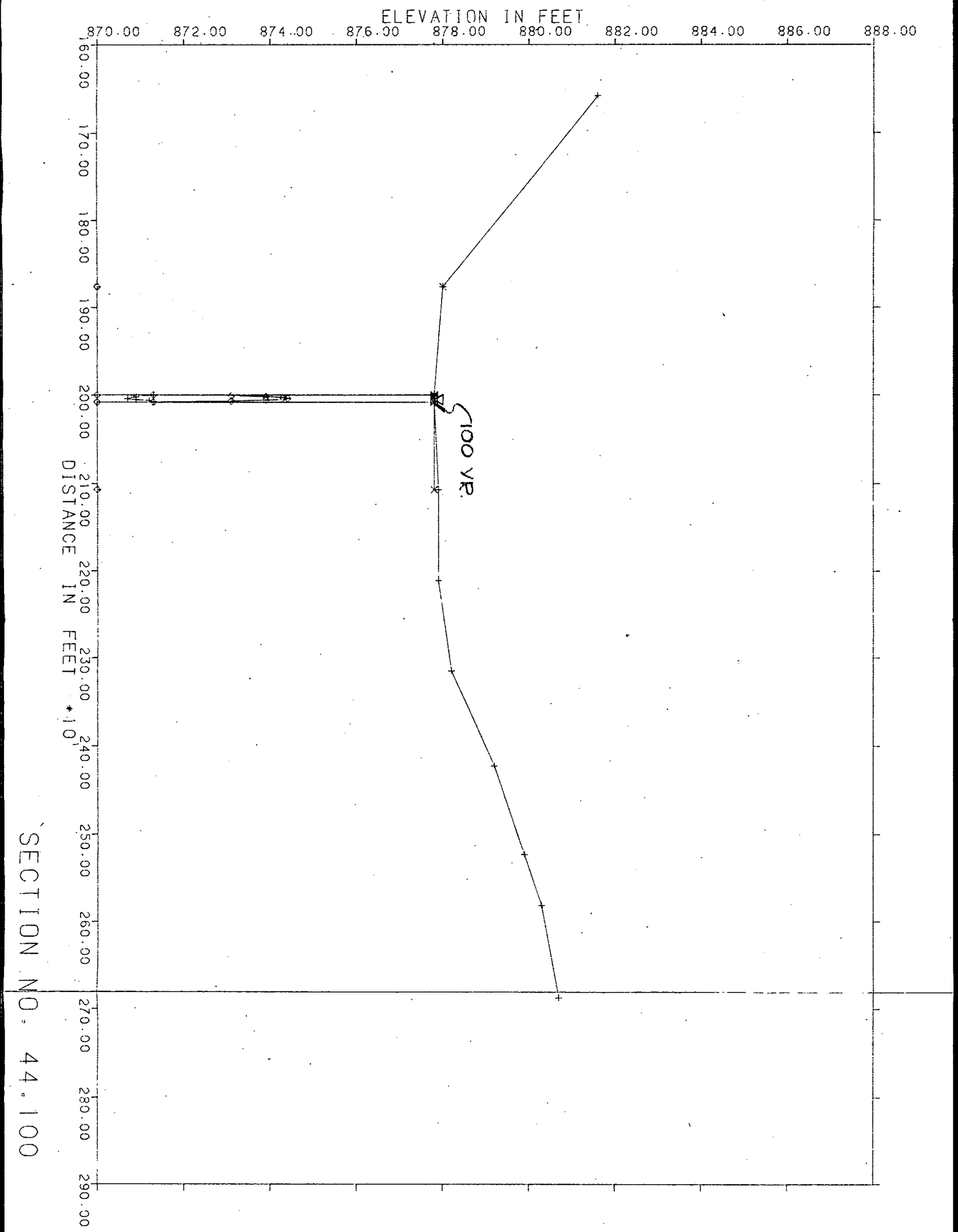
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



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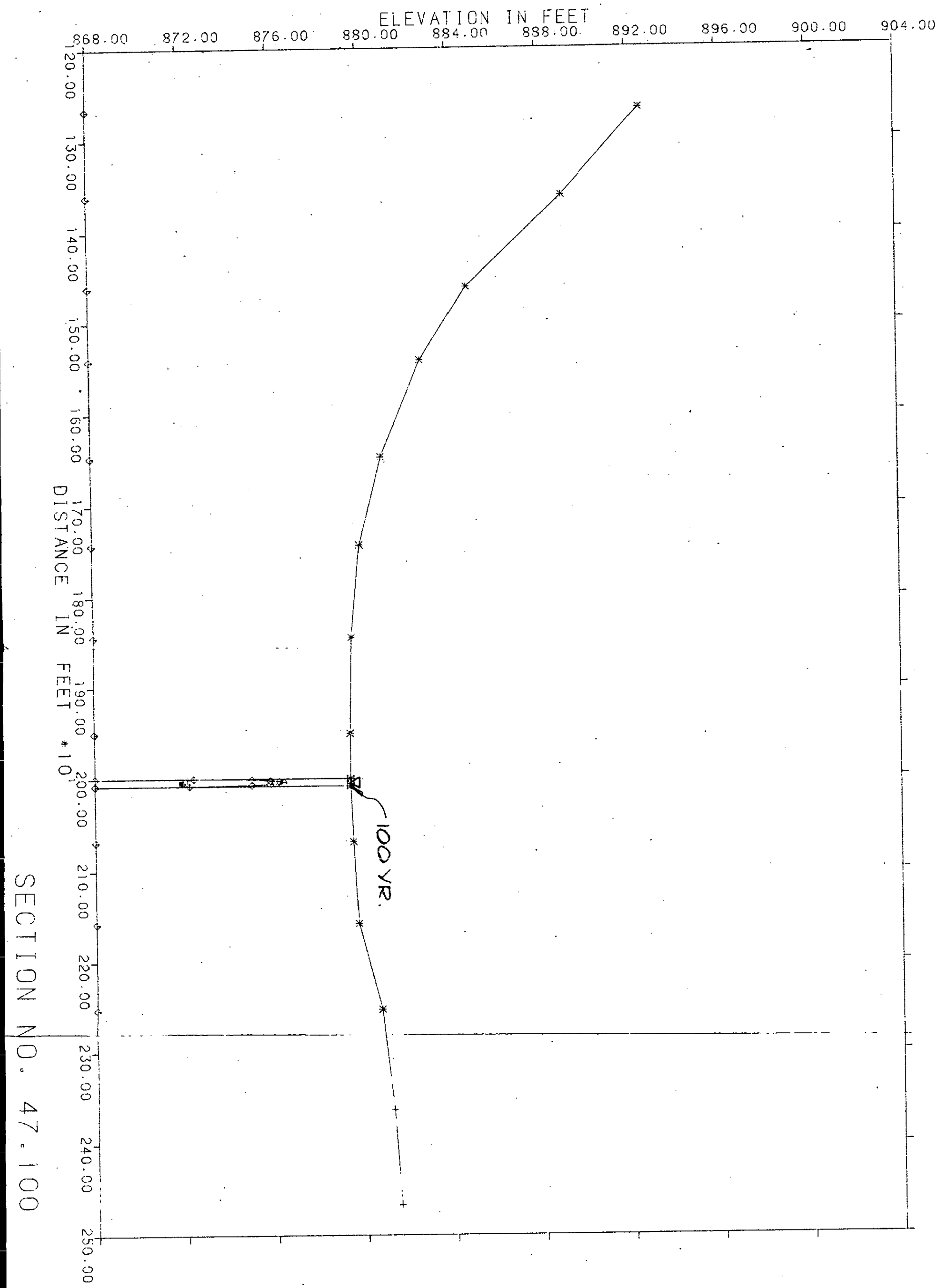
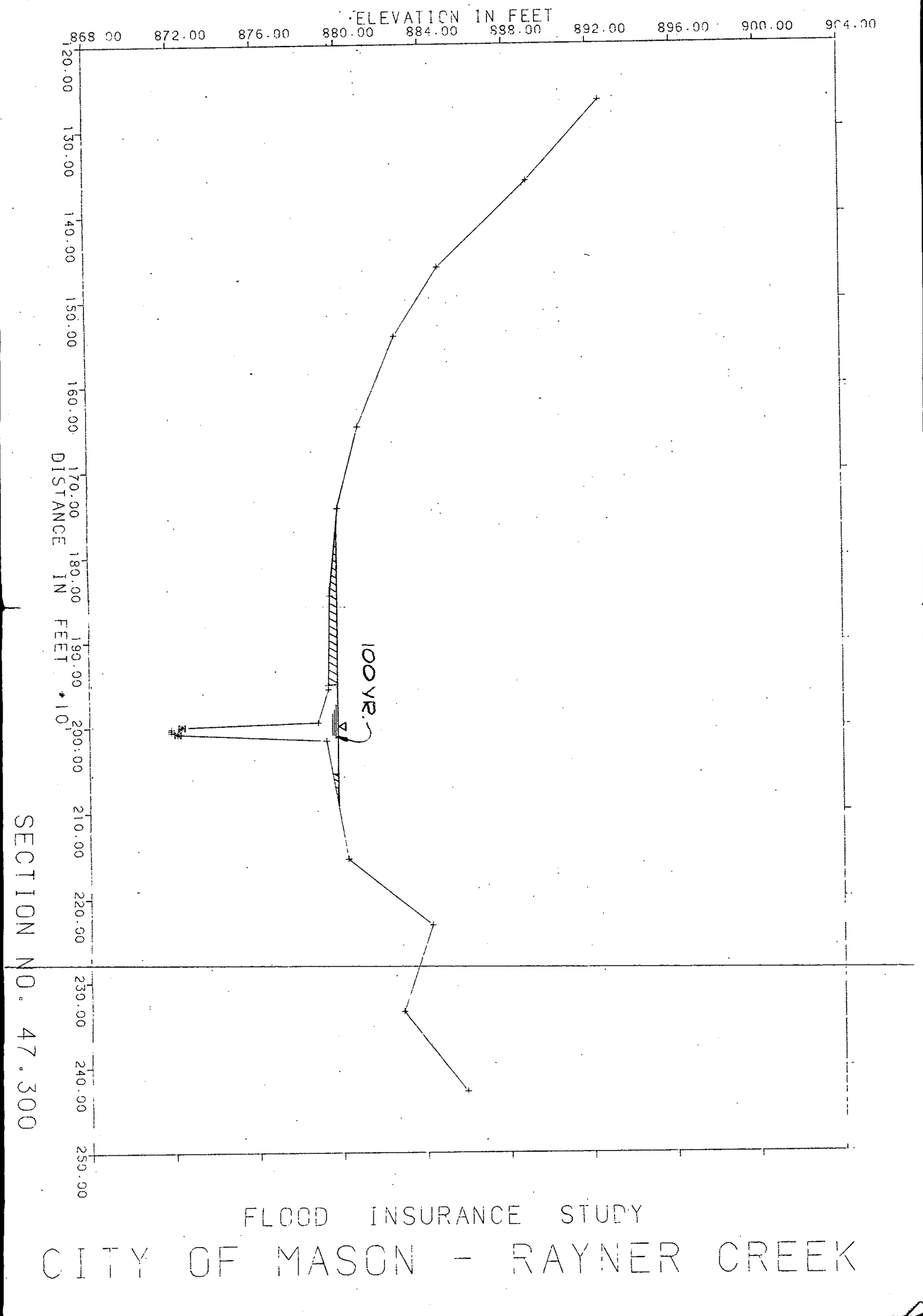
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



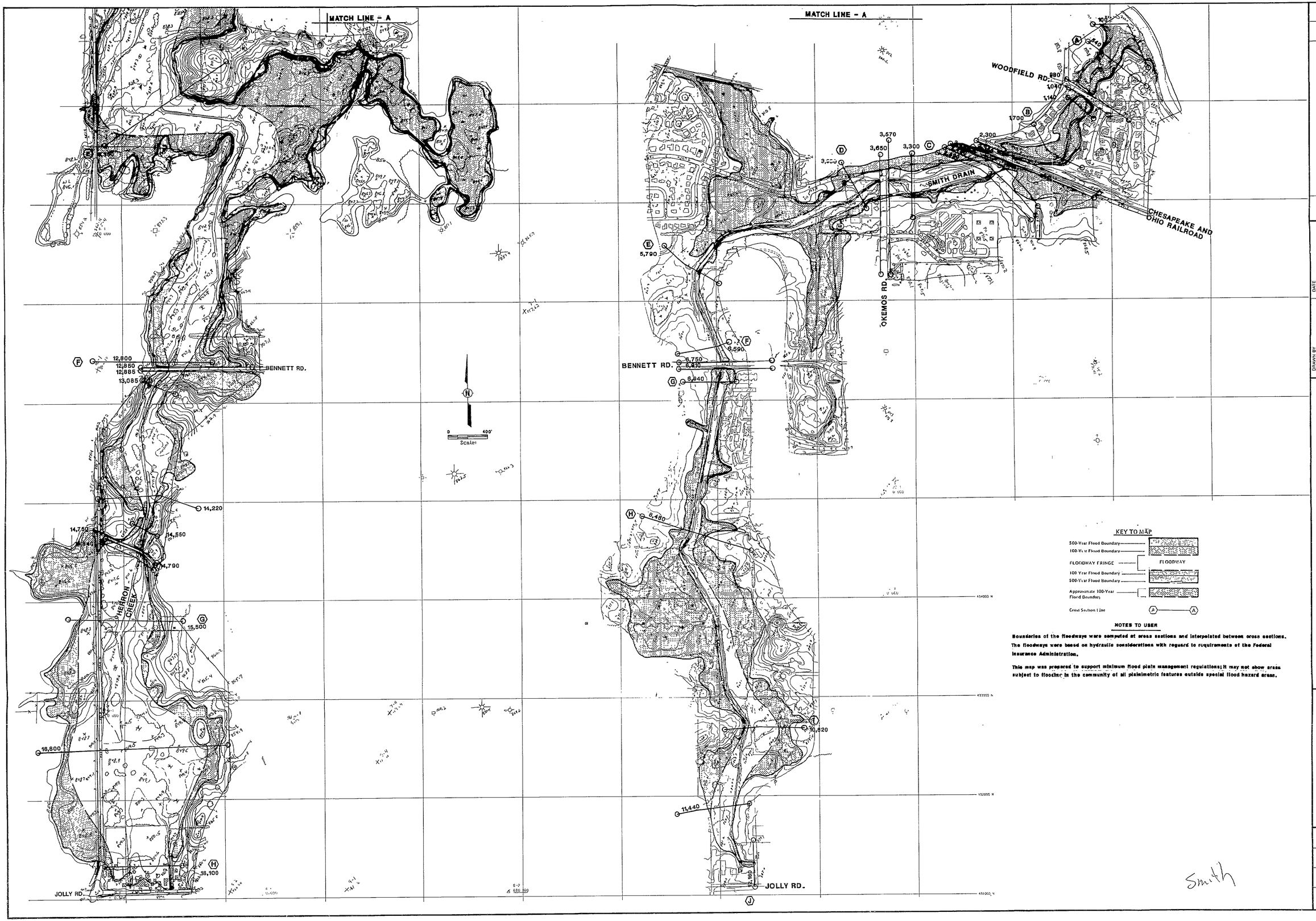
FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



FLOOD INSURANCE STUDY

CITY OF MASON - RAYNER CREEK



NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to support minimum flood plain management regulations; it may not show areas subject to flooding in the community of all planimetric features outside special flood hazard areas.

Smith

REVISION NO.	DESCRIPTION	DATE	BY

DRAWN BY CHG DATE 2/94

CHECKED BY DATE

APPROVED BY DATE

CADFILE

FLOOD INSURANCE STUDY
WORK MAP
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN.

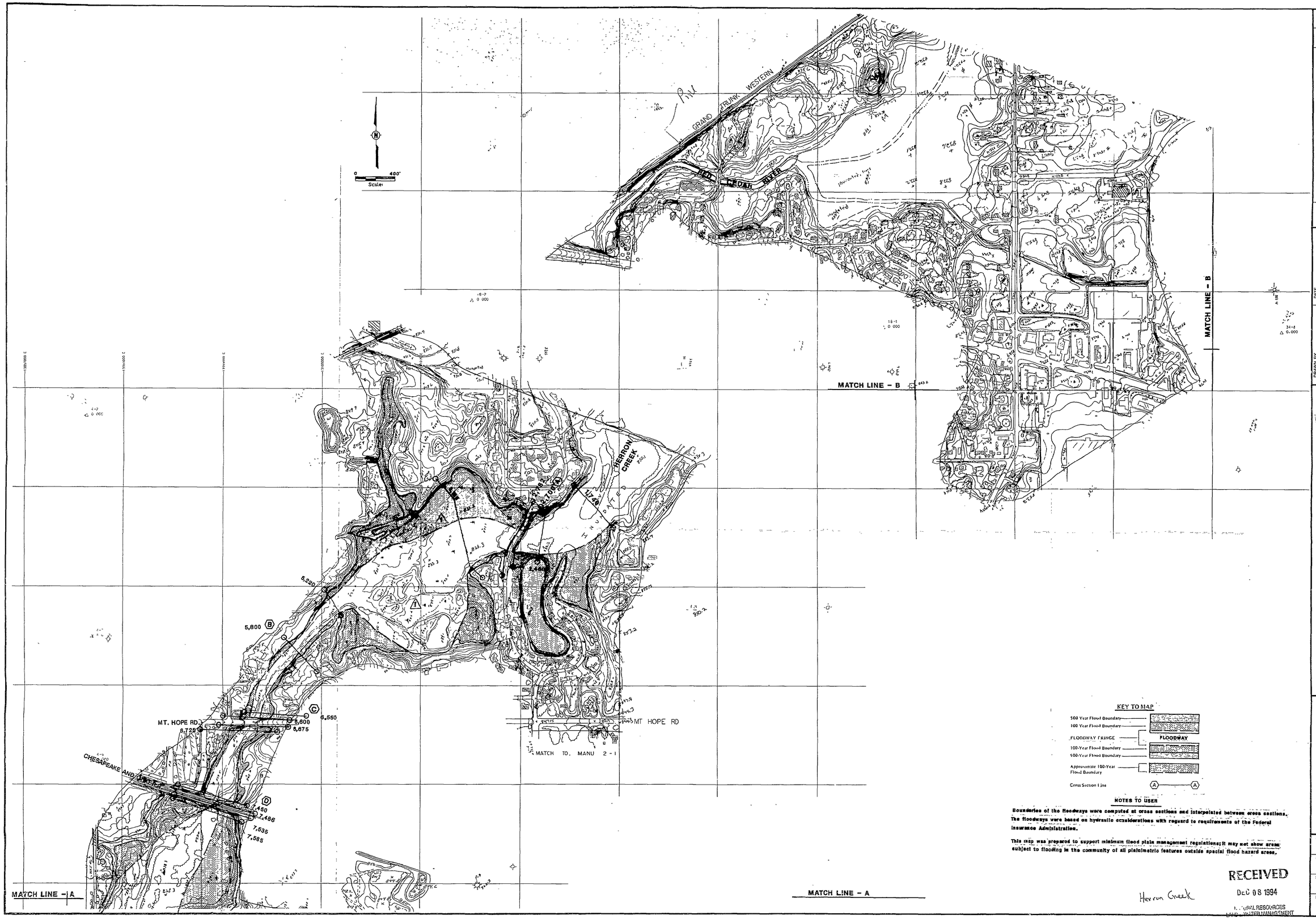
STS Consultants Ltd.
Consulting Engineers

STS PROJECT NUMBER 71869 I

STS PROJECT FILE

SCALE 1" = 400'

SHEET NUMBER 1



KEY TO MAP

500 Year Flood Boundary
100 Year Flood Boundary
FLOODWAY FRINGE — FLOODWAY
100-Year Flood Boundary
500-Year Flood Boundary
Approximate 100-Year Flood Boundary
Cross Section Line

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the Federal Insurance Administration.

This map was prepared to support minimum flood plain management regulations; it may not show areas subject to flooding in the community of all planimetric features outside special flood hazard areas.

Herron Creek

RECEIVED
DEC 08 1994
NATURAL RESOURCES
LAND & WATER MANAGEMENT

REVISION NO	DESCRIPTION	DATE	BY
1	Revised Floodway Delineation between Sec. 1 & 2		

DRAWN BY CHG — DATE 2/94
CHECKED BY — DATE
APPROVED BY — DATE
CADFILE

FLOOD INSURANCE STUDY
WORK MAP
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN.

STS Consultants Ltd.
Consulting Engineers

STS PROJECT NUMBER 71869 I
STS PROJECT FILE
SCALE 1" = 400'
SHEET NUMBER 2

THIS RUN EXECUTED 11FEB94 10:44:32

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**************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.0;  February 1991
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T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 100-YEAR FLOOD PROFILE - STS CONSULTANTS LTD. 1/94 MMW
T3SMITH DRAIN- NATURAL 100 YEAR PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	837.25	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.0	115.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	0.1	0.1	.065	0.3	0.5					
QT	2.0	465.0	465.0							
ET	0.0	0.0	1.4							
X1	100.0	18.0	531.0	562.0	0.0	0.0	0.0			
GR	850.0	0.0	840.0	110.0	838.1	200.0	840.0	250.0	840.0	460.0
GR	838.0	485.0	836.0	525.0	835.5	531.0	834.8	531.5	834.1	532.0
GR	831.5	535.0	834.1	547.0	834.8	555.0	835.3	562.0	838.0	642.0
GR	840.0	672.0	842.0	737.0	850.0	817.0				
X1	540.0	23.0	300.0	315.0	400.0	400.0	440.0			
GR	853.8	0.0	850.8	100.0	850.0	200.0	848.0	210.0	840.0	240.0
GR	836.8	270.0	836.9	290.0	836.6	300.0	835.7	304.0	834.1	305.0
GR	834.2	307.0	835.6	310.0	836.4	311.0	836.8	315.0	836.7	329.0
GR	836.5	350.0	837.3	370.0	840.0	380.0	850.0	420.0	854.0	440.0
GR	854.0	540.0	856.0	580.0	857.0	740.0				
ET	0.0	0.0	6.1			0.0	750.0			
X1	980.0	29.0	290.5	302.5	440.0	440.0	440.0			
X3	10.0							849.0	849.0	
GR	852.5	0.0	852.0	100.0	850.0	120.0	848.0	125.0	846.0	145.0
GR	844.0	265.0	842.0	270.0	841.6	275.0	841.6	281.5	839.7	286.5
GR	838.1	290.5	837.4	291.0	837.0	293.5	837.8	297.0	837.2	300.0
GR	837.3	301.0	838.1	302.5	839.1	305.0	840.2	314.0	840.9	325.0
GR	844.0	340.0	846.0	360.0	848.0	384.0	849.7	389.0	850.0	390.0
GR	852.0	420.0	854.0	460.0	856.0	720.0	856.6	750.0		

SC	2.024	0.2	2.7	0.0	6.0	0.0	60.0	2.1	837.9	837.2
ET	0.0	0.0	6.1			0.0	750.0			
X1	1040.0	30.0	290.5	302.5	60.0	60.0	60.0			
X2	0.0	0.0	2.0	0.0	849.1	0.0	0.0	0.0	0.0	0.0
X3	10.0							849.1	849.1	
BT	6.0	0.0	851.9	0.0	120.0	850.0	0.0	300.0	849.1	0.0
BT	389.0	849.7	0.0	480.0	850.0	0.0	580.0	852.0	0.0	
GR	852.5	0.0	852.0	100.0	850.0	120.0	848.0	125.0	846.0	145.0
GR	844.0	265.0	842.0	270.0	841.6	275.0	841.6	281.5	839.7	286.5
GR	838.1	290.5	837.4	291.0	837.0	293.5	837.8	297.0	837.2	300.0
GR	837.3	301.0	838.1	302.5	839.1	305.0	840.2	314.0	840.9	325.0
GR	844.0	340.0	846.0	360.0	848.0	384.0	849.7	389.0	852.0	420.0
GR	854.0	460.0	854.15	480.0	854.92	580.0	856.0	720.0	856.6	750.0
ET	0.0	0.0	1.4							
X1	1140.0	14.0	230.0	250.0	100.0	100.0	100.0			
GR	852.0	0.0	850.0	20.0	846.0	65.0	844.0	85.0	842.0	120.0
GR	840.0	230.0	839.5	232.0	839.0	240.0	839.5	248.0	840.0	250.0
GR	842.0	270.0	846.0	300.0	850.0	340.0	852.0	350.0		
X1	1700.0	14.0	460.0	515.0	560.0	560.0	560.0			
GR	854.0	0.0	852.0	120.0	850.0	165.0	846.0	220.0	845.3	280.0
GR	845.9	410.0	844.0	460.0	843.0	475.0	842.0	490.0	843.0	505.0
GR	844.0	515.0	846.0	545.0	850.0	570.0	852.0	700.0		
ET	0.0	0.0	6.1			0.0	1351.0			
X1	2300.0	28.0	333.0	339.0	500.0	600.0	600.0			
X3	10.0							860.0	860.0	
X4	1.0	846.0	330.0							
GR	858.0	0.0	856.0	40.0	854.0	100.0	852.0	200.0	850.0	220.0
GR	849.7	237.0	848.0	320.0	848.0	321.0	847.4	326.0	844.8	333.0
GR	843.9	334.0	844.0	335.0	844.0	336.0	844.1	337.0	844.0	338.0
GR	844.3	339.0	844.4	340.0	844.8	344.5	847.5	348.0	848.5	350.5
GR	848.7	361.0	849.0	437.0	850.0	661.0	851.8	837.0	852.0	861.0
GR	854.0	1041.0	856.0	1141.0	857.9	1351.0				
SC	1.024	0.2	2.7	0.0	6.0	0.0	50.0	2.1	845.2	843.9
ET	0.0	0.0	6.1			0.0	1352.0			
X1	2350.0	29.0	333.0	339.0	50.0	50.0	50.0			
X2	0.0	0.0	2.0	0.0	860.0					
X3	10.0			0.0		0.0		860.0	860.0	
X4	1.0	846.0	330.0							
BT	4.0	0.0	862.0	0.0	1.0	860.0	0.0	300.0	860.0	0.0
BT	301.0	862.0	0.0							
GR	862.0	0.0	856.0	40.0	854.0	100.0	852.0	200.0	850.0	220.0
GR	849.7	237.0	848.0	320.0	848.0	321.0	847.4	326.0	845.2	333.0
GR	845.2	334.0	845.2	335.0	845.2	336.0	845.2	337.0	845.2	338.0
GR	845.2	339.0	845.5	340.0	846.0	344.5	847.5	348.0	848.5	350.5
GR	848.7	361.0	849.0	437.0	850.0	661.0	851.8	837.0	852.0	861.0
GR	854.0	1041.0	856.0	1141.0	857.9	1351.0	862.0	1352.0		

X1	2410.0	16.0	540.0	547.0	60.0	100.0	60.0			
X3				460.0		610.0				
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	280.0	854.0	350.0
GR	854.0	515.0	852.0	530.0	850.0	535.0	847.2	540.0	847.2	547.0
GR	850.0	553.0	856.0	583.0	858.0	603.0	860.0	633.0	860.0	1093.0
GR	862.0	1103.0								
SC	1.024	0.2	2.7	0.0	7.0	0.0	80.0	2.1	847.8	847.2
X1	2490.0	16.0	540.0	547.0	80.0	80.0	80.0			
X2	0.0	0.0	2.0	0.0	856.0					
X3				400.0		670.0				
BT	6.0	0.0	862.0	0.0	1.0	856.0	0.0	30.0	856.0	0.0
BT	140.0	858.0	0.0	160.0	860.0	0.0	220.0	862.0	0.0	
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	340.0	854.0	375.0
GR	850.0	410.0	848.8	440.0	847.8	450.0	847.8	540.0	847.8	547.0
GR	848.8	550.0	854.0	555.0	856.0	560.0	860.0	640.0	860.0	1050.0
GR	862.0	1200.0								
NC	0.0	0.0	.045							
ET	0.0	0.0	1.4							
X1	2590.0	16.0	440.0	550.0	100.0	100.0	100.0			
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	340.0	854.0	375.0
GR	850.0	410.0	848.8	440.0	844.0	455.0	844.0	540.0	844.0	549.0
GR	848.8	550.0	854.0	555.0	856.0	560.0	858.0	565.0	860.0	580.0
GR	862.0	605.0								
NC	0.0	0.0	0.0	0.2	0.4					
X1	3300.0	16.0	300.0	400.0	650.0	800.0	740.0			
GR	862.0	0.0	860.0	1.0	858.0	180.0	856.0	200.0	854.0	250.0
GR	852.0	280.0	850.0	290.0	848.8	300.0	844.0	308.0	844.0	390.0
GR	848.8	400.0	850.0	402.0	858.0	440.0	860.0	460.0	862.0	505.0
GR	864.0	650.0								
NC	0.0	0.0	0.065	0.3	0.5					
X1	3570.0	37.0	397.0	404.0	50.0	50.0	50.0			
X3	10.0							856.5	856.5	
X4	2.0	852.2	390.0	867.2	1000.0					
GR	870.0	0.0	866.0	100.0	862.0	200.0	861.0	240.0	860.0	292.0
GR	859.0	300.0	858.0	312.0	857.6	372.0	857.2	380.0	849.2	396.0
GR	848.4	397.0	848.0	398.0	847.6	399.0	847.2	401.0	846.81	402.0
GR	847.4	403.0	848.0	404.0	848.6	405.0	849.2	406.0	849.8	406.5
GR	852.3	410.0	854.8	415.0	855.4	419.0	855.8	432.0	856.0	437.0
GR	857.0	445.0	859.0	465.0	859.3	500.0	860.0	577.0	860.6	600.0
GR	862.0	682.0	864.0	782.0	866.0	852.0	868.0	1100.0	868.8	1200.0
GR	869.6	1300.0	870.0	1352.0						
SC	1.024	0.2	2.7	0.0	7.0	0.0	80.0	2.1	849.2	848.3
X1	3650.0	0.0	0.0	0.0	80.0	80.0	80.0			
X2	0.0	0.0	2.0	0.0	858.0					
X3	10.0	849.2						858.0	858.0	
X4	2.0	852.2	390.0	867.2	1000.0					
BT	11.0	0.0	862.9	0.0	100.0	862.3	0.0	200.0	861.0	0.0
BT	292.0	860.0	0.0	300.0	859.5	0.0	390.0	858.6	0.0	452.0

BT	858.0	0.0	502.0	858.0	0.0	702.0	860.0	0.0	802.0	862.0
BT	0.0	962.0	864.0	0.0						
ET	0.0	0.0	1.4							
X1	3900.0	17.0	355.0	370.0	300.0	200.0	250.0			
GR	862.0	0.0	861.0	20.0	860.0	30.0	858.0	210.0	856.0	250.0
GR	854.0	340.0	852.0	345.0	850.0	355.0	849.5	358.0	849.5	367.0
GR	850.0	370.0	852.0	372.0	854.0	430.0	856.0	440.0	858.0	485.0
GR	860.0	500.0	863.0	501.0						
NC	0.0	0.0	0.0	0.1	0.3					
X1	5790.0	28.0	433.5	466.5	1890.0	1890.0	1890.0			
GR	870.0	0.0	868.0	60.0	866.0	80.0	864.0	110.0	862.0	140.0
GR	860.0	200.0	860.7	260.0	860.7	360.0	860.0	380.0	862.0	400.0
GR	863.0	410.0	862.0	420.0	861.5	422.0	860.2	433.5	857.5	438.5
GR	854.8	443.5	853.9	444.5	853.9	447.0	853.6	449.0	854.3	449.5
GR	854.7	452.0	860.0	466.5	860.5	470.0	860.5	482.0	860.7	500.0
GR	862.0	550.0	864.0	650.0	865.0	700.0				
X1	6590.0	12.0	412.0	430.0	880.0	800.0	800.0			
GR	868.0	0.0	866.0	200.0	864.0	400.0	862.0	406.0	860.0	412.0
GR	856.2	415.0	856.2	426.0	860.0	430.0	862.0	436.0	864.0	466.0
GR	866.0	491.0	868.0	536.0						
NC	0.0	0.0	0.0	0.3	0.5					
X1	6750.0	14.0	432.0	446.0	160.0	160.0	160.0			
X3	10.0					550.0		866.0	866.0	
GR	868.0	0.0	866.0	100.0	864.4	280.0	864.0	400.0	862.0	420.0
GR	858.0	430.0	856.1	432.0	856.1	446.0	858.0	450.0	860.0	453.0
GR	862.0	455.0	864.0	570.0	866.0	720.0	868.0	940.0		
SC	1.017	0.4	2.7	0.0	4.5	13.0	60.0	10.1	856.3	856.1
X1	6810.0	0.0	0.0	0.0	60.0	60.0	60.0			
X2	0.0	0.0	2.0	863.2	867.0					
X3	10.0	856.3	0.0	0.0	0.0	550.0	0.0	867.0	867.0	0.0
BT	4.0	0.0	868.0	0.0	300.0	867.0	0.0	420.0	867.1	0.0
BT	421.0	870.0	0.0							
ET	0.0	0.0	1.4							
X1	6940.0	13.0	375.0	390.0	130.0	130.0	130.0			
GR	870.0	0.0	868.0	90.0	866.0	240.0	864.0	360.0	862.0	370.0
GR	860.0	375.0	857.0	378.0	857.0	387.0	860.0	390.0	862.0	460.0
GR	864.0	500.0	868.0	540.0	870.0	550.0				
NC	0.0	0.0	0.0	0.1	0.3					
X1	8480.0	25.0	495.0	524.0	1540.0	1540.0	1540.0			
GR	872.0	0.0	870.0	40.0	868.0	300.0	866.7	480.0	867.1	495.0
GR	861.4	504.0	860.1	508.0	859.2	512.0	860.2	515.0	861.8	518.0
GR	863.1	522.5	864.4	524.0	864.9	527.0	864.9	545.0	865.0	595.0
GR	866.0	605.0	868.0	685.0	870.0	765.0	872.0	815.0	872.5	865.0
GR	872.0	895.0	871.0	925.0	872.0	955.0	874.0	1005.0	876.0	1020.0

X1	10620.	32.0	399.0	431.0	2140.0	2140.0	2140.0			
GR	884.0	0.0	885.0	50.0	884.0	100.0	882.0	160.0	880.0	220.0
GR	878.0	280.0	876.0	300.0	874.0	320.0	872.0	340.0	872.0	370.0
GR	870.0	390.0	869.8	392.0	869.2	399.0	864.5	408.0	861.9	411.0
GR	861.1	414.0	861.8	416.0	864.0	418.0	868.1	424.5	870.0	431.0
GR	870.3	438.0	870.0	453.0	870.0	460.0	869.8	500.0	870.0	680.0
GR	868.6	740.0	870.0	820.0	872.0	880.0	873.9	960.0	877.0	1160.0
GR	880.0	1360.0	884.0	1460.0						
X1	11440.	12.0	550.0	560.0	820.0	820.0	820.0			
GR	876.0	0.0	874.0	70.0	872.0	190.0	870.0	320.0	868.0	550.0
GR	864.0	553.0	864.0	557.0	868.0	560.0	870.0	575.0	872.0	590.0
GR	874.0	650.0	876.0	730.0						
X1	12160.	18.0	172.5	199.0	720.0	720.0	720.0			
GR	887.0	0.0	876.0	20.0	874.0	120.0	872.8	150.0	871.9	167.0
GR	872.5	172.5	871.0	178.0	866.1	180.0	865.4	182.0	865.2	186.0
GR	865.0	188.0	865.4	190.0	873.1	199.0	875.7	208.0	876.5	218.0
GR	878.0	268.0	879.1	388.0	878.0	628.0				

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

*PROF 1

CCHV= 0.300 CEHV= 0.500

*SECNO 100.000

100.000	5.75	837.25	0.00	837.25	837.42	0.17	0.00	0.00	835.50
465.0	24.5	381.8	58.6	24.6	107.0	56.3	0.0	0.0	835.30
0.00	1.00	3.57	1.04	0.100	0.065	0.100	0.000	831.50	500.00
0.005080	0.	0.	0.	0	0	0	0.00	119.78	619.78

*SECNO 540.000

540.000	4.99	839.09	0.00	0.00	839.15	0.06	1.70	0.03	836.60
465.0	123.3	143.2	198.5	92.9	51.5	134.9	2.2	1.2	836.80
0.06	1.33	2.78	1.47	0.100	0.065	0.100	0.000	834.10	248.51
0.003273	400.	440.	400.	2	0	0	0.00	128.13	376.64

Red Cedar

846.5

*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.35

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.00 ELREA= 849.00

980.000	4.61	841.61	0.00	0.00	842.94	1.33	3.15	0.64	838.10
465.0	0.0	465.0	0.0	0.0	50.2	0.0	3.9	1.9	838.10
0.08	0.00	9.27	0.00	0.000	0.065	0.000	0.000	837.00	290.50
0.026418	440.	440.	440.	3	0	0	0.00	12.00	302.50

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	0.024	0.20	2.70	0.00	6.00	0.00	60.00	2	1	837.90	837.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 1040.000

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

SPECIAL CULVERT INLET CONTROL
EGIC = 844.470 EGOC = 844.355 PCWSE= 841.605 ELTRD= 849.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.09

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
844.47	844.36	1.53	0.	465.	5.960	56.5	849.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	6.92	843.92	0.00	0.00	844.47	0.55	1.53	0.00	838.10
465.0	0.0	465.0	0.0	0.0	78.0	0.0	4.0	1.9	838.10
0.08	0.00	5.96	0.00	0.000	0.065	0.000	0.000	837.00	290.50
0.006070	60.	60.	60.	2	0	0	0.00	12.00	302.50

*SECNO 1140.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.41

1140.000	5.71	844.71	0.00	0.00	844.72	0.01	0.08	0.16	840.00
465.0	278.3	131.6	55.1	469.0	107.0	101.3	4.8	2.1	840.00
0.12	0.59	1.23	0.54	0.100	0.065	0.100	0.000	839.00	78.00
0.000312	100.	100.	100.	2	0	0	0.00	212.25	290.25

*SECNO 1700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.18

1700.000	3.11	845.11	0.00	0.00	845.31	0.20	0.50	0.10	844.00
465.0	15.9	440.0	9.1	16.3	118.7	9.3	10.1	4.2	844.00
0.16	0.98	3.71	0.98	0.100	0.065	0.100	0.000	842.00	430.74
0.009473	560.	560.	560.	3	0	0	0.00	100.94	531.68

846.5

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

*SECNO 2300.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2300.000	7.63	851.53	0.00	0.00	853.22	1.69	7.16	0.74	844.80
465.0	0.0	465.0	0.0	0.0	44.6	0.0	11.4	4.9	844.30
0.18	0.00	10.42	0.00	0.000	0.065	0.000	0.000	843.90	333.00
0.015603	500.	600.	600.	3	0	0	0.00	6.00	339.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	6.00	0.00	50.00	2	1	845.20	843.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2350.000

SPECIAL CULVERT INLET CONTROL
EGIC = 859.513 EGOC = 858.625 PCWSE= 851.531 ELTRD= 860.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.93

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.51	858.63	6.30	0.	465.	5.605	28.3	860.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2350.000	13.82	859.02	0.00	0.00	859.51	0.49	6.30	0.00	845.20
465.0	0.0	465.0	0.0	0.0	83.0	0.0	11.5	4.9	845.20
0.18	0.00	5.61	0.00	0.000	0.065	0.000	0.000	845.20	333.00
0.001811	50.	50.	50.	2	0	0	0.00	6.00	339.00

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

*SECNO 2410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.82

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

2410.000	12.47	859.67	0.00	0.00	859.67	0.01	0.01	0.14	847.20
465.0	223.4	94.6	147.0	510.1	87.2	329.6	12.3	5.0	847.20
0.21	0.44	1.08	0.45	0.100	0.065	0.100	0.000	847.20	460.00
0.000078	60.	60.	100.	0	0	0	0.00	150.00	610.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	7.00	0.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.56

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
858.14	863.83	0.00	440.	23.	0.410	38.5	856.00	156.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

2490.000	11.87	859.67	0.00	0.00	859.68	0.00	0.00	0.00	847.80
465.0	402.1	34.1	28.9	1581.8	83.1	234.0	14.9	5.4	847.80
0.30	0.25	0.41	0.12	0.100	0.065	0.100	0.000	847.80	400.00
0.000012	80.	80.	80.	0	0	0	0.00	233.51	633.51

*SECNO 2590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.89

2590.000	15.68	859.68	0.00	0.00	859.68	0.00	0.00	0.00	848.80
465.0	62.5	398.4	4.1	1137.7	1686.3	88.3	20.4	6.2	848.80
0.43	0.05	0.24	0.05	0.100	0.045	0.100	0.000	844.00	42.59
0.000001	100.	100.	100.	0	0	0	0.00	535.00	577.59

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

CCHV= 0.200 CEHV= 0.400
*SECNO 3300.000

3300.000	15.68	859.68	0.00	0.00	859.68	0.00	0.00	0.00	848.80
465.0	47.6	402.2	15.2	803.9	1524.8	250.5	65.3	13.8	848.80
1.29	0.06	0.26	0.06	0.100	0.045	0.100	0.000	844.00	29.65
0.000002	650.	740.	800.	0	0	0	0.00	427.15	456.80

CCHV= 0.300 CEHV= 0.500
*SECNO 3570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.08

3570.000	12.86	859.67	0.00	0.00	859.69	0.02	0.00	0.01	848.40
465.0	147.2	157.3	160.5	260.7	85.1	262.7	67.1	14.2	848.00
1.30	0.56	1.85	0.61	0.100	0.065	0.100	0.000	846.81	294.63
0.000261	50.	50.	50.	1	0	0	0.00	246.20	540.83

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	7.00	0.00	80.00	2	1	849.20	848.30

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 3650.000
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.52	863.83	-0.01	442.	22.	1.882	38.5	858.00	372.

3650.000	10.45	859.65	0.00	0.00	859.68	0.02	-0.01	0.00	849.20
465.0	157.1	137.8	170.2	258.6	73.2	259.3	68.2	14.6	849.20
1.32	0.61	1.88	0.66	0.100	0.065	0.100	0.000	849.20	294.76
0.000296	80.	80.	80.	2	0	0	0.00	244.27	539.03

*SECNO 3900.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.69

3900.000	10.20	859.70	0.00	0.00	859.70	0.00	0.02	0.01	850.00
465.0	189.2	103.2	172.6	781.6	151.5	585.4	74.4	16.7	850.00
1.52	0.24	0.68	0.29	0.100	0.065	0.100	0.000	849.50	56.97
0.000041	300.	250.	200.	2	0	0	0.00	440.78	497.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.07

5790.000	6.16	859.76	0.00	0.00	860.06	0.30	0.27	0.09	860.20
465.0	0.0	465.0	0.0	0.0	106.1	0.0	109.7	26.9	860.00
1.64	0.00	4.38	0.00	0.000	0.065	0.000	0.000	853.60	434.31
0.008207	1890.	1890.	1890.	2	0	0	0.00	31.55	465.86

*SECNO 6590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.76

6590.000	7.15	863.35	0.00	0.00	863.53	0.19	3.46	0.01	860.00
465.0	20.0	418.6	26.4	16.8	115.4	27.7	112.1	27.7	860.00
1.70	1.19	3.63	0.95	0.100	0.065	0.100	0.000	856.20	401.95
0.002656	880.	800.	800.	2	0	0	0.00	54.28	456.24

CCHV= 0.300 CEHV= 0.500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS= 0.0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.00 ELREA= 866.00

6750.000	7.60	863.70	0.00	0.00	864.00	0.30	0.41	0.06	856.10
465.0	0.0	465.0	0.0	0.0	106.4	0.0	112.6	27.8	856.10
1.71	0.00	4.37	0.00	0.000	0.065	0.000	0.000	856.10	432.00
0.002446	160.	160.	160.	2	0	0	0.00	14.00	446.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.017	0.40	2.70	0.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

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

SPECIAL CULVERT OUTLET CONTROL
EGIC = 862.091 EGOC = 865.324 PCWSE= 863.700 ELTRD= 867.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
862.09	865.32	1.33	0.	465.	3.773	58.5	867.00	0.

3470 ENCROACHMENT STATIONS= 0.0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 867.00 ELREA= 867.00

6810.000	8.80	865.10	0.00	0.00	865.32	0.22	1.33	0.00	856.30
465.0	0.0	465.0	0.0	0.0	123.2	0.0	112.8	27.0	856.30
1.72	0.00	3.77	0.00	0.000	0.065	0.000	0.000	856.30	432.00
0.001499	60.	60.	60.	2	0	0	0.00	14.00	446.00

*SECNO 6940.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.26

6940.000	8.44	865.44	0.00	0.00	865.46	0.01	0.07	0.06	860.00
465.0	38.6	164.6	261.8	109.3	117.7	419.4	113.9	28.2	860.00
1.76	0.35	1.40	0.62	0.100	0.065	0.100	0.000	857.00	273.31
0.000295	130.	130.	130.	2	0	0	0.00	241.13	514.45

CCHV= 0.100 CEHV= 0.300
*SECNO 8480.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.35

8480.000	7.18	866.38	0.00	0.00	866.48	0.10	0.99	0.03	867.10
465.0	0.0	362.6	102.4	0.0	126.8	114.8	129.6	34.7	864.40
1.94	0.00	2.96	0.89	0.000	0.065	0.100	0.000	859.20	496.14
0.002376	1540.	1540.	1540.	2	0	0	0.00	123.98	620.12

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

*SECNO 10620.000

10620.000	9.27	870.37	0.00	0.00	870.43	0.06	3.95	0.00	869.20
465.0	3.6	333.5	127.9	7.7	149.3	263.8	145.9	48.7	870.00
2.28	0.47	2.23	0.48	0.100	0.065	0.100	0.000	861.10	386.27
0.001473	2140.	2140.	2140.	5	0	0	0.00	444.91	831.18

*SECNO 11440.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

11440.000	7.21	871.21	0.00	0.00	871.22	0.01	0.79	0.00	868.00
465.0	347.3	94.5	23.2	556.3	60.1	38.7	156.0	56.1	868.00
2.56	0.62	1.57	0.60	0.100	0.065	0.100	0.000	864.00	241.26
0.000678	820.	820.	820.	3	0	0	0.00	342.82	584.09

*SECNO 12160.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.31

12160.000	7.15	872.15	0.00	0.00	872.46	0.31	1.15	0.09	872.50
465.0	0.3	464.7	0.0	0.9	104.4	0.0	162.3	59.2	873.10
2.60	0.32	4.45	0.00	0.100	0.065	0.000	0.000	865.00	162.29
0.007248	720.	720.	720.	2	0	0	0.00	31.11	197.89

T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 100-YEAR FLOOD PROFILE - STS CONSULTANTS LTD. 1/94 MMW
T3SMITH DRAIN- FLOODWAY RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	837.35	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 100.000
2800 NAT Q1= 65.24 WSEL= 837.25 ENC Q1= 65.24 WSEL= 837.35 RATIO= 0.0000
NAT Q1= 70. RATIOS LOB, CH, ROB= 0.0579 0.8071 0.1350 WSEL= 837.35

3470 ENCROACHMENT STATIONS= 524.5 583.2 TYPE= 4 TARGET= 0.063

100.000	5.85	837.35	0.00	837.25	837.53	0.18	0.00	0.00	835.50
465.0	14.2	399.2	51.6	10.2	110.1	35.8	0.0	0.0	835.30
0.00	1.38	3.63	1.44	0.100	0.065	0.100	0.000	831.50	524.52
0.005050	0.	0.	0.	0	0	0	0.00	58.55	583.17

*SECNO 540.000
2800 NAT Q1= 81.28 WSEL= 839.09 ENC Q1= 81.28 WSEL= 839.19 RATIO= 0.0000
NAT Q1= 87. RATIOS LOB, CH, ROB= 0.2687 0.3025 0.4289 WSEL= 839.19

3470 ENCROACHMENT STATIONS= 266.4 367.7 TYPE= 4 TARGET= 0.063

540.000	5.10	839.20	0.00	839.09	839.26	0.06	1.70	0.03	836.60
465.0	116.5	150.3	198.2	79.4	53.1	130.4	2.0	0.8	836.80
0.06	1.47	2.83	1.52	0.100	0.065	0.100	0.000	834.10	266.41
0.003255	400.	440.	400.	2	0	0	0.00	101.30	367.71

*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.00 ELREA= 849.00

980.000	4.68	841.68	0.00	841.61	842.97	1.29	3.09	0.61	838.10
465.0	0.0	465.0	0.0	0.0	51.1	0.0	3.6	1.3	838.10
0.07	0.00	9.11	0.00	0.000	0.065	0.000	0.000	837.00	290.50
0.024954	440.	440.	440.	3	0	0	0.00	12.00	302.50

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	0.024	0.20	2.70	0.00	6.00	0.00	60.00	2	1	837.90	837.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 1040.000

SPECIAL CULVERT INLET CONTROL
EGIC = 844.470 EGOC = 844.357 PCWSE= 841.677 ELTRD= 849.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.03

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
844.47	844.36	1.50	0.	465.	5.960	56.5	849.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	6.92	843.92	0.00	843.92	844.47	0.55	1.50	0.00	838.10
465.0	0.0	465.0	0.0	0.0	78.0	0.0	3.7	1.3	838.10
0.08	0.00	5.96	0.00	0.000	0.065	0.000	0.000	837.00	290.50
0.006070	60.	60.	60.	2	0	0	0.00	12.00	302.50

*SECNO 1140.000
2800 NAT Q1= 263.05 WSEL= 844.71 ENC Q1= 263.05 WSEL= 844.81 RATIO= 0.0000
NAT Q1= 276. RATIOS LOB, CH, ROB= 0.6014 0.2790 0.1195 WSEL= 844.81

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.25

3470 ENCROACHMENT STATIONS= 106.9 271.4 TYPE= 4 TARGET= 0.046

1140.000	5.71	844.71	0.00	844.71	844.72	0.01	0.09	0.16	840.00
465.0	279.2	136.7	49.1	438.2	107.1	77.8	4.5	1.5	840.00
0.11	0.64	1.28	0.63	0.100	0.065	0.100	0.000	839.00	106.88
0.000336	100.	100.	100.	2	0	0	0.00	164.54	271.42

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

*SECNO 1700.000
2800 NAT Q1= 47.77 WSEL= 845.11 ENC Q1= 48.70 WSEL= 845.21 RATIO= -0.0193
NAT Q1= 52. RATIOS LOB, CH, ROB= 0.0395 0.9381 0.0225 WSEL= 845.21

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.18

3470 ENCROACHMENT STATIONS= 460.0 515.0 TYPE= 4 TARGET= 0.062

1700.000	3.14	845.14	0.00	845.11	845.37	0.23	0.54	0.11	844.00
465.0	0.0	465.0	0.0	0.0	120.3	0.0	9.3	3.0	844.00
0.15	0.00	3.87	0.00	0.000	0.065	0.000	0.000	842.00	460.00
0.010669	560.	560.	560.	3	0	0	0.00	55.00	515.00

*SECNO 2300.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00
EG: 853.22 WRT

2300.000	7.87	851.77	0.00	851.53	853.35	1.58	7.31	0.67	844.80
465.0	0.0	465.0	0.0	0.0	46.1	0.0	10.4	3.4	844.30
0.17	0.00	10.09	0.00	0.000	0.065	0.000	0.000	843.90	333.00
0.014025	500.	600.	600.	4	0	0	0.00	6.00	339.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	6.00	0.00	50.00	2	1	845.20	843.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2350.000

SPECIAL CULVERT INLET CONTROL
EGIC = 859.513 EGOC = 858.866 PCWSE= 851.772 ELTRD= 860.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.78

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.51	858.87	6.16	0.	465.	5.605	28.3	860.00	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2350.000	13.82	859.02	0.00	859.02	859.51	0.49	6.16	0.00	845.20
465.0	0.0	465.0	0.0	0.0	83.0	0.0	10.5	3.4	845.20
0.17	0.00	5.51	0.00	0.000	0.065	0.000	0.000	845.20	333.00
0.001811	50.	50.	50.	2	0	0	0.00	6.00	339.00

*SECNO 2410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.83

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

2410.000	12.47	859.67	0.00	859.67	859.67	0.01	0.01	0.14	847.20
465.0	223.4	94.6	147.0	510.2	87.3	329.7	11.3	3.5	847.20
0.20	0.44	1.08	0.45	0.100	0.065	0.100	0.000	847.20	460.00
0.000078	60.	60.	100.	2	0	0	0.00	150.00	610.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	7.00	0.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.56

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
858.14	863.83	0.00	440.	23.	0.410	38.5	856.00	156.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2490.000	11.87	859.67	0.00	859.67	859.68	0.00	0.00	0.00	847.80
465.0	402.1	34.1	28.9	1581.8	83.1	234.0	13.9	3.9	847.80
0.29	0.25	0.41	0.12	0.100	0.065	0.100	0.000	847.80	400.00
0.000012	80.	80.	80.	0	0	0	0.00	233.51	633.51

*SECNO 2590.000
2800 NAT Q1= 3901.87 WSEL= 859.68 ENC Q1= 3901.87 WSEL= 859.78 RATIO= 0.0000
NAT Q1= 3955. RATIOS LOB, CH, ROB= 0.1369 0.8542 0.0089 WSEL= 859.78

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.85

3470 ENCROACHMENT STATIONS= 255.4 553.5 TYPE= 4 TARGET= 0.013

2590.000	15.68	859.68	0.00	859.68	859.68	0.00	0.00	0.00	848.80
465.0	60.5	403.4	1.1	962.1	1685.8	32.0	19.2	4.5	848.80
0.42	0.06	0.24	0.03	0.100	0.045	0.100	0.000	844.00	255.40
0.000001	100.	100.	100.	0	0	0	0.00	298.14	553.55

CCHV= 0.200 CEHV= 0.400
*SECNO 3300.000
2800 NAT Q1= 3523.38 WSEL= 859.68 ENC Q1= 3523.38 WSEL= 859.78 RATIO= 0.0000
NAT Q1= 3570. RATIOS LOB, CH, ROB= 0.1042 0.8625 0.0333 WSEL= 859.78

3470 ENCROACHMENT STATIONS= 185.8 425.5 TYPE= 4 TARGET= 0.013

3300.000	15.68	859.68	0.00	859.68	859.68	0.00	0.00	0.00	848.80
465.0	45.4	406.9	12.7	665.8	1524.4	189.8	60.6	8.8	848.80
1.26	0.07	0.27	0.07	0.100	0.045	0.100	0.000	844.00	185.78
0.000002	650.	740.	800.	0	0	0	0.00	239.72	425.50

CCHV= 0.300 CEHV= 0.500
*SECNO 3570.000
2800 NAT Q1= 288.02 WSEL= 859.67 ENC Q1= 288.02 WSEL= 859.77 RATIO= 0.0000
NAT Q1= 298. RATIOS LOB, CH, ROB= 0.3204 0.3315 0.3481 WSEL= 859.77

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.08

3470 ENCROACHMENT STATIONS= 315.7 456.7 TYPE= 4 TARGET= 0.032

3570.000	12.86	859.67	0.00	859.67	859.69	0.02	0.00	0.01	848.40
465.0	144.4	161.6	159.0	238.8	85.1	228.1	62.3	9.0	848.00
1.27	0.60	1.90	0.70	0.100	0.065	0.100	0.000	846.81	315.73
0.000275	50.	50.	50.	1	0	0	0.00	141.02	456.75

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.20	2.70	0.00	7.00	0.00	80.00	2	1	849.20	848.30

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 3650.000
2800 NAT Q1= 270.05 WSEL= 859.65 ENC Q1= 270.05 WSEL= 859.75 RATIO= 0.0000
NAT Q1= 280. RATIOS LOB, CH, ROB= 0.3413 0.2901 0.3685 WSEL= 859.75
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.52	863.83	-0.01	442.	22.	1.943	38.5	858.00	372.

3470 ENCROACHMENT STATIONS= 316.5 455.7 TYPE= 4 TARGET= 0.036

3650.000	10.45	859.65	0.00	859.65	859.67	0.02	-0.01	0.00	849.20
465.0	154.1	142.1	168.7	235.3	73.2	224.0	63.3	9.2	849.20
1.29	0.65	1.94	0.75	0.100	0.065	0.100	0.000	849.20	316.45
0.000316	80.	80.	80.	2	0	0	0.00	139.21	455.66

*SECNO 3900.000
2800 NAT Q1= 726.54 WSEL= 859.70 ENC Q1= 726.54 WSEL= 859.80 RATIO= 0.0000
NAT Q1= 750. RATIOS LOB, CH, ROB= 0.4108 0.2185 0.3706 WSEL= 859.80

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.70

3470 ENCROACHMENT STATIONS= 184.1 468.4 TYPE= 4 TARGET= 0.031

3900.000	10.20	859.70	0.00	859.70	859.70	0.00	0.02	0.01	850.00
465.0	188.2	106.2	170.5	691.0	151.4	539.7	68.9	10.5	850.00
1.47	0.27	0.70	0.32	0.100	0.065	0.100	0.000	849.50	184.09
0.000043	300.	250.	200.	0	0	0	0.00	284.31	468.40

CCHV= 0.100 CEHV= 0.300
*SECNO 5790.000
2800 NAT Q1= 51.33 WSEL= 859.76 ENC Q1= 53.37 WSEL= 859.86 RATIO= -0.0397
NAT Q1= 53. RATIOS LOB, CH, ROB= 0.0000 1.0000 0.0000 WSEL= 859.86

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.07

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

3470 ENCROACHMENT STATIONS= 433.5 466.5 TYPE= 4 TARGET= 0.000

5790.000	6.18	859.78	0.00	859.76	860.08	0.29	0.29	0.09	860.20
465.0	0.0	465.0	0.0	0.0	106.9	0.0	101.2	17.4	860.00
1.59	0.00	4.35	0.00	0.000	0.065	0.000	0.000	853.60	434.26
0.008038	1890.	1890.	1890.	3	0	0	0.00	31.67	465.93

*SECNO 6590.000
2800 NAT Q1= 90.22 WSEL= 863.35 ENC Q1= 90.22 WSEL= 863.45 RATIO= 0.0000
NAT Q1= 93. RATIOS LOB, CH, ROB= 0.0450 0.8938 0.0612 WSEL= 863.45

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.71

3470 ENCROACHMENT STATIONS= 407.3 437.7 TYPE= 4 TARGET= 0.032

6590.000	7.19	863.39	0.00	863.35	863.59	0.20	3.50	0.01	860.00
465.0	14.2	430.0	20.8	12.3	116.1	16.6	103.5	17.9	860.00
1.65	1.16	3.70	1.25	0.100	0.065	0.100	0.000	856.20	407.28
0.002743	880.	800.	800.	2	0	0	0.00	30.42	437.71

CCHV= 0.300 CEHV= 0.500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS= 0.0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.00 ELREA= 866.00

6750.000	7.65	863.75	0.00	863.70	864.04	0.29	0.41	0.05	856.10
465.0	0.0	465.0	0.0	0.0	107.1	0.0	104.0	18.0	856.10
1.66	0.00	4.34	0.00	0.000	0.065	0.000	0.000	856.10	432.00
0.002391	160.	160.	160.	2	0	0	0.00	14.00	446.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.017	0.40	2.70	0.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

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

SPECIAL CULVERT OUTLET CONTROL
EGIC = 862.091 EGOC = 865.376 PCWSE= 863.752 ELTRD= 867.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
862.09	865.38	1.33	0.	465.	3.750	58.5	867.00	0.

3470 ENCROACHMENT STATIONS= 0.0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 867.00 ELREA= 867.00

6810.000	8.86	865.16	0.00	865.10	865.38	0.22	1.33	0.00	856.30
465.0	0.0	465.0	0.0	0.0	124.0	0.0	104.1	18.0	856.30
1.67	0.00	3.75	0.00	0.000	0.065	0.000	0.000	856.30	432.00
0.001468	60.	60.	60.	2	0	0	0.00	14.00	446.00

*SECNO 6940.000
2800 NAT Q1= 270.95 WSEL= 865.44 ENC Q1= 270.95 WSEL= 865.54 RATIO= 0.0000
NAT Q1= 282. RATIOS LOB, CH, ROB= 0.0877 0.3473 0.5650 WSEL= 865.54

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.20

3470 ENCROACHMENT STATIONS= 346.4 491.4 TYPE= 4 TARGET= 0.039

6940.000	8.50	865.50	0.00	865.44	865.51	0.02	0.07	0.06	860.00
465.0	32.5	169.1	263.4	66.2	118.4	399.8	105.2	18.3	860.00
1.71	0.49	1.43	0.66	0.100	0.065	0.100	0.000	857.00	346.44
0.000304	130.	130.	130.	2	0	0	0.00	144.96	491.39

CCHV= 0.100 CEHV= 0.300
*SECNO 8480.000
2800 NAT Q1= 95.39 WSEL= 866.38 ENC Q1= 95.39 WSEL= 866.48 RATIO= 0.0000
NAT Q1= 100. RATIOS LOB, CH, ROB= 0.0000 0.7647 0.2353 WSEL= 866.48

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.35

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

3470 ENCROACHMENT STATIONS= 495.0 584.6 TYPE= 4 TARGET= 0.050

8480.000	7.25	866.45	0.00	866.38	866.56	0.11	1.02	0.03	867.10
465.0	0.0	375.2	89.8	0.0	128.9	93.4	119.5	22.4	864.40
1.88	0.00	2.91	0.96	0.000	0.065	0.100	0.000	859.20	496.02
0.002423	1540.	1540.	1540.	2	0	0	0.00	88.58	584.60

*SECNO 10620.000
2800 NAT Q1= 121.17 WSEL= 870.37 ENC Q1= 121.17 WSEL= 870.47 RATIO= 0.0000
NAT Q1= 132. RATIOS LOB, CH, ROB= 0.0089 0.6810 0.3102 WSEL= 870.47

3470 ENCROACHMENT STATIONS= 399.0 756.6 TYPE= 4 TARGET= 0.083

10620.000	9.39	870.49	0.00	870.37	870.55	0.06	3.99	0.01	869.20
465.0	0.0	340.4	124.6	0.0	153.2	242.2	134.6	33.4	870.00
2.21	0.00	2.22	0.51	0.000	0.065	0.100	0.000	861.10	399.00
0.001476	2140.	2140.	2140.	3	0	0	0.00	357.58	756.58

*SECNO 11440.000
2800 NAT Q1= 178.57 WSEL= 871.21 ENC Q1= 178.57 WSEL= 871.31 RATIO= 0.0000
NAT Q1= 191. RATIOS LOB, CH, ROB= 0.7543 0.1951 0.0505 WSEL= 871.31

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.49

3470 ENCROACHMENT STATIONS= 316.9 564.5 TYPE= 4 TARGET= 0.066

11440.000	7.32	871.32	0.00	871.21	871.33	0.01	0.78	0.00	868.00
465.0	360.7	96.4	7.9	539.4	61.3	13.6	144.1	39.1	868.00
2.48	0.67	1.57	0.58	0.100	0.065	0.100	0.000	864.00	316.86
0.000661	820.	820.	820.	1	0	0	0.00	247.64	564.50

*SECNO 12160.000
2800 NAT Q1= 54.62 WSEL= 872.15 ENC Q1= 56.06 WSEL= 872.25 RATIO= -0.0264
NAT Q1= 56. RATIOS LOB, CH, ROB= 0.0014 0.9986 0.0000 WSEL= 872.25

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.31

3470 ENCROACHMENT STATIONS= 172.5 199.0 TYPE= 4 TARGET= 0.001

12160.000	7.23	872.23	0.00	872.15	872.53	0.30	1.11	0.08	872.50
465.0	0.0	465.0	0.0	0.0	106.5	0.0	150.1	41.3	873.10
2.52	0.00	4.36	0.00	0.000	0.065	0.000	0.000	865.00	173.47
0.006931	720.	720.	720.	3	0	0	0.00	24.52	197.99

THIS RUN EXECUTED 11FEB94 10:44:37

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HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DRAIN- NATURAL 100 YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	100.000	837.25	0.00	837.42	119.78	24.55	381.81	58.64	0.00	0.00	531.00	562.00	0.00
1	100.000	837.35	0.10	837.53	58.65	14.18	399.24	51.59	0.06	524.52	531.00	562.00	583.17
	540.000 A	839.09	0.00	839.15	128.13	123.30	143.23	198.47	0.00	0.00	300.00	315.00	0.00
2	540.000 A	839.20	0.11	839.26	101.30	116.55	150.30	198.15	0.06	256.41	300.00	315.00	367.71
*	980.000	841.61	0.00	842.94	12.00	0.00	465.00	0.00	0.00	0.00	290.50	302.50	0.00
* 3	980.000	841.68	0.07	842.97	12.00	0.00	465.00	0.00	750.00	0.00	290.50	302.50	750.00
*	1040.000	843.92	0.00	844.47	12.00	0.00	465.00	0.00	0.00	0.00	290.50	302.50	0.00
* 4	1040.000	843.92	0.00	844.47	12.00	0.00	465.00	0.00	750.00	0.00	290.50	302.50	750.00
*	1140.000	844.71	0.00	844.72	212.25	278.32	131.61	55.07	0.00	0.00	230.00	250.00	0.00
* 5	1140.000	844.71	0.00	844.72	164.54	279.16	136.69	49.15	0.05	106.88	230.00	250.00	271.42
*	1700.000 B	845.11	0.00	845.31	100.94	15.90	440.04	9.05	0.00	0.00	460.00	515.00	0.00
* 6	1700.000 B	845.14	0.03	845.37	55.00	0.00	465.00	0.00	0.06	460.00	460.00	515.00	515.00
	2300.000	851.53	0.00	853.22	6.00	0.00	465.00	0.00	0.00	0.00	333.00	339.00	0.00
7	2300.000	851.77	0.24	853.35	6.00	0.00	465.00	0.00	1351.00	0.00	333.00	339.00	1351.00
*	2350.000	859.02	0.00	859.51	6.00	0.00	465.00	0.00	0.00	0.00	333.00	339.00	0.00
* 8	2350.000	859.02	0.00	859.51	6.00	0.00	465.00	0.00	1352.00	0.00	333.00	339.00	1352.00
*	2410.000	859.67	0.00	859.67	150.00	223.41	94.62	146.97	150.00	460.00	540.00	547.00	610.00
* 9	2410.000	859.67	0.00	859.67	150.00	223.42	94.60	146.98	150.00	460.00	540.00	547.00	610.00
*	2490.000	859.67	0.00	859.68	233.51	402.06	34.07	28.86	270.00	400.00	540.00	547.00	670.00
* 10	2490.000	859.67	0.00	859.68	233.51	402.06	34.07	28.86	270.00	400.00	540.00	547.00	670.00
*	2590.000	859.68	0.00	859.68	535.00	62.55	398.40	4.05	0.00	0.00	440.00	550.00	0.00
* 11	2590.000 C	859.68	0.00	859.68	298.14	60.54	403.37	1.09	0.01	255.40	440.00	550.00	553.55

	SECNO		CWSEL	DIFFWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3300.000		859.68	0.00	859.68	427.15	47.56	402.19	15.25	0.00	0.00	300.00	400.00	0.00
12	3300.000		859.68	0.00	859.68	239.72	45.38	406.92	12.70	0.01	185.78	300.00	400.00	425.50
*	3570.000		859.67	0.00	859.69	246.20	147.24	157.27	160.49	0.00	0.00	397.00	404.00	0.00
* 13	3570.000		859.67	0.00	859.69	141.02	144.40	161.61	158.98	0.03	315.73	397.00	404.00	456.75
	3650.000		859.65	0.00	859.68	244.27	157.06	137.75	170.19	0.00	0.00	397.00	404.00	0.00
14	3650.000		859.65	0.00	859.67	139.21	154.11	142.14	168.75	0.04	316.45	397.00	404.00	455.66
*	3900.000	D	859.70	0.00	859.70	440.78	189.22	103.21	172.57	0.00	0.00	355.00	370.00	0.00
* 15	3900.000	D	859.70	0.00	859.70	284.31	188.23	106.22	170.55	0.03	184.09	355.00	370.00	468.40
*	5790.000	E	859.76	0.00	860.06	31.55	0.00	465.00	0.00	0.00	0.00	433.50	466.50	0.00
* 16	5790.000	E	859.78	0.02	860.08	31.67	0.00	465.00	0.00	0.00	433.50	433.50	466.50	466.50
*	6590.000	F	863.35	0.00	863.53	54.28	19.97	418.58	26.44	0.00	0.00	412.00	430.00	0.00
* 17	6590.000	F	863.39	0.04	863.59	30.42	14.21	430.04	20.76	0.03	407.28	412.00	430.00	437.71
	6750.000		863.70	0.00	864.00	14.00	0.00	465.00	0.00	550.00	0.00	432.00	446.00	550.00
18	6750.000		863.75	0.05	864.04	14.00	0.00	465.00	0.00	550.00	0.00	432.00	446.00	550.00
	6810.000		865.10	0.00	865.32	14.00	0.00	465.00	0.00	550.00	0.00	432.00	446.00	550.00
19	6810.000		865.16	0.05	865.38	14.00	0.00	465.00	0.00	550.00	0.00	432.00	446.00	550.00
*	6940.000	G	865.44	0.00	865.46	241.13	38.61	164.58	261.82	0.00	0.00	375.00	390.00	0.00
* 20	6940.000	G	865.50	0.05	865.51	144.96	32.54	169.11	263.35	0.04	346.44	375.00	390.00	491.39
*	8480.000	H	866.38	0.00	866.48	123.98	0.00	362.55	102.45	0.00	0.00	495.00	524.00	0.00
* 21	8480.000	H	866.45	0.08	866.56	88.58	0.00	375.25	89.75	0.05	495.00	495.00	524.00	584.60
	10620.000	I	870.37	0.00	870.43	444.91	3.63	333.46	127.91	0.00	0.00	399.00	431.00	0.00
22	10620.000	I	870.49	0.12	870.55	357.58	0.00	340.40	124.60	0.08	399.00	399.00	431.00	756.58
*	11440.000		871.21	0.00	871.22	342.82	347.28	94.55	23.18	0.00	0.00	550.00	560.00	0.00
* 23	11440.000		871.32	0.11	871.33	247.64	360.70	96.39	7.91	0.07	316.86	550.00	560.00	564.50
*	12160.000	J	872.15	0.00	872.46	31.11	0.28	464.72	0.00	0.00	0.00	172.50	199.00	0.00
* 24	12160.000	J	872.23	0.09	872.53	24.52	0.00	465.00	0.00	0.00	172.50	172.50	199.00	199.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 980.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 980.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1040.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 1040.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1140.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 1140.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 1700.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2350.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2350.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2410.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO= 5790.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO= 12160.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 12160.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

Floodway width summary: DRAIN- NATURAL 100 YEAR
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
100.000	0.10	58.65	524.52	21.98	546.50	36.67	583.17
540.000	0.11	101.30	266.41	41.09	307.50	60.21	367.71
980.000	0.07	750.00	0.00	296.50	296.50	453.50	750.00
1040.000	0.00	750.00	0.00	296.50	296.50	453.50	750.00
1140.000	0.00	164.54	106.88	133.12	240.00	31.42	271.42
1700.000	0.03	55.00	460.00	27.50	487.50	27.50	515.00
2300.000	0.24	1351.00	0.00	336.00	336.00	1015.00	1351.00
2350.000	0.00	1352.00	0.00	336.00	336.00	1016.00	1352.00
2410.000	0.00	150.00	460.00	83.50	543.50	66.50	610.00
2490.000	0.00	270.00	400.00	143.50	543.50	126.50	670.00
2590.000	0.00	298.15	255.40	239.60	495.00	58.55	553.55
3300.000	0.00	239.72	185.78	164.22	350.00	75.50	425.50
3570.000	0.00	141.02	315.73	84.77	400.50	56.25	456.75
3650.000	0.00	139.21	316.45	84.05	400.50	55.16	155.66
3900.000	0.00	284.31	184.09	178.41	362.50	105.90	468.40
5790.000	0.02	33.00	433.50	16.50	450.00	16.50	466.50
6590.000	0.04	30.43	407.28	13.72	421.00	16.71	437.71
6750.000	0.05	550.00	0.00	439.00	439.00	111.00	550.00
6810.000	0.05	550.00	0.00	439.00	439.00	111.00	550.00
6940.000	0.05	144.96	346.44	36.06	382.50	108.89	491.39
8480.000	0.08	89.60	495.00	14.50	509.50	75.10	584.60
10620.000	0.12	357.58	399.00	16.00	415.00	341.58	756.58
11440.000	0.11	247.64	316.86	238.14	555.00	9.50	564.50
12160.000	0.09	26.50	172.50	13.25	185.75	13.25	199.00

FLOODWAY DATA, DRAIN- NATURAL 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
100.000	59.	156.	3.0	837.4	837.3	0.1
540.000	101.	263.	1.8	839.2	839.1	0.1
980.000	12.	51.	9.1	841.7	841.6	0.1
1040.000	12.	78.	6.0	843.9	843.9	0.0
1140.000	165.	623.	0.7	844.7	844.7	0.0
1700.000	55.	120.	3.9	845.1	845.1	0.0
- 2300.000	6.	46.	10.1	851.7	851.5	0.2
2350.000	6.	83.	5.6	859.0	859.0	0.0
2410.000	150.	927.	0.5	859.7	859.7	0.0
2490.000	234.	1899.	0.2	859.7	859.7	0.0
2590.000	298.	2580.	0.2	859.7	859.7	0.0
3390.000	240.	2380.	0.2	859.7	859.7	0.0
3570.000	141.	552.	0.8	859.7	859.7	0.0
3650.000	139.	532.	0.9	859.7	859.7	0.0
3900.000	284.	1382.	0.3	859.7	859.7	0.0
5790.000	32.	107.	4.3	859.8	859.8	0.0
6590.000	30.	145.	3.2	863.3	863.3	0.0
6750.000	14.	107.	4.3	863.8	863.7	0.1
6810.000	14.	124.	3.7	865.2	865.1	0.1
6940.000	145.	584.	0.8	865.5	865.4	0.1
8430.000	89.	222.	2.1	866.5	866.4	0.1
10620.000	358.	395.	1.2	870.5	870.4	0.1
11440.000	248.	614.	0.8	871.3	871.2	0.1
12160.000	25.	107.	4.4	872.2	872.1	0.1

THIS RUN EXECUTED 20JAN94 17:21:53

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK -NATURAL 100 YEAR PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	835.92	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.0	115.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	.11	.11	0.1	.30	.50					
QT	2.0	560.0	560.0	0.0	0.0					
ET	0.0	0.0	1.4							
X1	1740.0	12.0	370.0	392.0	0.0	0.0	0.0			
GR	840.0	0.0	836.0	12.0	834.0	40.0	832.0	65.0	832.0	370.0
GR	831.9	371.0	831.9	391.0	832.0	392.0	832.0	530.0	834.0	560.0
GR	836.0	568.0	840.0	590.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2460.0	10.0	350.0	372.0	660.0	820.0	720.0			
GR	840.0	0.0	834.0	35.0	832.0	90.0	832.0	350.0	831.9	351.0
GR	831.9	371.0	832.0	372.0	832.0	420.0	834.0	430.0	836.0	450.0
NC	0.0	0.0	0.07							
X1	2700.0	13.0	515.0	536.1	220.0	240.0	240.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	300.0	0.0	0.0	0 0	835.4	835.4	0.0
GR	850.0	0.0	840.0	55.0	838.0	70.0	836.0	80.0	834.0	110.0
GR	834.0	350.0	832.5	515.0	832.0	515.1	832.0	536.0	832.5	536.1
GR	840.0	556.0	842.0	568.0	842.1	678.0				

SC	3.024	0.6	2.9	0.0	4.5	0.0	82.0	2.3	832.0	832.0
X1	2782.0	16.0	570.0	591.1	82.0	82.0	82.0	0.0	0.0	0.0
X2	0.0	0.0	2.0	836.5	838.3	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	330.0	0.0	0.0	0.0	838.3	838.3	0.0
BT	-10.0	0.0	850.0	0.0	30.0	848.0	0.0	125.0	844.0	0.0
BT		185.0	842.0	0.0	280.0	840.0	0.0	380.0	838.3	0.0
BT		420.0	838.3	0.0	490.0	840.0	0.0	630.0	840.1	0.0
BT		631.0	850.0	0.0						
GR	850.0	0.0	848.0	30.0	844.0	110.0	842.0	150.0	840.0	170.0
GR	838.0	195.0	836.0	220.0	836.0	475.0	834.0	560.0	832.5	570.0
GR	832.0	570.1	832.0	591.0	832.5	591.1	840.0	626.0	842.0	661.0

GR	850.0	662.0								
NC	0.0	0.0	0.1							
X1	3182.0	13.0	840.0	861.0	560.0	400.0	400.0	0.0	0.0	0.0
GR	850.0	0.0	840.0	60.0	834.0	90.0	833.3	110.0	833.3	840.0
GR	832.2	841.0	832.2	860.0	833.3	861.0	834.0	946.0	836.0	1001.0
GR	840.0	1016.0	846.0	1071.0	848.0	1131.0				
NC	0.0	0.0	0.04	0.2	0.4					
X1	5220.0	14.0	240.0	263.0	1600.0	2038.0	2038.0			
GR	850.0	0.0	840.0	50.0	838.0	80.0	836.8	200.0	834.0	240.0
GR	833.5	243.0	833.5	261.0	834.0	263.0	839.0	275.0	840.0	290.0
GR	842.0	330.0	844.0	370.0	846.0	430.0	850.0	500.0		
NC	0.0	0.0	0.0	0.1	0.3					
X1	5800.0	14.0	150.0	173.0	580.0	580.0	580.0			
GR	852.0	0.0	847.0	50.0	844.9	71.0	836.0	111.0	836.0	150.0
GR	834.0	160.0	833.8	163.0	834.0	166.0	836.0	173.0	836.0	215.0
GR	839.4	250.0	841.6	274.0	843.5	350.0	849.5	450.0		
NC				0.3	0.5					
X1	6550.0	15.0	112.0	139.0	750.0	750.0	750.0			
GR	844.0	0.0	841.9	42.0	838.5	58.0	836.7	112.0	835.2	118.0
GR	835.0	125.0	835.3	130.0	837.9	139.0	839.9	212.0	840.5	312.0
GR	845.3	412.0	845.5	512.0	847.0	612.0	848.6	712.0	851.3	812.0
X1	6600.0	16.0	314.0	323.0	50.0	50.0	50.0			
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	839.3	839.3	0.0
GR	851.3	0.0	846.8	100.0	843.1	200.0	838.5	283.0	836.7	300.0
GR	836.7	314.0	833.6	314.1	833.6	316.0	833.6	319.0	833.6	321.0
GR	833.6	323.0	837.9	323.1	839.9	400.0	840.5	500.0	845.3	600.0
GR	849.7	700.0								
SB	0.0	1.5	2.9	0.0	9.0	0.0	35.0	0.0	833.6	833.6
X1	6675.0	0.0	0.0	0.0	75.0	75.0	75.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	838.1	842.4					
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	842.4	842.4	0.0
BT	16.0	0.0	849.0	0.0	100.0	846.8	0.0	200.0	845.0	0.0
BT	283.0	843.2	0.0	300.0	843.0	0.0	314.0	842.5	0.0	314.1
BT	842.4	833.6	316.0	842.4	836.5	319.0	842.4	838.1	321.0	842.4
BT	836.5	323.0	842.4	833.6	323.1	842.4	0.0	400.0	843.1	0.0
BT	500.0	845.4	0.0	600.0	847.6	0.0	700.0	849.7	0.0	
X1	6725.0	12.0	190.0	210.0	50.0	50.0	50.0	0.0	0.0	0.0
GR	846.0	0.0	838.5	80.0	838.3	140.0	836.7	190.0	835.7	196.0
GR	835.6	203.0	835.8	208.0	837.9	210.0	838.0	310.0	840.0	360.0
GR	844.0	412.0	845.5	450.0						
X1	7450.0	17.0	325.0	331.0	725.0	725.0	725.0			

[redacted]

GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	836.0	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						

X1	7486.0	6.0	400.0	416.1	36.0	36.0	36.0			
GR	858.0	0.0	857.7	400.0	837.1	400.1	837.1	416.0	857.7	416.1
GR	857.5	800.0								
X1	7500.0	13.0	400.0	407.5	14.0	14.0	14.0	0.0	-.20	0.0
X3	10.0							857.1	857.1	
GR	858.0	0.0	857.6	300.0	857.4	400.0	837.3	400.0	837.3	402.0
GR	837.3	403.0	837.3	403.75	837.3	404.5	837.3	405.5	837.3	407.5
GR	857.4	407.5	857.2	500.0	857.5	800.0				
SB	0.0	1.5	2.8	0.0	7.5	0.0	70.0	0.0	837.2	837.1
X1	7535.0	0.0	0.0	0.0	35.0	35.0	35.0	0.0	.10	0.0
X2	0.0	0.0	1.0	848.0	857.1					
X3	10.0							857.4	857.4	
X4	1.0	837.3	403.7							
BT	13.0	0.0	858.0	858.0	300.0	857.6	857.6	400.0	857.4	857.4
BT	400.0	857.4	846.3	402.0	857.4	847.3	403.0	857.4	847.7	403.7
BT	857.4	848.0	404.5	857.4	847.7	405.5	857.4	847.3	407.5	857.4
BT	846.3	407.5	857.4	857.4	500.0	857.1	857.1	800.0	857.5	857.5
X1	7549.0	6.0	390.0	426.0	14.0	14.0	14.0	0.0	.40	0.0
GR	858.0	0.0	857.7	390.0	837.1	390.1	837.1	426.0	857.7	426.1
GR	857.5	800.0								
X1	7585.0	17.0	325.0	331.0	36.0	36.0	36.0	0.0	1.8	0.0
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	835.5	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	9350.0	19.0	690.0	711.0	1600.0	2000.0	1765.0			
GR	848.0	0.0	848.2	430.0	848.2	490.0	841.8	590.0	838.5	690.0
GR	837.4	696.0	836.9	700.0	837.6	705.0	838.9	711.0	838.0	790.0
GR	838.0	890.0	838.2	990.0	838.1	1090.0	838.1	1190.0	842.7	1290.0
GR	842.0	1333.0	847.5	1351.0	846.7	1390.0	850.9	1490.0		
NC	0.0	0.0	0.45							
X1	12800.	13.0	800.0	846.0	3500.0	3400.0	3450.0			
GR	860.0	300.0	850.0	550.0	843.9	600.0	843.5	700.0	844.6	800.0
GR	841.9	811.0	841.1	821.0	841.2	838.0	843.7	846.0	843.4	900.0
GR	847.4	1000.0	848.7	1100.0	857.3	1200.0				
NC	0.0	0.0	0.0	0.3	0.5					
QT	2.0	512.0	512.0	0.0	0.0					
X1	12850.	12.0	290.0	294.1	50.0	50.0	50.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	230.0	0.0	450.0	0.0	0.0	0.0	0.0
GR	854.0	0.0	852.0	100.0	850.0	120.0	848.0	160.0	846.0	290.0
GR	840.9	290.1	840.9	294.0	846.0	294.1	846.0	800.0	848.0	850.0

SC	1.024	0.6	2.9	0.0	4.0	0.0	35.0	2.3	840.9	840.9
X1	12885.	0.0	0.0	0.0	35.0	35.0	35.0	0.0	0.0	0.0
X2	0.0	0.0	2.0	844.9	849.0	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	230.0	0.0	410.0	0.0	849.0	849.0	0.0
BT	-5.0	130.0	860.0	0.0	131.0	852.0	0.0	280.0	850.0	0.0
BT		410.0	849.0	0.0	411.0	860.0	0.0			
X1	13085.	17.0	145.0	170.0	150.0	250.0	200.0			
GR	856.0	0.0	854.0	12.0	852.0	40.0	850.0	50.0	848.0	90.0
GR	846.0	100.0	846.0	140.0	844.0	145.0	841.5	147.0	841.5	161.0
GR	844.0	170.0	846.0	175.0	848.0	225.0	850.0	260.0	852.0	270.0
GR	854.0	300.0	856.0	320.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	14220.	18.0	500.0	521.0	1200.0	1100.0	1135.0	0.0	-2.2	0.0
GR	862.0		854.2	100.0	851.4	300.0	850.0	400.0	846.7	500.0
GR	845.9	507.0	845.4	511.0	846.1	515.0	847.3	521.0	848.6	528.0
GR	850.0	600.0	851.8	700.0	851.0	723.0	851.0	745.0	848.1	800.0
GR	848.4	900.0	856.6	1000.0	865.4	1055.0				
X1	14550.	12.0	115.0	135.0	330.0	330.0	330.0			
GR	856.0	0.0	852.0	30.0	850.0	70.0	848.0	105.0	846.0	115.0
GR	844.0	117.0	843.5	125.0	844.0	133.0	846.0	135.0	848.0	145.0
GR	850.0	155.0	854.0	165.0						
NC	0.0	0.0	0.0	0.3	0.5					
X1	14750.	12.0	350.0	356.1	200.0	200.0	200.0			
X3	10.0			100.0		376.0		851.0	851.0	
GR	854.0	0.0	852.0	90.0	850.0	220.0	848.0	325.0	846.0	350.0
GR	842.0	350.1	842.0	356.0	848.0	356.1	852.0	366.0	856.0	391.0
GR	858.0	491.0	860.0	551.0						
SC	1.024	0.5	2.9	0.0	6.0	0.0	40.0	2.2	842.0	842.0
X1	14790.	13.0	355.0	361.1	40.0	40.0	40.0			
X2	0.0	0.0	2.0	848.0	853.5					
X3	10.0			80.0		405.0		853.5	853.5	
BT	-6.0	90.0	860.0	0.0	91.0	853.5	0.0	150.0	853.5	0.0
BT		360.0	854.0	0.0	390.0	856.0	0.0	440.0	858.0	0.0
GR	852.0	0.0	850.0	250.0	850.0	350.0	848.0	353.0	846.0	355.0
GR	842.0	355.1	842.0	361.0	846.0	361.1	848.0	370.0	850.0	395.0
GR	852.0	435.0	858.0	490.0	862.0	555.0				
X1	14840.	16.0	400.0	410.0	50.0	50.0	50.0			
GR	852.0	0.0	850.0	20.0	850.0	220.0	848.0	310.0	846.3	375.0
GR	846.0	400.0	844.0	402.0	843.0	405.0	844.0	408.0	846.2	410.0
GR	848.0	450.0	850.0	475.0	852.0	515.0	854.0	545.0	856.0	560.0
GR	860.0	590.0								

NC	0.0	0.0	0.0	0.2	0.4					
X1	15500.	17.0	548.0	558.0	800.0	660.0	660.0			
GR	860.0	0.0	850.0	130.0	850.0	295.0	850.7	315.0	850.0	335.0
GR	848.0	510.0	847.0	548.0	845.0	549.0	845.0	557.0	847.0	558.0
GR	848.0	610.0	850.0	680.0	852.0	700.0	852.0	915.0	854.0	940.0
GR	856.0	980.0	860.0	1025.0						
X1	16800.	12.0	875.0	882.0	1300.0	1300.0	1300.0			
GR	860.0	0.0	850.0	310.0	849.9	630.0	849.5	875.0	848.2	876.0
GR	848.2	881.0	849.5	882.0	850.0	1570.0	852.0	1610.0	852.0	1780.0
GR	854.0	1830.0	856.0	1900.0						
X1	18100.	18.0	640.0	658.0	1300.0	1300.0	1300.0			
GR	858.0	0.0	856.0	10.0	854.0	40.0	852.0	80.0	852.0	250.0
GR	852.4	300.0	852.0	370.0	851.6	450.0	852.0	530.0	852.5	590.0
GR	852.0	640.0	850.9	645.0	850.9	650.0	852.0	658.0	854.0	665.0
GR	856.0	690.0	858.0	760.0	860.0	810.0				

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

*PROF 1

CCHV= 0.300 CEHV= 0.500

*SECNO 1740.000									
1740.000	4.02	835.92	0.00	835.92	835.92	0.00	0.00	0.00	832.00
560.0	357.9	27.9	174.1	1294.4	88.3	635.9	0.0	0.0	832.00
0.00	0.28	0.32	0.27	0.110	0.100	0.110	0.000	831.90	13.12
0.000071	0.	0.	0.	0	0	0	0.00	554.56	567.68
*SECNO 2460.000									
2460.000	4.08	835.98	0.00	0.00	835.99	0.00	0.06	0.00	832.00
560.0	439.1	37.5	83.4	1209.4	89.6	240.3	28.7	7.9	832.00
0.53	0.36	0.42	0.35	0.110	0.100	0.110	0.000	831.90	23.46
0.000122	660.	720.	820.	1	0	0	0.00	426.31	449.78

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.38

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	4.03	836.03	0.00	0.00	836.05	0.02	0.06	0.01	832.50
560.0	420.8	130.1	9.1	561.2	85.1	16.6	34.3	9.7	832.50
0.60	0.75	1.53	0.55	0.110	0.070	0.110	0.000	832.00	300.00
0.000850	220.	240.	240.	2	0	0	0.00	245.48	545.48

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
842.05	840.07	2.99	122.	436.	1.044	47.7	838.30	114.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.03	839.03	0.00	0.00	839.04	0.01	2.99	0.00	832.50
560.0	365.0	155.0	40.0	841.8	148.5	99.5	36.0	10.2	832.50
0.64	0.43	1.04	0.40	0.110	0.070	0.110	0.000	832.00	330.00
0.000189	82.	82.	82.	0	0	0	0.00	291.53	621.53

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.46

3182.000	6.85	839.05	0.00	0.00	839.05	0.00	0.01	0.00	833.30
560.0	473.4	18.6	68.0	4369.1	142.7	699.2	74.5	17.7	833.30
1.98	0.11	0.13	0.10	0.110	0.100	0.110	0.000	832.20	64.75
0.000006	560.	400.	400.	2	0	0	0.00	947.69	1012.44

CCHV= 0.200 CEHV= 0.400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

5220.000	5.54	839.04	0.00	0.00	839.12	0.07	0.04	0.03	834.00
560.0	199.2	343.6	17.2	351.1	126.2	30.5	184.5	40.0	834.00
2.24	0.57	2.72	0.56	0.110	0.040	0.110	0.000	833.50	64.35
0.000558	1600.	2038.	2038.	2	0	0	0.00	211.30	275.65

CCHV= 0.100 CEHV= 0.300
*SECNO 5800.000

5800.000	5.61	839.41	0.00	0.00	839.48	0.06	0.36	0.00	836.00
560.0	120.6	293.1	146.3	159.3	108.1	203.3	191.1	42.5	836.00
2.33	0.76	2.71	0.72	0.110	0.040	0.110	0.000	833.80	95.66
0.000696	580.	580.	580.	2	0	0	0.00	154.47	250.14

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 6550.000

6550.000	5.07	840.07	0.00	0.00	840.20	0.13	0.69	0.03	836.70
560.0	119.1	395.3	45.6	139.0	115.3	87.5	198.1	45.4	837.90
2.41	0.86	3.43	0.52	0.110	0.040	0.110	0.000	835.00	50.63
0.001265	750.	750.	750.	2	0	0	0.00	189.23	239.85

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.46	840.06	0.00	0.00	840.39	0.33	0.09	0.10	836.70
560.0	148.6	338.1	73.3	111.0	58.0	89.9	198.4	45.6	833.60
2.41	1.34	5.83	0.82	0.110	0.040	0.110	0.000	833.60	254.80
0.003012	50.	50.	50.	2	0	0	0.00	145.20	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.60

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
846.03	841.51	0.00	147.	415.	35.	41.	838.10	842.40	133.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.70	843.30	0.00	0.00	843.33	0.03	2.94	0.00	836.70

[redacted]

560.0	192.4	185.4	182.2	317.7	87.2	339.3	199.3	45.9	833.60
2.43	0.61	2.13	0.54	0.110	0.040	0.110	0.000	833.60	250.00
0.000233	75.	75.	75.	2	0	5	0.00	150.00	400.00

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

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.16

6725.000	7.74	843.34	0.00	0.00	843.34	0.00	0.00	0.01	836.70
560.0	194.0	142.8	223.2	712.8	147.8	827.8	200.7	46.2	837.90
2.46	0.27	0.97	0.27	0.110	0.040	0.110	0.000	835.60	28.41
0.000050	50.	50.	50.	2	0	0	0.00	374.96	403.37

*SECNO 7450.000

7450.000	7.38	843.38	0.00	0.00	843.39	0.00	0.04	0.00	836.70
560.0	162.8	49.9	347.3	660.3	42.3	870.4	227.8	52.6	836.80
2.94	0.25	1.18	0.40	0.110	0.040	0.110	0.000	836.00	81.18
0.000078	725.	725.	725.	2	0	0	0.00	400.23	481.41

*SECNO 7486.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.13

7486.000	6.03	843.13	0.00	0.00	843.66	0.53	0.01	0.26	857.70
560.0	0.0	560.0	0.0	0.0	96.1	0.0	228.5	52.8	857.70
2.94	0.00	5.83	0.00	0.000	0.040	0.000	0.000	837.10	400.07
0.004751	36.	36.	36.	2	0	0	0.00	15.96	416.03

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.55	842.65	842.65	0.00	845.46	2.81	0.15	1.14	857.20
560.0	0.0	560.0	0.0	0.0	41.6	0.0	228.5	52.8	857.20
2.94	0.00	13.45	0.00	0.000	0.040	0.000	0.000	837.10	400.00
0.044734	14.	14.	14.	20	11	0	0.00	7.50	407.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	2.80	0.00	7.50	0.00	70.00	0.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 845.565 ELLC= 848.000 PCWSE= 842.653 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	8.38	845.58	0.00	0.00	846.82	1.23	0.89	0.47	857.30
560.0	0.0	560.0	0.0	0.0	62.8	0.0	228.6	52.8	857.30
2.94	0.00	8.92	0.00	0.000	0.040	0.000	0.000	837.20	400.00
0.016259	35.	35.	35.	4	0	0	0.00	7.50	407.50

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.33

7549.000	9.64	847.14	0.00	0.00	847.18	0.04	0.01	0.36	858.10
560.0	0.0	560.0	0.0	0.0	346.4	0.2	228.6	52.8	837.50

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.36

7585.000	9.89	847.19	0.00	0.00	847.20	0.00	0.00	0.01	838.50
560.0	210.4	40.4	309.2	1171.2	55.2	1267.2	229.8	53.1	838.60
2.98	0.18	0.73	0.24	0.110	0.040	0.110	0.000	837.30	61.05
0.000023	36.	36.	36.	2	0	0	0.00	507.52	568.58

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.15

9350.000	10.31	847.21	0.00	0.00	847.21	0.00	0.01	0.00	838.50
560.0	62.0	49.6	448.4	933.9	199.3	5281.9	424.0	82.8	838.90
8.36	0.07	0.25	0.08	0.110	0.040	0.110	0.000	836.90	505.54
0.000002	1600.	1765.	2000.	2	0	0	0.00	881.19	1402.04

*SECNO 12800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.09

12800.000	6.13	847.23	0.00	0.00	847.23	0.00	0.03	0.00	844.60
560.0	351.1	39.7	169.2	718.6	243.1	383.5	729.0	134.2	843.70
10.48	0.49	0.16	0.44	0.110	0.450	0.110	0.000	841.10	572.63
0.000272	3500.	3450.	3400.	1	0	0	0.00	423.36	995.99

CCHV= 0.300 CEHV= 0.500
*SECNO 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

3470 ENCROACHMENT STATIONS=			230.0	450.0 TYPE=		1 TARGET=	220.000		
12850.000	6.34	847.24	0.00	0.00	847.31	0.07	0.04	0.03	846.00
512.0	74.4	17.5	420.1	46.5	25.5	192.8	729.9	134.6	846.00
10.48	1.60	0.69	2.18	0.110	0.450	0.110	0.000	840.90	230.00
0.019788	50.	50.	50.	0	0	0	0.00	220.00	450.00

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 934.86..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 903.64 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.30

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
934.86	903.64	3.16	366.	145.	0.125	12.6	849.00	164.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.55	850.45	0.00	0.00	850.46	0.01	3.16	0.00	846.00
512.0	151.5	4.8	355.7	240.0	38.7	517.0	730.3	134.8	846.00
10.50	0.63	0.12	0.69	0.110	0.450	0.110	0.000	840.90	230.00
0.000371	35.	35.	35.	0	0	0	0.00	180.00	410.00

*SECNO 13085.000

13085.000	9.05	850.55	0.00	0.00	850.56	0.01	0.10	0.00	844.00
512.0	251.1	70.0	190.9	307.3	212.3	259.6	734.1	135.7	844.00
10.58	0.82	0.33	0.74	0.110	0.450	0.110	0.000	841.50	47.29
0.000623	150.	200.	250.	2	0	0	0.00	215.42	262.71

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.23

14220.000	7.52	850.72	0.00	0.00	850.72	0.00	0.16	0.00	844.50

[redacted]

512.0	177.7	12.8	321.5	760.5	141.3	1350.1	773.7	148.5	845.10
11.94	0.23	0.09	0.24	0.110	0.450	0.110	0.000	843.20	191.67
0.000060	1200.	1135.	1100.	2	0	0	0.00	763.42	955.08

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

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.08

14550.000	7.25	850.75	0.00	0.00	850.81	0.07	0.07	0.03	846.00
512.0	227.4	140.4	144.2	104.2	134.9	55.6	783.3	151.8	846.00
11.99	2.18	1.04	2.59	0.110	0.450	0.110	0.000	843.50	55.05
0.008672	330.	330.	330.	2	0	0	0.00	101.82	156.87

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.20

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	9.49	851.49	0.00	0.00	851.51	0.02	0.68	0.01	846.00
512.0	481.3	18.8	11.8	445.2	57.4	15.0	785.2	152.6	848.00
12.04	1.08	0.33	0.79	0.110	0.450	0.110	0.000	842.00	123.35
0.001787	200.	200.	200.	2	0	0	0.00	241.38	364.73

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

5130, EGIC= 861.68..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 14790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.42

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
861.68	861.12	2.51	147.	360.	0.123	28.3	853.50	269.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	12.01	854.01	0.00	0.00	854.02	0.00	2.51	0.00	846.00
512.0	391.8	9.0	111.2	997.9	72.9	225.5	786.0	152.9	846.00
12.07	0.39	0.12	0.49	0.110	0.450	0.110	0.000	842.00	80.00
0.000153	40.	40.	40.	0	0	0	0.00	325.00	405.00

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

*SECNO 14840.000
3280 CROSS SECTION 14840.00 EXTENDED 2.02 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.48

14840.000	11.02	854.02	0.00	0.00	854.02	0.00	0.00	0.00	846.00
512.0	394.2	6.6	111.2	1959.1	99.0	553.6	788.3	153.4	846.20
12.14	0.20	0.07	0.20	0.110	0.450	0.110	0.000	843.00	0.00
0.000025	50.	50.	50.	2	0	0	0.00	545.14	545.14

CCHV= 0.200 CEHV= 0.400
*SECNO 15500.000

15500.000	9.04	854.04	0.00	0.00	854.04	0.00	0.02	0.00	847.00
512.0	328.7	4.6	178.7	2048.7	88.4	1216.6	839.9	165.4	847.00
13.50	0.16	0.05	0.15	0.110	0.450	0.110	0.000	845.00	77.54
0.000018	800.	660.	660.	2	0	0	0.00	863.17	940.71

*SECNO 16800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.74

16800.000	5.85	854.05	0.00	0.00	854.05	0.00	0.01	0.00	849.50
512.0	220.7	0.9	290.4	2636.1	39.7	3487.1	981.9	202.9	849.50
17.83	0.08	0.02	0.08	0.110	0.450	0.110	0.000	848.20	184.26
0.000006	1300.	1300.	1300.	1	0	0	0.00	1647.69	1831.96

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.12

18100.000	3.17	854.07	0.00	0.00	854.07	0.00	0.03	0.00	852.00
512.0	503.6	6.4	2.0	1179.2	49.8	7.5	1092.3	236.8	852.00
18.69	0.43	0.13	0.27	0.110	0.450	0.110	0.000	850.90	39.03
0.000396	1300.	1300.	1300.	0	0	0	0.00	626.77	665.80

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK - FLOODWAY RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	836.02	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 1740.000
2800 NAT Q1= 664.99 WSEL= 835.92 ENC Q1= 664.99 WSEL= 836.02 RATIO= 0.0000
NAT Q1= 695. RATIOS LOB, CH, ROB= 0.6391 0.0497 0.3111 WSEL= 836.02

3470 ENCROACHMENT STATIONS= 54.3 541.7 TYPE= 4 TARGET= 0.043

1740.000	4.12	836.02	0.00	835.92	836.02	0.00	0.00	0.00	832.00
560.0	361.5	29.1	169.4	1264.4	90.5	597.4	0.0	0.0	832.00
0.00	0.29	0.32	0.28	0.110	0.100	0.110	0.000	831.90	54.34
0.000071	0.	0.	0.	0	0	0	0.00	487.41	541.75

*SECNO 2460.000
2800 NAT Q1= 507.60 WSEL= 835.98 ENC Q1= 507.60 WSEL= 836.08 RATIO= 0.0000
NAT Q1= 532. RATIOS LOB, CH, ROB= 0.7839 0.0667 0.1494 WSEL= 836.08
3280 CROSS SECTION 2460.00 EXTENDED 0.09 FEET

3470 ENCROACHMENT STATIONS= 50.6 422.3 TYPE= 4 TARGET= 0.045

2460.000	4.18	836.08	0.00	835.98	836.09	0.00	0.06	0.00	832.00
560.0	445.0	38.9	76.0	1195.4	92.0	205.0	27.7	6.9	832.00
0.52	0.37	0.42	0.37	0.110	0.100	0.110	0.000	831.90	50.58
0.000120	660.	720.	820.	0	0	0	0.00	371.73	422.30

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.40

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	4.13	836.13	0.00	836.03	836.15	0.01	0.06	0.01	832.50
560.0	422.7	128.0	9.3	582.3	87.1	17.5	33.3	8.5	832.50
0.59	0.73	1.47	0.53	0.110	0.070	0.110	0.000	832.00	300.00
0.000760	220.	240.	240.	2	0	0	0.00	245.74	545.74

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.01

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
842.05	840.09	2.89	121.	435.	1.045	47.7	838.30	114.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.03	839.03	0.00	839.03	839.04	0.01	2.89	0.00	832.50
560.0	364.9	155.0	40.0	841.1	148.4	99.4	35.0	9.0	832.50
0.62	0.43	1.04	0.40	0.110	0.070	0.110	0.000	832.00	330.00
0.000189	82.	82.	82.	0	0	0	0.00	291.51	621.51

*SECNO 3182.000
2800 NAT Q1= 2224.75 WSEL= 839.05 ENC Q1= 2224.75 WSEL= 839.15 RATIO= 0.0000
NAT Q1= 2291. RATIOS LOB, CH, ROB= 0.8449 0.0330 0.1221 WSEL= 839.15

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.31

3470 ENCROACHMENT STATIONS= 94.5 977.8 TYPE= 4 TARGET= 0.029

3182.000	6.85	839.05	0.00	839.05	839.05	0.00	0.01	0.00	833.30
560.0	479.0	19.1	61.9	4280.7	142.7	600.9	72.4	16.2	833.30
1.92	0.11	0.13	0.10	0.110	0.100	0.110	0.000	832.20	94.50
0.000007	560.	400.	400.	2	0	0	0.00	883.29	977.79

CCHV= 0.200 CEHV= 0.400

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*SECNO 5220.000
 2800 NAT Q1=      237.15  WSEL=      839.04  ENC Q1=      237.15  WSEL=      839.14  RATIO=    0.0000
 NAT Q1=      248.  RATIOS LOB, CH, ROB=    0.3646  0.6041  0.0313  WSEL=      839.14

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  0.10
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 103.9 264.8 TYPE= 4 TARGET= 0.045

5220.000	5.54	839.04	0.00	839.04	839.12	0.08	0.04	0.03	834.00
560.0	196.6	359.9	3.5	314.5	126.1	8.5	177.4	36.2	834.00
2.16	0.63	2.85	0.41	0.110	0.040	0.110	0.000	833.50	103.86
0.000613	1600.	2038.	2038.	2	0	0	0.00	160.96	264.82

CCHV= 0.100 CEHV= 0.300
*SECNO 5800.000
2800 NAT Q1= 212.25 WSEL= 839.41 ENC Q1= 212.25 WSEL= 839.51 RATIO= 0.0000
NAT Q1= 222. RATIOS LOB, CH, ROB= 0.2169 0.5184 0.2647 WSEL= 839.51

3470 ENCROACHMENT STATIONS= 110.4 225.3 TYPE= 4 TARGET= 0.044

5800.000	5.64	839.44	0.00	839.41	839.51	0.07	0.39	0.00	836.00
560.0	113.1	305.8	141.1	136.3	108.7	174.8	183.2	38.0	836.00
2.24	0.83	2.81	0.81	0.110	0.040	0.110	0.000	833.80	110.38
0.000743	580.	580.	580.	2	0	0	0.00	114.91	225.29

CCHV= 0.300 CEHV= 0.500
*SECNO 6550.000
2800 NAT Q1= 157.46 WSEL= 840.07 ENC Q1= 157.46 WSEL= 840.17 RATIO= 0.0000
NAT Q1= 166. RATIOS LOB, CH, ROB= 0.2158 0.6949 0.0893 WSEL= 840.17

3470 ENCROACHMENT STATIONS= 66.1 166.9 TYPE= 4 TARGET= 0.053

6550.000	5.13	840.13	0.00	840.07	840.27	0.14	0.72	0.04	836.70
560.0	111.8	411.5	36.7	122.5	117.1	51.7	189.3	39.9	837.90
2.32	0.91	3.51	0.71	0.110	0.040	0.110	0.000	835.00	66.12
0.001301	750.	750.	750.	1	0	0	0.00	100.82	166.94

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.68

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.54	840.14	0.00	840.06	840.44	0.30	0.09	0.08	836.70
560.0	150.4	331.3	78.3	115.6	58.7	95.8	189.6	40.0	833.60
2.32	1.30	5.64	0.82	0.110	0.040	0.110	0.000	833.60	253.40
0.002779	50.	50.	50.	2	0	0	0.00	146.60	400.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.46

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
846.10	844.13	0.00	151.	410.	35.	41.	838.10	842.40	134.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.71	843.31	0.00	843.30	843.34	0.03	2.90	0.00	836.70
560.0	192.4	185.2	182.4	318.4	87.3	340.2	190.5	40.3	833.60
2.34	0.60	2.12	0.54	0.110	0.040	0.110	0.000	833.60	250.00
0.000231	75.	75.	75.	2	0	5	0.00	150.00	400.00

*SECNO 6725.000
2800 NAT Q1= 790.93 WSEL= 843.34 ENC Q1= 790.93 WSEL= 843.44 RATIO= 0.0000
NAT Q1= 816. RATIOS LOB, CH, ROB= 0.3473 0.2528 0.3999 WSEL= 843.44

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.09

3470 ENCROACHMENT STATIONS= 65.7 362.7 TYPE= 4 TARGET= 0.031

6725.000	7.75	843.35	0.00	843.34	843.35	0.01	0.00	0.01	836.70
560.0	191.3	147.3	221.5	649.0	148.0	765.8	191.8	40.5	837.90
2.37	0.29	1.00	0.29	0.110	0.040	0.110	0.000	835.60	65.68
0.000053	50.	50.	50.	2	0	0	0.00	297.01	362.69

*SECNO 7450.000

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 2800 NAT Q1=      634.57  WSEL=      843.38  ENC Q1=      634.57  WSEL=      843.48  RATIO=    0.0000
 NAT Q1=       657.  RATIOS LOB, CH, ROB=    0.2966  0.0880  0.6153  WSEL=      843.48

 3470 ENCROACHMENT STATIONS=       115.0      459.9  TYPE=       4  TARGET=         0.034
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7450.000	7.40	843.40	0.00	843.38	843.40	0.00	0.05	0.00	836.70
560.0	159.1	51.7	349.2	605.4	42.4	825.3	217.1	45.9	836.80
2.82	0.26	1.22	0.42	0.110	0.040	0.110	0.000	836.00	114.95
0.000083	725.	725.	725.	0	0	0	0.00	344.93	459.88

*SECNO 7486.000
2800 NAT Q1= 81.24 WSEL= 843.13 ENC Q1= 83.10 WSEL= 843.23 RATIO= -0.0228
NAT Q1= 83. RATIOS LOB, CH, ROB= 0.0000 1.0000 0.0000 WSEL= 843.23

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.13

3470 ENCROACHMENT STATIONS= 400.0 416.1 TYPE= 4 TARGET= 0.000

7486.000	6.04	843.14	0.00	843.13	843.67	0.53	0.01	0.26	857.70
560.0	0.0	560.0	0.0	0.0	96.3	0.0	217.7	46.0	857.70
2.82	0.00	5.81	0.00	0.000	0.040	0.000	0.000	837.10	400.07
0.004717	36.	36.	36.	2	0	0	0.00	15.96	416.03

*SECNO 7500.000
2800 NAT Q1= 26.48 WSEL= 842.65 ENC Q1= 27.08 WSEL= 842.75 RATIO= -0.0229
NAT Q1= 27. RATIOS LOB, CH, ROB= 0.0000 1.0000 0.0000 WSEL= 842.75

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 400.0 407.5 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.55	842.65	842.65	842.65	845.46	2.81	0.15	1.14	857.20
560.0	0.0	560.0	0.0	0.0	41.7	0.0	217.7	46.0	100000.00
2.82	0.00	13.44	0.00	0.000	0.040	0.000	0.000	837.10	400.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	2.80	0.00	7.50	0.00	70.00	0.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 846.888 ELLC= 848.000 PCWSE= 842.654 ELTRD= 857.100
2800 NAT Q1= 43.92 WSEL= 845.58 ENC Q1= 44.58 WSEL= 845.68 RATIO= -0.0150
NAT Q1= 45. RATIOS LOB, CH, ROB= 0.0000 1.0000 0.0000 WSEL= 845.68
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3470 ENCROACHMENT STATIONS= 400.0 407.5 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	8.38	845.58	0.00	845.58	846.82	1.23	0.89	0.47	857.30
560.0	0.0	560.0	0.0	0.0	62.8	0.0	217.8	46.0	100000.00
2.82	0.00	8.91	0.00	0.000	0.040	0.000	0.000	837.20	400.00
0.016237	35.	35.	35.	0	0	0	0.00	7.50	407.50

*SECNO 7549.000
2800 NAT Q1= 497.76 WSEL= 847.14 ENC Q1= 505.56 WSEL= 847.24 RATIO= -0.0157
NAT Q1= 506. RATIOS LOB, CH, ROB= 0.0000 1.0000 0.0000 WSEL= 847.24

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 9.97

3470 ENCROACHMENT STATIONS= 390.0 426.0 TYPE= 4 TARGET= 0.000

[redacted]

7549.000	9.64	847.14	0.00	847.14	847.18	0.04	0.01	0.36	858.10
560.0	0.0	560.0	0.0	0.0	346.4	0.0	217.8	46.1	837.50
2.82	0.00	1.62	0.00	0.000	0.040	0.000	0.000	837.50	390.05
0.000163	14.	14.	14.	2	0	0	0.00	35.95	426.00

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

*SECNO 7585.000
2800 NAT Q1= 1175.76 WSEL= 847.19 ENC Q1= 1175.76 WSEL= 847.29 RATIO= 0.0000
NAT Q1= 1208. RATIOS LOB, CH, ROB= 0.3785 0.0715 0.5500 WSEL= 847.29

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.62

3470 ENCROACHMENT STATIONS= 102.0 487.1 TYPE= 4 TARGET= 0.027

7585.000	9.89	847.19	0.00	847.19	847.20	0.00	0.00	0.01	838.50
560.0	208.0	41.4	310.6	1087.6	55.2	1182.3	219.0	46.2	838.60
2.86	0.19	0.75	0.26	0.110	0.040	0.110	0.000	837.30	101.96
0.000024	36.	36.	36.	2	0	0	0.00	385.18	487.14

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000
2800 NAT Q1= 3708.77 WSEL= 847.21 ENC Q1= 3708.77 WSEL= 847.31 RATIO= 0.0000
NAT Q1= 3785. RATIOS LOB, CH, ROB= 0.1114 0.0883 0.8003 WSEL= 847.31

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.17

3470 ENCROACHMENT STATIONS= 576.4 1323.9 TYPE= 4 TARGET= 0.020

9350.000	10.31	847.21	0.00	847.21	847.21	0.00	0.01	0.00	838.50
560.0	57.4	50.6	452.0	774.1	199.4	5185.7	404.5	70.6	838.90
8.05	0.07	0.25	0.09	0.110	0.040	0.110	0.000	836.90	576.36
0.000002	1600.	1765.	2000.	1	0	0	0.00	747.54	1323.90

*SECNO 12800.000
2800 NAT Q1= 339.85 WSEL= 847.23 ENC Q1= 339.85 WSEL= 847.33 RATIO= 0.0000
NAT Q1= 356. RATIOS LOB, CH, ROB= 0.6270 0.0697 0.3032 WSEL= 847.33

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.09

3470 ENCROACHMENT STATIONS= 598.3 937.1 TYPE= 4 TARGET= 0.044

12800.000	6.13	847.23	0.00	847.23	847.24	0.00	0.03	0.00	844.60
560.0	353.3	41.5	165.2	676.9	242.8	313.5	694.9	113.4	843.70
9.97	0.52	0.17	0.53	0.110	0.450	0.110	0.000	841.10	598.29
0.000299	3500.	3450.	3400.	2	0	0	0.00	338.83	937.12

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	6.34	847.24	0.00	847.24	847.31	0.07	0.04	0.03	846.00
512.0	74.5	17.5	420.0	46.7	25.5	193.2	695.8	113.7	846.00
9.98	1.60	0.69	2.17	0.110	0.450	0.110	0.000	840.90	230.00
0.019655	50.	50.	50.	0	0	0	0.00	220.00	450.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 934.86..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 903.64 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.27

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
934.86	903.64	3.15	365.	145.	0.125	12.6	849.00	164.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.55	850.45	0.00	850.45	850.46	0.01	3.15	0.00	846.00
512.0	151.5	4.8	355.7	239.8	38.7	516.8	696.2	113.9	846.00
9.99	0.63	0.12	0.69	0.110	0.450	0.110	0.000	840.90	230.00
0.000372	35.	35.	35.	0	0	0	0.00	180.00	410.00

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*SECNO 13085.000
 2800 NAT Q1=      205.17  WSEL=      850.55  ENC Q1=      205.17  WSEL=      850.65  RATIO=    0.0000
 NAT Q1=      215.  RATIOS LOB, CH, ROB=    0.4908  0.1331  0.3761  WSEL=      850.65


3470 ENCROACHMENT STATIONS=        74.9      236.8  TYPE=        4  TARGET=         0.047
 13085.000       9.05     850.55       0.00     850.55     850.56       0.01       0.10       0.00     844.00
     512.0      251.0       73.0      188.0      277.8      212.4      231.1      699.8      114.7      844.00
     10.07       0.90       0.34       0.81      0.110      0.450      0.110      0.000     841.50       74.86
  0.000677       150.       200.       250.          0          0          0       0.00     161.94      236.80
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000
2800 NAT Q1= 662.35 WSEL= 850.72 ENC Q1= 662.35 WSEL= 850.82 RATIO= 0.0000
NAT Q1= 696. RATIOS LOB, CH, ROB= 0.3479 0.0243 0.6278 WSEL= 850.82

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.24

3470 ENCROACHMENT STATIONS= 316.0 910.6 TYPE= 4 TARGET= 0.048

14220.000	7.54	850.74	0.00	850.72	850.74	0.00	0.17	0.00	844.50
512.0	174.7	13.3	323.9	655.6	141.7	1276.0	736.3	124.6	845.10
11.32	0.27	0.09	0.25	0.110	0.450	0.110	0.000	843.20	315.99
0.000065	1200.	1135.	1100.	2	0	0	0.00	594.62	910.61

*SECNO 14550.000
2800 NAT Q1= 54.98 WSEL= 850.75 ENC Q1= 54.98 WSEL= 850.85 RATIO= 0.0000
NAT Q1= 58. RATIOS LOB, CH, ROB= 0.4523 0.2659 0.2818 WSEL= 850.85

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.08

3470 ENCROACHMENT STATIONS= 76.7 149.9 TYPE= 4 TARGET= 0.054

14550.000	7.26	850.76	0.00	850.75	850.84	0.08	0.07	0.03	846.00
512.0	227.7	146.5	137.8	93.1	135.3	48.8	745.2	127.1	846.00
11.36	2.45	1.08	2.82	0.110	0.450	0.110	0.000	843.50	76.69
0.009353	330.	330.	330.	2	0	0	0.00	73.22	149.90

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.33

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	9.52	851.52	0.00	851.49	851.53	0.02	0.67	0.02	846.00
512.0	481.5	18.6	11.9	451.8	57.5	15.3	747.1	127.8	848.00
11.42	1.07	0.32	0.78	0.110	0.450	0.110	0.000	842.00	121.45
0.001723	200.	200.	200.	2	0	0	0.00	243.35	364.80

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

5130, EGIC= 861.68..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 14790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.36

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
861.68	861.15	2.48	147.	360.	0.123	28.3	853.50	269.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	12.01	854.01	0.00	854.01	854.02	0.00	2.48	0.00	846.00
512.0	391.8	9.0	111.2	997.8	72.9	225.5	747.9	128.1	846.00
11.44	0.39	0.12	0.49	0.110	0.450	0.110	0.000	842.00	80.00
0.000153	40.	40.	40.	0	0	0	0.00	325.00	405.00

*SECNO 14840.000
2800 NAT Q1= 1029.10 WSEL= 854.02 ENC Q1= 1029.10 WSEL= 854.12 RATIO= 0.0000
NAT Q1= 1063. RATIOS LOB, CH, ROB= 0.7699 0.0127 0.2174 WSEL= 854.12
3280 CROSS SECTION 14840.00 EXTENDED 2.02 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.41

3470 ENCROACHMENT STATIONS= 17.3 498.7 TYPE= 4 TARGET= 0.032

14840.000	11.02	854.02	0.00	854.02	854.02	0.00	0.00	0.00	846.00
512.0	398.5	6.8	106.7	1908.5	99.0	483.4	750.1	128.5	846.20
11.51	0.21	0.07	0.22	0.110	0.450	0.110	0.000	843.00	17.34
0.000026	50.	50.	50.	0	0	0	0.00	481.40	498.74

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CCHV=     0.200 CEHV=     0.400
*SECNO 15500.000
 2800 NAT Q1=     1192.04  WSEL=      854.04  ENC Q1=     1192.04  WSEL=      854.14  RATIO=    0.0000
 NAT Q1=     1238.  RATIOS LOB, CH, ROB=    0.6405  0.0089  0.3506  WSEL=      854.14
```

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

3470 ENCROACHMENT STATIONS= 129.0 876.9 TYPE= 4 TARGET= 0.037

15500.000	9.04	854.04	0.00	854.04	854.04	0.00	0.02	0.00	847.00
512.0	331.1	4.8	176.1	1946.0	88.3	1112.7	799.0	139.1	847.00
12.79	0.17	0.05	0.16	0.110	0.450	0.110	0.000	845.00	129.02
0.000020	800.	660.	660.	0	0	0	0.00	747.93	876.95

*SECNO 16800.000
2800 NAT Q1= 2076.38 WSEL= 854.05 ENC Q1= 2076.38 WSEL= 854.15 RATIO= 0.0000
NAT Q1= 2158. RATIOS LOB, CH, ROB= 0.4306 0.0018 0.5676 WSEL= 854.15

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.74

3470 ENCROACHMENT STATIONS= 295.1 1715.0 TYPE= 4 TARGET= 0.038

16800.000	5.85	854.05	0.00	854.05	854.05	0.00	0.01	0.00	849.50
512.0	219.1	1.0	291.9	2436.2	39.7	3297.8	932.1	171.5	849.50
16.84	0.09	0.02	0.09	0.110	0.450	0.110	0.000	848.20	295.06
0.000007	1300.	1300.	1300.	0	0	0	0.00	1419.95	1715.01

*SECNO 18100.000
2800 NAT Q1= 257.39 WSEL= 854.07 ENC Q1= 257.39 WSEL= 854.17 RATIO= 0.0000
NAT Q1= 281. RATIOS LOB, CH, ROB= 0.9835 0.0122 0.0043 WSEL= 854.17

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.12

3470 ENCROACHMENT STATIONS= 109.5 658.0 TYPE= 4 TARGET= 0.084

18100.000	3.18	854.08	0.00	854.07	854.08	0.00	0.03	0.00	852.00
512.0	505.5	6.5	0.0	1081.6	50.0	0.0	1035.1	200.9	852.00
17.62	0.47	0.13	0.00	0.110	0.450	0.000	0.000	850.90	109.48
0.000461	1300.	1300.	1300.	2	0	0	0.00	548.53	658.00

THIS RUN EXECUTED 20JAN94 17:21:58

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREEK -NATURAL 100 YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1740.000	835.92	0.00	835.92	554.56	357.95	27.92	174.13	0.00	0.00	370.00	392.00	0.00
	1740.000	836.02	0.10	836.02	487.41	361.49	29.11	169.40	0.04	54.34	370.00	392.00	541.75
	2460.000	835.98	0.00	835.99	426.31	439.15	37.46	83.39	0.00	0.00	350.00	372.00	0.00
	2460.000	836.08	0.10	836.09	371.73	445.02	38.94	76.05	0.05	50.58	350.00	372.00	422.30
*	2700.000	836.03	0.00	836.05	245.48	420.81	130.06	9.13	-300.00	300.00	515.00	536.10	678.00
*	2700.000	836.13	0.10	836.15	245.74	422.73	127.99	9.28	-300.00	300.00	515.00	536.10	678.00
*	2782.000	839.03	0.00	839.04	291.53	365.00	154.95	40.05	-330.00	330.00	570.00	591.10	662.00
*	2782.000	839.03	0.00	839.04	291.51	364.94	155.02	40.04	-330.00	330.00	570.00	591.10	662.00
*	3182.000	839.05	0.00	839.05	947.69	473.37	18.59	68.04	0.00	0.00	840.00	861.00	0.00
*	3182.000	839.05	0.00	839.05	883.29	478.95	19.13	61.92	0.03	94.50	840.00	861.00	977.79
*	5220.000	839.04	0.00	839.12	211.30	199.19	343.61	17.20	0.00	0.00	240.00	263.00	0.00
*	5220.000	839.04	-0.01	839.12	160.96	196.65	359.87	3.49	0.04	103.86	240.00	263.00	264.83
	5800.000	839.41	0.00	839.48	154.47	120.63	293.09	146.28	0.00	0.00	150.00	173.00	0.00
	5800.000	839.44	0.03	839.51	114.91	113.11	305.82	141.07	0.04	110.38	150.00	173.00	225.29
	6550.000	840.07	0.00	840.20	189.23	119.15	395.27	45.58	0.00	0.00	112.00	139.00	0.00
	6550.000	840.13	0.06	840.27	100.82	111.76	411.50	36.74	0.05	66.12	112.00	139.00	166.94
*	6600.000	840.06	0.00	840.39	145.20	148.60	338.14	73.26	150.00	250.00	314.00	323.00	400.00
*	6600.000	840.14	0.08	840.44	146.60	150.36	331.33	78.31	150.00	250.00	314.00	323.00	400.00
*	6675.000	843.30	0.00	843.33	150.00	192.38	185.39	182.22	150.00	250.00	314.00	323.00	400.00
*	6675.000	843.31	0.01	843.34	150.00	192.45	185.16	182.40	150.00	250.00	314.00	323.00	400.00
*	6725.000	843.34	0.00	843.34	374.96	194.03	142.81	223.16	0.00	0.00	190.00	210.00	0.00
*	6725.000	843.35	0.01	843.35	297.01	191.29	147.26	221.46	0.03	65.68	190.00	210.00	362.69

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7450.000	843.38	0.00	843.39	400.23	162.84	49.86	347.30	0.00	0.00	325.00	331.00	0.00
	7450.000	843.40	0.01	843.40	344.93	159.11	51.68	349.21	0.03	114.95	325.00	331.00	459.88
*	7486.000	843.13	0.00	843.66	15.96	0.00	560.00	0.00	0.00	0.00	400.00	416.10	0.00
*	7486.000	843.14	0.02	843.67	15.96	0.00	560.00	0.00	0.00	400.00	400.00	416.10	416.10
*	7500.000	842.65	0.00	845.46	7.50	0.00	560.00	0.00	0.00	0.00	400.00	407.50	0.00
*	7500.000	842.65	0.00	845.46	7.50	0.00	560.00	0.00	0.00	400.00	400.00	407.50	407.50
*	7535.000	845.58	0.00	846.82	7.50	0.00	560.00	0.00	0.00	0.00	400.00	407.50	0.00
*	7535.000	845.58	0.00	846.82	7.50	0.00	560.00	0.00	0.00	400.00	400.00	407.50	407.50
*	7549.000	847.14	0.00	847.18	35.99	0.00	560.00	0.00	0.00	0.00	390.00	426.00	0.00
*	7549.000	847.14	0.00	847.18	35.95	0.00	560.00	0.00	0.00	390.00	390.00	426.00	426.00
*	7585.000	847.19	0.00	847.20	507.52	210.41	40.39	309.20	0.00	0.00	325.00	331.00	0.00
*	7585.000	847.19	0.00	847.20	385.18	207.98	41.40	310.63	0.03	101.96	325.00	331.00	487.14
*	9350.000	847.21	0.00	847.21	881.19	61.95	49.60	448.45	0.00	0.00	690.00	711.00	0.00
*	9350.000	847.21	0.00	847.21	747.54	57.40	50.60	452.00	0.02	576.36	690.00	711.00	1323.90
*	12800.000	847.23	0.00	847.23	423.36	351.07	39.71	169.21	0.00	0.00	800.00	846.00	0.00
*	12800.000	847.23	0.00	847.24	338.83	353.30	41.55	165.15	0.04	598.29	800.00	846.00	937.12
*	12850.000	847.24	0.00	847.31	220.00	74.36	17.55	420.09	220.00	230.00	290.00	294.10	450.00
*	12850.000	847.24	0.01	847.31	220.00	74.49	17.50	420.01	220.00	230.00	290.00	294.10	450.00
*	12885.000	850.45	0.00	850.46	180.00	151.49	4.83	355.68	180.00	230.00	290.00	294.10	410.00
*	12885.000	850.45	0.00	850.46	180.00	151.48	4.83	355.69	180.00	230.00	290.00	294.10	410.00
	13085.000	850.55	0.00	850.56	215.42	251.10	69.98	190.91	0.00	0.00	145.00	170.00	0.00
	13085.000	850.55	0.00	850.56	161.94	251.00	73.02	187.98	0.05	74.86	145.00	170.00	236.80
*	14220.000	850.72	0.00	850.72	763.42	177.71	12.76	321.53	0.00	0.00	500.00	521.00	0.00
*	14220.000	850.74	0.02	850.74	594.62	174.74	13.34	323.92	0.05	315.99	500.00	521.00	910.61
*	14550.000	850.75	0.00	850.81	101.82	227.42	140.40	144.18	0.00	0.00	115.00	135.00	0.00
*	14550.000	850.76	0.01	850.84	73.22	227.70	146.46	137.84	0.05	76.69	115.00	135.00	149.90
*	14750.000	851.49	0.00	851.51	241.38	481.32	18.84	11.84	276.00	100.00	350.00	356.10	376.00
*	14750.000	851.52	0.03	851.53	243.35	481.52	18.60	11.88	276.00	100.00	350.00	356.10	376.00
*	14790.000	854.01	0.00	854.02	325.00	391.82	8.98	111.20	325.00	80.00	355.00	361.10	405.00
*	14790.000	854.01	0.00	854.02	325.00	391.81	8.98	111.21	325.00	80.00	355.00	361.10	405.00
*	14840.000	854.02	0.00	854.02	545.14	394.22	6.59	111.19	0.00	0.00	400.00	410.00	0.00
*	14840.000	854.02	0.00	854.02	481.40	398.51	6.79	106.71	0.03	17.34	400.00	410.00	498.74
	15500.000	854.04	0.00	854.04	863.17	328.70	4.62	178.68	0.00	0.00	548.00	558.00	0.00
	15500.000	854.04	0.00	854.04	747.93	331.15	4.80	176.05	0.04	129.02	548.00	558.00	876.95

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	16800.000	854.05	0.00	854.05	1647.69	220.66	0.92	290.42	0.00	0.00	875.00	882.00	0.00
*	16800.000	854.05	0.00	854.05	1419.95	219.10	0.95	291.94	0.04	295.06	875.00	882.00	1715.01
*	18100.000	854.07	0.00	854.07	626.77	503.56	6.40	2.03	0.00	0.00	640.00	658.00	0.00
*	18100.000	854.08	0.00	854.08	548.53	505.52	6.48	0.00	0.08	109.48	640.00	658.00	658.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=   2700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2782.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2782.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   3182.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   3182.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   5220.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   5220.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   6600.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   6600.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   6675.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   6675.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   6725.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   6725.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   7486.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7486.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=   7500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   7500.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   7500.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=   7500.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   7500.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   7500.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   7535.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7535.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   7549.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7549.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   7585.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   7585.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   9350.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   9350.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12800.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12850.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12850.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12885.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12885.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=  14220.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14220.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14550.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14550.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14750.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14790.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14790.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14840.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14840.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16800.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  18100.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  18100.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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Floodway width summary: CREEK -NATURAL 100 YEAR
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
1740.000	0.10	487.41	54.34	326.66	381.00	160.75	541.75
2460.000	0.10	371.73	50.58	310.42	361.00	61.30	422.30
2700.000	0.10	378.00	300.00	225.55	525.55	152.45	678.00
2782.000	0.00	332.00	330.00	250.55	580.55	81.45	662.00
3182.000	0.00	883.29	94.50	756.00	850.50	127.29	977.79
5220.000	-0.01	160.96	103.86	147.64	251.50	13.33	264.83
5800.000	0.03	114.91	110.38	51.12	161.50	63.79	225.29
6550.000	0.06	100.82	66.12	59.38	125.50	41.44	166.94
6600.000	0.08	150.00	250.00	68.50	318.50	81.50	400.00
6675.000	0.01	150.00	250.00	68.50	318.50	81.50	400.00
6725.000	0.01	297.01	65.68	134.32	200.00	162.69	362.69
7450.000	0.01	344.93	114.95	213.05	328.00	131.88	459.88
7486.000	0.02	16.10	400.00	8.05	408.05	8.05	416.10
7500.000	0.00	7.50	400.00	3.75	403.75	3.75	407.50
7535.000	0.00	7.50	400.00	3.75	403.75	3.75	407.50
7549.000	0.00	36.00	390.00	18.00	408.00	18.00	426.00
7585.000	0.00	385.18	101.96	226.04	328.00	159.14	487.14
9350.000	0.00	747.54	576.36	124.14	700.50	623.40	1323.90
12800.000	0.00	338.83	598.29	224.71	823.00	114.12	937.12
12850.000	0.01	220.00	230.00	62.05	292.05	157.95	450.00
12885.000	0.00	180.00	230.00	62.05	292.05	117.95	410.00
13085.000	0.00	161.94	74.86	82.64	157.50	79.30	236.80
14220.000	0.02	594.62	315.99	194.51	510.50	400.11	910.61
14550.000	0.01	73.22	76.69	48.31	125.00	24.90	149.90
14750.000	0.03	276.00	100.00	253.05	353.05	22.95	376.00
14790.000	0.00	325.00	80.00	278.05	358.05	46.95	405.00
14840.000	0.00	481.40	17.34	387.66	405.00	93.74	498.74
15500.000	0.00	747.93	129.02	423.98	553.00	323.95	876.95
16800.000	0.00	1419.95	295.06	583.44	878.50	836.51	1715.01
18100.000	0.00	548.53	109.48	539.52	649.00	9.00	658.00

FLOODWAY DATA, CREEK -NATURAL 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1740.000	487.	1952.	0.3	836.0	835.9	0.1
2460.000	372.	1492.	0.4	836.1	836.0	0.1
2700.000	246.	687.	0.8	836.1	836.0	0.1
2782.000	292.	1089.	0.5	839.0	839.0	0.0
3182.000	883.	5024.	0.1	839.0	839.0	0.0
5220.000	161.	449.	1.2	839.0	839.0	0.0
5800.000	115.	420.	1.3	839.4	839.4	0.0
6550.000	101.	291.	1.9	840.2	840.1	0.1
6600.000	147.	270.	2.1	840.2	840.1	0.1
6675.000	150.	746.	0.8	843.3	843.3	0.0
6725.000	297.	1563.	0.4	843.3	843.3	0.0
7450.000	345.	1473.	0.4	843.4	843.4	0.0
7486.000	16.	96.	5.8	843.1	843.1	0.0
7500.000	8.	42.	13.4	842.7	842.7	0.0
7535.000	8.	63.	8.9	845.6	845.6	0.0
7549.000	36.	346.	1.6	847.1	847.1	0.0
7585.000	385.	2325.	0.2	847.2	847.2	0.0
9350.000	748.	6159.	0.1	847.2	847.2	0.0
12800.000	339.	1233.	0.5	847.2	847.2	0.0
12850.000	220.	265.	1.9	847.2	847.2	0.0
12885.000	180.	795.	0.6	850.5	850.5	0.0
13085.000	162.	721.	0.7	850.6	850.6	0.0
14220.000	595.	2073.	0.2	850.7	850.7	0.0
14550.000	73.	277.	1.8	850.7	850.7	0.0
14750.000	243.	525.	1.0	851.5	851.5	0.0
14790.000	325.	1296.	0.4	854.0	854.0	0.0
14840.000	481.	2491.	0.2	854.0	854.0	0.0
15500.000	748.	3147.	0.2	854.0	854.0	0.0
16800.000	1420.	5774.	0.1	854.0	854.0	0.0

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1*****************************************                                                  ************************************
 *  HEC-2 WATER SURFACE PROFILES           *                                                  *  U.S. ARMY CORPS OF ENGINEERS
 *                                         *                                                  *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991             *                                                  *  609 SECOND STREET, SUITE D
 *                                         *                                                  *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    28NOV94    TIME   09:10:39 *                                                  *          (916) 756-1104
 *****************************************                                                  ************************************
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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
1
   28NOV94      09:10:39                                                                                                  PAGE    1
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THIS RUN EXECUTED 28NOV94 09:10:40

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 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK -NATURAL 100 YEAR PROFILE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	835.92	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.0	115.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NC	.11	.11	0.1	.30	.50					
QT	2.0	560.0	560.0	0.0	0.0					
ET	0.0	0.0	1.4							
X1	1740.0	12.0	370.0	392.0	0.0	0.0	0.0			
GR	840.0	0.0	836.0	12.0	834.0	40.0	832.0	65.0	832.0	370.0
GR	831.9	371.0	831.9	391.0	832.0	392.0	832.0	530.0	834.0	560.0
GR	836.0	568.0	840.0	590.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	2460.0	10.0	350.0	372.0	660.0	820.0	720.0			
GR	840.0	0.0	834.0	35.0	832.0	90.0	832.0	350.0	831.9	351.0
GR	831.9	371.0	832.0	372.0	832.0	420.0	834.0	430.0	836.0	450.0

NC	0.0	0.0	0.07							
X1	2700.0	13.0	515.0	536.1	220.0	240.0	240.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	300.0	0.0	0.0	0 0	835.4	835.4	0.0
GR	850.0	0.0	840.0	55.0	838.0	70.0	836.0	80.0	834.0	110.0
GR	834.0	350.0	832.5	515.0	832.0	515.1	832.0	536.0	832.5	536.1
GR	840.0	556.0	842.0	568.0	842.1	678.0				
SC	3.024	0.6	2.9	0.0	4.5	0.0	82.0	2.3	832.0	832.0
X1	2782.0	16.0	570.0	591.1	82.0	82.0	82.0	0.0	0.0	0.0
X2	0.0	0.0	2.0	836.5	838.3	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	330.0	0.0	0.0	0.0	838.3	838.3	0.0
BT	-10.0	0.0	850.0	0.0	30.0	848.0	0.0	125.0	844.0	0.0
BT		185.0	842.0	0.0	280.0	840.0	0.0	380.0	838.3	0.0
BT		420.0	838.3	0.0	490.0	840.0	0.0	630.0	840.1	0.0
BT		631.0	850.0	0.0						
GR	850.0	0.0	848.0	30.0	844.0	110.0	842.0	150.0	840.0	170.0
GR	838.0	195.0	836.0	220.0	836.0	475.0	834.0	560.0	832.5	570.0
GR	832.0	570.1	832.0	591.0	832.5	591.1	840.0	626.0	842.0	661.0

1

GR	850.0	662.0								
NC	0.0	0.0	0.1							
X1	3182.0	13.0	840.0	861.0	560.0	400.0	400.0	0.0	0.0	0.0
GR	850.0	0.0	840.0	60.0	834.0	90.0	833.3	110.0	833.3	840.0
GR	832.2	841.0	832.2	860.0	833.3	861.0	834.0	946.0	836.0	1001.0
GR	840.0	1016.0	846.0	1071.0	848.0	1131.0				
NC	0.0	0.0	0.04	0.2	0.4					
X1	5220.0	14.0	240.0	263.0	1600.0	2038.0	2038.0			
GR	850.0	0.0	840.0	50.0	838.0	80.0	836.8	200.0	834.0	240.0
GR	833.5	243.0	833.5	261.0	834.0	263.0	839.0	275.0	840.0	290.0
GR	842.0	330.0	844.0	370.0	846.0	430.0	850.0	500.0		
NC	0.0	0.0	0.0	0.1	0.3					
X1	5800.0	14.0	150.0	173.0	580.0	580.0	580.0			
GR	852.0	0.0	847.0	50.0	844.9	71.0	836.0	111.0	836.0	150.0
GR	834.0	160.0	833.8	163.0	834.0	166.0	836.0	173.0	836.0	215.0
GR	839.4	250.0	841.6	274.0	843.5	350.0	849.5	450.0		
NC				0.3	0.5					
X1	6550.0	15.0	112.0	139.0	750.0	750.0	750.0			
GR	844.0	0.0	841.9	42.0	838.5	58.0	836.7	112.0	835.2	118.0
GR	835.0	125.0	835.3	130.0	837.9	139.0	839.9	212.0	840.5	312.0
GR	845.3	412.0	845.5	512.0	847.0	612.0	848.6	712.0	851.3	812.0
X1	6600.0	16.0	314.0	323.0	50.0	50.0	50.0			
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	839.3	839.3	0.0
GR	851.3	0.0	846.8	100.0	843.1	200.0	838.5	283.0	836.7	300.0
GR	836.7	314.0	833.6	314.1	833.6	316.0	833.6	319.0	833.6	321.0
GR	833.6	323.0	837.9	323.1	839.9	400.0	840.5	500.0	845.3	600.0
GR	849.7	700.0								
SB	0.0	1.5	2.9	0.0	9.0	0.0	35.0	0.0	833.6	833.6
X1	6675.0	0.0	0.0	0.0	75.0	75.0	75.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	838.1	842.4					
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	842.4	842.4	0.0
BT	16.0	0.0	849.0	0.0	100.0	846.8	0.0	200.0	845.0	0.0
BT	283.0	843.2	0.0	300.0	843.0	0.0	314.0	842.5	0.0	314.1
BT	842.4	833.6	316.0	842.4	836.5	319.0	842.4	838.1	321.0	842.4

BT	836.5	323.0	842.4	833.6	323.1	842.4	0.0	400.0	843.1	0.0
BT	500.0	845.4	0.0	600.0	847.6	0.0	700.0	849.7	0.0	
X1	6725.0	12.0	190.0	210.0	50.0	50.0	50.0	0.0	0.0	0.0
GR	846.0	0.0	838.5	80.0	838.3	140.0	836.7	190.0	835.7	196.0
GR	835.6	203.0	835.8	208.0	837.9	210.0	838.0	310.0	840.0	360.0
GR	844.0	412.0	845.5	450.0						
X1	7450.0	17.0	325.0	331.0	725.0	725.0	725.0			
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	836.0	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						

1

X1	7486.0	6.0	400.0	416.1	36.0	36.0	36.0			
GR	858.0	0.0	857.7	400.0	837.1	400.1	837.1	416.0	857.7	416.1
GR	857.5	800.0								
X1	7500.0	13.0	400.0	407.5	14.0	14.0	14.0	0.0	-.20	0.0
X3	10.0							857.1	857.1	
GR	858.0	0.0	857.6	300.0	857.4	400.0	837.3	400.0	837.3	402.0
GR	837.3	403.0	837.3	403.75	837.3	404.5	837.3	405.5	837.3	407.5
GR	857.4	407.5	857.2	500.0	857.5	800.0				
SB	0.0	1.5	2.8	0.0	7.5	0.0	70.0	0.0	837.2	837.1
X1	7535.0	0.0	0.0	0.0	35.0	35.0	35.0	0.0	.10	0.0
X2	0.0	0.0	1.0	848.0	857.1					
X3	10.0							857.4	857.4	
X4	1.0	837.3	403.7							
BT	13.0	0.0	858.0	858.0	300.0	857.6	857.6	400.0	857.4	857.4
BT	400.0	857.4	846.3	402.0	857.4	847.3	403.0	857.4	847.7	403.7
BT	857.4	848.0	404.5	857.4	847.7	405.5	857.4	847.3	407.5	857.4
BT	846.3	407.5	857.4	857.4	500.0	857.1	857.1	800.0	857.5	857.5
X1	7549.0	6.0	390.0	426.0	14.0	14.0	14.0	0.0	.40	0.0
GR	858.0	0.0	857.7	390.0	837.1	390.1	837.1	426.0	857.7	426.1
GR	857.5	800.0								
X1	7585.0	17.0	325.0	331.0	36.0	36.0	36.0	0.0	1.8	0.0
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	835.5	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	9350.0	19.0	690.0	711.0	1600.0	2000.0	1765.0			
GR	848.0	0.0	848.2	430.0	848.2	490.0	841.8	590.0	838.5	690.0
GR	837.4	696.0	836.9	700.0	837.6	705.0	838.9	711.0	838.0	790.0
GR	838.0	890.0	838.2	990.0	838.1	1090.0	838.1	1190.0	842.7	1290.0
GR	842.0	1333.0	847.5	1351.0	846.7	1390.0	850.9	1490.0		
NC	0.0	0.0	0.045							
X1	12800.	13.0	800.0	846.0	3500.0	3400.0	3450.0			
GR	860.0	300.0	850.0	550.0	843.9	600.0	843.5	700.0	844.6	800.0
GR	841.9	811.0	841.1	821.0	841.2	838.0	843.7	846.0	843.4	900.0
GR	847.4	1000.0	848.7	1100.0	857.3	1200.0				
NC	0.0	0.0	0.0	0.3	0.5					
QT	2.0	512.0	512.0	0.0	0.0					

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X1   12850.      12.0     290.0     294.1      50.0      50.0      50.0       0.0       0.0       0.0
X3      10.0       0.0       0.0     230.0       0.0     450.0       0.0       0.0       0.0       0.0
GR     854.0       0.0     852.0     100.0     850.0     120.0     848.0     160.0     846.0     290.0
GR     840.9     290.1     840.9     294.0     846.0     294.1     846.0     800.0     848.0     850.0
GR     850.0    1020.0     854.0    1100.0
1
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SC     1.024       0.6       2.9       0.0       4.0       0.0      35.0       2.3     840.9     840.9
X1   12885.       0.0       0.0       0.0      35.0      35.0      35.0       0.0       0.0       0.0
X2       0.0       0.0       2.0     844.9     849.0       0.0       0.0       0.0       0.0       0.0
X3      10.0       0.0       0.0     230.0       0.0     410.0       0.0     849.0     849.0       0.0
BT      -5.0     130.0     860.0       0.0     131.0     852.0       0.0     280.0     850.0       0.0
BT               410.0     849.0       0.0     411.0     860.0       0.0

X1   13085.      17.0     145.0     170.0     150.0     250.0     200.0
GR     856.0       0.0     854.0      12.0     852.0      40.0     850.0      50.0     848.0      90.0
GR     846.0     100.0     846.0     140.0     844.0     145.0     841.5     147.0     841.5     161.0
GR     844.0     170.0     846.0     175.0     848.0     225.0     850.0     260.0     852.0     270.0
GR     854.0     300.0     856.0     320.0

NC       0.0       0.0       0.0       0.2       0.4
X1   14220.      18.0     500.0     521.0    1200.0    1100.0    1135.0       0.0      -2.2       0.0
GR     862.0               854.2     100.0     851.4     300.0     850.0     400.0     846.7     500.0
GR     845.9     507.0     845.4     511.0     846.1     515.0     847.3     521.0     848.6     528.0
GR     850.0     600.0     851.8     700.0     851.0     723.0     851.0     745.0     848.1     800.0
GR     848.4     900.0     856.6    1000.0     865.4    1055.0

X1   14550.      12.0     115.0     135.0     330.0     330.0     330.0
GR     856.0       0.0     852.0      30.0     850.0      70.0     848.0     105.0     846.0     115.0
GR     844.0     117.0     843.5     125.0     844.0     133.0     846.0     135.0     848.0     145.0
GR     850.0     155.0     854.0     165.0

NC       0.0       0.0       0.0       0.3       0.5
X1   14750.      12.0     350.0     356.1     200.0     200.0     200.0
X3      10.0                         100.0                 376.0                 851.0     851.0
GR     854.0       0.0     852.0      90.0     850.0     220.0     848.0     325.0     846.0     350.0
GR     842.0     350.1     842.0     356.0     848.0     356.1     852.0     366.0     856.0     391.0
GR     858.0     491.0     860.0     551.0

SC     1.024       0.5       2.9       0.0       6.0       0.0      40.0       2.2     842.0     842.0
X1   14790.      13.0     355.0     361.1      40.0      40.0      40.0
X2       0.0       0.0       2.0     848.0     853.5
X3      10.0                          80.0                 405.0                 853.5     853.5
BT      -6.0      90.0     860.0       0.0      91.0     853.5       0.0     150.0     853.5       0.0
BT               360.0     854.0       0.0     390.0     856.0       0.0     440.0     858.0       0.0
GR     852.0       0.0     850.0     250.0     850.0     350.0     848.0     353.0     846.0     355.0
GR     842.0     355.1     842.0     361.0     846.0     361.1     848.0     370.0     850.0     395.0
GR     852.0     435.0     858.0     490.0     862.0     555.0

X1   14840.      16.0     400.0     410.0      50.0      50.0      50.0
GR     852.0       0.0     850.0      20.0     850.0     220.0     848.0     310.0     846.3     375.0
GR     846.0     400.0     844.0     402.0     843.0     405.0     844.0     408.0     846.2     410.0
GR     848.0     450.0     850.0     475.0     852.0     515.0     854.0     545.0     856.0     560.0
GR     860.0     590.0
1
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NC       0.0       0.0       0.0       0.2       0.4
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X1   15500.      17.0     548.0     558.0     800.0     660.0     660.0
GR     860.0       0.0     850.0     130.0     850.0     295.0     850.7     315.0     850.0     335.0
GR     848.0     510.0     847.0     548.0     845.0     549.0     845.0     557.0     847.0     558.0
GR     848.0     610.0     850.0     680.0     852.0     700.0     852.0     915.0     854.0     940.0
GR     856.0     980.0     860.0    1025.0

X1   16800.      12.0     875.0     882.0    1300.0    1300.0    1300.0
GR     860.0       0.0     850.0     310.0     849.9     630.0     849.5     875.0     848.2     876.0
GR     848.2     881.0     849.5     882.0     850.0    1570.0     852.0    1610.0     852.0    1780.0
GR     854.0    1830.0     856.0    1900.0

X1   18100.      18.0     640.0     658.0    1300.0    1300.0    1300.0
GR     858.0       0.0     856.0      10.0     854.0      40.0     852.0      80.0     852.0     250.0
GR     852.4     300.0     852.0     370.0     851.6     450.0     852.0     530.0     852.5     590.0
GR     852.0     640.0     850.9     645.0     850.9     650.0     852.0     658.0     854.0     665.0
GR     856.0     690.0     858.0     760.0     860.0     810.0
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

 *PROF 1
0

 CCHV=      .300 CEHV=      .500
 *SECNO 1740.000
   1740.000       4.02     835.92       .00     835.92     835.92       .00        .00        .00     832.00
      560.0      357.9       27.9     174.1     1294.4       88.3     635.9         .0         .0     832.00
        .00        .28        .32       .27       .110       .100       .110       .000     831.90      13.12
    .000071         0.         0.        0.          0          0          0        .00     554.56     567.68


 *SECNO 2460.000
   2460.000       4.08     835.98       .00        .00     835.99       .00        .06        .00     832.00
      560.0      439.1       37.5      83.4     1209.4       89.6     240.3       28.7        7.9     832.00
        .53        .36        .42       .35       .110       .100       .110       .000     831.90      23.46
    .000122       660.       720.      820.          1          0          0        .00     426.31     449.78


 *SECNO 2700.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .38


 3470 ENCROACHMENT STATIONS=      300.0     678.0  TYPE=       1  TARGET=     -300.000
   2700.000       4.03     836.03       .00        .00     836.05       .02        .06        .01     832.50
      560.0      420.8      130.1       9.1      561.2       85.1       16.6       34.3        9.7     832.50
        .60        .75       1.53       .55       .110       .070       .110       .000     832.00     300.00
    .000850       220.       240.      240.          2          0          0        .00     245.48     545.48


 SPECIAL CULVERT

 SC   CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
      3          .024        .60       2.90        .00       4.50        .00       82.00      2          3          832.00     832.00

 CHART  2 - CORRUGATED METAL PIPE CULVERT
```

SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 839.04

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.12

1

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
842.05	840.07	2.99	122.	436.	1.044	47.7	838.30	114.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.03	839.03	.00	.00	839.04	.01	2.99	.00	832.50
560.0	365.0	155.0	40.0	841.8	148.5	99.5	36.0	10.2	832.50
.64	.43	1.04	.40	.110	.070	.110	.000	832.00	330.00
.000189	82.	82.	82.	0	0	0	.00	291.53	621.53

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.46

3182.000	6.85	839.05	.00	.00	839.05	.00	.01	.00	833.30
560.0	473.4	18.6	68.0	4369.1	142.7	699.2	74.5	17.7	833.30
1.98	.11	.13	.10	.110	.100	.110	.000	832.20	64.75
.000006	560.	400.	400.	2	0	0	.00	947.69	1012.44

CCHV= .200 CEHV= .400

*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .11

5220.000	5.54	839.04	.00	.00	839.12	.07	.04	.03	834.00
560.0	199.2	343.6	17.2	351.1	126.2	30.5	184.5	40.0	834.00
2.24	.57	2.72	.56	.110	.040	.110	.000	833.50	64.35
.000558	1600.	2038.	2038.	2	0	0	.00	211.30	275.65

CCHV= .100 CEHV= .300

*SECNO 5800.000

5800.000	5.61	839.41	.00	.00	839.48	.06	.36	.00	836.00
560.0	120.6	293.1	146.3	159.3	108.1	203.3	191.1	42.5	836.00
2.33	.76	2.71	.72	.110	.040	.110	.000	833.80	95.66
.000696	580.	580.	580.	2	0	0	.00	154.47	250.14

1

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

CCHV=      .300 CEHV=      .500
*SECNO 6550.000
  6550.000       5.07     840.07        .00        .00     840.20        .13        .69        .03     836.70
     560.0      119.1      395.3       45.6      139.0      115.3       87.5      198.1       45.4     837.90
      2.41        .86       3.43        .52        .110       .040       .110       .000     835.00      50.63
   .001265      750.       750.       750.          2          0          0        .00     189.23     239.85

*SECNO 6600.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65

3470 ENCROACHMENT STATIONS=       250.0      400.0  TYPE=       1  TARGET=       150.000
  6600.000       6.46     840.06        .00        .00     840.39        .33        .09        .10     836.70
     560.0      148.6      338.1       73.3      111.0       58.0       89.9      198.4       45.6     833.60
      2.41       1.34       5.83        .82        .110       .040       .110       .000     833.60     254.80
   .003012      50.        50.        50.          2          0          0        .00     145.20     400.00


SPECIAL BRIDGE

SB  XK         XKOR       COPQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.50       2.90        .00       9.00        .00      35.00        .00     833.60     833.60

*SECNO 6675.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.60

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                    AREA
    846.03     841.51        .00       147.       415.        35.       41.     838.10     842.40       133.


3470 ENCROACHMENT STATIONS=       250.0      400.0  TYPE=       1  TARGET=       150.000
  6675.000       9.70     843.30        .00        .00     843.33        .03       2.94        .00     836.70
     560.0      192.4      185.4       182.2      317.7       87.2      339.3      199.3       45.9     833.60
      2.43        .61       2.13        .54        .110       .040       .110       .000     833.60     250.00
   .000233      75.        75.        75.          2          0          5        .00     150.00     400.00

1
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.16

6725.000	7.74	843.34	.00	.00	843.34	.00	.00	.01	836.70
560.0	194.0	142.8	223.2	712.8	147.8	827.8	200.7	46.2	837.90
2.46	.27	.97	.27	.110	.040	.110	.000	835.60	28.41
.000050	50.	50.	50.	2	0	0	.00	374.96	403.37

*SECNO 7450.000

7450.000	7.38	843.38	.00	.00	843.39	.00	.04	.00	836.70
560.0	162.8	49.9	347.3	660.3	42.3	870.4	227.8	52.6	836.80
2.94	.25	1.18	.40	.110	.040	.110	.000	836.00	81.18
.000078	725.	725.	725.	2	0	0	.00	400.23	481.41

*SECNO 7486.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .13

7486.000	6.03	843.13	.00	.00	843.66	.53	.01	.26	857.70
560.0	.0	560.0	.0	.0	96.1	.0	228.5	52.8	857.70
2.94	.00	5.83	.00	.000	.040	.000	.000	837.10	400.07
.004751	36.	36.	36.	2	0	0	.00	15.96	416.03

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.55	842.65	842.65	.00	845.46	2.81	.15	1.14	857.20
560.0	.0	560.0	.0	.0	41.7	.0	228.5	52.8	857.20
2.94	.00	13.44	.00	.000	.040	.000	.000	837.10	400.00
.044723	14.	14.	14.	20	11	0	.00	7.50	407.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.80	.00	7.50	.00	70.00	.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 845.565 ELLC= 848.000 PCWSE= 842.654 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	8.38	845.58	.00	.00	846.82	1.23	.89	.47	857.30
560.0	.0	560.0	.0	.0	62.8	.0	228.6	52.8	857.30
2.94	.00	8.92	.00	.000	.040	.000	.000	837.20	400.00
.016261	35.	35.	35.	4	0	0	.00	7.50	407.50

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.33

7549.000	9.64	847.14	.00	.00	847.18	.04	.01	.36	858.10
560.0	.0	560.0	.0	.0	346.4	.2	228.6	52.8	837.50
2.94	.00	1.62	.01	.000	.040	.110	.000	837.50	390.05
.000127	14.	14.	14.	2	0	0	.00	35.99	426.05

*SECNO 7585.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.36

7585.000	9.89	847.19	.00	.00	847.20	.00	.00	.01	838.50
560.0	210.4	40.4	309.2	1171.1	55.2	1267.1	229.8	53.1	838.60
2.98	.18	.73	.24	.110	.040	.110	.000	837.30	61.06
.000023	36.	36.	36.	2	0	0	.00	507.51	568.57

CCHV= .200 CEHV= .400
*SECNO 9350.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.15

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  9350.000     10.31    847.21       .00       .00    847.21       .00       .01       .00    838.50
     560.0      62.0      49.6     448.4     933.8     199.3    5281.8     423.9      82.8    838.90
      8.36       .07       .25       .08      .110      .040      .110      .000    836.90    505.54
   .000002     1600.     1765.     2000.         2         0         0       .00    881.18   1402.04

*SECNO 12800.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .15

 12800.000      6.12    847.22       .00       .00    847.23       .01       .02       .00    844.60
     560.0     214.1     242.8     103.1     715.3     242.4     381.3     728.7     134.2    843.70
      9.95       .30      1.00       .27      .110      .045      .110      .000    841.10    572.75
   .000102     3500.     3450.     3400.         2         0         0       .00    422.87    995.62

CCHV=     .300 CEHV=     .500
*SECNO 12850.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .08

3470 ENCROACHMENT STATIONS=      230.0     450.0  TYPE=      1  TARGET=      220.000
 12850.000      6.26    847.16       .00       .00    847.33       .18       .02       .08    846.00
     512.0      52.2     144.0     315.8      41.8      25.1     180.6     729.6     134.6    846.00
      9.96      1.25      5.73      1.75      .110      .045      .110      .000    840.90    230.00
   .013908       50.       50.       50.         2         0         0       .00    220.00    450.00

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


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024       .60       2.90        .00       4.00        .00       35.00       2          3        840.90     840.90

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5130, EGIC=  934.86..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  903.56 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    850.46

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.63

SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    934.86     903.56      3.13       364.       145.     1.151       12.6     849.00       164.
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3470 ENCROACHMENT STATIONS=      230.0     410.0  TYPE=      1  TARGET=      180.000
 12885.000       9.55     850.45        .00        .00     850.46        .01       3.13        .00     846.00
     512.0      139.6       44.5      327.9      239.8       38.7      516.6      730.0      134.7     846.00
      9.97         .58       1.15        .63        .110       .045       .110       .000     840.90     230.00
   .000316        35.        35.        35.          0          0          0        .00     180.00     410.00


*SECNO 13085.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.56

 13085.000       8.98     850.48        .00        .00     850.51        .02        .04        .01     844.00
     512.0      111.6       315.9      84.5       301.4      210.8      254.0      733.7      135.7     844.00
     10.03         .37       1.50        .33        .110       .045       .110       .000     841.50      47.59
   .000130       150.       200.       250.          2          0          0        .00     214.82     262.41


CCHV=      .200 CEHV=      .400
*SECNO 14220.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.70

 14220.000       7.39     850.59        .00        .00     850.59        .00        .08        .00     844.50
     512.0      143.9       106.9      261.2      721.4      138.6     1294.3      771.9      148.4     845.10
     11.02         .20         .77        .20        .110       .045       .110       .000     843.20     200.87
   .000045      1200.      1135.      1100.          2          0          0        .00     752.64     953.51


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

*SECNO 14550.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .23

 14550.000       7.05     850.55        .00        .00     850.68        .12        .04        .05     846.00
     512.0       60.4       411.9      39.7        93.0      131.1       51.4      781.1      151.6     846.00
     11.05         .65       3.14        .77        .110       .045       .110       .000     843.50      58.94
   .000823       330.       330.       330.          2          0          0        .00      97.45     156.38


CCHV=      .300 CEHV=      .500
*SECNO 14750.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .20

3470 ENCROACHMENT STATIONS=      100.0     376.0  TYPE=      1  TARGET=      276.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       851.00 ELREA=       851.00

 14750.000       8.26     850.26        .00        .00     851.89       1.64        .46        .76     846.00
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     512.0        .0      512.0        .0        .0      49.9        .0     781.9     151.8    848.00
     11.06       .00      10.26       .00      .000      .045      .000      .000    842.00    350.00
   .021038      200.       200.      200.         2         0         0       .00      6.10    356.10


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1          .024       .50      2.90       .00      6.00       .00      40.00      2         2       842.00    842.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  2 - MITERED TO CONFORM TO SLOPE

5130, EGIC=  861.68..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 14790.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    854.03

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 13.65

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


SPECIAL CULVERT

     EGIC      EGOC        H4      QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    861.68    859.89      2.13      154.      360.     1.060      28.3    853.50      269.


3470 ENCROACHMENT STATIONS=       80.0     405.0  TYPE=      1  TARGET=      325.000
 14790.000     12.02    854.02       .00       .00    854.03       .00      2.13       .00    846.00
     512.0     338.7      77.3      96.0    1000.7      73.0     226.0     782.5     152.0    846.00
     11.08       .34      1.06       .42      .110      .045      .110      .000    842.00     80.00
   .000113       40.       40.       40.         0         0         0       .00    325.00    405.00


*SECNO 14840.000
3280 CROSS SECTION  14840.00 EXTENDED      2.03 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.39

 14840.000     11.03    854.03       .00       .00    854.03       .00       .00       .00    846.00
     512.0     353.3      59.0      99.7    1962.9      99.1     554.8     784.8     152.5    846.20
     11.14       .18       .60       .18      .110      .045      .110      .000    843.00       .00
   .000020       50.       50.       50.         2         0         0       .00    545.21    545.21


CCHV=     .200 CEHV=     .400
*SECNO 15500.000
 15500.000      9.04    854.04       .00       .00    854.04       .00       .01       .00    847.00
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512.0	304.0	42.7	165.3	2051.8	88.4	1219.1	836.5	164.5	847.00
12.35	.15	.48	.14	.110	.045	.110	.000	845.00	77.45
.000016	800.	660.	660.	2	0	0	.00	863.39	940.84

*SECNO 16800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.64

16800.000	5.85	854.05	.00	.00	854.05	.00	.01	.00	849.50
512.0	217.1	9.0	285.8	2638.8	39.7	3490.8	978.7	202.0	849.50
16.62	.08	.23	.08	.110	.045	.110	.000	848.20	184.14
.000006	1300.	1300.	1300.	1	0	0	.00	1647.95	1832.10

1

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

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .14

18100.000	3.18	854.08	.00	.00	854.08	.00	.02	.00	852.00
512.0	452.7	57.5	1.8	1181.7	49.9	7.5	1089.2	236.0	852.00
17.39	.38	1.15	.24	.110	.045	.110	.000	850.90	38.97
.000318	1300.	1300.	1300.	0	0	0	.00	626.88	665.86

1

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK - FLOODWAY RUN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	836.02	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

1

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

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 *PROF 2
0

 CCHV=      .300 CEHV=      .500
 *SECNO 1740.000
  2800 NAT Q1=      664.99  WSELK=      835.92  ENC Q1=      664.99  WSEL=      836.02  RATIO=     .0000
  NAT Q1=      695.  RATIOS LOB, CH, ROB=     .6391    .0497    .3111  WSEL=      836.02

 3470 ENCROACHMENT STATIONS=        54.3      541.7  TYPE=       4  TARGET=          .043
   1740.000       4.12     836.02        .00     835.92     836.02        .00        .00        .00     832.00
      560.0      361.5       29.1      169.4     1264.4       90.5      597.4         .0         .0     832.00
        .00        .29        .32        .28       .110       .100       .110       .000     831.90      54.34
    .000071         0.         0.         0.          0          0          0        .00     487.41     541.75


 *SECNO 2460.000
  2800 NAT Q1=      507.60  WSELK=      835.98  ENC Q1=      507.60  WSEL=      836.08  RATIO=     .0000
  NAT Q1=      532.  RATIOS LOB, CH, ROB=     .7839    .0667    .1494  WSEL=      836.08
 3280 CROSS SECTION    2460.00 EXTENDED        .09 FEET


 3470 ENCROACHMENT STATIONS=        50.6      422.3  TYPE=       4  TARGET=          .045
   2460.000       4.18     836.08        .00     835.98     836.09        .00        .06        .00     832.00
      560.0      445.0       38.9       76.0     1195.4       92.0      205.0       27.7        6.9     832.00
        .52        .37        .42        .37       .110       .100       .110       .000     831.90      50.58
    .000120       660.       720.       820.          0          0          0        .00     371.73     422.30


 *SECNO 2700.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .40


 3470 ENCROACHMENT STATIONS=       300.0      678.0  TYPE=       1  TARGET=      -300.000
   2700.000       4.13     836.13        .00     836.03     836.15        .01        .06        .01     832.50
      560.0      422.7       128.0        9.3      582.3       87.1       17.5       33.3        8.5     832.50
        .59        .73        1.47       .53       .110       .070       .110       .000     832.00     300.00
    .000760       220.       240.       240.          2          0          0        .00     245.74     545.74


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


 SPECIAL CULVERT

 SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
      3          .024        .60       2.90        .00       4.50        .00      82.00       2          3       832.00     832.00

 CHART  2 - CORRUGATED METAL PIPE CULVERT
 SCALE  3 - PIPE PROJECTING FROM FILL

 *SECNO 2782.000

 SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =     839.04
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.01

SPECIAL CULVERT

      EGIC       EGOC         H4      QWEIR      QCULV        VCH      ACULV      ELTRD     WEIRLN
    842.05     840.09       2.89       121.       435.      1.045       47.7     838.30       114.


