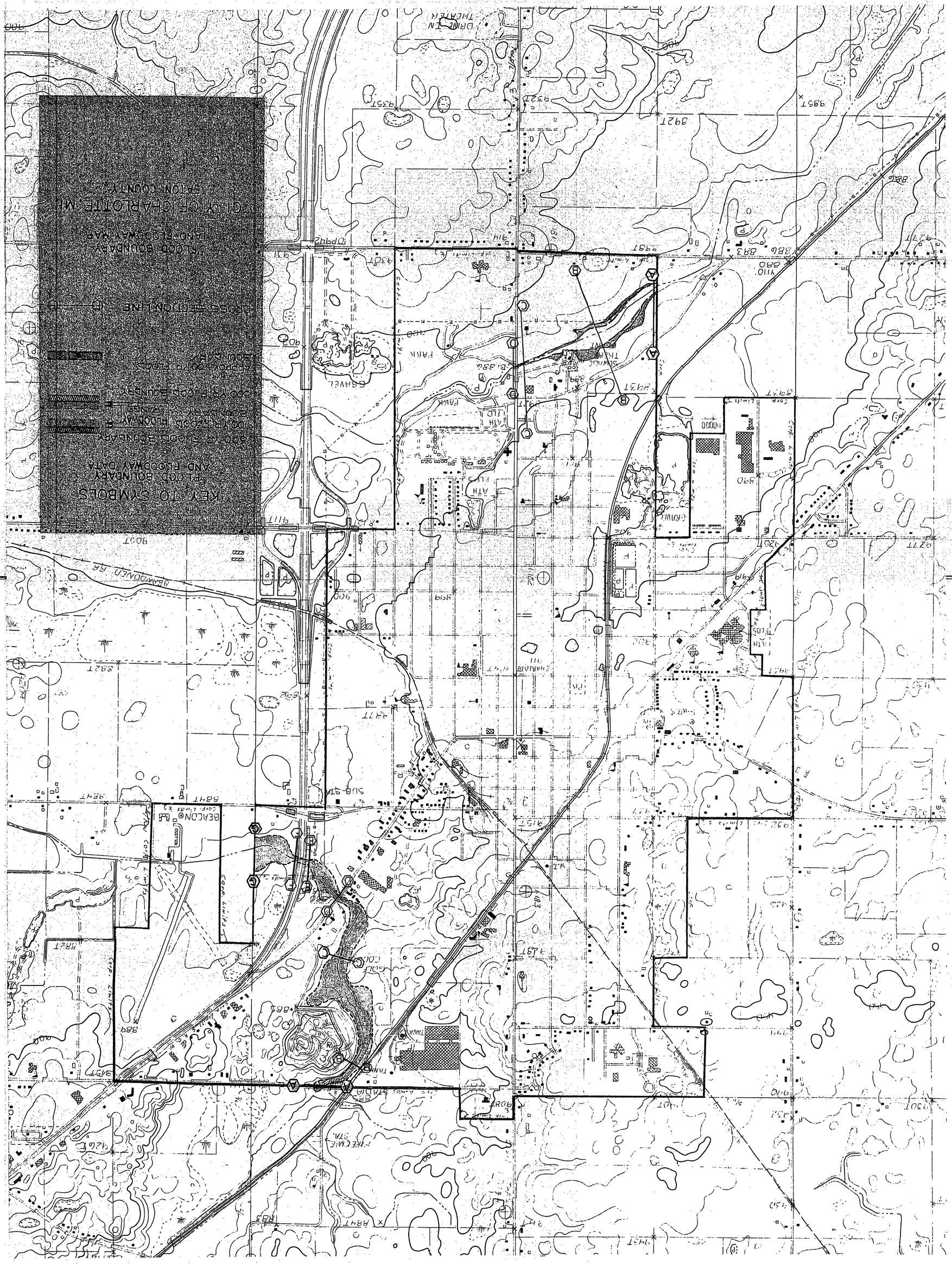
RECEIVED
NOV 05 1979
W , MANAGEMENT



KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOODWAY DATA

500 YR. FLOOD BOUNDARY

100 YR. FLOOD BOUNDARY

FLOODWAY RANGE

500 YR. FLOOD BOUNDRY

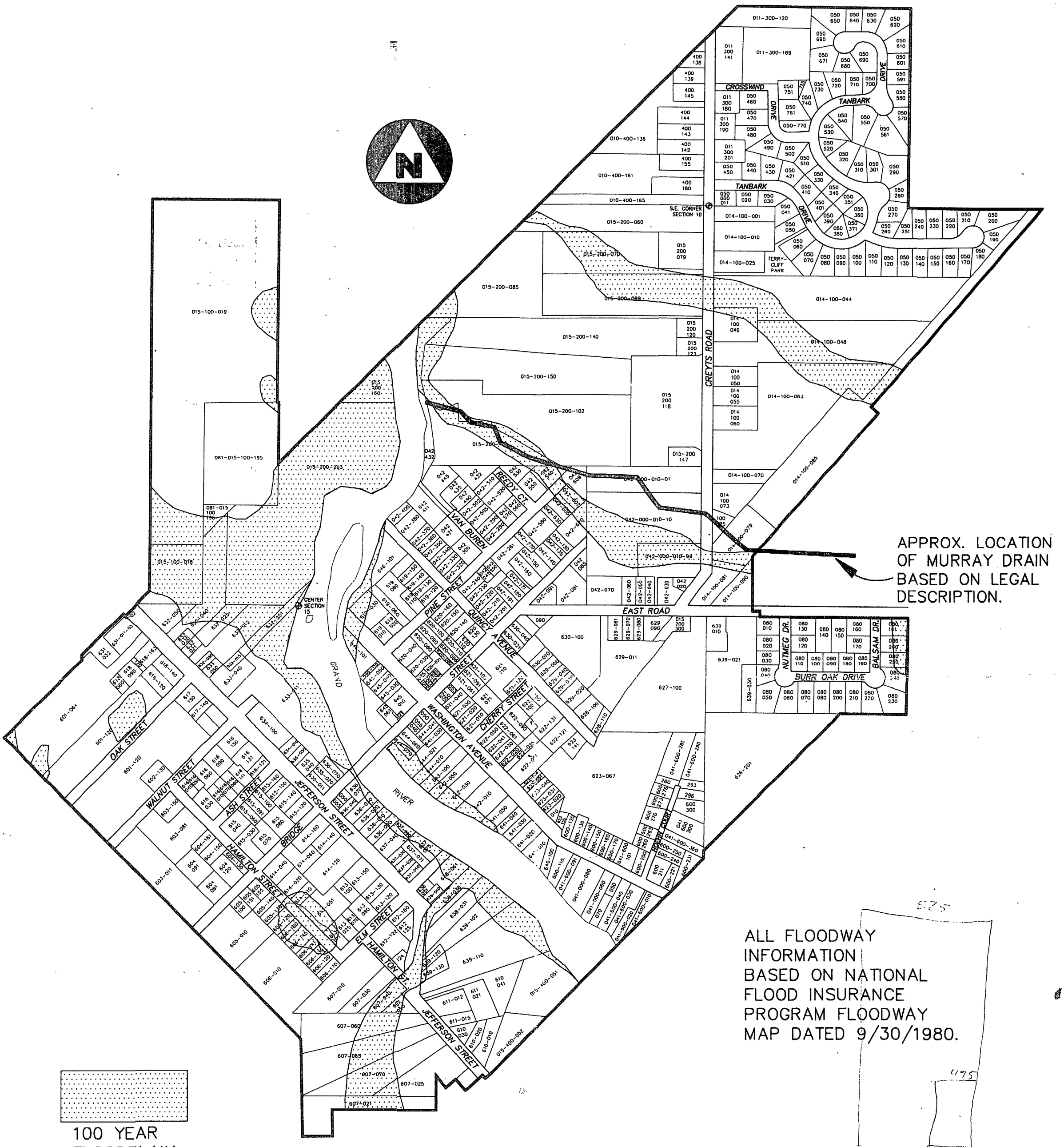
APPROX. 100 YR. FLOOD BOUNDARY

CROSS SECTION LINE E — F

FLOOD BOUNDARY AND FLOODWAY MAP

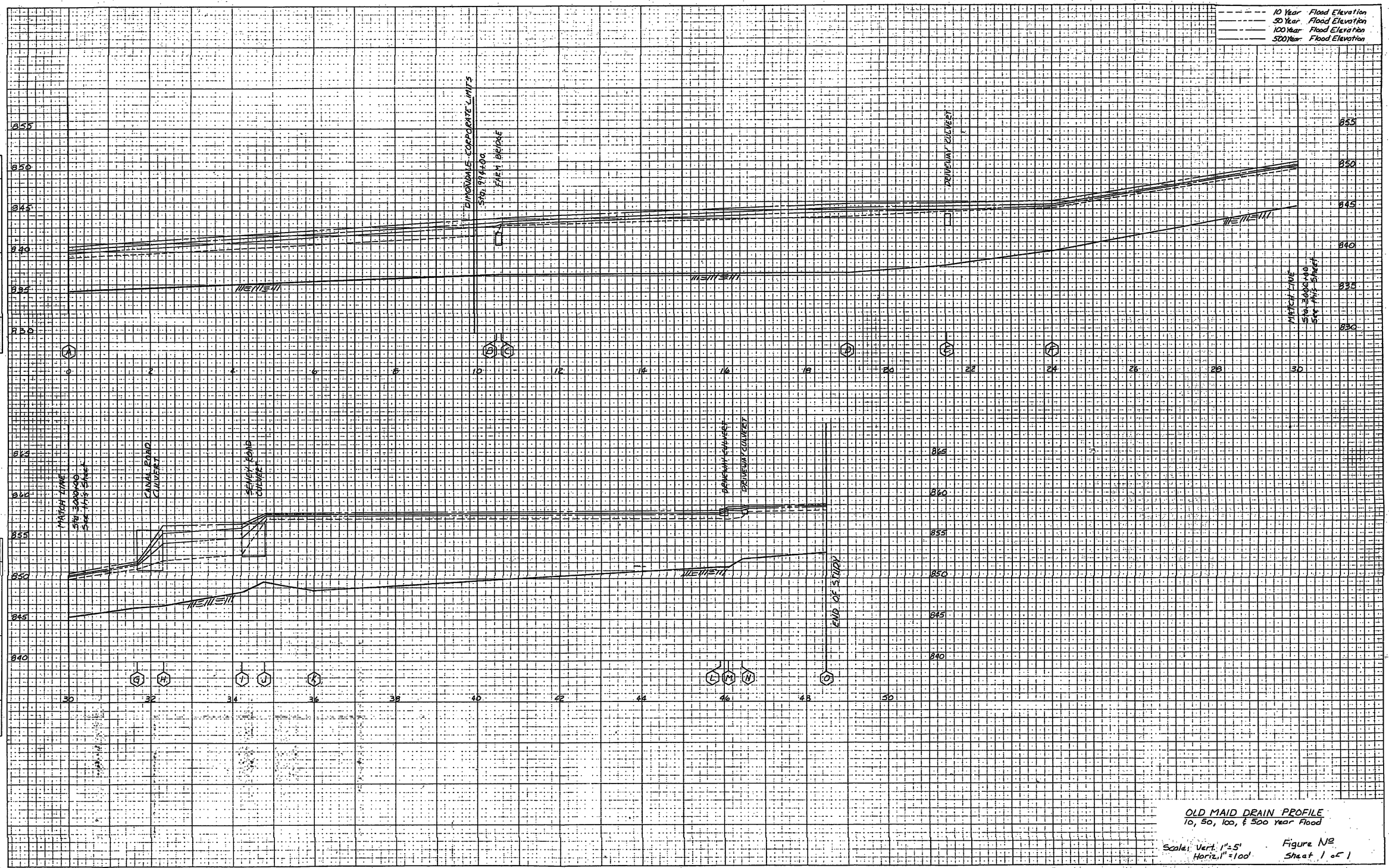
CITY OF CHARLOTTE, MI.

EATON COUNTY



VILLAGE OF DIMONDALE

FLOODWAY MAP



OLD MAID DRAIN PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1" = 5'
Horiz. 1" = 100'

Figure No
Sheet 1 of 1

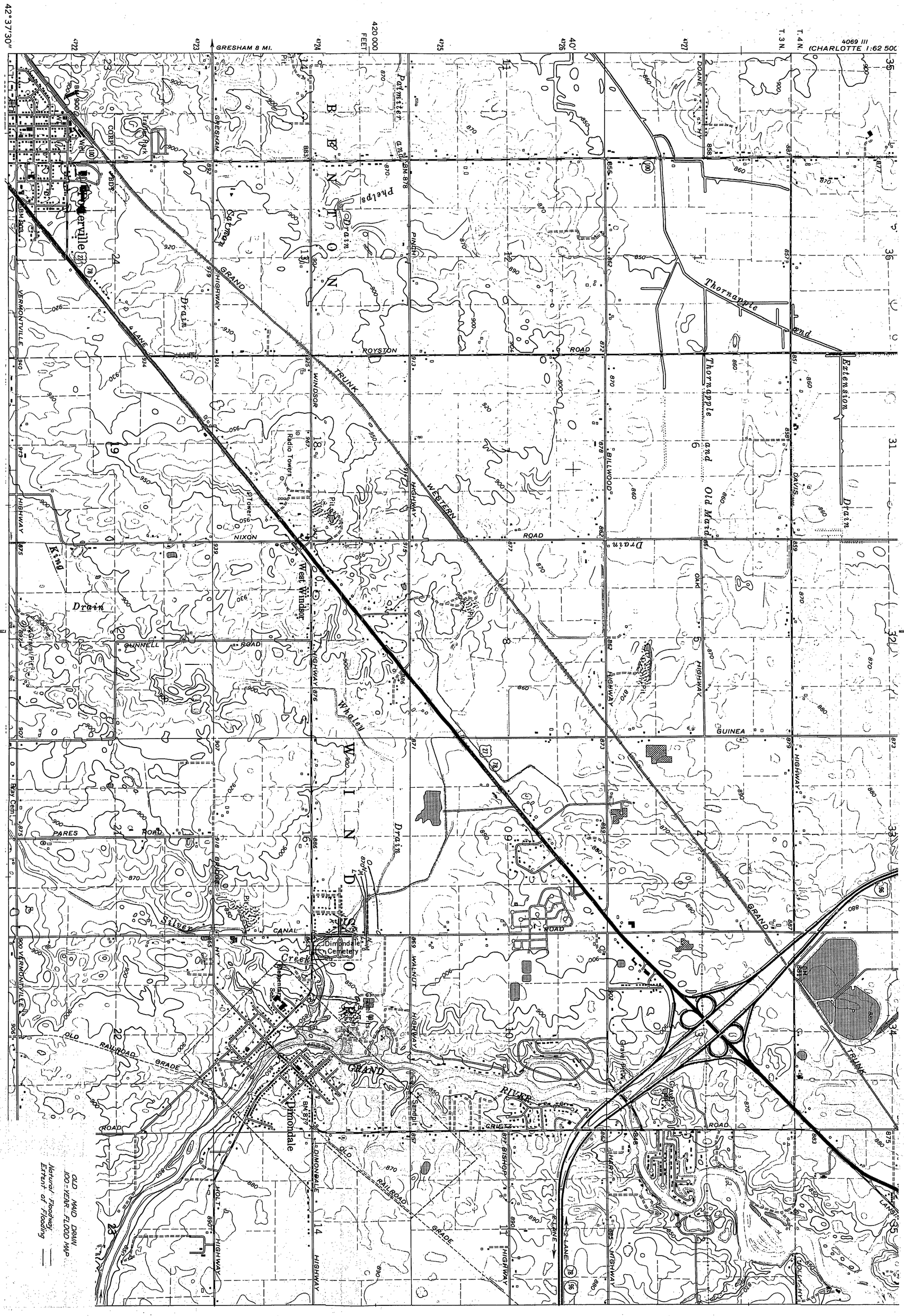
NOTE: All elevations are referenced to U.S.G.S. elevations