3470 ENCROACHMENT STATIONS=       330.0      662.0  TYPE=       1  TARGET=      -330.000
  2782.000       7.03     839.03        .00     839.03     839.04        .01       2.89        .00     832.50
     560.0      364.9      155.0       40.0      841.1      148.4       99.4       35.0         9.0     832.50
       .62        .43       1.04        .40        .110       .070       .110       .000     832.00     330.00
   .000189        82.        82.        82.          0          0          0        .00     291.51     621.51


*SECNO 3182.000
 2800 NAT Q1=     2224.76  WSELK=      839.05  ENC Q1=     2224.76  WSEL=      839.15  RATIO=     .0000
 NAT Q1=     2291.  RATIOS LOB, CH, ROB=     .8449    .0330    .1221  WSEL=      839.15

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.31


3470 ENCROACHMENT STATIONS=        94.5      977.8  TYPE=       4  TARGET=          .029
  3182.000       6.85     839.05        .00     839.05     839.05        .00        .01        .00     833.30
     560.0      479.0       19.1       61.9     4280.7      142.7      600.9       72.4       16.2     833.30
      1.92        .11        .13        .10        .110       .100       .110       .000     832.20      94.50
   .000007        560.       400.       400.          2          0          0        .00     883.29     977.79


CCHV=      .200 CEHV=      .400
*SECNO 5220.000
 2800 NAT Q1=      237.16  WSELK=      839.04  ENC Q1=      237.16  WSEL=      839.14  RATIO=     .0000
 NAT Q1=      248.  RATIOS LOB, CH, ROB=     .3647    .6040    .0313  WSEL=      839.14

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .10

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    28NOV94       09:10:39                                                                                PAGE    19

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


3470 ENCROACHMENT STATIONS=       103.9      264.8  TYPE=       4  TARGET=          .045
  5220.000       5.54     839.04        .00     839.04     839.12        .08        .04        .03     834.00
     560.0      196.6      359.9        3.5      314.5      126.1        8.5      177.4       36.2     834.00
      2.16        .63       2.85        .41        .110       .040       .110       .000     833.50     103.86
   .000613       1600.      2038.      2038.          2          0          0        .00     160.97     264.82


CCHV=      .100 CEHV=      .300
*SECNO 5800.000
 2800 NAT Q1=      212.25  WSELK=      839.41  ENC Q1=      212.25  WSEL=      839.51  RATIO=     .0000
 NAT Q1=      222.  RATIOS LOB, CH, ROB=     .2169    .5184    .2647  WSEL=      839.51

3470 ENCROACHMENT STATIONS=       110.4      225.3  TYPE=       4  TARGET=          .044
  5800.000       5.64     839.44        .00     839.41     839.51        .07        .39        .00     836.00
```

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     560.0      113.1      305.8      141.1      136.3      108.7      174.8      183.2       38.0     836.00
      2.24        .83       2.81        .81        .110       .040       .110       .000     833.80     110.38
   .000743      580.       580.       580.          2          0          0        .00     114.91     225.29


CCHV=      .300 CEHV=      .500
*SECNO 6550.000
 2800 NAT Q1=      157.46  WSELK=      840.07  ENC Q1=      157.46  WSEL=      840.17  RATIO=     .0000
 NAT Q1=     166.  RATIOS LOB, CH, ROB=     .2158    .6949    .0893  WSEL=      840.17

3470 ENCROACHMENT STATIONS=        66.1      166.9  TYPE=        4  TARGET=          .053
  6550.000       5.13     840.13        .00     840.07     840.27        .14        .72        .04     836.70
     560.0      111.8      411.5       36.7      122.5      117.1       51.7      189.3       39.9     837.90
      2.32        .91       3.51        .71        .110       .040       .110       .000     835.00      66.12
   .001301      750.       750.       750.          1          0          0        .00     100.82     166.94


*SECNO 6600.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .68


3470 ENCROACHMENT STATIONS=       250.0      400.0  TYPE=        1  TARGET=       150.000
  6600.000       6.54     840.14        .00     840.06     840.44        .30        .09        .08     836.70
     560.0      150.4      331.3       78.3      115.6       58.7       95.8      189.6       40.0     833.60
      2.32        1.30       5.64        .82        .110       .040       .110       .000     833.60     253.40
   .002779       50.        50.        50.          2          0          0        .00     146.60     400.00


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   28NOV94      09:10:39                                                                                PAGE    20

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    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
       .00       1.50       2.90        .00       9.00        .00       35.00        .00     833.60     833.60

*SECNO 6675.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   3.46

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS      EGLWC      H3         QWEIR      QPR        BAREA      TRAPEZOID AREA      ELLC       ELTRD      WEIRLN
    846.10     844.13        .00       151.       410.        35.        41.       838.10     842.40       134.


3470 ENCROACHMENT STATIONS=       250.0      400.0  TYPE=        1  TARGET=       150.000
  6675.000       9.71     843.31        .00     843.30     843.34        .03       2.90        .00     836.70
     560.0      192.4      185.2      182.4      318.4       87.3      340.2      190.5       40.3     833.60
      2.34        .60       2.12        .54        .110       .040       .110       .000     833.60     250.00
   .000231       75.        75.        75.          2          0          5        .00     150.00     400.00
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*SECNO 6725.000
 2800 NAT Q1=      790.93  WSELK=      843.34  ENC Q1=      790.93  WSEL=      843.44  RATIO=     .0000
 NAT Q1=      816.  RATIOS LOB, CH, ROB=     .3473    .2528    .3999  WSEL=      843.44

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.09


3470 ENCROACHMENT STATIONS=        65.7      362.7  TYPE=       4  TARGET=          .031
  6725.000       7.75     843.35       .00     843.34     843.35       .01       .00       .01     836.70
     560.0      191.3      147.3     221.5      649.0      148.0     765.8     191.8      40.5     837.90
      2.37        .29       1.00       .29       .110       .040      .110      .000    835.60      65.68
   .000053        50.        50.       50.          2          0         0       .00    297.01     362.69


*SECNO 7450.000
 2800 NAT Q1=      634.58  WSELK=      843.38  ENC Q1=      634.58  WSEL=      843.48  RATIO=     .0000
 NAT Q1=      657.  RATIOS LOB, CH, ROB=     .2966    .0880    .6153  WSEL=      843.48

3470 ENCROACHMENT STATIONS=       114.9      459.9  TYPE=       4  TARGET=          .034
1
   28NOV94       09:10:39                                                                                    PAGE    21


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


  7450.000       7.40     843.40       .00     843.38     843.40       .00       .05       .00     836.70
     560.0      159.1       51.7     349.2      605.4       42.4     825.3     217.1      45.9     836.80
      2.82        .26       1.22       .42       .110       .040      .110      .000    836.00     114.95
   .000083       725.       725.      725.          0          0         0       .00    344.93     459.88


*SECNO 7486.000
 2800 NAT Q1=       81.24  WSELK=      843.13  ENC Q1=       83.10  WSEL=      843.23  RATIO=    -.0228
 NAT Q1=       83.  RATIOS LOB, CH, ROB=     .0000  1.0000    .0000  WSEL=      843.23

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .13


3470 ENCROACHMENT STATIONS=       400.0      416.1  TYPE=       4  TARGET=          .000
  7486.000       6.04     843.14       .00     843.13     843.67       .53       .01       .26     857.70
     560.0         .0      560.0        .0         .0       96.3        .0     217.7      46.0     857.70
      2.82        .00       5.81       .00       .000       .040      .000      .000    837.10     400.07
   .004717        36.        36.       36.          2          0         0       .00     15.96     416.03


*SECNO 7500.000
 2800 NAT Q1=       26.48  WSELK=      842.65  ENC Q1=       27.09  WSEL=      842.75  RATIO=    -.0229
 NAT Q1=       27.  RATIOS LOB, CH, ROB=     .0000  1.0000    .0000  WSEL=      842.75

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3470 ENCROACHMENT STATIONS=      400.0      407.5  TYPE=       4  TARGET=          .000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        857.10 ELREA=        857.10

  7500.000       5.55     842.65     842.65     842.65     845.46       2.81        .15       1.14     857.20
     560.0         .0      560.0         .0         .0       41.7         .0      217.7       46.0  100000.00
      2.82        .00      13.44        .00       .000       .040       .000       .000     837.10     400.00
   .044723         14.        14.        14.         20         11          0        .00       7.50     407.50


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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     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
       .00        1.50       2.80        .00       7.50        .00       70.00        .00     837.20     837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=         .000  EGLWC=     846.888  ELLC=     848.000  PCWSE=     842.654  ELTRD=     857.100
 2800 NAT Q1=        43.92  WSELK=      845.58  ENC Q1=        44.57  WSEL=      845.68  RATIO=    -.0150
 NAT Q1=       45.  RATIOS LOB, CH, ROB=     .0000  1.0000   .0000  WSEL=      845.68
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.66


3470 ENCROACHMENT STATIONS=      400.0      407.5  TYPE=       4  TARGET=          .000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        857.40 ELREA=        857.40

  7535.000       8.38     845.58        .00     845.58     846.82       1.23        .89        .47     857.30
     560.0         .0      560.0         .0         .0       62.8         .0      217.8       46.0  100000.00
      2.82        .00       8.91        .00       .000       .040       .000       .000     837.20     400.00
   .016242         35.        35.        35.          0          0          0        .00       7.50     407.50


*SECNO 7549.000
 2800 NAT Q1=       497.74  WSELK=      847.14  ENC Q1=       505.54  WSEL=      847.24  RATIO=    -.0157
 NAT Q1=      506.  RATIOS LOB, CH, ROB=     .0000  1.0000   .0000  WSEL=      847.24

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  9.97


3470 ENCROACHMENT STATIONS=      390.0      426.0  TYPE=       4  TARGET=          .000
  7549.000       9.64     847.14        .00     847.14     847.18        .04        .01        .36     858.10
     560.0         .0      560.0         .0         .0      346.4         .0      217.8       46.1     837.50
      2.82        .00       1.62        .00       .000       .040       .000       .000     837.50     390.05
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    .000163       14.       14.       14.         2         0         0       .00     35.95    426.00

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

 *SECNO 7585.000
  2800 NAT Q1=     1175.69  WSELK=      847.19  ENC Q1=     1175.69  WSEL=      847.29  RATIO=     .0000
  NAT Q1=     1208.  RATIOS LOB, CH, ROB=     .3785    .0715    .5500  WSEL=      847.29

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.62


 3470 ENCROACHMENT STATIONS=       102.0      487.0  TYPE=       4  TARGET=          .027
   7585.000       9.89    847.19       .00    847.19    847.20       .00        .00        .01    838.50
      560.0      208.0      41.4      310.6    1087.4      55.2    1182.0      219.0       46.2    838.60
       2.86        .19        .75        .26      .110      .040      .110       .000     837.30    101.97
    .000024       36.        36.        36.         2         0         0       .00     385.07    487.04


 CCHV=      .200 CEHV=      .400
 *SECNO 9350.000
  2800 NAT Q1=     3708.65  WSELK=      847.21  ENC Q1=     3708.65  WSEL=      847.31  RATIO=     .0000
  NAT Q1=     3785.  RATIOS LOB, CH, ROB=     .1114    .0883    .8003  WSEL=      847.31

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.17


 3470 ENCROACHMENT STATIONS=       576.4     1323.9  TYPE=       4  TARGET=          .020
   9350.000      10.31    847.21       .00    847.21    847.21       .00        .01        .00    838.50
      560.0       57.4      50.6      452.0     774.1     199.4    5185.4      404.5       70.6    838.90
       8.05        .07        .25        .09      .110      .040      .110       .000     836.90    576.36
    .000002     1600.      1765.      2000.         1         0         0       .00     747.54   1323.89


 *SECNO 12800.000
  2800 NAT Q1=      553.28  WSELK=      847.22  ENC Q1=      553.28  WSEL=      847.32  RATIO=     .0000
  NAT Q1=      577.  RATIOS LOB, CH, ROB=     .3851    .4287    .1862  WSEL=      847.32

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .15


 3470 ENCROACHMENT STATIONS=       600.2      930.6  TYPE=       4  TARGET=          .042
  12800.000       6.13    847.23       .00    847.22    847.23       .01        .02        .00    844.60
      560.0      211.1      252.8      96.1     669.4     242.5     296.7      693.9      113.1    843.70
       9.53        .32       1.04        .32      .110      .045      .110       .000     841.10    600.23
    .000111     3500.      3450.      3400.         2         0         0       .00     330.32    930.56


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

CCHV=      .300 CEHV=      .500
*SECNO 12850.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .08


3470 ENCROACHMENT STATIONS=       230.0      450.0  TYPE=       1  TARGET=       220.000
 12850.000       6.26     847.16        .00     847.16     847.33        .17        .02        .08     846.00
     512.0       52.4      143.6      316.0       42.0       25.2      181.1      694.7      113.4     846.00
      9.54       1.25       5.71       1.74       .110       .045       .110       .000     840.90     230.00
   .013801        50.        50.        50.          2          0          0        .00     220.00     450.00



SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1           .024        .60       2.90        .00       4.00        .00      35.00       2          3        840.90     840.90

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5130, EGIC=  934.86..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  903.56 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =     850.46

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.62

SPECIAL CULVERT

     EGIC       EGOC         H4       QWEIR      QCULV        VCH       ACULV      ELTRD     WEIRLN
    934.86     903.56       3.13        369.       145.      1.148        12.6     849.00        165.



3470 ENCROACHMENT STATIONS=       230.0      410.0  TYPE=       1  TARGET=       180.000
 12885.000       9.56     850.46        .00     850.45     850.46        .01       3.13        .00     846.00
     512.0      139.7       44.4      327.9      240.2       38.7      517.5      695.2      113.5     846.00
      9.55        .58       1.15        .63        .110       .045       .110       .000     840.90     230.00
   .000315        35.        35.        35.          0          0          0        .00     180.00     410.00


*SECNO 13085.000
 2800 NAT Q1=      449.12  WSELK=      850.48  ENC Q1=      449.12  WSEL=      850.58  RATIO=     .0000
 NAT Q1=      463.  RATIOS LOB, CH, ROB=     .2212    .6101    .1687  WSEL=      850.58

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST
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3470 ENCROACHMENT STATIONS=       81.2      230.9  TYPE=       4  TARGET=          .031
 13085.000       8.99     850.49        .00     850.48     850.51        .02        .04        .01     844.00
     512.0      107.6      324.9       79.5      262.3      211.1      216.0      698.7      114.3     844.00
      9.60        .41       1.54        .37       .110       .045       .110       .000     841.50      81.19
   .000137      150.       200.       250.          1          0          0        .00     149.69     230.89


CCHV=      .200 CEHV=      .400
*SECNO 14220.000
 2800 NAT Q1=      765.50  WSELK=      850.59  ENC Q1=      765.50  WSEL=      850.69  RATIO=     .0000
 NAT Q1=      801.  RATIOS LOB, CH, ROB=     .2830    .2047    .5123  WSEL=      850.69

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.68


3470 ENCROACHMENT STATIONS=      327.0      908.5  TYPE=       4  TARGET=          .044
 14220.000       7.40     850.60        .00     850.59     850.61        .00        .09        .00     844.50
     512.0      139.8      111.5       260.7      611.7      138.9     1214.9      733.4      123.9     845.10
     10.52        .23        .80        .21       .110       .045       .110       .000     843.20     326.97
   .000048     1200.      1135.      1100.          1          0          0        .00     581.49     908.46


*SECNO 14550.000
 2800 NAT Q1=      178.48  WSELK=      850.55  ENC Q1=      178.48  WSEL=      850.65  RATIO=     .0000
 NAT Q1=      185.  RATIOS LOB, CH, ROB=     .1232    .7974    .0794  WSEL=      850.65

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .24


3470 ENCROACHMENT STATIONS=       87.2      145.0  TYPE=       4  TARGET=          .034
 14550.000       7.06     850.56        .00     850.55     850.70        .14        .04        .05     846.00
     512.0       55.0      424.3       32.7       72.3      131.3       35.7      741.7      126.3     846.00
     10.55        .76       3.23        .92       .110       .045       .110       .000     843.50      87.17
   .000868      330.       330.       330.          2          0          0        .00      57.85     145.02


CCHV=      .300 CEHV=      .500
*SECNO 14750.000

3301 HV CHANGED MORE THAN HVINS

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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .20


3470 ENCROACHMENT STATIONS=      100.0      376.0  TYPE=       1  TARGET=      276.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       851.00 ELREA=       851.00

 14750.000       8.30     850.30        .00     850.26     851.92       1.62        .48        .74     846.00
     512.0         .0      512.0         .0         .0       50.2         .0      742.4      126.4     848.00
     10.55        .00      10.21        .00       .000       .045       .000       .000     842.00     350.00
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   .020658      200.      200.      200.         2         0         0       .00      6.10    356.10


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1          .024      .50      2.90       .00      6.00       .00      40.00      2         2        842.00    842.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  2 - MITERED TO CONFORM TO SLOPE

5130, EGIC=  861.68..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 14790.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    854.03

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 13.52

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    861.68    859.93      2.11      153.      360.     1.060      28.3    853.50      269.


3470 ENCROACHMENT STATIONS=       80.0     405.0  TYPE=      1  TARGET=      325.000
 14790.000     12.02    854.02       .00    854.02    854.03       .00      2.11       .00    846.00
     512.0     338.7      77.4      96.0    1000.4      73.0     225.9     743.0     126.6    846.00
     10.58       .34      1.06       .42      .110      .045      .110      .000    842.00     80.00
   .000113       40.       40.       40.         0         0         0       .00    325.00    405.00


*SECNO 14840.000
 2800 NAT Q1=    1151.69  WSELK=     854.03  ENC Q1=    1151.69  WSEL=     854.13  RATIO=    .0000
 NAT Q1=    1187.  RATIOS LOB, CH, ROB=    .6911    .1137    .1952  WSEL=     854.13
1
   28NOV94      09:10:39                                                                                  PAGE   27


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


3280 CROSS SECTION  14840.00 EXTENDED      2.02 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.32


3470 ENCROACHMENT STATIONS=       18.0     497.6  TYPE=      4  TARGET=         .030
 14840.000     11.03    854.03       .00    854.03    854.03       .00       .00       .00    846.00
     512.0     356.3      60.7      95.0    1908.6      99.0     480.9     745.2     127.0    846.20
     10.64       .19       .61       .20      .110      .045      .110      .000    843.00     18.00
   .000021       50.       50.       50.         0         0         0       .00    479.63    497.64


CCHV=      .200 CEHV=      .400
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*SECNO 15500.000
 2800 NAT Q1=    1292.11  WSELK=     854.04  ENC Q1=    1292.11  WSEL=     854.14  RATIO=    .0000
 NAT Q1=    1340.  RATIOS LOB, CH, ROB=    .5932   .0819   .3249  WSEL=     854.14

3470 ENCROACHMENT STATIONS=      129.7     875.3  TYPE=      4  TARGET=         .036
 15500.000      9.04    854.04       .00    854.04    854.04       .00       .01       .00    847.00
     512.0     305.5      44.2     162.2    1945.8      88.4    1111.2     794.1     137.6    847.00
     11.77       .16       .50       .15      .110      .045      .110      .000    845.00    129.72
   .000017      800.      660.      660.         0         0         0       .00    745.54    875.25


*SECNO 16800.000
 2800 NAT Q1=    2113.37  WSELK=     854.05  ENC Q1=    2113.37  WSEL=     854.15  RATIO=    .0000
 NAT Q1=    2198.  RATIOS LOB, CH, ROB=    .4239   .0175   .5587  WSEL=     854.15

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.63


3470 ENCROACHMENT STATIONS=      296.2    1712.5  TYPE=      4  TARGET=         .038
 16800.000      5.86    854.06       .00    854.05    854.06       .00       .01       .00    849.50
     512.0     215.4       9.4     287.2    2434.3      39.7    3295.8     927.1     169.9    849.50
     15.77       .09       .24       .09      .110      .045      .110      .000    848.20    296.19
   .000006     1300.     1300.     1300.         0         0         0       .00   1416.30   1712.49


*SECNO 18100.000
 2800 NAT Q1=     287.32  WSELK=     854.08  ENC Q1=     287.32  WSEL=     854.18  RATIO=    .0000
 NAT Q1=     313.  RATIOS LOB, CH, ROB=    .8862   .1099   .0039  WSEL=     854.18
1
   28NOV94      09:10:39                                                                                  PAGE   28


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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .13


3470 ENCROACHMENT STATIONS=      113.0     658.0  TYPE=      4  TARGET=         .081
 18100.000      3.18    854.08       .00    854.08    854.08       .00       .03       .00    852.00
     512.0     453.5      58.5        .0    1075.8      50.1        .0    1030.0     199.1    852.00
     16.48       .42      1.17       .00      .110      .045      .000      .000    850.90    113.00
   .000375     1300.     1300.     1300.         2         0         0       .00    545.00    658.00


1
   28NOV94      09:10:39                                                                                  PAGE   29


                                                                                  THIS RUN EXECUTED 28NOV94    09:10:54
************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREEK -NATURAL 100 YEAR

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1740.000	835.92	.00	835.92	554.56	357.95	27.92	174.13	.00	.00	370.00	392.00	.00
	1740.000	836.02	.10	836.02	487.41	361.49	29.11	169.40	.04	54.34	370.00	392.00	541.75
	2460.000	835.98	.00	835.99	426.31	439.15	37.46	83.39	.00	.00	350.00	372.00	.00
	2460.000	836.08	.10	836.09	371.73	445.02	38.94	76.05	.05	50.58	350.00	372.00	422.30
*	2700.000	836.03	.00	836.05	245.48	420.81	130.06	9.13	-300.00	300.00	515.00	536.10	678.00
*	2700.000	836.13	.10	836.15	245.74	422.73	127.99	9.28	-300.00	300.00	515.00	536.10	678.00
*	2782.000	839.03	.00	839.04	291.53	365.00	154.95	40.05	-330.00	330.00	570.00	591.10	662.00
*	2782.000	839.03	.00	839.04	291.51	364.94	155.02	40.04	-330.00	330.00	570.00	591.10	662.00
*	3182.000	839.05	.00	839.05	947.69	473.37	18.59	68.04	.00	.00	840.00	861.00	.00
*	3182.000	839.05	.00	839.05	883.29	478.95	19.13	61.92	.03	94.50	840.00	861.00	977.79
*	5220.000	839.04	.00	839.12	211.30	199.19	343.61	17.20	.00	.00	240.00	263.00	.00
*	5220.000	839.04	-.01	839.12	160.97	196.65	359.86	3.49	.04	103.86	240.00	263.00	264.83
	5800.000	839.41	.00	839.48	154.47	120.63	293.09	146.28	.00	.00	150.00	173.00	.00
	5800.000	839.44	.03	839.51	114.91	113.11	305.82	141.07	.04	110.38	150.00	173.00	225.29
	6550.000	840.07	.00	840.20	189.23	119.15	395.27	45.58	.00	.00	112.00	139.00	.00
	6550.000	840.13	.06	840.27	100.82	111.76	411.50	36.73	.05	66.12	112.00	139.00	166.94
*	6600.000	840.06	.00	840.39	145.20	148.60	338.14	73.26	150.00	250.00	314.00	323.00	400.00
*	6600.000	840.14	.08	840.44	146.60	150.36	331.32	78.32	150.00	250.00	314.00	323.00	400.00
*	6675.000	843.30	.00	843.33	150.00	192.38	185.39	182.22	150.00	250.00	314.00	323.00	400.00
*	6675.000	843.31	.01	843.34	150.00	192.45	185.16	182.40	150.00	250.00	314.00	323.00	400.00
*	6725.000	843.34	.00	843.34	374.96	194.03	142.81	223.16	.00	.00	190.00	210.00	.00
*	6725.000	843.35	.01	843.35	297.01	191.29	147.26	221.45	.03	65.68	190.00	210.00	362.69

1

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7450.000	843.38	.00	843.39	400.23	162.84	49.86	347.30	.00	.00	325.00	331.00	.00
	7450.000	843.40	.01	843.40	344.93	159.11	51.68	349.21	.03	114.95	325.00	331.00	459.88
*	7486.000	843.13	.00	843.66	15.96	.00	560.00	.00	.00	.00	400.00	416.10	.00
*	7486.000	843.14	.02	843.67	15.96	.00	560.00	.00	.00	400.00	400.00	416.10	416.10
*	7500.000	842.65	.00	845.46	7.50	.00	560.00	.00	.00	.00	400.00	407.50	.00
*	7500.000	842.65	.00	845.46	7.50	.00	560.00	.00	.00	400.00	400.00	407.50	407.50
*	7535.000	845.58	.00	846.82	7.50	.00	560.00	.00	.00	.00	400.00	407.50	.00
*	7535.000	845.58	.00	846.82	7.50	.00	560.00	.00	.00	400.00	400.00	407.50	407.50
*	7549.000	847.14	.00	847.18	35.99	.00	560.00	.00	.00	.00	390.00	426.00	.00
*	7549.000	847.14	.00	847.18	35.95	.00	560.00	.00	.00	390.00	390.00	426.00	426.00

*	7585.000	847.19	.00	847.20	507.51	210.40	40.39	309.20	.00	.00	325.00	331.00	.00
*	7585.000	847.19	.00	847.20	385.07	207.97	41.40	310.63	.03	101.97	325.00	331.00	487.04
*	9350.000	847.21	.00	847.21	881.18	61.95	49.60	448.45	.00	.00	690.00	711.00	.00
*	9350.000	847.21	.00	847.21	747.54	57.40	50.60	452.00	.02	576.36	690.00	711.00	1323.90
*	12800.000	847.22	.00	847.23	422.87	214.05	242.83	103.12	.00	.00	800.00	846.00	.00
*	12800.000	847.23	.00	847.23	330.32	211.12	252.79	96.09	.04	600.23	800.00	846.00	930.56
*	12850.000	847.16	.00	847.33	220.00	52.21	144.04	315.76	220.00	230.00	290.00	294.10	450.00
*	12850.000	847.16	.00	847.33	220.00	52.41	143.60	315.99	220.00	230.00	290.00	294.10	450.00
*	12885.000	850.45	.00	850.46	180.00	139.63	44.51	327.87	180.00	230.00	290.00	294.10	410.00
*	12885.000	850.46	.01	850.46	180.00	139.67	44.45	327.88	180.00	230.00	290.00	294.10	410.00
*	13085.000	850.48	.00	850.51	214.82	111.61	315.92	84.47	.00	.00	145.00	170.00	.00
*	13085.000	850.49	.01	850.51	149.69	107.57	324.92	79.52	.03	81.19	145.00	170.00	230.89
*	14220.000	850.59	.00	850.59	752.64	143.94	106.91	261.16	.00	.00	500.00	521.00	.00
*	14220.000	850.60	.02	850.61	581.49	139.82	111.48	260.70	.04	326.97	500.00	521.00	908.46
*	14550.000	850.55	.00	850.68	97.45	60.37	411.95	39.68	.00	.00	115.00	135.00	.00
*	14550.000	850.56	.01	850.70	57.85	54.97	424.35	32.68	.03	87.17	115.00	135.00	145.02
*	14750.000	850.26	.00	851.89	6.10	.00	512.00	.00	276.00	100.00	350.00	356.10	376.00
*	14750.000	850.30	.05	851.92	6.10	.00	512.00	.00	276.00	100.00	350.00	356.10	376.00
*	14790.000	854.02	.00	854.03	325.00	338.69	77.33	95.98	325.00	80.00	355.00	361.10	405.00
*	14790.000	854.02	.00	854.03	325.00	338.66	77.36	95.99	325.00	80.00	355.00	361.10	405.00
*	14840.000	854.03	.00	854.03	545.21	353.32	59.01	99.66	.00	.00	400.00	410.00	.00
*	14840.000	854.03	.00	854.03	479.63	356.28	60.67	95.05	.03	18.00	400.00	410.00	497.64
	15500.000	854.04	.00	854.04	863.39	303.98	42.70	165.32	.00	.00	548.00	558.00	.00
	15500.000	854.04	.00	854.04	745.54	305.50	44.25	162.25	.04	129.72	548.00	558.00	875.26

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	16800.000	854.05	.00	854.05	1647.95	217.15	9.04	285.82	.00	.00	875.00	882.00	.00
*	16800.000	854.06	.00	854.06	1416.30	215.42	9.39	287.19	.04	296.19	875.00	882.00	1712.49
*	18100.000	854.08	.00	854.08	626.88	452.66	57.50	1.83	.00	.00	640.00	658.00	.00
*	18100.000	854.08	.00	854.08	545.00	453.53	58.47	.00	.08	113.00	640.00	658.00	658.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 2700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2700.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2782.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2782.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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 WARNING SECNO=    3182.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3182.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    5220.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5220.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6600.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6600.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6675.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6675.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6725.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6725.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    7486.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7486.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    7500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    7500.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    7500.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION SECNO=    7500.000  PROFILE=  2  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    7500.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    7500.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=    7535.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7535.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    7549.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7549.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    7585.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7585.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    9350.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    9350.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   12800.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   12850.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12850.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   12885.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12885.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
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 WARNING SECNO=   13085.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   13085.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   14220.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   14220.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   14550.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   14550.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   14750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   14750.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING SECNO=  14790.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14790.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14840.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14840.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16800.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  18100.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  18100.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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Floodway width summary: CREEK -NATURAL 100 YEAR
Profile No. 2

Section Number	Elevation Increase	Top Width	Left Encroach Station	Left Sta Distance From Center	Center Station	Right Sta Distance From Center	Right Encroach Station
1740.000	.10	487.41	54.34	326.66	381.00	160.75	541.75
2460.000	.10	371.73	50.58	310.42	361.00	61.30	422.30
2700.000	.10	378.00	300.00	225.55	525.55	152.45	678.00
2782.000	.00	332.00	330.00	250.55	580.55	81.45	662.00
3182.000	.00	883.29	94.50	756.00	850.50	127.29	977.79
5220.000	-.01	160.97	103.86	147.64	251.50	13.33	264.83
5800.000	.03	114.91	110.38	51.12	161.50	63.79	225.29
6550.000	.06	100.82	66.12	59.38	125.50	41.44	166.94
6600.000	.08	150.00	250.00	68.50	318.50	81.50	400.00
6675.000	.01	150.00	250.00	68.50	318.50	81.50	400.00
6725.000	.01	297.01	65.68	134.32	200.00	162.69	362.69
7450.000	.01	344.93	114.95	213.05	328.00	131.88	459.88
7486.000	.02	16.10	400.00	8.05	408.05	8.05	416.10
7500.000	.00	7.50	400.00	3.75	403.75	3.75	407.50
7535.000	.00	7.50	400.00	3.75	403.75	3.75	407.50
7549.000	.00	36.00	390.00	18.00	408.00	18.00	426.00
7585.000	.00	385.07	101.97	226.03	328.00	159.04	487.04
9350.000	.00	747.54	576.36	124.14	700.50	623.40	1323.90
12800.000	.00	330.33	600.23	222.77	823.00	107.56	930.56
12850.000	.00	220.00	230.00	62.05	292.05	157.95	450.00
12885.000	.01	180.00	230.00	62.05	292.05	117.95	410.00
13085.000	.01	149.69	81.19	76.31	157.50	73.39	230.89
14220.000	.02	581.50	326.97	183.53	510.50	397.96	908.46
14550.000	.01	57.85	87.17	37.83	125.00	20.02	145.02
14750.000	.05	276.00	100.00	253.05	353.05	22.95	376.00
14790.000	.00	325.00	80.00	278.05	358.05	46.95	405.00
14840.000	.00	479.63	18.00	387.00	405.00	92.64	497.64
15500.000	.00	745.54	129.72	423.28	553.00	322.26	875.26
16800.000	.00	1416.30	296.19	582.31	878.50	833.99	1712.49
18100.000	.00	545.00	113.00	536.00	649.00	9.00	658.00

1

FLOODWAY DATA, CREEK -NATURAL 100 YEAR
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1740.000	487.	1952.	.3	836.0	835.9	.1
2460.000	372.	1492.	.4	836.1	836.0	.1
2700.000	246.	687.	.8	836.1	836.0	.1
2782.000	292.	1089.	.5	839.0	839.0	.0
3182.000	883.	5024.	.1	839.0	839.0	.0
5220.000	161.	449.	1.2	839.0	839.0	.0
5800.000	115.	420.	1.3	839.4	839.4	.0
6550.000	101.	291.	1.9	840.2	840.1	.1
6600.000	147.	270.	2.1	840.2	840.1	.1
6675.000	150.	746.	.8	843.3	843.3	.0
6725.000	297.	1563.	.4	843.3	843.3	.0
7450.000	345.	1473.	.4	843.4	843.4	.0
7486.000	16.	96.	5.8	843.1	843.1	.0
7500.000	8.	42.	13.4	842.7	842.7	.0
7535.000	8.	63.	8.9	845.6	845.6	.0
7549.000	36.	346.	1.6	847.1	847.1	.0
7585.000	385.	2325.	.2	847.2	847.2	.0
9350.000	748.	6159.	.1	847.2	847.2	.0
12800.000	330.	1209.	.5	847.2	847.2	.0
12850.000	220.	248.	2.1	847.2	847.2	.0
12885.000	180.	796.	.6	850.5	850.5	.0
13085.000	150.	689.	.7	850.5	850.5	.0
14220.000	581.	1965.	.3	850.6	850.6	.0
14550.000	58.	239.	2.1	850.6	850.6	.0
14750.000	6.	50.	10.2	850.3	850.3	.0
14790.000	325.	1299.	.4	854.0	854.0	.0
14840.000	480.	2489.	.2	854.0	854.0	.0
15500.000	746.	3145.	.2	854.0	854.0	.0
16800.000	1416.	5770.	.1	854.1	854.1	.0
18100.000	545.	1126.	.5	854.1	854.1	.0

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1*****************************************                                                  ***************************************
 *  HEC-2 WATER SURFACE PROFILES            *                                                  *  U.S. ARMY CORPS OF ENGINEERS
 *                                          *                                                  *  HYDROLOGIC ENGINEERING CENTER
 *  Version   4.6.2;  May 1991              *                                                  *  609 SECOND STREET, SUITE D
 *                                          *                                                  *  DAVIS, CALIFORNIA 95616-4687
 *  RUN DATE    23NOV94    TIME   11:20:20  *                                                  *          (916) 756-1104
 *****************************************                                                  ***************************************



                                                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 23NOV94    11:20:20
 ***************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ***************************************


 T1MERIDIAN TOWNSHIP FIS
 T2UPDATED 10-YEAR FLOOD   STS CONSULTANTS LTD. 12/93  MMW
 T3HERRON CREEK

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.0       2.0       0.0       0.0    .00014       0.0       0.0       0.0     833.0       0.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

   150.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

 NC      .11        .11        0.1        .30        .50
 QT      4.0      290.0      470.0      560.0      750.0
 X1   1740.0       12.0      370.0      392.0        0.0        0.0        0.0
 X3      0.0        0.0        0.0      190.0
 GR    840.0        0.0      836.0       12.0      834.0       40.0      832.0       65.0      832.0      370.0
 GR    831.9      371.0      831.9      391.0      832.0      392.0      832.0      530.0      834.0      560.0
 GR    836.0      568.0      840.0      590.0        0.0        0.0        0.0        0.0        0.0        0.0

 ET      0.0        6.1        8.1        8.1        8.1      300.0      450.0      200.0      450.0        0.0
 X1   2460.0       10.0      350.0      372.0      660.0      820.0      720.0
 GR    840.0        0.0      834.0       35.0      832.0       90.0      832.0      350.0      831.9      351.0
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GR	831.9	371.0	832.0	372.0	832.0	420.0	834.0	430.0	836.0	450.0
NC	0.0	0.0	0.07							
X1	2700.0	13.0	515.0	536.1	220.0	240.0	240.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	300.0	0.0	0.0	0 0	835.4	835.4	0.0
GR	850.0	0.0	840.0	55.0	838.0	70.0	836.0	80.0	834.0	110.0
GR	834.0	350.0	832.5	515.0	832.0	515.1	832.0	536.0	832.5	536.1
GR	840.0	556.0	842.0	568.0	842.1	678.0				
SC	3.024	0.6	2.9	0.0	4.5	0.0	82.0	2.3	832.0	832.0
X1	2782.0	16.0	570.0	591.1	82.0	82.0	82.0	0.0	0.0	0.0
X2	0.0	0.0	2.0	836.5	838.3	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	330.0	0.0	0.0	0.0	838.3	838.3	0.0
BT	-10.0	0.0	850.0	0.0	30.0	848.0	0.0	125.0	844.0	0.0
BT		185.0	842.0	0.0	280.0	840.0	0.0	380.0	838.3	0.0
BT		420.0	838.3	0.0	490.0	840.0	0.0	630.0	840.1	0.0
BT		631.0	850.0	0.0						
GR	850.0	0.0	848.0	30.0	844.0	110.0	842.0	150.0	840.0	170.0
GR	838.0	195.0	836.0	220.0	836.0	475.0	834.0	560.0	832.5	570.0

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GR	832.0	570.1	832.0	591.0	832.5	591.1	840.0	626.0	842.0	661.0
GR	850.0	662.0								
NC	0.0	0.0	0.1							
ET	0.0	6.1				400.0	1131.0			
X1	3182.0	13.0	840.0	861.0	560.0	400.0	400.0	0.0	0.0	0.0
GR	850.0	0.0	840.0	60.0	834.0	90.0	833.3	110.0	833.3	840.0
GR	832.2	841.0	832.2	860.0	833.3	861.0	834.0	946.0	836.0	1001.0
GR	840.0	1016.0	846.0	1071.0	848.0	1131.0				
NC	0.0	0.0	0.04	0.2	0.4					
X1	5220.0	14.0	240.0	263.0	1600.0	2038.0	2038.0			
GR	850.0	0.0	840.0	50.0	838.0	80.0	836.8	200.0	834.0	240.0
GR	833.5	243.0	833.5	261.0	834.0	263.0	839.0	275.0	840.0	290.0
GR	842.0	330.0	844.0	370.0	846.0	430.0	850.0	500.0		
NC	0.0	0.0	0.0	0.1	0.3					
X1	5800.0	14.0	150.0	173.0	580.0	580.0	580.0			
GR	852.0	0.0	847.0	50.0	844.9	71.0	836.0	111.0	836.0	150.0
GR	834.0	160.0	833.8	163.0	834.0	166.0	836.0	173.0	836.0	215.0
GR	839.4	250.0	841.6	274.0	843.5	350.0	849.5	450.0		
NC				0.3	0.5					
ET	0.0	6.1	8.1	8.1	8.1	108.0	143.0	50.0	200.0	0.0
X1	6550.0	15.0	112.0	139.0	750.0	750.0	750.0			
GR	844.0	0.0	841.9	42.0	838.5	58.0	836.7	112.0	835.2	118.0
GR	835.0	125.0	835.3	130.0	837.9	139.0	839.9	212.0	840.5	312.0
GR	845.3	412.0	845.5	512.0	847.0	612.0	848.6	712.0	851.3	812.0
X1	6600.0	16.0	314.0	323.0	50.0	50.0	50.0			
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	839.3	839.3	0.0
GR	851.3	0.0	846.8	100.0	843.1	200.0	838.5	283.0	836.7	300.0
GR	836.7	314.0	833.6	314.1	833.6	316.0	833.6	319.0	833.6	321.0
GR	833.6	323.0	837.9	323.1	839.9	400.0	840.5	500.0	845.3	600.0
GR	849.7	700.0								
SB	0.0	1.5	2.9	0.0	9.0	0.0	35.0	0.0	833.6	833.6
X1	6675.0	0.0	0.0	0.0	75.0	75.0	75.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	838.1	842.4					
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	842.4	842.4	0.0

BT	16.0	0.0	849.0	0.0	100.0	846.8	0.0	200.0	845.0	0.0
BT	283.0	843.2	0.0	300.0	843.0	0.0	314.0	842.5	0.0	314.1
BT	842.4	833.6	316.0	842.4	836.5	319.0	842.4	838.1	321.0	842.4
BT	836.5	323.0	842.4	833.6	323.1	842.4	0.0	400.0	843.1	0.0
BT	500.0	845.4	0.0	600.0	847.6	0.0	700.0	849.7	0.0	
ET	0.0	6.1	8.1	8.1	8.1	140.0	255.0	90.0	300.0	0.0
X1	6725.0	12.0	190.0	210.0	50.0	50.0	50.0	0.0	0.0	0.0
GR	846.0	0.0	838.5	80.0	838.3	140.0	836.7	190.0	835.7	196.0
GR	835.6	203.0	835.8	208.0	837.9	210.0	838.0	310.0	840.0	360.0
GR	844.0	412.0	845.5	450.0						

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X1	7450.0	17.0	325.0	331.0	725.0	725.0	725.0			
X3	0.0	0.0	0.0	312.0	0.0	345.0				
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	836.0	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
X1	7486.0	6.0	400.0	416.1	36.0	36.0	36.0			
GR	858.0	0.0	857.7	400.0	837.1	400.1	837.1	416.0	857.7	416.1
GR	857.5	800.0								
X1	7500.0	13.0	400.0	407.5	14.0	14.0	14.0	0.0	-.20	0.0
X3	10.0							857.1	857.1	
GR	858.0	0.0	857.6	300.0	857.4	400.0	837.3	400.0	837.3	402.0
GR	837.3	403.0	837.3	403.75	837.3	404.5	837.3	405.5	837.3	407.5
GR	857.4	407.5	857.2	500.0	857.5	800.0				
SB	0.0	1.5	2.8	0.0	7.5	0.0	70.0	0.0	837.2	837.1
X1	7535.0	0.0	0.0	0.0	35.0	35.0	35.0	0.0	.10	0.0
X2	0.0	0.0	1.0	848.0	857.1					
X3	10.0							857.4	857.4	
X4	1.0	837.3	403.7							
BT	13.0	0.0	858.0	858.0	300.0	857.6	857.6	400.0	857.4	857.4
BT	400.0	857.4	846.3	402.0	857.4	847.3	403.0	857.4	847.7	403.7
BT	857.4	848.0	404.5	857.4	847.7	405.5	857.4	847.3	407.5	857.4
BT	846.3	407.5	857.4	857.4	500.0	857.1	857.1	800.0	857.5	857.5
X1	7549.0	6.0	390.0	426.0	14.0	14.0	14.0	0.0	.40	0.0
GR	858.0	0.0	857.7	390.0	837.1	390.1	837.1	426.0	857.7	426.1
GR	857.5	800.0								
X1	7585.0	17.0	325.0	331.0	36.0	36.0	36.0	0.0	1.8	0.0
X3	0.0	0.0	0.0	274.0	0.0	382.0				
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	835.5	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	9350.0	19.0	690.0	711.0	1600.0	2000.0	1765.0			
X3	0.0	0.0	0.0	590.0	0.0	1290.0				
GR	848.0	0.0	848.2	430.0	848.2	490.0	841.8	590.0	838.5	690.0
GR	837.4	696.0	836.9	700.0	837.6	705.0	838.9	711.0	838.0	790.0
GR	838.0	890.0	838.2	990.0	838.1	1090.0	838.1	1190.0	842.7	1290.0
GR	842.0	1333.0	847.5	1351.0	846.7	1390.0	850.9	1490.0		
NC	0.0	0.0	0.045							

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X1    12800.      13.0      800.0      846.0      3500.0      3400.0      3450.0
X3        0.0      0.0        0.0      700.0         0.0       980.0
GR      860.0     300.0      850.0      550.0       843.9       600.0       843.5       700.0       844.6       800.0
GR      841.9     811.0      841.1      821.0       841.2       838.0       843.7       846.0       843.4       900.0
GR      847.4    1000.0      848.7     1100.0       857.3      1200.0
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NC        0.0       0.0        0.0        0.3         0.5
QT        4.0     266.0      423.0      512.0       694.0
X1    12850.      12.0      290.0      294.1        50.0        50.0        50.0         0.0         0.0         0.0
X3       10.0       0.0        0.0      230.0         0.0       450.0         0.0         0.0         0.0         0.0
GR      854.0       0.0      852.0      100.0       850.0       120.0       848.0       160.0       846.0       290.0
GR      840.9     290.1      840.9      294.0       846.0       294.1       846.0       800.0       848.0       850.0
GR      850.0    1020.0      854.0     1100.0

SC      1.024       0.6        2.9        0.0         4.0         0.0        35.0         2.3       840.9       840.9
X1    12885.        0.0        0.0        0.0        35.0        35.0        35.0         0.0         0.0         0.0
X2        0.0       0.0        2.0      844.9       849.0         0.0         0.0         0.0         0.0         0.0
X3       10.0       0.0        0.0      230.0         0.0       410.0         0.0       849.0       849.0         0.0
BT       -5.0     130.0      860.0        0.0       131.0       852.0         0.0       280.0       850.0         0.0
BT                410.0      849.0        0.0       411.0       860.0         0.0

X1    13085.      17.0      145.0      170.0       150.0       250.0       200.0
X3                                       90.0
GR      856.0       0.0      854.0       12.0       852.0        40.0       850.0        50.0       848.0        90.0
GR      846.0     100.0      846.0      140.0       844.0       145.0       841.5       147.0       841.5       161.0
GR      844.0     170.0      846.0      175.0       848.0       225.0       850.0       260.0       852.0       270.0
GR      854.0     300.0      856.0      320.0

NC        0.0       0.0        0.0        0.2         0.4
X1    14220.      18.0      500.0      521.0      1200.0      1100.0      1135.0         0.0        -2.2         0.0
X3                                       400.0                600.0
GR      862.0                854.2      100.0       851.4       300.0       850.0       400.0       846.7       500.0
GR      845.9     507.0      845.4      511.0       846.1       515.0       847.3       521.0       848.6       528.0
GR      850.0     600.0      851.8      700.0       851.0       723.0       851.0       745.0       848.1       800.0
GR      848.4     900.0      856.6     1000.0       865.4      1055.0

X1    14550.      12.0      115.0      135.0       330.0       330.0       330.0
GR      856.0       0.0      852.0       30.0       850.0        70.0       848.0       105.0       846.0       115.0
GR      844.0     117.0      843.5      125.0       844.0       133.0       846.0       135.0       848.0       145.0
GR      850.0     155.0      854.0      165.0

NC        0.0       0.0        0.0        0.3         0.5
X1    14750.      12.0      350.0      356.1       200.0       200.0       200.0
X3       10.0                          100.0                   376.0                   851.0       851.0
GR      854.0       0.0      852.0       90.0       850.0       220.0       848.0       325.0       846.0       350.0
GR      842.0     350.1      842.0      356.0       848.0       356.1       852.0       366.0       856.0       391.0
GR      858.0     491.0      860.0      551.0

SC      1.024       0.5        2.9        0.0         6.0         0.0        40.0         2.2       842.0       842.0
X1    14790.      13.0      355.0      361.1        40.0        40.0        40.0
X2        0.0       0.0        2.0      848.0       853.5
X3       10.0                          80.0                    405.0                   853.5       853.5
BT       -6.0      90.0      860.0        0.0        91.0       853.5         0.0       150.0       853.5         0.0
BT                360.0      854.0        0.0       390.0       856.0         0.0       440.0       858.0         0.0
GR      852.0       0.0      850.0      250.0       850.0       350.0       848.0       353.0       846.0       355.0
GR      842.0     355.1      842.0      361.0       846.0       361.1       848.0       370.0       850.0       395.0
GR      852.0     435.0      858.0      490.0       862.0       555.0
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X1   14840.      16.0      400.0      410.0       50.0       50.0       50.0
X3                             75.0                  510.0
GR     852.0       0.0      850.0       20.0      850.0      220.0      848.0      310.0      846.3      375.0
GR     846.0     400.0      844.0      402.0      843.0      405.0      844.0      408.0      846.2      410.0
GR     848.0     450.0      850.0      475.0      852.0      515.0      854.0      545.0      856.0      560.0
GR     860.0     590.0

NC       0.0       0.0        0.0        0.2        0.4
X1   15500.      17.0      548.0      558.0      800.0      660.0      660.0
GR     860.0       0.0      850.0      130.0      850.0      295.0      850.7      315.0      850.0      335.0
GR     848.0     510.0      847.0      548.0      845.0      549.0      845.0      557.0      847.0      558.0
GR     848.0     610.0      850.0      680.0      852.0      700.0      852.0      915.0      854.0      940.0
GR     856.0     980.0      860.0     1025.0

X1   16800.      12.0      875.0      882.0     1300.0     1300.0     1300.0
X3                             430.0                 1665.0
GR     860.0       0.0      850.0      310.0      849.9      630.0      849.5      875.0      848.2      876.0
GR     848.2     881.0      849.5      882.0      850.0     1570.0      852.0     1610.0      852.0     1780.0
GR     854.0    1830.0      856.0     1900.0

X1   18100.      18.0      640.0      658.0     1300.0     1300.0     1300.0
X3                             580.0                  710.0
GR     858.0       0.0      856.0       10.0      854.0       40.0      852.0       80.0      852.0      250.0
GR     852.4     300.0      852.0      370.0      851.6      450.0      852.0      530.0      852.5      590.0
GR     852.0     640.0      850.9      645.0      850.9      650.0      852.0      658.0      854.0      665.0
GR     856.0     690.0      858.0      760.0      860.0      810.0
1
    23NOV94      11:20:20                                                                                PAGE     6

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

*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 1740.000

3470 ENCROACHMENT STATIONS=       190.0      590.0  TYPE=       1  TARGET=      -190.000
  1740.000       2.75     834.65        .00     833.00     834.66        .00        .00        .00     832.00
     290.0      145.4       20.9      123.7      477.8       60.5      416.8         .0         .0     832.00
       .00        .30        .35        .30        .110       .100       .110       .000     831.90     190.00
   .000141         0.         0.         0.          0          0          4        .00     372.62     562.62


*SECNO 2460.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .40


3470 ENCROACHMENT STATIONS=       300.0      450.0  TYPE=       1  TARGET=       150.000
  2460.000       2.96     834.86        .00        .00     834.87        .01        .21        .00     832.00
     290.0      110.1       58.4      121.5      143.0       65.0      159.6       11.2        4.3     832.00
       .26        .77        .90        .76        .110       .100       .110       .000     831.90     300.00
   .000861      660.       720.       820.          2          0          0        .00     138.60     438.60
```

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 835.40 ELREA= 835.40

2700.000	3.20	835.20	.00	.00	835.49	.29	.48	.14	832.50
290.0	.0	290.0	.0	.0	67.5	.0	12.3	4.8	832.50
.27	.00	4.30	.00	.000	.070	.000	.000	832.00	515.00
.009163	220.	240.	240.	2	0	0	.00	21.10	536.10

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.60	2.90	.00	4.50	.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 836.878 EGOC = 837.210 PCWSE= 835.198 ELTRD= 838.300

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.17

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
836.88	837.21	1.72	0.	290.	2.698	47.7	838.30	0.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 838.30 ELREA= 838.30

2782.000	5.10	837.10	.00	.00	837.21	.11	1.72	.00	832.50
290.0	.0	290.0	.0	.0	107.5	.0	12.5	4.8	832.50
.28	.00	2.70	.00	.000	.070	.000	.000	832.00	570.00
.001938	82.	82.	82.	2	0	0	.00	21.10	591.10

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.48

```
 3470 ENCROACHMENT STATIONS=      400.0    1131.0  TYPE=      1  TARGET=      731.000
   3182.000       5.07    837.27       .00       .00    837.27       .00       .02       .03    833.30
      290.0      224.4      17.0      48.6    1741.9     105.1     434.0      26.7       8.5    833.30
       1.28        .13        .16       .11       .110      .100      .110      .000    832.20    400.00
    .000015       560.      400.      400.         2         0         0       .00    605.72   1005.72


 CCHV=      .200 CEHV=      .400
1
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      SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
      Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
      TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
      SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


 *SECNO 5220.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .13

   5220.000       3.80    837.30       .00       .00    837.39       .09       .08       .04    834.00
      290.0       49.6      233.3       7.1      88.2      86.1      13.0      75.2      22.8    834.00
       1.51        .56       2.71       .54       .110      .040      .110      .000    833.50    150.35
    .000922      1600.     2038.     2038.         3         0         0       .00    120.56    270.91


 CCHV=      .100 CEHV=      .300
 *SECNO 5800.000
   5800.000       4.08    837.88       .00       .00    837.95       .06       .55       .00    836.00
      290.0       50.6      180.9      58.5      81.3      72.9      97.2      78.1      24.5    836.00
       1.60        .62       2.48       .60       .110      .040      .110      .000    833.80    102.55
    .000987       580.      580.      580.         2         0         0       .00    131.82    234.36


 CCHV=      .300 CEHV=      .500
 *SECNO 6550.000

 3470 ENCROACHMENT STATIONS=      108.0     143.0  TYPE=      1  TARGET=       35.000
   6550.000       3.84    838.84       .00       .00    839.02       .18      1.02       .06    836.70
      290.0        6.2      282.1       1.7       8.3      82.2       3.6      81.1      25.9    837.90
       1.66        .75       3.43       .49       .110      .040      .110      .000    835.00    108.00
    .001987       750.      750.      750.         2         0         0       .00     35.00    143.00


 *SECNO 6600.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .65


 3470 ENCROACHMENT STATIONS=      250.0     400.0  TYPE=      1  TARGET=      150.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       839.30 ELREA=       839.30

   6600.000       5.18    838.78       .00       .00    839.38       .61       .15       .21    836.70
      290.0         .0      290.0        .0        .0      46.4        .0      81.2      26.0    833.60
       1.66        .00       6.25       .00       .000      .040      .000      .000    833.60    314.00
    .004655        50.       50.       50.         2         0         0       .00      9.00    323.00


1
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.90	.00	9.00	.00	35.00	.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
840.37	839.38	.00	0.	290.	35.	41.	838.10	842.40	0.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 842.40 ELREA= 842.40

6675.000	6.38	839.98	.00	.00	840.37	.40	.99	.00	836.70
290.0	.0	290.0	.0	.0	57.3	.0	81.3	26.0	833.60
1.67	.00	5.07	.00	.000	.040	.000	.000	833.60	314.00
.002315	75.	75.	75.	2	0	0	.00	9.00	323.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.63

3470 ENCROACHMENT STATIONS= 140.0 255.0 TYPE= 1 TARGET= 115.000

6725.000	4.89	840.49	.00	.00	840.52	.03	.04	.11	836.70
290.0	74.5	163.9	51.6	149.5	90.9	115.6	81.5	26.0	837.90
1.68	.50	1.80	.45	.110	.040	.110	.000	835.60	140.00
.000334	50.	50.	50.	2	0	0	.00	115.00	255.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

1

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

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3470 ENCROACHMENT STATIONS=      312.0     345.0  TYPE=       1  TARGET=       33.000
  7450.000       4.92     840.92        .00        .00     841.12        .20        .52        .08     836.70
     290.0       70.0      136.5       83.5       50.1       27.6       57.8       85.6       27.3     836.80
      1.74       1.40       4.95       1.44       .110       .040       .110       .000     836.00     312.00
   .002434       725.       725.       725.          2          0          0        .00      33.00     345.00


*SECNO 7486.000
  7486.000       3.87     840.97        .00        .00     841.31        .34        .12        .07     857.70
     290.0         .0      290.0         .0         .0       61.7         .0       85.7       27.3     857.70
      1.74        .00       4.70        .00       .000       .040       .000       .000     837.10     400.08
   .004466         36.        36.        36.          0          0          0        .00      15.94     416.02


*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       857.10 ELREA=       857.10

  7500.000       3.58     840.68     840.68        .00     842.49       1.81        .14        .73     857.20
     290.0         .0      290.0         .0         .0       26.9         .0       85.7       27.3     857.20
      1.74        .00      10.80        .00       .000       .040       .000       .000     837.10     400.00
   .037701         14.        14.        14.         20         11          0        .00       7.50     407.50


SPECIAL BRIDGE

SB  XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
       .00         1.50        2.80         .00        7.50         .00       70.00         .00     837.20      837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     842.596  ELLC=     848.000  PCWSE=     840.681  ELTRD=     857.100

3301 HV CHANGED MORE THAN HVINS

1
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     SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
     Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
     TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
     SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.76

3370 NORMAL BRIDGE, NRD=  13 MIN ELTRD=   857.10 MAX ELLC=   848.00
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       857.40 ELREA=       857.40

  7535.000       5.54     842.74        .00        .00     843.50        .76        .69        .32     857.30
     290.0         .0      290.0         .0         .0       41.5         .0       85.7       27.3     857.30
      1.75        .00       6.99        .00       .000       .040       .000       .000     837.20     400.00
    .012171       35.        35.        35.          4          0          0        .00       7.50     407.50


*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  9.55

  7549.000       6.20     843.70        .00        .00     843.73        .03        .01        .22     858.10
     290.0         .0      290.0         .0         .0      222.7         .1       85.8       27.3     837.50
      1.75        .00       1.30        .00       .000       .040       .110       .000     837.50     390.07
    .000133       14.        14.        14.          2          0          0        .00      35.96     426.03


*SECNO 7585.000

3470 ENCROACHMENT STATIONS=       274.0      382.0  TYPE=       1  TARGET=       108.000
  7585.000       6.42     843.72        .00        .00     843.74        .01        .01        .00     838.50
     290.0       72.4       60.8      156.8      151.4       34.3      262.6       86.0       27.4     838.60
      1.76        .48       1.77        .60        .110       .040       .110       .000     837.30     274.00
    .000250       36.        36.        36.          2          0          0        .00     108.00     382.00


CCHV=      .200 CEHV=      .400
*SECNO 9350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  8.27

1
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     SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
     Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
     TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
     SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       590.0     1290.0  TYPE=       1  TARGET=       700.000
  9350.000       6.86     843.76        .00        .00     843.76        .00        .02        .00     838.50
     290.0       21.7       29.6      238.7      361.0      126.9     3024.6      174.2       45.2     838.90
      7.42        .06        .23        .08        .110       .040       .110       .000     836.90     590.00
    .000004     1600.      1765.      2000.          2          0          0        .00     700.00    1290.00


*SECNO 12800.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .03


3470 ENCROACHMENT STATIONS=       700.0      980.0  TYPE=       1  TARGET=       280.000
 12800.000       2.60     843.70        .00        .00     843.88        .19        .05        .07     844.60
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     290.0        .4     287.1       2.6       1.9      82.2       9.5     315.5      77.4    843.70
      7.69       .20      3.49       .27      .110      .045      .110      .000    841.10    700.00
   .004717     3500.     3450.     3400.         2         0         0       .00    122.64    907.63


CCHV=     .300 CEHV=     .500
*SECNO 12850.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      230.0     450.0  TYPE=       1  TARGET=      220.000
 12850.000       5.69    846.59    846.59       .00    846.91       .32       .40       .07    846.00
     266.0        9.0     140.2     116.7      11.2      22.8      91.5     315.6      77.6    846.00
      7.69        .81      6.15      1.28      .110      .045      .110      .000    840.90    251.87
   .018269         50.       50.       50.        20        18         0       .00    198.13    450.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .60      2.90         .00      4.00        .00       35.00      2          3         840.90     840.90

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


5130, EGIC=  867.84..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  861.81 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    849.97

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 12.14

SPECIAL CULVERT

      EGIC       EGOC         H4      QWEIR      QCULV        VCH      ACULV      ELTRD     WEIRLN
     867.84     861.81       3.06       124.       140.       .695       12.6     849.00       126.


3470 ENCROACHMENT STATIONS=      230.0     410.0  TYPE=       1  TARGET=      180.000
 12885.000       9.07    849.97       .00       .00    849.97       .00      3.06       .00    846.00
     266.0       70.8      25.5     169.7     210.6      36.7     460.3     315.9      77.8    846.00
      7.72        .34       .70       .37      .110      .045      .110      .000    840.90    230.00
   .000124         35.       35.       35.         0         0         0       .00    180.00    410.00


*SECNO 13085.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.58
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3470 ENCROACHMENT STATIONS=       90.0      320.0  TYPE=       1  TARGET=      -90.000
 13085.000       8.48     849.98        .00        .00     849.99        .01        .02        .00     844.00
     266.0       49.9      176.8       39.3      213.9      198.3      208.3      319.1       78.6     844.00
      7.81        .23        .89        .19        .110       .045       .110       .000     841.50      90.00
   .000050       150.       200.       250.          2          0          0        .00     169.66     259.66


CCHV=      .200 CEHV=      .400
*SECNO 14220.000

3470 ENCROACHMENT STATIONS=      400.0      600.0  TYPE=       1  TARGET=       200.000
 14220.000       6.85     850.05        .00        .00     850.05        .01        .06        .00     844.50
     266.0      101.9      109.9       54.2      389.9      127.3      242.4      337.3       83.5     845.10
      8.44        .26        .86        .22        .110       .045       .110       .000     843.20     400.00
   .000063      1200.      1135.      1100.          2          0          0        .00     200.00     600.00


1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*SECNO 14550.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .45

 14550.000       6.56     850.06        .00        .00     850.11        .04        .04        .02     846.00
     266.0       24.6      223.5       17.9       68.1      121.4       41.4      341.1       84.6     846.00
      8.50        .36       1.84        .43        .110       .045       .110       .000     843.50      68.65
   .000313       330.       330.       330.          0          0          0        .00      86.52     155.17


CCHV=      .300 CEHV=      .500
*SECNO 14750.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .22


3470 ENCROACHMENT STATIONS=      100.0      376.0  TYPE=       1  TARGET=       276.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        851.00 ELREA=        851.00

 14750.000       8.02     850.02        .00        .00     850.49        .47        .17        .21     846.00
     266.0         .0      266.0         .0         .0       48.4         .0      341.7       84.8     848.00
      8.51        .00       5.49        .00        .000       .045       .000       .000     842.00     350.00
   .006269       200.       200.       200.          2          0          0        .00       6.10     356.10


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .50       2.90        .00       6.00        .00       40.00      2          2         842.00     842.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  2 - MITERED TO CONFORM TO SLOPE
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*SECNO 14790.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 850.418 EGOC = 852.620 PCWSE= 850.020 ELTRD= 853.500

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

1

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

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
850.42	852.62	2.13	0.	266.	4.244	28.3	853.50	0.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 853.50 ELREA= 853.50

14790.000	10.34	852.34	.00	.00	852.62	.28	2.13	.00	846.00
266.0	.0	266.0	.0	.0	62.7	.0	341.8	84.8	846.00
8.51	.00	4.24	.00	.000	.045	.000	.000	842.00	355.00
.002218	40.	40.	40.	2	0	0	.00	6.10	361.10

*SECNO 14840.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 12.08

3470 ENCROACHMENT STATIONS= 75.0 510.0 TYPE= 1 TARGET= 435.000

14840.000	9.71	852.71	.00	.00	852.71	.00	.00	.08	846.00
266.0	171.4	40.7	53.8	1250.6	85.8	380.9	342.8	85.0	846.20
8.58	.14	.47	.14	.110	.045	.110	.000	843.00	75.00
.000015	50.	50.	50.	2	0	0	.00	435.00	510.00

CCHV= .200 CEHV= .400
*SECNO 15500.000

15500.000	7.72	852.72	.00	.00	852.72	.00	.01	.00	847.00
266.0	158.1	29.6	78.4	1439.1	75.2	722.7	377.1	95.9	847.00
10.06	.11	.39	.11	.110	.045	.110	.000	845.00	94.70
.000013	800.	660.	660.	2	0	0	.00	829.25	923.95

*SECNO 16800.000

3470 ENCROACHMENT STATIONS= 430.0 1665.0 TYPE= 1 TARGET= 1235.000

16800.000	4.53	852.73	.00	.00	852.73	.00	.01	.00	849.50
266.0	98.0	6.5	161.5	1303.9	30.4	2162.8	462.7	126.7	849.50
14.67	.08	.21	.07	.110	.045	.110	.000	848.20	430.00
.000007	1300.	1300.	1300.	0	0	0	.00	1235.00	1665.00

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

*SECNO 18100.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 580.0 710.0 TYPE= 1 TARGET= 130.000

18100.000	2.13	853.03	853.03	.00	853.50	.47	.04	.19	852.00
266.0	66.2	197.7	2.1	44.4	31.1	1.8	516.0	146.3	852.00
14.74	1.49	6.36	1.13	.110	.045	.110	.000	850.90	580.00
.018125	1300.	1300.	1300.	20	15	0	.00	81.59	661.59

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 50-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	3.0	0.0	0.0	.00014	0.0	0.0	0.0	833.0	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

*PROF 2

CCHV= .300 CEHV= .500
*SECNO 1740.000

3470 ENCROACHMENT STATIONS= 190.0 590.0 TYPE= 1 TARGET= -190.000

1740.000	3.62	835.52	.00	833.00	835.52	.00	.00	.00	832.00
470.0	232.9	33.2	204.0	633.9	79.6	566.2	.0	.0	832.00
.00	.37	.42	.36	.110	.100	.110	.000	831.90	190.00
.000142	0.	0.	0.	0	0	4	.00	376.09	566.09

*SECNO 2460.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .68

3470 ENCROACHMENT STATIONS= 200.0 450.0 TYPE= 1 TARGET= 250.000

2460.000	3.76	835.66	.00	834.86	835.67	.00	.14	.00	832.00
470.0	304.2	52.0	113.8	549.7	82.7	216.4	17.7	5.2	832.00
.36	.55	.63	.53	.110	.100	.110	.000	831.90	200.00
.000307	660.	720.	820.	2	0	0	.00	246.65	446.65

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	3.77	835.77	.00	835.20	835.78	.01	.11	.00	832.50
470.0	348.1	114.6	7.3	503.8	79.4	14.2	21.4	6.5	832.50
.43	.69	1.44	.52	.110	.070	.110	.000	832.00	300.00
.000829	220.	240.	240.	2	0	0	.00	244.77	544.77

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.60	2.90	.00	4.50	.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 838.75

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.22

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
839.80	838.79	2.97	49.	422.	.958	47.7	838.30	85.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	6.74	838.74	.00	837.10	838.75	.01	2.97	.00	832.50
470.0	300.0	136.5	33.5	772.5	142.4	90.9	22.9	7.0	832.50
.47	.39	.96	.37	.110	.070	.110	.000	832.00	330.00
.000168	82.	82.	82.	0	0	0	.00	290.18	620.18

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.62

3182.000	6.56	838.76	.00	837.27	838.76	.00	.01	.00	833.30
470.0	397.9	15.9	56.3	4144.4	136.7	655.4	59.2	14.5	833.30
1.98	.10	.12	.09	.110	.100	.110	.000	832.20	66.20
.000005	560.	400.	400.	2	0	0	.00	945.15	1011.35

CCHV= .200 CEHV= .400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .10

5220.000	5.25	838.75	.00	837.30	838.82	.07	.03	.03	834.00
470.0	153.8	302.2	14.1	300.6	119.5	27.1	162.8	36.7	834.00
2.26	.51	2.53	.52	.110	.040	.110	.000	833.50	68.72
.000517	1600.	2038.	2038.	2	0	0	.00	205.69	274.41

CCHV= .100 CEHV= .300
*SECNO 5800.000

5800.000	5.30	839.10	.00	837.88	839.15	.06	.34	.00	836.00
470.0	98.5	253.1	118.3	142.4	100.9	179.5	168.6	39.0	836.00
2.35	.69	2.51	.66	.110	.040	.110	.000	833.80	97.08
.000654	580.	580.	580.	2	0	0	.00	149.82	246.89

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

CCHV= .300 CEHV= .500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	4.73	839.73	.00	838.84	839.86	.12	.67	.03	836.70
470.0	93.4	347.3	29.3	118.7	106.2	60.8	174.7	41.6	837.90
2.43	.79	3.27	.48	.110	.040	.110	.000	835.00	52.20
.001283	750.	750.	750.	2	0	0	.00	147.79	200.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.12	839.72	.00	838.78	840.05	.33	.09	.10	836.70
470.0	116.8	308.6	44.6	92.0	55.0	64.3	175.0	41.8	833.60
2.44	1.27	5.62	.69	.110	.040	.110	.000	833.60	260.92
.003005	50.	50.	50.	2	0	0	.00	132.31	393.23

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD

.00	1.50	2.90	.00	9.00	.00	35.00	.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.92

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
843.92	840.86	.00	54.	417.	35.	41.	838.10	842.40	94.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.40	843.00	.00	839.98	843.03	.02	2.97	.00	836.70
470.0	159.9	161.2	148.9	298.6	84.5	316.3	175.8	42.0	833.60
2.46	.54	1.91	.47	.110	.040	.110	.000	833.60	250.00
.000196	75.	75.	75.	2	0	4	.00	150.00	400.00

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

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	7.43	843.03	.00	840.49	843.04	.01	.01	.00	836.70
470.0	166.2	156.8	147.0	508.7	141.6	457.5	176.8	42.2	837.90
2.48	.33	1.11	.32	.110	.040	.110	.000	835.60	90.00
.000070	50.	50.	50.	2	0	0	.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.05	843.05	.00	840.92	843.29	.24	.14	.12	836.70
470.0	115.5	221.2	133.3	77.8	40.4	87.7	187.8	44.2	836.80
2.54	1.48	5.48	1.52	.110	.040	.110	.000	836.00	312.00
.001798	725.	725.	725.	2	0	0	.00	33.00	345.00

*SECNO 7486.000

7486.000	5.97	843.07	.00	840.97	843.45	.38	.09	.07	857.70
470.0	.0	470.0	.0	.0	95.2	.0	187.9	44.3	857.70
2.54	.00	4.93	.00	.000	.040	.000	.000	837.10	400.07
.003425	36.	36.	36.	1	0	0	.00	15.96	416.03

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.11	842.21	.00	840.68	844.54	2.33	.11	.98	857.20
470.0	.0	470.0	.0	.0	38.3	.0	187.9	44.3	857.20
2.54	.00	12.26	.00	.000	.040	.000	.000	837.10	400.00
.038930	14.	14.	14.	3	0	0	.00	7.50	407.50

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.80	.00	7.50	.00	70.00	.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 844.650 ELLC= 848.000 PCWSE= 842.207 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.58

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	7.41	844.61	.00	842.74	845.72	1.12	.82	.37	857.30
470.0	.0	470.0	.0	.0	55.4	.0	187.9	44.3	857.30
2.54	.00	8.48	.00	.000	.040	.000	.000	837.20	400.00
.015518	35.	35.	35.	4	0	0	.00	7.50	407.50

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 10.91

7549.000	8.52	846.02	.00	843.70	846.05	.04	.01	.32	858.10

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      470.0         .0      470.0         .0         .0      305.9         .2      188.0       44.3     837.50
       2.55         .00      1.54         .01       .000       .040       .110       .000     837.50     390.06
    .000130        14.        14.        14.          2          0          0        .00      35.98     426.04


 *SECNO 7585.000

 3470 ENCROACHMENT STATIONS=       274.0      382.0  TYPE=       1  TARGET=       108.000
1
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      SECNO       DEPTH       CWSEL       CRIWS       WSELK       EG          HV          HL          OLOSS       L-BANK ELEV
      Q           QLOB        QCH         QROB        ALOB        ACH         AROB        VOL         TWA         R-BANK ELEV
      TIME        VLOB        VCH         VROB        XNL         XNCH        XNR         WTN         ELMIN       SSTA
      SLOPE       XLOBL       XLCH        XLOBR       ITRIAL      IDC         ICONT       CORAR       TOPWID      ENDST


    7585.000       8.75     846.05         .00     843.72     846.06         .01         .01         .01     838.50
       470.0      144.9       89.2       235.9       270.2       48.3       381.3       188.4        44.3     838.60
        2.56        .54       1.85         .62         .110        .040        .110        .000     837.30     274.00
    .000172         36.        36.        36.          2          0          0        .00      108.00     382.00


 CCHV=      .200 CEHV=      .400
 *SECNO 9350.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.83


 3470 ENCROACHMENT STATIONS=       590.0     1290.0  TYPE=       1  TARGET=       700.000
    9350.000       9.18     846.08         .00     843.76     846.08         .00         .02         .00     838.50
       470.0       42.8       44.6       382.6       593.4       175.7      4370.1       317.9        62.1     838.90
        7.70         .07        .25         .09         .110        .040        .110        .000     836.90     590.00
    .000003       1600.      1765.      2000.          2          0          0        .00      700.00    1290.00


 *SECNO 12800.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .09


 3470 ENCROACHMENT STATIONS=       700.0      980.0  TYPE=       1  TARGET=       280.000
   12800.000       5.00     846.10         .00     843.70     846.13         .02         .03         .01     844.60
       470.0       81.2       296.9        91.9       205.2       190.8       229.1       544.0       100.2     843.70
        8.54         .40       1.56         .40         .110        .045        .110        .000     841.10     700.00
    .000340       3500.      3450.      3400.          2          0          0        .00      267.55     967.55


 CCHV=      .300 CEHV=      .500
 *SECNO 12850.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       230.0      450.0  TYPE=       1  TARGET=       220.000
   12850.000       5.92     846.82     846.82     846.59     847.16         .34         .05         .16     846.00
       423.0       24.8       168.7       229.5        21.9        23.8       128.1       544.4       100.4     846.00
        8.55        1.13       7.10        1.79         .110        .045        .110        .000     840.90     236.60
    .023024         50.        50.        50.          20          21          0        .00      213.40     450.00


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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COPQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.60	2.90	.00	4.00	.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 905.72..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 885.32 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 850.31

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 9.78

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
905.72	885.32	3.15	279.	144.	.993	12.6	849.00	153.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.40	850.30	.00	849.97	850.31	.01	3.15	.00	846.00
423.0	114.6	37.8	270.6	230.9	38.1	499.6	544.8	100.6	846.00
8.56	.50	.99	.54	.110	.045	.110	.000	840.90	230.00
.000241	35.	35.	35.	0	0	0	.00	180.00	410.00

*SECNO 13085.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.53

3470 ENCROACHMENT STATIONS= 90.0 320.0 TYPE= 1 TARGET= -90.000

13085.000	8.83	850.33	.00	849.98	850.35	.02	.03	.01	844.00
423.0	82.2	271.9	68.9	233.0	207.0	239.8	548.3	101.4	844.00
8.62	.35	1.31	.29	.110	.045	.110	.000	841.50	90.00
.000102	150.	200.	250.	2	0	0	.00	171.64	261.64

CCHV= .200 CEHV= .400
*SECNO 14220.000

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

14220.000	7.26	850.46	.00	850.05	850.47	.01	.13	.00	844.50
423.0	164.3	167.7	91.0	431.4	136.0	275.2	568.4	106.3	845.10
9.08	.38	1.23	.33	.110	.045	.110	.000	843.20	400.00
.000117	1200.	1135.	1100.	2	0	0	.00	200.00	600.00

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

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

14550.000	6.99	850.49	.00	850.06	850.58	.09	.07	.03	846.00
423.0	48.7	341.9	32.3	90.0	130.0	50.3	572.6	107.5	846.00
9.12	.54	2.63	.64	.110	.045	.110	.000	843.50	59.99
.000583	330.	330.	330.	0	0	0	.00	96.26	156.25

CCHV= .300 CEHV= .500
*SECNO 14750.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 851.00 ELREA= 851.00

14750.000	8.31	850.31	.00	850.02	851.41	1.10	.32	.51	846.00
423.0	.0	423.0	.0	.0	50.2	.0	573.4	107.7	848.00
9.12	.00	8.43	.00	.000	.045	.000	.000	842.00	350.00
.014089	200.	200.	200.	2	0	0	.00	6.10	356.10

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.50	2.90	.00	6.00	.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

*SECNO 14790.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 853.94

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 13.08

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

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    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

SPECIAL CULVERT

     EGIC       EGOC        H4       QWEIR      QCULV       VCH       ACULV      ELTRD     WEIRLN
    856.86     856.88      2.53       105.       315.       .901       28.3      853.50      244.


3470 ENCROACHMENT STATIONS=        80.0      405.0  TYPE=       1  TARGET=       325.000
 14790.000      11.94     853.94       .00     852.34     853.94       .00       2.53       .00     846.00
     423.0      278.0       65.2       79.8      976.9       72.4      222.2      574.0      107.8     846.00
      9.15        .28        .90        .36       .110       .045       .110       .000     842.00      80.00
   .000082        40.        40.        40.          0          0          0        .00     325.00     405.00

*SECNO 14840.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.19

3470 ENCROACHMENT STATIONS=        75.0      510.0  TYPE=       1  TARGET=       435.000
 14840.000      10.94     853.94       .00     852.71     853.94       .00        .00       .00     846.00
     423.0      281.7       54.1       87.2     1652.5       98.2      504.5      576.0      108.3     846.20
      9.21        .17        .55        .17       .110       .045       .110       .000     843.00      75.00
   .000017        50.        50.        50.          2          0          0        .00     435.00     510.00


CCHV=      .200 CEHV=      .400
*SECNO 15500.000
 15500.000       8.95     853.95       .00     852.72     853.95       .00        .01       .00     847.00
     423.0      251.3       35.9      135.8     2009.7       87.5     1184.9      623.8      119.4     847.00
     10.64        .13        .41        .11       .110       .045       .110       .000     845.00      78.62
   .000011        800.       660.       660.          2          0          0        .00     860.79     939.41


*SECNO 16800.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41

3470 ENCROACHMENT STATIONS=       430.0     1665.0  TYPE=       1  TARGET=      1235.000
 16800.000       5.76     853.96       .00     852.73     853.96       .00        .01       .00     849.50
     423.0      154.9        8.7      259.4     1854.3       39.1     3131.3      747.8      150.6     849.50
     14.84        .08        .22        .08       .110       .045       .110       .000     848.20     430.00
   .000006       1300.      1300.      1300.          0          0          0        .00    1235.00    1665.00


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

*SECNO 18100.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .02
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3470 ENCROACHMENT STATIONS=      580.0     710.0  TYPE=      1  TARGET=     130.000
 18100.000      2.88    853.78      .00    853.03    854.13       .35       .03       .14    852.00
     423.0     153.9     262.5      6.6      90.2      44.8       5.6     824.9     170.3    852.00
     14.92      1.71      5.86     1.19      .110      .045      .110      .000    850.90    580.00
   .009455     1300.     1300.     1300.         2         0         0       .00     84.26    664.26


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T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD   STS CONSULTANTS LTD. 12/93  MMW
T3HERRON CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.0        4.0       0.0       0.0     .00014      0.0       0.0       0.0      833.0      0.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0        0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

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


*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 1740.000

3470 ENCROACHMENT STATIONS=      190.0     590.0  TYPE=      1  TARGET=    -190.000
  1740.000      4.02    835.92      .00    833.00    835.92       .00       .00       .00    832.00
     560.0     276.3      39.2     244.5     705.1      88.3     635.4        .0        .0    832.00
       .00       .39       .44       .38       .110      .100      .110      .000    831.90    190.00
   .000140        0.        0.        0.         0         0         5       .00    377.67    567.67


*SECNO 2460.000
3280 CROSS SECTION   2460.00 EXTENDED       .06 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .68


3470 ENCROACHMENT STATIONS=      200.0     450.0  TYPE=      1  TARGET=     250.000
  2460.000      4.16    836.06      .00    834.86    836.07       .01       .14       .00    832.00
     560.0     360.7      61.6     137.8     608.9      91.4     246.6      19.7       5.3    832.00
       .34       .59       .67       .56       .110      .100      .110      .000    831.90    200.00
   .000308       660.      720.      820.         2         0         0       .00    250.00    450.00


*SECNO 2700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .65
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3470 ENCROACHMENT STATIONS=      300.0     678.0  TYPE=      1  TARGET=     -300.000
  2700.000      4.16    836.16       .00    835.20    836.17       .01       .10       .00    832.50
     560.0     423.2     127.5       9.3     587.8      87.7      17.8      24.0       6.5    832.50
       .41       .72      1.45       .53      .110      .070      .110      .000    832.00    300.00
   .000738      220.      240.      240.         2         0         0       .00    245.81    545.81


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


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     3          .024       .60      2.90       .00      4.50       .00     82.00       2         3    832.00    832.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    839.06

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.99

SPECIAL CULVERT

     EGIC      EGOC       H4      QWEIR     QCULV       VCH      ACULV     ELTRD    WEIRLN
   842.05    840.10      2.89       127.      436.     1.038       47.7    838.30       116.


3470 ENCROACHMENT STATIONS=      330.0     662.0  TYPE=      1  TARGET=     -330.000
  2782.000      7.05    839.05       .00    837.10    839.06       .01      2.89       .00    832.50
     560.0     365.4     154.5      40.1     846.1     148.8     100.0      25.7       7.0    832.50
       .45       .43      1.04       .40      .110      .070      .110      .000    832.00    330.00
   .000186        82.       82.       82.         0         0         0       .00    291.61    621.61


*SECNO 3182.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  5.45

  3182.000      6.87    839.07       .00    837.27    839.07       .00       .01       .00    833.30
     560.0     473.3      18.6      68.1     4383.1     143.1     701.9      64.3      14.6    833.30
      1.79       .11       .13       .10      .110      .100      .110      .000    832.20     64.66
   .000006      560.      400.      400.         2         0         0       .00    947.84   1012.50


CCHV=      .200 CEHV=      .400
*SECNO 5220.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .11
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5220.000	5.56	839.06	.00	837.30	839.13	.07	.04	.03	834.00
560.0	200.1	342.6	17.3	354.3	126.7	30.8	174.8	36.9	834.00
2.05	.56	2.70	.56	.110	.040	.110	.000	833.50	64.07
.000548	1600.	2038.	2038.	2	0	0	.00	211.85	275.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5800.000

5800.000	5.63	839.43	.00	837.88	839.49	.06	.36	.00	836.00
560.0	120.7	292.7	146.5	159.9	108.4	204.2	181.3	39.4	836.00
2.15	.75	2.70	.72	.110	.040	.110	.000	833.80	95.61
.000688	580.	580.	580.	2	0	0	.00	154.67	250.27

CCHV= .300 CEHV= .500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	5.07	840.07	.00	838.84	840.20	.13	.68	.03	836.70
560.0	119.0	394.0	47.0	139.3	115.4	81.6	188.3	42.0	837.90
2.22	.85	3.41	.58	.110	.040	.110	.000	835.00	50.60
.001251	750.	750.	750.	2	0	0	.00	149.40	200.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.47	840.07	.00	838.78	840.39	.33	.09	.10	836.70
560.0	148.7	337.7	73.6	111.3	58.1	90.2	188.6	42.2	833.60
2.23	1.34	5.82	.82	.110	.040	.110	.000	833.60	254.72
.002997	50.	50.	50.	2	0	0	.00	145.28	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.90	.00	9.00	.00	35.00	.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.59

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	WEIRLN
846.03	841.51	.00	147.	414.	35.	41.	838.10	842.40	133.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.70	843.30	.00	839.98	843.33	.03	2.94	.00	836.70
560.0	192.4	185.4	182.2	317.8	87.2	339.4	189.5	42.4	833.60
2.25	.61	2.13	.54	.110	.040	.110	.000	833.60	250.00
.000233	75.	75.	75.	2	0	5	.00	150.00	400.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	7.73	843.33	.00	840.49	843.34	.01	.01	.01	836.70
560.0	199.6	183.8	176.7	539.1	147.7	484.9	190.6	42.6	837.90
2.27	.37	1.24	.36	.110	.040	.110	.000	835.60	90.00
.000083	50.	50.	50.	2	0	0	.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .19

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.35	843.35	.00	840.92	843.66	.31	.17	.15	836.70
560.0	137.6	264.1	158.4	81.6	42.2	91.8	202.1	44.7	836.80
2.32	1.69	6.26	1.72	.110	.040	.110	.000	836.00	312.00
.002217	725.	725.	725.	2	0	0	.00	33.00	345.00

*SECNO 7486.000

7486.000	6.27	843.37	.00	840.97	843.86	.49	.11	.09	857.70
560.0	.0	560.0	.0	.0	99.9	.0	202.3	44.7	857.70
2.32	.00	5.61	.00	.000	.040	.000	.000	837.10	400.07
.004265	36.	36.	36.	2	0	0	.00	15.96	416.03

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

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.55	842.65	842.65	840.68	845.46	2.81	.14	1.16	857.20
560.0	.0	560.0	.0	.0	41.7	.0	202.3	44.7	857.20
2.32	.00	13.44	.00	.000	.040	.000	.000	837.10	400.00
.044703	14.	14.	14.	4	11	0	.00	7.50	407.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	7.50	.00	70.00	.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 845.565 ELLC= 848.000 PCWSE= 842.655 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	8.38	845.58	.00	842.74	846.82	1.23	.89	.47	857.30
560.0	.0	560.0	.0	.0	62.8	.0	202.3	44.7	857.30
2.32	.00	8.92	.00	.000	.040	.000	.000	837.20	400.00
.016263	35.	35.	35.	4	0	0	.00	7.50	407.50

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

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.33

7549.000	9.64	847.14	.00	843.70	847.18	.04	.01	.36	858.10
560.0	.0	560.0	.0	.0	346.4	.2	202.4	44.7	837.50
2.33	.00	1.62	.01	.000	.040	.110	.000	837.50	390.05
.000127	14.	14.	14.	2	0	0	.00	35.99	426.05

*SECNO 7585.000

3470 ENCROACHMENT STATIONS= 274.0 382.0 TYPE= 1 TARGET= 108.000

7585.000	9.88	847.18	.00	843.72	847.19	.01	.00	.01	838.50
560.0	182.4	103.4	274.2	327.8	55.1	438.9	202.9	44.7	838.60
2.34	.56	1.88	.62	.110	.040	.110	.000	837.30	274.00
.000149	36.	36.	36.	2	0	0	.00	108.00	382.00

CCHV= .200 CEHV= .400
*SECNO 9350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.72

3470 ENCROACHMENT STATIONS= 590.0 1290.0 TYPE= 1 TARGET= 700.000

9350.000	10.31	847.21	.00	843.76	847.21	.00	.01	.00	838.50
560.0	53.6	52.0	454.3	706.2	199.4	5023.2	352.4	62.5	838.90
7.32	.08	.26	.09	.110	.040	.110	.000	836.90	590.00
.000003	1600.	1765.	2000.	2	0	0	.00	700.00	1290.00

*SECNO 12800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .12

3470 ENCROACHMENT STATIONS= 700.0 980.0 TYPE= 1 TARGET= 280.000

12800.000	6.13	847.23	.00	843.70	847.25	.01	.03	.01	844.60
560.0	116.5	308.7	134.8	318.1	242.7	377.2	621.8	101.0	843.70
8.43	.37	1.27	.36	.110	.045	.110	.000	841.10	700.00
.000165	3500.	3450.	3400.	2	0	0	.00	280.00	980.00

1

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

CCHV= .300 CEHV= .500
*SECNO 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .10

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	6.28	847.18	.00	846.59	847.35	.16	.02	.07	846.00
512.0	53.6	141.1	317.4	43.2	25.2	184.1	622.5	101.3	846.00
8.43	1.24	5.59	1.72	.110	.045	.110	.000	840.90	230.00
.013175	50.	50.	50.	2	0	0	.00	220.00	450.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.60	2.90	.00	4.00	.00	35.00	2	3	840.90	840.90

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CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL

5130, EGIC=  934.86..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  903.58 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    850.45

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  6.44

SPECIAL CULVERT

     EGIC      EGOC       H4     QWEIR     QCULV      VCH     ACULV     ELTRD    WEIRLN
   934.86    903.58     3.11      362.      145.    1.152      12.6    849.00      164.


3470 ENCROACHMENT STATIONS=      230.0     410.0  TYPE=      1  TARGET=      180.000
 12885.000      9.55    850.45       .00    849.97    850.45       .01      3.11       .00    846.00
     512.0     139.6      44.5     327.9     239.5      38.7     516.2     622.9     101.5    846.00
      8.45       .58      1.15       .64      .110      .045      .110      .000    840.90    230.00
   .000317       35.       35.       35.         0         0         0       .00    180.00    410.00


*SECNO 13085.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.52


3470 ENCROACHMENT STATIONS=       90.0     320.0  TYPE=      1  TARGET=      -90.000
1
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    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     L-BANK ELEV
    Q          QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       R-BANK ELEV
    TIME       VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST


 13085.000      8.98    850.48       .00    849.98    850.50       .02       .04       .01    844.00
     512.0     100.7     324.6      86.7     241.3     210.7     253.7     626.5     102.4    844.00
      8.50       .42      1.54       .34      .110      .045      .110      .000    841.50     90.00
   .000137      150.      200.      250.         2         0         0       .00    172.39    262.39


CCHV=     .200 CEHV=     .400
*SECNO 14220.000

3470 ENCROACHMENT STATIONS=      400.0     600.0  TYPE=      1  TARGET=      200.000
 14220.000      7.46    850.66       .00    850.05    850.67       .01       .16       .00    844.50
     512.0     199.9     199.5     112.6     450.7     140.1     290.4     647.5     107.3    845.10
      8.89       .44      1.42       .39      .110      .045      .110      .000    843.20    400.00
   .000150     1200.     1135.     1100.         2         0         0       .00    200.00    600.00


*SECNO 14550.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45

 14550.000      7.19    850.69       .00    850.06    850.81       .12       .09       .04    846.00
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      512.0       64.2      406.7       41.1      101.3      134.0       54.6      651.9      108.4     846.00
       8.93        .63       3.04        .75       .110       .045       .110       .000     843.50      56.05
    .000746       330.      330.        330.          1          0          0        .00     100.69     156.74


CCHV=      .300 CEHV=      .500
*SECNO 14750.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .19


3470 ENCROACHMENT STATIONS=       100.0      376.0  TYPE=       1  TARGET=       276.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        851.00 ELREA=        851.00

  14750.000       8.37     850.37        .00     850.02     851.96       1.59        .42        .74     846.00
      512.0         .0      512.0         .0         .0       50.6         .0      652.7      108.6     848.00
       8.93        .00      10.12        .00       .000       .045       .000       .000     842.00     350.00
    .020075       200.      200.        200.          2          0          0        .00       6.10     356.10


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


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .50       2.90        .00       6.00        .00      40.00       2          2        842.00     842.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  2 - MITERED TO CONFORM TO SLOPE

5130, EGIC=  861.68..MAY BE TOO LARGE IF INLET CONTROLS.
*SECNO 14790.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    854.02

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 13.32

SPECIAL CULVERT

      EGIC       EGOC         H4      QWEIR      QCULV        VCH      ACULV      ELTRD     WEIRLN
    861.68     860.00       2.06        153.       360.      1.061       28.3     853.50        269.


3470 ENCROACHMENT STATIONS=        80.0      405.0  TYPE=       1  TARGET=       325.000
  14790.000      12.02     854.02        .00     852.34     854.02        .00       2.06        .00     846.00
      512.0      338.6       77.4        96.0     1000.2       73.0      225.9      653.3      108.8     846.00
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      8.96        .34       1.06        .42        .110       .045       .110       .000     842.00      80.00
   .000113       40.        40.        40.           0          0          0        .00     325.00     405.00


*SECNO 14840.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.18


3470 ENCROACHMENT STATIONS=       75.0     510.0  TYPE=       1  TARGET=      435.000
 14840.000      11.03     854.03        .00     852.71     854.03        .00        .00        .00     846.00
     512.0      341.5       64.8      105.7     1680.1       99.1      513.0      655.4      109.2     846.20
      9.01        .20        .65        .21        .110       .045       .110       .000     843.00      75.00
   .000024       50.        50.        50.           2          0          0        .00     435.00     510.00


CCHV=      .200 CEHV=      .400
*SECNO 15500.000
 15500.000       9.04     854.04        .00     852.72     854.04        .00        .01        .00     847.00
     512.0      304.0       42.7      165.3     2051.6       88.4     1219.0      704.2      120.3     847.00
     10.22        .15        .48        .14        .110       .045       .110       .000     845.00      77.46
   .000016      800.       660.       660.           2          0          0        .00     863.38     940.83


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


*SECNO 16800.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.41


3470 ENCROACHMENT STATIONS=      430.0    1665.0  TYPE=       1  TARGET=     1235.000
 16800.000       5.86     854.06        .00     852.73     854.06        .00        .01        .00     849.50
     512.0      187.4       10.5      314.1     1894.7       39.7     3202.4      831.0      151.7     849.50
     13.77        .10        .26        .10        .110       .045       .110       .000     848.20     430.00
   .000008     1300.      1300.      1300.           1          0          0        .00    1235.00    1665.00


*SECNO 18100.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .02


3470 ENCROACHMENT STATIONS=      580.0     710.0  TYPE=       1  TARGET=      130.000
 18100.000       2.89     853.79        .00     853.03     854.30        .51        .04        .20     852.00
     512.0      186.5      317.4        8.1       90.5       44.9        5.6      909.7      171.3     852.00
     13.84        2.06       7.07       1.43        .110       .045       .110       .000     850.90     580.00
   .013719     1300.      1300.      1300.           3          0          0        .00      84.28     664.28


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T1MERIDIAN TOWNSHIP FIS
T2UPDATED 500-YEAR FLOOD   STS CONSULTANTS LTD. 12/93  MMW
T3HERRON CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.0       5.0       0.0       0.0    .00014       0.0       0.0       0.0     833.0       0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

   15.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0


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

*PROF 4

CCHV=     .300 CEHV=     .500
*SECNO 1740.000

3470 ENCROACHMENT STATIONS=      190.0     590.0  TYPE=      1  TARGET=     -190.000
  1740.000      4.75    836.65       .00    833.00    836.65       .00       .00       .00    832.00
     750.0     367.2      51.9     330.8     836.5     104.3     765.0        .0        .0    832.00
       .00       .44       .50       .43      .110      .100      .110      .000    831.90    190.00
   .000141        0.        0.        0.         0         0         5       .00    381.56    571.56

*SECNO 2460.000
3280 CROSS SECTION   2460.00 EXTENDED       .79 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67

3470 ENCROACHMENT STATIONS=      200.0     450.0  TYPE=      1  TARGET=      250.000
  2460.000      4.89    836.79       .00    834.86    836.80       .01       .15       .00    832.00
     750.0     478.3      81.4     190.3     718.6     107.5     303.7      23.6       5.3    832.00
       .30       .67       .76       .63      .110      .100      .110      .000    831.90    200.00
   .000313      660.      720.      820.         2         0         0       .00    250.00    450.00

*SECNO 2700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .70

3470 ENCROACHMENT STATIONS=      300.0     678.0  TYPE=      1  TARGET=     -300.000
  2700.000      4.88    836.88       .00    835.20    836.90       .01       .10       .00    832.50
     750.0     580.7     155.2      14.1     744.0     103.0      25.5      28.8       6.6    832.50
       .37       .78      1.51       .55      .110      .070      .110      .000    832.00    300.00
   .000640      220.      240.      240.         2         0         0       .00    247.73    547.73
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	.024	.60	2.90	.00	4.50	.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 848.09..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 847.54 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 2782.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG = 839.47

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.62

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
848.09	847.54	2.57	300.	456.	1.234	47.7	838.30	158.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.46	839.46	.00	837.10	839.47	.01	2.57	.00	832.50
750.0	501.4	194.6	54.0	946.1	157.6	113.1	30.7	7.1	832.50
.40	.53	1.23	.48	.110	.070	.110	.000	832.00	330.00
.000244	82.	82.	82.	0	0	0	.00	293.55	623.55

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.25

3182.000	7.29	839.49	.00	837.27	839.49	.00	.01	.00	833.30
750.0	632.7	24.4	92.9	4709.9	152.0	766.0	72.6	14.7	833.30
1.48	.13	.16	.12	.110	.100	.110	.000	832.20	62.56
.000009	560.	400.	400.	2	0	0	.00	951.53	1014.08

CCHV= .200 CEHV= .400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .11

5220.000	5.98	839.48	.00	837.30	839.58	.09	.05	.04	834.00
750.0	294.6	430.5	25.0	430.1	136.4	37.6	192.5	37.4	834.00
1.72	.68	3.16	.66	.110	.040	.110	.000	833.50	57.73
.000676	1600.	2038.	2038.	2	0	0	.00	224.54	282.27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5800.000

5800.000	6.12	839.92	.00	837.88	840.01	.08	.43	.00	836.00
750.0	166.6	375.0	208.3	187.5	119.8	244.0	200.2	39.9	836.00
1.80	.89	3.13	.85	.110	.040	.110	.000	833.80	93.37
.000809	580.	580.	580.	2	0	0	.00	162.32	255.69

CCHV= .300 CEHV= .500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	5.64	840.64	.00	838.84	840.79	.15	.75	.03	836.70
750.0	172.6	491.7	85.6	174.7	130.8	116.4	208.6	42.6	837.90
1.87	.99	3.76	.74	.110	.040	.110	.000	835.00	50.00
.001283	750.	750.	750.	2	0	0	.00	150.00	200.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .66

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	7.05	840.65	.00	838.78	840.97	.32	.09	.08	836.70
750.0	216.9	389.4	143.7	148.1	63.3	135.3	209.0	42.8	833.60
1.88	1.46	6.15	1.06	.110	.040	.110	.000	833.60	250.00
.002983	50.	50.	50.	2	0	0	.00	150.00	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.90	.00	9.00	.00	35.00	.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.99

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	WEIRLN
851.35	842.83	.00	353.	403.	35.	41.	838.10	842.40	170.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	10.11	843.71	.00	839.98	843.74	.04	2.77	.00	836.70
750.0	260.5	237.7	251.7	343.5	90.8	370.3	210.0	43.1	833.60
1.89	.76	2.62	.68	.110	.040	.110	.000	833.60	250.00
.000334	75.	75.	75.	2	0	6	.00	150.00	400.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	8.15	843.75	.00	840.49	843.76	.01	.01	.01	836.70
750.0	269.9	241.2	238.9	580.5	156.0	522.2	211.2	43.3	837.90
1.91	.46	1.55	.46	.110	.040	.110	.000	835.60	90.00
.000119	50.	50.	50.	2	0	0	.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .19

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.75	843.75	.00	840.92	844.25	.50	.24	.24	836.70
750.0	184.1	354.6	211.3	86.8	44.5	97.4	223.6	45.3	836.80
1.95	2.12	7.96	2.17	.110	.040	.110	.000	836.00	312.00
.003329	725.	725.	725.	2	0	0	.00	33.00	345.00

*SECNO 7486.000

7486.000	6.68	843.78	.00	840.97	844.55	.77	.16	.13	857.70
750.0	.0	750.0	.0	.0	106.4	.0	223.7	45.3	857.70
1.95	.00	7.05	.00	.000	.040	.000	.000	837.10	400.07
.006444	36.	36.	36.	2	0	0	.00	15.96	416.03

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

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	6.77	843.87	843.87	840.68	847.26	3.39	.19	1.31	857.20
750.0	.0	750.0	.0	.0	50.8	.0	223.7	45.3	857.20
1.95	.00	14.78	.00	.000	.040	.000	.000	837.10	400.00
.048893	14.	14.	14.	20	5	0	.00	7.50	407.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	7.50	.00	70.00	.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 847.363 ELLC= 848.000 PCWSE= 843.867 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	10.16	847.36	.00	842.74	848.96	1.60	1.16	.54	857.30
750.0	.0	750.0	.0	.0	73.9	.0	223.8	45.3	857.30
1.95	.00	10.15	.00	.000	.040	.000	.000	837.20	400.00
.024052	35.	35.	35.	5	0	0	-2.25	7.50	407.50

1

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

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 14.12

7549.000	11.88	849.38	.00	843.70	849.43	.05	.01	.47	858.10
750.0	.0	750.0	.0	.0	427.0	.3	223.8	45.3	837.50
1.96	.00	1.76	.01	.000	.040	.110	.000	837.50	390.04
.000121	14.	14.	14.	2	0	0	.00	36.02	426.06

*SECNO 7585.000

3470 ENCROACHMENT STATIONS= 274.0 382.0 TYPE= 1 TARGET= 108.000

```
  7585.000      12.13     849.43       .00     843.72     849.44       .02       .00       .01     838.50
     750.0      262.0      133.9      354.1      442.5       68.6      553.6     224.5      45.4     838.60
      1.97        .59       1.95       .64       .110       .040       .110      .000    837.30     274.00
   .000121        36.        36.        36.          2          0          0       .00    108.00     382.00


CCHV=      .200 CEHV=      .400
*SECNO 9350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  7.61


3470 ENCROACHMENT STATIONS=      590.0    1290.0  TYPE=      1  TARGET=      700.000
  9350.000      12.56     849.46       .00     843.76     849.46       .00       .01       .00     838.50
     750.0       76.4       67.6      605.9      930.9      246.6     6324.2     414.0      63.2     838.90
      6.69        .08        .27        .10       .110       .040       .110      .000    836.90     590.00
   .000002       1600.      1765.      2000.          2          0          0       .00    700.00    1290.00


*SECNO 12800.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .18


3470 ENCROACHMENT STATIONS=      700.0     980.0  TYPE=      1  TARGET=      280.000
 12800.000       8.37     849.47       .00     843.70     849.48       .01       .02       .00     844.60
     750.0      177.2      353.2      219.6      542.5      345.9      677.9     769.9     101.7     843.70
      8.15        .33       1.02        .32       .110       .045       .110      .000    841.10     700.00
   .000066       3500.      3450.      3400.          2          0          0       .00    280.00     980.00


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    23NOV94       11:20:20                                                                                PAGE    46

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


CCHV=      .300 CEHV=      .500
*SECNO 12850.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .26


3470 ENCROACHMENT STATIONS=      230.0     450.0  TYPE=      1  TARGET=      220.000
 12850.000       8.58     849.48       .00     846.59     849.49       .02       .01       .00     846.00
     694.0      145.8       61.3      486.9      180.9       34.7      542.0     771.2     102.0     846.00
      8.16        .81       1.77        .90       .110       .045       .110      .000    840.90     230.00
   .000865         50.        50.        50.          0          0          0       .00    220.00     450.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .60       2.90        .00       4.00        .00       35.00      2          3         840.90     840.90

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  3 - PIPE PROJECTING FROM FILL
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5130, EGIC= 1011.72..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  953.10 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    850.72
SPECIAL CULVERT

     EGIC       EGOC        H4      QWEIR      QCULV        VCH      ACULV     ELTRD     WEIRLN
  1011.72     953.10       1.23       545.       148.      1.449       12.6    849.00       184.


3470 ENCROACHMENT STATIONS=       230.0      410.0  TYPE=       1  TARGET=       180.000
 12885.000       9.81    850.71        .00    849.97    850.72        .01       1.23        .00    846.00
     694.0     191.3       57.6      445.1     255.4      39.7      546.9      771.9      102.1    846.00
      8.17       .75       1.45        .81      .110      .045       .110       .000     840.90    230.00
   .000484       35.        35.        35.         1         0          0        .00     180.00    410.00


*SECNO 13085.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.50


3470 ENCROACHMENT STATIONS=        90.0      320.0  TYPE=       1  TARGET=       -90.000
 13085.000       9.26    850.76        .00    849.98    850.80        .04        .06        .01    844.00
     694.0     139.4       429.0     125.5     257.0      217.8      280.2      775.7      103.0    844.00
      8.22       .54        1.97        .45      .110      .045       .110       .000     841.50     90.00
   .000215       150.       200.       250.         2         0          0        .00     173.82    263.82


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   23NOV94      11:20:20                                                                                PAGE    47

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


CCHV=      .200 CEHV=      .400
*SECNO 14220.000

3470 ENCROACHMENT STATIONS=       400.0      600.0  TYPE=       1  TARGET=       200.000
 14220.000       7.83    851.03        .00    850.05    851.05        .02        .25        .00    844.50
     694.0     273.5       262.3     158.3     488.2      148.0      320.1      798.3      107.9    845.10
      8.53       .56        1.77        .49      .110      .045       .110       .000     843.20    400.00
   .000217      1200.      1135.      1100.         2         0          0        .00     200.00    600.00


*SECNO 14550.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .45

 14550.000       7.58    851.08        .00    850.06    851.25        .17        .14        .06    846.00
     694.0     100.8       532.8      60.4     125.1      141.6       63.0      803.2      109.1    846.00
      8.56       .81        3.76        .96      .110      .045       .110       .000     843.50     48.44
   .001065       330.       330.       330.         2         0          0        .00     109.26    157.70


CCHV=      .300 CEHV=      .500
*SECNO 14750.000
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3470 ENCROACHMENT STATIONS=      100.0     376.0  TYPE=      1  TARGET=      276.000
 14750.000      9.50    851.50       .00    850.02    851.56       .06       .27       .03    846.00
     694.0     490.8     191.1      12.1     447.8      57.4      15.1     805.2     109.9    848.00
      8.60      1.10      3.33       .80      .110      .045      .110      .000    842.00    122.60
   .001831      200.      200.      200.         2         0         0       .00    242.16    364.76


SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
     1         .024       .50      2.90       .00      6.00       .00     40.00      2         2       842.00    842.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  2 - MITERED TO CONFORM TO SLOPE

5130, EGIC=  874.39..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  869.19 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 14790.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =    854.25

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.22

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   23NOV94      11:20:20                                                                                    PAGE   48

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

SPECIAL CULVERT

     EGIC      EGOC        H4     QWEIR     QCULV       VCH     ACULV     ELTRD    WEIRLN
    874.39    869.19      2.69      323.      366.     1.341      28.3    853.50      273.


3470 ENCROACHMENT STATIONS=       80.0     405.0  TYPE=      1  TARGET=      325.000
 14790.000     12.24    854.24       .00    852.34    854.25       .01      2.69       .00    846.00
     694.0     466.2      99.7     128.2    1060.9      74.3     235.6     806.0     110.1    846.00
      8.61       .44      1.34       .54      .110      .045      .110      .000    842.00     80.00
   .000177       40.       40.       40.         0         0         0       .00    325.00    405.00


*SECNO 14840.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.14


3470 ENCROACHMENT STATIONS=       75.0     510.0  TYPE=      1  TARGET=      435.000
 14840.000     11.25    854.25       .00    852.71    854.25       .00       .00       .00    846.00
     694.0     464.8      85.6     143.6    1752.2     101.3     535.2     808.2     110.6    846.20
      8.66       .27       .85       .27      .110      .045      .110      .000    843.00     75.00
   .000039       50.       50.       50.         2         0         0       .00    435.00    510.00


CCHV=     .200 CEHV=     .400
*SECNO 15500.000
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 15500.000      9.27    854.27       .00    852.72    854.27       .00       .02       .00    847.00
     694.0     411.2      55.6     227.3    2160.6      90.7    1307.8     859.5     121.8    847.00
      9.61       .19       .61       .17      .110      .045      .110      .000    845.00     74.46
   .000024      800.      660.      660.         2         0         0       .00    870.99    945.45


*SECNO 16800.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.43


3470 ENCROACHMENT STATIONS=      430.0    1665.0  TYPE=      1  TARGET=     1235.000
 16800.000      6.09    854.29       .00    852.73    854.30       .00       .02       .00    849.50
     694.0     253.8      13.9     426.3    2002.6      41.4    3392.1     993.7     153.2    849.50
      12.38       .13       .33       .13      .110      .045      .110      .000    848.20    430.00
   .000012      1300.     1300.     1300.         1         0         0       .00   1235.00   1665.00


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    23NOV94      11:20:20                                                                    PAGE   49

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

*SECNO 18100.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      580.0     710.0  TYPE=      1  TARGET=      130.000
 18100.000      2.98    853.88    853.88    853.03    854.71       .83       .06       .33    852.00
     694.0     258.2     424.3      11.5      95.7      46.5       6.2    1077.1     172.9    852.00
     12.43      2.70      9.13      1.87      .110      .045      .110      .000    850.90    580.00
   .021880      1300.     1300.     1300.         3        11         0       .00     84.58    664.58


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    23NOV94      11:20:20                                                                    PAGE   50


                                                                    THIS RUN EXECUTED 23NOV94     11:20:47

 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST


  CREEK

SUMMARY PRINTOUT TABLE  150
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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1740.000	.00	.00	.00	831.90	290.00	834.65	.00	834.66	1.41	.35	955.00	244.44
	1740.000	.00	.00	.00	831.90	470.00	835.52	.00	835.52	1.42	.42	1279.68	394.90
	1740.000	.00	.00	.00	831.90	560.00	835.92	.00	835.92	1.40	.44	1428.83	472.98
	1740.000	.00	.00	.00	831.90	750.00	836.65	.00	836.65	1.41	.50	1705.83	631.87
*	2460.000	720.00	.00	.00	831.90	290.00	834.86	.00	834.87	8.61	.90	367.61	98.81
*	2460.000	720.00	.00	.00	831.90	470.00	835.66	.00	835.67	3.07	.63	848.83	268.39
*	2460.000	720.00	.00	.00	831.90	560.00	836.06	.00	836.07	3.08	.67	946.98	319.29
*	2460.000	720.00	.00	.00	831.90	750.00	836.79	.00	836.80	3.13	.76	1129.76	423.65
*	2700.000	240.00	.00	.00	832.00	290.00	835.20	.00	835.49	91.63	4.30	67.45	30.30
*	2700.000	240.00	.00	.00	832.00	470.00	835.77	.00	835.78	8.29	1.44	597.39	163.24
*	2700.000	240.00	.00	.00	832.00	560.00	836.16	.00	836.17	7.38	1.45	693.22	206.10
*	2700.000	240.00	.00	.00	832.00	750.00	836.88	.00	836.90	6.40	1.51	872.50	296.50
*	2782.000	82.00	838.30	836.50	832.00	290.00	837.10	.00	837.21	19.38	2.70	107.51	65.88
*	2782.000	82.00	838.30	836.50	832.00	470.00	838.74	.00	838.75	1.68	.96	1005.81	362.43
*	2782.000	82.00	838.30	836.50	832.00	560.00	839.05	.00	839.06	1.86	1.04	1095.01	410.71
*	2782.000	82.00	838.30	836.50	832.00	750.00	839.46	.00	839.47	2.44	1.23	1216.86	480.57
*	3182.000	400.00	.00	.00	832.20	290.00	837.27	.00	837.27	.15	.16	2281.03	756.46
*	3182.000	400.00	.00	.00	832.20	470.00	838.76	.00	838.76	.05	.12	4936.41	2036.48
*	3182.000	400.00	.00	.00	832.20	560.00	839.07	.00	839.07	.06	.13	5228.09	2236.71
*	3182.000	400.00	.00	.00	832.20	750.00	839.49	.00	839.49	.09	.16	5627.81	2522.63
*	5220.000	2038.00	.00	.00	833.50	290.00	837.30	.00	837.39	9.22	2.71	187.30	95.51
*	5220.000	2038.00	.00	.00	833.50	470.00	838.75	.00	838.82	5.17	2.53	447.23	206.66
*	5220.000	2038.00	.00	.00	833.50	560.00	839.06	.00	839.13	5.48	2.70	511.78	239.18
*	5220.000	2038.00	.00	.00	833.50	750.00	839.48	.00	839.58	6.76	3.16	604.03	288.41
	5800.000	580.00	.00	.00	833.80	290.00	837.88	.00	837.95	9.87	2.48	251.41	92.32
	5800.000	580.00	.00	.00	833.80	470.00	839.10	.00	839.15	6.54	2.51	422.78	183.78
	5800.000	580.00	.00	.00	833.80	560.00	839.43	.00	839.49	6.88	2.70	472.56	213.46
	5800.000	580.00	.00	.00	833.80	750.00	839.92	.00	840.01	8.09	3.13	551.27	263.70

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	6550.000	750.00	.00	.00	835.00	290.00	838.84	.00	839.02	19.87	3.43	94.06	65.05
	6550.000	750.00	.00	.00	835.00	470.00	839.73	.00	839.86	12.83	3.27	285.63	131.23
	6550.000	750.00	.00	.00	835.00	560.00	840.07	.00	840.20	12.51	3.41	336.30	158.31
	6550.000	750.00	.00	.00	835.00	750.00	840.64	.00	840.79	12.83	3.76	421.92	209.37
*	6600.000	50.00	.00	.00	833.60	290.00	838.78	.00	839.38	46.55	6.25	46.43	42.51
*	6600.000	50.00	.00	.00	833.60	470.00	839.72	.00	840.05	30.05	5.62	211.26	85.74
*	6600.000	50.00	.00	.00	833.60	560.00	840.07	.00	840.39	29.97	5.82	259.53	102.29
*	6600.000	50.00	.00	.00	833.60	750.00	840.65	.00	840.97	29.83	6.15	346.70	137.31
*	6675.000	75.00	842.40	838.10	833.60	290.00	839.98	.00	840.37	23.15	5.07	57.25	60.27
*	6675.000	75.00	842.40	838.10	833.60	470.00	843.00	.00	843.03	1.96	1.91	699.35	336.07
*	6675.000	75.00	842.40	838.10	833.60	560.00	843.30	.00	843.33	2.33	2.13	744.33	366.97
*	6675.000	75.00	842.40	838.10	833.60	750.00	843.71	.00	843.74	3.34	2.62	804.57	410.11
*	6725.000	50.00	.00	.00	835.60	290.00	840.49	.00	840.52	3.34	1.80	355.93	158.61
*	6725.000	50.00	.00	.00	835.60	470.00	843.03	.00	843.04	.70	1.11	1107.77	563.21
*	6725.000	50.00	.00	.00	835.60	560.00	843.33	.00	843.34	.83	1.24	1171.72	614.17
*	6725.000	50.00	.00	.00	835.60	750.00	843.75	.00	843.76	1.19	1.55	1258.72	686.21

*	7450.000	725.00	.00	.00	836.00	290.00	840.92	.00	841.12	24.34	4.95	135.51	58.78
*	7450.000	725.00	.00	.00	836.00	470.00	843.05	.00	843.29	17.98	5.48	205.80	110.86
*	7450.000	725.00	.00	.00	836.00	560.00	843.35	.00	843.66	22.17	6.26	215.60	118.93
*	7450.000	725.00	.00	.00	836.00	750.00	843.75	.00	844.25	33.29	7.96	228.70	129.99
	7486.000	36.00	.00	.00	837.10	290.00	840.97	.00	841.31	44.66	4.70	61.66	43.39
	7486.000	36.00	.00	.00	837.10	470.00	843.07	.00	843.45	34.25	4.93	95.25	80.31
	7486.000	36.00	.00	.00	837.10	560.00	843.37	.00	843.86	42.65	5.61	99.89	85.75
	7486.000	36.00	.00	.00	837.10	750.00	843.78	.00	844.55	64.44	7.05	106.35	93.43
*	7500.000	14.00	.00	.00	837.10	290.00	840.68	840.68	842.49	377.01	10.80	26.85	14.94
*	7500.000	14.00	.00	.00	837.10	470.00	842.21	.00	844.54	389.30	12.26	38.34	23.82
*	7500.000	14.00	.00	.00	837.10	560.00	842.65	842.65	845.46	447.03	13.44	41.66	26.49
*	7500.000	14.00	.00	.00	837.10	750.00	843.87	843.87	847.26	488.93	14.78	50.75	33.92
*	7535.000	35.00	857.10	848.00	837.20	290.00	842.74	.00	843.50	121.71	6.99	41.50	26.29
*	7535.000	35.00	857.10	848.00	837.20	470.00	844.61	.00	845.72	155.18	8.48	55.44	37.73
*	7535.000	35.00	857.10	848.00	837.20	560.00	845.58	.00	846.82	162.63	8.92	62.81	43.91
*	7535.000	35.00	857.10	848.00	837.20	750.00	847.36	.00	848.96	240.52	10.15	73.92	48.36
*	7549.000	14.00	.00	.00	837.50	290.00	843.70	.00	843.73	1.33	1.30	222.76	251.12
*	7549.000	14.00	.00	.00	837.50	470.00	846.02	.00	846.05	1.30	1.54	306.12	411.48
*	7549.000	14.00	.00	.00	837.50	560.00	847.14	.00	847.18	1.27	1.62	346.61	497.71
*	7549.000	14.00	.00	.00	837.50	750.00	849.38	.00	849.43	1.21	1.76	427.31	683.07
	7585.000	36.00	.00	.00	837.30	290.00	843.72	.00	843.74	2.50	1.77	448.36	183.44
	7585.000	36.00	.00	.00	837.30	470.00	846.05	.00	846.06	1.72	1.85	699.86	358.20
	7585.000	36.00	.00	.00	837.30	560.00	847.18	.00	847.19	1.49	1.88	821.84	458.25
	7585.000	36.00	.00	.00	837.30	750.00	849.43	.00	849.44	1.21	1.95	1064.70	682.66

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	9350.000	1765.00	.00	.00	836.90	290.00	843.76	.00	843.76	.04	.23	3512.53	1516.79
*	9350.000	1765.00	.00	.00	836.90	470.00	846.08	.00	846.08	.03	.25	5139.19	2804.77
*	9350.000	1765.00	.00	.00	836.90	560.00	847.21	.00	847.21	.03	.26	5928.78	3539.29
*	9350.000	1765.00	.00	.00	836.90	750.00	849.46	.00	849.46	.02	.27	7501.73	5196.10
*	12800.000	3450.00	.00	.00	841.10	290.00	843.70	.00	843.88	47.17	3.49	93.63	42.22
*	12800.000	3450.00	.00	.00	841.10	470.00	846.10	.00	846.13	3.40	1.56	625.07	254.76
*	12800.000	3450.00	.00	.00	841.10	560.00	847.23	.00	847.25	1.65	1.27	937.94	435.95
*	12800.000	3450.00	.00	.00	841.10	750.00	849.47	.00	849.48	.66	1.02	1566.32	921.27
*	12850.000	50.00	.00	.00	840.90	266.00	846.59	846.59	846.91	182.69	6.15	125.45	19.68
*	12850.000	50.00	.00	.00	840.90	423.00	846.82	846.82	847.16	230.24	7.10	173.78	27.88
*	12850.000	50.00	.00	.00	840.90	512.00	847.18	.00	847.35	131.75	5.59	252.52	44.61
*	12850.000	50.00	.00	.00	840.90	694.00	849.48	.00	849.49	8.65	1.77	757.53	236.02
*	12885.000	35.00	849.00	844.90	840.90	266.00	849.97	.00	849.97	1.24	.70	707.52	238.94
*	12885.000	35.00	849.00	844.90	840.90	423.00	850.30	.00	850.31	2.41	.99	768.55	272.68
*	12885.000	35.00	849.00	844.90	840.90	512.00	850.45	.00	850.45	3.17	1.15	794.35	287.46
	12885.000	35.00	849.00	844.90	840.90	694.00	850.71	.00	850.72	4.84	1.45	842.08	315.60
*	13085.000	200.00	.00	.00	841.50	266.00	849.98	.00	849.99	.50	.89	620.44	376.49
*	13085.000	200.00	.00	.00	841.50	423.00	850.33	.00	850.35	1.02	1.31	679.79	418.05
*	13085.000	200.00	.00	.00	841.50	512.00	850.48	.00	850.50	1.37	1.54	705.71	436.82
*	13085.000	200.00	.00	.00	841.50	694.00	850.76	.00	850.80	2.15	1.97	755.06	473.53
	14220.000	1135.00	.00	.00	843.20	266.00	850.05	.00	850.05	.63	.86	759.65	335.63

	14220.000	1135.00	.00	.00	843.20	423.00	850.46	.00	850.47	1.17	1.23	842.67	390.69
	14220.000	1135.00	.00	.00	843.20	512.00	850.66	.00	850.67	1.50	1.42	881.20	417.39
	14220.000	1135.00	.00	.00	843.20	694.00	851.03	.00	851.05	2.17	1.77	956.31	471.46
*	14550.000	330.00	.00	.00	843.50	266.00	850.06	.00	850.11	3.13	1.84	230.79	150.33
*	14550.000	330.00	.00	.00	843.50	423.00	850.49	.00	850.58	5.83	2.63	270.35	175.26
*	14550.000	330.00	.00	.00	843.50	512.00	850.69	.00	850.81	7.46	3.04	289.76	187.48
*	14550.000	330.00	.00	.00	843.50	694.00	851.08	.00	851.25	10.65	3.76	329.70	212.69
*	14750.000	200.00	.00	.00	842.00	266.00	850.02	.00	850.49	62.69	5.49	48.42	33.60
*	14750.000	200.00	.00	.00	842.00	423.00	850.31	.00	851.41	140.89	8.43	50.17	35.64
*	14750.000	200.00	.00	.00	842.00	512.00	850.37	.00	851.96	200.75	10.12	50.59	36.14
	14750.000	200.00	.00	.00	842.00	694.00	851.50	.00	851.56	18.31	3.33	520.35	162.17
*	14790.000	40.00	853.50	848.00	842.00	266.00	852.34	.00	852.62	22.18	4.24	62.68	56.48
*	14790.000	40.00	853.50	848.00	842.00	423.00	853.94	.00	853.94	.82	.90	1271.54	466.13
*	14790.000	40.00	853.50	848.00	842.00	512.00	854.02	.00	854.02	1.13	1.06	1299.03	481.42
*	14790.000	40.00	853.50	848.00	842.00	694.00	854.24	.00	854.25	1.77	1.34	1370.78	522.30
*	14840.000	50.00	.00	.00	843.00	266.00	852.71	.00	852.71	.15	.47	1717.30	682.58
*	14840.000	50.00	.00	.00	843.00	423.00	853.94	.00	853.94	.17	.55	2255.21	1022.41
*	14840.000	50.00	.00	.00	843.00	512.00	854.03	.00	854.03	.24	.65	2292.12	1047.91
*	14840.000	50.00	.00	.00	843.00	694.00	854.25	.00	854.25	.39	.85	2388.63	1115.85

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	15500.000	660.00	.00	.00	845.00	266.00	852.72	.00	852.72	.13	.39	2236.96	739.81
	15500.000	660.00	.00	.00	845.00	423.00	853.95	.00	853.95	.11	.41	3282.04	1249.68
	15500.000	660.00	.00	.00	845.00	512.00	854.04	.00	854.04	.16	.48	3359.02	1291.90
	15500.000	660.00	.00	.00	845.00	694.00	854.27	.00	854.27	.24	.61	3559.14	1404.39
	16800.000	1300.00	.00	.00	848.20	266.00	852.73	.00	852.73	.07	.21	3497.19	976.40
*	16800.000	1300.00	.00	.00	848.20	423.00	853.96	.00	853.96	.06	.22	5024.74	1762.03
*	16800.000	1300.00	.00	.00	848.20	512.00	854.06	.00	854.06	.08	.26	5136.82	1826.93
*	16800.000	1300.00	.00	.00	848.20	694.00	854.29	.00	854.30	.12	.33	5436.08	2004.83
*	18100.000	1300.00	.00	.00	850.90	266.00	853.03	853.03	853.50	181.25	6.36	77.36	19.76
*	18100.000	1300.00	.00	.00	850.90	423.00	853.78	.00	854.13	94.55	5.86	140.57	43.50
*	18100.000	1300.00	.00	.00	850.90	512.00	853.79	.00	854.30	137.19	7.07	141.05	43.71
*	18100.000	1300.00	.00	.00	850.90	694.00	853.88	853.88	854.71	218.80	9.13	148.34	46.92

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CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1740.000	290.00	834.65	.00	.00	1.65	372.62	.00
	1740.000	470.00	835.52	.87	.00	2.52	376.09	.00
	1740.000	560.00	835.92	.40	.00	2.92	377.67	.00
	1740.000	750.00	836.65	.73	.00	3.65	381.56	.00
*	2460.000	290.00	834.86	.00	.21	.00	138.60	720.00
*	2460.000	470.00	835.66	.80	.14	.80	246.65	720.00

*	2460.000	560.00	836.06	.39	.14	1.20	250.00	720.00
*	2460.000	750.00	836.79	.73	.14	1.93	250.00	720.00
*	2700.000	290.00	835.20	.00	.34	.00	21.10	240.00
*	2700.000	470.00	835.77	.57	.10	.57	244.77	240.00
*	2700.000	560.00	836.16	.39	.10	.96	245.81	240.00
*	2700.000	750.00	836.88	.73	.09	1.69	247.73	240.00
*	2782.000	290.00	837.10	.00	1.90	.00	21.10	82.00
*	2782.000	470.00	838.74	1.65	2.98	1.65	290.18	82.00
*	2782.000	560.00	839.05	.31	2.89	1.95	291.61	82.00
*	2782.000	750.00	839.46	.41	2.58	2.37	293.55	82.00
*	3182.000	290.00	837.27	.00	.17	.00	605.72	400.00
*	3182.000	470.00	838.76	1.49	.02	1.49	945.15	400.00
*	3182.000	560.00	839.07	.31	.02	1.80	947.84	400.00
*	3182.000	750.00	839.49	.42	.02	2.22	951.53	400.00
*	5220.000	290.00	837.30	.00	.03	.00	120.56	2038.00
*	5220.000	470.00	838.75	1.46	-.01	1.46	205.69	2038.00
*	5220.000	560.00	839.06	.31	-.01	1.77	211.85	2038.00
*	5220.000	750.00	839.48	.42	.00	2.19	224.54	2038.00
	5800.000	290.00	837.88	.00	.59	.00	131.82	580.00
	5800.000	470.00	839.10	1.21	.35	1.21	149.82	580.00
	5800.000	560.00	839.43	.33	.36	1.54	154.67	580.00
	5800.000	750.00	839.92	.50	.44	2.04	162.32	580.00
	6550.000	290.00	838.84	.00	.96	.00	35.00	750.00
	6550.000	470.00	839.73	.89	.63	.89	147.79	750.00
	6550.000	560.00	840.07	.34	.65	1.23	149.40	750.00
	6550.000	750.00	840.64	.57	.72	1.80	150.00	750.00
*	6600.000	290.00	838.78	.00	-.07	.00	9.00	50.00
*	6600.000	470.00	839.72	.95	-.01	.95	132.31	50.00
*	6600.000	560.00	840.07	.34	-.01	1.29	145.28	50.00
*	6600.000	750.00	840.65	.59	.01	1.88	150.00	50.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	6675.000	290.00	839.98	.00	1.20	.00	9.00	75.00
*	6675.000	470.00	843.00	3.03	3.28	3.03	150.00	75.00
*	6675.000	560.00	843.30	.30	3.24	3.33	150.00	75.00
*	6675.000	750.00	843.71	.40	3.05	3.73	150.00	75.00
*	6725.000	290.00	840.49	.00	.51	.00	115.00	50.00
*	6725.000	470.00	843.03	2.54	.02	2.54	210.00	50.00
*	6725.000	560.00	843.33	.30	.03	2.84	210.00	50.00
*	6725.000	750.00	843.75	.41	.04	3.26	210.00	50.00
*	7450.000	290.00	840.92	.00	.43	.00	33.00	725.00
*	7450.000	470.00	843.05	2.13	.03	2.13	33.00	725.00
*	7450.000	560.00	843.35	.30	.02	2.43	33.00	725.00
*	7450.000	750.00	843.75	.40	.00	2.82	33.00	725.00
	7486.000	290.00	840.97	.00	.04	.00	15.94	36.00
	7486.000	470.00	843.07	2.11	.02	2.11	15.96	36.00
	7486.000	560.00	843.37	.30	.02	2.41	15.96	36.00
	7486.000	750.00	843.78	.40	.03	2.81	15.96	36.00

*	7500.000	290.00	840.68	.00	-.28	.00	7.50	14.00
*	7500.000	470.00	842.21	1.53	-.86	1.53	7.50	14.00
*	7500.000	560.00	842.65	.45	-.72	1.97	7.50	14.00
*	7500.000	750.00	843.87	1.21	.09	3.19	7.50	14.00
*	7535.000	290.00	842.74	.00	2.06	.00	7.50	35.00
*	7535.000	470.00	844.61	1.86	2.40	1.86	7.50	35.00
*	7535.000	560.00	845.58	.98	2.93	2.84	7.50	35.00
*	7535.000	750.00	847.36	1.78	3.49	4.62	7.50	35.00
*	7549.000	290.00	843.70	.00	.96	.00	35.96	14.00
*	7549.000	470.00	846.02	2.32	1.41	2.32	35.98	14.00
*	7549.000	560.00	847.14	1.13	1.56	3.44	35.99	14.00
*	7549.000	750.00	849.38	2.24	2.02	5.68	36.02	14.00
	7585.000	290.00	843.72	.00	.02	.00	108.00	36.00
	7585.000	470.00	846.05	2.33	.03	2.33	108.00	36.00
	7585.000	560.00	847.18	1.13	.04	3.46	108.00	36.00
	7585.000	750.00	849.43	2.25	.05	5.71	108.00	36.00
*	9350.000	290.00	843.76	.00	.04	.00	700.00	1765.00
*	9350.000	470.00	846.08	2.32	.03	2.32	700.00	1765.00
*	9350.000	560.00	847.21	1.13	.03	3.45	700.00	1765.00
*	9350.000	750.00	849.46	2.25	.03	5.70	700.00	1765.00
*	12800.000	290.00	843.70	.00	-.07	.00	122.64	3450.00
*	12800.000	470.00	846.10	2.41	.02	2.41	267.55	3450.00
*	12800.000	560.00	847.23	1.13	.02	3.53	280.00	3450.00
*	12800.000	750.00	849.47	2.24	.02	5.78	280.00	3450.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	12850.000	266.00	846.59	.00	2.89	.00	198.13	50.00
*	12850.000	423.00	846.82	.23	.72	.23	213.40	50.00
*	12850.000	512.00	847.18	.36	-.05	.59	220.00	50.00
*	12850.000	694.00	849.48	2.30	.00	2.89	220.00	50.00
*	12885.000	266.00	849.97	.00	3.38	.00	180.00	35.00
*	12885.000	423.00	850.30	.34	3.48	.34	180.00	35.00
*	12885.000	512.00	850.45	.14	3.27	.48	180.00	35.00
	12885.000	694.00	850.71	.27	1.23	.74	180.00	35.00
*	13085.000	266.00	849.98	.00	.01	.00	169.66	200.00
*	13085.000	423.00	850.33	.35	.03	.35	171.64	200.00
*	13085.000	512.00	850.48	.15	.03	.50	172.39	200.00
*	13085.000	694.00	850.76	.28	.05	.78	173.82	200.00
	14220.000	266.00	850.05	.00	.07	.00	200.00	1135.00
	14220.000	423.00	850.46	.42	.13	.42	200.00	1135.00
	14220.000	512.00	850.66	.19	.18	.61	200.00	1135.00
	14220.000	694.00	851.03	.38	.27	.98	200.00	1135.00
*	14550.000	266.00	850.06	.00	.02	.00	86.52	330.00
*	14550.000	423.00	850.49	.43	.03	.43	96.26	330.00
*	14550.000	512.00	850.69	.20	.03	.63	100.69	330.00
*	14550.000	694.00	851.08	.39	.05	1.01	109.26	330.00
*	14750.000	266.00	850.02	.00	-.04	.00	6.10	200.00

*	14750.000	423.00	850.31	.29	-.19	.29	6.10	200.00
*	14750.000	512.00	850.37	.07	-.32	.35	6.10	200.00
	14750.000	694.00	851.50	1.12	.42	1.48	242.16	200.00
*	14790.000	266.00	852.34	.00	2.32	.00	6.10	40.00
*	14790.000	423.00	853.94	1.60	3.63	1.60	325.00	40.00
*	14790.000	512.00	854.02	.08	3.65	1.68	325.00	40.00
*	14790.000	694.00	854.24	.22	2.74	1.90	325.00	40.00
*	14840.000	266.00	852.71	.00	.37	.00	435.00	50.00
*	14840.000	423.00	853.94	1.24	.00	1.24	435.00	50.00
*	14840.000	512.00	854.03	.09	.01	1.32	435.00	50.00
*	14840.000	694.00	854.25	.22	.01	1.54	435.00	50.00
	15500.000	266.00	852.72	.00	.01	.00	829.25	660.00
	15500.000	423.00	853.95	1.24	.01	1.24	860.79	660.00
	15500.000	512.00	854.04	.09	.02	1.33	863.38	660.00
	15500.000	694.00	854.27	.23	.02	1.56	870.99	660.00
	16800.000	266.00	852.73	.00	.01	.00	1235.00	1300.00
*	16800.000	423.00	853.96	1.23	.01	1.23	1235.00	1300.00
*	16800.000	512.00	854.06	.09	.01	1.33	1235.00	1300.00
*	16800.000	694.00	854.29	.24	.02	1.57	1235.00	1300.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	18100.000	266.00	853.03	.00	.30	.00	81.59	1300.00
*	18100.000	423.00	853.78	.76	-.18	.76	84.26	1300.00
*	18100.000	512.00	853.79	.01	-.26	.77	84.28	1300.00
*	18100.000	694.00	853.88	.09	-.42	.85	84.58	1300.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 2460.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2460.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2460.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2460.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2700.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2700.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2700.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 2782.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2782.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2782.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 2782.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 3182.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3182.000 PROFILE= 2 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3182.000 PROFILE= 3 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO= 3182.000 PROFILE= 4 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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 WARNING SECNO=    5220.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5220.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5220.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5220.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6600.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6600.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6600.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6600.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6675.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6675.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6675.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6675.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6725.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6725.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6725.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6725.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    7450.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7450.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7450.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7450.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    7500.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    7500.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    7500.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 WARNING SECNO=    7500.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=    7500.000  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    7500.000  PROFILE=  3  MINIMUM SPECIFIC ENERGY
1
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 CAUTION SECNO=    7500.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    7500.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=    7500.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 WARNING SECNO=    7535.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7535.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7535.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7535.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    7549.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7549.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7549.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    7549.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    9350.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    9350.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    9350.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    9350.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   12800.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12800.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12800.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=   12850.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=   12850.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION SECNO=   12850.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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CAUTION SECNO=  12850.000  PROFILE=  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  12850.000  PROFILE=  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=  12850.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12850.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  12885.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12885.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  12885.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  13085.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  13085.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  13085.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  13085.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14550.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14550.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14550.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14550.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14750.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14750.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14750.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14790.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14790.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14790.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
   23NOV94      11:20:20                                                                    PAGE   60

WARNING SECNO=  14790.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  14840.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14840.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14840.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  14840.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=  16800.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16800.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  16800.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO=  18100.000  PROFILE=  1  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  18100.000  PROFILE=  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=  18100.000  PROFILE=  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
WARNING SECNO=  18100.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=  18100.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=  18100.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=  18100.000  PROFILE=  4  MINIMUM SPECIFIC ENERGY
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THIS RUN EXECUTED 20JAN94 14:14:07

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**********************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.0;  February 1991
**********************************

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 10-YEAR FLOOD   STS CONSULTANTS LTD. 12/93  MMW
T3HERRON CREEK

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      0.0       2.0       0.0       0.0     .00014      0.0       0.0       0.0      833.0      0.0
J2   NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      1.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

J3   VARIABLE CODES FOR SUMMARY PRINTOUT
    150.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC       .11       .11       0.1       .30       .50
QT       4.0     290.0     470.0     560.0     750.0
X1    1740.0      13.0     370.0     392.0       0.0       0.0       0.0
X3       0.0       0.0       0.0     190.0
GR     840.0       0.0     836.0      12.0     834.0      40.0     832.0      65.0     832.0     370.0
GR     831.9     371.0     831.9     391.0     832.0     392.0     832.0     530.0     834.0     560.0
GR     836.0     568.0     840.0     590.0       0.0       0.0       0.0       0.0       0.0       0.0

ET       0.0       6.1       8.1       8.1       8.1     300.0     450.0     200.0     450.0       0.0
X1    2460.0      10.0     350.0     372.0     660.0     820.0     720.0
GR     840.0       0.0     834.0      35.0     832.0      90.0     832.0     350.0     831.9     351.0
GR     831.9     371.0     832.0     372.0     832.0     420.0     834.0     430.0     836.0     450.0

NC       0.0       0.0      0.07
X1    2700.0      13.0     515.0     536.1     220.0     240.0     240.0       0.0       0.0       0.0
X3      10.0       0.0       0.0     300.0       0.0       0.0       0 0     835.4     835.4       0.0
GR     850.0       0.0     840.0      55.0     838.0      70.0     836.0      80.0     834.0     110.0
GR     834.0     350.0     832.5     515.0     832.0     515.1     832.0     536.0     832.5     536.1
GR     840.0     556.0     842.0     568.0     842.1     678.0

SC     3.024       0.6       2.9       0.0       4.5       0.0      82.0       2.3     832.0     832.0
X1    2782.0      16.0     570.0     591.1      82.0      82.0      82.0       0.0       0.0       0.0
X2       0.0       0.0       2.0     836.5     838.3       0.0       0.0       0.0       0.0       0.0
X3      10.0       0.0       0.0     330.0       0.0       0.0       0.0     838.3     838.3       0.0
BT     -10.0       0.0     850.0       0.0      30.0     848.0       0.0     125.0     844.0       0.0
BT             185.0     842.0       0.0     280.0     840.0       0.0     380.0     838.3       0.0
BT             420.0     838.3       0.0     490.0     840.0       0.0     630.0     840.1       0.0
BT             631.0     850.0       0.0
GR     850.0       0.0     848.0      30.0     844.0     110.0     842.0     150.0     840.0     170.0
GR     838.0     195.0     836.0     220.0     836.0     475.0     834.0     560.0     832.5     570.0
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GR	832.0	570.1	832.0	591.0	832.5	591.1	840.0	626.0	842.0	661.0
GR	850.0	662.0								
NC	0.0	0.0	0.1							
ET	0.0	6.1				400.0	1131.0			
X1	3182.0	13.0	840.0	861.0	560.0	400.0	400.0	0.0	0.0	0.0
GR	850.0	0.0	840.0	60.0	834.0	90.0	833.3	110.0	833.3	840.0
GR	832.2	841.0	832.2	860.0	833.3	861.0	834.0	946.0	836.0	1001.0
GR	840.0	1016.0	846.0	1071.0	848.0	1131.0				
NC	0.0	0.0	0.04	0.2	0.4					
X1	5220.0	14.0	240.0	263.0	1600.0	2038.0	2038.0			
GR	850.0	0.0	840.0	50.0	838.0	80.0	836.8	200.0	834.0	240.0
GR	833.5	243.0	833.5	261.0	834.0	263.0	839.0	275.0	840.0	290.0
GR	842.0	330.0	844.0	370.0	846.0	430.0	850.0	500.0		
NC	0.0	0.0	0.0	0.1	0.3					
X1	5800.0	14.0	150.0	173.0	580.0	580.0	580.0			
GR	852.0	0.0	847.0	50.0	844.9	71.0	836.0	111.0	836.0	150.0
GR	834.0	160.0	833.8	163.0	834.0	166.0	836.0	173.0	836.0	215.0
GR	839.4	250.0	841.6	274.0	843.5	350.0	849.5	450.0		
NC				0.3	0.5					
ET	0.0	6.1	8.1	8.1	8.1	108.0	143.0	50.0	200.0	0.0
X1	6550.0	15.0	112.0	139.0	750.0	750.0	750.0			
GR	844.0	0.0	841.9	42.0	838.5	58.0	836.7	112.0	835.2	118.0
GR	835.0	125.0	835.3	130.0	837.9	139.0	839.9	212.0	840.5	312.0
GR	845.3	412.0	845.5	512.0	847.0	612.0	848.6	712.0	851.3	812.0
X1	6600.0	16.0	314.0	323.0	50.0	50.0	50.0			
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	839.3	839.3	0.0
GR	851.3	0.0	846.8	100.0	843.1	200.0	838.5	283.0	836.7	300.0
GR	836.7	314.0	833.6	314.1	833.6	316.0	833.6	319.0	833.6	321.0
GR	833.6	323.0	837.9	323.1	839.9	400.0	840.5	500.0	845.3	600.0
GR	849.7	700.0								
SB	0.0	1.5	2.9	0.0	9.0	0.0	35.0	0.0	833.6	833.6
X1	6675.0	0.0	0.0	0.0	75.0	75.0	75.0	0.0	0.0	0.0
X2	0.0	0.0	1.0	838.1	842.4					
X3	10.0	0.0	0.0	250.0	0.0	400.0	0.0	842.4	842.4	0.0
BT	16.0	0.0	849.0	0.0	100.0	846.8	0.0	200.0	845.0	0.0
BT	283.0	843.2	0.0	300.0	843.0	0.0	314.0	842.5	0.0	314.1
BT	842.4	833.6	316.0	842.4	836.5	319.0	842.4	838.1	321.0	842.4
BT	836.5	323.0	842.4	833.6	323.1	842.4	0.0	400.0	843.1	0.0
BT	500.0	845.4	0.0	600.0	847.6	0.0	700.0	849.7	0.0	
ET	0.0	6.1	8.1	8.1	8.1	140.0	255.0	90.0	300.0	0.0
X1	6725.0	12.0	190.0	210.0	50.0	50.0	50.0	0.0	0.0	0.0
GR	846.0	0.0	838.5	80.0	838.3	140.0	836.7	190.0	835.7	196.0
GR	835.6	203.0	835.8	208.0	837.9	210.0	838.0	310.0	840.0	360.0
GR	844.0	412.0	845.5	450.0						

X1	7450.0	17.0	325.0	331.0	725.0	725.0	725.0			
X3	0.0	0.0	0.0	312.0	0.0	345.0				
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	836.0	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
X1	7486.0	6.0	400.0	416.1	36.0	36.0	36.0			
GR	858.0	0.0	857.7	400.0	837.1	400.1	837.1	416.0	857.7	416.1
GR	857.5	800.0								
X1	7500.0	13.0	400.0	407.5	14.0	14.0	14.0	0.0	-.20	0.0
X3	10.0							857.1	857.1	
GR	858.0	0.0	857.6	300.0	857.4	400.0	837.3	400.0	837.3	402.0
GR	837.3	403.0	837.3	403.75	837.3	404.5	837.3	405.5	837.3	407.5
GR	857.4	407.5	857.2	500.0	857.5	800.0				
SB	0.0	1.5	2.8	0.0	7.5	0.0	70.0	0.0	837.2	837.1
X1	7535.0	0.0	0.0	0.0	35.0	35.0	35.0	0.0	.10	0.0
X2	0.0	0.0	1.0	848.0	857.1					
X3	10.0							857.4	857.4	
X4	1.0	837.3	403.7							
BT	13.0	0.0	858.0	858.0	300.0	857.6	857.6	400.0	857.4	857.4
BT	400.0	857.4	846.3	402.0	857.4	847.3	403.0	857.4	847.7	403.7
BT	857.4	848.0	404.5	857.4	847.7	405.5	857.4	847.3	407.5	857.4
BT	846.3	407.5	857.4	857.4	500.0	857.1	857.1	800.0	857.5	857.5
X1	7549.0	6.0	390.0	426.0	14.0	14.0	14.0	0.0	.40	0.0
GR	858.0	0.0	857.7	390.0	837.1	390.1	837.1	426.0	857.7	426.1
GR	857.5	800.0								
X1	7585.0	17.0	325.0	331.0	36.0	36.0	36.0	0.0	1.8	0.0
X3	0.0	0.0	0.0	274.0	0.0	382.0				
GR	852.3	0.0	849.0	25.0	839.0	125.0	842.7	225.0	839.3	304.0
GR	837.5	311.0	836.7	325.0	836.2	326.0	835.5	327.0	836.3	329.0
GR	836.8	331.0	836.7	425.0	838.3	456.0	843.9	484.0	844.0	525.0
GR	847.2	625.0	852.5	725.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	9350.0	19.0	690.0	711.0	1600.0	2000.0	1765.0			
X3	0.0	0.0	0.0	590.0	0.0	1290.0				
GR	848.0	0.0	848.2	430.0	848.2	490.0	841.8	590.0	838.5	690.0
GR	837.4	696.0	836.9	700.0	837.6	705.0	838.9	711.0	838.0	790.0
GR	838.0	890.0	838.2	990.0	838.1	1090.0	838.1	1190.0	842.7	1290.0
GR	842.0	1333.0	847.5	1351.0	846.7	1390.0	850.9	1490.0		
NC	0.0	0.0	0.45							
X1	12800.	13.0	800.0	846.0	3500.0	3400.0	3450.0			
X3	0.0	0.0	0.0	700.0	0.0	980.0				
GR	860.0	300.0	850.0	550.0	843.9	600.0	843.5	700.0	844.6	800.0
GR	841.9	811.0	841.1	821.0	841.2	838.0	843.7	846.0	843.4	900.0
GR	847.4	1000.0	848.7	1100.0	857.3	1200.0				

NC	0.0	0.0	0.0	0.3	0.5					
QT	4.0	266.0	423.0	512.0	694.0					
X1	12850.	12.0	290.0	294.1	50.0	50.0	50.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	230.0	0.0	450.0	0.0	0.0	0.0	0.0
GR	854.0	0.0	852.0	100.0	850.0	120.0	848.0	160.0	846.0	290.0
GR	840.9	290.1	840.9	294.0	846.0	294.1	846.0	800.0	848.0	850.0
GR	850.0	1020.0	854.0	1100.0						
SC	1.024	0.6	2.9	0.0	4.0	0.0	35.0	2.3	840.9	840.9
X1	12885.	0.0	0.0	0.0	35.0	35.0	35.0	0.0	0.0	0.0
X2	0.0	0.0	2.0	844.9	849.0	0.0	0.0	0.0	0.0	0.0
X3	10.0	0.0	0.0	230.0	0.0	410.0	0.0	849.0	849.0	0.0
BT	-5.0	130.0	860.0	0.0	131.0	852.0	0.0	280.0	850.0	0.0
BT		410.0	849.0	0.0	411.0	860.0	0.0			
X1	13085.	17.0	145.0	170.0	150.0	250.0	200.0			
X3				90.0						
GR	856.0	0.0	854.0	12.0	852.0	40.0	850.0	50.0	848.0	90.0
GR	846.0	100.0	846.0	140.0	844.0	145.0	841.5	147.0	841.5	161.0
GR	844.0	170.0	846.0	175.0	848.0	225.0	850.0	260.0	852.0	270.0
GR	854.0	300.0	856.0	320.0						
NC	0.0	0.0	0.0	0.2	0.4					
X1	14220.	18.0	500.0	521.0	1200.0	1100.0	1135.0	0.0	-2.2	0.0
X3				400.0		600.0				
GR	862.0		854.2	100.0	851.4	300.0	850.0	400.0	846.7	500.0
GR	845.9	507.0	845.4	511.0	846.1	515.0	847.3	521.0	848.6	528.0
GR	850.0	600.0	851.8	700.0	851.0	723.0	851.0	745.0	848.1	800.0
GR	848.4	900.0	856.6	1000.0	865.4	1055.0				
X1	14550.	12.0	115.0	135.0	330.0	330.0	330.0			
GR	856.0	0.0	852.0	30.0	850.0	70.0	848.0	105.0	846.0	115.0
GR	844.0	117.0	843.5	125.0	844.0	133.0	846.0	135.0	848.0	145.0
GR	850.0	155.0	854.0	165.0						
NC	0.0	0.0	0.0	0.3	0.5					
X1	14750.	12.0	350.0	356.1	200.0	200.0	200.0			
X3	10.0			100.0		376.0		851.0	851.0	
GR	854.0	0.0	852.0	90.0	850.0	220.0	848.0	325.0	846.0	350.0
GR	842.0	350.1	842.0	356.0	848.0	356.1	852.0	366.0	856.0	391.0
GR	858.0	491.0	860.0	551.0						
SC	1.024	0.5	2.9	0.0	6.0	0.0	40.0	2.2	842.0	842.0
X1	14790.	13.0	355.0	361.1	40.0	40.0	40.0			
X2	0.0	0.0	2.0	848.0	853.5					
X3	10.0			80.0		405.0		853.5	853.5	
BT	-6.0	90.0	860.0	0.0	91.0	853.5	0.0	150.0	853.5	0.0
BT		360.0	854.0	0.0	390.0	856.0	0.0	440.0	858.0	0.0
GR	852.0	0.0	850.0	250.0	850.0	350.0	848.0	353.0	846.0	355.0
GR	842.0	355.1	842.0	361.0	846.0	361.1	848.0	370.0	850.0	395.0
GR	852.0	435.0	858.0	490.0	862.0	555.0				

X1	14840.	16.0	400.0	410.0	50.0	50.0	50.0			
X3				75.0		510.0				
GR	852.0	0.0	850.0	20.0	850.0	220.0	848.0	310.0	846.3	375.0
GR	846.0	400.0	844.0	402.0	843.0	405.0	844.0	408.0	846.2	410.0
GR	848.0	450.0	850.0	475.0	852.0	515.0	854.0	545.0	856.0	560.0
GR	860.0	590.0								
NC	0.0	0.0	0.0	0.2	0.4					
X1	15500.	17.0	548.0	558.0	800.0	660.0	660.0			
GR	860.0	0.0	850.0	130.0	850.0	295.0	850.7	315.0	850.0	335.0
GR	848.0	510.0	847.0	548.0	845.0	549.0	845.0	557.0	847.0	558.0
GR	848.0	610.0	850.0	680.0	852.0	700.0	852.0	915.0	854.0	940.0
GR	856.0	980.0	860.0	1025.0						
X1	16800.	12.0	875.0	882.0	1300.0	1300.0	1300.0			
X3				430.0		1665.0				
GR	860.0	0.0	850.0	310.0	849.9	630.0	849.5	875.0	848.2	876.0
GR	848.2	881.0	849.5	882.0	850.0	1570.0	852.0	1610.0	852.0	1780.0
GR	854.0	1830.0	856.0	1900.0						
X1	18100.	18.0	640.0	658.0	1300.0	1300.0	1300.0			
X3				580.0		710.0				
GR	858.0	0.0	856.0	10.0	854.0	40.0	852.0	80.0	852.0	250.0
GR	852.4	300.0	852.0	370.0	851.6	450.0	852.0	530.0	852.5	590.0
GR	852.0	640.0	850.9	645.0	850.9	650.0	852.0	658.0	854.0	665.0
GR	856.0	690.0	858.0	760.0	860.0	810.0				

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

*PROF 1

CCHV= 0.300 CEHV= 0.500
*SECNO 1740.000

3470 ENCROACHMENT STATIONS= 190.0 590.0 TYPE= 1 TARGET= -190.000

1740.000	2.75	834.65	0.00	833.00	834.66	0.00	0.00	0.00	832.00
290.0	145.4	20.9	123.7	477.8	60.5	416.8	0.0	0.0	832.00
0.00	0.30	0.35	0.30	0.110	0.100	0.110	0.000	831.90	190.00
0.000141	0.	0.	0.	0	0	4	0.00	372.62	562.62

Red Cedar River
842.5

*SECNO 2460.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.40

3470 ENCROACHMENT STATIONS= 300.0 450.0 TYPE= 1 TARGET= 150.000

2460.000	2.96	834.86	0.00	0.00	834.87	0.01	0.21	0.00	832.00
290.0	110.1	58.4	121.5	143.0	65.0	159.6	11.2	4.3	832.00
0.26	0.77	0.90	0.76	0.110	0.100	0.110	0.000	831.90	300.00
0.000861	660.	720.	820.	2	0	0	0.00	138.60	438.60

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.31

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 835.40 ELREA= 835.40

2700.000	-3.20	835.20	0.00	0.00	835.49	0.29	0.48	0.14	832.50
290.0	0.0	290.0	0.0	0.0	67.5	0.0	12.3	4.8	832.50
0.27	0.00	4.30	0.00	0.000	0.070	0.000	0.000	832.00	515.00
0.009163	220.	240.	240.	2	0	0	0.00	21.10	536.10

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 836.878 EGOC = 837.210 PCWSE= 835.198 ELTRD= 838.300

SEQUOIA TRAIL

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.17

$1.9 + \frac{29.1(.074)^2 82}{(4.5/4)^{4/3}} = 3.07$

$D = 1.76$

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
836.88	837.21	1.72	0.	290.	2.698	47.7	838.30	0.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 838.30 ELREA= 838.30

837.4

2782.000	5.10	837.10	0.00	0.00	837.21	0.11	1.72	0.00	832.50
290.0	0.0	290.0	0.0	0.0	107.5	0.0	12.5	4.8	832.50
0.28	0.00	2.70	0.00	0.000	0.070	0.000	0.000	832.00	570.00
0.001938	82.	82.	82.	2	0	0	0.00	21.10	591.10

RED CEDAR

842.5

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.48

3470 ENCROACHMENT STATIONS= 400.0 1131.0 TYPE= 1 TARGET= 731.000

3182.000	5.07	837.27	0.00	0.00	837.27	0.00	0.02	0.03	833.30
290.0	224.4	17.0	48.6	1741.9	105.1	434.0	26.7	8.5	833.30
1.28	0.13	0.16	0.11	0.110	0.100	0.110	0.000	832.20	400.00
0.000015	560.	400.	400.	2	0	0	0.00	605.72	1005.72

CCHV= 0.200 CEHV= 0.400

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

*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.13

5220.000	3.80	837.30	0.00	0.00	837.39	0.09	0.08	0.04	834.00
290.0	49.6	233.3	7.1	88.2	86.1	13.0	75.2	22.8	834.00
1.51	0.56	2.71	0.54	0.110	0.040	0.110	0.000	833.50	150.35
0.000922	1600.	2038.	2038.	3	0	0	0.00	120.56	270.91

CCHV= 0.100 CEHV= 0.300
*SECNO 5800.000

5800.000	4.08	837.88	0.00	0.00	837.95	0.06	0.55	0.00	836.00
290.0	50.6	180.9	58.5	81.3	72.9	97.2	78.1	24.5	836.00
1.60	0.62	2.48	0.60	0.110	0.040	0.110	0.000	833.80	102.55
0.000987	580.	580.	580.	2	0	0	0.00	131.82	234.36

CCHV= 0.100 CEHV= 0.500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 108.0 143.0 TYPE= 1 TARGET= 35.000

6550.000	3.84	838.84	0.00	0.00	839.02	0.18	1.02	0.06	836.70
290.0	6.2	282.1	1.7	8.3	82.2	3.6	81.1	25.9	837.90
1.66	0.75	3.43	0.49	0.110	0.040	0.110	0.000	835.00	108.00
0.001987	750.	750.	750.	2	0	0	0.00	35.00	143.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 839.30 ELREA= 839.30

6600.000	5.18	838.78	0.00	0.00	839.38	0.61	0.15	0.21	836.70
290.0	0.0	290.0	0.0	0.0	46.4	0.0	81.2	26.0	833.60
1.66	0.00	6.25	0.00	0.000	0.040	0.000	0.000	833.60	314.00
0.004655	50.	50.	50.	2	0	0	0.00	9.00	323.00

Rev Cedar

842.5

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.42

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
840.37	839.38	0.00	0.	290.	35.	41.	838.10	842.40	0.

Mt. Hope

842.5 Red Cedar

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 842.40 ELREA= 842.40

6675.000	6.38	839.98	0.00	0.00	840.37	0.40	0.99	0.00	836.70
290.0	0.0	290.0	0.0	0.0	57.3	0.0	81.3	26.0	833.60
1.67	0.00	5.07	0.00	0.000	0.040	0.000	0.000	833.60	314.00
0.002315	75.	75.	75.	2	0	0	0.00	9.00	323.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.63

3470 ENCROACHMENT STATIONS= 140.0 255.0 TYPE= 1 TARGET= 115.000

6725.000	4.89	840.49	0.00	0.00	840.52	0.03	0.04	0.11	836.70
290.0	74.5	163.9	51.6	149.5	90.9	115.6	81.5	26.0	837.90
1.68	0.50	1.80	0.45	0.110	0.040	0.110	0.000	835.60	140.00
0.000334	50.	50.	50.	2	0	0	0.00	115.00	255.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.37

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

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	4.92	840.92	0.00	0.00	841.12	0.20	0.52	0.08	836.70
290.0	70.0	136.5	83.5	50.1	27.6	57.8	85.6	27.3	836.80
1.74	1.40	4.95	1.44	0.110	0.040	0.110	0.000	836.00	312.00
0.002434	725.	725.	725.	2	0	0	0.00	33.00	345.00

*SECNO 7486.000

7486.000	3.87	840.97	0.00	0.00	841.31	0.34	0.12	0.07	857.70
290.0	0.0	290.0	0.0	0.0	61.7	0.0	85.7	27.3	857.70
1.74	0.00	4.70	0.00	0.000	0.040	0.000	0.000	837.10	400.08
0.004466	36.	36.	36.	0	0	0	0.00	15.94	416.02

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	3.58	840.68	840.68	0.00	842.49	1.81	0.14	0.73	857.20
290.0	0.0	290.0	0.0	0.0	26.9	0.0	85.7	27.3	857.20
1.74	0.00	10.80	0.00	0.000	0.040	0.000	0.000	837.10	400.00
0.037701	14.	14.	14.	20	11	0	0.00	7.50	407.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.80	0.00	7.50	0.00	70.00	0.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 842.596 ELLC= 848.000 PCWSE= 840.681 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

Red Cedar
842.5

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.76

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	5.54	842.74	0.00	0.00	843.50	0.76	0.69	0.32	857.30
290.0	0.0	290.0	0.0	0.0	41.5	0.0	85.7	27.3	857.30
1.75	0.00	6.99	0.00	0.000	0.040	0.000	0.000	837.20	400.00
0.012171	35.	35.	35.	4	0	0	0.00	7.50	407.50

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 9.55

7549.000	6.20	843.70	0.00	0.00	843.73	0.03	0.01	0.22	858.10
290.0	0.0	290.0	0.0	0.0	222.7	0.1	85.8	27.3	837.50
1.75	0.00	1.30	0.00	0.000	0.040	0.110	0.000	837.50	190.07
0.000133	14.	14.	14.	2	0	0	0.00	35.96	426.03

*SECNO 7585.000

3470 ENCROACHMENT STATIONS= 274.0 382.0 TYPE= 1 TARGET= 108.000

7585.000	6.42	843.72	0.00	0.00	843.74	0.01	0.01	0.00	838.50
290.0	72.4	60.8	156.8	151.4	34.3	262.6	86.0	27.4	838.60
1.76	0.48	1.77	0.60	0.110	0.040	0.110	0.000	837.30	274.00
0.000250	36.	36.	36.	2	0	0	0.00	108.00	382.00

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 8.27

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

3470 ENCROACHMENT STATIONS= 590.0 1290.0 TYPE= 1 TARGET= 700.000

9350.000	6.86	843.76	0.00	0.00	843.76	0.00	0.02	0.00	838.50
290.0	21.7	29.6	238.7	361.0	126.9	3024.6	174.2	45.2	838.90
7.42	0.06	0.23	0.08	0.110	0.040	0.110	0.000	836.90	590.00
0.000004	1600.	1765.	2000.	2	0	0	0.00	700.00	1290.00

*SECNO 12800.000

3235 SLOPE TOO STEEP, EXCEEDS 0.10

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.00

3470 ENCROACHMENT STATIONS= 700.0 980.0 TYPE= 1 TARGET= 280.000

12800.000	2.62	843.72	0.00	0.00	843.87	0.14	0.05	0.06	844.60
290.0	4.4	257.8	27.7	2.3	83.1	10.8	315.6	77.5	843.70
7.73	1.90	3.10	2.56	0.110	0.450	0.110	0.000	841.10	700.00
0.368124	1600.	3450.	3400.	3	0	0	0.00	125.16	908.15

CCHV= 0.300 CEHV= 0.500
*SECNO 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.77

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	5.93	846.83	0.00	0.00	846.87	0.04	2.97	0.03	846.00
266.0	24.5	16.4	225.1	22.2	23.8	128.7	315.7	77.7	846.00
7.74	1.11	0.69	1.75	0.110	0.450	0.110	0.000	840.90	206.32
0.021771	50.	50.	50.	7	0	0	0.00	213.68	450.00

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 867.84..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 862.05 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 12.12

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
867.84	862.05	3.10	124.	140.	0.076	12.6	849.00	127.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.97	849.97	0.00	0.00	849.97	0.00	3.10	0.00	846.00
266.0	77.4	2.8	185.8	210.7	36.7	460.4	316.1	77.9	846.00
7.76	0.37	0.08	0.40	0.110	0.450	0.110	0.000	840.90	230.00
0.000148	35.	35.	35.	0	0	0	0.00	180.00	410.00

*SECNO 13085.000

3470 ENCROACHMENT STATIONS= 90.0 320.0 TYPE= 1 TARGET= -90.000

13085.000	8.51	850.01	0.00	0.00	850.02	0.00	0.04	0.00	844.00
266.0	124.1	43.7	98.2	215.4	198.9	210.7	319.3	78.7	844.00
7.88	0.58	0.22	0.47	0.110	0.450	0.110	0.000	841.50	90.00
0.000302	150.	200.	250.	2	0	0	0.00	170.04	260.04

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

14220.000	7.04	850.24	0.00	0.00	850.24	0.00	0.22	0.00	844.50
266.0	161.4	17.0	87.6	408.9	131.3	257.4	338.1	83.6	845.10
8.78	0.39	0.13	0.34	0.110	0.450	0.110	0.000	843.20	400.00
0.000135	1200.	1135.	1100.	2	0	0	0.00	200.00	600.00

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

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.19

14550.000	6.85	850.35	0.00	0.00	850.38	0.02	0.13	0.01	846.00
266.0	108.7	83.0	74.3	82.0	127.0	47.2	342.1	84.7	846.00
8.85	1.33	0.65	1.58	0.110	0.450	0.110	0.000	843.50	62.98
0.003705	330.	330.	330.	2	0	0	0.00	92.90	155.88

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	9.01	851.01	845.96	0.00	851.02	0.01	0.32	3.46	846.00
266.0	248.0	12.3	5.7	344.8	54.5	11.2	343.6	85.4	848.00
8.93	0.72	0.23	0.51	0.110	0.450	0.110	0.000	842.00	154.25
0.000905	200.	200.	200.	20	11	0	0.00	209.30	363.55

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

*SECNO 14790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.83

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
850.42	853.61	2.54	3.	263.	0.076	28.3	853.50	85.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	11.56	853.56	0.00	0.00	853.56	0.00	2.54	0.00	846.00
266.0	199.6	5.3	61.0	872.8	70.1	205.6	344.3	85.7	846.00
8.98	0.23	0.08	0.30	0.110	0.450	0.110	0.000	842.00	80.00
0.000062	40.	40.	40.	0	0	0	0.00	325.00	405.00

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

*SECNO 14840.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.36

3470 ENCROACHMENT STATIONS= 75.0 510.0 TYPE= 1 TARGET= 435.000

14840.000	10.56	853.56	0.00	0.00	853.56	0.00	0.00	0.00	846.00
266.0	199.8	4.1	62.1	1529.3	94.4	466.6	346.2	86.1	846.20
9.09	0.13	0.04	0.13	0.110	0.450	0.110	0.000	843.00	75.00
0.000011	50.	50.	50.	2	0	0	0.00	435.00	510.00

CCHV= 0.200 CEHV= 0.400

*SECNO 15500.000

15500.000	8.57	853.57	0.00	0.00	853.57	0.00	0.01	0.00	847.00
266.0	172.6	2.6	90.8	1835.2	83.8	1043.2	389.9	97.1	847.00
11.40	0.09	0.03	0.09	0.110	0.450	0.110	0.000	845.00	83.47
0.000007	800.	660.	660.	1	0	0	0.00	851.26	934.74

*SECNO 16800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.48

3470 ENCROACHMENT STATIONS= 430.0 1665.0 TYPE= 1 TARGET= 1235.000

16800.000	5.38	853.58	0.00	0.00	853.58	0.00	0.01	0.00	849.50
266.0	99.5	0.6	165.9	1680.9	36.4	2826.2	501.9	128.2	849.50
17.54	0.06	0.02	0.06	0.110	0.450	0.110	0.000	848.20	430.00
0.000003	1300.	1300.	1300.	0	0	0	0.00	1235.00	1665.00

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.01

3470 ENCROACHMENT STATIONS= 580.0 710.0 TYPE= 1 TARGET= 130.000

18100.000	2.63	853.53	0.00	0.00	853.64	0.11	0.02	0.04	852.00
266.0	215.7	41.9	8.4	74.5	40.1	4.1	571.4	147.9	852.00
17.68	2.90	1.04	2.05	0.110	0.450	0.110	0.000	850.90	580.00
0.034881	1300.	1300.	1300.	2	0	0	0.00	83.34	663.34

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 1740.000

3470 ENCROACHMENT STATIONS= 190.0 590.0 TYPE= 1 TARGET= -190.000

1740.000	3.62	835.52	0.00	833.00	835.52	0.00	0.00	0.00	832.00
470.0	232.9	33.2	204.0	633.9	79.6	566.2	0.0	0.0	832.00
0.00	0.37	0.42	0.36	0.110	0.100	0.110	0.000	831.90	190.00
0.000142	0.	0.	0.	0	0	4	0.00	376.09	566.09

*SECNO 2460.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.68

3470 ENCROACHMENT STATIONS= 200.0 450.0 TYPE= 1 TARGET= 250.000

2460.000	3.76	835.66	0.00	834.86	835.67	0.00	0.14	0.00	832.00
470.0	304.2	52.0	113.8	549.7	82.7	216.4	17.7	5.2	832.00
0.36	0.55	0.63	0.53	0.110	0.100	0.110	0.000	831.90	200.00
0.000307	660.	720.	820.	2	0	0	0.00	246.65	446.65

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.61

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	3.77	835.77	0.00	835.20	835.78	0.01	0.11	0.00	832.50
470.0	348.1	114.6	7.3	503.8	79.4	14.2	21.4	6.5	832.50
0.43	0.69	1.44	0.52	0.110	0.070	0.110	0.000	832.00	300.00
0.000829	220.	240.	240.	2	0	0	0.00	244.77	544.77

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 50-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	3.0	0.0	0.0	.00014	0.0	0.0	0.0	833.0	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.22

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
839.80	838.79	2.97	49.	422.	0.958	47.7	838.30	85.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	6.74	838.74	0.00	837.10	838.75	0.01	2.97	0.00	832.50
470.0	300.0	136.5	33.5	772.5	142.4	90.9	22.9	7.0	832.50
0.47	0.39	0.96	0.37	0.110	0.070	0.110	0.000	832.00	330.00
0.000168	82.	82.	82.	0	0	0	0.00	290.18	620.18

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.62

3182.000	6.56	838.76	0.00	837.27	838.76	0.00	0.01	0.00	833.30
470.0	397.9	15.9	56.3	4144.4	136.7	655.4	59.2	14.5	833.30
1.98	0.10	0.12	0.09	0.110	0.100	0.110	0.000	832.20	66.20
0.000005	560.	400.	400.	2	0	0	0.00	945.15	1011.35

CCHV= 0.200 CEHV= 0.400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.10

5220.000	5.25	838.75	0.00	837.30	838.82	0.07	0.03	0.03	834.00
470.0	153.8	302.2	14.1	300.6	119.5	27.1	162.8	36.7	834.00
2.26	0.51	2.53	0.52	0.110	0.040	0.110	0.000	833.50	68.72
0.000517	1600.	2038.	2038.	2	0	0	0.00	205.69	274.41

CCHV= 0.100 CEHV= 0.300
*SECNO 5800.000

5800.000	5.30	839.10	0.00	837.88	839.15	0.06	0.34	0.00	836.00
470.0	98.5	253.1	118.3	142.4	100.9	179.5	168.6	39.0	836.00
2.35	0.69	2.51	0.66	0.110	0.040	0.110	0.000	833.80	97.08
0.000654	580.	580.	580.	2	0	0	0.00	149.82	246.89

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	4.73	839.73	0.00	838.84	839.86	0.12	0.67	0.03	836.70
470.0	93.4	347.3	29.3	118.7	106.2	60.7	174.7	41.6	837.90
2.43	0.79	3.27	0.48	0.110	0.040	0.110	0.000	835.00	52.20
0.001283	750.	750.	750.	2	0	0	0.00	147.79	200.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.12	839.72	0.00	838.78	840.05	0.33	0.09	0.10	836.70
470.0	116.8	308.7	44.6	91.9	55.0	64.3	175.0	41.8	833.60
2.44	1.27	5.62	0.69	0.110	0.040	0.110	0.000	833.60	260.92
0.003005	50.	50.	50.	2	0	0	0.00	132.30	393.22

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.92

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
843.92	840.86	0.00	54.	417.	35.	41.	838.10	842.40	94.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.40	843.00	0.00	839.98	843.03	0.02	2.97	0.00	836.70
470.0	159.9	161.2	148.9	298.6	84.5	316.3	175.8	42.0	833.60
2.46	0.54	1.91	0.47	0.110	0.040	0.110	0.000	833.60	250.00
0.000196	75.	75.	75.	2	0	4	0.00	150.00	400.00

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

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	7.43	843.03	0.00	840.49	843.04	0.01	0.01	0.00	836.70
470.0	166.2	156.8	147.0	508.7	141.6	457.5	176.8	42.2	837.90
2.48	0.33	1.11	0.32	0.110	0.040	0.110	0.000	835.60	90.00
0.000070	50.	50.	50.	2	0	0	0.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.20

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.05	843.05	0.00	840.92	843.29	0.24	0.14	0.12	836.70
470.0	115.5	221.2	133.3	77.8	40.4	87.7	187.8	44.2	836.80
2.54	1.48	5.48	1.52	0.110	0.040	0.110	0.000	836.00	312.00
0.001798	725.	725.	725.	2	0	0	0.00	33.00	345.00

*SECNO 7486.000

7486.000	5.97	843.07	0.00	840.97	843.45	0.38	0.09	0.07	857.70
470.0	0.0	470.0	0.0	0.0	95.2	0.0	187.9	44.3	857.70
2.54	0.00	4.93	0.00	0.000	0.040	0.000	0.000	837.10	400.07
0.003425	36.	36.	36.	1	0	0	0.00	15.96	416.03

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.11	842.21	0.00	840.68	844.54	2.33	0.11	0.98	857.20
470.0	0.0	470.0	0.0	0.0	38.3	0.0	187.9	44.3	857.20
2.54	0.00	12.26	0.00	0.000	0.040	0.000	0.000	837.10	400.00
0.038930	14.	14.	14.	3	0	0	0.00	7.50	407.50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7585.000	8.75	846.05	0.00	843.72	846.06	0.01	0.01	0.01	838.50
470.0	144.9	89.2	235.9	270.2	48.3	381.3	188.4	44.3	838.60
2.56	0.54	1.85	0.62	0.110	0.040	0.110	0.000	837.30	274.00
0.000172	36.	36.	36.	2	0	0	0.00	108.00	382.00

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.83

3470 ENCROACHMENT STATIONS= 590.0 1290.0 TYPE= 1 TARGET= 700.000

9350.000	9.18	846.08	0.00	843.76	846.08	0.00	0.02	0.00	838.50
470.0	42.8	44.6	382.6	593.4	175.7	4370.1	317.9	62.1	838.90
7.70	0.07	0.25	0.09	0.110	0.040	0.110	0.000	836.90	590.00
0.000003	1600.	1765.	2000.	2	0	0	0.00	700.00	1290.00

*SECNO 12800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.04

3470 ENCROACHMENT STATIONS= 700.0 980.0 TYPE= 1 TARGET= 280.000

12800.000	5.91	846.11	0.00	843.72	846.12	0.01	0.04	0.00	844.60
470.0	188.3	68.6	213.1	206.3	191.3	230.4	544.1	100.2	843.70
8.84	0.91	0.36	0.92	0.110	0.450	0.110	0.000	841.10	700.00
0.001799	3500.	3450.	3400.	2	0	0	0.00	267.83	967.83

CCHV= 0.300 CEHV= 0.500
*SECNO 12850.000

3235 SLOPE TOO STEEP, EXCEEDS 0.10

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	5.52	846.42	846.42	846.83	846.78	0.36	0.29	0.17	846.00
423.0	18.7	66.9	337.4	5.8	22.1	65.7	544.5	100.4	846.00
8.84	3.24	3.02	5.14	0.110	0.450	0.110	0.000	840.90	262.61
0.459261	50.	50.	50.	20	12	0	0.00	187.39	450.00

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 905.72..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 884.92 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 40.11

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
905.72	884.92	3.53	277.	144.	0.108	12.6	849.00	153.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.40	850.30	0.00	849.97	850.31	0.01	3.53	0.00	846.00
423.0	124.6	4.1	294.3	230.7	38.1	499.1	544.9	100.6	846.00
8.86	0.54	0.11	0.59	0.110	0.450	0.110	0.000	840.90	230.00
0.000285	35.	35.	35.	0	0	0	0.00	180.00	410.00

*SECNO 13085.000

3470 ENCROACHMENT STATIONS= 90.0 320.0 TYPE= 1 TARGET= -90.000

13085.000	8.88	850.38	0.00	850.01	850.39	0.01	0.08	0.00	844.00
423.0	194.5	63.8	164.7	236.0	208.3	244.7	548.4	101.4	844.00
8.94	0.82	0.31	0.67	0.110	0.450	0.110	0.000	841.50	90.00
0.000551	150.	200.	250.	4	0	0	0.00	171.91	261.91

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

14220.000	7.57	850.77	0.00	850.24	850.78	0.00	0.39	0.00	844.50
423.0	253.8	25.0	144.2	462.1	142.5	299.4	569.4	106.3	845.10
9.58	0.55	0.18	0.48	0.110	0.450	0.110	0.000	843.20	400.00
0.000223	1200.	1135.	1100.	2	0	0	0.00	200.00	600.00

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

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.22

14550.000	7.45	850.95	0.00	850.35	850.99	0.04	0.20	0.01	846.00
423.0	194.7	109.1	119.2	116.7	139.0	60.1	574.0	107.5	846.00
9.64	1.67	0.79	1.98	0.110	0.450	0.110	0.000	843.50	51.02
0.004748	330.	330.	330.	2	0	0	0.00	106.35	157.37

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	9.43	851.43	0.00	851.01	851.44	0.01	0.45	0.01	846.00
423.0	397.4	15.9	9.7	434.0	57.1	14.6	575.9	108.3	848.00
9.70	0.92	0.28	0.66	0.110	0.450	0.110	0.000	842.00	126.56
0.001298	200.	200.	200.	1	0	0	0.00	238.05	364.61

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

*SECNO 14790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.55

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
856.86	858.01	2.59	158.	266.	0.101	28.3	853.50	270.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	12.03	854.03	0.00	853.56	854.03	0.00	2.59	0.00	846.00
423.0	323.9	7.4	91.7	1002.4	73.0	226.2	576.8	108.5	846.00
9.74	0.32	0.10	0.41	0.110	0.450	0.110	0.000	842.00	80.00
0.000103	40.	40.	40.	0	0	0	0.00	325.00	405.00

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

*SECNO 14840.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.23

3470 ENCROACHMENT STATIONS= 75.0 510.0 TYPE= 1 TARGET= 435.000

14840.000	11.03	854.03	0.00	853.56	854.04	0.00	0.00	0.00	846.00
423.0	318.4	6.0	98.5	1682.7	99.1	513.8	578.8	109.0	846.20
9.81	0.19	0.06	0.19	0.110	0.450	0.110	0.000	843.00	75.00
0.000021	50.	50.	50.	2	0	0	0.00	435.00	510.00

CCHV= 0.200 CEHV= 0.400

*SECNO 15500.000

15500.000	9.05	854.05	0.00	853.57	854.05	0.00	0.01	0.00	847.00
423.0	271.5	3.8	147.7	2054.0	88.5	1220.9	627.7	120.1	847.00
11.46	0.13	0.04	0.12	0.110	0.450	0.110	0.000	845.00	77.39
0.000012	800.	660.	660.	2	0	0	0.00	863.54	940.94

*SECNO 16800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

3470 ENCROACHMENT STATIONS= 430.0 1665.0 TYPE= 1 TARGET= 1235.000

16800.000	5.86	854.06	0.00	853.58	854.06	0.00	0.01	0.00	849.50
423.0	157.8	0.9	264.4	1895.2	39.7	3203.2	754.6	151.4	849.50
15.83	0.08	0.02	0.08	0.110	0.450	0.110	0.000	848.20	430.00
0.000006	1300.	1300.	1300.	1	0	0	0.00	1235.00	1665.00

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.01

3470 ENCROACHMENT STATIONS= 580.0 710.0 TYPE= 1 TARGET= 130.000

18100.000	3.09	853.99	0.00	853.53	854.15	0.16	0.03	0.06	852.00
423.0	351.2	55.4	16.4	102.4	48.5	6.9	833.6	171.1	852.00
15.95	3.43	1.14	2.36	0.110	0.450	0.110	0.000	850.90	580.00
0.032375	1300.	1300.	1300.	2	0	0	0.00	84.97	664.97

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 100-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	4.0	0.0	0.0	.00014	0.0	0.0	0.0	833.0	0.0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 1740.000

3470 ENCROACHMENT STATIONS= 190.0 590.0 TYPE= 1 TARGET= -190.000

1740.000	4.02	835.92	0.00	833.00	835.92	0.00	0.00	0.00	832.00
560.0	276.3	39.2	244.5	705.1	88.3	635.4	0.0	0.0	832.00
0.00	0.39	0.44	0.38	0.110	0.100	0.110	0.000	831.90	190.00
0.000140	0.	0.	0.	0	0	5	0.00	377.67	567.67

*SECNO 2460.000
3280 CROSS SECTION 2460.00 EXTENDED 0.06 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.68

3470 ENCROACHMENT STATIONS= 200.0 450.0 TYPE= 1 TARGET= 250.000

2460.000	4.16	836.06	0.00	834.86	836.07	0.01	0.14	0.00	832.00
560.0	360.7	61.6	137.8	608.9	91.4	246.6	19.7	5.3	832.00
0.34	0.59	0.67	0.56	0.110	0.100	0.110	0.000	831.90	200.00
0.000308	660.	720.	820.	2	0	0	0.00	250.00	450.00

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	4.16	836.16	0.00	835.20	836.17	0.01	0.10	0.00	832.50
560.0	433.2	127.5	9.3	587.8	87.7	17.8	24.0	6.5	832.50
0.41	0.72	1.45	0.53	0.110	0.070	0.110	0.000	832.00	300.00
0.000738	220.	240.	240.	2	0	0	0.00	245.81	545.81

Red Cedar
100-YR
842.5

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

*SECNO 2782.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.99

SEQUOIA TRAIL

Red Cedar

842.5

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
842.05	840.10	2.89	127.	436.	1.038	47.7	838.30	116.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.05	839.05	0.00	837.10	839.06	0.01	2.89	0.00	832.50
560.0	366.4	154.5	40.1	846.1	148.8	100.0	25.7	7.0	832.50
0.45	0.43	1.04	0.40	0.110	0.070	0.110	0.000	832.00	330.00
0.000186	41.	82.	82.	0	0	0	0.00	291.61	621.61

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.45

3182.000	6.87	839.07	0.00	837.27	839.07	0.00	0.01	0.00	833.30
560.0	473.3	18.6	68.1	4383.1	143.1	701.9	64.3	14.6	833.30
1.79	0.11	0.13	0.10	0.110	0.100	0.110	0.000	832.20	64.66
0.000006	560.	400.	400.	2	0	0	0.00	947.84	1012.50

CCHV= 0.200 CEHV= 0.400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

5220.000	5.56	839.06	0.00	837.30	839.13	0.07	0.04	0.03	834.00
560.0	200.1	342.6	17.3	354.3	126.7	30.8	174.8	36.9	834.00
2.05	0.56	2.70	0.56	0.110	0.040	0.110	0.000	833.50	64.07
0.000548	1600.	2038.	2038.	2	0	0	0.00	211.85	275.93

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5800.000

5800.000	5.63	839.43	0.00	837.88	839.49	0.06	0.36	0.00	836.00
560.0	120.7	292.7	146.5	159.9	108.4	204.2	181.3	39.4	836.00
2.15	0.75	2.70	0.72	0.110	0.040	0.110	0.000	833.80	95.61
0.000688	580.	580.	580.	2	0	0	0.00	154.67	250.27

CCHV= 0.300 CEHV= 0.500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	5.07	840.07	0.00	838.84	840.20	0.13	0.68	0.03	836.70
560.0	119.0	394.0	47.0	139.3	115.4	81.5	188.3	42.0	837.90
2.22	0.85	3.41	0.58	0.110	0.040	0.110	0.000	835.00	50.60
0.001251	750.	750.	750.	2	0	0	0.00	149.40	200.00

*SECNO 6600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.65

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	6.17	840.07	0.00	838.78	840.39	0.33	0.09	0.10	836.70
560.0	148.7	337.7	73.6	111.3	58.1	90.2	188.6	42.2	833.60
2.23	1.34	5.82	0.82	0.110	0.040	0.110	0.000	833.60	254.71
0.002997	50.	50.	50.	2	0	0	0.00	145.29	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.59

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

Red Cedar

842.5

Mt. Hope

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	BV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	WEIRLN
846.03	841.51	0.00	147.	414.	35.	41.	838.10	842.40	133.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	9.70	843.30	0.00	839.98	843.33	0.03	2.94	0.00	836.70
560.0	192.4	185.4	182.2	317.8	87.2	339.4	189.5	42.4	833.60
2.25	0.61	2.13	0.54	0.110	0.040	0.110	0.000	833.60	250.00
0.000233	75.	75.	75.	2	0	5	0.00	150.00	400.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	7.73	843.33	0.00	840.49	843.34	0.01	0.01	0.01	836.70
560.0	199.6	183.8	176.7	539.1	147.7	484.9	190.6	42.6	837.90
2.27	0.37	1.24	0.36	0.110	0.040	0.110	0.000	835.60	90.00
0.000083	50.	50.	50.	2	0	0	0.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.19

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.35	843.35	0.00	840.92	843.66	0.31	0.17	0.15	836.70
560.0	137.6	264.1	158.4	81.6	42.2	91.8	202.1	44.7	836.80
2.32	1.69	6.26	1.72	0.110	0.040	0.110	0.000	836.00	312.00
0.002217	725.	725.	725.	2	0	0	0.00	33.00	345.00

*SECNO 7486.000

7486.000	6.27	843.37	0.00	840.97	843.86	0.49	0.11	0.09	857.70
560.0	0.0	560.0	0.0	0.0	99.9	0.0	202.3	44.7	857.70
2.32	0.00	5.61	0.00	0.000	0.040	0.000	0.000	837.10	400.07
0.004265	36.	36.	36.	2	0	0	0.00	15.96	416.03

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

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	5.55	842.65	842.65	840.68	845.46	2.81	0.14	1.16	857.20
560.0	0.0	560.0	0.0	0.0	41.7	0.0	202.3	44.7	857.20
2.32	0.00	13.44	0.00	0.000	0.040	0.000	0.000	837.10	400.00
0.044704	14.	14.	14.	4	11	0	0.00	7.50	407.50

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.50	2.80	0.00	7.50	0.00	70.00	0.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 845.565 ELLC= 848.000 PCWSE= 842.655 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.66

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	8.38	845.58	0.00	842.74	846.82	1.23	0.89	0.47	857.30
560.0	0.0	560.0	0.0	0.0	62.8	0.0	202.3	44.7	857.30
2.32	0.00	8.92	0.00	0.000	0.040	0.000	0.000	837.20	400.00
0.016263	35.	35.	35.	4	0	0	0.00	7.50	407.50

C&O Railroad

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

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 11.33

7549.000	9.64	847.14	0.00	843.70	847.18	0.04	0.01	0.36	858.10
560.0	0.0	560.0	0.0	0.0	346.4	0.2	202.4	44.7	837.50
2.33	0.00	1.62	0.01	0.000	0.040	0.110	0.000	837.50	390.05
0.000127	14.	14.	14.	2	0	0	0.00	35.99	426.05

*SECNO 7585.000

3470 ENCROACHMENT STATIONS= 274.0 382.0 TYPE= 1 TARGET= 108.000

7585.000	9.88	847.18	0.00	843.72	847.19	0.01	0.00	0.01	838.50
560.0	182.4	103.4	274.2	327.8	55.1	439.0	202.9	44.7	838.60
2.34	0.56	1.88	0.62	0.110	0.040	0.110	0.000	837.30	274.00
0.000149	36.	36.	36.	2	0	0	0.00	108.00	382.00

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.72

3470 ENCROACHMENT STATIONS= 590.0 1290.0 TYPE= 1 TARGET= 700.000

9350.000	10.31	847.21	0.00	843.76	847.21	0.00	0.01	0.00	838.50
560.0	53.6	52.0	454.3	706.2	199.4	5023.2	352.4	62.5	838.90
7.32	0.08	0.26	0.09	0.110	0.040	0.110	0.000	836.90	590.00
0.000003	1600.	1765.	2000.	2	0	0	0.00	700.00	1290.00

*SECNO 12800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.06

3470 ENCROACHMENT STATIONS= 700.0 980.0 TYPE= 1 TARGET= 280.000

12800.000	6.14	847.24	0.00	843.72	847.25	0.01	0.03	0.00	844.60
560.0	231.2	61.2	267.6	318.8	243.1	378.2	621.9	101.0	843.70
8.76	0.73	0.25	0.71	0.110	0.450	0.110	0.000	841.10	700.00
0.000645	3500.	3450.	3400.	2	0	0	0.00	280.00	980.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.18

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	6.40	847.30	0.00	846.83	847.36	0.06	0.08	0.03	846.00
512.0	77.4	16.4	418.2	50.1	25.7	202.2	622.6	101.3	846.00
8.77	1.54	0.64	2.07	0.110	0.450	0.110	0.000	840.90	230.00
0.016761	50.	50.	50.	2	0	0	0.00	220.00	450.00

work flow → no imp.

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

BENNETT RD

5130, EGIC= 934.86 ..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 903.70 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 6.74

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
934.86	903.70	3.11	371.	145.	0.124	12.6	849.00	165.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.56	850.46	0.00	849.97	850.47	0.01	3.11	0.00	846.00
512.0	151.5	4.8	355.7	240.4	38.7	517.9	623.0	101.5	846.00
8.78	0.63	0.12	0.69	0.110	0.450	0.110	0.000	840.90	230.00
0.000369	35.	35.	35.	0	0	0	0.00	180.00	410.00

*SECNO 13085.000

3470 ENCROACHMENT STATIONS= 90.0 320.0 TYPE= 1 TARGET= -90.000

13085.000	9.06	850.56	0.00	850.01	850.57	0.01	0.10	0.00	844.00
512.0	233.8	74.4	203.8	245.6	212.7	260.9	626.7	102.4	844.00
8.85	0.95	0.35	0.78	0.110	0.450	0.110	0.000	841.50	90.00
0.000700	150.	200.	250.	2	0	0	0.00	172.78	262.78

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

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.61

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

14220.000	7.84	851.04	0.00	850.24	851.05	0.01	0.47	0.00	844.50
512.0	305.7	29.3	177.0	489.3	148.2	320.9	648.9	107.3	845.10
9.41	0.62	0.20	0.55	0.110	0.450	0.110	0.000	843.20	400.00
0.000269	1200.	1135.	1100.	2	0	0	0.00	200.00	600.00

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.23

14550.000	7.75	851.25	0.00	850.35	851.30	0.05	0.23	0.02	846.00
512.0	247.0	121.0	144.0	137.0	145.0	67.0	653.8	108.4	846.00
9.47	1.80	0.83	2.15	0.110	0.450	0.110	0.000	843.50	44.95
0.005065	330.	330.	330.	2	0	0	0.00	113.18	158.13

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.98

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	9.75	851.75	0.00	851.01	851.77	0.01	0.46	0.01	846.00
512.0	482.0	16.8	12.2	507.6	59.0	17.4	656.0	109.3	848.00
9.53	0.95	0.28	0.70	0.110	0.450	0.110	0.000	842.00	106.09
0.001293	200.	200.	200.	2	0	0	0.00	259.30	365.39

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

Private Culvert

*SECNO 14790.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.92

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
861.68	861.38	2.25	150.	360.	0.123	28.3	853.50	269.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	12.02	854.02	0.00	853.56	854.02	0.00	2.25	0.00	846.00
512.0	391.9	9.0	111.2	998.9	72.9	225.7	656.8	109.6	846.00
9.55	0.39	0.12	0.49	0.110	0.450	0.110	0.000	842.00	80.00
0.000152	40.	40.	40.	0	0	0	0.00	325.00	405.00

*SECNO 14840.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.23

3470 ENCROACHMENT STATIONS= 75.0 510.0 TYPE= 1 TARGET= 435.000

14840.000	11.02	854.02	0.00	853.56	854.02	0.00	0.00	0.00	846.00
512.0	385.4	7.3	119.3	1678.8	99.0	512.6	658.9	110.0	846.20
9.61	0.33	0.07	0.23	0.110	0.450	0.110	0.000	843.00	75.00
0.000030	50.	50.	50.	2	0	0	0.00	435.00	510.00

CCHV= 0.200 CEHV= 0.400

*SECNO 15500.000

15500.000	9.04	854.04	0.00	853.57	854.04	0.00	0.02	0.00	847.00
512.0	328.7	4.6	178.7	2051.2	88.4	1218.6	707.7	121.1	847.00
10.98	0.16	0.05	0.15	0.110	0.450	0.110	0.000	845.00	77.47
0.000018	800.	660.	660.	2	0	0	0.00	863.35	940.82

*SECNO 16800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

3470 ENCROACHMENT STATIONS= 430.0 1665.0 TYPE= 1 TARGET= 1235.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
16800.000	5.86	854.06	0.00	853.58	854.06	0.00	0.02	0.00	849.50
512.0	191.0	1.1	320.0	1895.9	39.8	3204.5	834.5	152.4	849.50
14.59	0.10	0.03	0.10	0.110	0.450	0.110	0.000	848.20	430.00
0.000008	1300.	1300.	1300.	1	0	0	0.00	1235.00	1665.00

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.01

3470 ENCROACHMENT STATIONS= 580.0 710.0 TYPE= 1 TARGET= 130.000

18100.000	3.05	853.95	0.00	853.53	854.19	0.24	0.04	0.10	852.00
512.0	424.6	67.8	19.5	100.2	47.8	6.7	913.5	172.1	852.00
14.68	4.24	1.42	2.92	0.110	0.450	0.110	0.000	850.90	580.00
0.050883	1300.	1300.	1300.	2	0	0	0.00	84.84	664.84

T1MERIDIAN TOWNSHIP FIS
T2UPDATED 500-YEAR FLOOD STS CONSULTANTS LTD. 12/93 MMW
T3HERRON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.0	5.0	0.0	0.0	.00014	0.0	0.0	0.0	833.0	0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 1740.000

3470 ENCROACHMENT STATIONS= 190.0 590.0 TYPE= 1 TARGET= -190.000

1740.000	4.75	836.65	0.00	833.00	836.65	0.00	0.00	0.00	832.00
750.0	367.2	51.9	330.8	836.5	104.3	765.0	0.0	0.0	832.00
0.00	0.44	0.50	0.43	0.110	0.100	0.110	0.000	831.90	190.00
0.000141	0.	0.	0.	0	0	5	0.00	381.56	571.56

*SECNO 2460.000
3280 CROSS SECTION 2460.00 EXTENDED 0.79 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.67

3470 ENCROACHMENT STATIONS= 200.0 450.0 TYPE= 1 TARGET= 250.000

2460.000	4.89	836.79	0.00	834.86	836.80	0.01	0.15	0.00	832.00
750.0	478.3	81.4	190.3	718.6	107.5	303.7	23.6	5.3	832.00
0.30	0.67	0.76	0.63	0.110	0.100	0.110	0.000	831.90	200.00
0.000313	660.	720.	820.	2	0	0	0.00	250.00	450.00

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.70

3470 ENCROACHMENT STATIONS= 300.0 678.0 TYPE= 1 TARGET= -300.000

2700.000	4.88	836.88	0.00	835.20	836.90	0.01	0.10	0.00	832.50
750.0	580.7	155.2	14.1	744.0	103.0	25.5	28.8	6.6	832.50
0.37	0.78	1.51	0.55	0.110	0.070	0.110	0.000	832.00	300.00
0.000640	220.	240.	240.	2	0	0	0.00	247.73	547.73

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	3	0.024	0.60	2.90	0.00	4.50	0.00	82.00	2	3	832.00	832.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 848.09..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 847.54 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 2782.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.62

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
848.09	847.54	2.57	300.	456.	1.234	47.7	838.30	158.

3470 ENCROACHMENT STATIONS= 330.0 662.0 TYPE= 1 TARGET= -330.000

2782.000	7.46	839.46	0.00	837.10	839.47	0.01	2.57	0.00	832.50
750.0	561.4	194.6	54.0	946.1	157.6	113.1	30.7	7.1	832.50
0.40	0.53	1.23	0.48	0.110	0.070	0.110	0.000	832.00	330.00
0.000244	82.	82.	82.	0	0	0	0.00	293.55	623.55

*SECNO 3182.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.25

3182.000	7.29	839.49	0.00	837.27	839.49	0.00	0.01	0.00	833.30
750.0	632.7	24.4	92.9	4709.9	152.0	766.0	72.6	14.7	833.30
1.48	0.13	0.16	0.12	0.110	0.100	0.110	0.000	832.20	62.56
0.000009	560.	400.	400.	2	0	0	0.00	951.53	1014.08

CCHV= 0.200 CEHV= 0.400
*SECNO 5220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.11

5220.000	5.38	839.48	0.00	837.30	839.58	0.09	0.05	0.04	834.00
750.0	294.6	430.5	25.0	430.1	136.4	37.6	192.5	37.4	834.00
1.72	0.68	3.16	0.66	0.110	0.040	0.110	0.000	833.50	57.73
0.000676	1600.	2038.	2038.	2	0	0	0.00	224.54	282.27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5800.000

5800.000	6.12	839.92	0.00	837.88	840.01	0.08	0.43	0.00	836.00
750.0	166.6	375.0	208.3	187.5	119.8	244.0	200.2	39.9	836.00
1.80	0.89	3.13	0.85	0.110	0.040	0.110	0.000	833.80	93.37
0.000809	580.	580.	580.	2	0	0	0.00	162.32	255.69

CCHV= 0.300 CEHV= 0.500
*SECNO 6550.000

3470 ENCROACHMENT STATIONS= 50.0 200.0 TYPE= 1 TARGET= 150.000

6550.000	5.64	840.64	0.00	838.84	840.79	0.15	0.75	0.03	836.70
750.0	172.6	491.7	85.6	174.7	130.8	116.4	208.6	42.6	837.90
1.87	0.99	3.76	0.74	0.110	0.040	0.110	0.000	835.00	50.00
0.001283	750.	750.	750.	2	0	0	0.00	150.00	200.00

*SECNO 6600.000

3302 *WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,* KRATIO = 0.66

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6600.000	7.05	840.65	0.00	838.78	840.97	0.32	0.09	0.08	836.70
750.0	216.9	389.4	143.7	148.1	63.3	135.3	209.0	42.8	833.60
1.88	1.46	6.15	1.06	0.110	0.040	0.110	0.000	833.60	250.00
0.002983	50.	50.	50.	2	0	0	0.00	150.00	400.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.90	0.00	9.00	0.00	35.00	0.00	833.60	833.60

*SECNO 6675.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.99

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	EV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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	WEIRLN
851.35	842.83	0.00	353.	403.	35.	41.	838.10	842.40	170.

3470 ENCROACHMENT STATIONS= 250.0 400.0 TYPE= 1 TARGET= 150.000

6675.000	10.11	843.71	0.00	839.98	843.74	0.04	2.77	0.00	836.70
750.0	260.5	237.7	251.7	343.5	90.8	370.3	210.0	43.1	833.60
1.89	0.76	2.62	0.68	0.110	0.040	0.110	0.000	833.60	250.00
0.000334	75.	75.	75.	2	0	6	0.00	150.00	400.00

*SECNO 6725.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.67

3470 ENCROACHMENT STATIONS= 90.0 300.0 TYPE= 1 TARGET= 210.000

6725.000	8.15	843.75	0.00	840.49	843.76	0.01	0.01	0.01	836.70
750.0	269.9	241.2	238.9	580.6	156.0	522.2	211.2	43.3	837.90
1.91	0.46	1.55	0.46	0.110	0.040	0.110	0.000	835.60	90.00
0.000119	50.	50.	50.	2	0	0	0.00	210.00	300.00

*SECNO 7450.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.19

3470 ENCROACHMENT STATIONS= 312.0 345.0 TYPE= 1 TARGET= 33.000

7450.000	7.75	843.75	0.00	840.92	844.25	0.50	0.24	0.24	836.70
750.0	184.1	354.6	211.3	86.8	44.5	97.4	223.6	45.3	836.80
1.95	2.12	7.96	2.17	0.110	0.040	0.110	0.000	836.00	312.00
0.003329	725.	725.	725.	2	0	0	0.00	33.00	345.00

*SECNO 7486.000

7486.000	6.68	843.78	0.00	840.97	844.55	0.77	0.16	0.13	857.70
750.0	0.0	750.0	0.0	0.0	106.4	0.0	223.7	45.3	857.70
1.95	0.00	7.05	0.00	0.000	0.040	0.000	0.000	837.10	400.07
0.006444	36.	36.	36.	2	0	0	0.00	15.96	416.03

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

*SECNO 7500.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.10 ELREA= 857.10

7500.000	6.77	843.87	843.87	840.68	847.26	3.39	0.19	1.31	857.20
750.0	0.0	750.0	0.0	0.0	50.7	0.0	223.7	45.3	857.20
1.95	0.00	14.78	0.00	0.000	0.040	0.000	0.000	837.10	400.00
0.048901	14.	14.	14.	20	5	0	0.00	7.50	407.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.80	0.00	7.50	0.00	70.00	0.00	837.20	837.10

*SECNO 7535.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 847.363 ELLC= 848.000 PCWSE= 843.866 ELTRD= 857.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.43

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 857.10 MAX ELLC= 848.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 857.40 ELREA= 857.40

7535.000	10.16	847.36	0.00	842.74	848.96	1.60	1.16	0.54	857.30
750.0	0.0	750.0	0.0	0.0	73.9	0.0	223.8	45.3	857.30
1.95	0.00	10.15	0.00	0.000	0.040	0.000	0.000	837.20	400.00
0.024053	35.	35.	35.	5	0	0	-2.25	7.50	407.50

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

*SECNO 7549.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 14.13

7549.000	11.88	849.38	0.00	843.70	849.43	0.05	0.01	0.47	858.10
750.0	0.0	750.0	0.0	0.0	427.0	0.3	223.8	45.3	837.50
1.96	0.00	1.76	0.01	0.000	0.040	0.110	0.000	837.50	390.04
0.000121	14.	14.	14.	2	0	0	0.00	36.02	426.06

*SECNO 7585.000

3470 ENCROACHMENT STATIONS= 274.0 382.0 TYPE= 1 TARGET= 108.000

7585.000	12.13	849.43	0.00	843.72	849.44	0.02	0.00	0.01	838.50
750.0	262.0	133.9	354.1	442.5	68.6	553.6	224.5	45.4	838.60
1.97	0.59	1.95	0.64	0.110	0.040	0.110	0.000	837.30	274.00
0.000121	36.	36.	36.	2	0	0	0.00	108.00	382.00

CCHV= 0.200 CEHV= 0.400
*SECNO 9350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.61

3470 ENCROACHMENT STATIONS= 590.0 1290.0 TYPE= 1 TARGET= 700.000

9350.000	12.56	849.46	0.00	843.76	849.46	0.00	0.01	0.00	838.50
750.0	76.4	67.6	605.9	930.9	246.6	6324.4	414.0	63.2	838.90
6.69	0.08	0.27	0.10	0.110	0.040	0.110	0.000	836.90	590.00
0.000002	1600.	1765.	2000.	2	0	0	0.00	700.00	1290.00

*SECNO 12800.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.10

3470 ENCROACHMENT STATIONS= 700.0 980.0 TYPE= 1 TARGET= 280.000

12800.000	8.38	849.48	0.00	843.72	849.48	0.00	0.02	0.00	844.60
750.0	307.6	61.3	381.2	543.0	346.2	678.7	770.0	101.7	843.70
8.48	0.57	0.18	0.56	0.110	0.450	0.110	0.000	841.10	700.00
0.000199	3500.	3450.	3400.	2	0	0	0.00	280.00	980.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 12850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.41

3470 ENCROACHMENT STATIONS= 230.0 450.0 TYPE= 1 TARGET= 220.000

12850.000	8.59	849.49	0.00	846.83	849.51	0.01	0.02	0.00	846.00
694.0	158.5	6.6	528.8	181.4	34.7	543.4	771.3	102.0	846.00
8.49	0.87	0.19	0.97	0.110	0.450	0.110	0.000	840.90	230.00
0.001012	50.	50.	50.	0	0	0	0.00	220.00	450.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.60	2.90	0.00	4.00	0.00	35.00	2	3	840.90	840.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 3 - PIPE PROJECTING FROM FILL

5130, EGIC= 1011.72..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 953.12 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 12885.000
SPECIAL CULVERT

EGIC	EGOC	B4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
1011.72	953.12	1.22	545.	148.	0.157	12.6	849.00	184.

3470 ENCROACHMENT STATIONS= 230.0 410.0 TYPE= 1 TARGET= 180.000

12885.000	9.81	850.71	0.00	849.97	850.72	0.01	1.22	0.00	846.00
694.0	206.8	6.2	481.0	255.4	39.7	546.9	771.9	102.1	846.00
8.51	0.81	0.16	0.88	0.110	0.450	0.110	0.000	840.90	230.00
0.000565	35.	35.	35.	1	0	0	0.00	180.00	410.00

*SECNO 13085.000

3470 ENCROACHMENT STATIONS= 90.0 320.0 TYPE= 1 TARGET= -90.000

13085.000	9.36	850.86	0.00	850.01	850.88	0.02	0.15	0.00	844.00
694.0	313.0	94.7	286.3	262.9	220.5	290.3	775.8	103.0	844.00
8.56	1.19	0.43	0.99	0.110	0.450	0.110	0.000	841.50	90.00
0.001006	150.	200.	250.	0	0	0	0.00	174.35	264.35

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

CCHV= 0.200 CEHV= 0.400
*SECNO 14220.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

14220.000	8.32	851.52	0.00	850.24	851.53	0.01	0.65	0.00	844.50
694.0	411.2	37.7	245.0	537.3	158.3	358.9	800.0	107.9	845.10
9.02	0.77	0.24	0.68	0.110	0.450	0.110	0.000	843.20	400.00
0.000358	1200.	1135.	1100.	2	0	0	0.00	200.00	600.00

*SECNO 14550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.26

14550.000	8.29	851.79	0.00	850.35	851.85	0.06	0.30	0.02	846.00
694.0	358.7	142.2	193.1	177.8	155.9	79.9	805.6	109.1	846.00
9.06	2.02	0.91	2.42	0.110	0.450	0.110	0.000	843.50	34.14
0.005501	330.	330.	330.	2	0	0	0.00	125.34	159.48

CCHV= 0.300 CEHV= 0.500
*SECNO 14750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.10

3470 ENCROACHMENT STATIONS= 100.0 376.0 TYPE= 1 TARGET= 276.000

14750.000	10.31	852.31	0.00	851.01	852.32	0.02	0.46	0.01	846.00
694.0	657.8	18.1	18.1	646.4	62.4	23.2	808.2	110.0	848.00
9.12	1.02	0.29	0.78	0.110	0.450	0.110	0.000	842.00	100.00
0.001244	200.	200.	200.	2	0	0	0.00	267.93	367.93

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	0.024	0.50	2.90	0.00	6.00	0.00	40.00	2	2	842.00	842.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 2 - MITERED TO CONFORM TO SLOPE

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

5130, EGIC= 874.39..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC= 870.00 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 14790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.32

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
874.39	870.00	1.93	327.	366.	0.154	28.3	853.50	273.

3470 ENCROACHMENT STATIONS= 80.0 405.0 TYPE= 1 TARGET= 325.000

14790.000	12.25	854.25	0.00	853.56	854.25	0.00	1.93	0.00	846.00
694.0	535.5	11.4	147.1	1062.1	74.3	235.8	809.1	110.3	846.00
9.14	0.50	0.15	0.62	0.110	0.450	0.110	0.000	842.00	80.00
0.000232	40.	40.	40.	0	0	0	0.00	325.00	405.00

*SECNO 14840.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.18

3470 ENCROACHMENT STATIONS= 75.0 510.0 TYPE= 1 TARGET= 435.000

14840.000	11.25	854.25	0.00	853.56	854.26	0.00	0.00	0.00	846.00
694.0	522.8	9.6	161.5	1754.0	101.3	535.8	811.3	110.8	846.20
9.19	0.30	0.09	0.30	0.110	0.450	0.110	0.000	843.00	75.00
0.000049	50.	50.	50.	2	0	0	0.00	435.00	510.00

CCHV= 0.200 CEHV= 0.400
*SECNO 15500.000

15500.000	9.28	854.28	0.00	853.57	854.28	0.00	0.03	0.00	847.00
694.0	443.0	6.0	245.0	2165.2	90.8	1311.7	862.7	121.9	847.00
10.26	0.20	0.07	0.19	0.110	0.450	0.110	0.000	845.00	74.33
0.000028	800.	660.	660.	2	0	0	0.00	871.32	945.65

*SECNO 16800.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.51

3470 ENCROACHMENT STATIONS= 430.0 1665.0 TYPE= 1 TARGET= 1235.000

16800.000	6.11	854.31	0.00	853.58	854.31	0.00	0.02	0.00	849.50
694.0	258.4	1.4	434.1	2003.5	41.4	3393.7	997.1	153.4	849.50
13.07	0.13	0.03	0.13	0.110	0.450	0.110	0.000	848.20	430.00
0.000012	1300.	1300.	1300.	2	0	0	0.00	1235.00	1665.00

*SECNO 18100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 0.01

3470 ENCROACHMENT STATIONS= 580.0 710.0 TYPE= 1 TARGET= 130.000

18100.000	3.26	854.16	0.00	853.53	854.51	0.36	0.06	0.14	852.00
694.0	577.7	86.3	30.0	112.4	51.5	8.3	1080.9	173.1	852.00
13.15	5.14	1.68	3.63	0.110	0.450	0.110	0.000	850.90	580.00
0.064417	1300.	1300.	1300.	2	0	0	0.00	86.97	666.97

THIS RUN EXECUTED 20JAN94 14:14:19

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	1740.000	0.00	0.00	0.00	831.90	290.00	834.65	0.00	834.66	1.41	0.35	955.00	244.44
	1740.000	0.00	0.00	0.00	831.90	470.00	835.52	0.00	835.52	1.42	0.42	1279.68	394.90
	1740.000	0.00	0.00	0.00	831.90	560.00	835.92	0.00	835.92	1.40	0.44	1428.83	472.98
	1740.000	0.00	0.00	0.00	831.90	750.00	836.65	0.00	836.65	1.41	0.50	1705.83	631.87
*	2460.000	720.00	0.00	0.00	831.90	290.00	834.86	0.00	834.87	8.61	0.90	367.61	98.81
*	2460.000	720.00	0.00	0.00	831.90	470.00	835.66	0.00	835.67	3.07	0.63	848.83	268.39
*	2460.000	720.00	0.00	0.00	831.90	560.00	836.06	0.00	836.07	3.08	0.67	946.98	319.29
*	2460.000	720.00	0.00	0.00	831.90	750.00	836.79	0.00	836.80	3.13	0.76	1129.76	423.65
*	2700.000	240.00	0.00	0.00	832.00	290.00	835.20	0.00	835.49	91.63	4.30	67.45	30.30
*	2700.000	240.00	0.00	0.00	832.00	470.00	835.77	0.00	835.78	8.29	1.44	597.39	163.24
*	2700.000 A	240.00	0.00	0.00	832.00	560.00	836.16	0.00	836.17	7.38	1.45	693.22	206.10
*	2700.000	240.00	0.00	0.00	832.00	750.00	836.88	0.00	836.90	6.40	1.51	872.50	296.50
*	2782.000	82.00	838.30	836.50	832.00	290.00	837.10	0.00	837.21	19.38	2.70	107.51	65.88
*	2782.000	82.00	838.30	836.50	832.00	470.00	838.74	0.00	838.75	1.68	0.96	1005.81	362.43
*	2782.000	82.00	838.30	836.50	832.00	560.00	839.05	0.00	839.06	1.86	1.04	1095.01	410.71
*	2782.000	82.00	838.30	836.50	832.00	750.00	839.46	0.00	839.47	2.44	1.23	1216.86	480.57
*	3182.000	400.00	0.00	0.00	832.20	290.00	837.27	0.00	837.27	0.15	0.16	2281.03	756.46
*	3182.000	400.00	0.00	0.00	832.20	470.00	838.76	0.00	838.76	0.05	0.12	4936.41	2036.48
*	3182.000	400.00	0.00	0.00	832.20	560.00	839.07	0.00	839.07	0.06	0.13	5228.08	2236.71
*	3182.000	400.00	0.00	0.00	832.20	750.00	839.49	0.00	839.49	0.09	0.16	5627.80	2522.63
*	5220.000	2038.00	0.00	0.00	833.50	290.00	837.30	0.00	837.39	9.22	2.71	187.29	95.51
*	5220.000	2038.00	0.00	0.00	833.50	470.00	838.75	0.00	838.82	5.17	2.53	447.23	206.66
*	5220.000	2038.00	0.00	0.00	833.50	560.00	839.06	0.00	839.13	5.48	2.70	511.77	239.17
*	5220.000	2038.00	0.00	0.00	833.50	750.00	839.48	0.00	839.58	6.76	3.16	604.02	288.41
	5800.000	580.00	0.00	0.00	833.80	290.00	837.88	0.00	837.95	9.87	2.48	251.41	92.32
	5800.000 B	580.00	0.00	0.00	833.80	470.00	839.10	0.00	839.15	6.54	2.51	422.77	183.77
	5800.000	580.00	0.00	0.00	833.80	560.00	839.43	0.00	839.49	6.88	2.70	472.56	213.46
	5800.000	580.00	0.00	0.00	833.80	750.00	839.92	0.00	840.01	8.09	3.13	551.27	263.70

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	6550.000	750.00	0.00	0.00	835.00	290.00	838.84	0.00	839.02	19.87	3.43	94.06	65.05
	6550.000	750.00	0.00	0.00	835.00	470.00	839.73	0.00	839.86	12.83	3.27	285.61	131.22
8	6550.000 C	750.00	0.00	0.00	835.00	560.00	840.07	0.00	840.20	12.51	3.41	336.29	158.30
	6550.000	750.00	0.00	0.00	835.00	750.00	840.64	0.00	840.79	12.83	3.76	421.91	209.36
*	6600.000	50.00	0.00	0.00	833.60	290.00	838.78	0.00	839.38	46.55	6.25	46.43	42.51
*	6600.000	50.00	0.00	0.00	833.60	470.00	839.72	0.00	840.05	30.05	5.62	211.24	85.74
* 9	6600.000	50.00	0.00	0.00	833.60	560.00	840.07	0.00	840.39	29.97	5.82	259.56	102.30
*	6600.000	50.00	0.00	0.00	833.60	750.00	840.65	0.00	840.97	29.83	6.15	346.71	137.32
*	6675.000	75.00	842.40	838.10	833.60	290.00	839.98	0.00	840.37	23.15	5.07	57.25	60.27
*	6675.000	75.00	842.40	838.10	833.60	470.00	843.00	0.00	843.03	1.96	1.91	699.35	336.07
* 10	6675.000	75.00	842.40	838.10	833.60	560.00	843.30	0.00	843.33	2.33	2.13	744.33	366.97
*	6675.000	75.00	842.40	838.10	833.60	750.00	843.71	0.00	843.74	3.34	2.62	804.57	410.12
*	6725.000	50.00	0.00	0.00	835.60	290.00	840.49	0.00	840.52	3.34	1.80	355.93	158.61
*	6725.000	50.00	0.00	0.00	835.60	470.00	843.03	0.00	843.04	0.70	1.11	1107.77	563.21
* 11	6725.000	50.00	0.00	0.00	835.60	560.00	843.33	0.00	843.34	0.83	1.24	1171.72	614.16
*	6725.000	50.00	0.00	0.00	835.60	750.00	843.75	0.00	843.76	1.19	1.55	1258.74	686.22
*	7450.000	725.00	0.00	0.00	836.00	290.00	840.92	0.00	841.12	24.34	4.95	135.51	58.78
*	7450.000	725.00	0.00	0.00	836.00	470.00	843.05	0.00	843.29	17.98	5.48	205.80	110.85
*12	7450.000 D	725.00	0.00	0.00	836.00	560.00	843.35	0.00	843.66	22.17	6.26	215.60	118.93
*	7450.000	725.00	0.00	0.00	836.00	750.00	843.75	0.00	844.25	33.29	7.96	228.70	130.00
	7486.000	36.00	0.00	0.00	837.10	290.00	840.97	0.00	841.31	44.66	4.70	61.66	43.39
	7486.000	36.00	0.00	0.00	837.10	470.00	843.07	0.00	843.45	34.25	4.93	95.25	80.31
13	7486.000	36.00	0.00	0.00	837.10	560.00	843.37	0.00	843.86	42.65	5.61	99.89	85.75
	7486.000	36.00	0.00	0.00	837.10	750.00	843.78	0.00	844.55	64.44	7.05	106.36	93.43
*	7500.000	14.00	0.00	0.00	837.10	290.00	840.68	840.68	842.49	377.01	10.80	26.85	14.94
*	7500.000	14.00	0.00	0.00	837.10	470.00	842.21	0.00	844.54	389.30	12.26	38.34	23.82
* 14	7500.000	14.00	0.00	0.00	837.10	560.00	842.65	842.65	845.46	447.04	13.44	41.66	26.49
*	7500.000	14.00	0.00	0.00	837.10	750.00	843.87	843.87	847.26	489.01	14.78	50.75	33.92
*	7535.000	35.00	857.10	848.00	837.20	290.00	842.74	0.00	843.50	121.71	6.99	41.50	26.29
*	7535.000	35.00	857.10	848.00	837.20	470.00	844.61	0.00	845.72	155.17	8.48	55.44	37.73
* 15	7535.000	35.00	857.10	848.00	837.20	560.00	845.58	0.00	846.82	162.63	8.92	62.81	43.91
*	7535.000	35.00	857.10	848.00	837.20	750.00	847.36	0.00	848.96	240.53	10.15	73.92	48.36
*	7549.000	14.00	0.00	0.00	837.50	290.00	843.70	0.00	843.73	1.33	1.30	222.76	251.12
*	7549.000	14.00	0.00	0.00	837.50	470.00	846.02	0.00	846.05	1.30	1.54	306.12	411.48
* 16	7549.000	14.00	0.00	0.00	837.50	560.00	847.14	0.00	847.18	1.27	1.62	346.61	497.71
*	7549.000	14.00	0.00	0.00	837.50	750.00	849.38	0.00	849.43	1.21	1.76	427.32	683.09
	7585.000	36.00	0.00	0.00	837.30	290.00	843.72	0.00	843.74	2.50	1.77	448.36	183.44
	7585.000	36.00	0.00	0.00	837.30	470.00	846.05	0.00	846.06	1.72	1.85	699.85	358.20
17	7585.000	36.00	0.00	0.00	837.30	560.00	847.18	0.00	847.19	1.49	1.88	821.85	458.27
	7585.000	36.00	0.00	0.00	837.30	750.00	849.43	0.00	849.44	1.21	1.95	1064.72	682.68

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
*	9350.000	1765.00	0.00	0.00	836.90	290.00	843.76	0.00	843.76	0.04	0.23	3512.52	1516.78
*	9350.000	1765.00	0.00	0.00	836.90	470.00	846.08	0.00	846.08	0.03	0.25	5139.17	2804.76
*	9350.000 E	1765.00	0.00	0.00	836.90	560.00	847.21	0.00	847.21	0.03	0.26	5928.81	3539.32
*	9350.000	1765.00	0.00	0.00	836.90	750.00	849.46	0.00	849.46	0.02	0.27	7501.88	5196.29
*	12800.000	3450.00	0.00	0.00	841.10	290.00	843.72	0.00	843.87	3681.24	3.10	96.23	4.78
*	12800.000	3450.00	0.00	0.00	841.10	470.00	846.11	0.00	846.12	17.99	0.36	628.02	110.80
*	12800.000 F	3450.00	0.00	0.00	841.10	560.00	847.24	0.00	847.25	6.45	0.25	940.13	220.53
*	12800.000	3450.00	0.00	0.00	841.10	750.00	849.48	0.00	849.48	1.99	0.18	1567.89	531.69
*	12850.000	50.00	0.00	0.00	840.90	266.00	846.83	0.00	846.87	217.71	0.69	174.69	18.03
*	12850.000	50.00	0.00	0.00	840.90	423.00	846.42	846.42	846.78	4592.61	3.02	93.59	6.24
*	12850.000	50.00	0.00	0.00	840.90	512.00	847.30	0.00	847.36	167.61	0.64	278.00	39.55
*	12850.000	50.00	0.00	0.00	840.90	694.00	849.49	0.00	849.51	10.12	0.19	759.47	218.20
*	12885.000	35.00	849.00	844.90	840.90	266.00	849.97	0.00	849.97	1.48	0.08	707.77	218.45
*	12885.000	35.00	849.00	844.90	840.90	423.00	850.30	0.00	850.31	2.85	0.11	767.89	250.38
*	12885.000	35.00	849.00	844.90	840.90	512.00	850.46	0.00	850.47	3.69	0.12	796.98	266.42
	12885.000	35.00	849.00	844.90	840.90	694.00	850.71	0.00	850.72	5.65	0.16	842.10	292.04
	13085.000	200.00	0.00	0.00	841.50	266.00	850.01	0.00	850.02	3.02	0.22	625.01	153.14
	13085.000	200.00	0.00	0.00	841.50	423.00	850.38	0.00	850.39	5.51	0.31	688.97	180.19
	13085.000	200.00	0.00	0.00	841.50	512.00	850.56	0.00	850.57	7.00	0.35	719.12	193.59
	13085.000	200.00	0.00	0.00	841.50	694.00	850.86	0.00	850.88	10.06	0.43	773.68	218.84
*	14220.000	1135.00	0.00	0.00	843.20	266.00	850.24	0.00	850.24	1.35	0.13	797.56	228.95
*	14220.000	1135.00	0.00	0.00	843.20	423.00	850.77	0.00	850.78	2.23	0.18	904.00	282.96
*	14220.000	1135.00	0.00	0.00	843.20	512.00	851.04	0.00	851.05	2.69	0.20	958.35	312.23
*	14220.000	1135.00	0.00	0.00	843.20	694.00	851.52	0.00	851.53	3.58	0.24	1054.50	366.65
*	14550.000	330.00	0.00	0.00	843.50	266.00	850.35	0.00	850.38	37.05	0.65	256.22	43.70
*	14550.000	330.00	0.00	0.00	843.50	423.00	850.95	0.00	850.99	47.48	0.79	315.78	61.39
*	14550.000	330.00	0.00	0.00	843.50	512.00	851.25	0.00	851.30	50.65	0.83	349.09	71.94
*	14550.000	330.00	0.00	0.00	843.50	694.00	851.79	0.00	851.85	55.01	0.91	413.57	93.57
*	14750.000	200.00	0.00	0.00	842.00	266.00	851.01	845.96	851.02	9.05	0.23	410.45	88.43
*	14750.000	200.00	0.00	0.00	842.00	423.00	851.43	0.00	851.44	12.98	0.28	505.73	117.39
*	14750.000	200.00	0.00	0.00	842.00	512.00	851.75	0.00	851.77	12.93	0.28	584.05	142.37
*	14750.000	200.00	0.00	0.00	842.00	694.00	852.31	0.00	852.32	12.44	0.29	731.91	196.75
*	14790.000	40.00	853.50	848.00	842.00	266.00	853.56	0.00	853.56	0.62	0.08	1148.51	339.12
*	14790.000	40.00	853.50	848.00	842.00	423.00	854.03	0.00	854.03	1.03	0.10	1301.63	417.33
*	14790.000	40.00	853.50	848.00	842.00	512.00	854.02	0.00	854.02	1.52	0.12	1297.48	415.12
*	14790.000	40.00	853.50	848.00	842.00	694.00	854.25	0.00	854.25	2.32	0.15	1372.19	455.58
*	14840.000	50.00	0.00	0.00	843.00	266.00	853.56	0.00	853.56	0.11	0.04	2090.41	801.63
*	14840.000	50.00	0.00	0.00	843.00	423.00	854.03	0.00	854.04	0.21	0.06	2295.67	930.78
*	14840.000	50.00	0.00	0.00	843.00	512.00	854.02	0.00	854.02	0.30	0.07	2290.49	927.43
*	14840.000	50.00	0.00	0.00	843.00	694.00	854.25	0.00	854.26	0.49	0.09	2391.12	993.59

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	15500.000	660.00	0.00	0.00	845.00	266.00	853.57	0.00	853.57	0.07	0.03	2962.24	992.19
	15500.000	660.00	0.00	0.00	845.00	423.00	854.05	0.00	854.05	0.12	0.04	3363.39	1197.25
	15500.000	660.00	0.00	0.00	845.00	512.00	854.04	0.00	854.04	0.18	0.05	3358.22	1194.50
	15500.000	660.00	0.00	0.00	845.00	694.00	854.28	0.00	854.28	0.28	0.07	3567.70	1307.87
*	16800.000	1300.00	0.00	0.00	848.20	266.00	853.58	0.00	853.58	0.03	0.02	4543.44	1465.31
*	16800.000	1300.00	0.00	0.00	848.20	423.00	854.06	0.00	854.06	0.06	0.02	5138.18	1794.12
*	16800.000	1300.00	0.00	0.00	848.20	512.00	854.06	0.00	854.06	0.08	0.03	5140.14	1795.25
*	16800.000	1300.00	0.00	0.00	848.20	694.00	854.31	0.00	854.31	0.12	0.03	5438.64	1970.34
*	18100.000	1300.00	0.00	0.00	850.90	266.00	853.53	0.00	853.64	348.81	1.04	118.70	14.24
*	18100.000	1300.00	0.00	0.00	850.90	423.00	853.99	0.00	854.15	323.75	1.14	157.82	23.51
*	18100.000	1300.00	0.00	0.00	850.90	512.00	853.95	0.00	854.19	508.83	1.42	154.67	22.70
*	18100.000	1300.00	0.00	0.00	850.90	694.00	854.16	0.00	854.51	644.17	1.68	172.14	27.34

CREEK

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1740.000	290.00	834.65	0.00	0.00	1.65	372.62	0.00
	1740.000	470.00	835.52	0.87	0.00	2.52	376.09	0.00
	1740.000	560.00	835.92	0.40	0.00	2.92	377.67	0.00
	1740.000	750.00	836.65	0.73	0.00	3.65	381.56	0.00
*	2460.000	290.00	834.86	0.00	0.21	0.00	138.60	720.00
*	2460.000	470.00	835.66	0.80	0.14	0.80	246.65	720.00
*	2460.000	560.00	836.06	0.39	0.14	1.20	250.00	720.00
*	2460.000	750.00	836.79	0.73	0.14	1.93	250.00	720.00
*	2700.000	290.00	835.20	0.00	0.34	0.00	21.10	240.00
*	2700.000	470.00	835.77	0.57	0.10	0.57	244.77	240.00
*	2700.000	560.00	836.16	0.39	0.10	0.96	245.81	240.00
*	2700.000	750.00	836.88	0.73	0.09	1.69	247.73	240.00
*	2782.000	290.00	837.10	0.00	1.90	0.00	21.10	82.00
*	2782.000	470.00	838.74	1.65	2.98	1.65	290.18	82.00
*	2782.000	560.00	839.05	0.31	2.89	1.95	291.61	82.00
*	2782.000	750.00	839.46	0.41	2.58	2.37	293.55	82.00
*	3182.000	290.00	837.27	0.00	0.17	0.00	605.72	400.00
*	3182.000	470.00	838.76	1.49	0.02	1.49	945.15	400.00
*	3182.000	560.00	839.07	0.31	0.02	1.80	947.84	400.00
*	3182.000	750.00	839.49	0.42	0.02	2.22	951.53	400.00
*	5220.000	290.00	837.30	0.00	0.03	0.00	120.56	2038.00
*	5220.000	470.00	838.75	1.46	-0.01	1.46	205.69	2038.00
*	5220.000	560.00	839.06	0.31	-0.01	1.77	211.85	2038.00
*	5220.000	750.00	839.48	0.42	0.00	2.19	224.54	2038.00
	5800.000	290.00	837.88	0.00	0.59	0.00	131.82	580.00
	5800.000	470.00	839.10	1.21	0.35	1.21	149.82	580.00
	5800.000	560.00	839.43	0.33	0.36	1.54	154.67	580.00
	5800.000	750.00	839.92	0.50	0.44	2.04	162.32	580.00
	6550.000	290.00	838.84	0.00	0.96	0.00	35.00	750.00
	6550.000	470.00	839.73	0.89	0.63	0.89	147.79	750.00
	6550.000	560.00	840.07	0.34	0.65	1.23	149.40	750.00
	6550.000	750.00	840.64	0.57	0.72	1.80	150.00	750.00
*	6600.000	290.00	838.78	0.00	-0.07	0.00	9.00	50.00
*	6600.000	470.00	839.72	0.95	-0.01	0.95	132.30	50.00
*	6600.000	560.00	840.07	0.34	-0.01	1.29	145.29	50.00
*	6600.000	750.00	840.65	0.59	0.01	1.88	150.00	50.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	6675.000	290.00	839.98	0.00	1.20	0.00	9.00	75.00
*	6675.000	470.00	843.00	3.03	3.28	3.03	150.00	75.00
*	6675.000	560.00	843.30	0.30	3.24	3.33	150.00	75.00
*	6675.000	750.00	843.71	0.40	3.05	3.73	150.00	75.00
*	6725.000	290.00	840.49	0.00	0.51	0.00	115.00	50.00
*	6725.000	470.00	843.03	2.54	0.02	2.54	210.00	50.00
*	6725.000	560.00	843.33	0.30	0.03	2.84	210.00	50.00
*	6725.000	750.00	843.75	0.41	0.04	3.26	210.00	50.00
*	7450.000	290.00	840.92	0.00	0.43	0.00	33.00	725.00
*	7450.000	470.00	843.05	2.13	0.03	2.13	33.00	725.00
*	7450.000	560.00	843.35	0.30	0.02	2.43	33.00	725.00
*	7450.000	750.00	843.75	0.40	0.00	2.82	33.00	725.00
	7486.000	290.00	840.97	0.00	0.04	0.00	15.94	36.00
	7486.000	470.00	843.07	2.11	0.02	2.11	15.96	36.00
	7486.000	560.00	843.37	0.30	0.02	2.41	15.96	36.00
	7486.000	750.00	843.78	0.40	0.03	2.81	15.96	36.00
*	7500.000	290.00	840.68	0.00	-0.28	0.00	7.50	14.00
*	7500.000	470.00	842.21	1.53	-0.86	1.53	7.50	14.00
*	7500.000	560.00	842.65	0.45	-0.72	1.97	7.50	14.00
*	7500.000	750.00	843.87	1.21	0.09	3.19	7.50	14.00
*	7535.000	290.00	842.74	0.00	2.06	0.00	7.50	35.00
*	7535.000	470.00	844.61	1.86	2.40	1.86	7.50	35.00
*	7535.000	560.00	845.58	0.98	2.93	2.84	7.50	35.00
*	7535.000	750.00	847.36	1.78	3.49	4.62	7.50	35.00
*	7549.000	290.00	843.70	0.00	0.96	0.00	35.96	14.00
*	7549.000	470.00	846.02	2.32	1.41	2.32	35.98	14.00
*	7549.000	560.00	847.14	1.13	1.56	3.44	35.99	14.00
*	7549.000	750.00	849.38	2.24	2.02	5.68	36.02	14.00
	7585.000	290.00	843.72	0.00	0.02	0.00	108.00	36.00
	7585.000	470.00	846.05	2.33	0.03	2.33	108.00	36.00
	7585.000	560.00	847.18	1.13	0.04	3.46	108.00	36.00
	7585.000	750.00	849.43	2.25	0.05	5.71	108.00	36.00
*	9350.000	290.00	843.76	0.00	0.04	0.00	700.00	1765.00
*	9350.000	470.00	846.08	2.32	0.03	2.32	700.00	1765.00
*	9350.000	560.00	847.21	1.13	0.03	3.45	700.00	1765.00
*	9350.000	750.00	849.46	2.25	0.03	5.70	700.00	1765.00
*	12800.000	290.00	843.72	0.00	-0.04	0.00	125.16	3450.00
*	12800.000	470.00	846.11	2.39	0.03	2.39	267.83	3450.00
*	12800.000	560.00	847.24	1.13	0.03	3.51	280.00	3450.00
*	12800.000	750.00	849.48	2.24	0.02	5.76	280.00	3450.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	12850.000	266.00	846.83	0.00	3.10	0.00	213.68	50.00
*	12850.000	423.00	846.42	-0.41	0.31	-0.41	187.39	50.00
*	12850.000	512.00	847.30	0.88	0.06	0.47	220.00	50.00
*	12850.000	694.00	849.49	2.20	0.01	2.67	220.00	50.00
*	12885.000	266.00	849.97	0.00	3.14	0.00	180.00	35.00
*	12885.000	423.00	850.30	0.33	3.88	0.33	180.00	35.00
*	12885.000	512.00	850.46	0.16	3.16	0.49	180.00	35.00
	12885.000	694.00	850.71	0.25	1.22	0.74	180.00	35.00
	13085.000	266.00	850.01	0.00	0.04	0.00	170.04	200.00
	13085.000	423.00	850.38	0.37	0.08	0.37	171.91	200.00
	13085.000	512.00	850.56	0.18	0.10	0.55	172.78	200.00
	13085.000	694.00	850.86	0.30	0.15	0.85	174.35	200.00
*	14220.000	266.00	850.24	0.00	0.23	0.00	200.00	1135.00
*	14220.000	423.00	850.77	0.53	0.39	0.53	200.00	1135.00
*	14220.000	512.00	851.04	0.27	0.48	0.80	200.00	1135.00
*	14220.000	694.00	851.52	0.48	0.66	1.29	200.00	1135.00
*	14550.000	266.00	850.35	0.00	0.11	0.00	92.90	330.00
*	14550.000	423.00	850.95	0.60	0.18	0.60	106.35	330.00
*	14550.000	512.00	851.25	0.30	0.21	0.90	113.18	330.00
*	14550.000	694.00	851.79	0.54	0.27	1.44	125.34	330.00
*	14750.000	266.00	851.01	0.00	0.66	0.00	209.30	200.00
*	14750.000	423.00	851.43	0.42	0.48	0.42	238.05	200.00
*	14750.000	512.00	851.75	0.32	0.50	0.74	259.30	200.00
*	14750.000	694.00	852.31	0.56	0.52	1.30	267.93	200.00
*	14790.000	266.00	853.56	0.00	2.55	0.00	325.00	40.00
*	14790.000	423.00	854.03	0.47	2.60	0.47	325.00	40.00
*	14790.000	512.00	854.02	-0.01	2.26	0.46	325.00	40.00
*	14790.000	694.00	854.25	0.23	1.94	0.68	325.00	40.00
*	14840.000	266.00	853.56	0.00	0.00	0.00	435.00	50.00
*	14840.000	423.00	854.03	0.47	0.00	0.47	435.00	50.00
*	14840.000	512.00	854.02	-0.01	0.01	0.46	435.00	50.00
*	14840.000	694.00	854.25	0.23	0.01	0.69	435.00	50.00
	15500.000	266.00	853.57	0.00	0.01	0.00	851.26	660.00
	15500.000	423.00	854.05	0.48	0.01	0.48	863.54	660.00
	15500.000	512.00	854.04	-0.01	0.02	0.47	863.35	660.00
	15500.000	694.00	854.28	0.24	0.03	0.71	871.32	660.00
*	16800.000	266.00	853.58	0.00	0.01	0.00	1235.00	1300.00
*	16800.000	423.00	854.06	0.48	0.01	0.48	1235.00	1300.00
*	16800.000	512.00	854.06	0.00	0.02	0.48	1235.00	1300.00
*	16800.000	694.00	854.31	0.25	0.02	0.73	1235.00	1300.00

	SECNO	Q	CWSEL	OIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	18100.000	266.00	853.53	0.00	-0.05	0.00	83.34	1300.00
*	18100.000	423.00	853.99	0.46	-0.07	0.46	84.97	1300.00
*	18100.000	512.00	853.95	-0.04	-0.10	0.43	84.84	1300.00
*	18100.000	694.00	854.16	0.20	-0.15	0.63	86.97	1300.00

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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05,06,07
MODIFICATIONS 52,53,54,55,56,57
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T1      MERIDIAN TOWNSHIP, MICHIGAN
T2      100 YEAR FLOOD
T3      MUD LAKE DRAIN 5258-01

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       5.        0.        0.   .001800      0.00      0.0       0.   843.000     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    4.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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CCHV= .300 CEHV= .500

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
100.00	7.73	837.73	0.00	843.00	837.84	.11	0.00	0.00	832.50
890.	440.	450.	0.	645.	123.	1.	0.	0.	837.60
0.00	.68	3.67	.09	.120	.050	.120	0.000	830.00	51.17
.001789	-0.	-0.	-0.	0	0	7	0.00	582.69	1035.95
2400.00	7.72	841.79	0.00	0.00	841.93	.14	4.07	.02	841.17
890.	145.	741.	4.	245.	223.	13.	33.	23.	840.87
.22	.59	3.32	.31	.120	.050	.120	.050	834.07	195.30
.001754	2300.	2300.	2300.	2	0	1	0.00	281.32	476.63

3470 ENCROACHMENT STATIONS= 400.0 449.0 TYPE= 1 TARGET= 49.000

2650.00	7.67	842.27	0.00	0.00	842.52	.25	.54	.05	841.70
890.	0.	890.	0.	0.	220.	0.	35.	24.	100000.00
.24	.01	4.04	0.00	.120	.050	.120	.050	834.60	400.00
.002685	250.	250.	250.	2	0	1	0.00	49.00	449.00

3301 HV CHANGED MORE THAN HVINS

2700.00	7.16	842.06	0.00	0.00	843.28	1.22	.27	.49	847.30
890.	0.	890.	0.	0.	100.	0.	35.	24.	847.30
.24	0.00	8.88	0.00	.120	.050	.120	.050	834.90	997.00
.016537	50.	50.	50.	2	0	1	0.00	14.00	1011.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.90	-0.00	14.00	-0.00	81.50	-0.00	835.10	834.90

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
844.84	843.48	0.00	0.	890.	82.	842.50	847.30	10.00

2800.00	9.16	844.06	0.00	0.00	844.84	.78	1.55	0.00	847.30
890.	0.	890.	0.	0.	126.	0.	35.	24.	847.30
.25	0.00	7.09	0.00	.120	.050	.120	.050	834.90	997.00
.009178	100.	100.	100.	2	0	1	0.00	14.00	1011.00

3301 HV CHANGED MORE THAN HVINS

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
2850.00	10.07	845.07	0.00	0.00	845.10	.02	.03	.23	842.10
890.	319.	521.	50.	785.	338.	181.	36.	24.	841.80
.26	.41	1.54	.28	.120	.050	.120	.050	835.00	145.23
.000216	50.	50.	50.	2	0	1	0.00	421.81	567.03

3265 DIVIDED FLOW

5450.00	7.99	845.79	0.00	0.00	845.81	.02	.71	.00	845.00
890.	298.	399.	193.	675.	230.	461.	115.	53.	844.10
.96	.44	1.74	.42	.120	.050	.120	.050	837.80	154.66
.000365	2550.	2600.	2650.	4	0	1	0.00	557.53	718.93

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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
5500.00	7.80	846.00	846.00	0.00	846.49	.49	.05	0.00	847.40
890.	75.	682.	133.	92.	107.	149.	116.	54.	847.20
.97	.82	6.39	.89	.120	.050	.120	.050	838.20	775.01
.008375	50.	50.	50.	4	6	1	0.00	408.73	1299.97

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.80	-0.00	15.00	-0.00	95.00	-0.00	838.20	838.30

6070•LOW FLOW BY NORMAL BRIDGE

EGPRS= 848.044 EGLWC= 846.488 ELLC= 846.200 PCWSE= 846.000 ELTRD= 844.900

3265 DIVIDED FLOW

NORMAL BRIDGE•NRD=22 MIN ELTRD= 844.90 MAX ELLC= 846.20

5520.00	8.43	846.63	0.00	0.00	846.73	.10	.12	.12	847.40
890.	187.	396.	307.	210.	111.	338.	117.	54.	847.20
.97	.89	3.57	.91	.120	.050	.120	.050	838.20	748.82
.004519	20.	20.	20.	6	0	1	-5.84	599.53	1405.64

5570.00	8.56	846.76	0.00	0.00	846.79	.04	.05	.02	845.40
890.	115.	505.	270.	231.	252.	490.	118.	54.	844.50
.98	.50	2.01	.55	.120	.050	.120	.050	838.20	350.00
.000430	50.	50.	50.	2	0	1	0.00	300.00	650.00

SECNO	DEPTH	CWSEL	CRINS	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= 500.0 1300.0 TYPE= 1 TARGET= 800.000

7050.00	8.68	846.88	0.00	0.00	846.88	.00	.08	.01	843.10
395.	151.	65.	179.	1791.	214.	1544.	194.	73.	841.60
4.06	.08	.31	.12	.120	.050	.120	.050	838.20	500.00
.000008	1300.	1480.	1650.	3	0	1	0.00	800.00	1300.00
7100.00	8.98	846.88	0.00	0.00	846.89	.01	.00	.00	845.80
395.	236.	106.	53.	741.	86.	207.	197.	74.	845.80
4.09	.32	1.23	.26	.120	.050	.120	.050	837.90	169.00
.000599	50.	50.	50.	1	0	1	0.00	1143.03	1312.04

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.90	-0.00	7.50	1.50	33.30	-0.00	838.80	838.70

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
850.16	846.89	.00	367.	28.	33.	843.00	845.20	30.00

7160.00	8.89	846.89	0.00	0.00	846.90	.01	.01	0.00	845.90
395.	229.	117.	49.	668.	85.	180.	198.	75.	845.90
4.11	.34	1.38	.27	.120	.050	.120	.050	838.00	184.09
.000762	60.	60.	60.	0	0	6	0.00	1115.00	1299.09
7210.00	7.90	846.90	0.00	0.00	846.90	.00	.00	.00	843.90
395.	103.	54.	238.	1448.	190.	2525.	201.	77.	842.40
4.23	.07	.28	.09	.120	.050	.120	.050	839.00	462.86
.000009	50.	50.	50.	2	0	1	0.00	1245.46	1708.32

3470 ENCROACHMENT STATIONS= 700.0 1300.0 TYPE= 1 TARGET= 600.000

8600.00	6.23	846.93	0.00	0.00	846.93	.00	.03	.00	845.60
395.	50.	106.	239.	362.	138.	883.	290.	106.	844.10
5.24	.14	.77	.27	.120	.050	.120	.050	840.70	700.00
.000097	1300.	1390.	1440.	2	0	1	0.00	600.00	1300.00
9925.00	3.92	847.22	0.00	0.00	847.45	.23	.41	.11	848.20
395.	0.	298.	97.	0.	69.	94.	313.	117.	846.70
5.34	0.00	4.34	1.03	.120	.050	.120	.050	843.30	1003.30
.006736	1325.	1325.	1325.	2	0	1	0.00	119.99	1123.29

395.	1.	394.	0.	5.	132.	0.	318.	120.	853.30
5.47	.16	2.99	0.00	.120	.050	.120	.050	845.90	266.68
.002086	1325.	1325.	1325.	3	0	1	0.00	71.58	338.25

WATER EL=X5 CARD=	853.200								
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
11299.00	7.30	853.20	0.00	0.00	853.30	.10	.09	.01	851.60
395.	66.	296.	32.	134.	102.	89.	318.	120.	852.30
5.47	.50	2.91	.36	.120	.050	.120	.050	845.90	179.41
.001420	50.	50.	50.	0	0	1	0.00	293.32	472.73
11410.00	7.46	853.36	0.00	0.00	853.40	.04	.09	.02	851.60
395.	46.	337.	13.	142.	191.	72.	319.	121.	853.30
5.49	.32	1.77	.17	.120	.050	.120	.050	845.90	174.61
.000505	111.	111.	111.	2	0	1	0.00	312.96	487.57
13500.00	4.56	855.66	0.00	0.00	855.93	.26	2.41	.11	860.20
395.	0.	395.	0.	0.	96.	0.	331.	129.	857.90
5.63	0.00	4.10	0.00	.120	.050	.120	.050	851.10	311.34
.004789	2200.	2090.	2000.	2	0	1	0.00	32.40	343.74
15650.00	7.51	860.21	0.00	0.00	860.30	.09	4.33	.05	859.50
395.	8.	387.	0.	37.	158.	0.	338.	133.	860.30
5.88	.21	2.46	0.00	.120	.050	.120	.050	852.70	237.96
.001102	2150.	2150.	2150.	3	0	1	0.00	137.81	375.78

WATER EL=X5 CARD=	863.300								
15699.00	10.90	863.30	0.00	0.00	863.36	.06	.03	.01	863.80
395.	0.	395.	0.	0.	209.	0.	338.	133.	863.80
5.89	0.00	1.89	0.00	.120	.050	.120	.050	852.40	287.69
.000470	49.	49.	49.	0	0	1	0.00	34.62	322.31
15810.00	10.68	863.38	0.00	0.00	863.38	.01	.01	.01	859.50
395.	133.	217.	44.	681.	272.	285.	340.	134.	860.30
5.95	.20	.80	.16	.120	.050	.120	.050	852.70	99.68
.000057	111.	111.	111.	0	0	1	0.00	426.08	525.77
19100.00	6.01	863.71	0.00	0.00	863.71	.01	.33	.00	862.20
395.	166.	174.	55.	665.	166.	326.	431.	184.	863.20
7.50	.25	1.05	.17	.120	.050	.120	.050	857.70	550.03
.000219	3290.	3290.	3290.	2	0	1	0.00	893.69	1443.72

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 866.50 ELREA= 865.40

20700.00	4.43	864.53	0.00	0.00	864.86	.33	.98	.16	866.50
395.	0.	395.	0.	0.	86.	0.	453.	201.	865.40
7.60	0.00	4.60	0.00	.120	.050	.120	.050	860.10	654.64
.006197	1500.	1600.	1700.	3	0	1	0.00	29.17	683.81

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

MUD LAKE DRAIN 5258-01

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
100.00	0.00	0.00	0.00	830.00	890.00	837.71	.11	0.00	0.00	837.83	575.91	3.71
100.00	0.00	0.00	0.00	830.00	455.00	836.77	.13	0.00	0.00	836.90	348.34	3.37
100.00	0.00	0.00	0.00	830.00	760.00	837.51	.11	0.00	0.00	837.63	508.77	3.59
100.00	0.00	0.00	0.00	830.00	890.00	837.73	.11	0.00	0.00	837.84	582.69	3.67
100.00	0.00	0.00	0.00	830.00	1150.00	838.10	.10	0.00	0.00	838.20	722.81	3.83
2400.00	2300.00	0.00	0.00	834.07	890.00	841.80	.14	4.10	.01	841.94	281.95	3.31
2400.00	2300.00	0.00	0.00	834.07	455.00	840.62	.11	3.82	.01	840.73	154.52	2.66
2400.00	2300.00	0.00	0.00	834.07	760.00	841.52	.14	4.02	.01	841.66	266.01	3.16
2400.00	2300.00	0.00	0.00	834.07	890.00	841.79	.14	4.07	.02	841.93	281.32	3.32
2400.00	2300.00	0.00	0.00	834.07	1150.00	842.24	.16	4.17	.03	842.40	304.51	3.62
2650.00	250.00	0.00	0.00	834.60	890.00	842.28	.25	.53	.06	842.53	49.00	4.03
2650.00	250.00	0.00	0.00	834.60	455.00	841.03	.12	.42	.01	841.15	45.81	2.83
2650.00	250.00	0.00	0.00	834.60	760.00	841.99	.21	.50	.04	842.20	49.00	3.68
2650.00	250.00	0.00	0.00	834.60	890.00	842.27	.25	.54	.05	842.52	49.00	4.04
2650.00	250.00	0.00	0.00	834.60	1150.00	842.75	.35	.60	.09	843.09	49.00	4.72
2700.00	50.00	0.00	0.00	834.90	890.00	842.06	1.22	.27	.48	843.28	14.00	8.87
2700.00	50.00	0.00	0.00	834.90	455.00	841.03	.44	.15	.16	841.46	14.00	5.31
2700.00	50.00	0.00	0.00	834.90	760.00	841.86	.94	.24	.37	842.80	14.00	7.80
2700.00	50.00	0.00	0.00	834.90	890.00	842.06	1.22	.27	.49	843.28	14.00	8.88
2700.00	50.00	0.00	0.00	834.90	1150.00	842.32	1.90	.35	.78	844.22	14.00	11.06
2800.00	100.00	847.30	842.50	834.90	890.00	844.06	.78	1.55	0.00	844.84	14.00	7.09
2800.00	100.00	847.30	842.50	834.90	455.00	841.93	.54	.95	.05	842.47	14.00	5.89
2800.00	100.00	847.30	842.50	834.90	760.00	843.19	.70	1.08	0.00	843.88	14.00	6.71
2800.00	100.00	847.30	842.50	834.90	890.00	844.06	.78	1.55	0.00	844.84	14.00	7.09
2800.00	100.00	847.30	842.50	834.90	1150.00	846.09	.87	2.74	0.00	846.96	14.00	7.47
2850.00	50.00	0.00	0.00	835.00	890.00	845.08	.02	.03	.23	845.10	421.90	1.54
2850.00	50.00	0.00	0.00	835.00	455.00	842.65	.04	.07	.15	842.69	277.47	1.75
2850.00	50.00	0.00	0.00	835.00	760.00	844.10	.03	.05	.20	844.13	361.83	1.75
2850.00	50.00	0.00	0.00	835.00	890.00	845.07	.02	.03	.23	845.10	421.81	1.54
2850.00	50.00	0.00	0.00	835.00	1150.00	847.22	.01	.02	.26	847.23	492.27	1.21
5450.00	2600.00	0.00	0.00	837.80	890.00	845.79	.02	.71	.00	845.81	557.65	1.74
5450.00	2600.00	0.00	0.00	837.80	455.00	844.14	.04	1.49	.00	844.18	414.61	1.93
5450.00	2600.00	0.00	0.00	837.80	760.00	845.17	.03	1.07	.00	845.20	506.49	1.91
5450.00	2600.00	0.00	0.00	837.80	890.00	845.79	.02	.71	.00	845.81	557.53	1.74
5450.00	2600.00	0.00	0.00	837.80	1150.00	847.51	.01	.29	.00	847.52	841.98	1.25
5500.00	50.00	0.00	0.00	838.20	890.00	846.00	.49	.05	0.00	846.49	408.78	6.39
5500.00	50.00	0.00	0.00	838.20	455.00	843.95	.58	.08	.27	844.53	15.48	6.09
5500.00	50.00	0.00	0.00	838.20	760.00	844.65	1.23	.08	.60	845.88	15.59	8.89
5500.00	50.00	0.00	0.00	838.20	890.00	846.00	.49	.05	0.00	846.49	408.73	6.39
5500.00	50.00	0.00	0.00	838.20	1150.00	847.51	.04	.02	.02	847.55	839.75	2.80

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
5520.00	20.00	844.90	846.20	838.20	890.00	846.63	.10	.12	.12	846.73	599.52	3.57
5520.00	20.00	844.90	846.20	838.20	455.00	844.21	.52	.19	.02	844.73	15.52	5.77
5520.00	20.00	844.90	846.20	838.20	760.00	845.94	.40	.21	.25	846.34	394.41	5.68
5520.00	20.00	844.90	846.20	838.20	890.00	846.63	.10	.12	.12	846.73	599.53	3.57
5520.00	20.00	844.90	846.20	838.20	1150.00	847.57	.02	.03	.01	847.59	849.35	1.86
5570.00	50.00	0.00	0.00	838.20	890.00	846.76	.04	.05	.02	846.79	300.00	2.01
5570.00	50.00	0.00	0.00	838.20	455.00	844.90	.05	.08	.14	844.95	246.42	1.94
5570.00	50.00	0.00	0.00	838.20	760.00	846.46	.03	.05	.11	846.50	300.00	1.87
5570.00	50.00	0.00	0.00	838.20	890.00	846.76	.04	.05	.02	846.79	300.00	2.01
5570.00	50.00	0.00	0.00	838.20	1150.00	847.60	.04	.04	.01	847.63	300.00	2.08
7050.00	1480.00	0.00	0.00	838.20	395.00	846.88	.00	.08	.01	846.88	800.00	.31
7050.00	1480.00	0.00	0.00	838.20	210.00	845.07	.00	.10	.01	845.07	800.00	.29
7050.00	1480.00	0.00	0.00	838.20	340.00	846.58	.00	.07	.01	846.58	800.00	.28
7050.00	1480.00	0.00	0.00	838.20	395.00	846.88	.00	.08	.01	846.88	800.00	.31
7050.00	1480.00	0.00	0.00	838.20	510.00	847.72	.00	.07	.01	847.72	800.00	.32
7100.00	50.00	0.00	0.00	837.90	395.00	846.88	.01	.00	.00	846.89	1143.02	1.23
7100.00	50.00	0.00	0.00	837.90	210.00	844.99	.16	.00	.08	845.15	10.00	3.21
7100.00	50.00	0.00	0.00	837.90	340.00	846.57	.02	.00	.01	846.59	953.04	1.57
7100.00	50.00	0.00	0.00	837.90	395.00	846.88	.01	.00	.00	846.89	1143.03	1.23
7100.00	50.00	0.00	0.00	837.90	510.00	847.72	.00	.00	.00	847.72	1340.46	.69
7160.00	60.00	845.20	843.00	838.00	395.00	846.89	.01	.01	0.00	846.90	1114.99	1.38
7160.00	60.00	845.20	843.00	838.00	210.00	845.48	.14	.47	0.00	845.62	61.60	3.02
7160.00	60.00	845.20	843.00	838.00	340.00	846.57	.02	.00	0.00	846.59	902.39	1.83
7160.00	60.00	845.20	843.00	838.00	395.00	846.89	.01	.01	0.00	846.90	1115.00	1.38
7160.00	60.00	845.20	843.00	838.00	510.00	847.73	.00	.01	0.00	847.73	1325.52	.74
7210.00	50.00	0.00	0.00	839.00	395.00	846.90	.00	.00	.00	846.90	1245.46	.28
7210.00	50.00	0.00	0.00	839.00	210.00	845.66	.00	.00	.04	845.66	1166.81	.24
7210.00	50.00	0.00	0.00	839.00	340.00	846.60	.00	.00	.01	846.60	1236.16	.27
7210.00	50.00	0.00	0.00	839.00	395.00	846.90	.00	.00	.00	846.90	1245.46	.28
7210.00	50.00	0.00	0.00	839.00	510.00	847.73	.00	.00	.00	847.73	1271.54	.28
8600.00	1390.00	0.00	0.00	840.70	395.00	846.93	.00	.03	.00	846.93	600.00	.77
8600.00	1390.00	0.00	0.00	840.70	210.00	845.69	.00	.03	.00	845.70	411.04	.76
8600.00	1390.00	0.00	0.00	840.70	340.00	846.63	.00	.03	.00	846.63	600.00	.76
8600.00	1390.00	0.00	0.00	840.70	395.00	846.93	.00	.03	.00	846.93	600.00	.77
8600.00	1390.00	0.00	0.00	840.70	510.00	847.76	.00	.02	.00	847.76	600.00	.72
9925.00	1325.00	0.00	0.00	843.30	395.00	847.22	.23	.41	.11	847.45	119.99	4.34
9925.00	1325.00	0.00	0.00	843.30	210.00	846.14	.37	.63	.18	846.51	64.09	4.98
9925.00	1325.00	0.00	0.00	843.30	340.00	846.94	.27	.44	.13	847.20	114.78	4.56
9925.00	1325.00	0.00	0.00	843.30	395.00	847.22	.23	.41	.11	847.45	119.99	4.34
9925.00	1325.00	0.00	0.00	843.30	510.00	847.97	.14	.28	.07	848.11	133.02	3.70

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
11250.00	1325.00	0.00	0.00	845.90	395.00	851.90	.14	4.56	.03	852.04	71.58	2.99
11250.00	1325.00	0.00	0.00	845.90	210.00	850.89	.08	4.36	.09	850.96	33.42	2.20
11250.00	1325.00	0.00	0.00	845.90	340.00	851.69	.12	4.56	.04	851.81	47.95	2.75
11250.00	1325.00	0.00	0.00	845.90	395.00	851.90	.14	4.56	.03	852.04	71.58	2.99
11250.00	1325.00	0.00	0.00	845.90	510.00	852.18	.19	4.23	.02	852.37	102.89	3.55
11299.00	50.00	0.00	0.00	845.90	395.00	853.20	.10	.09	.01	853.30	293.32	2.91
11299.00	50.00	0.00	0.00	845.90	210.00	852.70	.06	.05	.01	852.76	233.16	2.03
11299.00	50.00	0.00	0.00	845.90	340.00	853.00	.10	.08	.01	853.10	269.25	2.80
11299.00	50.00	0.00	0.00	845.90	395.00	853.20	.10	.09	.01	853.30	293.32	2.91
11299.00	50.00	0.00	0.00	845.90	510.00	853.40	.12	.11	.02	853.52	317.38	3.37
11410.00	111.00	0.00	0.00	845.90	395.00	853.36	.04	.09	.02	853.40	312.96	1.77
11410.00	111.00	0.00	0.00	845.90	210.00	852.79	.02	.05	.01	852.81	210.54	1.18
11410.00	111.00	0.00	0.00	845.90	340.00	853.16	.04	.08	.02	853.20	281.17	1.65
11410.00	111.00	0.00	0.00	845.90	395.00	853.36	.04	.09	.02	853.40	312.96	1.77
11410.00	111.00	0.00	0.00	845.90	510.00	853.60	.05	.11	.02	853.66	345.33	2.06
13500.00	2090.00	0.00	0.00	851.10	395.00	855.66	.26	2.41	.11	855.93	32.40	4.10
13500.00	2090.00	0.00	0.00	851.10	210.00	854.19	.24	1.50	.11	854.42	25.25	3.91
13500.00	2090.00	0.00	0.00	851.10	340.00	855.32	.25	2.26	.10	855.56	30.71	3.99
13500.00	2090.00	0.00	0.00	851.10	395.00	855.66	.26	2.41	.11	855.93	32.40	4.10
13500.00	2090.00	0.00	0.00	851.10	510.00	856.32	.29	2.84	.12	856.61	35.61	4.30
15650.00	2150.00	0.00	0.00	852.70	395.00	860.21	.09	4.33	.05	860.30	137.81	2.46
15650.00	2150.00	0.00	0.00	852.70	210.00	858.72	.06	4.30	.05	858.78	30.65	1.95
15650.00	2150.00	0.00	0.00	852.70	340.00	859.84	.08	4.32	.05	859.93	85.12	2.34
15650.00	2150.00	0.00	0.00	852.70	395.00	860.21	.09	4.33	.05	860.30	137.81	2.46
15650.00	2150.00	0.00	0.00	852.70	510.00	860.78	.10	4.21	.06	860.88	258.92	2.64
15699.00	49.00	0.00	0.00	852.40	395.00	863.30	.06	.03	.01	863.36	34.62	1.89
15699.00	49.00	0.00	0.00	852.40	210.00	859.60	.07	.05	.00	859.67	24.38	2.10
15699.00	49.00	0.00	0.00	852.40	340.00	863.20	.04	.03	.01	863.24	34.34	1.65
15699.00	49.00	0.00	0.00	852.40	395.00	863.30	.06	.03	.01	863.36	34.62	1.89
15699.00	49.00	0.00	0.00	852.40	510.00	863.50	.09	.04	.00	863.59	35.17	2.36
15810.00	111.00	0.00	0.00	852.70	395.00	863.38	.01	.01	.01	863.38	426.08	.80
15810.00	111.00	0.00	0.00	852.70	210.00	859.71	.04	.07	.01	859.75	63.83	1.50
15810.00	111.00	0.00	0.00	852.70	340.00	863.26	.00	.01	.01	863.26	420.08	.71
15810.00	111.00	0.00	0.00	852.70	395.00	863.38	.01	.01	.01	863.38	426.08	.80
15810.00	111.00	0.00	0.00	852.70	510.00	863.62	.01	.02	.02	863.63	438.14	.96
19100.00	3290.00	0.00	0.00	857.70	395.00	863.71	.01	.33	.00	863.71	893.69	1.05
19100.00	3290.00	0.00	0.00	857.70	210.00	862.19	.07	2.49	.02	862.26	40.22	2.07
19100.00	3290.00	0.00	0.00	857.70	340.00	863.54	.01	.28	.00	863.55	873.85	1.01
19100.00	3290.00	0.00	0.00	857.70	395.00	863.71	.01	.33	.00	863.71	893.69	1.05
19100.00	3290.00	0.00	0.00	857.70	510.00	864.02	.01	.40	.00	864.03	934.18	1.08

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
20700.00	1600.00	0.00	0.00	860.10	395.00	864.53	.33	.98	.16	864.86	29.17	4.60
20700.00	1600.00	0.00	0.00	860.10	210.00	864.63	.09	2.45	.01	864.72	29.55	2.37
20700.00	1600.00	0.00	0.00	860.10	340.00	864.37	.27	.96	.13	864.64	28.57	4.19
20700.00	1600.00	0.00	0.00	860.10	395.00	864.53	.33	.98	.16	864.86	29.17	4.60
20700.00	1600.00	0.00	0.00	860.10	510.00	864.79	.46	.99	.23	865.25	30.14	5.45

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
100.000	890.000	837.715	0.000	0.000	0.000	575.911	0.000	-0.000
100.000	455.000	836.766	-.949	0.000	0.000	348.345	227.566	-0.000
100.000	760.000	837.513	.748	0.000	0.000	508.773	67.139	-0.000
100.000	890.000	837.732	.219	0.000	0.000	582.685	-6.774	-0.000
100.000	1150.000	838.100	.367	0.000	0.000	722.807	-146.895	-0.000
2400.000	890.000	841.798	0.000	4.084	0.000	281.952	0.000	2300.000
2400.000	455.000	840.619	-1.180	3.853	0.000	154.518	127.433	2300.000
2400.000	760.000	841.523	.904	4.009	0.000	266.014	15.938	2300.000
2400.000	890.000	841.790	.267	4.058	0.000	281.325	.627	2300.000
2400.000	1150.000	842.243	.453	4.143	0.000	304.507	-22.555	2300.000
2650.000	890.000	842.275	0.000	.477	0.000	48.999	0.000	250.000
2650.000	455.000	841.027	-1.248	.409	0.000	45.811	3.188	250.000
2650.000	760.000	841.990	.963	.468	0.000	48.999	.000	250.000
2650.000	890.000	842.272	.281	.482	0.000	48.999	.000	250.000
2650.000	1150.000	842.747	.475	.504	0.000	48.999	-.000	250.000
2700.000	890.000	842.062	0.000	-.213	0.000	14.000	0.000	50.000
2700.000	455.000	841.026	-1.037	-.002	0.000	14.000	0.000	50.000
2700.000	760.000	841.859	.833	-.132	0.000	14.000	0.000	50.000
2700.000	890.000	842.059	.201	-.212	0.000	14.000	0.000	50.000
2700.000	1150.000	842.322	.262	-.425	0.000	14.000	0.000	50.000
2800.000	890.000	844.060	0.000	1.997	0.000	14.000	0.000	100.000
2800.000	455.000	841.928	-2.132	.902	0.000	14.000	0.000	100.000
2800.000	760.000	843.185	1.257	1.327	0.000	14.000	0.000	100.000
2800.000	890.000	844.056	.871	1.997	0.000	14.000	0.000	100.000
2800.000	1150.000	846.093	2.037	3.772	0.000	14.000	0.000	100.000
2850.000	890.000	845.077	0.000	1.018	0.000	421.900	0.000	50.000
2850.000	455.000	842.646	-2.431	.718	0.000	277.473	144.427	50.000
2850.000	760.000	844.099	1.453	.914	0.000	361.827	60.072	50.000
2850.000	890.000	845.074	.976	1.018	0.000	421.807	.093	50.000
2850.000	1150.000	847.219	2.145	1.126	0.000	492.269	-70.369	50.000
5450.000	890.000	845.790	0.000	.713	0.000	557.653	0.000	2600.000
5450.000	455.000	844.135	-1.655	1.489	0.000	414.605	143.048	2600.000
5450.000	760.000	845.172	1.037	1.074	0.000	506.493	51.160	2600.000
5450.000	890.000	845.788	.616	.714	0.000	557.531	.122	2600.000
5450.000	1150.000	847.508	1.719	.289	0.000	841.982	-284.329	2600.000
5500.000	890.000	846.000	0.000	.210	0.000	408.784	0.000	50.000
5500.000	455.000	843.953	-2.047	-.182	0.000	15.484	393.300	50.000
5500.000	760.000	844.650	.697	-.523	0.000	15.591	393.194	50.000
5500.000	890.000	846.000	1.350	.211	0.000	408.732	.052	50.000
5500.000	1150.000	847.506	1.506	-.002	0.000	839.754	-430.970	50.000
5520.000	890.000	846.630	0.000	.630	0.000	599.517	0.000	20.000
5520.000	455.000	844.214	-2.416	.262	0.000	15.525	583.992	20.000
5520.000	760.000	845.941	1.727	1.291	0.000	394.413	205.104	20.000
5520.000	890.000	846.630	.689	.631	0.000	599.535	-.017	20.000

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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05,06,07
MODIFICATIONS 52,53,54,55,56,57
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T1      MERIDIAN TOWNSHIP, MICHIGAN
T2      100 YEAR FLOOD
T3      MUD LAKE DRAIN 5258-01

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       5.       0.       0.   .001800     0.00      0.0      0.   837.700    0.000

J2  NPROF    IPLOT    PREVS    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     3.000     4.000    26.000    -0.000    -0.000    -0.000
NC      .120      .120      .050      .300      .500    -0.000    -0.000    -0.000    -0.000    -0.000
QT     5.000   890.000   455.000   760.000   890.000  1150.000    -0.000    -0.000    -0.000    -0.000

X1   100.000    23.000  1000.000  1021.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR   838.500     0.000   837.000   100.000   836.200   200.000   836.000   250.000   837.000   300.000
GR   838.300   400.000   838.500   500.000   838.300   600.000   838.200   700.000   837.400   800.000
GR   835.200   900.000   836.800   980.000   832.500  1000.000   830.700  1001.000   830.000  1005.000
GR   830.400  1010.000   831.100  1012.000   832.200  1015.000   837.600  1021.000   838.300  1100.000
GR   843.100  1200.000   845.800  1270.000   845.600  1300.000    -0.000    -0.000    -0.000    -0.000

X1  2400.000    13.000   400.000   449.000  2300.000  2300.000  2300.000    -0.000     -.530    -0.000
GR   852.000     0.000   851.600    45.000   846.800   100.000   842.100   200.000   840.300   300.000
GR   841.700   400.000   835.000   419.000   834.600   424.000   835.000   426.000   841.400   449.000
GR   843.100   500.000   844.500   565.000   847.500   600.000    -0.000    -0.000    -0.000    -0.000

X1  2650.000    -0.000    -0.000    -0.000   250.000   250.000   250.000    -0.000      .530    -0.000
X3    -0.000    -0.000    -0.000   400.000    -0.000   449.000    -0.000    -0.000    -0.000    -0.000

X1  2700.000    27.000   997.000  1011.000    50.000    50.000    50.000    -0.000    -0.000    -0.000
X3    -0.000   834.900    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR   849.600     0.000   849.000   100.000   849.800   200.000   850.900   300.000   851.800   400.000
GR   852.600   500.000   852.100   600.000   850.300   700.000   848.800   800.000   847.400   900.000
GR   847.300   997.000   834.500   997.000   834.000  1000.000   833.500  1004.000   834.000  1008.000
GR   834.500  1011.000   847.300  1011.000   848.200  1100.000   849.800  1200.000   851.400  1300.000
GR   851.400  1400.000   850.400  1500.000   849.900  1600.000   849.500  1700.000   849.900  1800.000
GR   850.900  1900.000   852.000  2000.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
SB    -0.000     1.500     2.900    -0.000    14.000    -0.000    81.500    -0.000   835.100   834.900

X1  2800.000    -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   842.500   847.300    -0.000    -0.000    -0.000    -0.000    -0.000
X3    -0.000   835.100    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
BT    27.000     0.000   849.600     0.000   100.000   849.000     0.000   200.000   849.800     0.000
BT   300.000   850.900     0.000   400.000   851.800     0.000   500.000   852.600     0.000   600.000
BT   852.100     0.000   700.000   850.300     0.000   800.000   848.800     0.000   900.000   847.400
BT     0.000   997.000   847.300     0.000   997.000   847.300   838.000  1000.000   847.300   841.000
BT  1004.000   847.300   842.500  1008.000   847.300   841.000  1011.000   847.300   838.000  1011.000
BT   847.300     0.000  1100.000   848.200     0.000  1200.000   849.800     0.000  1300.000   851.400
BT     0.000  1400.000   851.400     0.000  1500.000   850.400     0.000  1600.000   849.900     0.000
BT  1700.000   849.500     0.000  1800.000   849.900     0.000  1900.000   850.900     0.000  2000.000
BT   852.000     0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1  2850.000    13.000   400.000   449.000    50.000    50.000    50.000    -0.000      .400    -0.000
GR   852.000     0.000   851.600    45.000   846.800   100.000   842.100   200.000   840.300   300.000
GR   841.700   400.000   835.000   419.000   834.600   424.000   835.000   426.000   841.400   449.000
GR   843.100   500.000   844.500   565.000   847.500   600.000    -0.000    -0.000    -0.000    -0.000
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X1	2850.000	13.000	400.000	444.000	50.000	50.000	50.000	-0.000	.400	-0.000
GR	852.000	0.000	851.800	45.000	846.800	100.000	842.100	200.000	840.300	300.000
GR	841.700	400.000	835.000	419.000	834.600	424.000	835.000	426.000	841.400	449.000
GR	843.100	500.000	844.500	565.000	847.500	600.000	-0.000	-0.000	-0.000	-0.000
X1	5450.000	22.000	450.000	489.000	2550.000	2650.000	2600.000	-0.000	-0.000	-0.000
GR	857.100	0.000	855.700	50.000	846.200	150.000	842.700	190.000	843.000	250.000
GR	843.200	350.000	843.200	406.000	846.000	424.000	845.000	450.000	837.900	458.000
GR	837.800	471.000	838.000	473.000	844.100	489.000	845.100	509.000	842.500	533.000
GR	842.200	550.000	844.000	650.000	846.600	750.000	846.000	850.000	847.000	950.000
GR	848.800	1050.000	851.400	1150.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5500.000	27.000	992.500	1008.500	50.000	50.000	50.000	-0.000	-0.000	-0.000
GR	854.500	0.000	853.900	100.000	853.100	200.000	853.100	300.000	853.500	400.000
GR	853.800	500.000	851.200	600.000	847.800	700.000	845.400	800.000	845.200	900.000
GR	846.300	950.000	847.400	992.500	841.100	993.000	840.800	995.000	838.400	995.000
GR	838.200	1000.000	838.500	1005.500	840.300	1005.500	840.500	1008.000	847.200	1008.500
GR	846.500	1042.000	845.400	1100.000	844.900	1200.000	846.000	1300.000	846.600	1400.000
GR	847.100	1500.000	847.900	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.500	2.800	-0.000	15.000	-0.000	95.000	-0.000	838.200	838.300
X1	5520.000	-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	846.200	844.900	-0.000	-0.000	-0.000	-0.000	-0.000
BT	22.000	0.000	854.500	0.000	100.000	853.900	0.000	200.000	853.100	0.000
BT	300.000	853.100	0.000	400.000	853.500	0.000	500.000	853.800	0.000	600.000
BT	851.200	0.000	700.000	847.800	0.000	800.000	845.400	0.000	900.000	845.200
BT	0.000	950.000	846.300	0.000	992.500	847.400	0.000	992.500	847.400	846.300
BT	1008.500	847.200	846.200	1008.500	847.200	0.000	1042.000	846.500	0.000	1100.000
BT	845.400	0.000	1200.000	844.900	0.000	1300.000	846.000	0.000	1400.000	846.600
BT	0.000	1500.000	847.100	0.000	1600.000	847.900	0.000	-0.000	-0.000	-0.000
X1	5570.000	22.000	450.000	489.000	50.000	50.000	50.000	-0.000	.400	-0.000
X3	-0.000	-0.000	-0.000	350.000	-0.000	650.000	-0.000	-0.000	-0.000	-0.000
GR	857.100	0.000	855.700	50.000	846.200	150.000	842.700	190.000	843.000	250.000
GR	843.200	350.000	843.200	406.000	846.000	424.000	845.000	450.000	837.900	458.000
GR	837.800	471.000	838.000	473.000	844.100	489.000	845.100	509.000	842.500	533.000
GR	842.200	550.000	844.000	650.000	846.600	750.000	846.000	850.000	847.000	950.000
GR	848.800	1050.000	851.400	1150.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	5.000	395.000	210.000	340.000	395.000	510.000	-0.000	-0.000	-0.000	-0.000
X1	7050.000	20.000	1000.000	1031.000	1300.000	1650.000	1480.000	-0.000	-2.500	-0.000
X3	-0.000	-0.000	-0.000	500.000	-0.000	1300.000	-0.000	-0.000	-0.000	-0.000
GR	854.000	0.000	850.900	100.000	850.900	200.000	849.900	300.000	853.000	400.000
GR	846.000	500.000	845.600	1000.000	840.900	1016.000	840.700	1020.000	841.000	1024.000
GR	844.100	1031.000	843.000	1100.000	843.600	1200.000	844.500	1300.000	844.500	1400.000
GR	845.000	1500.000	846.700	1600.000	848.100	1700.000	854.100	1800.000	858.000	1860.000
X1	7100.000	30.000	987.500	999.000	50.000	50.000	50.000	-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	847.900	0.000	847.300	100.000	846.700	200.000	846.600	300.000	846.000	400.000
GR	845.200	500.000	845.800	600.000	846.500	700.000	845.700	800.000	845.500	900.000
GR	845.800	987.500	839.500	987.500	838.500	988.500	838.000	989.500	838.000	990.500
GR	838.500	991.500	839.500	992.500	845.800	992.500	845.800	994.000	839.400	994.000
GR	838.400	995.000	837.900	996.000	837.900	997.000	838.400	998.000	839.400	999.000
GR	845.800	999.000	846.000	1100.000	846.300	1200.000	846.800	1300.000	847.300	1370.000
SB	1.250	1.500	2.900	-0.000	7.500	1.500	33.300	-0.000	838.800	838.700
X1	7160.000	-0.000	-0.000	-0.000	60.000	60.000	60.000	-0.000	.100	-0.000
X2	-0.000	-0.000	1.000	843.000	845.200	-0.000	-0.000	-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	30.000	0.000	847.900	0.000	100.000	847.300	0.000	200.000	846.700	0.000
BT	300.000	846.600	0.000	400.000	846.000	0.000	500.000	845.200	0.000	600.000
BT	845.800	0.000	700.000	846.500	0.000	800.000	845.700	0.000	900.000	845.500
BT	0.000	987.500	845.800	0.000	987.500	845.800	841.500	988.500	845.800	842.500
BT	989.500	845.800	843.000	990.500	845.800	843.000	991.500	845.800	842.500	992.500
BT	845.800	1.500	992.500	845.800	845.800	994.000	845.800	845.800	994.000	845.800

BT	841.400	995.000	845.800	842.400	996.000	845.800	842.900	997.000	845.800	842.900
BT	998.000	845.800	842.400	999.000	845.800	841.400	999.000	845.800	0.000	1100.000
BT	846.000	0.000	1200.000	846.300	0.000	1300.000	846.800	0.000	1370.000	847.300
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7210.000	20.000	1000.000	1031.000	50.000	50.000	50.000	-0.000	-1.700	-0.000
GR	854.000	0.000	850.900	100.000	850.900	200.000	849.900	300.000	853.000	400.000
GR	846.000	500.000	845.600	1000.000	840.900	1016.000	840.700	1020.000	841.000	1024.000
GR	844.100	1031.000	843.000	1100.000	843.600	1200.000	844.500	1300.000	844.500	1400.000
GR	845.000	1500.000	846.700	1600.000	848.100	1700.000	854.100	1800.000	858.000	1860.000
X1	8600.000	-0.000	-0.000	-0.000	1300.000	1440.000	1390.000	-0.000	1.700	-0.000
X3	-0.000	-0.000	-0.000	700.000	-0.000	1300.000	-0.000	-0.000	-0.000	-0.000
X1	9925.000	13.000	1000.000	1031.000	1325.000	1325.000	1325.000	-0.000	2.600	-0.000
GR	854.000	0.000	850.900	100.000	850.900	200.000	849.900	300.000	853.000	800.000
GR	846.000	900.000	845.600	1000.000	840.900	1016.000	840.700	1020.000	841.000	1024.000
GR	844.100	1031.000	843.000	1100.000	850.000	1200.000	-0.000	-0.000	-0.000	-0.000
X1	11250.000	13.000	300.000	342.000	1325.000	1325.000	1325.000	-0.000	-0.000	-0.000
GR	860.900	0.000	859.400	32.000	855.900	100.000	852.500	200.000	851.600	300.000
GR	846.000	317.000	845.900	321.000	846.200	323.000	853.300	342.000	852.400	400.000
GR	853.500	500.000	854.300	600.000	855.500	700.000	-0.000	-0.000	-0.000	-0.000
X1	11299.000	13.000	310.000	330.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X5	5.000	853.200	852.700	853.000	853.200	853.400	-0.000	-0.000	-0.000	-0.000
GR	860.900	0.000	859.400	32.000	855.900	100.000	852.500	200.000	851.600	310.000
GR	846.000	317.000	845.900	321.000	846.200	323.000	852.300	330.000	852.400	400.000
GR	853.500	500.000	854.300	600.000	855.500	700.000	-0.000	-0.000	-0.000	-0.000
X1	11410.000	13.000	300.000	342.000	111.000	111.000	111.000	-0.000	-0.000	-0.000
GR	860.900	0.000	859.400	32.000	855.900	100.000	852.500	200.000	851.600	300.000
GR	846.000	317.000	845.900	321.000	846.200	323.000	853.300	342.000	852.400	400.000
GR	853.500	500.000	854.300	600.000	855.500	700.000	-0.000	-0.000	-0.000	-0.000
X1	13500.000	15.000	300.000	349.000	2200.000	2000.000	2090.000	-0.000	-0.000	-0.000
GR	871.600	0.000	864.000	100.000	862.500	200.000	863.100	275.000	860.200	300.000
GR	851.400	322.000	351.100	330.000	851.100	333.000	857.900	349.000	860.000	400.000
GR	864.500	500.000	867.000	550.000	864.500	600.000	866.200	700.000	878.700	780.000
X1	15650.000	17.000	340.000	376.000	2150.000	2150.000	2150.000	-0.000	-0.000	-0.000
GR	870.500	0.000	868.300	40.000	867.500	55.000	865.500	64.000	861.000	140.000
GR	860.200	240.000	859.500	340.000	854.000	348.000	852.900	357.000	852.700	359.000
GR	852.900	360.000	854.300	360.000	860.300	376.000	860.900	440.000	863.800	540.000
GR	867.400	640.000	869.700	690.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15699.000	15.000	287.000	323.000	49.000	49.000	49.000	-0.000	1.000	-0.000
X5	5.000	863.300	859.600	863.200	863.300	863.500	-0.000	-0.000	-0.000	-0.000
GR	872.700	0.000	868.600	100.000	865.000	200.000	862.800	287.000	853.400	300.000
GR	852.100	301.000	851.400	302.000	851.400	303.500	852.100	304.500	853.400	310.000
GR	862.800	323.000	863.300	400.000	865.800	500.000	869.500	600.000	873.000	700.000
X1	15810.000	17.000	340.000	376.000	111.000	111.000	111.000	-0.000	-0.000	-0.000
GR	870.500	0.000	868.300	40.000	867.500	55.000	865.500	64.000	861.000	140.000
GR	860.200	240.000	859.500	340.000	854.000	348.000	852.900	357.000	852.700	359.000
GR	852.900	360.000	854.300	360.000	860.300	376.000	860.900	440.000	863.800	540.000
GR	867.400	640.000	869.700	690.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	19100.000	26.000	1000.000	1044.000	3290.000	3290.000	3290.000	-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	871.500	0.000	868.000	50.000	868.000	100.000	868.000	200.000	866.900	300.000
GR	865.600	400.000	864.500	500.000	862.900	600.000	861.900	700.000	861.800	800.000
GR	862.100	900.000	862.200	1000.000	857.700	1019.000	857.700	1022.000	857.700	1024.000
GR	863.200	1044.000	862.400	1100.000	862.600	1200.000	863.200	1300.000	863.000	1400.000
GR	864.600	1500.000	865.300	1600.000	866.600	1700.000	870.900	1800.000	870.300	1900.000
GR	872.500	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20700.000	25.000	650.000	685.000	1500.000	1700.000	1600.000	-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	882.900	0.000	878.100	50.000	871.000	108.000	870.900	128.000	868.700	152.000

GR	864.600	1500.000	865.500	1500.000	866.500	1500.000	868.300	1500.000	869.300	1500.000
GR	872.500	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20700.000	25.000	650.000	685.000	1500.000	1700.000	1600.000	-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	882.900	0.000	878.100	50.000	871.000	108.000	870.900	128.000	868.700	152.000
GR	865.900	250.000	865.400	350.000	864.100	450.000	864.100	550.000	867.000	613.000
GR	866.500	650.000	861.400	662.000	860.100	671.000	861.000	679.000	865.400	685.000
GR	864.900	696.000	865.100	750.000	866.500	850.000	868.300	950.000	869.300	1050.000
GR	870.600	1150.000	871.400	1250.000	870.700	1300.000	872.800	1350.000	875.300	1415.000
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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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05,06,07
MODIFICATIONS 52,53,54,55,56,57
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T1      MERIDIAN TOWNSHIP, MICHIGAN
T2      100 YEAR FLOOD
T3      PINE LAKE OUTLET 5258-01

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       5.        0.        0.   .000610      0.00      0.0       0.   840.000     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    4.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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CCHV= .300 CEHV= .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
0.00	9.51	835.31	0.00	840.00	835.42	.11	0.00	0.00	832.30
1490.	259.	1053.	178.	418.	341.	226.	0.	0.	830.30
0.00	.62	3.09	.79	.120	.045	.120	0.000	825.80	164.96
.000608	-0.	-0.	-0.	0	0	5	0.00	247.09	412.04

3301 HV CHANGED MORE THAN HVINS

100.00	9.22	835.12	0.00	0.00	835.87	.76	.13	.32	842.80
1490.	0.	1490.	0.	0.	213.	0.	1.	0.	842.80
.00	0.00	6.98	0.00	.120	.045	.120	.045	825.90	186.02
.004804	100.	100.	100.	2	0	1	0.00	27.86	213.89

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.90	-0.00	24.00	-0.00	316.00	-0.00	825.90	825.90

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 835.873 ELLC= 840.200 PCWSE= 835.116 ELTRD= 841.400

NORMAL BRIDGE,NRD=13 MIN ELTRD= 841.40 MAX ELLC= 840.20

120.00	9.34	835.24	0.00	0.00	835.97	.73	.09	.01	842.80
1490.	0.	1490.	0.	0.	217.	0.	1.	0.	842.80
.00	0.00	6.87	0.00	.120	.045	.120	.044	825.90	186.01
.004590	20.	20.	20.	2	0	1	0.00	27.90	213.90

3301 HV CHANGED MORE THAN HVINS

170.00	10.35	836.15	0.00	0.00	836.22	.07	.05	.20	832.30
1490.	309.	991.	190.	544.	378.	274.	2.	0.	830.30
.01	.57	2.62	.69	.120	.045	.120	.044	825.80	157.24
.000383	50.	50.	50.	2	0	1	0.00	256.99	414.23

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= 312.0 367.0 TYPE= 1 TARGET= 55.000

350.00	9.87	836.17	0.00	0.00	836.41	.24	.10	.08	832.80
1490.	0.	1428.	62.	0.	356.	55.	6.	1.	830.80
-.02	-.00	4.01	1.12	.120	.045	.120	.044	836.30	313.00

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 855.00 ELREA= 855.00

400.00	8.94	835.84	0.00	0.00	836.94	1.10	.11	.43	855.00
1490.	0.	1490.	0.	0.	177.	0.	6.	1.	855.00
.03	0.00	8.42	0.00	.120	.045	.120	.044	826.90	100.00
.008285	50.	50.	50.	2	0	1	0.00	20.00	120.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	3.00	-0.00	20.00	-0.00	200.00	-0.00	828.00	826.90

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 837.134 EGLWC= 838.044 ELLC= 836.900 PCWSE= 835.842 ELTRD= 847.300

NORMAL BRIDGE,NRD= 8 MIN ELTRD= 847.30 MAX ELLC= 836.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.10 ELREA= 856.10

500.00	8.92	836.92	0.00	0.00	838.03	1.11	1.09	.01	856.10
1490.	0.	1490.	0.	0.	176.	0.	6.	1.	856.10
.03	0.00	8.47	0.00	.120	.045	.120	.044	828.00	100.00
.014846	100.	100.	100.	1	0	1	-.64	20.00	120.00

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 247.0 385.0 TYPE= 1 TARGET= 138.000

700.00	10.58	838.50	0.00	0.00	838.62	.12	.29	.30	834.42
1490.	150.	1200.	130.	239.	388.	153.	9.	2.	832.42
.05	.67	3.10	.85	.120	.045	.120	.045	827.92	247.00
.000514	200.	200.	200.	2	0	1	0.00	138.00	385.00

3470 ENCROACHMENT STATIONS= 119.0 424.0 TYPE= 1 TARGET= 305.000

900.00	10.94	838.66	0.00	0.00	838.72	.06	.07	.02	834.22
1490.	339.	954.	197.	638.	404.	309.	13.	3.	832.22
.08	.53	2.36	.64	.120	.045	.120	.045	827.72	151.75
.000283	200.	200.	200.	2	0	1	0.00	264.03	415.78

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
2900.00	12.32	839.02	0.00	0.00	839.04	.02	.31	.01	832.60
1245.	125.	755.	365.	437.	535.	1105.	92.	19.	831.70
.65	.29	1.41	.33	.120	.045	.120	.045	826.70	11.92
.000088	2000.	2000.	2000.	2	0	1	0.00	469.83	481.75

5750.00	10.65	839.15	0.00	0.00	839.15	.00	.11	.01	831.10
1245.	836.	90.	319.	4298.	138.	1621.	352.	70.	831.00
4.05	.19	.65	.20	.120	.045	.120	.045	828.50	193.84
.000021	2850.	2850.	2650.	2	0	1	0.00	1108.01	1301.85

5800.00	9.55	839.15	0.00	0.00	839.15	.00	.00	.00	830.60
1245.	760.	102.	383.	3448.	139.	1686.	358.	71.	830.50
4.10	.22	.73	.23	.120	.045	.120	.045	829.60	311.62
.000027	50.	50.	50.	0	0	1	0.00	992.15	1303.77

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.60	-0.00	15.00	-0.00	70.00	-0.00	829.60	829.60

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
846.52	839.15	0.00	1162.	87.	70.	833.50	835.20	30.00

5825.00	9.58	839.18	0.00	0.00	839.18	.00	.03	0.00	830.60
1245.	761.	101.	383.	3472.	139.	1696.	362.	71.	830.50
4.13	.22	.73	.23	.120	.045	.120	.045	829.60	308.93
.000027	25.	25.	25.	0	0	5	0.00	997.52	1306.45

5860.00	9.38	839.18	0.00	0.00	839.18	.00	.00	.00	832.20
1245.	474.	615.	156.	3304.	1221.	1195.	366.	72.	832.20
4.16	.14	.50	.13	.120	.045	.120	.045	829.80	243.58
.000014	35.	35.	35.	0	0	1	0.00	1263.53	1507.11

3280 CROSS SECTION 7800.00 EXTENDED 3.40 FEET

7800.00	8.50	839.20	0.00	0.00	839.20	.00	.02	.00	835.00
300.	81.	23.	196.	1768.	125.	3706.	612.	135.	835.10
12.82	.05	.19	.05	.120	.045	.120	.045	830.70	364.16
.000003	1840.	1940.	1940.	2	0	1	0.00	1635.84	2000.00

3265 DIVIDED FLOW

3280 CROSS SECTION 9200.00 EXTENDED 4.12 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=			600.0	1100.0	TYPE=	1	TARGET=	500.000	
9200.00	7.41	839.21	0.00	0.00	839.22	.01	.01	.01	840.10
300.	39.	193.	68.	204.	174.	302.	713.	169.	840.00
13.31	.19	1.11	.22	.120	.045	.120	.045	831.80	600.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			100.0	300.0	TYPE=	1	TARGET=	200.000		
10850.00	4.72	839.92	0.00	0.00	840.02	.09	.75	.04	844.90	
300.	0.	230.	70.	0.	83.	118.	730.	181.	840.00	
13.51	0.00	2.75	.60	.120	.045	.120	.045	835.20	171.87	
.001787	1650.	1650.	1650.	2	0	1	0.00	125.27	300.00	

3470 ENCROACHMENT STATIONS=			1000.0	1100.0	TYPE=	1	TARGET=	100.000		
10900.00	5.07	840.07	0.00	0.00	840.23	.16	.18	.03	845.70	
300.	0.	111.	189.	0.	23.	125.	730.	181.	840.00	
13.52	0.00	4.84	1.51	.120	.045	.120	.045	835.00	1000.00	
.010255	50.	50.	50.	2	0	1	0.00	100.00	1100.00	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.90	-0.00	5.00	-0.00	16.50	-0.00	835.90	835.00

3280 CROSS SECTION 10970.00 EXTENDED 7.27 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
847.77	842.84	0.00	0.	300.	17.	840.00	848.00	10.00

3470 ENCROACHMENT STATIONS=			1000.0	1005.0	TYPE=	1	TARGET=	5.000		
10970.00	12.37	847.37	0.00	0.00	847.77	.40	7.54	0.00	842.20	
300.	0.	300.	0.	0.	59.	0.	730.	181.	100000.00	
13.52	.01	5.05	0.00	.120	.045	.120	.045	835.00	1000.00	
.006478	70.	70.	70.	2	0	1	0.00	5.00	1005.00	

3280 CROSS SECTION 10980.00 EXTENDED 7.74 FEET

3470 ENCROACHMENT STATIONS=			980.0	1005.0	TYPE=	1	TARGET=	25.000		
10980.00	12.04	847.84	0.00	0.00	847.88	.04	.01	.11	842.20	
300.	24.	259.	18.	39.	148.	29.	730.	181.	842.10	
13.52	.60	1.75	.62	.120	.045	.120	.045	835.80	980.00	
.000238	10.	10.	10.	2	0	1	0.00	25.00	1005.00	

3280 CROSS SECTION 11000.00 EXTENDED 7.78 FEET

3470 ENCROACHMENT STATIONS=			980.0	1020.0	TYPE=	1	TARGET=	40.000		
11000.00	11.88	847.88	0.00	0.00	847.89	.02	.00	.01	837.40	
300.	31.	179.	90.	72.	146.	206.	730.	181.	837.20	
13.53	.44	1.22	.44	.120	.045	.120	.045	836.00	980.00	
.000056	20.	20.	20.	2	0	1	0.00	40.00	1020.00	

3280 CROSS SECTION 11020.00 EXTENDED 7.79 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=			960.0	1040.0	TYPE=	1	TARGET=	80.000	
11020.00	12.09	847.89	0.00	0.00	847.90	.00	.00	.00	837.20
300.	71.	117.	111.	264.	149.	403.	731.	181.	837.00
13.54	.27	.79	.28	.120	.045	.120	.045	835.80	960.00
.000023	20.	20.	20.	1	0	1	0.00	80.00	1040.00

3280 CROSS SECTION 11045.00 EXTENDED 7.79 FEET

3470 ENCROACHMENT STATIONS=			900.0	1200.0	TYPE=	1	TARGET=	300.000	
11045.00	12.10	847.90	0.00	0.00	847.90	.00	.00	.00	842.20
300.	63.	38.	199.	467.	103.	1286.	731.	181.	842.10
13.58	.14	.36	.15	.120	.045	.120	.045	835.80	900.00
.000013	25.	25.	25.	1	0	1	0.00	300.00	1200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	3.00	-0.00	9.00	-0.00	32.40	-0.00	835.50	835.80

3280 CROSS SECTION 11060.00 EXTENDED 8.10 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
849.90	847.60	0.00	289.	11.	32.	839.40	840.30	30.00

3470 ENCROACHMENT STATIONS=			900.0	1200.0	TYPE=	1	TARGET=	300.000	
11060.00	12.40	847.90	0.00	0.00	847.90	.00	.00	0.00	841.90
300.	65.	36.	199.	494.	106.	1348.	732.	181.	841.80
13.61	.13	.34	.15	.120	.045	.120	.045	835.50	900.00
.000011	15.	15.	15.	0	0	4	0.00	300.00	1200.00
11110.00	12.10	847.90	0.00	0.00	847.90	.00	.00	.00	841.70
300.	3.	43.	254.	150.	387.	6229.	737.	182.	843.70
13.88	.02	.11	.04	.120	.045	.120	.045	835.80	201.55
.000001	50.	50.	50.	0	0	1	0.00	936.47	1138.02

3470 ENCROACHMENT STATIONS=			200.0	400.0	TYPE=	1	TARGET=	200.000	
13350.00	9.90	847.90	0.00	0.00	847.91	.01	.00	.00	843.90
300.	9.	249.	42.	63.	293.	254.	927.	211.	845.90

.000055 2240. 2240. 2240. 1 0 1 0.00 151.31 400.00

3470 ENCROACHMENT STATIONS= 1000.0 1012.0 TYPE= 1 TARGET= 12.000
13400.00 10.57 847.87 0.00 0.00 847.96 .09 .01 .04 849.00
300. 0. 300. 0. 0. 127. 0. 927. 211. 100000.00
14.73 0.00 2.37 0.00 .120 .045 .120 .045 837.30 1000.00
.000857 50. 50. 50. 2 0 1 0.00 12.00 1012.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.90	-0.00	12.50	-0.00	62.00	-0.00	838.60	838.40

PRESS FLOW BECAUSE EGLWC OF 849.26 EXCEEDS 1.5 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

Haslett Rd.

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
848.41	849.26	0.00	0.	300.	62.	844.80	849.00	10.00

3470 ENCROACHMENT STATIONS= .0 1100.0 TYPE= 1 TARGET= 1099.999
13500.00 11.04 848.34 0.00 0.00 848.41 .08 .46 0.00 849.00
300. 0. 300. 0. 0. 132. 0. 927. 211. 849.00
14.74 0.00 2.27 0.00 .120 .045 .120 .045 837.30 1000.00
.000770 100. 100. 100. 2 0 1 0.00 12.00 1012.00

3470 ENCROACHMENT STATIONS= 200.0 293.0 TYPE= 1 TARGET= 93.000
13550.00 10.43 848.43 0.00 0.00 848.44 .01 .01 .02 843.90
300. 13. 287. 0. 80. 315. 0. 928. 211. 100000.00
14.76 .17 .91 0.00 .120 .045 .120 .045 838.00 214.61
.000062 50. 50. 50. 2 0 1 0.00 78.39 293.00

3470 ENCROACHMENT STATIONS= 200.0 604.0 TYPE= 1 TARGET= 404.000
14000.00 10.27 848.46 0.00 0.00 848.46 .00 .01 .00 844.09
300. 6. 151. 143. 74. 308. 1120. 937. 214. 846.09
15.16 .09 .49 .13 .120 .045 .120 .045 838.19 215.88
.000017 450. 450. 450. 2 0 1 0.00 388.12 604.00

3470 ENCROACHMENT STATIONS= 500.0 600.0 TYPE= 1 TARGET= 100.000
15950.00 9.51 848.51 0.00 0.00 848.53 .01 .06 .01 845.00
300. 58. 242. 0. 226. 245. 0. 982. 224. 100000.00
15.81 .26 .98 0.00 .120 .045 .120 .045 839.00 500.00
.000081 1950. 1950. 1950. 1 0 1 0.00 100.00 600.00

16000.00 9.25 848.45 0.00 0.00 848.61 .16 .01 .08 850.60
300. 0. 300. 0. 0. 93. 0. 925. 250.60

15.81	0.00	3.24	0.00	.120	.045	.120	.045	839.20	600.00
.002007	50.	50.	50.	2	0	1	0.00	10.00	610.00

SPECIAL BRIDGE

SB	XK	XKOR	COFO	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.50	2.80	-0.00	10.00	-0.00	44.00	-0.00	839.00	839.20

Lk. Lansing Rd

PRESSURE FLOW

EGPPS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
849.53	848.41	0.00	0.	300.	44.	844.00	850.60	10.00

16100.00	10.40	849.40	0.00	0.00	849.53	.13	.92	0.00	850.60
300.	0.	300.	0.	0.	104.	0.	982.	225.	850.60
15.82	0.00	2.88	0.00	.120	.045	.120	.045	839.00	600.00
.001505	100.	100.	100.	2	0	1	0.00	10.00	610.00

CR

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

16150.00	10.57	849.57	0.00	0.00	849.57	.00	.00	.04	845.00
300.	112.	124.	64.	1074.	283.	692.	983.	225.	846.60
15.88	.10	.44	.09	.120	.045	.120	.045	839.00	241.40
.000012	50.	50.	50.	2	0	1	0.00	602.04	843.45

3470 ENCROACHMENT STATIONS=		700.0	1700.0	TYPE=	1	TARGET=	1000.000		
18700.00	8.98	849.58	0.00	0.00	849.58	.00	.00	.00	843.50
110.	54.	16.	40.	2972.	274.	2206.	1211.	274.	844.40
46.70	.02	.06	.02	.120	.045	.120	.045	840.60	700.00
.000000	2600.	2650.	2700.	2	0	1	0.00	1000.00	1700.00

CR

20550.00	4.07	849.57	0.00	0.00	849.59	.01	.00	.01	848.00
110.	3.	105.	2.	18.	104.	16.	1330.	296.	848.00
47.23	.16	1.01	.16	.120	.045	.120	.045	845.50	257.00
.000220	1850.	1850.	1850.	1	0	1	0.00	77.76	334.76

D/S of ~~Lans~~ Marsh Rd.

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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05,06,07
MODIFICATIONS 52,53,54,55,56,57
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T1      MERIDIAN TOWNSHIP, MICHIGAN
T2      100 YEAR FLOOD
T3      PINE LAKE OUTLET 5258-01

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        -0.      5.       -0.       -0. -0.000000     -0.00     -0.0      -0.   835.300    -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     3.000     4.000    26.000    -0.000    -0.000    -0.000
NC       .120      .120      .045      .300      .500    -0.000    -0.000    -0.000    -0.000    -0.000
QT      5.000  1490.000   775.000  1290.000  1490.000  1920.000    -0.000    -0.000    -0.000    -0.000

X1      0.000    22.000   312.000   356.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR    845.800     0.000   840.000    22.000   839.000    77.000   841.200    91.000   840.600   112.000
GR    840.300   119.000   830.200   212.000   833.100   247.000   832.300   312.000   826.800   326.000
GR    826.300   331.000   825.800   336.000   825.900   345.000   826.500   349.000   830.300   356.000
GR    831.900   380.000   830.200   385.000   830.300   399.000   839.900   424.000   842.500   512.000
GR    842.300   612.000   844.300   712.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1    100.000    12.000   185.000   215.000   100.000   100.000   100.000    -0.000    -0.000    -0.000
GR    844.100     0.000   842.600   100.000   841.900   154.000   842.800   185.000   842.800   185.000
GR    827.800   187.000   825.900   200.000   829.000   213.000   842.800   215.000   841.400   300.000
GR    842.500   400.000   844.500   500.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
SB     -0.000     1.500     2.900    -0.000    24.000    -0.000   316.000    -0.000   825.900   825.900

X1    120.000    -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   840.200   841.400    -0.000    -0.000    -0.000    -0.000    -0.000
BT     13.000     0.000   844.100     0.000   100.000   842.600     0.000   154.000   841.900     0.000
BT    185.000   842.800   842.800   185.000   842.800   840.200   187.000   842.800   840.200   200.000
BT    842.800   840.200   213.000   842.800   840.200   215.000   842.800   840.200   215.000   842.800
BT    842.800   300.000   841.400     0.000   400.000   842.500     0.000   500.000   844.500     0.000

X1    170.000    22.000   312.000   356.000    50.000    50.000    50.000    -0.000    -0.000    -0.000
GR    845.800     0.000   840.000    22.000   839.000    77.000   841.200    91.000   840.600   112.000
GR    840.300   119.000   830.200   212.000   833.100   247.000   832.300   312.000   826.800   326.000
GR    826.300   331.000   825.800   336.000   825.900   345.000   826.500   349.000   830.300   356.000
GR    831.900   380.000   830.200   385.000   830.300   399.000   839.900   424.000   842.500   512.000
GR    842.300   612.000   844.300   712.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1    350.000    -0.000    -0.000    -0.000   180.000   180.000   180.000    -0.000      .500    -0.000
X3     -0.000    -0.000    -0.000   312.000    -0.000   367.000    -0.000    -0.000    -0.000    -0.000

X1    400.000    11.000   100.000   120.000    50.000    50.000    50.000    -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    858.900     0.000   855.000   100.000   827.000   100.000   827.000   105.000   826.900   110.000
GR    827.100   115.000   827.000   120.000   855.000   120.000   851.400   200.000   848.900   300.000
GR    847.300   400.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
SB     -0.000     1.500     3.000    -0.000    20.000    -0.000   200.000    -0.000   828.000   826.900

X1    500.000    -0.000    -0.000    -0.000   100.000   100.000   100.000    -0.000     1.100    -0.000
X2     -0.000    -0.000     1.000   836.900   847.300    -0.000    -0.000    -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      8.000     0.000   858.900     0.000   100.000   855.000   855.000   100.000   855.000   836.900
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X2	-0.000	-0.000	1.000	836.900	847.300	-0.000	-0.000	-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	8.000	0.000	858.900	0.000	100.000	855.000	855.000	100.000	855.000	836.900
BT	120.000	855.000	836.900	120.000	855.000	855.000	200.000	851.400	0.000	300.000
BT	848.900	0.000	400.000	847.300	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	700.000	22.000	312.000	356.000	200.000	200.000	200.000	-0.000	2.120	-0.000
X3	-0.000	-0.000	-0.000	247.000	-0.000	385.000	-0.000	-0.000	-0.000	-0.000
GR	845.800	0.000	840.000	22.000	839.000	77.000	841.200	91.000	840.600	112.000
GR	840.300	119.000	830.200	212.000	833.100	247.000	832.300	312.000	826.800	326.000
GR	826.300	331.000	825.800	336.000	825.900	345.000	826.500	349.000	830.300	356.000
GR	831.900	380.000	830.200	385.000	830.300	399.000	839.900	424.000	842.500	512.000
GR	842.300	612.000	844.300	712.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	900.000	-0.000	-0.000	-0.000	200.000	200.000	200.000	-0.000	-.200	-0.000
X3	-0.000	-0.000	-0.000	119.000	-0.000	424.000	-0.000	-0.000	-0.000	-0.000
QT	5.000	1245.000	640.000	1075.000	1245.000	1600.000	-0.000	-0.000	-0.000	-0.000
X1	2900.000	15.000	146.000	200.000	2000.000	2000.000	2000.000	-0.000	-0.000	-0.000
GR	839.600	0.000	834.700	100.000	832.600	146.000	827.500	162.000	826.700	170.000
GR	828.400	181.000	831.700	200.000	834.000	300.000	836.400	400.000	839.600	500.000
GR	841.400	600.000	842.600	700.000	843.100	800.000	843.400	900.000	844.500	962.000
X1	5750.000	19.000	1000.000	1014.000	2850.000	2650.000	2850.000	-0.000	-0.000	-0.000
GR	847.000	0.000	842.900	100.000	838.900	200.000	837.400	300.000	835.800	400.000
GR	834.600	500.000	832.300	600.000	831.900	700.000	831.100	800.000	832.100	900.000
GR	831.100	1000.000	828.900	1004.000	828.500	1009.000	829.000	1012.000	831.000	1014.000
GR	831.100	1100.000	834.000	1200.000	839.000	1300.000	846.900	1400.000	-0.000	-0.000
X1	5800.000	23.000	992.000	1007.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	833.500	833.500	-0.000
GR	846.300	0.000	843.900	100.000	841.300	200.000	839.300	300.000	838.000	400.000
GR	836.900	500.000	832.600	600.000	832.200	700.000	832.100	800.000	832.100	900.000
GR	831.500	950.000	830.600	992.000	830.600	992.000	829.600	1000.000	829.700	1007.000
GR	830.500	1007.000	831.000	1050.000	831.100	1100.000	834.000	1200.000	839.100	1300.000
GR	840.400	1400.000	841.500	1500.000	842.800	1600.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.500	2.600	-0.000	15.000	-0.000	70.000	-0.000	829.600	829.600
X1	5825.000	-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	833.500	835.200	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	835.200	835.200	-0.000
BT	23.000	0.000	846.300	0.000	100.000	843.900	0.000	200.000	841.300	0.000
BT	300.000	839.300	0.000	400.000	838.000	0.000	500.000	836.900	0.000	600.000
BT	836.100	0.000	700.000	835.600	0.000	800.000	835.200	0.000	900.000	835.400
BT	0.000	950.000	835.400	0.000	992.000	835.700	830.600	992.000	835.700	833.500
BT	1000.000	835.800	833.500	1007.000	835.800	833.500	1007.000	835.800	830.500	1050.000
BT	835.400	0.000	1100.000	835.300	0.000	1200.000	836.900	0.000	1300.000	839.100
BT	0.000	1400.000	840.400	0.000	1500.000	841.500	0.000	1600.000	842.800	0.000
X1	5860.000	21.000	950.000	1100.000	35.000	35.000	35.000	-0.000	-0.000	-0.000
GR	847.900	0.000	844.400	100.000	840.100	200.000	838.000	300.000	836.100	400.000
GR	834.800	500.000	833.500	600.000	833.100	700.000	833.000	800.000	832.600	900.000
GR	832.200	950.000	830.900	992.000	829.800	1000.000	830.300	1008.000	830.600	1050.000
GR	832.200	1100.000	833.500	1200.000	836.900	1300.000	838.800	1400.000	839.000	1500.000
GR	841.600	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	5.000	300.000	160.000	270.000	300.000	330.000	-0.000	-0.000	-0.000	-0.000
X1	7800.000	24.000	1000.000	1019.000	1840.000	1940.000	1940.000	-0.000	-0.000	-0.000
GR	842.300	0.000	843.300	200.000	841.000	300.000	838.200	400.000	835.900	500.000
GR	835.500	550.000	836.200	600.000	837.700	700.000	836.200	800.000	835.400	900.000
GR	835.000	1000.000	830.900	1013.000	830.700	1016.000	835.100	1019.000	834.600	1100.000
GR	835.500	1200.000	835.400	1300.000	835.800	1400.000	835.600	1500.000	836.100	1600.000
GR	835.100	1700.000	835.300	1800.000	835.300	1900.000	835.800	2000.000	-0.000	-0.000
X1	9200.000	28.000	800.000	852.000	1400.000	1400.000	1400.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	600.000	-0.000	1100.000	-0.000	-0.000	-0.000	-0.000

GR	854.000	0.000	845.500	100.000	843.400	200.000	844.300	300.000	840.100	400.000
GR	838.500	500.000	838.700	600.000	838.200	700.000	837.400	783.000	840.100	800.000
GR	837.000	813.000	832.300	822.000	831.800	825.000	832.300	830.000	832.500	832.000
GR	837.100	842.000	840.000	852.000	837.400	861.000	837.000	900.000	838.400	1000.000
GR	838.700	1100.000	835.700	1200.000	835.100	1300.000	835.200	1400.000	835.000	1500.000
GR	835.100	1600.000	835.200	1700.000	835.100	1800.000	-0.000	-0.000	-0.000	-0.000
X1	10850.000	19.000	161.000	200.000	1650.000	1650.000	1650.000	-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
GR	849.500	0.000	845.700	100.000	844.900	161.000	838.500	175.000	836.400	182.000
GR	835.800	183.000	835.200	190.000	836.000	194.000	840.000	200.000	837.500	300.000
GR	837.500	400.000	838.000	500.000	836.900	600.000	838.300	700.000	838.800	800.000
GR	839.300	900.000	839.300	1000.000	840.700	1100.000	840.500	1200.000	-0.000	-0.000
X1	10900.000	16.000	1000.000	1005.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1000.000	-0.000	1100.000	-0.000	-0.000	-0.000	-0.000
GR	848.000	0.000	848.200	700.000	848.200	800.000	845.700	900.000	845.700	1000.000
GR	836.500	1000.000	835.500	1001.000	835.000	1002.000	835.000	1003.000	835.500	1004.000
GR	836.500	1005.000	840.000	1005.000	837.500	1100.000	837.500	1200.000	838.000	1300.000
GR	840.500	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SR	-0.000	1.500	2.900	-0.000	5.000	-0.000	16.500	-0.000	835.900	835.000
X1	10970.000	30.000	1000.000	1005.000	70.000	70.000	70.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	840.000	848.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1000.000	-0.000	1005.000	-0.000	-0.000	-0.000	-0.000
X5	1.000	-0.000	842.800	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	16.000	0.000	848.000	0.000	700.000	848.200	0.000	800.000	848.200	0.000
BT	900.000	848.200	0.000	1000.000	848.200	0.000	1000.000	848.200	838.500	1001.000
BT	848.200	839.500	1002.000	848.200	840.000	1003.000	848.200	840.000	1004.000	848.200
BT	839.500	1005.000	848.200	838.500	1005.000	848.200	0.000	1100.000	848.300	0.000
BT	1200.000	848.300	0.000	1300.000	848.300	0.000	2000.000	849.000	0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000
GR	842.200	1000.000	836.500	1000.000	835.500	1001.000	835.000	1002.000	835.000	1003.000
GR	835.500	1004.000	836.500	1005.000	842.100	1005.000	841.100	1100.000	841.800	1200.000
GR	841.200	1300.000	840.900	1400.000	840.700	1500.000	841.200	1600.000	841.200	1700.000
GR	840.300	1750.000	841.100	1800.000	842.400	1830.000	842.200	1900.000	840.100	2000.000
X1	10980.000	27.000	987.000	1000.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	980.000	-0.000	1005.000	-0.000	-0.000	-0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000
GR	842.200	987.000	837.200	987.000	835.800	994.000	837.000	1000.000	842.100	1000.000
GR	841.100	1100.000	841.800	1200.000	841.200	1300.000	840.900	1400.000	840.700	1500.000
GR	841.200	1600.000	841.200	1700.000	840.300	1750.000	841.100	1800.000	842.400	1830.000
GR	842.200	1900.000	840.100	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11000.000	27.000	987.000	1000.000	20.000	20.000	20.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	980.000	-0.000	1020.000	-0.000	-0.000	-0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000
GR	837.700	980.000	837.200	987.000	835.800	994.000	837.000	1000.000	837.800	1020.000
GR	841.100	1100.000	841.800	1200.000	841.200	1300.000	840.900	1400.000	840.700	1500.000
GR	841.200	1600.000	841.200	1700.000	840.300	1750.000	841.100	1800.000	842.400	1830.000
GR	842.200	1900.000	840.100	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11020.000	27.000	987.000	1000.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	960.000	-0.000	1040.000	-0.000	-0.000	-0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000
GR	839.000	960.000	837.200	987.000	835.800	994.000	837.000	1000.000	838.600	1040.000
GR	841.100	1100.000	841.800	1200.000	841.200	1300.000	840.900	1400.000	840.700	1500.000
GR	841.200	1600.000	841.200	1700.000	840.300	1750.000	841.100	1800.000	842.400	1830.000
GR	842.200	1900.000	840.100	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11045.000	27.000	989.000	998.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	900.000	-0.000	1200.000	-0.000	-0.000	-0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000

X1	11045.000	27.000	989.000	998.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	900.000	-0.000	1200.000	-0.000	-0.000	-0.000	-0.000
GR	846.500	0.000	846.100	100.000	844.700	200.000	844.800	300.000	844.100	400.000
GR	844.200	500.000	844.300	600.000	844.100	700.000	843.700	800.000	843.100	900.000
GR	842.200	989.000	837.200	989.000	835.800	994.000	837.000	998.000	842.100	998.000
GR	841.100	1100.000	841.800	1200.000	841.200	1300.000	840.900	1400.000	840.700	1500.000
GR	841.200	1600.000	841.200	1700.000	840.300	1750.000	841.100	1800.000	842.400	1830.000
GR	842.200	1900.000	840.100	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.500	3.000	-0.000	9.000	-0.000	32.400	-0.000	835.500	835.800
X1	11060.000	-0.000	-0.000	-0.000	15.000	15.000	15.000	-0.000	-.300	-0.000
X2	-0.000	-0.000	1.000	839.400	840.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	900.000	-0.000	1200.000	-0.000	-0.000	-0.000	-0.000
BT	26.000	0.000	846.500	0.000	100.000	846.100	0.000	200.000	844.700	0.000
BT	300.000	844.800	0.000	400.000	844.100	0.000	500.000	844.200	0.000	600.000
BT	844.300	0.000	700.000	844.100	0.000	800.000	843.700	0.000	900.000	843.100
BT	-0.000	989.000	842.200	-0.000	989.000	843.000	839.400	998.000	842.900	839.400
BT	998.000	842.100	0.000	1100.000	841.100	0.000	1200.000	841.800	0.000	1300.000
BT	841.200	0.000	1400.000	840.900	0.000	1500.000	840.700	0.000	1600.000	841.200
BT	0.000	1700.000	841.200	0.000	1750.000	840.300	0.000	1800.000	841.100	0.000
BT	1830.000	842.400	0.000	1900.000	842.200	0.000	2000.000	840.100	-0.000	-0.000
X1	11110.000	20.000	250.000	293.000	50.000	50.000	50.000	-0.000	-2.200	-0.000
GR	853.900	0.000	851.200	75.000	851.500	150.000	850.300	200.000	843.900	250.000
GR	838.500	263.000	838.000	266.000	838.600	272.000	845.900	293.000	845.500	350.000
GR	844.900	450.000	844.900	550.000	839.400	604.000	839.400	650.000	839.500	750.000
GR	840.100	850.000	841.800	950.000	843.500	1050.000	851.000	1150.000	857.300	1250.000
X1	13350.000	-0.000	-0.000	-0.000	2240.000	2240.000	2240.000	-0.000	2.200	-0.000
X3	-0.000	-0.000	-0.000	200.000	-0.000	400.000	-0.000	-0.000	-0.000	-0.000
X1	13400.000	29.000	1000.000	1012.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1000.000	-0.000	1012.000	-0.000	-0.000	-0.000	-0.000
GR	849.000	0.000	849.200	100.000	849.200	200.000	849.300	300.000	849.500	400.000
GR	850.200	500.000	850.900	600.000	851.400	700.000	851.300	800.000	850.500	900.000
GR	849.000	1000.000	837.300	1000.000	837.300	1002.000	837.300	1004.000	837.300	1005.000
GR	837.300	1006.000	837.300	1008.000	837.300	1010.000	837.300	1012.000	849.000	1012.000
GR	849.900	1100.000	847.200	1200.000	847.000	1300.000	846.900	1400.000	846.900	1500.000
GR	847.200	1600.000	848.400	1700.000	850.700	1800.000	854.100	1900.000	-0.000	-0.000
SB	-0.000	1.500	2.900	-0.000	12.500	-0.000	62.000	-0.000	838.600	838.400
X1	13500.000	29.000	1000.000	1012.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	844.800	849.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1100.000	-0.000	-0.000	-0.000	-0.000
BT	7.000	1000.000	849.000	838.300	1002.000	849.000	842.000	1004.000	849.000	843.800
BT	1006.000	849.000	844.800	1008.000	849.000	843.800	1010.000	849.000	842.000	1012.000
BT	849.000	838.300	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	849.000	0.000	849.200	100.000	849.200	200.000	849.300	300.000	849.500	400.000
GR	850.200	500.000	850.900	600.000	851.400	700.000	851.300	800.000	850.500	900.000
GR	849.000	1000.000	837.300	1000.000	837.300	1002.000	837.300	1004.000	837.300	1005.000
GR	837.300	1006.000	837.300	1008.000	837.300	1010.000	837.300	1012.000	849.000	1012.000
GR	849.900	1100.000	847.200	1200.000	847.000	1300.000	846.900	1400.000	846.900	1500.000
GR	847.200	1600.000	848.400	1700.000	850.700	1800.000	854.100	1900.000	-0.000	-0.000
X1	13550.000	20.000	250.000	293.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	200.000	-0.000	293.000	-0.000	-0.000	-0.000	-0.000
GR	853.900	0.000	851.200	75.000	851.500	150.000	850.300	200.000	843.900	250.000
GR	838.500	263.000	838.000	266.000	838.600	272.000	845.900	293.000	845.500	350.000
GR	844.900	450.000	844.900	550.000	839.400	604.000	839.400	650.000	839.500	750.000
GR	840.100	850.000	841.800	950.000	843.500	1050.000	851.000	1150.000	857.300	1250.000
X1	14000.000	0.000	0.000	0.000	450.000	450.000	450.000	-0.000	.190	-0.000
X3	-0.000	-0.000	-0.000	200.000	-0.000	604.000	-0.000	-0.000	-0.000	-0.000
X1	15950.000	18.000	564.000	600.000	1950.000	1950.000	1950.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	500.000	-0.000	600.000	-0.000	-0.000	-0.000	-0.000
GR	855.000	0.000	852.100	109.000	852.500	200.000	849.600	221.000	850.000	230.000

GR	847.000	310.000	845.900	400.000	845.000	500.000	845.000	564.000	840.800	572.000
GR	839.400	576.000	839.000	581.000	841.000	589.000	846.600	600.000	845.700	700.000
GR	847.400	800.000	852.400	900.000	858.200	1000.000	-0.000	-0.000	-0.000	-0.000
X1	16000.000	18.000	600.000	610.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	-0.000	839.200	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	856.000	0.000	854.600	70.000	853.100	200.000	852.500	300.000	851.600	400.000
GR	850.800	500.000	850.600	600.000	838.300	600.000	838.300	602.000	838.100	604.000
GR	838.100	606.000	838.300	608.000	838.300	610.000	850.600	610.000	851.400	700.000
GR	853.200	800.000	855.800	900.000	858.100	1000.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.500	2.800	-0.000	10.000	-0.000	44.000	-0.000	839.000	839.200
X1	16100.000	18.000	600.000	610.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	844.000	850.600	-0.000	-0.000	-0.000	-0.000	-0.000
X3	-0.000	839.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	18.000	0.000	856.000	0.000	70.000	854.600	0.000	200.000	853.100	0.000
BT	300.000	852.500	0.000	400.000	851.600	0.000	500.000	850.800	0.000	600.000
BT	850.600	0.000	600.000	850.600	839.300	602.000	850.600	842.500	604.000	850.600
BT	844.000	606.000	850.600	844.000	608.000	850.600	842.500	610.000	850.600	839.300
BT	610.000	850.600	0.000	700.000	851.400	0.000	800.000	853.200	0.000	900.000
BT	855.800	0.000	1000.000	858.100	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	856.000	0.000	854.600	70.000	853.100	200.000	852.500	300.000	851.600	400.000
GR	850.800	500.000	850.600	600.000	838.300	600.000	838.300	602.000	838.100	604.000
GR	838.100	606.000	838.300	608.000	838.300	610.000	850.600	610.000	851.400	700.000
GR	853.200	800.000	855.800	900.000	858.100	1000.000	-0.000	-0.000	-0.000	-0.000
X1	16150.000	18.000	564.000	600.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
GR	855.000	0.000	852.100	109.000	852.500	200.000	849.600	221.000	850.000	230.000
GR	847.000	310.000	845.900	400.000	845.000	500.000	845.000	564.000	840.800	572.000
GR	839.400	576.000	839.000	581.000	841.000	589.000	846.600	600.000	845.700	700.000
GR	847.400	800.000	852.400	900.000	858.200	1000.000	-0.000	-0.000	-0.000	-0.000
QT	5.000	110.000	70.000	110.000	110.000	115.000	-0.000	-0.000	-0.000	-0.000
X1	18700.000	22.000	1240.000	1278.000	2600.000	2700.000	2650.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	700.000	-0.000	1700.000	-0.000	-0.000	-0.000	-0.000
GR	845.300	0.000	844.200	100.000	843.000	200.000	843.200	300.000	842.700	400.000
GR	844.400	500.000	843.900	600.000	844.500	700.000	844.800	800.000	843.200	900.000
GR	843.000	1000.000	845.600	1100.000	843.500	1200.000	843.500	1240.000	840.600	1252.000
GR	844.400	1278.000	843.300	1300.000	843.300	1400.000	844.000	1500.000	844.000	1600.000
GR	849.900	1715.000	864.700	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20550.000	10.000	280.000	315.000	1850.000	1850.000	1850.000	-0.000	-0.000	-0.000
GR	859.500	0.000	857.200	100.000	853.500	200.000	848.000	280.000	845.500	296.000
GR	845.500	300.000	848.000	315.000	854.800	400.000	857.200	500.000	865.600	600.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

PINE LAKE OUTLET 5258-01

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
0.00	0.00	0.00	0.00	825.80	1490.00	835.30	.11	0.00	0.00	835.41	246.98	3.10
0.00	0.00	0.00	0.00	825.80	775.00	833.37	.09	0.00	0.00	833.46	224.18	2.55
0.00	0.00	0.00	0.00	825.80	1290.00	834.83	.10	0.00	0.00	834.93	241.43	2.96
0.00	0.00	0.00	0.00	825.80	1490.00	835.31	.11	0.00	0.00	835.42	247.09	3.09
0.00	0.00	0.00	0.00	825.80	1920.00	836.23	.12	0.00	0.00	836.35	257.95	3.33
100.00	100.00	0.00	0.00	825.90	1490.00	835.11	.76	.13	.33	835.87	27.86	6.99
100.00	100.00	0.00	0.00	825.90	775.00	833.35	.34	.11	.13	833.70	27.37	4.71
100.00	100.00	0.00	0.00	825.90	1290.00	834.69	.64	.13	.27	835.33	27.74	6.40
100.00	100.00	0.00	0.00	825.90	1490.00	835.12	.76	.13	.32	835.87	27.86	6.98
100.00	100.00	0.00	0.00	825.90	1920.00	835.91	1.03	.14	.46	836.94	28.08	8.15
120.00	20.00	841.40	840.20	825.90	1490.00	835.23	.73	.09	.01	835.97	27.89	6.88
120.00	20.00	841.40	840.20	825.90	775.00	833.42	.34	.05	.00	833.75	27.39	4.66
120.00	20.00	841.40	840.20	825.90	1290.00	834.80	.62	.08	.01	835.42	27.77	6.31
120.00	20.00	841.40	840.20	825.90	1490.00	835.24	.73	.09	.01	835.97	27.90	6.87
120.00	20.00	841.40	840.20	825.90	1920.00	836.08	.99	.12	.01	837.07	28.13	7.98
170.00	50.00	0.00	0.00	825.80	1490.00	836.14	.07	.05	.20	836.21	256.91	2.63
170.00	50.00	0.00	0.00	825.80	775.00	833.81	.06	.04	.08	833.88	229.43	2.27
170.00	50.00	0.00	0.00	825.80	1290.00	835.55	.07	.05	.16	835.62	250.00	2.55
170.00	50.00	0.00	0.00	825.80	1490.00	836.15	.07	.05	.20	836.22	256.99	2.62
170.00	50.00	0.00	0.00	825.80	1920.00	837.32	.08	.05	.27	837.39	270.83	2.77
350.00	180.00	0.00	0.00	826.30	1490.00	836.16	.24	.10	.08	836.40	55.00	4.01
350.00	180.00	0.00	0.00	826.30	775.00	833.88	.13	.10	.03	834.02	55.00	2.95
350.00	180.00	0.00	0.00	826.30	1290.00	835.59	.21	.10	.07	835.80	55.00	3.75
350.00	180.00	0.00	0.00	826.30	1490.00	836.17	.24	.10	.08	836.41	55.00	4.01
350.00	180.00	0.00	0.00	826.30	1920.00	837.31	.30	.10	.11	837.61	55.00	4.50
400.00	50.00	0.00	0.00	826.90	1490.00	835.83	1.10	.11	.43	836.94	20.00	8.43
400.00	50.00	0.00	0.00	826.90	775.00	833.78	.51	.08	.19	834.28	20.00	5.72
400.00	50.00	0.00	0.00	826.90	1290.00	835.33	.93	.10	.36	836.26	20.00	7.74
400.00	50.00	0.00	0.00	826.90	1490.00	835.84	1.10	.11	.43	836.94	20.00	8.42
400.00	50.00	0.00	0.00	826.90	1920.00	836.83	1.48	.12	.59	838.31	20.00	9.76
500.00	100.00	847.30	836.90	828.00	1490.00	836.92	1.11	1.09	.00	838.03	20.00	8.47
500.00	100.00	847.30	836.90	828.00	775.00	834.25	.62	.53	.05	834.87	20.00	6.30
500.00	100.00	847.30	836.90	828.00	1290.00	836.06	1.02	.78	.04	837.08	20.00	8.10
500.00	100.00	847.30	836.90	828.00	1490.00	836.92	1.11	1.09	.01	838.03	20.00	8.47
500.00	100.00	847.30	836.90	828.00	1920.00	838.21	1.85	1.56	.18	840.06	20.00	10.91
700.00	200.00	0.00	0.00	827.92	1490.00	838.50	.12	.29	.30	838.62	138.00	3.10
700.00	200.00	0.00	0.00	827.92	775.00	835.25	.13	.37	.14	835.39	138.00	3.00
700.00	200.00	0.00	0.00	827.92	1290.00	837.52	.13	.31	.27	837.65	138.00	3.14
700.00	200.00	0.00	0.00	827.92	1490.00	838.50	.12	.29	.30	838.62	138.00	3.10
700.00	200.00	0.00	0.00	827.92	1920.00	840.70	.11	.23	.52	840.80	138.00	2.97

SECTION NUMBER	CHANNEL LENGTH	MIN FL OF ROADWAY	MAX FL OF LOW CHORD	MIN FL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
900.00	200.00	0.00	0.00	827.72	1490.00	838.66	.06	.07	.02	838.71	263.98	2.36
900.00	200.00	0.00	0.00	827.72	775.00	835.46	.05	.14	.02	835.54	226.23	2.44
900.00	200.00	0.00	0.00	827.72	1290.00	837.70	.06	.09	.02	837.76	252.65	2.44
900.00	200.00	0.00	0.00	827.72	1490.00	838.66	.06	.07	.02	838.72	264.03	2.36
900.00	200.00	0.00	0.00	827.72	1920.00	840.83	.05	.05	.02	840.87	289.62	2.20
2900.00	2000.00	0.00	0.00	826.70	1245.00	839.01	.02	.31	.01	839.03	469.65	1.41
2900.00	2000.00	0.00	0.00	826.70	640.00	836.03	.02	.50	.02	836.05	311.17	1.34
2900.00	2000.00	0.00	0.00	826.70	1075.00	838.12	.02	.37	.01	838.14	423.59	1.44
2900.00	2000.00	0.00	0.00	826.70	1245.00	839.02	.02	.31	.01	839.04	469.83	1.41
2900.00	2000.00	0.00	0.00	826.70	1600.00	841.07	.01	.20	.01	841.08	581.45	1.29
5750.00	2850.00	0.00	0.00	828.50	1245.00	839.14	.00	.11	.01	839.14	1107.88	.65
5750.00	2850.00	0.00	0.00	828.50	640.00	836.23	.00	.17	.01	836.23	870.86	.67
5750.00	2850.00	0.00	0.00	828.50	1075.00	838.28	.00	.13	.01	838.28	1043.81	.67
5750.00	2850.00	0.00	0.00	828.50	1245.00	839.15	.00	.11	.01	839.15	1108.01	.65
5750.00	2850.00	0.00	0.00	828.50	1600.00	841.15	.00	.07	.00	841.15	1183.55	.59
5800.00	50.00	0.00	0.00	829.60	1245.00	839.14	.00	.00	.00	839.15	991.65	.73
5800.00	50.00	0.00	0.00	829.60	640.00	836.23	.00	.00	.00	836.23	728.00	.72
5800.00	50.00	0.00	0.00	829.60	1075.00	838.28	.00	.00	.00	838.28	905.26	.75
5800.00	50.00	0.00	0.00	829.60	1245.00	839.15	.00	.00	.00	839.15	992.15	.73
5800.00	50.00	0.00	0.00	829.60	1600.00	841.15	.00	.00	.00	841.15	1261.23	.67
5825.00	25.00	835.20	833.50	829.60	1245.00	839.18	.00	.03	0.00	839.18	997.02	.73
5825.00	25.00	835.20	833.50	829.60	640.00	836.29	.00	.06	0.00	836.29	730.76	.71
5825.00	25.00	835.20	833.50	829.60	1075.00	838.31	.00	.04	0.00	838.32	908.91	.74
5825.00	25.00	835.20	833.50	829.60	1245.00	839.18	.00	.03	0.00	839.18	997.52	.73
5825.00	25.00	835.20	833.50	829.60	1600.00	841.18	.00	.03	0.00	841.18	1265.52	.66
5860.00	35.00	0.00	0.00	829.80	1245.00	839.18	.00	.00	.00	839.18	1263.25	.50
5860.00	35.00	0.00	0.00	829.80	640.00	836.29	.00	.00	.00	836.29	892.27	.50
5860.00	35.00	0.00	0.00	829.80	1075.00	838.31	.00	.00	.00	838.32	1089.66	.52
5860.00	35.00	0.00	0.00	829.80	1245.00	839.18	.00	.00	.00	839.18	1263.53	.50
5860.00	35.00	0.00	0.00	829.80	1600.00	841.18	.00	.00	.00	841.19	1409.27	.46
7800.00	1940.00	0.00	0.00	830.70	300.00	839.20	.00	.02	.00	839.20	1635.73	.19
7800.00	1940.00	0.00	0.00	830.70	160.00	836.35	.00	.06	.00	836.35	1340.72	.61
7800.00	1940.00	0.00	0.00	830.70	270.00	838.34	.00	.03	.00	838.34	1605.11	.24
7800.00	1940.00	0.00	0.00	830.70	300.00	839.20	.00	.02	.00	839.20	1635.84	.19
7800.00	1940.00	0.00	0.00	830.70	330.00	841.19	.00	.01	.00	841.19	1708.79	.12
9200.00	1400.00	0.00	0.00	831.80	300.00	839.21	.01	.01	.01	839.22	485.25	1.11
9200.00	1400.00	0.00	0.00	831.80	160.00	836.56	.06	.24	.03	836.62	26.99	2.01
9200.00	1400.00	0.00	0.00	831.80	270.00	838.35	.04	.03	.02	838.39	299.38	1.68
9200.00	1400.00	0.00	0.00	831.80	300.00	839.21	.01	.01	.01	839.22	485.30	1.11
9200.00	1400.00	0.00	0.00	831.80	330.00	841.20	.00	.00	.00	841.20	500.00	.50

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C=SEL	HV	HL	OLOSS	EG	TOPWID	VCH
10850.00	1650.00	0.00	0.00	835.20	300.00	839.92	.09	.76	.04	840.02	125.25	2.75
10850.00	1650.00	0.00	0.00	835.20	160.00	838.85	.09	2.30	.02	838.94	78.05	2.60
10850.00	1650.00	0.00	0.00	835.20	270.00	839.77	.09	1.44	.03	839.86	118.47	2.67
10850.00	1650.00	0.00	0.00	835.20	300.00	839.92	.09	.75	.04	840.02	125.27	2.75
10850.00	1650.00	0.00	0.00	835.20	330.00	841.30	.03	.11	.01	841.33	131.12	1.66
10900.00	50.00	0.00	0.00	835.00	300.00	840.07	.16	.18	.03	840.23	100.00	4.84
10900.00	50.00	0.00	0.00	835.00	160.00	838.94	.40	.25	.15	839.35	59.53	6.18
10900.00	50.00	0.00	0.00	835.00	270.00	839.91	.17	.18	.04	840.08	96.54	4.93
10900.00	50.00	0.00	0.00	835.00	300.00	840.07	.16	.18	.03	840.23	100.00	4.84
10900.00	50.00	0.00	0.00	835.00	330.00	841.34	.03	.04	.00	841.37	100.00	2.40
10970.00	70.00	848.00	840.00	835.00	300.00	847.37	.40	7.54	0.00	847.77	5.00	5.05
10970.00	70.00	848.00	840.00	835.00	160.00	842.80	.30	.76	.03	843.10	5.00	4.38
10970.00	70.00	848.00	840.00	835.00	270.00	845.71	.43	6.06	0.00	846.15	5.00	5.29
10970.00	70.00	848.00	840.00	835.00	300.00	847.37	.40	7.54	0.00	847.77	5.00	5.05
10970.00	70.00	848.00	840.00	835.00	330.00	847.73	.45	6.81	0.00	848.18	5.00	5.40
10980.00	10.00	0.00	0.00	835.80	300.00	847.84	.04	.01	.11	847.88	25.00	1.75
10980.00	10.00	0.00	0.00	835.80	160.00	843.14	.05	.01	.07	843.19	25.00	1.80
10980.00	10.00	0.00	0.00	835.80	270.00	846.22	.05	.01	.12	846.27	25.00	1.90
10980.00	10.00	0.00	0.00	835.80	300.00	847.84	.04	.01	.11	847.88	25.00	1.75
10980.00	10.00	0.00	0.00	835.80	330.00	848.26	.05	.01	.12	848.31	25.00	1.84
11000.00	20.00	0.00	0.00	836.00	300.00	847.88	.02	.00	.01	847.89	40.00	1.22
11000.00	20.00	0.00	0.00	836.00	160.00	843.19	.01	.00	.01	843.20	40.00	1.17
11000.00	20.00	0.00	0.00	836.00	270.00	846.27	.02	.00	.01	846.28	40.00	1.30
11000.00	20.00	0.00	0.00	836.00	300.00	847.88	.02	.00	.01	847.89	40.00	1.22
11000.00	20.00	0.00	0.00	836.00	330.00	848.30	.02	.00	.01	848.32	40.00	1.29
11020.00	20.00	0.00	0.00	835.80	300.00	847.89	.00	.00	.00	847.90	80.00	.79
11020.00	20.00	0.00	0.00	835.80	160.00	843.20	.00	.00	.00	843.20	80.00	.79
11020.00	20.00	0.00	0.00	835.80	270.00	846.28	.01	.00	.00	846.29	80.00	.85
11020.00	20.00	0.00	0.00	835.80	300.00	847.89	.00	.00	.00	847.90	80.00	.79
11020.00	20.00	0.00	0.00	835.80	330.00	848.32	.00	.00	.00	848.32	80.00	.83
11045.00	25.00	0.00	0.00	835.80	300.00	847.90	.00	.00	.00	847.90	300.00	.36
11045.00	25.00	0.00	0.00	835.80	160.00	843.20	.01	.00	.00	843.21	300.00	1.07
11045.00	25.00	0.00	0.00	835.80	270.00	846.29	.00	.00	.00	846.29	300.00	.48
11045.00	25.00	0.00	0.00	835.80	300.00	847.90	.00	.00	.00	847.90	300.00	.36
11045.00	25.00	0.00	0.00	835.80	330.00	848.33	.00	.00	.00	848.33	300.00	.37
11060.00	15.00	840.30	839.40	835.50	300.00	847.90	.00	.00	0.00	847.90	300.00	.34
11060.00	15.00	840.30	839.40	835.50	160.00	843.20	.00	0.00	0.00	843.21	300.00	.88
11060.00	15.00	840.30	839.40	835.50	270.00	846.29	.00	.00	0.00	846.29	300.00	.44
11060.00	15.00	840.30	839.40	835.50	300.00	847.90	.00	.00	0.00	847.90	300.00	.34
11060.00	15.00	840.30	839.40	835.50	330.00	848.33	.00	.00	0.00	848.33	300.00	.35

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
11110.00	50.00	0.00	0.00	835.80	300.00	847.90	.00	.00	.00	847.90	936.46	.11
11110.00	50.00	0.00	0.00	835.80	160.00	843.21	.00	.00	.00	843.21	764.69	.14
11110.00	50.00	0.00	0.00	835.80	270.00	846.29	.00	.00	.00	846.29	902.45	.13
11110.00	50.00	0.00	0.00	835.80	300.00	847.90	.00	.00	.00	847.90	936.47	.11
11110.00	50.00	0.00	0.00	835.80	330.00	848.33	.00	.00	.00	848.33	953.29	.12
13350.00	2240.00	0.00	0.00	838.00	300.00	847.90	.01	.00	.00	847.91	181.31	.85
13350.00	2240.00	0.00	0.00	838.00	160.00	843.21	.04	.02	.02	843.25	33.60	1.57
13350.00	2240.00	0.00	0.00	838.00	270.00	846.29	.02	.01	.01	846.31	168.67	1.15
13350.00	2240.00	0.00	0.00	838.00	300.00	847.90	.01	.00	.00	847.91	181.31	.85
13350.00	2240.00	0.00	0.00	838.00	330.00	848.33	.01	.00	.00	848.34	184.66	.85
13400.00	50.00	0.00	0.00	837.30	300.00	847.87	.09	.01	.04	847.96	12.00	2.37
13400.00	50.00	0.00	0.00	837.30	160.00	843.23	.08	.04	.02	843.31	12.00	2.25
13400.00	50.00	0.00	0.00	837.30	270.00	846.27	.10	.02	.04	846.36	12.00	2.51
13400.00	50.00	0.00	0.00	837.30	300.00	847.87	.09	.01	.04	847.96	12.00	2.37
13400.00	50.00	0.00	0.00	837.30	330.00	848.29	.10	.01	.04	848.39	12.00	2.50
13500.00	100.00	849.00	844.80	837.30	300.00	848.33	.08	.46	0.00	848.41	12.00	2.27
13500.00	100.00	849.00	844.80	837.30	160.00	843.37	.10	.15	.01	843.47	12.00	2.57
13500.00	100.00	849.00	844.80	837.30	270.00	846.42	.23	.22	.07	846.65	12.00	3.86
13500.00	100.00	849.00	844.80	837.30	300.00	848.34	.08	.46	0.00	848.41	12.00	2.27
13500.00	100.00	849.00	844.80	837.30	330.00	848.86	.09	.56	0.00	848.95	12.00	2.38
13550.00	50.00	0.00	0.00	838.00	300.00	848.43	.01	.01	.02	848.44	78.39	.91
13550.00	50.00	0.00	0.00	838.00	160.00	843.50	.03	.04	.02	843.53	35.14	1.43
13550.00	50.00	0.00	0.00	838.00	270.00	846.71	.02	.02	.06	846.73	64.98	1.10
13550.00	50.00	0.00	0.00	838.00	300.00	848.43	.01	.01	.02	848.44	78.39	.91
13550.00	50.00	0.00	0.00	838.00	330.00	848.97	.01	.01	.02	848.98	82.60	.92
14000.00	450.00	0.00	0.00	838.19	300.00	848.46	.00	.01	.00	848.46	388.11	.49
14000.00	450.00	0.00	0.00	838.19	160.00	843.68	.02	.16	.00	843.70	75.22	1.19
14000.00	450.00	0.00	0.00	838.19	270.00	846.77	.01	.03	.00	846.77	374.88	.72
14000.00	450.00	0.00	0.00	838.19	300.00	848.46	.00	.01	.00	848.46	388.12	.49
14000.00	450.00	0.00	0.00	838.19	330.00	848.99	.00	.01	.00	849.00	392.32	.48
15950.00	1950.00	0.00	0.00	839.00	300.00	848.51	.01	.06	.01	848.53	100.00	.98
15950.00	1950.00	0.00	0.00	839.00	160.00	844.41	.04	.74	.01	844.44	30.53	1.57
15950.00	1950.00	0.00	0.00	839.00	270.00	846.93	.02	.17	.01	846.95	100.00	1.26
15950.00	1950.00	0.00	0.00	839.00	300.00	848.51	.01	.06	.01	848.53	100.00	.98
15950.00	1950.00	0.00	0.00	839.00	330.00	849.04	.01	.05	.01	849.06	100.00	.98
16000.00	50.00	0.00	0.00	839.20	300.00	848.45	.16	.01	.08	848.61	10.00	3.24
16000.00	50.00	0.00	0.00	839.20	160.00	844.40	.15	.05	.05	844.55	10.00	3.08
16000.00	50.00	0.00	0.00	839.20	270.00	846.87	.19	.02	.09	847.06	10.00	3.52
16000.00	50.00	0.00	0.00	839.20	300.00	848.45	.16	.01	.08	848.61	10.00	3.24
16000.00	50.00	0.00	0.00	839.20	330.00	848.97	.16	.01	.08	849.15	10.00	3.38

SECTION NUMBER	CHANNEL LENGTH	MIN FL OF ROADWAY	MAX FL OF LOW CHORD	MIN FL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
16100.00	100.00	850.60	844.00	839.00	300.00	849.40	.13	.92	0.00	849.53	10.00	2.88
16100.00	100.00	850.60	844.00	839.00	160.00	844.58	.13	.16	0.00	844.71	10.00	2.87
16100.00	100.00	850.60	844.00	839.00	270.00	847.59	.15	.68	0.00	847.74	10.00	3.14
16100.00	100.00	850.60	844.00	839.00	300.00	849.40	.13	.92	0.00	849.53	10.00	2.88
16100.00	100.00	850.60	844.00	839.00	330.00	850.15	.14	1.13	0.00	850.28	10.00	2.96
16150.00	50.00	0.00	0.00	839.00	300.00	849.57	.00	.00	.04	849.57	602.02	.44
16150.00	50.00	0.00	0.00	839.00	160.00	844.74	.03	.04	.03	844.77	31.86	1.42
16150.00	50.00	0.00	0.00	839.00	270.00	847.79	.00	.01	.04	847.80	518.94	.73
16150.00	50.00	0.00	0.00	839.00	300.00	849.57	.00	.00	.04	849.57	602.04	.44
16150.00	50.00	0.00	0.00	839.00	330.00	850.32	.00	.00	.04	850.33	642.73	.39
18700.00	2650.00	0.00	0.00	840.60	110.00	849.58	.00	.00	.00	849.58	1000.00	.06
18700.00	2650.00	0.00	0.00	840.60	70.00	844.96	.00	.18	.01	844.96	863.81	.22
4 18700.00	2650.00	0.00	0.00	840.60	110.00	847.81	.00	.01	.00	847.81	974.22	.09
18700.00	2650.00	0.00	0.00	840.60	110.00	849.58	.00	.00	.00	849.58	1000.00	.06
18700.00	2650.00	0.00	0.00	840.60	115.00	850.33	.00	.00	.00	850.33	1000.00	.05
20550.00	1850.00	0.00	0.00	845.50	110.00	849.57	.01	.00	.01	849.59	77.75	1.01
20550.00	1850.00	0.00	0.00	845.50	70.00	846.73	.37	.09	0.00	847.10	19.23	4.91
20550.00	1850.00	0.00	0.00	845.50	110.00	847.76	.11	.01	.06	847.87	32.04	2.70
20550.00	1850.00	0.00	0.00	845.50	110.00	849.57	.01	.00	.01	849.59	77.76	1.01
20550.00	1850.00	0.00	0.00	845.50	115.00	850.33	.01	.00	.00	850.33	98.04	.80

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	1490.000	835.300	0.000	0.000	0.000	246.981	0.000	-0.000
0.000	775.000	833.370	-1.930	0.000	0.000	224.183	22.798	-0.000
0.000	1290.000	834.830	1.460	0.000	0.000	241.425	5.556	-0.000
0.000	1490.000	835.309	.479	0.000	0.000	247.087	-.106	-0.000
0.000	1920.000	836.229	.920	0.000	0.000	257.952	-10.971	-0.000
100.000	1490.000	835.107	0.000	-.193	0.000	27.860	0.000	100.000
100.000	775.000	833.353	-1.754	-.017	0.000	27.371	.488	100.000
100.000	1290.000	834.691	1.338	-.139	0.000	27.744	.116	100.000
100.000	1490.000	835.116	.426	-.193	0.000	27.862	-.002	100.000
100.000	1920.000	835.913	.796	-.316	0.000	28.084	-.224	100.000
120.000	1490.000	835.233	0.000	.126	0.000	27.895	0.000	20.000
120.000	775.000	833.416	-1.817	.063	0.000	27.389	.506	20.000
120.000	1290.000	834.797	1.381	.107	0.000	27.773	.121	20.000
120.000	1490.000	835.242	.444	.125	0.000	27.897	-.002	20.000
120.000	1920.000	836.082	.841	.170	0.000	28.131	-.236	20.000
170.000	1490.000	836.139	0.000	.906	0.000	256.914	0.000	50.000
170.000	775.000	833.813	-2.325	.397	0.000	229.427	27.488	50.000
170.000	1290.000	835.554	1.740	.756	0.000	249.995	6.919	50.000
170.000	1490.000	836.145	.592	.904	0.000	256.990	-.076	50.000
170.000	1920.000	837.316	1.171	1.233	0.000	270.833	-13.919	50.000
350.000	1490.000	836.159	0.000	.021	0.000	54.999	0.000	180.000
350.000	775.000	833.885	-2.275	.071	0.000	54.999	.000	180.000
350.000	1290.000	835.588	1.704	.035	0.000	54.999	.000	180.000
350.000	1490.000	836.165	.577	.020	0.000	54.999	-.000	180.000
350.000	1920.000	837.305	1.140	-.011	0.000	54.999	-.000	180.000
400.000	1490.000	835.835	0.000	-.324	0.000	20.000	0.000	50.000
400.000	775.000	833.777	-2.058	-.107	0.000	20.000	0.000	50.000
400.000	1290.000	835.329	1.552	-.259	0.000	20.000	0.000	50.000
400.000	1490.000	835.842	.512	-.324	0.000	20.000	0.000	50.000

1**********
* HEC-2 WATER SURFACE PROFILES *
*
* Version 4.6.2; May 1991 *
*
* RUN DATE 14APR94 TIME 11:35:40 *
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* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET, SUITE D
* DAVIS, CALIFORNIA 95616-4687
* (916) 756-1104
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X      X  XXXXXXX   XXXXX              XXXXX
X      X  X         X     X            X     X
X      X  X         X                  X
XXXXXXXX  XXXX      X          XXXXX    XXXXX
X      X  X         X                  X
X      X  X         X     X            X
X      X  XXXXXXX   XXXXX              XXXXXXX
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14APR94 11:35:40 PAGE 1

THIS RUN EXECUTED 14APR94 11:35:40

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

T1Meridian Township FIS
T2Updated 10-Year Flood STS Consultants Ltd. 4/94 DMR
T3Pine Lake Outlet

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.0	2.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	835.3	-0.0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

	1.0	10.0	11.0	12.0	3.0	4.0	26.0	-0.0	-0.0	-0.0

NC	.12	.12	.045	.30	.50	-0.0	-0.0	-0.0	-0.0	-0.0
QT	4.0	775.0	1290.0	1490.0	1920.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	0.0	22.0	312.0	356.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
GR	845.8	0.0	840.0	22.0	839.0	77.0	841.2	91.0	840.6	112.0
GR	840.3	119.0	830.2	212.0	833.1	247.0	832.3	312.0	826.8	326.0
GR	826.3	331.0	825.8	336.0	825.9	345.0	826.5	349.0	830.3	356.0
GR	831.9	380.0	830.2	385.0	830.3	399.0	839.9	424.0	842.5	512.0
GR	842.3	612.0	844.3	712.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	100.0	11.0	185.0	215.0	100.0	100.0	100.0	-0.0	-0.0	-0.0
GR	844.1	0.0	842.6	100.0	841.9	154.0	842.8	185.0	827.8	187.0

GR	825.9	200.0	829.0	213.0	842.8	215.0	841.4	300.0	842.5	400.0
GR	844.5	500.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
SB	-0.0	1.5	2.9	-0.0	24.0	-0.0	316.0	-0.0	825.9	825.9
X1	120.0	-0.0	-0.0	-0.0	20.0	20.0	20.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	1.0	840.2	841.4	-0.0	-0.0	-0.0	-0.0	-0.0
BT	13.0	0.0	844.1	820.0	100.0	842.6	820.0	154.0	841.9	820.0
BT	185.0	842.8	842.8	185.0	842.8	840.2	187.0	842.8	840.2	200.0
BT	842.8	840.2	213.0	842.8	840.2	215.0	842.8	840.2	215.0	842.8
BT	842.8	300.0	841.4	820.0	400.0	842.5	820.0	500.0	844.5	820.0
X1	170.0	22.0	312.0	356.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
GR	845.8	0.0	840.0	22.0	839.0	77.0	841.2	91.0	840.6	112.0
GR	840.3	119.0	830.2	212.0	833.1	247.0	832.3	312.0	826.8	326.0
GR	826.3	331.0	825.8	336.0	825.9	345.0	826.5	349.0	830.3	356.0
GR	831.9	380.0	830.2	385.0	830.3	399.0	839.9	424.0	842.5	512.0
GR	842.3	612.0	844.3	712.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

X1	350.0	-0.0	-0.0	-0.0	180.0	180.0	180.0	-0.0	.50	-0.0
X3	-0.0	-0.0	-0.0	312.0	-0.0	367.0	-0.0	-0.0	-0.0	-0.0
X1	400.0	11.0	100.0	120.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
GR	858.9	0.0	855.0	100.0	827.0	100.0	827.0	105.0	826.9	110.0
GR	827.1	115.0	827.0	120.0	855.0	120.0	851.4	200.0	848.9	300.0
GR	847.3	400.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
SB	-0.0	1.5	3.0	-0.0	20.0	-0.0	200.0	-0.0	828.0	826.9
X1	500.0	-0.0	-0.0	-0.0	100.0	100.0	100.0	-0.0	1.10	-0.0
X2	-0.0	-0.0	1.0	836.9	847.3	-0.0	-0.0	-0.0	-0.0	-0.0
X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
BT	8.0	0.0	855.9	820.0	100.0	855.0	855.0	100.0	855.0	836.9
BT	120.0	855.0	836.9	120.0	855.0	855.0	200.0	851.4	820.0	300.0
BT	848.9	820.0	400.0	847.3	820.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	700.0	22.0	312.0	356.0	200.0	200.0	200.0	-0.0	2.12	-0.0
X3	-0.0	-0.0	-0.0	247.0	-0.0	385.0	-0.0	-0.0	-0.0	-0.0
GR	845.8	0.0	840.0	22.0	839.0	77.0	841.2	91.0	840.6	112.0
GR	840.3	119.0	830.2	212.0	833.1	247.0	832.3	312.0	826.8	326.0
GR	826.3	331.0	825.8	336.0	825.9	345.0	826.5	349.0	830.3	356.0
GR	831.9	380.0	830.2	385.0	830.3	399.0	839.9	424.0	842.5	512.0
GR	842.3	612.0	844.3	712.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	900.0	-0.0	-0.0	-0.0	200.0	200.0	200.0	-0.0	-.20	0.0
X3	-0.0	-0.0	-0.0	119.0	-0.0	424.0	-0.0	-0.0	-0.0	-0.0
QT	5.0	395.0	788.0	1276.0	1550.0	2132.0	-0.0	-0.0	-0.0	-0.0
X1	2900.0	15.0	146.0	200.0	2000.0	2000.0	2000.0	-0.0	-0.0	-0.0
GR	839.6	0.0	834.7	100.0	832.6	146.0	827.5	162.0	826.7	170.0
GR	828.4	181.0	831.7	200.0	834.0	300.0	836.4	400.0	839.6	500.0
GR	841.4	600.0	842.6	700.0	843.1	800.0	843.4	900.0	844.5	962.0
X1	5750.0	19.0	1000.0	1014.0	2850.0	2650.0	2850.0	-0.0	-0.0	-0.0
GR	847.0	0.0	842.9	100.0	838.9	200.0	837.4	300.0	835.8	400.0
GR	834.6	500.0	832.3	600.0	831.9	700.0	831.1	800.0	832.1	900.0
GR	831.1	1000.0	828.9	1004.0	828.5	1009.0	829.0	1012.0	831.0	1014.0
GR	831.1	1100.0	834.0	1200.0	839.0	1300.0	846.9	1400.0	-0.0	-0.0
X1	5800.0	22.0	992.0	1007.0	50.0	50.0	50.0	-0.0	-0.0	-0.0

X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	833.5	833.5	-0.0
GR	846.3	0.0	843.9	100.0	841.3	200.0	839.3	300.0	838.0	400.0
GR	836.9	500.0	832.6	600.0	832.2	700.0	832.1	800.0	832.1	900.0
GR	831.5	950.0	830.6	992.0	829.6	1000.0	829.7	1006.9	830.5	1007.0
GR	831.0	1050.0	831.1	1100.0	834.0	1200.0	839.1	1300.0	840.4	1400.0
GR	841.5	1500.0	842.8	1600.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

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SB	-0.0	1.5	2.6	-0.0	15.0	-0.0	70.0	-0.0	829.6	829.6
X1	5825.0	-0.0	-0.0	-0.0	25.0	25.0	25.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	1.0	833.5	835.2	-0.0	-0.0	-0.0	-0.0	-0.0
X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	835.2	835.2	-0.0
BT	23.0	0.0	846.3	820.0	100.0	843.9	820.0	200.0	841.3	820.0
BT	300.0	839.3	820.0	400.0	838.0	820.0	500.0	836.9	820.0	600.0
BT	836.1	820.0	700.0	835.6	820.0	800.0	835.2	820.0	900.0	835.4
BT	820.0	950.0	835.4	820.0	992.0	835.7	830.6	992.0	835.7	833.5
BT	1000.0	835.8	833.5	1006.9	835.8	833.5	1007.0	835.8	830.5	1050.0
BT	835.4	820.0	1100.0	835.3	820.0	1200.0	836.9	820.0	1300.0	839.1
BT	820.0	1400.0	840.4	820.0	1500.0	841.5	820.0	1600.0	842.8	820.0
X1	5860.0	21.0	950.0	1100.0	35.0	35.0	35.0	-0.0	-0.0	-0.0
GR	847.9	0.0	844.4	100.0	840.1	200.0	838.0	300.0	836.1	400.0
GR	834.8	500.0	833.5	600.0	833.1	700.0	833.0	800.0	832.6	900.0
GR	832.2	950.0	830.9	992.0	829.8	1000.0	830.3	1008.0	830.6	1050.0
GR	832.2	1100.0	833.5	1200.0	836.9	1300.0	838.8	1400.0	839.0	1500.0
GR	841.6	1600.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
QT	5.0	74.0	151.0	255.0	313.0	438.0	-0.0	-0.0	-0.0	-0.0
X1	7800.0	24.0	1000.0	1019.0	1840.0	1940.0	1940.0	-0.0	-0.0	-0.0
GR	842.3	0.0	843.3	200.0	841.0	300.0	838.2	400.0	835.9	500.0
GR	835.5	550.0	836.2	600.0	837.7	700.0	836.2	800.0	835.4	900.0
GR	835.0	1000.0	830.9	1013.0	830.7	1016.0	835.1	1019.0	834.6	1100.0
GR	835.5	1200.0	835.4	1300.0	835.8	1400.0	835.6	1500.0	836.1	1600.0
GR	835.1	1700.0	835.3	1800.0	835.3	1900.0	835.8	2000.0	-0.0	-0.0
X1	9200.0	28.0	800.0	852.0	1400.0	1400.0	1400.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	600.0	-0.0	1100.0	-0.0	-0.0	-0.0	-0.0
GR	854.0	0.0	845.5	100.0	843.4	200.0	844.3	300.0	840.1	400.0
GR	838.5	500.0	838.7	600.0	838.2	700.0	837.4	783.0	840.1	800.0
GR	837.0	813.0	832.3	822.0	831.8	825.0	832.3	830.0	832.5	832.0
GR	837.1	842.0	840.0	852.0	837.4	861.0	837.0	900.0	838.4	1000.0
GR	838.7	1100.0	835.7	1200.0	835.1	1300.0	835.2	1400.0	835.0	1500.0
GR	835.1	1600.0	835.2	1700.0	835.1	1800.0	-0.0	-0.0	-0.0	-0.0
X1	10850.	19.0	161.0	200.0	1650.0	1650.0	1650.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	100.0	-0.0	300.0	-0.0	-0.0	-0.0	-0.0
GR	849.5	0.0	845.7	100.0	844.9	161.0	838.5	175.0	836.4	182.0
GR	835.8	183.0	835.2	190.0	836.0	194.0	840.0	200.0	837.5	300.0
GR	837.5	400.0	838.0	500.0	836.9	600.0	838.3	700.0	838.8	800.0
GR	839.3	900.0	839.3	1000.0	840.7	1100.0	840.5	1200.0	-0.0	-0.0
X1	10900.	16.0	1000.0	1005.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	1000.0	-0.0	1100.0	-0.0	-0.0	-0.0	-0.0
GR	848.0	0.0	848.2	700.0	848.2	800.0	845.7	900.0	845.7	1000.0
GR	836.5	1000.0	835.5	1001.0	835.0	1002.0	835.0	1003.0	835.5	1004.0
GR	836.5	1005.0	840.0	1005.0	837.5	1100.0	837.5	1200.0	838.0	1300.0
GR	840.5	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

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SC	1.024	0.2	2.9	0.0	5.0	0.0	70.0	2.1	835.9	835.0
X1	10970.	30.0	1000.0	1005.0	70.0	70.0	70.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	2.0	840.0	848.0	-0.0	-0.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	1000.0	-0.0	1005.0	-0.0	-0.0	-0.0	-0.0
X5	1.0	-0.0	842.8	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
BT	16.0	0.0	848.0	820.0	700.0	848.2	820.0	800.0	848.2	820.0
BT	900.0	848.2	820.0	1000.0	848.2	820.0	1000.0	848.2	820.0	1001.0
BT	848.2	820.0	1002.0	848.2	820.0	1003.0	848.2	820.0	1004.0	848.2
BT	820.0	1005.0	848.2	820.0	1005.0	848.2	820.0	1100.0	848.3	820.0
BT	1200.0	848.3	820.0	1300.0	848.3	820.0	2000.0	849.0	820.0	-0.0
GR	846.5	0.0	846.1	100.0	844.7	200.0	844.8	300.0	844.1	400.0
GR	844.2	500.0	844.3	600.0	844.1	700.0	843.7	800.0	843.1	900.0
GR	842.2	1000.0	836.5	1000.0	835.5	1001.0	835.0	1002.0	835.0	1003.0
GR	835.5	1004.0	836.5	1005.0	842.1	1005.0	841.1	1100.0	841.8	1200.0
GR	841.2	1300.0	840.9	1400.0	840.7	1500.0	841.2	1600.0	841.2	1700.0
GR	840.3	1750.0	841.1	1800.0	842.4	1830.0	842.2	1900.0	840.1	2000.0
X1	10980.	27.0	987.0	1000.0	10.0	10.0	10.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	980.0	-0.0	1005.0	-0.0	-0.0	-0.0	-0.0
GR	846.5	0.0	846.1	100.0	844.7	200.0	844.8	300.0	844.1	400.0
GR	844.2	500.0	844.3	600.0	844.1	700.0	843.7	800.0	843.1	900.0
GR	842.2	987.0	837.2	987.0	835.8	994.0	837.0	1000.0	842.1	1000.0
GR	841.1	1100.0	841.8	1200.0	841.2	1300.0	840.9	1400.0	840.7	1500.0
GR	841.2	1600.0	841.2	1700.0	840.3	1750.0	841.1	1800.0	842.4	1830.0
GR	842.2	1900.0	840.1	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	11000.	27.0	987.0	1000.0	20.0	20.0	20.0	-0.0	.20	-0.0
X3	-0.0	-0.0	-0.0	980.0	-0.0	1020.0	-0.0	-0.0	-0.0	-0.0
GR	846.5	0.0	846.1	100.0	844.7	200.0	844.8	300.0	844.1	400.0
GR	844.2	500.0	844.3	600.0	844.1	700.0	843.7	800.0	843.1	900.0
GR	837.7	980.0	837.2	987.0	835.8	994.0	837.0	1000.0	837.8	1020.0
GR	841.1	1100.0	841.8	1200.0	841.2	1300.0	840.9	1400.0	840.7	1500.0
GR	841.2	1600.0	841.2	1700.0	840.3	1750.0	841.1	1800.0	842.4	1830.0
GR	842.2	1900.0	840.1	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	11020.	27.0	987.0	1000.0	20.0	20.0	20.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	960.0	0.0	1040.0	-0.0	-0.0	-0.0	-0.0
GR	846.5	0.0	846.1	100.0	844.7	200.0	844.8	300.0	844.1	400.0
GR	844.2	500.0	844.3	600.0	844.1	700.0	843.7	800.0	843.1	900.0
GR	839.0	960.0	837.2	987.0	835.8	994.0	837.0	1000.0	838.6	1040.0
GR	841.1	1100.0	841.8	1200.0	841.2	1300.0	840.9	1400.0	840.7	1500.0
GR	841.2	1600.0	841.2	1700.0	840.3	1750.0	841.1	1800.0	842.4	1830.0
GR	842.2	1900.0	840.1	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	11045.	27.0	989.0	998.0	25.0	25.0	25.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	900.0	-0.0	1200.0	-0.0	-0.0	-0.0	-0.0
X4	1.0	837.2	989.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
GR	846.5	0.0	846.1	100.0	844.7	200.0	844.8	300.0	844.1	400.0
GR	844.2	500.0	844.3	600.0	844.1	700.0	843.7	800.0	843.1	900.0
GR	842.2	989.0	839.4	989.0	835.8	994.0	837.0	998.0	842.1	998.0
GR	841.1	1100.0	841.8	1200.0	841.2	1300.0	840.9	1400.0	840.7	1500.0
GR	841.2	1600.0	841.2	1700.0	840.3	1750.0	841.1	1800.0	842.4	1830.0
GR	842.2	1900.0	840.1	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

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SB	-0.0	1.5	3.0	-0.0	9.0	-0.0	32.4	-0.0	835.5	835.8
X1	11060.	-0.0	-0.0	-0.0	15.0	15.0	15.0	-0.0	-.30	-0.0
X2	-0.0	-0.0	1.0	839.4	841.8	-0.0	-0.0	-0.0	-0.0	-0.0

X3	-0.0	-0.0	-0.0	900.0	-0.0	1200.0	-0.0	-0.0	-0.0	-0.0
BT	26.0	0.0	846.5	820.0	100.0	846.1	820.0	200.0	844.7	820.0
BT	300.0	844.8	820.0	400.0	844.1	820.0	500.0	844.2	820.0	600.0
BT	844.3	820.0	700.0	844.1	820.0	800.0	843.7	820.0	900.0	843.1
BT	820.0	989.0	842.2	820.0	989.0	843.0	839.4	998.0	842.9	839.4
BT	998.0	842.1	820.0	1100.0	841.1	820.0	1200.0	841.8	820.0	1300.0
BT	841.2	820.0	1400.0	840.9	820.0	1500.0	840.7	820.0	1600.0	841.2
BT	820.0	1700.0	841.2	820.0	1750.0	840.3	820.0	1800.0	841.1	820.0
BT	1830.0	842.4	820.0	1900.0	842.2	820.0	2000.0	840.1	820.0	-0.0
X1	11110.	20.0	250.0	293.0	50.0	50.0	50.0	-0.0	-2.2	-0.0
GR	853.9	0.0	851.2	75.0	851.5	150.0	850.3	200.0	843.9	250.0
GR	838.5	263.0	838.0	266.0	838.6	272.0	845.9	293.0	845.5	350.0
GR	844.9	450.0	844.9	550.0	839.4	604.0	839.4	650.0	839.5	750.0
GR	840.1	850.0	841.8	950.0	843.5	1050.0	851.0	1150.0	857.3	1250.0
X1	13350.	-0.0	-0.0	-0.0	2240.0	2240.0	2240.0	-0.0	2.2	-0.0
X3	-0.0	-0.0	-0.0	200.0	-0.0	400.0	-0.0	-0.0	-0.0	-0.0
X1	13400.	29.0	1000.0	1012.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	1000.0	-0.0	1012.0	-0.0	-0.0	-0.0	-0.0
GR	849.0	0.0	849.2	100.0	849.2	200.0	849.3	300.0	849.5	400.0
GR	850.2	500.0	850.9	600.0	851.4	700.0	851.3	800.0	850.5	900.0
GR	849.0	1000.0	837.3	1000.0	837.3	1002.0	837.3	1004.0	837.3	1005.0
GR	837.3	1006.0	837.3	1008.0	837.3	1010.0	837.3	1012.0	849.0	1012.0
GR	849.9	1100.0	847.2	1200.0	847.0	1300.0	846.9	1400.0	846.9	1500.0
GR	847.2	1600.0	848.4	1700.0	850.7	1800.0	854.1	1900.0	-0.0	-0.0
SB	-0.0	1.5	2.9	-0.0	12.5	-0.0	62.0	-0.0	838.6	838.4
X1	13500.	29.0	1000.0	1012.0	100.0	100.0	100.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	1.0	844.8	849.0	-0.0	-0.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	-0.0	-0.0	1100.0	-0.0	-0.0	-0.0	-0.0
BT	7.0	1000.0	849.0	838.3	1002.0	849.0	842.0	1004.0	849.0	843.8
BT	1006.0	849.0	844.8	1008.0	849.0	843.8	1010.0	849.0	842.0	1012.0
BT	849.0	838.3	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
GR	849.0	0.0	849.2	100.0	849.2	200.0	849.3	300.0	849.5	400.0
GR	850.2	500.0	850.9	600.0	851.4	700.0	851.3	800.0	850.5	900.0
GR	849.0	1000.0	837.3	1000.0	837.3	1002.0	837.3	1004.0	837.3	1005.0
GR	837.3	1006.0	837.3	1008.0	837.3	1010.0	837.3	1012.0	849.0	1012.0
GR	849.9	1100.0	847.2	1200.0	847.0	1300.0	846.9	1400.0	846.9	1500.0
GR	847.2	1600.0	848.4	1700.0	850.7	1800.0	854.1	1900.0	-0.0	-0.0
X1	13550.	20.0	250.0	293.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	200.0	-0.0	293.0	-0.0	-0.0	-0.0	-0.0
GR	853.9	0.0	851.2	75.0	851.5	150.0	850.3	200.0	843.9	250.0
GR	838.5	263.0	838.0	266.0	838.6	272.0	845.9	293.0	845.5	350.0
GR	844.9	450.0	844.9	550.0	839.4	604.0	839.4	650.0	839.5	750.0
GR	840.1	850.0	841.8	950.0	843.5	1050.0	851.0	1150.0	857.3	1250.0

X1	14000.	0.0	0.0	0.0	450.0	450.0	450.0	-0.0	.19	-0.0
X3	-0.0	-0.0	-0.0	200.0	-0.0	604.0	-0.0	-0.0	-0.0	-0.0
X1	15950.	18.0	564.0	600.0	1950.0	1950.0	1950.0	-0.0	-0.0	-0.0
X3	-0.0	-0.0	-0.0	500.0	-0.0	600.0	-0.0	-0.0	-0.0	-0.0
GR	855.0	0.0	852.1	109.0	852.5	200.0	849.6	221.0	850.0	230.0
GR	847.0	310.0	845.9	400.0	845.0	500.0	845.0	564.0	840.8	572.0
GR	839.4	576.0	839.0	581.0	841.0	589.0	846.6	600.0	845.7	700.0
GR	847.4	800.0	852.4	900.0	858.2	1000.0	-0.0	-0.0	-0.0	-0.0

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 X1   16000.      18.0     600.0     610.0      50.0      50.0      50.0      -0.0      -0.0      -0.0
 X3      -0.0    839.2      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0
 X4       1.0    839.3     600.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0
 GR     856.0      0.0     854.6      70.0     853.1     200.0     852.5     300.0     851.6     400.0
 GR     850.8    500.0     850.6     599.9     838.3     600.0     838.3     602.0     838.1     604.0
 GR     838.1    606.0     838.3     608.0     838.3     610.0     850.6     610.0     851.4     700.0
 GR     853.2    800.0     855.8     900.0     858.1    1000.0      -0.0      -0.0      -0.0      -0.0

 SB      -0.0      1.5       2.8      -0.0      10.0      -0.0      44.0      -0.0     839.0     839.2
 X1   16100.      18.0     600.0     610.0     100.0     100.0     100.0      -0.0      -0.0      -0.0
 X2      -0.0     -0.0       1.0     844.0     850.6      -0.0      -0.0      -0.0      -0.0      -0.0
 X3      -0.0    839.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0
 X4       1.0    839.3     600.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0
 BT      18.0      0.0     856.0     830.0      70.0     854.6     830.0     200.0     853.1     830.0
 BT     300.0    852.5     830.0     400.0     851.6     830.0     500.0     850.8     830.0     599.9
 BT     850.6    830.0     600.0     850.6     839.3     602.0     850.6     842.5     604.0     850.6
 BT     844.0    606.0     850.6     844.0     608.0     850.6     842.5     610.0     850.6     839.3
 BT     610.0    850.6     830.0     700.0     851.4     830.0     800.0     853.2     830.0     900.0
 BT     855.8    830.0    1000.0     858.1     830.0      -0.0      -0.0      -0.0      -0.0      -0.0
 GR     856.0      0.0     854.6      70.0     853.1     200.0     852.5     300.0     851.6     400.0
 GR     850.8    500.0     850.6     599.9     838.3     600.0     838.3     602.0     838.1     604.0
 GR     838.1    606.0     838.3     608.0     838.3     610.0     850.6     610.0     851.4     700.0
 GR     853.2    800.0     855.8     900.0     858.1    1000.0      -0.0      -0.0      -0.0      -0.0

 X1   16150.      18.0     564.0     600.0      50.0      50.0      50.0      -0.0      -0.0      -0.0
 X3      -0.0     -0.0      -0.0     510.0      -0.0     620.0      -0.0      -0.0      -0.0      -0.0
 GR     855.0      0.0     852.1     109.0     852.5     200.0     849.6     221.0     850.0     230.0
 GR     847.0    310.0     845.9     400.0     845.0     500.0     845.0     564.0     840.8     572.0
 GR     839.4    576.0     839.0     581.0     841.0     589.0     846.6     600.0     845.7     700.0
 GR     847.4    800.0     852.4     900.0     858.2    1000.0      -0.0      -0.0      -0.0      -0.0

 QT       5.0     11.0      25.0      48.0      62.0     100.0      -0.0      -0.0      -0.0      -0.0
 X1   18700.      22.0    1240.0    1278.0    2600.0    2700.0    2650.0      -0.0      -0.0      -0.0
 X3      -0.0     -0.0      -0.0     700.0      -0.0    1700.0      -0.0      -0.0      -0.0      -0.0
 GR     845.3      0.0     844.2     100.0     843.0     200.0     843.2     300.0     842.7     400.0
 GR     844.4    500.0     843.9     600.0     844.5     700.0     844.8     800.0     843.2     900.0
 GR     843.0   1000.0     845.6    1100.0     843.5    1200.0     843.5    1240.0     840.6    1252.0
 GR     844.4   1278.0     843.3    1300.0     843.3    1400.0     844.0    1500.0     844.0    1600.0
 GR     849.9   1715.0     864.7    1800.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0
1
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 X1   20550.      10.0     280.0     315.0    1850.0    1850.0    1850.0      -0.0      -0.0      -0.0
 GR     859.5      0.0     857.2     100.0     853.5     200.0     848.0     280.0     845.5     296.0
 GR     845.5    300.0     848.0     315.0     854.8     400.0     857.2     500.0     865.6     600.0
1
    14APR94      11:35:40                                                                  PAGE     8

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


 *PROF 1
0

 CCHV=      .300 CEHV=      .500
 *SECNO   .000
       .000       9.50     835.30        .00     835.30     835.33        .03        .00        .00     832.30
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     775.0      134.5      547.9       92.6      416.5      340.2      225.3         .0         .0     830.30
       .00        .32       1.61        .41       .120       .045       .120       .000     825.80     165.04
   .000165         0.         0.         0.          0          0          0        .00     246.98     412.02


*SECNO 100.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .37

   100.000       9.35     835.25        .00        .00     835.45        .20        .04        .08     842.80
     775.0         .0      775.0         .0         .0      217.2         .0        1.4         .3     842.80
       .01        .00       3.57        .00       .000       .045       .000       .000     825.90     186.01
   .001238       100.       100.       100.          2          0          0        .00      27.90     213.91


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.50       2.90        .00      24.00        .00     316.00        .00     825.90     825.90

*SECNO 120.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     835.449  ELLC=     840.200  PCWSE=     835.251  ELTRD=     841.400

3370 NORMAL BRIDGE, NRD=  13 MIN ELTRD=   841.40 MAX ELLC=   840.20

   120.000       9.38     835.28        .00        .00     835.47        .20        .02        .00     842.80
     775.0         .0      775.0         .0         .0      217.9         .0        1.5         .3     842.80
       .01        .00       3.56        .00       .000       .045       .000       .000     825.90     186.00
   .001226       20.        20.        20.          2          0          0        .00      27.91     213.91


*SECNO 170.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.90

1
   14APR94      11:35:40                                                                          PAGE     9

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


   170.000       9.71     835.51        .00        .00     835.54        .03        .02        .05     832.30
     775.0      141.6      539.0       94.4      448.3      349.7      237.4        2.2         .5     830.30
       .02        .32       1.54        .40       .120       .045       .120       .000     825.80     163.06
   .000146        50.        50.        50.          2          0          0        .00     249.52     412.58


*SECNO 350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .62


3470 ENCROACHMENT STATIONS=       312.0      367.0  TYPE=        1  TARGET=        55.000
   350.000       9.23     835.53        .00        .00     835.61        .08        .04        .03     832.80
     775.0         .0      750.0       25.0         .0      328.3       48.0        5.1        1.1     830.80
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      .04        .00       2.28        .52       .000       .045       .120       .000     826.30     312.00
   .000377      180.       180.       180.          2          0          0        .00      55.00     367.00


*SECNO 400.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .39


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       855.00 ELREA=       855.00

   400.000       8.54     835.44        .00        .00     835.77        .33        .04        .12     855.00
     775.0         .0      775.0         .0         .0      168.9         .0        5.4        1.2     855.00
       .05        .00       4.59       .00       .000       .045       .000       .000     826.90     100.00
   .002541       50.        50.        50.          2          0          0        .00      20.00     120.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00        1.50       3.00        .00      20.00        .00      200.00        .00     828.00     826.90

*SECNO 500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     836.871  ELLC=     836.900  PCWSE=     835.444  ELTRD=     847.300

3370 NORMAL BRIDGE, NRD=    8 MIN ELTRD=    847.30 MAX ELLC=    836.90

1
   14APR94      11:35:40                                                                          PAGE    10

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    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=       856.10 ELREA=       856.10

   500.000       7.70     835.70        .00        .00     836.10        .40        .29        .04     856.10
     775.0         .0      775.0         .0         .0      152.0         .0        5.8        1.2     856.10
       .05        .00       5.10       .00       .000       .045       .000       .000     828.00     100.00
   .003392      100.       100.       100.          2          0          0        .00      20.00     120.00


*SECNO 700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.76


3470 ENCROACHMENT STATIONS=       247.0      385.0  TYPE=         1  TARGET=       138.000
   700.000       8.39     836.31        .00        .00     836.39        .08        .19        .10     834.42
     775.0       32.7      695.3       47.0       96.9      291.5       89.9        7.2        1.6     832.42
       .08        .34       2.39        .52       .120       .045       .120       .000     827.92     247.00
   .000446      200.       200.       200.          2          0          0        .00     138.00     385.00


*SECNO 900.000
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3470 ENCROACHMENT STATIONS= 119.0 424.0 TYPE= 1 TARGET= 305.000

900.000	8.71	836.43	.00	.00	836.47	.04	.07	.01	834.22
775.0	105.3	585.0	84.7	302.8	305.3	181.7	10.2	2.4	832.22
.11	.35	1.92	.47	.120	.045	.120	.000	827.72	172.35
.000271	200.	200.	200.	2	0	0	.00	237.61	409.95

*SECNO 2900.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

2900.000	9.98	836.68	.00	.00	836.68	.01	.20	.01	832.60
395.0	23.3	292.2	79.5	179.0	408.9	531.4	54.0	15.9	831.70
1.09	.13	.71	.15	.120	.045	.120	.000	826.70	59.67
.000032	2000.	2000.	2000.	2	0	0	.00	348.95	408.63

*SECNO 5750.000

1

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.89

5750.000	8.23	836.73	.00	.00	836.73	.00	.04	.00	831.10
395.0	255.9	37.2	101.9	2518.6	104.4	980.5	205.0	56.1	831.00
7.27	.10	.36	.10	.120	.045	.120	.000	828.50	342.01
.000009	2850.	2850.	2650.	2	0	0	.00	912.54	1254.56

*SECNO 5800.000

5800.000	7.13	836.73	.00	.00	836.73	.00	.00	.00	830.60
395.0	231.5	40.2	123.3	2037.0	102.5	1032.0	208.9	57.1	830.50
7.36	.11	.39	.12	.120	.045	.120	.000	829.60	503.97
.000012	50.	50.	50.	0	0	0	.00	749.54	1253.51

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.60	.00	15.00	.00	70.00	.00	829.60	829.60

*SECNO 5825.000

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
837.47	836.73	.00	368.	26.	70.	59.	833.50	835.20	669.

5825.000	7.13	836.73	.00	.00	836.73	.00	.00	.00	830.60
395.0	231.6	40.1	123.3	2038.3	102.6	1032.7	210.7	57.5	830.50
7.41	.11	.39	.12	.120	.045	.120	.000	829.60	503.91

.000012	25.	25.	25.	0	0	12	.00	749.65	1253.57

*SECNO 5860.000

5860.000	6.93	836.73	.00	.00	836.73	.00	.00	.00	832.20
395.0	124.2	233.1	37.7	1718.0	852.6	541.8	213.2	58.2	832.20
7.46	.07	.27	.07	.120	.045	.120	.000	829.80	366.75
.000007	35.	35.	35.	0	0	0	.00	928.31	1295.05

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

*SECNO 7800.000

3265 DIVIDED FLOW

3280 CROSS SECTION 7800.00 EXTENDED .95 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

7800.000	6.04	836.74	.00	.00	836.74	.00	.01	.00	835.00
74.0	12.2	14.5	47.3	382.9	78.8	1297.9	319.3	109.1	835.10
15.69	.03	.18	.04	.120	.045	.120	.000	830.70	463.09
.000006	1840.	1940.	1940.	0	0	0	.00	1410.10	2000.00

*SECNO 9200.000
3280 CROSS SECTION 9200.00 EXTENDED 1.65 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .18

3470 ENCROACHMENT STATIONS= 600.0 1100.0 TYPE= 1 TARGET= 500.000

9200.000	4.96	836.76	.00	.00	836.77	.01	.02	.01	840.10
74.0	.0	74.0	.0	.0	85.0	.0	349.0	132.2	840.00
16.14	.00	.87	.00	.000	.045	.000	.000	831.80	813.47
.000172	1400.	1400.	1400.	0	0	0	.00	27.78	841.25

*SECNO 10850.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

3470 ENCROACHMENT STATIONS= 100.0 300.0 TYPE= 1 TARGET= 200.000

10850.000	2.30	837.50	.00	.00	837.62	.12	.79	.05	844.90
74.0	.0	74.0	.0	.0	26.7	.0	351.1	133.1	840.00
16.30	.00	2.77	.00	.000	.045	.000	.000	835.20	178.33
.004406	1650.	1650.	1650.	3	0	0	.00	17.95	300.00

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

*SECNO 10900.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .38

3470 ENCROACHMENT STATIONS= 1000.0 1100.0 TYPE= 1 TARGET= 100.000

10900.000	2.66	837.66	837.36	.00	838.38	.72	.46	.30	845.70
74.0	.0	73.8	.2	.0	10.8	.5	351.1	133.1	840.00
16.30	.00	6.82	.40	.000	.045	.120	.000	835.00	1000.00
.030447	50.	50.	50.	4	8	0	.00	11.19	1100.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COPQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.90	.00	5.00	.00	70.00	2	1	835.90	835.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 10970.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 839.357 EGOC = 839.457 PCWSE= 837.663 ELTRD= 848.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.99

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
839.36	839.46	1.07	0.	74.	3.988	19.6	848.00	0.

3470 ENCROACHMENT STATIONS= 1000.0 1005.0 TYPE= 1 TARGET= 5.000

10970.000	4.21	839.21	.00	.00	839.46	.25	1.07	.00	842.20
74.0	.0	74.0	.0	.0	18.6	.0	351.1	133.1	100000.00
16.31	.00	3.99	.00	.000	.045	.000	.000	835.00	1000.00
.007697	70.	70.	70.	2	0	0	.00	5.00	1005.00

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

*SECNO 10980.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.60

3470 ENCROACHMENT STATIONS= 980.0 1005.0 TYPE= 1 TARGET= 25.000

10980.000	3.68	839.48	.00	.00	839.54	.05	.02	.06	842.20
74.0	.0	74.0	.0	.0	39.4	.0	351.1	133.1	842.10
16.31	.00	1.88	.00	.000	.045	.000	.000	835.80	987.00
.001142	10.	10.	10.	2	0	0	.00	13.00	1000.00

*SECNO 11000.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

3470 ENCROACHMENT STATIONS= 980.0 1020.0 TYPE= 1 TARGET= 40.000

11000.000	3.54	839.54	.00	.00	839.56	.02	.01	.01	837.40
74.0	4.7	53.8	15.4	13.2	37.5	38.8	351.2	133.1	837.20
16.32	.36	1.44	.40	.120	.045	.120	.000	836.00	980.00
.000473	20.	20.	20.	2	0	0	.00	40.00	1020.00

*SECNO 11020.000

3470 ENCROACHMENT STATIONS= 960.0 1040.0 TYPE= 1 TARGET= 80.000

11020.000	3.76	839.56	.00	.00	839.57	.01	.01	.00	837.20
74.0	9.8	44.4	19.8	39.3	40.3	70.1	351.2	133.2	837.00
16.32	.25	1.10	.28	.120	.045	.120	.000	835.80	960.00
.000253	20.	20.	20.	0	0	0	.00	80.00	1040.00

*SECNO 11045.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11045.000	3.73	839.53	.00	.00	839.64	.11	.01	.05	842.20
74.0	.0	74.0	.0	.0	27.6	.0	351.3	133.2	842.10
16.33	.00	2.68	.00	.000	.045	.000	.000	835.80	989.00
.002714	25.	25.	25.	2	0	0	.00	9.00	998.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	3.00	.00	9.00	.00	32.40	.00	835.50	835.80

*SECNO 11060.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
839.65	839.64	.00	0.	74.	32.	35.	839.40	841.80	0.

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11060.000	4.06	839.56	.00	.00	839.65	.09	.01	.00	841.90
74.0	.0	74.0	.0	.0	30.6	.0	351.3	133.2	841.80
16.33	.00	2.42	.00	.000	.045	.000	.000	835.50	989.00
.002050	15.	15.	15.	2	0	0	.00	9.00	998.00

*SECNO 11110.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 10.49

11110.000	3.88	839.68	.00	.00	839.68	.00	.00	.03	841.70
74.0	.0	14.9	59.1	.0	61.5	686.6	351.7	133.4	843.70
16.45	.00	.24	.09	.000	.045	.120	.000	835.80	254.87
.000019	50.	50.	50.	0	0	0	.00	401.26	954.42

*SECNO 13350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .03

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

13350.000	1.66	839.66	.00	.00	840.01	.35	.16	.17	843.90
74.0	.0	74.0	.0	.0	15.7	.0	371.4	144.1	845.90
16.58	.00	4.73	.00	.000	.045	.000	.000	838.00	260.20
.019943	2240.	2240.	2240.	4	0	0	.00	14.85	275.05

1

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

*SECNO 13400.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.47

3470 ENCROACHMENT STATIONS= 1000.0 1012.0 TYPE= 1 TARGET= 12.000

```
 13400.000      2.92    840.22      .00      .00    840.29      .07      .20      .08    849.00
      74.0        .0      74.0       .0       .0      35.1       .0    371.4    144.1 100000.00
     16.58       .00      2.11      .00     .000      .045     .000     .000   837.30   1000.00
   .001660       50.       50.       50.        2         0        0      .00    12.00   1012.00


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.50       2.90         .00    12.50        .00        62.00       .00     838.60     838.40

*SECNO 13500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000   EGLWC=     841.555  ELLC=     844.800  PCWSE=     840.222  ELTRD=     849.000

3370 NORMAL BRIDGE, NRD=    7 MIN ELTRD=    849.00 MAX ELLC=    844.80


3470 ENCROACHMENT STATIONS=          .0    1100.0  TYPE=       1  TARGET=      1099.999
 13500.000      3.10    840.40      .00      .00    840.47      .07      .17      .00    849.00
      74.0        .0      74.0       .0       .0      34.8       .0    371.5    144.2    849.00
     16.60       .00      2.13      .00     .000      .045     .000     .000   837.30   1000.00
   .001827       100.      100.      100.        2         0        0    -2.37    12.00   1012.00


*SECNO 13550.000

3470 ENCROACHMENT STATIONS=       200.0     293.0  TYPE=       1  TARGET=        93.000
 13550.000      2.50    840.50      .00      .00    840.60      .09      .12      .01    843.90
      74.0        .0      74.0       .0       .0      30.0       .0    371.5    144.2 100000.00
     16.60       .00      2.47      .00     .000      .045     .000     .000   838.00    258.18
   .003263       50.       50.       50.        2         0        0      .00    19.30    277.47


*SECNO 14000.000
1
   14APR94      11:35:40                                                                    PAGE   17

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


3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.78


3470 ENCROACHMENT STATIONS=       200.0     604.0  TYPE=       1  TARGET=       404.000
 14000.000      3.15    841.34      .00      .00    841.38      .04      .76      .02    844.09
      74.0        .0      69.0       5.0       .0      43.4      14.9    372.0    144.5    846.09
     16.69       .00      1.59       .34     .000      .045      .120     .000   838.19    256.64
   .001031       450.      450.      450.        2         0        0      .00    39.78    604.00


*SECNO 15950.000
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3470 ENCROACHMENT STATIONS=      500.0     600.0  TYPE=       1  TARGET=      100.000
 15950.000       3.75     842.75        .00         .00     842.78        .03       1.40        .00     845.00
      74.0         .0       74.0         .0          .0       57.1         .0      374.5      145.9  100000.00
     17.10        .00       1.30        .00        .000       .045       .000       .000     839.00     568.28
   .000528      1950.     1950.     1950.           4          0          0        .00      24.17     592.45


*SECNO 16000.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .70

 16000.000       3.57     842.77        .00         .00     842.83        .07        .04        .02     839.30
      74.0         .0       74.0         .0          .1       35.7         .0      374.6      145.9     850.60
     17.11        .00       2.07        .00        .120       .045       .000       .000     839.20     599.96
   .001090        50.       50.         50.           2          0          0        .00      10.04     610.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00        1.50       2.80         .00     10.00        .00      44.00        .00     839.00     839.20

*SECNO 16100.000
1
   14APR94      11:35:40                                                                                PAGE   18

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    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=    842.835  ELLC=    844.000  PCWSE=    842.768  ELTRD=    850.600

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .61


3370 NORMAL BRIDGE, NRD=  18 MIN ELTRD=   850.60 MAX ELLC=   844.00

 16100.000       3.92     842.92        .00         .00     843.01        .09        .17        .01     839.30
      74.0         .0       74.0         .0          .0       30.8         .0      374.7      146.0     850.60
     17.12        .01       2.40        .00        .120       .045       .000       .000     839.00     599.96
   .002899       100.      100.        100.           2          0          0      -8.40      10.04     610.00


*SECNO 16150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.78


3470 ENCROACHMENT STATIONS=      510.0     620.0  TYPE=       1  TARGET=      110.000
 16150.000       4.05     843.05        .00         .00     843.07        .02        .04        .02     845.00
      74.0         .0       74.0         .0          .0       64.5         .0      374.7      146.0     846.60
     17.13        .00       1.15        .00        .000       .045       .000       .000     839.00     567.71
   .000375        50.       50.         50.           2          0          0        .00      25.33     593.04
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 *SECNO 18700.000

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .66


 3470 ENCROACHMENT STATIONS=      700.0    1700.0  TYPE=      1  TARGET=     1000.000
  18700.000      2.95    843.55       .00       .00    843.55       .00       .47       .01    843.50
       11.0       1.6       8.8        .6      56.3      47.7      29.8     380.8     157.6    844.40
      21.96       .03       .18        .02      .120      .045      .120      .000    840.60    878.25
    .000019     2600.     2650.     2700.         4         0         0       .00    357.66   1435.43


1
    14APR94      11:35:40                                                                          PAGE   19

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


 *SECNO 20550.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
  20550.000       .48    845.98    845.98       .00    846.15       .17       .13       .08    848.00
       11.0        .0      11.0        .0        .0       3.3        .0     383.7     165.4    848.00
      22.11       .00      3.31       .00      .000      .045      .000      .000    845.50    292.94
    .043523     1850.     1850.     1850.        20        20         0       .00      9.92    302.87


1
    14APR94      11:35:40                                                                          PAGE   20

 T1Meridian Township FIS
 T2Updated 50-Year Flood  STS Consultants Ltd. 4/94 DMR
 T3Pine Lake Outlet

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0       3.0          0          0          0          0          0          0       835.3         0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2.0           0       -1.0          0          0          0          0          0          0          0

1
    14APR94      11:35:40                                                                          PAGE   21

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


 *PROF 2
0
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CCHV=      .300 CEHV=      .500
*SECNO  .000
      .000       9.50     835.30        .00     835.30     835.38        .08        .00        .00     832.30
    1290.0      223.9      912.0      154.1      416.5      340.2      225.3         .0         .0     830.30
       .00        .54       2.68        .68       .120       .045       .120       .000     825.80     165.04
   .000458         0.         0.         0.          0          0          0        .00     246.98     412.02

*SECNO 100.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .36

   100.000       9.26     835.16        .00        .00     835.72        .56        .10        .24     842.80
    1290.0         .0     1290.0         .0         .0      214.6         .0        1.4         .3     842.80
       .00        .00       6.01        .00       .000       .045       .000       .000     825.90     186.02
   .003546       100.       100.       100.          2          0          0        .00      27.87     213.89


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.50       2.90        .00      24.00        .00     316.00        .00     825.90     825.90

*SECNO 120.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=        .000  EGLWC=     835.720  ELLC=     840.200  PCWSE=     835.159  ELTRD=     841.400

3370 NORMAL BRIDGE, NRD=  13 MIN ELTRD=   841.40 MAX ELLC=   840.20

   120.000       9.34     835.24        .00        .00     835.79        .55        .07        .00     842.80
    1290.0         .0     1290.0         .0         .0      217.0         .0        1.5         .3     842.80
       .01        .00       5.95        .00       .000       .045       .000       .000     825.90     186.01
   .003437        20.        20.        20.          2          0          0        .00      27.90     213.91

*SECNO 170.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.26

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   14APR94      11:35:40                                                                                  PAGE   22

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

   170.000      10.12     835.92        .00        .00     835.98        .06        .04        .15     832.30
    1290.0      256.4      871.5      162.1      509.1      367.5      260.4        2.2         .5     830.30
       .01        .50       2.37        .62       .120       .045       .120       .000     825.80     159.35
   .000324        50.        50.        50.          2          0          0        .00     254.28     413.63

*SECNO 350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .61
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3470 ENCROACHMENT STATIONS= 312.0 367.0 TYPE= 1 TARGET= 55.000

350.000	9.64	835.94	.00	.00	836.14	.19	.09	.07	832.80
1290.0	.0	1246.3	43.7	.0	346.4	52.5	5.4	1.1	830.80
.03	.00	3.60	.83	.000	.045	.120	.000	826.30	312.00
.000880	180.	180.	180.	2	0	0	.00	55.00	367.00

*SECNO 400.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

400.000	8.81	835.71	.00	.00	836.56	.85	.09	.33	855.00
1290.0	.0	1290.0	.0	.0	174.1	.0	5.8	1.2	855.00
.03	.00	7.41	.00	.000	.045	.000	.000	826.90	100.00
.006478	50.	50.	50.	2	0	0	.00	20.00	120.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	.00	20.00	.00	200.00	.00	828.00	826.90

*SECNO 500.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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= 836.675 EGLWC= 837.658 ELLC= 836.900 PCWSE= 835.706 ELTRD= 847.300

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 847.30 MAX ELLC= 836.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 856.10 ELREA= 856.10

500.000	8.35	836.35	.00	.00	837.30	.95	.70	.05	856.10
1290.0	.0	1290.0	.0	.0	165.1	.0	6.1	1.2	856.10
.03	.00	7.81	.00	.000	.045	.000	.000	828.00	100.00
.007489	100.	100.	100.	2	0	0	.00	20.00	120.00

*SECNO 700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.62

3470 ENCROACHMENT STATIONS= 247.0 385.0 TYPE= 1 TARGET= 138.000

700.000	9.79	837.71	.00	.00	837.83	.12	.28	.25	834.42
1290.0	109.8	1082.4	97.7	187.6	352.8	130.3	8.1	1.6	832.42
.05	.59	3.07	.75	.120	.045	.120	.000	827.92	247.00
.000572	200.	200.	200.	2	0	0	.00	138.00	385.00

*SECNO 900.000

3470 ENCROACHMENT STATIONS= 119.0 424.0 TYPE= 1 TARGET= 305.000

900.000	10.15	837.87	.00	.00	837.93	.06	.08	.02	834.22
1290.0	258.1	869.4	162.5	514.6	369.0	262.5	12.2	2.5	832.22
.09	.50	2.36	.62	.120	.045	.120	.000	827.72	159.02
.000318	200.	200.	200.	2	0	0	.00	254.70	413.72

*SECNO 2900.000

1

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.49

2900.000	11.50	838.20	.00	.00	838.21	.01	.27	.01	832.60
788.0	68.6	510.0	209.4	334.4	491.3	885.9	77.8	18.1	831.70
.82	.21	1.04	.24	.120	.045	.120	.000	826.70	28.55
.000054	2000.	2000.	2000.	2	0	0	.00	427.73	456.28

*SECNO 5750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.00

5750.000	9.78	838.28	.00	.00	838.28	.00	.07	.00	831.10
788.0	523.5	61.9	202.6	3618.8	126.2	1378.7	296.2	65.1	831.00
5.33	.14	.49	.15	.120	.045	.120	.000	828.50	241.16
.000013	2850.	2850.	2650.	2	0	0	.00	1044.50	1285.65

*SECNO 5800.000

5800.000	8.68	838.28	.00	.00	838.28	.00	.00	.00	830.60
788.0	474.9	69.1	244.0	2888.6	125.9	1439.2	301.7	66.2	830.50
5.40	.16	.55	.17	.120	.045	.120	.000	829.60	378.10
.000017	50.	50.	50.	0	0	0	.00	905.92	1284.01

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.60	.00	15.00	.00	70.00	.00	829.60	829.60

*SECNO 5825.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
841.24	838.28	.00	761.	27.	70.	59.	833.50	835.20	885.

5825.000	8.69	838.29	.00	.00	838.29	.00	.00	.00	830.60
788.0	475.0	69.1	244.0	2890.1	125.9	1439.9	304.3	66.7	830.50
5.43	.16	.55	.17	.120	.045	.120	.000	829.60	377.91
.000017	25.	25.	25.	0	0	12	.00	906.16	1284.06

1

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

*SECNO 5860.000

5860.000	8.49	838.29	.00	.00	838.29	.00	.00	.00	832.20
788.0	284.9	412.6	90.5	2688.6	1085.9	903.0	308.0	67.5	832.20
5.47	.11	.38	.10	.120	.045	.120	.000	829.80	286.33
.000009	35.	35.	35.	0	0	0	.00	1086.67	1373.00

*SECNO 7800.000
3280 CROSS SECTION 7800.00 EXTENDED 2.51 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .42

7800.000	7.60	838.30	.00	.00	838.30	.00	.01	.00	835.00
151.0	36.2	14.6	100.2	1211.6	108.4	2825.9	500.0	126.0	835.10
17.60	.03	.13	.04	.120	.045	.120	.000	830.70	396.20
.000002	1840.	1940.	1940.	1	0	0	.00	1603.80	2000.00

*SECNO 9200.000

3265 DIVIDED FLOW

3280 CROSS SECTION 9200.00 EXTENDED 3.21 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .11

3470 ENCROACHMENT STATIONS= 600.0 1100.0 TYPE= 1 TARGET= 500.000

9200.000	6.50	838.30	.00	.00	838.32	.01	.01	.01	840.10
151.0	4.7	131.1	15.2	46.0	136.0	105.9	571.2	156.3	840.00
18.06	.10	.96	.14	.120	.045	.120	.000	831.80	678.21
.000173	1400.	1400.	1400.	0	0	0	.00	284.81	993.50

*SECNO 10850.000

3265 DIVIDED FLOW

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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .32

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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    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
 10850.000       3.73     838.93        .00        .00     839.01        .08        .66        .03     844.90
     151.0         .0      134.1       16.9         .0       57.4       41.4      578.5      163.3     840.00
     18.27        .00       2.34        .41       .000       .045       .120       .000     835.20     174.04
   .001737      1650.      1650.      1650.          2          0          0        .00      81.94     300.00

*SECNO 10900.000

3265 DIVIDED FLOW

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .34

3470 ENCROACHMENT STATIONS=     1000.0     1100.0  TYPE=      1  TARGET=      100.000
 10900.000       4.01     839.01        .00        .00     839.32        .32        .19        .12     845.70
     151.0         .0       97.2       53.8         .0       17.5       43.2      578.6      163.4     840.00
     18.28        .00       5.54       1.25       .000       .045       .120       .000     835.00    1000.00
   .015274        50.        50.        50.          2          0          0        .00      62.29    1100.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .20       2.90        .00       5.00        .00      70.00       2          1        835.90     835.00

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  1 - HEADWALL

*SECNO 10970.000
 WATER EL=X5 CARD=     842.800
3280 CROSS SECTION  10970.00 EXTENDED       2.70 FEET

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

3470 ENCROACHMENT STATIONS=     1000.0     1005.0  TYPE=      1  TARGET=        5.000
 10970.000       7.80     842.80        .00        .00     843.07        .27        .66        .01     842.20
     151.0         .0      151.0         .0         .0       36.5         .0      578.7      163.4  100000.00
     18.28        .00       4.14        .00       .000       .045       .000       .000     835.00    1000.00
   .006421        70.        70.        70.          0          0          0        .00       5.00    1005.00

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   14APR94      11:35:40                                                                                    PAGE   27
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 10980.000
3280 CROSS SECTION 10980.00 EXTENDED 3.00 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.68

3470 ENCROACHMENT STATIONS= 980.0 1005.0 TYPE= 1 TARGET= 25.000

10980.000	7.30	843.10	.00	.00	843.14	.05	.01	.07	842.20
151.0	1.4	148.4	1.2	6.0	86.4	5.1	578.7	163.4	842.10
18.28	.23	1.72	.24	.120	.045	.120	.000	835.80	980.00
.000473	10.	10.	10.	2	0	0	.00	25.00	1005.00

*SECNO 11000.000
3280 CROSS SECTION 11000.00 EXTENDED 2.64 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.06

3470 ENCROACHMENT STATIONS= 980.0 1020.0 TYPE= 1 TARGET= 40.000

11000.000	7.14	843.14	.00	.00	843.16	.02	.00	.01	837.40
151.0	10.8	101.2	39.0	38.4	84.3	110.8	578.8	163.4	837.20
18.29	.28	1.20	.35	.120	.045	.120	.000	836.00	980.00
.000112	20.	20.	20.	2	0	0	.00	40.00	1020.00

*SECNO 11020.000
3280 CROSS SECTION 11020.00 EXTENDED 3.05 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.55

3470 ENCROACHMENT STATIONS= 960.0 1040.0 TYPE= 1 TARGET= 80.000

11020.000	7.36	843.16	.00	.00	843.16	.00	.00	.00	837.20
151.0	30.8	68.8	51.4	136.3	87.0	213.9	579.0	163.5	837.00
18.30	.23	.79	.24	.120	.045	.120	.000	835.80	960.00
.000047	20.	20.	20.	0	0	0	.00	80.00	1040.00

1

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

*SECNO 11045.000
3280 CROSS SECTION 11045.00 EXTENDED 3.06 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11045.000	7.36	843.16	.00	.00	843.16	.01	.00	.00	842.20
151.0	5.3	62.5	83.3	45.2	60.3	329.8	579.2	163.6	842.10
18.31	.12	1.04	.25	.120	.045	.120	.000	835.80	900.00
.000218	25.	25.	25.	0	0	0	.00	300.00	1200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	.00	9.00	.00	32.40	.00	835.50	835.80

*SECNO 11060.000
6790 POSSIBLE INVALID SOLUTION 20 TRIALS OF EG NOT ENOUGH
FINAL QWEIR + QPR = 288. DOES NOT EQUAL ACTUAL Q = 151.

6870 D.S. ENERGY OF 843.16 IS HIGHER THAN COMPUTED ENERGY OF 843.16
3280 CROSS SECTION 11060.00 EXTENDED 3.36 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
843.66	843.16	.00	281.	7.	32.	35.	839.40	841.80	1110.

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11060.000	7.66	843.16	.00	.00	843.16	.00	.00	.00	841.90
151.0	9.1	53.8	88.1	71.9	63.0	390.4	579.4	163.7	841.80
18.32	.13	.85	.23	.120	.045	.120	.000	835.50	900.00
.000139	15.	15.	15.	0	0	20	.00	300.00	1200.00

*SECNO 11110.000

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

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.77

11110.000	7.37	843.17	.00	.00	843.17	.00	.00	.00	841.70
151.0	.1	24.0	126.9	8.4	183.9	2399.6	581.2	164.3	843.70
18.54	.02	.13	.05	.120	.045	.120	.000	835.80	238.52
.000002	50.	50.	50.	0	0	0	.00	756.06	1074.92

*SECNO 13350.000

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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .07


3470 ENCROACHMENT STATIONS=      200.0     400.0  TYPE=       1  TARGET=      200.000
 13350.000       5.17    843.17       .00       .00    843.20       .04       .02       .02    843.90
     151.0         .0     151.0        .0        .0     100.2        .0     650.4     184.6    845.90
     18.95        .00      1.51       .00      .000      .045      .000      .000    838.00    251.76
   .000516      2240.    2240.     2240.         2         0         0       .00     33.37    285.14


*SECNO 13400.000

3470 ENCROACHMENT STATIONS=     1000.0    1012.0  TYPE=       1  TARGET=       12.000
 13400.000       5.88    843.18       .00       .00    843.25       .07       .03       .02    849.00
     151.0         .0     151.0        .0        .0      70.6        .0     650.5     184.6 100000.00
     18.96        .00      2.14       .00      .000      .045      .000      .000    837.30   1000.00
   .000984        50.      50.        50.         0         0         0       .00     12.00   1012.00


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.50       2.90         .00    12.50        .00       62.00       .00     838.60     838.40

*SECNO 13500.000
1
    14APR94       11:35:40                                                                                PAGE    30

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     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=     844.531  ELLC=     844.800  PCWSE=     843.184  ELTRD=     849.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .67


3370 NORMAL BRIDGE, NRD=   7 MIN ELTRD=   849.00 MAX ELLC=   844.80


3470 ENCROACHMENT STATIONS=         .0    1100.0  TYPE=       1  TARGET=     1099.999
 13500.000       6.01    843.31       .00       .00    843.41       .11       .14       .02    849.00
     151.0         .0     151.0        .0        .0      57.5        .0     650.6     184.6    849.00
     18.97        .00      2.62       .00      .000      .045      .000      .000    837.30   1000.00
   .002224       100.     100.       100.         2         0         0    -14.51     12.00   1012.00


*SECNO 13550.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.35


3470 ENCROACHMENT STATIONS=      200.0     293.0  TYPE=       1  TARGET=       93.000
 13550.000       5.45    843.45       .00       .00    843.48       .03       .04       .02    843.90
     151.0         .0     151.0        .0        .0     109.8        .0     650.7     184.7 100000.00
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     18.98       .00      1.38       .00      .000      .045      .000      .000    838.00    251.09
   .000403       50.       50.       50.         2         0         0       .00     34.86    285.95

*SECNO 14000.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       200.0      604.0  TYPE=       1  TARGET=      404.000
 14000.000      5.43    843.62       .00       .00    843.63       .02       .15       .00    844.09
     151.0        .0     126.1      24.9        .0     108.9      79.5     652.3     185.2    846.09
     19.10       .00      1.16       .31      .000      .045      .120      .000    838.19    251.14
   .000287      450.      450.      450.         2         0         0       .00     74.25    604.00

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

*SECNO 15950.000

3470 ENCROACHMENT STATIONS=       500.0      600.0  TYPE=       1  TARGET=      100.000
 15950.000      5.31    844.31       .00       .00    844.35       .04       .71       .01    845.00
     151.0        .0     151.0        .0        .0      99.5        .0     658.7     187.6 100000.00
     19.46       .00      1.52       .00      .000      .045      .000      .000    839.00    565.31
   .000473     1950.     1950.     1950.         2         0         0       .00     30.20    595.51

*SECNO 16000.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .55

 16000.000      5.10    844.30       .00       .00    844.44       .14       .04       .05    839.30
     151.0        .0     151.0        .0        .1      51.0        .0     658.8     187.6    850.60
     19.46       .03      2.96       .00      .120      .045      .000      .000    839.20    599.95
   .001588       50.       50.       50.         2         0         0       .00     10.05    610.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       1.50       2.80        .00      10.00        .00      44.00       .00     839.00     839.20

*SECNO 16100.000
PRESSURE FLOW

 EGPRS       EGLWC        H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
    844.58     844.44       .00         0.       151.        44.        50.      844.00     850.60         0.

 16100.000      5.46    844.46       .00       .00    844.58       .12       .14       .00    839.30
     151.0        .0     151.0        .0        .2      54.5        .0     658.9     187.6    850.60
     19.47       .03      2.77       .00      .120      .045      .000      .000    839.00    599.95
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.001320	100.	100.	100.	2	0	0	.00	10.05	610.00

*SECNO 16150.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.88

1

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

3470 ENCROACHMENT STATIONS= 510.0 620.0 TYPE= 1 TARGET= 110.000

16150.000	5.61	844.61	.00	.00	844.64	.03	.03	.03	845.00
151.0	.0	151.0	.0	.0	108.5	.0	659.0	187.6	846.60
19.48	.00	1.39	.00	.000	.045	.000	.000	839.00	564.75
.000373	50.	50.	50.	2	0	0	.00	31.33	596.08

*SECNO 18700.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.07

3470 ENCROACHMENT STATIONS= 700.0 1700.0 TYPE= 1 TARGET= 1000.000

18700.000	4.19	844.79	.00	.00	844.79	.00	.14	.01	843.50
25.0	8.8	8.4	7.8	413.8	92.3	368.0	688.9	214.1	844.40
35.90	.02	.09	.02	.120	.045	.120	.000	840.60	700.00
.000002	2600.	2650.	2700.	4	0	0	.00	840.55	1615.35

*SECNO 20550.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

20550.000	.74	846.24	846.24	.00	846.48	.24	.02	.12	848.00
25.0	.0	25.0	.0	.0	6.3	.0	707.6	232.2	848.00
36.03	.00	3.97	.00	.000	.045	.000	.000	845.50	291.29
.038937	1850.	1850.	1850.	20	25	0	.00	13.12	304.41

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T1Meridian Township FIS
T2Updated 100-Year Flood STS Consultants Ltd. 4/94 DMR
T3Pine Lake Outlet

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4.0	0	0	0	0	0	0	835.3	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

```
    3.0          0       -1.0          0          0          0          0          0          0          0

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   14APR94       11:35:40                                                                                    PAGE   34

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

 *PROF 3
0

 CCHV=      .300 CEHV=      .500
 *SECNO  .000
      .000       9.50     835.30        .00     835.30     835.41        .11        .00        .00     832.30
    1490.0      258.6     1053.4      178.0      416.5      340.2      225.3         .0         .0     830.30
       .00        .62       3.10        .79       .120       .045       .120       .000     825.80     165.04
   .000612         0.         0.         0.          0          0          0        .00     246.98     412.02

 *SECNO 100.000

 3301 HV CHANGED MORE THAN HVINS

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .36

   100.000       9.21     835.11        .00        .00     835.87        .76        .13        .33     842.80
    1490.0         .0     1490.0         .0         .0      213.2         .0        1.4         .3     842.80
       .00        .00       6.99        .00       .000       .045       .000       .000     825.90     186.03
   .004820       100.       100.       100.          2          0          0        .00      27.86     213.89


 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.50       2.90        .00      24.00        .00     316.00        .00     825.90     825.90

 *SECNO 120.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=        .000  EGLWC=    835.866  ELLC=    840.200  PCWSE=    835.107  ELTRD=    841.400

 3370 NORMAL BRIDGE, NRD=  13 MIN ELTRD=   841.40 MAX ELLC=   840.20

   120.000       9.33     835.23        .00        .00     835.97        .73        .09        .01     842.80
    1490.0         .0     1490.0         .0         .0      216.7         .0        1.5         .3     842.80
       .00        .00       6.88        .00       .000       .045       .000       .000     825.90     186.01
   .004604        20.        20.        20.          2          0          0        .00      27.89     213.90

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   14APR94       11:35:40                                                                                    PAGE   35

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
```

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 170.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.46

170.000	10.34	836.14	.00	.00	836.21	.07	.05	.20	832.30
1490.0	308.5	991.4	190.1	543.3	377.3	273.3	2.3	.5	830.30
.01	.57	2.63	.70	.120	.045	.120	.000	825.80	157.30
.000384	50.	50.	50.	2	0	0	.00	256.91	414.21

*SECNO 350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .60

3470 ENCROACHMENT STATIONS= 312.0 367.0 TYPE= 1 TARGET= 55.000

350.000	9.86	836.16	.00	.00	836.41	.25	.11	.09	832.80
1490.0	.0	1438.5	51.5	.0	356.2	54.9	5.6	1.1	830.80
.02	.00	4.04	.94	.000	.045	.120	.000	826.30	312.00
.001076	180.	180.	180.	2	0	0	.00	55.00	367.00

*SECNO 400.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .36

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

400.000	8.95	835.85	.00	.00	836.95	1.10	.12	.43	855.00
1490.0	.0	1490.0	.0	.0	177.0	.0	5.9	1.2	855.00
.03	.00	8.42	.00	.000	.045	.000	.000	826.90	100.00
.008264	50.	50.	50.	2	0	0	.00	20.00	120.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	3.00	.00	20.00	.00	200.00	.00	828.00	826.90

*SECNO 500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 837.143 EGLWC= 838.050 ELLC= 836.900 PCWSE= 835.850 ELTRD= 847.300

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 847.30 MAX ELLC= 836.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 856.10 ELREA= 856.10

500.000	8.93	836.93	.00	.00	838.04	1.11	1.08	.01	856.10
1490.0	.0	1490.0	.0	.0	176.0	.0	6.3	1.2	856.10
.03	.00	8.47	.00	.000	.045	.000	.000	828.00	100.00
.014833	100.	100.	100.	2	0	0	-.54	20.00	120.00

*SECNO 700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.33

3470 ENCROACHMENT STATIONS= 247.0 385.0 TYPE= 1 TARGET= 138.000

700.000	10.59	838.51	.00	.00	838.63	.12	.30	.30	834.42
1490.0	156.5	1211.5	122.0	239.5	388.0	153.5	8.5	1.6	832.42
.05	.65	3.12	.79	.120	.045	.120	.000	827.92	247.00
.000522	200.	200.	200.	2	0	0	.00	138.00	385.00

*SECNO 900.000

3470 ENCROACHMENT STATIONS= 119.0 424.0 TYPE= 1 TARGET= 305.000

900.000	10.95	838.67	.00	.00	838.73	.06	.07	.02	834.22
1490.0	339.5	953.3	197.2	639.8	404.2	309.5	13.4	2.5	832.22
.08	.53	2.36	.64	.120	.045	.120	.000	827.72	151.66
.000282	200.	200.	200.	2	0	0	.00	264.15	415.80

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

*SECNO 2900.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

2900.000	12.33	839.03	.00	.00	839.05	.02	.31	.01	832.60
1276.0	128.3	773.3	374.3	438.7	536.0	1109.0	92.3	19.4	831.70
.64	.29	1.44	.34	.120	.045	.120	.000	826.70	11.64
.000092	2000.	2000.	2000.	2	0	0	.00	470.54	482.18

*SECNO 5750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.06

5750.000	10.67	839.17	.00	.00	839.17	.00	.11	.01	831.10
1276.0	856.5	92.2	327.3	4313.1	138.6	1626.1	353.1	69.7	831.00
3.97	.20	.67	.20	.120	.045	.120	.000	828.50	193.37
.000022	2850.	2850.	2650.	2	0	0	.00	1108.72	1302.09

*SECNO 5800.000

5800.000	9.57	839.17	.00	.00	839.17	.00	.00	.00	830.60
1276.0	779.2	104.2	392.6	3461.3	139.1	1691.8	359.6	70.9	830.50
4.02	.23	.75	.23	.120	.045	.120	.000	829.60	310.10
.000028	50.	50.	50.	0	0	0	.00	995.18	1305.28

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.60	.00	15.00	.00	70.00	.00	829.60	829.60

*SECNO 5825.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
846.91	839.17	.00	1246.	31.	70.	59.	833.50	835.20	996.

5825.000	9.57	839.17	.00	.00	839.17	.00	.00	.00	830.60
1276.0	779.2	104.2	392.6	3463.1	139.2	1692.6	362.6	71.5	830.50
4.05	.22	.75	.23	.120	.045	.120	.000	829.60	309.90
.000028	25.	25.	25.	0	0	9	.00	995.59	1305.49

1

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

*SECNO 5860.000

5860.000	9.37	839.17	.00	.00	839.17	.00	.00	.00	832.20
1276.0	485.4	630.7	159.9	3293.7	1218.4	1188.9	367.0	72.4	832.20
4.08	.15	.52	.13	.120	.045	.120	.000	829.80	244.25
.000015	35.	35.	35.	0	0	0	.00	1262.33	1506.57

*SECNO 7800.000
3280 CROSS SECTION 7800.00 EXTENDED 3.39 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .52

7800.000	8.49	839.19	.00	.00	839.19	.00	.02	.00	835.00
255.0	68.5	19.8	166.7	1759.7	125.2	3693.6	612.4	135.4	835.10
14.21	.04	.16	.05	.120	.045	.120	.000	830.70	364.61
.000002	1840.	1940.	1940.	2	0	0	.00	1635.39	2000.00

*SECNO 9200.000

3265 DIVIDED FLOW

3280 CROSS SECTION 9200.00 EXTENDED 4.10 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .12

3470 ENCROACHMENT STATIONS= 600.0 1100.0 TYPE= 1 TARGET= 500.000

9200.000	7.40	839.20	.00	.00	839.21	.01	.01	.00	840.10
255.0	33.0	165.0	57.0	202.0	173.6	299.4	712.9	169.5	840.00
14.79	.16	.95	.19	.120	.045	.120	.000	831.80	600.00
.000150	1400.	1400.	1400.	0	0	0	.00	485.09	1100.00

*SECNO 10850.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .30

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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

10850.000	4.54	839.74	.00	.00	839.83	.08	.58	.04	844.90
255.0	.0	201.2	53.8	.0	78.3	101.1	729.1	180.9	840.00
15.00	.00	2.57	.53	.000	.045	.120	.000	835.20	172.27
.001636	1650.	1650.	1650.	2	0	0	.00	117.26	300.00

*SECNO 10900.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .39

3470 ENCROACHMENT STATIONS= 1000.0 1100.0 TYPE= 1 TARGET= 100.000

10900.000	4.87	839.87	.00	.00	840.04	.17	.17	.04	845.70
255.0	.0	105.8	149.2	.0	21.8	106.7	729.3	181.0	840.00
15.00	.00	4.84	1.40	.000	.045	.120	.000	835.00	1000.00
.010540	50.	50.	50.	2	0	0	.00	95.04	1100.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.90	.00	5.00	.00	70.00	2	1	835.90	835.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 10970.000

SPECIAL CULVERT INLET CONTROL
EGIC = 845.710 EGOC = 842.705 PCWSE= 839.869 ELTRD= 848.000

3280 CROSS SECTION 10970.00 EXTENDED 5.19 FEET

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
845.71	842.70	5.67	0.	255.	5.210	19.6	848.00	0.

3470 ENCROACHMENT STATIONS= 1000.0 1005.0 TYPE= 1 TARGET= 5.000

1

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
10970.000	10.29	845.29	.00	.00	845.71	.42	5.67	.00	842.20
255.0	.0	255.0	.0	.0	48.9	.0	729.4	181.1	100000.00
15.01	.00	5.21	.00	.000	.045	.000	.000	835.00	1000.00
.009437	70.	70.	70.	2	0	0	.00	5.00	1005.00

*SECNO 10980.000
3280 CROSS SECTION 10980.00 EXTENDED 5.68 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.92

3470 ENCROACHMENT STATIONS= 980.0 1005.0 TYPE= 1 TARGET= 25.000

10980.000	9.98	845.78	.00	.00	845.83	.06	.01	.11	842.20
255.0	10.7	236.8	7.5	24.8	121.2	18.5	729.4	181.1	842.10
15.01	.43	1.95	.40	.120	.045	.120	.000	835.80	980.00
.000390	10.	10.	10.	2	0	0	.00	25.00	1005.00

*SECNO 11000.000
3280 CROSS SECTION 11000.00 EXTENDED 5.32 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.97

3470 ENCROACHMENT STATIONS= 980.0 1020.0 TYPE= 1 TARGET= 40.000

11000.000	9.82	845.82	.00	.00	845.84	.02	.00	.01	837.40
255.0	17.4	170.8	66.8	57.2	119.2	164.4	729.5	181.1	837.20
15.01	.30	1.43	.41	.120	.045	.120	.000	836.00	980.00
.000101	20.	20.	20.	2	0	0	.00	40.00	1020.00

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*SECNO 11020.000
3280 CROSS SECTION  11020.00 EXTENDED      5.74 FEET


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.60


3470 ENCROACHMENT STATIONS=      960.0    1040.0  TYPE=       1  TARGET=       80.000
 11020.000      10.04     845.84        .00         .00     845.85        .01         .00         .00     837.20
     255.0       54.5      110.9       89.6       208.9      122.0      321.4       729.8       181.1     837.00
     15.02        .26        .91        .28        .120       .045       .120        .000      835.80     960.00
   .000039        20.        20.        20.           1          0          0         .00       80.00    1040.00


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


*SECNO 11045.000
3280 CROSS SECTION  11045.00 EXTENDED      5.75 FEET


3470 ENCROACHMENT STATIONS=      900.0    1200.0  TYPE=       1  TARGET=       300.000
 11045.000      10.05     845.85        .00         .00     845.85        .00         .00         .00     842.20
     255.0       44.2       43.8      167.0       284.4       84.5      872.7       730.3       181.2     842.10
     15.05        .16        .52        .19        .120       .045       .120        .000      835.80     900.00
   .000035        25.        25.        25.           0          0          0         .00      300.00    1200.00


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00        1.50       3.00         .00       9.00         .00      32.40        .00     835.50     835.80

*SECNO 11060.000
6790 POSSIBLE INVALID SOLUTION 20 TRIALS OF EG NOT ENOUGH
FINAL QWEIR + QPR =        649. DOES NOT EQUAL ACTUAL Q =        255.

6870 D.S. ENERGY OF   845.85 IS HIGHER THAN COMPUTED ENERGY OF   845.85
3280 CROSS SECTION  11060.00 EXTENDED      6.05 FEET

PRESSURE AND WEIR FLOW,  Weir Submergence Based on TRAPEZOIDAL Shape

 EGPRS       EGLWC       H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                      AREA
    847.29     845.85        .00        642.          7.         32.        35.      839.40     841.80       1882.


3470 ENCROACHMENT STATIONS=      900.0    1200.0  TYPE=       1  TARGET=       300.000
 11060.000      10.35     845.85        .00         .00     845.85        .00         .00         .00     841.90
     255.0       46.0       41.4      167.5       311.7       87.3      934.6       730.8       181.3     841.80
     15.07        .15        .47        .18        .120       .045       .120        .000      835.50     900.00
   .000028        15.        15.        15.           0          0         20         .00      300.00    1200.00
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*SECNO 11110.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.78

11110.000	10.05	845.85	.00	.00	845.85	.00	.00	.00	841.70
255.0	1.5	38.3	215.2	67.4	298.9	4526.2	734.3	182.0	843.70
15.31	.02	.13	.05	.120	.045	.120	.000	835.80	217.55
.000001	50.	50.	50.	0	0	0	.00	893.16	1110.71

1

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

*SECNO 13350.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .08

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

13350.000	7.85	845.85	.00	.00	845.87	.02	.01	.01	843.90
255.0	2.4	249.5	3.1	14.9	204.2	33.8	866.6	209.1	845.90
15.82	.16	1.22	.09	.120	.045	.120	.000	838.00	234.76
.000183	2240.	2240.	2240.	2	0	0	.00	158.14	400.00

*SECNO 13400.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .42

3470 ENCROACHMENT STATIONS= 1000.0 1012.0 TYPE= 1 TARGET= 12.000

13400.000	8.53	845.83	.00	.00	845.93	.10	.02	.04	849.00
255.0	.0	255.0	.0	.0	102.4	.0	866.8	209.2	100000.00
15.83	.00	2.49	.00	.000	.045	.000	.000	837.30	1000.00
.001061	50.	50.	50.	2	0	0	.00	12.00	1012.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.90	.00	12.50	.00	62.00	.00	838.60	838.40

*SECNO 13500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 846.227 EGLWC= 847.205 ELLC= 844.800 PCWSE= 845.833 ELTRD= 849.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .40

3370 NORMAL BRIDGE, NRD= 7 MIN ELTRD= 849.00 MAX ELLC= 844.80

1

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

3470 ENCROACHMENT STATIONS= .0 1100.0 TYPE= 1 TARGET= 1099.999

13500.000	8.66	845.96	.00	.00	846.23	.26	.22	.08	849.00
255.0	.0	255.0	.0	.0	61.8	.0	867.0	209.2	849.00
15.84	.00	4.13	.00	.000	.045	.000	.000	837.30	1000.00
.006563	100.	100.	100.	2	0	0	-42.18	12.00	1012.00

*SECNO 13550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 6.86

3470 ENCROACHMENT STATIONS= 200.0 293.0 TYPE= 1 TARGET= 93.000

13550.000	8.30	846.30	.00	.00	846.32	.02	.02	.07	843.90
255.0	3.7	251.3	.0	22.6	223.7	.0	867.2	209.2	100000.00
15.85	.16	1.12	.00	.120	.045	.000	.000	838.00	231.22
.000140	50.	50.	50.	2	0	0	.00	61.78	293.00

*SECNO 14000.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.40

3470 ENCROACHMENT STATIONS= 200.0 604.0 TYPE= 1 TARGET= 404.000

14000.000	8.17	846.36	.00	.00	846.37	.01	.04	.00	844.09
255.0	2.3	172.7	80.0	20.1	218.0	468.2	872.1	211.5	846.09
16.06	.11	.79	.17	.120	.045	.120	.000	838.19	232.26
.000071	450.	450.	450.	2	0	0	.00	371.74	604.00

*SECNO 15950.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .58

3470 ENCROACHMENT STATIONS= 500.0 600.0 TYPE= 1 TARGET= 100.000

15950.000	7.58	846.58	.00	.00	846.60	.02	.22	.01	845.00
255.0	24.2	230.8	.0	100.5	175.1	.0	894.1	222.0	100000.00
16.51	.24	1.32	.00	.120	.045	.000	.000	839.00	500.00
.000214	1950.	1950.	1950.	0	0	0	.00	99.94	599.94

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*SECNO 16000.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .36

 16000.000       7.32     846.52       .00        .00     846.71       .19        .02        .08     839.30
     255.0         .0      255.0        .0         .3       73.2        .0      894.3      222.1     850.60
     16.51        .04       3.48       .00       .120       .045      .000       .000     839.20     599.93
   .001632       50.        50.        50.          2          0         0        .00      10.07     610.00


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.50       2.80         .00      10.00        .00       44.00        .00     839.00     839.20

*SECNO 16100.000
PRESSURE FLOW

 EGPRS       EGLWC       H3         QWEIR      QPR        BAREA     TRAPEZOID      ELLC       ELTRD      WEIRLN
                                                                       AREA
    847.30     846.71        .00         0.       255.        44.        50.      844.00     850.60          0.


 16100.000       8.15     847.15       .00        .00     847.30       .15        .59        .00     839.30
     255.0         .0      255.0        .0         .3       81.4        .0      894.5      222.1     850.60
     16.52        .04       3.13       .00       .120       .045      .000       .000     839.00     599.93
   .001223      100.       100.       100.          2          0         0        .00      10.07     610.00

*SECNO 16150.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.15


3470 ENCROACHMENT STATIONS=       510.0      620.0  TYPE=       1  TARGET=       110.000
 16150.000       8.34     847.34       .00        .00     847.36       .02        .01        .04     845.00
     255.0       29.7      223.3        2.0      126.4      202.8      16.6      894.7      222.2     846.60
     16.53        .24       1.10        .12       .120       .045      .120       .000     839.00     510.00
   .000123       50.        50.        50.          2          0         0        .00     110.00     620.00


*SECNO 18700.000
1
    14APR94       11:35:40                                                                                PAGE    45

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


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.58


3470 ENCROACHMENT STATIONS=       700.0     1700.0  TYPE=       1  TARGET=      1000.000
 18700.000       6.78     847.38       .00        .00     847.38       .00        .01        .00     843.50
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      48.0       22.6        8.3       17.1     1781.4      190.6     1305.3     1004.6      254.8     844.40
     56.91        .01        .04        .01       .120       .045       .120       .000     840.60     700.00
   .000000     2600.      2650.      2700.          2          0          0        .00     965.74    1665.74


 *SECNO 20550.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .01

  20550.000       1.86     847.36        .00        .00     847.40        .04        .00        .02     848.00
      48.0          .0       48.0         .0         .0       28.8         .0     1074.8      275.9     848.00
     57.22        .00       1.67        .00       .000       .045       .000       .000     845.50     284.12
   .002374     1850.      1850.      1850.          2          0          0        .00      27.02     311.14


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    14APR94      11:35:40                                                                          PAGE    46


 T1Meridian Township FIS
 T2Updated 500-Year Flood  STS Consultants Ltd. 4/94 DMR
 T3Pine Lake Outlet

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0       5.0          0          0          0          0          0          0       835.3          0

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15           0       -1.0          0          0          0          0          0          0          0


1
    14APR94      11:35:40                                                                          PAGE    47


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


  *PROF 4
0

 CCHV=      .300 CEHV=      .500
 *SECNO  .000
       .000       9.50     835.30        .00     835.30     835.48        .18        .00        .00     832.30
     1920.0      333.2     1357.4      229.4      416.5      340.2      225.3         .0         .0     830.30
       .00        .80       3.99       1.02        .120       .045       .120       .000     825.80     165.04
   .001016          0.         0.         0.          0          0          0        .00     246.98     412.02


 *SECNO 100.000

 3301 HV CHANGED MORE THAN HVINS


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .35

    100.000       9.06     834.96        .00        .00     836.27       1.31        .22        .57     842.80
     1920.0          .0     1920.0         .0         .0      209.1         .0        1.4         .3     842.80
```

```
      .00       .00      9.18       .00      .000      .045      .000      .000    825.90    186.05
   .008451      100.      100.      100.         2         0         0       .00     27.82    213.86


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.50      2.90       .00     24.00       .00    316.00       .00    825.90    825.90

*SECNO 120.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=       .000  EGLWC=    836.269  ELLC=    840.200  PCWSE=    834.959  ELTRD=    841.400

3370 NORMAL BRIDGE, NRD=  13 MIN ELTRD=   841.40 MAX ELLC=   840.20

   120.000      9.34    835.24       .00       .00    836.46      1.22       .16       .03    842.80
    1920.0        .0    1920.0        .0        .0     216.9        .0       1.5        .3    842.80
       .00       .00      8.85       .00      .000      .045      .000      .000    825.90    186.01
   .007622       20.       20.       20.         2         0         0       .00     27.90    213.90


1
   14APR94      11:35:40                                                                          PAGE   48

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

*SECNO 170.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  4.05

   170.000     10.96    836.76       .00       .00    836.85       .09       .06       .34    832.30
    1920.0     438.3    1227.4     254.3     641.8     404.7     310.2       2.4        .5    830.30
       .01       .68      3.03       .82      .120      .045      .120      .000    825.80    151.54
   .000466       50.       50.       50.         2         0         0       .00    264.30    415.84

*SECNO 350.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .57

3470 ENCROACHMENT STATIONS=      312.0     367.0  TYPE=      1  TARGET=       55.000
   350.000     10.47    836.77       .00       .00    837.12       .35       .14       .13    832.80
    1920.0        .0    1850.1      69.9        .0     382.8      61.6       6.1       1.2    830.80
       .02       .00      4.83      1.13      .000      .045      .120      .000    826.30    312.00
   .001422      180.      180.      180.         2         0         0       .00     55.00    367.00

*SECNO 400.000

3301 HV CHANGED MORE THAN HVINS
```

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .34

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 855.00 ELREA= 855.00

400.000	9.37	836.27	.00	.00	837.93	1.67	.16	.66	855.00
1920.0	.0	1920.0	.0	.0	185.4	.0	6.5	1.2	855.00
.02	.00	10.36	.00	.000	.045	.000	.000	826.90	100.00
.012110	50.	50.	50.	2	0	0	.00	20.00	120.00

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	3.00	.00	20.00	.00	200.00	.00	828.00	826.90

*SECNO 500.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 838.413 EGLWC= 839.033 ELLC= 836.900 PCWSE= 836.266 ELTRD= 847.300

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .69

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 847.30 MAX ELLC= 836.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 856.10 ELREA= 856.10

500.000	9.86	837.86	.00	.00	839.71	1.85	1.69	.09	856.10
1920.0	.0	1920.0	.0	.0	176.0	.0	6.9	1.2	856.10
.02	.00	10.91	.00	.000	.045	.000	.000	828.00	100.00
.025165	100.	100.	100.	2	0	0	-19.27	20.00	120.00

*SECNO 700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.84

3470 ENCROACHMENT STATIONS= 247.0 385.0 TYPE= 1 TARGET= 138.000

700.000	12.45	840.37	.00	.00	840.49	.12	.26	.52	834.42
1920.0	268.7	1474.8	176.5	360.3	469.7	207.4	9.7	1.6	832.42
.05	.75	3.14	.85	.120	.045	.120	.000	827.92	247.00
.000409	200.	200.	200.	2	0	0	.00	138.00	385.00

*SECNO 900.000

3470 ENCROACHMENT STATIONS= 119.0 424.0 TYPE= 1 TARGET= 305.000

900.000	12.80	840.52	.00	.00	840.57	.05	.06	.02	834.22
1920.0	533.0	1113.0	274.0	951.4	485.4	424.3	16.3	2.6	832.22
.08	.56	2.29	.65	.120	.045	.120	.000	827.72	134.66
.000209	200.	200.	200.	2	0	0	.00	285.95	420.61

1

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

*SECNO 2900.000
3280 CROSS SECTION 2900.00 EXTENDED 1.18 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.50

2900.000	14.08	840.78	.00	.00	840.79	.01	.22	.01	832.60
1550.0	199.1	822.0	528.9	690.9	630.5	1667.5	127.6	22.1	831.70
.75	.29	1.30	.32	.120	.045	.120	.000	826.70	.00
.000061	2000.	2000.	2000.	2	0	0	.00	565.52	565.52

*SECNO 5750.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.05

5750.000	12.37	840.87	.00	.00	840.87	.00	.07	.00	831.10
1550.0	1053.6	97.8	398.6	5724.8	162.4	2135.7	479.1	77.4	831.00
4.42	.18	.60	.19	.120	.045	.120	.000	828.50	150.74
.000014	2850.	2850.	2650.	2	0	0	.00	1172.93	1323.67

*SECNO 5800.000

5800.000	11.27	840.87	.00	.00	840.87	.00	.00	.00	830.60
1550.0	961.0	111.6	477.4	4701.4	164.7	2313.2	487.9	78.8	830.50
4.48	.20	.68	.21	.120	.045	.120	.000	829.60	221.38
.000018	50.	50.	50.	0	0	0	.00	1221.55	1442.94

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.60	.00	15.00	.00	70.00	.00	829.60	829.60

*SECNO 5825.000
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
852.29	840.87	.00	1517.	28.	70.	59.	833.50	835.20	1222.