STREAM DISTANCE IN HUNDREDS OF FEET

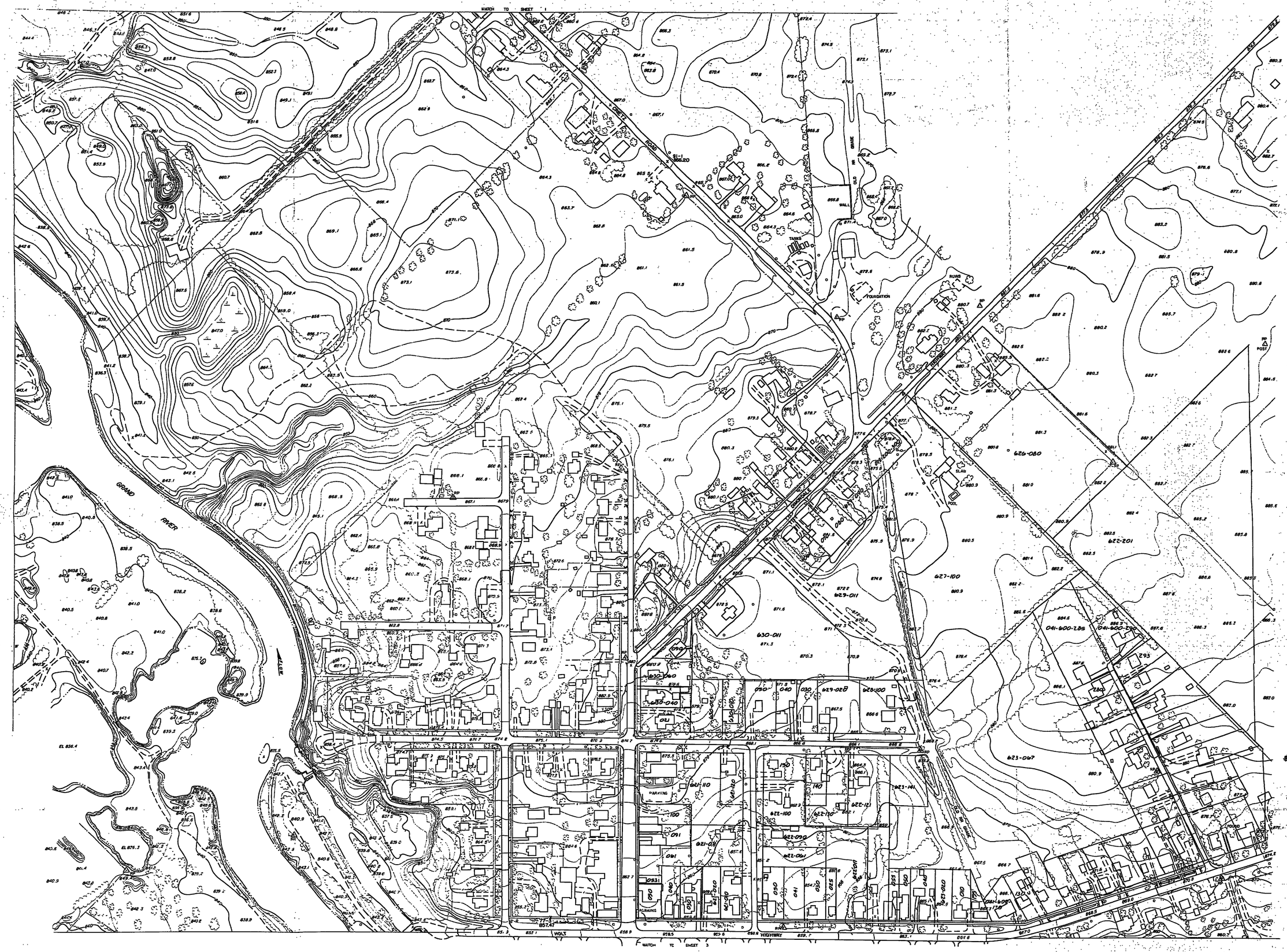
PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO NEW YORK

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



42°37'30"
GRESHAM 8 MI.
420 000 FEET
40'
T. 4 N.
T. 3 N.
4069 III
(CHARLOTTE 1:62 500)
BENTON
WINDSOR
Potterville
Dimondale
Dimondale Cemetery
Thornapple and Old Maid Drain
Thornapple and Extension Drain
Palmiter and Phelps Drain
Salman Drain
Silver Creek
Whaley Drain
West Windsor Drain
King Drain
GRAND RIVER
GRAND TRUNK WESTERN
4 LANE
ROYSTON ROAD
NIXON ROAD
GUNNELL ROAD
PARES ROAD
CANAL ROAD
GUINEA
CRIETZ ROAD
OLD RAILROAD GRADE
VERMONTVILLE HIGHWAY
GRESHAM HIGHWAY
WINDSOR HIGHWAY
PINCH HIGHWAY
BILLWOOD HIGHWAY
OAK HIGHWAY
DAVIS HIGHWAY
WALNUT HIGHWAY
BISHOP HIGHWAY
HART HIGHWAY
HOLT HIGHWAY
DIMONDALE HIGHWAY
DOANE HY
JOLLY HY
Radio Towers
Tower
Pit
Gravel Pit
Sandpit
Trailer Park
Pray Cem.
OLD MAID DRAIN
100-YEAR FLOOD MAP
Natural Floodway
Extent of Flooding