5825.000	11.27	840.87	.00	.00	840.88	.00	.00	.00	830.60
1550.0	961.0	111.6	477.4	4703.4	164.7	2314.4	492.0	79.5	830.50
4.50	.20	.68	.21	.120	.045	.120	.000	829.60	221.25
.000018	25.	25.	25.	0	0	7	.00	1221.93	1443.18

1

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

*SECNO 5860.000

5860.000	11.07	840.87	.00	.00	840.88	.00	.00	.00	832.20
1550.0	626.1	692.3	231.6	4557.9	1474.0	1937.4	498.1	80.6	832.20
4.54	.14	.47	.12	.120	.045	.120	.000	829.80	181.99
.000010	35.	35.	35.	0	0	0	.00	1390.11	1572.10

*SECNO 7800.000
3280 CROSS SECTION 7800.00 EXTENDED 5.09 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .65

7800.000	10.19	840.89	.00	.00	840.89	.00	.01	.00	835.00
313.0	94.9	18.7	199.3	2893.0	157.5	5363.5	854.4	147.6	835.10
17.52	.03	.12	.04	.120	.045	.120	.000	830.70	303.81
.000001	1840.	1940.	1940.	1	0	0	.00	1696.19	2000.00

*SECNO 9200.000
3280 CROSS SECTION 9200.00 EXTENDED 5.79 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .17

3470 ENCROACHMENT STATIONS= 600.0 1100.0 TYPE= 1 TARGET= 500.000

9200.000	9.09	840.89	.00	.00	840.89	.00	.00	.00	840.10
313.0	73.2	136.1	103.7	537.5	258.8	717.4	1013.9	182.9	840.00
18.79	.14	.53	.14	.120	.045	.120	.000	831.80	600.00
.000032	1400.	1400.	1400.	0	0	0	.00	500.00	1100.00

*SECNO 10850.000
3280 CROSS SECTION 10850.00 EXTENDED .51 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .24

3470 ENCROACHMENT STATIONS= 100.0 300.0 TYPE= 1 TARGET= 200.000

10850.000	5.81	841.01	.00	.00	841.04	.03	.14	.02	844.90
313.0	.0	203.5	109.5	.0	115.0	226.1	1049.0	194.9	840.00
19.13	.00	1.77	.48	.000	.045	.120	.000	835.20	169.51
.000540	1650.	1650.	1650.	2	0	0	.00	130.49	300.00

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

*SECNO 10900.000
3280 CROSS SECTION 10900.00 EXTENDED .56 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

3470 ENCROACHMENT STATIONS= 1000.0 1100.0 TYPE= 1 TARGET= 100.000

10900.000	6.06	841.06	.00	.00	841.10	.04	.05	.00	845.70
313.0	.0	74.3	238.7	.0	27.8	219.3	1049.4	195.0	840.00
19.14	.00	2.68	1.09	.000	.045	.120	.000	835.00	1000.00
.002661	50.	50.	50.	2	0	0	.00	100.00	1100.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.90	.00	5.00	.00	70.00	2	1	835.90	835.00

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 10970.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 848.13
3280 CROSS SECTION 10970.00 EXTENDED 7.63 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
848.95	849.24	7.04	24.	291.	5.120	19.6	848.00	470.

3470 ENCROACHMENT STATIONS= 1000.0 1005.0 TYPE= 1 TARGET= 5.000

10970.000	12.73	847.73	.00	.00	848.13	.41	7.04	.00	842.20
313.0	.0	313.0	.0	.0	61.1	.0	1049.6	195.1	100000.00
19.15	.00	5.12	.00	.000	.045	.000	.000	835.00	1000.00
.008700	70.	70.	70.	2	0	0	.00	5.00	1005.00

*SECNO 10980.000
3280 CROSS SECTION 10980.00 EXTENDED 8.10 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.81

3470 ENCROACHMENT STATIONS= 980.0 1005.0 TYPE= 1 TARGET= 25.000

10980.000	12.40	848.20	.00	.00	848.25	.05	.01	.11	842.20
313.0	18.1	282.9	11.9	41.8	152.7	30.6	1049.6	195.1	842.10
19.15	.43	1.85	.39	.120	.045	.120	.000	835.80	980.00
.000257	10.	10.	10.	2	0	0	.00	25.00	1005.00

*SECNO 11000.000
3280 CROSS SECTION 11000.00 EXTENDED 7.74 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

3470 ENCROACHMENT STATIONS= 980.0 1020.0 TYPE= 1 TARGET= 40.000

11000.000	12.24	848.24	.00	.00	848.26	.02	.00	.01	837.40
313.0	20.3	211.4	81.3	74.1	150.6	212.8	1049.8	195.1	837.20
19.15	.27	1.40	.38	.120	.045	.120	.000	836.00	980.00
.000071	20.	20.	20.	2	0	0	.00	40.00	1020.00

*SECNO 11020.000
3280 CROSS SECTION 11020.00 EXTENDED 8.15 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.62

3470 ENCROACHMENT STATIONS= 960.0 1040.0 TYPE= 1 TARGET= 80.000

11020.000	12.46	848.26	.00	.00	848.27	.01	.00	.00	837.20
313.0	67.7	134.3	111.0	274.1	153.4	418.0	1050.1	195.1	837.00
19.16	.25	.88	.27	.120	.045	.120	.000	835.80	960.00
.000027	20.	20.	20.	1	0	0	.00	80.00	1040.00

*SECNO 11045.000
3280 CROSS SECTION 11045.00 EXTENDED 8.16 FEET

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.47

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11045.000	12.47	848.27	.00	.00	848.27	.00	.00	.00	842.20

313.0	66.5	38.5	208.1	499.4	106.2	1360.5	1050.9	195.2	842.10
19.20	.13	.36	.15	.120	.045	.120	.000	835.80	900.00
.000012	25.	25.	25.	0	0	0	.00	300.00	1200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	3.00	.00	9.00	.00	32.40	.00	835.50	835.80

*SECNO 11060.000
6790 POSSIBLE INVALID SOLUTION 20 TRIALS OF EG NOT ENOUGH
FINAL QWEIR + QPR = 907. DOES NOT EQUAL ACTUAL Q = 313.

3280 CROSS SECTION 11060.00 EXTENDED 8.47 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
850.44	848.27	.00	901.	7.	32.	35.	839.40	841.80	2000.

3470 ENCROACHMENT STATIONS= 900.0 1200.0 TYPE= 1 TARGET= 300.000

11060.000	12.77	848.27	.00	.00	848.27	.00	.00	.00	841.90
313.0	67.4	37.3	208.2	526.7	109.0	1422.5	1051.6	195.3	841.80
19.23	.13	.34	.15	.120	.045	.120	.000	835.50	900.00
.000011	15.	15.	15.	0	0	20	.00	300.00	1200.00

*SECNO 11110.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.19

11110.000	12.47	848.27	.00	.00	848.27	.00	.00	.00	841.70
313.0	3.7	44.8	264.6	169.0	402.7	6539.6	1056.8	196.0	843.70
19.50	.02	.11	.04	.120	.045	.120	.000	835.80	193.00
.000001	50.	50.	50.	0	0	0	.00	949.91	1142.91

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

*SECNO 13350.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .11

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

13350.000	10.27	848.27	.00	.00	848.28	.01	.00	.00	843.90
313.0	10.8	253.8	48.4	74.8	308.4	293.0	1257.1	225.2	845.90
20.40	.14	.82	.17	.120	.045	.120	.000	838.00	215.82
.000048	2240.	2240.	2240.	1	0	0	.00	184.18	400.00

*SECNO 13400.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .24

3470 ENCROACHMENT STATIONS= 1000.0 1012.0 TYPE= 1 TARGET= 12.000

13400.000	10.93	848.23	.00	.00	848.32	.09	.01	.04	849.00
313.0	.0	313.0	.0	.0	131.2	.0	1257.5	225.3	100000.00
20.40	.00	2.39	.00	.000	.045	.000	.000	837.30	1000.00
.000858	50.	50.	50.	2	0	0	.00	12.00	1012.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.90	.00	12.50	.00	62.00	.00	838.60	838.40

*SECNO 13500.000
PRESS FLOW BECAUSE EGLWC OF 849.62 EXCEEDS 1.5 DEPTH
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
848.83	849.62	.00	0.	313.	62.	78.	844.80	849.00	0.

3470 ENCROACHMENT STATIONS= .0 1100.0 TYPE= 1 TARGET= 1099.999

13500.000	11.45	848.75	.00	.00	848.83	.08	.51	.00	849.00
313.0	.0	313.0	.0	.0	137.4	.0	1257.8	225.3	849.00
20.41	.00	2.28	.00	.000	.045	.000	.000	837.30	1000.00
.000766	100.	100.	100.	2	0	0	.00	12.00	1012.00

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

*SECNO 13550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.71

3470 ENCROACHMENT STATIONS= 200.0 293.0 TYPE= 1 TARGET= 93.000

13550.000	10.84	848.84	.00	.00	848.86	.01	.01	.02	843.90
313.0	16.0	297.0	.0	95.5	332.9	.0	1258.2	225.4	100000.00
20.43	.17	.89	.00	.120	.045	.000	.000	838.00	211.37
.000056	50.	50.	50.	2	0	0	.00	81.62	293.00

*SECNO 14000.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.94

3470 ENCROACHMENT STATIONS= 200.0 604.0 TYPE= 1 TARGET= 404.000

14000.000	10.68	848.87	.00	.00	848.87	.00	.01	.00	844.09
313.0	7.6	154.2	151.3	89.2	325.8	1248.0	1269.0	227.8	846.09
20.86	.08	.47	.12	.120	.045	.120	.000	838.19	212.67
.000015	450.	450.	450.	2	0	0	.00	391.33	604.00

*SECNO 15950.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

3470 ENCROACHMENT STATIONS= 500.0 600.0 TYPE= 1 TARGET= 100.000

15950.000	9.92	848.92	.00	.00	848.93	.01	.05	.00	845.00
313.0	63.4	249.6	.0	251.4	260.0	.0	1317.6	238.8	100000.00
21.52	.25	.96	.00	.120	.045	.000	.000	839.00	500.00
.000072	1950.	1950.	1950.	1	0	0	.00	100.00	600.00

*SECNO 16000.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .25

16000.000	9.65	848.85	.00	.00	849.02	.16	.01	.08	839.30
313.0	.0	313.0	.0	.4	96.5	.0	1318.0	238.9	850.60
21.52	.04	3.24	.00	.120	.045	.000	.000	839.20	599.91
.001157	50.	50.	50.	2	0	0	.00	10.09	610.00

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.80	.00	10.00	.00	44.00	.00	839.00	839.20

*SECNO 16100.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
850.03	849.02	.00	0.	313.	44.	50.	844.00	850.60	0.

16100.000	10.90	849.90	.00	.00	850.03	.13	1.02	.00	839.30
313.0	.0	313.0	.0	.5	108.9	.0	1318.2	238.9	850.60
21.53	.04	2.87	.00	.120	.045	.000	.000	839.00	599.91
.000841	100.	100.	100.	2	0	0	.00	10.09	610.00

*SECNO 16150.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.65

3470 ENCROACHMENT STATIONS= 510.0 620.0 TYPE= 1 TARGET= 110.000

16150.000	11.06	850.06	.00	.00	850.07	.01	.01	.04	845.00
313.0	58.7	242.8	11.4	273.5	300.9	71.1	1318.7	239.0	846.60
21.55	.21	.81	.16	.120	.045	.120	.000	839.00	510.00
.000039	50.	50.	50.	2	0	0	.00	110.00	620.00

*SECNO 18700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.35

3470 ENCROACHMENT STATIONS= 700.0 1700.0 TYPE= 1 TARGET= 1000.000

18700.000	9.48	850.08	.00	.00	850.08	.00	.00	.00	843.50
62.0	30.6	8.7	22.7	3242.1	293.4	2416.6	1518.8	272.7	844.40
81.60	.01	.03	.01	.120	.045	.120	.000	840.60	700.00
.000000	2600.	2650.	2700.	2	0	0	.00	1000.00	1700.00

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

*SECNO 20550.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .04

20550.000	4.58	850.08	.00	.00	850.08	.00	.00	.00	848.00
62.0	2.5	57.4	2.1	31.4	121.4	27.0	1649.0	295.8	848.00
82.76	.08	.47	.08	.120	.045	.120	.000	845.50	249.79
.000040	1850.	1850.	1850.	2	0	0	.00	91.17	340.96

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THIS RUN EXECUTED 14APR94 11:36:07

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ake Outlet

SUMMARY PRINTOUT

	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
	835.300	.03	.00	.00	835.33	246.98	1.61
	835.300	.08	.00	.00	835.38	246.98	2.68
	835.300	.11	.00	.00	835.41	246.98	3.10
	835.300	.18	.00	.00	835.48	246.98	3.99
*	835.251	.20	.04	.08	835.45	27.90	3.57
*	835.159	.56	.10	.24	835.72	27.87	6.01
*	835.107	.76	.13	.33	835.87	27.86	6.99
*	834.959	1.31	.22	.57	836.27	27.82	9.18
	835.278	.20	.02	.00	835.47	27.91	3.56
	835.245	.55	.07	.00	835.79	27.90	5.95
	835.233	.73	.09	.01	835.97	27.89	6.88
	835.239	1.22	.16	.03	836.46	27.90	8.85
*	835.515	.03	.02	.05	835.54	249.52	1.54
*	835.917	.06	.04	.15	835.98	254.28	2.37
*	836.139	.07	.05	.20	836.21	256.91	2.63
*	836.758	.09	.06	.34	836.85	264.30	3.03
*	835.529	.08	.04	.03	835.61	55.00	2.28
*	835.941	.19	.09	.07	836.14	55.00	3.60
*	836.161	.25	.11	.09	836.41	55.00	4.04
*	836.766	.35	.14	.13	837.12	55.00	4.83
*	835.444	.33	.04	.12	835.77	20.00	4.59
*	835.706	.85	.09	.33	836.56	20.00	7.41
*	835.850	1.10	.12	.43	836.95	20.00	8.42
*	836.266	1.67	.16	.66	837.93	20.00	10.36
	835.697	.40	.29	.04	836.10	20.00	5.10
	836.353	.95	.70	.05	837.30	20.00	7.81
	836.927	1.11	1.08	.01	838.04	20.00	8.47
*	837.863	1.85	1.69	.09	839.71	20.00	10.91

	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
*	836.311	.08	.19	.10	836.39	138.00	2.39
*	837.706	.12	.28	.25	837.83	138.00	3.07
*	838.508	.12	.30	.30	838.63	138.00	3.12
*	840.367	.12	.26	.52	840.49	138.00	3.14
	836.426	.04	.07	.01	836.47	237.61	1.92
	837.873	.06	.08	.02	837.93	254.70	2.36
	838.671	.06	.07	.02	838.73	264.15	2.36
	840.516	.05	.06	.02	840.57	285.95	2.29
*	836.677	.01	.20	.01	836.68	348.95	.71
*	838.203	.01	.27	.01	838.21	427.73	1.04
*	839.031	.02	.31	.01	839.05	470.54	1.44
*	840.780	.01	.22	.01	840.79	565.52	1.30
*	836.728	.00	.04	.00	836.73	912.54	.36
*	838.283	.00	.07	.00	838.28	1044.50	.49
*	839.166	.00	.11	.01	839.17	1108.72	.67

*	840.870	.00	.07	.00	840.87	1172.93	.60
	836.729	.00	.00	.00	836.73	749.54	.39
	838.284	.00	.00	.00	838.28	905.92	.55
	839.167	.00	.00	.00	839.17	995.18	.75
	840.871	.00	.00	.00	840.87	1221.55	.68
	836.731	.00	.00	.00	836.73	749.65	.39
	838.286	.00	.00	.00	838.29	906.16	.55
	839.170	.00	.00	.00	839.17	995.59	.75
	840.874	.00	.00	.00	840.88	1221.93	.68
	836.732	.00	.00	.00	836.73	928.31	.27
	838.287	.00	.00	.00	838.29	1086.67	.38
	839.170	.00	.00	.00	839.17	1262.33	.52
	840.874	.00	.00	.00	840.88	1390.11	.47
*	836.745	.00	.01	.00	836.74	1410.10	.18
*	838.301	.00	.01	.00	838.30	1603.80	.13
*	839.191	.00	.02	.00	839.19	1635.39	.16
*	840.886	.00	.01	.00	840.89	1696.19	.12
*	836.762	.01	.02	.01	836.77	27.78	.87
*	838.304	.01	.01	.01	838.32	284.81	.96
*	839.196	.01	.01	.00	839.21	485.09	.95
*	840.889	.00	.00	.00	840.89	500.00	.53
*	837.501	.12	.79	.05	837.62	17.95	2.77
*	838.933	.08	.66	.03	839.01	81.94	2.34
*	839.744	.08	.58	.04	839.83	117.26	2.57
*	841.011	.03	.14	.02	841.04	130.49	1.77

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	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
*	837.663	.72	.46	.30	838.38	11.19	6.82
*	839.007	.32	.19	.12	839.32	62.29	5.54
*	839.869	.17	.17	.04	840.04	95.04	4.84
*	841.058	.04	.05	.00	841.10	100.00	2.68
*	839.210	.25	1.07	.00	839.46	5.00	3.99
*	842.800	.27	.66	.01	843.07	5.00	4.14
	845.289	.42	5.67	.00	845.71	5.00	5.21
*	847.727	.41	7.04	.00	848.13	5.00	5.12
*	839.483	.05	.02	.06	839.54	13.00	1.88
*	843.099	.05	.01	.07	843.14	25.00	1.72
*	845.776	.06	.01	.11	845.83	25.00	1.95
*	848.201	.05	.01	.11	848.25	25.00	1.85
*	839.538	.02	.01	.01	839.56	40.00	1.44
*	843.141	.02	.00	.01	843.16	40.00	1.20
*	845.822	.02	.00	.01	845.84	40.00	1.43
*	848.239	.02	.00	.01	848.26	40.00	1.40
	839.560	.01	.01	.00	839.57	80.00	1.10
*	843.156	.00	.00	.00	843.16	80.00	.79
*	845.844	.01	.00	.00	845.85	80.00	.91
*	848.260	.01	.00	.00	848.27	80.00	.88

*	839.525	.11	.01	.05	839.64	9.00	2.68
*	843.157	.01	.00	.00	843.16	300.00	1.04
	845.852	.00	.00	.00	845.85	300.00	.52
*	848.267	.00	.00	.00	848.27	300.00	.36
	839.556	.09	.01	.00	839.65	9.00	2.42
*	843.160	.00	.00	.00	843.16	300.00	.85
*	845.852	.00	.00	.00	845.85	300.00	.47
*	848.267	.00	.00	.00	848.27	300.00	.34
*	839.677	.00	.00	.03	839.68	401.26	.24
*	843.166	.00	.00	.00	843.17	756.06	.13
*	845.853	.00	.00	.00	845.85	893.16	.13
*	848.268	.00	.00	.00	848.27	949.91	.11
*	839.661	.35	.16	.17	840.01	14.85	4.73
*	843.167	.04	.02	.02	843.20	33.37	1.51
*	845.851	.02	.01	.01	845.87	158.14	1.22
*	848.268	.01	.00	.00	848.28	184.18	.82
*	840.222	.07	.20	.08	840.29	12.00	2.11
	843.184	.07	.03	.02	843.25	12.00	2.14
*	845.833	.10	.02	.04	845.93	12.00	2.49
*	848.235	.09	.01	.04	848.32	12.00	2.39

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	CWSEL	HV	HL	OLOSS	EG	TOPWID	VCH
	840.395	.07	.17	.00	840.47	12.00	2.13
*	843.308	.11	.14	.02	843.41	12.00	2.62
*	845.965	.26	.22	.08	846.23	12.00	4.13
	848.748	.08	.51	.00	848.83	12.00	2.28
	840.503	.09	.12	.01	840.60	19.30	2.47
*	843.448	.03	.04	.02	843.48	34.86	1.38
*	846.304	.02	.02	.07	846.32	61.78	1.12
*	848.844	.01	.01	.02	848.86	81.62	.89
*	841.339	.04	.76	.02	841.38	39.78	1.59
	843.615	.02	.15	.00	843.63	74.25	1.16
*	846.364	.01	.04	.00	846.37	371.74	.79
*	848.869	.00	.01	.00	848.87	391.33	.47
	842.751	.03	1.40	.00	842.78	24.17	1.30
	844.314	.04	.71	.01	844.35	30.20	1.52
*	846.578	.02	.22	.01	846.60	99.94	1.32
*	848.919	.01	.05	.00	848.93	100.00	.96
*	842.768	.07	.04	.02	842.83	10.04	2.07
*	844.303	.14	.04	.05	844.44	10.05	2.96
*	846.520	.19	.02	.08	846.71	10.07	3.48
*	848.852	.16	.01	.08	849.02	10.09	3.24
*	842.924	.09	.17	.01	843.01	10.04	2.40
	844.458	.12	.14	.00	844.58	10.05	2.77
	847.149	.15	.59	.00	847.30	10.07	3.13
	849.903	.13	1.02	.00	850.03	10.09	2.87
*	843.054	.02	.04	.02	843.07	25.33	1.15
*	844.606	.03	.03	.03	844.64	31.33	1.39

*	847.340	.02	.01	.04	847.36	110.00	1.10
*	850.064	.01	.01	.04	850.07	110.00	.81
*	843.554	.00	.47	.01	843.55	357.66	.18
*	844.788	.00	.14	.01	844.79	840.55	.09
*	847.376	.00	.01	.00	847.38	965.74	.04
*	850.078	.00	.00	.00	850.08	1000.00	.03
*	845.978	.17	.13	.08	846.15	9.92	3.31
*	846.236	.24	.02	.12	846.48	13.12	3.97
*	847.356	.04	.00	.02	847.40	27.02	1.67
*	850.077	.00	.00	.00	850.08	91.17	.47

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SUMMARY OF ERRORS AND SPECIAL NOTES

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2.4.1 Results

Table 5 presents the flood plain elevations for the 10-, 50-, 100- and 500-year floods. Due to the backwater effects of the Red Cedar River, flood elevation up to approximately 7,500 feet in stream distance from the confluence would be controlled by the Red Cedar River. Re-evaluated flood elevations compared to the 1977 model showed that the flood elevations were generally lower. Vertical profiles of the Herron Creek flood elevations are presented in Appendix A.

TABLE 5
HERRON CREEK FLOOD ELEVATION

Cross-Section	FIS Map Designation	10-yr.	50-yr.	100-yr.	500-yr.
1740		834.65	835.52	835.92	836.65
2460		834.86	835.66	836.06	836.79
2700	A	835.20	835.77	836.16	836.88
2782		837.10	838.74	839.05	839.46
3182		837.27	838.76	839.07	839.49
5220		837.30	838.75	839.06	839.48
5800	B	837.88	839.10	839.43	839.92
6550	C	838.84	839.73	840.07	840.64
6600		838.78	839.72	840.07	840.65
6675		839.98	843.00	843.30	843.71
6725		840.49	843.03	843.33	843.75
7450	D	840.92	843.05	843.35	843.75
7486		840.97	843.07	843.37	843.78
7500		840.68	842.21	842.65	843.87
7535		842.74	844.61	845.58	847.36
7549		843.70	846.02	847.14	849.38
7585		843.72	846.05	847.18	849.43
9350	E	843.76	846.08	847.21	849.46
12,800	F	843.72	846.10	847.23	849.47
12,850		843.59	846.82	847.18	849.48
12,885		849.97	850.30	850.45	850.71
13,085		849.98	850.33	850.48	850.76
14,220		850.05	850.46	850.66	851.03
14,550		850.06	850.49	850.69	851.08
14,750		850.02	850.31	850.37	851.50
14,790		852.34	853.94	854.02	854.24
14,840		852.71	853.94	854.03	854.25
15,500	G	852.72	853.95	854.04	854.27
16,800		852.73	853.96	854.06	854.29
18,100	H	853.03	853.78	853.79	853.88

2.7 Floodway Calculation

The floodway for the Smith Drain and Herron Creek were calculated with HEC-2 encroachment method 1 and encroachment method 4. The floodways were determined by calculating a maximum increase in the base flood (100-year flood) water surface elevation of 0.1 feet increase. HEC-2 encroachment method 1 involves inputted encroachment stations in the right and left channels until a rise of 0.1 feet occurs in the floodway. HEC-2 encroachment method 4 computes encroachment stations based on the desired change in water surface elevation of 0.1 feet. Table 8 presents the floodway results for the Smith Drain and Herron Creek.

TABLE 8
FLOODWAY DATA

Flooding Source			Floodway		Base Flood Water Surface Elevation			
X-Sec.	Distance	Width	Section Area (sq ft)	Mean Velocity (ft/sec)	Regul. (NGVD)	W/O Floodway (NGVD)	With Floodway (NGVD)	Increase (feet)
HERRON CREEK								
A	1,740	487	1,952	0.3	842.5*	836.0	835.9	0.1
B	5,800	115	420	1.3	842.5*	839.4	839.4	0.0
C	6,550	101	291	1.9	842.5*	840.2	840.1	0.1
D	7,450	345	1,473	0.4	843.4	843.4	843.4	0.0
E	9,350	748	6,159	0.1	847.2	847.2	847.2	0.0
F	12,800	330	1,209	0.5	847.2	847.2	847.2	0.0
G	15,500	746	3,145	0.2	854.0	854.0	854.0	0.0
H	18,100	545	1,126	0.5	854.1	854.1	854.1	0.0
SMITH DRAIN								
A	540	101	263	1.8	846.5*	839.2	839.1	0.1
B	1,700	55	120	3.9	846.5*	845.1	845.1	0.0
C	2,590	298	2,680	0.2	859.7	859.7	859.7	0.0
D	3,900	284	1,382	0.3	859.7	859.7	859.7	0.0
E	5,790	32	107	4.3	859.8	859.8	859.8	0.0
F	6,590	30	145	3.2	863.3	863.3	863.3	0.0
G	6,940	145	584	0.8	865.4	865.5	865.4	0.1
H	8,480	89	222	2.1	866.4	866.5	866.4	0.1
I	10,620	358	395	1.2	870.4	870.5	850.4	0.1
J	12,160	25	107	4.4	872.2	872.2	872.1	0.1

* Backwater effect from Red Cedar River.

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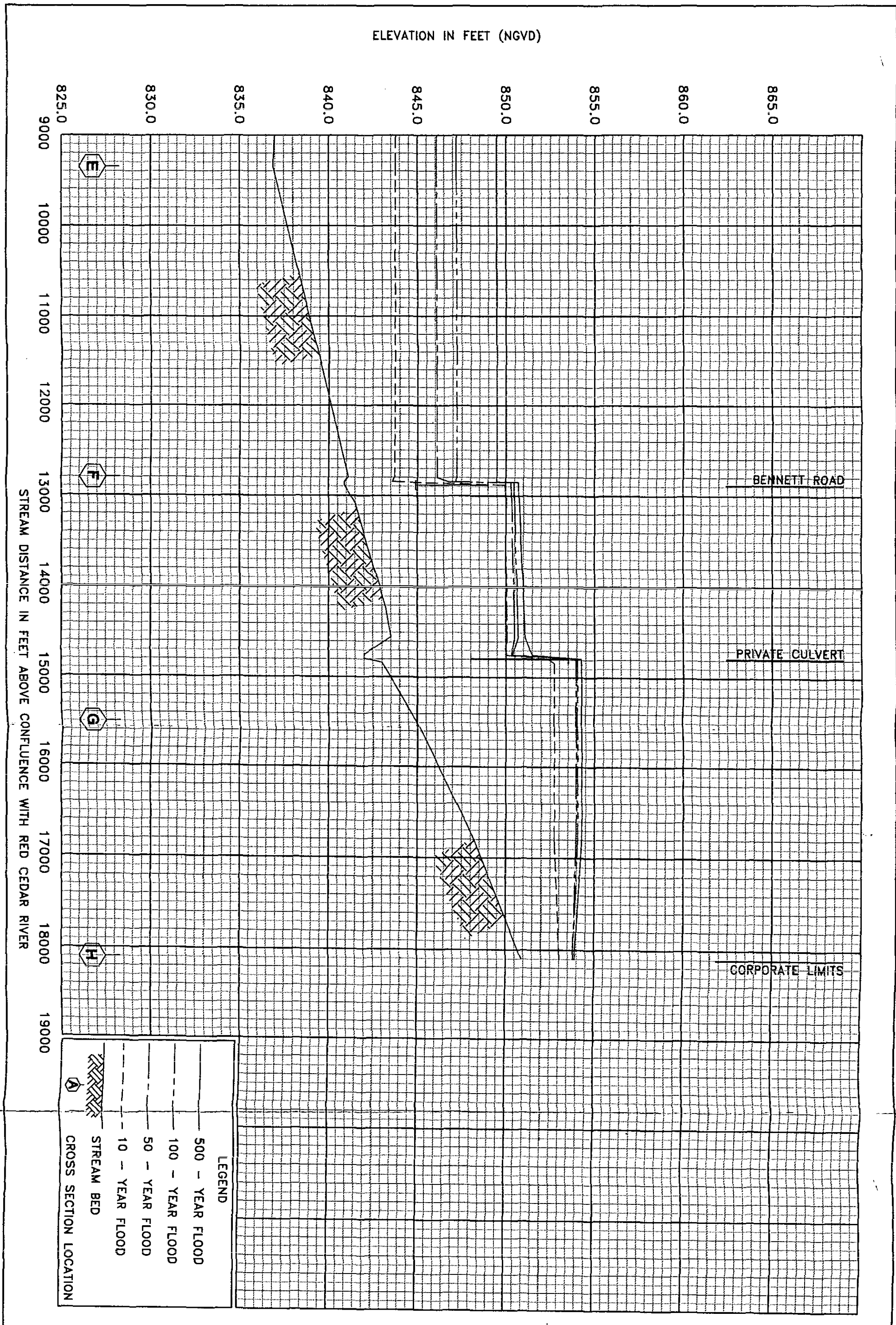


FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MERIDIAN, MI

(INGHAM CO.)

FLOOD PROFILES

RED CEDAR RIVER - HERRON CREEK BRANCH

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
JERRY G. BARTNIK
LARRY DEVUYST
PAUL EISELE
JAMES HILL
DAVID HOLLI
JOEY M. SPANO
JORDAN B. TATTER

JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES
Stevens T. Mason Building, P.O. Box 30028, Lansing, MI 48909

ROLAND HARMES, Director

NOV 16 1994

November 14, 1994

Mr. Bernard B. Sheff, P.E.
STS Consultants Ltd.
3340 Ranger Road
Lansing, Michigan 48906

Dear Mr. Sheff:

SUBJECT: Meridian Township Flood Insurance Study,
Smith Drain and Herron Creek, Ingham County

We have completed our review of the hydraulic analyses for Smith Creek and Herron Drain for the Meridian Township Flood Insurance Study, dated November 1, 1994. Based on our review, we have the following comments:

Smith Creek

The analysis and floodway delineation submitted appears reasonable.

Herron Drain

1. Floodway Delineation between XSEC 3182 & 5220

   This area appears to be a wetland complex without a clearly defined continuous channel. Although, there does appear to be a channel downstream of XSEC 5220 which flows southeast to a pond. It is suggested that the floodway delineation in this reach be modified to include this "channel". The original FIS shows this area as floodway, and unless this area is not effective at conveying flow, we would suggest maintaining a similar floodway delineation. Enclosed is a suggested delineation.

2. "n" values - XSEC 12800

   At XSEC 12800 the channel "n" value has been input as .45, which appears to be a typographical error. The original study had used a value of .045. In this particular case, an "n" value of .045 would likely have minimal impact on the water surface elevation, although it may result in a narrower floodway designation. It is suggested that the "n" value be reviewed, and adjusted as necessary.

The remainder of the analysis and floodway delineation for the Herron Drain appears reasonable.

Please review our comments, and as appropriate, adjust the hydraulic model and floodway delineation. If you have any questions, please feel free to contact me.

Sincerely,

Bruce E. Menerey

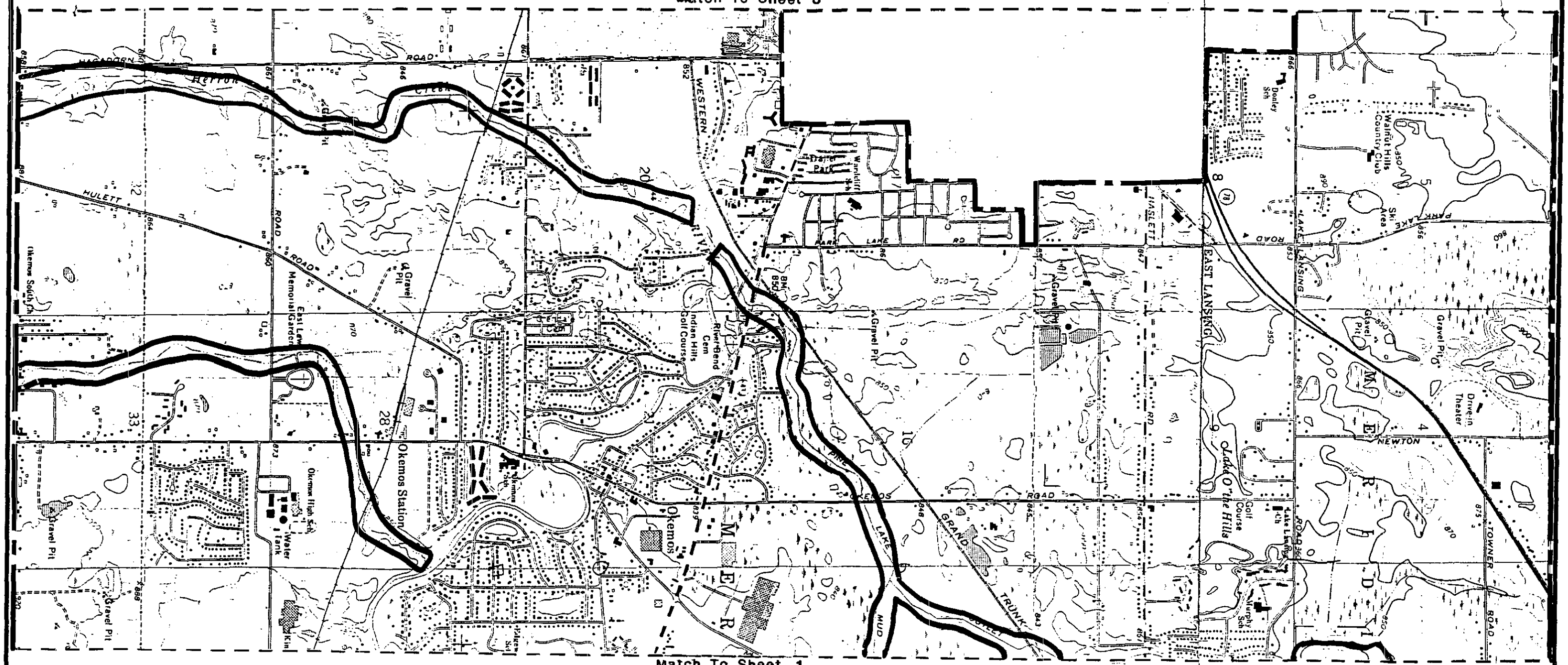
Bruce E. Menerey, P.E.
Floodplain Mapping/Delineation
Land and Water Management Division
517-335-3181

BEM:bmw

Enclosure

cc: Mr. Norbert Schwartz, Region V, FEMA

Match To Sheet 3



Match To Sheet 1

LEGEND	
	Corporate Boundary
	Detail Study Limits

STS Consultants Ltd.
Consulting Engineers

DETAIL STUDY LIMITS
FLOOD INSURANCE STUDY
MERIDIAN TOWNSHIP
FEDERAL EMERGENCY MANAGEMENT AGENCY

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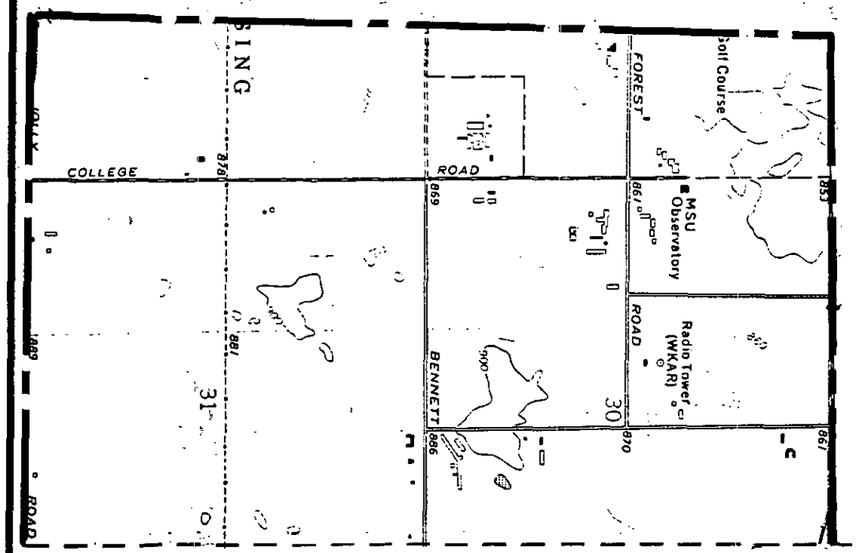



Match To Sheet 2

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LEGEND

— • —	Corporate Boundary

STS Consultants Ltd.
Consulting Engineers

DETAIL STUDY LIMITS
FLOOD INSURANCE STUDY
MERIDIAN TOWNSHIP
FEDERAL EMERGENCY MANAGEMENT AGENCY

DRAWN BY	DATE	SCALE	STS PROJECT NO.
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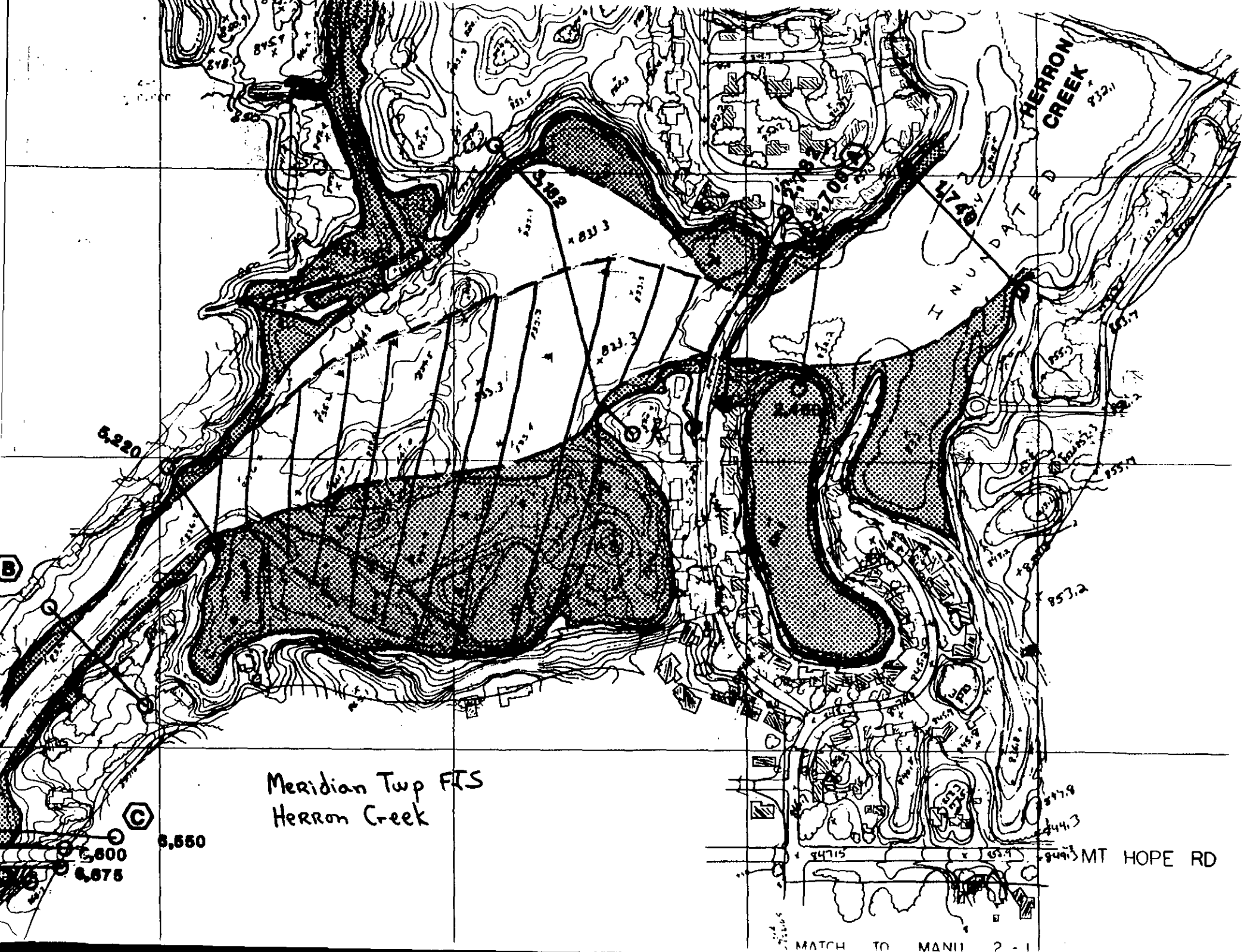


Meridian Twp FIS
Herron Creek

November 1, 1994

Mr. Bruce Menerey
Land & Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

RE: Meridian Township Flood Insurance Study
Hydraulic Analyses Report

Dear Mr. Menerey:

Enclosed is the Hydraulic Analyses Report for the Meridian Township Flood Insurance Study (FIS). Meridian Township is located in Ingham County, Michigan. This report was generated for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program (Contract No. EMW-91-C-3361).

The enclosed report summarizes the technical analyses which were performed to assess flooding conditions in Meridian Township. These analyses included the estimation of flood plain elevations and limits, and floodway location for the Pine Lake Outlet, Mud Lake Outlet, Smith Drain, and Herron Creek.

Your review of this report is requested. Upon receipt of approval of the results presented in this report, STS will proceed with finalizing the FIS for Meridian Township. If you have any questions regarding the enclosed report, please contact us at (517) 321-4964.

Sincerely,

STS CONSULTANTS, LTD.

Bernard B. Sheff, P.E.
Principal Engineer
Vice President

BBS/lch

lch.water
meridian twn fema fis

STS Consultants Ltd.
Consulting Engineers

3340 Ranger Road
Lansing, Michigan 48906
517.321.4964/Fax 517.321.2132

Report

PROJECT

Meridian Township Flood Insurance Study
Hydraulic Analyses Report

CLIENT

Submitted To:
Land & Water Management Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909

Project No.

72546

Date

November 1, 1994

STS Consultants, Ltd.
3340 Ranger Road
Lansing, Michigan 48906
517.321.4964/Fax 517.321.2132

Meridian Township Flood Insurance Study
Final Hydraulic Analyses Report

1.0 INTRODUCTION

The Meridian Township Flood Insurance Study (FIS) is being performed for the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program. Meridian Township is located in Ingham County, Michigan and a vicinity map is presented as Sheets 1 through 3. The location of Meridian Township within Ingham County is presented in Sheet 4. The detailed technical studies performed for the FIS were completed in two steps. Initially, the Hydrologic Analyses Report was prepared and approved on July 29, 1993, after which this Hydraulic Analyses Report was prepared. The peak flows developed from the hydrologic analysis were used during the hydraulic analysis of the project. Finally, this report provides a re-analysis of a previously completed study.

The objective of the hydraulic analysis phase of the project was to develop floodway and flood plain limits and flood elevations for the stream systems designated for detailed study. The scope of this study includes the performance of hydraulic analyses for the following:

1. Smith Drain — The mouth of the Smith Drain is confluent with the Red Cedar River and will be studied from the confluence to approximately 2.2 miles upstream at the corporate limits.

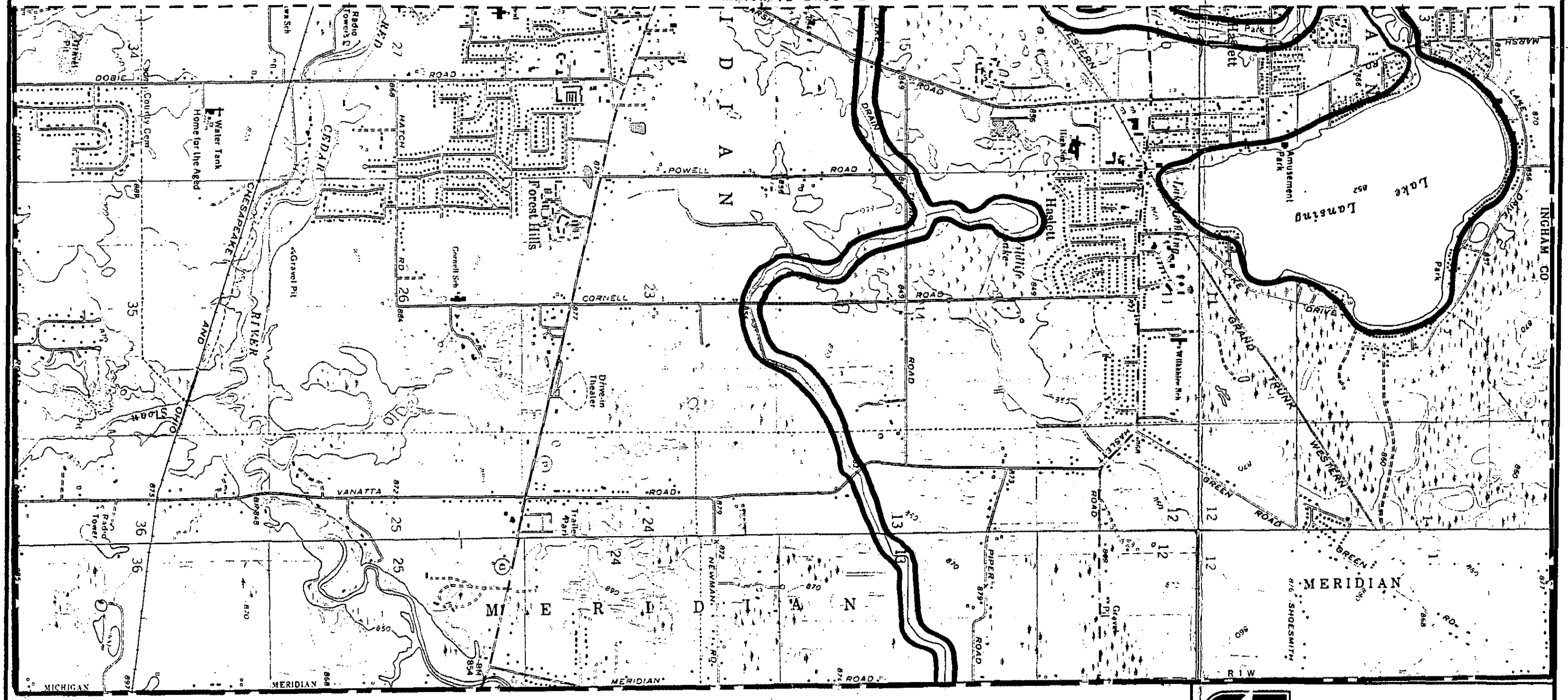
2. Herron Creek — The mouth of Herron Creek is confluent with the Red Cedar River and will be studied from the confluence to approximately 3.1 miles upstream at the corporate limits.

3. Pine Lake Drain — The mouth of Pine Lake Drain is confluent with the Red Cedar River and will be studied from the confluence to approximately 3.9 miles upstream, up to and including Lake Lansing.

4. Mud Lake Drain — Mud Lake Drain is confluent with the Pine Lake Drain and will be studied from the confluence to approximately 1.2 miles upstream to the corporate limits.

The locations of these watercourses within Meridian Township are illustrated in Sheets 1 through 3.

Match To Sheet 2



N

LEGEND

	Corporate Boundary
	Detail Study Limits

STS Consultants Ltd.
Consulting Engineers

DETAIL STUDY LIMITS
FLOOD INSURANCE STUDY
MERIDIAN TOWNSHIP
FEDERAL EMERGENCY MANAGEMENT AGENCY

DRAWN BY	DATE	SCALE	STS PROJECT NO.
JET	9/90	1"=2000'	782P
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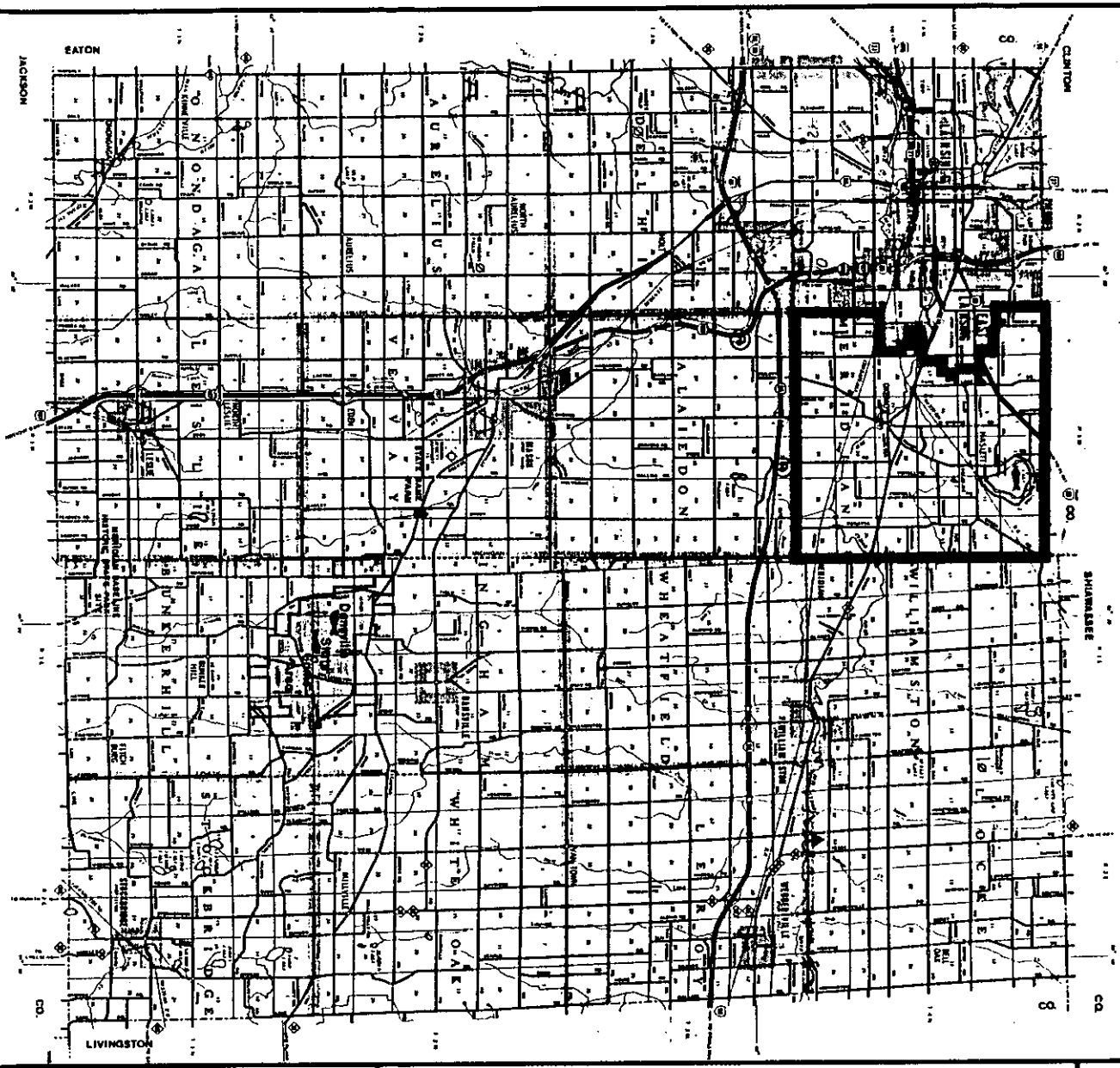
BBS	9/90	1	



LOCATION OF MERIDIAN TOWNSHIP WITHIN INGHAM COUNTY

FLOOD INSURANCE STUDY MERIDIAN TOWNSHIP, MICHIGAN

FEDERAL EMERGENCY MANAGEMENT AGENCY

STS Consultants Ltd.
Consulting Engineers

DRAWN BY TJP	DATE 2/93
CHECKED BY TKL	DATE 2/93
APPROVED BY BBS	DATE 2/93
CADFILE	

SHEET NO.	SCALE	STS PROJECT FILE	STS PROJECT NO.
4	1"=9010'	71868E	71868E

BRUNING, 544370

2.0 HYDRAULIC ANALYSIS

2.1 General

Flood insurance studies were initially performed in 1977 for Meridian Township to develop the 10-, 50-, 100- and 500-year flood elevations. This new re-study was performed to evaluate changes in the hydraulics of the Smith Drain and the change of hydrology in the Herron Creek.

The hydrology has been re-evaluated and approved by the Michigan Department of Natural Resources, Land and Water Management Division by a letter dated July 29, 1993. A summary of the MDNR approved hydrologic analysis discharges are presented in Table 1. Neither the hydraulics or hydrology of the Pine Lake Outlet and Mud Lake Drain have changed since the 1977 flood insurance study and therefore, these systems were not addressed as part of this study.

TABLE 1
MERIDIAN TOWNSHIP FINAL HYDROLOGIC ANALYSIS

Discharges in cfs
Recurrence Intervals

	10-yr	50-yr	100-yr	500-yr
Pine Lake Outlet	775	1,290	1,490	1,920
Mud Lake Drain	445	760	890	1,150
Smith Drain	240	400	465	600
Herron Creek				
at I-96	170	240	300	400
@ mouth	290	470	560	750

2.2 Methodology

The Army Corps of Engineers' HEC-2 computer model *(Reference 1)* was utilized to simulate the 10-, 50-, 100- and 500-year flood events and to estimate water surface elevations. This program simulates water surface profiles for steady, gradually varied flow in natural or manmade channels based on the solution of the one-dimensional energy equation. Energy losses due to friction are evaluated using Manning's Equation *(Reference 2)*. The program has the capability to assess the impacts of various obstructions to flow, including bridges, culverts and weirs. The computational procedure utilized by the program is generally known as the standard step method. Parameters that were input to the HEC-2 computer model include stream, bridge and culvert cross-section dimensions and elevations; roughness coefficients associated with the stream bed and overbank areas; expansion and contraction loss coefficients; and the distance between cross-sections and structures.

Manning's Equation coefficients utilized in the computer model were 0.035 for the stream channel and ranged from 0.04 to 0.1 in the stream overbank areas. Contraction and expansion coefficients *(Reference 3)* were established as 0.1 and 0.3 for smooth transitions, and 0.3 and 0.5 for abrupt transitions such as bridges.

2.2.1 Starting Conditions

The slope-area method was utilized to provide starting conditions for both the Herron Creek and Smith Drain. A slope of 0.0051 was used for the Smith Drain and a slope of 0.00014 was used for the Herron Creek. Both starting conditions were taken from the original 1977 HEC-2 models. The starting condition for the Smith Drain began 100 feet upstream and the starting condition for the Herron Creek began 1,740 feet upstream.

2.3 Smith Drain

In August 1991, a topographic survey was performed by Abrams Aerial Survey Corporation to develop maps with a scale of 1 inch equals 200 feet, with 2 foot contours. On May 1, 1992, a land survey was performed by Abrams. Ten detailed cross-sections of the Smith Drain were obtained. This information, as well as a topographic map (from Ingham County Drain Commissioner) of a pond located just west of Okemos Road was utilized to develop the cross-sections for the HEC-2 model. The following are the hydraulic model changes from the 1977 model, made by STS, for the Smith Drain.

- Recoded starting section 100 to reflect topographic mapping, and added left and right encroachments.
- Added new section 540 to provide a downstream section for new road crossing at station 980.
- Added road crossing at station 980 and new upstream section at 1140.
- Added section 1700 downstream of C&O railroad (RR).
- Recoded C&O RR crossing data based on recent stream survey; added SC card to replace SB card.
- Added coding for 7-ft. diameter CMP just upstream of C&O RR.
- Added sections 2590 and 3330 to reflect new on-line pond.
- Updated Okemos Road crossing data based on recent survey and topographic mapping.
- Added section 3900 upstream of Okemos Road to define upstream limit of flow contraction due to Okemos Road.
- Added new section 5790 based on recent stream survey.
- Added new sections upstream and downstream of Bennett Road to define limit of flow expansion and contraction. Also, recoded culvert data was reconfigured and road elevations increased.
- Added new surveyed sections at 8480, 10,620, 11,440 and 12,160.
- Changed cross-section FIS designations (A, B, C, etc.).

Table 2 presents a cross-section reference between cross-section designations for the HEC-2 model, and mapping in the FIS. Distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey. The FIS work map is presented in Appendix B.

TABLE 2
SMITH CREEK CROSS-SECTION LOCATION

HEC-2 Designation	FIS Map Designation	Description
100		100′ upstream of confluence with Red Cedar River
540	A	540′ upstream of confluence with Red Cedar River
980		Downstream face of Woodfield Road Culvert
1040		Upstream face of Woodfield Road Culvert
1140		100′ upstream of Woodfield Road Culvert
1770	B	
2300		Downstream face of Chesapeake & Ohio RR Bridge
2350		Upstream face of Chesapeake & Ohio RR Bridge
2410		Downstream face of culvert
2490		Upstream face of culvert
2590	C	Downstream portion of pond
3300		Upstream portion of pond, 270′ downstream of Okemos Road Bridge
3570		Downstream face of Okemos Road Bridge
3650		Upstream face of Okemos Road Bridge
3900	D	250′ upstream of Okemos Road Bridge
5790	E	
6590	F	160′ downstream of Bennett Road Bridge
6750		Downstream face of Bennett Road Bridge
6810		Upstream face of Bennett Road Bridge
6940	G	130′ upstream of Bennett Road Bridge
8480	H	
10,620	I	
11,440		
12,160	J	Corporate limits

2.3.1 Results

Table 3 presents the flood plain elevations for the 10-, 50-, and 100-year floods. Re-evaluated flood elevations compared to the 1977 model did change due to the lower invert elevation of the Smith Drain. Vertical profiles of the Smith Drain flood elevations are presented in Appendix A.

TABLE 3
SMITH DRAIN FLOOD ELEVATION

Cross-Section	FIS Map Designation	10-yr.	50-yr.	100-yr.	500-yr.
100		836.32	837.02	837.25	837.65
540	A	838.22	838.87	839.09	839.50
980		840.78	841.41	841.61	841.94
1040		841.95	843.30	843.92	845.71
1140		842.53	844.04	844.71	846.47
1700	B	844.14	844.65	845.11	846.63
2300		850.51	851.86	851.53	850.86
2350		851.84	856.58	859.02	860.28
2410		852.20	857.28	859.67	860.27
2490		853.41	857.51	859.67	860.28
2590	C	854.16	857.51	859.68	860.29
3300		854.17	857.51	859.68	860.29
3570		853.95	857.48	859.67	860.28
3650		854.85	858.65	859.65	860.26
3900	D	855.75	858.72	859.70	860.31
5790	E	856.78	858.83	859.76	860.37
6590	F	861.92	862.99	863.35	864.06
6750		862.16	863.32	863.70	864.42
6810		862.48	864.33	865.10	867.06
6940	G	862.73	864.65	865.44	867.08
8480	H	865.07	865.94	866.38	867.52
10,620	I	869.32	870.21	870.37	870.57
11,440		870.28	871.03	871.21	871.52
12,160	J	871.85	871.92	872.15	872.55

2.4 Herron Creek

It was predetermined that the hydraulics of Herron Creek had changed since the previous FIS. Therefore, a new HEC-2 model was developed from the 1975 FIS which was used along with the updated hydrology. The following are the hydraulic model changes from the 1977 model, made by STS, for the Herron Creek.

- Added new starting section (1720) and friction slope to model expansion losses downstream of Sequoia Trail.
- Added new section (2460) 240 feet downstream of Sequoia Trail to define effective flow portion of swamp.
- Recoded Sequoia Trail crossing and replaced SB with SC to reflect culvert changes since 1977.
- Added new section (3182) upstream of Sequoia Trail to define flow contraction to culverts.
- Added new section (5220) to define the swamp/channel connection.
- Modified top of road profile at Mt. Hope based on new topographic mapping. Also, modified effective flow zones upstream and downstream of Mt. Hope.
- Updated contraction and expansion coefficients for all reaches.
- Recoded Bennett Road crossing. Old regulatory model used Normal Bridge Method, which is not appropriate. Also, corrected effective flow zones for all crossing section. Used SC method for crossing. Changed top of road profile to reflect new topographic mapping.
- Added new private road crossing (section nos. 14,550, 14,750, 14,790 and 14,840).
- Recoded ground data for section nos. 15,500, 16,800 and 18,100 to reflect new topographic mapping. Also, old sections did not extend far enough into left overbank to model conveyance across Hagadorn Road.

Table 4 presents a cross-section reference between cross-section designation for the HEC-2 model, and mapping in the FIS. Distances between cross-sections and structures for both the channel and overbank areas were obtained from the work map that was generated from the aerial survey. The FIS work map is presented in Appendix B.

TABLE 4
HERRON CREEK CROSS-SECTION LOCATION

HEC-2 Designation	FIS Map Designation	Description
1740		1740′ upstream of confluence with Red Cedar River.
2460		240′ downstream of Sequoia Trail Bridge
2700	A	Downstream face of Sequoia Trail Bridge
2782		Upstream face of Sequoia Trail Bridge
3182		400′ upstream of Sequoia Trail Bridge
5220	B	
6550	C	50′ downstream of Mt. Hope Bridge
6600		Downstream face of Mt. Hope Bridge
6675		Upstream face of Mt. Hope Bridge
6725		50′ upstream of Mt. Hope Bridge
7450	D	36′ downstream of Chesapeake & Ohio Railroad Bridge
7486		Downstream face of Chesapeake & Ohio Railroad Bridge
7500		Chesapeake & Ohio Railroad Bridge
7535		Chesapeake & Ohio Railroad Bridge
7549		Upstream face of Chesapeake & Ohio Railroad Bridge
7585		36′ upstream of Chesapeake & Ohio Railroad Bridge
9350	E	
12,800	F	50′ downstream of Bennett Road Bridge
12,850		Downstream face of Bennett Road Bridge
12,885		Upstream face of Bennett Road Bridge
13,085		200′ upstream of Bennett Road Bridge
14,220		
14,550		200′ downstream of private culvert
14,750		Downstream face of private culvert
14,790		Upstream face of private culvert
14,840		50′ upstream of private culvert
15,550	G	
16,800		
18,100	H	Corporate limits

2.4.1 Results

Table 5 presents the flood plain elevations for the 10-, 50-, 100- and 500-year floods. Due to the backwater effects of the Red Cedar River, flood elevation up to approximately 7,500 feet in stream distance from the confluence would be controlled by the Red Cedar River. Re-evaluated flood elevations compared to the 1977 model showed that the flood elevations were generally lower. Vertical profiles of the Herron Creek flood elevations are presented in Appendix A.

TABLE 5
HERRON CREEK FLOOD ELEVATION

Cross-Section	FIS Map Designation	10-yr.	50-yr.	100-yr.	500-yr.
1740		834.65	835.52	835.92	836.65
2460		834.86	835.66	836.06	836.79
2700	A	835.20	835.77	836.16	836.88
2782		837.10	838.74	839.05	839.46
3182		837.27	838.76	839.07	839.49
5220		837.30	838.75	839.06	839.48
5800	B	837.88	839.10	839.43	839.92
6550	C	838.84	839.73	840.07	840.64
6600		838.78	839.72	840.07	840.65
6675		839.98	843.00	843.30	843.71
6725		840.49	843.03	843.33	843.75
7450	D	840.92	843.05	843.35	843.75
7486		840.97	843.07	843.37	843.78
7500		840.68	842.21	842.65	843.87
7535		842.74	844.61	845.58	847.36
7549		843.70	846.02	847.14	849.38
7585		843.72	846.05	847.18	849.43
9350	E	843.76	846.08	847.21	849.46
12,800	F	843.72	846.11	847.24	849.48
12,850	F	843.83	846.42	847.30	849.49
12,885		849.97	850.30	850.46	850.71
13,085		850.01	850.38	850.56	850.86
14,220		850.24	850.77	851.04	851.52
14,550		850.35	850.95	851.25	851.79
14,750		851.01	851.43	851.75	852.31
14,790		853.56	854.03	854.02	854.25
14,840		853.56	854.03	854.02	854.25
15,500	G	853.57	854.05	854.04	854.28
16,800		853.58	854.06	854.06	854.31
18,100	H	853.53	853.99	853.95	854.16

2.5 Mud Lake Drain

The hydraulics of Mud Lake Drain have not changed since the previous FIS. The hydrologic investigation of the Mud Lake Drain watershed revealed that the flood flows have not increased since the FIS performed in 1977. Therefore, the 10-, 50-, 100-, and 500-year hydraulic profiles for the Mud Lake Drain will not change. The hydraulic model has been analyzed and the only minor change made was inserted GR points at Section 2800 were BT low coordinate crosses the GR Profile. The 100-year hydraulic profile from the STS corrected FIS and the previous FIS have been compared and the difference is listed in Table 6. The correct HEC-2 output for Mud Lake Drain is presented in Appendix D.

TABLE 6
MUD LAKE DRAIN - 100-YEAR FLOOD ELEVATION

Cross-Section	Original Flood Elevation	Flood Elevation from New Model	Difference
100	837.71	837.71	0.0
2400	841.80	841.80	0.0
2650	842.28	842.28	0.0
2700	842.06	842.07	+.01
2800	844.06	844.07	+.01
2850	845.08	845.08	0.0
5450	845.79	845.79	0.0
5500	846.63	846.63	0.0
5520	846.63	846.60	0.0
5570	846.76	846.76	0.0
7050	846.88	846.88	0.0
7100	846.88	846.88	0.0
7160	846.89	846.88	-.01
7210	846.90	846.89	-.01
8600	846.93	846.92	-.01
9925	847.22	847.22	0.0
11250	851.88	851.89	-.01
11299	853.20	853.20	0.0
11410	853.36	853.36	0.0
13500	855.66	855.66	0.0
15650	860.21	860.21	0.0
15699	863.30	863.30	0.0
15810	863.38	863.38	0.0
19100	863.71	863.71	0.0
20700	864.53	864.53	0.0

2.6 Pine Lake Drain

The hydraulics of the Pine Lake Drain have also not changed since the previous FIS. The hydrologic investigation of the Pine Lake Drain watershed revealed that the flood flows have not increased since the FIS performed in 1977. Therefore, the 10-, 50-, 100-, and 500-year hydraulic profiles for the Pine Lake Drain will not change. The hydraulic model has been analyzed and the following minor errors were found. Removed repeated GR point in sections 100 and 5825; added BT point to Sections 5825, 10970, 11060 and 16100 so low coordinate does not cross GR profile on its way to zero. The hydraulic profile from the STS corrected FIS and previous FIS have been compared and are listed in Table 7. The corrected HEC-2 output for Pine Lake Drain is presented in Appendix D.

TABLE 7
PINE LAKE DRAIN - 100-YEAR ELEVATION

Cross-Section	Original Flood Elevation	Corrected Flood Elevation	Difference
0	835.30	835.30	0.0
100	835.11	835.11	0.0
120	835.23	835.23	0.0
170	836.14	836.14	0.0
350	836.16	836.16	0.0
400	835.83	835.85	-.02
500	836.92	836.93	-.01
700	838.50	838.51	-.01
900	838.66	838.67	-.01
2900	839.01	839.03	-.02
5750	839.14	839.15	-.01
5800	839.14	839.16	-.02
5825	839.18	839.16	+.02
5860	839.18	839.16	+.02
7800	839.20	839.18	+.02
9200	839.21	839.19	+.02
10850	839.92	839.92	0.0
10900	840.07	840.07	0.0
10970	847.37	847.37	0.0
10980	847.84	847.83	+.01
11000	847.88	847.87	+.01
11020	847.89	847.89	0.0
11045	847.90	847.90	0.0
11060	847.90	847.90	0.0
11110	847.90	847.90	0.0
13350	847.90	847.90	0.0
13400	847.87	847.87	0.0
13500	848.33	848.33	0.0
13550	848.43	848.43	0.0
14000	848.46	848.45	+.01
15950	848.51	848.51	0.0
16000	848.45	848.45	0.0
16100	849.40	849.40	0.0
16150	849.57	849.57	0.0
18700	849.58	849.58	0.0
20550	849.58	849.58	0.0

2.7 Floodway Calculation

The floodway for the Smith Drain and Herron Creek were calculated with HEC-2 encroachment method 1 and encroachment method 4. The floodways were determined by calculating a maximum increase in the base flood (100-year flood) water surface elevation of 0.1 feet increase. HEC-2 encroachment method 1 involves inputted encroachment stations in the right and left channels until a rise of 0.1 feet occurs in the floodway. HEC-2 encroachment method 4 computes encroachment stations based on the desired change in water surface elevation of 0.1 feet. Table 8 presents the floodway results for the Smith Drain and Herron Creek.

TABLE 8
FLOODWAY DATA

Flooding Source			Floodway		Base Flood Water Surface Elevation			
X-Sec.	Distance	Width	Section Area (sq ft)	Mean Velocity (ft/sec)	Regul. (NGVD)	W/O Floodway (NGVD)	With Floodway (NGVD)	Increase (feet)
HERRON CREEK								
A	1,740	487	1,952	0.3	842.5*	836.0	835.9	0.1
B	5,800	115	420	1.3	842.5*	839.4	839.4	0.0
C	6,550	101	291	1.9	842.5*	840.2	840.1	0.1
D	7,450	345	1,473	0.4	843.4	843.4	843.4	0.0
E	9,350	748	6,159	0.1	847.2	847.2	847.2	0.0
F	12,800	339	1,233	0.5	847.2	847.2	847.2	0.0
G	15,500	748	3,147	0.2	854.0	854.0	854.0	0.0
H	18,100	549	1,132	0.5	854.0	854.0	854.0	0.0
SMITH DRAIN								
A	540	101	263	1.8	846.5*	839.2	839.1	0.1
B	1,700	55	120	3.9	846.5*	845.1	845.1	0.0
C	2,590	298	2,680	0.2	859.7	859.7	859.7	0.0
D	3,900	284	1,382	0.3	859.7	859.7	859.7	0.0
E	5,790	32	107	4.3	859.8	859.8	859.8	0.0
F	6,590	30	145	3.2	863.3	863.3	863.3	0.0
G	6,940	145	584	0.8	865.4	865.5	865.4	0.1
H	8,480	89	222	2.1	866.4	866.5	866.4	0.1
I	10,620	358	395	1.2	870.4	870.5	850.4	0.1
J	12,160	25	107	4.4	872.2	872.2	872.1	0.1

* Backwater effect from Red Cedar River.

3.0 COMPARISON OF RESULTS

The hydraulic profiles determined for the 1977 FIS for the Smith Drain, as well as Herron Creek have been changed. The new vertical profiles for the Smith Drain and Herron Creek are presented in Appendix A. The FIS work maps for the Herron Creek and Smith Drain are presented in Appendix B.

The invert elevation of the Smith Drain has been lowered due to channelization from approximately station 1700 to the corporate limits. A pond was also added to the Smith Drain for added storage. The flood elevations were generally lower than the 1977 study due to the added storage and channelization. However, the depth in the channel was higher.

The flood elevations for the Herron Creek were generally lower, except between Mt. Hope Road and the railroad bridge. The increased flood elevations in this area were generally due to channel modifications.

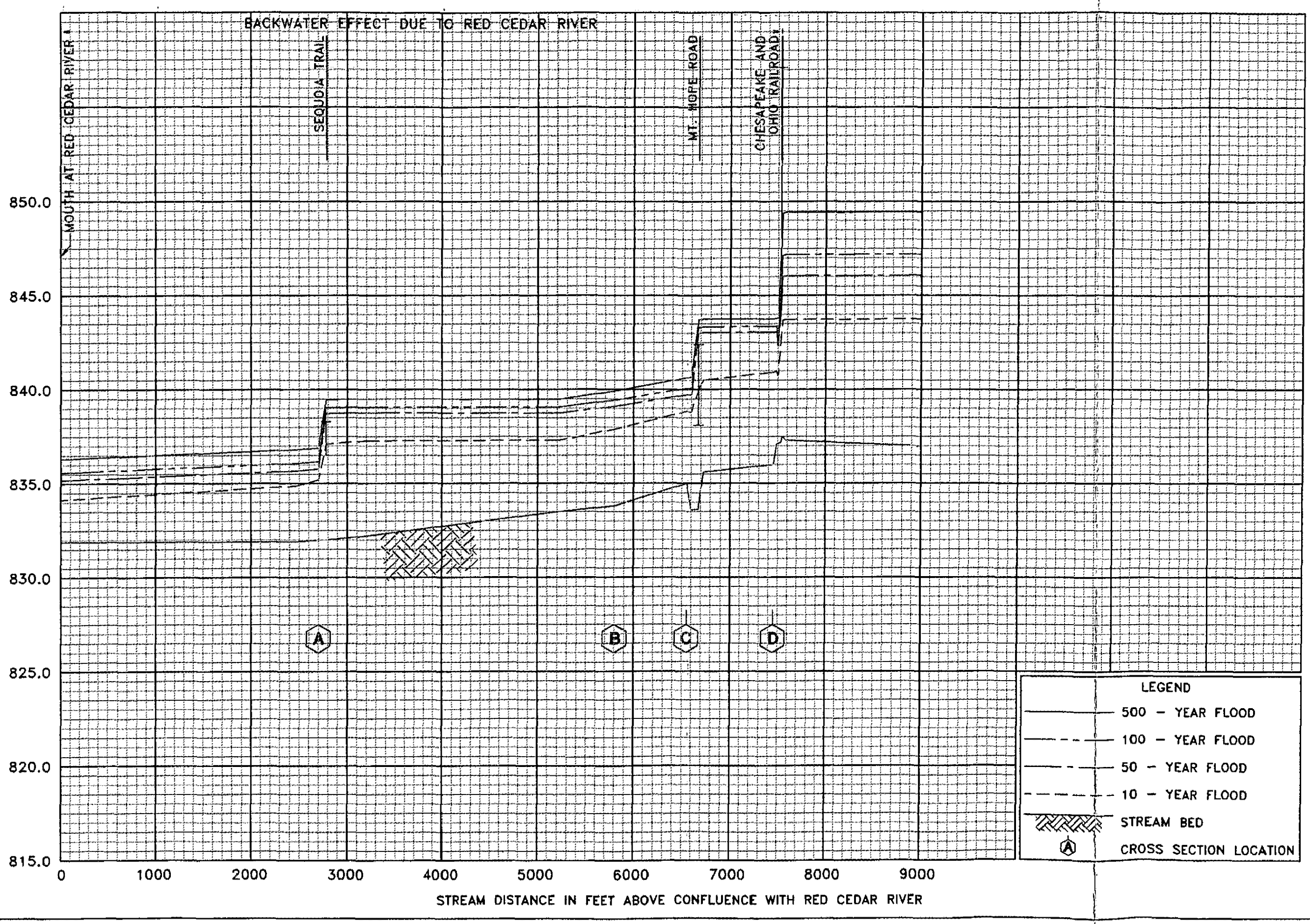
As previously mentioned, the Pine Lake and Mud Lake Drain flood elevations did not change. Therefore, stream profiles or work maps were not revised for these two drains.

4.0 CONCLUSIONS

STS has perform this hydraulic analysis report for the Meridian Township Flood Insurance Study; specifically, the Smith Drain, Herron Creek, Pine Lake Outlet and Mud Lake Outlet. This report was generated for the Federal Emergency Management Agency as part of the National Flood Insurance Program (contract no. EMW-91-C-3361).

The flood insurance study for the four branches of the Red Cedar River were initially performed in 1977. A new insurance study was performed due to the new hydraulics of the Smith Drain and Herron Creek, and new hydrology for the Herron Creek.

The hydraulic analysis has shown that there has a significant change in the floodway and floodplain of the Herron Creek and Smith Drain since the 1977 report, due to the change in hydraulics and hydrology of both branches. There has bee no significant change in the floodway and floodplain of the Mud Lake and Pine Lake Outlet since the 1977 report.



FLOOD PROFILES

HERRON CREEK BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MERIDIAN, MI

(INGHAM CO.)

71869HR1.dwg 93-A79

71869HR2.dwg 93-A79

ELEVATION IN FEET (NGVD)

825.0 830.0 835.0 840.0 845.0 850.0 855.0 860.0 865.0

9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH RED CEDAR RIVER

E F G H

BENNETT ROAD

PRIVATE CULVERT

CORPORATE LIMITS

LEGEND

500 - YEAR FLOOD

100 - YEAR FLOOD

50 - YEAR FLOOD

10 - YEAR FLOOD

STREAM BED

A CROSS SECTION LOCATION

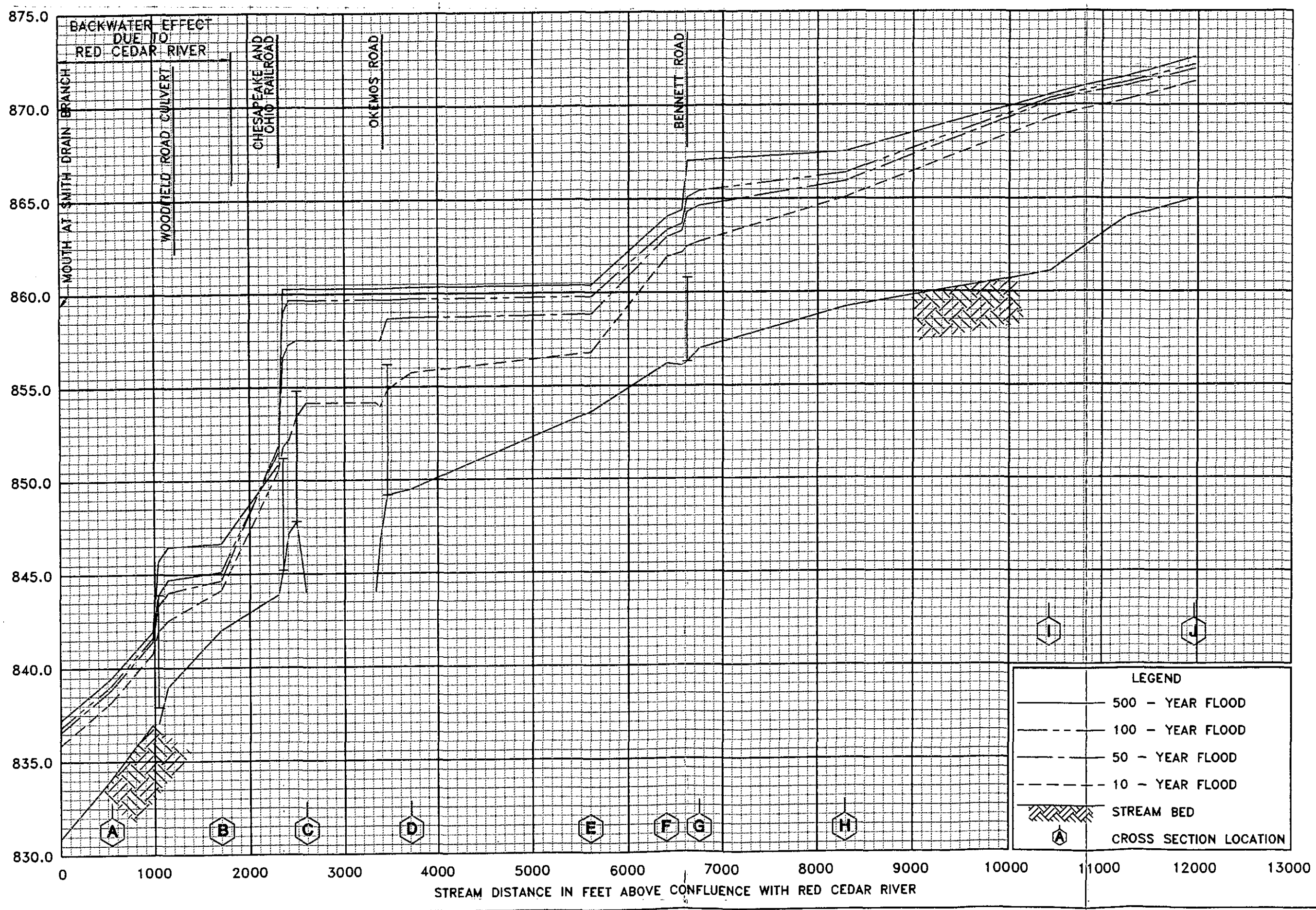
FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MERIDIAN, MI

(INGHAM CO.)

FLOOD PROFILES

HERRON CREEK BRANCH



FLOOD PROFILES

SMITH DRAIN BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

TOWNSHIP OF MERIDIAN, MI

(INGHAM CO.)

71869SM1.dwg 93-A79

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 *                                          *                                    *  HYDROLOGIC ENGINEERING CENTER
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  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


 T1Meridian Township FIS
 T2Original 10 Year Profile
 T3Mud Lake Drain

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.0       2.0       0.0       0.0      .0018       0.0       0.0       0.0     837.7       0.0

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.0      -0.0      -1.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0      -0.0


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     1.0       34.0       27.0       28.0        4.0       37.0       35.0       -0.0       -0.0       -0.0

 NC      .12        .12        .05        .30        .50       -0.0       -0.0       -0.0       -0.0       -0.0
 QT      4.0      455.0      760.0      890.0     1150.0       -0.0       -0.0       -0.0       -0.0       -0.0

 X1    100.0       23.0      980.0     1021.0       -0.0       -0.0       -0.0       -0.0       -0.0       -0.0
 X3     10.0                           500.0
 GR    838.5        0.0      837.0      100.0      836.2      200.0      836.0      250.0      837.0      300.0
 GR    838.3      400.0      838.5      500.0      838.3      600.0      838.2      700.0      837.4      800.0
 GR    835.2      900.0      836.8      980.0      832.5     1000.0      830.7     1001.0      830.0     1005.0
 GR    830.4     1010.0      831.1     1012.0      832.2     1015.0      837.6     1021.0      838.3     1100.0
 GR    843.1     1200.0      845.8     1270.0      845.6     1300.0       -0.0       -0.0       -0.0       -0.0
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X1	2400.0	13.0	400.0	449.0	2300.0	2300.0	2300.0	-0.0	-.53	-0.0
GR	852.0	0.0	851.8	45.0	846.8	100.0	842.1	200.0	840.3	300.0
GR	841.7	400.0	835.0	419.0	834.6	424.0	835.0	426.0	841.4	449.0
GR	843.1	500.0	844.5	565.0	847.5	600.0	-0.0	-0.0	-0.0	-0.0
X1	2650.0	-0.0	-0.0	-0.0	250.0	250.0	250.0	-0.0	.53	-0.0
X3	-0.0	-0.0	-0.0	400.0	-0.0	449.0	-0.0	-0.0	-0.0	-0.0
X1	2700.0	27.0	997.0	1010.9	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	10.0	834.9	-0.0	-0.0	-0.0	-0.0	-0.0	842.5	842.5	-0.0
GR	849.6	0.0	849.0	100.0	849.8	200.0	850.9	300.0	851.8	400.0
GR	852.6	500.0	852.1	600.0	850.3	700.0	848.8	800.0	847.4	900.0
GR	847.3	997.0	834.5	997.0	834.0	1000.0	833.5	1004.0	834.0	1008.0
GR	834.5	1010.9	847.3	1011.0	848.2	1100.0	849.8	1200.0	851.4	1300.0
GR	851.4	1400.0	850.4	1500.0	849.9	1600.0	849.5	1700.0	849.9	1800.0
GR	850.9	1900.0	852.0	2000.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

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SB	-0.0	1.5	2.9	-0.0	14.0	-0.0	81.5	-0.0	835.1	834.9
X1	2800.0	-0.0	-0.0	-0.0	100.0	100.0	100.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	1.0	842.5	847.3	-0.0	-0.0	-0.0	-0.0	-0.0
X3	10.0	835.1	-0.0	-0.0	-0.0	-0.0	-0.0	847.3	847.3	-0.0
BT	27.0	0.0	849.6	830.0	100.0	849.0	830.0	200.0	849.8	830.0
BT	300.0	850.9	830.0	400.0	851.8	830.0	500.0	852.6	830.0	600.0
BT	852.1	830.0	700.0	850.3	830.0	800.0	848.8	830.0	900.0	847.4
BT	830.0	997.0	847.3	830.0	997.0	847.3	838.0	1000.0	847.3	841.0
BT	1004.0	847.3	842.5	1008.0	847.3	841.0	1011.0	847.3	838.0	1011.0
BT	847.3	830.0	1100.0	848.2	830.0	1200.0	849.8	830.0	1300.0	851.4
BT	830.0	1400.0	851.4	830.0	1500.0	850.4	830.0	1600.0	849.9	830.0
BT	1700.0	849.5	830.0	1800.0	849.9	830.0	1900.0	850.9	830.0	2000.0
BT	852.0	830.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	2850.0	13.0	400.0	449.0	50.0	50.0	50.0	-0.0	.40	-0.0
GR	852.0	0.0	851.8	45.0	846.8	100.0	842.1	200.0	840.3	300.0
GR	841.7	400.0	835.0	419.0	834.6	424.0	835.0	426.0	841.4	449.0
GR	843.1	500.0	844.5	565.0	847.5	600.0	-0.0	-0.0	-0.0	-0.0
X1	5450.0	22.0	450.0	489.0	2550.0	2650.0	2600.0	-0.0	-0.0	-0.0
GR	857.1	0.0	855.7	50.0	846.2	150.0	842.7	190.0	843.0	250.0
GR	843.2	350.0	843.2	406.0	846.0	424.0	845.0	450.0	837.9	458.0
GR	837.8	471.0	838.0	473.0	844.1	489.0	845.1	509.0	842.5	533.0
GR	842.2	550.0	844.0	650.0	846.6	750.0	846.0	850.0	847.0	950.0
GR	848.8	1050.0	851.4	1150.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	5500.0	27.0	992.5	1008.5	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	10.0							845.2	844.9	
GR	854.5	0.0	853.9	100.0	853.1	200.0	853.1	300.0	853.5	400.0
GR	853.8	500.0	851.2	600.0	847.8	700.0	845.4	800.0	845.2	900.0
GR	846.3	950.0	847.4	992.5	841.1	993.0	840.8	995.0	838.4	995.0
GR	838.2	1000.0	838.5	1005.5	840.3	1005.5	840.5	1008.0	847.2	1008.5
GR	846.5	1042.0	845.4	1100.0	844.9	1200.0	846.0	1300.0	846.6	1400.0
GR	847.1	1500.0	847.9	1600.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0

SB	-0.0	1.5	2.8	-0.0	15.0	-0.0	95.0	-0.0	838.2	838.3
X1	5520.0	-0.0	-0.0	-0.0	20.0	20.0	20.0	-0.0	-0.0	-0.0
X2	-0.0	-0.0	1.0	846.2	844.9	-0.0	-0.0	-0.0	-0.0	-0.0
X3	10.0							845.2	844.9	
BT	22.0	0.0	854.5	830.0	100.0	853.9	830.0	200.0	853.1	830.0
BT	300.0	853.1	830.0	400.0	853.5	830.0	500.0	853.8	830.0	600.0
BT	851.2	830.0	700.0	847.8	830.0	800.0	845.4	830.0	900.0	845.2
BT	830.0	950.0	846.3	830.0	992.5	847.4	830.0	992.5	847.4	846.3
BT	1008.5	847.2	846.2	1008.5	847.2	830.0	1042.0	846.5	830.0	1100.0
BT	845.4	830.0	1200.0	844.9	830.0	1300.0	846.0	830.0	1400.0	846.6
BT	830.0	1500.0	847.1	830.0	1600.0	847.9	830.0	-0.0	-0.0	-0.0

X1	5570.0	22.0	450.0	489.0	50.0	50.0	50.0	-0.0	.40	-0.0
X3	-0.0	-0.0	-0.0	350.0	-0.0	650.0	-0.0	-0.0	-0.0	-0.0
GR	857.1	0.0	855.7	50.0	846.2	150.0	842.7	190.0	843.0	250.0
GR	843.2	350.0	843.2	406.0	846.0	424.0	845.0	450.0	837.9	458.0
GR	837.8	471.0	838.0	473.0	844.1	489.0	845.1	509.0	842.5	533.0
GR	842.2	550.0	844.0	650.0	846.6	750.0	846.0	850.0	847.0	950.0
GR	848.8	1050.0	851.4	1150.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
QT	5.0	395.0	210.0	340.0	395.0	510.0	-0.0	-0.0	-0.0	-0.0
X1	7050.0	20.0	1000.0	1031.0	1300.0	1650.0	1480.0	-0.0	-2.5	-0.0
X3				500.0		1300.0				
GR	854.0	0.0	850.9	100.0	850.9	200.0	849.9	300.0	853.0	400.0
GR	846.0	500.0	845.6	1000.0	840.9	1016.0	840.7	1020.0	841.0	1024.0
GR	844.1	1031.0	843.0	1100.0	843.6	1200.0	844.5	1300.0	844.5	1400.0
GR	845.0	1500.0	846.7	1600.0	848.1	1700.0	854.1	1800.0	858.0	1860.0
X1	7100.0	30.0	987.5	999.0	50.0	50.0	50.0	-0.0	-0.0	-0.0
X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	843.0	-0.0	-0.0
GR	847.9	0.0	847.3	100.0	846.7	200.0	846.6	300.0	846.0	400.0
GR	845.2	500.0	845.8	600.0	846.5	700.0	845.7	800.0	845.5	900.0
GR	845.8	987.5	839.5	987.5	838.5	988.5	838.0	989.5	838.0	990.5
GR	838.5	991.5	839.5	992.5	845.8	992.5	845.8	994.0	839.4	994.0
GR	838.4	995.0	837.9	996.0	837.9	997.0	838.4	998.0	839.4	999.0
GR	845.8	999.0	846.0	1100.0	846.3	1200.0	846.8	1300.0	847.3	1370.0
SB	1.25	1.5	2.9	-0.0	7.5	1.5	33.3	-0.0	838.8	838.7
X1	7160.0	-0.0	-0.0	-0.0	60.0	60.0	60.0	-0.0	.10	-0.0
X2	-0.0	-0.0	1.0	843.0	845.2	-0.0	-0.0	-0.0	-0.0	-0.0
X3	10.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	845.2	-0.0	-0.0
BT	30.0	0.0	847.9	836.0	10.0	847.3	836.0	200.0	846.7	836.0
BT	300.0	846.6	836.0	400.0	846.0	836.0	500.0	845.2	836.0	600.0
BT	845.8	836.0	700.0	846.5	836.0	800.0	845.7	836.0	900.0	845.5
BT	836.0	987.5	845.8	836.0	987.5	845.8	841.5	988.5	845.8	842.5
BT	989.5	845.8	843.0	990.5	845.8	843.0	991.5	845.8	842.5	992.5
BT	845.8	841.5	992.5	845.8	845.8	994.0	845.8	845.8	994.0	845.8
BT	841.4	995.0	845.8	842.4	996.0	845.8	842.9	997.0	845.8	842.9
BT	998.0	845.8	842.4	999.0	845.8	841.4	999.0	845.8	836.0	1100.0
BT	846.0	836.0	1200.0	846.3	836.0	1300.0	846.8	836.0	1370.0	847.3

BT	836.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	7210.0	20.0	1000.0	1031.0	50.0	50.0	50.0	-0.0	-1.7	-0.0
GR	854.0	0.0	850.9	100.0	850.9	200.0	849.9	300.0	853.0	400.0
GR	846.0	500.0	845.6	1000.0	840.9	1016.0	840.7	1020.0	841.0	1024.0
GR	844.1	1031.0	843.0	1100.0	843.6	1200.0	844.5	1300.0	844.5	1400.0
GR	845.0	1500.0	846.7	1600.0	848.1	1700.0	854.1	1800.0	858.0	1860.0

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X1	8600.0	-0.0	-0.0	-0.0	1300.0	1440.0	1390.0	-0.0	1.7	-0.0
X3	-0.0	-0.0	-0.0	700.0	-0.0	1300.0	-0.0	-0.0	-0.0	-0.0
X1	9925.0	13.0	1000.0	1031.0	1325.0	1325.0	1325.0	-0.0	2.6	-0.0
GR	854.0	0.0	850.9	100.0	850.9	200.0	849.9	300.0	853.0	800.0
GR	846.0	900.0	845.6	1000.0	840.9	1016.0	840.7	1020.0	841.0	1024.0
GR	844.1	1031.0	843.0	1100.0	850.0	1200.0	-0.0	-0.0	-0.0	-0.0
X1	11250.	13.0	300.0	342.0	1325.0	1325.0	1325.0	-0.0	-0.0	-0.0
GR	860.9	0.0	859.4	32.0	855.9	100.0	852.5	200.0	851.6	300.0
GR	846.0	317.0	845.9	321.0	846.2	323.0	853.3	342.0	852.4	400.0
GR	853.5	500.0	854.3	600.0	855.5	700.00	-0.0	-0.0	-0.0	-0.0
X1	11299.	13.0	310.0	330.0	50.0	50.	50.0	-0.0	-0.0	-0.0
X5	5.0	853.2	852.7	853.0	853.2	853.4	-0.0	-0.0	-0.0	-0.0
GR	860.9	0.0	859.4	32.0	855.9	100.0	852.5	200.0	851.6	310.0
GR	846.0	317.0	845.9	321.0	846.2	323.0	852.3	330.0	852.4	400.0
GR	853.5	500.0	854.3	600.0	855.5	700.0	-0.0	-0.0	-0.0	-0.0
X1	11410.	13.0	300.0	342.0	111.0	111.0	111.0	-0.0	-0.0	-0.0
GR	860.9	0.0	859.4	32.0	855.9	100.0	852.5	200.0	851.6	300.0
GR	846.0	317.0	845.9	321.0	846.2	323.0	853.3	342.0	852.4	400.0
GR	853.5	500.0	854.3	600.0	855.5	700.0	-0.0	-0.0	-0.0	-0.0
X1	13500.	15.0	300.0	349.0	2200.0	2000.0	2090.0	-0.0	-0.0	-0.0
GR	871.6	0.0	864.0	100.0	862.5	200.0	863.1	275.0	860.2	300.0
GR	851.4	322.0	851.1	330.0	851.1	333.0	857.9	349.0	860.0	400.0
GR	864.5	500.0	867.0	550.0	864.5	600.0	866.2	700.0	878.7	780.0
X1	15650.	17.0	340.0	376.0	2150.0	2150.0	2150.0	-0.0	-0.0	-0.0
GR	870.5	0.0	868.3	40.0	867.5	55.0	865.5	64.0	861.0	140.0
GR	860.2	240.0	859.5	340.0	854.0	348.0	852.9	357.0	852.7	359.0
GR	852.9	360.0	854.3	360.0	860.3	376.0	860.9	440.0	863.8	540.0
GR	867.4	640.0	869.7	690.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
X1	15699.	15.0	287.0	323.0	49.0	49.0	49.0	-0.0	1.0	-0.0
X5	5.0	863.3	859.6	863.2	863.3	863.5				
GR	872.7	0.0	868.6	100.0	865.0	200.0	862.8	287.0	853.4	300.0
GR	852.1	301.0	851.4	302.0	851.4	303.5	851.1	304.5	853.4	310.0
GR	862.8	323.0	863.3	400.0	865.8	500.0	869.5	600.0	873.0	700.0

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X1   15810.      17.0     340.0     376.0     111.0     111.0     111.0
GR     870.5       0.0     868.3      40.0     867.5      55.0     865.5      64.0     861.0     140.0
GR     860.2     240.0     859.3     340.0     854.0     348.0     852.9     357.0     852.7     359.0
GR     852.9     360.0     854.3     360.0     860.3     376.0     860.9     440.0     863.8     540.0
GR     867.4     640.0     869.7     690.0

X1   19100.      26.0    1000.0    1044.0    3290.0    3290.0    3290.0
X3      10.0
GR     871.5       0.0     868.0      50.0     868.0     100.0     868.0     200.0     866.9     300.0
GR     865.6     400.0     864.5     500.0     862.9     600.0     861.9     700.0     861.8     800.0
GR     862.1     900.0     862.2    1000.0     857.7    1019.0     857.7    1022.0     857.7    1024.0
GR     863.2    1044.0     862.4    1100.0     862.6    1200.0     863.2    1300.0     863.0    1400.0
GR     864.6    1500.0     865.3    1600.0     866.6    1700.0     870.9    1800.0     870.3    1900.0
GR     872.5    2000.0

X1   20700.      25.0     650.0     685.0    1500.0    1700.0    1600.0
X3      10.0
GR     882.9       0.0     878.1      50.0     871.0     108.0     870.9     128.0     868.7     152.0
GR     865.9     250.0     865.4     350.0     864.1     450.0     864.1     550.0     867.0     613.0
GR     866.5     650.0     861.4     662.0     860.1     671.0     861.0     679.0     865.4     685.0
GR     864.9     696.0     865.1     750.0     866.5     850.0     868.3     950.0     869.3    1050.0
GR     870.6    1150.0     871.4    1250.0     870.7    1300.0     872.8    1350.0     875.3    1415.0
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    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
    TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 100.000
7230 SLOPE-AREA TRIALS EXCEED 100

3470 ENCROACHMENT STATIONS=       500.0     1300.0  TYPE=       1  TARGET=      -500.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        836.80 ELREA=        837.60

   100.000       6.80     836.80        .00     837.70     836.95        .15        .00        .00     836.80
     455.0         .0      455.0         .0         .0      146.2         .0         .0         .0     837.60
       .00        .00       3.11        .00       .000       .050       .000       .000     830.00     980.01
   .002196         0.         0.         0.          0          0        101        .00      40.10    1020.11


*SECNO 2400.000

3265 DIVIDED FLOW

  2400.000       6.70     840.77        .00        .00     840.87        .09       3.90        .02     841.17
     455.0       18.5      436.5         .0       64.2      173.3         .0       10.1        5.7     840.87
       .26        .29       2.52        .00       .120       .050       .000       .000     834.07     244.15
   .001351      2300.     2300.     2300.          3          0          0        .00     175.20     448.66
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*SECNO 2650.000

3470 ENCROACHMENT STATIONS= 400.0 449.0 TYPE= 1 TARGET= 49.000

2650.000	6.54	841.14	.00	.00	841.25	.12	.37	.01	841.70
455.0	.0	455.0	.0	.0	165.4	.0	11.3	6.3	100000.00
.29	.00	2.75	.00	.000	.050	.000	.000	834.60	401.60
.001664	250.	250.	250.	2	0	0	.00	46.45	448.05

*SECNO 2700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 842.50 ELREA= 842.50

2700.000	6.21	841.11	.00	.00	841.54	.43	.13	.16	847.30
455.0	.0	455.0	.0	.0	86.3	.0	11.4	6.4	834.90
.29	.00	5.27	.00	.000	.050	.000	.000	834.90	997.00
.004513	50.	50.	50.	2	0	0	.00	13.90	1010.90

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.90	.00	14.00	.00	81.50	.00	835.10	834.90

*SECNO 2800.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 841.740 ELLC= 842.500 PCWSE= 841.108 ELTRD= 847.300

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .61

3370 NORMAL BRIDGE, NRD= 27 MIN ELTRD= 847.30 MAX ELLC= 842.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 847.30 ELREA= 847.30

2800.000	6.65	841.75	.00	.00	842.28	.53	.69	.05	847.30
455.0	.0	455.0	.0	.0	77.8	.0	11.6	6.4	835.10
.30	.00	5.85	.00	.000	.050	.000	.000	835.10	997.00
.011999	100.	100.	100.	2	0	0	-14.65	13.90	1010.90

*SECNO 2850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.43

2850.000	7.46	842.46	.00	.00	842.51	.05	.08	.14	842.10
455.0	57.9	396.1	1.0	192.2	210.1	6.5	11.9	6.5	841.80
.30	.30	1.89	.15	.120	.050	.120	.000	835.00	202.18
.000610	50.	50.	50.	2	0	0	.00	266.64	468.82

*SECNO 5450.000

3265 DIVIDED FLOW

5450.000	6.33	844.13	.00	.00	844.17	.04	1.66	.00	845.00
455.0	82.7	320.5	51.7	247.1	165.4	146.3	40.6	26.7	844.10
.80	.33	1.94	.35	.120	.050	.120	.000	837.80	173.62
.000674	2550.	2600.	2650.	4	0	0	.00	414.26	655.12

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

*SECNO 5500.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .26

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 845.20 ELREA= 844.90

5500.000	5.75	843.95	.00	.00	844.53	.58	.09	.27	847.40
455.0	.0	455.0	.0	.0	74.7	.0	41.0	27.0	847.20
.80	.00	6.09	.00	.000	.050	.000	.000	838.20	992.77
.010050	50.	50.	50.	2	0	0	.00	15.48	1008.26

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	15.00	.00	95.00	.00	838.20	838.30

*SECNO 5520.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 844.526 ELLC= 846.200 PCWSE= 843.950 ELTRD= 844.900

3370 NORMAL BRIDGE, NRD= 22 MIN ELTRD= 844.90 MAX ELLC= 846.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 845.20 ELREA= 844.90

5520.000	6.01	844.21	.00	.00	844.73	.52	.19	.02	847.40
455.0	.0	455.0	.0	.0	78.8	.0	41.0	27.0	847.20
.80	.00	5.77	.00	.000	.050	.000	.000	838.20	992.75
.008644	20.	20.	20.	2	0	0	.00	15.52	1008.28

*SECNO 5570.000

3265 DIVIDED FLOW

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.74

3470 ENCROACHMENT STATIONS= 350.0 650.0 TYPE= 1 TARGET= 300.000

5570.000	6.70	844.90	.00	.00	844.95	.05	.08	.14	845.40
455.0	27.6	348.8	78.6	78.4	179.5	197.1	41.3	27.1	844.50
.81	.35	1.94	.40	.120	.050	.120	.000	838.20	350.00
.000618	50.	50.	50.	2	0	0	.00	246.37	650.00

*SECNO 7050.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.48

3470 ENCROACHMENT STATIONS= 500.0 1300.0 TYPE= 1 TARGET= 800.000

7050.000	6.92	845.12	.00	.00	845.12	.00	.16	.01	843.10
395.0	104.0	85.3	205.6	911.2	159.8	1070.5	85.9	44.5	841.60
2.52	.11	.53	.19	.120	.050	.120	.000	838.20	500.00
.000038	1300.	1480.	1650.	4	0	0	.00	800.00	1300.00

*SECNO 7100.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .05

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 843.00 ELREA= 845.80

7100.000	6.93	844.83	.00	.00	845.43	.59	.01	.30	845.80
395.0	.0	395.0	.0	.0	63.8	.0	87.1	45.0	845.80
2.52	.00	6.19	.00	.000	.050	.000	.000	837.90	987.50
.018467	50.	50.	50.	2	0	0	.00	10.00	999.00

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

5227 DOWNSTREAM ELEV IS 841.82 , NOT 844.83 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.90	.00	7.50	1.50	33.30	.00	838.80	838.70

*SECNO 7160.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
848.11	846.86	.00	177.	222.	33.	25.	843.00	845.20	444.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 845.20 ELREA= 845.90

7160.000	7.34	845.34	.00	.00	845.86	.53	.44	.00	845.90
395.0	.0	395.0	.0	.2	67.9	.0	87.2	45.0	845.90
2.52	.07	5.82	.00	.120	.050	.000	.000	838.00	495.21
.016017	60.	60.	60.	4	0	6	.00	21.18	999.00

*SECNO 7210.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 28.17

7210.000	7.02	846.02	.00	.00	846.03	.00	.00	.16	843.90
395.0	83.9	64.0	247.1	983.6	163.0	1942.9	89.0	45.7	842.40
2.61	.09	.39	.13	.120	.050	.120	.000	839.00	475.36
.000020	50.	50.	50.	2	0	0	.00	1197.83	1673.19

*SECNO 8600.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .27

3470 ENCROACHMENT STATIONS= 700.0 1300.0 TYPE= 1 TARGET= 600.000

8600.000	5.39	846.09	.00	.00	846.10	.01	.07	.00	845.60
395.0	12.1	129.9	253.0	111.5	112.4	658.7	152.8	74.1	844.10
3.23	.11	1.16	.38	.120	.050	.120	.000	840.70	700.00
.000287	1300.	1390.	1440.	3	0	0	.00	600.00	1300.00

*SECNO 9925.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .18

9925.000	3.75	847.05	.00	.00	847.35	.30	1.10	.15	848.20
395.0	.0	312.5	82.5	.0	63.6	76.6	168.3	85.0	846.70
3.32	.00	4.91	1.08	.000	.050	.120	.000	843.30	1003.93
.009263	1325.	1325.	1325.	4	0	0	.00	116.70	1120.63

*SECNO 11250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.22

11250.000	6.11	852.01	.00	.00	852.14	.13	4.74	.05	851.60
395.0	1.8	393.2	.0	9.4	136.0	.0	172.7	88.0	853.30
3.45	.19	2.89	.00	.120	.050	.000	.000	845.90	254.24
.001885	1325.	1325.	1325.	4	0	0	.00	84.31	338.55

*SECNO 11299.000
WATER EL=X5 CARD= 853.200

11299.000	7.30	853.20	.00	.00	853.30	.10	.08	.01	851.60
395.0	66.5	296.3	32.3	133.7	101.8	88.6	172.9	88.2	852.30
3.45	.50	2.91	.36	.120	.050	.120	.000	845.90	179.41
.001420	50.	50.	50.	0	0	0	.00	293.32	472.73

*SECNO 11410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
11410.000	7.46	853.36	.00	.00	853.40	.04	.09	.02	851.60
395.0	45.6	336.9	12.5	142.3	190.5	71.9	173.9	89.0	853.30
3.47	.32	1.77	.17	.120	.050	.120	.000	845.90	174.61
.000505	111.	111.	111.	2	0	0	.00	312.96	487.57

*SECNO 13500.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .32

13500.000	4.56	855.66	.00	.00	855.93	.26	2.41	.11	860.20
395.0	.0	395.0	.0	.0	96.3	.0	186.0	97.3	857.90
3.62	.00	4.10	.00	.000	.050	.000	.000	851.10	311.34
.004789	2200.	2090.	2000.	2	0	0	.00	32.40	343.74

*SECNO 15650.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.08

15650.000	7.51	860.21	.00	.00	860.30	.09	4.33	.05	859.50
395.0	7.7	387.3	.0	36.6	157.5	.0	193.2	101.5	860.30
3.86	.21	2.46	.00	.120	.050	.000	.000	852.70	237.97
.001102	2150.	2150.	2150.	3	0	0	.00	137.81	375.78

*SECNO 15699.000
WATER EL=X5 CARD= 863.300

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

15699.000	11.20	863.30	.00	.00	863.35	.05	.03	.01	863.80
395.0	.0	395.0	.0	.0	212.3	.0	193.4	101.6	863.80
3.87	.00	1.86	.00	.000	.050	.000	.000	852.10	287.69
.000448	49.	49.	49.	0	0	0	.00	34.62	322.31

*SECNO 15810.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.84

15810.000	10.68	863.38	.00	.00	863.38	.01	.01	.01	859.30
395.0	135.1	216.0	43.9	690.3	272.4	284.9	195.2	102.2	860.30
3.93	.20	.79	.15	.120	.050	.120	.000	852.70	99.70
.000055	111.	111.	111.	0	0	0	.00	426.02	525.72

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

*SECNO 19100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .50

19100.000	6.00	863.70	.00	.00	863.71	.01	.32	.00	862.20
395.0	165.7	174.4	54.9	662.1	166.0	323.1	285.8	152.0	863.20
5.47	.25	1.05	.17	.120	.050	.120	.000	857.70	550.40
.000221	3290.	3290.	3290.	2	0	0	.00	892.94	1443.35

*SECNO 20700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .19

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.50 ELREA= 865.40

20700.000	4.43	864.53	.00	.00	864.86	.33	.99	.16	866.50
395.0	.0	395.0	.0	.0	85.9	.0	308.2	168.9	865.40
5.57	.00	4.60	.00	.000	.050	.000	.000	860.10	654.63
.006184	1500.	1600.	1700.	3	0	0	.00	29.18	683.81

T1Meridian Township FIS
T2Updated 50-Year Flood STS Consultants Ltd. 4/94 DMR
T3Pine Lake Outlet

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3.0	0	0	0.0018	0	0	0	837.7	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	2.0	0	-1.0	0	0	0	0	0	0	0

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

*PROF 2

CCHV= .300 CEHV= .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS= 500.0 1300.0 TYPE= 1 TARGET= -500.000

100.000	7.65	837.65	.00	837.70	837.77	.12	.00	.00	836.80
760.0	183.8	576.2	.0	270.7	180.8	.1	.0	.0	837.60
.00	.68	3.19	.04	.120	.050	.120	.000	830.00	768.87
.001800	0.	0.	0.	0	0	5	.00	257.67	1026.54

*SECNO 2400.000

2400.000	7.50	841.57	.00	.00	841.70	.13	3.93	.00	841.17
760.0	101.1	657.1	1.9	200.9	212.3	7.4	23.0	13.9	840.87
.23	.50	3.10	.25	.120	.050	.120	.000	834.07	199.90
.001623	2300.	2300.	2300.	3	0	0	.00	270.23	470.13

*SECNO 2650.000

3470 ENCROACHMENT STATIONS= 400.0 449.0 TYPE= 1 TARGET= 49.000

2650.000	7.42	842.02	.00	.00	842.23	.21	.49	.04	841.70
760.0	.0	760.0	.0	.0	207.8	.0	24.8	14.9	100000.00
.25	.00	3.66	.00	.000	.050	.000	.000	834.60	400.00
.002388	250.	250.	250.	1	0	0	.00	49.00	449.00

*SECNO 2700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .51

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 842.50 ELREA= 842.50

2700.000	6.96	841.86	.00	.00	842.81	.96	.21	.38	847.30
760.0	.0	760.0	.0	.0	96.7	.0	25.0	14.9	834.90
.25	.00	7.86	.00	.000	.050	.000	.000	834.90	997.00
.009046	50.	50.	50.	2	0	0	.00	13.90	1010.90

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.90	.00	14.00	.00	81.50	.00	835.10	834.90

*SECNO 2800.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
843.88	843.02	.00	0.	760.	82.	104.	842.50	847.30	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 847.30 ELREA= 847.30

2800.000	8.07	843.17	.00	.00	843.88	.71	1.07	.00	847.30
760.0	.0	760.0	.0	.0	112.3	.0	25.2	14.9	835.10
.26	.00	6.77	.00	.000	.050	.000	.000	835.10	997.00
.005895	100.	100.	100.	2	0	0	.00	13.90	1010.90

*SECNO 2850.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.16

2850.000	9.10	844.10	.00	.00	844.13	.03	.04	.20	842.10
760.0	230.0	507.6	22.4	546.6	290.3	82.1	25.8	15.1	841.80
.27	.42	1.75	.27	.120	.050	.120	.000	835.00	166.01
.000341	50.	50.	50.	2	0	0	.00	361.72	527.73

*SECNO 5450.000

3265 DIVIDED FLOW

5450.000	7.37	845.17	.00	.00	845.20	.03	1.07	.00	845.00
760.0	226.7	393.0	140.3	506.1	205.7	327.0	83.9	40.9	844.10
.87	.45	1.91	.43	.120	.050	.120	.000	837.80	161.69

.000510	2550.	2600.	2650.	4	0	0	.00	506.90	695.27

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

*SECNO 5500.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .16

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 845.20 ELREA= 844.90

5500.000	6.44	844.64	.00	.00	845.87	1.23	.08	.60	847.40
760.0	.0	760.0	.0	.0	85.4	.0	84.5	41.2	847.20
.87	.00	8.90	.00	.000	.050	.000	.000	838.20	992.72
.019258	50.	50.	50.	2	0	0	.00	15.59	1008.31

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	15.00	.00	95.00	.00	838.20	838.30

*SECNO 5520.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 845.874 ELLC= 846.200 PCWSE= 844.644 ELTRD= 844.900

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.72

3370 NORMAL BRIDGE, NRD= 22 MIN ELTRD= 844.90 MAX ELLC= 846.20

5520.000	7.75	845.95	.00	.00	846.34	.39	.21	.25	847.40
760.0	58.6	595.6	105.7	84.7	106.0	138.9	84.6	41.3	847.20
.87	.69	5.62	.76	.120	.050	.120	.000	838.20	776.93
.006513	20.	20.	20.	11	0	0	.00	398.10	1295.79

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 5570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.02

3470 ENCROACHMENT STATIONS= 350.0 650.0 TYPE= 1 TARGET= 300.000

5570.000	8.26	846.46	.00	.00	846.49	.03	.05	.11	845.40
760.0	88.4	452.1	219.6	200.9	240.0	442.3	85.3	41.7	844.50
.88	.44	1.88	.50	.120	.050	.120	.000	838.20	350.00
.000403	50.	50.	50.	2	0	0	.00	300.00	650.00

*SECNO 7050.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.18

3470 ENCROACHMENT STATIONS= 500.0 1300.0 TYPE= 1 TARGET= 800.000

7050.000	8.36	846.56	.00	.00	846.56	.00	.06	.01	843.10
210.0	77.2	36.3	96.5	1630.0	204.4	1457.2	156.2	60.0	841.60
6.19	.05	.18	.07	.120	.050	.120	.000	838.20	500.00
.000003	1300.	1480.	1650.	3	0	0	.00	800.00	1300.00

*SECNO 7100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .09

7100.000	8.66	846.56	.00	.00	846.56	.01	.00	.00	845.80
210.0	109.5	81.5	19.0	493.0	82.3	115.3	158.5	61.0	845.80
6.22	.22	.99	.16	.120	.050	.120	.000	837.90	306.10
.000411	50.	50.	50.	1	0	0	.00	946.57	1252.67

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.90	.00	7.50	1.50	33.30	.00	838.80	838.70

*SECNO 7160.000

1

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

6790 POSSIBLE INVALID SOLUTION 20 TRIALS OF EG NOT ENOUGH
FINAL QWEIR + QPR = 206. DOES NOT EQUAL ACTUAL Q = 210.

6870 D.S. ENERGY OF 846.56 IS HIGHER THAN COMPUTED ENERGY OF 846.56

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
847.48	846.57	.00	198.	8.	33.	25.	843.00	845.20	945.

7160.000	8.55	846.55	.00	.00	846.56	.01	.00	.00	845.90
210.0	102.1	92.5	15.4	422.7	81.1	89.7	159.3	62.3	845.90
6.24	.24	1.14	.17	.120	.050	.120	.000	838.00	323.60
.000556	60.	60.	60.	0	0	20	.00	896.93	1231.68

*SECNO 7210.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 13.03

7210.000	7.57	846.57	.00	.00	846.57	.00	.00	.00	843.90
210.0	51.5	30.4	128.1	1273.0	180.0	2304.5	161.8	63.5	842.40
6.45	.04	.17	.06	.120	.050	.120	.000	839.00	467.54
.000003	50.	50.	50.	1	0	0	.00	1235.33	1702.87

*SECNO 8600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .28

3470 ENCROACHMENT STATIONS= 700.0 1300.0 TYPE= 1 TARGET= 600.000

8600.000	5.88	846.58	.00	.00	846.58	.00	.01	.00	845.60
210.0	18.6	61.2	130.2	257.2	127.4	789.3	240.7	92.5	844.10
8.02	.07	.48	.16	.120	.050	.120	.000	840.70	700.00
.000042	1300.	1390.	1440.	2	0	0	.00	600.00	1300.00

1

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

*SECNO 9925.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .09

9925.000	3.39	846.69	.00	.00	846.84	.16	.19	.08	848.20
210.0	.0	183.2	26.8	.0	54.2	45.5	260.1	103.3	846.70
8.14	.00	3.38	.59	.000	.050	.120	.000	843.30	1005.15
.005107	1325.	1325.	1325.	2	0	0	.00	109.58	1115.54

*SECNO 11250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

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 11250.000      4.73    850.63      .00      .00    850.72      .09     3.86      .02    851.60
     210.0        .0     210.0        .0       .0      86.5        .0    262.9    105.4    853.30
      8.29       .00      2.43       .00     .000      .050      .000     .000   845.90    302.96
   .001877      1325.    1325.     1325.        4         0         0      .00    31.89    334.84


*SECNO 11299.000
 WATER EL=X5 CARD=     852.700

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.54

 11299.000      6.80    852.70      .00      .00    852.76      .06      .06      .01    851.60
     210.0      18.8     186.6      4.7     72.1      91.8     28.6    263.1    105.6    852.30
      8.30       .26      2.03       .16     .120      .050      .120     .000   845.90    194.12
   .000795        50.      50.       50.        0         0         0      .00   233.15    427.27


*SECNO 11410.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.76

 11410.000      6.89    852.79      .00      .00    852.81      .02      .05      .01    851.60
     210.0      12.2     197.0        .8     75.7      166.9     12.1    263.7    106.1    853.30
      8.32       .16      1.18       .07     .120      .050      .120     .000   845.90    191.35
   .000256       111.     111.      111.        2         0         0      .00   210.52    435.83


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


*SECNO 13500.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .20

 13500.000      3.09    854.19      .00      .00    854.42      .24     1.50      .11    860.20
     210.0        .0     210.0        .0       .0      53.8        .0    271.1    111.9    857.90
      8.47       .00      3.91       .00     .000      .050      .000     .000   851.10    315.02
   .006694      2200.    2090.     2000.        2         0         0      .00    25.25    340.27


*SECNO 15650.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.66

 15650.000      6.02    858.72      .00      .00    858.78      .06     4.30      .05    859.50
     210.0        .0     210.0        .0       .0     107.4        .0    275.1    113.2    860.30
      8.78       .00      1.95       .00     .000      .050      .000     .000   852.70    341.13
   .000948      2150.    2150.     2150.        4         0         0      .00    30.65    371.79


*SECNO 15699.000
 WATER EL=X5 CARD=     859.600
 15699.000      7.50    859.60      .00      .00    859.66      .06      .04      .00    863.80
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210.0	.0	210.0	.0	.0	103.2	.0	275.2	113.3	863.80
8.78	.00	2.04	.00	.000	.050	.000	.000	852.10	292.81
.000868	49.	49.	49.	0	0	0	.00	24.38	317.19

*SECNO 15810.000

15810.000	7.01	859.71	.00	.00	859.74	.03	.07	.01	859.30
210.0	.8	209.2	.0	8.9	140.3	.0	275.6	113.4	860.30
8.81	.09	1.49	.00	.120	.050	.000	.000	852.70	295.47
.000449	111.	111.	111.	0	0	0	.00	78.93	374.40

*SECNO 19100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .55

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 862.20 ELREA= 863.20

19100.000	4.46	862.16	.00	.00	862.23	.07	2.47	.02	862.20
210.0	.0	210.0	.0	.0	100.5	.0	285.0	117.9	863.20
9.24	.00	2.09	.00	.000	.050	.000	.000	857.70	1000.17
.001505	3290.	3290.	3290.	2	0	0	.00	40.05	1040.22

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

*SECNO 20700.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.50 ELREA= 865.40

20700.000	4.53	864.63	.00	.00	864.72	.09	2.48	.01	866.50
210.0	.0	210.0	.0	.0	88.8	.0	288.5	119.2	865.40
9.43	.00	2.37	.00	.000	.050	.000	.000	860.10	654.40
.001594	1500.	1600.	1700.	3	0	0	.00	29.54	683.95

T1Meridian Township FIS
T2Updated 100-Year Flood STS Consultants Ltd. 4/94 DMR
T3Pine Lake Outlet

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	4.0	0	0	0.0018	0	0	0	837.7	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	3.0	0	-1.0	0	0	0	0	0	0	0

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

*PROF 3

CCHV=      .300 CEHV=      .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS=       500.0     1300.0  TYPE=       1  TARGET=      -500.000
   100.000       7.94      837.94        .00      837.70      838.06        .13        .00         .00      836.80
     890.0      249.4       639.6        1.0       336.3       192.5         6.4         .0          .0      837.60
       .00        .74        3.32        .16        .120        .050        .120        .000      830.00      733.07
   .001798         0.         0.          0.          0           0           5         .00      325.80     1058.86


*SECNO 2400.000
  2400.000       7.79      841.86        .00         .00      842.00        .13        3.93         .00      841.17
     890.0      153.6       731.8         4.6       259.2       226.3        14.7        27.3        16.1      840.87
       .23        .59        3.23        .31        .120        .050        .120        .000      834.07      193.80
   .001626       2300.      2300.       2300.          3           0           0         .00      284.95      478.75


*SECNO 2650.000

3470 ENCROACHMENT STATIONS=       400.0      449.0  TYPE=       1  TARGET=        49.000
  2650.000       7.72      842.32        .00         .00      842.56        .25         .51         .06      841.70
     890.0         .0       890.0         .0          .0       222.6         .0        29.4        17.1   100000.00
       .25        .00        4.00        .00        .000        .050        .000        .000      834.60      400.00
   .002644       250.       250.        250.          2           0           0         .00       49.00      449.00


*SECNO 2700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .48

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       842.50 ELREA=       842.50

  2700.000       7.16      842.06        .00         .00      843.30       1.24         .24         .50      847.30
     890.0         .0       890.0         .0          .0        99.6         .0        29.6        17.1      834.90
       .25        .00        8.94        .00        .000        .050        .000        .000      834.90      997.00
   .011406        50.        50.         50.          2           0           0         .00       13.90     1010.90


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

Haslett-Okemos Rd

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.90	.00	14.00	.00	81.50	.00	835.10	834.90

*SECNO 2800.000
PRESSURE FLOW

Hasleth Okemos Rd

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
844.84	843.50	.00	0.	890.	82.	104.	842.50	847.30	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 847.30 ELREA= 847.30

2800.000	8.94	844.04	.00	.00	844.84	.79	1.54	.00	847.30
890.0	.0	890.0	.0	.0	124.4	.0	29.9	17.2	835.10
.25	.00	7.15	.00	.000	.050	.000	.000	835.10	997.00
.006046	100.	100.	100.	2	0	0	.00	13.90	1010.90

*SECNO 2850.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.30

2850.000	10.08	845.08	.00	.00	845.10	.02	.03	.23	842.10
890.0	319.4	520.5	50.1	786.1	338.3	181.0	30.7	17.4	841.80
.27	.41	1.54	.28	.120	.050	.120	.000	835.00	145.17
.000215	50.	50.	50.	2	0	0	.00	421.90	567.07

*SECNO 5450.000

3265 DIVIDED FLOW

5450.000	7.99	845.79	.00	.00	845.81	.02	.71	.00	845.00
890.0	298.1	399.4	192.5	675.2	229.6	461.1	109.9	46.5	844.10
.97	.44	1.74	.42	.120	.050	.120	.000	837.80	154.66
.000365	2550.	2600.	2650.	4	0	0	.00	557.51	718.92

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

*SECNO 5500.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

5500.000	7.80	846.00	846.00	.00	846.49	.49	.05	.23	847.40

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     890.0       75.3      681.6      133.1       92.1      106.8      149.5      110.9       47.1    847.20
       .98        .82       6.38        .89        .120       .050       .120       .000    838.20    775.00
   .008371       50.        50.        50.           4          6          0        .00    408.82   1300.01


SPECIAL BRIDGE

SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
        .00        1.50       2.80        .00      15.00        .00      95.00        .00    838.20     838.30

*SECNO 5520.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=    848.044  EGLWC=    846.488  ELLC=    846.200  PCWSE=    846.000  ELTRD=    844.900

3265 DIVIDED FLOW


3370 NORMAL BRIDGE, NRD=  22 MIN ELTRD=   844.90 MAX ELLC=   846.20

  5520.000        8.43     846.63        .00        .00     846.72        .10        .12        .12    847.40
     890.0       185.2      399.6      305.2      209.2      111.0      336.5      111.1       47.3    847.20
       .98         .89       3.60        .91        .120       .050       .120       .000    838.20    749.02
   .004519       20.        20.        20.           6          0          0       -5.60    597.96   1404.69


*SECNO 5570.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.22


3470 ENCROACHMENT STATIONS=      350.0     650.0  TYPE=       1  TARGET=       300.000
  5570.000        8.56     846.76        .00        .00     846.79        .04        .05        .02    845.40
     890.0       111.8      508.8      269.4      230.5      251.6      490.0      112.1       47.8    844.50
       .99         .49       2.02        .55        .120       .050       .120       .000    838.20    350.00
   .000437       50.        50.        50.           2          0          0        .00    300.00    650.00


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


*SECNO 7050.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  3.16


3470 ENCROACHMENT STATIONS=      500.0    1300.0  TYPE=       1  TARGET=       800.000
  7050.000        8.68     846.88        .00        .00     846.88        .00        .07        .01    843.10
     340.0       130.2       56.7      153.1     1788.5      214.2     1542.4      188.6       66.1    841.60
      4.56         .07        .26        .10        .120       .050       .120       .000    838.20    500.00
   .000006     1300.      1480.      1650.           3          0          0        .00    800.00   1300.00


*SECNO 7100.000
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TIHART

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .12

7100.000	8.97	846.88	.00	.00	846.88	.01	.00	.00	845.80
340.0	202.9	91.6	45.5	737.4	85.9	205.9	191.2	67.2	845.80
4.58	.28	1.07	.22	.120	.050	.120	.000	837.90	169.78
.000449	50.	50.	50.	1	0	0	.00	1141.61	1311.39

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.90	.00	7.50	1.50	33.30	.00	838.80	838.70

*SECNO 7160.000
6790 POSSIBLE INVALID SOLUTION 20 TRIALS OF EG NOT ENOUGH
FINAL QWEIR + QPR = 337. DOES NOT EQUAL ACTUAL Q = 340.

6870 D.S. ENERGY OF 846.88 IS HIGHER THAN COMPUTED ENERGY OF 846.88
PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

TIHART

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
849.30	846.88	.00	327.	9.	33.	25.	843.00	845.20	1167.

7160.000	8.87	846.87	.00	.00	846.88	.01	.00	.00	845.90
340.0	196.1	102.9	41.0	652.8	84.7	174.0	192.6	68.8	845.90
4.61	.30	1.21	.24	.120	.050	.120	.000	838.00	187.21
.000594	60.	60.	60.	0	0	20	.00	1108.14	1295.35

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

*SECNO 7210.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 9.62

7210.000	7.88	846.88	.00	.00	846.88	.00	.00	.00	843.90
340.0	88.6	46.5	204.9	1443.6	189.9	2519.6	195.5	70.1	842.40
4.75	.06	.24	.08	.120	.050	.120	.000	839.00	462.98
.000006	50.	50.	50.	1	0	0	.00	1245.21	1708.19

*SECNO 8600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .29

3470 ENCROACHMENT STATIONS= 700.0 1300.0 TYPE= 1 TARGET= 600.000

8600.000	6.20	846.90	.00	.00	846.91	.00	.02	.00	845.60
340.0	42.2	92.3	205.5	355.2	137.6	877.2	283.7	99.2	844.10
5.91	.12	.67	.23	.120	.050	.120	.000	840.70	700.00

.000074	1300.	1390.	1440.	2	0	0	.00	600.00	1300.00

*SECNO 9925.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .11

9925.000	3.82	847.12	.00	.00	847.32	.20	.32	.10	848.20
340.0	.0	263.3	76.7	.0	65.9	84.1	306.8	110.2	846.70
6.02	.00	4.00	.91	.000	.050	.120	.000	843.30	1003.65
.005935	1325.	1325.	1325.	2	0	0	.00	118.17	1121.82

*SECNO 11250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.69

11250.000	5.67	851.57	.00	.00	851.70	.13	4.36	.02	851.60
340.0	.0	340.0	.0	.0	119.3	.0	310.9	112.5	853.30
6.15	.00	2.85	.00	.000	.050	.000	.000	845.90	300.09
.002085	1325.	1325.	1325.	3	0	0	.00	37.29	337.38

1

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

Cornell Road

*SECNO 11299.000
WATER EL=X5 CARD= 853.000

11299.000	7.10	853.00	.00	.00	853.10	.10	.08	.01	851.60
340.0	47.2	273.7	19.1	108.2	97.8	61.9	311.1	112.7	852.30
6.15	.44	2.80	.31	.120	.050	.120	.000	845.90	185.29
.001385	50.	50.	50.	0	0	0	.00	269.25	454.54

*SECNO 11410.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

11410.000	7.26	853.16	.00	.00	853.20	.04	.08	.02	851.60
340.0	32.6	301.1	6.3	117.6	182.1	45.0	311.9	113.4	853.30
6.17	.28	1.65	.14	.120	.050	.120	.000	845.90	180.54
.000463	111.	111.	111.	2	0	0	.00	279.40	469.23

*SECNO 13500.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

13500.000	4.23	855.33	.00	.00	855.57	.24	2.27	.10	860.20
340.0	.0	340.0	.0	.0	85.6	.0	322.3	120.9	857.90
6.32	.00	3.97	.00	.000	.050	.000	.000	851.10	312.18
.004886	2200.	2090.	2000.	2	0	0	.00	30.77	342.95

*SECNO 15650.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.12

15650.000	7.14	859.84	.00	.00	859.93	.08	4.31	.05	859.50
340.0	1.1	338.9	.0	8.7	144.6	.0	328.2	123.7	860.30
6.58	.13	2.34	.00	.120	.050	.000	.000	852.70	290.05
.001084	2150.	2150.	2150.	3	0	0	.00	84.75	374.80

*SECNO 15699.000

1

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

WATER EL=X5 CARD= 863.200

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.77

15699.000	11.10	863.20	.00	.00	863.24	.04	.03	.01	863.80
340.0	.0	340.0	.0	.0	208.9	.0	328.4	123.8	863.80
6.58	.00	1.63	.00	.000	.050	.000	.000	852.10	287.83
.000347	49.	49.	49.	0	0	0	.00	34.34	322.17

*SECNO 15810.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.77

15810.000	10.56	863.26	.00	.00	863.26	.00	.01	.01	859.30
340.0	114.0	189.9	36.1	659.8	267.9	266.0	330.2	124.4	860.30
6.65	.17	.71	.14	.120	.050	.120	.000	852.70	101.86
.000045	111.	111.	111.	2	0	0	.00	419.47	521.33

*SECNO 19100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .46

19100.000	5.84	863.54	.00	.00	863.55	.01	.28	.00	862.20
340.0	138.7	161.7	39.6	592.4	159.1	261.3	413.5	173.2	863.20
8.18	.23	1.02	.15	.120	.050	.120	.000	857.70	560.20
.000219	3290.	3290.	3290.	2	0	0	.00	873.35	1433.55

*SECNO 20700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.50 ELREA= 865.40

20700.000	4.27	864.37	.00	.00	864.64	.27	.96	.13	866.50
340.0	.0	340.0	.0	.0	81.2	.0	433.3	189.7	865.40
8.29	.00	4.19	.00	.000	.050	.000	.000	860.10	655.02
.005365	1500.	1600.	1700.	3	0	0	.00	28.57	683.59

T1Meridian Township FIS
T2Updated 500-Year Flood STS Consultants Ltd. 4/94 DMR
T3Pine Lake Outlet

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	5.0	0	0	0.0018	0	0	0	837.7	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15	0	-1.0	0	0	0	0	0	0	0

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

*PROF 4

CCHV= .300 CEHV= .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS= 500.0 1300.0 TYPE= 1 TARGET= -500.000

100.000	8.41	838.41	.00	837.70	838.54	.13	.00	.00	836.80
1150.0	389.5	749.1	11.4	484.6	212.0	36.6	.0	.0	837.60
.00	.80	3.53	.31	.120	.050	.120	.000	830.00	544.06
.001788	0.	0.	0.	0	0	5	.00	558.27	1102.33

*SECNO 2400.000

2400.000	8.28	842.35	.00	.00	842.49	.14	3.94	.01	841.17
1150.0	265.4	871.0	13.6	363.0	250.4	33.0	36.4	22.9	840.87
.23	.73	3.48	.41	.120	.050	.120	.000	834.07	183.35
.001645	2300.	2300.	2300.	2	0	0	.00	310.13	493.48

*SECNO 2650.000

3470 ENCROACHMENT STATIONS= 400.0 449.0 TYPE= 1 TARGET= 49.000

2650.000	8.21	842.81	.00	.00	843.15	.34	.56	.10	841.70
1150.0	.0	1150.0	.0	.0	246.8	.0	39.0	24.0	100000.00
.24	.00	4.66	.00	.000	.050	.000	.000	834.60	400.00
.003210	250.	250.	250.	2	0	0	.00	49.00	449.00

*SECNO 2700.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .43

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 842.50 ELREA= 842.50

2700.000	7.43	842.33	.00	.00	844.25	1.92	.31	.79	847.30
1150.0	.0	1150.0	.0	.0	103.4	.0	39.2	24.0	834.90
.24	.00	11.12	.00	.000	.050	.000	.000	834.90	997.00
.017085	50.	50.	50.	2	0	0	.00	13.90	1010.90

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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
	.00	1.50	2.90	.00	14.00	.00	81.50	.00	835.10	834.90

*SECNO 2800.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.73

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
846.97	844.45	.00	0.	1150.	82.	104.	842.50	847.30	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 847.30 ELREA= 847.30

2800.000	10.99	846.09	.00	.00	846.97	.88	2.72	.00	847.30
1150.0	.0	1150.0	.0	.0	152.8	.0	39.5	24.0	835.10
.25	.00	7.52	.00	.000	.050	.000	.000	835.10	997.00
.005701	100.	100.	100.	2	0	0	.00	13.90	1010.90

*SECNO 2850.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 7.88

2850.000	12.23	847.23	.00	.00	847.24	.01	.01	.26	842.10
1150.0	486.0	534.5	129.5	1384.0	443.8	462.2	40.9	24.3	841.80
.27	.35	1.20	.28	.120	.050	.120	.000	835.00	99.67
.000092	50.	50.	50.	2	0	0	.00	492.51	592.18

*SECNO 5450.000

5450.000	9.72	847.52	.00	.00	847.53	.01	.28	.00	845.00
1150.0	437.5	369.2	343.3	1201.7	297.1	1131.9	187.2	64.2	844.10
1.41	.36	1.24	.30	.120	.050	.120	.000	837.80	136.09
.000132	2550.	2600.	2650.	3	0	0	.00	842.89	978.98

1

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

*SECNO 5500.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .31

5500.000	9.31	847.51	.00	.00	847.56	.04	.02	.02	847.40
1150.0	286.2	364.7	499.1	433.1	131.0	758.5	189.4	65.1	847.20
1.42	.66	2.78	.66	.120	.050	.120	.000	838.20	711.59
.001357	50.	50.	50.	0	0	0	.00	841.14	1552.73

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.50	2.80	.00	15.00	.00	95.00	.00	838.20	838.30

*SECNO 5520.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 850.928 EGLWC= 847.557 ELLC= 846.200 PCWSE= 847.515 ELTRD= 844.900

3370 NORMAL BRIDGE, NRD= 22 MIN ELTRD= 844.90 MAX ELLC= 846.20

4677 BRIDGE DECK DEFINITION ERROR AT STATIONS 1008.00 1008.50

5520.000	9.38	847.58	.00	.00	847.60	.02	.03	.01	847.40
1150.0	339.4	216.8	593.8	449.1	116.1	789.5	190.1	65.5	847.20
1.43	.76	1.87	.75	.120	.050	.120	.000	838.20	709.24
.001720	20.	20.	20.	2	0	0	-15.75	850.55	1559.79

*SECNO 5570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.08

3470 ENCROACHMENT STATIONS= 350.0 650.0 TYPE= 1 TARGET= 300.000

5570.000	9.40	847.60	.00	.00	847.64	.04	.04	.01	845.40
1150.0	170.7	596.7	382.6	315.4	284.7	626.7	191.5	66.2	844.50
1.44	.54	2.10	.61	.120	.050	.120	.000	838.20	350.00
.000398	50.	50.	50.	2	0	0	.00	300.00	650.00

1

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

*SECNO 7050.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.06

3470 ENCROACHMENT STATIONS= 500.0 1300.0 TYPE= 1 TARGET= 800.000

7050.000	9.52	847.72	.00	.00	847.72	.00	.07	.01	843.10
395.0	163.9	60.9	170.2	2206.4	240.1	1767.3	283.4	84.5	841.60
5.16	.07	.25	.10	.120	.050	.120	.000	838.20	500.00
.000005	1300.	1480.	1650.	2	0	0	.00	800.00	1300.00

*SECNO 7100.000
3280 CROSS SECTION 7100.00 EXTENDED .43 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .23

7100.000	9.82	847.72	.00	.00	847.72	.00	.00	.00	845.80
395.0	264.5	50.7	79.9	1489.9	95.7	507.9	287.0	85.7	845.80
5.23	.18	.53	.16	.120	.050	.120	.000	837.90	28.59
.000096	50.	50.	50.	0	0	0	.00	1341.41	1370.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.50	2.90	.00	7.50	1.50	33.30	.00	838.80	838.70

*SECNO 7160.000
3280 CROSS SECTION 7160.00 EXTENDED .32 FEET

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
851.00	847.72	.00	389.	8.	33.	25.	843.00	845.20	1367.