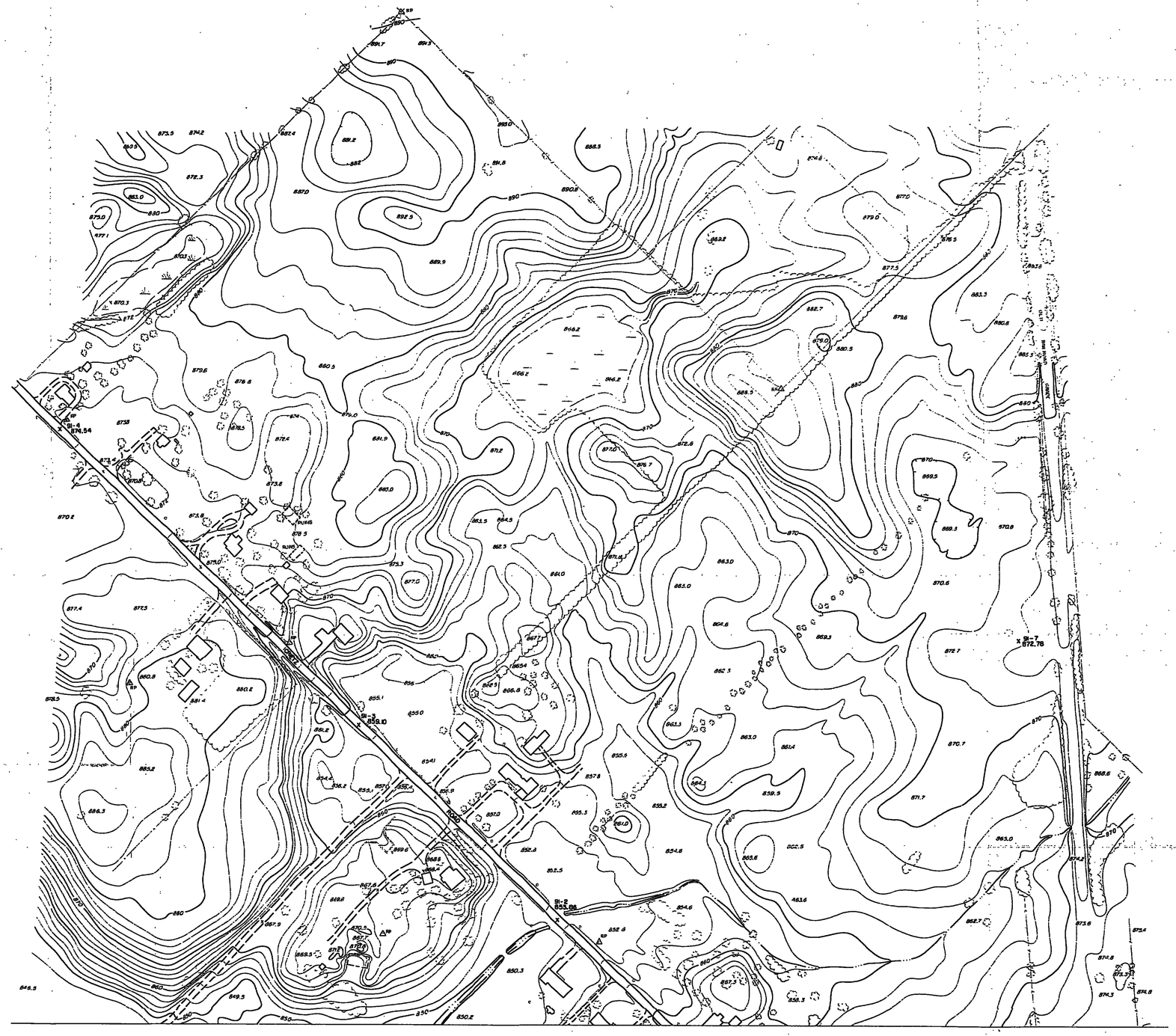
DATE OF PHOTOGRAPHY MARCH 1972 DATE OF MAPPING SEPTEMBER 1972
COMPILED BY PHOTOGRAMMETRIC METHODS
BY
ABRAMS AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

△RP REFERENCE POINT
THESE SELECTED POINTS ARE PLOTTED WITH EXTREME CARE AND ARE RECOMMENDED AS BASIC TIES DURING CONSTRUCTION.

100 0 100 200 300
SCALE 1" = 100' CONTOUR INTERVAL 2'

TOPOGRAPHIC MAP
OF
CITY OF DIMONDALE
WINDSOR TOWNSHIP
EATON COUNTY, MICHIGAN

SHEET NO. 2



DATE OF PHOTOGRAPHY MARCH 1972 DATE OF MAPPING SEPTEMBER 1972

COMPILED BY PHOTOGRAMMETRIC METHODS

BY

ABRAMS AERIAL SURVEY CORPORATION

LANSING, MICHIGAN

REFERENCE POINT

THESE REFLECTED POINTS ARE PLOTTED WITH EXTREME CARE, AND ARE RECOMMENDED AS BASIC TIES DURING CONSTRUCTION.

N

SCALE 1" = 100' CONTOUR INTERVAL 2'

TOPOGRAPHIC MAP OF CITY OF DIMONDALE

WINDSOR TOWNSHIP
EATON COUNTY, MICHIGAN

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: city of charlotte

3) WATERCOURSE: ~~Butternut~~ Battle creek

4) DOCUMENT TYPE: 10. 50. 100. 500 yrs profiles

00BREAK00

THIS RUN EXECUTED 06/28/79

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

C
T1      CHARLOTTE
T2      10 YR LEVEL
T3      BATTLE CREEK RIVER
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ	
	0.	2.	0.	0.	0.0	0.0	0.0	0.	876.660	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										
	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	
QT	5.000	580.000	845.000	965.000	1260.000	965.000	0.0	0.0	0.0	0.0	
NC	0.060	0.060	0.031	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	1984.000	3500.000	1984.000	2050.000	
	VALLEY SECTION A (WESTERN CORPORATE LIMIT)										
X1	2.000	27.000	1984.000	2046.000	0.0	0.0	0.0	0.0	0.0	0.0	
GR	880.000	496.000	888.500	566.000	888.000	658.000	879.400	828.000	883.600	1020.000	
GR	887.400	1130.000	887.900	1239.000	888.300	1358.000	888.200	1464.000	888.300	1606.000	
GR	888.200	1752.000	876.100	1808.000	875.800	1884.000	881.000	1984.000	875.200	2000.000	
GR	872.000	2004.000	871.000	2020.000	872.000	2040.000	874.600	2046.000	887.200	2234.000	
GR	887.300	2438.000	885.400	2572.000	886.000	2764.000	889.300	3004.000	889.600	3038.000	
GR	890.100	3252.000	890.900	3500.000	0.0	0.0	0.0	0.0	0.0	0.0	
NC	0.070	0.070	0.033	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	2000.000	2466.000	2000.000	2400.000	
	VALLEY SECTION B										
X1	3.000	25.000	2000.000	2060.000	1500.000	1500.000	1500.000	0.0	0.0	0.0	
GR	896.300	530.000	892.600	672.000	890.900	856.000	890.000	1040.000	889.500	1214.000	
GR	889.100	1390.000	888.300	1564.000	888.200	1762.000	885.800	1812.000	876.400	1922.000	
GR	879.800	2000.000	873.800	2020.000	870.900	2034.000	872.500	2048.000	877.400	2060.000	
GR	876.500	2142.000	876.200	2300.000	876.600	2466.000	881.700	2548.000	886.400	2702.000	
GR	880.100	2810.000	889.500	2936.000	891.800	3132.000	892.900	3310.000	893.400	3486.000	
	VALLEY SECTION C (90 FT DOWNSTREAM OF S. COCHRAN)										
X1	3.800	29.000	2000.000	2080.000	1440.000	1490.000	1460.000	0.0	0.0	0.0	
X3	0.0	0.0	0.0	2000.000	0.0	0.0	0.0	0.0	0.0	0.0	
	898.400	870.000	8[illegible]7.500	[illegible]922.000	896.600	980.000	894.200	108[illegible].000	93.000	1190.000	