7160.000	9.72	847.72	.00	.00	847.72	.00	.00	.00	845.90
395.0	262.6	54.8	77.6	1386.8	94.4	467.6	289.8	87.5	845.90
5.30	.19	.58	.17	.120	.050	.120	.000	838.00	46.68
.000117	60.	60.	60.	0	0	12	.00	1323.32	1370.00

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

*SECNO 7210.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.14

7210.000	8.72	847.72	.00	.00	847.72	.00	.00	.00	843.90
395.0	114.6	47.8	232.6	1895.8	215.7	3089.4	293.9	89.0	842.40
5.45	.06	.22	.08	.120	.050	.120	.000	839.00	451.08
.000004	50.	50.	50.	0	0	0	.00	1270.98	1722.07

*SECNO 8600.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .32

3470 ENCROACHMENT STATIONS= 700.0 1300.0 TYPE= 1 TARGET= 600.000

8600.000	7.03	847.73	.00	.00	847.74	.00	.01	.00	845.60
395.0	77.0	92.6	225.3	604.2	163.3	1100.5	406.5	118.6	844.10
6.87	.13	.57	.20	.120	.050	.120	.000	840.70	700.00
.000042	1300.	1390.	1440.	2	0	0	.00	600.00	1300.00

*SECNO 9925.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .13

9925.000	4.56	847.86	.00	.00	847.96	.10	.18	.05	848.20
395.0	.0	262.4	132.6	.0	86.9	154.6	438.6	129.7	846.70
7.03	.00	3.02	.86	.000	.050	.120	.000	843.30	1001.15
.002633	1325.	1325.	1325.	2	0	0	.00	131.16	1132.31

*SECNO 11250.000

11250.000	5.62	851.52	.00	.00	851.69	.18	3.70	.04	851.60
395.0	.0	395.0	.0	.0	117.1	.0	444.1	132.2	853.30
7.14	.00	3.37	.00	.000	.050	.000	.000	845.90	300.27
.002959	1325.	1325.	1325.	2	0	0	.00	36.95	337.22

*SECNO 11299.000
WATER EL=X5 CARD= 853.200

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.44

11299.000	7.30	853.20	.00	.00	853.30	.10	.10	.02	851.60
395.0	66.5	296.3	32.3	133.7	101.8	88.6	444.3	132.4	852.30
7.14	.50	2.91	.36	.120	.050	.120	.000	845.90	179.41
.001420	50.	50.	50.	0	0	0	.00	293.32	472.73

*SECNO 11410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.68

11410.000	7.46	853.36	.00	.00	853.40	.04	.09	.02	851.60
395.0	45.6	336.9	12.5	142.3	190.5	71.9	445.3	133.2	853.30
7.16	.32	1.77	.17	.120	.050	.120	.000	845.90	174.61
.000505	111.	111.	111.	2	0	0	.00	312.96	487.57

*SECNO 13500.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .32

13500.000	4.56	855.66	.00	.00	855.93	.26	2.41	.11	860.20
395.0	.0	395.0	.0	.0	96.3	.0	457.4	141.5	857.90
7.30	.00	4.10	.00	.000	.050	.000	.000	851.10	311.34
.004789	2200.	2090.	2000.	2	0	0	.00	32.40	343.74

*SECNO 15650.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.08

15650.000	7.51	860.21	.00	.00	860.30	.09	4.33	.05	859.50
395.0	7.7	387.3	.0	36.6	157.5	.0	464.5	145.7	860.30
7.55	.21	2.46	.00	.120	.050	.000	.000	852.70	237.97
.001102	2150.	2150.	2150.	3	0	0	.00	137.81	375.78

*SECNO 15699.000
WATER EL=X5 CARD= 863.300

1

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.57

15699.000	11.20	863.30	.00	.00	863.35	.05	.03	.01	863.80
395.0	.0	395.0	.0	.0	212.3	.0	464.8	145.8	863.80
7.56	.00	1.86	.00	.000	.050	.000	.000	852.10	287.69
.000448	49.	49.	49.	0	0	0	.00	34.62	322.31

*SECNO 15810.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.84

15810.000	10.68	863.38	.00	.00	863.38	.01	.01	.01	859.30
395.0	135.1	216.0	43.9	690.3	272.4	284.9	466.6	146.4	860.30
7.62	.20	.79	.15	.120	.050	.120	.000	852.70	99.70
.000055	111.	111.	111.	0	0	0	.00	426.02	525.72

*SECNO 19100.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .50

19100.000	6.00	863.70	.00	.00	863.71	.01	.32	.00	862.20
395.0	165.7	174.4	54.9	662.1	166.0	323.1	557.2	196.2	863.20
9.16	.25	1.05	.17	.120	.050	.120	.000	857.70	550.40
.000221	3290.	3290.	3290.	2	0	0	.00	892.94	1443.35

*SECNO 20700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .19

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.50 ELREA= 865.40

20700.000	4.43	864.53	.00	.00	864.86	.33	.99	.16	866.50
395.0	.0	395.0	.0	.0	85.9	.0	579.6	213.1	865.40
9.26	.00	4.60	.00	.000	.050	.000	.000	860.10	654.63
.006184	1500.	1600.	1700.	3	0	0	.00	29.18	683.81

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ke Drain

SUMMARY PRINTOUT

	CWSEL	.01K	STENCL	STENCR	TOPWID	TWA	QLOBP
	836.797	97.10	500.00	1300.00	40.10	.00	.00
	837.649	179.11	500.00	1300.00	257.67	.00	24.18
	837.935	209.87	500.00	1300.00	325.80	.00	28.02
	838.412	272.00	500.00	1300.00	558.27	.00	33.87
	840.774	123.78	.00	.00	175.20	5.68	4.06
	841.575	188.63	.00	.00	270.23	13.94	13.30
	841.861	220.73	.00	.00	284.95	16.12	17.26
	842.346	283.57	.00	.00	310.13	22.93	23.08
	841.136	111.54	400.00	449.00	46.45	6.32	.00
	842.023	155.52	400.00	449.00	49.00	14.85	.00
	842.315	173.08	400.00	449.00	49.00	17.08	.00
	842.809	202.99	400.00	449.00	49.00	23.96	.00
*	841.108	67.73	.00	.00	13.90	6.35	.00
*	841.856	79.91	.00	.00	13.90	14.89	.00
*	842.060	83.33	.00	.00	13.90	17.12	.00
*	842.329	87.98	.00	.00	13.90	23.99	.00

*	841.752	41.54	.00	.00	13.90	6.39	.00
	843.170	98.99	.00	.00	13.90	14.92	.00
	844.043	114.46	.00	.00	13.90	17.15	.00
*	846.087	152.30	.00	.00	13.90	24.02	.00
*	842.461	184.18	.00	.00	266.64	6.55	12.73
*	844.096	411.51	.00	.00	361.72	15.14	30.26
*	845.077	606.49	.00	.00	421.90	17.40	35.89
*	847.230	1199.66	.00	.00	492.51	24.32	42.26
	844.133	175.29	.00	.00	414.26	26.71	18.19
	845.169	336.47	.00	.00	506.90	40.94	29.83
	845.790	465.88	.00	.00	557.51	46.52	33.49
	847.516	1000.38	.00	.00	842.89	64.18	38.04

	CWSEL	.01K	STENCL	STENCR	TOPWID	TWA	QLOBP
*	843.950	45.39	.00	.00	15.48	26.95	.00
*	844.644	54.76	.00	.00	15.59	41.24	.00
*	846.000	97.27	.00	.00	408.82	47.07	8.46
*	847.515	312.22	.00	.00	841.14	65.15	24.89
	844.212	48.94	.00	.00	15.52	26.96	.00
*	845.950	94.17	.00	.00	398.10	41.33	7.72
	846.628	132.40	.00	.00	597.96	47.30	20.81
*	847.578	277.31	.00	.00	850.55	65.53	29.51
*	844.903	183.08	350.00	650.00	246.37	27.11	6.08
*	846.459	378.45	350.00	650.00	300.00	41.73	11.63
*	846.755	425.88	350.00	650.00	300.00	47.82	12.57
*	847.604	576.60	350.00	650.00	300.00	66.20	14.84
*	845.122	637.89	500.00	1300.00	800.00	44.53	26.34
*	846.560	1202.09	500.00	1300.00	800.00	60.02	36.77
*	846.877	1347.02	500.00	1300.00	800.00	66.11	38.29
*	847.718	1762.10	500.00	1300.00	800.00	84.48	41.49
*	844.833	29.07	.00	.00	10.00	44.99	.00
*	846.557	103.57	.00	.00	946.57	61.02	52.13
*	846.875	160.38	.00	.00	1141.61	67.22	59.68
*	847.719	403.06	.00	.00	1341.41	85.71	66.95
*	845.338	31.21	.00	.00	21.18	45.01	.00
*	846.554	89.07	.00	.00	896.93	62.29	48.62
*	846.873	139.49	.00	.00	1108.14	68.77	57.68
	847.719	364.79	.00	.00	1323.32	87.55	66.49
*	846.025	879.33	.00	.00	1197.83	45.71	21.24
*	846.567	1160.53	.00	.00	1235.33	63.52	24.55
*	846.884	1342.58	.00	.00	1245.21	70.12	26.04
*	847.721	1876.07	.00	.00	1270.98	89.03	29.01
*	846.092	233.03	700.00	1300.00	600.00	74.07	3.06
*	846.577	324.12	700.00	1300.00	600.00	92.48	8.85
*	846.904	395.58	700.00	1300.00	600.00	99.24	12.42
*	847.734	609.26	700.00	1300.00	600.00	118.56	19.51
*	847.047	41.04	.00	.00	116.70	84.97	.00
*	846.687	29.39	.00	.00	109.58	103.27	.00

*	847.125	44.13	.00	.00	118.17	110.16	.00
*	847.861	76.97	.00	.00	131.16	129.68	.00
*	852.014	90.97	.00	.00	84.31	88.03	.45
*	850.626	48.48	.00	.00	31.89	105.42	.00
*	851.571	74.45	.00	.00	37.29	112.53	.00
	851.517	72.62	.00	.00	36.95	132.24	.00

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	CWSEL	.01K	STENCL	STENCR	TOPWID	TWA	QLOBP
*	853.200	104.83	.00	.00	293.32	88.24	16.83
*	852.700	74.48	.00	.00	233.15	105.57	8.94
*	853.000	91.36	.00	.00	269.25	112.70	13.89
*	853.200	104.83	.00	.00	293.32	132.43	16.83
*	853.363	175.80	.00	.00	312.96	89.01	11.53
*	852.794	131.14	.00	.00	210.52	106.14	5.80
*	853.162	157.95	.00	.00	279.40	113.40	9.59
*	853.363	175.80	.00	.00	312.96	133.20	11.53
*	855.664	57.08	.00	.00	32.40	97.31	.00
*	854.187	25.67	.00	.00	25.25	111.87	.00
*	855.327	48.64	.00	.00	30.77	120.87	.00
*	855.664	57.08	.00	.00	32.40	141.49	.00
*	860.212	119.00	.00	.00	137.81	101.51	1.95
*	858.722	68.20	.00	.00	30.65	113.25	.00
*	859.842	103.28	.00	.00	84.75	123.72	.33
*	860.212	119.00	.00	.00	137.81	145.69	1.95
*	863.300	186.63	.00	.00	34.62	101.61	.00
*	859.600	71.27	.00	.00	24.38	113.28	.00
*	863.200	182.61	.00	.00	34.34	123.79	.00
*	863.300	186.63	.00	.00	34.62	145.79	.00
*	863.376	530.52	.00	.00	426.02	102.19	34.21
	859.706	99.12	.00	.00	78.93	113.41	.38
*	863.258	504.93	.00	.00	419.47	124.37	33.52
*	863.376	530.52	.00	.00	426.02	146.38	34.21
*	863.699	265.66	.00	.00	892.94	152.00	41.96
*	862.161	54.13	.00	.00	40.05	117.91	.00
*	863.539	229.76	.00	.00	873.35	173.19	40.80
*	863.699	265.66	.00	.00	892.94	196.19	41.96
*	864.530	50.23	.00	.00	29.18	168.88	.00
	864.629	52.60	.00	.00	29.54	119.18	.00
*	864.367	46.42	.00	.00	28.57	189.69	.00
*	864.530	50.23	.00	.00	29.18	213.06	.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

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 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=    836.797  PROFILE=  3  CRITICAL DEPTH ASSUMED
 CAUTION SECNO=    836.797  PROFILE=  3  MINIMUM SPECIFIC ENERGY
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 CAUTION SECNO=    836.797  PROFILE=  4  BRIDGE DECK DEFINITION ERROR

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 CAUTION SECNO=    836.797  PROFILE=  1  HYDRAULIC JUMP D.S.
 CAUTION SECNO=    836.797  PROFILE=  2  20 TRIALS OF EG NOT ENOUGH
 CAUTION SECNO=    836.797  PROFILE=  3  20 TRIALS OF EG NOT ENOUGH

 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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NOTE     SECNO=     836.797  PROFILE=  1  WSEL BASED ON X5 CARD
NOTE     SECNO=     836.797  PROFILE=  2  WSEL BASED ON X5 CARD
WARNING  SECNO=     836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
NOTE     SECNO=     836.797  PROFILE=  3  WSEL BASED ON X5 CARD
NOTE     SECNO=     836.797  PROFILE=  4  WSEL BASED ON X5 CARD
WARNING  SECNO=     836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING  SECNO=     836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING  SECNO=     836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING  SECNO=     836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING  SECNO=     836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING  SECNO=     836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING  SECNO=     836.797  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING  SECNO=     836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING  SECNO=     836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

NOTE     SECNO=     836.797  PROFILE=  1  WSEL BASED ON X5 CARD
WARNING  SECNO=     836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
NOTE     SECNO=     836.797  PROFILE=  2  WSEL BASED ON X5 CARD
NOTE     SECNO=     836.797  PROFILE=  3  WSEL BASED ON X5 CARD
WARNING  SECNO=     836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
NOTE     SECNO=     836.797  PROFILE=  4  WSEL BASED ON X5 CARD
WARNING  SECNO=     836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING  SECNO=     836.797  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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WARNING  SECNO=     836.797  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING  SECNO=     836.797  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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CCHV= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
5.64	15.80	837.70	.00	835.60	838.19	.48	.00	.00	829.00
7700.	659.	6940.	102.	455.	1190.	101.	.	.	828.00
.00	1.45	5.87	1.01	.050	.028	.050	.000	821.90	.00
.000364	-.	-.	-.	0	0	1	.00	261.17	261.17

3265 DIVIDED FLOW

5.66	16.25	837.75	.00	835.82	838.23	.49	.05	.00	841.90
7700.	1.	7699.	.	7.	1375.	.	5.	1.	841.60
.01	.19	5.60	.00	.050	.028	.050	.029	821.50	328.29
.000426	130.	130.	130.	0	0	1	.00	145.07	706.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	70.00	-.00	1360.00	.33	821.70	821.70

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 838.494 EGLWC= 838.434 ELLC= 837.900 PCWSC= 837.747 ELTRD= 837.400

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=18 MIN ELTRD= 837.40 MAX ELLC= 837.90

5.67	16.26	837.76	.00	835.80	838.24	.49	.01	.00	841.90
7700.	1.	7699.	.	7.	1376.	.	5.	1.	841.60
.01	.19	5.60	.00	.050	.028	.050	.028	821.50	327.76
.000425	17.	17.	17.	2	0	1	.00	146.03	706.00
5.68	16.24	837.84	.00	835.90	838.28	.43	.02	.02	827.70
7700.	736.	6843.	121.	514.	1227.	122.	7.	1.	827.70
.01	1.43	5.58	.99	.050	.028	.050	.028	821.60	.00
.000319	50.	50.	50.	2	0	1	.00	265.89	265.89
5.83	18.00	838.10	.00	836.10	838.54	.43	.26	.00	827.60
7700.	265.	7284.	150.	172.	1343.	108.	43.	5.	827.00
.06	1.54	5.42	1.39	.050	.028	.050	.028	820.10	521.21
.000270	890.	890.	890.	2	0	1	.00	140.22	661.43

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
5.84	17.37	838.27	.00	836.34	838.59	.31	.01	.04	842.50
7700.	.	7700.	.	.	1711.	.	45.	5.	844.40
.06	.00	4.50	.00	.050	.028	.050	.028	820.90	532.00
.000247	50.	50.	50.	2	0	1	.00	115.00	647.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHJ	ELCHD
	1.05	1.50	2.60	-.00	75.00	8.00	1922.00	.13	821.00	821.00

CLASS A LOW FLOW

BRIDGE W.S.= 838.13 BRIDGE VELOCITY= 6.50

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	838.63	.04	.	7700.	1922.	840.60	841.20	1.00

5.85	17.42	838.32	.00	836.40	838.63	.31	.04	.00	842.50
7700.	.	7700.	.	.	1716.	.	47.	5.	844.40
.06	.00	4.49	.00	.050	.028	.050	.028	820.90	532.00
.000245	70.	70.	70.	0	0	1	.00	115.00	647.00
5.86	17.35	838.25	.00	836.40	838.73	.48	.01	.08	828.40
7700.	238.	7325.	138.	150.	1238.	95.	49.	6.	827.80
.07	1.59	5.69	1.44	.050	.029	.050	.028	820.90	526.21
.000314	50.	50.	50.	2	0	1	.00	134.07	660.28
6.17	16.63	838.93	.00	836.70	839.12	.19	.30	.09	827.00
7700.	1089.	6022.	589.	805.	1548.	499.	122.	13.	828.10
.19	1.35	3.89	1.18	.050	.028	.050	.028	822.30	421.54
.000149	1452.	1452.	1452.	2	0	1	.00	338.25	759.80
6.18	17.12	838.92	.00	836.70	839.14	.22	.01	.02	843.20
7700.	.	7700.	.	.	2033.	.	125.	14.	842.80
.19	.00	3.79	.00	.050	.028	.050	.028	821.80	513.00
.000202	50.	50.	50.	1	0	1	.00	170.00	683.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	60.00	6.00	2007.00	.31	821.80	821.80

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
839.26	839.17	.03	.	7700.	2007.	838.50	841.20	10.00

6.19	17.24	839.04	.00	836.80	839.26	.22	.12	.00	843.20
7700.	.	7700.	.	.	2052.	.	129.	14.	842.80
.20	.00	3.75	.00	.030	.028	.030	.028	821.80	513.00
.000196	75.	75.	75.	2	0	1	.00	170.00	683.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
6.20	16.22	839.02	.00	836.80	839.31	.28	.01	.03	827.50
7700.	586.	6806.	308.	754.	1536.	459.	131.	14.	828.60
.20	.78	4.52	.67	.125	.035	.125	.028	822.80	424.46
.000325	50.	50.	50.	2	0	1	.00	329.04	753.50

3280 CROSS SECTION 6.66 EXTENDED .30 FEET

6.66	18.50	839.80	.00	837.52	839.99	.19	.66	.03	827.40
7700.	121.	5561.	2018.	253.	1374.	3097.	343.	44.	826.40
.42	.48	4.05	.65	.125	.035	.125	.031	821.30	370.83
.000219	2480.	2480.	2480.	2	0	1	.00	707.17	1078.00

3265 DIVIDED FLOW

6.69	16.67	839.67	.00	837.45	840.23	.56	.05	.19	843.20
7700.	.	7648.	52.	.	1271.	195.	353.	45.	843.20
.43	.00	6.02	.27	.125	.035	.125	.031	823.00	555.00
.000766	135.	135.	135.	2	0	1	.00	386.17	1196.37

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	86.00	4.75	1272.00	-.00	823.10	823.10

3265 DIVIDED FLOW

3280 CROSS SECTION 6.70 EXTENDED .03 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
840.29	840.26	.04	1115.	6558.	1272.	839.60	838.60	30.00

6.70	16.73	839.73	.00	837.75	840.29	.55	.06	.00	843.20
7700.	.	7640.	60.	.	1276.	216.	355.	46.	843.20
.43	.00	5.99	.28	.125	.035	.125	.031	823.00	555.00
.000754	50.	50.	50.	2	0	3	.00	394.61	1200.00

6.71	17.14	840.14	.00	838.06	840.40	.26	.02	.09	829.10
7700.	87.	5884.	1729.	170.	1252.	2350.	358.	47.	828.10
.44	.51	4.56	.74	.125	.060	.125	.031	823.00	382.71
.000325	50.	50.	50.	2	0	1	.00	665.82	1048.52
7.20	17.16	841.26	.00	839.20	841.34	.08	.89	.05	827.90
7700.	162.	4173.	3315.	218.	1408.	3359.	618.	82.	828.00
.79	.74	2.96	1.00	.125	.060	.125	.040	824.10	519.32
.000360	2590.	2590.	2590.	2	0	1	.00	515.90	1035.22
SECNO	DEPTH	QWSEL	QPIER	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
7.49	18.72	841.72	.00	840.00	841.76	.04	.42	.01	828.30
7700.	337.	3379.	3984.	423.	1454.	4717.	824.	102.	828.30
1.07	.80	2.32	.84	.125	.060	.125	.044	823.00	514.80
.000207	1550.	1550.	1550.	2	0	1	.00	624.03	1138.84
7.54	16.39	841.69	.00	840.17	841.97	.28	.09	.12	848.00
7700.	.	7700.	.	.	1820.	.	844.	104.	848.20
1.09	.00	4.23	.00	.125	.060	.125	.044	825.30	533.00
.001683	200.	200.	200.	2	0	1	.00	134.00	667.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	100.00	11.00	1911.00	.11	825.50	825.50

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
842.07	842.01	.04	.	7700.	1911.	841.10	848.20	10.00

7.55	16.50	841.80	.00	840.17	842.07	.27	.10	.00	848.00
7700.	.	7700.	.	.	1834.	.	845.	104.	848.20
1.09	.00	4.20	.00	.125	.060	.125	.044	825.30	533.00
.001643	30.	30.	30.	2	0	1	.00	134.00	667.00
7.56	16.80	842.10	.00	840.30	842.17	.05	.03	.06	830.60
7700.	317.	3605.	3778.	343.	1290.	3818.	849.	104.	830.60
1.10	.92	2.80	.99	.125	.060	.125	.044	825.30	516.20
.000353	50.	50.	50.	2	0	1	.00	573.51	1089.71

3265 DIVIDED FLOW

7.98	20.98	842.48	.00	840.60	842.49	.01	.31	.02	829.20
7200.	1015.	2709.	3476.	2500.	1816.	8686.	1296.	161.	832.20
1.83	.41	1.44	.40	.125	.060	.125	.047	821.50	.00
.000376	2100.	2100.	2100.	2	0	1	.00	1791.16	1973.98
8.48	17.34	842.74	.00	841.02	842.76	.02	.27	.00	828.40
7200.	1014.	2234.	3982.	2043.	1155.	7961.	2020.	270.	828.90
2.61	.50	1.91	.50	.125	.060	.125	.049	825.40	.00
.000143	2605.	2605.	2605.	2	0	1	.00	1859.70	1859.70
8.50	16.86	842.76	.00	841.12	842.78	.01	.02	.00	841.50
7200.	1973.	2329.	2898.	3823.	1618.	6611.	2052.	276.	841.30
2.65	.52	1.44	.44	.125	.060	.125	.049	825.90	.00
.000117	120.	120.	120.	1	0	1	.00	1920.51	1920.51

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.60	-.00	60.00	4.00	944.00	.18	826.10	826.10

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
0	QLOB	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
842.85	842.78	.00	5342.	1840.	944.	837.30	831.80	30.00

8.51	16.94	842.84	.00	841.14	842.85	.01	.08	.00	841.50
7200.	1975.	2311.	2914.	3875.	1627.	6718.	2059.	277.	841.30
2.66	.51	1.42	.43	.125	.060	.125	.049	825.90	.00
.000113	25.	25.	25.	1	0	5	.00	1927.57	1927.57
8.52	17.44	842.84	.00	841.14	842.86	.02	.01	.00	828.40
7200.	1019.	2179.	4083.	2084.	1153.	8123.	2073.	279.	828.90
2.68	.49	1.87	.49	.125	.060	.125	.049	825.40	.00
.000137	50.	50.	50.	0	0	1	.00	1872.26	1872.26

3265 DIVIDED FLOW

3280 CROSS SECTION 8.86 EXTENDED 1.44 FEET

8.86	16.74	843.24	.00	842.50	843.32	.08	.43	.03	829.40
7200.	1489.	3486.	2226.	1972.	1109.	2281.	2471.	347.	829.10
2.97	.75	3.14	.98	.100	.055	.100	.050	826.50	84.63
.000344	2075.	2075.	2075.	2	0	1	.00	984.75	1200.00

9.34	18.30	844.10	.00	842.30	844.17	.05	.84	.00	830.50
7200.	4045.	3002.	154.	4235.	1019.	167.	2802.	397.	830.50
3.39	.96	2.94	.92	.100	.055	.100	.051	825.80	.00
.000291	2670.	2670.	2670.	2	0	1	.00	657.33	657.33

9.35	16.76	844.06	.00	842.30	844.26	.20	.02	.07	847.90
7200.	.	7200.	.	.	2021.	.	2806.	398.	851.50
3.39	.00	3.56	.00	.100	.055	.100	.051	827.30	513.00
.000705	50.	50.	50.	2	0	1	.00	174.00	687.00

Diamond

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	70.00	6.00	2460.00	.31	827.20	827.20

CLASS A LOW FLOW

BRIDGE W.S.= 843.96 BRIDGE VELOCITY= 6.21

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	844.27	.02	.	7200.	2450.	847.30	844.50	1.00

9.36	16.78	844.08	.00	842.30	844.27	.20	.02	.00	847.90
7200.	.	7200.	.	.	2024.	.	2808.	398.	851.50
3.39	.00	3.56	.00	.100	.055	.100	.051	827.30	513.00
.000701	45.	45.	45.	0	0	1	.00	174.00	687.00

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
9.37	16.77	844.07	.00	842.30	844.35	.28	.04	.04	840.90
7200.	10.	7132.	58.	18.	1635.	56.	2810.	398.	838.10
3.40	.56	4.28	1.02	.100	.055	.100	.051	827.30	168.40
.000812	50.	50.	50.	2	0	1	.00	143.35	311.75
9.42	15.70	844.00	.00	842.34	844.55	.56	.06	.14	845.10
7200.	.	7200.	.	.	1214.	.	2812.	398.	845.10
3.40	.00	5.98	.00	.100	.055	.100	.051	828.30	555.00
.002271	50.	50.	50.	2	0	1	.00	90.00	645.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	90.00	-.00	1003.50	-.00	828.60	828.60

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	43	QWEIR	QPR	BAREA	ELLC	FLTPD	CLASS
845.20	844.33	.00	284.	6903.	1003.	841.80	844.40	30.00
9.43	16.29	844.59	.00	842.90	845.10	.51	.55	.00	845.10
7200.	2.	7198.	.	12.	1257.	.	2813.	398.	845.10
3.40	.14	5.73	.00	.100	.055	.100	.051	828.30	237.35
.001992	45.	45.	45.	2	0	3	.00	215.29	645.00
9.44	16.64	844.94	.00	842.94	845.23	.29	.06	.07	841.90
7200.	9.	7135.	56.	17.	1649.	54.	2815.	399.	839.10
3.40	.56	4.33	1.02	.100	.055	.100	.051	828.30	168.87
.000838	50.	50.	50.	2	0	1	.00	142.60	311.47
9.65	17.05	845.55	.00	843.30	845.56	.01	.25	.08	831.50
7200.	42.	1691.	5467.	109.	1145.	10459.	3035.	424.	830.70
3.94	.39	1.48	.52	.100	.055	.100	.051	828.50	549.24
.000072	1430.	1430.	1430.	2	0	1	.00	1416.99	1966.23
10.23	18.14	845.94	.00	844.50	846.07	.13	.45	.05	831.70
7200.	1367.	5326.	507.	2081.	1510.	480.	3568.	494.	831.70
4.24	.66	3.37	1.06	.140	.065	.140	.053	827.80	32.13
.000513	2925.	2925.	2925.	2	0	1.	.00	571.97	704.10

3265 DIVIDED FLOW

3280 CROSS SECTION 10.80 EXTENDED 1.86 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
10.80	18.96	847.36	.00	845.70	847.44	.08	1.36	.02	832.50
7200.	3369.	3615.	216.	4018.	1175.	370.	3915.	544.	831.90
4.67	.84	3.08	.58	.140	.065	.140	.054	828.40	64.69
.000395	3025.	3025.	3025.	2	0	1	.00	760.05	1250.00
11.33	19.73	848.23	.00	846.44	848.27	.04	.82	.01	831.50
7200.	3222.	3349.	629.	4932.	1456.	948.	4334.	594.	833.00
5.24	.65	2.28	.66	.140	.065	.140	.055	828.50	.00
.000211	2900.	2900.	2900.	2	0	1	.00	755.63	755.63

3265 DIVIDED FLOW

11.34	18.14	848.04	.00	846.20	848.51	.47	.02	.21	849.80
7200.	.	7200.	.	1.	1309.	.	4339.	595.	850.50

5.24	.03	5.50	.00	.140	.065	.140	.055	829.90	281.81
.002075	50.	50.	50.	2	0	1	.00	103.82	836.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	PQLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	76.00	4.60	1193.20	-.00	830.50	830.50

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
848.88	848.55	.04	318.	6875.	1193.	846.70	848.00	30.00

11.35	18.46	848.36	.00	846.50	848.81	.45	.30	.03	849.80
7200.	7.	7193.	0	44.	1334.	0	4340.	595.	850.50
5.24	.17	5.39	.00	.140	.065	.140	.055	829.90	188.76
.001962	30.	30.	30.	2	0	3	.00	281.85	836.00
11.36	19.01	848.91	.00	847.06	848.96	.05	.03	.12	832.90
7200.	3109.	3477.	614.	4531.	1419.	867.	4345.	596.	834.40
5.25	.69	2.47	.71	.140	.065	.140	.055	829.90	.00
.000259	50.	50.	50.	2	0	1	.00	751.88	751.88

3265 DIVIDED FLOW

11.75	18.97	849.47	.00	847.40	849.57	.10	.59	.03	833.50
7200.	2299.	4520.	381.	1994.	1457.	319.	4588.	621.	833.40
5.48	1.15	3.10	1.19	.100	.060	.100	.055	830.50	311.38
.000334	2000.	2000.	2000.	2	0	1	.00	372.94	954.93

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	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
12.53	18.86	850.36	.00	847.70	850.39	.03	.80	.02	834.50
7200.	4800.	2136.	265.	4731.	1014.	476.	5003.	664.	834.50
6.25	1.01	2.11	.56	.100	.060	.100	.056	831.50	188.50
.000156	3625.	3625.	3625.	2	0	1	.00	648.12	857.85

3280 CROSS SECTION 13.42 EXTENDED .69 FEET

13.42	17.19	850.69	.00	848.50	850.69	.00	.29	.01	840.30

6890.	325.	916.	5610.	725.	937.	12339.	5938.	758.	838.90
9.37	.45	.98	.46	.100	.060	.100	.056	833.50	23.09
.000042	4025.	4025.	4025.	2	0	1	.00	1376.91	1400.00
13.91	20.64	350.84	.00	848.80	850.85	.01	.15	.00	837.70
6890.	3511.	1454.	1915.	6980.	1159.	3881.	6883.	856.	836.70
9.72	.50	1.25	.49	.100	.060	.100	.057	830.20	22.90
.000057	3000.	3500.	3200.	2	0	1	.00	1337.44	1360.34
13.92	19.13	850.83	.00	848.80	850.87	.03	.01	.01	847.90
6890.	3549.	2211.	1070.	4492.	957.	1588.	6894.	857.	847.90
9.73	.81	2.31	.65	.100	.060	.100	.057	831.70	104.39
.000323	50.	50.	50.	0	0	1	.00	1409.66	1514.06

Vonatta

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	60.50	-.00	635.25	-.00	832.50	832.50

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
853.57	851.67	.00	5604.	1284.	635.	844.30	844.90	30.00
13.93	19.20	850.90	.00	848.80	850.93	.03	.06	.00	847.90
6890.	3659.	2191.	1040.	4541.	960.	1611.	6898.	858.	847.90
9.73	.81	2.28	.65	.100	.060	.100	.057	831.70	102.90
.000314	25.	25.	25.	2	0	5	.00	1411.96	1514.86
13.94	19.22	850.92	.00	848.80	850.94	.02	.01	.00	839.20
6890.	3132.	2063.	1695.	5790.	1076.	3272.	6908.	859.	838.20
9.75	.54	1.92	.52	.150	.065	.150	.057	831.70	43.74
.000174	50.	50.	50.	1	0	1	.00	1312.56	1356.30
14.51	16.33	851.53	.00	849.50	851.57	.04	.61	.01	844.00
6890.	1518.	3259.	2113.	2532.	1501.	3277.	7489.	934.	843.00
10.34	.60	2.17	.64	.150	.065	.150	.057	835.20	135.77
.000262	2900.	2900.	2900.	2	0	1	.00	925.47	1061.24

CCHV= .600 CEHV= .800

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
15.13	17.05	852.15	.00	850.30	852.16	.01	.58	.02	842.10
6890.	180.	1577.	5134.	378.	1045.	10369.	8215.	1017.	842.50
11.60	.48	1.51	.50	.150	.065	.150	.058	835.10	34.93
.000125	3000.	3400.	3300.	2	0	1	.00	1286.55	1321.47

15.61	15.83	852.73	.00	850.91	852.82	.10	.60	.07	838.80
6890.	593.	4322.	1975.	798.	1395.	2333.	8697.	1074.	843.50
11.92	.74	3.10	.85	.150	.065	.150	.058	836.90	364.80
.000540	2400.	2600.	2600.	2	0	1	.00	627.36	992.17
15.62	14.69	852.69	.00	850.70	853.23	.54	.05	.35	853.90
6890.	.	6890.	.	.	1170.	.	8700.	1074.	854.00
11.93	.00	5.89	.00	.150	.065	.150	.058	838.00	758.00
.002854	50.	50.	50.	2	0	1	.00	84.00	842.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	2.00	2.60	-.00	80.20	4.50	922.30	-.00	838.00	838.00

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	WEIR	QPR	BAREA	ELLC	ELTRD	CLASS
854.42	853.27	.24	273.	6596.	922.	849.70	853.80	30.00

15.63	15.82	853.82	.00	851.70	854.28	.46	1.05	.00	853.90
6890.	.	6890.	.	.	1254.	2.	8702.	1075.	854.00
11.93	.00	5.45	.03	.150	.065	.150	.058	838.00	696.63
.002263	60.	60.	60.	2	0	3	.00	204.79	1004.22
15.64	16.47	854.47	.00	852.51	854.55	.08	.04	.23	839.90
6890.	642.	4190.	2058.	924.	1458.	2554.	8705.	1075.	844.60
11.94	.69	2.87	.81	.150	.065	.150	.058	838.00	343.54
.000438	50.	50.	50.	2	0	1	.00	651.17	994.71

3265 DIVIDED FLOW

16.44	17.49	856.39	.00	854.00	856.46	.07	1.91	.01	846.50
6890.	3485.	3272.	133.	4216.	1104.	219.	9239.	1145.	842.00
12.61	.83	2.96	.61	.150	.065	.150	.059	838.90	.00
.000420	4440.	4440.	4440.	3	0	1	.00	711.16	1086.48

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

RED CEDAR RIVER 5258-01

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	WSELK	K*XNCH	
5.64	.00	.00	.00	821.90	6000.00	835.60	.47	.00	.00	836.07	835.60	28.00	FOR
5.64	.00	.00	.00	821.90	7700.00	837.70	.48	.00	.00	838.18	835.60	28.00	100
5.64	.00	.00	.00	821.90	4350.00	833.40	.41	.00	.00	833.81	835.60	28.00	10
5.64	.00	.00	.00	821.90	6600.00	836.10	.51	.00	.00	836.61	835.60	28.00	50
5.64	.00	.00	.00	821.90	7700.00	837.70	.48	.00	.00	838.18	835.60	28.00	100
5.64	.00	.00	.00	821.90	10800.00	841.10	.45	.00	.00	841.55	835.60	28.00	500
5.66	130.00	.00	.00	821.50	6000.00	835.73	.41	.06	.02	836.15	835.82	28.00	
5.66	130.00	.00	.00	821.50	7700.00	837.75	.49	.05	.00	838.23	835.82	28.00	
5.66	130.00	.00	.00	821.50	4350.00	833.55	.34	.06	.02	833.89	835.82	28.00	
5.66	130.00	.00	.00	821.50	6600.00	836.23	.46	.06	.02	836.69	835.82	28.00	
5.66	130.00	.00	.00	821.50	7700.00	837.75	.49	.05	.00	838.23	835.82	28.00	
5.66	130.00	.00	.00	821.50	10800.00	841.13	.48	.04	.02	841.60	835.82	28.00	
5.67	17.00	837.40	837.90	821.50	6000.00	835.74	.41	.01	.00	836.16	835.80	28.00	
5.67	17.00	837.40	837.90	821.50	7700.00	837.76	.49	.01	.00	838.24	835.80	28.00	
5.67	17.00	837.40	837.90	821.50	4350.00	833.56	.34	.01	.00	833.89	835.80	28.00	
5.67	17.00	837.40	837.90	821.50	6600.00	836.23	.46	.01	.00	836.69	835.80	28.00	
5.67	17.00	837.40	837.90	821.50	7700.00	837.76	.49	.01	.00	838.24	835.80	28.00	
5.67	17.00	837.40	837.90	821.50	10800.00	841.08	.60	.01	.06	841.67	835.80	28.00	
5.68	50.00	.00	.00	821.60	6000.00	835.76	.43	.02	.01	836.19	835.90	28.00	
5.68	50.00	.00	.00	821.60	7700.00	837.84	.43	.02	.02	838.29	835.90	28.00	
5.68	50.00	.00	.00	821.60	4350.00	833.56	.37	.02	.01	833.93	835.90	28.00	
5.68	50.00	.00	.00	821.60	6600.00	836.25	.46	.02	.00	836.71	835.90	28.00	
5.68	50.00	.00	.00	821.60	7700.00	837.84	.43	.02	.02	838.28	835.90	28.00	
5.68	50.00	.00	.00	821.60	10800.00	841.36	.40	.02	.06	841.75	835.90	28.00	
5.83	890.00	.00	.00	820.10	6000.00	836.12	.36	.27	.02	836.48	836.10	28.00	
5.83	890.00	.00	.00	820.10	7700.00	838.10	.43	.26	.00	838.54	836.10	28.00	
5.83	890.00	.00	.00	820.10	4350.00	833.96	.28	.28	.03	834.23	836.10	28.00	
5.83	890.00	.00	.00	820.10	6600.00	836.62	.40	.29	.02	837.02	836.10	28.00	
5.83	890.00	.00	.00	820.10	7700.00	838.10	.43	.26	.00	838.54	836.10	28.00	
5.83	890.00	.00	.00	820.10	10800.00	841.52	.52	.22	.06	842.04	836.10	28.00	
5.84	50.00	.00	.00	820.90	6000.00	836.27	.26	.01	.03	836.52	836.34	28.00	
5.84	50.00	.00	.00	820.90	7700.00	838.27	.31	.01	.04	838.59	836.34	28.00	
5.84	50.00	.00	.00	820.90	4350.00	834.07	.19	.01	.02	834.27	836.34	28.00	
5.84	50.00	.00	.00	820.90	6600.00	836.78	.29	.01	.03	837.07	836.34	28.00	
5.84	50.00	.00	.00	820.90	7700.00	838.27	.31	.01	.04	838.59	836.34	28.00	
5.84	50.00	.00	.00	820.90	10800.00	841.69	.41	.01	.03	842.09	836.34	28.00	
5.85	70.00	841.20	840.60	820.90	6000.00	836.30	.25	.03	.00	836.55	836.40	28.00	
5.85	70.00	841.20	840.60	820.90	7700.00	838.32	.31	.04	.00	838.63	836.40	28.00	
5.85	70.00	841.20	840.60	820.90	4350.00	834.10	.19	.03	.00	834.29	836.40	28.00	
5.85	70.00	841.20	840.60	820.90	6600.00	836.82	.28	.04	.00	837.11	836.40	28.00	
5.85	70.00	841.20	840.60	820.90	7700.00	838.32	.31	.04	.00	838.63	836.40	28.00	
5.85	70.00	841.20	840.60	820.90	10800.00	841.95	.39	.26	.00	842.35	836.40	28.00	

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	WSELK	K*XNCH
5.86	50.00	.00	.00	820.90	6000.00	836.24	.40	.01	.07	836.64	836.40	28.00
5.86	50.00	.00	.00	820.90	7700.00	838.25	.48	.01	.08	838.73	836.40	28.00
5.86	50.00	.00	.00	820.90	4350.00	834.05	.32	.01	.06	834.37	836.40	28.00
5.86	50.00	.00	.00	820.90	6600.00	836.76	.45	.01	.08	837.20	836.40	28.00
5.86	50.00	.00	.00	820.90	7700.00	838.25	.48	.01	.08	838.73	836.40	28.00
5.86	50.00	.00	.00	820.90	10800.00	841.89	.55	.01	.08	842.44	836.40	28.00
6.17	1452.00	.00	.00	822.30	6000.00	836.85	.19	.33	.07	837.03	836.70	28.00
6.17	1452.00	.00	.00	822.30	7700.00	838.93	.19	.30	.09	839.12	836.70	28.00
6.17	1452.00	.00	.00	822.30	4350.00	834.58	.18	.35	.04	834.75	836.70	28.00
6.17	1452.00	.00	.00	822.30	6600.00	837.42	.20	.34	.08	837.61	836.70	28.00
6.17	1452.00	.00	.00	822.30	7700.00	838.93	.19	.30	.09	839.12	836.70	28.00
6.17	1452.00	.00	.00	822.30	10800.00	842.63	.17	.24	.11	842.80	836.70	28.00
6.18	50.00	.00	.00	821.80	6000.00	836.85	.20	.01	.01	837.05	836.70	28.00
6.18	50.00	.00	.00	821.80	7700.00	838.92	.22	.01	.02	839.14	836.70	28.00
6.18	50.00	.00	.00	821.80	4350.00	834.60	.17	.01	.00	834.77	836.70	28.00
6.18	50.00	.00	.00	821.80	6600.00	837.42	.21	.01	.01	837.63	836.70	28.00
6.18	50.00	.00	.00	821.80	7700.00	838.92	.22	.01	.02	839.14	836.70	28.00
6.18	50.00	.00	.00	821.80	10800.00	842.60	.25	.01	.04	842.85	836.70	28.00
6.19	75.00	841.20	838.50	821.80	6000.00	836.87	.20	.02	.00	837.07	836.80	28.00
6.19	75.00	841.20	838.50	821.80	7700.00	839.04	.22	.12	.00	839.25	836.80	28.00
6.19	75.00	841.20	838.50	821.80	4350.00	834.62	.17	.02	.00	834.79	836.80	28.00
6.19	75.00	841.20	838.50	821.80	6600.00	837.44	.21	.02	.00	837.65	836.80	28.00
6.19	75.00	841.20	838.50	821.80	7700.00	839.04	.22	.12	.00	839.25	836.80	28.00
6.19	75.00	841.20	838.50	821.80	10800.00	842.88	.24	.27	.00	843.12	836.80	28.00
6.20	50.00	.00	.00	822.80	6000.00	836.86	.26	.01	.03	837.12	836.80	35.00
6.20	50.00	.00	.00	822.80	7700.00	839.02	.28	.01	.03	839.31	836.80	35.00
6.20	50.00	.00	.00	822.80	4350.00	834.61	.23	.02	.03	834.84	836.80	35.00
6.20	50.00	.00	.00	822.80	6600.00	837.42	.28	.01	.03	837.71	836.80	35.00
6.20	50.00	.00	.00	822.80	7700.00	839.02	.28	.01	.03	839.31	836.80	35.00
6.20	50.00	.00	.00	822.80	10800.00	842.87	.28	.01	.02	843.15	836.80	35.00
6.66	2480.00	.00	.00	821.30	6000.00	837.69	.19	.74	.02	837.88	837.52	35.00
6.66	2480.00	.00	.00	821.30	7700.00	839.80	.19	.66	.03	839.99	837.52	35.00
6.66	2480.00	.00	.00	821.30	4350.00	835.47	.17	.79	.02	835.65	837.52	35.00
6.66	2480.00	.00	.00	821.30	6600.00	838.28	.20	.75	.03	838.48	837.52	35.00
6.66	2480.00	.00	.00	821.30	7700.00	839.80	.19	.66	.03	839.99	837.52	35.00
6.66	2480.00	.00	.00	821.30	10800.00	843.54	.16	.51	.04	843.70	837.52	35.00
6.69	135.00	.00	.00	823.00	6000.00	837.60	.47	.05	.14	838.07	837.45	35.00
6.69	135.00	.00	.00	823.00	7700.00	839.67	.56	.05	.19	840.23	837.45	35.00
6.69	135.00	.00	.00	823.00	4350.00	835.44	.35	.05	.09	835.79	837.45	35.00
6.69	135.00	.00	.00	823.00	6600.00	838.18	.52	.06	.16	838.69	837.45	35.00
6.69	135.00	.00	.00	823.00	7700.00	839.67	.56	.05	.19	840.23	837.45	35.00
6.69	135.00	.00	.00	823.00	10800.00	843.41	.49	.04	.16	843.90	837.45	35.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	ES	WSELK	K*XNCH
6.70	50.00	838.60	839.60	823.00	6000.00	837.64	.46	.04	.00	838.11	837.75	35.00
6.70	50.00	838.60	839.60	823.00	7700.00	839.73	.55	.06	.00	840.29	837.75	35.00
6.70	50.00	838.60	839.60	823.00	4350.00	835.47	.35	.03	.00	835.82	837.75	35.00
6.70	50.00	838.60	839.60	823.00	6600.00	838.18	.52	.00	.00	838.69	837.75	35.00
6.70	50.00	838.60	839.60	823.00	7700.00	839.73	.55	.06	.00	840.29	837.75	35.00
6.70	50.00	838.60	839.60	823.00	10800.00	843.41	.49	.00	.00	843.90	837.75	35.00
6.71	50.00	.00	.00	823.00	6000.00	837.92	.27	.03	.06	838.19	838.06	35.00
6.71	50.00	.00	.00	823.00	7700.00	840.14	.26	.02	.09	840.40	838.06	35.00
6.71	50.00	.00	.00	823.00	4350.00	835.60	.27	.03	.02	835.87	838.06	35.00
6.71	50.00	.00	.00	823.00	6600.00	838.50	.29	.03	.07	838.79	838.06	35.00
6.71	50.00	.00	.00	823.00	7700.00	840.14	.26	.02	.09	840.40	838.06	35.00
6.71	50.00	.00	.00	823.00	10800.00	843.78	.22	.02	.08	844.00	838.06	35.00
7.20	2590.00	.00	.00	824.10	6000.00	839.20	.08	1.03	.06	839.23	839.20	60.00
7.20	2590.00	.00	.00	824.10	7700.00	841.26	.08	.89	.05	841.34	839.20	60.00
7.20	2590.00	.00	.00	824.10	4350.00	837.04	.08	1.19	.06	837.12	839.20	60.00
7.20	2590.00	.00	.00	824.10	6600.00	839.80	.08	1.03	.06	839.88	839.20	60.00
7.20	2590.00	.00	.00	824.10	7700.00	841.26	.08	.89	.05	841.34	839.20	60.00
7.20	2590.00	.00	.00	824.10	10800.00	844.64	.08	.69	.04	844.73	839.20	60.00
7.49	1550.00	.00	.00	823.00	6000.00	839.70	.04	.45	.01	839.74	840.00	60.00
7.49	1550.00	.00	.00	823.00	7700.00	841.72	.04	.42	.01	841.75	840.00	60.00
7.49	1550.00	.00	.00	823.00	4350.00	837.59	.04	.49	.01	837.63	840.00	60.00
7.49	1550.00	.00	.00	823.00	6600.00	840.31	.04	.46	.01	840.33	840.00	60.00
7.49	1550.00	.00	.00	823.00	7700.00	841.72	.04	.42	.01	841.75	840.00	60.00
7.49	1550.00	.00	.00	823.00	10800.00	845.05	.05	.36	.01	845.10	840.00	60.00
7.54	200.00	.00	.00	825.30	6000.00	839.70	.23	.09	.09	839.93	840.17	60.00
7.54	200.00	.00	.00	825.30	7700.00	841.69	.28	.09	.12	841.97	840.17	60.00
7.54	200.00	.00	.00	825.30	4350.00	837.61	.17	.09	.07	837.79	840.17	60.00
7.54	200.00	.00	.00	825.30	6600.00	840.30	.25	.09	.10	840.55	840.17	60.00
7.54	200.00	.00	.00	825.30	7700.00	841.69	.28	.09	.12	841.97	840.17	60.00
7.54	200.00	.00	.00	825.30	10800.00	844.98	.35	.08	.15	845.33	840.17	60.00
7.55	30.00	848.20	841.10	825.30	6000.00	839.73	.23	.03	.00	839.96	840.17	60.00
7.55	30.00	848.20	841.10	825.30	7700.00	841.80	.27	.10	.00	842.07	840.17	60.00
7.55	30.00	848.20	841.10	825.30	4350.00	837.64	.17	.02	.00	837.81	840.17	60.00
7.55	30.00	848.20	841.10	825.30	6600.00	840.34	.25	.03	.00	840.59	840.17	60.00
7.55	30.00	848.20	841.10	825.30	7700.00	841.80	.27	.10	.00	842.07	840.17	60.00
7.55	30.00	848.20	841.10	825.30	10800.00	845.39	.34	.39	.00	845.72	840.17	60.00
7.56	50.00	.00	.00	825.30	6000.00	839.98	.07	.04	.05	840.04	840.30	60.00
7.56	50.00	.00	.00	825.30	7700.00	842.10	.06	.03	.06	842.17	840.30	60.00
7.56	50.00	.00	.00	825.30	4350.00	837.81	.07	.04	.03	837.88	840.30	60.00
7.56	50.00	.00	.00	825.30	6600.00	840.61	.07	.04	.05	840.68	840.30	60.00
7.56	50.00	.00	.00	825.30	7700.00	842.10	.05	.03	.06	842.17	840.30	60.00
7.56	50.00	.00	.00	825.30	10800.00	845.77	.06	.03	.08	845.83	840.30	60.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	WSELK	K*XNCH
7.98	2100.00	.00	.00	821.50	5610.00	840.43	.02	.39	.02	840.45	840.60	60.00
7.98	2100.00	.00	.00	821.50	7210.00	842.48	.01	.31	.02	842.49	840.60	60.00
7.98	2100.00	.00	.00	821.50	3890.00	838.34	.02	.47	.02	838.35	840.60	60.00
7.98	2100.00	.00	.00	821.50	6150.00	841.05	.02	.37	.02	841.05	840.60	60.00
7.98	2100.00	.00	.00	821.50	7210.00	842.48	.01	.31	.02	842.49	840.60	60.00
7.98	2100.00	.00	.00	821.50	10090.00	846.05	.01	.21	.02	846.06	840.60	60.00
8.48	2605.00	.00	.00	825.40	5610.00	840.79	.03	.36	.01	840.81	841.02	60.00
8.48	2605.00	.00	.00	825.40	7210.00	842.74	.02	.27	.00	842.75	841.02	60.00
8.48	2605.00	.00	.00	825.40	3890.00	838.78	.04	.45	.01	838.82	841.02	60.00
8.48	2605.00	.00	.00	825.40	6150.00	841.38	.03	.34	.01	841.41	841.02	60.00
8.48	2605.00	.00	.00	825.40	7210.00	842.74	.02	.27	.00	842.75	841.02	60.00
8.48	2605.00	.00	.00	825.40	10090.00	846.21	.01	.16	.00	846.22	841.02	60.00
8.50	120.00	.00	.00	825.90	5610.00	840.82	.02	.02	.00	840.84	841.12	60.00
8.50	120.00	.00	.00	825.90	7210.00	842.76	.01	.02	.00	842.78	841.12	60.00
8.50	120.00	.00	.00	825.90	3890.00	838.83	.02	.03	.01	838.85	841.12	60.00
8.50	120.00	.00	.00	825.90	6150.00	841.41	.02	.02	.00	841.43	841.12	60.00
8.50	120.00	.00	.00	825.90	7210.00	842.76	.01	.02	.00	842.78	841.12	60.00
8.50	120.00	.00	.00	825.90	10090.00	846.22	.01	.01	.00	846.23	841.12	60.00
8.51	25.00	831.80	837.30	825.90	5610.00	840.89	.02	.06	.00	840.90	841.14	60.00
8.51	25.00	831.80	837.30	825.90	7210.00	842.84	.01	.08	.00	842.85	841.14	60.00
8.51	25.00	831.80	837.30	825.90	3890.00	838.89	.02	.04	.00	838.90	841.14	60.00
8.51	25.00	831.80	837.30	825.90	6150.00	841.48	.02	.07	.00	841.50	841.14	60.00
8.51	25.00	831.80	837.30	825.90	7210.00	842.84	.01	.08	.00	842.85	841.14	60.00
8.51	25.00	831.80	837.30	825.90	10090.00	846.32	.01	.10	.00	846.33	841.14	60.00
8.52	50.00	.00	.00	825.40	5610.00	840.89	.03	.01	.01	840.92	841.14	60.00
8.52	50.00	.00	.00	825.40	7210.00	842.84	.02	.01	.00	842.85	841.14	60.00
8.52	50.00	.00	.00	825.40	3890.00	838.88	.04	.01	.01	838.92	841.14	60.00
8.52	50.00	.00	.00	825.40	6150.00	841.49	.03	.01	.00	841.51	841.14	60.00
8.52	50.00	.00	.00	825.40	7210.00	842.84	.02	.01	.00	842.85	841.14	60.00
8.52	50.00	.00	.00	825.40	10090.00	846.32	.01	.00	.00	846.33	841.14	60.00
8.86	2075.00	.00	.00	826.50	5610.00	841.45	.11	.59	.04	841.55	842.60	55.00
8.86	2075.00	.00	.00	826.50	7210.00	843.24	.08	.43	.03	843.32	842.60	55.00
8.86	2075.00	.00	.00	826.50	3890.00	839.60	.12	.76	.04	839.72	842.60	55.00
8.86	2075.00	.00	.00	826.50	6150.00	842.00	.10	.55	.04	842.10	842.60	55.00
8.86	2075.00	.00	.00	826.50	7210.00	843.24	.08	.43	.03	843.32	842.60	55.00
8.86	2075.00	.00	.00	826.50	10090.00	846.55	.05	.24	.02	846.61	842.60	55.00
9.34	2670.00	.00	.00	825.80	5610.00	842.51	.07	1.01	.01	842.57	842.30	55.00
9.34	2670.00	.00	.00	825.80	7210.00	844.10	.06	.84	.00	844.17	842.30	55.00
9.34	2670.00	.00	.00	825.80	3890.00	840.78	.07	1.11	.02	840.85	842.30	55.00
9.34	2670.00	.00	.00	825.80	6150.00	843.02	.07	.98	.01	843.09	842.30	55.00
9.34	2670.00	.00	.00	825.80	7210.00	844.10	.06	.84	.00	844.17	842.30	55.00
9.34	2670.00	.00	.00	825.80	10090.00	847.11	.06	.57	.01	847.17	842.30	55.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	ES	WSELK	K*XNCH
9.35	50.00	.00	.00	827.30	5630.00	842.48	.16	.02	.05	842.64	842.30	55.00
9.35	50.00	.00	.00	827.30	7210.00	844.06	.20	.02	.07	844.25	842.30	55.00
9.35	50.00	.00	.00	827.30	3890.00	840.78	.11	.02	.02	840.89	842.30	55.00
9.35	50.00	.00	.00	827.30	6150.00	842.99	.17	.02	.05	843.16	842.30	55.00
9.35	50.00	.00	.00	827.30	7210.00	844.06	.20	.02	.07	844.25	842.30	55.00
9.35	50.00	.00	.00	827.30	10090.00	847.05	.20	.02	.07	847.26	842.30	55.00
9.36	45.00	844.50	847.30	827.30	5630.00	842.50	.16	.01	.00	842.66	842.30	55.00
9.36	45.00	844.50	847.30	827.30	7210.00	844.08	.20	.02	.00	844.27	842.30	55.00
9.36	45.00	844.50	847.30	827.30	3890.00	840.79	.11	.01	.00	840.90	842.30	55.00
9.36	45.00	844.50	847.30	827.30	6150.00	843.00	.17	.02	.00	843.18	842.30	55.00
9.36	45.00	844.50	847.30	827.30	7210.00	844.08	.20	.02	.00	844.27	842.30	55.00
9.36	45.00	844.50	847.30	827.30	10090.00	847.23	.20	.17	.00	847.43	842.30	55.00
9.37	50.00	.00	.00	827.30	5630.00	842.50	.22	.03	.03	842.72	842.30	55.00
9.37	50.00	.00	.00	827.30	7210.00	844.07	.28	.04	.04	844.35	842.30	55.00
9.37	50.00	.00	.00	827.30	3890.00	840.80	.14	.03	.02	840.94	842.30	55.00
9.37	50.00	.00	.00	827.30	6150.00	843.01	.24	.04	.03	843.25	842.30	55.00
9.37	50.00	.00	.00	827.30	7210.00	844.07	.28	.04	.04	844.35	842.30	55.00
9.37	50.00	.00	.00	827.30	10090.00	847.18	.36	.03	.08	847.54	842.30	55.00
9.42	50.00	.00	.00	828.30	5610.00	842.45	.43	.06	.11	842.88	842.34	55.00
9.42	50.00	.00	.00	828.30	7210.00	844.00	.56	.06	.14	844.55	842.34	55.00
9.42	50.00	.00	.00	828.30	3890.00	840.77	.27	.04	.07	841.05	842.34	55.00
9.42	50.00	.00	.00	828.30	6150.00	842.95	.48	.06	.12	843.43	842.34	55.00
9.42	50.00	.00	.00	828.30	7210.00	844.00	.56	.06	.14	844.55	842.34	55.00
9.42	50.00	.00	.00	828.30	10090.00	847.20	.43	.06	.04	847.53	842.34	55.00
9.43	45.00	844.40	841.80	828.30	5630.00	842.77	.41	.30	.00	843.18	842.90	55.00
9.43	45.00	844.40	841.80	828.30	7210.00	844.59	.51	.55	.00	845.10	842.90	55.00
9.43	45.00	844.40	841.80	828.30	3890.00	840.93	.27	.06	.00	841.10	842.90	55.00
9.43	45.00	844.40	841.80	828.30	6150.00	843.38	.45	.40	.00	843.83	842.90	55.00
9.43	45.00	844.40	841.80	828.30	7210.00	844.59	.51	.55	.00	845.10	842.90	55.00
9.43	45.00	844.40	841.80	828.30	10090.00	847.20	.43	.00	.00	847.63	842.90	55.00
9.44	50.00	.00	.00	828.30	5610.00	843.05	.23	.06	.05	843.29	842.94	55.00
9.44	50.00	.00	.00	828.30	7210.00	844.94	.29	.06	.07	845.23	842.94	55.00
9.44	50.00	.00	.00	828.30	3890.00	841.02	.16	.05	.03	841.18	842.94	55.00
9.44	50.00	.00	.00	828.30	6150.00	843.69	.26	.06	.06	843.94	842.94	55.00
9.44	50.00	.00	.00	828.30	7210.00	844.94	.29	.06	.07	845.23	842.94	55.00
9.44	50.00	.00	.00	828.30	10090.00	847.30	.41	.06	.01	847.70	842.94	55.00
9.65	1430.00	.00	.00	828.50	5610.00	843.64	.01	.29	.07	843.65	843.30	55.00
9.65	1430.00	.00	.00	828.50	7210.00	845.55	.01	.25	.08	845.56	843.30	55.00
9.65	1430.00	.00	.00	828.50	3890.00	841.56	.02	.35	.04	841.57	843.30	55.00
9.65	1430.00	.00	.00	828.50	6150.00	844.28	.01	.28	.07	844.30	843.30	55.00
9.65	1430.00	.00	.00	828.50	7210.00	845.55	.01	.25	.08	845.56	843.30	55.00
9.65	1430.00	.00	.00	828.50	10090.00	848.04	.01	.23	.12	848.05	843.30	55.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX E. OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	VV	HL	OLOSS	EG	WSELK	K*XNCH
10.23	2925.00	.00	.00	827.80	5610.00	844.12	.14	.54	.06	844.25	844.50	65.00
10.23	2925.00	.00	.00	827.80	7210.00	845.94	.13	.45	.06	846.07	844.50	65.00
10.23	2925.00	.00	.00	827.80	3890.00	842.15	.11	.64	.05	842.25	844.50	65.00
10.23	2925.00	.00	.00	827.80	6150.00	844.73	.14	.51	.06	844.87	844.50	65.00
10.23	2925.00	.00	.00	827.80	7210.00	845.94	.13	.45	.06	846.07	844.50	65.00
10.23	2925.00	.00	.00	827.80	10090.00	849.39	.14	.41	.06	848.52	844.50	65.00
10.80	3025.00	.00	.00	828.40	5610.00	845.65	.08	1.46	.02	845.73	845.70	65.00
10.80	3025.00	.00	.00	828.40	7210.00	847.36	.08	1.36	.02	847.44	845.70	65.00
10.80	3025.00	.00	.00	828.40	3890.00	843.62	.08	1.43	.01	843.70	845.70	65.00
10.80	3025.00	.00	.00	828.40	6150.00	846.25	.08	1.44	.02	846.33	845.70	65.00
10.80	3025.00	.00	.00	828.40	7210.00	847.36	.08	1.36	.02	847.44	845.70	65.00
10.80	3025.00	.00	.00	828.40	10090.00	849.76	.08	1.30	.02	849.84	845.70	65.00
11.33	2900.00	.00	.00	828.50	5610.00	846.54	.04	.84	.01	846.58	846.44	65.00
11.33	2900.00	.00	.00	828.50	7210.00	848.23	.04	.82	.01	848.27	846.44	65.00
11.33	2900.00	.00	.00	828.50	3890.00	844.52	.04	.84	.01	844.55	846.44	65.00
11.33	2900.00	.00	.00	828.50	6150.00	847.14	.04	.84	.01	847.18	846.44	65.00
11.33	2900.00	.00	.00	828.50	7210.00	848.23	.04	.82	.01	848.27	846.44	65.00
11.33	2900.00	.00	.00	828.50	10090.00	850.62	.05	.83	.01	850.67	846.44	65.00
11.34	50.00	.00	.00	829.90	5610.00	846.41	.35	.02	.15	846.75	846.20	65.00
11.34	50.00	.00	.00	829.90	7210.00	848.04	.47	.02	.21	848.51	846.20	65.00
11.34	50.00	.00	.00	829.90	3890.00	844.45	.22	.02	.09	844.57	846.20	65.00
11.34	50.00	.00	.00	829.90	6150.00	846.99	.39	.02	.17	847.38	846.20	65.00
11.34	50.00	.00	.00	829.90	7210.00	848.04	.47	.02	.21	848.51	846.20	65.00
11.34	50.00	.00	.00	829.90	10090.00	850.39	.56	.03	.26	850.95	846.20	65.00
11.35	30.00	848.00	846.70	829.90	5610.00	846.59	.34	.17	.00	846.93	846.60	65.00
11.35	30.00	848.00	846.70	829.90	7210.00	848.36	.45	.30	.00	848.81	846.60	65.00
11.35	30.00	848.00	846.70	829.90	3890.00	844.47	.22	.02	.00	844.68	846.60	65.00
11.35	30.00	848.00	846.70	829.90	6150.00	847.23	.38	.23	.00	847.61	846.60	65.00
11.35	30.00	848.00	846.70	829.90	7210.00	848.36	.45	.30	.00	848.81	846.60	65.00
11.35	30.00	848.00	846.70	829.90	10090.00	850.39	.56	.00	.00	850.95	846.60	65.00
11.36	50.00	.00	.00	829.90	5610.00	846.99	.05	.03	.09	847.04	847.06	65.00
11.36	50.00	.00	.00	829.90	7210.00	848.91	.05	.03	.12	848.95	847.06	65.00
11.36	50.00	.00	.00	829.90	3890.00	844.70	.06	.03	.05	844.76	847.06	65.00
11.36	50.00	.00	.00	829.90	6150.00	847.68	.05	.03	.10	847.73	847.06	65.00
11.36	50.00	.00	.00	829.90	7210.00	848.91	.05	.03	.12	848.95	847.06	65.00
11.36	50.00	.00	.00	829.90	10090.00	851.08	.06	.03	.15	851.13	847.06	65.00
11.75	2000.00	.00	.00	830.50	5610.00	847.59	.09	.62	.02	847.69	847.40	60.00
11.75	2000.00	.00	.00	830.50	7210.00	849.47	.10	.59	.03	849.57	847.40	60.00
11.75	2000.00	.00	.00	830.50	3890.00	845.36	.08	.66	.01	845.43	847.40	60.00
11.75	2000.00	.00	.00	830.50	6150.00	848.27	.10	.61	.02	848.37	847.40	60.00
11.75	2000.00	.00	.00	830.50	7210.00	849.47	.10	.59	.03	849.57	847.40	60.00
11.75	2000.00	.00	.00	830.50	10090.00	851.69	.13	.65	.04	851.82	847.40	60.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	EG	WSELK	K*XNCH
12.53	3625.00	.00	.00	831.50	5630.00	848.47	.03	.79	.02	848.50	847.70	60.00
12.53	3625.00	.00	.00	831.50	7230.00	850.36	.03	.80	.02	850.39	847.70	60.00
12.53	3625.00	.00	.00	831.50	3830.00	846.19	.02	.76	.02	846.21	847.70	60.00
12.53	3625.00	.00	.00	831.50	6150.00	849.16	.03	.80	.02	849.18	847.70	60.00
12.53	3625.00	.00	.00	831.50	7230.00	850.36	.03	.80	.02	850.39	847.70	60.00
12.53	3625.00	.00	.00	831.50	10090.00	852.71	.04	.90	.03	852.74	847.70	60.00
13.42	4025.00	.00	.00	833.50	5350.00	848.82	.00	.32	.01	848.82	848.50	60.00
13.42	4025.00	.00	.00	833.50	6890.00	850.59	.00	.29	.01	850.59	848.50	60.00
13.42	4025.00	.00	.00	833.50	3710.00	846.57	.00	.35	.01	846.57	848.50	60.00
13.42	4025.00	.00	.00	833.50	5890.00	849.50	.00	.31	.01	849.50	848.50	60.00
13.42	4025.00	.00	.00	833.50	6890.00	850.69	.00	.29	.01	850.69	848.50	60.00
13.42	4025.00	.00	.00	833.50	9630.00	853.06	.01	.31	.01	853.06	848.50	60.00
13.91	3500.00	.00	.00	830.20	5350.00	848.99	.01	.18	.00	849.00	848.80	60.00
13.91	3500.00	.00	.00	830.20	6890.00	850.84	.01	.15	.00	850.85	848.80	60.00
13.91	3500.00	.00	.00	830.20	3710.00	846.78	.01	.21	.00	846.78	848.80	60.00
13.91	3500.00	.00	.00	830.20	5890.00	849.66	.01	.17	.00	849.67	848.80	60.00
13.91	3500.00	.00	.00	830.20	6890.00	850.84	.01	.15	.00	850.85	848.80	60.00
13.91	3500.00	.00	.00	830.20	9630.00	853.21	.01	.15	.00	853.22	848.80	60.00
13.92	50.00	.00	.00	831.70	5350.00	848.97	.06	.01	.03	849.03	848.80	60.00
13.92	50.00	.00	.00	831.70	6890.00	850.83	.03	.01	.01	850.87	848.80	60.00
13.92	50.00	.00	.00	831.70	3710.00	846.70	.17	.01	.08	846.88	848.80	60.00
13.92	50.00	.00	.00	831.70	5890.00	849.65	.05	.01	.02	849.70	848.80	60.00
13.92	50.00	.00	.00	831.70	6890.00	850.83	.03	.01	.01	850.87	848.80	60.00
13.92	50.00	.00	.00	831.70	9630.00	853.21	.02	.00	.01	853.23	848.80	60.00
13.93	25.00	844.90	844.30	831.70	5350.00	849.00	.06	.03	.00	849.06	848.80	60.00
13.93	25.00	844.90	844.30	831.70	6890.00	850.90	.03	.06	.00	850.93	848.80	60.00
13.93	25.00	844.90	844.30	831.70	3710.00	846.81	.13	.04	.01	846.94	848.80	60.00
13.93	25.00	844.90	844.30	831.70	5890.00	849.69	.05	.04	.00	849.74	848.80	60.00
13.93	25.00	844.90	844.30	831.70	6890.00	850.90	.03	.06	.00	850.93	848.80	60.00
13.93	25.00	844.90	844.30	831.70	9630.00	853.30	.02	.09	.00	853.32	848.80	60.00
13.94	50.00	.00	.00	831.70	5350.00	849.07	.02	.02	.01	849.09	848.80	65.00
13.94	50.00	.00	.00	831.70	6890.00	850.92	.02	.01	.00	850.94	848.80	65.00
13.94	50.00	.00	.00	831.70	3710.00	846.97	.03	.03	.03	847.00	848.80	65.00
13.94	50.00	.00	.00	831.70	5890.00	849.74	.02	.01	.01	849.75	848.80	65.00
13.94	50.00	.00	.00	831.70	6890.00	850.92	.02	.01	.00	850.94	848.80	65.00
13.94	50.00	.00	.00	831.70	9630.00	853.31	.02	.01	.00	853.33	848.80	65.00
14.51	2900.00	.00	.00	835.20	5350.00	849.78	.04	.72	.01	849.82	849.50	65.00
14.51	2900.00	.00	.00	835.20	6890.00	851.53	.04	.61	.01	851.57	849.50	65.00
14.51	2900.00	.00	.00	835.20	3710.00	847.81	.04	.85	.01	847.85	849.50	65.00
14.51	2900.00	.00	.00	835.20	5890.00	850.41	.04	.68	.01	850.45	849.50	65.00
14.51	2900.00	.00	.00	835.20	6890.00	851.53	.04	.61	.01	851.57	849.50	65.00
14.51	2900.00	.00	.00	835.20	9630.00	853.88	.04	.58	.01	853.92	849.50	65.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	ES	WSELK	K*XNCH
15.13	3400.00	.00	.00	835.10	5350.00	850.47	.01	.64	.02	850.48	850.30	65.00
15.13	3400.00	.00	.00	835.10	6890.00	852.15	.01	.58	.02	852.16	850.30	65.00
15.13	3400.00	.00	.00	835.10	3710.00	848.56	.01	.70	.02	848.58	850.30	65.00
15.13	3400.00	.00	.00	835.10	5890.00	851.07	.01	.62	.02	851.08	850.30	65.00
15.13	3400.00	.00	.00	835.10	6890.00	852.15	.01	.58	.02	852.16	850.30	65.00
15.13	3400.00	.00	.00	835.10	9630.00	854.48	.01	.56	.02	854.50	850.30	65.00
15.61	2600.00	.00	.00	836.90	5350.00	851.10	.10	.65	.07	851.20	850.91	65.00
15.61	2600.00	.00	.00	836.90	6890.00	852.73	.10	.60	.07	852.82	850.91	65.00
15.61	2600.00	.00	.00	836.90	3710.00	849.23	.09	.59	.06	849.32	850.91	65.00
15.61	2600.00	.00	.00	836.90	5890.00	851.68	.10	.63	.07	851.78	850.91	65.00
15.61	2600.00	.00	.00	836.90	6890.00	852.73	.10	.60	.07	852.82	850.91	65.00
15.61	2600.00	.00	.00	836.90	9630.00	855.05	.11	.58	.07	855.15	850.91	65.00
15.62	50.00	.00	.00	838.00	5350.00	851.09	.42	.05	.26	851.51	850.70	65.00
15.62	50.00	.00	.00	838.00	6890.00	852.69	.54	.05	.35	853.23	850.70	65.00
15.62	50.00	.00	.00	838.00	3710.00	849.25	.28	.05	.15	849.52	850.70	65.00
15.62	50.00	.00	.00	838.00	5890.00	851.66	.46	.05	.29	852.12	850.70	65.00
15.62	50.00	.00	.00	838.00	6890.00	852.69	.54	.05	.35	853.23	850.70	65.00
15.62	50.00	.00	.00	838.00	9630.00	854.98	.71	.05	.49	855.69	850.70	65.00
15.63	60.00	853.80	849.70	838.00	5350.00	851.77	.37	.63	.00	852.14	851.70	65.00
15.63	60.00	853.80	849.70	838.00	6890.00	853.82	.46	1.05	.00	854.29	851.70	65.00
15.63	60.00	853.80	849.70	838.00	3710.00	849.26	.27	.02	.00	849.54	851.70	65.00
15.63	60.00	853.80	849.70	838.00	5890.00	852.53	.40	.81	.00	852.93	851.70	65.00
15.63	60.00	853.80	849.70	838.00	6890.00	853.82	.46	1.05	.00	854.28	851.70	65.00
15.63	60.00	853.80	849.70	838.00	9630.00	855.23	.66	.20	.00	855.89	851.70	65.00
15.64	50.00	.00	.00	838.00	5350.00	852.26	.09	.05	.17	852.36	852.51	65.00
15.64	50.00	.00	.00	838.00	5890.00	854.47	.08	.04	.23	854.55	852.51	65.00
15.64	50.00	.00	.00	838.00	3710.00	849.57	.12	.06	.09	849.69	852.51	65.00
15.64	50.00	.00	.00	838.00	5890.00	853.08	.09	.05	.19	853.16	852.51	65.00
15.64	50.00	.00	.00	838.00	6890.00	854.47	.08	.04	.23	854.55	852.51	65.00
15.64	50.00	.00	.00	838.00	9630.00	856.17	.10	.05	.33	856.27	852.51	65.00
16.44	4440.00	.00	.00	838.90	5350.00	854.58	.07	2.28	.01	854.66	854.00	65.00
16.44	4440.00	.00	.00	838.90	6890.00	856.39	.07	1.91	.01	856.46	854.00	65.00
16.44	4440.00	.00	.00	838.90	3710.00	852.50	.07	2.85	.03	852.58	854.00	65.00
16.44	4440.00	.00	.00	838.90	5890.00	855.23	.07	2.13	.01	855.30	854.00	65.00
16.44	4440.00	.00	.00	838.90	6890.00	856.39	.07	1.91	.01	856.46	854.00	65.00
16.44	4440.00	.00	.00	838.90	9630.00	858.37	.08	2.17	.01	858.45	854.00	65.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
5.640	6000.000	835.610	.000	.000	.000	.000	.000	-.000
5.640	7700.000	837.700	2.100	.000	.000	.000	.000	-.000
5.640	4350.000	833.400	-4.300	.000	.000	.000	.000	-.000
5.640	6600.000	836.100	2.700	.000	.000	.000	.000	-.000
5.640	7700.000	837.700	1.600	.000	.000	.000	.000	-.000
5.640	10800.000	841.100	3.400	.000	.000	.000	.000	-.000
5.660	6000.000	835.734	.000	.134	-.086	.000	.000	130.000
5.660	7700.000	837.747	2.013	.047	1.927	.000	.000	130.000
5.660	4350.000	833.550	-4.197	.150	-2.270	.000	.000	130.000
5.660	6600.000	836.226	2.676	.126	.406	.000	.000	130.000
5.660	7700.000	837.747	1.521	.047	1.927	.000	.000	130.000
5.660	10800.000	841.125	3.378	.025	5.305	.000	.000	130.000

5.670	6000.000	835.712	.000	.008	-.058	.000	.000	17.000
5.670	7700.000	837.755	2.013	.008	1.955	.000	.000	17.000
5.670	4350.000	833.558	-4.197	.008	-2.242	.000	.000	17.000
5.670	6600.000	836.205	2.677	.009	.435	.000	.000	17.000
5.670	7700.000	837.755	1.521	.008	1.955	.000	.000	17.000
5.670	10800.000	841.078	3.323	-.047	5.278	.000	.000	17.000
5.680	6000.000	835.756	.000	.014	-.144	.000	.000	50.000
5.680	7700.000	837.844	2.088	.089	1.944	.000	.000	50.000
5.680	4350.000	833.564	-4.280	.006	-2.336	.000	.000	50.000
5.680	6600.000	836.265	2.691	.020	.355	.000	.000	50.000
5.680	7700.000	837.844	1.589	.089	1.944	.000	.000	50.000
5.680	10800.000	841.356	3.512	.278	5.456	.000	.000	50.000
5.830	6000.000	836.118	.000	.362	.018	.000	.000	890.000
5.830	7700.000	838.104	1.986	.260	2.004	.000	.000	890.000
5.830	4350.000	833.955	-4.149	.392	-2.145	.000	.000	890.000
5.830	6600.000	836.621	2.655	.366	.521	.000	.000	890.000
5.830	7700.000	838.104	1.483	.260	2.004	.000	.000	890.000
5.830	10800.000	841.519	3.415	.163	5.419	.000	.000	890.000
5.840	6000.000	836.295	.000	.148	-.075	.000	.000	50.000
5.840	7700.000	838.272	2.007	.168	1.932	.000	.000	50.000
5.840	4350.000	834.073	-4.199	.118	-2.267	.000	.000	50.000
5.840	6600.000	836.733	2.710	.162	.443	.000	.000	50.000
5.840	7700.000	838.272	1.489	.168	1.932	.000	.000	50.000
5.840	10800.000	841.680	3.408	.161	5.340	.000	.000	50.000
5.850	6000.000	836.300	.000	.035	-.100	.000	.000	70.000
5.850	7700.000	838.316	2.016	.044	1.916	.000	.000	70.000
5.850	4350.000	834.099	-4.217	.026	-2.301	.000	.000	70.000
5.850	6600.000	836.823	2.724	.040	.423	.000	.000	70.000
5.850	7700.000	838.316	1.493	.044	1.916	.000	.000	70.000
5.850	10800.000	841.954	3.638	.274	5.554	.000	.000	70.000
5.860	6000.000	836.239	.000	-.061	-.151	.000	.000	50.000
5.860	7700.000	838.247	2.007	-.069	1.847	.000	.000	50.000
5.860	4350.000	834.051	-4.196	-.048	-2.349	.000	.000	50.000
5.860	6600.000	836.756	2.705	-.067	.356	.000	.000	50.000
5.860	7700.000	838.247	1.491	-.069	1.847	.000	.000	50.000
5.860	10800.000	841.887	3.641	-.067	5.487	.000	.000	50.000
6.170	6000.000	836.848	.000	.508	.148	.000	.000	1452.000
6.170	7700.000	838.927	2.079	.580	2.227	.000	.000	1452.000
6.170	4350.000	834.584	-4.343	.533	-2.116	.000	.000	1452.000
6.170	6600.000	837.418	2.834	.662	.718	.000	.000	1452.000
6.170	7700.000	838.927	1.509	.580	2.227	.000	.000	1452.000
6.170	10800.000	842.628	3.701	.741	5.928	.000	.000	1452.000
6.180	6000.000	836.851	.000	.004	.151	.000	.000	50.000
6.180	7700.000	838.919	2.068	-.008	2.219	.000	.000	50.000
6.180	4350.000	834.671	-4.318	.016	-2.099	.000	.000	50.000
6.180	6600.000	837.419	2.818	.001	.719	.000	.000	50.000
6.180	7700.000	838.919	1.500	-.008	2.219	.000	.000	50.000
6.180	10800.000	842.596	3.677	-.033	5.896	.000	.000	50.000
6.190	6000.000	836.874	.000	.023	.074	.000	.000	75.000
6.190	7700.000	839.043	2.169	.124	2.243	.000	.000	75.000
6.190	4350.000	834.621	-4.422	.020	-2.179	.000	.000	75.000
6.190	6600.000	837.443	2.823	.025	.643	.000	.000	75.000
6.190	7700.000	839.043	1.600	.124	2.243	.000	.000	75.000

6.190	10800.000	842.892	3.839	.287	6.092	.000	.000	75.000
6.200	6000.000	836.835	.000	-.019	.055	.000	.000	50.000
6.200	7700.000	839.024	2.169	-.019	2.224	.000	.000	50.000
6.200	4350.000	834.606	-4.418	-.014	-2.194	.000	.000	50.000
6.200	6600.000	837.423	2.817	-.020	.623	.000	.000	50.000
6.200	7700.000	839.024	1.601	-.019	2.224	.000	.000	50.000
6.200	10800.000	842.870	3.845	-.013	6.070	.000	.000	50.000
6.650	6000.000	837.636	.000	.831	.166	.000	.000	2480.000
6.660	7700.000	839.814	2.118	.780	2.284	.000	.000	2480.000
6.660	4350.000	835.473	-4.331	.867	-2.047	.000	.000	2480.000
6.660	6600.000	838.291	2.808	.858	.751	.000	.000	2480.000
6.660	7700.000	839.814	1.523	.780	2.284	.000	.000	2480.000
6.660	10800.000	843.535	3.731	.665	6.015	.000	.000	2480.000
6.690	6000.000	837.612	.000	-.394	.152	.000	.000	135.000
6.690	7700.000	839.687	2.066	-.137	2.217	.000	.000	135.000
6.690	4350.000	835.457	-4.230	-.036	-2.013	.000	.000	135.000
6.690	6600.000	838.177	2.740	-.104	.727	.000	.000	135.000
6.690	7700.000	839.687	1.490	-.137	2.217	.000	.000	135.000
6.690	10800.000	843.409	3.742	-.126	5.959	.000	.000	135.000
6.700	6000.000	837.643	.000	.042	-.107	.000	.000	50.000
6.700	7700.000	839.754	2.091	.067	1.984	.000	.000	50.000
6.700	4350.000	835.487	-4.267	.030	-2.283	.000	.000	50.000
6.700	6600.000	838.177	2.710	.000	.427	.000	.000	50.000
6.700	7700.000	839.754	1.557	.067	1.984	.000	.000	50.000
6.700	10800.000	843.410	3.675	.000	5.650	.000	.000	50.000
6.710	6000.000	837.916	.000	.273	-.144	.000	.000	50.000
6.710	7700.000	840.138	2.222	.404	2.078	.000	.000	50.000
6.710	4350.000	835.598	-4.540	.131	-2.462	.000	.000	50.000
6.710	6600.000	838.514	2.906	.327	.444	.000	.000	50.000
6.710	7700.000	840.138	1.634	.404	2.078	.000	.000	50.000
6.710	10800.000	843.782	3.644	.373	5.722	.000	.000	50.000
7.200	6000.000	839.197	.000	1.281	-.003	.000	.000	2590.000
7.200	7700.000	841.256	2.059	1.118	2.056	.000	.000	2590.000
7.200	4350.000	837.045	-4.211	1.446	-2.155	.000	.000	2590.000
7.200	6600.000	839.799	2.755	1.295	.599	.000	.000	2590.000
7.200	7700.000	841.256	1.456	1.118	2.056	.000	.000	2590.000
7.200	10800.000	844.645	3.389	.862	5.445	.000	.000	2590.000
7.490	6000.000	839.713	.000	.506	-.297	.000	.000	1550.000
7.490	7700.000	841.720	2.018	.465	1.720	.000	.000	1550.000
7.490	4350.000	837.590	-4.131	.545	-2.410	.000	.000	1550.000
7.490	6600.000	840.309	2.720	.510	.309	.000	.000	1550.000
7.490	7700.000	841.720	1.411	.465	1.720	.000	.000	1550.000
7.490	10800.000	845.051	3.331	.406	5.051	.000	.000	1550.000
7.540	6000.000	839.761	.000	-.002	-.459	.000	.000	200.000
7.540	7700.000	841.694	1.993	-.027	1.524	.000	.000	200.000
7.540	4350.000	837.613	-4.080	.024	-2.557	.000	.000	200.000
7.540	6600.000	840.299	2.686	-.010	.129	.000	.000	200.000
7.540	7700.000	841.694	1.394	-.027	1.524	.000	.000	200.000
7.540	10800.000	844.980	3.286	-.071	4.810	.000	.000	200.000
7.550	6000.000	839.733	.000	.032	-.437	.000	.000	30.000
7.550	7700.000	841.798	2.065	.104	1.628	.000	.000	30.000
7.550	4350.000	837.637	-4.161	.024	-2.533	.000	.000	30.000

7.550	6600.000	840.376	2.698	.036	.166	.000	.000	30.000
7.550	7700.000	841.728	1.463	.104	1.628	.000	.000	30.000
7.550	10800.000	845.336	3.588	.406	5.216	.000	.000	30.000
7.560	6600.000	839.976	.000	.243	-.324	.000	.000	50.000
7.560	7700.000	842.113	2.127	.305	1.803	.000	.000	50.000
7.560	4350.000	837.806	-4.297	.169	-2.494	.000	.000	50.000
7.560	6600.000	840.607	2.801	.271	.307	.000	.000	50.000
7.560	7700.000	842.113	1.496	.305	1.803	.000	.000	50.000
7.560	10800.000	845.774	3.671	.387	5.474	.000	.000	50.000
7.980	5600.000	840.430	.000	.454	-.170	.000	.000	2100.000
7.980	7200.000	842.475	2.045	.372	1.875	.000	.000	2100.000
7.980	3890.000	838.341	-4.134	.535	-2.259	.000	.000	2100.000
7.980	6160.000	841.046	2.705	.439	.446	.000	.000	2100.000
7.980	7200.000	842.475	1.429	.372	1.875	.000	.000	2100.000
7.980	10090.000	846.049	3.574	.275	5.449	.000	.000	2100.000
8.480	5600.000	840.785	.000	.356	-.235	.000	.000	2605.000
8.480	7200.000	842.737	1.952	.262	1.717	.000	.000	2605.000
8.480	3890.000	838.779	-3.958	.438	-2.241	.000	.000	2605.000
8.480	6160.000	841.379	2.599	.332	.359	.000	.000	2605.000
8.480	7200.000	842.737	1.359	.262	1.717	.000	.000	2605.000
8.480	10090.000	846.211	3.474	.162	5.191	.000	.000	2605.000
8.500	5600.000	840.823	.000	.038	-.297	.000	.000	120.000
8.500	7200.000	842.762	1.939	.025	1.642	.000	.000	120.000
8.500	3890.000	838.833	-3.929	.054	-2.287	.000	.000	120.000
8.500	6160.000	841.413	2.580	.034	.293	.000	.000	120.000
8.500	7200.000	842.762	1.350	.025	1.642	.000	.000	120.000
8.500	10090.000	846.225	3.462	.013	5.105	.000	.000	120.000
8.510	5600.000	840.888	.000	.065	-.252	.000	.000	25.000
8.510	7200.000	842.838	1.950	.075	1.698	.000	.000	25.000
8.510	3890.000	838.878	-3.960	.045	-2.252	.000	.000	25.000
8.510	6160.000	841.484	2.605	.071	.344	.000	.000	25.000
8.510	7200.000	842.838	1.355	.076	1.698	.000	.000	25.000
8.510	10090.000	846.321	3.483	.096	5.181	.000	.000	25.000
8.520	5600.000	840.891	.000	.003	-.249	.000	.000	50.000
8.520	7200.000	842.841	1.950	.003	1.701	.000	.000	50.000
8.520	3890.000	838.882	-3.960	.003	-2.258	.000	.000	50.000
8.520	6160.000	841.487	2.605	.003	.347	.000	.000	50.000
8.520	7200.000	842.841	1.354	.003	1.701	.000	.000	50.000
8.520	10090.000	846.323	3.482	.002	5.183	.000	.000	50.000
8.860	5600.000	841.446	.000	.555	-1.154	.000	.000	2075.000
8.860	7200.000	843.238	1.792	.396	.638	.000	.000	2075.000
8.860	3890.000	839.680	-3.638	.718	-3.000	.000	.000	2075.000
8.860	6160.000	841.999	2.399	.512	-.601	.000	.000	2075.000
8.860	7200.000	843.238	1.239	.396	.638	.000	.000	2075.000
8.860	10090.000	846.548	3.310	.225	3.948	.000	.000	2075.000
9.340	5600.000	842.516	.000	1.060	.236	.000	.000	2670.000
9.340	7200.000	844.113	1.597	.865	1.803	.000	.000	2670.000
9.340	3890.000	840.780	-3.323	1.181	-1.520	.000	.000	2670.000
9.340	6160.000	843.019	2.238	1.019	.719	.000	.000	2670.000
9.340	7200.000	844.103	1.094	.865	1.803	.000	.000	2670.000
9.340	10090.000	847.110	3.007	.562	4.810	.000	.000	2670.000
9.350	5600.000	842.482	.000	-.024	.182	.000	.000	50.000

9.350	7200.000	844.0[illegible]8	1.576	-.045	1.758	.000	.000	50.000
9.350	3890.000	840.7[illegible]0	-3.278	-.000	-1.520	.000	.000	50.000
9.350	6160.000	842.9[illegible]7	2.207	-.032	.697	.000	.000	50.000
9.350	7200.000	844.0[illegible]8	1.071	-.045	1.758	.000	.000	50.000
9.350	10090.000	847.0[illegible]5	2.996	-.056	4.755	.000	.000	50.000
9.360	5600.000	842.4[illegible]7	.000	.015	.197	.000	.000	45.000
9.360	7200.000	844.077	1.580	.019	1.777	.000	.000	45.000
9.360	3890.000	840.790	-3.297	.010	-1.510	.000	.000	45.000
9.360	6160.000	843.0[illegible]4	2.214	.017	.704	.000	.000	45.000
9.360	7200.000	844.077	1.073	.019	1.777	.000	.000	45.000
9.360	10090.000	847.2[illegible]1	3.154	.177	4.931	.000	.000	45.000
9.370	5600.000	842.5[illegible]1	.000	.004	.201	.000	.000	50.000
9.370	7200.000	844.072	1.571	-.005	1.772	.000	.000	50.000
9.370	3890.000	840.8[illegible]0	-3.272	.010	-1.500	.000	.000	50.000
9.370	6160.000	843.0[illegible]5	2.206	.002	.705	.000	.000	50.000
9.370	7200.000	844.072	1.067	-.005	1.772	.000	.000	50.000
9.370	10090.000	847.183	3.111	-.048	4.883	.000	.000	50.000
9.420	5600.000	842.4[illegible]2	.000	-.049	.112	.000	.000	50.000
9.420	7200.000	843.909	1.547	-.073	1.659	.000	.000	50.000
9.420	3890.000	840.774	-3.225	-.026	-1.556	.000	.000	50.000
9.420	6160.000	842.948	2.174	-.057	.608	.000	.000	50.000
9.420	7200.000	843.909	1.051	-.073	1.659	.000	.000	50.000
9.420	10090.000	847.2[illegible]3	3.204	.020	4.853	.000	.000	50.000
9.430	5600.000	842.7[illegible]0	.000	.318	-.130	.000	.000	45.000
9.430	7200.000	844.592	1.822	.593	1.692	.000	.000	45.000
9.430	3890.000	840.8[illegible]3	-3.759	.059	-2.067	.000	.000	45.000
9.430	6160.000	843.379	2.545	.431	.479	.000	.000	45.000
9.430	7200.000	844.592	1.213	.593	1.692	.000	.000	45.000
9.430	10090.000	847.2[illegible]2	2.609	-.001	4.302	.000	.000	45.000
9.440	5600.000	843.0[illegible]3	.000	.283	.113	.000	.000	50.000
9.440	7200.000	844.9[illegible]1	1.888	.349	2.031	.000	.000	50.000
9.440	3890.000	841.019	-3.922	.186	-1.921	.000	.000	50.000
9.440	6160.000	843.688	2.669	.309	.748	.000	.000	50.000
9.440	7200.000	844.9[illegible]1	1.254	.349	2.031	.000	.000	50.000
9.440	10090.000	847.296	2.355	.095	4.356	.000	.000	50.000
9.650	5600.000	843.6[illegible]5	.000	.582	.335	.000	.000	1430.000
9.650	7200.000	845.549	1.913	.507	2.249	.000	.000	1430.000
9.650	3890.000	841.5[illegible]6	-3.992	.537	-1.744	.000	.000	1430.000
9.650	6160.000	844.284	2.728	.397	.984	.000	.000	1430.000
9.650	7200.000	845.549	1.264	.507	2.249	.000	.000	1430.000
9.650	10090.000	848.043	2.494	.746	4.743	.000	.000	1430.000
10.230	5600.000	844.116	.000	.480	-.384	.000	.000	2925.000
10.230	7200.000	845.936	1.820	.387	1.436	.000	.000	2925.000
10.230	3890.000	842.147	-3.788	.591	-2.353	.000	.000	2925.000
10.230	6160.000	844.734	2.587	.450	.234	.000	.000	2925.000
10.230	7200.000	845.936	1.201	.387	1.436	.000	.000	2925.000
10.230	10090.000	848.388	2.452	.345	3.888	.000	.000	2925.000
10.800	5600.000	845.6[illegible]0	.000	1.534	-.050	.000	.000	3025.000
10.800	7200.000	847.361	1.712	1.426	1.661	.000	.000	3025.000
10.800	3890.000	843.621	-3.740	1.474	-2.079	.000	.000	3025.000
10.800	6160.000	846.249	2.628	1.515	.549	.000	.000	3025.000
10.800	7200.000	847.361	1.112	1.426	1.661	.000	.000	3025.000
10.800	10090.000	849.756	2.395	1.369	4.056	.000	.000	3025.000

11.330	5600.000	846.543	.000	.893	.103	.000	.000	2900.000
11.330	7200.000	848.276	1.684	.865	1.796	.000	.000	2900.000
11.330	3890.000	844.570	-3.706	.899	-1.920	.000	.000	2900.000
11.330	6160.000	847.138	2.618	.889	.698	.000	.000	2900.000
11.330	7200.000	848.276	1.088	.865	1.796	.000	.000	2900.000
11.330	10090.000	850.623	2.396	.867	4.193	.000	.000	2900.000
11.340	5600.000	846.412	.000	-.130	.212	.000	.000	50.000
11.340	7200.000	848.036	1.624	-.190	1.836	.000	.000	50.000
11.340	3890.000	844.450	-3.586	-.070	-1.750	.000	.000	50.000
11.340	6160.000	846.987	2.537	-.151	.787	.000	.000	50.000
11.340	7200.000	848.036	1.050	-.190	1.836	.000	.000	50.000
11.340	10090.000	850.393	2.357	-.230	4.193	.000	.000	50.000
11.350	5600.000	846.587	.600	.174	-.013	.000	.000	30.000
11.350	7200.000	848.359	1.772	.322	1.759	.000	.000	30.000
11.350	3890.000	844.467	-3.892	.017	-2.133	.000	.000	30.000
11.350	6160.000	847.229	2.762	.242	.629	.000	.000	30.000
11.350	7200.000	848.359	1.129	.322	1.759	.000	.000	30.000
11.350	10090.000	850.394	2.035	.000	3.794	.000	.000	30.000
11.360	5600.000	846.988	.000	.401	-.072	.000	.000	50.000
11.360	7200.000	848.919	1.921	.550	1.849	.000	.000	50.000
11.360	3890.000	844.714	-4.205	.237	-2.356	.000	.000	50.000
11.360	6160.000	847.693	2.980	.454	.623	.000	.000	50.000
11.360	7200.000	848.919	1.225	.550	1.849	.000	.000	50.000
11.360	10090.000	851.075	2.167	.692	4.015	.000	.000	50.000
11.750	5600.000	847.591	.000	.504	.191	.000	.000	2000.000
11.750	7200.000	849.469	1.877	.560	2.059	.000	.000	2000.000
11.750	3890.000	845.356	-4.112	.553	-2.044	.000	.000	2000.000
11.750	6160.000	848.270	2.914	.587	.870	.000	.000	2000.000
11.750	7200.000	849.469	1.198	.560	2.059	.000	.000	2000.000
11.750	10090.000	851.602	2.223	.615	4.292	.000	.000	2000.000
12.530	5600.000	848.470	.000	.879	.770	.000	.000	3625.000
12.530	7200.000	850.357	1.887	.889	2.657	.000	.000	3625.000
12.530	3890.000	846.191	-4.166	.835	-1.509	.000	.000	3625.000
12.530	6160.000	849.155	2.964	.885	1.455	.000	.000	3625.000
12.530	7200.000	850.357	1.202	.889	2.657	.000	.000	3625.000
12.530	10090.000	852.705	2.348	1.013	5.005	.000	.000	3625.000
13.420	5360.000	848.818	.000	.348	.318	.000	.000	4025.000
13.420	6890.000	850.687	1.869	.329	2.187	.000	.000	4025.000
13.420	3710.000	846.566	-4.121	.374	-1.934	.000	.000	4025.000
13.420	5890.000	849.496	2.930	.340	.996	.000	.000	4025.000
13.420	6890.000	850.687	1.191	.329	2.187	.000	.000	4025.000
13.420	9680.000	853.058	2.371	.353	4.558	.000	.000	4025.000
13.910	5360.000	848.991	.000	.174	.191	.000	.000	3500.000
13.910	6890.000	850.839	1.848	.153	2.039	.000	.000	3500.000
13.910	3710.000	846.775	-4.064	.209	-2.025	.000	.000	3500.000
13.910	5890.000	849.661	2.885	.165	.861	.000	.000	3500.000
13.910	6890.000	850.839	1.179	.153	2.039	.000	.000	3500.000
13.910	9680.000	853.211	2.372	.153	4.411	.000	.000	3500.000
13.920	5360.000	848.971	.000	-.020	.171	.000	.000	50.000
13.920	6890.000	850.833	1.862	-.007	2.033	.000	.000	50.000
13.920	3710.000	846.703	-4.130	-.072	-2.097	.000	.000	50.000
13.920	5890.000	849.647	2.944	-.014	.847	.000	.000	50.000

13.920	6890.000	850.873	1.196	-.007	2.033	.000	.000	50.000
13.920	9680.000	853.209	2.377	-.002	4.409	.000	.000	50.000
13.930	5360.000	849.012	.000	.032	.202	.000	.000	25.000
13.930	6890.000	850.836	1.893	.063	2.096	.000	.000	25.000
13.930	3710.000	846.809	-4.097	.105	-1.991	.000	.000	25.000
13.930	5890.000	849.692	2.884	.045	.892	.000	.000	25.000
13.930	6890.000	850.836	1.204	.063	2.096	.000	.000	25.000
13.930	9680.000	853.298	2.432	.088	4.498	.000	.000	25.000
13.940	5360.000	849.070	.000	.068	.270	.000	.000	50.000
13.940	6890.000	850.923	1.853	.027	2.123	.000	.000	50.000
13.940	3710.000	846.959	-3.954	.160	-1.831	.000	.000	50.000
13.940	5890.000	849.740	2.771	.048	.940	.000	.000	50.000
13.940	6890.000	850.923	1.193	.027	2.123	.000	.000	50.000
13.940	9680.000	853.389	2.386	.011	4.509	.000	.000	50.000
14.510	5360.000	849.793	.000	.713	.283	.000	.000	2900.000
14.510	6890.000	851.527	1.744	.605	2.027	.000	.000	2900.000
14.510	3710.000	847.812	-3.716	.843	-1.688	.000	.000	2900.000
14.510	5890.000	850.408	2.597	.668	.908	.000	.000	2900.000
14.510	6890.000	851.527	1.119	.605	2.027	.000	.000	2900.000
14.510	9680.000	853.875	2.348	.567	4.375	.000	.000	2900.000
15.130	5360.000	850.472	.000	.689	.172	.000	.000	3400.000
15.130	6890.000	852.147	1.675	.520	1.847	.000	.000	3400.000
15.130	3710.000	848.565	-3.583	.753	-1.735	.000	.000	3400.000
15.130	5890.000	851.070	2.506	.662	.770	.000	.000	3400.000
15.130	6890.000	852.147	1.077	.520	1.847	.000	.000	3400.000
15.130	9680.000	854.483	2.335	.607	4.183	.000	.000	3400.000
15.610	5360.000	851.103	.000	.631	.193	.000	.000	2600.000
15.610	6890.000	852.726	1.623	.579	1.816	.000	.000	2600.000
15.610	3710.000	849.235	-3.491	.670	-1.675	.000	.000	2600.000
15.610	5890.000	851.682	2.447	.611	.772	.000	.000	2600.000
15.610	6890.000	852.726	1.044	.579	1.816	.000	.000	2600.000
15.610	9680.000	855.049	2.323	.566	4.139	.000	.000	2600.000
15.620	5360.000	851.092	.000	-.011	.392	.000	.000	50.000
15.620	6890.000	852.690	1.598	-.036	1.990	.000	.000	50.000
15.620	3710.000	849.247	-3.443	.012	-1.453	.000	.000	50.000
15.620	5890.000	851.682	2.415	-.020	.952	.000	.000	50.000
15.620	6890.000	852.690	1.028	-.036	1.990	.000	.000	50.000
15.620	9680.000	854.981	2.290	-.068	4.281	.000	.000	50.000
15.630	5360.000	851.757	.000	.575	.067	.000	.000	60.000
15.630	6890.000	853.818	2.051	1.127	2.118	.000	.000	60.000
15.630	3710.000	849.255	-4.553	.018	-2.435	.000	.000	60.000
15.630	5890.000	852.525	3.261	.863	.825	.000	.000	60.000
15.630	6890.000	853.818	1.292	1.127	2.118	.000	.000	60.000
15.630	9680.000	855.229	1.412	.249	3.529	.000	.000	60.000
15.640	5360.000	852.264	.000	.497	-.246	.000	.000	50.000
15.640	6890.000	854.467	2.203	.650	1.957	.000	.000	50.000
15.640	3710.000	849.575	-4.892	.310	-2.935	.000	.000	50.000
15.640	5890.000	853.075	3.500	.550	.565	.000	.000	50.000
15.640	6890.000	854.467	1.392	.650	1.957	.000	.000	50.000
15.640	9680.000	856.170	1.702	.940	3.650	.000	.000	50.000
16.440	5360.000	854.590	.000	2.316	.580	.000	.000	4440.000
16.440	6890.000	856.391	1.811	1.924	2.391	.000	.000	4440.000

16.440	3710.000	852.514	-3.887	2.929	-1.436	.000	.000	4440.000
16.440	5890.000	855.278	2.724	2.152	1.228	.000	.000	4440.000
16.440	6890.000	856.391	1.163	1.924	2.331	.000	.000	4440.000
16.440	9680.000	858.371	1.980	2.201	4.371	.000	.000	4440.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	.000	.000	1049.010	.000
2	.000	.000	1144.559	95.549
3	.000	.000	939.850	-109.160
4	.000	.000	1083.727	34.717
5	.000	.000	1144.559	95.549
6	.000	.000	1290.305	241.295

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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05, 6,07
MODIFICATIONS 52,53,54,55,56,57
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  06/10/75  MSU HUSTLER 2 L239 LSD 38.14  05/31/75
10.12.08.TR35998
10.12.08.JOB READ-   06/10/75 .10.11.07.
10.12.08.JOHNSON,CM100000,T100,JC1500,RG2,MT1.
10.12.09.LAST ACCESS- B 09.52 06/10/75
10.12.09.RUNS- 0755 USER DOLLAR BALANCE $000206.72
10.12.09.000605     CARDS READ  VALUE  $0000000.61
10.12.09.CP-PP SEC.       .079-      .009  $       .00
10.12.09.NL  012400
10.12.09.RP       00000000  000000 00000
10.12.09.HAL,BANNER,RED CEDAR,RIVER,MERIDIAN,5258-CL.
10.12.10.ZZZZMPL - CYCLE 10, HAL 3, MPL
10.12.10.FILE ATTACHED
10.12.10.HAL 3.14
10.12.16.NL     7700
10.12.16.PP  000000000032  JC0000000503
10.12.16.CP-PP SEC.       .395-     1.812  $       .05
10.12.16.NL  012400
10.12.16.RP       00000036  0000000000515
10.12.27.HAL,BANNER,RED CEDAR,RIVER,MERIDIAN,5258-CL.
10.12.27.ZZZZMPL - CYCLE 10, HAL 3, MPL
10.12.27.FILE ATTACHED
10.12.28.HAL 3.14
10.12.29.NL     7700
10.12.29.RP  000000000070  000000001220
10.12.30.CP-PP SEC.       .697-     3.566  $       .09
10.12.30.NL  012400
10.12.30.RP       00000074  000000001232
10.12.30.HAL,BIGHEC2.
10.12.30.ZZZZMPL - CYCLE 10, HAL 3, MPL
10.12.30.FILE ATTACHED
10.12.30.HAL 3.14
10.14.44. UNIT 15 ASSIGNED TO  HEC2     - TAPE IS HA.003
10.14.46.NL    71300
10.14.46.RP  000000000115  000000 01437
10.14.51.EXEC BEGUN.10.14.51.
10.19.17.STOP
10.19.17.$ MT15  RETURNED
10.19.17.MAX FILES 0008 MAX PRUS 1022003.
10.19.17.PP    22.814 SEC.   CHT      4.337 SEC.
10.19.17.PP  000000000663  000000 05020
10.19.17.CP USE    69.081 SEC    VALUE$      3.07
10.19.17.PP USE    46.076 SEC    VALUE$       .13 (      .14)
10.19.17.CM USE    13.710 W-H    VALUE$      3.69 (     3.83)
10.19.17.TP RES   110.680 SEC    VALUE$       .00 (      .09)
10.19.17.TOTAL COMPUTE VALUE AT RG2 $      6.88 (     7.13)
10.19.17.
10.19.17.** THE VALUES IN PARENTHESES (   ) INDICATE WHAT **
10.19.17.** YOUR JOB COST WILL BE  UNDER A FUTURE SYSTEM, **
10.19.18.** DUE TO THE  ADDITION OF  TAPE USAGE  CHARGES. **
10.19.18.
11.02.30..000099 PAGES PRINT. 004977 LINES PRINT. FOR $ 005.51 AT RG2.
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SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORREDTIONS 01,02,03,04,05, 6,07
MODIFICATIONS 52,53,54,55,56,57
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T1       MERIDIAN TOWNSHIP, MICHIGAN
T2       FLOOD OF APRIL 1975                    5.CC CFS
T3       RED CEDAR RIVER 3250 CT
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-.	8.	-.	-.	-.000000	-.00	-.0	-.	835.600	-.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	1.000	10.000	11.000	12.000	3.000	9.000	17.000	-.000	-.000	-.000
NC	.050	.350	.028	.300	.500	-.010	-.000	-.000	-.000	-.000
QT	7.000	5920.000	7700.000	4350.000	5600.000	7700.000	10800.000	6000.000	-.000	-.000
X1	5.640	28.000	133.000	217.000	-.000	-.000	-.000	-.000	-.000	-.000
X2	-.000	835.600	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	837.500	.000	835.400	25.000	835.000	75.000	830.900	125.000	830.200	130.000
GR	828.000	133.000	827.500	135.000	826.500	140.000	822.900	145.000	822.000	150.000
GR	822.000	155.000	822.000	160.000	821.900	165.000	822.000	170.000	822.000	175.000
GR	822.300	180.000	822.500	185.000	822.400	190.000	822.900	195.000	823.400	200.000
GR	825.000	205.000	826.000	210.000	827.300	215.000	828.000	217.000	833.500	220.000
GR	834.300	225.000	839.000	275.000	842.700	325.000	-.000	-.000	-.000	-.000
X1	5.660	24.000	600.000	706.000	130.000	130.000	130.000	-.000	-.000	-.000
X2	-.000	835.820	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	844.600	.000	842.300	50.000	842.300	100.000	842.100	150.000	841.300	200.000
GR	840.000	250.000	838.200	300.000	837.400	350.000	838.400	400.000	838.600	450.000
GR	838.700	500.000	841.400	547.000	841.900	600.000	831.700	600.000	829.600	605.000
GR	827.800	610.000	824.000	620.000	821.500	630.000	821.700	670.000	824.600	685.000
GR	835.600	706.000	841.600	706.000	843.800	750.000	844.900	885.000	-.000	-.000
SB	-.000	1.500	2.600	-.000	70.000	-.000	1360.000	.330	821.700	821.700
X1	5.670	-.000	-.000	-.000	17.000	17.000	17.000	-.000	-.000	-.000
X2	-.000	835.800	1.000	837.900	837.400	-.000	-.000	-.000	-.000	-.000
BT	18.000	.000	844.600	.000	50.000	842.300	.000	100.000	842.300	.000
BT	150.000	842.100	.000	200.000	841.300	.000	250.000	840.000	.000	300.000
BT	838.200	.000	350.000	837.400	.000	400.000	838.400	.000	450.000	838.600
BT	.000	500.000	838.700	.000	547.000	841.400	.000	600.000	841.900	841.900
BT	600.000	842.500	837.900	706.000	842.500	837.900	706.000	841.600	841.600	750.000
BT	843.800	.000	885.000	844.900	.000	-.000	-.000	-.000	-.000	-.000
X1	5.680	28.000	133.000	217.000	50.000	50.000	50.000	-.000	-.300	-.000
X2	-.000	835.900	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	837.500	.000	835.400	25.000	835.000	75.000	830.900	125.000	830.200	130.000
GR	828.000	133.000	827.500	135.000	826.500	140.000	822.900	145.000	822.000	150.000
GR	822.000	155.000	822.000	160.000	821.900	165.000	822.000	170.000	822.000	175.000
GR	822.300	180.000	822.500	185.000	822.400	190.000	822.900	195.000	823.400	200.000
GR	825.000	205.000	826.000	210.000	827.300	215.000	828.000	217.000	833.500	220.000
GR	834.300	225.000	839.000	275.000	842.700	325.000	-.000	-.000	-.000	-.000

X1	5.830	46.000	558.000	642.000	890.000	890.000	890.000	-.000	-.000	-.000
X2	-.000	836.100	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	844.100	.000	844.400	50.000	844.600	100.000	844.200	150.000	843.800	200.000
GR	843.200	250.000	843.000	300.000	842.900	350.000	843.300	400.000	844.000	450.000
GR	843.400	475.000	839.800	500.000	837.800	525.000	830.500	550.000	827.600	558.000
GR	826.400	560.000	822.900	565.000	821.600	570.000	821.400	575.000	821.400	580.000
GR	821.400	585.000	821.100	590.000	820.900	595.000	820.700	600.000	821.000	605.000
GR	820.100	610.000	821.200	615.000	821.400	620.000	821.700	625.000	822.500	630.000
GR	824.200	635.000	826.500	640.000	827.000	642.000	843.000	670.000	845.000	700.000
GR	847.000	750.000	847.100	800.000	848.000	850.000	849.400	900.000	850.700	950.000
GR	852.000	1000.000	853.500	1050.000	854.600	1100.000	855.900	1150.000	856.100	1191.000
GR	855.900	1200.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	5.840	33.000	532.000	647.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	836.340	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	843.100	.000	842.700	50.000	842.300	100.000	841.700	150.000	841.200	200.000
GR	842.500	532.000	829.400	532.000	829.200	537.000	824.900	545.000	824.200	549.000
GR	823.300	556.000	823.200	561.000	823.200	563.000	823.100	567.000	823.100	572.000
GR	821.800	582.000	821.100	592.000	821.300	602.000	820.900	612.000	821.000	616.000
GR	821.500	622.000	822.100	627.000	823.300	632.000	824.000	637.000	829.000	642.000
GR	829.300	647.000	844.400	647.000	845.700	700.000	847.300	800.000	850.100	900.000
GR	853.600	1000.000	856.100	1100.000	856.400	1200.000	-.000	-.000	-.000	-.000
SB	1.050	1.500	2.600	-.000	75.000	8.000	1922.000	.125	821.000	821.000
X1	5.850	-.000	-.000	-.000	70.000	70.000	70.000	-.000	-.000	-.000
X2	-.000	836.400	1.000	840.600	841.200	-.000	-.000	-.000	-.000	-.000
BT	36.000	.000	843.100	.000	50.000	842.700	.000	100.000	842.300	.000
BT	150.000	841.700	.000	200.000	841.200	.000	532.000	842.500	842.500	532.000
BT	842.500	836.300	537.000	842.500	838.000	545.000	842.600	839.000	549.000	842.600
BT	838.900	556.000	842.800	838.500	561.000	843.000	837.700	563.000	843.000	836.900
BT	563.000	843.000	823.200	567.000	843.100	823.200	567.000	843.100	836.900	572.000
BT	843.200	838.500	582.000	843.400	839.600	592.000	843.500	839.900	602.000	843.500
BT	839.300	612.000	843.700	837.900	612.000	843.700	820.900	616.000	843.800	821.000
BT	616.000	843.800	837.900	622.000	843.900	839.600	627.000	844.000	840.100	632.000
BT	844.100	840.500	637.000	844.200	840.350	642.000	844.300	839.800	647.000	844.400
BT	838.500	647.000	844.400	844.400	700.000	845.700	.000	800.000	847.800	.000
BT	900.000	850.100	.000	1000.000	853.500	.000	1100.000	856.100	.000	-.000
X1	5.860	46.000	558.000	642.000	50.000	50.000	50.000	-.000	.800	-.000
X2	-.000	836.400	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	844.100	.000	844.400	50.000	844.600	100.000	844.200	150.000	843.800	200.000
GR	843.200	250.000	843.000	300.000	842.900	350.000	843.300	400.000	844.000	450.000
GR	843.400	475.000	839.800	500.000	837.800	525.000	830.500	550.000	827.600	558.000
GR	826.400	560.000	822.900	565.000	821.600	570.000	821.400	575.000	821.400	580.000
GR	821.400	585.000	821.100	590.000	820.900	595.000	820.700	600.000	821.000	605.000
GR	820.100	610.000	821.200	615.000	821.400	620.000	821.700	625.000	822.500	630.000
GR	824.200	635.000	826.500	640.000	827.000	642.000	843.000	670.000	845.000	700.000
GR	847.000	750.000	847.100	800.000	848.000	850.000	849.400	900.000	850.700	950.000
GR	852.000	1000.000	853.500	1050.000	854.600	1100.000	855.900	1150.000	856.100	1191.000
GR	855.900	1200.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	6.170	47.000	558.000	653.000	1452.000	1452.000	1452.000	-.000	-.000	-.000
X2	-.000	836.700	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	849.400	.000	848.600	50.000	848.100	100.000	847.400	150.000	846.600	200.000
GR	845.600	250.000	844.500	300.000	844.400	350.000	841.900	400.000	835.000	450.000
GR	830.800	500.000	829.600	545.000	827.600	547.000	827.000	550.000	825.100	555.000
GR	823.800	560.000	823.400	565.000	823.100	570.000	822.400	575.000	822.300	580.000
GR	822.400	585.000	822.900	590.000	822.900	595.000	823.200	600.000	823.100	605.000
GR	823.700	610.000	823.700	615.000	823.700	620.000	823.100	625.000	823.300	630.000
GR	824.100	635.000	824.900	640.000	826.100	640.000	827.400	650.000	828.100	653.000

GR	829.500	655.000	833.700	700.000	838.300	750.000	841.500	800.000	841.800	850.000
GR	841.600	900.000	841.400	950.000	841.500	1000.000	842.100	1050.000	843.500	1100.000
GR	844.600	1150.000	844.800	1200.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	5.180	29.000	513.000	683.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	836.700	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	850.800	.000	847.300	100.000	844.500	200.000	844.000	300.000	843.600	400.000
GR	843.200	500.000	843.200	513.000	835.700	513.000	835.500	518.000	830.400	530.000
GR	827.500	551.000	825.100	568.000	825.100	571.000	821.800	588.000	821.800	625.000
GR	823.100	628.000	824.100	633.000	825.500	643.000	831.300	660.000	831.500	670.000
GR	835.300	678.000	835.400	683.000	842.800	683.000	842.500	700.000	842.300	800.000
GR	841.200	900.000	841.800	1000.000	843.200	1100.000	846.000	1200.000	-.000	-.000
SB	1.050	1.500	2.600	-.000	60.000	6.000	2007.000	.310	821.800	821.800
X1	6.190	-.000	-.000	-.000	75.000	75.000	75.000	-.000	-.000	-.000
X2	-.000	836.900	1.000	838.500	841.200	-.000	-.000	-.000	-.000	-.000
BT	24.000	.000	850.800	.000	100.000	847.300	.000	200.000	844.600	.000
BT	300.000	844.000	.000	400.000	843.600	.000	500.000	843.200	.000	513.000
BT	843.200	843.200	513.000	843.200	838.500	568.000	843.100	838.300	568.000	843.100
BT	825.100	571.000	843.100	825.100	571.000	843.100	838.300	625.000	842.800	838.100
BT	625.000	842.800	821.800	628.000	842.800	823.100	628.000	842.800	839.100	683.000
BT	842.800	837.900	683.000	842.800	842.800	700.000	842.500	.000	800.000	842.300
BT	.000	900.000	841.200	.000	1000.000	841.800	.000	1100.000	843.200	.000
BT	1200.000	846.000	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
NC	.125	.125	.035	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	6.200	47.000	550.000	653.000	50.000	50.000	50.000	-.000	.500	-.000
X2	-.000	836.800	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	849.400	.000	848.600	50.000	848.100	100.000	847.400	150.000	846.600	200.000
GR	845.600	250.000	844.500	300.000	844.400	350.000	841.900	400.000	835.000	450.000
GR	830.800	500.000	829.600	545.000	827.500	547.000	827.000	550.000	825.100	555.000
GR	823.800	560.000	823.400	565.000	823.100	570.000	822.400	575.000	822.300	580.000
GR	822.400	585.000	822.900	590.000	822.900	595.000	823.200	600.000	823.100	605.000
GR	823.700	610.000	823.700	615.000	823.700	620.000	823.100	625.000	823.300	630.000
GR	824.100	635.000	824.900	640.000	826.100	640.000	827.400	650.000	828.100	653.000
GR	829.500	655.000	833.700	700.000	838.300	750.000	841.500	800.000	841.800	850.000
GR	841.600	900.000	841.400	950.000	841.500	1000.000	842.100	1050.000	843.500	1100.000
GR	844.600	1150.000	844.800	1200.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	6.660	41.000	437.000	519.000	2480.000	2480.000	2480.000	-.000	-.000	-.000
X2	-.000	837.520	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	848.500	.000	848.800	28.000	848.600	128.000	849.000	148.000	848.600	178.000
GR	850.500	228.000	849.700	278.000	845.200	328.000	838.900	378.000	834.000	428.000
GR	827.400	437.000	823.500	443.000	822.000	448.000	821.400	453.000	821.300	458.000
GR	821.400	463.000	822.300	468.000	822.000	473.000	822.300	478.000	823.000	483.000
GR	823.500	488.000	823.500	493.000	823.400	498.000	823.200	503.000	823.800	508.000
GR	824.300	513.000	826.400	519.000	831.300	523.000	831.900	528.000	832.000	578.000
GR	829.500	628.000	830.500	678.000	830.500	728.000	832.900	778.000	837.000	828.000
GR	837.200	878.000	837.500	898.000	837.000	928.000	837.400	978.000	837.700	1028.000
GR	839.500	1078.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	6.690	23.000	555.000	640.000	135.000	135.000	135.000	-.000	-.000	-.000
X2	-.000	837.450	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	848.800	.000	849.100	200.000	847.200	400.000	844.400	500.000	843.200	555.000
GR	829.500	555.000	828.200	560.000	826.500	565.000	824.700	570.000	824.200	596.000
GR	824.200	600.700	823.600	605.000	823.000	610.000	824.000	630.000	825.400	635.000
GR	826.400	640.000	843.200	640.000	842.800	700.000	841.000	800.000	839.600	900.000
GR	838.600	1000.000	838.800	1100.000	839.700	1200.000	-.000	-.000	-.000	-.000
SB	1.050	1.500	2.600	-.000	86.000	4.750	1272.000	-.000	823.100	823.100
X1	6.700	-.000	-.000	-.000	50.000	50.000	50.000	-.000	-.000	-.000

X2	-.000	837.750	1.000	839.600	838.600	-.000	-.000	-.000	-.000	-.000
BT	18.000	.000	848.800	.000	200.000	849.100	.000	400.000	847.200	.000
BT	500.000	844.400	.000	555.000	843.200	843.200	555.000	843.200	839.600	596.000
BT	843.200	839.600	596.000	843.200	824.200	600.700	843.200	824.200	500.700	843.200
BT	839.600	640.000	843.200	839.600	640.000	843.200	843.200	700.000	842.800	.000
BT	800.000	841.000	.000	900.000	839.600	.000	1000.000	838.600	.000	1100.000
BT	838.800	.000	1200.000	839.700	.000	-.000	-.000	-.000	-.000	-.000
X1	6.710	41.000	437.000	519.000	50.000	50.000	50.000	-.000	1.700	-.000
X2	-.000	838.060	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	848.500	.000	848.800	28.000	848.600	128.000	849.000	148.000	848.600	178.000
GR	850.500	228.000	849.700	278.000	845.200	328.000	838.900	378.000	834.000	428.000
GR	827.400	437.000	823.500	443.000	822.000	448.000	821.400	453.000	821.300	458.000
GR	821.400	463.000	822.300	468.000	822.000	473.000	822.300	478.000	823.000	483.000
GR	823.500	488.000	823.500	493.000	823.400	498.000	823.200	503.000	823.800	508.000
GR	824.300	513.000	826.400	519.000	831.300	523.000	831.900	528.000	832.000	578.000
GR	829.500	628.000	830.500	678.000	830.500	728.000	832.900	778.000	837.000	828.000
GR	837.200	878.000	837.500	898.000	837.000	928.000	837.400	978.000	837.700	1028.000
GR	839.500	1078.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
NC	.125	.125	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	7.200	48.000	556.000	644.000	2590.000	2590.000	2590.000	-.000	-.000	-.000
X2	-.000	839.200	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	854.200	.000	854.100	50.000	853.300	100.000	852.100	150.000	850.800	200.000
GR	848.100	250.000	849.400	300.000	848.000	350.000	847.000	400.000	845.700	450.000
GR	842.500	500.000	842.000	517.000	831.400	550.000	830.700	553.000	827.900	556.000
GR	827.100	560.000	826.300	565.000	824.400	570.000	824.200	575.000	824.200	580.000
GR	824.200	585.000	824.100	590.000	824.100	595.000	824.800	600.000	824.600	605.000
GR	825.000	610.000	825.100	615.000	825.000	620.000	825.500	625.000	825.600	630.000
GR	826.200	635.000	827.200	640.000	828.000	644.000	830.400	648.000	831.000	700.000
GR	829.800	750.000	830.000	800.000	832.300	850.000	833.300	900.000	834.300	950.000
GR	837.100	1000.000	843.000	1050.000	845.000	1100.000	846.000	1125.000	848.700	1135.000
GR	848.800	1147.000	848.800	1150.000	849.000	1200.000	-.000	-.000	-.000	-.000
X1	7.490	47.000	557.000	643.000	1550.000	1550.000	1550.000	-.000	-.000	-.000
X2	-.000	840.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	850.600	.000	850.800	50.000	852.200	100.000	851.800	150.000	849.900	200.000
GR	849.100	250.000	849.900	300.000	847.700	350.000	847.800	400.000	847.000	450.000
GR	847.100	500.000	847.100	506.000	841.600	515.000	831.100	522.000	830.900	550.000
GR	828.300	557.000	827.500	560.000	827.000	565.000	826.300	570.000	824.500	575.000
GR	823.900	580.000	823.100	585.000	823.000	590.000	823.300	595.000	824.300	600.000
GR	824.000	605.000	824.400	610.000	824.300	615.000	824.000	620.000	824.100	625.000
GR	824.500	630.000	825.000	635.000	826.900	640.000	828.300	643.000	830.100	645.000
GR	831.500	650.000	831.400	700.000	831.400	750.000	829.300	800.000	829.100	850.000
GR	829.300	900.000	829.000	950.000	830.300	1000.000	837.500	1050.000	840.400	1100.000
GR	842.100	1150.000	844.700	1200.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	7.540	44.000	533.000	667.000	200.000	200.000	200.000	-.000	-.000	-.000
X2	-.000	840.170	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	847.900	.000	847.900	500.000	848.000	533.000	831.000	533.000	831.400	538.000
GR	831.100	543.000	829.200	548.000	827.100	553.000	826.400	558.000	826.400	563.000
GR	826.300	568.000	827.000	573.000	841.100	573.000	841.100	578.000	827.000	578.000
GR	827.500	580.000	826.900	583.000	826.000	588.000	825.300	593.000	825.400	600.000
GR	825.700	608.000	826.000	613.000	827.900	618.000	841.100	618.000	841.100	623.000
GR	828.200	623.000	826.200	633.000	825.500	638.000	825.900	643.000	826.300	650.000
GR	827.500	658.000	828.400	667.000	848.200	667.000	848.300	700.000	848.600	750.000
GR	848.900	800.000	849.200	850.000	849.600	900.000	849.900	950.000	850.200	1000.000
GR	850.400	1050.000	850.700	1100.000	850.900	1150.000	851.100	1200.000	-.000	-.000
SB	1.050	1.500	2.600	-.000	100.000	11.000	1911.000	.110	825.500	825.500
X1	7.550	-.000	-.000	-.000	30.000	30.000	30.000	-.000	-.000	-.000

X2	-.000	840.170	1.000	841.100	848.200	-.000	-.000	-.000	-.000	-.000
BT	17.000	.000	847.900	.000	500.000	847.900	.000	533.000	848.000	841.100
BT	600.000	848.100	841.100	650.000	848.200	841.100	667.000	848.200	841.000	700.000
BT	848.300	.000	750.000	848.600	.000	800.000	849.900	.000	850.000	849.200
BT	.000	900.000	849.600	.000	950.000	849.900	.000	1000.000	850.200	.000
BT	1050.000	850.400	.000	1100.000	850.700	.000	1150.000	850.900	.000	1200.000
BT	851.100	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	7.560	47.000	557.000	643.000	50.000	50.000	50.000	-.000	2.300	-.000
X2	-.000	840.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	850.600	.000	850.800	50.000	852.200	100.000	851.800	150.000	849.900	200.000
GR	849.100	250.000	849.900	300.000	847.700	350.000	847.800	400.000	847.000	450.000
GR	847.100	500.000	847.100	506.000	841.600	515.000	831.100	522.000	830.900	550.000
GR	828.300	557.000	827.500	560.000	827.000	565.000	826.300	570.000	824.500	575.000
GP	823.900	580.000	823.100	585.000	823.000	590.000	823.300	595.000	824.300	600.000
GR	824.000	605.000	824.400	610.000	824.800	615.000	824.000	620.000	824.100	625.000
GR	824.500	630.000	825.000	635.000	826.900	640.000	828.300	643.000	830.100	645.000
GR	831.500	650.000	831.400	700.000	831.400	750.000	829.300	800.000	829.100	850.000
GR	829.300	900.000	829.000	950.000	830.300	1000.000	837.500	1050.000	840.400	1100.000
GR	842.100	1150.000	844.700	1200.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	7.980	55.000	575.000	682.000	2100.000	2100.000	2100.000	-.000	-.000	-.000
QT	7.000	5530.000	7200.000	3890.000	6160.000	7200.000	10390.000	5600.000	-.000	-.000
X2	-.000	840.500	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	837.400	.000	838.000	50.000	840.000	100.000	840.200	130.000	850.000	150.000
GR	866.100	177.000	866.700	208.000	866.400	240.000	852.200	265.000	843.800	280.000
GR	839.700	300.000	836.000	350.000	834.400	400.000	830.400	450.000	842.800	477.000
GR	842.600	507.000	831.100	525.000	829.300	550.000	829.200	575.000	828.100	580.000
GR	827.600	535.000	826.900	590.000	826.500	595.000	825.100	600.000	825.000	605.000
GR	824.600	610.000	824.100	615.000	822.500	620.000	821.800	625.000	821.500	630.000
GR	822.000	635.000	822.500	640.000	822.600	645.000	823.100	650.000	824.000	655.000
GR	824.500	660.000	825.100	665.000	825.000	670.000	826.900	675.000	828.600	678.000
GR	832.200	682.000	832.600	700.000	834.000	750.000	831.200	800.000	832.600	850.000
GR	833.000	900.000	834.700	950.000	831.900	1000.000	832.500	1050.000	833.000	1100.000
GR	832.400	1150.000	835.000	1200.000	834.900	1250.000	840.000	1900.000	850.000	2200.000
X1	8.480	43.000	365.000	435.000	2605.000	2605.000	2605.000	-.000	-.000	-.000
X2	-.000	841.020	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	831.100	.000	831.900	50.000	832.200	70.000	836.900	90.000	837.000	100.000
GR	837.300	126.000	837.000	150.000	839.200	200.000	840.400	250.000	840.300	300.000
GR	840.400	319.000	839.300	350.000	828.400	365.000	826.500	370.000	826.200	375.000
GR	826.500	380.000	825.700	385.000	825.500	390.000	825.400	395.000	825.500	400.000
GR	825.500	405.000	825.700	410.000	826.000	415.000	826.300	420.000	826.500	425.000
GR	827.300	430.000	828.900	435.000	834.300	440.000	834.100	449.000	838.900	461.000
GR	837.000	500.000	836.000	550.000	834.500	600.000	834.800	650.000	835.500	700.000
GR	834.800	750.000	834.000	800.000	833.000	850.000	834.500	900.000	835.500	950.000
GR	833.900	1000.000	839.500	1500.000	849.400	2600.000	-.000	-.000	-.000	-.000
X1	8.500	36.000	596.000	704.000	120.000	120.000	120.000	-.000	-.000	-.000
X2	-.000	841.120	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	840.000	.000	834.900	100.000	831.500	200.000	831.800	300.000	838.000	400.000
GR	841.300	500.000	841.500	596.000	836.700	596.000	836.700	596.500	833.700	596.500
GR	833.300	599.000	829.500	599.000	829.500	601.000	827.900	606.000	827.000	626.000
GR	826.400	631.000	826.100	636.000	825.900	648.000	825.900	652.000	826.200	666.000
GR	826.100	686.000	831.800	691.000	833.200	696.000	833.900	701.000	834.200	703.500
GR	836.500	703.500	836.500	704.000	841.300	704.000	836.500	800.000	835.000	900.000
GR	835.100	1000.000	834.200	1100.000	835.200	1200.000	834.600	1250.000	840.000	1700.000
GR	850.000	2500.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
SB	.900	1.500	2.600	-.000	60.000	4.000	944.000	.182	826.100	826.100
X1	8.510	-.000	-.000	-.000	25.000	25.000	25.000	-.000	-.000	-.000

X2	-.000	841.140	1.0[illegible]	837.300	831.800	-.000	-.000	-.000	-.000	-.000
BT	20.000	.000	840.0[illegible]	.000	100.000	834.900	.000	200.000	831.500	.000
BT	300.000	831.800	.000	400.000	838.000	.000	500.000	841.300	.000	596.000
BT	841.500	841.500	596.000	841.500	837.300	648.000	841.600	837.300	548.000	841.600
BT	825.900	552.000	841.600	825.900	552.000	841.600	837.200	704.000	841.300	837.200
BT	704.000	841.300	841.300	800.000	836.500	.000	900.000	835.000	.000	1000.000
BT	835.100	.000	1100.000	834.200	.000	1200.000	835.200	.000	1250.000	834.600
BT	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	8.520	47.000	365.000	435.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	841.140	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	831.100	.000	831.900	50.000	832.200	70.000	836.900	90.000	837.000	100.000
GR	837.300	126.000	837.000	150.000	839.200	200.000	840.400	250.000	840.300	300.000
GR	840.400	319.000	839.300	350.000	828.400	365.000	826.500	370.000	826.200	375.000
GR	826.500	380.000	825.700	385.000	825.500	390.000	825.400	395.000	825.500	400.000
GR	825.500	405.000	825.700	410.000	826.000	415.000	826.300	420.000	826.500	425.000
GR	827.300	430.000	828.900	435.000	834.300	440.000	834.100	449.000	838.900	461.000
GR	837.000	500.000	836.000	550.000	834.500	600.000	834.800	650.000	835.500	700.000
GR	834.800	750.000	834.000	800.000	833.000	850.000	834.500	900.000	835.500	950.000
GR	833.900	1000.000	839.500	1500.000	849.400	2600.000	-.000	-.000	-.000	-.000
NC	.100	.100	.[illegible]	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	8.860	46.000	565.000	635.000	2075.000	2075.000	2075.000	-.000	-.000	-.000
X2	-.000	842.600	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	849.500	.000	845.200	35.000	844.900	50.000	842.500	100.000	839.900	150.000
GR	839.400	200.000	839.300	228.000	839.000	250.000	838.700	300.000	838.800	350.000
GR	838.700	400.000	838.900	450.000	839.700	500.000	838.600	533.000	834.900	550.000
GR	831.700	563.000	829.400	565.000	827.800	570.000	827.400	575.000	827.600	580.000
GR	826.500	585.000	826.700	590.000	826.900	595.000	827.200	600.000	827.300	605.000
GR	827.300	610.000	827.300	615.000	827.500	620.000	827.300	625.000	827.500	630.000
GR	829.100	635.000	836.100	645.000	836.400	650.000	835.100	675.000	834.800	700.000
GR	836.200	750.000	836.500	800.000	835.400	850.000	837.000	900.000	843.200	950.000
GR	844.500	1000.000	844.200	1050.000	842.700	1100.000	841.400	1150.000	841.700	1163.000
GR	841.800	1200.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	9.340	34.000	569.000	631.000	2670.000	2670.000	2670.000	-.000	-.000	-.000
X2	-.000	842.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	835.300	.000	836.400	50.000	836.200	100.000	837.100	150.000	835.900	200.000
GR	836.400	250.000	837.200	300.000	837.500	350.000	836.500	400.000	835.800	450.000
GR	837.300	491.000	837.500	533.000	836.400	550.000	836.300	565.000	830.500	569.000
GR	829.800	570.000	827.500	580.000	825.900	585.000	826.200	590.000	825.800	595.000
GR	826.000	600.000	826.900	605.000	828.000	610.000	828.200	615.000	828.500	620.000
GR	829.200	625.000	829.200	625.000	830.500	631.000	833.400	635.000	840.700	650.000
GR	842.900	655.000	852.200	673.000	852.500	700.000	853.000	727.000	-.000	-.000
X1	9.350	35.000	513.000	687.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	842.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	845.200	.000	844.800	100.000	844.300	200.000	844.500	300.000	845.800	400.000
GR	847.700	500.000	847.900	513.000	841.100	513.000	840.900	518.000	839.800	523.000
GR	836.200	538.000	834.400	543.000	832.700	548.000	829.500	553.000	829.100	558.000
GR	828.300	561.000	828.300	564.000	828.100	588.000	827.800	593.000	827.300	603.000
GR	827.500	618.000	828.000	630.000	827.600	633.000	834.400	658.000	838.600	668.000
GR	842.400	678.000	843.100	683.000	843.200	687.000	851.500	687.000	851.600	700.000
GR	853.500	800.000	854.800	900.000	855.300	1000.000	855.400	1100.000	855.600	1200.000
SB	1.050	1.500	2.600	-.000	70.000	6.000	2460.000	.310	827.200	827.200
X1	9.360	-.000	-.000	-.000	45.000	45.000	45.000	-.000	-.000	-.000
X2	-.000	842.300	1.000	847.300	844.500	-.000	-.000	-.000	-.000	-.000
BT	24.000	.000	845.200	.000	100.000	844.800	.000	200.000	844.300	.000
BT	300.000	844.500	.000	400.000	845.800	.000	500.000	847.700	.000	513.000
BT	847.900	847.900	513.000	847.900	843.900	561.000	849.700	845.700	561.000	849.700

BT	828.300	564.000	849.800	828.300	564.000	849.800	845.500	630.000	849.800	845.500
BT	630.000	849.300	828.000	533.000	849.900	827.600	633.000	849.900	845.500	687.000
BT	851.500	847.300	687.000	851.500	851.500	700.000	851.500	.000	900.000	853.500
BT	.000	900.000	854.800	.000	1000.000	855.300	.000	1100.000	855.400	.000
BT	1200.000	855.500	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	9.370	16.000	180.000	295.000	50.000	50.000	50.000	-.000	1.400	-.000
X2	-.000	842.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	845.100	.000	845.700	50.000	845.400	100.000	845.900	150.000	843.600	165.000
GR	839.500	180.000	828.500	190.000	828.300	195.000	828.800	200.000	825.900	290.000
GR	836.700	295.000	839.500	305.000	844.200	315.000	846.000	330.000	848.300	380.000
GR	849.500	430.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	9.420	22.000	555.000	645.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	842.340	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	845.400	.000	845.100	100.000	844.700	200.000	844.400	300.000	844.700	400.000
GR	844.900	500.000	845.100	555.000	828.900	555.000	828.500	560.000	828.500	565.000
GR	828.300	570.000	828.800	575.000	828.800	632.000	841.800	632.000	841.800	645.000
GR	845.100	645.000	845.200	700.000	847.500	800.000	851.400	900.000	854.400	1000.000
GR	855.500	1100.000	855.600	1200.000	-.000	-.000	-.000	-.000	-.000	-.000
SB	-.000	1.500	2.600	-.000	90.000	-.000	1003.500	-.000	828.600	828.600
X1	9.430	-.000	-.000	-.000	45.000	45.000	45.000	-.000	-.000	-.000
X2	-.000	842.900	1.000	841.800	844.400	-.000	-.000	-.000	-.000	-.000
BT	16.000	.000	845.400	.000	100.000	845.100	.000	200.000	844.700	.000
BT	300.000	844.400	.000	400.000	844.700	.000	500.000	844.900	.000	555.000
BT	845.100	845.100	555.000	845.100	841.800	645.000	845.100	841.800	645.000	845.100
BT	845.100	700.000	845.200	.000	800.000	847.500	.000	900.000	851.400	.000
BT	1000.000	854.400	.000	1100.000	855.500	.000	1200.000	855.600	.000	-.000
X1	9.440	16.000	180.000	295.000	50.000	50.000	50.000	-.000	2.400	-.000
X2	-.000	842.940	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	845.100	.000	845.700	50.000	845.400	100.000	845.900	150.000	843.600	165.000
GR	839.500	180.000	828.500	190.000	828.300	195.000	828.800	200.000	825.900	290.000
GR	836.700	295.000	839.500	305.000	844.200	315.000	846.000	330.000	848.300	380.000
GR	849.500	430.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	9.650	44.000	565.000	635.000	1430.000	1430.000	1430.000	-.000	-.000	-.000
X2	-.000	843.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	850.600	.000	849.600	50.000	848.900	100.000	849.700	150.000	850.800	200.000
GR	853.400	250.000	855.000	300.000	856.300	350.000	859.100	400.000	861.500	450.000
GR	863.100	500.000	858.300	525.000	853.800	535.000	845.100	550.000	831.500	565.000
GR	830.900	570.000	829.800	575.000	829.000	580.000	828.900	585.000	828.700	590.000
GR	828.800	595.000	828.500	600.000	828.500	605.000	828.500	610.000	828.500	615.000
GR	828.900	620.000	828.900	625.000	829.500	630.000	830.700	635.000	838.200	645.000
GR	838.900	650.000	839.000	700.000	839.400	750.000	839.200	800.000	836.200	850.000
GR	835.100	900.000	835.700	950.000	836.600	1000.000	835.300	1050.000	835.600	1100.000
GR	834.600	1150.000	834.500	1200.000	840.000	1800.000	850.000	2100.000	-.000	-.000
NC	.140	.140	.065	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	10.230	50.000	553.000	647.000	2925.000	2925.000	2925.000	-.000	-.000	-.000
X2	-.000	844.500	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	848.700	.000	844.400	50.000	843.700	100.000	842.200	150.000	840.400	200.000
GR	840.500	250.000	841.200	300.000	842.300	331.000	841.700	350.000	842.700	400.000
GR	843.000	450.000	842.500	500.000	839.400	535.000	833.400	550.000	831.700	553.000
GR	831.100	555.000	829.500	560.000	828.700	565.000	828.000	570.000	827.800	575.000
GR	829.000	580.000	829.700	595.000	829.600	590.000	829.200	595.000	829.100	600.000
GR	828.300	605.000	828.300	610.000	828.800	615.000	828.800	620.000	829.100	625.000
GR	829.100	630.000	829.100	635.000	829.300	640.000	830.700	645.000	831.700	647.000
GR	833.900	650.000	837.300	685.000	844.500	700.000	851.500	720.000	852.000	750.000
GR	853.000	800.000	854.000	850.000	854.300	900.000	853.000	941.000	853.000	950.000

GR	854.500	1000.000	854.300	1050.000	855.400	1100.000	855.800	1150.000	856.200	1200.000
X1	10.800	43.000	617.000	683.000	3025.000	3025.000	3025.000	-.000	-.000	-.000
X2	-.000	845.700	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	850.400	.000	848.300	50.000	845.100	100.000	842.100	150.000	840.500	200.000
GR	838.900	250.000	838.500	300.000	839.000	350.000	839.100	400.000	837.800	450.000
GR	840.200	500.000	841.100	550.000	838.800	590.000	834.300	600.000	834.600	615.000
GR	832.500	617.000	831.600	620.000	830.500	625.000	829.500	630.000	829.100	635.000
GR	829.200	640.000	828.900	645.000	828.700	650.000	828.400	655.000	828.400	660.000
GR	828.700	665.000	829.300	670.000	830.000	675.000	830.900	680.000	831.900	683.000
GR	834.700	685.000	841.500	700.000	848.200	750.000	848.300	900.000	848.000	850.000
GR	848.500	900.000	850.300	950.000	852.000	1000.000	852.300	1050.000	848.400	1100.000
GR	845.500	1150.000	849.300	1200.000	845.500	1250.000	-.000	-.000	-.000	-.000
X1	11.330	44.000	560.000	640.000	2900.000	2900.000	2900.000	-.000	-.000	-.000
X2	-.000	846.440	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	840.200	.000	839.700	50.000	839.500	100.000	839.000	150.000	838.500	200.000
GR	838.300	250.000	839.500	300.000	840.400	350.000	840.900	400.000	840.100	450.000
GR	838.900	485.000	841.500	500.000	836.100	550.000	835.000	558.000	831.500	560.000
GR	830.000	565.000	830.000	570.000	829.500	575.000	829.500	580.000	829.500	585.000
GR	829.500	590.000	829.500	595.000	830.300	600.000	830.500	605.000	830.100	610.000
GR	829.900	615.000	828.500	620.000	828.800	625.000	829.400	630.000	831.000	635.000
GR	833.000	640.000	835.900	650.000	838.500	660.000	837.600	700.000	856.700	800.000
GR	859.800	850.000	856.500	900.000	856.500	950.000	858.500	1000.000	861.400	1050.000
GR	863.800	1100.000	866.900	1127.000	863.400	1150.000	865.500	1200.000	-.000	-.000
X1	11.340	21.000	760.000	836.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	846.200	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	851.900	.000	849.600	100.000	848.200	200.000	848.000	300.000	849.700	750.000
GR	849.800	760.000	833.800	760.000	832.200	765.000	830.700	770.000	830.600	795.700
GR	831.300	800.300	829.900	825.000	830.100	830.000	831.000	836.000	850.500	836.000
GR	851.200	900.000	853.400	1000.000	856.900	1100.000	861.300	1200.000	866.600	1300.000
GR	867.800	1400.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
SB	1.050	1.500	2.600	-.000	76.000	4.600	1193.200	-.000	830.500	830.500
X1	11.350	-.000	-.000	-.000	30.000	30.000	30.000	-.000	-.000	-.000
X2	-.000	846.600	1.000	846.700	848.000	-.000	-.000	-.000	-.000	-.000
BT	19.000	.000	851.900	.000	100.000	849.600	.000	200.000	848.200	.000
BT	300.000	848.000	.000	750.000	849.700	.000	760.000	849.800	849.800	760.000
BT	849.800	846.700	795.700	850.200	846.700	795.700	850.200	830.600	800.300	850.200
BT	831.300	800.300	850.200	846.700	836.000	850.500	846.700	836.000	850.500	850.500
BT	900.000	851.200	.000	1000.000	853.400	.000	1100.000	855.900	.000	1200.000
BT	861.800	.000	1300.000	866.600	.000	1400.000	867.800	.000	-.000	-.000
X1	11.360	44.000	560.000	640.000	50.000	50.000	50.000	-.000	1.400	-.000
X2	-.000	847.060	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	840.200	.000	839.700	50.000	839.500	100.000	839.000	150.000	838.500	200.000
GR	838.300	250.000	839.500	300.000	840.400	350.000	840.900	400.000	840.100	450.000
GR	838.900	485.000	841.500	500.000	836.100	550.000	835.000	558.000	831.500	560.000
GR	830.000	565.000	830.000	570.000	829.500	575.000	829.500	580.000	829.500	585.000
GR	829.500	590.000	829.500	595.000	830.300	600.000	830.500	605.000	830.100	610.000
GR	829.900	615.000	828.500	620.000	828.800	625.000	829.400	630.000	831.000	635.000
GR	833.000	640.000	835.900	650.000	838.500	660.000	837.600	700.000	856.700	800.000
GR	859.800	850.000	856.500	900.000	856.500	950.000	858.500	1000.000	861.400	1050.000
GR	863.800	1100.000	866.900	1127.000	863.400	1150.000	865.500	1200.000	-.000	-.000
NC	.100	.100	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	11.750	43.000	560.000	640.000	2000.000	2000.000	2000.000	-.000	-.000	-.000
X2	-.000	847.400	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	862.100	.000	863.300	50.000	862.500	100.000	860.900	150.000	859.000	200.000
GR	850.900	300.000	844.600	350.000	839.900	400.000	839.500	450.000	841.100	500.000

GR	840.600	535.000	837.500	550.000	836.500	555.000	833.500	560.000	832.500	565.000
GR	830.600	570.000	831.000	575.000	831.100	580.000	831.100	590.000	831.100	595.000
GR	831.100	600.000	831.200	605.000	831.200	610.000	831.100	615.000	831.100	620.000
GR	831.100	625.000	830.500	630.000	830.800	635.000	833.400	640.000	836.500	645.000
GR	837.800	655.000	851.700	680.000	852.300	700.000	851.400	750.000	852.500	800.000
GR	853.000	850.000	853.100	900.000	849.200	950.000	849.900	963.000	851.000	1000.000
GR	852.600	1050.000	851.700	1150.000	853.800	1200.000	-.000	-.000	-.000	-.000
X1	12.530	45.000	572.000	628.000	3625.000	3625.000	3625.000	-.000	-.000	-.000
X2	-.000	847.700	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	854.200	.000	855.900	50.000	857.500	100.000	858.700	150.000	855.000	175.000
GR	846.400	200.000	841.500	225.000	838.600	250.000	837.400	300.000	836.300	350.000
GR	838.100	400.000	835.900	450.000	837.000	500.000	836.500	550.000	837.500	570.000
GR	834.500	572.000	833.500	575.000	832.000	580.000	831.600	585.000	831.500	590.000
GR	831.500	595.000	832.400	600.000	832.300	605.000	831.500	610.000	831.800	615.000
GR	832.000	620.000	834.000	625.000	834.500	628.000	838.100	635.000	844.200	650.000
GR	848.600	660.000	850.900	700.000	848.500	750.000	849.000	800.000	849.400	850.000
GR	855.500	900.000	860.000	950.000	860.500	1000.000	858.400	1050.000	861.000	1100.000
GR	861.000	1140.000	857.400	1173.000	857.500	1200.000	862.400	1210.000	862.600	1250.000
QT	7.000	5290.000	6890.000	3710.000	6890.000	6890.000	9580.000	5360.000	-.000	-.000
X1	13.420	29.000	98.000	157.000	4025.000	4025.000	4025.000	-.000	-.000	-.000
X2	-.000	848.500	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	864.600	.000	840.500	40.000	839.000	50.000	840.300	98.000	834.200	107.000
GR	833.500	111.000	833.500	123.000	833.500	135.000	835.600	150.000	838.900	157.000
GR	839.200	175.000	836.000	187.000	834.700	196.000	834.900	207.000	839.400	224.000
GR	840.500	298.000	839.000	398.000	838.700	498.000	841.400	518.000	841.200	536.000
GR	838.400	635.000	839.200	698.000	839.200	798.000	841.900	898.000	840.000	998.000
GR	840.400	1098.000	842.400	1200.000	845.000	1300.000	850.000	1400.000	-.000	-.000
X1	13.910	47.000	865.000	939.000	3000.000	3200.000	3500.000	-.000	-.000	-.000
X2	-.000	848.800	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	860.000	.000	850.000	25.000	843.000	250.000	843.400	300.000	842.500	350.000
GR	842.700	400.000	843.000	450.000	842.900	500.000	842.800	550.000	843.500	600.000
GR	842.100	650.000	840.400	700.000	837.100	750.000	833.500	765.000	832.500	800.000
GR	838.000	835.000	840.600	855.000	837.700	865.000	836.500	870.000	834.500	875.000
GR	833.500	880.000	832.700	885.000	831.800	890.000	831.900	895.000	831.700	900.000
GR	830.500	905.000	830.200	910.000	830.500	915.000	832.000	920.000	834.200	925.000
GR	836.700	930.000	838.700	935.000	840.400	945.000	843.300	955.000	842.500	1000.000
GR	842.700	1050.000	840.500	1100.000	839.500	1150.000	841.800	1200.000	841.300	1250.000
GR	841.800	1300.000	843.500	1340.000	847.200	1350.000	856.000	1375.000	867.500	1410.000
GR	869.900	1450.000	870.300	1500.000	-.000	-.000	-.000	-.000	-.000	-.000
		VAN ATTÀ								
X1	13.920	25.000	1022.000	1077.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	848.800	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	856.700	.000	851.000	100.000	847.400	200.000	845.400	300.000	844.900	400.000
GR	844.500	500.000	844.600	600.000	844.400	700.000	845.300	800.000	847.300	900.000
GR	848.000	1000.000	847.900	1022.000	836.500	1022.000	835.400	1027.000	833.300	1032.000
GR	831.700	1037.000	833.700	1067.000	834.900	1072.000	834.400	1077.000	847.900	1077.000
GR	847.300	1100.000	844.900	1200.000	849.900	1500.000	856.500	1600.000	866.300	1850.000
SB	-.000	1.500	2.600	-.000	60.500	-.000	635.250	-.000	832.500	832.500
X1	13.930	-.000	-.000	-.000	25.000	25.000	25.000	-.000	-.000	-.000
X2	-.000	848.800	1.000	844.300	844.900	-.000	-.000	-.000	-.000	-.000
BT	20.000	.000	856.700	.000	100.000	851.000	.000	200.000	847.400	.000
BT	300.000	845.400	.000	400.000	844.900	.000	500.000	844.500	.000	600.000
BT	844.600	.000	700.000	844.400	.000	800.000	845.300	.000	900.000	847.300
BT	.000	1000.000	848.000	.000	1022.000	847.900	847.900	1022.000	847.900	844.400
BT	1077.000	847.900	844.300	1077.000	847.900	847.900	1100.000	847.300	.000	1200.000
BT	844.900	.000	1500.000	849.900	.000	1600.000	856.500	.000	1850.000	866.300
BT	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000

NC	.150	.150	.075	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	13.940	47.000	865.000	930.000	50.000	50.000	50.000	-.000	1.500	-.000
X2	-.000	948.800	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	860.000	.000	850.000	25.000	843.000	250.000	843.400	300.000	842.500	350.000
GR	842.700	400.000	843.000	450.000	842.900	500.000	842.800	550.000	843.500	600.000
GR	842.100	650.000	840.400	700.000	837.100	750.000	833.500	765.000	832.500	800.000
GR	838.000	835.000	840.600	855.000	837.700	865.000	836.500	870.000	834.500	875.000
GR	833.500	880.000	832.700	885.000	831.800	890.000	831.900	895.000	831.700	900.000
GR	830.500	905.000	830.200	910.000	830.500	915.000	832.000	920.000	834.200	925.000
GR	836.700	930.000	838.700	935.000	840.400	945.000	843.300	955.000	842.500	1000.000
GR	842.700	1050.000	840.500	1100.000	839.500	1150.000	841.800	1200.000	841.300	1250.000
GR	841.800	1300.000	843.500	1340.000	847.200	1350.000	856.000	1375.000	867.500	1410.000
GR	869.900	1450.000	870.300	1500.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	14.510	44.000	500.000	600.000	2900.000	2900.000	2900.000	-.000	-.000	-.000
X2	-.000	949.500	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	876.600	.000	871.600	50.000	862.300	100.000	854.500	125.000	847.600	150.000
GR	845.200	200.000	845.400	250.000	844.000	300.000	843.800	350.000	842.500	400.000
GR	843.900	450.000	844.000	500.000	838.000	505.000	836.000	510.000	835.700	515.000
GR	835.500	520.000	835.500	525.000	835.500	530.000	835.400	535.000	835.200	540.000
GR	835.500	545.000	835.700	550.000	836.000	555.000	836.300	560.000	836.500	565.000
GR	836.700	570.000	836.500	575.000	836.500	580.000	836.200	585.000	836.200	590.000
GR	838.000	595.000	843.000	600.000	844.800	650.000	843.500	700.000	840.700	750.000
GR	841.300	800.000	845.100	850.000	843.100	900.000	842.600	950.000	847.900	965.000
GR	848.300	1000.000	851.100	1050.000	853.000	1100.000	853.900	1150.000	-.000	-.000
NC	-.000	-.000	-.000	.600	.900	-.000	-.000	-.000	-.000	-.000
X1	15.130	25.000	79.000	149.000	3000.000	3300.000	3400.000	-.000	-.000	-.000
X2	-.000	850.300	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	875.500	.000	841.400	51.000	842.100	79.000	836.100	87.000	835.100	104.000
GR	835.500	114.000	837.100	128.000	838.500	137.000	842.500	149.000	844.500	179.000
GR	844.900	279.000	844.100	299.000	842.600	304.000	847.300	328.000	846.700	379.000
GR	844.100	479.000	841.000	579.000	840.500	679.000	841.100	779.000	840.900	879.000
GR	841.000	979.000	842.000	1079.000	845.000	1200.000	850.000	1300.000	860.000	1400.000
X1	15.610	45.000	552.000	650.000	2400.000	2650.000	2600.000	-.000	-.000	-.000
X2	-.000	850.910	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	858.500	.000	858.000	25.000	860.700	50.000	859.700	150.000	856.100	200.000
GR	854.400	250.000	854.500	300.000	853.200	350.000	851.600	400.000	849.400	450.000
GR	846.500	500.000	842.800	550.000	838.800	552.000	837.900	555.000	837.500	560.000
GR	837.000	565.000	837.000	570.000	837.000	575.000	836.900	580.000	837.100	585.000
GR	837.400	590.000	837.400	595.000	837.800	600.000	838.000	605.000	838.100	610.000
GR	838.100	615.000	839.800	620.000	839.300	625.000	839.500	630.000	839.600	635.000
GR	841.000	640.000	843.500	650.000	845.300	700.000	845.500	750.000	845.000	800.000
GR	845.900	850.000	846.000	900.000	847.000	950.000	848.400	975.000	854.700	1000.000
GR	856.500	1050.000	860.200	1100.000	860.200	1100.000	864.100	1150.000	864.500	1200.000
X1	15.620	33.000	758.000	842.000	50.000	50.000	50.000	-.000	-.000	-.000
X2	-.000	850.700	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	859.700	.000	859.700	100.000	857.400	300.000	855.900	400.000	854.700	500.000
GR	853.800	700.000	853.900	758.000	845.700	758.000	845.700	759.300	841.700	759.300
GR	841.700	761.000	839.200	761.000	838.900	763.000	839.100	768.000	838.500	773.000
GR	838.000	778.000	838.700	798.000	838.500	802.500	838.000	808.000	838.100	828.000
GR	838.500	833.000	839.100	838.000	842.000	839.000	842.000	841.000	845.600	841.000
GR	845.600	842.000	854.000	842.000	853.900	900.000	853.800	1000.000	854.700	1250.000
GR	856.600	1400.000	858.100	1500.000	859.700	1600.000	-.000	-.000	-.000	-.000
SB	.950	2.000	2.600	-.000	80.200	4.500	922.300	-.000	838.000	838.000
X1	15.630	-.000	-.000	-.000	60.000	60.000	60.000	-.000	-.000	-.000
X2	-.000	851.700	1.000	849.700	853.800	-.000	-.000	-.000	-.000	-.000

BT	20.000	.000	859.700	.000	100.000	859.700	.000	300.000	857.400	.000
BT	400.000	855.900	.000	500.000	854.700	.000	700.000	853.800	.000	758.000
BT	853.900	853.900	758.000	853.900	849.700	798.000	854.000	849.700	798.000	854.000
BT	838.700	802.500	854.000	838.500	802.500	854.000	849.600	842.000	854.000	849.600
BT	842.000	854.000	854.000	900.000	853.800	.000	1000.000	853.900	.000	1250.000
BT	854.700	.000	1400.000	855.600	.000	1500.000	858.100	.000	1600.000	859.700
BT	.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
X1	15.640	45.000	552.000	650.000	50.000	50.000	50.000	-.000	1.100	-.000
X2	-.000	852.510	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	858.500	.000	858.900	25.000	860.700	50.000	859.700	150.000	856.100	200.000
GR	854.400	250.000	854.500	300.000	853.200	350.000	851.600	400.000	849.400	450.000
GR	846.500	500.000	842.800	550.000	838.800	552.000	837.900	555.000	837.500	560.000
GR	837.000	565.000	837.000	570.000	837.000	575.000	836.900	580.000	837.100	585.000
GR	837.400	590.000	837.400	595.000	837.800	600.000	838.000	605.000	838.100	610.000
GR	838.100	615.000	839.800	620.000	839.300	625.000	839.500	630.000	839.600	635.000
GR	841.000	640.000	843.500	650.000	845.300	700.000	845.500	750.000	845.000	800.000
GR	845.900	850.000	846.000	900.000	847.000	950.000	848.400	975.000	854.700	1000.000
GR	856.500	1050.000	860.200	1100.000	860.200	1100.000	864.100	1150.000	864.500	1200.000
X1	16.440	41.000	563.000	630.000	4440.000	4440.000	4440.000	-.000	-.000	-.000
X2	-.000	854.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
GR	855.400	.000	853.500	50.000	851.400	100.000	850.100	150.000	848.700	200.000
GR	848.000	250.000	847.100	300.000	846.500	350.000	847.500	400.000	848.400	450.000
GR	846.700	500.000	845.900	550.000	846.500	563.000	841.000	570.000	839.400	575.000
GR	839.000	580.000	839.000	585.000	839.100	590.000	839.000	595.000	839.000	600.000
GR	838.900	605.000	839.000	610.000	839.200	615.000	839.500	620.000	840.900	625.000
GR	842.000	630.000	854.300	650.000	853.100	665.000	864.400	700.000	865.600	750.000
GR	867.500	800.000	869.100	850.000	869.300	900.000	867.200	950.000	865.800	985.000
GR	858.300	1000.000	855.000	1050.000	855.800	1085.000	861.800	1100.000	866.600	1150.000
GR	867.400	1200.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000
EJ	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000	-.000

CCHV= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRITS	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
5.64	13.70	835.60	.00	835.60	836.07	.47	.00	.00	828.00
6000.	243.	5730.	27.	197.	1014.	32.	.	.	828.00
.00	1.23	5.65	.84	.050	.028	.050	.000	821.90	22.62
.000424	-.	-.	-.	0	0	1	.00	216.21	238.83
5.66	14.23	835.73	.00	835.32	836.15	.41	.06	.02	841.90
6000.	.	6000.	.	.	1151.	.	4.	.	841.60
.01	.00	5.17	.00	.050	.028	.050	.028	821.50	600.00
.000434	130.	130.	130.	2	0	1	.00	106.00	706.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	SWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	70.00	-.00	1360.00	.33	821.70	821.70

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 836.334 ELLC= 837.900 PCWSE= 835.734 ELTRD= 837.400

NORMAL BRIDGE,NRD=18 MIN ELTRD= 837.40 MAX ELLC= 837.90

5.67	14.24	835.74	.00	835.80	836.16	.41	.01	.00	841.90
6000.	.	6000.	.	.	1152.	.	4.	1.	841.60
.01	.00	5.16	.00	.050	.028	.050	.028	821.50	600.00
.000433	17.	17.	17.	2	0	1	.00	106.00	706.00
5.68	14.15	835.76	.00	835.90	836.18	.43	.02	.01	827.70
6000.	297.	5667.	36.	250.	1053.	43.	5.	1.	827.70
.01	1.19	5.38	.82	.050	.028	.050	.028	821.60	17.09
.000365	50.	50.	50.	0	0	1	.00	226.68	243.77
5.83	16.02	836.12	.00	836.10	836.48	.36	.27	.02	827.60
6000.	147.	5765.	88.	111.	1177.	73.	33.	4.	827.00
.06	1.33	4.90	1.21	.050	.028	.050	.028	820.10	530.76
.000263	890.	890.	890.	0	0	1	.00	127.20	657.96

SECNO	DEPTH	CWSEL	CRITS	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
5.84	15.37	836.27	.00	836.34	836.52	.26	.01	.03	842.50
6000.	.	6000.	.	.	1430.	.	35.	4.	844.40
.07	.00	4.05	.00	.050	.028	.050	.028	820.90	532.00

.000234	50.	50.	50.	2	0	1	.00	115.00	647.00

Fa... Gage

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	75.00	8.00	1922.00	.13	821.00	821.00

CLASS A LOW FLOW

BRIDGE W.S.= 836.16 BRIDGE VELOCITY= 5.75

1975 Flood
Q=5940 cfs

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	836.55	.03	.	6000.	1922.	840.60	841.20	1.00

11.95
824.39
836.34
good

5.85	15.40	836.30	.00	836.40	836.55	.25	.03	.00	842.50
6000.	.	6000.	.	.	1434.	.	37.	5.	844.40
.07	.00	4.04	.00	.050	.028	.050	.028	820.90	532.00
.000232	70.	70.	70.	0	0	1	.00	115.00	647.00
5.86	15.34	836.24	.00	836.40	836.64	.40	.01	.07	828.40
6000.	128.	5794.	78.	93.	1120.	62.	39.	5.	827.80
.07	1.38	5.17	1.25	.050	.028	.050	.028	820.90	533.08
.000314	50.	50.	50.	2	0	1	.00	123.68	656.77
6.17	14.55	836.85	.00	836.70	837.03	.19	.33	.07	827.00
6000.	673.	5003.	325.	554.	1334.	306.	97.	12.	828.10
.20	1.21	3.75	1.06	.050	.028	.050	.028	822.30	436.61
.000169	1452.	1452.	1452.	2	0	1	.00	297.60	734.21
6.18	15.05	836.85	.00	836.70	837.05	.20	.01	.01	843.20
6000.	.	6000.	.	.	1631.	.	99.	12.	842.80
.20	.00	3.57	.00	.050	.028	.050	.028	821.80	513.00
.000224	50.	50.	50.	0	0	1	.00	170.00	683.00

Boge St

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	60.00	6.00	2007.00	.31	821.80	821.80

CLASS A LOW FLOW

BRIDGE W.S.= 836.70 BRIDGE VELOCITY= 6.87

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	837.07	.02	.	6000.	2007.	838.50	841.20	1.00

6.19	15.07	836.87	.00	836.80	837.07	.20	.02	.00	843.20
6000.	.	6000.	.	.	1633.	.	102.	12.	842.80
.20	.00	3.56	.00	.050	.028	.050	.028	821.80	513.00
.000223	75.	75.	75.	0	0	1	.00	170.00	683.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	OLOB	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
6.20	14.06	836.86	.00	836.80	837.12	.26	.01	.03	827.50
6000.	339.	5503.	159.	499.	1233.	267.	104.	13.	828.60
.21	.68	4.29	.59	.125	.035	.125	.028	822.80	440.18
.000363	50.	50.	50.	2	0	1	.00	288.68	728.86
6.66	16.39	837.69	.00	837.62	837.93	.19	.74	.02	827.40
6000.	57.	4722.	1221.	132.	1210.	1959.	256.	39.	826.40
.42	.43	3.93	.62	.125	.035	.125	.031	821.30	390.39
.000248	2480.	2480.	2480.	2	0	1	.00	635.27	1025.65
6.69	14.60	837.60	.00	837.45	838.07	.47	.05	.14	843.20
6000.	.	6000.	.	.	1035.	.	253.	40.	843.20
.43	.00	5.48	.00	.125	.035	.125	.031	823.00	555.00
.000735	135.	135.	135.	2	0	1	.00	85.00	640.00

Hagadorn Rd. "A"

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	86.00	4.75	1272.00	-.00	823.10	823.10

CLASS A LOW FLOW

BRIDGE W.S.= 837.56 BRIDGE VELOCITY= 5.11

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	838.11	.04	.	6000.	1272.	839.60	838.60	1.00
6.70	14.64	837.64	.00	837.75	838.11	.46	.04	.00	843.20
6000.	.	6000.	.	.	1038.	.	254.	40.	843.20
.43	.00	5.46	.00	.125	.035	.125	.031	823.00	555.00
.000728	50.	50.	50.	0	0	1	.00	85.00	640.00
6.71	14.92	837.92	.00	838.06	838.19	.27	.03	.05	829.10
6000.	38.	4969.	993.	75.	1030.	1429.	266.	40.	828.10
.43	.51	4.60	.69	.125	.035	.125	.031	823.00	405.38
.000390	50.	50.	50.	2	0	1	.00	413.06	818.44
7.20	15.10	839.20	.00	839.20	839.28	.08	1.03	.05	827.90
6000.	104.	3524.	2372.	149.	1227.	2572.	450.	67.	828.00
.78	.70	2.87	.92	.125	.060	.125	.040	824.10	525.73
.000406	2590.	2590.	2590.	2	0	1	.00	492.04	1017.77
7.49	15.70	839.70	.00	840.00	839.74	.04	.45	.01	828.30
6000.	246.	2820.	2935.	339.	1231.	3773.	626.	86.	828.30

1.08	.72	2.20	.78	.125	.060	.125	.044	823.00	516.26
.000221	1550.	1550.	1570.	2	0	1	.00	571.71	1087.97

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRITS	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
7.54	14.40	839.70	.00	840.17	839.93	.23	.09	.09	848.00
6000.	.	6000.	.	.	1557.	.	642.	88.	848.20
1.10	.00	3.83	.00	.125	.060	.125	.044	825.30	533.00
.001482	200.	200.	200.	2	0	1	.00	124.00	667.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHJ	ELCHD
	1.05	1.50	2.60	-.00	100.00	11.00	1911.00	.11	825.50	825.50

3265 DIVIDED FLOW

CLASS A LOW FLOW

BRIDGE W.S.= 839.63 BRIDGE VELOCITY= 4.69

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	839.96	.03	.	6000.	1911.	841.10	848.20	1.00
7.55	14.43	839.73	.00	840.17	839.96	.23	.03	.00	848.00
6000.	.	6000.	.	.	1571.	.	643.	88.	848.20
1.10	.00	3.82	.00	.125	.060	.125	.044	825.30	533.00
.001471	30.	30.	30.	0	0	1	.00	124.00	667.00
7.56	14.68	839.98	.00	840.30	840.04	.07	.04	.05	830.60
6000.	221.	3059.	2719.	258.	1107.	2907.	647.	88.	830.60
1.11	.85	2.77	.93	.125	.060	.125	.044	825.30	517.62
.000426	50.	50.	50.	2	0	1	.00	535.41	1053.03

3265 DIVIDED FLOW

7.98	18.93	840.43	.00	840.60	840.45	.02	.39	.02	829.20
5600.	718.	2522.	2360.	1724.	1698.	6118.	979.	142.	832.20
1.76	.42	1.51	.39	.125	.060	.125	.047	821.50	.00
.000099	2100.	2100.	2100.	3	0	1	.00	1708.35	1912.89
8.48	15.39	840.79	.00	841.02	840.81	.03	.36	.01	828.40
5600.	717.	2151.	2732.	1330.	1019.	5392.	1495.	243.	828.90
2.40	.54	2.11	.51	.125	.060	.125	.049	825.40	.00

.000208	2605.	2605.	2605.	2	0	1	.00	1542.81	1642.81

3265 DIVIDED FLOW

8.50	14.92	840.82	.00	841.12	840.84	.02	.02	.00	841.50
5600.	1496.	2208.	1836.	2725.	1418.	4400.	1517.	247.	841.30
2.43	.55	1.57	.43	.125	.060	.125	.049	825.90	.00
.000165	120.	120.	120.	1	0	1	.00	1644.59	1765.07

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.50	2.60	-.00	60.00	4.00	944.00	.18	826.10	826.10

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	OWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
840.90	840.84	.00	3815.	1767.	944.	837.30	831.80	30.00

8.51	14.99	840.89	.00	841.14	840.90	.02	.06	.00	841.50
5600.	1498.	2187.	1915.	2765.	1417.	4487.	1522.	248.	841.30
2.44	.54	1.54	.43	.125	.060	.125	.049	825.90	.00
.000159	25.	25.	25.	1	0	5	.00	1655.40	1771.70

8.52	15.49	840.89	.00	841.14	840.92	.03	.01	.01	828.40
5600.	721.	2120.	2759.	1371.	1027.	5528.	1532.	250.	828.90
2.45	.53	2.07	.50	.125	.060	.125	.049	825.40	.00
.000197	50.	50.	50.	1	0	1	.00	1655.32	1655.32

3265 DIVIDED FLOW

8.86	14.95	841.45	.00	842.50	841.55	.11	.59	.04	829.40
5600.	757.	3278.	1565.	1144.	983.	1588.	1809.	309.	829.10
2.70	.66	3.33	.99	.100	.055	.100	.050	826.50	120.27
.000455	2075.	2075.	2075.	2	0	1	.00	819.33	1151.99

9.34	16.71	842.51	.00	842.30	842.57	.07	1.01	.01	830.50
5600.	2839.	2651.	110.	3326.	920.	128.	2057.	354.	830.50
3.11	.85	2.88	.86	.100	.055	.100	.051	825.80	.00
.000319	2670.	2670.	2670.	2	0	1	.00	654.10	654.10

9.35	15.18	842.48	.00	842.30	842.64	.15	.02	.05	847.90
5600.	.	5600.	.	.	1751.	.	2050.	355.	851.50
3.12	.00	3.20	.00	.100	.055	.100	.051	827.30	513.00
.000634	50.	50.	50.	2	0	1	.00	165.58	678.58

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	70.00	6.00	2460.00	.31	827.20	827.20

CLASS A LOW FLOW

BRIDGE W.S.= 842.41 BRIDGE VELOCITY= 5.36

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
.00	842.66	.01	.	5600.	2450.	847.30	844.50	1.00

9.36	15.20	842.50	.00	842.30	842.66	.15	.01	.00	847.90
5600.	.	5600.	.	.	1753.	.	2052.	355.	851.50
3.12	.00	3.19	.00	.100	.055	.100	.051	827.30	513.00
.000631	45.	45.	45.	0	0	1	.00	165.69	678.69

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	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
9.37	15.20	842.50	.00	842.30	842.72	.22	.03	.03	840.90
5600.	2.	5573.	25.	5.	1484.	33.	2064.	355.	838.10
3.12	.34	3.76	.77	.100	.055	.100	.051	827.30	174.14
.000728	50.	50.	50.	2	0	1	.00	134.25	308.41
9.42	14.15	842.45	.00	842.34	842.88	.43	.06	.11	845.10
5600.	.	5600.	.	.	1055.	.	2066.	355.	845.10
3.13	.00	5.26	.00	.100	.055	.100	.051	828.30	555.00
.001999	50.	50.	50.	2	0	1	.00	90.00	645.00

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	90.00	-.00	1003.50	-.00	828.60	828.60

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
843.18	843.16	.00	.	5600.	1003.	841.80	844.40	10.00

9.43	14.47	842.77	.00	842.90	843.18	.41	.30	.00	845.10

5600.	.	5600.	.	.	1094.	.	2067.	355.	845.10
3.13	.00	5.12	.00	.100	.055	.100	.051	828.30	555.00
.001843	45.	45.	45.	2	0	1	.00	90.00	645.00
9.44	14.75	843.35	.00	842.94	843.29	.23	.06	.05	841.90
5600.	1.	5579.	20.	2.	1432.	27.	2068.	355.	839.10
3.13	.29	3.90	.75	.100	.055	.100	.051	828.30	175.78
.000820	50.	50.	50.	2	0	1	.00	131.67	307.45
9.65	15.14	843.64	.00	843.30	843.55	.01	.29	.07	831.50
5600.	31.	1545.	4024.	81.	1012.	7976.	2241.	380.	830.70
3.64	.39	1.53	.50	.100	.055	.100	.051	828.50	551.62
.000091	1430.	1430.	1430.	3	0	1	.00	1357.45	1909.06
10.23	16.32	844.12	.00	844.50	844.25	.14	.54	.06	831.70
5600.	623.	4603.	375.	1154.	1409.	380.	2644.	446.	831.70
3.93	.54	3.27	.98	.140	.065	.140	.053	827.80	70.26
.000561	2925.	2925.	2925.	2	0	1	.00	628.95	699.20

3265 DIVIDED FLOW

3280 CROSS SECTION 10.80 EXTENDED .15 FEET

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	CLOSS	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
10.80	17.25	845.65	.00	845.70	845.73	.08	1.46	.02	832.50
5600.	2322.	3147.	132.	3095.	1052.	203.	2898.	491.	831.90
4.35	.75	2.96	.65	.140	.065	.140	.054	828.40	91.44
.000419	3025.	3025.	3025.	2	0	1	.00	645.94	1250.00
11.33	18.04	846.54	.00	846.44	846.58	.04	.84	.01	831.50
5600.	2279.	2861.	461.	3989.	1332.	761.	3246.	537.	833.00
4.93	.57	2.15	.61	.140	.065	.140	.055	828.50	.00
.000212	2900.	2900.	2900.	2	0	1	.00	746.81	746.81
11.34	16.51	846.41	.00	846.20	846.76	.35	.02	.15	849.80
5600.	.	5600.	.	.	1136.	.	3250.	537.	850.50
4.94	.00	4.72	.00	.140	.065	.140	.056	829.90	760.00
.001676	50.	50.	50.	2	0	1	.00	76.00	836.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	2.60	-.00	75.00	4.50	1193.20	-.00	830.50	830.50

PRESSURE FLOW

EGPRS	EGLWC	43	OWEIR	QPP	BAREA	ELLC	ELTRD	CLASS
846.93	846.79	.03	.	5600.	1193.	846.70	848.00	10.00

11.35	16.69	846.59	.00	846.60	846.93	.34	.17	.00	849.80
5600.	.	5600.	.	.	1139.	.	3251.	538.	850.50
4.94	.00	4.67	.00	.140	.065	.140	.055	829.90	760.00
.001622	30.	30.	30.	2	0	1	.00	76.00	836.00
11.36	17.09	846.99	.00	847.06	847.04	.05	.03	.09	832.90
5600.	2113.	3044.	442.	3455.	1255.	661.	3254.	538.	834.40
4.95	.61	2.43	.67	.140	.065	.140	.055	829.90	.00
.000292	50.	50.	50.	2	0	1	.00	741.82	741.82
11.75	17.09	847.59	.00	847.40	847.68	.09	.62	.02	833.50
5600.	1552.	3769.	280.	1541.	1317.	254.	3449.	563.	833.40
5.19	1.01	2.89	1.10	.100	.060	.100	.055	830.50	326.29
.000333	2000.	2000.	2000.	2	0	1	.00	346.32	672.60
12.53	16.97	848.47	.00	847.70	848.50	.03	.79	.02	834.50
5600.	3672.	1773.	156.	4012.	919.	216.	3792.	597.	834.50
6.01	.92	1.95	.72	.100	.060	.100	.056	831.50	193.98
.000155	3625.	3625.	3625.	2	0	1	.00	465.72	659.70

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRI/S QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	QLOSS TWA ELMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
13.42	15.32	848.82	.00	848.50	848.82	.00	.32	.01	840.30
5360.	249.	788.	4322.	588.	826.	10028.	4558.	681.	838.90
8.21	.42	.95	.43	.100	.060	.100	.056	833.50	26.20
.000047	4025.	4025.	4025.	2	0	1	.00	1350.12	1376.32
13.91	18.79	848.99	.00	848.80	849.00	.01	.18	.00	837.70
5360.	2535.	1338.	1417.	5443.	1048.	3091.	5322.	775.	836.70
9.55	.48	1.25	.46	.100	.060	.100	.057	830.20	57.43
.000065	3000.	3500.	3200.	2	0	1	.00	1297.66	1355.09
13.92	17.27	848.97	.00	848.80	849.03	.05	.01	.03	847.90
5360.	2405.	2449.	506.	2823.	854.	816.	5330.	778.	847.90
9.56	.85	2.87	.62	.100	.060	.100	.057	831.70	156.37
.000578	50.	50.	50.	2	0	1	.00	1287.88	1444.25

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-.00	1.50	2.60	-.00	50.50	-.00	635.25	-.00	832.50	832.50

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
850.63	849.83	.00	4046.	1278.	635.	844.30	844.90	30.00

	13.93	17.30	849.00	.00	848.80	849.06	.06	.03	.00	847.90
	5360.	2416.	2433.	512.	2851.	856.	827.	5333.	779.	847.90
	9.56	.85	2.84	.62	.100	.065	.100	.057	831.70	155.49
	.000567	25.	25.	25.	2	0	6	.00	1290.66	1446.15
	13.94	17.37	849.07	.00	848.80	849.09	.02	.02	.01	839.20
	5360.	2303.	1862.	1195.	4328.	956.	2490.	5340.	780.	838.20
	9.57	.53	1.95	.48	.150	.065	.150	.057	831.70	103.11
	.000210	50.	50.	50.	2	0	1	.00	1247.94	1351.05
	14.51	14.58	849.78	.00	849.50	849.82	.04	.72	.01	844.00
	5360.	1023.	2829.	1538.	1902.	1326.	2505.	5790.	851.	843.00
	10.15	.54	2.13	.60	.150	.065	.150	.057	835.20	142.09
	.000298	2900.	2900.	2900.	2	0	1	.00	884.37	1026.47
CCHV=	.600 CEHV=	.800								
	15.13	15.37	850.47	.00	850.30	850.48	.01	.64	.02	842.10
	5360.	137.	1352.	3871.	306.	928.	8418.	6358.	931.	842.50
	11.44	.45	1.46	.46	.150	.065	.150	.058	835.10	37.43
	.000137	3000.	3400.	3300.	2	0	1	.00	1267.29	1304.72

SECNO	DEPTH	QWSEL	CRITS	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	XLOIR	ITRIAL	IDC	TCONT	CORAR	TOPWID	ENDST
	15.61	14.20	851.13	.00	850.91	851.20	.10	.65	.07	838.80
	5360.	368.	3664.	1328.	534.	1236.	1783.	6765.	987.	843.50
	11.76	.69	2.96	.75	.150	.065	.150	.058	836.90	411.29
	.000581	2400.	2600.	2650.	2	0	1	.00	574.43	985.73
	15.62	13.09	851.09	.00	850.70	851.51	.42	.05	.25	853.90
	5360.	.	5360.	.	.	1035.	.	6758.	987.	854.00
	11.77	.00	5.18	.00	.150	.065	.150	.058	838.00	758.00
	.002494	50.	50.	50.	2	0	1	.00	84.00	842.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	2.00	2.60	-.00	80.20	4.50	922.30	-.00	838.00	838.00

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

852.14	851.54	.03	.	5360.	922.	949.70	853.80	10.00	
15.63	13.77	851.77	.00	851.70	852.14	.37	.63	.00	853.90
5360.	.	5360.	.	.	1032.	.	6770.	987.	854.00
11.77	.00	4.91	.00	.150	.365	.150	.358	838.00	758.00
.002123	60.	60.	60.	2	0	1	.00	84.00	842.00
15.64	14.26	852.26	.00	852.51	852.36	.09	.05	.17	839.90
5360.	371.	3651.	1378.	543.	12.2.	1804.	6772.	988.	844.60
11.78	.68	2.94	.74	.150	.365	.150	.358	838.00	409.89
.000567	50.	50.	50.	2	3	1	.00	576.08	985.97
16.44	15.68	854.58	.00	854.00	854.65	.07	2.28	.01	846.50
5360.	2431.	2843.	86.	3206.	983.	129.	7175.	1049.	842.00
12.43	.76	2.89	.67	.150	.365	.150	.359	838.90	21.48
.000468	4440.	4440.	4440.	3	0	1	.00	629.01	650.48

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**************************
SEPT 1971 VERSION UPDATED JUNE 1974
ERROR CORRECTIONS 01,02,03,04,05,06,07
MODIFICATIONS 52,53,54,55,56,57
**************************


T1      MERIDIAN TOWNSHIP, MICHIGAN
T2      100 YEAR FLOOD
T3      RED CEDAR RIVER  5258-01

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       -.        3.        -.        -.  -.000000      -.00      -.0       -.   837.700      -.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

     2.000     -.000    -1.000     -.000     -.000     -.000     -.000     -.000     -.000     -.000
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1*****************************************
 *  HEC-2 WATER SURFACE PROFILES         *
 *                                       *
 *  Version   4.6.2;  May 1991           *
 *                                       *
 *  RUN DATE    15FEB94    TIME  13:05:10 *
 *****************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS
*  HYDROLOGIC ENGINEERING CENTER
*  609 SECOND STREET, SUITE D
*  DAVIS, CALIFORNIA 95616-4687
*          (916) 756-1104
*****************************************
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X      X  XXXXXXX   XXXXX              XXXXX
X      X  X         X     X           X     X
X      X  X         X                       X
XXXXXXXX  XXXX      X          XXXXX    XXXXX
X      X  X         X                  X
X      X  X         X     X            X
X      X  XXXXXXX   XXXXX              XXXXXXX
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1

15FEB94 13:05:10 PAGE 1

THIS RUN EXECUTED 15FEB94 13:05:10

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 10-YEAR FLOOD PROFILE - STS CONSULTANTS LTD.  1/94  MMW
T3SMITH DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     0.0       2.0       0.0       0.0      .0051      0.0       0.0       0.0      842.0      0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    1.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

  150.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC      0.1       0.1      .065       0.3       0.5
QT      4.0     240.0     400.0     465.0     600.0
X1    100.0      18.0     531.0     562.0       0.0       0.0       0.0
X3                                 180.0                 640.0
GR    850.0       0.0     840.0     110.0     838.1     200.0     840.0     250.0     840.0     460.0
GR    838.0     485.0     836.0     525.0     835.5     531.0     834.8     531.5     834.1     532.0
GR    831.5     535.0     834.1     547.0     834.8     555.0     835.3     562.0     838.0     642.0
GR    840.0     672.0     842.0     737.0     850.0     817.0

X1    540.0      23.0     300.0     315.0     400.0     400.0     440.0
GR    853.8       0.0     850.8     100.0     850.0     200.0     848.0     210.0     840.0     240.0
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GR	836.8	270.0	836.9	290.0	836.6	300.0	835.7	304.0	834.1	305.0
GR	834.2	307.0	835.6	310.0	836.4	311.0	836.8	315.0	836.7	329.0
GR	836.5	350.0	837.3	370.0	840.0	380.0	850.0	420.0	854.0	440.0
GR	854.0	540.0	856.0	580.0	857.0	740.0				
X1	980.0	29.0	290.5	302.5	440.0	440.0	440.0			
X3	10.0							849.0	849.0	
GR	852.5	0.0	852.0	100.0	850.0	120.0	848.0	125.0	846.0	145.0
GR	844.0	265.0	842.0	270.0	841.6	275.0	841.6	281.5	839.7	286.5
GR	838.1	290.5	837.4	291.0	837.0	293.5	837.8	297.0	837.2	300.0
GR	837.3	301.0	838.1	302.5	839.1	305.0	840.2	314.0	840.9	325.0
GR	844.0	340.0	846.0	360.0	848.0	384.0	849.7	389.0	850.0	390.0
GR	852.0	420.0	854.0	460.0	856.0	720.0	856.6	750.0		

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SC	2.024	0.2	2.7	0.0	6.0	0.0	60.0	2.1	837.9	837.2
X1	1040.0	30.0	290.5	302.5	60.0	60.0	60.0			
X2	0.0	0.0	2.0	0.0	849.1	0.0	0.0	0.0	0.0	0.0
X3	10.0							849.1	849.1	
BT	6.0	0.0	851.9	0.0	120.0	850.0	0.0	300.0	849.1	0.0
BT	389.0	849.7	0.0	480.0	850.0	0.0	580.0	852.0	0.0	
GR	852.5	0.0	852.0	100.0	850.0	120.0	848.0	125.0	846.0	145.0
GR	844.0	265.0	842.0	270.0	841.6	275.0	841.6	281.5	839.7	286.5
GR	838.1	290.5	837.4	291.0	837.0	293.5	837.8	297.0	837.2	300.0
GR	837.3	301.0	838.1	302.5	839.1	305.0	840.2	314.0	840.9	325.0
GR	844.0	340.0	846.0	360.0	848.0	384.0	849.7	389.0	852.0	420.0
GR	854.0	460.0	854.15	480.0	854.92	580.0	856.0	720.0	856.6	750.0
X1	1140.0	14.0	230.0	250.0	100.0	100.0	100.0			
GR	852.0	0.0	850.0	20.0	846.0	65.0	844.0	85.0	842.0	120.0
GR	840.0	230.0	839.5	232.0	839.0	240.0	839.5	248.0	840.0	250.0
GR	842.0	270.0	846.0	300.0	850.0	340.0	852.0	350.0		
X1	1700.0	14.0	460.0	515.0	560.0	560.0	560.0			
GR	854.0	0.0	852.0	120.0	850.0	165.0	846.0	220.0	845.3	280.0
GR	845.9	410.0	844.0	460.0	843.0	475.0	842.0	490.0	843.0	505.0
GR	844.0	515.0	846.0	545.0	850.0	570.0	852.0	700.0		
X1	2300.0	28.0	333.0	339.0	500.0	600.0	600.0			
X3	10.0							860.0	860.0	
X4	1.0	846.0	330.0							
GR	858.0	0.0	856.0	40.0	854.0	100.0	852.0	200.0	850.0	220.0
GR	849.7	237.0	848.0	320.0	848.0	321.0	847.4	326.0	844.8	333.0
GR	843.9	334.0	844.0	335.0	844.0	336.0	844.1	337.0	844.0	338.0
GR	844.3	339.0	844.4	340.0	844.8	344.5	847.5	348.0	848.5	350.5
GR	848.7	361.0	849.0	437.0	850.0	661.0	851.8	837.0	852.0	861.0
GR	854.0	1041.0	856.0	1141.0	857.9	1351.0				
SC	1.024	0.2	2.7	0.0	6.0	0.0	50.0	2.1	845.2	843.9
X1	2350.0	29.0	333.0	339.0	50.0	50.0	50.0			
X2	0.0	0.0	2.0	0.0	860.0					
X3	10.0			250.0		520.0		860.0	860.0	
X4	1.0	846.0	330.0							
BT	4.0	0.0	862.0	0.0	1.0	860.0	0.0	300.0	860.0	0.0
BT	301.0	862.0	0.0							
GR	862.0	0.0	856.0	40.0	854.0	100.0	852.0	200.0	850.0	220.0
GR	849.7	237.0	848.0	320.0	848.0	321.0	847.4	326.0	845.2	333.0
GR	845.2	334.0	845.2	335.0	845.2	336.0	845.2	337.0	845.2	338.0
GR	845.2	339.0	845.5	340.0	846.0	344.5	847.5	348.0	848.5	350.5
GR	848.7	361.0	849.0	437.0	850.0	661.0	851.8	837.0	852.0	861.0

GR	854.0	1041.0	856.0	1141.0	857.9	1351.0	862.0	1352.0		
X1	2410.0	16.0	540.0	547.0	60.0	100.0	60.0			
X3	10.0			460.0		610.0		856.0	856.0	
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	280.0	854.0	350.0
GR	854.0	515.0	852.0	530.0	850.0	535.0	847.2	540.0	847.2	547.0
GR	850.0	553.0	856.0	583.0	858.0	603.0	860.0	633.0	860.0	1093.0
GR	862.0	1103.0								

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SC	1.024	0.2	2.7	0.0	7.0	0.0	80.0	2.1	847.8	847.2
X1	2490.0	16.0	540.0	547.0	80.0	80.0	80.0			
X2	0.0	0.0	2.0	0.0	856.0					
X3	10.0			400.0		670.0		856.0	856.0	
BT	6.0	0.0	862.0	0.0	1.0	856.0	0.0	30.0	856.0	0.0
BT	140.0	858.0	0.0	160.0	860.0	0.0	220.0	862.0	0.0	
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	340.0	854.0	375.0
GR	850.0	410.0	848.8	440.0	847.8	450.0	847.8	540.0	847.8	547.0
GR	848.8	550.0	854.0	555.0	856.0	560.0	860.0	640.0	860.0	1050.0
GR	862.0	1200.0								
NC	0.0	0.0	.045							
X1	2590.0	16.0	440.0	550.0	100.0	100.0	100.0			
X3				350.0						
GR	862.0	0.0	860.0	1.0	858.0	260.0	856.0	340.0	854.0	375.0
GR	850.0	410.0	848.8	440.0	844.0	455.0	844.0	540.0	844.0	549.0
GR	848.8	550.0	854.0	555.0	856.0	560.0	858.0	565.0	860.0	580.0
GR	862.0	605.0								
NC	0.0	0.0	0.0	0.2	0.4					
X1	3300.0	16.0	300.0	400.0	650.0	800.0	740.0			
GR	862.0	0.0	860.0	1.0	858.0	180.0	856.0	200.0	854.0	250.0
GR	852.0	280.0	850.0	290.0	848.8	300.0	844.0	308.0	844.0	390.0
GR	848.8	400.0	850.0	402.0	858.0	440.0	860.0	460.0	862.0	505.0
GR	864.0	650.0								
NC	0.0	0.0	0.065	0.3	0.5					
X1	3570.0	37.0	397.0	404.0	50.0	50.0	50.0			
X3	10.0	0.0	0.0	0.0	0.0	0.0	0.0	856.5	856.5	0.0
X4	2.0	852.2	390.0	867.2	1000.0					
GR	870.0	0.0	866.0	100.0	862.0	200.0	861.0	240.0	860.0	292.0
GR	859.0	300.0	858.0	312.0	857.6	372.0	857.2	380.0	849.2	396.0
GR	848.4	397.0	848.0	398.0	847.6	399.0	847.2	401.0	846.81	402.0
GR	847.4	403.0	848.0	404.0	848.6	405.0	849.2	406.0	849.8	406.5
GR	852.3	410.0	854.8	415.0	855.4	419.0	855.8	432.0	856.0	437.0
GR	857.0	445.0	859.0	465.0	859.3	500.0	860.0	577.0	860.6	600.0
GR	862.0	682.0	864.0	782.0	866.0	852.0	868.0	1100.0	868.8	1200.0
GR	869.6	1300.0	870.0	1352.0						
SC	1.024	0.2	2.7	0.0	7.0	0.0	80.0	2.1	849.2	848.3
X1	3650.0	0.0	0.0	0.0	80.0	80.0	80.0			
X2	0.0	0.0	2.0	0.0	858.0					
X3	10.0	849.2	0.0	0.0	0.0	0.0	0.0	858.0	858.0	0.0
X4	2.0	852.2	390.0	867.2	1000.0					
BT	11.0	0.0	862.9	0.0	100.0	862.3	0.0	200.0	861.0	0.0
BT	292.0	860.0	0.0	300.0	859.5	0.0	390.0	858.6	0.0	452.0
BT	858.0	0.0	502.0	858.0	0.0	702.0	860.0	0.0	802.0	862.0
BT	0.0	962.0	864.0	0.0						

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X1	3900.0	17.0	355.0	370.0	300.0	200.0	250.0			
GR	862.0	0.0	861.0	20.0	860.0	30.0	858.0	210.0	856.0	250.0
GR	854.0	340.0	852.0	345.0	850.0	355.0	849.5	358.0	849.5	367.0
GR	850.0	370.0	852.0	372.0	854.0	430.0	856.0	440.0	858.0	485.0
GR	860.0	500.0	863.0	501.0						
NC	0.0	0.0	0.0	0.1	0.3					
X1	5790.0	28.0	433.5	466.5	1890.0	1890.0	1890.0			
GR	870.0	0.0	868.0	60.0	866.0	80.0	864.0	110.0	862.0	140.0
GR	860.0	200.0	860.7	260.0	860.7	360.0	860.0	380.0	862.0	400.0
GR	863.0	410.0	862.0	420.0	861.5	422.0	860.2	433.5	857.5	438.5
GR	854.8	443.5	853.9	444.5	853.9	447.0	853.6	449.0	854.3	449.5
GR	854.7	452.0	860.0	466.5	860.5	470.0	860.5	482.0	860.7	500.0
GR	862.0	550.0	864.0	650.0	865.0	700.0				
X1	6590.0	12.0	412.0	430.0	880.0	800.0	800.0			
GR	868.0	0.0	866.0	200.0	864.0	400.0	862.0	406.0	860.0	412.0
GR	856.2	415.0	856.2	426.0	860.0	430.0	862.0	436.0	864.0	466.0
GR	866.0	491.0	868.0	536.0						
NC	0.0	0.0	0.0	0.3	0.5					
X1	6750.0	14.0	432.0	446.0	160.0	160.0	160.0			
X3	10.0					550.0		866.0	866.0	
GR	868.0	0.0	866.0	100.0	864.4	280.0	864.0	400.0	862.0	420.0
GR	858.0	430.0	856.1	432.0	856.1	446.0	858.0	450.0	860.0	453.0
GR	862.0	455.0	864.0	570.0	866.0	720.0	868.0	940.0		
SC	1.017	0.4	2.7	0.0	4.5	13.0	60.0	10.1	856.3	856.1
X1	6810.0	0.0	0.0	0.0	60.0	60.0	60.0			
X2	0.0	0.0	2.0	863.2	867.0					
X3	10.0	856.3	0.0	0.0	0.0	550.0	0.0	867.0	867.0	0.0
BT	4.0	0.0	868.0	0.0	300.0	867.0	0.0	420.0	867.1	0.0
BT	421.0	870.0	0.0							
X1	6940.0	13.0	375.0	390.0	130.0	130.0	130.0			
GR	870.0	0.0	868.0	90.0	866.0	240.0	864.0	360.0	862.0	370.0
GR	860.0	375.0	857.0	378.0	857.0	387.0	860.0	390.0	862.0	460.0
GR	864.0	500.0	868.0	540.0	870.0	550.0				
NC	0.0	0.0	0.0	0.1	0.3					
X1	8480.0	25.0	495.0	524.0	1540.0	1540.0	1540.0			
GR	872.0	0.0	870.0	40.0	868.0	300.0	866.7	480.0	867.1	495.0
GR	861.4	504.0	860.1	508.0	859.2	512.0	860.2	515.0	861.8	518.0
GR	863.1	522.5	864.4	524.0	864.9	527.0	864.9	545.0	865.0	595.0
GR	866.0	605.0	868.0	685.0	870.0	765.0	872.0	815.0	872.5	865.0
GR	872.0	895.0	871.0	925.0	872.0	955.0	874.0	1005.0	876.0	1020.0
X1	10620.	32.0	399.0	431.0	2140.0	2140.0	2140.0			
GR	884.0	0.0	885.0	50.0	884.0	100.0	882.0	160.0	880.0	220.0
GR	878.0	280.0	876.0	300.0	874.0	320.0	872.0	340.0	872.0	370.0
GR	870.0	390.0	869.8	392.0	869.2	399.0	864.5	408.0	861.9	411.0
GR	861.1	414.0	861.8	416.0	864.0	418.0	868.1	424.5	870.0	431.0
GR	870.3	438.0	870.0	453.0	870.0	460.0	869.8	500.0	870.0	680.0

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GR	868.6	740.0	870.0	820.0	872.0	880.0	873.9	960.0	877.0	1160.0
GR	880.0	1360.0	884.0	1460.0						

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X1   11440.      12.0      550.0      560.0      820.0      820.0      820.0
GR     876.0       0.0      874.0       70.0      872.0      190.0      870.0      320.0      868.0      550.0
GR     864.0     553.0      864.0      557.0      868.0      560.0      870.0      575.0      872.0      590.0
GR     874.0     650.0      876.0      730.0

X1   12160.      18.0      172.5      199.0      720.0      720.0      720.0
GR     887.0       0.0      876.0       20.0      874.0      120.0      872.8      150.0      871.9      167.0
GR     872.5     172.5      871.0      178.0      866.1      180.0      865.4      182.0      865.2      186.0
GR     865.0     188.0      865.4      190.0      873.1      199.0      875.7      208.0      876.5      218.0
GR     878.0     268.0      879.1      388.0      878.0      628.0
1
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST


*PROF 1

CCHV=      .300 CEHV=      .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS=      180.0      640.0  TYPE=       1  TARGET=      460.000
   100.000       4.82     836.32        .00     842.00     836.44        .12        .00        .00     835.50
     240.0        2.8      226.7       10.5        4.5       78.2       15.4         .0         .0     835.30
       .00        .63       2.90        .68       .100       .065       .100       .000     831.50     518.58
   .005092         0.         0.         0.          0          0          8        .00      73.68     592.26


*SECNO 540.000
   540.000       4.12     838.22        .00        .00     838.27        .05       1.80        ,02     836.60
     240.0       53.7       91.8       94.5       51.7       38.5       82.8        1.3         .9     836.80
       .07       1.04       2.39       1.14       .100       .065       .100       .000     834.10     256.65
   .003557       400.       440.       400.          3          0          0        .00     116.77     373.42


*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .49


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       849.00 ELREA=       849.00

   980.000       3.78     840.78        .00        .00     841.33        .55       2.81        .25     838.10
     240.0         .0      240.0         .0         .0       40.3         .0        2.4        1.5     838.10
       .09        .00       5.96        .00       .000       .065       .000       .000     837.00     290.50
   .014659       440.       440.       440.          2          0          0        .00      12.00     302.50


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     2          .024        .20       2.70        .00       6.00        .00       60.00      2          1         837.90     837.20

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  1 - HEADWALL
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*SECNO 1040.000

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

SPECIAL CULVERT OUTLET CONTROL
EGIC = 842.123 EGOC = 842.251 PCWSE= 840.780 ELTRD= 849.100

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.65

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
842.12	842.25	.92	0.	240.	4.418	56.5	849.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	4.95	841.95	.00	.00	842.25	.30	.92	.00	838.10
240.0	.0	240.0	.0	.0	54.3	.0	2.4	1.6	838.10
.10	.00	4.42	.00	.000	.065	.000	.000	837.00	290.50
.005404	60.	60.	60.	2	0	0	.00	12.00	302.50

*SECNO 1140.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.15

1140.000	3.53	842.53	.00	.00	842.55	.02	.22	.08	840.00
240.0	113.0	106.5	20.6	169.8	63.4	31.5	2.8	1.8	840.00
.12	.67	1.68	.65	.100	.065	.100	.000	839.00	110.87
.001168	100.	100.	100.	2	0	0	.00	163.04	273.91

*SECNO 1700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .24

1700.000	2.14	844.14	.00	.00	844.35	.21	1.71	.09	844.00
240.0	.1	239.8	.1	.3	65.4	.2	4.9	3.2	844.00
.17	.37	3.67	.37	.100	.065	.100	.000	842.00	456.24
.020534	560.	560.	560.	2	0	0	.00	60.91	517.15

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

*SECNO 2300.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.74

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2300.000	6.61	850.51	.00	.00	851.12	.60	6.57	.20	844.80
240.0	.0	240.0	.0	.0	38.5	.0	5.6	3.7	844.30
.19	.00	6.23	.00	.000	.065	.000	.000	843.90	333.00
.006787	500.	600.	600.	3	0	0	.00	6.00	339.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	6.00	.00	50.00	2	1	845.20	843.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2350.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 851.884 EGOC = 852.402 PCWSE= 850.513 ELTRD= 860.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
851.88	852.40	1.29	0.	240.	6.019	28.3	860.00	0.

3470 ENCROACHMENT STATIONS= 250.0 520.0 TYPE= 1 TARGET= 270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2350.000	6.64	851.84	.00	.00	852.40	.56	1.29	.00	845.20
240.0	.0	240.0	.0	.0	39.9	.0	5.7	3.7	845.20
.19	.00	6.02	.00	.000	.065	.000	.000	845.20	333.00
.005547	50.	50.	50.	2	0	0	.00	6.00	339.00

*SECNO 2410.000

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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= 856.00 ELREA= 856.00

2410.000	5.00	852.20	.00	.00	852.93	.73	.45	.08	847.20
240.0	.0	240.0	.0	.0	35.0	.0	5.7	3.7	847.20

.20	.00	6.85	.00	.000	.065	.000	.000	847.20	540.00
.010501	60.	60.	100.	2	0	0	.00	7.00	547.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 853.807 EGOC = 853.991 PCWSE= 852.203 ELTRD= 856.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
853.81	853.99	1.06	0.	240.	6.099	38.5	856.00	0.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 856.00 ELREA= 856.00

2490.000	5.61	853.41	.00	.00	853.99	.58	1.06	.00	847.80
240.0	.0	240.0	.0	.0	39.4	.0	5.8	3.7	847.80
.20	.00	6.10	.00	.000	.065	.000	.000	847.80	540.00
.007120	80.	80.	80.	2	0	0	.00	7.00	547.00

*SECNO 2590.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 58.78

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

3470 ENCROACHMENT STATIONS= 350.0 605.0 TYPE= 1 TARGET= -350.000

2590.000	10.16	854.16	.00	.00	854.16	.00	.00	.17	848.80
240.0	11.3	228.2	.5	218.9	1079.6	13.9	7.4	3.9	848.80
.34	.05	.21	.03	.100	.045	.100	.000	844.00	372.13
.000002	100.	100.	100.	2	0	0	.00	183.28	555.41

CCHV= .200 CEHV= .400
*SECNO 3300.000

3300.000	10.17	854.17	.00	.00	854.17	.00	.00	.00	848.80

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      240.0        5.7      232.1        2.2      114.6      973.3       50.7       27.9        6.9     848.80
       1.22        .05        .24        .04       .100       .045       .100       .000     844.00     245.87
    .000003       650.       740.       800.          2          0          0        .00     175.92     421.79


CCHV=      .300 CEHV=      .500
*SECNO 3570.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .02


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       856.50 ELREA=       856.50

    3570.000       7.14     853.95        .00        .00     854.39        .44        .00        .22     848.40
       240.0         .0      240.0         .0         .0       45.0         .0       28.6        7.0     848.00
        1.22        .00       5.33        .00       .000       .065       .000       .000     846.81     397.00
    .005071        50.        50.        50.          2          0          0        .00       7.00     404.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .20       2.70        .00       7.00        .00       80.00      2          1         849.20     848.30

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  1 - HEADWALL

*SECNO 3650.000

SPECIAL CULVERT OUTLET CONTROL
EGIC =    855.194  EGOC =    855.421  PCWSE=    853.946  ELTRD=    858.000

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


SPECIAL CULVERT

      EGIC       EGOC         H4      QWEIR      QCULV       VCH      ACULV      ELTRD     WEIRLN
    855.19     855.42       1.03         0.        240.     6.058       38.5     858.00         0.


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       858.00 ELREA=       858.00

    3650.000       5.65     854.85        .00        .00     855.42        .57       1.03        .00     849.20
       240.0         .0      240.0         .0         .0       39.6         .0       28.6        7.0     849.20
        1.23        .00       6.06        .00       .000       .065       .000       .000     849.20     397.00
    .006961        80.        80.        80.          2          0          0        .00       7.00     404.00


*SECNO 3900.000

3301 HV CHANGED MORE THAN HVINS
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3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.34

3900.000	6.25	855.75	.00	.00	855.76	.01	.17	.17	850.00
240.0	51.1	110.0	78.9	129.4	92.1	176.1	29.9	7.5	850.00
1.31	.39	1.19	.45	.100	.065	.100	.000	849.50	261.59
.000244	300.	250.	200.	2	0	0	.00	177.12	438.71

CCHV= .100 CEHV= .300
*SECNO 5790.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .07

5790.000	3.18	856.78	.00	.00	857.63	.85	1.62	.25	860.20
240.0	.0	240.0	.0	.0	32.4	.0	39.2	11.7	860.00
1.38	.00	7.40	.00	.000	.065	.000	.000	853.60	439.83
.053201	1890.	1890.	1890.	5	0	0	.00	17.88	457.70

1

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

*SECNO 6590.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.29

6590.000	5.72	861.92	.00	.00	862.02	.10	4.31	.07	860.00
240.0	3.4	233.2	3.4	5.6	89.8	5.6	40.4	12.2	860.00
1.47	.61	2.60	.61	.100	.065	.100	.000	856.20	406.22
.001904	880.	800.	800.	5	0	0	.00	29.55	435.78

CCHV= .300 CEHV= .500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.00 ELREA= 866.00

6750.000	6.06	862.16	.00	.00	862.29	.12	.26	.01	856.10
240.0	.0	240.0	.0	.0	84.9	.0	40.8	12.3	856.10
1.49	.00	2.83	.00	.000	.065	.000	.000	856.10	432.00
.001383	160.	160.	160.	3	0	0	.00	14.00	446.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.017	.40	2.70	.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 859.898 EGOC = 862.595 PCWSE= 862.163 ELTRD= 867.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.90	862.60	.31	0.	240.	2.776	58.5	867.00	0.

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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= 867.00 ELREA= 867.00

6810.000	6.18	862.48	.00	.00	862.60	.12	.31	.00	856.30
240.0	.0	240.0	.0	.0	86.5	.0	40.9	12.3	856.30
1.49	.00	2.78	.00	.000	.065	.000	.000	856.30	432.00
.001301	60.	60.	60.	2	0	0	.00	14.00	446.00

*SECNO 6940.000

6940.000	5.73	862.73	.00	.00	862.77	.04	.15	.02	860.00
240.0	5.9	150.4	83.7	10.0	76.9	126.3	41.3	12.5	860.00
1.52	.59	1.95	.66	.100	.065	.100	.000	857.00	366.36
.001014	130.	130.	130.	2	0	0	.00	108.21	474.57

CCHV= .100 CEHV= .300
*SECNO 8480.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .62

8480.000	5.87	865.07	.00	.00	865.18	.10	2.39	.02	867.10
240.0	.0	237.4	2.6	.0	91.9	11.0	46.9	16.1	864.40
1.69	.00	2.58	.24	.000	.065	.100	.000	859.20	498.19
.002668	1540.	1540.	1540.	2	0	0	.00	97.60	595.79

*SECNO 10620.000

3265 DIVIDED FLOW

10620.000	8.22	869.32	.00	.00	869.38	.06	4.20	.00	869.20
240.0	.0	232.5	7.5	.1	116.4	25.7	52.9	21.0	870.00
1.99	.01	2.00	.29	.100	.065	.100	.000	861.10	397.63
.001502	2140.	2140.	2140.	3	0	0	.00	102.77	780.99

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*SECNO 11440.000
 11440.000      6.28    870.28      .00      .00    870.29      .02      .91      .00   868.00
     240.0     150.3      80.0      9.8    296.3      50.8     19.4     57.7     24.6   868.00
      2.26       .51      1.58       .50     .100      .065     .100     .000   864.00   301.98
   .000852      820.      820.      820.        3         0        0      .00   275.10   577.08


1
    15FEB94      13:05:10                                                                PAGE   14

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

*SECNO 12160.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .53

 12160.000      6.25    871.25      .00      .00    871.38      .12     1.05      .03   872.50
     240.0        .0     240.0       .0       .0      84.8        .0     61.5     27.0   873.10
      2.33       .00      2.83       .00     .000      .065     .000     .000   865.00   177.07
   .003079      720.      720.      720.        2         0        0      .00    19.77   196.84


1
    15FEB94      13:05:10                                                                PAGE   15

T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 50-YEAR FLOOD PROFILE - STS CONSULTANTS LTD.  1/94  MMW
T3SMITH DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

     0.0        3.0        0.0        0.0       .0051       0.0        0.0        0.0       842.0       0.0

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     2.0        0.0       -1.0        0.0        0.0        0.0        0.0        0.0        0.0        0.0

1
    15FEB94      13:05:10                                                                PAGE   16

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

*PROF 2

CCHV=      .300 CEHV=      .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS=      180.0      640.0  TYPE=       1  TARGET=       460.000
   100.000      5.52    837.02      .00    842.00    837.18      .16      .00      .00   835.50
     400.0      16.6     341.1     42.3      18.2     100.0      44.1       .0       .0   835.30
       .00       .92      3.41       .96      .100      .065      .100     .000   831.50   504.50
```

.005077	0.	0.	0.	0	0	7	.00	108.60	613.11

*SECNO 540.000

540.000	4.77	838.87	.00	.00	838.92	.05	1.71	.03	836.60
400.0	102.7	128.8	168.5	81.8	48.2	121.5	2.0	1.1	836.80
.07	1.25	2.67	1.39	.100	.065	.100	.000	834.10	250.57
.003298	400.	440.	400.	2	0	0	.00	125.26	375.83

*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .38

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.00 ELREA= 849.00

980.000	4.41	841.41	.00	.00	842.49	1.09	3.05	.52	838.10
400.0	.0	400.0	.0	.0	47.8	.0	3.5	1.8	838.10
.08	.00	8.37	.00	.000	.065	.000	.000	837.00	290.50
.022987	440.	440.	440.	3	0	0	.00	12.00	302.50

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	.024	.20	2.70	.00	6.00	.00	60.00	2	1	837.90	837.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 1040.000

1

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

SPECIAL CULVERT INLET CONTROL
EGIC = 843.796 EGOC = 843.759 PCWSE= 841.407 ELTRD= 849.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.91

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
843.80	843.76	1.30	0.	400.	5.670	56.5	849.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	6.30	843.30	.00	.00	843.80	.50	1.30	.00	838.10
400.0	.0	400.0	.0	.0	70.5	.0	3.6	1.8	838.10
.08	.00	5.67	.00	.000	.065	.000	.000	837.00	290.50
.006284	60.	60.	60.	2	0	0	.00	12.00	302.50

*SECNO 1140.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.77

1140.000	5.04	844.04	.00	.00	844.05	.01	.11	.15	840.00
400.0	230.1	125.5	44.5	369.7	93.7	76.1	4.3	2.0	840.00
.12	.62	1.34	.58	.100	.065	.100	.000	839.00	84.67
.000443	100.	100.	100.	2	0	0	.00	200.57	285.25

*SECNO 1700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .16

1700.000	2.65	844.65	.00	.00	844.92	.27	.73	.13	844.00
400.0	5.0	392.1	2.9	5.5	93.1	3.1	8.4	3.9	844.00
.15	.91	4.21	.91	.100	.065	.100	.000	842.00	442.96
.016881	560.	560.	560.	3	0	0	.00	81.75	524.71

1

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

*SECNO 2300.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2300.000	7.96	851.86	.00	.00	853.00	1.14	7.65	.44	844.80
400.0	.0	400.0	.0	.0	46.6	.0	9.4	4.4	844.30
.17	.00	8.58	.00	.000	.065	.000	.000	843.90	333.00
.009990	500.	600.	600.	4	0	0	.00	6.00	339.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	6.00	.00	50.00	2	1	845.20	843.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2350.000

SPECIAL CULVERT OUTLET CONTROL

EGIC = 856.847 EGOC = 857.109 PCWSE= 851.860 ELTRD= 860.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.97

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
856.85	857.11	4.11	0.	400.	5.859	28.3	860.00	0.

3470 ENCROACHMENT STATIONS= 250.0 520.0 TYPE= 1 TARGET= 270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2350.000	11.38	856.58	.00	.00	857.11	.53	4.11	.00	845.20
400.0	.0	400.0	.0	.0	68.3	.0	9.5	4.5	845.20
.18	.00	5.86	.00	.000	.065	.000	.000	845.20	333.00
.002566	50.	50.	50.	2	0	0	.00	6.00	339.00

1

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

*SECNO 2410.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.53

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

2410.000	10.08	857.28	.00	.00	857.30	.01	.03	.16	847.20
400.0	175.3	108.1	116.6	319.8	70.6	188.9	10.0	4.6	847.20
.20	.55	1.53	.62	.100	.065	.100	.000	847.20	460.00
.000206	60.	60.	100.	2	0	0	.00	135.84	595.84

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 857.51

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.34

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
856.77	860.37	.21	291.	109.	.447	38.5	856.00	112.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

2490.000	9.71	857.51	.00	.00	857.51	.00	.21	.00	847.80
400.0	354.3	30.4	15.2	1279.1	68.0	93.7	11.9	4.9	847.80
.28	.28	.45	.16	.100	.065	.100	.000	847.80	400.00
.000018	80.	80.	80.	0	0	0	.00	190.26	590.26

*SECNO 2590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 3.08

3470 ENCROACHMENT STATIONS= 350.0 605.0 TYPE= 1 TARGET= -350.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2590.000	13.51	857.51	.00	.00	857.51	.00	.00	.00	848.80
400.0	35.6	362.2	2.2	506.7	1448.6	46.1	15.8	5.3	848.80
.40	.07	.25	.05	.100	.045	.100	.000	844.00	350.00
.000002	100.	100.	100.	1	0	0	.00	213.79	563.79

CCHV= .200 CEHV= .400

*SECNO 3300.000

3300.000	13.51	857.51	.00	.00	857.52	.00	.00	.00	848.80
400.0	26.7	364.6	8.7	419.6	1308.8	150.6	47.9	9.1	848.80
1.18	.06	.28	.06	.100	.045	.100	.000	844.00	184.80
.000002	650.	740.	800.	0	0	0	.00	252.92	437.72

CCHV= .300 CEHV= .500

*SECNO 3570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .05

3570.000	10.67	857.48	.00	.00	857.55	.07	.00	.03	848.40
400.0	91.1	197.1	111.7	77.9	69.8	114.8	49.2	9.3	848.00
1.19	1.17	2.83	.97	.100	.065	.100	.000	846.81	374.40
.000794	50.	50.	50.	2	0	0	.00	75.40	449.80

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	849.20	848.30

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 3650.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 858.68
SPECIAL CULVERT

EGIC	EGOC	HJ	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
858.15	860.56	1.13	152.	250.	2.173	38.5	858.00	188.

3650.000	9.45	858.65	.00	.00	858.68	.03	1.13	.00	849.20
400.0	116.5	143.7	139.8	160.0	66.1	173.9	49.8	9.5	849.20
1.21	.73	2.17	.80	.100	.065	.100	.000	849.20	304.22
.000452	80.	80.	80.	2	0	0	.00	157.25	461.48

1

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

*SECNO 3900.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.78

3900.000	9.22	858.72	.00	.00	858.72	.00	.03	.01	850.00
400.0	147.4	104.0	148.6	532.1	136.8	463.4	54.2	11.0	850.00
1.37	.28	.76	.32	.100	.065	.100	.000	849.50	145.48
.000059	300.	250.	200.	2	0	0	.00	344.90	490.38

CCHV= .100 CEHV= .300
*SECNO 5790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .07

5790.000	5.23	858.83	.00	.00	859.23	.40	.39	.12	860.20
400.0	.0	400.0	.0	.0	78.7	.0	80.5	19.1	860.00
1.47	.00	5.08	.00	.000	.065	.000	.000	853.60	436.03
.013537	1890.	1890.	1890.	2	0	0	.00	27.28	463.31

*SECNO 6590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.33

6590.000	6.79	862.99	.00	.00	863.16	.16	3.91	.02	860.00
400.0	14.3	368.7	17.1	13.5	109.1	19.4	82.5	19.8	860.00
1.54	1.06	3.38	.88	.100	.065	.100	.000	856.20	403.01
.002487	880.	800.	800.	3	0	0	.00	47.95	450.96

CCHV= .300 CEHV= .500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.00 ELREA= 866.00

6750.000	7.22	863.32	.00	.00	863.57	.24	.37	.04	856.10	
400.0	.0	400.0	.0	.0	101.1	.0	83.0	19.9	856.10	
1.55	.00	3.96	.00	.000	.065	.000	.000	856.10	432.00	
.002145	160.	160.	160.	2	0	0	.00	14.00	446.00	

1

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

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.017	.40	2.70	.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

SPECIAL CULVERT OUTLET CONTROL
EGIC = 861.359 EGOC = 864.525 PCWSE= 863.324 ELTRD= 867.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
861.36	864.53	.96	0.	400.	3.559	58.5	867.00	0.

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 867.00 ELREA= 867.00

6810.000	8.03	864.33	.00	.00	864.53	.20	.96	.00	856.30	
400.0	.0	400.0	.0	.0	112.4	.0	83.1	19.9	856.30	
1.56	.00	3.56	.00	.000	.065	.000	.000	856.30	432.00	
.001507	60.	60.	60.	2	0	0	.00	14.00	446.00	

*SECNO 6940.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.89

6940.000	7.65	864.65	.00	.00	864.67	.02	.09	.05	860.00	
400.0	21.4	165.0	213.6	47.6	105.8	323.9	84.0	20.2	860.00	
1.59	.45	1.56	.66	.100	.065	.100	.000	857.00	320.83	
.000422	130.	130.	130.	2	0	0	.00	185.70	506.53	

CCHV= .100 CEHV= .300
*SECNO 8480.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .39

8480.000	6.74	865.94	.00	.00	866.05	.12	1.35	.03	867.10
400.0	.0	340.6	59.4	.0	114.6	76.3	95.8	25.4	864.40
1.76	.00	2.97	.78	.000	.065	.100	.000	859.20	496.84
.002828	1540.	1540.	1540.	2	0	0	.00	107.54	604.37

1

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

*SECNO 10620.000

3265 DIVIDED FLOW

10620.000	9.11	870.21	.00	.00	870.27	.06	4.21	.01	869.20
400.0	2.4	311.5	86.1	5.8	144.2	199.8	109.1	38.7	870.00
2.09	.42	2.16	.43	.100	.065	.100	.000	861.10	387.89
.001445	2140.	2140.	2140.	4	0	0	.00	431.94	826.34

*SECNO 11440.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.49

11440.000	7.03	871.03	.00	.00	871.04	.01	.77	.00	868.00
400.0	292.5	88.2	19.4	501.0	58.3	34.4	118.0	45.8	868.00
2.38	.58	1.51	.56	.100	.065	.100	.000	864.00	253.12
.000653	820.	820.	820.	3	0	0	.00	329.59	582.72

*SECNO 12160.000

3265 DIVIDED FLOW

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .33

12160.000	6.92	871.92	.00	.00	872.18	.25	1.07	.07	872.50
400.0	.0	400.0	.0	.0	99.1	.0	123.7	48.8	873.10
2.43	.01	4.04	.00	.000	.065	.000	.000	865.00	166.55
.006054	720.	720.	720.	2	0	0	.00	23.68	197.63

1

T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 100-YEAR FLOOD PROFILE - STS CONSULTANTS LTD. 1/94 MMW
T3SMITH DRAIN

J1 ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
0.0	4.0	0.0	0.0	.0051	0.0	0.0	0.0	842.5	0.0

```
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    3.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

1
   15FEB94      13:05:10                                                                                  PAGE   25

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

*PROF 3

CCHV=      .300 CEHV=      .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS=      180.0      640.0  TYPE=      1  TARGET=      460.000
   100.000      5.75    837.25       .00    842.50    837.42       .16       .00       .00    835.50
     465.0      24.6     381.7      58.7      24.7     107.1      56.4        .0        .0    835.30
       .00      1.00      3.56      1.04      .100      .065      .100      .000    831.50    499.96
   .005066        0.        0.        0.         0         0         7       .00    119.88    619.84

*SECNO 540.000
   540.000      4.99    839.09       .00       .00    839.15       .06      1.70       .03    836.60
     465.0     123.3     143.2     198.5      92.9      51.5     134.9       2.2       1.2    836.80
       .06      1.33      2.78      1.47      .100      .065      .100      .000    834.10    248.51
   .003274      400.      440.      400.         2         0         0       .00    128.13    376.64

*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .35

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       849.00 ELREA=       849.00

   980.000      4.61    841.61       .00       .00    842.94      1.33      3.15       .64    838.10
     465.0        .0     465.0        .0        .0      50.2        .0       3.9       1.9    838.10
       .08       .00      9.26       .00      .000      .065      .000      .000    837.00    290.50
   .026405      440.      440.      440.         3         0         0       .00     12.00    302.50

SPECIAL CULVERT

SC  CUNO      CUNV      ENTLC     COFQ      RDLEN     RISE      SPAN      CULVLN    CHRT      SCL       ELCHU     ELCHD
    2          .024       .20      2.70       .00      6.00       .00     60.00      2         1        837.90    837.20

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  1 - HEADWALL

*SECNO 1040.000
1
   15FEB94      13:05:10                                                                                  PAGE   26
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WOODFIELD ROAD

2.09

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

SPECIAL CULVERT INLET CONTROL
EGIC = 844.470 EGOC = 844.355 PCWSE= 841.606 ELTRD= 849.100

WOODFIELD ROAD

Red Cedar 846.5

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.09

OUTLET = 841 "low flow"

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
844.47	844.36	1.53	0.	465.	5.960	56.5	849.10	0.

844.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	6.92	843.92	.00	.00	844.47	.55	1.53	.00	838.10
465.0	.0	465.0	.0	.0	78.0	.0	4.0	1.9	838.10
.08	.00	5.96	.00	.000	.065	.000	.000	837.00	290.50
.006070	60.	60.	60.	2	0	0	.00	12.00	302.50

847.81

*SECNO 1140.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.41

1140.000	5.71	844.71	.00	.00	844.72	.01	.08	.16	840.00
465.0	278.3	131.6	55.1	469.0	107.0	101.3	4.8	2.1	840.00
.12	.59	1.23	.54	.100	.065	.100	.000	839.00	78.00
.000312	100.	100.	100.	2	0	0	.00	212.25	290.25

*SECNO 1700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .18

1700.000	3.11	845.11	.00	.00	845.31	.20	.50	.10	844.00
465.0	15.9	440.0	9.1	16.3	118.7	9.3	10.1	4.2	844.00
.16	.98	3.71	.98	.100	.065	.100	.000	842.00	430.74
.009472	560.	560.	560.	3	0	0	.00	100.94	531.68

1

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

*SECNO 2300.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

2300.000	7.63	851.53	.00	.00	853.22	1.69	7.16	.74	844.80
465.0	.0	465.0	.0	.0	44.6	.0	11.4	4.9	844.30
.18	.00	10.42	.00	.000	.065	.000	.000	843.90	333.00
.015604	500.	600.	600.	3	0	0	.00	6.00	339.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	6.00	.00	50.00	2	1	845.20	843.90

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2350.000

C20 Railroad

SPECIAL CULVERT INLET CONTROL
EGIC = 859.513 EGOC = 858.625 TCWSE= 851.531 ELTRD= 860.000

$1+.54\frac{29.1(.024)^2 29.1}{(1.5)^{4/3}} = 1.78$

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.94

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.51	858.62	6.30	0.	465.	5.605	28.3	860.00	0.

3470 ENCROACHMENT STATIONS= 250.0 520.0 TYPE= 1 TARGET= 270.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 860.00 ELREA= 860.00

859.5 outlet

2350.000	13.82	859.02	.00	.00	859.51	.49	6.30	.00	845.20
465.0	.0	465.0	.0	.0	83.0	.0	11.5	4.9	845.20
.18	.00	5.61	.00	.000	.065	.000	.000	845.20	333.00
.001811	50.	50.	50.	2	0	0	.00	6.00	339.00

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

*SECNO 2410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.82

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

2410.000	12.47	859.67	.00	.00	859.67	.01	.01	.14	847.20
465.0	223.4	94.6	147.0	510.1	87.2	329.6	12.3	5.0	847.20
.21	.44	1.08	.45	.100	.065	.100	.000	847.20	460.00
.000078	60.	60.	100.	0	0	0	.00	150.00	610.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 859.68

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.56

unnamed crossing

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
858.14	863.83	.00	440.	23.	.410	38.5	856.00	156.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

2490.000	11.87	859.67	.00	.00	859.68	.00	.00	.00	847.80
465.0	402.1	34.1	28.9	1581.8	83.1	234.0	14.9	5.4	847.80
.30	.25	.41	.12	.100	.065	.100	.000	847.80	400.00
.000012	80.	80.	80.	0	0	0	.00	233.51	633.51

*SECNO 2590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.81

3470 ENCROACHMENT STATIONS= 350.0 605.0 TYPE= 1 TARGET= -350.000

2590.000	15.67	859.67	.00	.00	859.68	.00	.00	.00	848.80
465.0	51.4	409.4	4.2	701.2	1686.3	88.8	19.9	5.9	848.80
.42	.07	.24	.05	.100	.045	.100	.000	844.00	350.00
.000002	100.	100.	100.	0	0	0	.00	227.59	577.59

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

CCHV= .200 CEHV= .400
*SECNO 3300.000

3300.000	15.68	859.68	.00	.00	859.68	.00	.00	.00	848.80
465.0	47.6	402.2	15.2	803.9	1524.8	250.5	61.6	11.1	848.80
1.28	.06	.26	.06	.100	.045	.100	.000	844.00	29.65
.000002	650.	740.	800.	0	0	0	.00	427.15	456.80

CCHV= .300 CEHV= .500
*SECNO 3570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .08

3570.000	12.86	859.67	.00	.00	859.69	.02	.00	.01	848.40
465.0	147.2	157.3	160.5	260.7	85.1	262.7	63.4	11.5	848.00
1.30	.56	1.85	.61	.100	.065	.100	.000	846.81	294.63
.000261	50.	50.	50.	1	0	0	.00	246.20	540.83

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	849.20	848.30

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

Okemos ROAD

*SECNO 3650.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 859.68
5150, EG OF 859.68 LESS THAN XEG OF 859.69
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
859.52	863.83	.00	442.	22.	1.875	38.5	858.00	372.

3650.000	10.47	859.67	.00	.00	859.69	.02	.00	.00	849.20
465.0	157.3	137.4	170.3	259.9	73.3	260.9	64.5	12.0	849.20
1.32	.61	1.88	.65	.100	.065	.100	.000	849.20	294.66
.000294	80.	80.	80.	2	0	0	.00	245.71	540.38

*SECNO 3900.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.69

3900.000	10.21	859.71	.00	.00	859.71	.00	.02	.01	850.00
465.0	189.4	103.0	172.5	785.2	151.7	586.9	70.7	14.0	850.00
1.51	.24	.68	.29	.100	.065	.100	.000	849.50	55.91
.000041	300.	250.	200.	2	0	0	.00	441.94	497.84

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
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 5790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .07

5790.000	6.17	859.77	.00	.00	860.07	.30	.27	.09	860.20
465.0	.0	465.0	.0	.0	106.4	.0	106.0	24.3	860.00
1.63	.00	4.37	.00	.000	.065	.000	.000	853.60	434.29
.008135	1890.	1890.	1890.	2	0	0	.00	31.60	465.89

*SECNO 6590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.75

6590.000	7.15	863.35	.00	.00	863.53	.19	3.45	.01	860.00
465.0	20.0	418.6	26.4	16.8	115.4	27.7	108.5	25.1	860.00
1.70	1.19	3.63	.95	.100	.065	.100	.000	856.20	401.95
.002657	880.	800.	800.	2	0	0	.00	54.27	456.23

CCHV= .300 CEHV= .500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 866.00 ELREA= 866.00

6750.000	7.60	863.70	.00	.00	864.00	.30	.41	.06	856.10
465.0	.0	465.0	.0	.0	106.4	.0	109.0	25.2	856.10
1.71	.00	4.37	.00	.000	.065	.000	.000	856.10	432.00
.002447	160.	160.	160.	2	0	0	.00	14.00	446.00

Bennett Road

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.017	.40	2.70	.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

1

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

SPECIAL CULVERT OUTLET CONTROL
EGIC = 862.091 EGOC = 865.323 PCWSE= 863.699 ELTRD= 867.000

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
862.09	865.32	1.33	0.	465.	3.774	58.5	867.00	0.

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3470 ENCROACHMENT STATIONS=          .0      550.0  TYPE=       1  TARGET=       549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=        867.00 ELREA=        867.00

  6810.000       8.80     865.10        .00        .00     865.32        .22       1.33        .00     856.30
     465.0         .0      465.0         .0         .0      123.2         .0      109.2       25.2     856.30
      1.71        .00       3.77        .00       .000       .065       .000       .000     856.30     432.00
   .001499        60.        60.        60.          2          0          0        .00      14.00     446.00


*SECNO 6940.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.26

  6940.000       8.44     865.44        .00        .00     865.46        .01        .07        .06     860.00
     465.0       38.6      164.6      261.8      109.2      117.7      419.3      110.3       25.6     860.00
      1.75        .35       1.40        .62       .100       .065       .100       .000     857.00     273.37
   .000295       130.       130.       130.          2          0          0        .00     241.07     514.44


CCHV=      .100 CEHV=      .300
*SECNO 8480.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .35

  8480.000       7.18     866.38        .00        .00     866.48        .10        .99        .03     867.10
     465.0         .0      362.6      102.4         .0      126.8      114.8      126.0       32.1     864.40
      1.93        .00       2.86        .89       .000       .065       .100       .000     859.20     496.14
   .002377      1540.      1540.      1540.          2          0          0        .00     123.97     620.11


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   15FEB94       13:05:10                                                                                  PAGE    32

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


*SECNO 10620.000
 10620.000       9.27     870.37        .00        .00     870.43        .06       3.95        .00     869.20
     465.0        3.6      333.5      127.9        7.7      149.3      263.8      142.3       46.0     870.00
      2.27        .47       2.23        .48       .100       .065       .100       .000     861.10     386.27
   .001473      2140.      2140.      2140.          5          0          0        .00     444.91     831.18


*SECNO 11440.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.47

 11440.000       7.21     871.21        .00        .00     871.22        .01        .79        .00     868.00
     465.0      347.3       94.5       23.2      556.3       60.1       38.7      152.4       53.5     868.00
      2.55        .62       1.57        .60       .100       .065       .100       .000     864.00     241.26
   .000678       820.       820.       820.          3          0          0        .00     342.82     584.09


*SECNO 12160.000

3265 DIVIDED FLOW
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3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .31

 12160.000       7.15     872.15        .00        .00     872.46        .31       1.15        .09     872.50
     465.0         .3      464.7         .0         .9      104.4         .0      158.7        56.5     873.10
      2.60        .32       4.45        .00       .100       .065       .000       .000     865.00     162.28
   .007248       720.      720.       720.          2          0          0        .00      31.11     197.89
```

d/s Jolly


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T1MERIDIAN TOWNSHIP FLOOD INSURANCE STUDY
T2UPDATED 500-YEAR FLOOD PROFILE - STS CONSULTANTS LTD.  1/94  MMW
T3SMITH DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.0       5.0       0.0       0.0      .0051      0.0       0.0       0.0      842.5      0.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    15.0       0.0      -1.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

*PROF 4

CCHV=      .300 CEHV=      .500
*SECNO 100.000

3470 ENCROACHMENT STATIONS=      180.0      640.0  TYPE=      1  TARGET=      460.000
   100.000       6.15     837.65        .00     842.50     837.83        .18        .00        .00     835.50
     600.0       44.0      459.2       96.8       38.7      119.5       82.0         .0         .0     835.30
       .00       1.14       3.84       1.18       .100       .065       .100       .000     831.50     491.96
   .005090         0.         0.         0.          0          0          7        .00     139.73     631.69


*SECNO 540.000
   540.000       5.40     839.50        .00        .00     839.56        .07       1.70        .03     836.60
     600.0      167.1      172.4      260.5      114.5       57.6      160.2        2.7        1.3     836.80
       .06       1.46       3.00       1.63       .100       .065       .100       .000     834.10     244.72
   .003273        400.       440.       400.          2          0          0        .00     133.42     378.14


*SECNO 980.000

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .31
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.00 ELREA= 849.00

980.000	4.94	841.94	.00	.00	843.84	1.91	3.36	.92	838.10
600.0	.0	600.0	.0	.0	54.1	.0	4.7	2.0	838.10
.07	.00	11.08	.00	.000	.065	.000	.000	837.00	290.50
.034143	440.	440.	440.	3	0	0	.00	12.00	302.50

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	2	.024	.20	2.70	.00	6.00	.00	60.00	2	1	837.90	837.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

5140, NORMAL DEPTH EXCEEDS CULVERT HEIGHT
*SECNO 1040.000

1

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

SPECIAL CULVERT INLET CONTROL
EGIC = 846.272 EGOC = 845.684 PCWSE= 841.936 ELTRD= 849.100

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.75

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
846.27	845.68	2.43	0.	600.	6.033	56.5	849.10	0.

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.10 ELREA= 849.10

1040.000	8.71	845.71	.00	.00	846.27	.57	2.43	.00	838.10
600.0	.0	600.0	.0	.0	99.4	.0	4.8	2.0	838.10
.07	.00	6.03	.00	.000	.065	.000	.000	837.00	290.50
.004500	60.	60.	60.	2	0	0	.00	12.00	302.50

*SECNO 1140.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.76

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  1140.000       7.47     846.47       .00       .00     846.48       .01       .04       .17     840.00
     600.0      378.3      139.7      82.0     753.8      142.4     184.6       6.1       2.3     840.00
       .12        .50        .98       .44      .100       .065      .100      .000    839.00      59.71
   .000136      100.       100.      100.         2          0         0       .00    244.98     304.70


*SECNO 1700.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =    .32

  1700.000       4.63     846.63       .00       .00     846.67       .04       .17       .02     844.00
     600.0      168.1      395.4      36.5     279.3      202.1      50.1      16.5       6.1     844.00
       .22        .60       1.96       .73      .100       .065      .100      .000    842.00     211.34
   .001296      560.       560.      560.         2          0         0       .00    337.59     548.93


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


*SECNO 2300.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       860.00 ELREA=       860.00

  2300.000       6.96     850.86     850.86       .00     854.25      3.38      2.14      1.67     844.80
     600.0         .0      600.0         .0        .0       40.6        .0      20.1       8.1     844.30
       .23        .00      14.76        .00      .000       .065      .000      .000    843.90     333.00
   .035497      500.       600.      600.         20         11         0       .00      6.00     339.00


SPECIAL CULVERT

SC  CUNO       CUNV       ENTLC      COFQ       RDLEN      RISE       SPAN       CULVLN     CHRT       SCL        ELCHU      ELCHD
     1          .024        .20       2.70        .00       6.00        .00      50.00       2          1        845.20     843.90

CHART  2 - CORRUGATED METAL PIPE CULVERT
SCALE  1 - HEADWALL

5130, EGIC=  866.33..MAY BE TOO LARGE IF INLET CONTROLS.
5135, EGOC=  862.68 ..MAY BE TOO LARGE IF OUTLET CONTROLS.
*SECNO 2350.000

SPECIAL CULVERT INLET CONTROL + WEIR FLOW, EG =     860.28

3301 HV CHANGED MORE THAN HVINS


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO = 73.30

SPECIAL CULVERT
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EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
866.33	862.68	6.03	118.	482.	.359	28.3	860.00	299.

3470 ENCROACHMENT STATIONS= 250.0 520.0 TYPE= 1 TARGET= 270.000

2350.000	15.08	860.28	.00	.00	860.28	.00	6.03	.00	845.20
600.0	180.2	32.4	387.3	982.7	90.5	2070.1	21.9	8.3	845.20
.30	.18	.36	.19	.100	.065	.100	.000	845.20	250.00
.000007	50.	50.	50.	0	0	0	.00	270.00	520.00

1

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

*SECNO 2410.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .26

3470 ENCROACHMENT STATIONS= 460.0 610.0 TYPE= 1 TARGET= 150.000

2410.000	13.07	860.27	.00	.00	860.28	.01	.00	.00	847.20
600.0	290.9	115.5	193.6	559.0	91.5	368.1	25.9	8.7	847.20
.34	.52	1.26	.53	.100	.065	.100	.000	847.20	460.00
.000099	60.	60.	100.	2	0	0	.00	150.00	610.00

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	847.80	847.20

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 2490.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 860.29

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.47

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
861.82	867.21	.00	579.	25.	.496	38.5	856.00	168.

3470 ENCROACHMENT STATIONS= 400.0 670.0 TYPE= 1 TARGET= 270.000

2490.000	12.48	860.28	.00	.00	860.29	.00	.00	.00	847.80
600.0	513.0	43.4	43.6	1667.3	87.4	298.3	28.7	9.1	847.80
.41	.31	.50	.15	.100	.065	.100	.000	847.80	400.00
.000016	80.	80.	80.	0	0	0	.00	270.00	670.00

*SECNO 2590.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.74

3470 ENCROACHMENT STATIONS= 350.0 605.0 TYPE= 1 TARGET= -350.000

2590.000	16.29	860.29	.00	.00	860.29	.00	.00	.00	848.80
600.0	69.4	524.4	6.2	756.3	1753.5	107.2	34.1	9.7	848.80
.51	.09	.30	.06	.100	.045	.100	.000	844.00	350.00
.000002	100.	100.	100.	0	0	0	.00	233.63	583.63

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

CCHV= .200 CEHV= .400

*SECNO 3300.000

3300.000	16.29	860.29	.00	.00	860.29	.00	.00	.00	848.80
600.0	69.3	509.0	21.6	982.3	1586.0	287.7	79.1	15.3	848.80
1.23	.07	.32	.08	.100	.045	.100	.000	844.00	.85
.000002	650.	740.	800.	0	0	0	.00	465.72	466.57

CCHV= .300 CEHV= .500

*SECNO 3570.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .09

3570.000	13.47	860.28	.00	.00	860.30	.02	.00	.01	848.40
600.0	202.0	177.3	220.7	326.5	89.4	363.9	81.1	15.7	848.00
1.24	.62	1.98	.61	.100	.065	.100	.000	846.81	277.34
.000281	50.	50.	50.	1	0	0	.00	310.47	587.81

SPECIAL CULVERT

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.024	.20	2.70	.00	7.00	.00	80.00	2	1	849.20	848.30

CHART 2 - CORRUGATED METAL PIPE CULVERT
SCALE 1 - HEADWALL

*SECNO 3650.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 860.28
5150, EG OF 860.28 LESS THAN XEG OF 860.30
SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
863.20	867.21	.00	578.	18.	2.001	38.5	858.00	450.

3650.000	11.08	860.28	.00	.00	860.30	.02	.00	.00	849.20
600.0	213.2	155.2	231.7	325.6	77.5	362.0	82.6	16.3	849.20

```
      1.26        .65       2.00        .64        .100       .065       .100       .000     849.20     277.53
   .000310       80.        80.        80.           2          0          0        .00     310.14     587.67


*SECNO 3900.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  2.60

  3900.000      10.83     860.33        .00        .00     860.33        .00        .02        .01     850.00
     600.0      259.8      120.6      219.6      981.4      160.9      666.3       90.1       18.6     850.00
      1.45        .26        .75        .33        .100       .065       .100       .000     849.50      26.74
   .000046       300.       250.       200.          2          0          0        .00     473.36     500.11


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    15FEB94      13:05:10                                                                                PAGE    39

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS      L-BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA        R-BANK ELEV
     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 5790.000

3265 DIVIDED FLOW


3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =   .08

  5790.000       6.79     860.39        .00        .00     860.73        .34        .30        .10     860.20
     600.0        5.2      594.6         .2       11.7      126.4         .5      132.4       31.0     860.00
      1.56        .44       4.70        .44        .100       .065       .100       .000     853.60     188.37
   .007953      1890.      1890.      1890.          2          0          0        .00      97.17     469.21


*SECNO 6590.000

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.69

  6590.000       7.86     864.06        .00        .00     864.27        .21       3.53        .01     860.00
     600.0       34.3      510.6       55.1       24.9      128.2       50.1      135.5       32.6     860.00
      1.62       1.38       3.98       1.10        .100       .065       .100       .000     856.20     394.10
   .002785       880.       800.       800.          2          0          0        .00      72.64     466.74


CCHV=      .300 CEHV=      .500
*SECNO 6750.000

3470 ENCROACHMENT STATIONS=          .0      550.0  TYPE=        1  TARGET=       549.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       866.00 ELREA=       866.00

  6750.000       8.32     864.42        .00        .00     864.83        .41        .46        .10     856.10
     600.0         .0      600.0         .0         .0      116.5         .0      136.1       32.8     856.10
      1.63        .00       5.15        .00        .000       .065       .000       .000     856.10     432.00
   .003010       160.       160.       160.          2          0          0        .00      14.00     446.00


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

SC	CUNO	CUNV	ENTLC	COFQ	RDLEN	RISE	SPAN	CULVLN	CHRT	SCL	ELCHU	ELCHD
	1	.017	.40	2.70	.00	4.50	13.00	60.00	10	1	856.30	856.10

CHART 10 - BOX CULVERT; 90-DEGREE HEADWALL; CHAMFERED OR BEVELED INLET EDGES
SCALE 1 - INLET EDGES CHAMFERED 3/4-INCH

*SECNO 6810.000

SPECIAL CULVERT OUTLET CONTROL + WEIR FLOW EG = 867.07

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.72

SPECIAL CULVERT

EGIC	EGOC	H4	QWEIR	QCULV	VCH	ACULV	ELTRD	WEIRLN
863.79	867.12	2.23	2.	594.	1.069	58.5	867.00	101.

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

6810.000	10.76	867.06	.00	.00	867.07	.01	2.23	.00	856.30
600.0	250.0	161.2	188.8	880.7	150.7	479.3	137.2	33.1	856.30
1.66	.28	1.07	.39	.100	.065	.100	.000	856.30	46.63
.000092	60.	60.	60.	0	0	0	.00	503.37	550.00

*SECNO 6940.000

6940.000	10.08	867.08	.00	.00	867.08	.01	.01	.00	860.00
600.0	111.3	155.5	333.2	363.5	142.1	635.6	141.2	34.4	860.00
1.72	.31	1.09	.52	.100	.065	.100	.000	857.00	159.36
.000140	130.	130.	130.	2	0	0	.00	371.40	530.75

CCHV= .100 CEHV= .300
*SECNO 8480.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .34

8480.000	8.32	867.52	.00	.00	867.58	.05	.48	.01	867.10
600.0	16.8	367.3	215.9	56.2	159.6	251.1	169.6	46.3	864.40
1.97	.30	2.30	.86	.100	.065	.100	.000	859.20	366.06
.001199	1540.	1540.	1540.	2	0	0	.00	299.85	665.92

*SECNO 10620.000

10620.000	9.47	870.57	.00	.00	870.64	.06	3.06	.00	869.20
600.0	5.9	387.9	206.2	10.5	155.7	344.7	193.6	64.8	870.00
2.29	.57	2.49	.60	.100	.065	.100	.000	861.10	384.27
.001732	2140.	2140.	2140.	4	0	0	.00	452.93	837.20

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

*SECNO 11440.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.52

11440.000	7.52	871.52	.00	.00	871.54	.01	.89	.00	868.00
600.0	461.0	107.9	31.2	654.0	63.2	46.4	205.6	72.5	868.00
2.55	.70	1.71	.67	.100	.065	.100	.000	864.00	221.33
.000748	820.	820.	820.	2	0	0	.00	365.06	586.39

*SECNO 12160.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .28

12160.000	7.55	872.55	.00	.00	872.97	.42	1.31	.12	872.50
600.0	4.2	595.8	.0	6.0	114.6	.0	212.9	75.9	873.10
2.59	.70	5.20	.00	.100	.065	.000	.000	865.00	154.60
.009495	720.	720.	720.	2	0	0	.00	43.76	198.36

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THIS RUN EXECUTED 15FEB94 13:05:35

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
100.000	.00	.00	.00	831.50	240.00	836.32	.00	836.44	50.92	2.90	98.11	33.63
100.000	.00	.00	.00	831.50	400.00	837.02	.00	837.18	50.77	3.41	162.25	56.14
100.000	.00	.00	.00	831.50	465.00	837.25	.00	837.42	50.66	3.56	188.20	65.33
100.000	.00	.00	.00	831.50	600.00	837.65	.00	837.83	50.90	3.84	240.12	84.10
540.000	440.00	.00	.00	834.10	240.00	838.22	.00	838.27	35.57	2.39	172.96	40.24
540.000	440.00	.00	.00	834.10	400.00	838.87	.00	838.92	32.98	2.67	251.53	69.65
540.000	440.00	.00	.00	834.10	465.00	839.09	.00	839.15	32.74	2.78	279.31	81.26
540.000	440.00	.00	.00	834.10	600.00	839.50	.00	839.56	32.73	3.00	332.20	104.88

*	980.000	440.00	.00	.00	837.00	240.00	840.78	.00	841.33	146.59	5.96	40.27	19.82
*	980.000	440.00	.00	.00	837.00	400.00	841.41	.00	842.49	229.87	8.37	47.81	26.38
*	980.000	440.00	.00	.00	837.00	465.00	841.61	.00	842.94	264.05	9.26	50.19	28.62
*	980.000	440.00	.00	.00	837.00	600.00	841.94	.00	843.84	341.43	11.08	54.15	32.47
*	1040.000	60.00	849.10	.00	837.00	240.00	841.95	.00	842.25	54.04	4.42	54.32	32.65
*	1040.000	60.00	849.10	.00	837.00	400.00	843.30	.00	843.80	62.84	5.67	70.54	50.46
*	1040.000	60.00	849.10	.00	837.00	465.00	843.92	.00	844.47	60.70	5.96	78.02	59.68
*	1040.000	60.00	849.10	.00	837.00	600.00	845.71	.00	846.27	45.00	6.03	99.45	89.44
*	1140.000	100.00	.00	.00	839.00	240.00	842.53	.00	842.55	11.68	1.68	264.65	70.22
*	1140.000	100.00	.00	.00	839.00	400.00	844.04	.00	844.05	4.43	1.34	539.55	190.10
*	1140.000	100.00	.00	.00	839.00	465.00	844.71	.00	844.72	3.12	1.23	677.32	263.05
*	1140.000	100.00	.00	.00	839.00	600.00	846.47	.00	846.48	1.36	.98	1080.74	514.80
*	1700.000	560.00	.00	.00	842.00	240.00	844.14	.00	844.35	205.34	3.67	65.79	16.75
*	1700.000	560.00	.00	.00	842.00	400.00	844.65	.00	844.92	168.81	4.21	101.77	30.79
*	1700.000	560.00	.00	.00	842.00	465.00	845.11	.00	845.31	94.72	3.71	144.20	47.78
*	1700.000	560.00	.00	.00	842.00	600.00	846.63	.00	846.67	12.96	1.96	531.58	166.69
*	2300.000	600.00	.00	.00	843.90	240.00	850.51	.00	851.12	67.87	6.23	38.52	29.13
	2300.000	600.00	.00	.00	843.90	400.00	851.86	.00	853.00	99.90	8.58	46.61	40.02
	2300.000	600.00	.00	.00	843.90	465.00	851.53	.00	853.22	156.04	10.42	44.63	37.23
*	2300.000	600.00	.00	.00	843.90	600.00	850.86	850.86	854.25	354.97	14.76	40.64	31.85

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	2350.000	50.00	860.00	.00	845.20	240.00	851.84	.00	852.40	55.47	6.02	39.87	32.22
*	2350.000	50.00	860.00	.00	845.20	400.00	856.58	.00	857.11	25.66	5.86	68.27	78.96
*	2350.000	50.00	860.00	.00	845.20	465.00	859.02	.00	859.51	18.11	5.61	82.95	109.26
*	2350.000	50.00	860.00	.00	845.20	600.00	860.28	.00	860.28	.07	.36	3143.30	2334.15
	2410.000	60.00	.00	.00	847.20	240.00	852.20	.00	852.93	105.01	6.85	35.02	23.42
*	2410.000	60.00	.00	.00	847.20	400.00	857.28	.00	857.30	2.06	1.53	579.24	278.76
*	2410.000	60.00	.00	.00	847.20	465.00	859.67	.00	859.67	.78	1.08	926.87	526.95
*	2410.000	60.00	.00	.00	847.20	600.00	860.27	.00	860.28	.99	1.26	1018.56	603.39
	2490.000	80.00	856.00	.00	847.80	240.00	853.41	.00	853.99	71.20	6.10	39.35	28.44
*	2490.000	80.00	856.00	.00	847.80	400.00	857.51	.00	857.51	.18	.45	1440.76	930.49
*	2490.000	80.00	856.00	.00	847.80	465.00	859.67	.00	859.68	.12	.41	1898.93	1350.12
*	2490.000	80.00	856.00	.00	847.80	600.00	860.28	.00	860.29	.16	.50	2053.01	1488.37
*	2590.000	100.00	.00	.00	844.00	240.00	854.16	.00	854.16	.02	.21	1312.37	1671.93
*	2590.000	100.00	.00	.00	844.00	400.00	857.51	.00	857.51	.02	.25	2001.37	2865.56
*	2590.000	100.00	.00	.00	844.00	465.00	859.67	.00	859.68	.02	.24	2476.25	3796.59
*	2590.000	100.00	.00	.00	844.00	600.00	860.29	.00	860.29	.02	.30	2617.01	4082.34
	3300.000	740.00	.00	.00	844.00	240.00	854.17	.00	854.17	.03	.24	1138.68	1491.35
	3300.000	740.00	.00	.00	844.00	400.00	857.51	.00	857.52	.02	.28	1878.92	2591.87
	3300.000	740.00	.00	.00	844.00	465.00	859.68	.00	859.68	.02	.26	2579.16	3523.35
	3300.000	740.00	.00	.00	844.00	600.00	860.29	.00	860.29	.02	.32	2856.03	3835.53
*	3570.000	50.00	.00	.00	846.81	240.00	853.95	.00	854.39	50.71	5.33	45.01	33.70
*	3570.000	50.00	.00	.00	846.81	400.00	857.48	.00	857.55	7.94	2.83	262.46	141.93
*	3570.000	50.00	.00	.00	846.81	465.00	859.67	.00	859.69	2.61	1.85	608.47	288.01
*	3570.000	50.00	.00	.00	846.81	600.00	860.28	.00	860.30	2.81	1.98	779.77	357.66
	3650.000	80.00	858.00	.00	849.20	240.00	854.85	.00	855.42	69.61	6.06	39.62	28.77
	3650.000	80.00	858.00	.00	849.20	400.00	858.65	.00	858.68	4.52	2.17	400.00	188.06

	3650.000	80.00	858.00	.00	849.20	465.00	859.67	.00	859.69	2.94	1.88	594.08	271.27
	3650.000	80.00	858.00	.00	849.20	600.00	860.28	.00	860.30	3.10	2.00	765.23	340.69
*	3900.000	250.00	.00	.00	849.50	240.00	855.75	.00	855.76	2.44	1.19	397.71	153.55
*	3900.000	250.00	.00	.00	849.50	400.00	858.72	.00	858.72	.59	.76	1132.21	522.97
*	3900.000	250.00	.00	.00	849.50	465.00	859.71	.00	859.71	.41	.68	1523.75	729.31
*	3900.000	250.00	.00	.00	849.50	600.00	860.33	.00	860.33	.46	.75	1808.59	887.09
*	5790.000	1890.00	.00	.00	853.60	240.00	856.78	.00	857.63	532.01	7.40	32.43	10.41
*	5790.000	1890.00	.00	.00	853.60	400.00	858.83	.00	859.23	135.37	5.08	78.69	34.38
*	5790.000	1890.00	.00	.00	853.60	465.00	859.77	.00	860.07	81.35	4.37	106.44	51.56
*	5790.000	1890.00	.00	.00	853.60	600.00	860.39	.00	860.73	79.53	4.70	138.66	67.28
*	6590.000	800.00	.00	.00	856.20	240.00	861.92	.00	862.02	19.04	2.60	100.89	55.00
*	6590.000	800.00	.00	.00	856.20	400.00	862.99	.00	863.16	24.87	3.38	141.98	80.22
*	6590.000	800.00	.00	.00	856.20	465.00	863.35	.00	863.53	26.57	3.63	159.91	90.20
*	6590.000	800.00	.00	.00	856.20	600.00	864.06	.00	864.27	27.85	3.98	203.19	113.70

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	6750.000	160.00	.00	.00	856.10	240.00	862.16	.00	862.29	13.83	2.83	84.89	64.54
	6750.000	160.00	.00	.00	856.10	400.00	863.32	.00	863.57	21.45	3.96	101.10	86.36
	6750.000	160.00	.00	.00	856.10	465.00	863.70	.00	864.00	24.47	4.37	106.38	94.00
	6750.000	160.00	.00	.00	856.10	600.00	864.42	.00	864.83	30.10	5.15	116.49	109.36
	6810.000	60.00	867.00	863.20	856.30	240.00	862.48	.00	862.60	13.01	2.78	86.46	66.54
	6810.000	60.00	867.00	863.20	856.30	400.00	864.33	.00	864.53	15.07	3.56	112.40	103.04
	6810.000	60.00	867.00	863.20	856.30	465.00	865.10	.00	865.32	14.99	3.77	123.23	120.10
*	6810.000	60.00	867.00	863.20	856.30	600.00	867.06	.00	867.07	.92	1.07	1510.76	625.58
	6940.000	130.00	.00	.00	857.00	240.00	862.73	.00	862.77	10.14	1.95	213.19	75.37
*	6940.000	130.00	.00	.00	857.00	400.00	864.65	.00	864.67	4.22	1.56	477.32	194.71
*	6940.000	130.00	.00	.00	857.00	465.00	865.44	.00	865.46	2.95	1.40	646.12	270.85
	6940.000	130.00	.00	.00	857.00	600.00	867.08	.00	867.08	1.40	1.09	1141.21	506.83
*	8480.000	1540.00	.00	.00	859.20	240.00	865.07	.00	865.18	26.68	2.58	102.88	46.46
*	8480.000	1540.00	.00	.00	859.20	400.00	865.94	.00	866.05	28.28	2.97	190.92	75.22
*	8480.000	1540.00	.00	.00	859.20	465.00	866.38	.00	866.48	23.77	2.86	241.57	95.38
*	8480.000	1540.00	.00	.00	859.20	600.00	867.52	.00	867.58	11.99	2.30	466.87	173.26
	10620.000	2140.00	.00	.00	861.10	240.00	869.32	.00	869.38	15.02	2.00	142.17	61.94
	10620.000	2140.00	.00	.00	861.10	400.00	870.21	.00	870.27	14.45	2.16	349.82	105.22
	10620.000	2140.00	.00	.00	861.10	465.00	870.37	.00	870.43	14.73	2.23	420.86	121.17
	10620.000	2140.00	.00	.00	861.10	600.00	870.57	.00	870.64	17.32	2.49	510.92	144.17
	11440.000	820.00	.00	.00	864.00	240.00	870.28	.00	870.29	8.52	1.58	366.48	82.23
*	11440.000	820.00	.00	.00	864.00	400.00	871.03	.00	871.04	6.53	1.51	593.74	156.48
*	11440.000	820.00	.00	.00	864.00	465.00	871.21	.00	871.22	6.78	1.57	655.09	178.57
*	11440.000	820.00	.00	.00	864.00	600.00	871.52	.00	871.54	7.48	1.71	763.62	219.38
*	12160.000	720.00	.00	.00	865.00	240.00	871.25	.00	871.38	30.79	2.83	84.78	43.25
*	12160.000	720.00	.00	.00	865.00	400.00	871.92	.00	872.18	60.54	4.04	99.13	51.41
*	12160.000	720.00	.00	.00	865.00	465.00	872.15	.00	872.46	72.48	4.45	105.32	54.62
*	12160.000	720.00	.00	.00	865.00	600.00	872.55	.00	872.97	94.95	5.20	120.67	61.58

DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	100.000	240.00	836.32	.00	.00	-5.68	73.68	.00
	100.000	400.00	837.02	.70	.00	-4.98	108.60	.00
	100.000	465.00	837.25	.23	.00	-5.25	119.88	.00
	100.000	600.00	837.65	.40	.00	-4.85	139.73	.00
	540.000	240.00	838.22	.00	1.90	.00	116.77	440.00
	540.000	400.00	838.87	.65	1.84	.00	125.26	440.00
	540.000	465.00	839.09	.22	1.84	.00	128.13	440.00
	540.000	600.00	839.50	.41	1.85	.00	133.42	440.00
*	980.000	240.00	840.78	.00	2.56	.00	12.00	440.00
*	980.000	400.00	841.41	.63	2.54	.00	12.00	440.00
*	980.000	465.00	841.61	.20	2.51	.00	12.00	440.00
*	980.000	600.00	841.94	.33	2.44	.00	12.00	440.00
*	1040.000	240.00	841.95	.00	1.17	.00	12.00	60.00
*	1040.000	400.00	843.30	1.35	1.89	.00	12.00	60.00
*	1040.000	465.00	843.92	.62	2.31	.00	12.00	60.00
*	1040.000	600.00	845.71	1.79	3.77	.00	12.00	60.00
*	1140.000	240.00	842.53	.00	.58	.00	163.04	100.00
*	1140.000	400.00	844.04	1.51	.74	.00	200.57	100.00
*	1140.000	465.00	844.71	.67	.79	.00	212.25	100.00
*	1140.000	600.00	846.47	1.77	.77	.00	244.98	100.00
*	1700.000	240.00	844.14	.00	1.61	.00	60.91	560.00
*	1700.000	400.00	844.65	.50	.61	.00	81.75	560.00
*	1700.000	465.00	845.11	.47	.41	.00	100.94	560.00
*	1700.000	600.00	846.63	1.52	.16	.00	337.59	560.00
*	2300.000	240.00	850.51	.00	6.37	.00	6.00	600.00
	2300.000	400.00	851.86	1.35	7.21	.00	6.00	600.00
	2300.000	465.00	851.53	-.33	6.42	.00	6.00	600.00
*	2300.000	600.00	850.86	-.67	4.24	.00	6.00	600.00
	2350.000	240.00	851.84	.00	1.33	.00	6.00	50.00
*	2350.000	400.00	856.58	4.74	4.72	.00	6.00	50.00
*	2350.000	465.00	859.02	2.45	7.49	.00	6.00	50.00
*	2350.000	600.00	860.28	1.25	9.41	.00	270.00	50.00
	2410.000	240.00	852.20	.00	.36	.00	7.00	60.00
*	2410.000	400.00	857.28	5.08	.71	.00	135.84	60.00
*	2410.000	465.00	859.67	2.38	.64	.00	150.00	60.00
*	2410.000	600.00	860.27	.61	.00	.00	150.00	60.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2490.000	240.00	853.41	.00	1.21	.00	7.00	80.00
*	2490.000	400.00	857.51	4.10	.23	.00	190.26	80.00
*	2490.000	465.00	859.67	2.16	.01	.00	233.51	80.00
*	2490.000	600.00	860.28	.61	.01	.00	270.00	80.00

*	2590.000	240.00	854.16	.00	.75	.00	183.28	100.00
*	2590.000	400.00	857.51	3.35	.00	.00	213.79	100.00
*	2590.000	465.00	859.67	2.16	.00	.00	227.59	100.00
*	2590.000	600.00	860.29	.61	.00	.00	233.63	100.00
	3300.000	240.00	854.17	.00	.00	.00	175.92	740.00
	3300.000	400.00	857.51	3.35	.00	.00	252.92	740.00
	3300.000	465.00	859.68	2.16	.00	.00	427.15	740.00
	3300.000	600.00	860.29	.61	.00	.00	465.72	740.00
*	3570.000	240.00	853.95	.00	-.22	.00	7.00	50.00
*	3570.000	400.00	857.48	3.53	-.03	.00	75.40	50.00
*	3570.000	465.00	859.67	2.19	-.01	.00	246.20	50.00
*	3570.000	600.00	860.28	.61	-.01	.00	310.47	50.00
	3650.000	240.00	854.85	.00	.91	.00	7.00	80.00
	3650.000	400.00	858.65	3.80	1.17	.00	157.25	80.00
	3650.000	465.00	859.67	1.02	.00	.00	245.71	80.00
	3650.000	600.00	860.28	.61	.00	.00	310.14	80.00
*	3900.000	240.00	855.75	.00	.90	.00	177.12	250.00
*	3900.000	400.00	858.72	2.97	.07	.00	344.90	250.00
*	3900.000	465.00	859.71	1.00	.05	.00	441.94	250.00
*	3900.000	600.00	860.33	.61	.05	.00	473.36	250.00
*	5790.000	240.00	856.78	.00	1.03	.00	17.88	1890.00
*	5790.000	400.00	858.83	2.05	.11	.00	27.28	1890.00
*	5790.000	465.00	859.77	.95	.06	.00	31.60	1890.00
*	5790.000	600.00	860.39	.61	.06	.00	97.17	1890.00
*	6590.000	240.00	861.92	.00	5.13	.00	29.55	800.00
*	6590.000	400.00	862.99	1.08	4.17	.00	47.95	800.00
*	6590.000	465.00	863.35	.35	3.57	.00	54.27	800.00
*	6590.000	600.00	864.06	.71	3.67	.00	72.64	800.00
	6750.000	240.00	862.16	.00	.25	.00	14.00	160.00
	6750.000	400.00	863.32	1.16	.33	.00	14.00	160.00
	6750.000	465.00	863.70	.38	.35	.00	14.00	160.00
	6750.000	600.00	864.42	.72	.36	.00	14.00	160.00
	6810.000	240.00	862.48	.00	.31	.00	14.00	60.00
	6810.000	400.00	864.33	1.85	1.00	.00	14.00	60.00
	6810.000	465.00	865.10	.77	1.40	.00	14.00	60.00
*	6810.000	600.00	867.06	1.96	2.64	.00	503.37	60.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	6940.000	240.00	862.73	.00	.25	.00	108.21	130.00
*	6940.000	400.00	864.65	1.92	.32	.00	185.70	130.00
*	6940.000	465.00	865.44	.79	.34	.00	241.07	130.00
	6940.000	600.00	867.08	1.63	.01	.00	371.40	130.00
*	8480.000	240.00	865.07	.00	2.35	.00	97.60	1540.00
*	8480.000	400.00	865.94	.86	1.28	.00	107.54	1540.00
*	8480.000	465.00	866.38	.44	.93	.00	123.97	1540.00
*	8480.000	600.00	867.52	1.15	.45	.00	299.85	1540.00
	10620.000	240.00	869.32	.00	4.24	.00	102.77	2140.00
	10620.000	400.00	870.21	.89	4.27	.00	431.94	2140.00

	10620.000	465.00	870.37	.16	4.00	.00	444.91	2140.00
	10620.000	600.00	870.57	.20	3.05	.00	452.93	2140.00
	11440.000	240.00	870.28	.00	.96	.00	275.10	820.00
*	11440.000	400.00	871.03	.75	.82	.00	329.59	820.00
*	11440.000	465.00	871.21	.18	.84	.00	342.82	820.00
*	11440.000	600.00	871.52	.31	.95	.00	365.06	820.00
*	12160.000	240.00	871.25	.00	.98	.00	19.77	720.00
*	12160.000	400.00	871.92	.67	.90	.00	23.68	720.00
*	12160.000	465.00	872.15	.23	.94	.00	31.11	720.00
*	12160.000	600.00	872.55	.40	1.03	.00	43.76	720.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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WARNING SECNO=    980.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    980.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    980.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=    980.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1040.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1040.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1040.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1040.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1140.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1140.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1140.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1140.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   1700.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1700.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1700.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   1700.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2300.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
CAUTION SECNO=   2300.000  PROFILE=  4  CRITICAL DEPTH ASSUMED
CAUTION SECNO=   2300.000  PROFILE=  4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=   2300.000  PROFILE=  4  20 TRIALS ATTEMPTED TO BALANCE WSEL

WARNING SECNO=   2350.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2350.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2350.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2410.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2410.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2410.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2490.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2490.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2490.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO=   2590.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2590.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2590.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
WARNING SECNO=   2590.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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 WARNING SECNO=    3570.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3570.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3570.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3570.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    3900.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3900.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3900.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    3900.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
1
    15FEB94       13:05:10                                                    PAGE    49


 WARNING SECNO=    5790.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5790.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5790.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    5790.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6590.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6590.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6590.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6590.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6810.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    6940.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    6940.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=    8480.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    8480.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    8480.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=    8480.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   11440.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   11440.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   11440.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

 WARNING SECNO=   12160.000  PROFILE=  1  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12160.000  PROFILE=  2  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12160.000  PROFILE=  3  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
 WARNING SECNO=   12160.000  PROFILE=  4  CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE
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ENCROACHMENT RUN
DEER CREEK
WILLIAMSTON CITY

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      WILLIAMSTON CITY
T2      100 YR LEVEL
T3      DEER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.        0.        0.  0.000000      0.00      0.0       0.   861.000   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
   38.000      1.000    42.000    41.000    40.000    53.000    27.000    21.000    22.000     2.000

   54.000      4.000    39.000     0.000   150.000   200.000     0.000     0.000     0.000     0.000

QT      5.000   775.000  1035.000  1130.000  1330.000  1130.000     0.000     0.000     0.000     0.000
NC       .080     .080     .040      .100      .300     0.000     0.000     0.000     0.000     0.000
ET      0.000    7.100    7.100     7.100     7.100     9.100  1980.900  2030.100  1980.900  2030.100

X1     29.800   21.000 1981.000  2030.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    866.000 1028.000  863.800  1228.000   862.900  1434.000   862.200  1599.000   862.300  1800.000
GR    863.000 1869.000  855.500  1891.000   856.700  1981.000   851.300  2000.000   850.300  2013.000
GR    850.600 2023.000  854.100  2030.000   853.000  2151.000   862.200  2180.000   862.200  2196.000
GR    862.100 2386.000  861.800  2586.000   862.900  2784.000   865.600  2936.000   868.600  3132.000
GR    870.200 3300.000    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

                VALLEY SECTION A ( 1 FOOT DOWNSTREAM M=43)

X1     29.900   17.000 2000.000  2023.000    30.000    30.000    30.000     0.000     0.000     0.000
GR    866.000 1028.000  863.800  1228.000   862.900  1434.000   862.200  1599.000   862.300  1800.000
GR    863.100 2000.000  851.300  2000.000   850.500  2013.000   850.600  2023.000   863.000  2023.000
GR    862.200 2196.000  862.100  2386.000   861.800  2586.000   862.900  2784.000   865.600  2936.000
GR    868.600 3132.000  870.200  3300.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000    0.000     .014     0.000     0.000     0.000     0.000     0.000     0.000     0.000
SB      0.000    1.600    3.000     0.000    23.000     0.000   234.600     0.000   850.200   850.500

                BRIDGE SECTION B (UPSTREAM FACE)

X1     30.100   17.000 2000.000  2023.000    60.000    60.000    60.000     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      7.000 1800.000  862.300     0.000  2000.000  863.100   850.700  2000.000   863.100   860.700
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100-yr Red Ce
8645

BT	2023.000	863.000	860.600	2023.000	863.000	850.200	2196.000	862.200	0.000	2386.000
BT	861.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.100	2000.000	850.700	2000.000	850.200	2013.000	850.200	2023.000	863.000	2023.000
GR	862.200	2196.000	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000
GR	868.600	3132.000	870.200	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.300	21.000	1981.000	2030.000	275.000	275.000	275.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.000	1869.000	855.500	1891.000	856.700	1981.000	851.300	2000.000	850.300	2013.000
GR	850.600	2023.000	854.100	2030.000	853.000	2151.000	862.200	2180.000	862.200	2196.000
GR	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000	868.600	3132.000
GR	870.200	3300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.043	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2238.000	0.000	0.000

VALLEY SECTION C

X1	31.000	17.000	2000.000	2028.000	495.000	450.000	475.000	0.000	0.000	0.000
GR	874.700	1444.000	872.000	1457.000	869.200	1512.000	865.300	1630.000	861.900	1814.000
GR	855.700	2000.000	853.300	2001.000	851.100	2011.000	853.200	2022.000	857.200	2028.000
GR	857.600	2210.000	855.500	2358.000	855.100	2520.000	855.300	2608.000	855.800	2718.000
GR	862.500	2798.000	865.300	2908.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.085	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2033.000	0.000	0.000
X1	31.800	15.000	1995.000	2027.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	869.400	1072.000	869.300	1190.000	862.300	1398.000	861.800	1605.000	861.000	1810.000
GR	856.600	1995.000	853.000	2002.000	851.600	2006.000	852.000	2010.000	855.100	2027.000
GR	857.900	2033.000	857.100	2139.000	854.800	2273.000	858.400	2471.000	871.900	2673.000
NC	.070	.080	.040	.300	.500	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (1 FOOT DOWNSTREAM R.R. BRIDGE)

X1	31.900	21.000	2000.000	2020.000	40.000	40.000	40.000	0.000	0.000	0.000
GR	871.000	1072.000	870.800	1190.000	870.400	1398.000	870.000	1605.000	869.800	1810.000
GR	869.900	2000.000	854.500	2000.000	853.000	2002.000	851.600	2004.000	853.000	2006.000
GR	854.500	2008.000	854.500	2012.000	854.000	2014.000	853.700	2016.000	854.000	2018.000
GR	854.500	2020.000	870.000	2020.000	870.200	2139.000	870.700	2273.000	872.000	2471.000
GR	873.700	2673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.600	3.000	0.000	17.900	4.000	123.860	0.000	851.400	851.600
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION E (UPSTREAM FACE R.R.)

X1	32.100	21.000	2000.000	2020.000	36.000	36.000	36.000	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	16.000	1810.000	869.800	0.000	2000.000	869.900	851.600	2000.000	869.900	856.600
BT	2002.000	869.900	859.900	2004.000	869.900	860.300	2006.000	869.900	859.900	2008.000
BT	869.900	856.500	2008.000	869.900	851.900	2012.000	870.000	851.900	2012.000	870.000
BT	856.500	2014.000	870.000	859.900	2016.000	870.000	860.200	2018.000	870.000	859.900
BT	2020.000	870.000	856.500	2020.000	870.000	851.600	2139.000	870.200	0.000	0.000
GR	871.000	1072.000	870.800	1190.000	870.400	1398.000	870.000	1605.000	869.800	1810.000
GR	869.900	2000.000	851.600	2000.000	851.600	2002.000	851.600	2004.000	851.800	2006.000

GR	851.900	2008.000	851.900	2012.000	851.700	2014.000	851.400	2016.000	851.500	2018.000
GR	851.600	2020.000	870.000	2020.000	870.200	2139.000	870.700	2273.000	872.000	2471.000
GR	873.700	2673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2046.100	0.000	0.000
X1	32.300	26.000	2010.000	2046.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	859.100	1612.000	859.800	1716.000	859.500	1824.000	859.200	1908.000	858.800	2000.000
GR	855.600	2010.000	851.800	2030.000	855.500	2046.000	857.600	2138.000	857.500	2232.000
GR	860.700	2360.000	865.600	2432.000	871.800	2584.000	884.700	2792.000	889.700	2890.000
GR	890.300	2938.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.043	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
X1	32.800	26.000	2010.000	2046.000	830.000	830.000	830.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	859.100	1612.000	859.800	1716.000	859.500	1824.000	859.200	1908.000	858.800	2000.000
GR	855.600	2010.000	852.000	2030.000	855.500	2046.000	857.600	2130.000	857.500	2232.000
GR	860.700	2360.000	865.600	2432.000	871.800	2584.000	884.700	2792.000	889.700	2890.000
GR	890.300	2938.000	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

VALLEY SECTION F (1 FOOT DOWNSTREAM WALLACE STREET)

X1	32.900	23.000	2000.000	2026.000	118.000	118.000	118.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	858.900	1804.000	859.700	2000.000	854.500	2000.000	852.500	2008.000	854.200	2017.000
GR	854.400	2026.000	859.500	2026.000	858.400	2200.000	863.000	2404.000	871.800	2584.000
GR	884.700	2792.000	889.700	2890.000	890.300	2938.000	0.000	0.000	0.000	0.000
X1	33.000	23.000	2000.000	2026.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	1096.000	861.000	0.000	1300.000	862.000	0.000	1408.000	860.900	0.000
BT	1605.000	861.200	0.000	1804.000	858.900	0.000	2000.000	859.700	854.700	2000.000
BT	859.700	857.300	2026.000	859.500	857.200	2026.000	859.500	854.900	2200.000	858.400
BT	0.000	2404.000	863.000	0.000	2584.000	871.800	0.000	2792.000	884.700	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	858.900	1804.000	859.700	2000.000	854.700	2000.000	853.600	2008.000	853.400	2017.000
GR	854.900	2026.000	859.500	2026.000	858.400	2200.000	863.000	2404.000	871.800	2584.000
GR	884.700	2792.000	889.700	2890.000	890.300	2938.000	0.000	0.000	0.000	0.000

BRIDGE SECTION G (UPSTREAM FACE WALLACE)

X1	33.100	0.000	0.000	0.000	28.000	28.000	28.000	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	33.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	33.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000

NC	.080	.075	.041	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	33.800	23.000	1980.000	2036.000	760.000	760.000	760.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.500	1706.000	858.800	1846.000	859.200	1980.000
GR	856.400	2000.000	854.800	2014.000	855.200	2022.000	856.600	2030.000	858.800	2036.000
GR	859.900	2154.000	859.300	2248.000	862.300	2338.000	864.600	2492.000	865.900	2716.000
GR	867.700	2894.000	868.100	3096.000	867.800	3332.000	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

VALLEY SECTION H 1 FOOT DOWNSTREAM)

X1	33.900	30.000	2000.000	2022.500	50.000	50.000	50.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.300	1710.000	858.600	1886.000	861.500	1936.000
GR	865.600	2000.000	855.700	2000.000	855.100	2002.500	854.800	2005.000	855.000	2007.500
GR	855.400	2010.000	855.300	2012.500	855.000	2015.000	854.700	2017.500	855.000	2020.000
GR	855.500	2022.500	865.900	2022.500	865.400	2036.000	860.300	2112.000	861.500	2310.000
GR	864.600	2492.000	865.900	2716.000	867.700	2894.000	868.100	3096.000	867.800	3332.000
NC	0.000	0.000	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.000	30.000	2000.000	2022.500	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	1936.000	861.500	0.000	2000.000	865.600	855.900	2000.000	865.600	860.000
BT	2002.500	865.600	863.000	2005.000	865.600	863.800	2007.500	865.700	863.000	2010.000
BT	865.700	859.000	2010.000	865.700	855.100	2012.500	865.800	855.300	2012.500	865.800
BT	859.000	2015.000	865.800	863.800	2017.500	865.900	864.300	2020.000	865.900	863.800
BT	2022.500	865.900	860.000	2022.500	865.900	855.600	2036.000	865.400	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.300	1710.000	858.600	1886.000	861.500	1936.000
GR	865.600	2000.000	855.900	2000.000	855.600	2002.500	855.300	2005.000	855.200	2007.500
GR	855.100	2010.000	855.300	2012.500	855.200	2015.000	855.100	2017.500	855.300	2020.000
GR	855.600	2022.500	865.900	2022.500	865.400	2036.000	860.300	2112.000	861.500	2310.000
GR	864.600	2492.000	865.900	2716.000	867.700	2894.000	868.100	3096.000	867.800	3332.000

BRIDGE SECTION I (UPSTREAM FACE)

X1	34.100	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	0.000	0.000	.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	34.300	23.000	1980.000	2030.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.500	1706.000	859.600	1886.000	861.500	1936.000
GR	859.200	1980.000	855.900	2000.000	855.300	2005.000	855.100	2017.500	855.600	2023.000
GR	858.800	2030.000	860.300	2112.000	861.500	2310.000	864.600	2492.000	865.900	2716.000
GR	867.700	2894.000	868.100	3096.000	867.800	3332.000	0.000	0.000	0.000	0.000
NC	.100	.095	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

VALLEY SECTION J (SOUTH LIMIT)

X1	35.000	16.000	2000.000	2026.000	1200.000	1200.000	1200.000	0.000	0.000	0.000
GR	879.800	1240.000	875.000	1372.000	865.800	1420.000	861.000	1698.000	858.500	1798.000
GR	860.100	1960.000	861.900	2000.000	857.000	2006.000	855.300	2016.000	856.300	2024.000
GR	858.500	2026.000	862.300	2184.000	863.900	2350.000	871.200	2532.000	868.500	2620.000
GR	873.900	2732.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 29.800

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=		1980.9	2030.1	TYPE=	1	TARGET=		49.200	
29.80	10.70	861.00	0.00	0.00	861.11	.11	0.00	0.00	856.70
1130.	0.	1130.	0.	0.	432.	1.	0.	0.	854.10
0.00	.07	2.62	.07	.080	.040	.080	0.000	850.30	1980.90
.000285	0.	0.	0.	0	0	0	0.00	49.20	2030.10

100-yr Red Cedar 864.5

CCHV= .300 CEHV= .500
*SECNO 29.900

VALLEY SECTION A (1 FOOT DOWNSTREAM M-43)

29.90	10.39	860.89	0.00	0.00	861.25	.36	.02	.13	863.10
1130.	0.	1130.	0.	0.	233.	0.	0.	0.	863.00
.00	0.00	4.84	0.00	.080	.040	.080	.039	850.50	2000.00
.001779	30.	30.	30.	2	0	0	0.00	23.00	2023.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	3.00	0.00	23.00	0.00	234.60	0.00	850.20	850.50

*SECNO 30.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.46	860.95	0.00	0.	1130.	235.	242.	860.70	861.80

BRIDGE SECTION B (UPSTREAM FACE)

30.10	10.94	861.14	0.00	0.00	861.46	.32	.21	0.00	863.10
1130.	0.	1130.	0.	0.	248.	0.	1.	0.	863.00
.01	0.00	4.55	0.00	.080	.014	.080	.022	850.20	2000.00
.000185	60.	60.	60.	2	0	0	0.00	23.00	2023.00

*SECNO 30.300

30.30	11.27	861.57	0.00	0.00	861.58	.01	.02	.09	856.70
1130.	188.	460.	481.	546.	460.	1086.	8.	1.	854.10
.12	.34	1.00	.44	.080	.040	.080	.035	850.30	1873.19
.000038	275.	275.	275.	2	0	0	0.00	304.82	2178.02

CCHV= .100 CEHV= .300
*SECNO 31.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK ELEV
Q	QLOB	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
31.00	10.49	861.59	0.00	0.00	861.62	.03	.04	.01	855.70
1130.	0.	498.	632.	0.	243.	880.	25.	4.	857.20
.22	0.00	2.05	.72	.090	.043	.090	.040	851.10	2000.00
.000287	495.	475.	450.	2	0	0	0.00	238.00	2238.00

3470 ENCROACHMENT STATIONS= 2000.0 2238.0 TYPE= 1 TARGET= 238.000

VALLEY SECTION C

CCHV= .100 CEHV= .300
*SECNO 31.800

3470 ENCROACHMENT STATIONS= 1995.0 2033.0 TYPE= 1 TARGET= 38.000

31.80	10.09	861.69	0.00	0.00	861.95	.26	.26	.07	856.60
1130.	0.	1091.	39.	0.	264.	31.	33.	6.	855.10
.26	0.00	4.13	1.26	.080	.045	.085	.042	851.60	1995.00
.001204	500.	500.	500.	2	0	0	0.00	38.00	2033.00

CCHV= .300 CEHV= .500
*SECNO 31.900

3301 HV CHANGED MORE THAN HVINS

VALLEY SECTION D (1 FOOT DOWNSTREAM R.R. BRIDGE)

31.90	9.90	861.50	0.00	0.00	862.32	.82	.09	.28	869.90
1130.	0.	1130.	0.	0.	155.	0.	33.	6.	870.00
.26	0.00	7.27	0.00	.070	.040	.080	.042	851.60	2000.00
.005458	40.	40.	40.	2	0	0	0.00	20.00	2020.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	3.00	0.00	17.90	4.00	123.86	0.00	851.40	851.60

*SECNO 32.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
863.57	862.54	.58	0.	1130.	124.	124.	860.80	869.80

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                    BRIDGE SECTION E (UPSTREAM FACE R.R. )
     32.10      11.79     863.19      0.00      0.00     863.57       .37      1.25      0.00     869.90
     1130.         0.       1130.        0.        0.       230.        0.       34.        6.     870.00
       .26       0.00       4.91       0.00      .070       .014      .080      .041    851.40    2000.00
   .000230         36.         36.         36.         2           0         0      0.00     20.00    2020.00

*SECNO 32.300

3470 ENCROACHMENT STATIONS=     2000.0     2046.1  TYPE=         1  TARGET=        46.100
     32.30      11.73     863.53      0.00      0.00     863.66       .13       .01       .07     855.60
     1130.         69.      1061.        0.       63.       355.        1.       34.        6.     855.50
       .26       1.10       2.99        .08      .070       .045      .080      .041    851.80    2000.00
   .000400         50.         50.         50.         2           0         0      0.00     46.10    2046.10

CCHV=     .100 CEHV=     .300
*SECNO 32.800
     SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL       QLOSS   RANK ELEV
         Q       QLOB        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

     32.80      11.69     863.69      0.00      0.00     863.69       .00       .02       .01     855.60
     1130.        622.       170.        338.      4819.       357.      1880.      105.       24.     855.50
      1.44         .13        .48         .18       .080       .043       .080      .042    852.00     491.59
   .000009         830.        830.        830.         2           0         0      0.00   1912.37    2403.96

CCHV=     .300 CEHV=     .500
*SECNO 32.900

                    VALLEY SECTION F ( 1 FOOT DOWNSTREAM WALLACE STREET )

     32.90      11.19     863.69      0.00      0.00     863.69       .00       .00       .00     859.70
     1130.        745.       127.        258.      4642.       259.      1441.      123.       29.     859.50
      1.60         .16        .49         .18       .080       .043       .080      .042    852.50     491.51
   .000015         118.        118.        118.         2           0         0      0.00   1926.67    2418.18

*SECNO 33.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  858.40 MAX ELLC=  857.30

     33.00      10.29     863.69      0.00      0.00     863.69       .00       .00       .00     859.70
     1130.        805.        47.        279.      4642.       193.      1441.      123.       30.     859.50
      1.60         .17        .24         .19       .080       .043       .080      .042    853.40     491.51
   .000017          1.          1.          1.         0           0         0    -61.10   1926.67    2418.18

*SECNO 33.100

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  858.40 MAX ELLC=  857.30

                    BRIDGE SECTION G ( UPSTREAM FACE WALLACE )

     33.10      10.29     863.69      0.00      0.00     863.69       .00       .00       .00     859.70
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D/H = 5.29/5.29 = 1 ⇒ high submergence

1130.	805.	47.	279.	4644.	193.	1441.	127.	31.	859.50
1.65	.17	.24	.19	.080	.043	.080	.042	853.40	491.46
.000017	28.	28.	28.	0	0	0	-61.10	1926.73	2418.19

*SECNO 33.200

33.20	10.29	863.69	0.00	0.00	863.69	.00	.00	.00	859.70
1130.	746.	125.	258.	4644.	254.	1441.	128.	31.	859.50
1.65	.16	.49	.18	.080	.043	.080	.042	853.40	491.46
.000015	1.	1.	1.	0	0	0	0.00	1926.74	2418.19

*SECNO 33.300

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

33.30	10.29	863.69	0.00	0.00	863.70	.00	.00	.00	859.70
1130.	746.	125.	258.	4645.	254.	1441.	135.	33.	859.50
1.72	.16	.49	.18	.080	.043	.080	.042	853.40	491.42
.000015	50.	50.	50.	0	0	0	0.00	1926.79	2418.21

CCHV= .100 CEHV= .300

*SECNO 33.800

33.80	8.91	863.71	0.00	0.00	863.71	.00	.01	.00	859.20
1130.	595.	255.	280.	2874.	400.	1228.	229.	63.	858.80
2.40	.21	.64	.23	.080	.041	.075	.042	854.80	961.02
.000023	760.	760.	760.	0	0	0	0.00	1471.11	2432.13

CCHV= .300 CEHV= .500

*SECNO 33.900

3265 DIVIDED FLOW

VALLEY SECTION H 1 FOOT DOWNSTREAM)

33.90	9.01	863.71	0.00	0.00	863.71	.00	.00	.00	865.60
1130.	795.	143.	192.	2699.	194.	786.	234.	64.	865.90
2.44	.29	.74	.24	.080	.041	.075	.042	854.70	960.96
.000049	50.	50.	50.	0	0	0	0.00	1410.47	2439.67

*SECNO 34.000

3265 DIVIDED FLOW $D/H = 2.21/2.21 = 1 \Rightarrow$ high submergence

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 861.50 MAX ELLC= 864.30

34.00	8.61	863.71	0.00	0.00	863.71	.00	.00	.00	865.60
1130.	825.	106.	199.	2700.	143.	786.	234.	64.	865.90
2.44	.31	.74	.25	.080	.024	.075	.042	855.10	960.95
.000053	1.	1.	1.	0	0	0	-45.44	1410.54	2439.70

*SECNO 34.100

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 861.50 MAX ELLC= 864.30

BRIDGE SECTION I (UPSTREAM FACE)

34.10	8.61	863.71	0.00	0.00	863.71	.00	.00	.00	865.60
1130.	825.	106.	199.	2701.	143.	787.	236.	65.	865.90
2.46	.31	.74	.25	.080	.024	.075	.041	855.10	960.92
.000053	22.	22.	22.	0	0	0	-45.46	1410.69	2439.78

*SECNO 34.200

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	FNDST
34.20	8.61	863.71	0.00	0.00	863.71	.00	.00	.00	865.60
1130.	803.	133.	194.	2701.	189.	787.	236.	65.	865.90
2.46	.30	.70	.25	.080	.043	.075	.041	855.10	960.92
.000050	1.	1.	1.	0	0	0	0.00	1410.70	2439.78

*SECNO 34.300

34.30	8.61	863.71	0.00	0.00	863.71	.00	.00	.00	859.20
1130.	619.	266.	245.	2666.	362.	1042.	241.	67.	858.80
2.50	.23	.74	.24	.080	.043	.075	.041	855.10	960.87
.000033	50.	50.	50.	0	0	0	0.00	1479.07	2439.93

CCHV= .100 CEHV= .300

*SECNO 35.000

VALLEY SECTION J (SOUTH LIMIT)

35.00	8.48	863.78	0.00	0.00	863.79	.01	.07	.00	861.90
1130.	637.	245.	248.	1460.	179.	645.	328.	98.	858.50
3.03	.44	1.37	.39	.100	.045	.095	.042	855.30	1537.44
.000152	1200.	1200.	1200.	1	0	0	0.00	799.31	2336.75

100-yr Red Ceda
864.5

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1
T2
T3
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       6.         0.         0.  0.000000        0.00       0.0         0.    861.000    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 2

CCHV=     .100 CEHV=     .300
*SECNO 29.800
   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=     1980.9     2030.1  TYPE=       1  TARGET=        49.200
     29.80      10.70     861.00      0.00     861.00     861.11        .11       0.00       0.00     856.70
    1130.         0.       1130.        0.         0.        432.         1.         0.         0.      854.10
      0.00        .07       2.62        .07        .080       .040       .080      0.000    850.30    1980.90
   .000285        0.         0.         0.          0          0          0       0.00      49.20    2030.10

CCHV=     .300 CEHV=     .500
*SECNO 29.900

                    VALLEY SECTION A ( 1 FOOT DOWNSTREAM M-43)

     29.90      10.39     860.89      0.00     860.89     861.25        .36        .02        .13     863.10
    1130.         0.       1130.        0.         0.        233.         0.         0.         0.      863.00
       .00       0.00       4.84       0.00        .080       .040       .080       .039    850.50    2000.00
   .001779        30.        30.        30.          2          0          0       0.00      23.00    2023.00

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       1.60       3.00       0.00      23.00       0.00     234.60       0.00     850.20     850.50

*SECNO 30.100
PRESSURE FLOW
```

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.46	860.95	0.00	0.	1130.	235.	242.	860.70	861.80

BRIDGE SECTION B (UPSTREAM FACE)

30.10	10.94	861.14	0.00	861.14	861.46	.32	.21	0.00	863.10
1130.	0.	1130.	0.	0.	248.	0.	1.	0.	863.00
.01	0.00	4.55	0.00	.080	.014	.080	.022	850.20	2000.00
.000185	60.	60.	60.	2	0	0	0.00	23.00	2023.00

*SECNO 30.300

30.30	11.27	861.57	0.00	861.57	861.58	.01	.02	.09	856.70
1130.	188.	460.	481.	546.	460.	1086.	8.	1.	854.10
.12	.34	1.00	.44	.080	.040	.080	.035	850.30	1873.19
.000038	275.	275.	275.	2	0	0	0.00	304.82	2178.02

CCHV= .100 CEHV= .300

*SECNO 31.000

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

3470 ENCROACHMENT STATIONS= 2000.0 2238.0 TYPE= 1 TARGET= 238.000

VALLEY SECTION C

31.00	10.49	861.59	0.00	861.59	861.62	.03	.04	.01	855.70
1130.	0.	498.	632.	0.	243.	880.	25.	4.	857.20
.22	0.00	2.05	.72	.090	.043	.090	.040	851.10	2000.00
.000287	495.	475.	450.	2	0	0	0.00	238.00	2238.00

CCHV= .100 CEHV= .300

*SECNO 31.800

3470 ENCROACHMENT STATIONS= 1995.0 2033.0 TYPE= 1 TARGET= 38.000

31.80	10.09	861.69	0.00	861.69	861.95	.26	.26	.07	856.60
1130.	0.	1091.	39.	0.	264.	31.	33.	6.	855.10
.26	0.00	4.13	1.26	.080	.045	.085	.042	851.60	1995.00
.001204	500.	500.	500.	2	0	0	0.00	38.00	2033.00

CCHV= .300 CEHV= .500

*SECNO 31.900

3301 HV CHANGED MORE THAN HVINS

VALLEY SECTION D (1 FOOT DOWNSTREAM R.R. BRIDGE)

31.90	9.90	861.50	0.00	861.50	862.32	.82	.09	.28	869.90

1130.	0.	1130.	0.	0.	155.	0.	33.	6.	870.00	
.26	0.00	7.27	0.00	.070	.040	.080	.042	851.60	2000.00	
.005458	40.	40.	40.	2	0	0	0.00	20.00	2020.00	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.60	3.00	0.00	17.90	4.00	123.86	0.00	851.40	851.60

*SECNO 32.100
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
863.57	862.54	.58	0.	1130.	124.	124.	860.30	869.80

BRIDGE SECTION E (UPSTREAM FACE R.R.)

32.10	11.79	863.19	0.00	863.19	863.57	.37	1.25	0.00	869.90
1130.	0.	1130.	0.	0.	230.	0.	34.	6.	870.00
.26	0.00	4.91	0.00	.070	.014	.080	.041	851.40	2000.00
.000230	36.	36.	36.	2	0	0	0.00	20.00	2020.00

*SECNO 32.300

3470 ENCROACHMENT STATIONS= 2000.0 2046.1 TYPE= 1 TARGET= 46.100

32.30	11.73	863.53	0.00	863.53	863.66	.13	.01	.07	855.60
1130.	69.	1061.	0.	63.	355.	1.	34.	6.	855.50
.26	1.10	2.99	.08	.070	.045	.080	.041	851.80	2000.00
.000400	50.	50.	50.	2	0	0	0.00	46.10	2046.10

CCHV= .100 CEHV= .300
*SECNO 32.800
2800 NAT Q1= 3742.57 WSEL= 863.69 ENC Q1= 3742.57 WSEL= 863.79 RATIO= 0.0000
NAT Q1= 3885. RATIOS LOB,CH,ROB= .5560 .1471 .2969 WSEL= 863.79

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= 670.4 2326.8 TYPE= 4 TARGET= .037

32.80	11.69	863.69	0.00	863.69	863.69	.00	.02	.01	855.60
1130.	624.	176.	330.	4569.	357.	1702.	101.	22.	855.50
1.37	.14	.49	.19	.080	.043	.080	.042	852.00	670.43
.000010	830.	830.	830.	0	0	0	0.00	1656.34	2326.77

CCHV= .300 CEHV= .500
*SECNO 32.900
2800 NAT Q1= 2930.35 WSEL= 863.69 ENC Q1= 2930.35 WSEL= 863.79 RATIO= 0.0000
NAT Q1= 3063. RATIOS LOB,CH,ROB= .6628 .1094 .2277 WSEL= 863.79

3470 ENCROACHMENT STATIONS= 664.4 2284.8 TYPE= 4 TARGET= .043

VALLEY SECTION F ( ) FOOT DOWNSTREAM WALLACE STREET)

32.90	11.19	863.69	0.00	863.69	863.70	.00	.00	.00	859.70
1130.	753.	132.	245.	4406.	259.	1193.	118.	26.	859.50
1.52	.17	.51	.21	.080	.043	.080	.042	852.50	664.35
.000016	118.	118.	118.	0	0	0	0.00	1620.43	2284.78

*SECNO 33.000

3700. BRIDGE STENCL= 664.35 STENCR= 2284.78

2800 NAT Q1= 2713.18 WSEL= 863.69 ENC Q1= 2713.18 WSEL= 863.79 RATIO= .0000

NAT Q1= 2843. RATIOS LOB,CH,ROB= .7142 .0405 .2454 WSEL= 863.79

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 858.40 MAX ELLC= 857.30

3470 ENCROACHMENT STATIONS= 662.9 2285.6 TYPE= 4 TARGET= .046

33.00	10.29	863.69	0.00	863.69	863.70	.00	.00	.00	859.70
1130.	815.	49.	266.	4409.	193.	1196.	118.	26.	859.50
1.52	.18	.25	.22	.080	.043	.080	.042	853.40	662.86
.000019	1.	1.	1.	0	0	0	-61.10	1622.78	2285.64

*SECNO 33.100

2800 NAT Q1= 2714.24 WSEL= 863.69 ENC Q1= 2714.24 WSEL= 863.79 RATIO= .0000

NAT Q1= 2844. RATIOS LOB,CH,ROB= .7142 .0404 .2454 WSEL= 863.79

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 858.40 MAX ELLC= 857.30

3470 ENCROACHMENT STATIONS= 662.6 2285.8 TYPE= 4 TARGET= .046

BRIDGE SECTION G (UPSTREAM FACE WALLACE)

33.10	10.30	863.70	0.00	863.69	863.70	.00	.00	.00	859.70
1130.	815.	49.	266.	4411.	193.	1197.	122.	27.	859.50
1.56	.18	.25	.22	.080	.043	.080	.042	853.40	662.58
.000019	28.	28.	28.	0	0	0	-61.10	1623.23	2285.81

*SECNO 33.200

2800 NAT Q1= 2925.92 WSEL= 863.69 ENC Q1= 2925.92 WSEL= 863.79 RATIO= 0.0000

NAT Q1= 3058. RATIOS LOB,CH,ROB= .6641 .1078 .2282 WSEL= 863.79

3470 ENCROACHMENT STATIONS= 664.2 2284.9 TYPE= 4 TARGET= .043

33.20	10.30	863.70	0.00	863.69	863.70	.00	.00	.00	859.70
1130.	754.	130.	246.	4407.	254.	1194.	122.	27.	859.50
1.56	.17	.51	.21	.080	.043	.080	.042	853.40	664.21
.000016	1.	1.	1.	0	0	0	0.00	1620.66	2284.87

*SECNO 33.300

2800 NAT Q1= 2926.79 WSEL= 863.69 ENC Q1= 2926.79 WSEL= 863.79 RATIO= 0.0000

NAT Q1= 3059. RATIOS LOB,CH,ROB= .6641 .1078 .2281 WSEL= 863.79

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

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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      664.2     2284.9  TYPE=      4  TARGET=          .043
      33.30     10.30    863.70      0.00    863.69    863.70       .00       .00       .00    859.70
     1130.       754.      130.       246.     4408.      254.     1194.      129.       29.     859.50
       1.63       .17       .51       .21      .080      .043      .080      .042    853.40    664.23
   .000016        50.       50.       50.         0         0         0      0.00   1620.63   2284.86

CCHV=     .100 CEHV=     .300
*SECNO 33.800
 2800 NAT Q1=    2355.98  WSEL=     863.71  ENC Q1=    2355.98  WSEL=     863.81  RATIO=  0.0000
 NAT Q1=    2458.  RATIOS LOB,CH,ROB=    .5299    .2216    .2485  WSEL=     863.81

3470 ENCROACHMENT STATIONS=     1078.0     2289.6  TYPE=      4  TARGET=          .042
      33.80      8.91    863.71      0.00    863.71    863.71       .00       .02       .00    859.20
     1130.       596.      265.       268.     2691.      400.     1055.      216.       54.     858.80
       2.26       .22       .66       .25      .080      .041      .075      .042    854.80   1078.00
   .000025       760.      760.      760.         0         0         0      0.00   1211.56   2289.57

CCHV=     .300 CEHV=     .500
*SECNO 33.900
 2800 NAT Q1=    1615.16  WSEL=     863.71  ENC Q1=    1615.16  WSEL=     863.81  RATIO=   .0000
 NAT Q1=    1696.  RATIOS LOB,CH,ROB=    .7046    .1225    .1728  WSEL=     863.81

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1049.6     2304.4  TYPE=      4  TARGET=          .048

                VALLEY SECTION H  1 FOOT DOWNSTREAM )

      33.90      9.01    863.71      0.00    863.71    863.71       .00       .00       .00    865.60
     1130.       806.      150.       175.     2557.      194.      631.      220.       55.     865.90
       2.30       .32       .77       .28      .080      .041      .075      .042    854.70   1049.59
   .000054        50.       50.       50.         0         0         0      0.00   1186.69   2304.41

*SECNO 34.000
     3700.   BRIDGE STENCL=    1049.59    STENCR=    2304.41
 2800 NAT Q1=    1557.52  WSEL=     863.71  ENC Q1=    1557.52  WSEL=     863.81  RATIO=  0.0000
 NAT Q1=    1634.  RATIOS LOB,CH,ROB=    .7313    .0894    .1794  WSEL=     863.81

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  861.50 MAX ELLC=  864.30

3470 ENCROACHMENT STATIONS=     1045.8     2306.9  TYPE=      4  TARGET=          .047
      34.00      8.61    863.71      0.00    863.71    863.71       .00       .00       .00    865.60
     1130.       837.      111.       182.     2564.      143.      637.      220.       55.     865.90
       2.30       .33       .77       .29      .080      .024      .075      .042    855.10   1045.79
   .000058         1.        1.        1.         0         0         0    -45.49   1192.96   2306.89

*SECNO 34.100
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 2800 NAT Q1=    1558.52  WSEL=     863.71  ENC Q1=    1558.52  WSEL=     863.81  RATIO=  0.0000
 NAT Q1=    1635.  RATIOS LOB,CH,ROB=    .7313    .0893    .1794  WSEL=     863.81

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  861.50 MAX ELLC=  864.30

3470 ENCROACHMENT STATIONS=     1045.6     2307.0  TYPE=      4  TARGET=         .047

                  BRIDGE SECTION I ( UPSTREAM FACE )

     34.10      8.61    863.71      0.00    863.71    863.72       .00       .00       .00    865.60
     1130.      837.      111.      182.     2565.      143.      637.      222.       56.     865.90
      2.31       .33       .77       .29       .080      .024      .075      .041    855.10   1045.63
   .000057       22.       22.       22.          0         0         0    -45.51   1193.29   2307.01

*SECNO 34.200
 2800 NAT Q1=    1600.60  WSEL=     863.71  ENC Q1=    1600.60  WSEL=     863.81  RATIO=  0.0000
 NAT Q1=    1681.  RATIOS LOB,CH,ROB=    .7115    .1140    .1746  WSEL=     863.81

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=     1048.9     2304.9  TYPE=      4  TARGET=         .048
     34.20      8.61    863.71      0.00    863.71    863.72       .00       .00       .00    865.60
     1130.      814.      139.      177.     2559.      189.      632.      222.       56.     865.90
      2.31       .32       .74       .28       .080      .043      .075      .041    855.10   1048.90
   .000055        1.        1.        1.          0         0         0      0.00   1187.87   2304.86

*SECNO 34.300
 2800 NAT Q1=    1960.67  WSEL=     863.71  ENC Q1=    1960.67  WSEL=     863.81  RATIO=  0.0000
 NAT Q1=    2053.  RATIOS LOB,CH,ROB=    .5512    .2300    .2188  WSEL=     863.81

3470 ENCROACHMENT STATIONS=     1062.3     2297.5  TYPE=      4  TARGET=         .045
     34.30      8.62    863.72      0.00    863.71    863.72       .00       .00       .00    859.20
     1130.      621.      278.      231.     2502.      362.      871.      226.       57.     858.80
      2.35       .25       .77       .27       .080      .043      .075      .041    855.10   1062.28
   .000036       50.       50.       50.          0         0         0      0.00   1235.21   2297.48

CCHV=     .100 CEHV=     .300
*SECNO 35.000
 2800 NAT Q1=     917.40  WSEL=     863.78  ENC Q1=     917.40  WSEL=     863.88  RATIO=  0.0000
 NAT Q1=     962.  RATIOS LOB,CH,ROB=    .5643    .2121    .2236  WSEL=     863.88

3470 ENCROACHMENT STATIONS=     1663.7     2167.6  TYPE=      4  TARGET=         .046

                  VALLEY SECTION J (SOUTH LIMIT)

     35.00      8.49    863.79      0.00    863.78    863.80       .01       .08       .00    861.90
```

1130.	640.	254.	235.	1329.	179.	508.	305.	81.	858.50
2.83	.48	1.42	.46	.100	.045	.095	.042	855.30	1663.67
.000163	1200.	1200.	1200.	2	0	0	0.00	503.97	2167.64

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HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DEER CREEK

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
29.800	861.00	850.30	0.00	0.00	1980.90	1980.90	1981.00	2030.00	0.00	2030.10	49.20	0.00
29.800	861.00	850.30	0.00	0.00	1980.90	1980.90	1981.00	2030.00	0.00	2030.10	49.20	0.00
29.900	860.89	850.50	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	23.00	30.00
29.900	860.89	850.50	0.00	0.00	2000.00	0.00	2000.00	2023.00	0.00	2023.00	23.00	30.00
30.100	861.14	850.20	860.70	861.80	2000.00	0.00	2000.00	2023.00	0.00	2023.00	23.00	60.00
30.100	861.14	850.20	860.70	861.80	2000.00	0.00	2000.00	2023.00	0.00	2023.00	23.00	60.00
30.300	861.57	850.30	0.00	0.00	1873.19	0.00	1981.00	2030.00	0.00	2178.02	304.82	275.00
30.300	861.57	850.30	0.00	0.00	1873.19	0.00	1981.00	2030.00	0.00	2178.02	304.82	275.00
31.000	861.59	851.10	0.00	0.00	2000.00	2000.00	2000.00	2028.00	0.00	2238.00	238.00	475.00
31.000	861.59	851.10	0.00	0.00	2000.00	2000.00	2000.00	2028.00	0.00	2238.00	238.00	475.00
31.800	861.69	851.60	0.00	0.00	1995.00	1995.00	1995.00	2027.00	0.00	2033.00	38.00	500.00
31.800	861.69	851.60	0.00	0.00	1995.00	1995.00	1995.00	2027.00	0.00	2033.00	38.00	500.00
31.900	861.50	851.60	0.00	0.00	2000.00	0.00	2000.00	2020.00	0.00	2020.00	20.00	40.00
31.900	861.50	851.60	0.00	0.00	2000.00	0.00	2000.00	2020.00	0.00	2020.00	20.00	40.00
32.100	863.19	851.40	860.30	869.80	2000.00	0.00	2000.00	2020.00	0.00	2020.00	20.00	36.00
32.100	863.19	851.40	860.30	869.80	2000.00	0.00	2000.00	2020.00	0.00	2020.00	20.00	36.00
32.300	863.53	851.80	0.00	0.00	2000.00	2000.00	2010.00	2046.00	0.00	2046.10	46.10	50.00
32.300	863.53	851.80	0.00	0.00	2000.00	2000.00	2010.00	2046.00	0.00	2046.10	46.10	50.00
32.800	863.69	852.00	0.00	0.00	491.59	0.00	2010.00	2046.00	0.00	2403.96	1912.37	830.0
32.800	863.69	852.00	0.00	0.00	670.43	670.43	2010.00	2046.00	0.00	2326.77	1656.34	830.0
32.900	863.69	852.50	0.00	0.00	491.51	0.00	2000.00	2026.00	0.00	2418.18	1926.67	118.0
32.900	863.69	852.50	0.00	0.00	664.35	664.35	2000.00	2026.00	0.00	2284.78	1620.43	118.0
33.000	863.69	853.40	857.30	858.40	491.51	0.00	2000.00	2026.00	0.00	2418.18	1926.67	1.0
33.000	863.69	853.40	857.30	858.40	662.86	662.86	2000.00	2026.00	0.00	2285.64	1622.78	1.0
33.100	863.69	853.40	857.30	858.40	491.46	0.00	2000.00	2026.00	0.00	2418.19	1926.73	28.0
33.100	863.70	853.40	857.30	858.40	662.58	662.58	2000.00	2026.00	0.00	2285.81	1623.23	28.0

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
33.200	863.69	853.40	0.00	0.00	491.46	0.00	2000.00	2026.00	0.00	2418.19	1926.74	1.00
33.200	863.70	853.40	0.00	0.00	664.21	664.21	2000.00	2026.00	0.00	2284.87	1620.66	1.00
33.300	863.69	853.40	0.00	0.00	491.42	0.00	2000.00	2026.00	0.00	2418.21	1926.79	50.00
33.300	863.70	853.40	0.00	0.00	664.23	664.23	2000.00	2026.00	0.00	2284.86	1620.63	50.00
33.800	863.71	854.80	0.00	0.00	961.02	0.00	1980.00	2036.00	0.00	2432.13	1471.11	760.00
33.800	863.71	854.80	0.00	0.00	1078.00	1078.00	1980.00	2036.00	0.00	2289.57	1211.56	760.00
33.900	863.71	854.70	0.00	0.00	960.96	0.00	2000.00	2022.50	0.00	2439.67	1410.47	50.00
33.900	863.71	854.70	0.00	0.00	1049.59	1049.59	2000.00	2022.50	0.00	2304.41	1186.69	50.00
34.000	863.71	855.10	864.30	861.50	960.95	0.00	2000.00	2022.50	0.00	2439.70	1410.54	1.00
34.000	863.71	855.10	864.30	861.50	1045.79	1045.79	2000.00	2022.50	0.00	2306.89	1192.96	1.00
34.100	863.71	855.10	864.30	861.50	960.92	0.00	2000.00	2022.50	0.00	2439.78	1410.69	22.00
34.100	863.71	855.10	864.30	861.50	1045.63	1045.63	2000.00	2022.50	0.00	2307.01	1193.29	22.00
34.200	863.71	855.10	0.00	0.00	960.92	0.00	2000.00	2022.50	0.00	2439.78	1410.70	1.00
34.200	863.71	855.10	0.00	0.00	1048.90	1048.90	2000.00	2022.50	0.00	2304.86	1187.87	1.00
34.300	863.71	855.10	0.00	0.00	960.87	0.00	1980.00	2030.00	0.00	2439.93	1479.07	50.00
34.300	863.72	855.10	0.00	0.00	1062.28	1062.28	1980.00	2030.00	0.00	2297.48	1235.21	50.00
35.000	863.78	855.30	0.00	0.00	1537.44	0.00	2000.00	2026.00	0.00	2336.75	799.31	1200.00
35.000	863.79	855.30	0.00	0.00	1663.67	1663.67	2000.00	2026.00	0.00	2167.64	503.97	1200.00

DEER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
29.800	0.00	0.00	0.00	850.30	1130.00	861.00	0.00	861.11	2.85	2.62	432.76	669.3
29.800	0.00	0.00	0.00	850.30	1130.00	861.00	0.00	861.11	2.85	2.62	432.76	669.3
29.900	30.00	0.00	0.00	850.50	1130.00	860.89	0.00	861.25	17.79	4.84	233.23	267.9
29.900	30.00	0.00	0.00	850.50	1130.00	860.89	0.00	861.25	17.79	4.84	233.23	267.9
30.100	60.00	861.80	860.70	850.20	1130.00	861.14	0.00	861.46	1.85	4.55	248.46	831.3
30.100	60.00	861.80	860.70	850.20	1130.00	861.14	0.00	861.46	1.85	4.55	248.46	831.3
30.300	275.00	0.00	0.00	850.30	1130.00	861.57	0.00	861.58	.38	1.00	2092.32	1824.7
30.300	275.00	0.00	0.00	850.30	1130.00	861.57	0.00	861.58	.38	1.00	2092.32	1824.7
31.000	475.00	0.00	0.00	851.10	1130.00	861.59	0.00	861.62	2.87	2.05	1123.33	667.3
31.000	475.00	0.00	0.00	851.10	1130.00	861.59	0.00	861.62	2.87	2.05	1123.33	667.3
31.800	500.00	0.00	0.00	851.60	1130.00	861.69	0.00	861.95	12.04	4.13	295.00	325.6
31.800	500.00	0.00	0.00	851.60	1130.00	861.69	0.00	861.95	12.04	4.13	295.00	325.6
31.900	40.00	0.00	0.00	851.60	1130.00	861.50	0.00	862.32	54.58	7.27	155.43	152.9
31.900	40.00	0.00	0.00	851.60	1130.00	861.50	0.00	862.32	54.58	7.27	155.43	152.9
32.100	36.00	869.80	860.30	851.40	1130.00	863.19	0.00	863.57	2.30	4.91	230.10	744.4
32.100	36.00	869.80	860.30	851.40	1130.00	863.19	0.00	863.57	2.30	4.91	230.10	744.4
32.300	50.00	0.00	0.00	851.80	1130.00	863.53	0.00	863.66	4.00	2.99	418.55	564.9
32.300	50.00	0.00	0.00	851.80	1130.00	863.53	0.00	863.66	4.00	2.99	418.55	564.9
32.800	830.00	0.00	0.00	852.00	1130.00	863.69	0.00	863.69	.09	.48	7055.27	3742.5
32.800	830.00	0.00	0.00	852.00	1130.00	863.69	0.00	863.69	.10	.49	6627.78	3615.3
32.900	118.00	0.00	0.00	852.50	1130.00	863.69	0.00	863.69	.15	.49	6342.40	2930.3
32.900	118.00	0.00	0.00	852.50	1130.00	863.69	0.00	863.70	.16	.51	5858.12	2813.0
33.000	1.00	858.40	857.30	853.40	1130.00	863.69	0.00	863.69	.17	.24	6276.13	2713.1
33.000	1.00	858.40	857.30	853.40	1130.00	863.69	0.00	863.70	.19	.25	5798.47	2598.3
33.100	28.00	858.40	857.30	853.40	1130.00	863.69	0.00	863.69	.17	.24	6277.72	2714.2
33.100	28.00	858.40	857.30	853.40	1130.00	863.70	0.00	863.70	.19	.25	5801.15	2599.8
33.200	1.00	0.00	0.00	853.40	1130.00	863.69	0.00	863.69	.15	.49	6338.92	2925.9
33.200	1.00	0.00	0.00	853.40	1130.00	863.70	0.00	863.70	.16	.51	5855.24	2808.9
33.300	50.00	0.00	0.00	853.40	1130.00	863.69	0.00	863.70	.15	.49	6340.19	2926.7
33.300	50.00	0.00	0.00	853.40	1130.00	863.70	0.00	863.70	.16	.51	5856.12	2809.6
33.800	760.00	0.00	0.00	854.80	1130.00	863.71	0.00	863.71	.23	.64	4501.09	2355.9
33.800	760.00	0.00	0.00	854.80	1130.00	863.71	0.00	863.71	.25	.66	4146.79	2268.1
33.900	50.00	0.00	0.00	854.70	1130.00	863.71	0.00	863.71	.49	.74	3678.81	1615.1
33.900	50.00	0.00	0.00	854.70	1130.00	863.71	0.00	863.71	.54	.77	3381.51	1544.4
34.000	1.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.71	.53	.74	3629.35	1557.5

34.000	1.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.71	.58	.77	3343.61	1489.76

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.100	22.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.71	.53	.74	3631.19	1558.52
34.100	22.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.72	.57	.77	3345.82	1490.87
34.200	1.00	0.00	0.00	855.10	1130.00	863.71	0.00	863.71	.50	.70	3676.79	1600.60
34.200	1.00	0.00	0.00	855.10	1130.00	863.71	0.00	863.72	.55	.74	3380.65	1529.99
34.300	50.00	0.00	0.00	855.10	1130.00	863.71	0.00	863.71	.33	.74	4070.23	1960.67
34.300	50.00	0.00	0.00	855.10	1130.00	863.72	0.00	863.72	.36	.77	3734.40	1879.14
35.000	1200.00	0.00	0.00	855.30	1130.00	863.78	0.00	863.79	1.52	1.37	2284.12	917.40
35.000	1200.00	0.00	0.00	855.30	1130.00	863.79	0.00	863.80	1.63	1.42	2016.09	886.01

DEER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
29.800	1130.00	861.00	0.00	0.00	0.00	49.20	0.00
29.800	1130.00	861.00	0.00	0.00	0.00	49.20	0.00
29.900	1130.00	860.89	0.00	-.11	0.00	23.00	30.00
29.900	1130.00	860.89	0.00	-.11	0.00	23.00	30.00
30.100	1130.00	861.14	0.00	.26	0.00	23.00	60.00
30.100	1130.00	861.14	0.00	.26	0.00	23.00	60.00
30.300	1130.00	861.57	0.00	.43	0.00	304.82	275.00
30.300	1130.00	861.57	0.00	.43	0.00	304.82	275.00
31.000	1130.00	861.59	0.00	.02	0.00	238.00	475.00
31.000	1130.00	861.59	0.00	.02	0.00	238.00	475.00
31.800	1130.00	861.69	0.00	.10	0.00	38.00	500.00
31.800	1130.00	861.69	0.00	.10	0.00	38.00	500.00
31.900	1130.00	861.50	0.00	-.19	0.00	20.00	40.00
31.900	1130.00	861.50	0.00	-.19	0.00	20.00	40.00
32.100	1130.00	863.19	0.00	1.69	0.00	20.00	36.00
32.100	1130.00	863.19	0.00	1.69	0.00	20.00	36.00
32.300	1130.00	863.53	0.00	.33	0.00	46.10	50.00
32.300	1130.00	863.53	0.00	.33	0.00	46.10	50.00
32.800	1130.00	863.69	0.00	.17	0.00	1912.37	830.00
32.800	1130.00	863.69	.00	.17	.00	1656.34	830.00
32.900	1130.00	863.69	0.00	.00	0.00	1926.67	118.00
32.900	1130.00	863.69	.00	.00	.00	1620.43	118.00
33.000	1130.00	863.69	0.00	.00	0.00	1926.67	1.00
33.000	1130.00	863.69	.00	.00	.00	1622.78	1.00
33.100	1130.00	863.69	0.00	.00	0.00	1926.73	28.00
33.100	1130.00	863.70	.00	.00	.00	1623.23	28.00
33.200	1130.00	863.69	0.00	-.00	0.00	1926.74	1.00
33.200	1130.00	863.70	.00	-.00	.00	1620.66	1.00
33.300	1130.00	863.69	0.00	.00	0.00	1926.79	50.00
33.300	1130.00	863.70	.00	.00	.00	1620.63	50.00
33.800	1130.00	863.71	0.00	.01	0.00	1471.11	760.00
33.800	1130.00	863.71	.00	.01	.00	1211.56	760.00
33.900	1130.00	863.71	0.00	.00	0.00	1410.47	50.00
33.900	1130.00	863.71	.00	.00	.00	1186.69	50.00
34.000	1130.00	863.71	0.00	.00	0.00	1410.54	1.00

34.000	1130.00	863.71	.00	.00	.00	1192.96	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
34.100	1130.00	863.71	0.00	.00	0.00	1410.69	22.00
34.100	1130.00	863.71	.00	.00	.00	1193.29	22.00
34.200	1130.00	863.71	0.00	.00	0.00	1410.70	1.00
34.200	1130.00	863.71	.00	.00	.00	1187.87	1.00
34.300	1130.00	863.71	0.00	.00	0.00	1479.07	50.00
34.300	1130.00	863.72	.00	.00	.00	1235.21	50.00
35.000	1130.00	863.78	0.00	.07	0.00	799.31	1200.00
35.000	1130.00	863.79	.01	.08	.01	503.97	1200.00

SUMMARY OF ERRORS

FLOODWAY DATA, DEER CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
29.800	49.	433.	2.6	861.0	861.0	0.0
29.900	23.	233.	4.8	860.9	860.9	0.0
30.100	23.	248.	4.5	861.1	861.1	0.0
30.300	305.	2092.	.5	861.6	861.6	0.0
31.000	238.	1123.	1.0	861.6	861.6	0.0
31.800	38.	295.	3.8	861.7	861.7	0.0
31.900	20.	155.	7.3	861.5	861.5	0.0
32.100	20.	230.	4.9	863.2	863.2	0.0
32.300	46.	419.	2.7	863.5	863.5	0.0
32.800	1656.	6628.	.2	863.7	863.7	0.0
32.900	1620.	5858.	.2	863.7	863.7	0.0
33.000	1623.	5798.	.2	863.7	863.7	0.0
33.100	1623.	5801.	.2	863.7	863.7	0.0
33.200	1621.	5855.	.2	863.7	863.7	0.0
33.300	1621.	5856.	.2	863.7	863.7	0.0
33.800	1212.	4147.	.3	863.7	863.7	0.0
33.900	1255.	3382.	.3	863.7	863.7	0.0
34.000	1261.	3344.	.3	863.7	863.7	0.0
34.100	1261.	3346.	.3	863.7	863.7	0.0
34.200	1256.	3381.	.3	863.7	863.7	0.0
34.300	1235.	3734.	.3	863.7	863.7	0.0
35.000	504.	2016.	.6	863.8	863.8	0.0

Multi-Profile
Deer Creek
Williamston City

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

C
T1      WILLIAMSTON CITY
T2      10 YEAR FLOW
T3      DEER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	858.800	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 VARIABLE CODES FOR SUMMARY PRINTOUT

150.000	201.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

J5 LPRNT NUMSEC ********REQUESTED SECTION NUMBERS********

	-10.000	-10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	775.000	1035.000	1130.000	1330.000	1130.000	0.000	0.000	0.000	0.000
NC	.080	.080	.040	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1980.900	2030.100	1980.900	2030.100
X1	29.800	21.000	1981.000	2030.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.000	1869.000	855.500	1891.000	856.700	1981.000	851.300	2000.000	850.300	2013.000
GR	850.600	2023.000	854.100	2030.000	853.000	2151.000	862.200	2180.000	862.200	2196.000
GR	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000	868.600	3132.000
GR	870.200	3300.000	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

VALLEY SECTION A (1 FOOT DOWNSTREAM M-43)

X1	29.900	17.000	2000.000	2023.000	30.000	30.000	30.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.100	2000.000	851.300	2000.000	850.500	2013.000	850.600	2023.000	863.000	2023.000
GR	862.200	2196.000	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000
GR	868.600	3132.000	870.200	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	3.000	0.000	23.000	0.000	234.600	0.000	850.200	850.500

BRIDGE SECTION B (UPSTREAM FACE)

X1	30.100	17.000	2000.000	2023.000	60.000	60.000	60.000	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	7.000	1800.000	862.300	0.000	2000.000	863.100	850.700	2000.000	863.100	860.700

BT	2023.000	863.000	860.600	2023.000	863.000	850.200	2196.000	862.200	0.000	2386.000
BT	861.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.100	2000.000	850.700	2000.000	850.200	2013.000	850.200	2023.000	863.000	2023.000
GR	862.200	2196.000	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000
GR	868.600	3132.000	870.200	3300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.300	21.000	1981.000	2030.000	275.000	275.000	275.000	0.000	0.000	0.000
GR	866.000	1028.000	863.800	1228.000	862.900	1434.000	862.200	1599.000	862.300	1800.000
GR	863.000	1869.000	855.500	1891.000	856.700	1981.000	851.300	2000.000	850.300	2013.000
GR	850.600	2023.000	854.100	2030.000	853.000	2151.000	862.200	2180.000	862.200	2196.000
GR	862.100	2386.000	861.800	2586.000	862.900	2784.000	865.600	2936.000	868.600	3132.000
GR	870.200	3300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.090	.043	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2238.000	0.000	0.000

VALLEY SECTION C

X1	31.000	17.000	2000.000	2028.000	495.000	450.000	475.000	0.000	0.000	0.000
GR	874.700	1444.000	872.000	1457.000	869.200	1512.000	865.300	1630.000	861.900	1814.000
GR	855.700	2000.000	853.300	2001.000	851.100	2011.000	853.200	2022.000	857.200	2028.000
GR	857.600	2210.000	855.500	2358.000	855.100	2520.000	855.300	2608.000	855.800	2718.000
GR	862.500	2798.000	865.300	2908.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.085	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	1995.000	2033.000	0.000	0.000
X1	31.800	15.000	1995.000	2027.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	869.400	1072.000	869.300	1190.000	862.300	1398.000	861.800	1605.000	861.000	1810.000
GR	856.600	1995.000	853.000	2002.000	851.600	2006.000	852.000	2010.000	855.100	2027.000
GR	857.900	2033.000	857.100	2139.000	854.800	2273.000	858.400	2471.000	871.900	2673.000
NC	.070	.080	.040	.300	.500	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D (1 FOOT DOWNSTREAM R.R. BRIDGE)

X1	31.900	21.000	2000.000	2020.000	40.000	40.000	40.000	0.000	0.000	0.000
GR	871.000	1072.000	870.800	1190.000	870.400	1398.000	870.000	1605.000	869.800	1810.000
GR	869.900	2000.000	854.500	2000.000	853.000	2002.000	851.600	2004.000	853.000	2006.000
GR	854.500	2008.000	854.500	2012.000	854.000	2014.000	853.700	2016.000	854.000	2018.000
GR	854.500	2020.000	870.000	2020.000	870.200	2139.000	870.700	2273.000	872.000	2471.000
GR	873.700	2673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.600	3.000	0.000	17.900	4.000	123.860	0.000	851.400	851.600
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BRIDGE SECTION E (UPSTREAM FACE R.R.)

X1	32.100	21.000	2000.000	2020.000	36.000	36.000	36.000	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	16.000	1810.000	869.800	0.000	2000.000	869.900	851.600	2000.000	869.900	856.600
BT	2002.000	869.900	859.900	2004.000	869.900	860.300	2006.000	869.900	859.900	2008.000
BT	869.900	856.500	2008.000	869.900	851.900	2012.000	870.000	851.900	2012.000	870.000
BT	856.500	2014.000	870.000	859.900	2016.000	870.000	860.200	2018.000	870.000	859.900
BT	2020.000	870.000	856.500	2020.000	870.000	851.600	2139.000	870.200	0.000	0.000
GR	871.000	1072.000	870.800	1190.000	870.400	1398.000	870.000	1605.000	869.800	1810.000
GR	869.900	2000.000	851.600	2000.000	851.600	2002.000	851.600	2004.000	851.800	2006.000

GR	851.900	2008.000	851.900	2012.000	851.700	2014.000	851.400	2016.000	851.500	2018.000
GR	851.600	2020.000	870.000	2020.000	870.200	2139.000	870.700	2273.000	872.000	2471.000
GR	873.700	2673.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	7.100	2000.000	2046.100	0.000	0.000
X1	32.300	26.000	2010.000	2046.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	859.100	1612.000	859.800	1716.000	859.500	1824.000	859.200	1908.000	858.800	2000.000
GR	855.600	2010.000	851.800	2030.000	855.500	2046.000	857.600	2138.000	857.500	2232.000
GR	860.700	2360.000	865.600	2432.000	871.800	2584.000	884.700	2792.000	889.700	2890.000
GR	890.300	2938.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.043	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
X1	32.800	26.000	2010.000	2046.000	830.000	830.000	830.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	859.100	1612.000	859.800	1716.000	859.500	1824.000	859.200	1908.000	858.800	2000.000
GR	855.600	2010.000	852.000	2030.000	855.500	2046.000	857.600	2130.000	857.500	2232.000
GR	860.700	2360.000	865.600	2432.000	871.800	2584.000	884.700	2792.000	889.700	2890.000
GR	890.300	2938.000	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

VALLEY SECTION F (1 FOOT DOWNSTREAM WALLACE STREET)

X1	32.900	23.000	2000.000	2026.000	118.000	118.000	118.000	0.000	0.000	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	858.900	1804.000	859.700	2000.000	854.500	2000.000	852.500	2008.000	854.200	2017.000
GR	854.400	2026.000	859.500	2026.000	858.400	2200.000	863.000	2404.000	871.800	2584.000
GR	884.700	2792.000	889.700	2890.000	890.300	2938.000	0.000	0.000	0.000	0.000
X1	33.000	23.000	2000.000	2026.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	13.000	1096.000	861.000	0.000	1300.000	862.000	0.000	1408.000	860.900	0.000
BT	1605.000	861.200	0.000	1804.000	858.900	0.000	2000.000	859.700	854.700	2000.000
BT	859.700	857.300	2026.000	859.500	857.200	2026.000	859.500	854.900	2200.000	858.400
BT	0.000	2404.000	863.000	0.000	2584.000	871.800	0.000	2792.000	884.700	0.000
GR	867.100	216.000	867.000	328.000	865.500	390.000	862.100	581.000	860.300	762.000
GR	858.800	924.000	861.000	1096.000	862.000	1300.000	860.900	1408.000	861.200	1605.000
GR	858.900	1804.000	859.700	2000.000	854.700	2000.000	853.600	2008.000	853.400	2017.000
GR	854.900	2026.000	859.500	2026.000	858.400	2200.000	863.000	2404.000	871.800	2584.000
GR	884.700	2792.000	889.700	2890.000	890.300	2938.000	0.000	0.000	0.000	0.000

BRIDGE SECTION G (UPSTREAM FACE WALLACE)

X1	33.100	0.000	0.000	0.000	28.000	28.000	28.000	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	33.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	33.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000

NC	.080	.075	.041	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	33.800	23.000	1980.000	2036.000	760.000	760.000	760.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.500	1706.000	858.800	1846.000	859.200	1980.000
GR	856.400	2000.000	854.800	2014.000	855.200	2022.000	856.600	2030.000	858.800	2036.000
GR	859.900	2154.000	859.300	2248.000	862.300	2338.000	864.600	2492.000	865.900	2716.000
GR	867.700	2894.000	868.100	3096.000	867.800	3332.000	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

VALLEY SECTION H 1 FOOT DOWNSTREAM)

X1	33.900	30.000	2000.000	2022.500	50.000	50.000	50.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.300	1710.000	858.600	1886.000	861.500	1936.000
GR	865.600	2000.000	855.700	2000.000	855.100	2002.500	854.800	2005.000	855.000	2007.500
GR	855.400	2010.000	855.300	2012.500	855.000	2015.000	854.700	2017.500	855.000	2020.000
GR	855.500	2022.500	865.900	2022.500	865.400	2036.000	860.300	2112.000	861.500	2310.000
GR	864.600	2492.000	865.900	2716.000	867.700	2894.000	868.100	3096.000	867.800	3332.000
NC	0.000	0.000	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	34.000	30.000	2000.000	2022.500	1.000	1.000	1.000	0.000	0.000	0.000
BT	16.000	1936.000	861.500	0.000	2000.000	865.600	855.900	2000.000	865.600	860.000
BT	2002.500	865.600	863.000	2005.000	865.600	863.800	2007.500	865.700	863.000	2010.000
BT	865.700	859.000	2010.000	865.700	855.100	2012.500	865.800	855.300	2012.500	865.800
BT	859.000	2015.000	865.800	863.800	2017.500	865.900	864.300	2020.000	865.900	863.800
BT	2022.500	865.900	860.000	2022.500	865.900	855.600	2036.000	865.400	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.300	1710.000	858.600	1886.000	861.500	1936.000
GR	865.600	2000.000	855.900	2000.000	855.600	2002.500	855.300	2005.000	855.200	2007.500
GR	855.100	2010.000	855.300	2012.500	855.200	2015.000	855.100	2017.500	855.300	2020.000
GR	855.600	2022.500	865.900	2022.500	865.400	2036.000	860.300	2112.000	861.500	2310.000
GR	864.600	2492.000	865.900	2716.000	867.700	2894.000	868.100	3096.000	867.800	3332.000

BRIDGE SECTION I (UPSTREAM FACE)

X1	34.100	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	0.000	0.000	.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	34.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	34.300	23.000	1980.000	2030.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	869.600	650.000	870.200	824.000	861.100	1016.000	863.300	1106.000	862.500	1260.000
GR	862.300	1378.000	859.700	1540.000	859.500	1706.000	859.600	1886.000	861.500	1936.000
GR	859.200	1980.000	855.900	2000.000	855.300	2005.000	855.100	2017.500	855.600	2023.000
GR	858.800	2030.000	860.300	2112.000	861.500	2310.000	864.600	2492.000	865.900	2716.000
GR	867.700	2894.000	868.100	3096.000	867.800	3332.000	0.000	0.000	0.000	0.000
NC	.100	.095	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

VALLEY SECTION J (SOUTH LIMIT)

XI	35.000	16.000	2000.000	2026.000	1200.000	1200.000	1200.000	0.000	0.000	0.000
GR	879.800	1240.000	875.000	1372.000	865.800	1420.000	861.000	1698.000	858.500	1798.000
GR	860.100	1960.000	861.900	2000.000	857.000	2006.000	855.300	2016.000	856.300	2024.000
GR	858.500	2026.000	862.300	2184.000	863.900	2350.000	871.200	2532.000	868.500	2620.000
GR	873.900	2732.000	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 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1
T2      50 YR FLOW
T3
J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       3.        0.        0.  0.000000      0.00      0.0       0.    860.400     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
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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2      100 YR FLOW
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0.        0.  0.000000      0.00      0.0       0.    861.000     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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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2      500 YR FLOW
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	862.800	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 JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

DEER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
29.800	0.00	0.00	0.00	850.30	775.00	858.80	0.00	858.89	3.49	2.39	324.53	414.66
29.800	0.00	0.00	0.00	850.30	1035.00	860.40	0.00	860.50	3.02	2.57	403.24	595.14
29.800	0.00	0.00	0.00	850.30	1130.00	861.00	0.00	861.11	2.85	2.62	432.76	669.39
29.800	0.00	0.00	0.00	850.30	1330.00	862.80	0.00	862.90	2.12	2.56	521.32	912.56
29.900	30.00	0.00	0.00	850.50	775.00	858.73	0.00	859.00	16.16	4.22	183.49	192.80
29.900	30.00	0.00	0.00	850.50	1035.00	860.30	0.00	860.64	17.57	4.71	219.63	246.94
29.900	30.00	0.00	0.00	850.50	1130.00	860.89	0.00	861.25	17.79	4.84	233.23	267.91
29.900	30.00	0.00	0.00	850.50	1330.00	862.76	0.00	862.96	10.67	3.97	838.86	407.12
30.100	60.00	861.80	860.70	850.20	775.00	858.80	0.00	859.04	2.70	3.98	194.52	471.32
30.100	60.00	861.80	860.70	850.20	1035.00	860.38	0.00	860.69	3.14	4.48	230.84	584.09
30.100	60.00	861.80	860.70	850.20	1130.00	861.14	0.00	861.46	1.85	4.55	248.46	831.34
30.100	60.00	861.80	860.70	850.20	1330.00	862.67	0.00	862.96	1.62	4.45	748.39	1045.83
30.300	275.00	0.00	0.00	850.30	775.00	859.14	0.00	859.15	.63	1.05	1368.63	980.22
30.300	275.00	0.00	0.00	850.30	1035.00	860.80	0.00	860.81	.46	1.03	1858.51	1531.14
30.300	275.00	0.00	0.00	850.30	1130.00	861.57	0.00	861.58	.38	1.00	2092.32	1824.74
30.300	275.00	0.00	0.00	850.30	1330.00	863.06	0.00	863.06	.26	.91	3378.72	2594.72
31.000	475.00	0.00	0.00	851.10	775.00	859.15	0.00	859.24	8.54	2.97	542.44	265.27
31.000	475.00	0.00	0.00	851.10	1035.00	860.82	0.00	860.86	3.93	2.29	939.82	521.92
31.000	475.00	0.00	0.00	851.10	1130.00	861.59	0.00	861.62	2.87	2.05	1123.33	667.30
31.000	475.00	0.00	0.00	851.10	1330.00	863.07	0.00	863.10	1.81	1.76	1475.88	988.30
31.800	500.00	0.00	0.00	851.60	775.00	859.60	0.00	859.82	14.17	3.83	215.52	205.91
31.800	500.00	0.00	0.00	851.60	1035.00	861.00	0.00	861.26	13.27	4.14	268.64	284.15
31.800	500.00	0.00	0.00	851.60	1130.00	861.69	0.00	861.95	12.04	4.13	295.00	325.66
31.800	500.00	0.00	0.00	851.60	1330.00	863.09	0.00	863.35	10.33	4.15	347.97	413.74
31.900	40.00	0.00	0.00	851.60	775.00	859.46	0.00	860.17	60.35	6.76	114.63	99.76
31.900	40.00	0.00	0.00	851.60	1035.00	860.81	0.00	861.64	59.22	7.31	141.66	134.45
31.900	40.00	0.00	0.00	851.60	1130.00	861.50	0.00	862.32	54.58	7.27	155.43	152.96
31.900	40.00	0.00	0.00	851.60	1330.00	862.88	0.00	863.70	48.33	7.26	183.10	191.31
32.100	36.00	869.80	860.30	851.40	775.00	860.10	0.00	860.43	2.50	4.60	168.30	489.92
32.100	36.00	869.80	860.30	851.40	1035.00	862.17	0.00	862.55	2.47	4.94	209.59	658.16
32.100	36.00	869.80	860.30	851.40	1130.00	863.19	0.00	863.57	2.30	4.91	230.10	744.47
32.100	36.00	869.80	860.30	851.40	1330.00	865.38	0.00	865.75	2.03	4.86	273.87	933.21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
32.300	50.00	0.00	0.00	851.80	775.00	860.37	0.00	860.51	7.08	3.08	273.04	291.26
32.300	50.00	0.00	0.00	851.80	1035.00	862.50	0.00	862.64	4.88	3.07	371.15	468.29
32.300	50.00	0.00	0.00	851.80	1130.00	863.53	0.00	863.66	4.00	2.99	418.55	564.97
32.300	50.00	0.00	0.00	851.80	1330.00	865.71	0.00	865.83	2.81	2.87	519.48	793.06
32.800	830.00	0.00	0.00	852.00	775.00	860.67	0.00	860.68	.86	1.14	1979.79	837.76
32.800	830.00	0.00	0.00	852.00	1035.00	862.69	0.00	862.69	.18	.62	5174.30	2463.67
32.800	830.00	0.00	0.00	852.00	1130.00	863.69	0.00	863.69	.09	.48	7055.27	3742.57
32.800	830.00	0.00	0.00	852.00	1330.00	865.86	0.00	865.86	.03	.32	11357.92	7430.15
32.900	118.00	0.00	0.00	852.50	775.00	860.68	0.00	860.70	3.20	1.79	1334.84	433.26
32.900	118.00	0.00	0.00	852.50	1035.00	862.69	0.00	862.69	.34	.69	4453.72	1768.98
32.900	118.00	0.00	0.00	852.50	1130.00	863.69	0.00	863.69	.15	.49	6342.40	2930.39
32.900	118.00	0.00	0.00	852.50	1330.00	865.86	0.00	865.86	.04	.30	10704.22	6419.97
33.000	1.00	858.40	857.30	853.40	775.00	860.70	0.00	860.71	6.41	1.05	1288.98	306.16
33.000	1.00	858.40	857.30	853.40	1035.00	862.69	0.00	862.69	.43	.35	4387.46	1580.98
33.000	1.00	858.40	857.30	853.40	1130.00	863.69	0.00	863.69	.17	.24	6276.13	2713.16
33.000	1.00	858.40	857.30	853.40	1330.00	865.86	0.00	865.86	.05	.15	10620.92	6119.41
33.100	28.00	858.40	857.30	853.40	775.00	860.72	0.00	860.73	6.23	1.03	1302.52	310.61
33.100	28.00	858.40	857.30	853.40	1035.00	862.69	0.00	862.70	.43	.35	4391.47	1583.09
33.100	28.00	858.40	857.30	853.40	1130.00	863.69	0.00	863.69	.17	.24	6277.72	2714.24
33.100	28.00	858.40	857.30	853.40	1330.00	865.86	0.00	865.86	.05	.15	10621.35	6119.79
33.200	1.00	0.00	0.00	853.40	775.00	860.71	0.00	860.73	3.08	1.76	1368.75	441.40
33.200	1.00	0.00	0.00	853.40	1035.00	862.69	0.00	862.70	.34	.70	4452.88	1765.62
33.200	1.00	0.00	0.00	853.40	1130.00	863.69	0.00	863.69	.15	.49	6338.92	2925.92
33.200	1.00	0.00	0.00	853.40	1330.00	865.86	0.00	865.86	.04	.30	10682.47	6399.80
33.300	50.00	0.00	0.00	853.40	775.00	860.73	0.00	860.75	3.00	1.74	1385.01	447.19
33.300	50.00	0.00	0.00	853.40	1035.00	862.70	0.00	862.70	.34	.70	4455.66	1767.11
33.300	50.00	0.00	0.00	853.40	1130.00	863.69	0.00	863.70	.15	.49	6340.19	2926.78
33.300	50.00	0.00	0.00	853.40	1330.00	865.86	0.00	865.86	.04	.30	10682.88	6400.11
33.800	760.00	0.00	0.00	854.80	775.00	860.93	0.00	860.95	2.23	1.43	1371.20	519.4
33.800	760.00	0.00	0.00	854.80	1035.00	862.72	0.00	862.73	.47	.83	3135.33	1506.74
33.800	760.00	0.00	0.00	854.80	1130.00	863.71	0.00	863.71	.23	.64	4501.09	2355.9
33.800	760.00	0.00	0.00	854.80	1330.00	865.86	0.00	865.86	.07	.42	7956.74	5054.3
33.900	50.00	0.00	0.00	854.70	775.00	860.94	0.00	860.97	6.68	2.33	860.16	299.8
33.900	50.00	0.00	0.00	854.70	1035.00	862.73	0.00	862.73	1.16	1.09	2385.70	959.4
33.900	50.00	0.00	0.00	854.70	1130.00	863.71	0.00	863.71	.49	.74	3678.81	1615.1
33.900	50.00	0.00	0.00	854.70	1330.00	865.86	0.00	865.86	.12	.39	7059.77	3883.2
34.000	1.00	861.50	864.30	855.10	775.00	860.93	0.00	860.98	7.05	2.72	834.67	291.8
34.000	1.00	861.50	864.30	855.10	1035.00	862.73	0.00	862.73	1.24	1.18	2349.46	929.2
34.000	1.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.71	.53	.74	3629.35	1557.5
34.000	1.00	861.50	864.30	855.10	1330.00	865.86	0.00	865.86	.13	.31	6965.99	3733.2
34.100	22.00	861.50	864.30	855.10	775.00	860.95	0.00	861.00	6.95	2.70	840.63	293.9
34.100	22.00	861.50	864.30	855.10	1035.00	862.73	0.00	862.74	1.24	1.18	2352.45	930.6
34.100	22.00	861.50	864.30	855.10	1130.00	863.71	0.00	863.71	.53	.74	3631.19	1558.5
34.100	22.00	861.50	864.30	855.10	1330.00	865.86	0.00	865.86	.13	.31	6966.62	3733.6

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
34.200	1.00	0.00	0.00	855.10	775.00	860.97	0.00	861.00	7.06	2.25	864.33	291.69
34.200	1.00	0.00	0.00	855.10	1035.00	862.73	0.00	862.74	1.19	1.04	2385.07	946.98
34.200	1.00	0.00	0.00	855.10	1130.00	863.71	0.00	863.71	.50	.70	3676.79	1600.60
34.200	1.00	0.00	0.00	855.10	1330.00	865.86	0.00	865.86	.12	.37	7056.07	3864.24
34.300	50.00	0.00	0.00	855.10	775.00	860.99	0.00	861.03	4.20	1.91	989.98	378.33
34.300	50.00	0.00	0.00	855.10	1035.00	862.74	0.00	862.74	.76	1.01	2701.97	1189.41
34.300	50.00	0.00	0.00	855.10	1130.00	863.71	0.00	863.71	.33	.74	4070.23	1960.67
34.300	50.00	0.00	0.00	855.10	1330.00	865.86	0.00	865.86	.09	.45	7522.09	4509.90
35.000	1200.00	0.00	0.00	855.30	775.00	861.63	0.00	861.66	6.87	2.30	929.16	295.61
35.000	1200.00	0.00	0.00	855.30	1035.00	862.89	0.00	862.90	2.91	1.73	1640.80	606.42
35.000	1200.00	0.00	0.00	855.30	1130.00	863.78	0.00	863.79	1.52	1.37	2284.12	917.40
35.000	1200.00	0.00	0.00	855.30	1330.00	865.88	0.00	865.88	.44	.88	4166.91	2009.58

DEER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
29.800	775.00	858.80	0.00	0.00	0.00	49.20	0.00
29.800	1035.00	860.40	1.60	0.00	1.60	49.20	0.00
29.800	1130.00	861.00	.60	0.00	2.20	49.20	0.00
29.800	1330.00	862.80	1.80	0.00	4.00	49.20	0.00
29.900	775.00	858.73	0.00	-.07	0.00	23.00	30.00
29.900	1035.00	860.30	1.57	-.10	1.57	23.00	30.00
29.900	1130.00	860.89	.59	-.11	2.16	23.00	30.00
29.900	1330.00	862.76	1.87	-.04	4.04	1156.35	30.00
30.100	775.00	858.80	0.00	.07	0.00	23.00	60.00
30.100	1035.00	860.38	1.58	.08	1.58	23.00	60.00
30.100	1130.00	861.14	.77	.26	2.35	23.00	60.00
30.100	1330.00	862.67	1.53	-.09	3.88	1077.53	60.00
30.300	775.00	859.14	0.00	.34	0.00	290.02	275.00
30.300	1035.00	860.80	1.66	.42	1.66	300.12	275.00
30.300	1130.00	861.57	.77	.43	2.43	304.82	275.00
30.300	1330.00	863.06	1.49	.39	3.92	1395.37	275.00
31.000	775.00	859.15	0.00	.01	0.00	238.00	475.00
31.000	1035.00	860.82	1.67	.02	1.67	238.00	475.00
31.000	1130.00	861.59	.77	.02	2.44	238.00	475.00
31.000	1330.00	863.07	1.48	.01	3.92	238.00	475.00
31.800	775.00	859.60	0.00	.45	0.00	38.00	500.00
31.800	1035.00	861.00	1.40	.18	1.40	38.00	500.00
31.800	1130.00	861.69	.69	.10	2.09	38.00	500.00
31.800	1330.00	863.09	1.39	.02	3.49	38.00	500.00
31.900	775.00	859.46	0.00	-.14	0.00	20.00	40.00
31.900	1035.00	860.81	1.35	-.19	1.35	20.00	40.00
31.900	1130.00	861.50	.69	-.19	2.04	20.00	40.00
31.900	1330.00	862.88	1.38	-.20	3.42	20.00	40.00
32.100	775.00	860.10	0.00	.64	0.00	20.00	36.00
32.100	1035.00	862.17	2.06	1.36	2.06	20.00	36.00
32.100	1130.00	863.19	1.03	1.69	3.09	20.00	36.00
32.100	1330.00	865.38	2.19	2.50	5.28	20.00	36.00
32.300	775.00	860.37	0.00	.26	0.00	46.10	50.00
32.300	1035.00	862.50	2.13	.33	2.13	46.10	50.00
32.300	1130.00	863.53	1.03	.33	3.16	46.10	50.00
32.300	1330.00	865.71	2.19	.33	5.35	46.10	50.00
32.800	775.00	860.67	0.00	.30	0.00	1097.64	830.00
32.800	1035.00	862.69	2.02	.19	2.02	1841.35	830.00
32.800	1130.00	863.69	1.00	.17	3.02	1912.37	830.00
32.800	1330.00	865.86	2.16	.14	5.18	2062.93	830.00
32.900	775.00	860.68	0.00	.01	0.00	998.84	118.00
32.900	1035.00	862.69	2.01	.00	2.01	1842.62	118.00

32.900	1130.00	863.69	1.00	.00	3.01	1926.67	118.00
32.900	1330.00	865.86	2.16	.00	5.17	2087.61	118.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
33.000	775.00	860.70	0.00	.02	0.00	1005.15	1.00
33.000	1035.00	862.69	1.99	.00	1.99	1842.63	1.00
33.000	1130.00	863.69	1.00	.00	2.99	1926.67	1.00
33.000	1330.00	865.86	2.16	.00	5.15	2087.11	1.00
33.100	775.00	860.72	0.00	.02	0.00	1009.32	28.00
33.100	1035.00	862.69	1.97	.00	1.97	1842.85	28.00
33.100	1130.00	863.69	1.00	.00	2.97	1926.73	28.00
33.100	1330.00	865.86	2.16	.00	5.14	2087.12	28.00
33.200	775.00	860.71	0.00	-.01	0.00	1010.89	1.00
33.200	1035.00	862.69	1.98	-.00	1.98	1842.86	1.00
33.200	1130.00	863.69	1.00	-.00	2.98	1926.74	1.00
33.200	1330.00	865.86	2.16	-.00	5.14	2087.12	1.00
33.300	775.00	860.73	0.00	.02	0.00	1015.86	50.00
33.300	1035.00	862.70	1.97	.00	1.97	1843.01	50.00
33.300	1130.00	863.69	1.00	.00	2.97	1926.79	50.00
33.300	1330.00	865.86	2.16	.00	5.13	2087.14	50.00
33.800	775.00	860.93	0.00	.20	0.00	833.52	760.00
33.800	1035.00	862.72	1.80	.03	1.80	1249.58	760.00
33.800	1130.00	863.71	.98	.01	2.78	1471.11	760.00
33.800	1330.00	865.86	2.15	.00	4.93	1793.41	760.00
33.900	775.00	860.94	0.00	.01	0.00	602.01	50.00
33.900	1035.00	862.73	1.79	.00	1.79	1168.42	50.00
33.900	1130.00	863.71	.98	.00	2.77	1410.47	50.00
33.900	1330.00	865.86	2.15	.00	4.92	1792.48	50.00
34.000	775.00	860.93	0.00	-.00	0.00	600.51	1.00
34.000	1035.00	862.73	1.80	.00	1.80	1168.70	1.00
34.000	1130.00	863.71	.98	.00	2.78	1410.54	1.00
34.000	1330.00	865.86	2.15	.00	4.93	1792.55	1.00
34.100	775.00	860.95	0.00	.02	0.00	603.11	22.00
34.100	1035.00	862.73	1.78	.00	1.78	1169.59	22.00
34.100	1130.00	863.71	.98	.00	2.76	1410.69	22.00
34.100	1330.00	865.86	2.15	.00	4.91	1792.62	22.00
34.200	775.00	860.97	0.00	.02	0.00	605.89	1.00
34.200	1035.00	862.73	1.76	.00	1.76	1169.67	1.00
34.200	1130.00	863.71	.98	.00	2.74	1410.70	1.00
34.200	1330.00	865.86	2.15	-.00	4.89	1792.63	1.00
34.300	775.00	860.99	0.00	.03	0.00	746.38	50.00
34.300	1035.00	862.74	1.74	.00	1.74	1269.89	50.00
34.300	1130.00	863.71	.98	.00	2.72	1479.07	50.00
34.300	1330.00	865.86	2.15	.00	4.87	1793.80	50.00
35.000	775.00	861.63	0.00	.63	0.00	488.17	1200.00
35.000	1035.00	862.89	1.26	.15	1.26	656.42	1200.00
35.000	1130.00	863.78	.89	.07	2.15	799.31	1200.00
35.000	1330.00	865.88	2.10	.02	4.25	979.59	1200.00

FLOOD INSURANCE ZONE DATA FOR DEER CREEK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
29.800	0.	-2.20	-.60	1.80
29.900	30.	-2.16	-.59	1.87
30.100	90.	-2.35	-.77	1.53
30.300	365.	-2.43	-.77	1.49
31.000	840.	-2.44	-.77	1.48
31.800	1340.	-2.09	-.69	1.39
31.900	1380.	-2.04	-.69	1.38
32.100	1416.	-3.09	-1.03	2.19
32.300	1466.	-3.16	-1.03	2.19
32.800	2296.	-3.02	-1.00	2.16
32.900	2414.	-3.01	-1.00	2.16
33.000	2415.	-2.99	-1.00	2.16
33.100	2443.	-2.97	-1.00	2.16
33.200	2444.	-2.98	-1.00	2.16
33.300	2494.	-2.97	-1.00	2.16
33.800	3254.	-2.78	-.98	2.15
33.900	3304.	-2.77	-.98	2.15
34.000	3305.	-2.78	-.98	2.15
34.100	3327.	-2.76	-.98	2.15
34.200	3328.	-2.74	-.98	2.15
34.300	3378.	-2.72	-.98	2.15
35.000	4578.	-2.15	-.89	2.10
WEIGHTED AVG FOR REACH		-2.64	-.91	1.95

FHF FOR THE REACH = 025 WITH 100.0_ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 5

HYDRAULIC ANALYSIS REPORT

DEER CREEK AT THE CITY OF WILLIAMSTON

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 EAST WASHINGTON AVENUE
JACKSON, MICHIGAN 49201

FEBRUARY, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for Deer Creek within the corporate boundaries of the city of Williamston. Deer Creek, a tributary to the Red Cedar River, flows in a northerly direction through the city of Williamston. The reach studied in detail began at its confluence with the Red Cedar River and extended 4,575 feet upstream to the south corporate boundary limit. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in February, 1979. In addition to the field cross section data, a 7.5 minute series topographic map with 10-foot contour interval was used.

The flows for the 10, 50, 100, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated May 16, 1979.

Analysis of the hydraulic characteristic of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was R. F. Nilsen, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed through the use of the Corps of Engineers' HEC-2 step-backwater computer program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as type and amount of vegetation, channel configuration and alignment, and channel material; thus, without an in-depth study, an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. Roughness values for the main channel of Deer Creek range from .014 to .045 with the lower value specified for a bridge constructed of concrete material. Calculations for loss coefficients and coefficients of discharge are contained in Appendix A.

Manning's Roughness Coefficients

For channel	.014 - .045
For overbanks	.075 - .10

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGHWATER MARKS

There have been a number of major floods on the streams within the city of Williamston, however, no high-water marks are known to exist on Deer Creek within the study area. Reference 1, a photomosaic map, documents the 1975 flood at the city of Williamston. This report aided in establishing the extent of flooding along Deer Creek.

STARTING CONDITIONS

There have been a number of major floods on the streams within the city of Williamston during this century. The most recent occurred April 18, 1975. Stream flow data documenting this disaster is contained in Appendix A.

The Deer Creek watershed was modeled, from its confluence with the Red Cedar River to the Dansville gaging station, using the TR-20 computer program. The analysis shows these locations to peak at the same time. The time at which Deer Creek peaks corresponds with an elevation for the Red Cedar River of about 3.5 feet lower than its peak elevation. It is assumed subsequent floods will behave in a similar manner, therefore, the starting water surface elevations for the 50, 100, and 500-year recurrence intervals

are specified by subtracting 3.5 feet from the computed water surface elevations of the Red Cedar River. The starting elevation for the 10-year flow is the mean flood level of the Red Cedar as interpolated from Figure 1. Calculations are contained in Appendix A.

Consideration was also given to computing the starting water surface elevation utilizing the slope area method in HEC-2. The results obtained did not compare favorably with Reference 1.

SPECIAL PROBLEMS

There were no special problems associated with this study. However, it should be noted that flooding which occurs on Deer Creek is often elevated by flooding associated with the Red Cedar River. The analysis performed for Deer Creek included this consideration.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
	29.8	Valley Section, mouth of river
	29.9	Bridge Section, downstream face
A	30.1	Bridge Section, M-43 upstream face
	30.3	Valley Section
B	31.0	Valley Section
	31.8	Valley Section
	31.9	Bridge Section, downstream face
C	32.1	Bridge Section, upstream face RR bridge
	32.3	Valley Section
	32.8	Valley Section
	32.9	Valley Section, 1 foot downstream of bridge
	33.0	Bridge Section, downstream face
D	33.1	Bridge Section, upstream face Wallace Street
	33.2	Valley Section, 1 foot upstream
	33.3	Valley Section
	33.8	Valley Section
	33.9	Valley Section, 1 foot downstream of bridge
	34.0	Bridge Section, downstream face
E	34.1	Bridge Section, upstream face unnamed bridge
	34.2	Valley Section, 1 foot upstream of bridge
	34.3	Valley Section
F	35.0	Valley Section, city limits

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix C.

PROFILES

Copies of the water surface profiles are contained in Appendix D.

MAP

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

COMPUTER BACKWATER RUNS/PRINTOUTS

The final HEC-II printouts for the multi-profile run and floodway run are contained in Appendix E.

REFERENCES

1. Knutilla, R. L., and L. A. Swallow , 1975, The Flood of April, 1975 at Williamston, Michigan, Photomosaic Map

CALCULATION SHEET REV.

CLIENT/OWNER	FILING CODE
Flood Insurance Study City of Williamston Deer Creek	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Starting Water Surface Elevations
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO.

Figure 2 Peak Flow @ 4 A.M.

Figure 3 Stage for 4 A.M. 9.62

Interval 13.08 - 9.62 = 3.46

Starting Elevations

10 yr. 861.76 − 3.46 ≅ 858.3 Lower than Mean Flood Level so 858.8 will be used

50 yr 863.88 − 3.46 = 860.42 → 860.40

100 yr 864.47 − 3.46 = 861.01 → 861.0

500 yr 866.29 − 3.46 = 862.83 → 862.80

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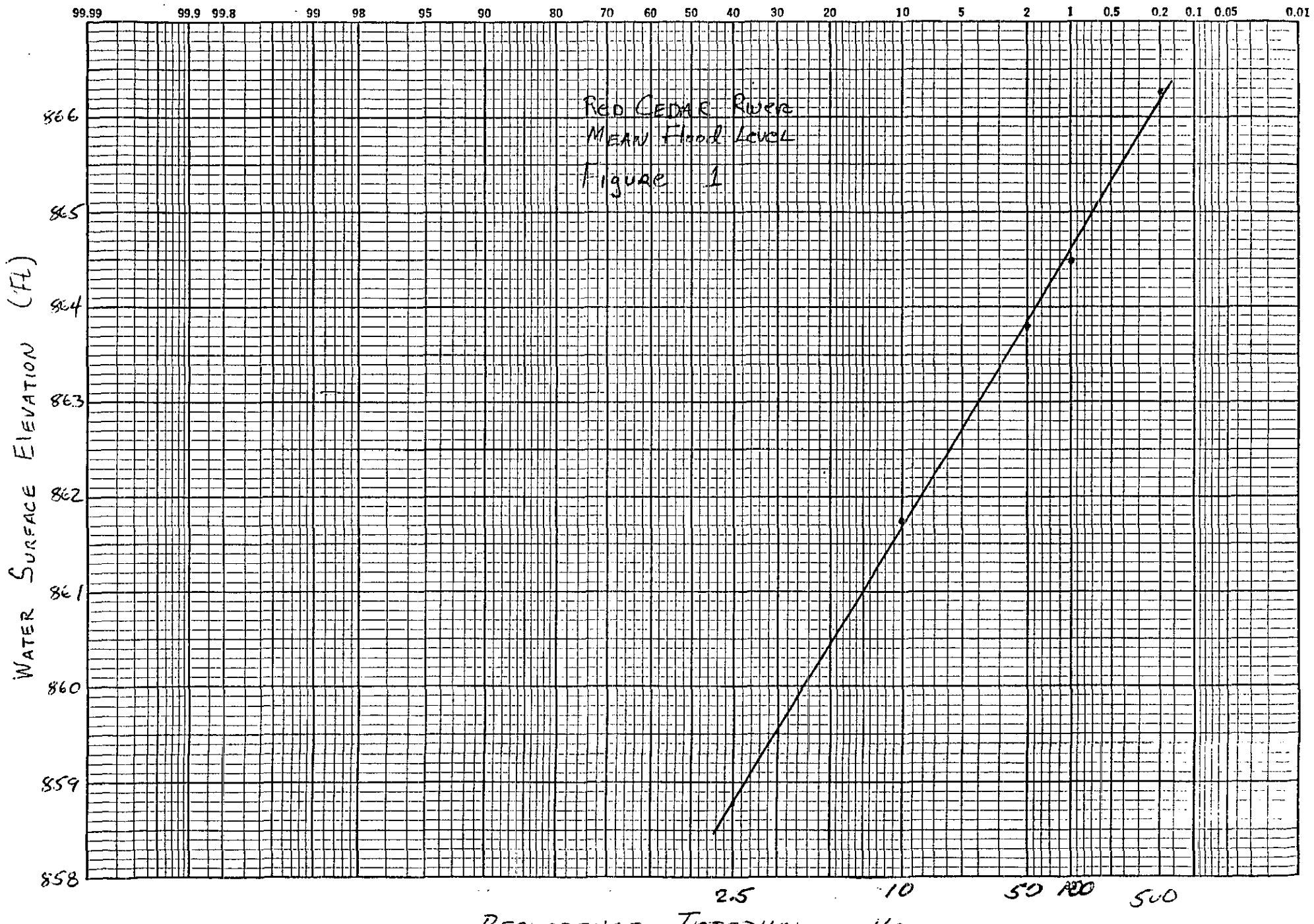
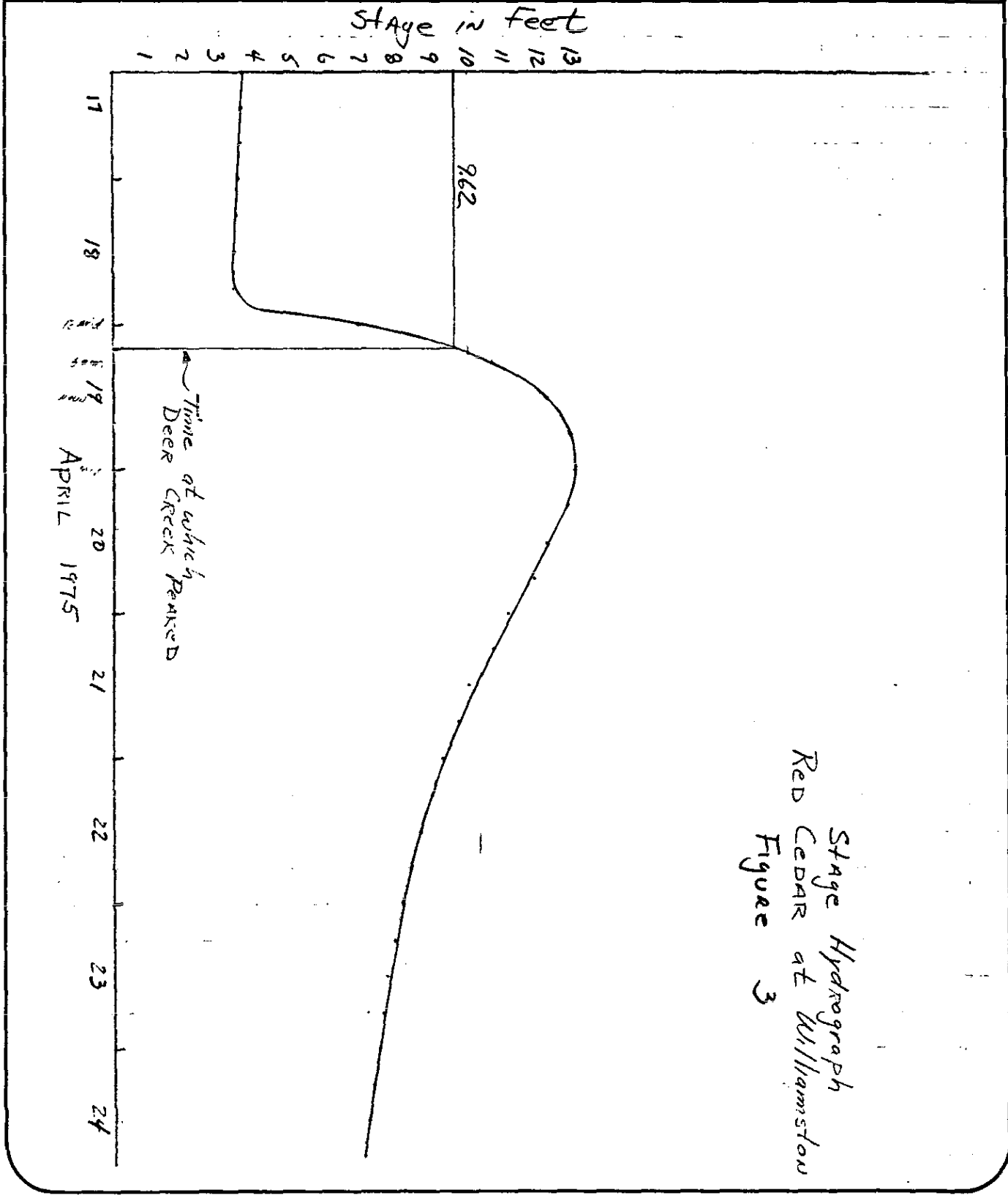


Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT
	SHEET OF / BOOK NO.



Stage Hydrograph
Red Cedar at Williamston
Figure 3

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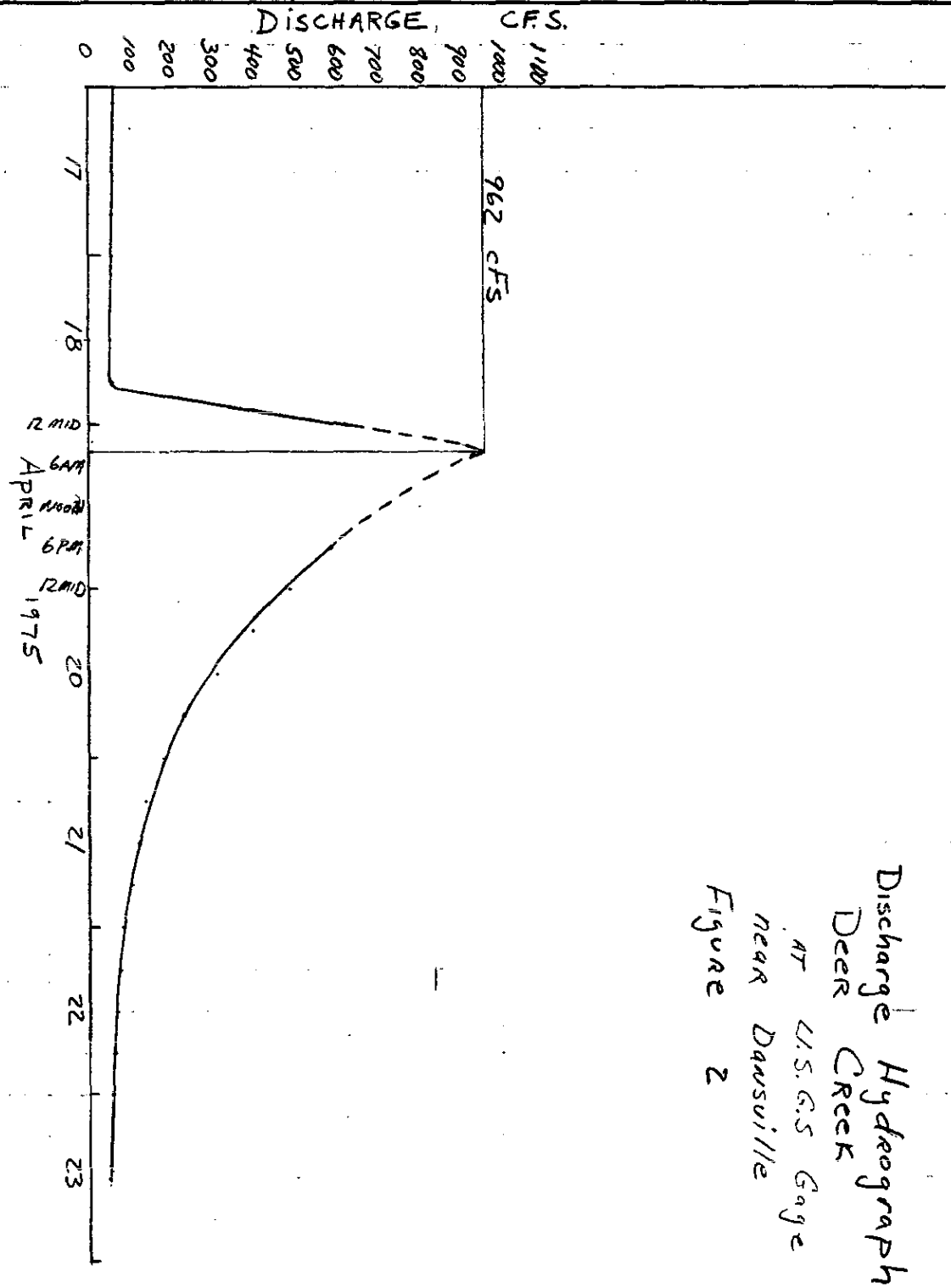
CLIENT/OWNER	FILING CODE
	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT / SHEET OF
CHECKED BY/DATE (SIGNATURE)	BOOK NO.



Peak discharge for Deer Creek based on high water mark, Record estimated where dashed.

Discharge Hydrograph
Deer Creek
at U.S.G.S Gage
near Dansville
Figure 2

CLIENT/OWNER	FILING CODE
Flood Insurance Study Deee Creek, Williamston City	JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: M-43 or Grand River Street Bridge
SHEET OF / BOOK NO.	

XKOR

$$XKOR = Intake + Exit + K_f$$
$$= .5 + 1 + f_f$$

$$K_f = \frac{29.1\, n^2 L}{R^{\frac{4}{3}}}$$

$$K_f = \frac{29.1\,(.014)^2\,(60)}{R^{\frac{4}{3}}}$$

$$R = \frac{A}{P} = \frac{23(10.2)}{23(2)+2(10.2)} = 3.53^{\frac{4}{3}}$$

$K_f = .06$

$XKOR = 1.56$

Losses for XKOR values referenced from U.S. Bureau of Public Roads

.5 Entrance Loss = Headwall parallel to embankment (No wingwalls square edged.

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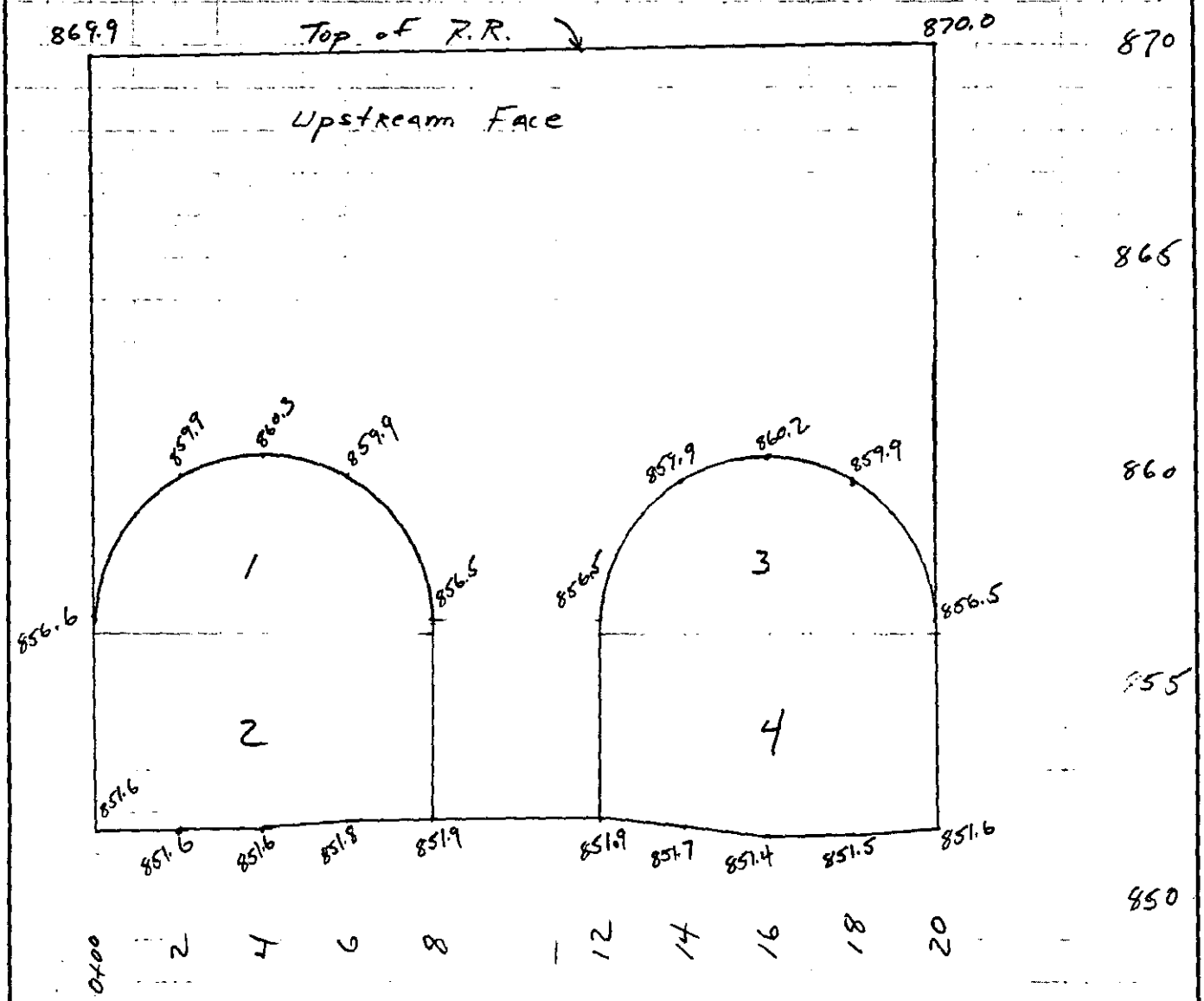
REV.

CLIENT/OWNER F. I. S. Deer Creek Williamston	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT R. R. BRIDGE C.S.O.
	SHEET OF / BOOK NO.



$$\text{AREA} = A_1 + A_2 + A_3 + A_4$$
$$= \frac{1}{2}\pi R^2 + L(H) + \frac{1}{2}\pi R^2 (L)(H)$$

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: R.R. BRIDGE	SHEET OF / BOOK NO.

$A = \frac{1}{2}\pi(4)^2 + 8\,(851.7 - 856.3) + \frac{1}{2}\pi(4)^2 + 8\,(851.6 - 856.2)$

$A = 123.86$ sq ft

$P = 2[4.6 + 8 + 4.6 + \pi R] = 59.53$

$R = \frac{A}{P} = \frac{123.86}{59.53} = 2.08$

XXOR

$Kf = \frac{29.1\,(.014)^2\,(36)}{2.08^{4/3}} = .08$

$XXOR = 1 + .5 + .08 = 1.58 \sim 1.6$

Ref. U.S. Bureau of Public Roads
Headwall parallel to embankment

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REV.

CLIENT/OWNER Flood Insurance Study Deer Creek, Williamston City

FILING CODE

JOB NO.

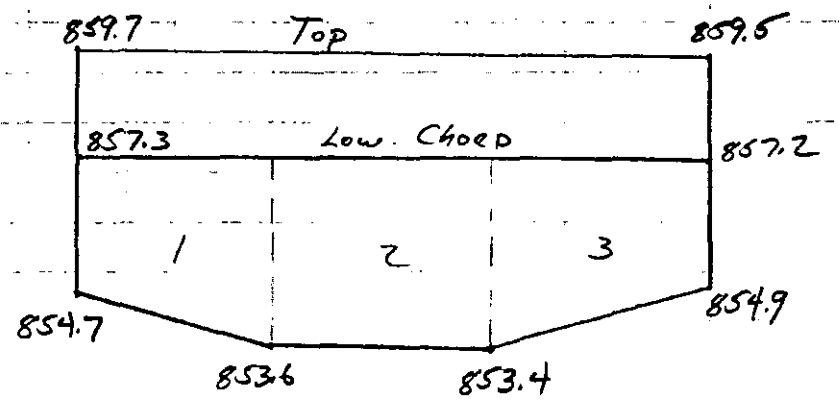
CALC. BY/DATE (SIGNATURE)

CHECKED BY/DATE (SIGNATURE)

SUBJECT Wallace Street Bridge Upstream Face

SHEET OF

BOOK NO.



0.0 2 4 6 8 10 12 14 16 18 20 22 24 26

$$\text{AREA} = A_1 + A_2 + A_3$$

$$= \left[\left(\frac{854.7+853.6}{2} - 857.3\right)(8)\right] + \left[\left(\left(\frac{853.6+853.4}{2}\right) - 857.25\right)(9)\right]$$

$$+ \left[\left(\left(\frac{853.4+854.9}{2}\right) - 857.2\right)9\right] = 86.4 \text{ sq ft.}$$

$$P = 2.6 + 8.08 + 9 + 9.12 + 2.3 + 26 = 57.1$$

$$R = \frac{A}{P} = 1.51$$

XKOR

Ref. U.S. Bureau of Public Roads

$$1 + .5 + K_p$$

$$K_p = \frac{29.1\,(.033)^2\,(28)}{1.51^{\frac{4}{3}}} = .5$$

XKOR = 2.0

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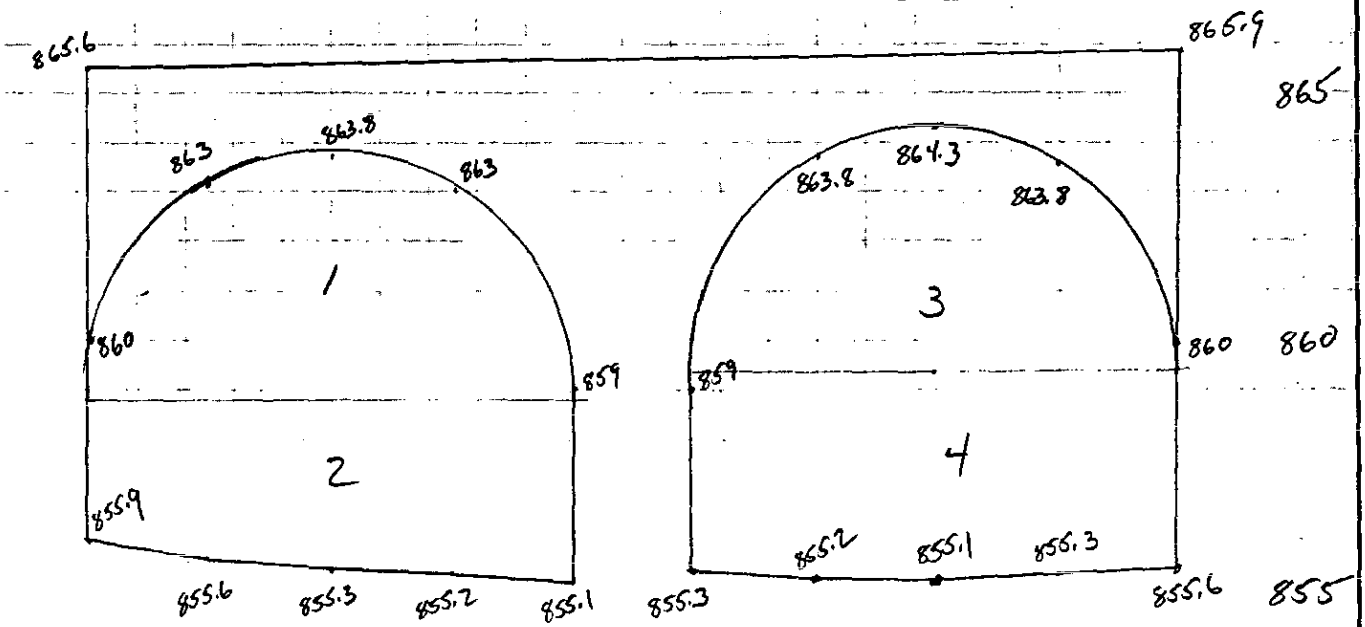
CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study Deer Creek, Williamston City	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Unknow Bridge
	SHEET OF / BOOK NO.



0+00 2.5 5 7.5 10 12.5 15 17.5 20 22.5

$$\text{AREA} = A_1 + A_2 + A_3 + A_4$$

$$= \tfrac{1}{2}\pi R^2 + L(H) + \tfrac{1}{2}\pi R^2 + L(H)$$

$$= \tfrac{1}{2}\pi(5)^2 + 10(3.38) + \tfrac{1}{2}\pi(5)^2 + 10(4)$$

$$= 152.34$$

$$P = [3.38 + 10 + 3.38 + \pi R] + [4 + 10 + 4 + \pi R] = 66.18$$

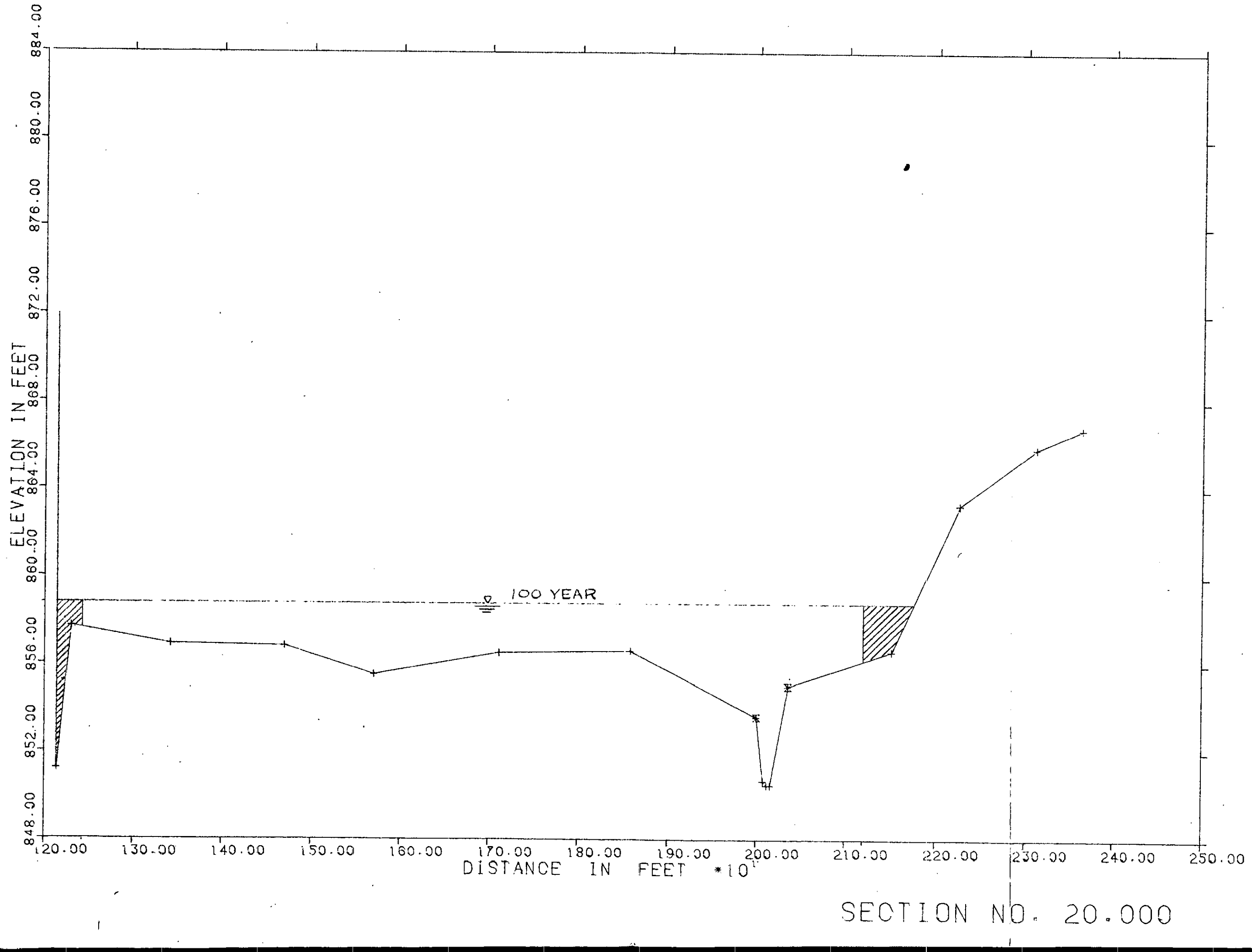
$$R = \frac{A}{P} = 2.30$$

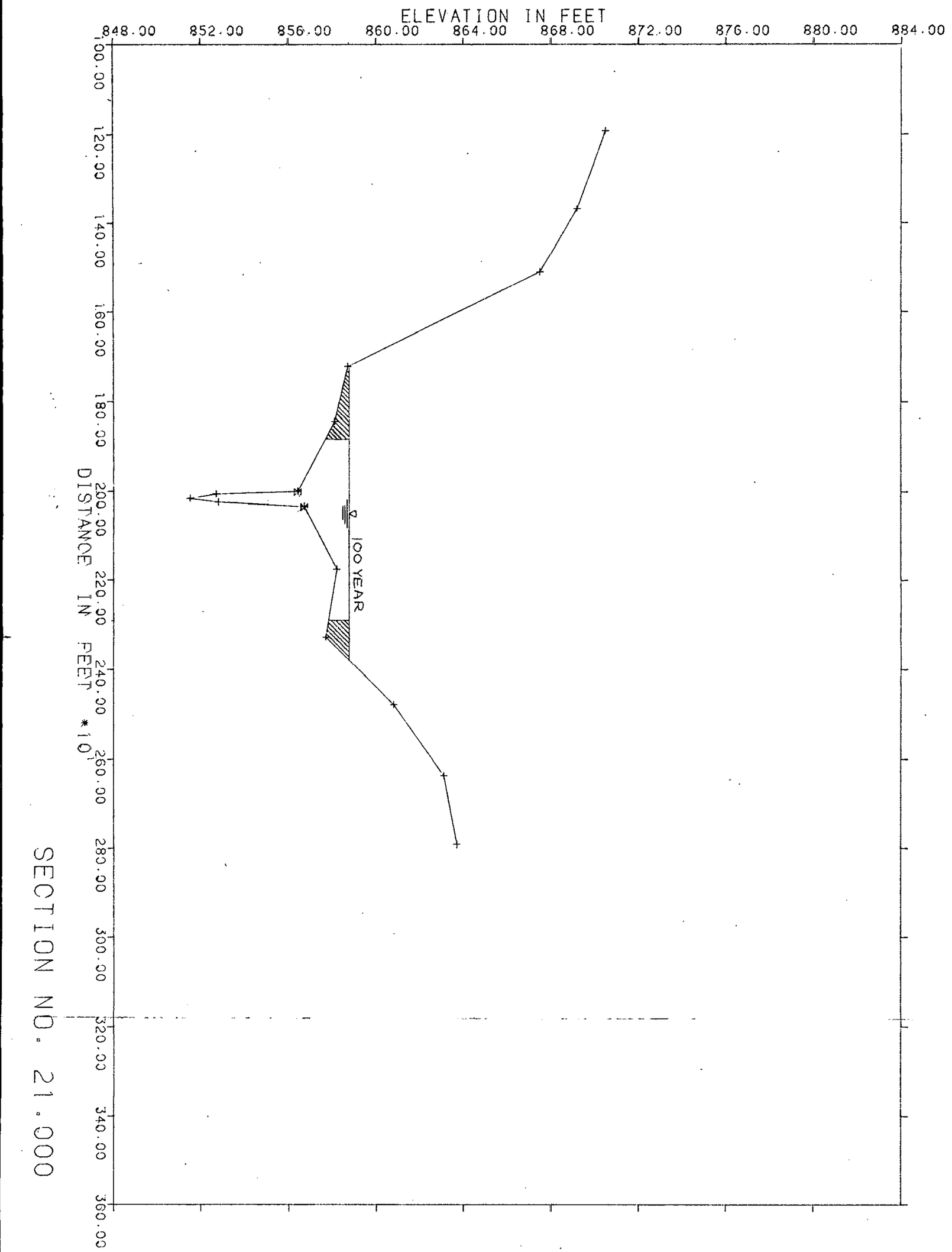
XKOR

$$14.5 + f_f$$

$$K_A = \frac{29.1(.024)^2(22)}{2.3^{4/3}} .12$$

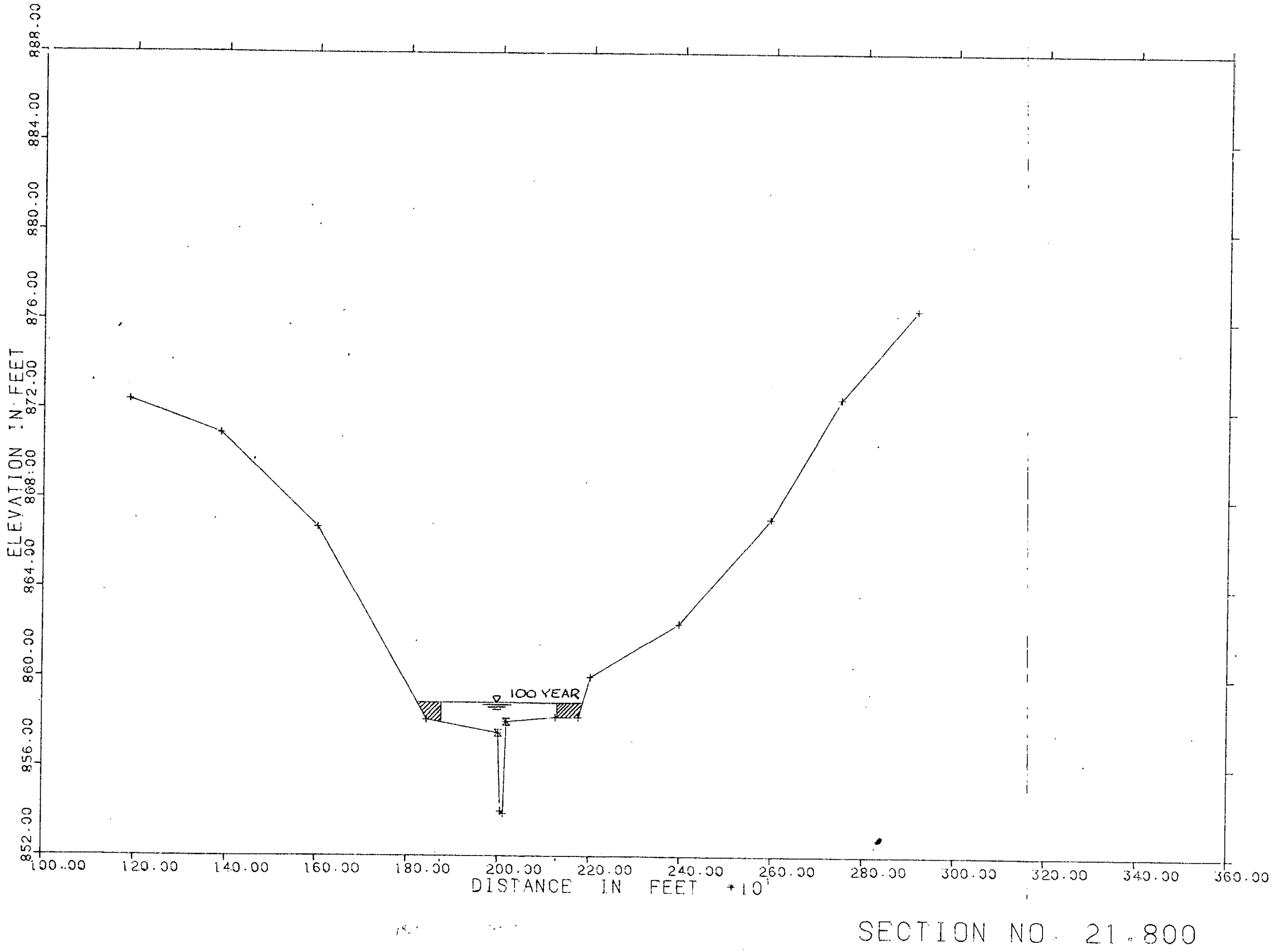
XKOR = 1.62


ELEVATION IN FEET
848.00
852.00
856.00
860.00
864.00
868.00
872.00
876.00
880.00
884.00
100 YEAR
120.00
130.00
140.00
150.00
160.00
170.00
180.00
190.00
200.00
210.00
220.00
230.00
240.00
250.00
DISTANCE IN FEET *10
FLOOD INSURANCE STUDY
UNNAMED TRIB. TO WILLIAMSTON
SECTION NO. 20.000



FLOOD INSURANCE STUDY

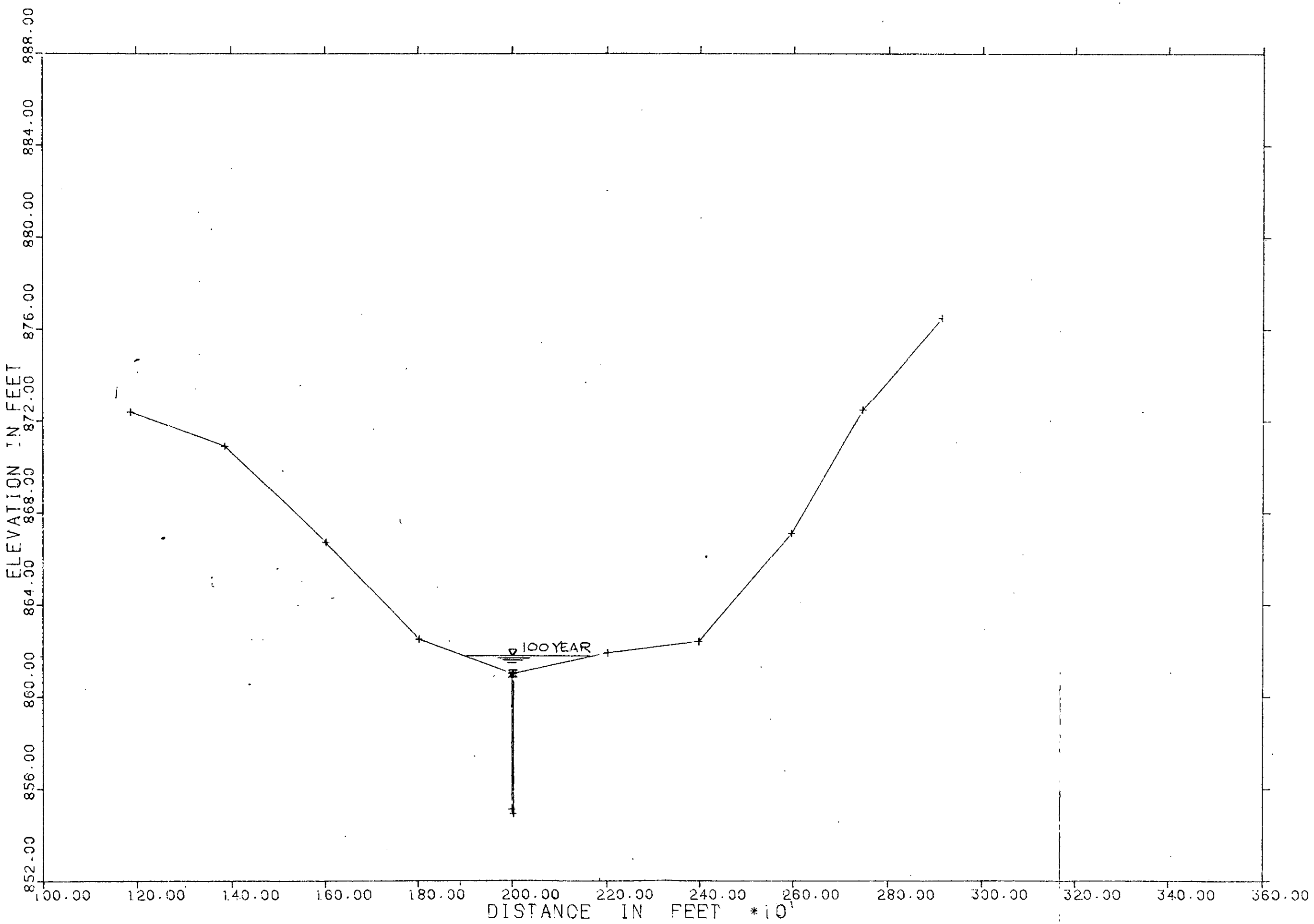
UNNAMED TRIB. WILLIAMSTON



FLOOD INSURANCE STUDY

UNNAMED TRIB. WILLIAMSTON

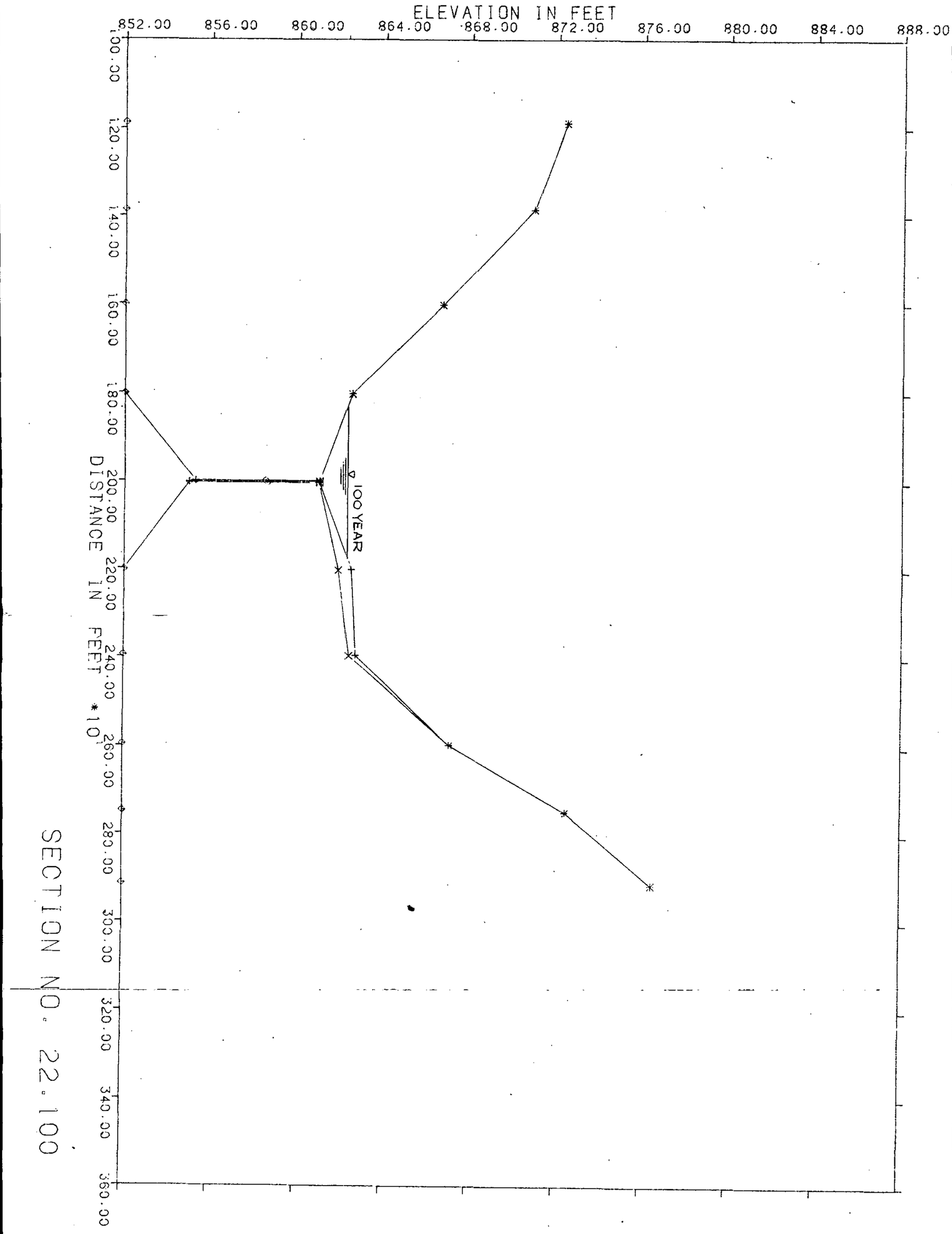
SECTION NO. 21.800



FLOOD INSURANCE STUDY

UNNAMED TRIB. WILLIAMSTON

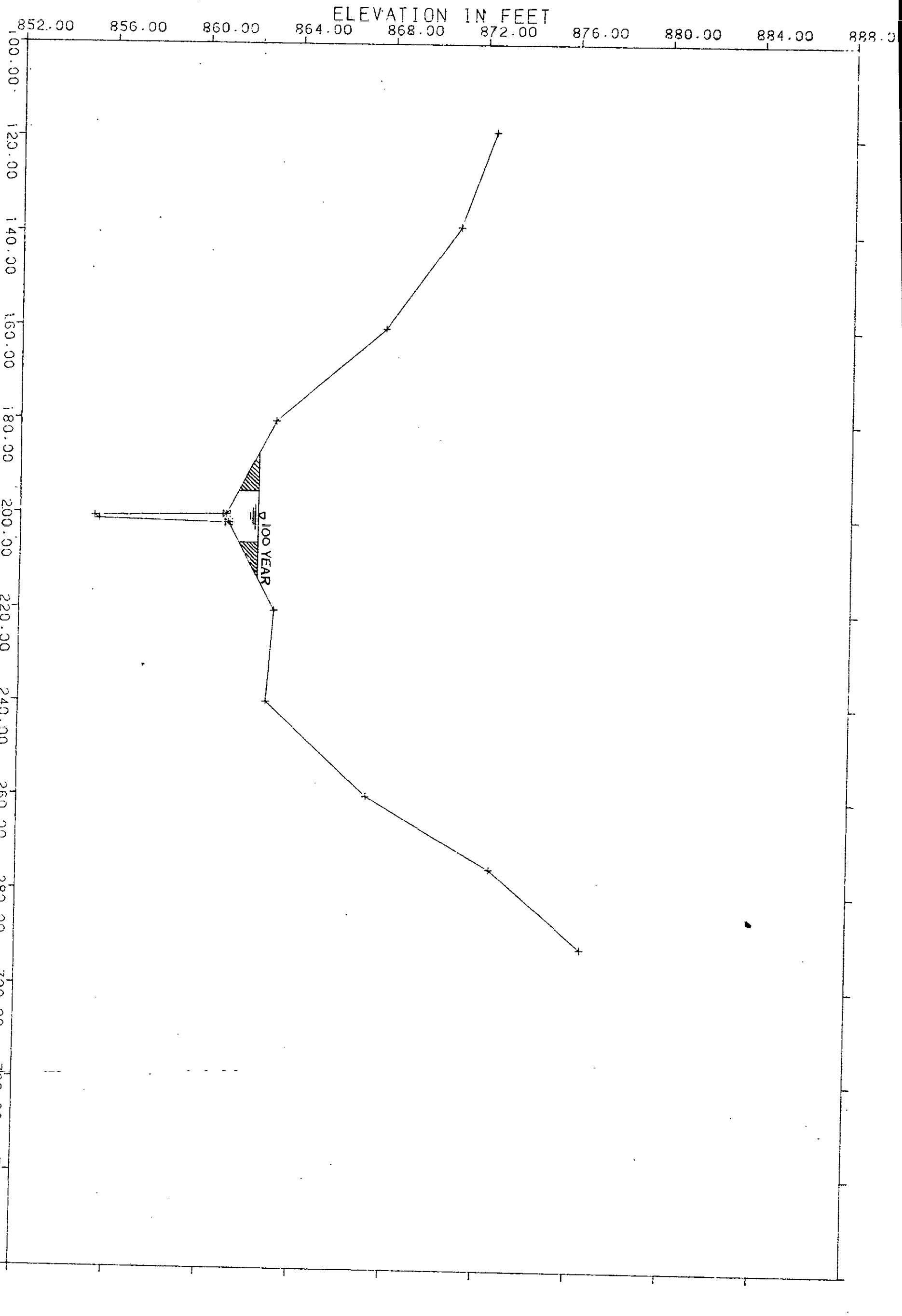
SECTION NO. 21.900



SECTION NO. 22.100

FLOOD INSURANCE STUDY

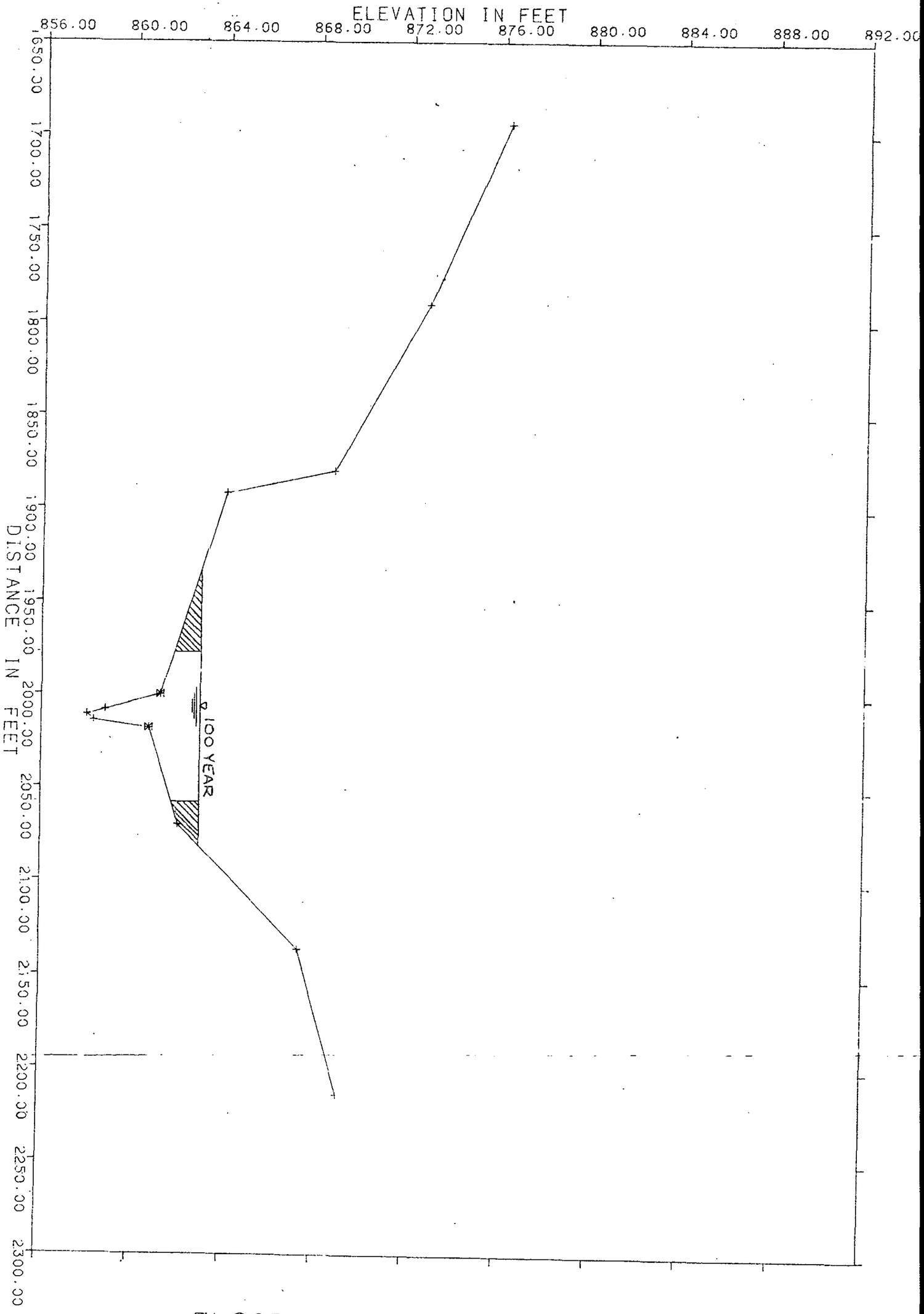
UNNAMED TRIB. WILLIAMSTON



SECTION NO. 22.300

FLOOD INSURANCE STUDY

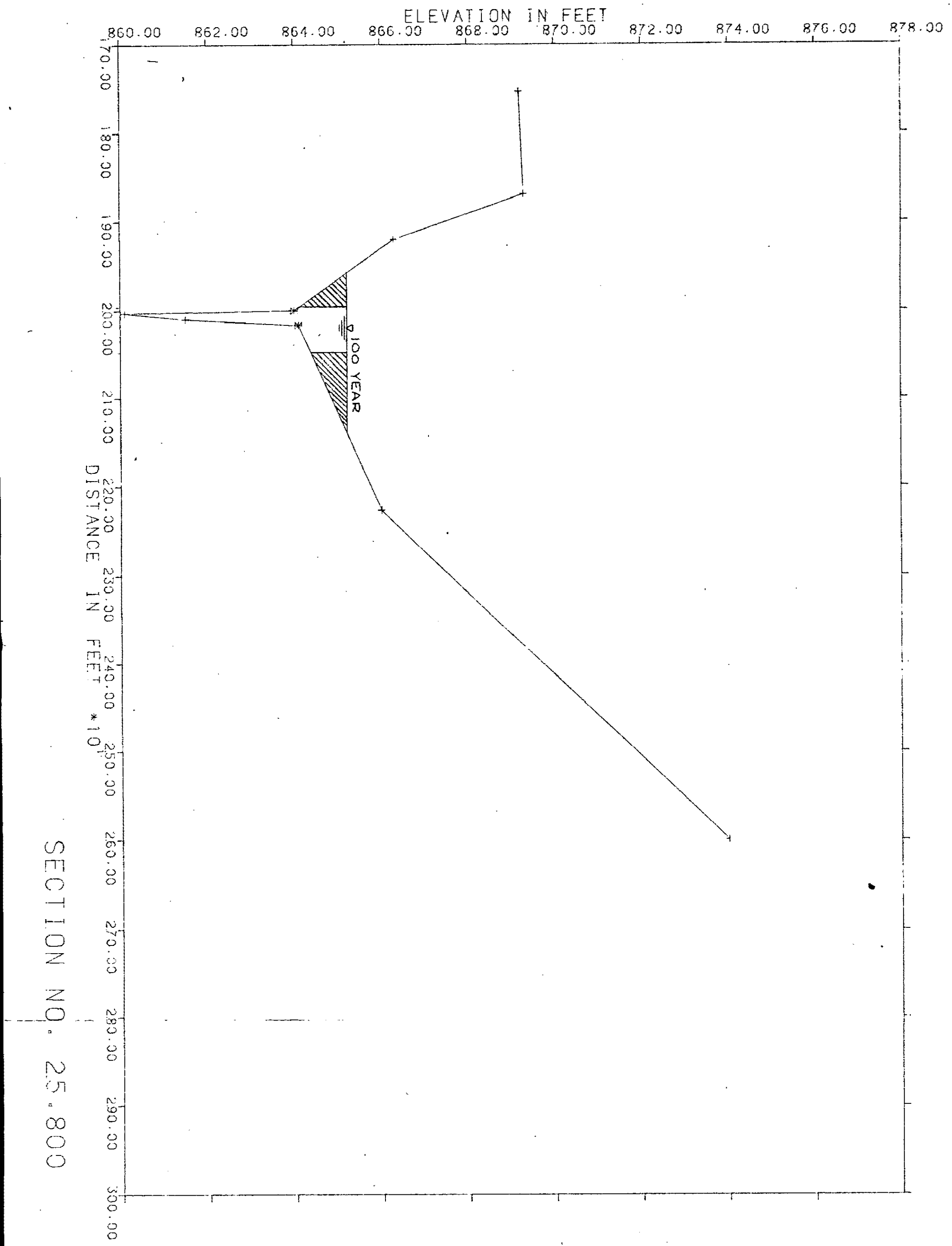
UNNAMED TRIB. WILLIAMSTON



SECTION NO. 24.000

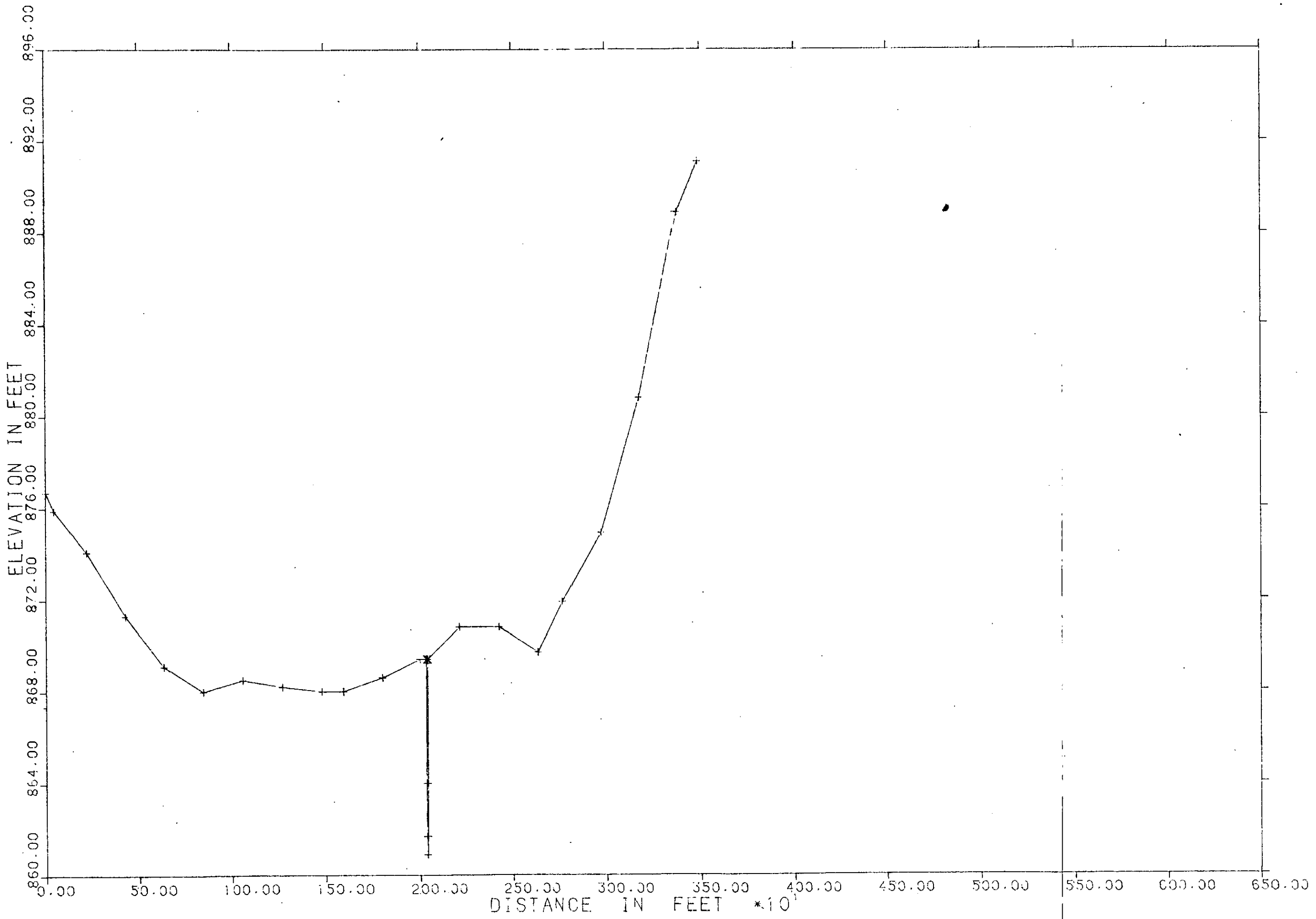
FLOOD INSURANCE STUDY

UNNAMED TRIB. WILLIAMSTON



FLOOD INSURANCE STUDY

UNNAMED TRIB. WILLIAMSTON

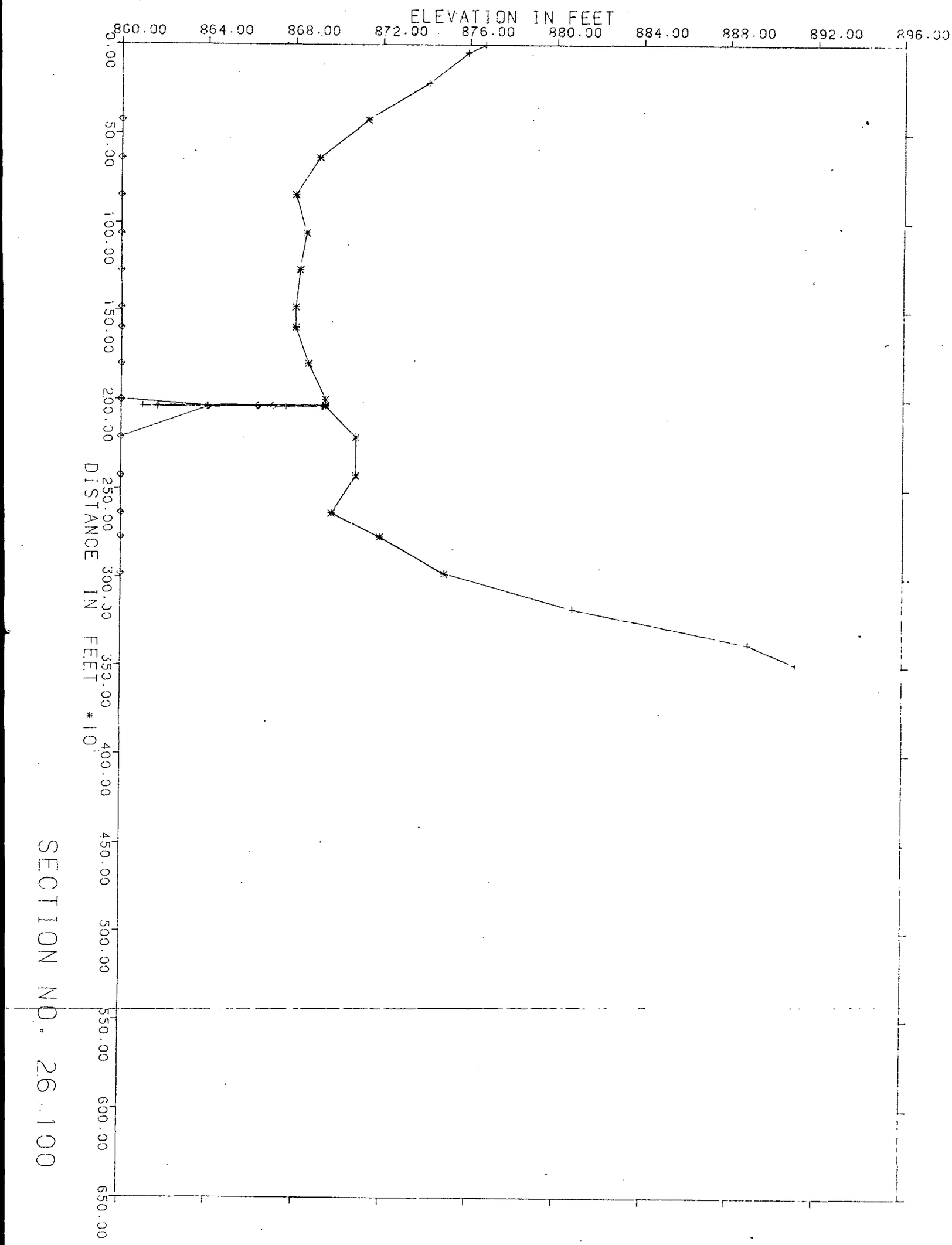


FLOOD INSURANCE STUDY

WILLIAMSTON

UNNAMED TRIB.