GR	[illegible]800	1386.000	[illegible]9.000	1474.000	881.400	1540.000	880.100	1596.000	79[illegible]00	18[illegible].000
GR	[illegible]7[illegible].000	2000.000	874.600	2018.000	873.700	2030.000	873.600	2039.000	874.100	204[illegible].000
GR	[illegible]74.300	2060.000	880.800	2075.000	885.200	2080.000	886.100	2180.000	888.400	2310.000
GR	[illegible]88.200	2346.000	890.900	2530.000	891.500	2634.000	892.000	2740.000	892.600	2842.000
GR	893.000	2948.000	893.800	3102.000	895.400	3274.000	897.300	3416.000	0.0	0.0
NC	0.070	0.070	0.033	0.300	0.500	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION D (DOWNSTREAM FACE OF S.COCHRAN BRIDGE)

X1	3.900	27.000	2018.000	2060.000	90.000	90.000	90.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	883.900	883.900	0.0
GR	898.400	870.000	897.500	922.000	896.600	980.000	894.800	1086.000	893.000	1190.000
GR	889.300	1412.000	887.700	1502.000	885.200	1700.000	885.100	1890.000	885.900	2000.000
GR	874.600	2018.000	873.700	2030.000	873.600	2039.000	874.100	2048.000	874.300	2060.000
GR	880.800	2075.000	885.200	2080.000	886.000	2176.000	882.200	2346.000	890.900	2530.000
GR	891.500	2634.000	892.000	2740.000	892.600	2842.000	893.000	2948.000	893.800	3102.000
GR	895.400	3274.000	897.300	3416.000	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION E

X1	4.000	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	883.900	883.900	0.0
BT	9.000	2000.000	885.900	0.0	2018.000	885.800	874.600	2018.000	885.800	875.700
BT	2030.000	885.800	880.900	2039.000	885.800	882.000	2048.000	885.700	881.000	2060.000
BT	885.700	875.400	2060.000	885.700	874.300	2080.000	885.200	0.0	0.0	0.0

BRIDGE SECTION F (UPSTREAM FACE OF S. COCHRAN BRIDGE)

X1	4.100	27.000	2018.000	2060.000	30.000	30.000	30.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	885.700	885.700	0.0
BT	9.000	2000.000	885.800	0.0	2018.000	885.800	873.300	2018.000	885.800	875.700
BT	2030.000	885.800	880.900	2039.000	885.700	882.000	2048.000	885.700	881.000	2060.000
BT	886.600	875.400	2060.000	885.600	873.600	2080.000	885.200	0.0	0.0	0.0
GR	898.400	870.000	897.500	922.000	896.600	980.000	894.800	1086.000	893.100	1190.000
GR	889.300	1412.000	887.700	1502.000	885.200	1700.000	885.100	1890.000	885.800	2000.000
GR	873.300	2018.000	873.300	2030.000	873.300	2039.000	873.400	2048.000	873.600	2060.000
GR	880.800	2075.000	885.200	2080.000	886.000	2176.000	888.200	2346.000	890.900	2530.000
GR	891.500	2634.000	892.000	2740.000	892.600	2842.000	893.000	2948.000	893.800	3102.000
GR	895.400	3274.000	897.300	3416.000	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION G

X1	4.200	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	885.700	885.700	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 06/28/79

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

T1
T2      50 YR FLOW
T3

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
      -10.      3.       0.       0.  0.0          0.0      0.0      0.    878.080   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 06/28/79

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01.02
  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.  0.0           0.0       0.0       0.    878.630     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 06/28/79