SECTION NO. 25.900



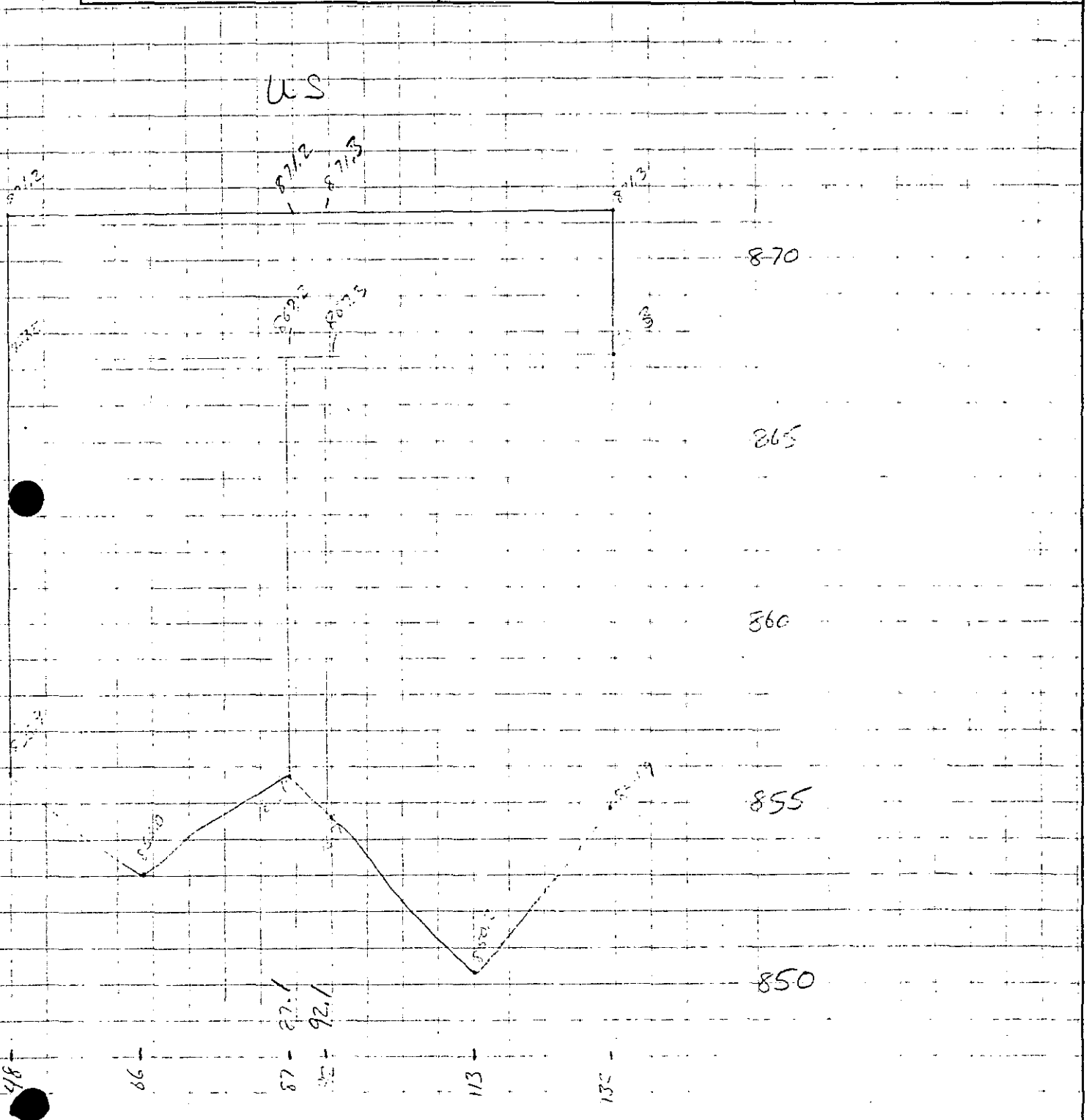
FLOOD INSURANCE STUDY

UNNAMED TRIB. WILLIAMSTON

TION. SHEET

REV.

CLIENT/OWNER: Williamston City Putman Steeet BRIDGE		FILING CODE / JOB NO.
CALC. BY/DATE / REVIEW BY/DATE	SUBJECT: Red Cedar River	SHEET OF / BOOK NO.



COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, HERR, GOODIN

DATE: 2-16-78

INSTRUMENTS:

TEMP (DRY BULB) 7°

WET BULB

RH %

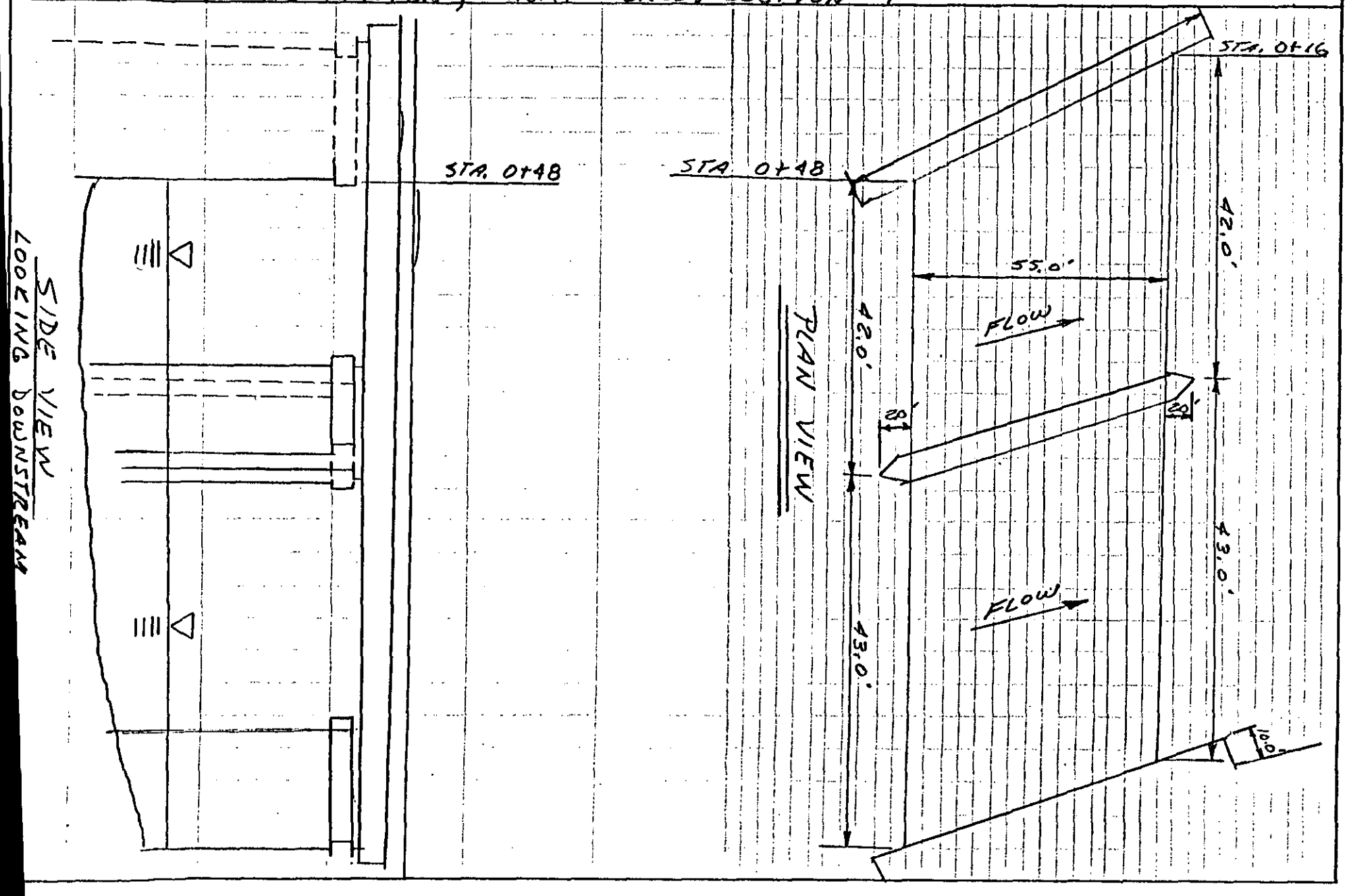
BAR.

PROJECT: HUD

LOCATION: WILLIAMSTON, MICH. CROSS SECTION #7

CHECKED BY

DATE



ACTIVITY CROSS SECTION #7

BOOK 2.1-17+18 PAGE 48A

STA.

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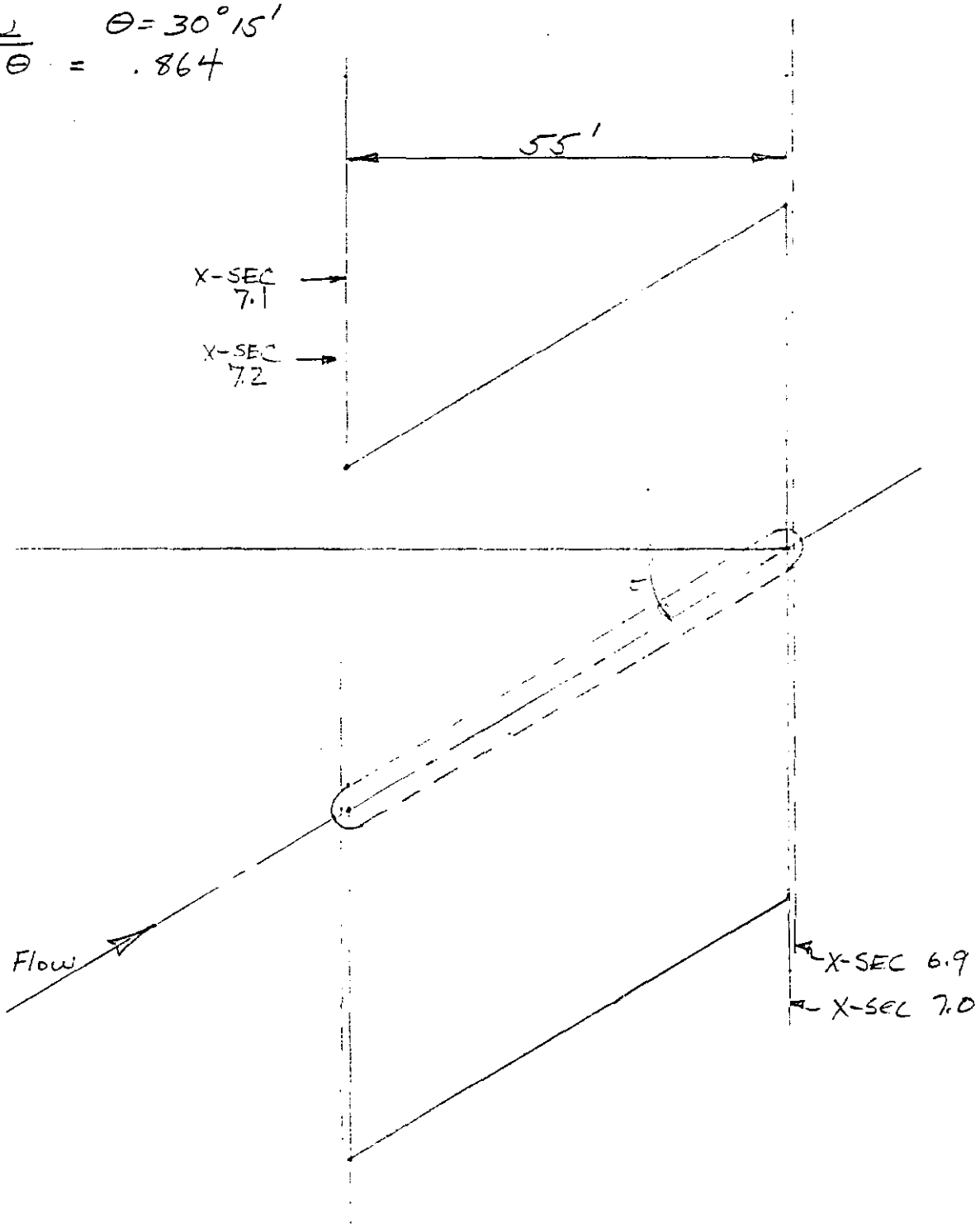
CALCULATION SHEET

REV.

CLIENT/OWNER F.I.S. Williamston City		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Putman Street Bridge	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Skew $\theta = 30°15'$

$\cos\theta = .864$



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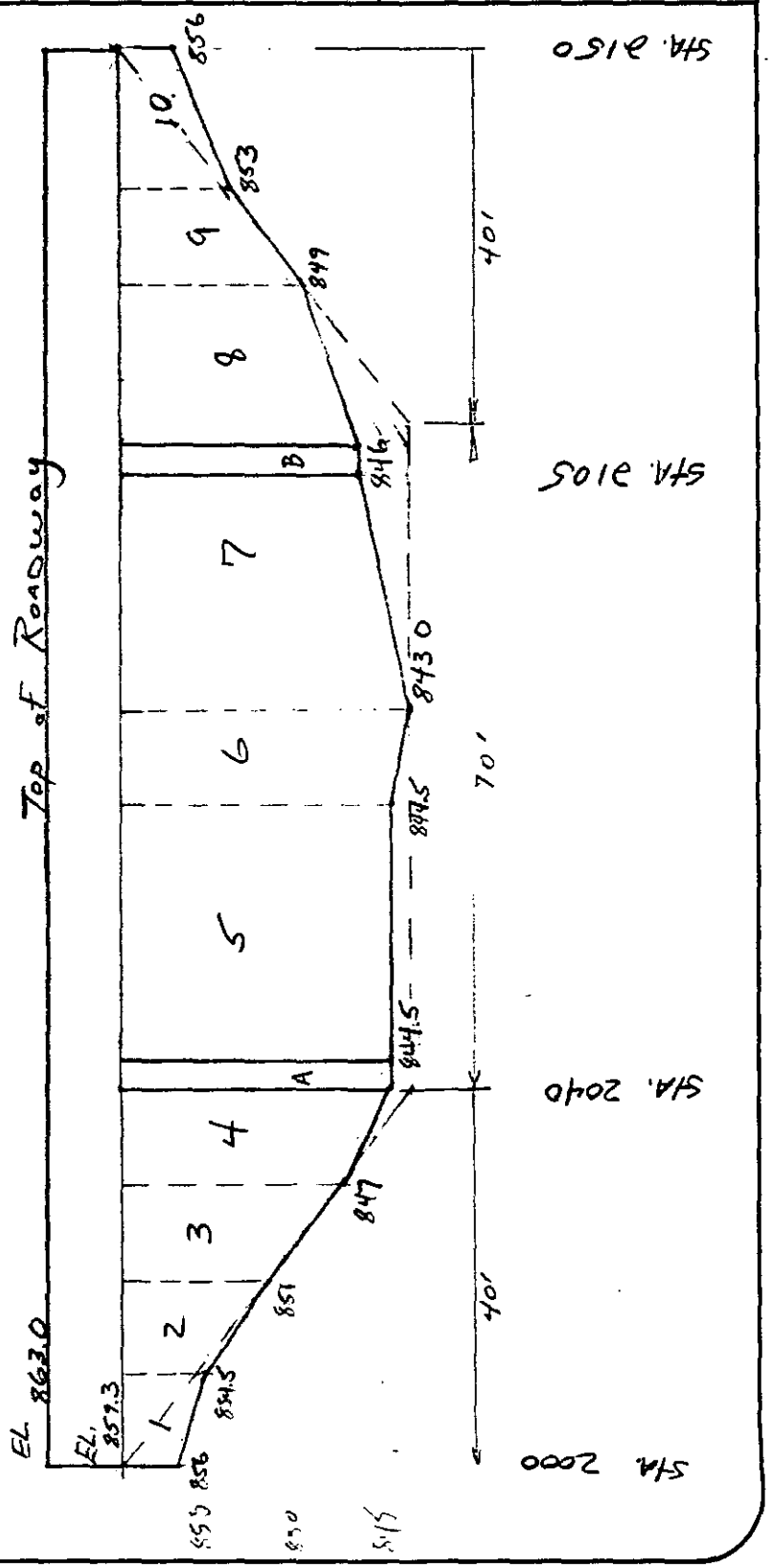
CALCULATION SHEET

REV.

CLIENT/OWNER F. I. S. Williamston Township	FILING CODE JOB NO. 62-0147-718
CALC. BY/DATE (SIGNATURE) M. GuisFredi 11-12-79 CHECKED BY/DATE (SIGNATURE)	SUBJECT Zimmer Rd. Bridge 35.2
	SHEET OF BOOK NO.



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CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Zimmee Rd. Bridge
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO.

Net AREA of bridge opening below low cord

		Sq Ft.
AREA 1	[859.3 − (856 + 854.5)/2] (10) =	40.5
AREA 2	[859.3 − (854.5 + 851)/2] (10) =	65.5
AREA 3	[859.3 − (851 + 847)/2] (10) =	103
AREA 4	[859.3 − (847 + 844.5)/2] (10) =	135.5
AREA 5	[859.3 − 844.5] (27) =	399.6
AREA 6	[859.3 − (844.5 − 843.0)/2] (10) =	155.5
AREA 7	[859.3 − (843 + 846)/2] (25) =	370
AREA 8	[859.3 − (846 + 849)/2] (17) =	200.6
AREA 9	[859.3 − (849 + 853)/2] 10 =	83
AREA 10	[859.3 − (853 + 856)/2] 15	72
AREA A	[859.3 − 844.5] (3) =	44.4
AREA B	[859.3 − 846] (3) =	39.9

1709.5 sq Ft.
− (44.4 + 39.9)
1625.2 sq Ft

The bridge is constructed from concrete and the road surface is paved black-top.

CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Zimmer Rd. BRIDGE	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Bottom Distance

10	15.30
9	10.77
8	17.26
7	25.18
6	10.11
5	27.0
4	10.30
3	10.77
2	10.59
1	10.25
A	3
B	3

153.53 + 3.3 + 3.3 + 150 = 310.13 Wetted Perimeter

XKOR

$$h_f = \frac{29.1\ n^2\ L}{R^{\frac{4}{3}}} = \frac{29.1\ (.014)^2\ (27)}{\left(\frac{1709.5}{310.13}\right)^{\frac{4}{3}}}$$

$h_f = .02$

XKOR = .29 + Exit + Entrance

.02 + 1 + .5

* HEADWALL parallel to embankment (No wingwalls) (From U.S. Bureau of Public Roads)

XKOR ≈ 1.52

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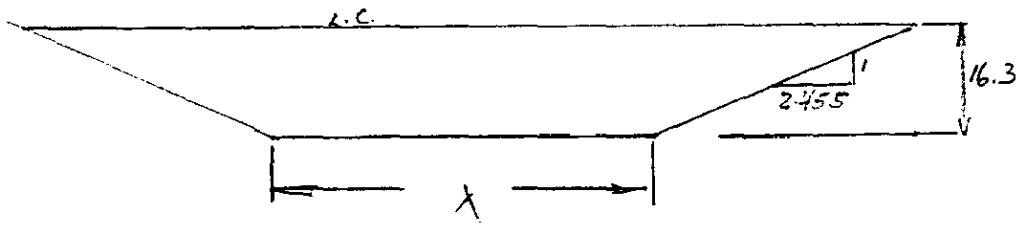
CALCULATION SHEET REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Zimmer Rd. BRIDGE	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

S.B. Coed



AREA = $(X + 40.0165)16.3 = 1625.2$

$16.3Y + 652.27 = 1625.2$

Bottom Width $Y = 59.69$

$X + 6' = 65.69'$

℄ Pier obstruction

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
E	5	Valley Cross Section
	5.8	Valley Cross Section
	5.9	Valley Cross Section downstream from Williamston Dam
F	6.0	Bridge Section, Williamston Dam coded as Special Bridge
	6.1	Valley Section, upstream
	6.8	Valley Section
	6.9	Valley Section 1 foot downstream of Putman Bridge
G	7.0	Bridge Section downstream face of Putman Bridge
	7.1	Bridge Section upstream face of Putman Street
	7.2	Valley Section repeated grade points
	7.3	Valley Section
H	8.0	Valley Section
I	9.0	Valley Section eastern boundary of city
	10	Valley Section Locke Township west boundary
	11	Valley Section
	12	Valley Section end study Locke Township

Bridge Notes and Sketches

Bridge notes and sketches are contained in Appendix B.

Map

A copy of the 100-year flood plain and floodway showing cross section is contained in Appendix C.

Profiles

Copies of the water surface profiles are contained in Appendix D.

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
E	5	Valley Cross Section
	5.8	Valley Cross Section
	5.9	Valley Cross Section downstream from Williamston Dam
F	6.0	Bridge Section, Williamston Dam coded as Special Bridge
	6.1	Valley Section, upstream
	6.8	Valley Section
	6.9	Valley Section 1 foot downstream of Putman Bridge
G	7.0	Bridge Section downstream face of Putman Bridge
	7.1	Bridge Section upstream face of Putman Street
	7.2	Valley Section repeated grade points
	7.3	Valley Section
H	8.0	Valley Section
I	9.0	Valley Section eastern boundary of city
	10	Valley Section Locke Township west boundary
	11	Valley Section
	12	Valley Section end study Locke Township

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Profiles

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Computer Backwater Runs/Printouts

The final HEC-II printouts for the multiprofile run and floodway run along with sensitivity run for the 1975 flood are contained in Appendix E.

Cross Section Plots

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix B.

References

1. Knutilla, R. L., and Swallow, L.A., 1975, The Flood of April, 1975 at Williamston, Michigan, Photomosaic Map

2. U.S. Army, Corps of Engineers, 1968, Flood Plain Information, Red Cedar River, Ingham County, Michigan. U.S. Army Corps of Engineers, Detroit District, Detroit, Mich.

3. Wiitala, S. W., 1965, Magnitude and Frequency of Floods in the United States, Part 4, St. Lawrence River Basin. U.S. Geological Survey Water Supply Paper 1677.

CALCULATION SHEET REV.

CLIENT/OWNER	FILING CODE
Flood Insurance Study Red Cedar River	JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Estimated 1975 Flood Flow
CHECKED BY/DATE (SIGNATURE)	SHEET OF / BOOK NO.

U.S.G.S East Lansing Gage

$$\left(\frac{A}{A_{gage}}\right)^n = \left(\frac{Q}{Q_{gage}}\right)$$

$A_{gage} = 355$

$Q_{gage_{1975}} = 5940$

Q at Meridian Rd.

$$\left(\frac{291.8}{355}\right)^{.889} = \left(\frac{Q}{5940}\right) = 4990 \text{ cfs.}$$

Q at cnty Limit

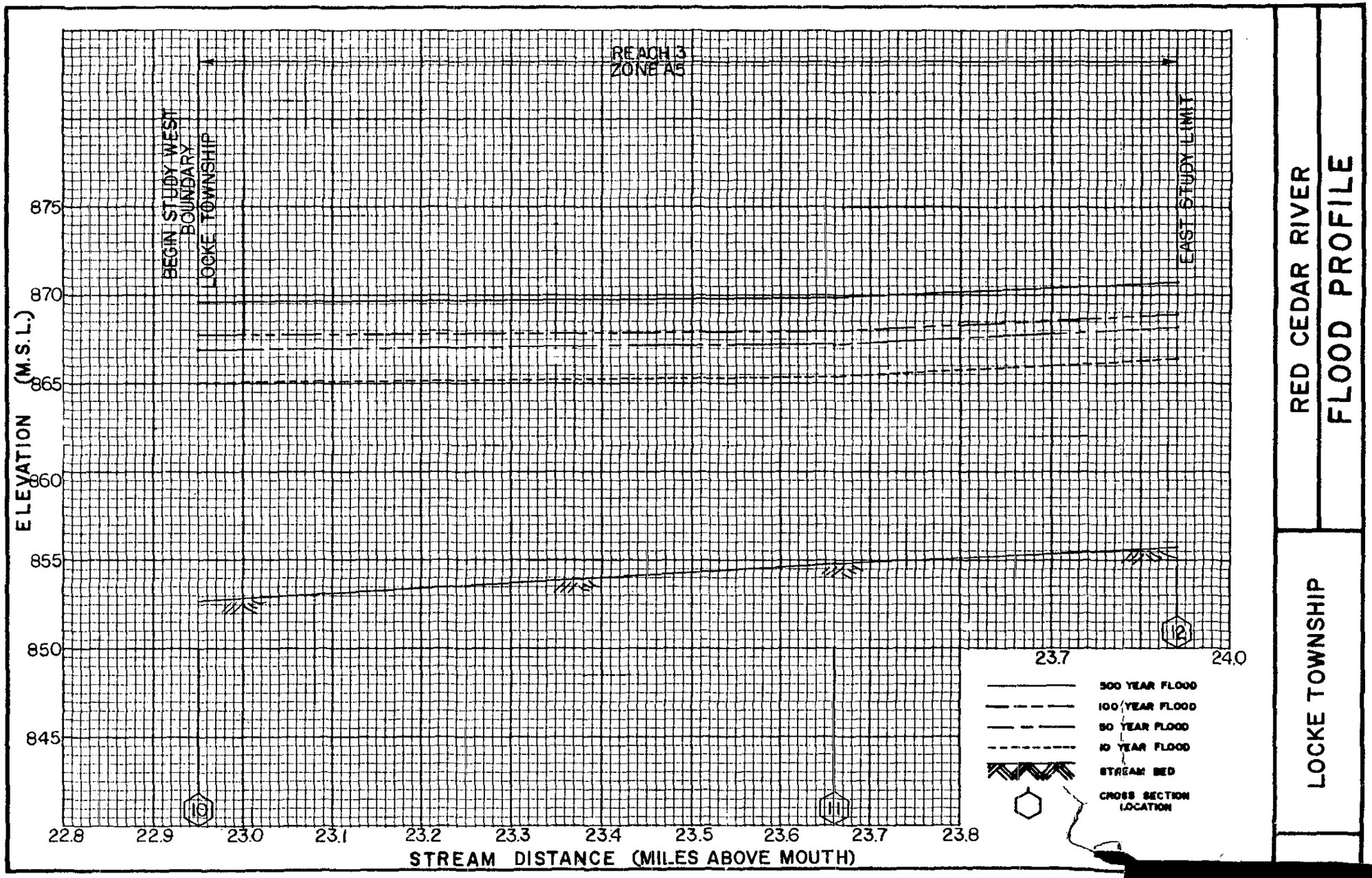
$$\left(\frac{277.8}{355}\right)^{.889} = \left(\frac{Q}{5940}\right) = 4776 \text{ cfs.}$$

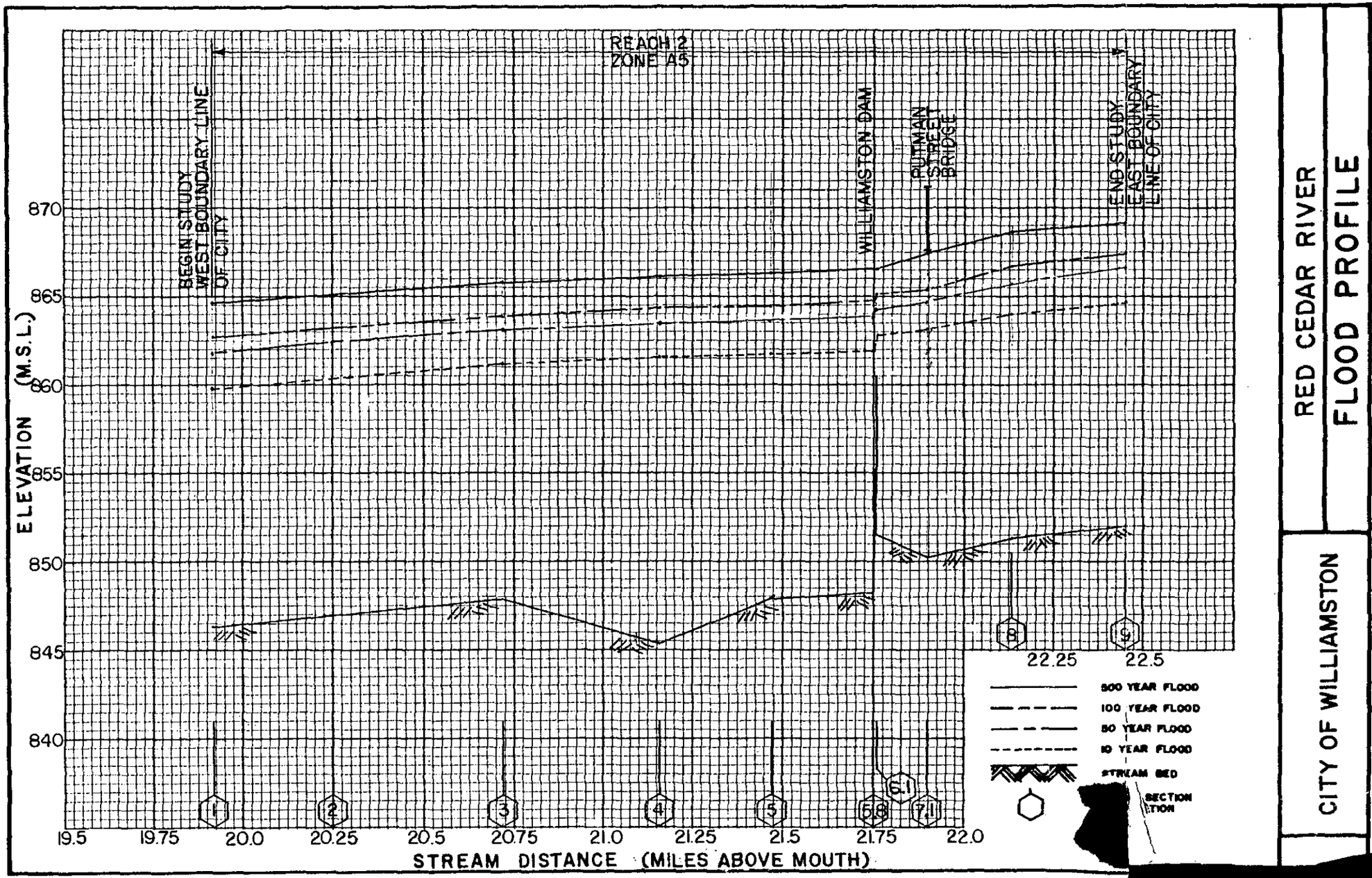
Q above unnamed tributary

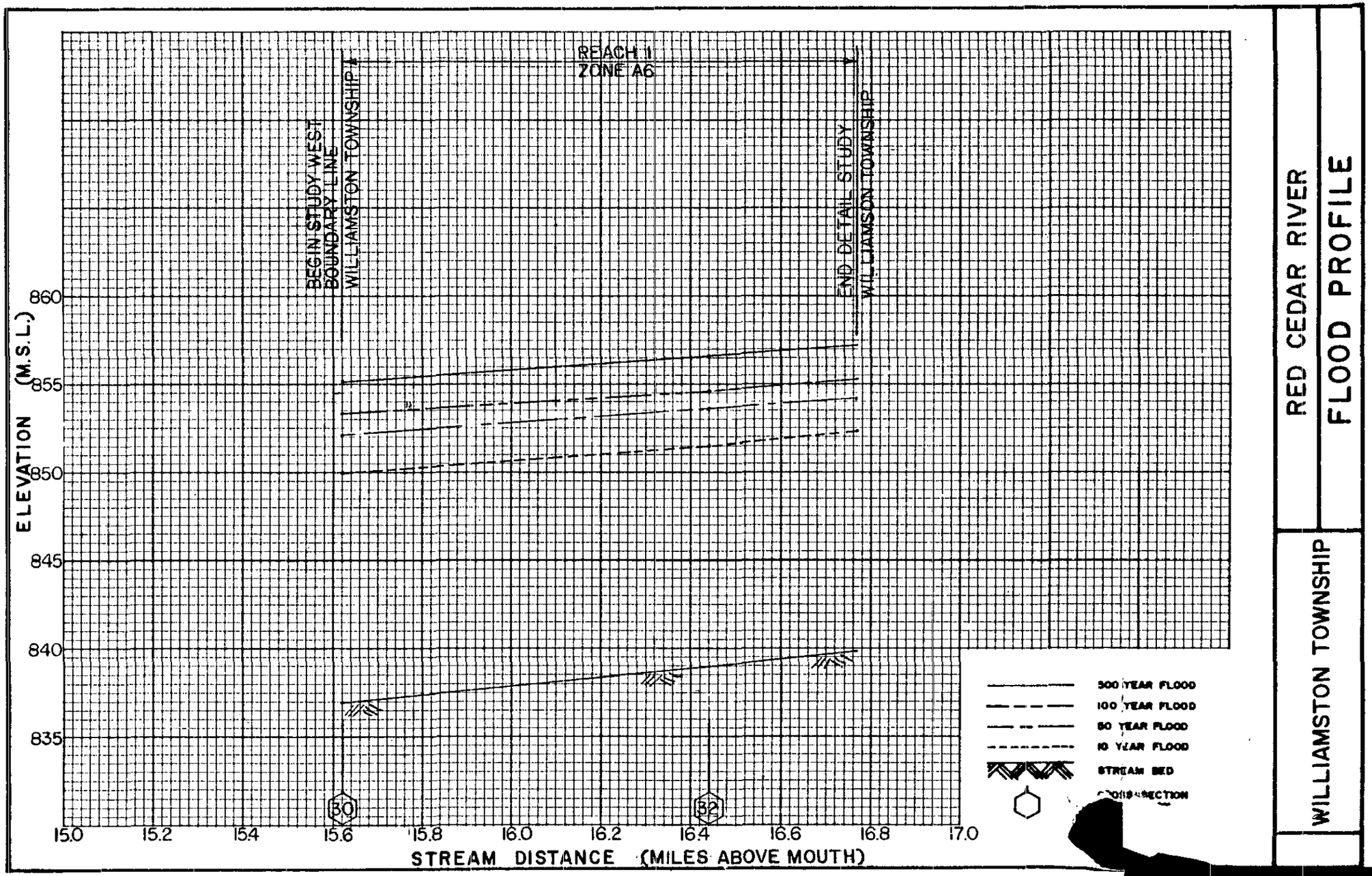
$$\left(\frac{271.9}{355}\right)^{.889} = \left(\frac{Q}{5940}\right) = 4686 \text{ cfs.}$$

Q Above Deer Creek

$$\left(\frac{242.4}{355}\right)^{.889} = \left(\frac{Q}{5940}\right) = 4233 \text{ cfs.}$$


REACH 3
ZONE A5
BEGIN STUDY WEST BOUNDARY
LOCKE TOWNSHIP
EAST STUDY LIMIT
ELEVATION (M.S.L.)
875
870
865
860
855
850
845
22.8
22.9
23.0
23.1
23.2
23.3
23.4
23.5
23.6
23.7
23.8
STREAM DISTANCE (MILES ABOVE MOUTH)
10
11
12
23.7
24.0
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION
RED CEDAR RIVER
FLOOD PROFILE
LOCKE TOWNSHIP


REACH 2
ZONE A5
BEGIN STUDY
WEST BOUNDARY LINE
OF CITY
WILLIAMSTON DAM
PUTNAM
STREET
BRIDGE
END STUDY
EAST BOUNDARY
LINE OF CITY
ELEVATION (M.S.L.)
870
865
860
855
850
845
840
19.5
19.75
20.0
20.25
20.5
20.75
21.0
21.25
21.5
21.75
22.0
22.25
22.5
STREAM DISTANCE (MILES ABOVE MOUTH)
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
SECTION
LOCATION
RED CEDAR RIVER
FLOOD PROFILE
CITY OF WILLIAMSTON


REACH 1
ZONE A6
BEGIN STUDY WEST BOUNDARY LINE WILLIAMSTON TOWNSHIP
END DETAIL STUDY WILLIAMSON TOWNSHIP
ELEVATION (M.S.L.)
860
855
850
845
840
835
15.0
15.2
15.4
15.6
15.8
16.0
16.2
16.4
16.6
16.8
17.0
STREAM DISTANCE (MILES ABOVE MOUTH)
30
32
500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION
RED CEDAR RIVER
FLOOD PROFILE
WILLIAMSTON TOWNSHIP

RED CEDAR RIVER

ENCROACHMENT RUN

WILLIAMSTON & LOCKE TOWNSHIPS
CITY OF WILLIAMSTON

30

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

C
T1      WILLIAMSION C.
T2      APPROXIMATE 100 YR LEVEL
T3      RED CEDAR RIVER

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

      0.       4.       0.       0.  0.000000     0.00      0.0       0.   853.300    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  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000    1.000   42.000   41.000   40.000   53.000   27.000   21.000   22.000   28.000

    54.000    4.000   39.000    0.000  150.000  200.000    0.000    0.000    0.000    0.000

UT      5.000  3460.000  5820.000  6050.000  8190.000  6050.000     0.000     0.000     0.000     0.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000
FT      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     30.000    35.000  2000.000  2100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    864.000  1450.000   863.500  1500.000   860.000  1550.000   856.000  1600.000   855.000  1650.000
GR    848.500  1675.000   846.500  1700.000   846.000  1750.000   846.000  1800.000   845.000  1850.000
GR    845.000  1900.000   845.000  1950.000   843.500  2000.000   841.000  2010.000   839.500  2020.000
GR    839.500  2030.000   838.000  2040.000   837.500  2050.000   837.000  2060.000   837.000  2070.000
GR    837.000  2085.000   839.000  2095.000   844.000  2100.000   846.000  2150.000   846.000  2200.000
GR    845.000  2250.000   846.000  2300.000   846.500  2350.000   847.500  2400.000   849.000  2425.000
GR    855.000  2450.000   857.000  2500.000   860.000  2550.000   864.000  2600.000   864.000  2650.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000

X1     32.000    13.000  1990.000  2090.000  4300.000  4400.000  4330.000     0.000     0.000     0.000
GR    869.000  1750.000   869.000  1800.000   867.000  1850.000   864.000  1990.000   842.000  2020.000
GR    839.000  2030.000   839.000  2070.000   846.000  2090.000   848.000  2200.000   846.000  2300.000
GR    849.000  2450.000   851.000  2550.000   856.000  2650.000     0.000     0.000     0.000     0.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000

X1     33.000    14.000  2000.000  2180.000  7770.000  7850.000  7800.000     0.000     0.000     0.000
GR    865.000  1460.000   862.000  1510.000   854.000  1560.000   851.000  1660.000   852.000  1760.000
GR    850.000  1860.000   853.000  2000.000   845.000  2010.000   843.000  2030.000   843.000  2100.000
GR    845.000  2120.000   853.000  2180.000   870.000  2260.000   872.000  2660.000     0.000     0.000
FT      0.000     7.100     7.100     7.100     7.100     9.100  2000.000  2171.000  2000.000  2171.000
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X1	34.000	12.000	2000.000	2170.000	4800.000	4500.000	4700.000	0.000	0.000	0.000
GR	864.000	1470.000	860.000	1670.000	856.000	1770.000	857.000	1920.000	855.000	2000.000
GR	848.000	2030.000	845.000	2070.000	845.000	2100.000	850.000	2120.000	857.000	2170.000
GR	862.000	2270.000	875.000	2570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.135	.135	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2000.000	2150.100	2000.000	2150.100

X1	35.000	24.000	2000.000	2150.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	873.000	1275.000	868.000	1475.000	862.000	1675.000	862.000	1875.000	863.000	1975.000
GR	863.000	2000.000	856.000	2000.000	854.500	2010.000	851.000	2020.000	847.000	2030.000
GR	844.500	2040.000	844.500	2043.000	844.500	2070.000	843.000	2080.000	846.000	2105.000
GR	846.000	2108.000	849.000	2125.000	853.000	2135.000	856.000	2150.000	863.000	2150.000
GR	863.000	2155.000	863.000	2175.000	866.000	2375.000	874.000	2575.000	0.000	0.000
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.500	3.000	0.000	65.690	6.000	1625.200	2.455	843.000	843.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2000.000	2150.100	2000.000	2150.100

X1	35.200	0.000	0.000	0.000	27.000	27.000	27.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	859.300	862.000	0.000	0.000	0.000	0.000	0.000
BT	20.000	1275.000	873.000	0.000	1475.000	868.000	0.000	1675.000	862.000	0.000
HT	1875.000	862.000	0.000	1975.000	863.000	0.000	2000.000	863.000	856.000	2000.000
HT	863.000	859.300	2039.900	863.000	859.300	2040.000	863.000	844.500	2043.000	863.000
BT	843.000	2043.100	863.000	859.300	2104.900	863.000	859.300	2105.000	863.000	846.000
BT	2108.000	863.000	846.000	2108.100	863.000	859.300	2150.000	863.000	859.300	2150.000
BT	863.000	856.000	2175.000	863.000	0.000	2375.000	866.000	0.000	2575.000	874.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1920.000	2171.000	1920.000	2171.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	35.400	12.000	2000.000	2170.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	864.000	1470.000	860.000	1670.000	856.000	1770.000	857.000	1920.000	855.000	2000.000
GR	848.000	2030.000	845.000	2070.000	845.000	2100.000	850.000	2120.000	857.000	2170.000
GR	862.000	2270.000	875.000	2570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.150	.150	.065	.100	.300	0.000	0.000	0.000	0.000	0.000
OT	5.000	3310.000	4990.000	5790.000	7840.000	5790.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A (WEST STUDY LIMIT)

X1	1.000	20.000	2000.000	2098.000	5500.000	5600.000	5755.000	0.000	0.000	0.000
GR	869.000	1514.000	868.800	1552.000	867.600	1774.000	866.000	1788.000	854.800	1840.000
GR	852.500	1911.000	857.700	2000.000	849.100	2018.000	846.800	2034.000	846.500	2050.000
GR	846.400	2066.000	848.900	2086.000	854.700	2098.000	853.400	2158.000	857.500	2228.000
GR	857.900	2401.000	859.700	2497.000	860.100	2595.000	868.200	2711.000	869.200	2743.000

VALLEY SECTION B

X1	2.000	30.000	1992.000	2072.000	1625.000	1875.000	1750.000	0.000	0.000	0.000
GR	871.000	1064.000	863.900	1254.000	868.200	1355.000	876.100	1438.000	857.700	1558.000
GR	859.500	1698.000	857.100	1850.000	852.600	1902.000	857.300	1964.000	853.800	1992.000
GR	850.500	2000.000	849.300	2006.000	847.500	2022.000	847.100	2038.000	847.600	2054.000
GR	848.800	2066.000	853.500	2072.000	852.400	2108.000	856.600	2132.000	856.900	2238.000
GR	859.600	2348.000	861.200	2510.000	864.100	2652.000	863.000	2802.000	862.300	2950.000
GR	862.500	3090.000	861.600	3230.000	866.600	3358.000	871.100	3506.000	873.800	3712.000
ET	0.000	7.100	7.100	7.100	7.100	1.400	1842.000	3035.000	0.000	0.000

NC	.150	.135	.067	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION C

X1	3.000	24.000	2000.000	2080.000	2800.000	2300.000	2450.000	0.000	0.000	0.000
GR	872.300	1010.000	869.300	1220.000	868.100	1360.000	868.200	1526.000	867.600	1684.000
GR	866.700	1710.000	868.000	1740.000	867.600	1842.000	865.900	1978.000	855.600	2000.000
GR	849.800	2012.000	848.000	2034.000	848.100	2046.000	847.900	2054.000	849.200	2066.000
GR	855.200	2080.000	856.100	2152.000	856.100	2240.000	854.200	2315.000	856.700	2401.000
GR	856.200	2483.000	854.200	2533.000	857.500	2607.000	855.200	2699.000	860.900	2843.000
GR	864.400	2975.000	865.600	3035.000	859.800	3187.000	858.700	3345.000	0.000	0.000
FT	0.000	7.100	7.100	7.100	7.100	1.400	1495.000	3256.000	0.000	0.000

VALLEY SECTION D (SEWAGE DISPOSAL)

X1	4.000	32.000	2000.000	2083.000	2125.000	2750.000	2375.000	0.000	0.000	0.000
GR	850.000	967.000	854.700	986.000	857.400	1182.000	857.700	1270.000	857.300	1382.000
GR	865.100	1426.000	860.400	1426.000	861.300	1495.000	865.100	1495.000	859.600	1616.000
GR	854.500	1674.000	855.200	1756.000	855.600	1886.000	854.200	2000.000	850.600	2010.000
GR	849.100	2020.000	846.200	2032.000	845.400	2052.000	849.000	2074.000	853.700	2083.000
GR	853.600	2220.000	858.200	2288.000	860.100	2442.000	859.700	2596.000	858.100	2772.000
GR	859.700	2964.000	860.700	3122.000	865.800	3256.000	864.600	3438.000	858.000	3520.000
GR	857.300	3596.000	867.800	3656.000	0.000	0.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
OT	5.000	3250.000	4900.000	5680.000	7690.000	5680.000	0.000	0.000	0.000	0.000
NC	.150	.165	.067	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION F

X1	5.000	15.000	2027.000	2171.000	1600.000	1300.000	1600.000	0.000	0.000	0.000
GR	862.700	2000.000	862.600	2027.000	851.800	2053.000	850.900	2057.000	849.700	2071.000
GR	847.900	2048.000	848.500	2119.000	848.500	2137.000	850.600	2155.000	856.400	2171.000
GR	856.500	2365.000	854.600	2539.000	853.900	2691.000	854.700	2931.000	851.800	2943.000
OT	5.000	2930.000	4420.000	5130.000	6950.000	5130.000	0.000	0.000	0.000	0.000
FT	0.000	7.100	7.100	7.100	7.100	4.100	2000.000	2244.000	2000.000	2244.000

X1	5.200	8.000	2000.000	2244.000	1575.000	1520.000	1545.000	0.000	0.000	0.000
GR	867.400	2000.000	854.200	2000.000	848.300	2008.000	850.900	2042.000	854.000	2164.000
GR	855.500	2220.000	863.700	2244.000	864.800	2350.000	0.000	0.000	0.000	0.000
NC	.135	.135	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	5.900	8.000	2000.000	2172.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	867.400	2000.000	854.200	2000.000	848.300	2008.000	850.900	2042.000	854.000	2164.000
GR	860.900	2164.000	863.000	2172.000	865.000	2200.000	0.000	0.000	0.000	0.000
OC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SR	0.000	1.500	3.600	0.000	34.000	0.000	204.000	0.000	854.000	848.300

D/M CROSS-SECTION F

X1	6.000	10.000	2000.000	2172.000	20.000	20.000	20.000	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	10.000	2000.000	867.400	0.000	2000.000	860.600	0.000	2008.000	860.500	854.600
BT	2008.000	860.500	860.300	2042.000	860.500	860.300	2042.000	860.500	854.000	2164.000

BT	860.900	0.000	2172.000	863.000	0.000	2220.000	865.000	0.000	2350.000	865.300
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	867.400	2000.000	860.600	2000.000	860.500	2008.000	854.600	2008.000	854.000	2042.000
GR	860.500	2042.000	860.900	2164.000	863.000	2172.000	865.000	2220.000	865.300	2350.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	7.000	2000.000	2172.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	867.400	2000.000	858.900	2000.000	855.800	2008.000	855.300	2042.000	858.200	2164.000
GR	863.000	2172.000	865.000	2220.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.130	.060	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1900.000	2122.100	1900.000	2122.100
X1	6.800	26.000	1900.000	2122.000	384.000	184.000	234.000	0.000	0.000	0.000
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.700	1640.000	858.100	1700.000	858.100	1800.000
GR	858.200	1900.000	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2060.000
GR	851.400	2081.000	856.500	2100.000	869.500	2122.000	874.600	2330.000	874.300	2464.000
GR	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000	884.000	3390.000
GR	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.130	.130	.065	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2016.000	2100.100	2016.000	2100.100
X1	6.900	28.000	2016.000	2100.000	286.000	286.000	286.000	.864	0.000	0.000
GR	874.400	486.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2016.000
GR	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2055.100	853.600	2060.000
GR	853.600	2060.100	851.400	2081.000	856.500	2100.000	871.300	2100.000	869.500	2122.000
GR	874.600	2330.000	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000
GR	882.600	3270.000	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1808.190	1880.770	1808.190	1880.770
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	0.000	0.000	0.000	1.000	1.000	1.000	.864	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	26.000	488.000	874.400	0.000	704.000	872.200	0.000	886.000	870.400	0.000
BT	1036.000	869.600	0.000	1246.000	869.000	0.000	1350.000	867.600	0.000	1564.000
BT	865.200	0.000	1802.000	865.900	0.000	2000.000	869.900	0.000	2016.000	871.200
BT	855.400	2016.000	871.200	867.300	2055.000	871.200	867.300	2055.100	871.200	853.700
BT	2060.000	871.300	853.600	2060.100	871.300	867.400	2100.000	871.300	867.400	2100.000
BT	871.300	856.500	2122.000	869.500	0.000	2330.000	874.600	0.000	2464.000	874.300
BT	0.000	2612.000	876.100	0.000	2890.000	877.900	0.000	3093.000	878.800	0.000
BT	3270.000	882.600	0.000	3390.000	884.000	0.000	3554.000	882.300	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2048.000	2132.100	2048.000	2132.100

BRIDGE SECTION 6 (UPSTREAM FACE HUTMAN ST.)

X1	7.100	27.000	2048.000	2132.000	55.000	55.000	55.000	.864	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	25.000	488.000	874.400	0.000	704.000	872.200	0.000	886.000	870.400	0.000
BT	1036.000	869.600	0.000	1246.000	869.000	0.000	1350.000	867.600	0.000	1564.000
BT	865.200	0.000	1802.000	865.900	0.000	2000.000	869.900	0.000	2048.000	871.200
BT	855.900	2048.000	871.200	867.200	2087.000	871.200	867.200	2087.100	871.200	855.800
BT	2042.000	871.300	854.700	2092.100	871.300	867.300	2132.000	871.300	867.300	2132.000
BT	871.300	854.900	2330.000	874.600	0.000	2464.000	874.300	0.000	2612.000	876.100
BT	0.000	2890.000	877.900	0.000	3093.000	878.800	0.000	3270.000	882.600	0.000

BT	3390.000	884.000	0.000	3554.000	882.300	0.000	0.000	0.000	0.000	0.000
GR	874.400	468.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2048.000
GR	855.900	2048.000	853.000	2066.000	855.800	2087.000	855.800	2087.100	854.700	2092.000
GR	854.700	2092.100	850.200	2113.000	854.900	2132.000	871.300	2132.000	874.600	2330.000
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000
GR	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000
FT	0.000	7.100	7.100	7.100	7.100	9.100	1835.840	1908.410	1835.840	1908.410
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.200	0.000	0.000	0.000	1.000	1.000	1.000	.864	0.000	0.000
FT	0.000	7.100	7.100	7.100	7.100	1.410	1802.000	2330.100	0.000	0.000
X1	7.300	22.000	1802.000	2330.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	874.400	468.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	855.900	2048.000	853.000	2066.000
GR	855.800	2067.000	854.700	2092.000	850.200	2113.000	854.900	2132.000	874.600	2330.000
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000
GR	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.130	.060	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION H

X1	8.000	25.000	2106.000	2230.000	990.000	990.000	1000.000	0.000	0.000	0.000
GR	875.100	460.000	873.200	610.000	872.000	780.000	870.800	986.000	869.000	1104.000
GR	867.800	1310.000	867.700	1428.000	867.400	1588.000	864.400	1788.000	862.900	2000.000
GR	862.100	2078.000	857.000	2106.000	852.700	2132.000	851.300	2158.000	852.500	2184.000
GR	856.900	2210.000	858.700	2230.000	863.400	2366.000	872.500	2486.000	874.200	2586.000
GR	879.400	2746.000	872.700	2954.000	876.400	3178.000	876.100	3484.000	878.000	3784.000
NC	.130	.150	.065	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION I (EASTERN STUDY LIMIT)

X1	9.000	19.000	2000.000	2126.000	1750.000	1750.000	1750.000	0.000	0.000	0.000
GR	876.600	1200.000	875.800	1324.000	875.300	1408.000	875.500	1518.000	870.000	1670.000
GR	867.300	1774.000	865.400	1862.000	861.700	2000.000	857.100	2010.000	852.000	2022.000
GR	852.100	2054.000	853.200	2080.000	857.000	2106.000	860.000	2126.000	867.500	2172.000
GR	870.000	2196.000	874.100	2214.000	873.600	2248.000	872.400	2282.000	0.000	0.000
QT	5.000	2880.000	4340.000	5030.000	6820.000	5030.000	0.000	0.000	0.000	0.000
FT	0.000	7.100	7.100	7.100	7.100	1.400	2846.000	5272.000	0.000	0.000
X1	10.000	31.000	3920.000	4002.000	2700.000	2700.000	2600.000	0.000	0.000	0.000
GR	869.300	2000.000	868.100	2210.000	870.800	2392.000	869.000	2516.000	865.100	2560.000
GR	865.300	2712.000	872.600	2846.000	864.600	2922.000	861.100	3046.000	860.300	3186.000
GR	858.300	3280.000	656.900	3308.000	858.500	3351.000	857.600	3516.000	859.500	3864.000
GR	858.900	3914.000	857.100	3920.000	853.300	3938.000	852.700	3960.000	854.200	3980.000
GR	857.000	4002.000	859.100	4013.000	859.400	4208.000	860.400	4282.000	862.100	4540.000
GR	860.500	4774.000	660.200	4954.000	862.200	5118.000	873.900	5272.000	882.400	5404.000
GR	881.900	5522.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	11.000	25.000	2014.000	2078.000	3600.000	3400.000	3800.000	0.000	0.000	0.000
GR	885.800	700.000	882.000	830.000	875.500	994.000	873.200	1158.000	872.300	1338.000
GR	868.500	1485.000	871.200	1648.000	871.300	1748.000	871.800	1851.000	863.100	1988.000

GR	859.200	2000.000	857.800	2014.000	854.800	2030.000	855.200	2052.000	857.800	2078.000
GR	860.200	2102.000	860.300	2274.000	862.600	2418.000	859.900	2646.000	872.700	2850.000
GR	873.400	2992.000	872.600	3130.000	873.100	3274.000	873.800	3426.000	874.200	3466.000
XI	12.000	20.000	2004.000	2066.000	2100.000	1800.000	2000.000	0.000	0.000	0.000
GR	883.000	944.000	877.700	1156.000	873.800	1356.000	873.100	1450.000	872.200	1640.000
GR	867.300	1840.000	862.100	2000.000	858.300	2004.000	855.600	2026.000	856.600	2046.000
GR	856.300	2066.000	858.200	2090.000	863.600	2192.000	863.700	2294.000	867.000	2452.000
GR	869.300	2614.000	872.300	2776.000	875.600	2944.000	877.500	3104.000	879.000	3272.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 30.000

SECNO	DEPTH	CWSEL	CRIWS	WSELR	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
30.00	16.30	853.30	0.00	853.30	853.34	.04	0.00	0.00	843.50
6050.	1597.	3041.	1412.	2579.	1460.	2392.	0.	0.	844.00
0.00	.62	2.68	.59	.135	.060	.135	0.000	837.00	1656.54
.000206	0.	0.	0.	0	0	0	0.00	786.38	2442.92

CCHV= .100 CEHV= .300
*SECNO 32.000

32.00	15.60	854.60	0.00	0.00	854.67	.07	1.32	.01	864.00
6050.	0.	3220.	2830.	0.	1115.	3249.	540.	70.	846.00
.62	0.00	2.89	.87	.135	.060	.135	.060	839.00	2002.82
.000495	4300.	4330.	4400.	2	0	0	0.00	619.10	2621.93

CCHV= .100 CEHV= .300
*SECNO 33.000

33.00	14.44	857.44	0.00	0.00	857.49	.05	2.82	.00	853.00
6050.	1528.	4508.	14.	2599.	2138.	46.	1360.	185.	853.00
1.88	.59	2.11	.31	.135	.060	.135	.060	843.00	1538.53
.000274	7770.	7800.	7850.	2	0	0	0.00	662.35	2200.87

*SECNO 34.000

3470 ENCROACHMENT STATIONS= 2000.0 2171.0 TYPE= 1 TARGET= 171.000

34.00	14.52	859.52	0.00	0.00	859.71	.19	2.18	.04	855.00
6050.	0.	6049.	1.	0.	1738.	2.	1715.	231.	857.00
2.26	0.00	3.48	.27	.135	.060	.135	.060	845.00	2000.00
.000936	4800.	4700.	4500.	2	0	0	0.00	171.00	2171.00

CCHV= .300 CEHV= .500
*SECNO 35.000

SECNO	DEPTH	CWSEL	CRIWS	WSELR	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= 2000.0 2150.1 TYPE= 1 TARGET= 150.100

35.00	16.56	859.56	0.00	0.00	859.75	.19	.04	.00	863.00
6050.	0.	6050.	0.	0.	1748.	0.	1717.	231.	863.00
2.26	0.00	3.46	0.00	.135	.060	.135	.060	843.00	2000.00
.000809	50.	50.	50.	1	0	0	0.00	150.00	2150.00

SPECIAL BRIDGE

SB	AK	AKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.05	1.50	3.00	0.00	65.69	6.00	1625.20	2.46	843.00	843.00

*SECNO 35.200
PRESSURE FLOW

FGPRS	EGLWC	H3	OWETR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
859.89	859.76	.01	0.	6050.	1625.	1625.	859.30	862.00

3470 ENCROACHMENT STATIONS=		2000.0	2150.1	TYPE=	1	TARGET=		150.100		
35.20	16.70	859.70	0.00	0.00	859.89	.18	.14	0.00	863.00	
6050.	0.	6050.	0.	0.	1770.	0.	1718.	231.	863.00	
2.26	0.00	3.42	0.00	.135	.014	.135	.060	843.00	2000.00	
.000042	27.	27.	27.	2	0	0	0.00	150.00	2150.00	

*SECNO 35.400

3470 ENCROACHMENT STATIONS=		1920.0	2171.0	TYPE=	1	TARGET=		251.000		
35.40	14.74	859.74	0.00	0.00	859.90	.16	.01	.01	855.00	
6050.	216.	5833.	1.	298.	1773.	3.	1720.	231.	857.00	
2.27	.73	3.29	.25	.135	.060	.135	.060	845.00	1920.00	
.000766	50.	50.	50.	0	0	0	0.00	251.00	2171.00	

CCHV= .100 CEHV= .300
*SECNO 1.000

VALLEY SECTION A (WEST STUDY LIMIT)

1.00	16.32	862.72	0.00	0.00	862.78	.05	2.87	.01	857.70	
5790.	1061.	3224.	1504.	1468.	1354.	2599.	2206.	301.	854.70	
3.25	.72	2.38	.58	.150	.065	.150	.061	846.40	1803.23	
.000343	5500.	5755.	5600.	2	0	0	0.00	829.27	2632.51	

*SECNO 2.000

3265 DIVIDED FLOW

VALLEY SECTION B

2.00	16.20	863.30	0.00	0.00	863.35	.04	.57	.00	853.80	
5790.	1582.	2772.	1436.	2696.	1174.	2856.	2451.	351.	853.50	
3.60	.55	2.36	.50	.150	.065	.150	.061	847.10	1521.45	
.000310	1625.	1750.	1675.	2	0	0	0.00	1604.68	3273.63	

CCHV= .100 CEHV= .300
*SECNO 3.000
3280 CROSS SECTION 3.00 EXTENDED 5.24 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	IOC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1842.0 3035.0 TYPE= 1 TARGET= 1193.000

VALLEY SECTION C

3.00	16.04	863.94	0.00	0.00	863.96	.02	.61	.00	855.60
5790.	26.	2071.	3694.	74.	1133.	6045.	2840.	422.	855.20
4.24	.35	1.83	.61	.150	.067	.135	.062	847.90	1982.19
.000207	2800.	2450.	2300.	2	0	0	0.00	975.40	2957.59

*SECNO 4.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1495.0 3256.0 TYPE= 1 TARGET= 1761.000

VALLEY SECTION D (SEWAGE DISPOSAL)

4.00	16.91	864.31	0.00	0.00	864.32	.01	.36	.00	854.20
5790.	1526.	1851.	2413.	3671.	1327.	6316.	3389.	503.	853.70
5.23	.42	1.39	.38	.150	.067	.135	.062	845.40	1495.00
.000102	2125.	2375.	2750.	2	0	0	0.00	1704.40	3216.81

CCHV= .100 CEHV= .300
*SECNO 5.000
3280 CROSS SECTION 5.00 EXTENDED 12.67 FEET

VALLEY SECTION E

5.00	16.57	864.47	0.00	0.00	864.48	.01	.16	.00	862.60
5680.	7.	2573.	3100.	49.	1935.	7215.	3719.	545.	856.40
5.71	.15	1.33	.43	.150	.067	.165	.063	847.90	2000.00
.000116	1600.	1600.	1300.	2	0	0	0.00	943.00	2943.00

*SECNO 5.800

3470 ENCROACHMENT STATIONS= 2000.0 2244.0 TYPE= 1 TARGET= 244.000

5.80	16.40	864.70	0.00	0.00	864.75	.05	.26	.01	867.40
5130.	0.	5130.	0.	0.	2795.	0.	3930.	565.	100000.00
5.95	0.00	1.84	0.00	.150	.067	.165	.063	848.30	2000.00
.000267	1575.	1545.	1520.	2	0	0	0.00	244.00	2244.00

CCHV= .300 CEHV= .500 ELTRD < 860.5 < 864.71 ⇒ water over rd
*SECNO 5.900

5.90	16.41	864.71	0.00	0.00	864.79	.09	.02	.02	867.40
5130.	0.	5126.	4.	0.	2140.	21.	3934.	566.	863.00
5.96	0.00	2.40	.19	.135	.060	.135	.063	848.30	2000.00
.000375	75.	75.	75.	0	0	0	0.00	196.00	2196.00

SPECIAL BRIDGE

SK	XK	XKOR	COFQ	RDLEN	RWC	BWP	BAREA	SS	FLCHU	FLCHD
	0.00	1.50	3.80	0.00	34.00	0.00	204.00	0.00	854.00	848.30

*SECNO 6.000

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	COBAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
879.43	870.49	0.00	4178.	916.	204.	214.	860.30	860.50

DAM CROSS-SECTION F

6.00	10.66	864.66	0.00	0.00	865.18	.51	.38	0.00	867.40
5130.	0.	5124.	6.	0.	892.	33.	3935.	566.	863.00
5.96	0.00	5.75	.19	.135	.014	.135	.063	854.00	2000.00
.000370	20.	20.	20.	2	0	4	0.00	212.08	2212.08

*SECNO 6.100
3280 CROSS SECTION 6.10 EXTENDED .09 FEET

6.10	9.79	865.09	0.00	0.00	865.28	.19	.01	.10	867.40
5130.	0.	5108.	22.	0.	1440.	52.	3935.	566.	863.00
5.96	0.00	3.55	.42	.135	.060	.135	.063	855.30	2000.00
.001284	20.	20.	20.	2	0	0	0.00	220.00	2220.00

CCHV= .100 CEHV= .300
*SECNO 6.800

3470 ENCROACHMENT STATIONS=		1900.0	2122.1	TYPE=	1	TARGET=		222.100	
6.80	13.98	865.38	0.00	0.00	865.47	.09	.18	.01	858.20
5130.	0.	5130.	0.	0.	2076.	0.	3945.	567.	869.50
5.99	0.00	2.47	0.00	.140	.060	.130	.063	851.40	1900.00
.000516	384.	234.	184.	2	0	0	0.00	215.03	2115.03

CCHV= .300 CEHV= .500
*SECNO 6.900

3470 ENCROACHMENT STATIONS=		1808.2	1880.9	TYPE=	1	TARGET=		84.100	
6.90	14.07	865.47	0.00	0.00	865.99	.52	.30	.21	871.20
5130.	0.	5130.	0.	0.	884.	0.	3954.	568.	871.30
6.00	0.00	5.80	0.00	.130	.065	.130	.063	851.40	1808.19
.003198	286.	286.	286.	2	0	0	0.00	72.58	1880.77

865.43 < ELLC 867.4 ⇒ low flow

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*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 865.20 MAX ELLC= 867.40

3470 ENCROACHMENT STATIONS=    1808.2    1880.8  TYPE=     1  TARGET=      72.580
     7.00     14.03    865.43      0.00      0.00    866.02      .59       .00       .03    871.20
     5130.       0.     5130.        0.        0.      831.       0.     3954.      568.     871.30
     6.00      0.00      6.18      0.00      .130      .014      .130      .063    851.40   1808.19
  .000263        1.        1.         1.         2         0         0    -50.76     72.58   1880.77

*SECNO 7.100
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       INCR      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= 25 MIN ELTRD= 865.20 MAX ELLC= 867.30

3470 ENCROACHMENT STATIONS=    1835.8    1908.5  TYPE=     1  TARGET=      84.100
                    BRIDGE SECTION G (UPSTREAM FACE PUTMAN ST.)
     7.10     15.24    866.44      0.00      0.00    866.05      .61       .01       .01    871.20
     5130.       0.     5130.        0.        0.      818.       0.     3956.      568.     871.30
     6.00      0.00      6.27      0.00      .130      .014      .130      .063    850.20   1835.84
  .000270       55.       55.        55.         2         0         0    -43.88     72.58   1908.42

*SECNO 7.200

3470 ENCROACHMENT STATIONS=    1835.8    1908.4  TYPE=     1  TARGET=      72.570
     7.20     15.33    865.53      0.00      0.00    866.07      .54       .00       .02    871.20
     5130.       0.     5130.        0.        0.      869.       0.     3956.      568.  100000.00
     6.00      0.00      5.91      0.00      .130      .060      .130      .063    850.20   1835.84
  .002960        1.        1.         1.         2         0         0      0.00     72.57   1908.41

*SECNO 7.300

3470 ENCROACHMENT STATIONS=    1602.0    2330.1  TYPE=     1  TARGET=     528.100
     7.30     16.17    866.37      0.00      0.00    866.41      .04       .19       .15    865.90
     5130.       0.     5130.        0.        0.     3082.       0.     3967.      570.     874.60
     6.04      0.00      1.66      0.00      .130      .060      .130      .063    850.20   1802.00
  .000345       250.      250.       250.         2         0         0      0.00    445.25   2247.25

CCHV=    .100 CEHV=    .300
*SECNO 8.000

                    VALLEY SECTION H
     8.00     15.39    866.69      0.00      0.00    866.77      .08       .35       .01    957.00
     5130.      629.     3954.      547.     1348.     1564.      839.     4045.      584.     858.70
     6.18       .47      2.53       .65       .140      .060      .130      .063    851.30   1635.12
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.000358	990.	1000.	990.	2	0	0	0.00	774.31	2409.43

CCHV= .100 CEHV= .300
*SECNO 9.000

VALLEY SECTION I (EASTERN STUDY LIMIT)

9.00	15.43	867.43	0.00	0.00	867.55	.12	.77	.01	861.70
5130.	342.	4654.	94.	634.	1611.	169.	4169.	607.	860.00
6.36	.60	2.89	.55	.130	.065	.150	.063	852.00	1766.97
.000549	1750.	1750.	1750.	2	0	0	0.00	404.62	2171.59

*SECNO 10.000

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=		2846.0		5272.0	TYPE=	1	TARGET=	2426.000	
10.00	15.10	867.80	0.00	0.00	867.80	.00	.24	.01	857.10
5030.	2415.	843.	1772.	8485.	1107.	8193.	4792.	691.	857.00
6.52	.28	.76	.22	.130	.065	.150	.063	852.70	2892.39
.000035	2700.	2600.	2700.	2	0	0	0.00	2299.25	5191.64

*SECNO 11.000

11.00	13.26	868.06	0.00	0.00	868.09	.03	.29	.01	857.80
5030.	264.	1730.	3036.	411.	776.	4599.	5741.	818.	857.80
9.34	.64	2.23	.66	.130	.065	.150	.063	854.80	1909.83
.000344	3600.	3800.	3400.	2	0	0	0.00	866.29	2776.12

*SECNO 12.000

12.00	13.34	868.94	0.00	0.00	869.03	.08	.91	.02	858.30
5030.	595.	2412.	2023.	769.	751.	2317.	5947.	854.	858.30
9.61	.77	3.21	.87	.130	.065	.150	.064	855.60	1772.98
.000715	2100.	2000.	1800.	2	0	0	0.00	815.81	2588.79

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR COPR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       6.        0.        0.  0.000000     0.00       0.0       0.   853.300     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 2

CCHV=     .100 CEHV=     .300
*SECNO 30.000
 2800 NAT Q1=    4218.68  WSEL=     853.30  ENC Q1=    4218.68  WSEL=     853.40  RATIO=  0.0000
 NAT Q1=    4290.  RATIOS LOB,CH,ROB=    .2652    .5000    .2349  WSEL=     853.40
   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=     1685.9     2409.3  TYPE=      4  TARGET=          .017
     30.00     16.30    853.30      0.00    853.30    853.34       .04      0.00      0.00    843.50
     6050.     1574.     3091.     1385.     2478.     1460.     2279.        0.        0.    844.00
      0.00       .64      2.12       .61      .135      .060      .135     0.000    837.00   1685.92
   .000213        0.        0.        0.         0         0         0      0.00    723.41   2409.32

CCHV=     .100 CEHV=     .300
*SECNO 32.000
 2800 NAT Q1=    2719.32  WSEL=     854.60  ENC Q1=    2719.32  WSEL=     854.70  RATIO=  0.0000
 NAT Q1=    2769.  RATIOS LOB,CH,ROB=  0.0000    .5290    .4710  WSEL=     854.70

3470 ENCROACHMENT STATIONS=     1990.0     2528.9  TYPE=      4  TARGET=          .018
     32.00     15.63    854.63      0.00    854.60    854.71       .08      1.36       .01    864.00
     6050.        0.     3269.     2781.        0.     1118.     3055.      520.       63.    846.00
       .60      0.00      2.92       .91      .135      .060      .135      .060    839.00   2002.77
   .000506     4300.     4330.     4400.         2         0         0      0.00    526.15   2528.93

CCHV=     .100 CEHV=     .300
*SECNO 33.000
 2800 NAT Q1=    3653.05  WSEL=     857.44  ENC Q1=    3653.05  WSEL=     857.54  RATIO=  0.0000
 NAT Q1=    3719.  RATIOS LOB,CH,ROB=    .2552    .7423    .0024  WSEL=     857.54

3470 ENCROACHMENT STATIONS=     1599.3     2180.0  TYPE=      4  TARGET=          .018
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    33.00     14.54    857.54      0.00    857.44    857.59       .05      2.88       .00    853.00
    6050.     1498.     4552.        0.     2445.     2157.        0.     1306.      162.     853.00
     1.85       .61      2.11      0.00      .135      .060      .135      .060    843.00   1599.30
  .000281     7770.     7800.     7850.         2         0         0      0.00    580.70   2180.00

*SECNO 34.000

3470 ENCROACHMENT STATIONS=     2000.0     2171.0  TYPE=      1  TARGET=      171.000
    34.00     14.63    859.63      0.00    859.52    859.81       .18      2.18       .04    855.00
    6050.        0.     6049.        1.        0.     1757.        3.     1652.      203.     857.00
     2.23      0.00      3.44       .27      .135      .060      .135      .060    845.00   2000.00
  .000903     4800.     4700.     4500.         2         0         0      0.00    171.00   2171.00

CCHV=     .300 CEHV=     .500
*SECNO 35.000
   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     FNDST

3470 ENCROACHMENT STATIONS=     2000.0     2150.1  TYPE=      1  TARGET=      150.100
    35.00     16.67    859.67      0.00    859.56    859.86       .18       .04       .00    863.00
    6050.        0.     6050.        0.        0.     1764.        0.     1654.      203.     863.00
     2.24      0.00      3.43      0.00      .135      .060      .135      .060    843.00   2000.00
  .000786       50.       50.       50.         1         0         0      0.00    150.00   2150.00

SPECIAL BRIDGE

SP  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.05      1.50      3.00      0.00     65.69      6.00   1625.20      2.46    843.00    843.00

*SECNO 35.200
PRESSURE FLOW

 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                                 AREA
   860.00    859.87      .01        0.     6050.     1625.     1625.      859.30    862.00

3470 ENCROACHMENT STATIONS=     2000.0     2150.1  TYPE=      1  TARGET=      150.100
    35.20     16.82    859.82      0.00    859.70    860.00       .18       .14      0.00    863.00
    6050.        0.     6050.        0.        0.     1787.        0.     1656.      203.     863.00
     2.24      0.00      3.39      0.00      .135      .014      .135      .060    843.00   2000.00
  .000041       27.       27.       27.         2         0         0      0.00    150.00   2150.00

*SECNO 35.400

3470 ENCROACHMENT STATIONS=     1920.0     2171.0  TYPE=      1  TARGET=      251.000
    35.40     14.85    859.85      0.00    859.74    860.01       .16       .01       .01    855.00
    6050.      223.     5626.        1.      308.     1793.        3.     1658.      203.     857.00
     2.24       .73      3.25       .25      .135      .060      .135      .060    845.00   1920.00
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 .000755      50.      50.      50.       1        0        0     0.00   251.00  2171.00

CCHV=    .100 CEHV=    .300
*SECNO 1.000
 2800 NAT Q1=   3124.13  WSEL=    862.72  ENC Q1=   3124.13  WSEL=    862.82  RATIO=  0.0000
 NAT Q1=   3165.  RATIOS LOB,CH,ROB=   .1838   .5532   .2630  WSEL=    862.82

3470 ENCROACHMENT STATIONS=    1837.3    2553.8  TYPE=     4  TARGET=        .019

              VALLEY SECTION A (WEST STUDY LIMIT)

     1.00    16.40   862.80     0.00   862.72   862.86      .05     2.84      .01   857.70
    5790.    1023.    3273.    1494.    1356.    1362.    2476.    2131.     266.   854.70
     3.20      .75     2.40      .60     .150     .065     .150     .061   846.40  1837.26
  .000347    5500.    5755.    5600.        2        0        0     0.00   716.58  2553.84

*SECNO 2.000
 2800 NAT Q1=   3288.82  WSEL=    863.30  ENC Q1=   3288.82  WSEL=    863.40  RATIO=  0.0000
 NAT Q1=   3362.  RATIOS LOB,CH,ROB=   .2746   .4737   .2518  WSEL=    863.40

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=    1564.2    2987.1  TYPE=     4  TARGET=        .022

              VALLEY SECTION B

     2.00    16.29   863.39     0.00   863.30   863.43      .05      .58      .00   853.80
    5790.    1559.    2808.    1423.    2595.    1180.    2618.    2365.     307.   853.50
     3.54      .60     2.38      .54     .150     .065     .150     .061   847.10  1564.18
  .000312    1625.    1750.    1875.        2        0        0     0.00  1290.91  2987.13

CCHV=    .100 CEHV=    .300
*SECNO 3.000
 2800 NAT Q1=   4022.42  WSEL=    863.94  ENC Q1=   4022.42  WSEL=    864.04  RATIO=  0.0000
 NAT Q1=   4371.  RATIOS LOB,CH,ROB=   .0042   .3330   .6628  WSEL=    864.04
3280 CROSS SECTION     3.00 EXTENDED     5.34 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=    2000.0    2814.8  TYPE=     4  TARGET=        .080

              VALLEY SECTION C

     3.00    16.14   864.04     0.00   863.94   864.06      .02      .63      .00   855.60
    5790.       0.    2009.    3781.       0.    1141.    5845.    2737.     365.   855.20
     4.19     0.00     1.76      .65     .150     .067     .135     .062   847.90  2000.00
  .000217    2800.    2450.    2300.        2        0        0     0.00   814.82  2814.82

*SECNO 4.000
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 2800 NAT Q1=   5725.90  WSEL=    864.31  ENC Q1=   5725.90  WSEL=    864.41  RATIO=  0.0000
 NAT Q1=   7462.  RATIOS LOB,CH,ROB=    .3836    .2478    .3686  WSEL=    864.41

3265 DIVIDED FLOW

3280 CROSS SECTION       4.00 EXTENDED      14.41 FEET


3470 ENCROACHMENT STATIONS=    1225.6    2779.0  TYPE=     4  TARGET=         .233

                VALLEY SECTION D (SEWAGE DISPOSAL)

      4.00     19.01   864.41     0.00   864.31   864.42      .01      .36      .00   854.20
      5790.    2018.    1871.    1901.    5169.    1335.    4573.    3260.     433.     853.70
      5.16      .39     1.40      .42      .150     .067     .135     .062   845.40  1225.55
   .000102    2125.    2375.    2750.        2        0        0     0.00  1534.46  2779.01

CCHV=     .100 CEHV=     .300
*SECNO 5.000
 2800 NAT Q1=   5272.31  WSEL=    864.47  ENC Q1=   5272.31  WSEL=    864.57  RATIO=  0.0000
 NAT Q1=   5354.  RATIOS LOB,CH,ROB=    .0014    .4516    .5470  WSEL=    864.57
3280 CROSS SECTION       5.00 EXTENDED      12.77 FEET


3470 ENCROACHMENT STATIONS=    2027.0    2929.0  TYPE=     4  TARGET=         .015

                VALLEY SECTION E

      5.00     19.67   864.57     0.00   864.47   864.59      .01      .16      .00   862.60
      5680.       0.    2592.    3088.       0.    1951.    7144.    3590.     473.     856.40
      5.64      0.00     1.33      .43      .150     .067     .165     .063   847.90  2027.00
   .000117    1600.    1600.    1300.           0        0        0     0.00   902.02  2929.02

*SECNO 5.800
3280 CROSS SECTION       5.80 EXTENDED        .00 FEET


3470 ENCROACHMENT STATIONS=    2000.0    2244.0  TYPE=     1  TARGET=       244.000
      5.80     16.50   864.80     0.00   864.70   864.86      .05      .26      .01   867.40
      5130.       0.    5130.       0.       0.    2821.       0.    3799.     493.  100000.00
      5.88      0.00     1.82     0.00      .150     .067     .165     .063   848.30  2000.00
   .000279    1575.    1545.    1520.           2        0        0     0.00   244.00  2244.00

CCHV=     .300 CEHV=     .500
*SECNO 5.900
 2800 NAT Q1=   2648.98  WSEL=    864.71  ENC Q1=   2678.45  WSEL=    864.81  RATIO=  -.0111
 NAT Q1=   2681.  RATIOS LOB,CH,ROB=  0.0000   .9991    .0009  WSEL=    864.81

3470 ENCROACHMENT STATIONS=    2000.0    2172.0  TYPE=     4  TARGET=         .001
      5.90     16.51   864.81     0.00   864.71   864.90      .09      .02      .02   867.40
      5130.       0.    5130.       0.       0.    2158.       0.    3803.     494.     863.00
      5.89      0.00     2.38     0.00      .135     .060     .135     .063   848.30  2000.00
   .000370      75.      75.      75.           1        0        0     0.00   172.00  2172.00
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SPECIAL BRIDGE

SB	XK	AKOR	COFQ	RDLEN	RWC	RWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.80	0.00	34.00	0.00	204.00	0.00	854.00	848.30

*SECNO 6.000

3700. BRIDGE STENCL= 2000.00 STENCR= 2172.00
2800 NAT Q1= 2668.09 WSEL= 864.66 ENC Q1= 2744.29 WSEL= 864.76 RATIO= -.0286
NAT Q1= 2748. RATIOS LOB,CH,ROB= 0.0000 .9986 .0014 WSEL= 864.76

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
0	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOFL	XLCH	XLOFR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
879.54	864.85	0.00	4183.	947.	204.	214.	860.30	860.50

3470 ENCROACHMENT STATIONS= 2000.0 2172.0 TYPE= 4 TARGET= .001

DAM CROSS-SECTION F

6.00	10.83	864.83	0.00	864.66	865.31	.48	.41	0.00	867.40
5130.	0.	5130.	0.	0.	919.	0.	3804.	494.	863.00
5.89	0.00	5.58	0.00	.135	.014	.135	.063	854.00	2000.00
.000340	20.	20.	20.	2	0	6	0.00	172.00	2172.00

*SECNO 6.100
2800 NAT Q1= 1431.39 WSEL= 865.09 ENC Q1= 1452.97 WSEL= 865.19 RATIO= -.0151
NAT Q1= 1460. RATIOS LOB,CH,ROB= 0.0000 .9952 .0048 WSEL= 865.19
3280 CROSS SECTION 6.10 EXTENDED .22 FEET

3470 ENCROACHMENT STATIONS= 2000.0 2172.0 TYPE= 4 TARGET= .005

6.10	9.92	865.22	0.00	865.09	865.41	.19	.01	.09	867.40
5130.	0.	5130.	0.	0.	1462.	0.	3805.	494.	863.00
5.89	0.00	3.51	0.00	.135	.060	.135	.063	855.30	2000.00
.001251	20.	20.	20.	2	0	0	0.00	172.00	2172.00

CCHV= .100 CEHV= .300
*SECNO 6.800

3470 ENCROACHMENT STATIONS= 1900.0 2122.1 TYPE= 1 TARGET= 222.100

6.80	14.10	865.50	0.00	865.38	865.60	.09	.17	.01	858.20
5130.	0.	5130.	0.	0.	2103.	0.	3814.	495.	869.50
5.92	0.00	2.44	0.00	.140	.060	.130	.063	851.40	1900.00
.000496	384.	234.	184.	2	0	0	0.00	215.24	2115.24

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CCHV=    .300 CEHV=    .500
*SECNO 6.900

3470 ENCROACHMENT STATIONS=    1808.2    1880.9  TYPE=     1  TARGET=      64.100
     6.90     14.18    865.58      0.00    865.47    866.10       .51       .29       .21    871.20
     5130.       0.     5130.       0.        0.      892.        0.     3824.      496.     871.30
     5.93      0.00      5.75      0.00      .130      .065      .130      .063    851.40   1808.19
  .003108       286.      286.      286.         2         0         0      0.00     72.58   1880.77

*SECNO 7.000

3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD=  865.20 MAX ELLC=  867.40

3470 ENCROACHMENT STATIONS=    1808.2    1880.8  TYPE=     1  TARGET=      72.580
     7.00     14.15    865.55      0.00    865.43    866.13       .58       .00       .03    871.20
     5130.       0.     5130.       0.        0.      839.        0.     3824.      496.     871.30
     5.93      0.00      6.12      0.00      .130      .014      .130      .063    851.40   1808.19
  .000256         1.        1.        1.         2         0         0    -51.27     72.58   1880.77

*SECNO 7.100
   SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        QLOSS     BANK ELEV
       0       QLOB       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       FNDST

3370 NORMAL BRIDGE.NRD= 25 MIN ELTRD=  865.20 MAX ELLC=  867.30

3470 ENCROACHMENT STATIONS=    1835.8    1908.5  TYPE=     1  TARGET=      64.100
                BRIDGE SECTION G (UPSTREAM FACE PUTMAN ST.)
     7.10     15.36    865.56      0.00    865.44    866.15       .60       .01       .01    871.20
     5130.       0.     5130.       0.        0.      826.        0.     3825.      496.     871.30
     5.93      0.00      6.21      0.00      .130      .014      .130      .063    850.20   1835.84
  .000263        55.       55.       55.         2         0         0    -44.39     72.58   1908.42

*SECNO 7.200

3470 ENCROACHMENT STATIONS=    1835.8    1908.4  TYPE=     1  TARGET=      72.570
     7.20     15.44    865.64      0.00    865.53    866.17       .53       .00       .02    871.20
     5130.       0.     5130.       0.        0.      877.        0.     3825.      496.  100000.00
     5.93      0.00      5.85      0.00      .130      .060      .130      .063    850.20   1835.84
  .002876         1.        1.        1.         2         0         0      0.00     72.57   1908.41

*SECNO 7.300
 2800 NAT Q1=   2760.47  WSEL=    866.37  ENC Q1=   2825.66  WSEL=    866.47  RATIO=  -.0236
 NAT Q1=   2855.  RATIOS LOB,CH,ROB=    .0104    .9896  0.0000  WSEL=    866.47

3470 ENCROACHMENT STATIONS=    1802.0    2330.0  TYPE=     4  TARGET=       .010
     7.30     16.26    866.46      0.00    866.37    866.51       .04       .18       .15    865.90
     5130.       0.     5130.       0.        0.     3125.        0.     3836.      497.     874.60
     5.97      0.00      1.64      0.00      .130      .060      .130      .063    850.20   1802.00
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 .000331      250.      250.      250.         2         0         0      0.00    446.22   2248.22

CCHV=     .100 CEHV=     .300
*SECNO 8.000
 2800 NAT Q1=    2711.59  WSEL=     866.69  ENC Q1=    2711.59  WSEL=     866.79  RATIO=  0.0000
 NAT Q1=    2765.  RATIOS LOB,CH,ROB=    .1260    .7660    .1080  WSEL=     866.79

3470 ENCROACHMENT STATIONS=     1794.1     2354.9  TYPE=      4  TARGET=          .019

                VALLEY SECTION H

     8.00     15.48    866.78      0.00    866.69    866.86       .08       .34       .01    857.00
    5130.      608.     4007.      515.     1188.     1576.      741.     3912.      509.    858.70
     6.11       .51      2.54       .69      .140      .060      .130      .063    851.30   1794.11
 .000358      990.     1000.      990.         1         0         0      0.00    560.83   2354.94

CCHV=     .100 CEHV=     .300
*SECNO 9.000
 2800 NAT Q1=    2189.75  WSEL=     867.43  ENC Q1=    2189.75  WSEL=     867.53  RATIO=  0.0000
 NAT Q1=    2226.  RATIOS LOB,CH,ROB=    .0770    .9043    .0186  WSEL=     867.53

3470 ENCROACHMENT STATIONS=     1870.4     2138.2  TYPE=      4  TARGET=          .016

                VALLEY SECTION I (EASTERN STUDY LIMIT)

     9.00     15.52    867.52      0.00    867.43    867.64       .12       .77       .01    861.70
    5130.      359.     4721.       50.      529.     1622.       80.     4028.      525.    860.00
     6.28       .68      2.91       .63      .130      .065      .150      .063    852.00   1870.36
 .000552     1750.     1750.     1750.         2         0         0      0.00    267.88   2138.23

*SECNO 10.000
 2800 NAT Q1=    8517.91  WSEL=     867.80  ENC Q1=    8517.91  WSEL=     867.90  RATIO=  0.0000
 NAT Q1=    8798.  RATIOS LOB,CH,ROB=    .4862    .1644    .3494  WSEL=     867.90
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       IWA    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=     2945.7     5073.4  TYPE=      4  TARGET=          .032
    10.00     15.19    867.89      0.00    867.80    867.89       .00       .24       .01    857.10
    5030.     2443.      855.     1732.     8448.     1115.     7828.     4633.      599.    857.00
     8.40       .29       .77       .22      .130      .065      .150      .063    852.70   2945.68
 .000035     2700.     2600.     2700.         2         0         0      0.00   2127.68   5073.37

*SECNO 11.000
 2800 NAT Q1=    2713.25  WSEL=     868.06  ENC Q1=    2713.25  WSEL=     868.16  RATIO=  0.0000
 NAT Q1=    2770.  RATIOS LOB,CH,ROB=    .0530    .3415    .6055  WSEL=     868.16

3470 ENCROACHMENT STATIONS=     1977.2     2695.9  TYPE=      4  TARGET=          .020
    11.00     13.36    868.16      0.00    868.06    868.19       .03       .29       .01    857.80
    5030.      217.     1755.     3057.      270.      782.     4454.     5555.      713.    857.80
     9.20       .80      2.24       .69      .130      .065      .150      .063    854.80   1977.25
 .000345     3600.     3800.     3400.         2         0         0      0.00    718.66   2695.91
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*SECNO 12.000
 2800 NAT Q1=    1881.01  WSEL=     868.94  ENC Q1=    1881.01  WSEL=     869.04  RATIO=  0.0000
 NAT Q1=    1925.  RATIOS LOB,CH,ROB=    .1204    .4752    .4044  WSEL=     869.04

3470 ENCROACHMENT STATIONS=     1881.7     2432.6  TYPE=      4  TARGET=          .023
    12.00     13.44    869.04      0.00    868.94    869.12       .09       .92       .02    858.30
     5030.      560.     2447.     2023.      629.      756.     2177.     5749.      741.     858.30
     9.46       .89      3.24       .93       .130      .065      .150      .064    855.60   1881.70
  .000717     2100.     2000.     1800.         2         0         0      0.00    550.85   2432.56
```

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED CEDAR RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
30.000	853.30	837.00	0.00	0.00	1656.54	0.00	2000.00	2100.00	0.00	2442.92	786.38	0.00
30.000	853.30	837.00	0.00	0.00	1685.92	1685.92	2000.00	2100.00	2409.32	2409.32	723.41	0.00
32.000	854.60	839.00	0.00	0.00	2002.82	0.00	1990.00	2090.00	0.00	2621.93	619.10	4330.00
32.000	854.63	839.00	0.00	0.00	2002.77	1990.00	1990.00	2090.00	2528.93	2528.93	526.15	4330.00
33.000	857.44	843.00	0.00	0.00	1538.53	0.00	2000.00	2180.00	0.00	2200.87	662.35	7800.00
33.000	857.54	843.00	0.00	0.00	1599.30	1599.30	2000.00	2180.00	2180.00	2180.00	580.70	7800.00
34.000	859.52	845.00	0.00	0.00	2000.00	2000.00	2000.00	2170.00	2171.00	2171.00	171.00	4700.00
34.000	859.63	845.00	0.00	0.00	2000.00	2000.00	2000.00	2170.00	2171.00	2171.00	171.00	4700.00
35.000	859.56	843.00	0.00	0.00	2000.00	2000.00	2000.00	2150.00	2150.10	2150.00	150.00	50.00
35.000	859.67	843.00	0.00	0.00	2000.00	2000.00	2000.00	2150.00	2150.10	2150.00	150.00	50.00
35.200	859.70	843.00	859.30	862.00	2000.00	2000.00	2000.00	2150.00	2150.10	2150.00	150.00	27.00
35.200	859.62	843.00	859.30	862.00	2000.00	2000.00	2000.00	2150.00	2150.10	2150.00	150.00	27.00
35.400	859.74	845.00	0.00	0.00	1920.00	1920.00	2000.00	2170.00	2171.00	2171.00	251.00	50.00
35.400	859.65	845.00	0.00	0.00	1920.00	1920.00	2000.00	2170.00	2171.00	2171.00	251.00	50.00
1.000	862.72	846.40	0.00	0.00	1803.23	0.00	2000.00	2098.00	0.00	2632.51	829.27	5755.00
1.000	862.80	846.40	0.00	0.00	1837.26	1837.26	2000.00	2098.00	2553.84	2553.84	716.58	5755.00
2.000	863.30	847.10	0.00	0.00	1521.45	0.00	1992.00	2072.00	0.00	3273.63	1604.68	1750.00
2.000	863.39	847.10	0.00	0.00	1564.18	1564.18	1992.00	2072.00	2987.13	2987.13	1290.91	1750.00
3.000	863.94	847.90	0.00	0.00	1982.19	1842.00	2000.00	2080.00	3035.00	2957.59	975.40	2450.00
3.000	864.04	847.90	0.00	0.00	2000.00	2000.00	2000.00	2080.00	2814.82	2814.82	814.82	2450.00
4.000	864.31	845.40	0.00	0.00	1495.00	1495.00	2000.00	2083.00	3256.00	3216.81	1704.40	2375.00
4.000	864.41	845.40	0.00	0.00	1225.55	1225.55	2000.00	2083.00	2779.01	2779.01	1534.46	2375.00
5.000	864.47	847.90	0.00	0.00	2000.00	0.00	2027.00	2171.00	0.00	2943.00	943.00	1600.00
5.000	864.57	847.90	0.00	0.00	2027.00	2027.00	2027.00	2171.00	2929.02	2929.02	902.02	1600.00
5.800	864.70	848.30	0.00	0.00	2000.00	2000.00	2000.00	2244.00	2244.00	2244.00	244.00	1545.00
5.800	864.80	848.30	0.00	0.00	2000.00	2000.00	2000.00	2244.00	2244.00	2244.00	244.00	1545.00

SECNO	CWSEL	ELMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
5.900	864.71	848.30	0.00	0.00	2000.00	0.00	2000.00	2172.00	0.00	2196.00	196.00	75.00
5.900	864.81	848.30	0.00	0.00	2000.00	2000.00	2000.00	2172.00	2172.00	2172.00	172.00	75.00
6.000	864.66	854.00	860.30	860.50	2000.00	0.00	2000.00	2172.00	0.00	2212.08	212.08	20.00
6.000	864.83	854.00	860.30	860.50	2000.00	2000.00	2000.00	2172.00	2172.00	2172.00	172.00	20.00
6.100	865.09	855.30	0.00	0.00	2000.00	0.00	2000.00	2172.00	0.00	2220.00	220.00	20.00
6.100	865.22	855.30	0.00	0.00	2000.00	2000.00	2000.00	2172.00	2172.00	2172.00	172.00	20.00
6.800	865.38	851.40	0.00	0.00	1900.00	1900.00	1900.00	2122.00	2122.10	2115.03	215.03	234.00
6.800	865.50	851.40	0.00	0.00	1900.00	1900.00	1900.00	2122.00	2122.10	2115.24	215.24	234.00
6.900	865.47	851.40	0.00	0.00	1808.19	1808.19	1808.19	1880.77	1880.85	1880.77	72.58	286.00
6.900	865.58	851.40	0.00	0.00	1808.19	1808.19	1808.19	1880.77	1880.85	1880.77	72.58	286.00
7.000	865.43	851.40	867.40	865.20	1808.19	1808.19	1808.19	1880.77	1880.77	1880.77	72.58	1.00
7.000	865.55	851.40	867.40	865.20	1808.19	1808.19	1808.19	1880.77	1880.77	1880.77	72.58	1.00
7.100	865.44	850.20	867.30	865.20	1835.84	1835.84	1835.84	1908.42	1908.50	1908.42	72.58	55.00
7.100	865.56	850.20	867.30	865.20	1835.84	1835.84	1835.84	1908.42	1908.50	1908.42	72.58	55.00
7.200	865.53	850.20	0.00	0.00	1835.84	1835.84	1835.84	1908.42	1908.41	1908.41	72.57	1.00
7.200	865.64	850.20	0.00	0.00	1835.84	1835.84	1835.84	1908.42	1908.41	1908.41	72.57	1.00
7.300	866.37	850.20	0.00	0.00	1802.00	1802.00	1802.00	2330.00	2330.10	2247.25	445.25	250.00
7.300	866.46	850.20	0.00	0.00	1802.00	1802.00	1802.00	2330.00	2330.00	2248.22	446.22	250.00
8.000	866.69	851.30	0.00	0.00	1635.12	0.00	2106.00	2230.00	0.00	2409.43	774.31	1000.00
8.000	866.78	851.30	0.00	0.00	1794.11	1794.11	2106.00	2230.00	2354.94	2354.94	560.83	1000.00
9.000	867.43	852.00	0.00	0.00	1766.97	0.00	2000.00	2126.00	0.00	2171.59	404.62	1750.00
9.000	867.52	852.00	0.00	0.00	1870.36	1870.36	2000.00	2126.00	2138.24	2138.23	267.88	1750.00
10.000	867.80	852.70	0.00	0.00	2892.39	2846.00	3920.00	4002.00	5272.00	5141.64	2289.25	2600.00
10.000	867.89	852.70	0.00	0.00	2945.68	2945.68	3920.00	4002.00	5073.37	5073.37	2127.68	2600.00
11.000	868.06	854.80	0.00	0.00	1909.83	0.00	2014.00	2078.00	0.00	2776.12	866.29	3800.00
11.000	868.16	854.80	0.00	0.00	1977.25	1977.25	2014.00	2078.00	2695.91	2695.91	718.66	3800.00
12.000	868.94	855.60	0.00	0.00	1772.96	0.00	2004.00	2066.00	0.00	2588.79	815.81	2000.00
12.000	869.04	855.60	0.00	0.00	1881.70	1881.70	2004.00	2066.00	2432.56	2432.56	550.85	2000.00

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK#S	VCH	AREA	.01K
30.000	0.00	0.00	0.00	837.00	6050.00	853.30	0.00	853.34	2.06	2.08	6431.58	4218.68
30.000	0.00	0.00	0.00	837.00	6050.00	853.30	0.00	853.34	2.13	2.12	6216.80	4150.15
32.000	4330.00	0.00	0.00	839.00	6050.00	854.60	0.00	854.67	4.95	2.89	4363.61	2719.32
32.000	4330.00	0.00	0.00	839.00	6050.00	854.63	0.00	854.71	5.06	2.92	4173.50	2690.65
33.000	7800.00	0.00	0.00	843.00	6050.00	857.44	0.00	857.49	2.74	2.11	4783.32	3653.05
33.000	7800.00	0.00	0.00	843.00	6050.00	857.54	0.00	857.59	2.81	2.11	4601.82	3610.86
34.000	4700.00	0.00	0.00	845.00	6050.00	859.52	0.00	859.71	9.36	3.48	1740.40	1977.44
34.000	4700.00	0.00	0.00	845.00	6050.00	859.63	0.00	859.81	9.03	3.44	1759.52	2012.77
35.000	50.00	0.00	0.00	843.00	6050.00	859.56	0.00	859.75	8.09	3.46	1747.82	2126.75
35.000	50.00	0.00	0.00	843.00	6050.00	859.67	0.00	859.86	7.86	3.43	1764.38	2158.46
35.200	27.00	862.00	859.30	843.00	6050.00	859.70	0.00	859.89	.42	3.42	1770.26	9298.93
35.200	27.00	862.00	859.30	843.00	6050.00	859.82	0.00	860.00	.41	3.39	1787.21	9439.00
35.400	50.00	0.00	0.00	845.00	6050.00	859.74	0.00	859.90	7.86	3.29	2074.27	2158.10
35.400	50.00	0.00	0.00	845.00	6050.00	859.85	0.00	860.01	7.55	3.25	2103.77	2201.35
1.000	5755.00	0.00	0.00	846.40	5790.00	862.72	0.00	862.78	3.43	2.38	5420.26	3124.13
1.000	5755.00	0.00	0.00	846.40	5790.00	862.80	0.00	862.86	3.47	2.40	5194.37	3108.84
2.000	1750.00	0.00	0.00	847.10	5790.00	863.30	0.00	863.35	3.10	2.36	6726.00	3288.82
2.000	1750.00	0.00	0.00	847.10	5790.00	863.39	0.00	863.43	3.12	2.38	6393.15	3277.39
3.000	2450.00	0.00	0.00	847.90	5790.00	863.94	0.00	863.96	2.07	1.83	7252.36	4022.42
3.000	2450.00	0.00	0.00	847.90	5790.00	864.04	0.00	864.06	2.17	1.76	6986.26	3933.49
4.000	2375.00	0.00	0.00	845.40	5790.00	864.31	0.00	864.32	1.02	1.39	11313.88	5725.90
4.000	2375.00	0.00	0.00	845.40	5790.00	864.41	0.00	864.42	1.02	1.40	11077.75	5725.28
5.000	1600.00	0.00	0.00	847.90	5680.00	864.47	0.00	864.48	1.16	1.33	9199.72	5272.31
5.000	1600.00	0.00	0.00	847.90	5680.00	864.57	0.00	864.59	1.17	1.33	9094.74	5258.10
5.800	1545.00	0.00	0.00	848.30	5130.00	864.70	0.00	864.75	2.87	1.84	2794.94	3027.70
5.800	1545.00	0.00	0.00	848.30	5130.00	864.80	0.00	864.86	2.79	1.82	2820.50	3072.33
5.900	75.00	0.00	0.00	848.30	5130.00	864.71	0.00	864.79	3.75	2.40	2160.57	2648.98
5.900	75.00	0.00	0.00	848.30	5130.00	864.81	0.00	864.90	3.70	2.38	2157.99	2666.34
6.000	20.00	860.50	860.30	854.00	5130.00	864.66	0.00	865.18	3.70	5.75	925.15	2668.09
6.000	20.00	860.50	860.30	854.00	5130.00	864.83	0.00	865.31	3.40	5.58	918.80	2781.79
6.100	20.00	0.00	0.00	855.30	5130.00	865.09	0.00	865.28	12.84	3.55	1491.92	1431.39
6.100	20.00	0.00	0.00	855.30	5130.00	865.22	0.00	865.41	12.51	3.51	1462.25	1450.23
6.800	234.00	0.00	0.00	851.40	5130.00	865.38	0.00	865.47	5.16	2.47	2076.35	2257.27
6.800	234.00	0.00	0.00	851.40	5130.00	865.50	0.00	865.60	4.96	2.44	2103.10	2303.43
6.900	286.00	0.00	0.00	851.40	5130.00	865.47	0.00	865.99	31.98	5.80	883.76	907.14

6.900	286.00	0.00	0.00	851.40	5130.00	865.58	0.00	866.10	31.08	5.75	892.27	920.19

SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK*S	VCH	AREA	.01K
7.000	1.00	865.20	867.40	851.40	5130.00	865.43	0.00	866.02	2.63	6.18	830.54	3163.32
7.000	1.00	865.20	867.40	851.40	5130.00	865.55	0.00	866.13	2.56	6.12	838.57	3204.19
7.100	55.00	865.20	867.30	850.20	5130.00	865.44	0.00	866.05	2.70	6.27	818.25	3122.80
7.100	55.00	865.20	867.30	850.20	5130.00	865.56	0.00	866.15	2.63	6.21	826.27	3163.68
7.200	1.00	0.00	0.00	850.20	5130.00	865.53	0.00	866.07	29.60	5.91	868.58	942.90
7.200	1.00	0.00	0.00	850.20	5130.00	865.64	0.00	866.17	28.76	5.85	876.98	956.59
7.300	250.00	0.00	0.00	850.20	5130.00	866.37	0.00	866.41	3.45	1.66	3081.72	2760.47
7.300	250.00	0.00	0.00	850.20	5130.00	866.46	0.00	866.51	3.31	1.64	3124.76	2820.53
8.000	1000.00	0.00	0.00	851.30	5130.00	866.69	0.00	866.77	3.58	2.53	3750.81	2711.59
8.000	1000.00	0.00	0.00	851.30	5130.00	866.78	0.00	866.86	3.58	2.54	3505.68	2709.85
9.000	1750.00	0.00	0.00	852.00	5130.00	867.43	0.00	867.55	5.49	2.89	2413.96	2189.75
9.000	1750.00	0.00	0.00	852.00	5130.00	867.52	0.00	867.64	5.52	2.91	2231.17	2183.81
10.000	2600.00	0.00	0.00	852.70	5030.00	867.80	0.00	867.80	.35	.76	17786.08	8517.91
10.000	2600.00	0.00	0.00	852.70	5030.00	867.89	0.00	867.89	.35	.77	17390.93	8506.64
11.000	3800.00	0.00	0.00	854.80	5030.00	868.06	0.00	868.09	3.44	2.23	5785.94	2713.25
11.000	3800.00	0.00	0.00	854.80	5030.00	868.16	0.00	868.19	3.45	2.24	5506.40	2707.49
12.000	2000.00	0.00	0.00	855.60	5030.00	868.94	0.00	869.03	7.15	3.21	3836.30	1881.01
12.000	2000.00	0.00	0.00	855.60	5030.00	869.04	0.00	869.12	7.17	3.24	3562.13	1878.35

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	6050.00	853.30	0.00	0.00	0.00	786.38	0.00
30.000	6050.00	853.30	0.00	0.00	0.00	723.41	0.00
32.000	6050.00	854.60	0.00	1.30	0.00	619.10	4330.00
32.000	6050.00	854.63	.04	1.33	.04	526.15	4330.00
33.000	6050.00	857.44	0.00	2.84	0.00	662.35	7800.00
33.000	6050.00	857.54	.10	2.91	.10	580.70	7800.00
34.000	6050.00	859.52	0.00	2.08	0.00	171.00	4700.00
34.000	6050.00	859.63	.11	2.09	.11	171.00	4700.00
35.000	6050.00	859.56	0.00	.05	0.00	150.00	50.00
35.000	6050.00	859.67	.11	.04	.11	150.00	50.00
35.200	6050.00	859.70	0.00	.14	0.00	150.00	27.00
35.200	6050.00	859.82	.11	.14	.11	150.00	27.00
35.400	6050.00	859.74	0.00	.03	0.00	251.00	50.00
35.400	6050.00	859.85	.11	.03	.11	251.00	50.00
1.000	5790.00	862.72	0.00	2.99	0.00	829.27	5755.00
1.000	5790.00	862.80	.08	2.95	.08	716.58	5755.00
2.000	5790.00	863.30	0.00	.58	0.00	1604.68	1750.00
2.000	5790.00	863.39	.08	.59	.08	1290.91	1750.00
3.000	5790.00	863.94	0.00	.63	0.00	975.40	2450.00
3.000	5790.00	864.04	.10	.65	.10	814.82	2450.00
4.000	5790.00	864.31	0.00	.37	0.00	1704.40	2375.00
4.000	5790.00	864.41	.10	.37	.10	1534.46	2375.00
5.000	5680.00	864.47	0.00	.16	0.00	943.00	1600.00
5.000	5680.00	864.57	.11	.16	.11	902.02	1600.00
5.800	5130.00	864.70	0.00	.23	0.00	244.00	1545.00
5.800	5130.00	864.80	.10	.23	.10	244.00	1545.00
5.900	5130.00	864.71	0.00	.01	0.00	196.00	75.00
5.900	5130.00	864.81	.10	.01	.10	172.00	75.00
6.000	5130.00	864.66	0.00	-.04	0.00	212.08	20.00
6.000	5130.00	864.83	.16	.02	.16	172.00	20.00
6.100	5130.00	865.09	0.00	.43	0.00	220.00	20.00
6.100	5130.00	865.22	.13	.39	.13	172.00	20.00
6.600	5130.00	865.38	0.00	.29	0.00	215.03	234.00
6.800	5130.00	865.50	.12	.28	.12	215.24	234.00
6.900	5130.00	865.47	0.00	.09	0.00	72.58	286.00

6.900	5130.00	865.58	.12	.08	.12	72.58	286.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.000	5130.00	865.43	0.00	-.03	0.00	72.58	1.00
7.000	5130.00	865.55	.12	-.03	.12	72.58	1.00
7.100	5130.00	865.44	0.00	.01	0.00	72.58	55.00
7.100	5130.00	865.56	.12	.01	.12	72.58	55.00
7.200	5130.00	865.53	0.00	.09	0.00	72.57	1.00
7.200	5130.00	865.64	.12	.09	.12	72.57	1.00
7.300	5130.00	866.37	0.00	.84	0.00	445.25	250.00
7.300	5130.00	866.46	.10	.82	.10	446.22	250.00
8.000	5130.00	866.69	0.00	.33	0.00	774.31	1000.00
8.000	5130.00	866.78	.09	.32	.09	560.83	1000.00
9.000	5130.00	867.43	0.00	.74	0.00	404.62	1750.00
9.000	5130.00	867.52	.09	.74	.09	267.88	1750.00
10.000	5030.00	867.80	0.00	.37	0.00	2299.25	2600.00
10.000	5030.00	867.89	.09	.37	.09	2127.68	2600.00
11.000	5030.00	868.06	0.00	.27	0.00	866.29	3800.00
11.000	5030.00	868.16	.09	.27	.09	718.66	3800.00
12.000	5030.00	868.94	0.00	.88	0.00	815.81	2000.00
12.000	5030.00	869.04	.09	.88	.09	550.85	2000.00

SUMMARY OF ERRORS

FLOODWAY DATA, RED CEDAR RIVER
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
30.000	723.	6217.	1.0	853.3	853.3	0.0
32.000	526.	4174.	1.4	854.6	854.6	0.0
33.000	581.	4602.	1.3	857.5	857.4	.1
34.000	171.	1760.	3.4	859.6	859.5	.1
35.000	150.	1764.	3.4	859.7	859.6	.1
35.200	150.	1787.	3.4	859.8	859.7	.1
35.400	251.	2104.	2.9	859.8	859.7	.1
1.000	717.	5194.	1.1	862.8	862.7	.1
2.000	1423.	6393.	.9	863.4	863.3	.1
3.000	815.	6986.	.8	864.0	863.9	.1
4.000	1553.	11078.	.5	864.4	864.3	.1
5.000	902.	9095.	.6	864.6	864.5	.1
5.600	244.	2821.	1.8	864.8	864.7	.1
5.900	172.	2158.	2.4	864.8	864.7	.1
6.000	172.	919.	5.6	864.9	864.7	.2
6.100	172.	1462.	3.5	865.2	865.1	.1
6.800	215.	2103.	2.4	865.5	865.4	.1
6.900	73.	892.	5.7	865.6	865.5	.1
7.000	73.	839.	6.1	865.5	865.4	.1
7.100	73.	826.	6.2	865.5	865.4	.1
7.200	73.	877.	5.8	865.6	865.5	.1
7.300	446.	3125.	1.6	866.5	866.4	.1
8.000	561.	3506.	1.5	866.8	866.7	.1
9.000	268.	2231.	2.3	867.5	867.4	.1
10.000	2128.	17391.	.3	867.9	867.8	.1
11.000	719.	5506.	.9	868.2	868.1	.1
12.000	551.	3562.	1.4	869.0	868.9	.1

RED CEDAR RIVER
1975 Flood
WILLIAMSTON & LOCKE TOWNSHIRS
CITY OF WILLIAMSTON

THIS RUN EXECUTED 11/18/79

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**********
  HEC2 RELEASE DATED NOV 74
  ERROR CORR -  01.02
  MODIFICATION -  50.51.52
**********

C
T1      WILLIAMSTON C.
T2      1975 FLOOD
T3      RED CEDAR RIVER

J1   ICHECK      INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FD
        0.        4.        0.        0.  0.0           0.0       0.0       0.      851.700     0.0
J2   NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IAW       CHNTM     TTRACE
     -1.000       0.0    -1.000       0.0       0.0       0.0       0.0       0.0       0.0       0.0
J3   VARIABLE CODES FOR SUMMARY PRINTOUT
      38.000    1.000    42.000    41.000    40.000    53.000    27.000    21.000    22.000    28.000

      54.000    4.000    39.000    0.0       150.000   0.0       0.0       0.0       0.0       0.0
QT     5.000 3860.000 5820.000 4990.000 8190.000 6050.000     0.0       0.0       0.0       0.0
NC     0.135    0.135    0.060    0.100    0.300    0.0       0.0       0.0       0.0       0.0
ET     0.0      0.0      0.0      0.0      0.0      1.400     0.0       0.0       0.0       0.0

X1    30.000   35.000 2000.000 2100.000    0.0       0.0       0.0       0.0       0.0       0.0
GR   864.000 1450.000  863.500 1500.000  860.000 1550.000  856.000 1600.000  855.000 1650.000
GR   848.500 1675.000  846.500 1700.000  846.000 1750.000  846.000 1800.000  845.000 1850.000
GR   845.000 1900.000  845.000 1950.000  843.500 2000.000  841.000 2010.000  839.500 2020.000
GR   839.500 2030.000  838.000 2040.000  837.500 2050.000  837.000 2060.000  837.000 2070.000
GR   837.000 2085.000  839.000 2095.000  844.000 2100.000  846.000 2150.000  846.000 2200.000
GR   845.000 2250.000  846.000 2300.000  846.500 2350.000  847.500 2400.000  849.000 2425.000
GR   855.000 2450.000  857.000 2500.000  860.000 2550.000  864.000 2600.000  864.000 2650.000
NC     0.135    0.135    0.060    0.100    0.300    0.0       0.0       0.0       0.0       0.0

X1    32.000   13.000 1990.000 2090.000 4300.000 4400.000 4330.000    0.0       0.0       0.0
GR   869.000 1750.000  860.000 1800.000  867.000 1850.000  860.000 1990.000  842.000 2020.000
GR   839.000 2030.000  839.000 2070.000  846.000 2090.000  848.000 2200.000  846.000 2300.000
GR   849.000 2450.000  851.000 2550.000  856.000 2650.000    0.0       0.0       0.0       0.0
NC     0.135    0.135    0.060    0.100    0.300    0.0       0.0       0.0       0.0       0.0

X1    33.000   10.000 2000.000 2180.000 7770.000 7850.000 7800.000    0.0       0.0       0.0
GR   865.000 1460.000  862.000 1510.000  850.000 1560.000  851.000 1660.000  852.000 1760.000
GR   850.000 1860.000  853.000 2000.000  845.000 2010.000  843.000 2030.000  843.000 2100.000
GR   845.000 2120.000  853.000 2180.000  870.000 2260.000  872.000 2660.000    0.0       0.0
ET     0.0      7.100    7.100    7.100    7.100    9.100 2000.000 2171.000 2000.000 2171.000

X1    34.000   12.000 2000.000 2170.000 4800.000 4500.000 4700.000    0.0       0.0       0.0
GR   864.000 1470.000  860.000 1670.000  856.000 1770.000  857.000 1920.000  855.000 2000.000
GR   848.000 2030.000  845.000 2070.000  845.000 2100.000  850.000 2120.000  857.000 2170.000
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GR	.000	2270.000	875.000	2570.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	.135	0.135	0.060	0.300	0.500	0.0	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	9.100	2000.000	2150.000	2000.000	2150.000
X1	35.000	20.000	2000.000	2150.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	873.000	1275.000	868.000	1475.000	862.000	1675.000	862.000	1875.000	863.000	1975.000
GR	863.000	2000.000	856.000	2000.000	854.500	2010.000	851.000	2020.000	847.000	2030.000
GR	848.500	2040.000	844.500	2043.000	844.500	2070.000	843.000	2080.000	846.000	2105.000
GR	846.000	2108.000	849.000	2125.000	853.000	2135.000	856.000	2150.000	856.000	2150.000
GR	863.000	2150.000	863.000	2175.000	866.000	2375.000	874.000	2575.000	0.0	0.0
SB	1.050	1.500	3.000	0.0	65.690	6.000	1425.200	2.455	843.000	843.000
ET	0.0	7.100	7.100	7.100	7.100	9.100	2000.000	2150.000	2000.000	2150.000
X1	35.200	0.0	0.0	0.0	27.000	27.000	27.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	859.300	862.000	0.0	0.0	0.0	0.0	0.0
BT	20.000	1275.000	873.000	0.0	1475.000	868.000	0.0	1675.000	862.000	0.0
BT	1875.000	862.000	0.0	1975.000	863.000	0.0	2000.000	863.000	856.000	2000.000
BT	863.000	859.300	2039.900	863.000	859.300	2040.000	863.000	844.500	2043.000	863.000
BT	843.000	2043.100	863.000	859.300	2100.900	863.000	859.300	2105.000	863.000	846.000
BT	2108.000	863.000	846.000	2108.100	863.000	859.300	2150.000	863.000	859.300	2150.000
BT	863.000	856.000	2175.000	863.000	0.0	2375.000	866.000	0.0	2575.000	874.000
BT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	9.100	2000.000	2171.000	2000.000	2171.000
X1	35.400	12.000	2000.000	2170.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	864.000	1470.000	860.000	1670.000	856.000	1770.000	857.000	1920.000	855.000	2000.000
GR	848.000	2030.000	845.000	2070.000	845.000	2100.000	850.000	2120.000	857.000	2170.000
GR	862.000	2270.000	875.000	2570.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.150	0.150	0.065	0.100	0.300	0.0	0.0	0.0	0.0	0.0
QT	5.000	3310.000	4990.000	4776.000	7840.000	5790.000	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0

VALLEY SECTION A (WEST STUDY LIMIT)

X1	1.000	20.000	2000.000	2096.000	5500.000	5600.000	5755.000	0.0	0.0	0.0
GR	869.000	1514.000	868.800	1552.000	867.600	1774.000	866.000	1788.000	854.800	1840.000
GR	852.500	1911.000	857.700	2000.000	849.100	2018.000	846.800	2034.000	846.500	2050.000
GR	846.400	2066.000	848.900	2086.000	854.700	2098.000	853.800	2158.000	857.500	2228.000
GR	857.900	2401.000	859.700	2497.000	860.100	2595.000	868.200	2711.000	869.200	2743.000

VALLEY SECTION B

X1	2.000	30.000	1992.000	2072.000	1625.000	1875.000	1750.000	0.0	0.0	0.0
GR	871.000	1064.000	863.900	1254.000	868.200	1355.000	876.100	1838.000	857.700	1558.000
GR	859.500	1698.000	857.100	1850.000	852.600	1902.000	857.300	1964.000	853.800	1992.000
GR	850.500	2000.000	849.300	2006.000	847.500	2022.000	847.100	2038.000	847.600	2054.000
GR	848.800	2066.000	853.500	2072.000	852.400	2108.000	856.600	2132.000	856.900	2238.000
GR	859.600	2348.000	861.200	2510.000	864.100	2652.000	863.000	2802.000	862.300	2950.000
GR	862.500	3090.000	861.600	3230.000	866.600	3358.000	871.100	3506.000	873.800	3712.000
ET	0.0	7.100	7.100	7.100	7.100	1.400	1842.000	3035.000	0.0	0.0
NC	0.150	0.135	0.067	0.100	0.300	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION C

X1	3.000	29.000	2000.000	2080.000	2800.000	2300.000	2450.000	0.0	0.0	0.0
GR	872.300	1010.000	869.300	1220.000	868.100	1360.000	868.200	1526.000	867.600	1684.000
GR	866.700	1710.000	868.000	1740.000	867.600	1842.000	865.900	1978.000	855.600	2000.000
GR	849.800	2012.000	848.000	2034.000	848.100	2046.000	847.900	2058.000	849.200	2066.000
GR	855.200	2080.000	856.100	2152.000	956.100	2240.000	854.200	2315.000	856.700	2401.000
GR	856.200	2483.000	858.200	2533.000	857.500	2607.000	855.200	2699.000	860.900	2843.000
GR	864.400	2975.000	865.600	3035.000	859.800	3187.000	858.700	3345.000	0.0	0.0
ET	0.0	7.100	7.100	7.100	7.100	1.400	1495.000	3256.000	0.0	0.0

VALLEY SECTION D (SEWAGE DISPOSAL)

X1	0.000	32.000	2000.000	2083.000	2125.000	2750.000	2375.000	0.0	0.0	0.0	
GR	850.000	967.000	854.700	986.000	857.400	1182.000	857.700	1370.000	857.300	1382.000	
GR	865.100	1426.000	860.900	1426.000	861.300	1495.000	865.100	1495.000	859.600	1616.000	
GR	854.500	1674.000	855.200	1754.000	855.600	1886.000	854.200	2000.000	850.600	2010.000	
GR	849.100	2020.000	846.200	2032.000	845.400	2052.000	849.000	2074.000	853.700	2083.000	
GR	853.600	2220.000	858.200	2288.000	860.100	2442.000	859.700	2596.000	858.100	2772.000	
GR	859.700	2964.000	860.700	3122.000	865.800	3256.000	864.600	3438.000	858.000	3520.000	
GR	857.300	3596.000	867.800	3656.000	0.0	0.0	0.0	0.0	0.0	0.0	
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0	
RT	5.000	3250.000	4900.000	4686.000	7690.000	5680.000	0.0	0.0	0.0	0.0	
NC	0.150	0.165	0.067	0.100	0.300	0.0	0.0	0.0	0.0	0.0	

VALLEY SECTION E

X1	5.000	15.000	2057.000	2155.000	1600.000	1300.000	1600.000	0.0	0.0	0.0	
GR	862.700	2000.000	862.600	2027.000	851.800	2053.000	850.900	2057.000	849.700	2071.000	
GR	847.900	2098.000	848.500	2119.000	848.500	2137.000	850.600	2155.000	856.400	2171.000	
GR	856.500	2385.000	854.600	2539.000	853.900	2691.000	854.700	2931.000	851.800	2943.000	
RT	5.000	2930.000	4420.000	4231.000	6950.000	5130.000	0.0	0.0	0.0	0.0	
NC	0.135	0.135	0.060	0.300	0.500	0.0	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	2000.000	2244.000	2000.000	2244.000	

X1	5.900	8.000	2000.000	2244.000	1645.000	1595.000	1620.000	0.0	0.0	0.0	
GR	867.400	2000.000	854.200	2000.000	848.300	2008.000	850.900	2042.000	854.000	2164.000	
GR	855.500	2220.000	863.700	2244.000	864.800	2350.000	0.0	0.0	0.0	0.0	
SB	0.0	1.500	3.300	0.0	34.000	0.0	204.000	0.0	854.000	848.300	
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0	

DAM CROSS-SECTION E

X1	6.000	10.000	2000.000	2172.000	20.000	20.000	20.000	0.0	0.0	0.0	
RT	10.000	2000.000	867.400	0.0	2000.000	860.600	0.0	2008.000	860.500	854.600	
RT	2008.000	860.500	860.300	2042.000	860.500	860.300	2042.000	860.500	854.000	2164.000	
RT	860.900	0.0	2172.000	863.000	0.0	2220.000	865.000	0.0	2350.000	865.300	
RT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GR	867.400	2000.000	860.600	2000.000	860.500	2008.000	854.600	2008.000	850.000	2042.000	
GR	860.500	2042.000	860.900	2164.000	863.000	2172.000	865.000	2220.000	865.300	2350.000	
NC	0.140	0.130	0.060	0.100	0.300	0.0	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	1900.000	2122.000	1900.000	2122.000	

X1	6.800	26.000	1900.000	2122.000	620.000	420.000	470.000	0.0	0.0	0.0	
GR	874.400	888.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000	
GR	867.600	1350.000	865.200	1564.000	865.700	1640.000	858.100	1700.000	858.100	1800.000	
GR	858.200	1900.000	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2060.000	
GR	851.400	2081.000	856.500	2100.000	869.500	2122.000	874.600	2330.000	874.300	2464.000	
GR	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000	884.000	3390.000	
GR	882.300	3554.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.130	0.130	0.065	0.300	0.500	0.0	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	2016.000	2100.000	2016.000	2100.000	

X1	6.900	28.000	2016.000	2100.000	50.000	50.000	50.000	0.860	0.0	0.0	
GR	874.400	888.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000	
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2016.000	
GR	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2055.100	853.600	2060.000	
GR	853.600	2060.100	851.400	2081.000	856.500	2100.000	871.300	2100.000	869.500	2122.000	
GR	874.600	2330.000	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	
GR	882.600	3270.000	884.000	3390.000	882.300	3554.000	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	1808.190	1880.770	1808.190	1880.770	

X1	.000	0.0	0.0	0.0	1.000	.000	1.000	0.864	0.0	0.0	
X2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.864	0.0	
BT	24.000	488.000	874.000	0.0	704.000	872.200	0.0	886.000	870.400	0.0	
BT	1036.000	869.600	0.0	1246.000	869.000	0.0	1350.000	867.600	0.0	1564.000	
BT	865.200	0.0	1802.000	865.900	0.0	2000.000	869.900	0.0	2016.000	871.200	
BT	855.400	2016.000	871.200	867.300	2055.000	871.200	867.300	2055.100	871.200	853.700	
BT	2060.000	871.300	853.600	2060.100	871.300	867.400	2100.000	871.300	867.400	2100.000	
BT	871.300	856.500	2122.000	869.500	0.0	2330.000	874.600	0.0	2464.000	874.300	
BT	0.0	2612.000	876.100	0.0	2890.000	877.900	0.0	3093.000	878.800	0.0	
BT	3270.000	882.600	0.0	3390.000	884.000	0.0	3554.000	882.300	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	2048.000	2132.000	2048.000	2132.000	

BRIDGE SECTION G (UPSTREAM FACE PUTMAN ST.)

X1	7.100	27.000	2048.000	2132.000	55.000	55.000	55.000	0.864	0.0	0.0	
X2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.864	0.0	
BT	25.000	488.000	874.000	0.0	704.000	872.200	0.0	886.000	870.400	0.0	
BT	1036.000	869.600	0.0	1246.000	869.000	0.0	1350.000	867.600	0.0	1564.000	
BT	865.200	0.0	1802.000	865.900	0.0	2000.000	869.900	0.0	2048.000	871.200	
BT	855.900	2048.000	871.200	867.200	2087.000	871.200	867.200	2087.100	871.200	855.800	
BT	2092.000	871.300	854.700	2092.100	871.300	867.300	2132.000	871.300	867.300	2132.000	
BT	871.300	854.900	2330.000	874.600	0.0	2464.000	874.300	0.0	2612.000	876.100	
BT	0.0	2890.000	877.900	0.0	3093.000	878.800	0.0	3270.000	882.600	0.0	
BT	3390.000	884.000	0.0	3554.000	882.300	0.0	0.0	0.0	0.0	0.0	
GR	870.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000	
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2048.000	
GR	855.900	2048.000	853.000	2066.000	855.800	2087.000	855.800	2087.100	854.700	2092.000	
GR	850.700	2092.100	850.200	2113.000	854.900	2132.000	871.300	2132.000	874.600	2330.000	
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000	
GR	884.000	3390.000	882.300	3554.000	0.0	0.0	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	9.100	1835.840	1908.410	1835.840	1908.410	

X1	7.200	0.0	0.0	0.0	1.000	1.000	1.000	0.864	0.0	0.0	
ET	0.0	0.0	0.0	0.0	0.0	1.400	0.0	0.0	0.0	0.0	

X1	7.300	22.000	1802.000	2330.000	250.000	250.000	250.000	0.0	0.0	0.0	
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000	
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	855.900	2048.000	853.000	2066.000	
GR	855.800	2087.000	854.700	2092.000	850.200	2113.000	854.900	2132.000	874.600	2330.000	
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000	
GR	884.000	3390.000	882.300	3554.000	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.140	0.130	0.060	0.100	0.300	0.0	0.0	0.0	0.0	0.0	

VALLEY SECTION H

X1	8.000	25.000	2106.000	2230.000	990.000	990.000	1000.000	0.0	0.0	0.0	
GR	875.100	460.000	873.200	610.000	872.000	780.000	870.800	986.000	869.000	1104.000	
GR	867.800	1510.000	867.700	1628.000	867.400	1588.000	864.400	1788.000	862.900	2000.000	
GR	862.100	2078.000	857.000	2106.000	852.700	2132.000	851.300	2158.000	852.500	2184.000	
GR	856.900	2210.000	858.700	2230.000	863.400	2366.000	872.500	2486.000	874.200	2586.000	
GR	879.000	2706.000	872.700	2954.000	878.400	3178.000	876.100	3484.000	878.000	3784.000	
NC	0.130	0.150	0.065	0.100	0.300	0.0	0.0	0.0	0.0	0.0	

VALLEY SECTION I (EASTERN STUDY LIMIT)

X1	9.000	19.000	2010.000	2106.000	1750.000	1750.000	1750.000	0.0	0.0	0.0	
GR	878.600	1200.000	875.800	1324.000	875.300	1408.000	875.500	1518.000	870.000	1670.000	
GR	867.300	1772.000	865.400	1862.000	861.700	2000.000	857.100	2010.000	852.000	2022.000	
GR	852.100	2054.000	853.200	2080.000	857.000	2106.000	852.300	2126.000	867.500	2172.000	
GR	863.300	2196.000	874.100	2214.000	856.000	2248.000	872.400	2282.000	0.0	0.0	
QT	5.000	2880.000	4340.000	4153.000	6820.000	5030.000	0.0	0.0	0.0	0.0	
ET	0.0	7.100	7.100	7.100	7.100	1.400	3806.000	5373.000	0.0	0.0	

X1	10.000	11.000	3920.000	4002.000	2700.000	2700.000	2600.000	0.0	0.0	0.0
GR	869.300	2000.000	868.100	2210.000	870.800	2392.000	869.000	2516.000	865.100	2560.000
GR	865.300	2712.000	872.800	2846.000	864.600	2922.000	861.100	3046.000	860.300	3186.000
GR	858.300	3280.000	856.900	3308.000	858.500	3351.000	857.600	3516.000	859.500	3864.000
GR	858.900	3914.000	857.100	3920.000	853.300	3938.000	852.700	3960.000	854.200	3980.000
GR	857.000	4002.000	859.100	4013.000	859.400	4208.000	860.000	4282.000	862.100	4500.000
GR	860.500	4774.000	860.200	4954.000	862.200	5118.000	873.900	5272.000	882.000	5400.000
GR	881.900	5522.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0

X1	11.000	25.000	2014.000	2078.000	3600.000	3400.000	3400.000	0.0	0.0	0.0
GR	885.800	700.000	882.000	830.000	875.500	994.000	873.200	1158.000	872.300	1338.000
GR	868.800	1484.000	871.200	1648.000	871.300	1748.000	871.800	1851.000	863.100	1988.000
GR	859.200	2000.000	857.800	2014.000	858.800	2030.000	855.200	2052.000	857.800	2078.000
GR	860.200	2102.000	860.300	2274.000	862.600	2418.000	859.900	2646.000	872.700	2850.000
GR	873.400	2992.000	872.600	3130.000	873.100	3274.000	873.800	3426.000	874.200	3466.000

X1	12.000	20.000	2004.000	2066.000	2100.000	1800.000	2000.000	0.0	0.0	0.0
GR	883.000	904.000	877.700	1156.000	873.800	1356.000	873.100	1450.000	872.200	1640.000
GR	867.300	1840.000	862.100	2000.000	858.300	2004.000	855.600	2026.000	856.600	2046.000
GR	858.300	2066.000	858.200	2090.000	863.600	2192.000	863.700	2294.000	867.000	2452.000
GR	869.300	2614.000	872.300	2776.000	875.600	2904.000	877.500	3104.000	879.000	3272.000
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO 30.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q        GLOB       OCH        OROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME      VLOB       VCH        VROB       XNL        XNCH       XNR        WTA        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

     30.00      14.70     851.70       0.0      851.70     851.70      0.04       0.0        0.0       803.50
     4990.      .1200.     2762.      1028.      2035.      1300.      1849.       .0.        .0.       800.00
       0.0       0.50       2.12       0.56      0.135      0.060      0.135      0.0       837.00     1662.69
  0.000250         0.         0.         0.          0          0          0        0.0       773.56     2436.25

CCHV=   0.100 CEHV=   0.300
*SECNO 32.000
     32.00      18.20     853.20       0.0        0.0      853.32      0.08       1.57       0.01       860.00
     4990.         0.     2907.      2043.         0.      988.       2545.       437.        48.       806.00
       0.50       0.0        2.91       0.82      0.135      0.060      0.135      0.060     839.00     2000.68
  0.000565      4300.      4330.      4400.          2          0          0        0.0       590.09     2590.76

CCHV=   0.100 CEHV=   0.300
*SECNO 33.000
     33.00      13.31     856.31       0.0        0.0      856.36      0.05       1.04       0.00       851.00
     4990.      1049.      3894.         7.      2085.      1937.        26.      1117.       180.       853.00
       1.88       0.52       2.01       0.26      0.135      0.060      0.135      0.060     843.00     1505.53
  0.000285      7770.      7800.      7850.          2          0          0        0.0       650.06     2195.60

*SECNO 34.000

3470 ENCROACHMENT STATIONS=    2000.0     2171.0  TYPE=      1  TARGET=      171.000
     34.00      13.45     858.45       0.0        0.0      858.61      0.16       2.21       0.03       855.00
     4990.         0.     4990.         0.         0.      1556.         1.      1422.       224.       857.00
       2.29       0.0        3.21       0.23      0.135      0.060      0.135      0.060     845.00     2000.00
  0.000914      4800.      4700.      4500.          2          0          0        0.0       171.00     2171.00

CCHV=   0.300 CEHV=   0.500
*SECNO 35.000
    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
      Q        GLOB       OCH        OROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
     TIME      VLOB       VCH        VROB       XNL        XNCH       XNR        WTA        ELMIN       SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=    2000.0     2150.0  TYPE=      1  TARGET=      150.000
     35.00      15.50     858.50       0.0        0.0      858.65      0.15       0.00       0.00       863.00
     4990.         0.     4990.         0.         0.      1588.         0.      1423.       224.  100000.00
       2.29       0.0        3.14       0.0       0.135      0.060      0.135      0.060     843.00     2000.00
  0.000745        50.        50.        50.          1          0          0        0.0       150.00     2150.00


SPECIAL BRIDGE

SB   XK         XKOR       CDEQ       RDLEN      BWC        BWB        BAREA      SS         ELCHU      ELCHD
       1.05       1.50       3.00       0.0       65.69       6.00    1625.20       2.05     843.00     843.00
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*SECN[illegible]5.200
CLASS[illegible]LOW FLOW

3420 BRIDGE W.S.=    858.48 BRIDGE VELOCITY=,      3.30      CALCULATED CHANNEL AREA=,      1512.

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      FLTRD
                                                                  AREA
    0.0     858.66      0.01        0.     4990.      1625.     1625.      859.30     862.00


3470 ENCROACHMENT STATIONS=    2000.0    2150.0  TYPE=      1  TARGET=      150.000
    35.20     15.51    858.51      0.0       0.0    858.66      0.15      0.01      0.0.    863.00
    4990.        0.     4990.       0.        0.     1591.        0.     1424.      225.  100000.00
     2.30       0.0      3.14      0.0     0.135     0.060     0.135     0.060    843.00   2000.00
 0.000741       27.       27.       27.         0         0         0       0.0    150.00   2150.00

*SECNO 35.400

3470 ENCROACHMENT STATIONS=    2000.0    2171.0  TYPE=      1  TARGET=      171.000
    35.40     13.55    858.55      0.0       0.0    858.70      0.16      0.04      0.00    855.00
    4990.        0.     4990.       0.        0.     1573.        2.     1426.      225.    857.00
     2.30       0.0      3.17      0.23     0.135     0.060     0.135     0.060    845.00   2000.00
 0.000883       50.       50.       50.         0         0         0       0.0    171.00   2171.00

CCHV=   0.100 CEHV=   0.300
*SECNO 1.000

                VALLEY SECTION A (WEST STUDY LIMIT)

     1.00     15.29    861.69      0.0       0.0    861.74      0.05      3.03      0.01    857.30
    4776.      849.     2850.     1077.     1268.     1253.     2057.     1825.      288.    854.70
     3.30      0.67      2.27      0.52     0.150     0.065     0.150     0.061    846.40   1808.00
 0.000347     5500.     5755.     5600.         3         0         0       0.0    809.78   2617.79

*SECNO 2.000

3265 DIVIDED FLOW

                VALLEY SECTION B

     2.00     15.19    862.29      0.0       0.0    862.33      0.05      0.59      0.00    853.80
    4776.     1212.     2540.     1024.     2221.     1092.     1931.     2023.      328.    853.50
     3.62      0.55      2.33      0.53     0.150     0.065     0.150     0.062    847.10   1528.08
 0.000331     1625.     1750.     1875.         2         0         0       0.0   1159.57   3247.58

CCHV=   0.100 CEHV=   0.300
*SECNO 3.000
3280 CROSS SECTION       3.00 EXTENDED       4.24 FEET

   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     ICPWID      ENDST


3470 ENCROACHMENT STATIONS=    1842.0    3035.0  TYPE=      1  TARGET=     1193.000

                VALLEY SECTION C

     3.00     15.04    862.94      0.0       0.0    862.96      0.02      0.43      0.00    855.60
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    4[illegible]      18.      1834.      2920.       58.      1053.      5191[illegible]      2345.       387.       855.20
[illegible]      0.32       1.74       0.56      0.150      0.067      0.135      0.062     807.90     1984.32
 0.000[illegible]07     2800.      2450.      2300.          2          0          0        0.0     935.75     2920.06

*SECNO 4.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=     1495.0     3256.0  TYPE=       1  TARGET=     1761.000

                    VALLEY SECTION D (SEWAGE DISPOSAL)

      0.00      17.92     863.32       0.0        0.0     863.33       0.01       0.36       0.00     854.20
      4776.     1257.     1683.      1837.      3198.     1244.      5203.      2815.       644.     853.70
      5.27      0.39      1.35       0.35      0.150      0.067      0.135      0.062     845.40    1095.00
 0.000105      2125.     2375.      2750.          2          0          0        0.0    1656.46    3190.72

CCHV=    0.100 CEHV=    0.300
*SECNO 5.000
3280 CROSS SECTION        5.00 EXTENDED       11.67 FEET

                    VALLEY SECTION E

      5.00      15.57     863.47       0.0        0.0     863.49       0.01       0.16       0.00     850.90
      4686.       84.     1992.      2610.       234.     1421.      6608.      3103.       506.     850.60
      5.76      0.36      1.40       0.40      0.150      0.067      0.165      0.063     847.90    2000.00
 0.000113      1600.     1600.      1300.          2          0          0        0.0     943.00    2943.00

CCHV=    0.300 CEHV=    0.500
*SECNO 5.900

3470 ENCROACHMENT STATIONS=     2000.0     2244.0  TYPE=       1  TARGET=      244.000
      5.90      15.40     863.70       0.0        0.0     863.74       0.04       0.24       0.01     867.40
      4231.        0.     4231.         0.         0.     2550.         0.     3302.       527.  100000.00
      6.03       0.0      1.66       0.0       0.135      0.060      0.135      0.063     848.30    2000.00
 0.000210      1645.     1650.      1595.          2          0          0        0.0     243.99    2243.99

SPECIAL BRIDGE

SB      XK        XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
        0.0       1.50       3.30       0.0        34.00      0.0        204.00     0.0        854.00     848.30

*SECNO 6.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  10 MIN ELTRD=   860.50 MAX ELLC=   860.30

                    DAM CROSS-SECTION F

      6.00       9.42     863.42       0.0        0.0     864.04       0.62       0.01       0.29     867.40
      4231.         0.     4230.         1.         0.      671.         2.     3303.       527.     863.00
      6.03       0.0       6.30       0.52      0.135      0.060      0.135      0.063     854.00    2000.00
 0.017889        20.       20.        20.          2          0          0      -6.80     182.23    2182.23

CCHV=    0.100 CEHV=    0.300
*SECNO 6.800
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3301 [illegible]CHANGED MORE THAN HVINS

   SECNO     DEPTH     GWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
   Q         QLOB      QCH       QRDB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
   TIME      VLOB      VCH       VPOB      XNL       XNCH      XNR       WTN       ELMIN        SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID       ENDST

3470 ENCROACHMENT STATIONS=     1900.0     2122.0  TYPE=      1. TARGET=      222.000
     6.80     13.25    864.65      0.0       0.0    864.73      0.08      0.63      0.05    858.20
    4231.        0.     4231.        0.        0.     1921.        0.     3317.      530.  100000.00
     6.09       0.0      2.20       0.0     0.140     0.060     0.130     0.063    851.40   1900.00
 0.000450      620.      470.      420.         3         0         0       0.0    213.80   2113.80

CCHV=    0.300 CEHV=    0.500
*SECNO 6.900

*470 ENCROACHMENT STATIONS=     1808.2     1880.8  TYPE=      1. TARGET=       84.000
     6.90     13.12    864.52      0.0       0.0    864.94      0.42      0.05      0.13    871.20
    4231.        0.     4231.        0.        0.      815.        0.     3319.      530.  100000.00
     6.10       0.0      5.19       0.0     0.130     0.065     0.130     0.063    851.40   1808.19
 0.002769       50.       50.       50.         2         0         0       0.0     72.57   1880.76

*SECNO 7.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  865.20 MAX ELLC=  867.40

3470 ENCROACHMENT STATIONS=     1808.2     1880.8  TYPE=      1. TARGET=       72.580
     7.00     13.10    864.50      0.0       0.0    864.97      0.47      0.00      0.03    871.20
    4231.        0.     4231.        0.        0.      767.        0.     3319.      530.    871.30
     6.10       0.0      5.52       0.0     0.130     0.065     0.130     0.063    851.40   1808.19
 0.003400        1.        1.        1.         2         0         0    -46.79     72.57   1880.77

*SECNO 7.100

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  865.20 MAX ELLC=  867.30

3470 ENCROACHMENT STATIONS=     1835.8     1908.4  TYPE=      1  TARGET=       84.000

                BRIDGE SECTION G (UPSTREAM FACE PUTMAN ST.)

     7.10     14.07    864.67      0.0       0.0    865.24      0.57      0.22      0.05    871.20
    4231.        0.     4231.        0.        0.      698.        0.     3320.      530.  100000.00
     6.10       0.0      6.07       0.0     0.130     0.065     0.130     0.063    850.20   1835.84
 0.004797       55.       55.       55.         0         0         0   -108.74     72.57   1908.41

*SECNO 7.200

3470 ENCROACHMENT STATIONS=     1835.8     1908.4  TYPE=      1  TARGET=       72.570
     7.20     14.68    864.88      0.0       0.0    865.29      0.41      0.00      0.05100000.00
    4231.        0.     4231.        0.        0.      822.        0.     3320.      530.  100000.00
     6.10       0.0      5.15       0.0     0.130     0.065     0.130     0.063    850.20   1835.84
 0.002792        1.        1.        1.         2         0         0       0.0     72.57   1908.41

*SECNO 7.300

3265 DIVIDED FLOW

   SECNO     DEPTH     GWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     BANK ELEV
```

Q / TIME / SLOPE	LOB / VLOB / XLOBL	OCH / VCH / XLCH	ROB / VROB / XLOBR	ALOB / XNL / ITRIAL	ACH / XNCH / TOC	AREA / XNR / ICONT	VOL / WTN / CORAR	TWA / ELMIN / TOPWID	LEFT/RIGHT SSTA / ENDST
7.30	15.38	865.58	0.0	0.0	865.61	0.04	0.21	0.11	865.90
4231.	23	8230.	0.	30.	2730.	0.	3330.	512.	874.60
6.14	0.07	1.55	0.0	0.130	0.065	0.130	0.063	850.20	1530.55
0.000391	250.	250.	250.	2	0	0	0.0	590.33	2239.29

CCHV= 0.100 CEHV= 0.300
*SECNO 8.000

VALLEY SECTION H

8.00	14.61	865.91	0.0	0.0	865.98	0.07	0.36	0.01	857.00
4231.	405.	3421.	405.	999.	1467.	702.	3308.	547.	858.70
6.29	0.41	2.33	0.58	0.140	0.060	0.130	0.062	851.30	1687.38
0.000332	990.	1000.	990.	2	0	0	0.0	711.71	2399.09

CCHV= 0.100 CEHV= 0.300
*SECNO 9.000

3265 DIVIDED FLOW

VALLEY SECTION I (EASTERN STUDY LIMIT)

9.00	18.56	866.56	0.0	0.0	866.65	0.09	0.66	0.01	857.10
4231.	270.	3343.	617.	517.	1267.	805.	3510.	570.	857.00
6.50	0.52	2.64	0.77	0.130	0.065	0.150	0.063	852.00	1807.38
0.000435	1750.	1750.	1750.	1	0	0	0.0	427.46	2269.88

*SECNO 10.000

3470 ENCROACHMENT STATIONS= 2846.0 5272.0 TYPE= 1. TARGET= 2426.900

10.00	14.18	866.88	0.0	0.0	866.88	0.00	0.23	0.01	857.10
4153.	1999.	749.	1406.	7547.	1032.	7108.	8077.	653.	857.00
8.77	0.26	0.73	0.20	0.130	0.065	0.150	0.063	852.70	2900.89
0.000835	2700.	2600.	2700.	2	0	0	0.0	2278.68	5179.57

*SECNO 11.000

11.00	12.35	867.15	0.0	0.0	867.18	0.03	0.29	0.01	857.80
4153.	202.	1530.	2422.	322.	218.	3966.	4911.	778.	857.80
9.61	0.63	2.13	0.61	0.130	0.065	0.150	0.063	854.80	1924.26
0.000349	3600.	3800.	3600.	2	0	0	0.0	837.25	2761.51

*SECNO 12.000

SECNO / Q / TIME / SLOPE	DEPTH / LOB / VLOB / XLOBL	CWSEL / OCH / VCH / XLCH	CRTWS / ROB / VROB / XLOBR	WSELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / TOC	HV / AREA / XNR / ICONT	HL / VOL / WTN / CORAR	QLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT SSTA / ENDST
12.00	12.45	868.05	0.0	0.0	868.13	0.08	0.94	0.02	858.30
4153.	407.	2167.	1579.	579.	695.	1879.	5086.	811.	858.30
9.87	0.70	3.12	0.84	0.130	0.065	0.150	0.063	855.60	1809.40
0.000745	2100.	2000.	1800.	2	0	0	0.0	716.52	2525.93

11.56
6.6
867.2

THIS RUN EXECUTED 11/14/79

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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

RED CEDAR RIVER

SUMMARY PRINTOUT

SECNO	CWSEL	ELMIN	ELLOB	ELTRD	BSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
30.000	851.70	837.00	0.0	0.0	1662.69	0.0	2000.00	2100.00	0.0	2436.25	773.56	0.0
32.000	853.24	839.00	0.0	0.0	2000.68	0.0	1990.00	2090.00	0.0	2590.76	590.09	4330.00
33.000	856.31	843.00	0.0	0.0	1545.53	0.0	2000.00	2180.00	0.0	2195.60	650.06	7800.00
34.000	858.45	845.00	0.0	0.0	2000.00	2000.00	2000.00	2170.00	2171.00	2171.00	171.00	8700.00
35.000	858.50	843.00	0.0	0.0	2000.00	2000.00	2000.00	2150.00	2150.00	2150.00	150.00	50.00
35.200	858.51	843.00	859.30	862.00	2000.00	2000.00	2000.00	2150.00	2150.00	2150.00	150.00	27.00
35.400	858.55	845.00	0.0	0.0	2000.00	2000.00	2000.00	2170.00	2171.00	2171.00	171.00	50.00
1.000	861.69	846.40	0.0	0.0	1808.00	0.0	2000.00	2098.00	0.0	2617.79	809.78	5755.00
2.000	862.29	847.10	0.0	0.0	1528.08	0.0	1992.00	2072.00	0.0	3247.58	1159.57	1750.00
3.000	862.98	847.90	0.0	0.0	1984.32	1842.00	2000.00	2080.00	3035.00	2920.06	935.75	2450.00
4.000	863.32	845.00	0.0	0.0	1495.00	1495.00	2000.00	2083.00	3256.00	3190.72	1656.46	2375.00
5.000	863.47	847.90	0.0	0.0	2000.00	0.0	2057.00	2155.00	0.0	2943.00	903.00	1600.00
5.900	863.70	848.30	0.0	0.0	2000.00	2000.00	2000.00	2240.00	2240.00	2243.99	243.99	1620.00
6.000	863.82	850.00	860.30	860.50	2000.00	0.0	2000.00	2172.00	0.0	2182.23	182.23	20.00
6.800	864.65	851.40	0.0	0.0	1900.00	1900.00	1900.00	2122.00	2122.00	2113.80	213.80	470.00
6.900	864.52	851.40	0.0	0.0	1808.19	1808.19	1808.19	1880.77	1880.77	1880.76	72.57	50.00
7.000	864.50	851.40	867.40	865.20	1808.19	1808.19	1808.19	1880.77	1880.77	1880.77	72.57	1.00
7.100	864.67	850.20	867.30	865.20	1835.80	1835.80	1835.80	1908.41	1908.42	1908.41	72.57	55.00
7.200	864.88	850.20	0.0	0.0	1835.80	1835.80	1835.80	1908.41	1908.41	1908.41	72.57	1.00
7.300	865.58	850.20	0.0	0.0	1530.55	0.0	1802.00	2330.00	0.0	2239.29	590.33	250.00

SECNO	CWSEL	FLMIN	ELLC	ELTRD	SSTA	STENCL	STCHL	STCHR	STENCR	ENDST	TOPWID	XLCH
8.000	865.91	851.30	0.0	0.0	1687.38	0.0	2106.00	2330.00	0.0	2399.09	711.71	1000.00
9.000	866.56	852.00	0.0	0.0	1907.38	0.0	2010.00	2106.00	0.0	2269.88	427.46	1750.00
10.000	866.88	852.70	0.0	0.0	2900.89	2846.00	3920.00	4002.00	5272.00	5179.57	2278.68	2600.00
11.000	867.15	850.80	0.0	0.0	1924.26	0.0	2014.00	2078.00	0.0	2761.51	837.25	3800.00
12.000	868.05	855.60	0.0	0.0	1809.40	0.0	2004.00	2066.00	0.0	2525.93	716.52	2000.00

RED CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.000	0.0	0.0	0.0	837.00	4990.00	851.70	0.0	851.74	2.50	2.12	5183.59	3157.54
32.000	4330.00	0.0	0.0	839.00	4990.00	853.28	0.0	853.32	5.65	2.91	3542.42	2099.23
33.000	7800.00	0.0	0.0	843.00	4990.00	856.31	0.0	856.36	2.85	2.01	4047.63	2956.80
34.000	4700.00	0.0	0.0	845.00	4990.00	858.45	0.0	858.61	9.14	3.21	1557.56	1650.85
35.000	50.00	0.0	0.0	843.00	4990.00	858.50	0.0	858.65	7.45	3.14	1587.59	1828.10
35.200	27.00	862.00	859.30	843.00	4990.00	858.51	0.0	858.66	7.41	3.14	1590.59	1833.55
35.400	50.00	0.0	0.0	845.00	4990.00	858.55	0.0	858.70	8.83	3.17	1574.07	1679.37
1.000	5755.00	0.0	0.0	846.40	4776.00	861.69	0.0	861.74	3.47	2.27	4578.08	2562.90
2.000	1750.00	0.0	0.0	847.10	4776.00	862.29	0.0	862.33	3.31	2.33	5244.61	2626.65
3.000	2450.00	0.0	0.0	847.90	4776.00	862.94	0.0	862.96	2.07	1.74	6301.52	3318.35
4.000	2375.00	0.0	0.0	845.40	4776.00	863.32	0.0	863.33	1.05	1.35	9645.11	4668.36
5.000	1600.00	0.0	0.0	847.90	4686.00	863.47	0.0	863.49	1.13	1.40	8263.20	4004.50
5.900	1620.00	0.0	0.0	848.30	4231.00	863.70	0.0	863.74	2.10	1.66	2550.50	2917.72
6.000	20.00	860.50	860.30	854.00	4231.00	863.82	0.0	864.04	178.89	6.30	673.07	316.34
6.800	470.00	0.0	0.0	851.00	4231.00	864.65	0.0	864.73	4.50	2.20	1920.68	1990.43
6.900	50.00	0.0	0.0	851.40	4231.00	864.52	0.0	864.94	27.69	5.19	815.43	804.02
7.000	1.00	865.20	867.40	851.40	4231.00	864.50	0.0	864.97	30.00	5.52	766.88	725.63
7.100	55.00	865.20	867.30	850.20	4231.00	864.67	0.0	865.24	47.97	6.07	697.61	610.90
7.200	1.00	0.0	0.0	850.20	4231.00	864.88	0.0	865.29	27.92	5.15	821.71	800.67
7.300	250.00	0.0	0.0	850.20	4231.00	865.58	0.0	865.61	3.91	1.55	2764.00	2140.75
8.000	1000.00	0.0	0.0	851.30	4231.00	865.91	0.0	865.98	3.32	2.33	3168.30	2322.38
9.000	1750.00	0.0	0.0	852.00	4231.00	866.56	0.0	866.65	4.35	2.64	2589.36	2029.43
10.000	2600.00	0.0	0.0	852.70	4153.00	866.88	0.0	866.88	0.35	0.73	15686.98	7047.30
11.000	3800.00	0.0	0.0	854.80	4153.00	867.15	0.0	867.18	3.49	2.13	5005.29	2222.33
12.000	2000.00	0.0	0.0	855.60	4153.00	868.05	0.0	868.13	7.45	3.12	3152.51	1521.58

0 CEDAR RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	4990.00	851.70	0.0	0.0	0.0	773.56	0.0
32.000	4990.00	853.24	0.0	1.54	0.0	990.09	4330.00
33.000	4990.00	856.31	0.0	3.08	0.0	650.06	7800.00
34.000	4990.00	858.45	0.0	2.13	0.0	171.00	4700.00
35.000	4990.00	858.50	0.0	0.05	0.0	150.00	50.00
35.200	4990.00	858.51	0.0	0.01	0.0	150.00	27.00
35.400	4990.00	858.55	0.0	0.00	0.0	171.00	50.00
1.000	4776.00	861.69	0.0	3.15	0.0	809.78	5755.00
2.000	4776.00	862.29	0.0	0.60	0.0	1159.57	1750.00
3.000	4776.00	862.90	0.0	0.66	0.0	935.75	2450.00
4.000	4776.00	863.32	0.0	0.37	0.0	1656.46	2375.00
5.000	4686.00	863.47	0.0	0.16	0.0	983.00	1600.00
5.900	4231.00	863.70	0.0	0.23	0.0	243.99	1620.00
6.000	4231.00	863.42	0.0	-0.27	0.0	182.23	20.00
6.800	4231.00	864.65	0.0	1.23	0.0	213.80	470.00
6.900	4231.00	864.52	0.0	-0.13	0.0	72.57	50.00
7.000	4231.00	864.50	0.0	-0.02	0.0	72.57	1.00
7.100	4231.00	864.67	0.0	0.17	0.0	72.57	55.00
7.200	4231.00	864.88	0.0	0.21	0.0	72.57	1.00
7.300	4231.00	865.58	0.0	0.69	0.0	590.33	250.00
8.000	4231.00	865.91	0.0	0.34	0.0	711.71	1000.00
9.000	4231.00	866.56	0.0	0.65	0.0	827.46	1750.00
10.000	4153.00	866.88	0.0	0.32	0.0	2278.68	2600.00
11.000	4153.00	867.15	0.0	0.27	0.0	837.25	3800.00
12.000	4153.00	868.05	0.0	0.90	0.0	716.52	2000.00

SUMMARY OF ERRORS

RED CEDAR RIVER
MULTI-PROFILE RUN
WILLIAMSTON & LOCKE TOWNSHIPS
CITY OF WILLIAMSTON

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

C
T1      WILLIAMSTON TOWNSHIP
T2      10 YR FLOW
T3      RED CEDAR

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      2.        0.        0.  0.000000      0.00      0.0       0.     850.000     0.000
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     EN        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   201.000   0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J5  LPRNT     NUMSEC                        ********REQUESTED SECTION NUMBERS********
    -10.000   -10.000   0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
QT      5.000  3460.000  5220.000  6050.000  8190.000  6050.000     0.000     0.000     0.000     0.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     30.000    35.000  2000.000  2100.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    864.000  1450.000   863.500  1500.000   860.000  1550.000   856.000  1600.000   855.000  1650.000
GR    848.500  1675.000   846.500  1700.000   846.000  1750.000   846.000  1800.000   845.000  1850.000
GR    845.000  1900.000   845.000  1950.000   843.500  2000.000   841.000  2010.000   839.500  2020.000
GR    839.500  2030.000   838.000  2040.000   837.500  2050.000   837.000  2060.000   837.000  2070.000
GR    837.000  2085.000   839.000  2095.000   844.000  2100.000   846.000  2150.000   846.000  2200.000
GR    845.000  2250.000   846.000  2300.000   846.500  2350.000   847.500  2400.000   849.000  2425.000
GR    855.000  2450.000   857.000  2500.000   860.000  2550.000   864.000  2600.000   864.000  2650.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000

X1     32.000    13.000  1990.000  2090.000  4300.000  4400.000  4330.000     0.000     0.000     0.000
GR    869.000  1750.000   869.000  1800.000   867.000  1850.000   864.000  1990.000   842.000  2020.000
GR    839.000  2030.000   839.000  2070.000   846.000  2090.000   848.000  2200.000   846.000  2300.000
GR    849.000  2450.000   851.000  2550.000   856.000  2650.000     0.000     0.000     0.000     0.000
NC       .135      .135      .060      .100      .300     0.000     0.000     0.000     0.000     0.000

X1     33.000    14.000  2000.000  2180.000  7770.000  7850.000  7800.000     0.000     0.000     0.000
GR    865.000  1460.000   862.000  1510.000   854.000  1560.000   851.000  1660.000   852.000  1760.000
GR    850.000  1860.000   853.000  2000.000   845.000  2010.000   843.000  2030.000   843.000  2100.000
GR    845.000  2120.000   853.000  2180.000   870.000  2260.000   872.000  2660.000     0.000     0.000
ET      0.000     7.100     7.100     7.100     7.100     9.100  2000.000  2171.000  2000.000  2171.000
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X1	34.000	12.000	2000.000	2170.000	4800.000	4500.000	4700.000	0.000	0.000	0.000
GR	864.000	1470.000	860.000	1670.000	856.000	1770.000	857.000	1920.000	855.000	2000.000
GR	848.000	2030.000	845.000	2070.000	845.000	2100.000	850.000	2120.000	857.000	2170.000
GR	862.000	2270.000	875.000	2570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.135	.135	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2000.000	2150.100	2000.000	2150.100

X1	35.000	24.000	2000.000	2150.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	873.000	1275.000	868.000	1475.000	862.000	1675.000	862.000	1875.000	863.000	1975.000
GR	863.000	2000.000	856.000	2000.000	854.500	2010.000	851.000	2020.000	847.000	2030.000
GR	844.500	2040.000	844.500	2043.000	844.500	2070.000	843.000	2080.000	846.000	2105.000
GR	846.000	2108.000	849.000	2125.000	853.000	2135.000	856.000	2150.000	863.000	2150.000
GR	863.000	2155.000	863.000	2175.000	866.000	2375.000	874.000	2575.000	0.000	0.000
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.500	3.000	0.000	65.690	6.000	1625.200	2.455	843.000	843.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2000.000	2150.100	2000.000	2150.100

X1	35.200	0.000	0.000	0.000	27.000	27.000	27.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	859.300	862.000	0.000	0.000	0.000	0.000	0.000
BT	20.000	1275.000	873.000	0.000	1475.000	868.000	0.000	1675.000	862.000	0.000
BT	1875.000	862.000	0.000	1975.000	863.000	0.000	2000.000	863.000	856.000	2000.000
BT	863.000	859.300	2039.900	863.000	859.300	2040.000	863.000	844.500	2043.000	863.000
BT	843.000	2043.100	863.000	859.300	2104.900	863.000	859.300	2105.000	863.000	846.000
BT	2108.000	863.000	846.000	2108.100	863.000	859.300	2150.000	863.000	859.300	2150.000
BT	863.000	856.000	2175.000	863.000	0.000	2375.000	866.000	0.000	2575.000	874.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1920.000	2171.000	1920.000	2171.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	35.400	12.000	2000.000	2170.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	864.000	1470.000	860.000	1670.000	856.000	1770.000	857.000	1920.000	855.000	2000.000
GR	848.000	2030.000	845.000	2070.000	845.000	2100.000	850.000	2120.000	857.000	2170.000
GR	862.000	2270.000	875.000	2570.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.150	.150	.065	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	3310.000	4990.000	5790.000	7840.000	5790.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

VALLEY SECTION A (WEST STUDY LIMIT)

X1	1.000	20.000	2000.000	2098.000	5500.000	5600.000	5755.000	0.000	0.000	0.000
GR	869.000	1514.000	868.800	1552.000	867.600	1774.000	866.000	1788.000	854.800	1840.000
GR	852.500	1911.000	857.700	2000.000	849.100	2018.000	846.800	2034.000	846.500	2050.000
GR	846.400	2066.000	848.900	2086.000	854.700	2098.000	853.400	2158.000	857.500	2228.000
GR	857.900	2401.000	859.700	2497.000	860.100	2595.000	868.200	2711.000	869.200	2743.000

VALLEY SECTION B

X1	2.000	30.000	1992.000	2072.000	1625.000	1875.000	1750.000	0.000	0.000	0.000
GR	871.000	1064.000	863.900	1254.000	868.200	1355.000	876.100	1438.000	857.700	1558.000
GR	859.500	1698.000	857.100	1850.000	852.600	1902.000	857.300	1964.000	853.800	1992.000
GR	850.500	2000.000	849.300	2006.000	847.500	2022.000	847.100	2038.000	847.600	2054.000
GR	848.800	2066.000	853.500	2072.000	852.400	2108.000	856.600	2132.000	856.900	2238.000
GR	859.600	2348.000	861.200	2510.000	864.100	2652.000	863.000	2802.000	862.300	2950.000
GR	862.500	3090.000	861.600	3230.000	866.600	3358.000	871.100	3506.000	873.800	3712.000
ET	0.000	7.100	7.100	7.100	7.100	1.400	1842.000	3035.000	0.000	0.000

NC	.150	.135	.067	.100	.300	0.000	0.000	0.000	0.000	0.000
		VALLEY SECTION C								
X1	3.000	29.000	2000.000	2080.000	2800.000	2300.000	2450.000	0.000	0.000	0.000
GR	872.300	1010.000	869.300	1220.000	868.100	1360.000	868.200	1526.000	867.600	1684.000
GR	866.700	1710.000	868.000	1740.000	867.600	1842.000	865.900	1978.000	855.600	2000.000
GR	849.800	2012.000	848.000	2034.000	848.100	2046.000	847.900	2054.000	849.200	2066.000
GR	855.200	2080.000	856.100	2152.000	856.100	2240.000	854.200	2315.000	856.700	2401.000
GR	856.200	2483.000	854.200	2533.000	857.500	2607.000	855.200	2699.000	860.900	2843.000
GR	864.400	2975.000	865.600	3035.000	859.800	3187.000	858.700	3345.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	1.400	1495.000	3256.000	0.000	0.000
		VALLEY SECTION D (SEWAGE DISPOSAL)								
X1	4.000	32.000	2000.000	2083.000	2125.000	2750.000	2375.000	0.000	0.000	0.000
GR	850.000	967.000	854.700	986.000	857.400	1182.000	857.700	1270.000	857.300	1382.000
GR	865.100	1426.000	860.900	1426.000	861.300	1495.000	865.100	1495.000	859.600	1616.000
GR	854.500	1674.000	855.200	1756.000	855.600	1886.000	854.200	2000.000	850.600	2010.000
GR	849.100	2020.000	846.200	2032.000	845.400	2052.000	849.000	2074.000	853.700	2083.000
GR	853.600	2220.000	858.200	2288.000	860.100	2442.000	859.700	2596.000	858.100	2772.000
GR	859.700	2964.000	860.700	3122.000	865.800	3256.000	864.600	3438.000	858.000	3520.000
GR	857.300	3596.000	867.800	3656.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
QT	5.000	3250.000	4900.000	5680.000	7690.000	5680.000	0.000	0.000	0.000	0.000
NC	.150	.165	.067	.100	.300	0.000	0.000	0.000	0.000	0.000
		VALLEY SECTION E								
X1	5.000	15.000	2027.000	2171.000	1600.000	1300.000	1600.000	0.000	0.000	0.000
GR	862.700	2000.000	862.600	2027.000	851.800	2053.000	850.900	2057.000	849.700	2071.000
GR	847.900	2098.000	848.500	2119.000	848.500	2137.000	850.600	2155.000	856.400	2171.000
GR	856.500	2385.000	854.600	2539.000	853.900	2691.000	854.700	2931.000	851.800	2943.000
QT	5.000	2930.000	4420.000	5130.000	6950.000	5130.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2000.000	2244.000	2000.000	2244.000
X1	5.800	8.000	2000.000	2244.000	1575.000	1520.000	1545.000	0.000	0.000	0.000
GR	867.400	2000.000	854.200	2000.000	848.300	2008.000	850.900	2042.000	854.000	2164.000
GR	855.500	2220.000	863.700	2244.000	864.800	2350.000	0.000	0.000	0.000	0.000
NC	.135	.135	.060	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
X1	5.900	8.000	2000.000	2172.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	867.400	2000.000	854.200	2000.000	848.300	2008.000	850.900	2042.000	854.000	2164.000
GR	860.900	2164.000	863.000	2172.000	865.000	2200.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.500	3.800	0.000	34.000	0.000	204.000	0.000	854.000	848.300
		DAM CROSS-SECTION F								
X1	6.000	10.000	2000.000	2172.000	20.000	20.000	20.000	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	10.000	2000.000	867.400	0.000	2000.000	860.600	0.000	2008.000	860.500	854.600
BT	2008.000	860.500	860.300	2042.000	860.500	860.300	2042.000	860.500	854.000	2164.000

BT	860.900	0.000	2172.000	863.000	0.000	2220.000	865.000	0.000	2350.000	865.300
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	867.400	2000.000	860.600	2000.000	860.500	2008.000	854.600	2008.000	854.000	2042.000
GR	860.500	2042.000	860.900	2164.000	863.000	2172.000	865.000	2220.000	865.300	2350.000
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	7.000	2000.000	2172.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	867.400	2000.000	858.900	2000.000	855.800	2008.000	855.300	2042.000	858.200	2164.000
GR	863.000	2172.000	865.000	2220.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.130	.060	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1900.000	2122.100	1900.000	2122.100
X1	6.800	26.000	1900.000	2122.000	384.000	184.000	234.000	0.000	0.000	0.000
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.700	1640.000	858.100	1700.000	858.100	1800.000
GR	858.200	1900.000	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2060.000
GR	851.400	2081.000	856.500	2100.000	869.500	2122.000	874.600	2330.000	874.300	2464.000
GR	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000	884.000	3390.000
GR	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.130	.130	.065	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2016.000	2100.100	2016.000	2100.100
X1	6.900	28.000	2016.000	2100.000	286.000	286.000	286.000	.864	0.000	0.000
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2016.000
GR	855.400	2016.000	852.200	2034.000	853.700	2055.000	853.700	2055.100	853.600	2060.000
GR	853.600	2060.100	851.400	2081.000	856.500	2100.000	871.300	2100.000	869.500	2122.000
GR	874.600	2330.000	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000
GR	882.600	3270.000	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1808.190	1880.770	1808.190	1880.770
NC	0.000	0.000	.014	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	0.000	0.000	0.000	1.000	1.000	1.000	.864	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	26.000	488.000	874.400	0.000	704.000	872.200	0.000	886.000	870.400	0.000
BT	1036.000	869.600	0.000	1246.000	869.000	0.000	1350.000	867.600	0.000	1564.000
BT	865.200	0.000	1802.000	865.900	0.000	2000.000	869.900	0.000	2016.000	871.200
BT	855.400	2016.000	871.200	867.300	2055.000	871.200	867.300	2055.100	871.200	853.700
BT	2060.000	871.300	853.600	2060.100	871.300	867.400	2100.000	871.300	867.400	2100.000
BT	871.300	856.500	2122.000	869.500	0.000	2330.000	874.600	0.000	2464.000	874.300
BT	0.000	2612.000	876.100	0.000	2890.000	877.900	0.000	3093.000	878.800	0.000
BT	3270.000	882.600	0.000	3390.000	884.000	0.000	3554.000	882.300	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	2048.000	2132.100	2048.000	2132.100

BRIDGE SECTION G (UPSTREAM FACE PUTMAN ST.)