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01,02
  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.   0.0          0.0       0.0       0.   879.870     0.0
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     EN        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 06/28/79

```
**************************************************
  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

BATTLE CREEK RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	1.0K*S	VCH	AREA	.01K
2.000	0.0	0.0	0.0	871.00	580.00	876.66	0.0	876.76	4.11	2.55	252.35	286.15
2.000	0.0	0.0	0.0	871.00	845.00	878.08	0.0	878.18	3.38	2.66	385.27	459.43
2.000	0.0	0.0	0.0	871.00	965.00	878.63	0.0	878.73	3.19	2.71	446.15	540.55
2.000	0.0	0.0	0.0	871.00	1260.00	879.87	0.0	879.98	2.78	2.77	603.11	755.10
3.000	1500.00	0.0	0.0	870.90	580.00	877.33	0.0	877.39	4.27	2.23	538.81	280.66
3.000	1500.00	0.0	0.0	870.90	845.00	878.54	0.0	878.56	1.92	1.71	1094.44	610.39
3.000	1500.00	0.0	0.0	870.90	965.00	879.04	0.0	879.06	1.50	1.59	1325.17	787.17
3.000	1500.00	0.0	0.0	870.90	1260.00	880.20	0.0	880.21	0.97	1.42	1864.05	1281.67
3.800	1460.00	0.0	0.0	873.60	580.00	878.10	0.0	878.21	7.28	2.62	221.63	214.94
3.800	1460.00	0.0	0.0	873.60	845.00	878.95	0.0	879.09	7.41	3.01	281.01	310.48
3.800	1460.00	0.0	0.0	873.60	965.00	879.36	0.0	879.51	7.09	3.10	310.86	362.52
3.800	1460.00	0.0	0.0	873.60	1260.00	880.39	0.0	880.55	6.31	3.27	384.79	501.48
3.900	90.00	0.0	0.0	873.60	580.00	878.14	0.0	878.31	8.39	3.33	174.35	200.23
3.900	90.00	0.0	0.0	873.60	845.00	878.97	0.0	879.23	9.81	4.04	209.13	269.82
3.900	90.00	0.0	0.0	873.60	965.00	879.37	0.0	879.65	9.95	4.27	225.82	305.88
3.900	90.00	0.0	0.0	873.60	1260.00	880.37	0.0	880.71	9.76	4.71	267.69	403.30
4.000	1.00	885.20	882.00	873.60	580.00	878.12	0.0	878.33	16.43	3.69	157.32	143.08
4.000	1.00	885.20	882.00	873.60	845.00	878.94	0.0	879.26	19.90	4.53	186.57	189.42
4.000	1.00	885.20	882.00	873.60	965.00	879.33	0.0	879.69	20.43	4.81	200.68	213.48
4.000	1.00	885.20	882.00	873.60	1260.00	880.32	0.0	880.76	20.46	5.33	236.18	278.56
4.100	30.00	885.20	882.00	873.30	580.00	878.24	0.0	878.38	9.21	3.09	187.01	191.16
4.100	30.00	885.20	882.00	873.30	845.00	879.10	0.0	879.33	11.82	3.87	218.49	245.81
4.100	30.00	885.20	882.00	873.30	965.00	879.50	0.0	879.77	12.50	4.14	232.98	272.99
4.100	30.00	885.20	882.00	873.30	1260.00	880.50	0.0	880.84	13.36	4.69	268.94	344.76
4.200	1.00	0.0	0.0	873.30	580.00	878.27	0.0	878.39	4.85	2.82	205.84	263.34
4.200	1.00	0.0	0.0	873.30	845.00	879.16	0.0	879.34	5.98	3.48	243.10	345.61
4.200	1.00	0.0	0.0	873.30	965.00	879.57	0.0	879.78	6.23	3.70	260.51	386.64
4.200	1.00	0.0	0.0	873.30	1260.00	880.60	0.0	880.86	6.48	4.15	303.87	495.09

BATTLE CREEK RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.000	580.00	876.66	0.0	0.0	0.0	80.76	0.0
2.000	845.00	878.08	1.42	0.0	1.42	105.87	0.0
2.000	965.00	878.63	0.55	0.0	1.97	115.59	0.0
2.000	1260.00	879.87	1.24	0.0	3.21	137.52	0.0
3.000	580.00	877.33	0.0	0.67	0.0	451.29	1500.00
3.000	845.00	878.54	1.21	0.46	1.21	461.79	1500.00
3.000	965.00	879.04	0.50	0.41	1.71	463.46	1500.00
3.000	1260.00	880.20	1.16	0.33	2.87	466.00	1500.00
3.800	580.00	878.10	0.0	0.77	0.0	68.77	1460.00
3.800	845.00	878.95	0.85	0.41	0.85	70.74	1460.00
3.800	965.00	879.36	0.41	0.32	1.26	71.70	1460.00
3.800	1260.00	880.39	1.02	0.19	2.29	74.04	1460.00
3.900	580.00	878.14	0.0	0.04	0.0	42.00	90.00
3.900	845.00	878.97	0.84	0.02	0.84	42.00	90.00
3.900	965.00	879.37	0.40	0.01	1.23	42.00	90.00
3.900	1260.00	880.37	1.00	-0.02	2.23	42.00	90.00
4.000	580.00	878.12	0.0	-0.02	0.0	42.00	1.00
4.000	845.00	878.94	0.82	-0.03	0.82	42.00	1.00
4.000	965.00	879.33	0.39	-0.04	1.21	42.00	1.00
4.000	1260.00	880.32	0.99	-0.05	2.20	42.00	1.00
4.100	580.00	878.24	0.0	0.12	0.0	42.00	30.00
4.100	845.00	879.10	0.86	0.16	0.86	42.00	30.00
4.100	965.00	879.50	0.40	0.17	1.27	42.00	30.00
4.100	1260.00	880.50	1.00	0.18	2.26	42.00	30.00
4.200	580.00	878.27	0.0	0.03	0.0	42.00	1.00
4.200	845.00	879.16	0.89	0.06	0.89	42.00	1.00
4.200	965.00	879.57	0.41	0.07	1.30	42.00	1.00
4.200	1260.00	880.60	1.02	0.10	2.33	42.00	1.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR BATTLE CREEK RIVER

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND@ 10@	2@	0.2@
2.000	0.	-1.97	-0.55	1.24
3.000	1500.	-1.71	-0.50	1.16
3.800	2960.	-1.26	-0.41	1.02
3.900	3050.	-1.23	-0.40	1.00
4.000	3051.	-1.21	-0.39	0.99
4.100	3081.	-1.27	-0.40	1.00
4.200	3082.	-1.30	-0.41	1.02
WEIGHTED AVG FOR REACH		-1.65	-0.49	1.14

FHF FOR THE REACH = 015 WITH 100.0@ OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 3

Battle Creek
City of Charlotte
Multiple Run

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Charlotte

3) WATERCOURSE: Battle Creek

4) DOCUMENT TYPE: profiles by Slope-Area method

00BREAK00

BATTLE CREEK
CHARLOTTE, MICHIGAN

Starting Water Surface Downstream
of Kalomo Bridge by
Slope-Area Method

THIS RUN EXECUTED 10/26/79

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01.02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      CHARLOTTE
T2      APPROXIMATE 100 YR LEVEL
T3      BATTLE CREEK RIVER
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ	
	0.	0.	0.	0.	0.000300	0.0	0.0	0.	878.000	0.0	
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	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										
	110.000	150.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
QT	5.000	580.000	845.000	965.000	1260.000	965.000	0.0	0.0	0.0	0.0	
NC	0.060	0.060	0.040	0.100	0.300	0.0	0.0	0.0	0.0	0.0	
X1	0.0	9.000	2000.000	2060.000	0.0	0.0	0.0	0.0	0.0	0.0	
GR	880.000	1950.000	875.000	2000.000	871.000	2010.000	870.000	2020.000	870.000	2035.000	
GR	871.000	2045.000	875.000	2060.000	880.000	2340.000	890.000	2600.000	0.0	0.0	
NC	0.060	0.060	0.035	0.300	0.500	0.0	0.0	0.0	0.0	0.0	
X1	0.500	8.000	1989.000	2049.000	1000.000	1000.000	1000.000	0.0	0.0	0.0	
GR	880.000	1980.000	880.300	1989.000	871.400	2000.000	870.200	2012.000	870.100	2025.000	
GR	871.500	2038.000	879.200	2049.000	880.000	2070.000	0.0	0.0	0.0	0.0	
X1	0.600	13.000	1995.000	2046.000	50.000	50.000	50.000	0.0	0.0	0.0	
GR	880.000	1980.000	880.300	1989.000	880.000	1995.000	875.400	1995.000	871.400	2000.000	
GR	870.200	2012.000	870.200	2019.000	870.200	2020.000	870.200	2025.000	871.500	2038.000	
GR	877.000	2046.000	880.000	2046.000	880.000	2070.000	0.0	0.0	0.0	0.0	
X1	0.700	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0	
BT	11.000	1980.000	880.000	0.0	1989.000	880.300	0.0	1995.000	880.000	875.400	
BT	1995.000	880.000	879.000	2019.000	880.000	879.000	2019.000	880.000	870.200	2020.000	
BT	880.000	870.200	2020.000	880.000	879.000	2046.000	880.000	879.000	2046.000	880.000	
BT	877.000	2070.000	880.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
X1	0.800	0.0	0.0	0.0	31.750	31.750	31.750	0.0	0.0	0.0	
X2	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	
X1	0.900	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0	
X1	1.000	8.000	1989.000	2049.000	50.001	50.000	50.000	0.0	0.0	0.0	

GR	880.000	1980.000	880.300	1989.000	871.400	2000.000	870.200	2012.000	870.100	2025.000
GR	871.500	2038.000	879.200	2049.000	880.000	2070.000	0.0	0.0	0.0	0.0
NC	0.050	0.050	0.030	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	1984.000	3500.000	1984.000	2050.000

VALLEY SECTION A (WESTERN CORPORATE LIMIT)

X1	2.000	27.000	1984.000	2046.000	1150.000	1350.000	1250.000	0.0	0.0	0.0
GR	880.000	496.000	888.500	566.000	888.000	658.000	879.400	828.000	883.600	1020.000
GR	887.400	1130.000	887.900	1239.000	888.300	1358.000	888.200	1464.000	888.300	1606.000
GR	888.200	1752.000	876.100	1808.000	875.800	1884.000	881.000	1984.000	875.200	2000.000
GR	872.000	2004.000	871.000	2020.000	872.000	2040.000	874.600	2046.000	887.200	2234.000
GR	887.300	2438.000	885.400	2572.000	886.000	2764.000	889.300	3004.000	889.600	3038.000
GR	890.100	3252.000	890.900	3500.000	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	2000.000	2466.000	2000.000	2400.000
NC	0.070	0.070	0.033	0.100	0.300	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION B

X1	3.000	25.000	2000.000	2060.000	1500.000	1500.000	1500.000	0.0	0.0	0.0
GR	896.300	530.000	892.600	672.000	890.900	856.000	890.000	1040.000	889.500	1214.000
GR	889.100	1390.000	888.300	1564.000	888.200	1762.000	885.800	1812.000	876.400	1922.000
GR	879.800	2000.000	873.800	2020.000	870.900	2034.000	872.500	2048.000	877.400	2060.000
GR	876.500	2142.000	876.200	2300.000	876.600	2466.000	881.700	2548.000	886.400	2702.000
GR	880.100	2810.000	889.500	2936.000	891.800	3132.000	892.900	3310.000	893.400	3486.000

VALLEY SECTION C (90 FT DOWNSTREAM OF S. COCHRAN)

X1	3.800	29.000	2000.000	2080.000	1440.000	1490.000	1460.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	2000.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	898.400	870.000	897.500	922.000	896.600	980.000	894.800	1086.000	893.000	1190.000
GR	888.800	1386.000	889.000	1474.000	881.400	1540.000	880.100	1596.000	879.200	1802.000
GR	878.000	2000.000	874.600	2018.000	873.700	2030.000	873.600	2039.000	874.100	2048.000
GR	874.300	2060.000	880.800	2075.000	885.200	2080.000	886.100	2180.000	888.400	2310.000
GR	888.200	2346.000	890.900	2530.000	891.500	2634.000	892.000	2740.000	892.600	2842.000
GR	893.000	2948.000	893.800	3102.000	895.400	3274.000	897.300	3416.000	0.0	0.0
NC	0.070	0.070	0.033	0.300	0.500	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION D (DOWNSTREAM FACE OF S.COCHRAN BRIDGE)

X1	3.900	27.000	2018.000	2060.000	90.000	90.000	90.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	883.900	883.900	0.0
GR	898.400	870.000	897.500	922.000	896.600	980.000	894.800	1086.000	893.000	1190.000
GR	889.300	1412.000	887.700	1502.000	885.200	1700.000	885.100	1890.000	885.900	2000.000
GR	874.600	2018.000	873.700	2030.000	873.600	2039.000	874.100	2048.000	874.300	2060.000
GR	880.800	2075.000	885.200	2080.000	886.000	2176.000	882.200	2346.000	890.900	2530.000
GR	891.500	2634.000	892.000	2740.000	892.600	2842.000	893.000	2948.000	893.800	3102.000
GR	895.400	3274.000	897.300	3416.000	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION E

X1	4.000	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	883.900	883.900	0.0
BT	9.000	2000.000	885.900	0.0	2018.000	885.800	874.600	2018.000	885.800	875.700
BT	2030.000	885.800	880.900	2039.000	885.800	882.000	2048.000	885.700	881.000	2060.000
BT	885.700	875.400	2060.000	885.700	874.300	2080.000	885.200	0.0	0.0	0.0

BRIDGE SECTION F (UPSTREAM FACE OF S. COCHRAN BRIDGE)

X1	4.100	27.000	2018.000	2060.000	30.000	30.000	30.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	885.700	885.700	0.0
[illegible]	9.000	2000.000	885.800	0.0	2018.000	885.00	873.300	[illegible]	[illegible]	875.700

BT	2030.000	885.800	880.900	2039.000	885.700	882.000	2048.000	88 .700	881.000	2060.000
BT	886.600	875.400	2060.000	885.600	873.600	2080.000	885.200	0.0	0.0	0.0
GR	898.400	870.000	897.500	922.000	896.600	980.000	894.800	1086.000	893.100	1190.000
GR	889.300	1412.000	887.700	1502.000	885.200	1700.000	885.100	1890.000	885.800	2000.000
GR	873.300	2018.000	873.300	2030.000	873.300	2039.000	873.400	2048.000	873.600	2060.000
GR	880.800	2075.000	885.200	2080.000	886.000	2176.000	888.200	2346.000	890.900	2530.000
GR	891.500	2634.000	892.000	2740.000	892.600	2842.000	893.000	2948.000	893.800	3102.000
GR	895.400	3274.000	897.300	3416.000	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION G

X1	4.200	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	885.700	885.700	0.0
FJ	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 .0
    SECNO      DEPTH     CWSEL     CRTWS     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       WTA       ELMIN       SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    TDC       ICONT     CORAR     TOPWID      ENDST

       0.0       7.79    877.79       0.0    878.00    877.86      0.06       0.0        0.0     875.00
       965.        21.      828.      116.       39.      383.      219.        0.        .0      875.00
       0.0        0.53      2.16      0.53     0.060     0.040     0.060       0.0     870.00    1972.06
  0.000296          0.        0.        0.         0         0         4       0.0     244.40    2216.46

CCHV=   0.300 CEHV=   0.500
*SECNO .500
       0.50       8.02    878.12       0.0       0.0    878.24      0.12      0.35       0.03     880.30
       965.          0.      965.        0.        0.      346.        0.       11.         3.      879.20
       0.10        0.0       2.79      0.0     0.060     0.035     0.060     0.035     870.10    1991.70
  0.000422       1000.      1000.     1000.         2         0         0       0.0      55.75    2047.45

*SECNO .600
       0.60       7.93    878.13       0.0       0.0    878.26      0.12      0.02       0.00     880.00
       965.          0.      965.        0.        0.      341.        0.       12.         4.      880.00
       0.10        0.0       2.83      0.0     0.060     0.035     0.060     0.035     870.20    1995.00
  0.000422         50.        50.       50.         0         0         0       0.0      51.00    2046.00

*SECNO .700

3370 NORMAL BRIDGE,NPD= 11 MTN ELTRD=  880.00 MAX FLLC=  879.00

       0.70       7.92    878.12       0.0       0.0    878.27      0.14      0.00       0.01     880.00
       965.          0.      965.        0.        0.      317.        0.       12.         4.      880.00
       0.10        0.0       3.05      0.0     0.060     0.035     0.060     0.035     870.20    1995.00
  0.000536          1.        1.        1.         0         0         0    -23.80      51.00    2046.00

*SECNO .800
    SECNO      DEPTH     CWSEL     CRTWS     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       WTA       ELMIN       SSTA
    SLOPE      XLOBL     XLCH      XLOBR     ITRIAL    TDC       ICONT     CORAR     TOPWID      ENDST

3370 NORMAL BRIDGE,NPD= 11 MTN ELTRD=  880.00 MAX FLLC=  879.00

       0.80       7.94    878.14       0.0       0.0    878.29      0.14      0.02       0.04     880.00
       965.          0.      965.        0.        0.      317.        0.       12.         4.      880.00