X1	7.100	27.000	2048.000	2132.000	55.000	55.000	55.000	.864	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	25.000	488.000	874.400	0.000	704.000	872.200	0.000	886.000	870.400	0.000
BT	1036.000	869.600	0.000	1246.000	869.000	0.000	1350.000	867.600	0.000	1564.000
BT	865.200	0.000	1802.000	865.900	0.000	2000.000	869.900	0.000	2048.000	871.200
BT	855.900	2048.000	871.200	867.200	2087.000	871.200	867.200	2087.100	871.200	855.800
BT	2092.000	871.300	854.700	2092.100	871.300	867.300	2132.000	871.300	867.300	2132.000
BT	871.300	854.900	2330.000	874.600	0.000	2464.000	874.300	0.000	2612.000	876.100
BT	0.000	2890.000	877.900	0.000	3093.000	878.800	0.000	3270.000	882.600	0.000

BT	3390.000	884.000	0.000	3554.000	882.300	0.000	0.000	0.000	0.000	0.000
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	869.900	2000.000	871.200	2048.000
GR	855.900	2048.000	853.000	2066.000	855.800	2087.000	855.800	2087.100	854.700	2092.000
GR	854.700	2092.100	850.200	2113.000	854.900	2132.000	871.300	2132.000	874.600	2330.000
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000
GR	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	9.100	1835.840	1908.410	1835.840	1908.410
NC	0.000	0.000	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.200	0.000	0.000	0.000	1.000	1.000	1.000	.864	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	1.410	1802.000	2330.100	0.000	0.000
X1	7.300	22.000	1802.000	2330.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	874.400	488.000	872.200	704.000	870.400	886.000	869.600	1036.000	869.000	1246.000
GR	867.600	1350.000	865.200	1564.000	865.900	1802.000	855.900	2048.000	853.000	2066.000
GR	855.800	2087.000	854.700	2092.000	850.200	2113.000	854.900	2132.000	874.600	2330.000
GR	874.300	2464.000	876.100	2612.000	877.900	2890.000	878.800	3093.000	882.600	3270.000
GR	884.000	3390.000	882.300	3554.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.140	.130	.060	.100	.300	0.000	0.000	0.000	0.000	0.000
		VALLEY SECTION H								
X1	8.000	25.000	2106.000	2230.000	990.000	990.000	1000.000	0.000	0.000	0.000
GR	875.100	460.000	873.200	610.000	872.000	780.000	870.800	986.000	869.000	1104.000
GR	867.800	1310.000	867.700	1428.000	867.400	1588.000	864.400	1788.000	862.900	2000.000
GR	862.100	2078.000	857.000	2106.000	852.700	2132.000	851.300	2158.000	852.500	2184.000
GR	856.900	2210.000	858.700	2230.000	863.400	2366.000	872.500	2486.000	874.200	2586.000
GR	879.400	2746.000	872.700	2954.000	878.400	3178.000	876.100	3484.000	878.000	3784.000
NC	.130	.150	.065	.100	.300	0.000	0.000	0.000	0.000	0.000
		VALLEY SECTION I (EASTERN STUDY LIMIT)								
X1	9.000	19.000	2000.000	2126.000	1750.000	1750.000	1750.000	0.000	0.000	0.000
GR	878.600	1200.000	875.800	1324.000	875.300	1408.000	875.500	1518.000	870.000	1670.000
GR	867.300	1772.000	865.400	1862.000	861.700	2000.000	857.100	2010.000	852.000	2022.000
GR	852.100	2054.000	853.200	2080.000	857.000	2106.000	860.000	2126.000	867.500	2172.000
GR	870.000	2196.000	874.100	2214.000	873.600	2248.000	872.400	2282.000	0.000	0.000
QT	5.000	2880.000	4340.000	5030.000	6820.000	5030.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	7.100	7.100	7.100	1.400	2846.000	5272.000	0.000	0.000
X1	10.000	31.000	3920.000	4002.000	2700.000	2700.000	2600.000	0.000	0.000	0.000
GR	869.300	2000.000	868.100	2210.000	870.800	2392.000	869.000	2516.000	865.100	2560.000
GR	865.300	2712.000	872.800	2846.000	864.600	2922.000	861.100	3046.000	860.300	3186.000
GR	858.300	3280.000	856.900	3308.000	858.500	3351.000	857.600	3516.000	859.500	3864.000
GR	858.900	3914.000	857.100	3920.000	853.300	3938.000	852.700	3960.000	854.200	3980.000
GR	857.000	4002.000	859.100	4013.000	859.400	4208.000	860.400	4282.000	862.100	4540.000
GR	860.500	4774.000	860.200	4954.000	862.200	5118.000	873.900	5272.000	882.400	5404.000
GR	881.900	5522.000	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	1.400	0.000	0.000	0.000	0.000
X1	11.000	25.000	2014.000	2078.000	3600.000	3400.000	3800.000	0.000	0.000	0.000
GR	885.800	700.000	882.000	830.000	875.500	994.000	873.200	1158.000	872.300	1338.000
GR	868.800	1484.000	871.200	1648.000	871.300	1748.000	871.800	1851.000	863.100	1988.000

GR	859.200	2000.000	857.800	2014.000	854.800	2030.000	855.200	2052.000	857.800	2078.000
GR	860.200	2102.000	860.300	2274.000	862.600	2418.000	859.900	2646.000	872.700	2850.000
GR	873.400	2992.000	872.600	3130.000	873.100	3274.000	873.800	3426.000	874.200	3466.000
X1	12.000	20.000	2004.000	2066.000	2100.000	1800.000	2000.000	0.000	0.000	0.000
GR	883.000	944.000	877.700	1156.000	873.800	1356.000	873.100	1450.000	872.200	1640.000
GR	867.300	1840.000	862.100	2000.000	858.300	2004.000	855.600	2026.000	856.600	2046.000
GR	858.300	2066.000	858.200	2090.000	863.600	2192.000	863.700	2294.000	867.000	2452.000
GR	869.300	2614.000	872.300	2776.000	875.600	2944.000	877.500	3104.000	879.000	3272.000
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 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1
T2      50 YR FLOW
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	852.100	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

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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2      100 YR FLOW
T3
J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -10.       4.        0.        0.  0.000000      0.00      0.0        0.    853.300     0.000
J2   NPROF     IPLOT     PRFVS     XSECV     XSFCH     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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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03.
  MODIFICATION -  50,51,52,53
**********************************************************

T1
T2      500 YR FLOW
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	855.300	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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

RED CEDAR

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.000	0.00	0.00	0.00	837.00	3460.00	850.00	0.00	850.04	2.49	1.93	3880.16	2193.95
30.000	0.00	0.00	0.00	837.00	5220.00	852.10	0.00	852.14	2.34	2.10	5493.69	3409.22
30.000	0.00	0.00	0.00	837.00	6050.00	853.30	0.00	853.34	2.06	2.08	6431.58	4218.68
30.000	0.00	0.00	0.00	837.00	8190.00	855.30	0.00	855.34	2.03	2.26	8023.37	5744.19
32.000	4330.00	0.00	0.00	839.00	3460.00	851.54	0.00	851.62	5.73	2.70	2571.80	1445.75
32.000	4330.00	0.00	0.00	839.00	5220.00	853.56	0.00	853.64	5.44	2.90	3732.28	2237.59
32.000	4330.00	0.00	0.00	839.00	6050.00	854.60	0.00	854.67	4.95	2.89	4363.61	2719.32
32.000	4330.00	0.00	0.00	839.00	8190.00	856.56	0.00	856.64	4.72	3.03	5620.18	3771.57
33.000	7800.00	0.00	0.00	843.00	3460.00	854.64	0.00	854.68	2.84	1.79	2972.50	2051.57
33.000	7800.00	0.00	0.00	843.00	5220.00	856.56	0.00	856.62	2.82	2.03	4216.11	3111.09
33.000	7800.00	0.00	0.00	843.00	6050.00	857.44	0.00	857.49	2.74	2.11	4783.32	3653.85
33.000	7800.00	0.00	0.00	843.00	8190.00	859.32	0.00	859.38	2.71	2.31	6049.88	4978.41
34.000	4700.00	0.00	0.00	845.00	3460.00	856.74	0.00	856.85	8.51	2.73	1265.39	1186.21
34.000	4700.00	0.00	0.00	845.00	5220.00	858.68	0.00	858.85	9.20	3.27	1597.70	1721.15
34.000	4700.00	0.00	0.00	845.00	6050.00	859.52	0.00	859.71	9.36	3.48	1740.40	1977.44
34.000	4700.00	0.00	0.00	845.00	8190.00	861.39	0.00	861.64	9.93	3.98	2060.83	2599.52
35.000	50.00	0.00	0.00	843.00	3460.00	856.79	0.00	856.89	6.24	2.60	1332.58	1385.28
35.000	50.00	0.00	0.00	843.00	5220.00	858.73	0.00	858.89	7.61	3.22	1622.80	1892.42
35.000	50.00	0.00	0.00	843.00	6050.00	859.56	0.00	859.75	8.09	3.46	1747.82	2126.75
35.000	50.00	0.00	0.00	843.00	8190.00	861.44	0.00	861.69	9.30	4.04	2028.90	2685.18
35.200	27.00	862.00	859.30	843.00	3460.00	856.79	0.00	856.90	.34	2.59	1333.63	5944.33
35.200	27.00	862.00	859.30	843.00	5220.00	858.74	0.00	858.90	.41	3.21	1625.84	8134.31
35.200	27.00	862.00	859.30	843.00	6050.00	859.70	0.00	859.89	.42	3.42	1770.26	9298.93
35.200	27.00	862.00	859.30	843.00	8190.00	861.79	0.00	862.03	.47	3.93	2082.90	11987.97
35.400	50.00	0.00	0.00	845.00	3460.00	856.80	0.00	856.91	8.09	2.70	1341.64	1216.40
35.400	50.00	0.00	0.00	845.00	5220.00	858.76	0.00	858.91	8.25	3.16	1832.31	1817.59
35.400	50.00	0.00	0.00	845.00	6050.00	859.74	0.00	859.90	7.86	3.29	2074.27	2158.10
35.400	50.00	0.00	0.00	845.00	8190.00	861.85	0.00	862.05	7.47	3.63	2608.54	2996.93
1.000	5755.00	0.00	0.00	846.40	3310.00	859.88	0.00	859.93	3.65	2.11	3146.53	1732.32
1.000	5755.00	0.00	0.00	846.40	4990.00	861.86	0.00	861.91	3.56	2.32	4708.20	2648.42
1.000	5755.00	0.00	0.00	846.40	5790.00	862.72	0.00	862.78	3.43	2.38	5420.26	3124.13
1.000	5755.00	0.00	0.00	846.40	7840.00	864.70	0.00	864.76	3.21	2.52	7099.95	4376.54

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2.000	1750.00	0.00	0.00	847.10	3310.00	860.52	0.00	860.57	3.62	2.22	3466.59	1739.59
2.000	1750.00	0.00	0.00	847.10	4990.00	862.46	0.00	862.51	3.34	2.36	5465.78	2730.98
2.000	1750.00	0.00	0.00	847.10	5790.00	863.30	0.00	863.35	3.10	2.36	6726.00	3288.82
2.000	1750.00	0.00	0.00	847.10	7840.00	865.22	0.00	865.26	2.51	2.31	10128.36	4947.93
3.000	2450.00	0.00	0.00	847.90	3310.00	861.22	0.00	861.24	2.15	1.62	4744.04	2256.20
3.000	2450.00	0.00	0.00	847.90	4990.00	863.13	0.00	863.15	2.10	1.77	6474.89	3443.81
3.000	2450.00	0.00	0.00	847.90	5790.00	863.94	0.00	863.96	2.07	1.83	7252.36	4022.42
3.000	2450.00	0.00	0.00	847.90	7840.00	865.78	0.00	865.80	2.02	1.96	9125.49	5516.17
4.000	2375.00	0.00	0.00	845.40	3310.00	861.60	0.00	861.62	1.12	1.29	6878.27	3128.54
4.000	2375.00	0.00	0.00	845.40	4990.00	863.50	0.00	863.52	1.05	1.37	9958.73	4860.32
4.000	2375.00	0.00	0.00	845.40	5790.00	864.31	0.00	864.32	1.02	1.39	11313.88	5725.90
4.000	2375.00	0.00	0.00	845.40	7840.00	866.14	0.00	866.15	.96	1.46	14497.24	7987.17
5.000	1600.00	0.00	0.00	847.90	3250.00	861.76	0.00	861.77	.97	1.06	6673.39	3297.81
5.000	1600.00	0.00	0.00	847.90	4900.00	863.66	0.00	863.67	1.12	1.25	8442.52	4638.08
5.000	1600.00	0.00	0.00	847.90	5680.00	864.47	0.00	864.48	1.16	1.33	9199.72	5272.31
5.000	1600.00	0.00	0.00	847.90	7690.00	866.29	0.00	866.31	1.26	1.51	10921.47	6840.21
5.800	1545.00	0.00	0.00	848.30	2930.00	861.96	0.00	861.99	2.21	1.38	2130.39	1972.32
5.800	1545.00	0.00	0.00	848.30	4420.00	863.89	0.00	863.93	2.70	1.70	2597.08	2690.20
5.800	1545.00	0.00	0.00	848.30	5130.00	864.70	0.00	864.75	2.87	1.84	2794.94	3027.70
5.800	1545.00	0.00	0.00	848.30	6950.00	866.54	0.00	866.61	3.27	2.14	3244.58	3845.90
5.900	75.00	0.00	0.00	848.30	2930.00	861.97	0.00	862.01	2.67	1.75	1669.87	1793.30
5.900	75.00	0.00	0.00	848.30	4420.00	863.90	0.00	863.97	3.47	2.21	2006.08	2372.49
5.900	75.00	0.00	0.00	848.30	5130.00	864.71	0.00	864.79	3.75	2.40	2160.57	2648.98
5.900	75.00	0.00	0.00	848.30	6950.00	866.54	0.00	866.67	4.37	2.82	2527.48	3323.06
6.000	20.00	860.50	860.30	854.00	2930.00	862.03	0.00	862.72	12.09	6.65	440.75	842.65
6.000	20.00	860.50	860.30	854.00	4420.00	863.91	0.00	864.43	4.62	5.80	771.83	2055.92
6.000	20.00	860.50	860.30	854.00	5130.00	864.66	0.00	865.18	3.70	5.75	925.15	2668.09
6.000	20.00	860.50	860.30	854.00	6950.00	866.40	0.00	866.92	2.57	5.78	1469.63	4331.64
6.100	20.00	0.00	0.00	855.30	2930.00	862.79	0.00	862.91	12.06	2.80	1044.62	843.59
6.100	20.00	0.00	0.00	855.30	4420.00	864.37	0.00	864.55	12.85	3.35	1339.08	1233.11
6.100	20.00	0.00	0.00	855.30	5130.00	865.09	0.00	865.28	12.84	3.55	1491.92	1431.39
6.100	20.00	0.00	0.00	855.30	6950.00	866.77	0.00	867.01	12.71	3.96	1861.28	1949.24
6.800	234.00	0.00	0.00	851.40	2930.00	863.02	0.00	863.07	4.08	1.86	1572.90	1451.14
6.800	234.00	0.00	0.00	851.40	4420.00	864.65	0.00	864.73	4.92	2.30	1919.70	1993.40
6.800	234.00	0.00	0.00	851.40	5130.00	865.38	0.00	865.47	5.16	2.47	2076.35	2257.27
6.800	234.00	0.00	0.00	851.40	6950.00	867.08	0.00	867.21	5.66	2.84	2445.47	2921.52
6.900	286.00	0.00	0.00	851.40	2930.00	863.13	0.00	863.39	19.79	4.10	714.46	658.65
6.900	286.00	0.00	0.00	851.40	4420.00	864.75	0.00	865.19	28.45	5.31	831.91	828.70
6.900	286.00	0.00	0.00	851.40	5130.00	865.47	0.00	865.99	31.98	5.80	883.76	907.14
6.900	286.00	0.00	0.00	851.40	6950.00	867.12	0.00	867.86	40.25	6.92	1003.63	1095.53
7.000	1.00	865.20	867.40	851.40	2930.00	863.12	0.00	863.41	1.51	4.35	673.24	2381.53
7.000	1.00	865.20	867.40	851.40	4420.00	864.72	0.00	865.22	2.29	5.65	782.21	2919.22
7.000	1.00	865.20	867.40	851.40	5130.00	865.43	0.00	866.02	2.63	6.18	830.54	3163.32
7.000	1.00	865.20	867.40	851.40	6950.00	867.07	0.00	867.91	3.46	7.38	942.10	3737.73

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7.100	55.00	865.20	867.30	850.20	2930.00	863.12	0.00	863.43	1.57	4.44	660.13	2336.25
7.100	55.00	865.20	867.30	850.20	4420.00	864.73	0.00	865.24	2.36	5.74	769.85	2878.08
7.100	55.00	865.20	867.30	850.20	5130.00	865.44	0.00	866.05	2.70	6.27	818.25	3122.80
7.100	55.00	865.20	867.30	850.20	6950.00	867.08	0.00	867.94	3.53	7.47	929.97	3698.88
7.200	1.00	0.00	0.00	850.20	2930.00	863.16	0.00	863.44	18.80	4.20	696.82	675.83
7.200	1.00	0.00	0.00	850.20	4420.00	864.80	0.00	865.26	26.52	5.42	815.89	858.32
7.200	1.00	0.00	0.00	850.20	5130.00	865.53	0.00	866.07	29.60	5.91	868.58	942.90
7.200	1.00	0.00	0.00	850.20	6950.00	867.21	0.00	867.98	36.71	7.01	990.76	1147.14
7.300	250.00	0.00	0.00	850.20	2930.00	863.65	0.00	863.69	3.79	1.49	1972.72	1505.08
7.300	250.00	0.00	0.00	850.20	4420.00	865.54	0.00	865.58	3.70	1.63	2716.99	2299.08
7.300	250.00	0.00	0.00	850.20	5130.00	866.37	0.00	866.41	3.45	1.66	3081.72	2760.47
7.300	250.00	0.00	0.00	850.20	6950.00	868.32	0.00	868.37	2.90	1.75	3969.76	4079.45
8.000	1000.00	0.00	0.00	851.30	2930.00	864.00	0.00	864.06	3.56	2.15	1960.24	1552.21
8.000	1000.00	0.00	0.00	851.30	4420.00	865.88	0.00	865.96	3.67	2.45	3146.05	2307.73
8.000	1000.00	0.00	0.00	851.30	5130.00	866.69	0.00	866.77	3.58	2.53	3750.81	2711.59
8.000	1000.00	0.00	0.00	851.30	6950.00	868.60	0.00	868.68	3.20	2.63	5648.94	3883.19
9.000	1750.00	0.00	0.00	852.00	2930.00	864.70	0.00	864.77	4.60	2.25	1501.14	1366.64
9.000	1750.00	0.00	0.00	852.00	4420.00	866.62	0.00	866.73	5.32	2.72	2103.31	1916.57
9.000	1750.00	0.00	0.00	852.00	5130.00	867.43	0.00	867.55	5.49	2.89	2413.96	2189.75
9.000	1750.00	0.00	0.00	852.00	6950.00	869.29	0.00	869.43	5.62	3.20	3246.36	2931.05
10.000	2600.00	0.00	0.00	852.70	2880.00	865.04	0.00	865.04	.41	.71	11523.09	4474.84
10.000	2600.00	0.00	0.00	852.70	4340.00	866.98	0.00	866.99	.36	.75	15918.52	7204.10
10.000	2600.00	0.00	0.00	852.70	5030.00	867.80	0.00	867.80	.35	.76	17786.08	8517.91
10.000	2600.00	0.00	0.00	852.70	6820.00	869.67	0.00	869.67	.33	.81	22121.46	11886.82
11.000	3800.00	0.00	0.00	854.80	2880.00	865.36	0.00	865.39	4.20	2.08	3561.39	1405.56
11.000	3800.00	0.00	0.00	854.80	4340.00	867.26	0.00	867.29	3.62	2.18	5101.51	2281.12
11.000	3800.00	0.00	0.00	854.80	5030.00	868.06	0.00	868.09	3.44	2.23	5785.94	2713.25
11.000	3800.00	0.00	0.00	854.80	6820.00	869.91	0.00	869.94	3.13	2.34	7508.74	3854.90
12.000	2000.00	0.00	0.00	855.60	2880.00	866.42	0.00	866.51	8.23	2.95	2125.63	1003.67
12.000	2000.00	0.00	0.00	855.60	4340.00	868.19	0.00	868.28	7.59	3.17	3255.10	1575.17
12.000	2000.00	0.00	0.00	855.60	5030.00	868.94	0.00	869.03	7.15	3.21	3836.30	1881.01
12.000	2000.00	0.00	0.00	855.60	6820.00	870.69	0.00	870.77	6.12	3.25	5418.00	2756.05

RED CEDAR

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.000	3460.00	850.00	0.00	0.00	0.00	759.94	0.00
30.000	5220.00	852.10	2.10	0.00	0.00	776.76	0.00
30.000	6050.00	853.30	1.20	0.00	0.00	786.38	0.00
30.000	8190.00	855.30	2.00	0.00	0.00	822.50	0.00
32.000	3460.00	851.54	0.00	1.54	0.00	553.83	4330.00
32.000	5220.00	853.56	2.02	1.46	0.00	596.92	4330.00
32.000	6050.00	854.60	1.04	1.30	0.00	619.10	4330.00
32.000	8190.00	856.56	1.97	1.26	0.00	649.86	4330.00
33.000	3460.00	854.64	0.00	3.10	0.00	631.68	7800.00
33.000	5220.00	856.56	1.93	3.01	0.00	652.90	7800.00
33.000	6050.00	857.44	.87	2.84	0.00	662.35	7800.00
33.000	8190.00	859.32	1.88	2.75	0.00	682.98	7800.00
34.000	3460.00	856.74	0.00	2.10	0.00	168.12	4700.00
34.000	5220.00	858.68	1.95	2.12	1.95	171.00	4700.00
34.000	6050.00	859.52	.83	2.08	2.78	171.00	4700.00
34.000	8190.00	861.39	1.87	2.07	4.66	171.00	4700.00
35.000	3460.00	856.79	0.00	.05	0.00	150.00	50.00
35.000	5220.00	858.73	1.94	.05	1.94	150.00	50.00
35.000	6050.00	859.56	.83	.05	2.78	150.00	50.00
35.000	8190.00	861.44	1.87	.04	4.65	150.00	50.00
35.200	3460.00	856.79	0.00	.01	0.00	150.00	27.00
35.200	5220.00	858.74	1.95	.01	1.95	150.00	27.00
35.200	6050.00	859.70	.96	.14	2.91	150.00	27.00
35.200	8190.00	861.79	2.08	.35	5.00	150.00	27.00
35.400	3460.00	856.80	0.00	.00	0.00	240.71	50.00
35.400	5220.00	858.76	1.96	.02	1.96	251.00	50.00
35.400	6050.00	859.74	.98	.03	2.94	251.00	50.00
35.400	8190.00	861.85	2.12	.07	5.06	251.00	50.00
1.000	3310.00	859.88	0.00	3.09	0.00	724.18	5755.00
1.000	4990.00	861.86	1.98	3.10	1.98	812.83	5755.00
1.000	5790.00	862.72	.87	2.99	2.84	829.27	5755.00
1.000	7840.00	864.70	1.98	2.85	4.82	866.83	5755.00
2.000	3310.00	860.52	0.00	.63	0.00	900.94	1750.00
2.000	4990.00	862.46	1.95	.61	1.95	1350.83	1750.00
2.000	5790.00	863.30	.84	.58	2.79	1604.68	1750.00
2.000	7840.00	865.22	1.92	.52	4.71	1880.11	1750.00
3.000	3310.00	861.22	0.00	.70	0.00	866.88	2450.00
3.000	4990.00	863.13	1.91	.66	1.91	943.10	2450.00
3.000	5790.00	863.94	.81	.63	2.72	975.40	2450.00
3.000	7840.00	865.78	1.84	.56	4.56	1056.74	2450.00
4.000	3310.00	861.60	0.00	.39	0.00	1573.76	2375.00
4.000	4990.00	863.50	1.90	.38	1.90	1665.58	2375.00

4.000	5790.00	864.31	.80	.37	2.71	1704.40	2375.00
4.000	7840.00	866.14	1.83	.36	4.53	1761.00	2375.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.000	3250.00	861.76	0.00	.16	0.00	913.98	1600.00
5.000	4900.00	863.66	1.90	.16	1.90	943.00	1600.00
5.000	5680.00	864.47	.80	.16	2.71	943.00	1600.00
5.000	7690.00	866.29	1.83	.15	4.53	943.00	1600.00
5.800	2930.00	861.96	0.00	.20	0.00	238.90	1545.00
5.800	4420.00	863.89	1.93	.23	1.93	244.00	1545.00
5.800	5130.00	864.70	.81	.23	2.74	244.00	1545.00
5.800	6950.00	866.54	1.84	.25	4.58	244.00	1545.00
5.900	2930.00	861.97	0.00	.01	0.00	168.07	75.00
5.900	4420.00	863.90	1.93	.01	1.93	184.64	75.00
5.900	5130.00	864.71	.81	.01	2.74	196.00	75.00
5.900	6950.00	866.54	1.84	.00	4.58	200.00	75.00
6.000	2930.00	862.03	0.00	.06	0.00	168.34	20.00
6.000	4420.00	863.91	1.87	.01	1.87	193.96	20.00
6.000	5130.00	864.66	.76	-.04	2.63	212.08	20.00
6.000	6950.00	866.40	1.74	-.14	4.37	350.00	20.00
6.100	2930.00	862.79	0.00	.76	0.00	171.65	20.00
6.100	4420.00	864.37	1.58	.47	1.58	204.96	20.00
6.100	5130.00	865.09	.72	.43	2.30	220.00	20.00
6.100	6950.00	866.77	1.68	.36	3.98	220.00	20.00
6.800	2930.00	863.02	0.00	.23	0.00	211.03	234.00
6.800	4420.00	864.65	1.63	.28	1.63	213.79	234.00
6.800	5130.00	865.38	.73	.29	2.36	215.03	234.00
6.800	6950.00	867.08	1.71	.32	4.07	217.91	234.00
6.900	2930.00	863.13	0.00	.12	0.00	72.58	286.00
6.900	4420.00	864.75	1.62	.10	1.62	72.58	286.00
6.900	5130.00	865.47	.71	.09	2.33	72.58	286.00
6.900	6950.00	867.12	1.65	.03	3.98	72.58	286.00
7.000	2930.00	863.12	0.00	-.02	0.00	72.58	1.00
7.000	4420.00	864.72	1.61	-.03	1.61	72.58	1.00
7.000	5130.00	865.43	.71	-.03	2.31	72.58	1.00
7.000	6950.00	867.07	1.64	-.05	3.95	72.58	1.00
7.100	2930.00	863.12	0.00	.00	0.00	72.58	55.00
7.100	4420.00	864.73	1.61	.00	1.61	72.58	55.00
7.100	5130.00	865.44	.71	.01	2.32	72.58	55.00
7.100	6950.00	867.08	1.64	.01	3.96	72.58	55.00
7.200	2930.00	863.16	0.00	.04	0.00	72.57	1.00
7.200	4420.00	864.80	1.64	.07	1.64	72.57	1.00
7.200	5130.00	865.53	.73	.09	2.37	72.57	1.00
7.200	6950.00	867.21	1.68	.13	4.05	72.57	1.00
7.300	2930.00	863.65	0.00	.49	0.00	362.71	250.00
7.300	4420.00	865.54	1.88	.73	1.88	427.95	250.00
7.300	5130.00	866.37	.83	.84	2.71	445.25	250.00
7.300	6950.00	868.32	1.95	1.11	4.67	464.86	250.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.000	2930.00	864.00	0.00	.35	0.00	529.16	1000.00
8.000	4420.00	865.88	1.88	.34	1.88	709.21	1000.00
8.000	5130.00	866.69	.81	.33	2.70	774.31	1000.00
8.000	6950.00	868.60	1.91	.29	4.61	1262.10	1000.00
9.000	2930.00	864.70	0.00	.70	0.00	266.57	1750.00
9.000	4420.00	866.62	1.93	.74	1.93	362.63	1750.00
9.000	5130.00	867.43	.81	.74	2.74	404.62	1750.00
9.000	6950.00	869.29	1.86	.68	4.59	492.34	1750.00
10.000	2880.00	865.04	0.00	.34	0.00	2237.31	2600.00
10.000	4340.00	866.98	1.94	.36	1.94	2280.96	2600.00
10.000	5030.00	867.80	.81	.37	2.76	2299.25	2600.00
10.000	6820.00	869.67	1.87	.38	4.63	2341.16	2600.00
11.000	2880.00	865.36	0.00	.32	0.00	780.69	3800.00
11.000	4340.00	867.26	1.90	.28	1.90	840.88	3800.00
11.000	5030.00	868.06	.80	.27	2.70	866.29	3800.00
11.000	6820.00	869.91	1.85	.25	4.55	1047.19	3800.00
12.000	2880.00	866.42	0.00	1.06	0.00	557.26	2000.00
12.000	4340.00	868.19	1.77	.93	1.77	732.28	2000.00
12.000	5030.00	868.94	.75	.88	2.52	815.81	2000.00
12.000	6820.00	870.69	1.75	.78	4.27	987.59	2000.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR RED CEDAR

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10_	2_	0.2_
30.000	0.	-3.30	-1.20	2.00
32.000	4330.	-3.05	-1.04	1.97
33.000	12130.	-2.80	-.87	1.88
34.000	16830.	-2.78	-.83	1.87
35.000	16880.	-2.78	-.83	1.87
35.200	16907.	-2.91	-.96	2.08
35.400	16957.	-2.94	-.98	2.12
1.000	22712.	-2.84	-.87	1.98
2.000	24462.	-2.79	-.84	1.92
3.000	26912.	-2.72	-.81	1.84
4.000	29287.	-2.71	-.80	1.83
5.000	30887.	-2.71	-.80	1.83
5.800	32432.	-2.74	-.81	1.84
5.900	32507.	-2.74	-.81	1.84
6.000	32527.	-2.63	-.76	1.74
6.100	32547.	-2.30	-.72	1.68
6.800	32781.	-2.36	-.73	1.71
6.900	33067.	-2.33	-.71	1.65
7.000	33068.	-2.31	-.71	1.64
7.100	33123.	-2.32	-.71	1.64
7.200	33124.	-2.37	-.73	1.68
7.300	33374.	-2.71	-.83	1.95
8.000	34374.	-2.70	-.81	1.91
9.000	36124.	-2.74	-.81	1.86
10.000	38724.	-2.76	-.81	1.87
11.000	42524.	-2.70	-.80	1.85
12.000	44524.	-2.52	-.75	1.75
WEIGHTED AVG FOR REACH		-2.83	-.88	1.91

FHF FOR THE REACH = 030 WITH 100.0_ OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 6

Genesee	Burton	All	9/9	Burton / Burton	2 maps
"	Clio	All	2/2		0
"	Flint	Gilkey	2/2		1
"	Clayton, ~~City~~ Twp		1/1		0
"	Fenton		4/4		2
"	Flint Twp		4/4		1
"	Flushing		4/4		0
"	Flushing Twp		11/13		4
"	Gaines Twp		1/1		0 map
"	Grand Blanc Twp		5/5		1 map
"	Montrose Twp		5/5	Armstrong Creek	1 map
"	Mt Morris Twp		6/6		1 map
	Clayton ~~Twp~~ City		1/1		1
Gogebic	Ironwood		5/5		no maps
Grand Traverse	Traverse City		10/10		no maps
Gratiot	Alma / Alma City		4/4		no maps
Hillsdale	Hillsdale		5/5		0
	Litchfield		4/4		0
Huron	Sebewaing		11/14		0
Ingham	Lansing Middle		1/4		0
	Lansing Sycamore		6/6		0
	Mason		9/9		0
	Meridian		~~2/2~~ 11/4		0
	Williamston		~~[illegible]~~ 7/9		~~5~~ 2
	Williamston Twp		4/6		1
	Portland		4/4		0

Wayne	Riverview, Cty	4/4	0 maps
	Rockwood, Cty	4/4	0
	Sublight, Cty	4/4	0
	Sumpter Twp	4/4	0
	Taylor, Cty	4/4	0
	Trenton, Cty	3/3	0
	Woodhaven, Cty	3/3	0

HYDRAULIC ANALYSIS REPORT

RED CEDAR RIVER AT THE CITY OF WILLIAMSTON, WILLIAMSTON TOWNSHIP, AND LOCKE TOWNSHIP

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

November 1979

Introduction

Hydraulic calculations were performed at the city of Williamston and the Townships of Williamston and Locke. The reach of the Red Cedar River studied was 15.62 to 20.04 miles upstream from its confluence with the Grand River. Commonwealth Associates Inc. (CAI) is submitting the analysis of the Red Cedar River as one report. However, individual reports for each community will be sent to FEMA.

Reaches studied in detail for Williamston Township include River Miles 15.62 - 16.77. The reach between Miles 16.77 and 19.92 was delineated as an approximate study, however, CAI is submitting the hydraulic calculations to show how the starting water surface elevation for the city of Williamston and Locke Township were determined. Cross section data for Williamston Township was obtained from the Corps of Engineers, U.S. Army, Detroit District, F.P.I. (1968). The lengths between cross sections are quite long, but CAI feels it is justified in using them since no significant losses, (HV) were encountered. Also, as agreed upon by the DNR, CAI, and FEMA in the Time and Cost meetings, these cross sections were adequate for flood insurance purposes.

Reaches studied in detail for the city of Williamston and Locke Township include River Miles 19.92 - 22.46 and 22.94 - 24.04. Field cross section data was surveyed by Commonwealth Associates in February, 1979.

The flows for the 10-, 50-, 100-, and 500-year recurrence intervals were determined by gage analysis and were approved by the Michigan Department of Natural Resources in a letter dated August 1, 1979. A 7.5 minute series topographic map with a 10-foot contour interval was used.

This study was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was D. D. Zimbelman, P.E.

Method of Analysis

The HEC-2 computer program was utilized for the entire reach.

Variables and Coefficients

Manning's Roughness Coefficient

For channel	0.06-0.067
For overbanks	.13-.165

Coefficients for

Contraction	0.10
Expansion	0.30

Coefficients for bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

The roughness coefficients chosen were based primarily on sensitivity runs. These values were required to match the high water marks recorded for the April, 1975 flood. They appear to be slightly high, however, they are consistent with values used in the adjacent FIS for Meridian Township.

High Water Marks

On April 18, 1975, the city of Williamston experienced an intense rainstorm which resulted in the most devastating flood since 1904. During the time of flooding, various high water marks were recorded. The U.S. Weather Bureau staff gage located near the M-43 bridge over Deer Creek peaked out at 13.08 feet. The datum of the gage was 850.54 which corresponds to an elevation of 863.62 feet. Also, an elevation of 863.17 was recorded on tanks located at the Williamston Sewage Treatment Plant. The above information was supplied by Steve Hughes, Williamston Sewage Treatment Plant supervisor. Numerous runs using different "n" values were run to match the 1975 high water marks.

Starting Conditions

The starting water surface elevations are based on the downstream FIS of Meridian Township. These elevations were interpolated for the revised flows based on the HEC-2 printout used in the FIS of Meridian Township.

Special Problems

On April 18, 1975, the city of Williamston experienced an intense rainstorm which resulted in the most devastating flood since 1904. During the time of flooding, the U.S. Geological Survey obtained aerial photography and stream flow data to document the disaster. This report published a photo-mosaic map showing the extent of flooding along the Red Cedar River and data obtained at stream gaging stations, Reference 1.

Other published reports pertaining to floods include References 2 and 3. Additional information was obtained from Steve Hughes, Williamston Sewage Treatment Plant supervisor.

Inconsistencies between the published data have presented problems that should be recognized. Records of river stages on the Red Cedar River have been collected by the National Weather Service since 1919 by using a nonrecording gage at M-43 bridge over Deer Creek. The gage datum varies by approximately .7 foot between References 1 and 3.

In Reference 1, Figure 3 shows the gage datum to be 850.18 feet above mean sea level with a staff gage reading of 11.3 feet for a 1947 flood. This translates into a water surface elevation of 861.48 for that 1947 flood. In Reference 3, the gage datum is listed as 850.84 feet. In Reference 3, the same 1947 flood had a staff gage reading of 12.0 feet, which translates into a water surface elevation of 862.84. During the 1975 flood, which was nearly equal in magnitude to the 1947 flood, a reading of 13.08 feet was obtained at the staff gage. This reading does not compare favorably with either of the two previous reported readings for a nearly equal flow. Due to these unresolved inconsistencies, these elevations were not used in our analysis. However, the reading for the 1975 flood was used.

Additionally, Reference 1 reports that the 1975 flood had an estimated flow of 4,000 cfs and a recurrence interval of slightly less than 100 years. This recurrence interval does not compare with the approved flows for the Red Cedar River at Williamston. Using the approved flows, the 1975 storm of 4,000 cfs would have a recurrence interval of less than 50 years.

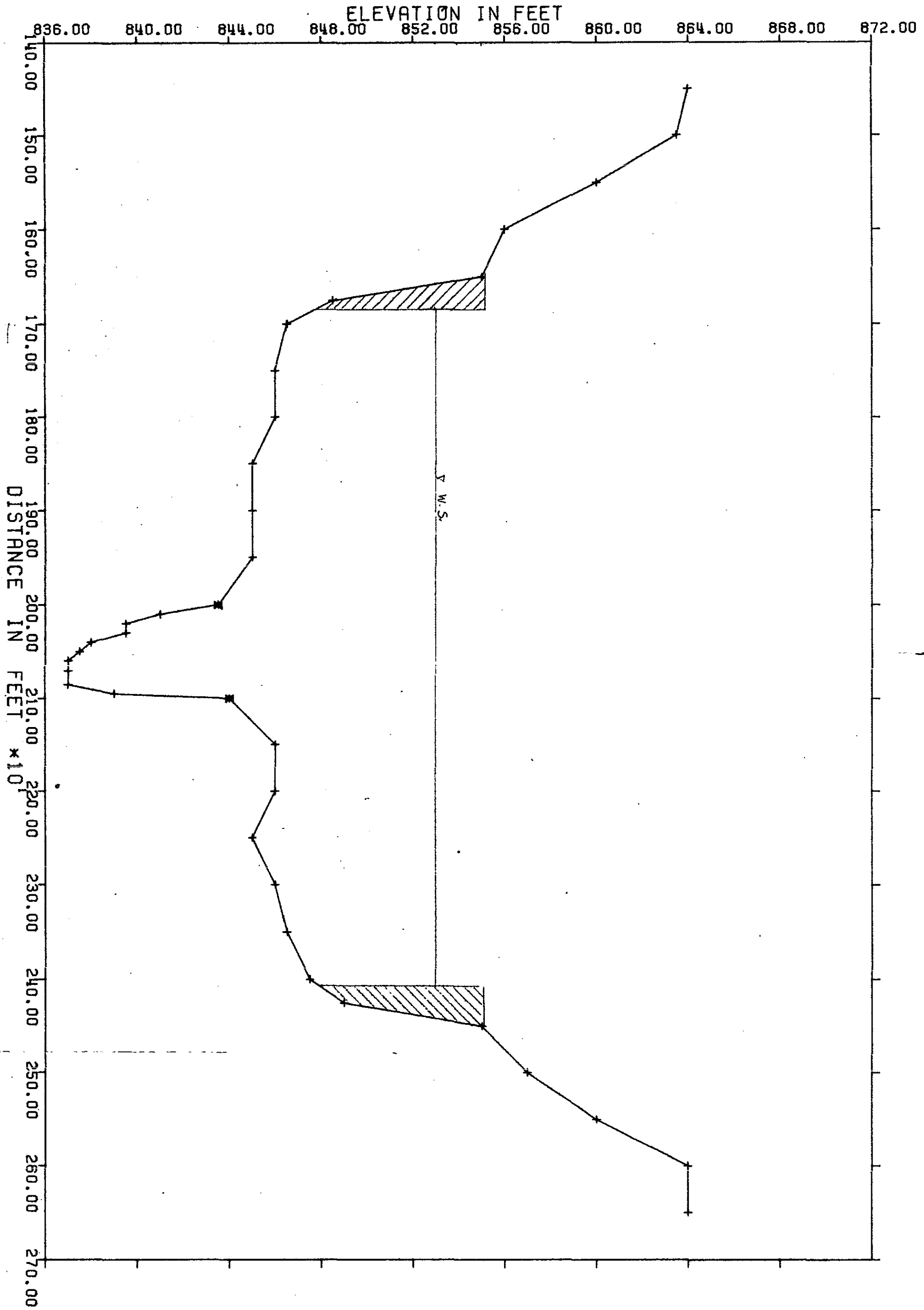
To resolve the problems mentioned above, Commonwealth Associates' analysis is based upon information obtained from Steve Hughes, Williamston Sewage Treatment Plant supervisor.

Known highwater marks were recorded during the 1975 flood in the city of Williamston. It is these elevations that Commonwealth Associates has matched with an estimated flow for the 1975 flood. The estimated flow was calculated from $\left(\frac{A}{(A \text{ gage})}\right)^n = \frac{Q}{Q \text{ gage}}$ using annual peak flows recorded at

the U.S.G.S. gaging station located at East Lansing. An exponent of 0.889 was used. Calculations are contained in Appendix A.

CROSS SECTION REFERENCE

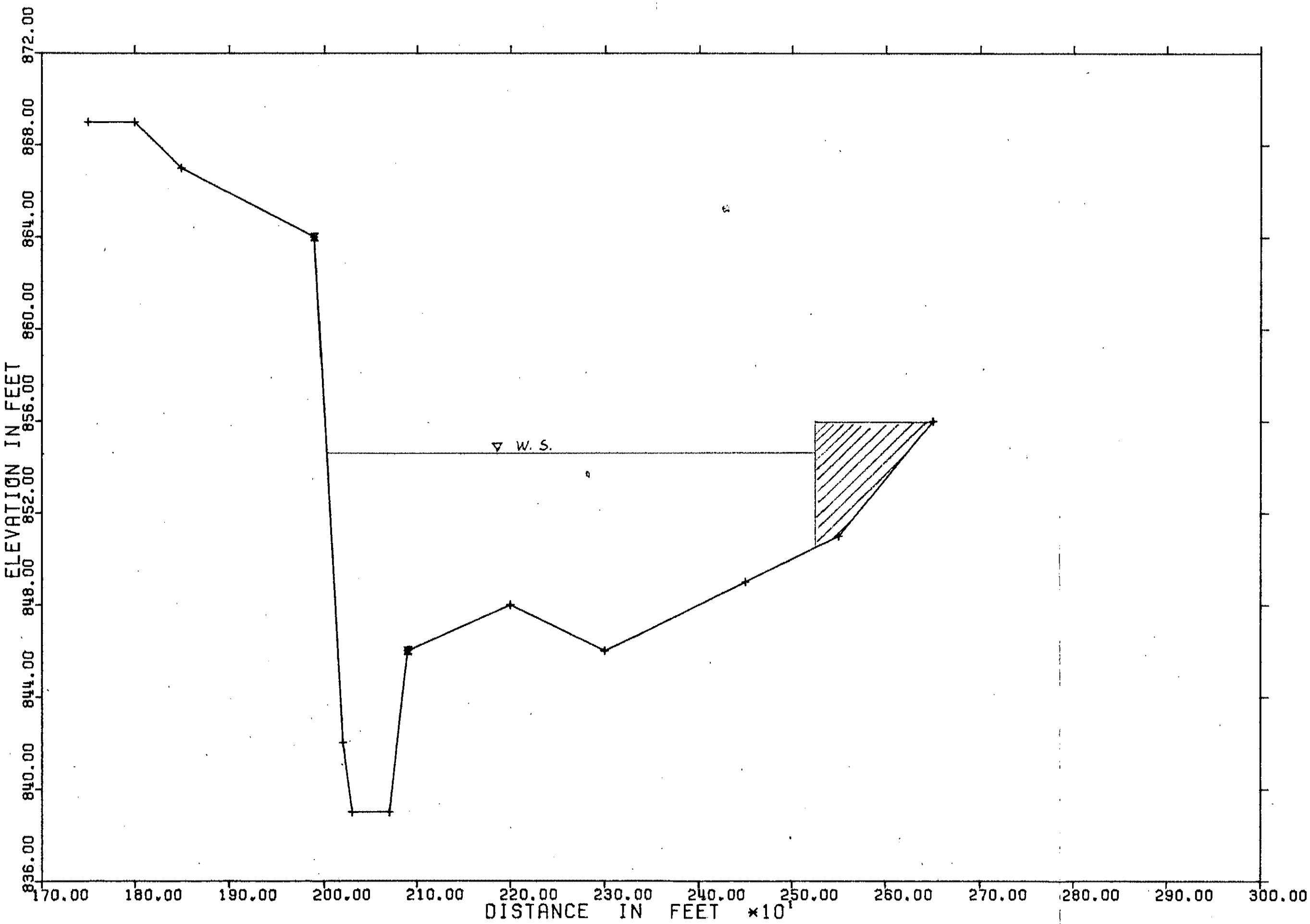
Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
	30	Valley Section upstream of M-43 Bridge, Army Corps of Engineers' Cross Section
	32	Valley Section, Army Corps of Engineers' Cross Section
	33	Valley Section, Army Crops of Engineers' Cross Section
	34	Valley Section, Army Corps of Engineers' Cross Section 50 downstream from Zimmer Road Bridge
	35	Valley Section, Army Corps of Engineers' Cross Section 1 foot downstream of Zimmer Road Bridge
	35.2	Bridge Section, Upstream Face Zimmer Road Bridge, Army Corps of Engineers' Cross Section
	35.4	Valley Section, Army Corps of Engineers' Cross Section 34 repeated
A	1	Valley Section west boundary line of city
B	2	Valley Cross Section
C	3	Valley Cross Section
D	4	Valley Cross Section



FLOOD INSURANCE STUDY

RED CEDAR RIVER

FLOOD INSURANCE STUDY
RED CEDAR RIVER



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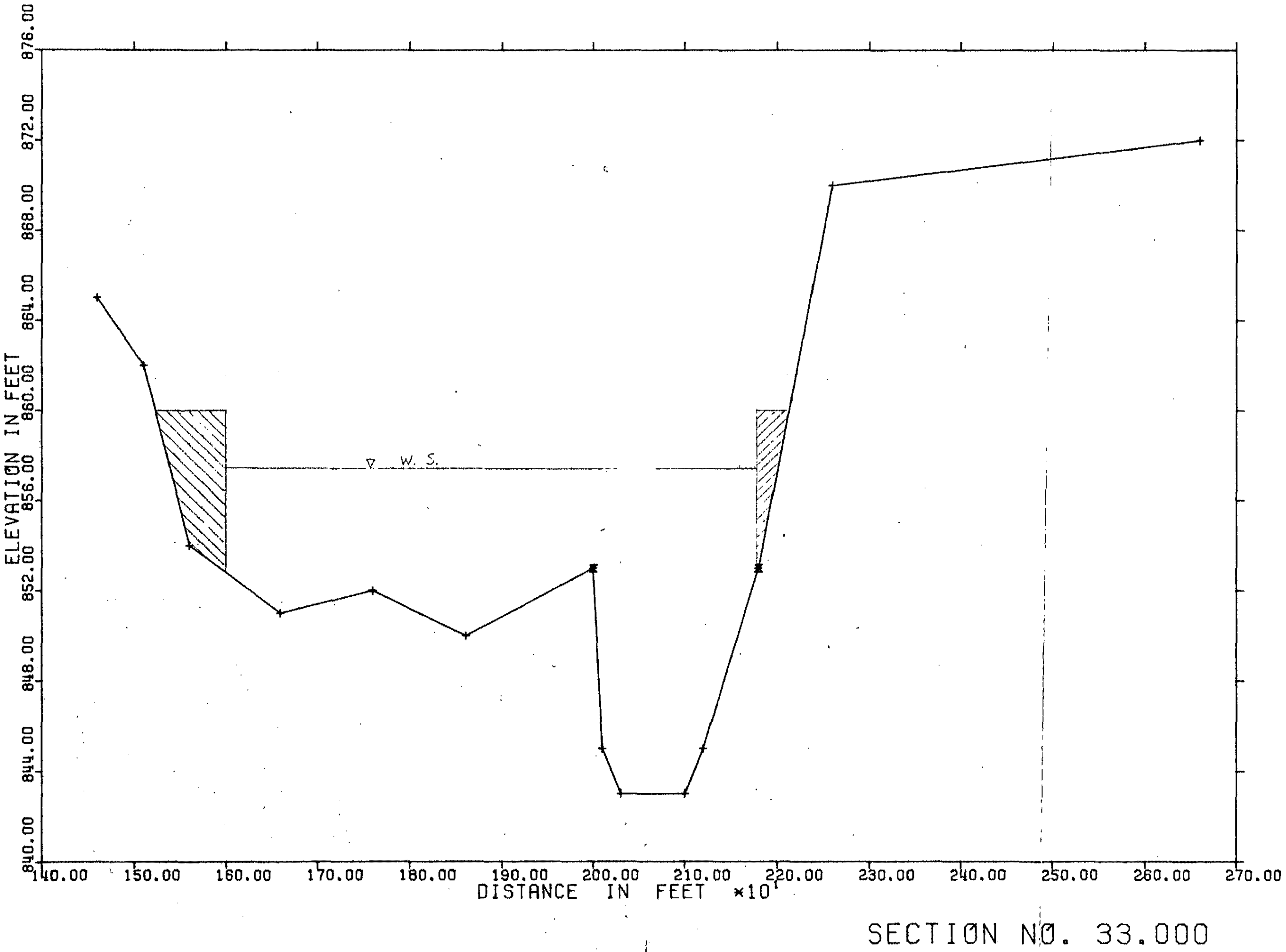

FLOOD INSURANCE STUDY

RED CEDAR RIVER

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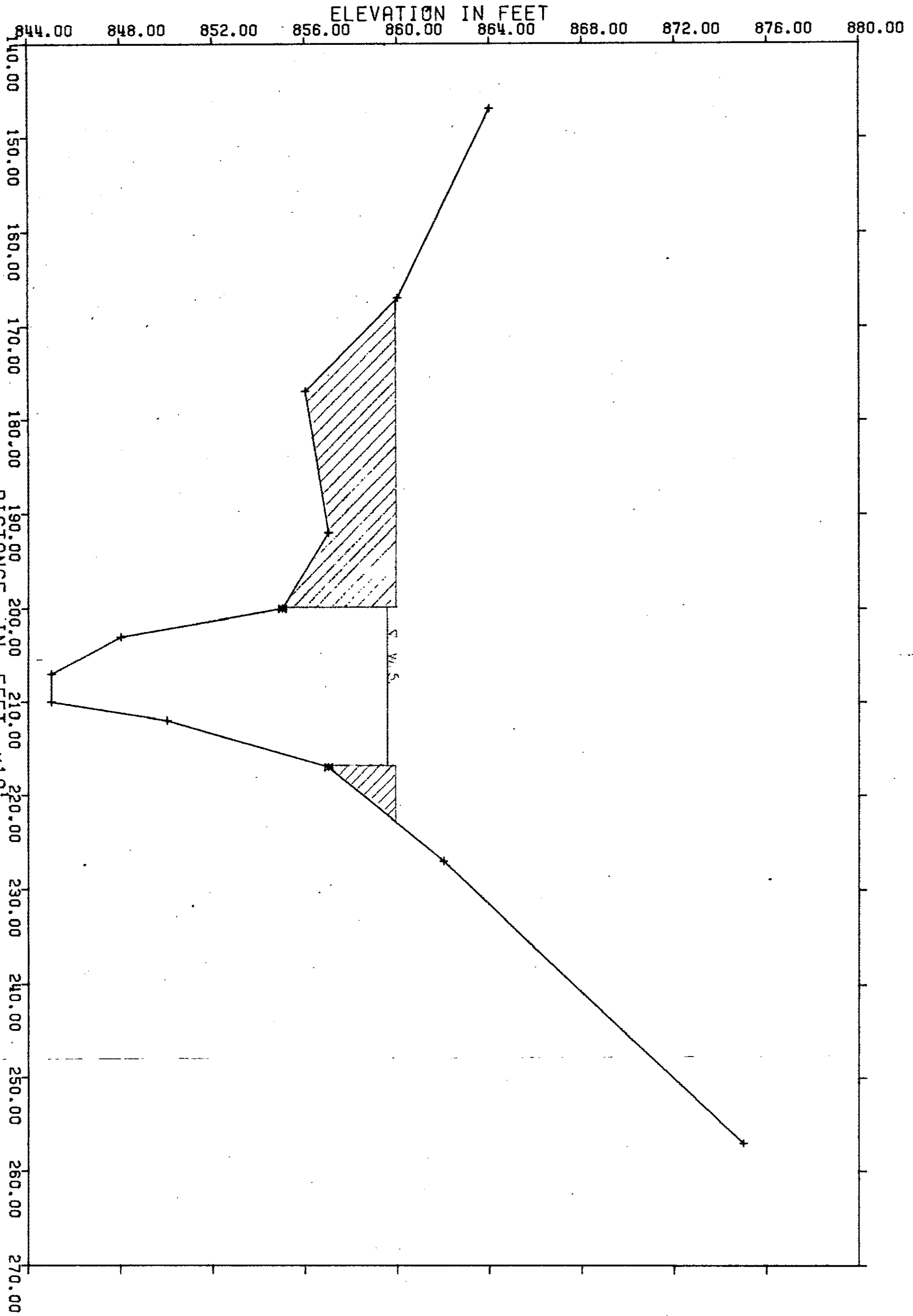
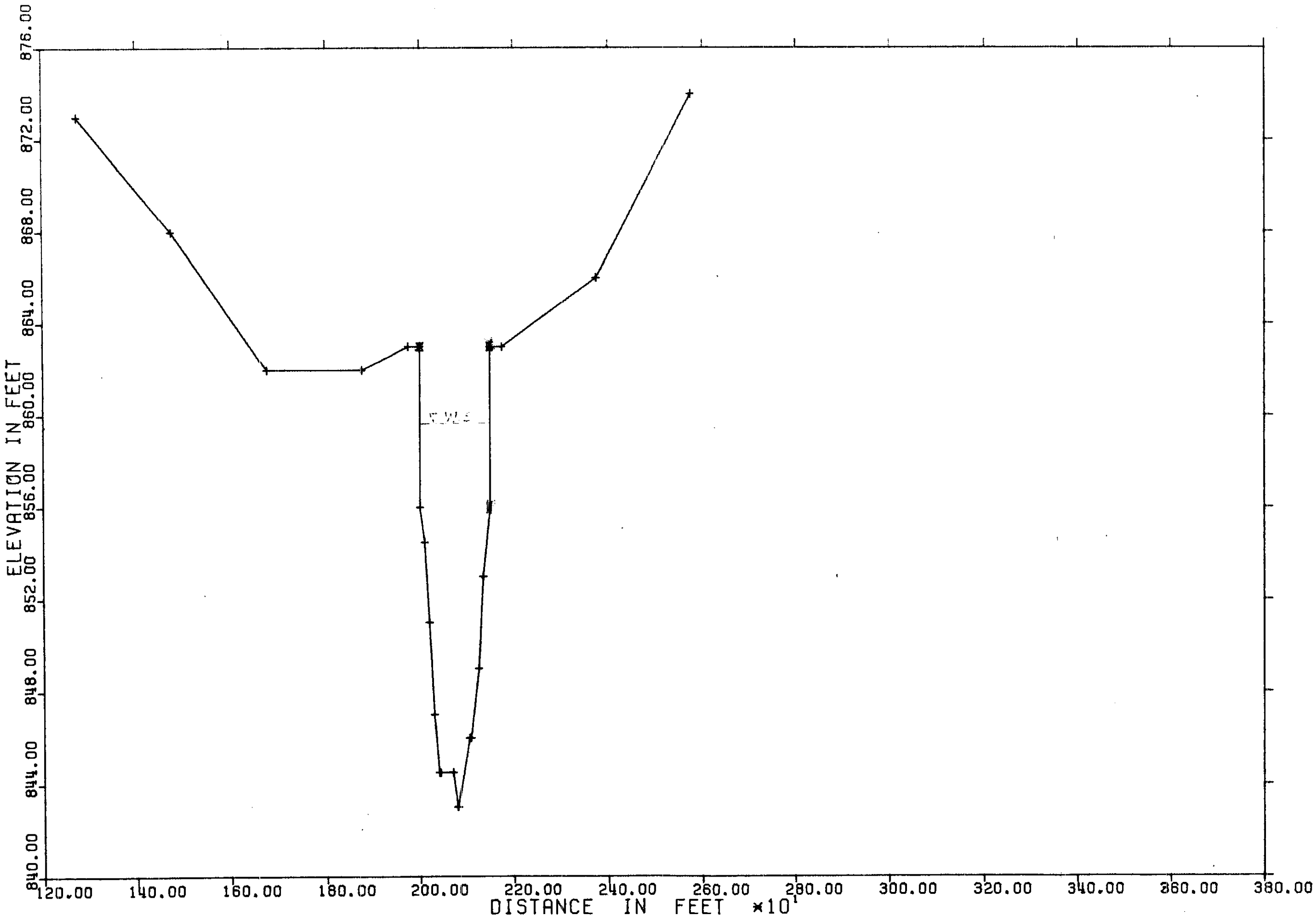


FLOOD INSURANCE STUDY

RED CEDAR RIVER.

FLOOD INSURANCE STUDY

RED CEDAR RIVER



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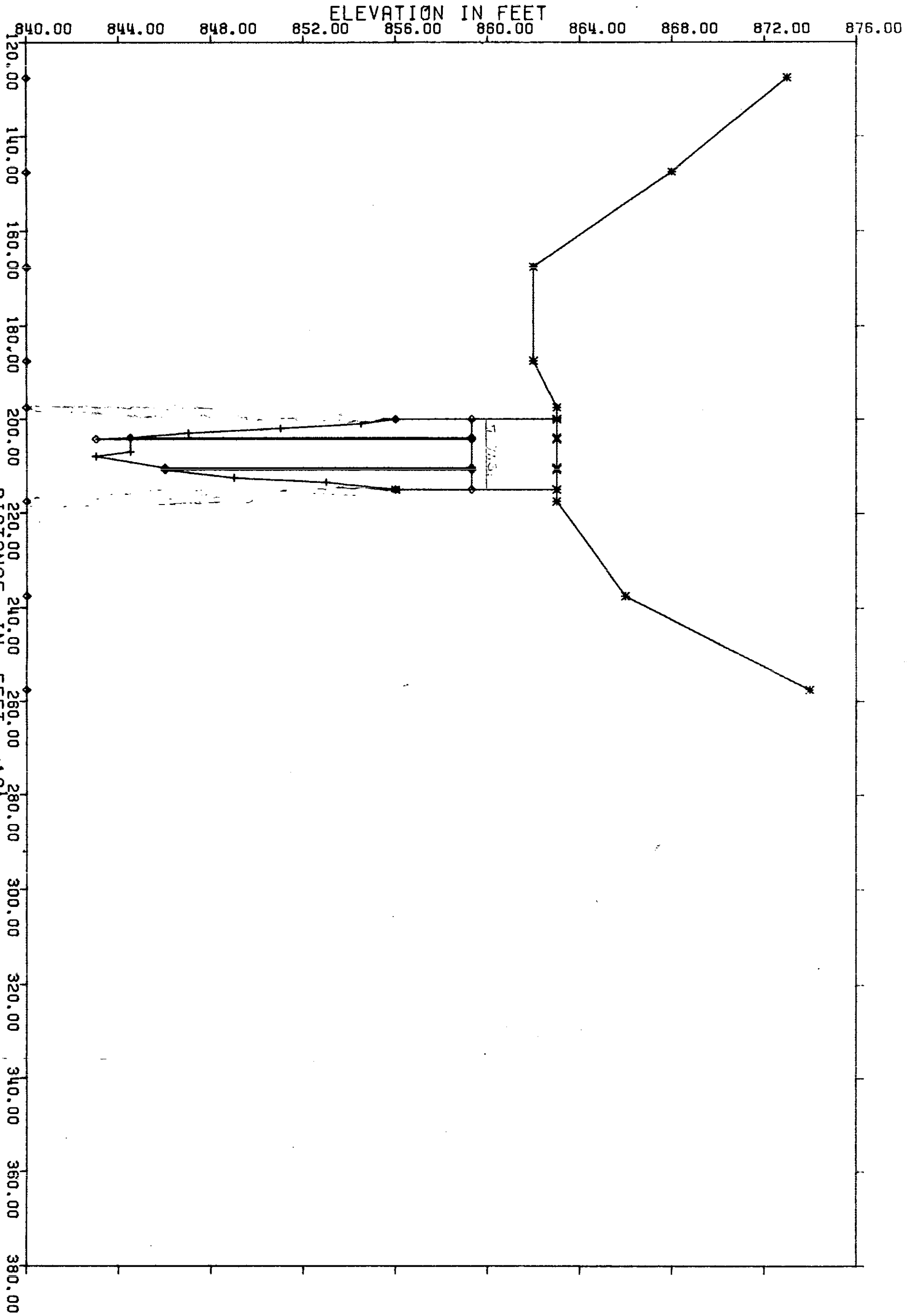
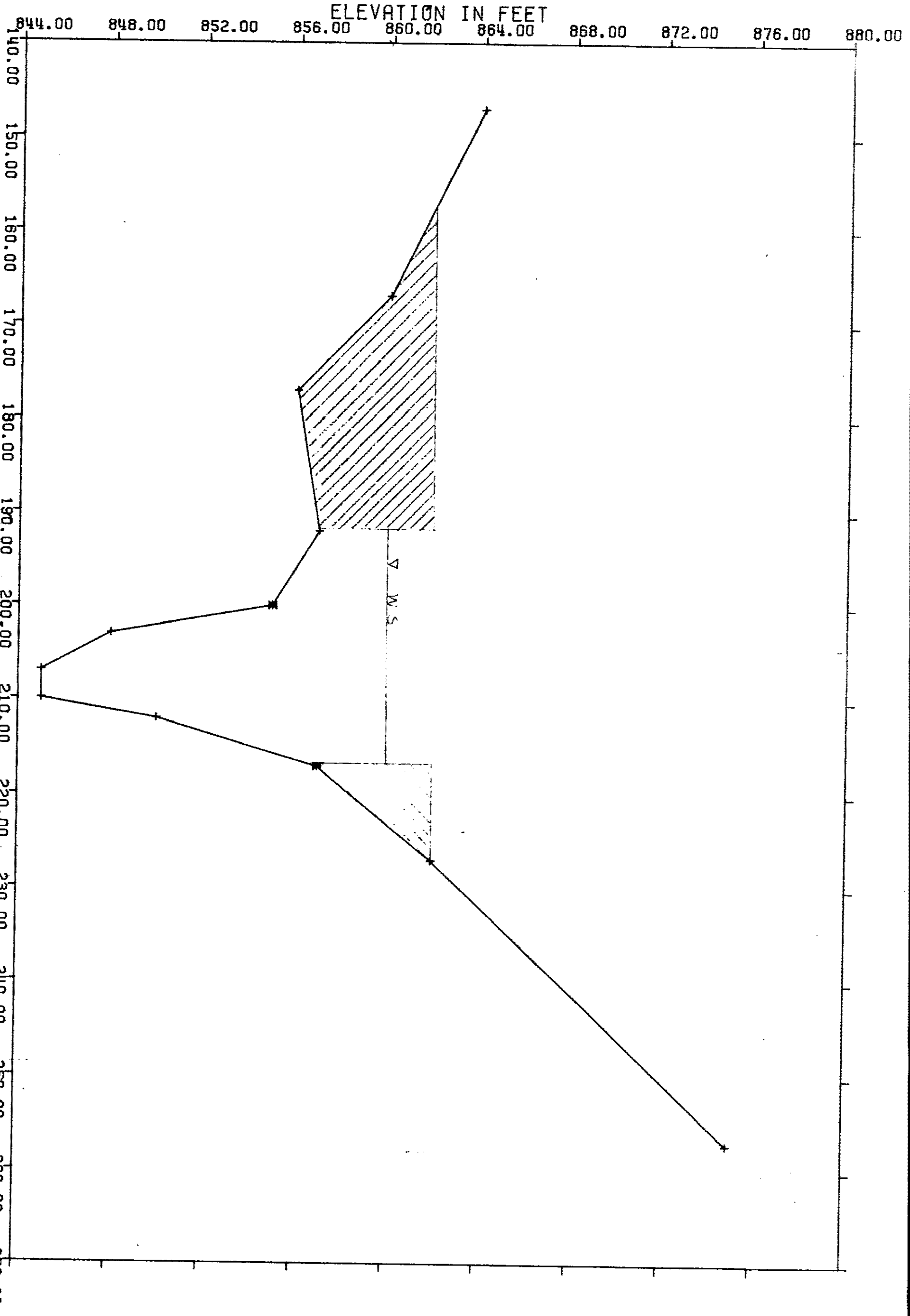


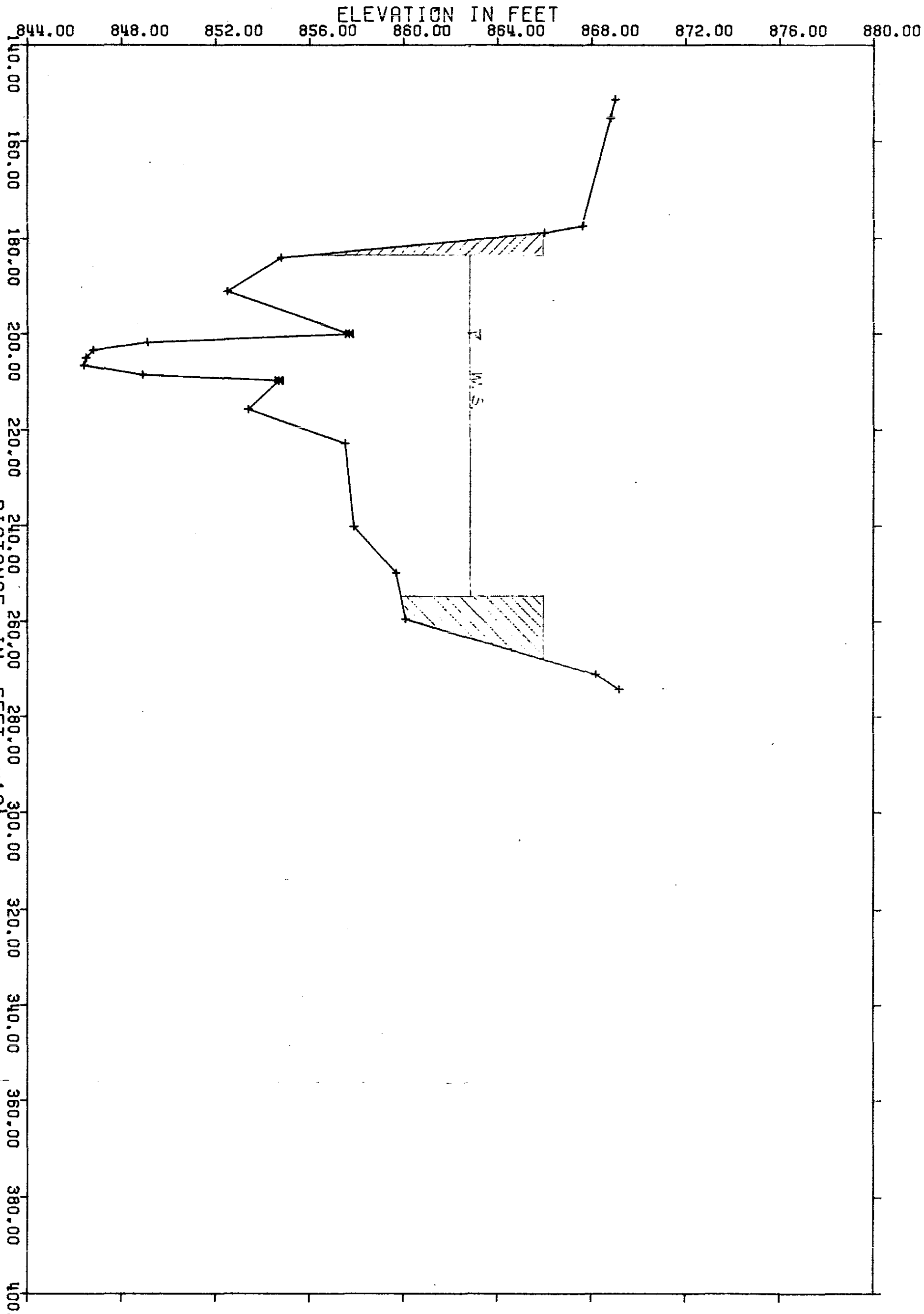
FLOOD INSURANCE STUDY

RED CEDAR RIVER



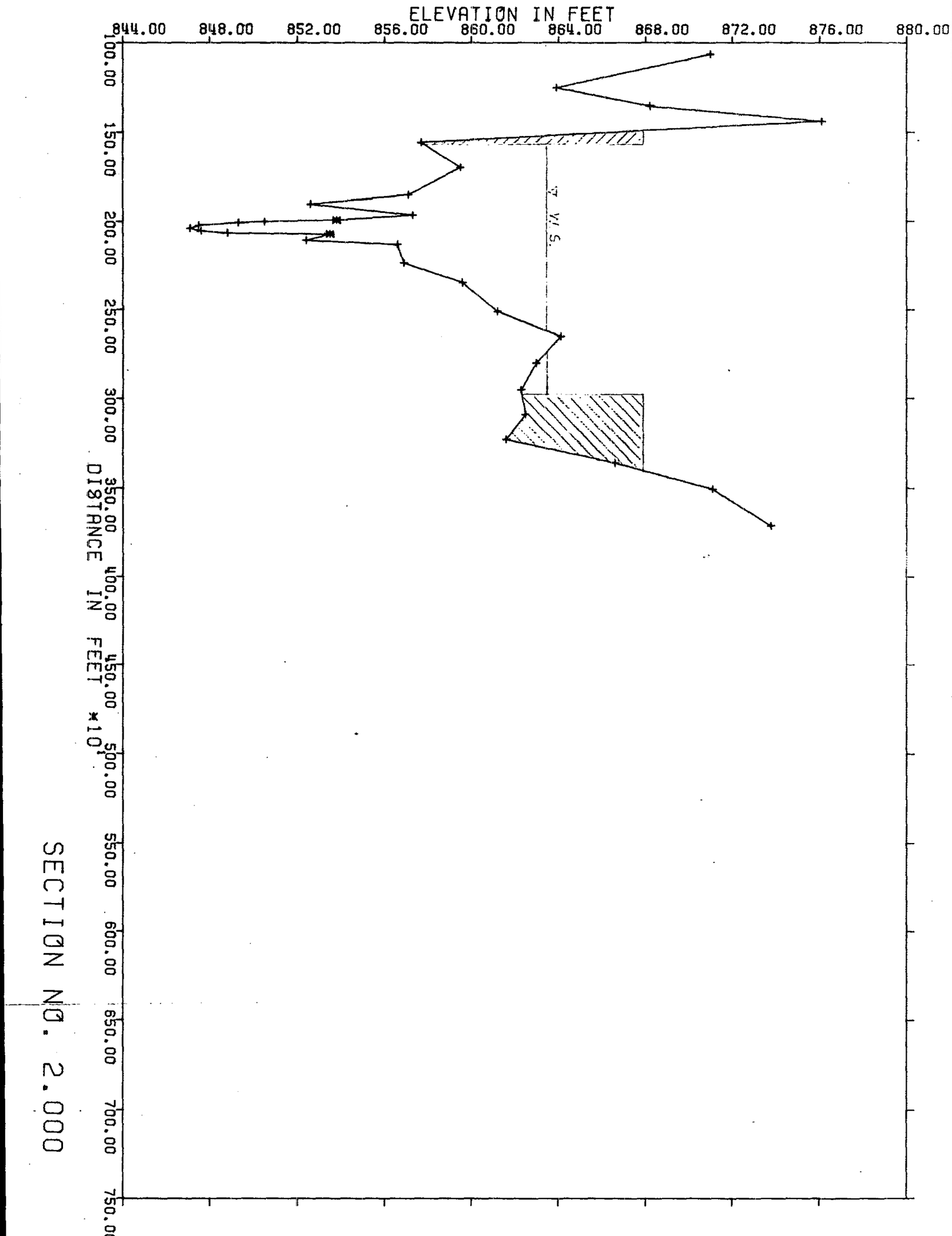
FLOOD INSURANCE STUDY

RED CEDAR RIVER



FLOOD INSURANCE STUDY

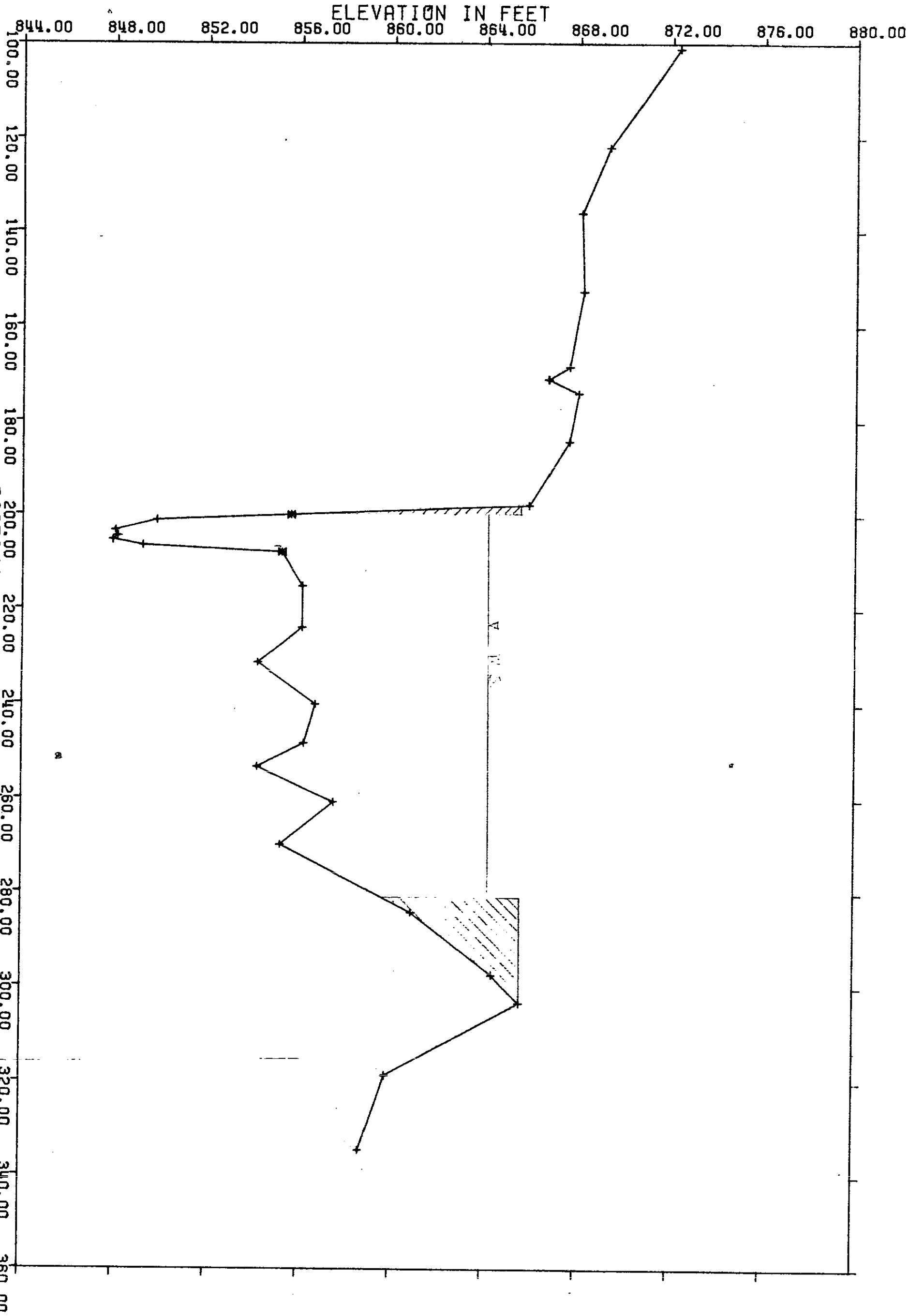
RED CEDAR RIVER



SECTION NO. 2.000

FLOOD INSURANCE STUDY

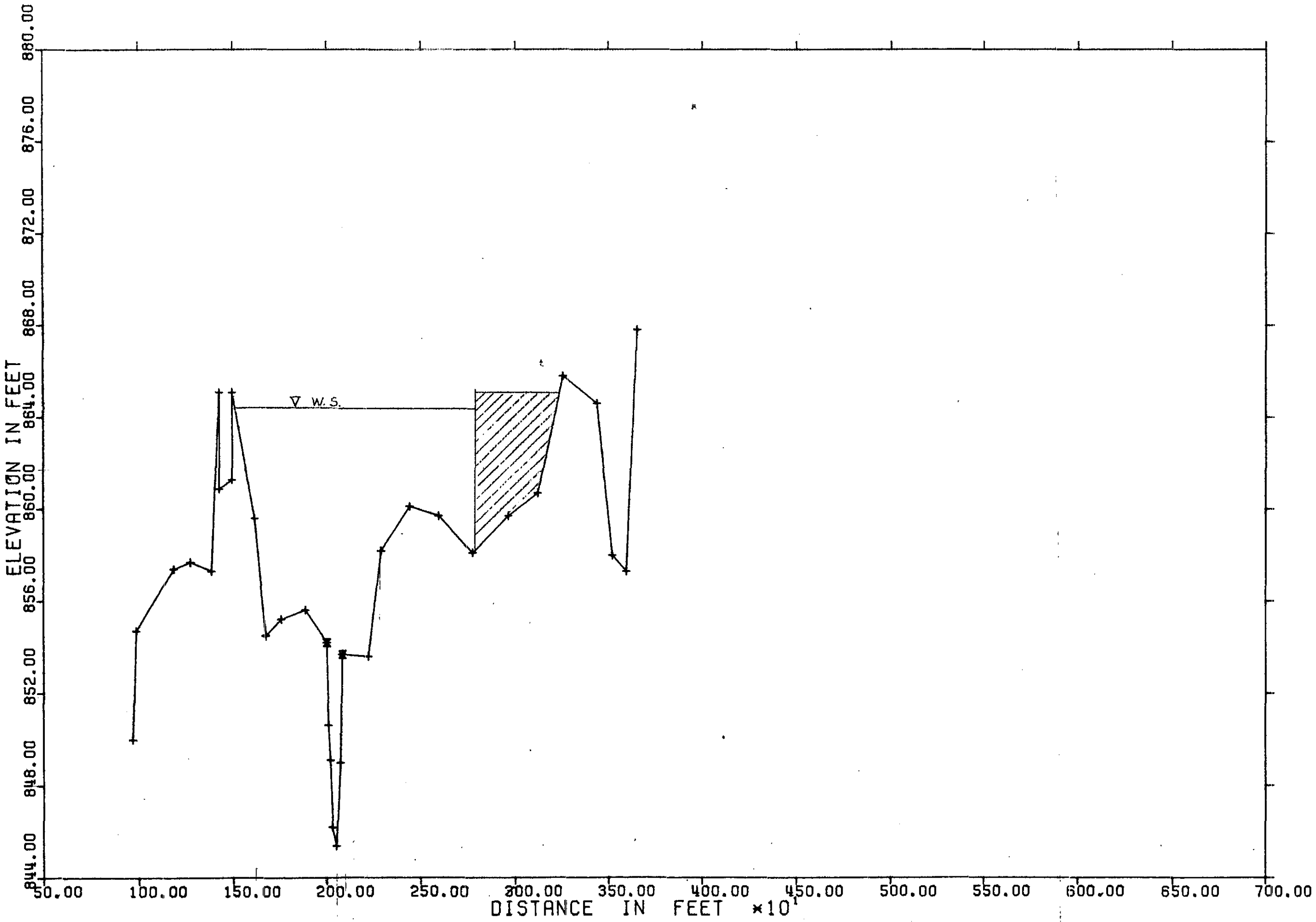
RED CEDAR RIVER



FLOOD INSURANCE STUDY

RED CEDAR RIVER

FLOOD INSURANCE STUDY
RED CEDAR RIVER



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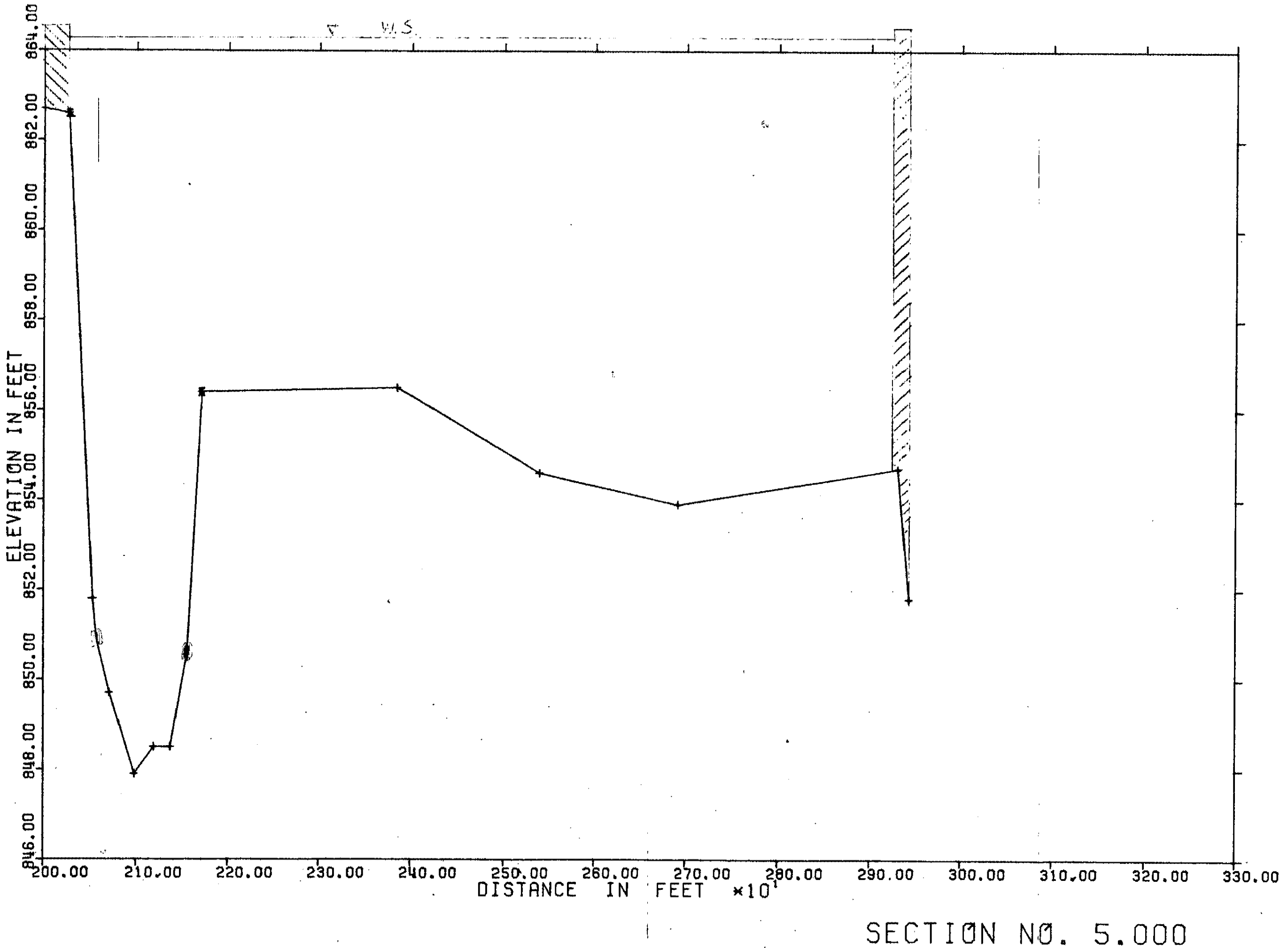
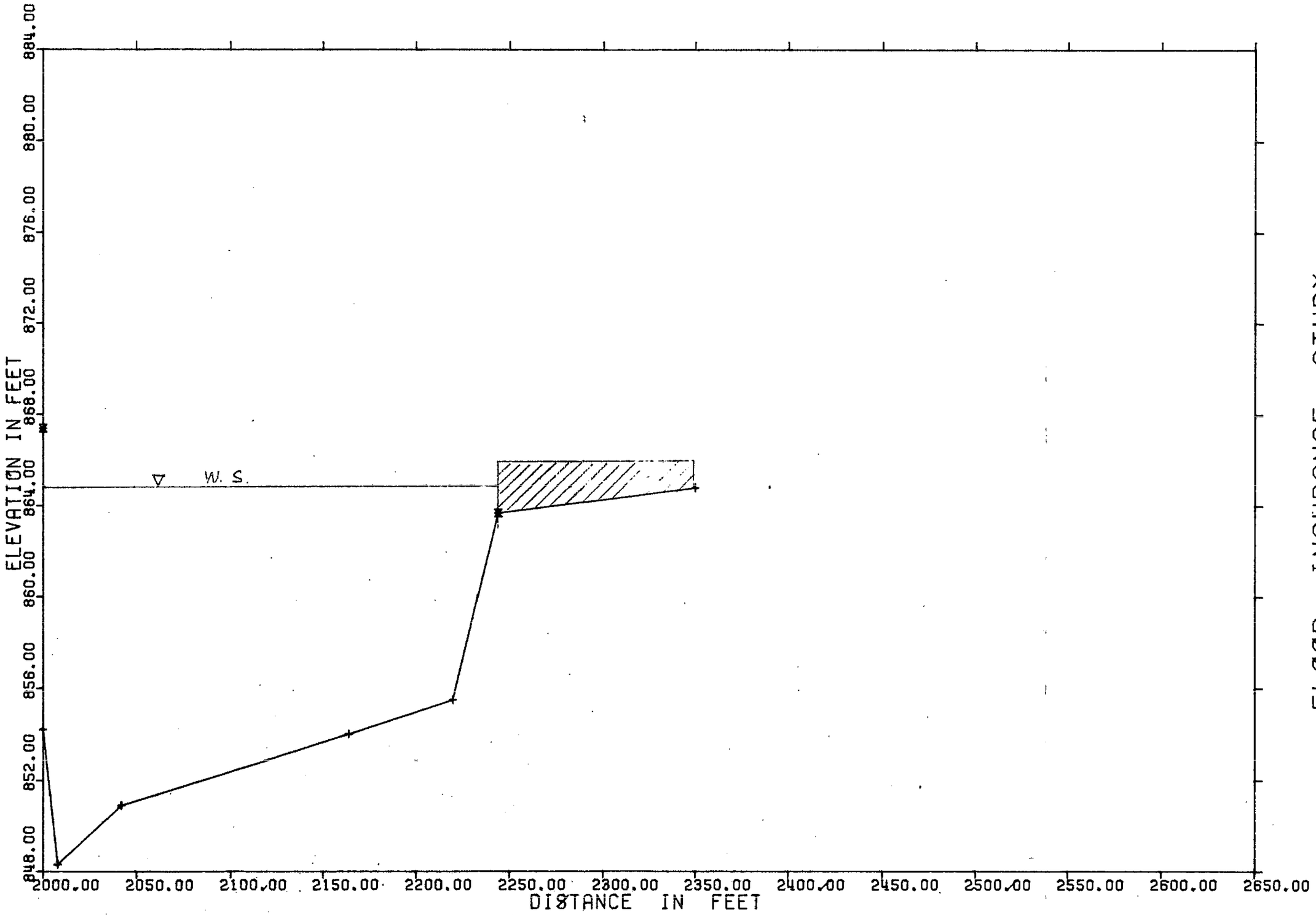


FLOOD INSURANCE STUDY
RED CEDAR RIVER

SECTION NO. 5.000

FLOOD INSURANCE STUDY
RED CEDAR RIVER



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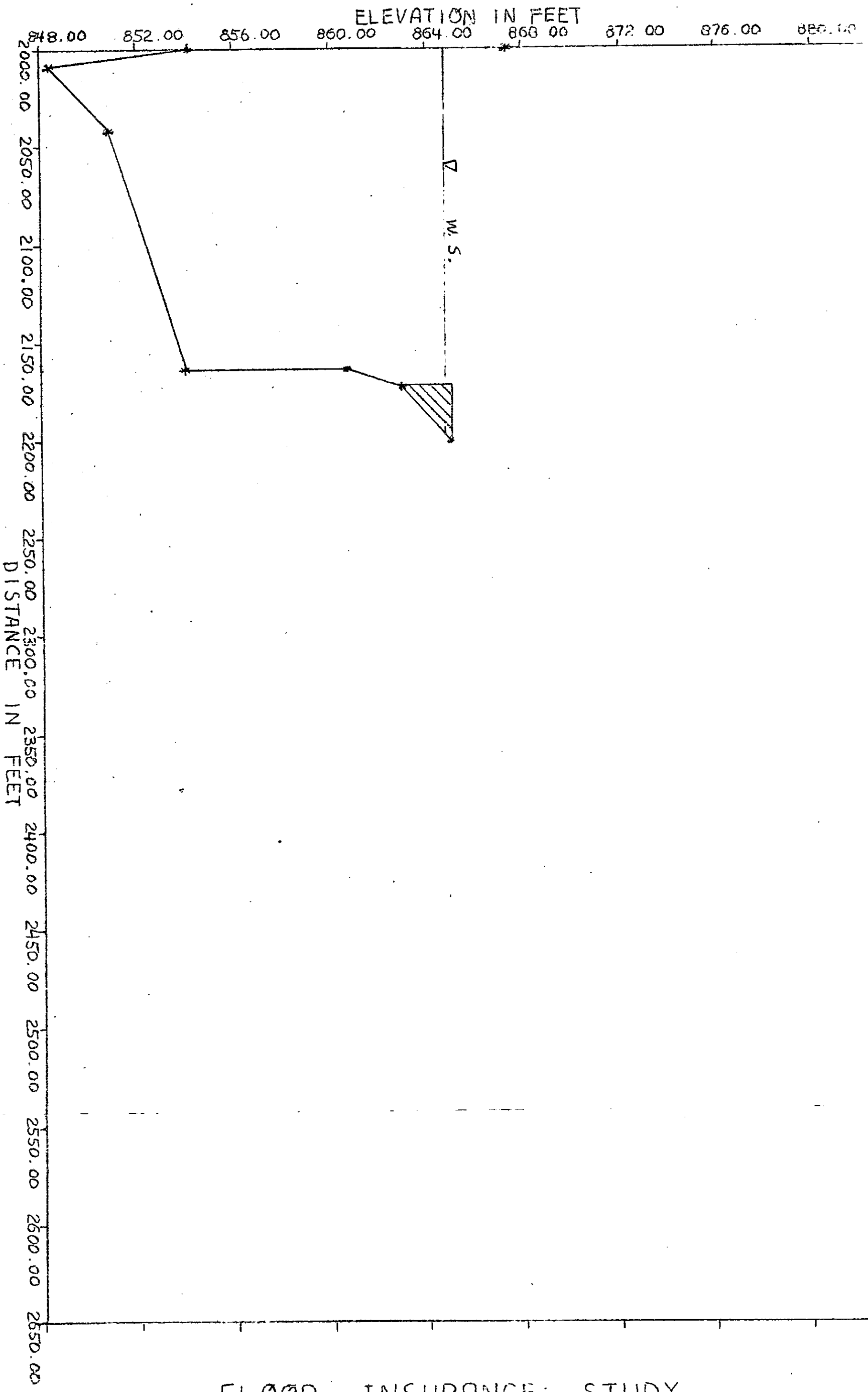
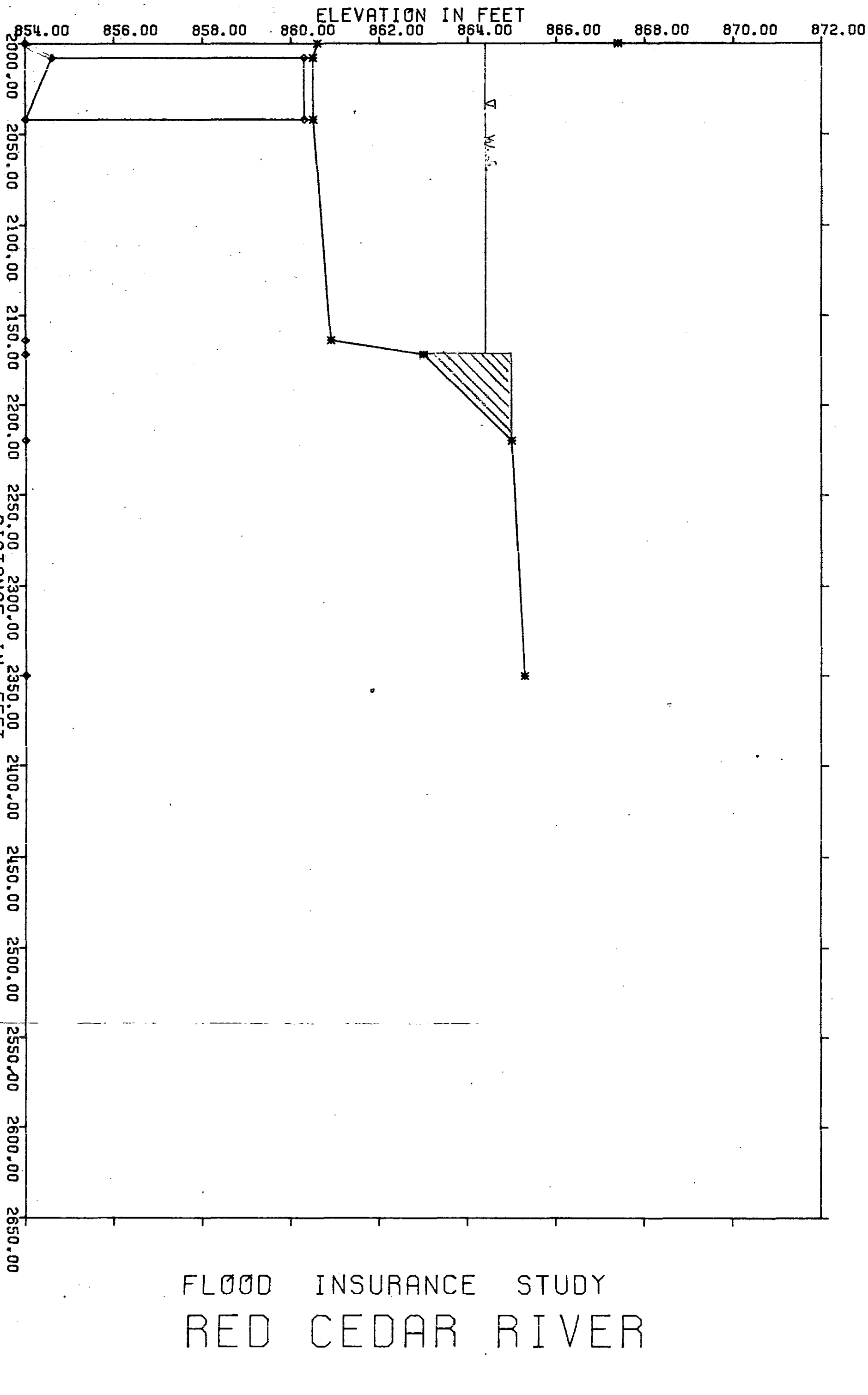


SECTION NO. 5.9

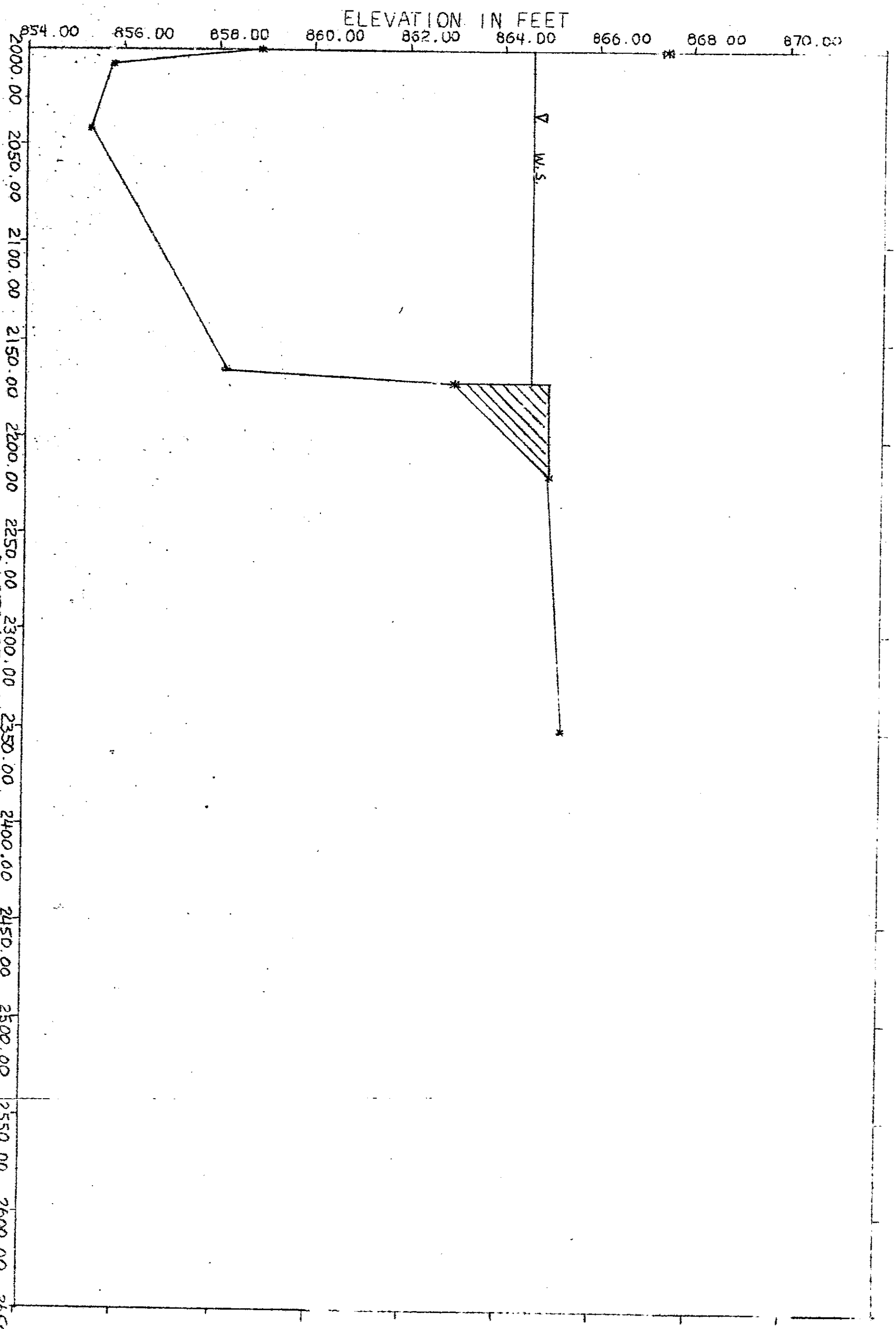
FLOOD INSURANCE STUDY

RED CEDAR RIVER



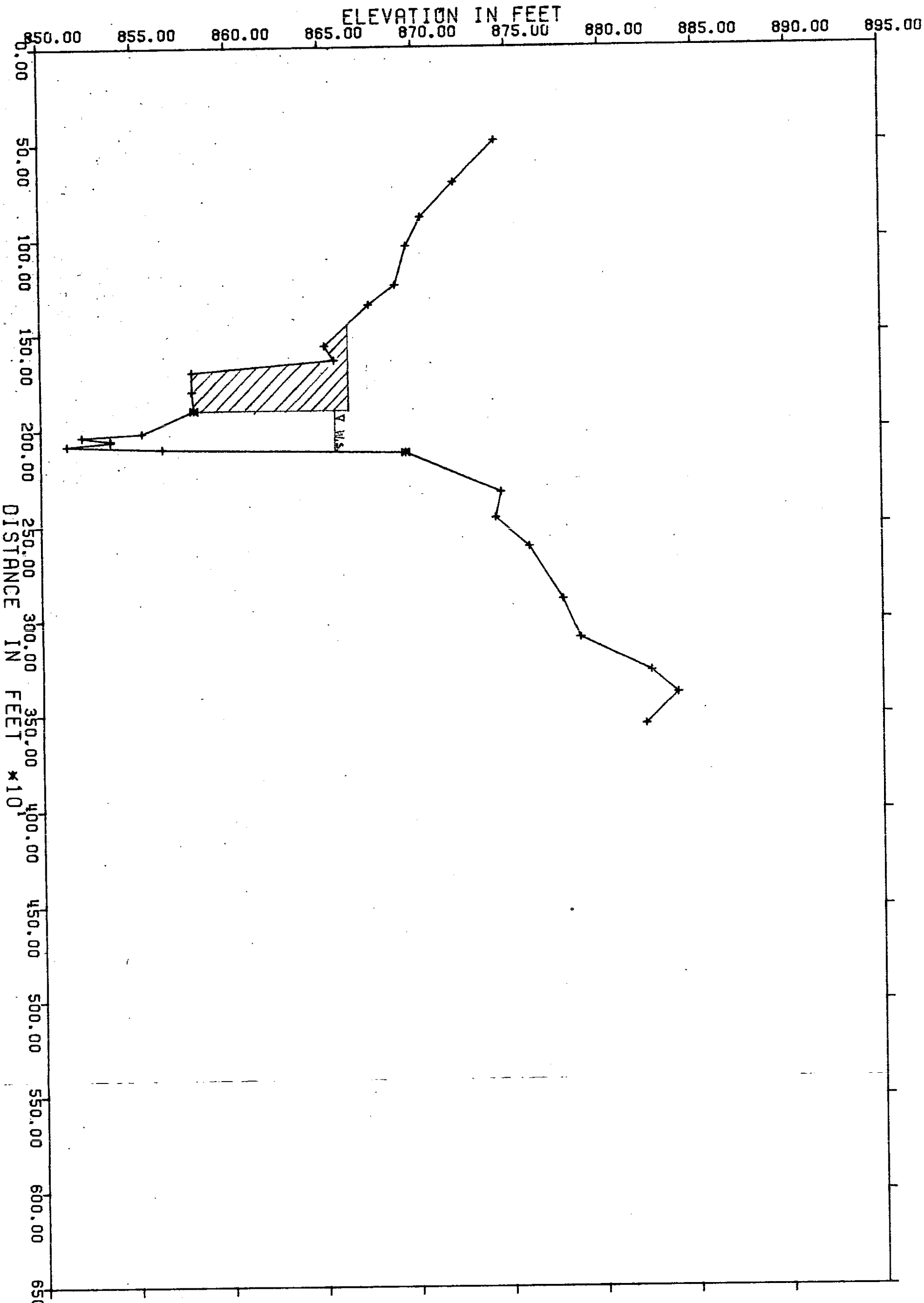
FLOOD INSURANCE STUDY

RED CEDAR RIVER



FLOOD INSURANCE STUDY

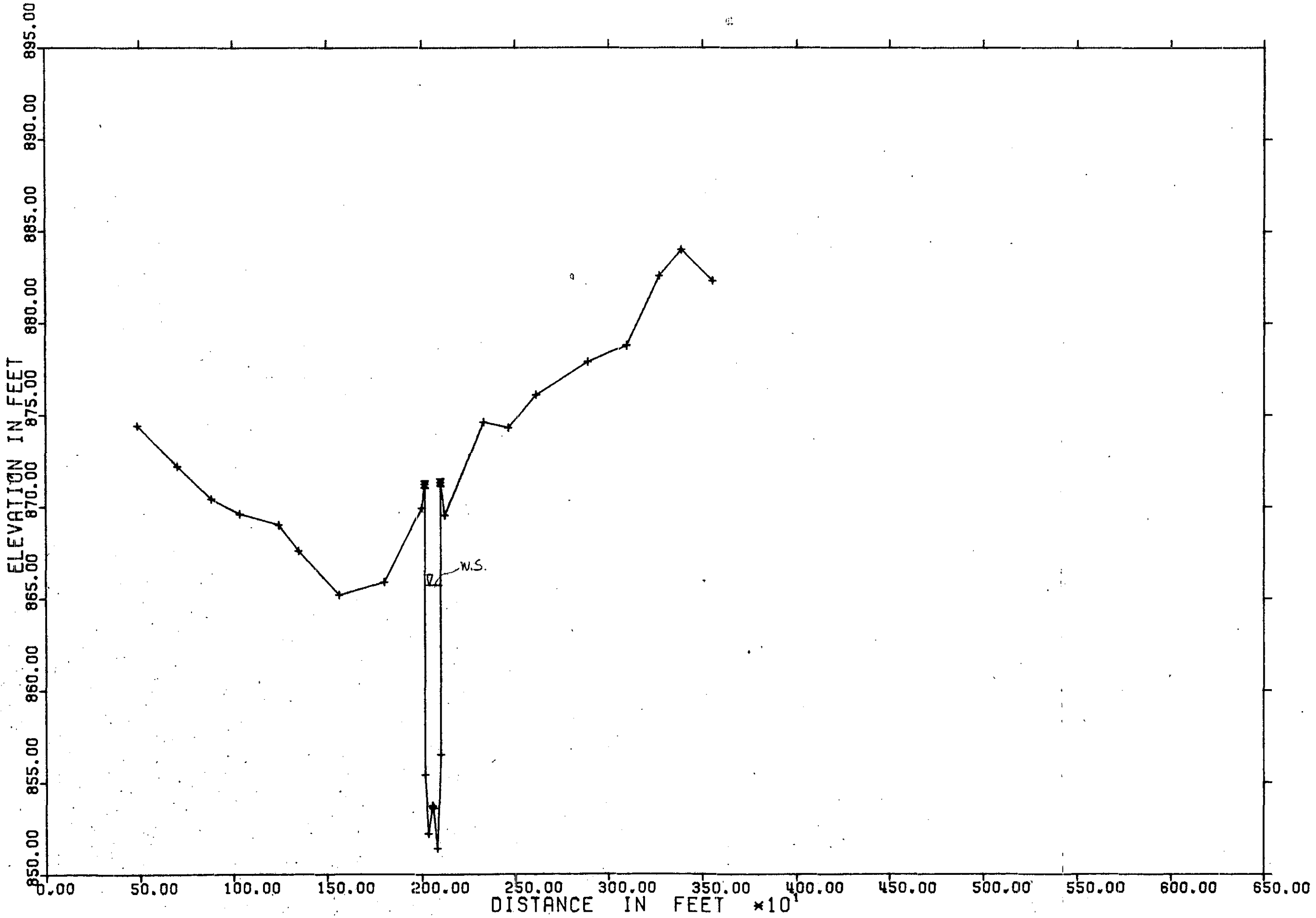
RE CEDAR RIVER



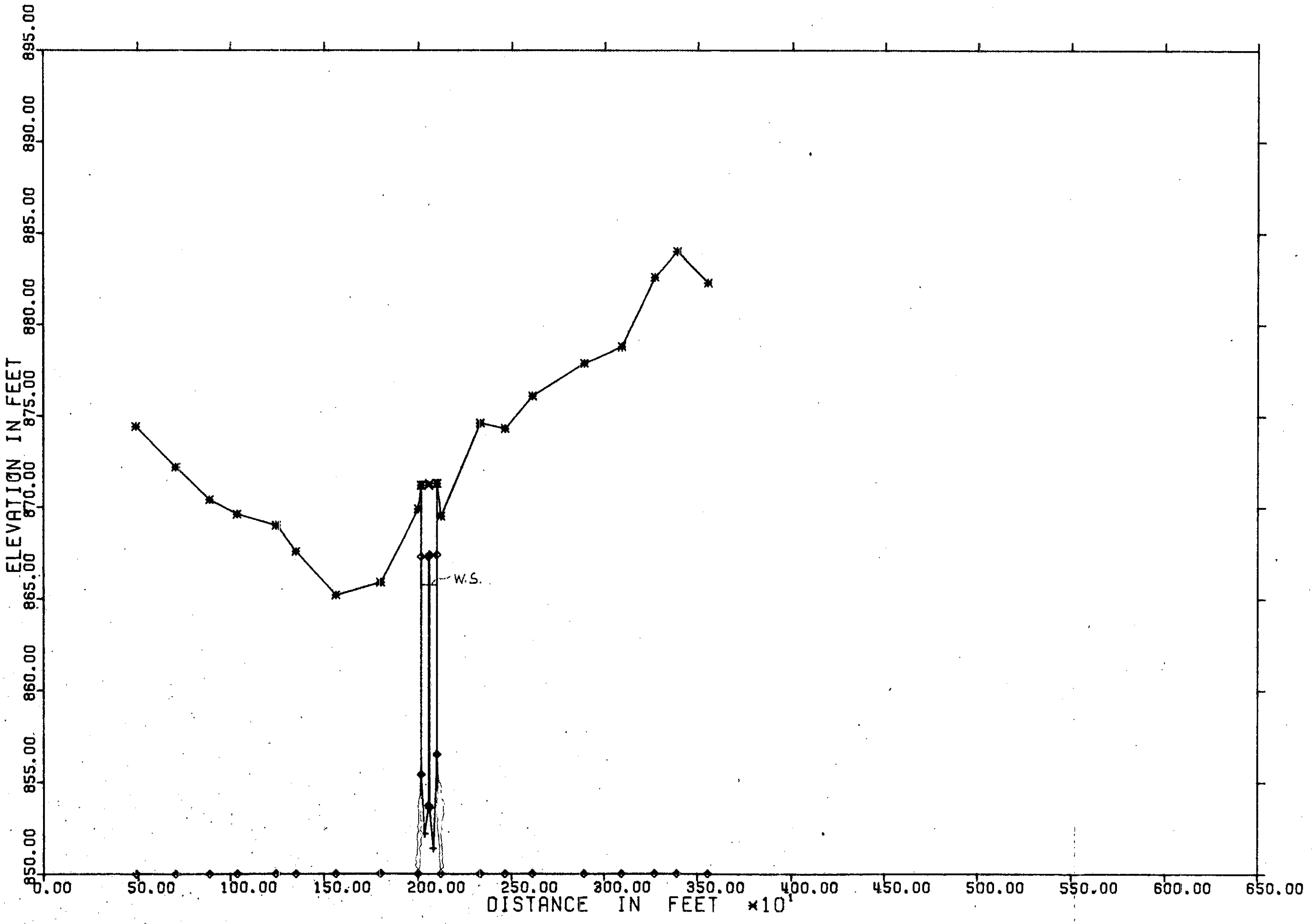
FLOOD INSURANCE STUDY

RED CEDAR RIVER

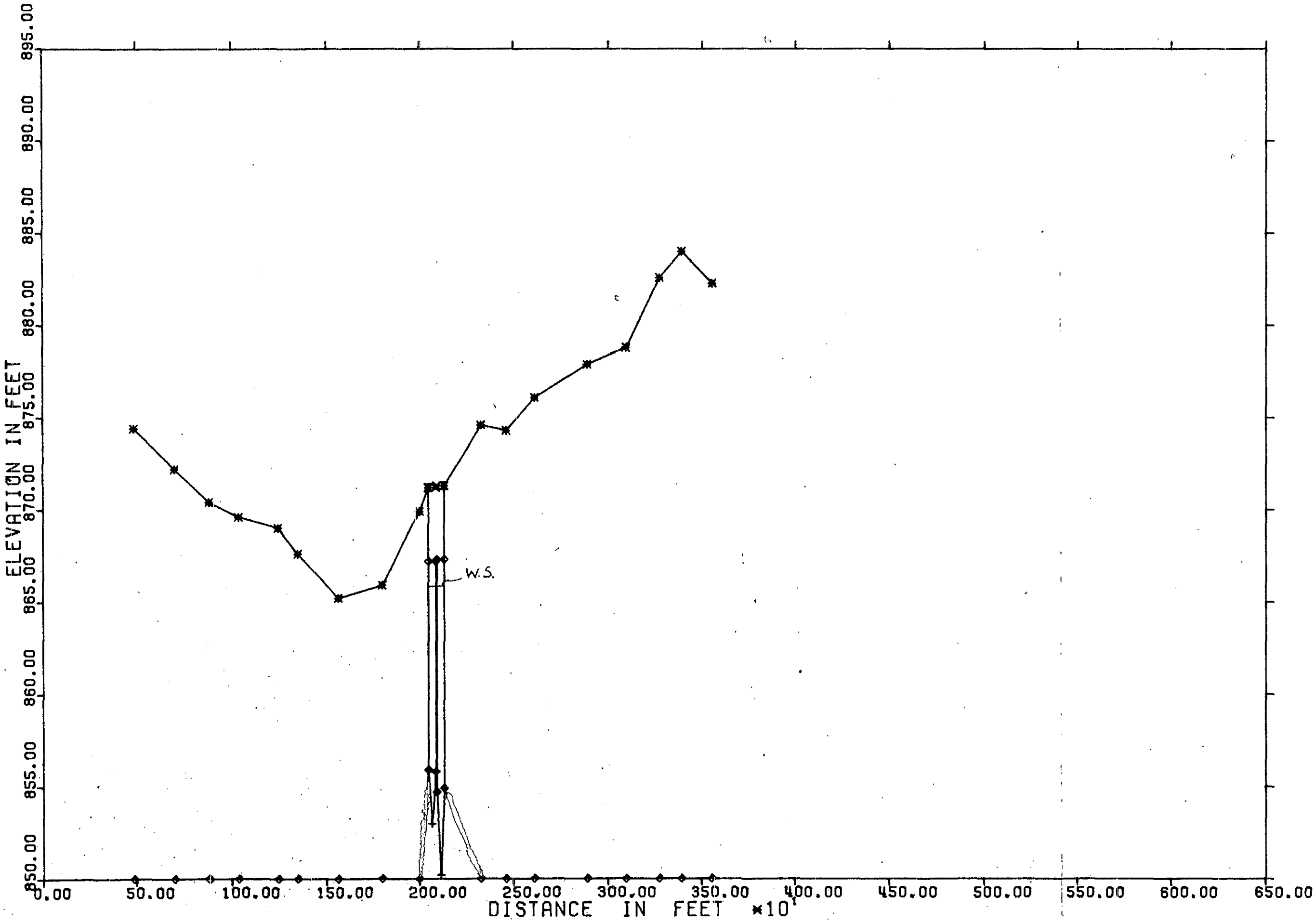
FLOOD INSURANCE STUDY
RED CEDAR RIVER



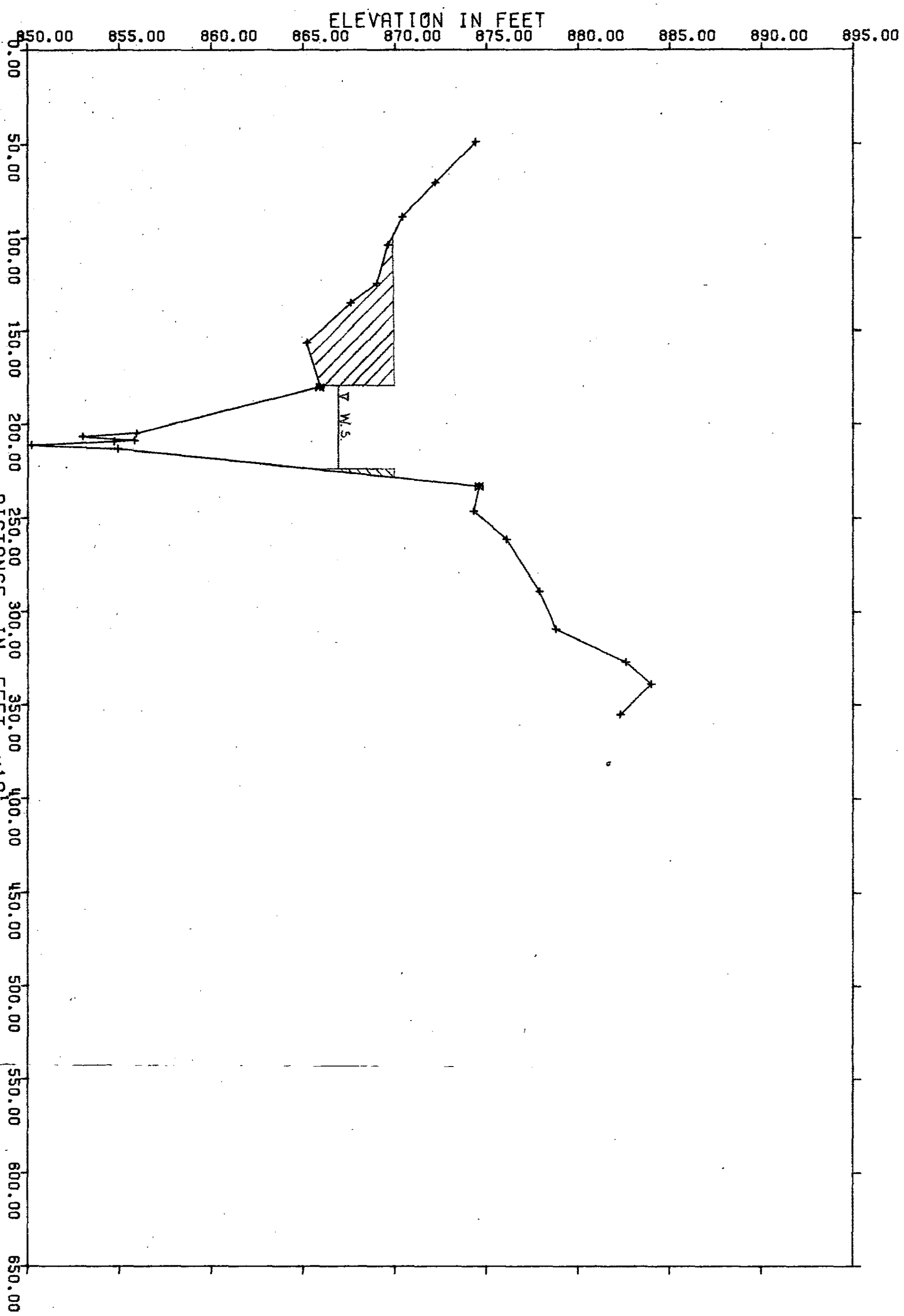
SECTION NO. 6.900


ELEVATION IN FEET
895.00
890.00
885.00
880.00
875.00
870.00
865.00
860.00
855.00
850.00
W.S.
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
450.00
500.00
550.00
600.00
650.00
DISTANCE IN FEET ×10¹
FLOOD INSURANCE STUDY
RED CEDAR RIVER
SECTION NO. 7.000

FLOOD INSURANCE STUDY
RED CEDAR RIVER

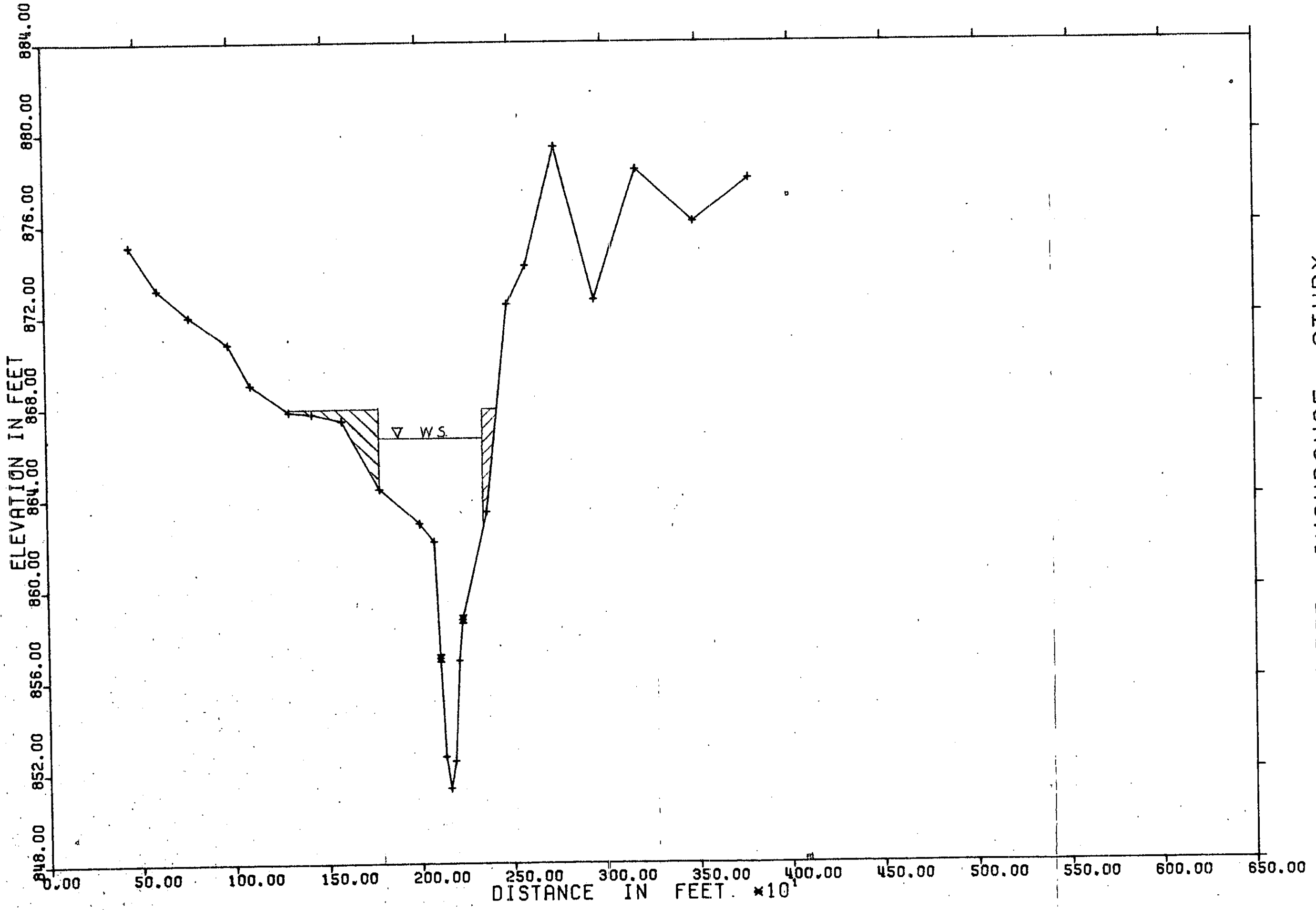


SECTION NO. 7.100



FLOOD INSURANCE STUDY

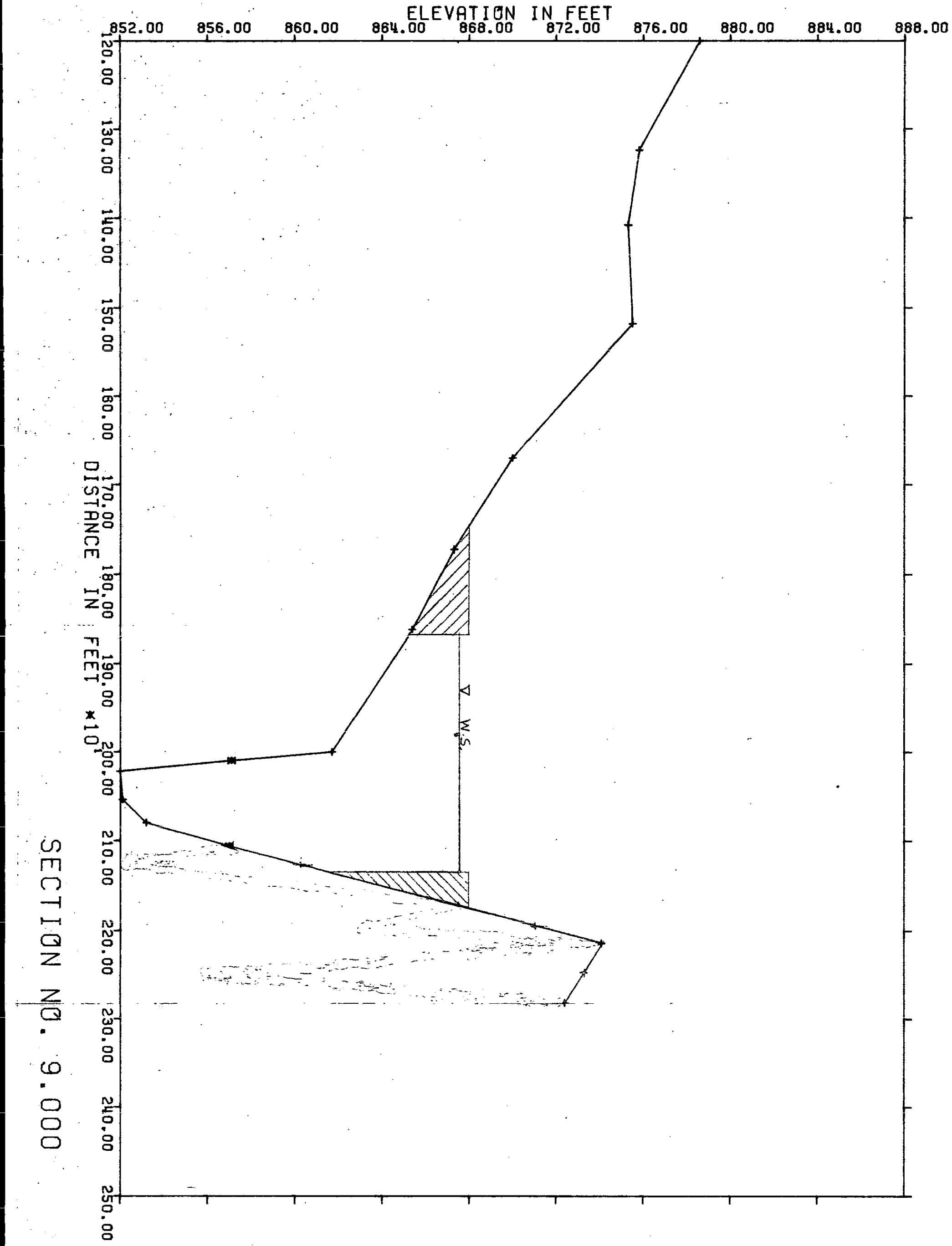
RED CEDAR RIVER



FLOOD INSURANCE STUDY

RED CEDAR RIVER

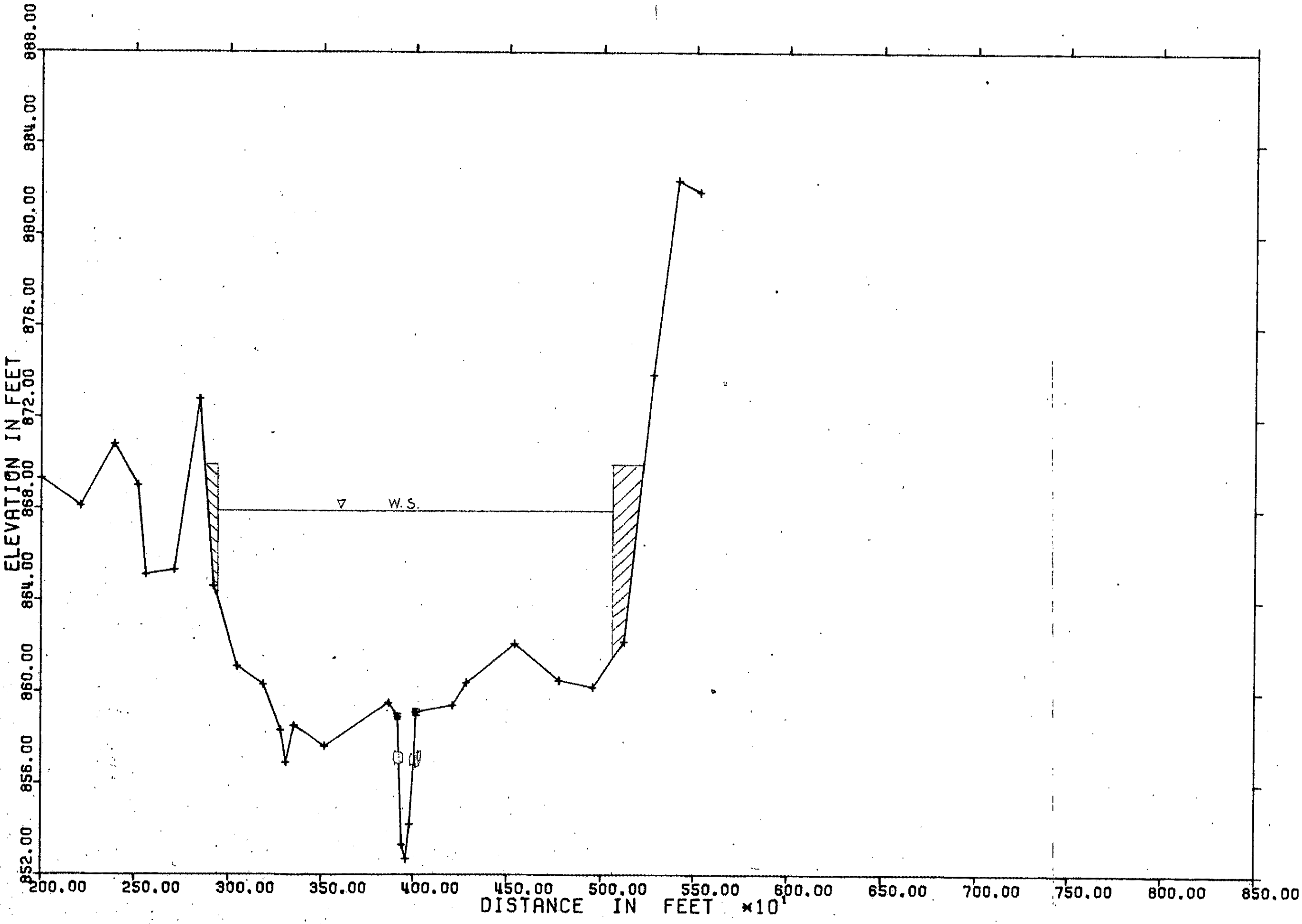
SECTION NO. 8.000



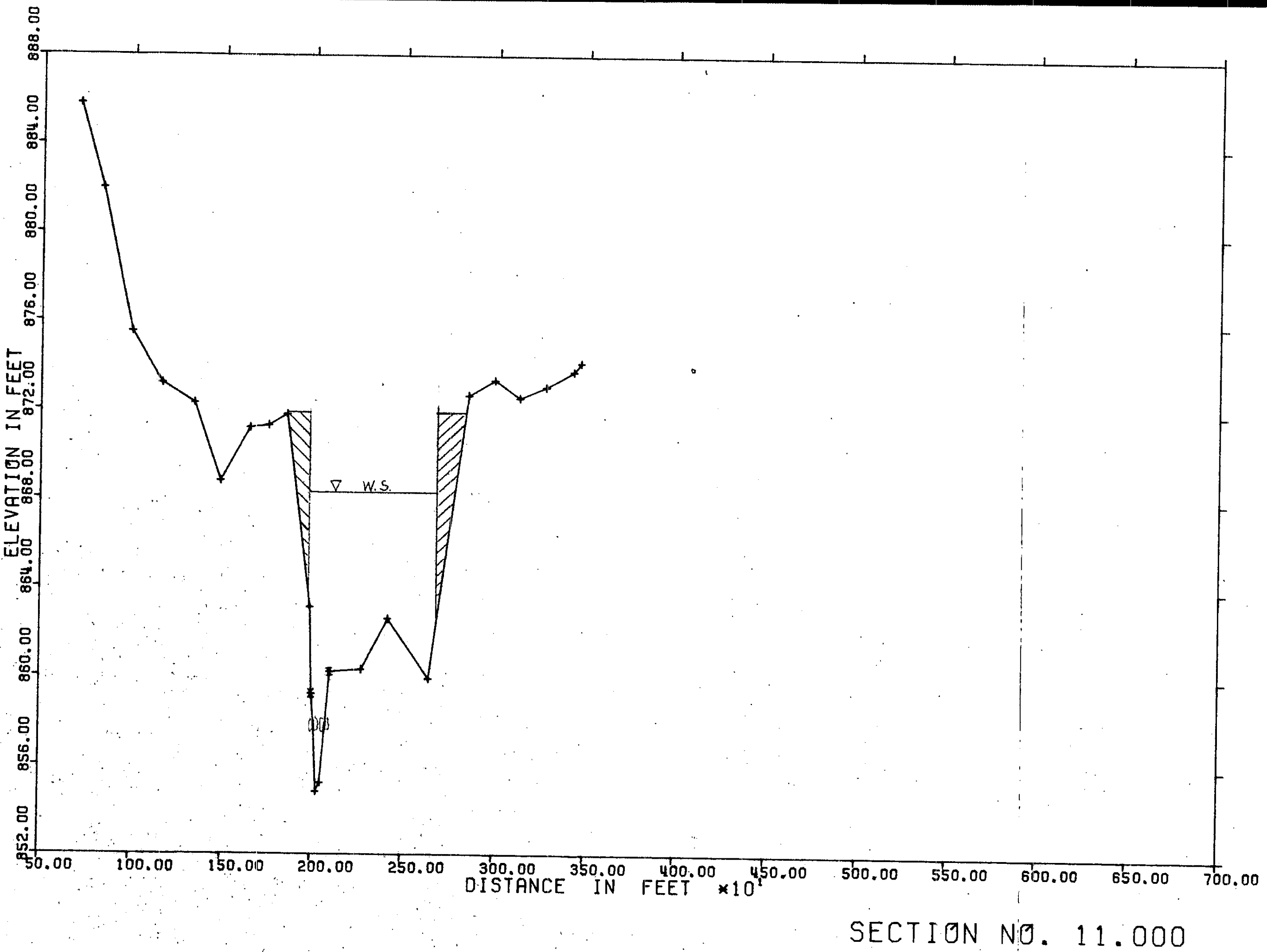
FLOOD INSURANCE STUDY

RED CEDAR RIVER

FLOOD INSURANCE STUDY
RED CEDAR RIVER



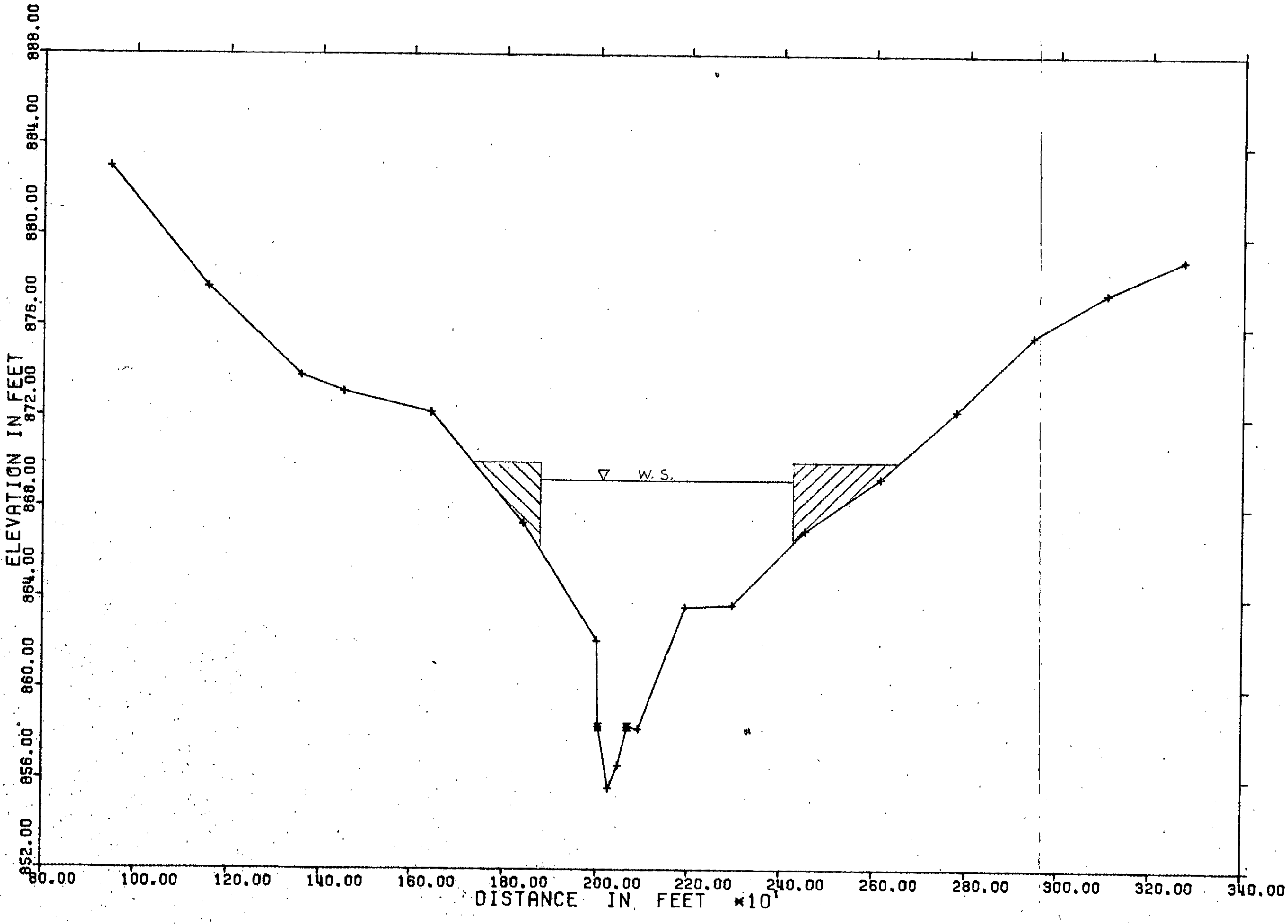
SECTION NO. 10.000



FLOOD INSURANCE STUDY
RED CEDAR RIVER

SECTION NO. 11.000

FLOOD INSURANCE STUDY
RED CEDAR RIVER



SECTION NO. 12.000

UNNAMED TRIB.
WILLIAMSTOWN TOWNSH
ENC. RUN

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**********************************************************

C
T1      WILLIAMSTON T.
T2      APPROXIMATE 100 YR LEVEL
T3      UNNAMED TRIBUTARY
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	858.800	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	VARIABLE CODES FOR SUMMARY PRINTOUT									
	38.000	1.000	42.000	41.000	40.000	53.000	27.000	21.000	22.000	2.000
	54.000	4.000	39.000	0.000	150.000	200.000	0.000	0.000	0.000	0.000
QT	5.000	190.000	270.000	305.000		375.000	305.000	0.000	0.000	0.000	0.000
NC	.070	.080	.033	.100		.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000		0.000	1.410	0.000	0.000	0.000	0.000

VALLEY SECTION A (MOUTH)

X1	20.000	16.000	2000.000	2036.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	851.200	1214.000	857.700	1230.000	856.900	1342.000	856.800	1470.000	855.500	1570.000
GR	856.500	1712.000	856.600	1858.000	853.600	2000.000	850.700	2008.000	850.500	2012.000
GR	850.500	2016.000	855.000	2036.000	856.600	2152.000	863.300	2226.000	865.900	2312.000
GR	866.800	2364.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION B

X1	21.000	15.000	2000.000	2034.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	870.500	1192.000	869.200	1368.000	867.500	1510.000	858.700	1722.000	858.100	1844.000
GR	856.400	2000.000	852.700	2006.000	851.500	2016.000	852.800	2024.000	856.700	2034.000
GR	858.200	2176.000	857.700	2328.000	860.800	2478.000	863.100	2636.000	863.700	2792.000
NC	.060	.060	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	21.800	15.000	2000.000	2018.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	858.100	1844.000	857.500	2000.000
GR	854.000	2006.000	853.900	2012.000	858.000	2018.000	858.200	2125.000	858.200	2176.000
GR	860.000	2202.000	862.400	2396.000	867.100	2596.000	872.500	2748.000	876.500	2914.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	21.850	13.000	2000.000	2018.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	859.000	1830.000	858.000	2000.000
GR	855.000	2006.000	854.700	2012.000	858.500	2018.000	859.000	2202.000	862.400	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	7.100	1187.000	2914.000	0.000	0.000
X1	21.900	13.000	2000.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	859.500	1830.000	858.000	2000.000
GR	855.000	2006.000	854.900	2012.000	858.500	2018.000	859.000	2202.000	862.400	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.750	2.800	0.000	3.000	0.000	10.200	0.000	855.000	854.900

BRIDGE SECTION C (UPSTREAM FACE CHURCH ST.)

X1	22.100	13.000	2000.000	2003.000	22.000	22.000	22.000	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	13.000	1187.000	872.400	0.000	1386.000	870.900	0.000	1602.000	866.700	0.000
BT	1802.000	862.500	0.000	2000.000	861.000	855.300	2000.000	861.000	858.500	2003.000
BT	861.000	858.600	2003.000	861.000	855.000	2202.000	861.900	0.000	2396.000	862.400
BT	0.000	2596.000	867.100	0.000	2748.000	872.500	0.000	2914.000	876.500	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	862.500	1802.000	861.000	2000.000
GR	855.300	2000.000	855.000	2003.000	861.000	2003.000	862.500	2202.000	862.700	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
NC	.060	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.200	13.000	2000.000	2018.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	867.700	1602.000	863.000	1802.000	860.900	2000.000
GR	855.200	2006.000	855.400	2012.000	861.000	2018.000	863.000	2202.000	862.700	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
X1	22.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.070	.080	.034	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	24.000	12.000	2000.000	2018.000	900.000	900.000	900.000	0.000	0.000	0.000
GR	876.300	1694.000	872.800	1790.000	868.700	1880.000	864.000	1892.000	861.200	2000.000
GR	858.800	2008.000	858.000	2011.000	858.300	2014.000	860.700	2018.000	862.000	2070.000
GR	867.300	2136.000	869.100	2214.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.800	9.000	2000.000	2017.000	1400.000	1400.000	1400.000	0.000	0.000	0.000
GR	869.200	1754.000	869.300	1870.000	866.300	1920.000	864.000	2000.000	860.100	2003.000
GR	861.500	2010.000	864.100	2017.000	866.000	2227.000	874.000	2600.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	140.000	195.000	220.000	270.000	220.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	7.100	46.000	3176.000	0.000	0.000
X1	25.900	27.000	2033.000	2039.000	550.000	550.000	550.000	0.000	0.000	0.000
GR	876.700	1.000	875.900	46.000	874.100	218.000	871.300	426.000	869.100	636.000
GR	868.000	846.000	868.500	1060.000	868.200	1270.000	868.000	1480.000	868.000	1594.000

GR	868.600	1800.000	869.400	2000.000	864.400	2033.000	864.000	2033.000	861.700	2034.000
GR	860.900	2036.000	861.700	2038.000	864.000	2039.000	869.400	2039.000	870.800	2212.000
GR	870.800	2426.000	869.700	2636.000	871.900	2768.000	874.900	2974.000	880.800	3176.000
GR	888.900	3378.000	891.100	3488.000	0.000	0.000	0.000	0.000	0.000	0.000
SR	0.000	2.210	3.000	0.000	5.000	0.000	28.300	0.000	861.000	860.900
NC	0.000	0.000	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	7.100	46.000	3176.000	0.000	0.000

BRIDGE SECTION F (UPSTREAM FACE PUTMAN ST.)

X1	26.100	27.000	2033.000	2034.000	72.500	72.500	72.500	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
HT	19.000	426.000	~~871.300~~	0.000	636.000	~~869.100~~	0.000	846.000	(868.000)	0.000
ST	1060.000	~~868.500~~	0.000	1270.000	~~868.200~~	0.000	1480.000	~~868.000~~	0.000	1594.000
HT	(868.000)	0.000	1800.000	~~868.600~~	0.000	2000.000	~~869.400~~	0.000	2033.000	~~869.400~~
BT	864.000	2034.000	~~869.400~~	866.300	2036.000	~~864.000~~	867.000	2038.000	~~869.400~~	866.300
HT	2039.000	869.400	864.000	2212.000	~~870.800~~	0.000	2426.000	~~870.800~~	0.000	2636.000
HT	~~869.700~~	0.000	2768.000	~~871.900~~	0.000	2974.000	~~874.900~~	0.000	0.000	0.000
GR	876.700	1.000	875.900	46.000	874.100	218.000	871.300	426.000	869.100	636.000
GR	868.000	846.000	868.500	1060.000	868.200	1270.000	868.000	1480.000	868.000	1594.000
GR	868.600	1800.000	869.400	2000.000	869.400	2033.000	864.000	2033.000	861.700	2034.000
GR	861.000	2036.000	861.700	2038.000	864.000	2039.000	869.400	2039.000	870.800	2212.000
GR	870.800	2426.000	869.700	2636.000	871.900	2768.000	874.900	2974.000	880.800	3176.000
GR	886.900	3378.000	891.100	3488.000	0.000	0.000	0.000	0.000	0.000	0.000
FJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

868

*PROF 1

CCHV= .100 CEHV= .300
*SECNO 20.000
3280 CROSS SECTION 20.00 EXTENDED 7.60 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
				VALLEY SECTION A (MOUTH)					
20.00	8.30	858.60	0.00	858.80	858.80	.00	0.00	0.00	853.60
305.	187.	86.	32.	2004.	240.	375.	0.	0.	855.00
0.00	.09	.36	.09	.070	.033	.080	0.000	850.50	1214.00
.000005	0.	0.	0.	0	0	0	0.00	962.30	2176.30

100-yr Red Cedar 864.3

CCHV= .100 CEHV= .300
*SECNO 21.000

VALLEY SECTION B

21.00	7.30	858.80	0.00	0.00	858.81	.01	.01	.00	856.40
305.	58.	185.	62.	292.	186.	352.	30.	14.	856.70
.31	.20	.99	.18	.070	.035	.070	.035	851.50	1719.50
.000061	750.	750.	750.	0	0	0	0.00	661.92	2381.41

CCHV= .100 CEHV= .300
*SECNO 21.800

21.80	4.95	858.85	0.00	0.00	858.89	.04	.07	.01	857.50
305.	103.	146.	55.	172.	65.	117.	36.	20.	858.00
.41	.60	2.23	.47	.060	.035	.060	.035	853.90	1822.85
.000578	500.	500.	500.	2	0	0	0.00	362.56	2185.41

CCHV= .300 CEHV= .500
*SECNO 21.850

21.85	4.22	858.92	858.60	0.00	859.15	.23	.17	.09	858.00
305.	57.	232.	15.	72.	53.	33.	37.	21.	858.50
.42	.79	4.39	.47	.060	.035	.060	.035	854.70	1843.22
.002885	150.	150.	150.	4	12	0	0.00	330.15	2173.38

*SECNO 21.900

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

ELLC = 858.6 < 859.14 → submerged outlet

21.90	4.24	859.14	0.00	0.00	859.29	.15	.12	.02	858.00
305.	55.	209.	41.	73.	56.	72.	38.	21.	858.50
.43	.75	3.76	.58	.060	.035	.060	.035	854.90	1871.28

.001965	50.	50.	50.	3	0	0	0.00	338.47, 2209.75

SPECIAL BRIDGE

SB	XK	XKOR	CUFG	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.75	2.80	0.00	3.00	0.00	10.20	0.00	855.00	854.90

*SECNO 22.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK ELEV LEFT/RIGHT
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	
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	HAREA	TRAPEZOID AREA	ELLC	ELTRD
883.44	868.83	0.00	205.	101.	10.	11.	858.60	861.00

3685 20 TRIALS ATTEMPTED WSEL=CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

BRIDGE SECTION C (UPSTREAM FACE CHURCH ST.)

22.10	7.17	862.17	862.17	0.00	862.37	.20	.06	.06	861.00
305.	93.	119.	93.	90.	21.	90.	38.	22.	861.00
.43	1.04	5.65	1.04	.060	.020	.060	.035	855.00	1846.17
.003590	22.	22.	22.	20	13	0	0.00	311.45	2157.61

*SECNO 22.200

22.20	7.14	862.34	0.00	0.00	862.41	.07	.00	.04	860.90
305.	44.	226.	35.	98.	93.	83.	38.	22.	861.00
.43	.44	2.44	.42	.060	.035	.060	.035	855.20	1863.94
.000497	1.	1.	1.	2	0	0	0.00	277.61	2141.56

*SECNO 22.300

22.30	7.17	862.37	0.00	0.00	862.44	.07	.02	.00	860.90
305.	45.	224.	36.	102.	93.	86.	38.	22.	861.00
.44	.44	2.40	.42	.060	.035	.060	.035	855.20	1861.44
.000478	50.	50.	50.	2	0	0	0.00	282.56	2144.00

CCHV= .100 CEHV= .300
*SECNO 24.000

VALLEY SECTION D

24.00	4.94	862.94	0.00	0.00	863.04	.10	.60	.01	861.20
305.	35.	202.	67.	58.	65.	88.	43.	26.	860.70
.55	.61	3.10	.76	.070	.034	.080	.034	858.00	1932.86
.000978	900.	900.	900.	2	0	0	0.00	148.86	2081.71

*SECNO 25.800

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AKOB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
25.80	4.94	865.04	0.00	0.00	865.35	.31	2.24	.06	864.00
305.	14.	261.	30.	19.	54.	49.	48.	31.	864.10
.64	.76	4.80	.62	.070	.034	.080	.034	860.10	1963.92
.003085	1400.	1400.	1400.	3	0	0	0.00	156.66	2120.58

CCHV= .300 CEHV= .500

*SECNO 25.900

25.90	6.42	867.32	0.00	0.00	868.01	.69	2.47	.19	869.40
220.	0.	220.	0.	0.	33.	0.	49.	32.	869.40
.66	0.00	6.66	0.00	.070	.034	.080	.034	860.00	2033.00
.008824	550.	550.	550.	3	0	0	0.00	6.00	2039.00

SPECIAL BRIDGE

SK	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.21	3.00	0.00	5.00	0.00	28.30	0.00	861.00	860.90

*SECNO 26.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
869.39	868.09	0.00	76.	144.	28.	30.	867.00	868.00

BRIDGE SECTION E (UPSTREAM FACE PUTMAN ST.)

26.10	6.57	867.57	0.00	0.00	868.21	.64	.20	0.00	869.40
220.	0.	220.	0.	0.	34.	0.	49.	32.	869.40
.66	0.00	6.41	0.00	.070	.024	.080	.034	861.00	2033.00
.004000	73.	73.	73.	5	0	7	0.00	6.00	2039.00

ELLC = 867 < 867.32 ⇒ submerged outlet

check on pressure

$K = 2.21$, $C = \frac{1}{\sqrt{K}} = .67$

$Q = CA\sqrt{2gH}$

$Q = .67(28.3)(8.025 ft^2) = 152$

$e_{HW} = 868$

$H = 868 - 867.32 = .68$

$Q = 152.769(.82) = 125.9$

W.S. 867.57 EGL 868.21 > ELTRD 868.0

SB routine shows water over the road because of EGL however, W.S. below roadway ⇒ W.S. ~ .6' low

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       6.        0.        0.  0.000000      0.00       0.0       0.   858.800     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSFCH     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 2

CCHV=     .100 CEHV=     .300
*SECNO 20.000
 2800 NAT Q1=    1336.78  WSEL=     858.80  ENC Q1=    1336.78  WSEL=     858.90  RATIO=  0.0000
 NAT Q1=    1406.  RATIOS LOB,CH,ROB=    .6204    .2744    .1052  WSEL=     858.90
3280 CROSS SECTION      20.00 EXTENDED       7.60 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=     1243.1     2120.7  TYPE=      4  TARGET=          .049

                VALLEY SECTION A ( MOUTH)

    20.00      8.30    858.80      0.00    858.80    858.80       .00      0.00      0.00    853.60
     305.      189.       90.       26.     1919.      240.      272.        0.        0.    855.00
     0.00       .10       .38       .10      .070      .033      .080     0.000    850.50   1243.12
  .000006        0.        0.        0.         0         0         0      0.00    877.61   2120.73

CCHV=     .100 CEHV=     .300
*SECNO 21.000
 2800 NAT Q1=     390.62  WSEL=     858.80  ENC Q1=     390.62  WSEL=     858.90  RATIO=  0.0000
 NAT Q1=     420.  RATIOS LOB,CH,ROB=    .2018    .5809    .2172  WSEL=     858.90

3470 ENCROACHMENT STATIONS=     1883.1     2291.8  TYPE=      4  TARGET=          .070

                VALLEY SECTION B

    21.00      7.30    858.80      0.00    858.80    858.81       .01       .01       .00    856.40
     305.       53.      196.       56.      208.      187.      286.       27.       11.    856.70
      .28       .26      1.05       .19      .070      .035      .070      .035    851.50   1883.10
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 .000068      750.      750.      750.         1         0         0      0.00    408.68   2291.78

CCHV=     .100 CEHV=     .300
*SECNO 21.800
 2800 NAT Q1=     126.83  WSEL=     858.85  ENC Q1=     126.83  WSEL=     858.95  RATIO=  0.0000
 NAT Q1=     143.  RATIOS LOB,CH,ROB=    .3529    .4461    .2009  WSEL=     858.95

3470 ENCROACHMENT STATIONS=     1874.9     2128.4  TYPE=      4  TARGET=          .110
    21.80      4.95    858.85      0.00    858.85    858.91       .05       .08       .01    857.50
     305.       98.      162.       45.      139.       65.       83.       32.       15.    858.00
      .36       .70      2.47       .54      .060      .035      .060      .035    853.90   1874.86
 .000709      500.      500.      500.         2         0         0      0.00    253.58   2128.44

CCHV=     .300 CEHV=     .500
*SECNO 21.850
 2800 NAT Q1=      56.79  WSEL=     858.92  ENC Q1=      56.79  WSEL=     859.02  RATIO=    .0000
 NAT Q1=      65.  RATIOS LOB,CH,ROB=    .2187    .7013    .0799  WSEL=     859.02

3470 ENCROACHMENT STATIONS=     1946.7     2031.8  TYPE=      4  TARGET=          .128
    21.85      4.23    858.93      0.00    858.92    859.22       .29       .20       .12    858.00
     305.       50.      251.        5.       42.       53.        6.       33.       15.    858.50
      .37      1.20      4.72       .78      .060      .035      .060      .035    854.70   1946.66
 .003312      150.      150.      150.         2         0         0      0.00     85.14   2031.80

*SECNO 21.900
   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=     1187.0     2914.0  TYPE=      1  TARGET=     1727.000
    21.90      4.38    859.28      0.00    859.14    859.38       .10       .10       .06    858.00
     305.       62.      186.       57.       91.       58.       98.       33.       16.    858.50
      .38       .67      3.21       .58      .060      .035      .060      .035    854.90   1856.04
 .001359       50.       50.       50.         3         0         0      0.00    361.37   2217.42

SPECIAL BRIDGE

SB   XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      1.75      2.80      0.00      3.00      0.00      10.20     0.00     855.00    854.90

*SECNO 22.100
   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      FGLWC      H3        QWEIR      QPR       BAREA     TRAPEZOID      ELLC      FLTRD
                                                                  AREA
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  883.58    868.35      0.00      207.       98.       10.       11.      858.60    861.00

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

                BRIDGE SECTION C ( UPSTREAM FACE CHURCH ST. )

    22.10      7.13    862.13      0.00    862.17    862.36      .23      0.00      0.00    861.00
    305.        90.       124.        91.       84.       21.       85.       33.       16.    861.00
     .38       1.07      5.93       1.07      .060      .020      .060      .035    855.00   1850.77
 .003984         22.       22.        22.        20         0        10      0.00    302.21   2152.98


*SECNO 22.200
    22.20      7.15    862.35      0.00    862.34    862.41      .07      .00       .05    860.90
    305.        44.       226.        35.       99.       93.       84.       33.       16.    861.00
     .38        .44      2.43        .42      .060      .035      .060      .035    855.20   1863.43
 .000493          1.        1.         1.         2         0         0      0.00    278.63   2142.06


*SECNO 22.300
 2800 NAT Q1=     139.51  WSEL=     862.37  ENC Q1=     139.51  WSEL=     862.47  RATIO=    .0000
 NAT Q1=     150.  RATIOS LOB,CH,ROB=    .1629    .7038    .1333  WSEL=     862.47

3470 ENCROACHMENT STATIONS=     1948.3     2061.2  TYPE=       4  TARGET=          .071
    22.30      7.17    862.37      0.00    862.37    862.44      .08       .03       .00    860.90
    305.        39.       236.        30.       62.       93.       49.       34.       16.    861.00
     .39        .63      2.53        .61      .060      .035      .060      .035    855.20   1948.29
 .000531         50.       50.        50.         0         0         0      0.00    112.95   2061.25


CCHV=    .100 CEHV=    .300
*SECNO 24.000
 2800 NAT Q1=      97.52  WSEL=     862.94  ENC Q1=      97.52  WSEL=     863.04  RATIO=  0.0000
 NAT Q1=     105.  RATIOS LOB,CH,ROB=    .1253    .6458    .2289  WSEL=     863.04

3470 ENCROACHMENT STATIONS=     1977.3     2059.1  TYPE=       4  TARGET=          .069

                VALLEY SECTION D

    24.00      4.99    862.99      0.00    862.94    863.11      .12       .65       .01    861.20
    305.        29.       213.        63.       34.       66.       73.       38.       18.    860.70
     .49        .86      3.22        .86      .070      .034      .080      .034    858.00   1977.35
 .001041         900.      900.       900.         0         0         0      0.00     81.73   2059.08


*SECNO 25.800
 2800 NAT Q1=      54.91  WSEL=     865.04  ENC Q1=      54.91  WSEL=     865.14  RATIO=  0.0000
 NAT Q1=      60.  RATIOS LOB,CH,ROB=    .0550    .8254    .1196  WSEL=     865.14
   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=     1996.4     2048.4  TYPE=       4  TARGET=          .083
    25.80      5.05    865.15      0.00    865.04    865.49      .33      2.32       .06    864.00
    305.         4.       274.        27.        4.       56.       29.       42.       20.    864.10
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     .57      1.05      4.87       .94      .070      .034      .080      .034    860.10   1996.41
  .003023    1400.     1400.     1400.         2         0         0      0.00     52.02   2048.42

CCHV=     .300 CEHV=     .500
*SECNO 25.900

3470 ENCROACHMENT STATIONS=       46.0     3176.0  TYPE=      1  TARGET=     3130.000
    25.90      6.49    867.39      0.00    867.32    868.06       .67      2.41       .17    869.40
     220.        0.      220.        0.        0.       34.        0.       42.       21.    869.40
      .60      0.00      6.56      0.00      .070      .034      .080      .034    860.90   2033.00
  .008500      550.      550.      550.         2         0         0      0.00      6.00   2039.00


SPECIAL BRIDGE

SB   XK        XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS        FLCHU      FLCHD
     0.00       2.21       3.00       0.00       5.00       0.00      28.30      0.00     861.00     860.90

*SECNO 26.100
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC       H3        QWEIR      QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                    AREA
   869.47    868.15      0.00        82.       136.        28.        30.      867.00     868.00


3470 ENCROACHMENT STATIONS=       46.0     3176.0  TYPE=      1  TARGET=     3130.000

                BRIDGE SECTION E ( UPSTREAM FACE PUTMAN ST.)

    26.10      6.58    867.58      0.00    867.57    868.22       .64       .15      0.00    869.40
     220.        0.      220.        0.        0.       34.        0.       43.       21.    869.40
      .60      0.00      6.40      0.00      .070      .024      .080      .034    861.00   2033.00
  .003986       73.       73.       73.         5         0         7      0.00      6.00   2039.00
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

UNNAMED TRIBUTARY

SUMMARY PRINTOUT

	SECNO	CWSEL	ELMIN	ELLC	FLTRD	SSTA	STENCL	STCHL	STCHR	CRIWS	ENDST	TOPWID	XLCH
	20.000	858.80	850.50	0.00	0.00	1214.00	0.00	2000.00	2036.00	0.00	2176.30	962.30	0.00
	20.000	858.80	850.50	0.00	0.00	1243.12	1243.12	2000.00	2036.00	0.00	2120.73	877.61	0.00
	21.000	858.80	851.50	0.00	0.00	1719.50	0.00	2000.00	2034.00	0.00	2381.41	661.92	750.00
	21.000	858.80	851.50	0.00	0.00	1883.10	1883.10	2000.00	2034.00	0.00	2291.78	408.68	750.00
	21.800	858.85	853.90	0.00	0.00	1822.85	0.00	2000.00	2018.00	0.00	2185.41	362.56	500.00
	21.800	858.85	853.90	0.00	0.00	1874.86	1874.86	2000.00	2018.00	0.00	2128.44	253.58	500.00
	21.850	858.92	854.70	0.00	0.00	1843.22	0.00	2000.00	2018.00	858.60	2173.38	330.15	150.00
	21.850	858.93	854.70	0.00	0.00	1946.66	1946.66	2000.00	2018.00	0.00	2031.80	85.14	150.00
	21.900	859.14	854.90	0.00	0.00	1871.28	0.00	2000.00	2018.00	0.00	2209.75	338.47	50.00
	21.900	859.28	854.90	0.00	0.00	1856.04	1187.00	2000.00	2018.00	0.00	2217.42	361.37	50.00
*	22.100	862.17	855.00	858.60	861.00	1846.17	0.00	2000.00	2003.00	862.17	2157.61	311.45	22.00
*	22.100	862.13	855.00	858.60	861.00	1850.77	0.00	2000.00	2003.00	0.00	2152.98	302.21	22.00
	22.200	862.34	855.20	0.00	0.00	1863.94	0.00	2000.00	2018.00	0.00	2141.56	277.61	1.00
	22.200	862.35	855.20	0.00	0.00	1863.43	0.00	2000.00	2018.00	0.00	2142.06	278.63	1.00
	22.300	862.37	855.20	0.00	0.00	1861.44	0.00	2000.00	2018.00	0.00	2144.00	282.56	50.00
	22.300	862.37	855.20	0.00	0.00	1948.29	1948.29	2000.00	2018.00	0.00	2061.25	112.95	50.00
	24.000	862.94	858.00	0.00	0.00	1932.86	0.00	2000.00	2018.00	0.00	2081.71	148.86	900.00
	24.000	862.99	858.00	0.00	0.00	1977.35	1977.35	2000.00	2018.00	0.00	2059.08	81.73	900.00
	25.800	865.04	860.10	0.00	0.00	1963.92	0.00	2000.00	2017.00	0.00	2120.58	156.66	1400.00
	25.800	865.15	860.10	0.00	0.00	1996.41	1996.41	2000.00	2017.00	0.00	2048.42	52.02	1400.00
	25.900	867.32	860.90	0.00	0.00	2033.00	0.00	2033.00	2039.00	0.00	2039.00	6.00	550.00
	25.900	867.39	860.90	0.00	0.00	2033.00	46.00	2033.00	2039.00	0.00	2039.00	6.00	550.00
	26.100	867.57	861.00	867.00	868.00	2033.00	0.00	2033.00	2039.00	0.00	2039.00	6.00	72.50
	26.100	867.58	861.00	867.00	868.00	2033.00	46.00	2033.00	2039.00	0.00	2039.00	6.00	72.50

UNNAMED TRIBUTARY

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	20.000	0.00	0.00	0.00	850.50	305.00	858.80	0.00	858.80	.05	.36	2618.63	1336.78
	20.000	0.00	0.00	0.00	850.50	305.00	858.80	0.00	858.80	.06	.38	2431.70	1272.09
	21.000	750.00	0.00	0.00	851.50	305.00	858.80	0.00	858.81	.61	.99	829.68	390.62
	21.000	750.00	0.00	0.00	851.50	305.00	858.80	0.00	858.81	.68	1.05	680.61	369.14
	21.800	500.00	0.00	0.00	853.90	305.00	858.85	0.00	858.89	5.78	2.23	354.14	126.83
	21.800	500.00	0.00	0.00	853.90	305.00	858.85	0.00	858.91	7.09	2.47	287.52	114.58
	21.850	150.00	0.00	0.00	854.70	305.00	858.92	858.60	859.15	28.85	4.39	157.99	56.79
	21.850	150.00	0.00	0.00	854.70	305.00	858.93	0.00	859.22	33.12	4.72	100.48	53.00
	21.900	50.00	0.00	0.00	854.90	305.00	859.14	0.00	859.29	19.65	3.76	200.16	68.81
	21.900	50.00	0.00	0.00	854.90	305.00	859.28	0.00	859.38	13.59	3.21	247.19	82.72
*	22.100	22.00	861.00	858.60	855.00	305.00	862.17	862.17	862.37	35.90	5.65	200.78	50.90
*	22.100	22.00	861.00	858.60	855.00	305.00	862.13	0.00	862.36	39.84	5.93	190.08	48.32
	22.200	1.00	0.00	0.00	855.20	305.00	862.34	0.00	862.41	4.97	2.44	274.01	136.83
	22.200	1.00	0.00	0.00	855.20	305.00	862.35	0.00	862.41	4.93	2.43	275.53	137.37
	22.300	50.00	0.00	0.00	855.20	305.00	862.37	0.00	862.44	4.78	2.40	281.44	139.51
	22.300	50.00	0.00	0.00	855.20	305.00	862.37	0.00	862.44	5.31	2.53	204.08	132.37
	24.000	900.00	0.00	0.00	858.00	305.00	862.94	0.00	863.04	9.78	3.10	211.95	97.52
	24.000	900.00	0.00	0.00	858.00	305.00	862.99	0.00	863.11	10.41	3.22	172.78	94.52
	25.800	1400.00	0.00	0.00	860.10	305.00	865.04	0.00	865.35	30.85	4.80	121.53	54.91
	25.800	1400.00	0.00	0.00	860.10	305.00	865.15	0.00	865.49	30.23	4.87	88.87	55.48
	25.900	550.00	0.00	0.00	860.90	220.00	867.32	0.00	868.01	88.24	6.66	33.01	23.42
	25.900	550.00	0.00	0.00	860.90	220.00	867.39	0.00	868.06	85.00	6.56	33.53	23.86
	26.100	72.50	868.00	867.00	861.00	220.00	867.57	0.00	868.21	40.00	6.41	34.33	34.79
	26.100	72.50	868.00	867.00	861.00	220.00	867.58	0.00	868.22	39.86	6.40	34.38	34.85

UNNAMED TRIBUTARY

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	20.000	305.00	858.80	0.00	0.00	0.00	962.30	0.00
	20.000	305.00	858.80	0.00	0.00	0.00	877.61	0.00
	21.000	305.00	858.80	0.00	.00	0.00	661.92	750.00
	21.000	305.00	858.80	-.00	.00	-.00	408.68	750.00
	21.800	305.00	858.85	0.00	.05	0.00	362.56	500.00
	21.800	305.00	858.85	.00	.05	.00	253.58	500.00
	21.850	305.00	858.92	0.00	.07	0.00	330.15	150.00
	21.850	305.00	858.93	.01	.08	.01	85.14	150.00
	21.900	305.00	859.14	0.00	.22	0.00	338.47	50.00
	21.900	305.00	859.28	.14	.34	.14	361.37	50.00
*	22.100	305.00	862.17	0.00	3.02	0.00	311.45	22.00
*	22.100	305.00	862.13	-.03	2.85	-.03	302.21	22.00
	22.200	305.00	862.34	0.00	.18	0.00	277.61	1.00
	22.200	305.00	862.35	.00	.22	.00	278.63	1.00
	22.300	305.00	862.37	0.00	.03	0.00	242.56	50.00
	22.300	305.00	862.37	-.00	.02	-.00	112.95	50.00
	24.000	305.00	862.94	0.00	.57	0.00	148.86	900.00
	24.000	305.00	862.99	.05	.62	.05	81.73	900.00
	25.800	305.00	865.04	0.00	2.10	0.00	156.66	1400.00
	25.800	305.00	865.15	.12	2.16	.12	52.02	1400.00
	25.900	220.00	867.32	0.00	2.28	0.00	6.00	550.00
	25.900	220.00	867.39	.08	2.24	.08	6.00	550.00
	26.100	220.00	867.57	0.00	.25	0.00	6.00	72.50
	26.100	220.00	867.58	.01	.19	.01	6.00	72.50

SUMMARY OF ERRORS

CAUTION SECNO= 22.100 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 22.100 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 22.100 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 22.100 PROFILE= 2 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 22.100 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, UNNAMED TRIBUTARY
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
20.000	678.	2432.	.1	858.5	858.5	0.0
21.000	409.	681.	.4	858.5	858.5	0.0
21.800	254.	288.	1.1	858.9	858.9	0.0
21.850	85.	100.	3.0	858.9	858.9	0.0
21.900	361.	247.	1.2	859.2	859.1	.1
22.100	302.	190.	1.6	862.2	862.2	0.0
22.200	279.	276.	1.1	862.3	862.3	0.0
22.300	113.	204.	1.5	862.4	862.4	0.0
24.000	82.	173.	1.8	862.9	862.9	0.0
25.800	52.	89.	3.4	865.1	865.0	.1
25.900	6.	34.	6.6	867.4	867.3	.1
26.100	6.	34.	6.4	867.6	867.6	0.0

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
**********************************************************

     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
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UNNAMED TRIB.
Multi Profile
Williamstown Town

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1974
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
**************************************************

T
T1      WILLIAMSTON TOWNSHIP
T2      10 YEAR FLOW
T3      UNNAMED TRIBUTARY

J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ
        0.          2.          0.          0.    0.000000      0.00        0.0         0.        858.800     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  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000     201.000     0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

J5  LPRNT       NUMSEC                          ********REQUESTED SECTION NUMBERS*********

    -10.000     -10.000     0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
QT      5.000     190.000     270.000     305.000     375.000     385.000       0.000       0.000       0.000       0.000
NC       .070        .080        .033        .100        .300       0.000       0.000       0.000       0.000       0.000
ET      0.000       0.000       0.000       0.000       0.000       1.410       0.000       0.000       0.000       0.000

                VALLEY SECTION A ( MOUTH)

X1     20.000      16.000    2000.000    2036.000       0.000       0.000       0.000       0.000       0.000       0.000
GR    851.200    1214.000     857.700    1230.000     856.900    1342.000     856.800    1470.000     855.500    1570.000
GR    856.500    1712.000     856.600    1858.000     853.600    2000.000     850.700    2008.000     850.500    2012.000
GR    850.500    2016.000     855.000    2036.000     856.600    2152.000     863.300    2226.000     865.900    2312.000
GR    866.800    2364.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
NC       .070        .070        .035        .100        .300       0.000       0.000       0.000       0.000       0.000

                VALLEY SECTION B

X1     21.000      15.000    2000.000    2034.000     750.000     750.000     750.000       0.000       0.000       0.000
GR    870.500    1192.000     869.200    1368.000     867.500    1510.000     858.700    1722.000     858.100    1844.000
GR    856.400    2000.000     852.700    2006.000     851.500    2016.000     852.800    2024.000     856.700    2034.000
GR    858.200    2176.000     857.700    2328.000     860.800    2478.000     863.100    2636.000     863.700    2792.000
NC       .060        .060        .035        .100        .300       0.000       0.000       0.000       0.000       0.000

X1     21.800      15.000    2000.000    2018.000     500.000     500.000     500.000       0.000       0.000       0.000
GR    872.400    1187.000     870.900    1366.000     866.700    1602.000     858.100    1844.000     857.500    2000.000
GR    854.000    2006.000     853.900    2012.000     858.000    2018.000     858.200    2125.000     858.200    2176.000
GR    860.000    2202.000     862.400    2396.000     867.100    2596.000     872.500    2748.000     876.500    2914.000
NC      0.000       0.000       0.000        .300        .500       0.000       0.000       0.000       0.000       0.000
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X1	21.850	13.000	2010.000	2018.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	859.000	1830.000	858.000	2000.000
GR	855.000	2006.000	854.700	2012.000	858.500	2018.000	859.000	2202.000	862.400	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	7.100	1187.000	2914.000	0.000	0.000

X1	21.900	13.000	2060.000	2018.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	859.500	1830.000	858.000	2000.000
GR	855.000	2006.000	854.900	2012.000	858.500	2018.000	859.000	2202.000	862.400	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SR	0.000	1.750	2.800	0.000	3.000	0.000	10.200	0.000	855.000	854.900

BRIDGE SECTION C (UPSTREAM FACE CHURCH ST.)

X1	22.100	13.000	2000.000	2003.000	22.000	22.000	22.000	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	13.000	1187.000	872.400	0.000	1386.000	870.900	0.000	1602.000	866.700	0.000
BT	1802.000	866.500	0.000	2000.000	861.000	855.300	2000.000	861.000	858.500	2003.000
FT	861.000	856.600	2003.000	861.000	855.000	2202.000	861.000	0.000	2396.000	862.400
BT	0.000	2596.000	867.100	0.000	2748.000	872.500	0.000	2914.000	876.500	0.000
GR	872.400	1187.000	870.900	1386.000	866.700	1602.000	862.500	1802.000	861.000	2000.000
GR	855.300	2000.000	855.000	2003.000	861.000	2003.000	862.500	2202.000	862.700	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
NC	.060	.060	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.200	13.000	2000.000	2018.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	872.400	1187.000	870.900	1386.000	867.700	1602.000	863.000	1802.000	860.900	2000.000
GR	855.200	2006.000	855.400	2012.000	861.000	2018.000	863.000	2202.000	862.700	2396.000
GR	867.100	2596.000	872.500	2748.000	876.500	2914.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	22.300	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	.070	.080	.034	.100	.300	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION D

X1	24.000	12.000	2000.000	2018.000	900.000	900.000	900.000	0.000	0.000	0.000
GR	876.300	1694.000	872.800	1790.000	868.700	1880.000	864.000	1892.000	861.200	2000.000
GR	858.800	2006.000	858.000	2011.000	858.300	2014.000	860.700	2018.000	862.000	2070.000
GR	867.300	2136.000	869.100	2214.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	25.800	9.000	2000.000	2017.000	1400.000	1400.000	1400.000	0.000	0.000	0.000
GR	869.200	1754.000	869.300	1870.000	866.300	1920.000	864.000	2000.000	860.100	2003.000
GR	861.500	2010.000	864.100	2017.000	866.000	2227.000	874.000	2600.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	140.000	195.000	220.000	270.000	220.000	0.000	0.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	7.100	46.000	3176.000	0.000	0.000

X1	25.900	27.000	2033.000	2039.000	550.000	550.000	550.000	0.000	0.000	0.000
GR	876.700	1.000	875.900	46.000	874.100	218.000	871.300	426.000	869.100	636.000
GR	868.000	846.000	868.500	1060.000	868.200	1270.000	868.000	1480.000	868.000	1594.000

GR	868.600	1800.000	869.400	2000.000	869.400	2033.000	864.000	2033.000	861.700	2034.000
GR	860.900	2036.000	861.700	2038.000	864.000	2039.000	869.400	2039.000	870.800	2212.000
GR	870.800	2426.000	869.700	2636.000	871.900	2768.000	874.900	2974.000	880.800	3176.000
GR	888.900	3378.000	891.100	3488.000	0.000	0.000	0.000	0.000	0.000	0.000
SE	0.000	2.210	3.000	0.000	5.000	0.000	28.300	0.000	861.000	860.900
NC	0.600	0.000	.024	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	7.100	46.000	3176.000	0.000	0.000

BRIDGE SECTION E (UPSTREAM FACE PUTMAN ST.)

X1	26.100	27.000	2033.000	2039.000	72.500	72.500	72.500	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
RT	19.000	426.000	871.300	0.000	636.000	869.100	0.000	846.000	868.000	0.000
RT	1060.000	868.500	0.000	1270.000	868.200	0.000	1480.000	868.000	0.000	1594.000
RT	868.000	0.000	1800.000	868.600	0.000	2000.000	869.400	0.000	2033.000	869.400
RT	864.000	2034.000	869.400	866.300	2036.000	869.400	867.000	2038.000	869.400	866.300
RT	2039.000	869.400	864.000	2212.000	870.800	0.000	2426.000	870.800	0.000	2636.000
FT	869.700	0.000	2768.000	871.900	0.000	2974.000	874.900	0.000	0.000	0.000
GR	876.700	1.000	875.900	46.000	874.100	218.000	871.300	426.000	869.100	636.000
GR	868.000	846.000	868.500	1060.000	868.200	1270.000	868.000	1480.000	868.000	1594.000
GR	868.600	1800.000	869.400	2000.000	869.400	2033.000	864.000	2033.000	861.700	2034.000
GR	861.000	2036.000	861.700	2038.000	864.000	2039.000	869.400	2039.000	870.800	2212.000
GR	870.800	2426.000	869.700	2636.000	871.900	2768.000	874.900	2974.000	880.800	3176.000
GR	888.900	3378.000	891.100	3488.000	0.000	0.000	0.000	0.000	0.000	0.000
FC	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 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
*****************************************************

T1
T2        50 YEAR FLOW
T3

J1  ICPECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       3.        0.        0.  0.000000      0.00       0.0       0.   858.800    0.000
J2  NPROF     IPLOT     PREVS     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
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
**************************************************

T1
T2       100 YEAR FLOW
T3

J1   ICHECK      INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.        4.        0.        0.  0.000000      0.00      0.0       0.   858.800     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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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
**********************************************************

T1
T2 ,    500 YEAR FLOW
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	MSPI	PD
	-10.	5.	1.	0.	0.000000	0.00	0.0	0.	858.800	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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01.02.03
  MODIFICATION -  50.51.52.53
**************************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

UNNAMED TRIBUTARY

SUMMARY PRINTOUT TABLE  150
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	SECNO	XLOB	ELTRD	ELLC	ELMIN	Q	CWSEL	CRITWS	EG	IOPT	VCH	AREA	.01K
	20.000	0.00	0.00	0.00	850.50	190.00	858.80	0.00	858.80	.02	.22	2618.63	1336.
	20.000	0.00	0.00	0.00	850.50	270.00	858.80	0.00	858.80	.04	.32	2618.63	1336.
	20.000	0.00	0.00	0.00	850.50	305.00	858.80	0.00	858.80	.05	.36	2618.63	1336.
	20.000	0.00	0.00	0.00	850.50	375.00	858.80	0.00	858.80	.08	.44	2618.63	1336.
	21.000	750.00	0.00	0.00	851.50	190.00	858.80	0.00	858.80	.24	.62	828.10	389.
	21.000	750.00	0.00	0.00	851.50	270.00	858.80	0.00	858.81	.48	.88	829.12	390.
	21.000	750.00	0.00	0.00	851.50	305.00	858.80	0.00	858.81	.61	.99	829.68	390.
	21.000	750.00	0.00	0.00	851.50	375.00	858.80	0.00	858.82	.92	1.22	831.00	391.
	21.800	500.00	0.00	0.00	853.90	190.00	858.82	0.00	858.84	2.46	1.45	340.38	121.
	21.800	500.00	0.00	0.00	853.90	270.00	858.84	0.00	858.87	4.66	2.00	350.00	125.
	21.800	500.00	0.00	0.00	853.90	305.00	858.85	0.00	858.89	5.78	2.23	354.14	126.
	21.800	500.00	0.00	0.00	853.90	375.00	858.88	0.00	858.93	8.19	2.67	364.12	131.
	21.850	150.00	0.00	0.00	854.70	190.00	858.85	0.00	858.96	13.80	2.98	132.60	51.
	21.850	150.00	0.00	0.00	854.70	270.00	858.89	0.00	859.00	24.87	4.04	146.08	54.
	21.850	150.00	0.00	0.00	854.70	305.00	858.92	858.60	859.15	28.85	4.39	157.99	56.
	21.850	150.00	0.00	0.00	854.70	375.00	858.99	858.95	859.27	36.34	5.00	182.15	62.
	21.900	50.00	0.00	0.00	854.90	190.00	858.91	0.00	859.03	13.77	2.99	130.23	51.
	21.900	50.00	0.00	0.00	854.90	270.00	859.07	0.00	859.21	18.41	3.58	178.69	62.
	21.900	50.00	0.00	0.00	854.90	305.00	859.14	0.00	859.29	19.65	3.76	200.16	68.
	21.900	50.00	0.00	0.00	854.90	375.00	859.31	0.00	859.45	18.59	3.79	260.92	86.
*	22.100	22.00	861.00	858.60	855.00	190.00	862.03	0.00	862.17	20.62	4.23	162.31	41.
*	22.100	22.00	861.00	858.60	855.00	270.00	862.11	0.00	862.31	33.52	5.43	182.96	46.
*	22.100	22.00	861.00	858.60	855.00	305.00	862.17	862.17	862.37	35.90	5.65	200.78	50.
*	22.100	22.00	861.00	858.60	855.00	375.00	862.18	0.00	862.47	51.83	6.80	205.63	52.
	22.200	1.00	0.00	0.00	855.20	190.00	862.16	0.00	862.20	2.51	1.69	226.55	119.
	22.200	1.00	0.00	0.00	855.20	270.00	862.29	0.00	862.35	4.18	2.22	260.61	132.
	22.200	1.00	0.00	0.00	855.20	305.00	862.34	0.00	862.41	4.97	2.44	274.01	136.
	22.200	1.00	0.00	0.00	855.20	375.00	862.44	0.00	862.53	6.40	2.80	305.22	148.
	22.300	50.00	0.00	0.00	855.20	190.00	862.17	0.00	862.21	2.46	1.68	229.74	121.
	22.300	50.00	0.00	0.00	855.20	270.00	862.32	0.00	862.37	4.05	2.19	266.50	134.
	22.300	50.00	0.00	0.00	855.20	305.00	862.37	0.00	862.44	4.78	2.40	281.44	139.
	22.300	50.00	0.00	0.00	855.20	375.00	862.48	0.00	862.57	6.12	2.75	314.54	151.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	FG	10K#S	VCH	AREA	.01K
24.000	900.00	0.00	0.00	858.00	190.00	862.50	0.00	862.58	7.40	2.47	151.89	69.86
24.000	900.00	0.00	0.00	858.00	270.00	862.82	0.00	862.91	9.20	2.94	193.88	89.01
24.000	900.00	0.00	0.00	858.00	305.00	862.94	0.00	863.04	9.78	3.10	211.95	97.52
24.000	900.00	0.00	0.00	858.00	375.00	863.17	0.00	863.29	10.65	3.37	247.91	114.89
25.800	1400.00	0.00	0.00	860.10	190.00	864.33	0.00	864.64	37.68	4.48	46.61	30.95
25.800	1400.00	0.00	0.00	860.10	270.00	864.86	0.00	865.18	32.72	4.76	95.67	47.20
25.800	1400.00	0.00	0.00	860.10	305.00	865.04	0.00	865.35	30.85	4.80	121.53	54.91
25.800	1400.00	0.00	0.00	860.10	375.00	865.34	0.00	865.62	28.00	4.85	174.87	70.87
25.900	550.00	0.00	0.00	860.90	140.00	866.62	0.00	866.99	49.73	4.86	28.82	19.85
25.900	550.00	0.00	0.00	860.90	195.00	867.17	0.00	867.74	73.98	6.07	32.13	22.67
25.900	550.00	0.00	0.00	860.90	220.00	867.32	0.00	868.01	88.24	6.66	33.01	23.42
25.900	550.00	0.00	0.00	860.90	270.00	867.51	0.00	868.45	122.22	7.90	34.18	24.42
26.100	72.50	868.00	867.00	861.00	140.00	867.16	0.00	867.46	19.38	4.39	31.87	31.80
26.100	72.50	868.00	867.00	861.00	195.00	867.68	0.00	868.16	30.11	5.58	34.94	35.53
26.100	72.50	868.00	867.00	861.00	220.00	867.57	0.00	868.21	40.00	6.41	34.33	34.79
26.100	72.50	868.00	867.00	861.00	270.00	867.50	0.00	868.48	62.22	7.97	33.87	34.23

UNNAMED TRIBUTARY

SUMMARY PRINTOUT TABLE 150

	SECNO	G	CHSEL	DIFWSP	DIFSX	DIFKPS	TOPWID	XLOB
	20.000	190.00	858.80	0.00	0.00	0.00	962.30	0.00
	20.000	270.00	858.80	0.00	0.00	0.00	962.30	0.00
	20.000	305.00	858.80	0.00	0.00	0.00	962.30	0.00
	20.000	375.00	858.80	0.00	0.00	0.00	962.30	0.00
	21.000	190.00	858.80	0.00	.00	0.00	661.74	750.00
	21.000	270.00	858.80	.00	.00	0.00	661.86	750.00
	21.000	305.00	858.80	.00	.00	0.00	661.92	750.00
	21.000	375.00	858.80	.00	.00	0.00	662.06	750.00
	21.800	190.00	858.82	0.00	.02	0.00	360.94	500.00
	21.800	270.00	858.84	.02	.04	0.00	362.07	500.00
	21.800	305.00	858.85	.01	.05	0.00	362.56	500.00
	21.800	375.00	858.88	.03	.07	0.00	363.73	500.00
	21.850	190.00	858.85	0.00	.03	0.00	265.79	150.00
	21.850	270.00	858.89	.05	.05	0.00	310.14	150.00
	21.850	305.00	858.92	.03	.07	0.00	330.15	150.00
	21.850	375.00	858.99	.07	.11	0.00	367.41	150.00
	21.900	190.00	858.91	0.00	.07	0.00	273.59	50.00
	21.900	270.00	859.07	.16	.18	0.00	327.49	50.00
	21.900	305.00	859.14	.07	.22	0.00	338.47	50.00
	21.900	375.00	859.31	.17	.32	0.00	357.74	50.00
*	22.100	190.00	862.03	0.00	3.12	0.00	276.83	22.00
*	22.100	270.00	862.11	.07	3.04	0.00	295.92	22.00
*	22.100	305.00	862.17	.06	3.02	0.00	311.45	22.00
*	22.100	375.00	862.18	.02	2.87	0.00	315.54	22.00
	22.200	190.00	862.16	0.00	.13	0.00	243.69	1.00
	22.200	270.00	862.29	.13	.19	0.00	268.47	1.00
	22.200	305.00	862.34	.05	.18	0.00	277.61	1.00
	22.200	375.00	862.44	.10	.26	0.00	297.82	1.00
	22.300	190.00	862.17	0.00	.01	0.00	246.12	50.00
	22.300	270.00	862.32	.14	.02	0.00	272.53	50.00
	22.300	305.00	862.37	.05	.03	0.00	282.56	50.00
	22.300	375.00	862.48	.11	.04	0.00	303.60	50.00
	24.000	190.00	862.50	0.00	.33	0.00	126.61	900.00
	24.000	270.00	862.82	.31	.50	0.00	142.53	900.00
	24.000	305.00	862.94	.12	.57	0.00	148.86	900.00
	24.000	375.00	863.17	.23	.69	0.00	160.71	900.00
	25.800	190.00	864.33	0.00	1.82	0.00	52.62	1400.00
	25.800	270.00	864.86	.53	2.04	0.00	130.49	1400.00
	25.800	305.00	865.04	.18	2.10	0.00	156.66	1400.00
	25.800	375.00	865.34	.30	2.16	0.00	200.11	1400.00
	25.900	140.00	866.62	0.00	2.29	0.00	6.00	550.00
	25.900	195.00	867.17	.55	2.31	0.00	6.00	550.00

25.400	220.00	467.32	.15	2.28	0.00	6.00	550.00
25.400	270.00	467.51	.27	2.18	0.00	6.00	550.00

SECNO	Q	WSEL	DIFFSP	DIFFSX	DIFFWS	TOPWID	XLOB
26.100	140.00	867.16	0.00	.54	0.00	6.00	72.50
26.100	195.00	867.68	.52	.51	0.00	6.00	72.50
26.100	220.00	867.57	-.10	.25	0.00	6.00	72.50
26.100	270.00	867.50	-.08	-.02	0.00	6.00	72.50

SUMMARY OF ERRORS

CAUTION SECNO= 22.100 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 22.100 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 22.100 PROFILE= 2 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 22.100 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 22.100 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 22.100 PROFILE= 3 PROPABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 22.100 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 22.100 PROFILE= 4 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 22.100 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOOD INSURANCE ZONE DATA FOR UNNAMED TRIBUTARY

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10%	2%	0.2%
20.000	0.	0.00	0.00	0.00
21.000	750.	-.00	-.00	.00
21.800	1250.	-.03	-.01	.03
21.850	1400.	-.08	-.03	.07
21.900	1450.	-.23	-.07	.17
22.100	1472.	-.13	-.06	.12
22.200	1473.	-.18	-.05	.10
22.300	1523.	-.20	-.05	.11
24.000	2423.	-.44	-.12	.23
25.800	3823.	-.71	-.18	.30
25.900	4373.	-.76	-.15	.20
26.100	4446.	-.41	.10	-.06
WEIGHTED AVG FOR REACH		-.35	-.09	.16

FHF FOR THE REACH = 005 WITH 100.0% OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

HYDRAULIC ANALYSIS REPORT

UNNAMED TRIBUTARY, WILLIAMSTOWN TOWNSHIP

INGHAM COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

February, 1980

INTRODUCTION

This hydraulic analysis report covers calculations performed for an unnamed tributary of the Red Cedar River within Williamstown Township. This tributary flows south along the Williamston northeastern city limits. The reach studied in detail began at its confluence with the Red Cedar River and extended 4,445 feet upstream. Selected cross sections used in the hydraulic computations were surveyed by Commonwealth Associates in February, 1979. In addition to the field cross section data, a 7.5 minute series topographic map with a 10-foot contour interval was used.

The flows for the 10, 50, 100, and 500-year recurrence intervals were determined by computer analysis using the TR-20 model. The flows were approved by the Michigan Department of Natural Resources in a letter dated May 16, 1979.

Analysis of the hydraulic characteristics of the flooding source studied in detail was performed by Commonwealth Associates Inc. of Jackson, Michigan. The Project Manager was D. D. Zimbelman, P.E.

METHOD OF ANALYSIS

Water surface elevations of floods of the selected recurrence intervals were computed utilizing the Corps of Engineers' HEC-2 step backwater computer program.

VARIABLES AND COEFFICIENTS

Since Manning's coefficient of roughness, "n" depends on several factors such as type and amount of vegetation, channel configuration, and alignment, without an in-depth study an "n" value can only be estimated. The channel roughness factors used in the hydraulic computations were chosen by engineering judgment based on field observations and photographs of the surveyed cross sections. Calculations for loss and discharge coefficients are contained in Appendix B.

Manning's Roughness Coefficient

For channel	.02 - .035
Overbanks	.06 - .08

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Ratios

Contraction	1:1
Expansion	1:4

HIGH-WATER MARKS

There have been a number of major floods on the streams within the study area. However, no high-water marks are known to exist on the unnamed tributary. Reference 1, a photomosaic map, documents the 1975 flood at the city of Williamston. This report aided in establishing the extent of flooding expected along the unnamed tributary.

STARTING CONDITIONS

According to the Guidelines and Specifications, the starting water elevations of a tributary stream shall be based on a normal depth calculation or the level backwater elevation from the main stream. The condition which results in the higher elevation has control.

The water elevation computed by the slope area method was 854.3. The mean flood level of the Red Cedar River, interpolated from Figure 1, was 858.8. In lieu of the guidelines, the starting water elevations for the 10, 50, 100, and 500-year recurrence intervals were started at the Red Cedar's mean flood level.

SPECIAL PROBLEMS

There were no special problems associated with the study. Hand calculations were performed to verify that the conditions at Section 22.1 were reasonable. The analysis of the unnamed tributary included consideration of backwater from the Red Cedar River.

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	20	Valley Section, mouth of river
B	21	Valley Section
	21.8	Valley Section, 200 feet downstream of Church Street bridge
	21.85	Valley Section
	21.9	Bridge Section, downstream face
C	22.1	Bridge Section, upstream face of Church Street bridge
	22.2	Valley Section, 1 foot upstream
	22.3	Valley Section, 50 feet upstream of Church Street
D	24	Valley Section
	25.8	Valley Section
	25.9	Bridge Section, downstream face of Putman Street
E	26.1	Bridge Section, upstream face

BRIDGE NOTES AND SKETCHES

Bridge notes and sketches are contained in Appendix B.

CROSS SECTION PLOTS

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix C.

PROFILES

Copies of the water surface profiles are contained in Appendix D.

MAP

A copy of the 100-year flood plain and floodway showing cross sections is contained in Appendix E.

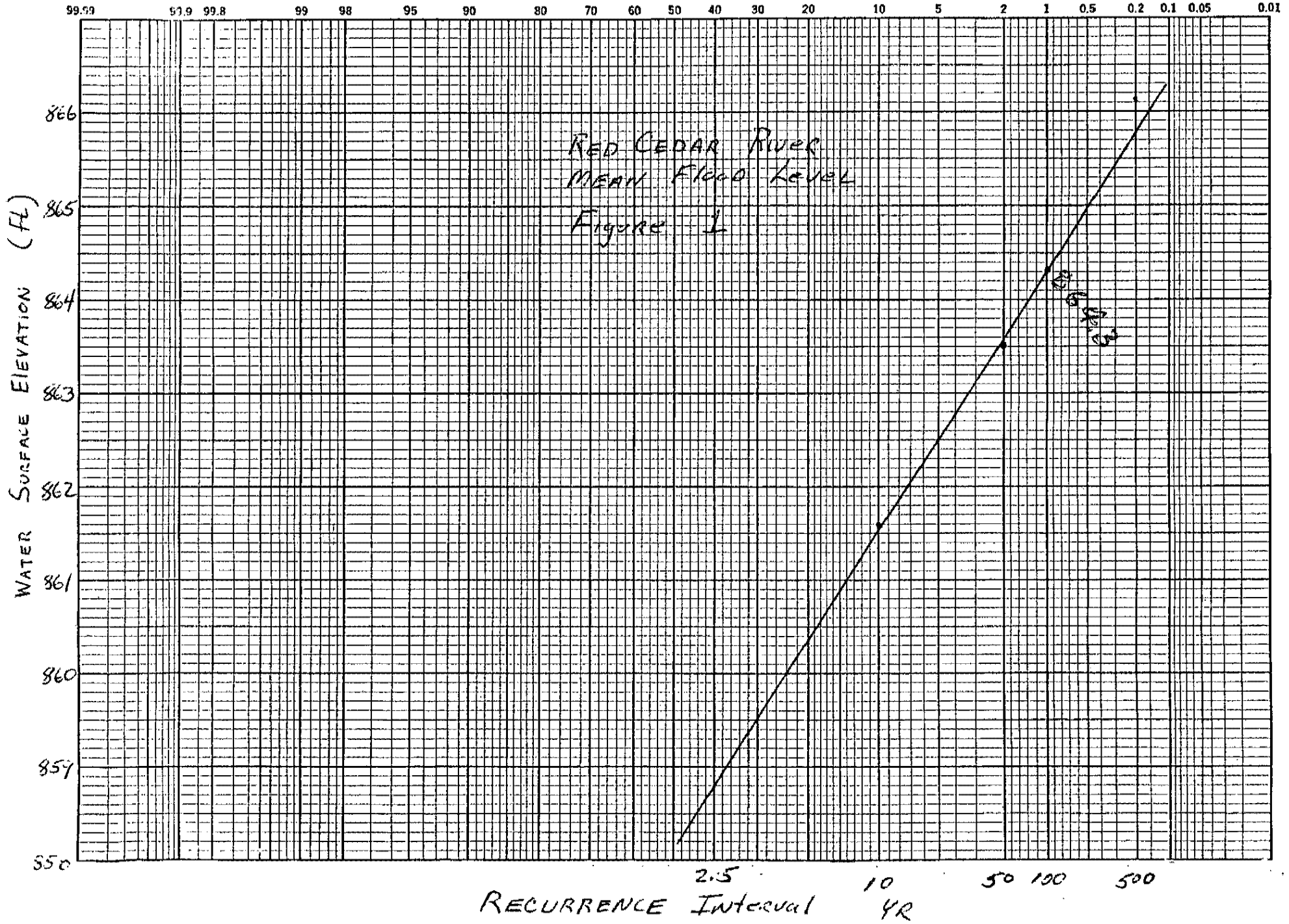
COMPLETE BACKWATER RUNS/PRINTOUTS

The final HEC II printouts for multiprofile run and floodway run are contained in Appendix E.

REFERENCES

1. Knvtilla, R. L. And L. A. Swallow, 1975, The Flood of April, 1975 at Williamston, Michigan, Photomosaic Map.

K&E PROBABILITY X 90 DIVISIONS 46 8003 MADE IN U.S.A.
KEUFFEL & ESSER CO.



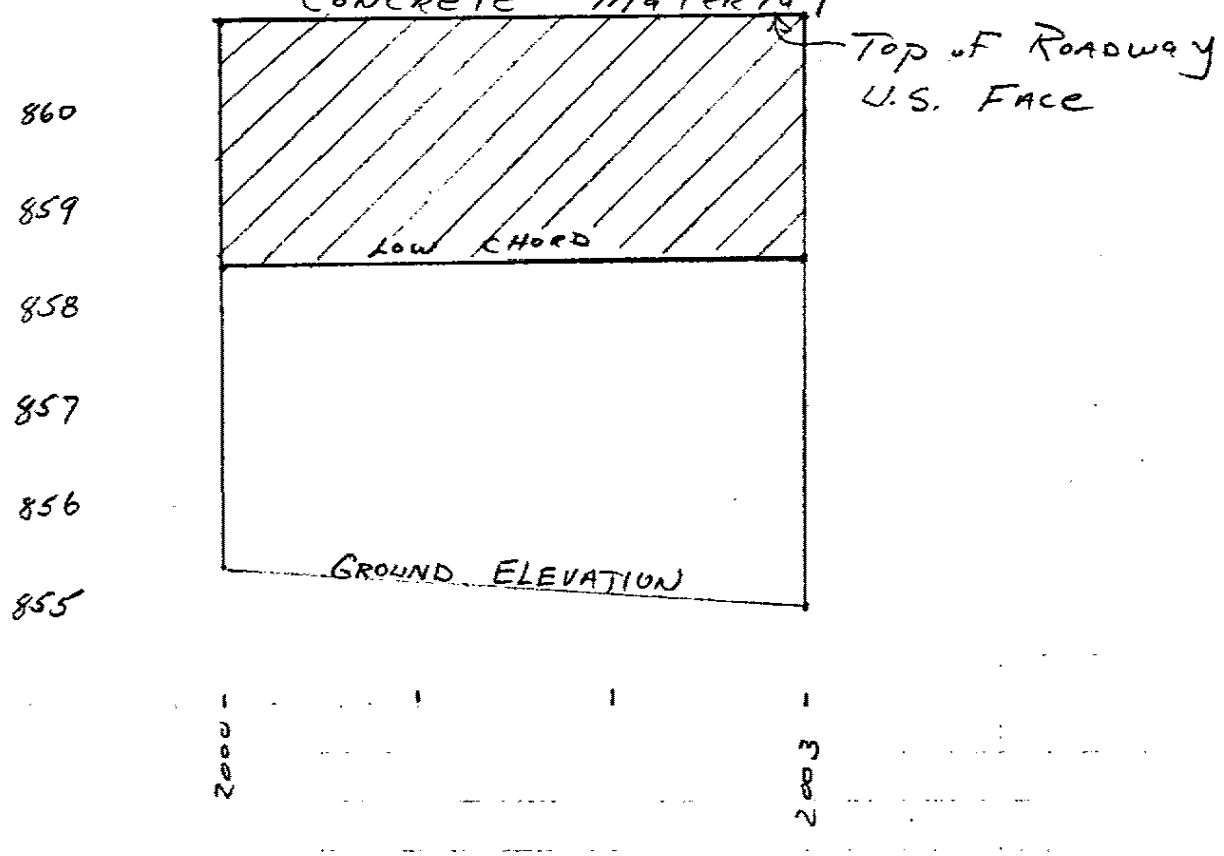
APPENDIX B

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study Williamston Township Unnamed Tributary		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Church St. Bridge	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Description : 3' wide Box Culvert
Concrete Material



Losses for XKOR values referenced from U.S. Bureau of Public Roads.

Exit 1
Entrance : Wingwalls at 30°-75° to barrel .4

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study Williamston Township Unnamed Tributary	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Church St. Bridge
	SHEET OF / BOOK NO.

Loss Co-efficient : XKOR

$$K_A = \frac{29.1\ n^2\ L}{R^{\frac{4}{3}}}$$

AREA = 10.2 sq ft

Wetted Perimeter = 3 + 3.6 + 3 + 3.2 = 12.8 Ft

$$R = \frac{A}{P} = \frac{10.2}{12.8} = .797^{\frac{4}{3}}$$

$$K_A = \frac{29.1\ (.02)^2\ (22)}{.7387887} = .35$$

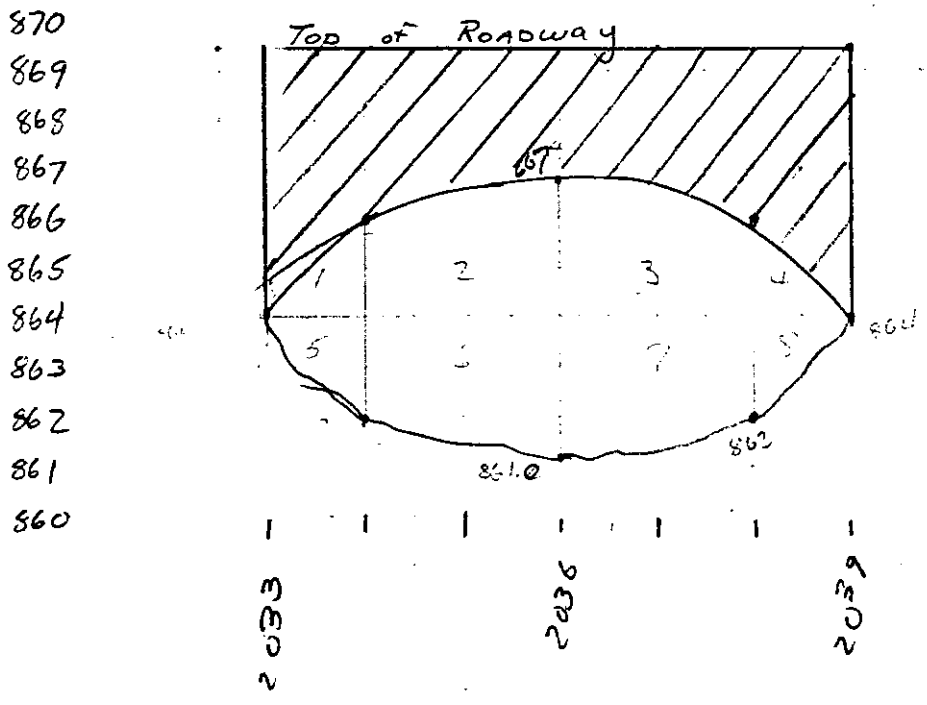
XKOR = 1 + .4 + .35 ≈ 1.75

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study Williamston Township Unnamed Tributary	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Putman St. Bridge
	SHEET OF / BOOK NO.

Description: Metal Culvert 6' Dia.



Losses for XKOR values referenced from U.S. Bureau of Public Roads

EXTL = 1
ENTRANCE = .5 Headwall parallel to embankment (No wingwalls)

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER Flood Insurance Study Williamston Township Unnamed Tributary	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT Putman St. Bridge
	SHEET OF / BOOK NO.

$$\text{AREA} = \frac{\pi D^2}{4} = 28.27 \text{ sq Ft}$$

$$P = 2\pi R = 18.85 \text{ Ft}$$

$$K_f = \frac{29.1(.024)^2(72.5)}{1.72} \quad 2.71$$

$$XKOR = 14.5 + .71 = 2.21$$