       0.11        0.0       3.04      0.0     0.060     0.035     0.060     0.035     870.20    1995.00
  0.000535         32.        32.       32.         0         0         0    -23.82      51.00    2046.00

*SECNO .900
       0.90       7.97    878.17       0.0       0.0    878.29      0.12      0.00       0.01     880.00
       965.          0.      965.        0.        0.      342.        0.       12.         4.      880.00
       0.11        0.0       2.82      0.0     0.060     0.035     0.060     0.035     870.20    1995.00
  0.000415          1.        1.        1.         2         0         0       0.0      51.00    2046.00
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*SECNO 1.000
      1.00      8.10    878.20      0.0       0.0     878.31      0.12      0.02      0.00    880.30
       965.        0.      965.       0.        0.       350.        0.       12.        4.    879.20
      0.11       0.0      2.76       0.     0.060      0.035     0.060     0.035    870.10   1991.60
  0.000407       50.       50.       50.         0          0         0       0.0     55.96   2047.56

CCHV=   0.100 CEHV=   0.300
*SECNO 2.000
3470 ENCROACHMENT STATIONS=    1984.0    3500.0 TYPE=       1 TARGET=    1516.000
                    VALLEY SECTION A (WESTERN CORPORATE LIMIT)
      2.00      7.64    878.64      0.0       0.0     878.74      0.10      0.43      0.00    881.00
       965.        0.      867.       98.        0.       326.       122.       24.        6.    874.60
      0.25       0.0      2.66      0.81     0.050      0.030     0.050     0.032    871.00   1990.50
  0.000288      1150.     1250.     1350.         2          0         0       0.0     115.81   2106.32

CCHV=   0.100 CEHV=   0.300
*SECNO 3.000
3470 ENCROACHMENT STATIONS=    2000.0    2466.0 TYPE=       1 TARGET=     466.000
                    VALLEY SECTION B
      3.00      8.13    879.03      0.0       0.0     879.06      0.02      0.30      0.01    879.80
       965.        0.      463.       502.       0.       291.      1032.       54.       16.    877.40
      0.66       0.0      1.59      0.49     0.070      0.033     0.070     0.033    870.90   2002.55
  0.000151      1500.     1500.     1500.         2          0         0       0.0     463.45   2466.00

*SECNO 3.800
    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       ELMTN       SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=    2000.0    3416.0 TYPE=       1 TARGET=   -2000.000
                    VALLEY SECTION C (90 FT DOWNSTREAM OF S. COCHRAN)
      3.80      5.76    879.36      0.0       0.0     879.51      0.15      0.42      0.04    878.00
       965.        0.      965.       0.        0.       310.        0.       82.       25.    885.20
      0.79       0.0      3.12      0.0      0.070      0.033     0.070     0.033    873.60   2000.00
  0.000717      1440.     1460.     1490.         0          0         0       0.0     71.67   2071.67

CCHV=   0.300 CEHV=   0.500
*SECNO 3.900
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     883.90 ELREA=     883.90
                    BRIDGE SECTION D (DOWNSTREAM FACE OF S.COCHRAN BRIDGE)
      3.90      5.77    879.37      0.0       0.0     879.65      0.28      0.08      0.07    874.60
       965.        0.      965.       0.        0.       226.        0.       83.       25.    874.30
      0.80       0.0      4.27      0.0      0.070      0.033     0.070     0.033    873.60   2018.00
  0.000996       90.       90.       90.         2          0         0       0.0     42.00   2060.00

*SECNO 4.000
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3370 NORMAL BRIDGE,NRD= 9 MTN ELTRD= 885.20 MAX FLLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.90 ELREA= 883.90

BRIDGE SECTION E

4.00	5.73	879.33	0.0	0.0	879.69	0.36	0.00	0.04	874.60
965.	0.	965.	0.	0.	201.	0.	83.	25.	874.30
0.80	0.0	4.81	0.0	0.070	0.033	0.070	0.033	873.60	2018.00
0.002045	1.	1.	1.	2	0	0	-46.42	42.00	2060.00

*SECNO 4.100

3370 NORMAL BRIDGE,NRD= 9 MTN ELTRD= 885.20 MAX FLLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.70 ELREA= 885.70

BRIDGE SECTION F (UPSTREAM FACE OF S. COCHRAN BRIDGE)

4.10	6.20	879.50	0.0	0.0	879.77	0.27	0.05	0.03	873.30
965.	0.	965.	0.	0.	233.	0.	83.	25.	873.60
0.80	0.0	4.14	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.001250	30.	30.	30.	2	0	0	-49.80	42.00	2060.00

*SECNO 4.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.70 ELREA= 885.70

BRIDGE SECTION G

4.20	6.27	879.57	0.0	0.0	879.78	0.21	0.00	0.02	873.30
965.	0.	965.	0.	0.	260.	0.	83.	25.	873.60
0.80	0.0	3.70	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.000623	1.	1.	1.	2	0	0	0.0	42.00	2060.00

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                                                                                                THIS RUN EXECUTED   10/26/79
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1
T2
T3

J1  ICHECK     INO      NINV     IDIR     STPT     METRIC    HVINS     Q        WSEL     FQ
     -10.       4.       0.       0.   0.0          0.0       0.0       0.   878.300    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 .0
   SECNO     DEPTH     CWSEL     CRTWS     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      ELMTN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR    TCPWID     ENDST

     0.0       8.30    878.30     0.0     878.30    878.35     0.05      0.0      0.0     875.00
     965.       27.      786.     152.       54.      413.     305.       0.       .0.     875.00
     0.0       0.50     1.90     0.50     0.060    0.040     0.060     0.0     870.00   1967.00
 0.000207       0.       0.       0.         0        0         0       0.0     277.80   2244.80

CCHV=   0.300 CEHV=   0.500
*SECNO .500
     0.50      8.43    878.53     0.0      0.0     878.64     0.11      0.26     0.03    880.30
     965.       0.      965.       0.       0.      369.       0.       .13.      .4.     879.20
     0.11      0.0      2.61     0.0     0.060    0.035     0.060     0.035    870.10   1991.18
 0.000349     1000.     1000.    1000.        2        0         0       0.0     56.87   2048.05

*SECNO .600
     0.60      8.35    878.55     0.0      0.0     878.66     0.11      0.02     0.00    880.00
     965.       0.      965.       0.       0.      362.       0.       .14.      .4.     880.00
     0.11      0.0      2.67     0.0     0.060    0.035     0.060     0.035    870.20   1995.00
 0.000351      50.      50.      50.        0        0         0       0.0     51.00   2046.00

*SECNO .700

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  880.00 MAX FLLC=  879.00

     0.70      8.34    878.54     0.0      0.0     878.67     0.13      0.00     0.01    880.00
     965.       0.      965.       0.       0.      337.       0.       .14.      .4.     880.00
     0.11      0.0      2.87     0.0     0.060    0.035     0.060     0.035    870.20   1995.00
 0.000446       1.       1.       1.        0        0         0     -25.05     51.00   2046.00
```

*SECNO .800

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	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TDC	ICCNT	CORAR	TOPWID	ENDST
3370 NORMAL BRIDGE.NRD= 11 MIN ELTRD= 880.00 MAX ELLC= 879.00									
0.80	8.36	878.56	0.0	0.0	878.68	0.13	0.01	0.00	880.00
965.	0.	965.	0.	0.	337.	0.	14.	4.	880.00
0.11	0.0	2.86	0.0	0.060	0.035	0.060	0.035	870.20	1995.00
0.000445	32.	32.	32.	0	0	0	-25.06	51.00	2046.00
*SECNO .900									
0.90	8.38	878.58	0.0	0.0	878.69	0.11	0.00	0.01	880.00
965.	0.	965.	0.	0.	363.	0.	14.	4.	880.00
0.11	0.0	2.66	0.0	0.060	0.035	0.060	0.035	870.20	1995.00
0.000347	1.	1.	1.	2	0	0	0.0	51.00	2046.00
*SECNO 1.000									
1.00	8.50	878.60	0.0	0.0	878.71	0.10	0.02	0.00	880.30
965.	0.	965.	0.	0.	373.	0.	14.	4.	879.20
0.12	0.0	2.59	0.0	0.060	0.035	0.060	0.035	870.10	1991.10
0.000340	50.	50.	50.	0	0	0	0.0	57.04	2048.14
CCHV= 0.100 CEHV= 0.300									
*SECNO 2.000									
3470 ENCROACHMENT STATIONS= 1984.0 3500.0 TYPE= 1 TARGET= 1516.000									
VALLEY SECTION A (WESTERN CORPORATE LIMIT)									
2.00	7.98	878.98	0.0	878.64	879.06	0.09	0.35	0.00	881.00
965.	0.	855.	110.	0.	344.	143.	27.	7.	874.60
0.27	0.0	2.48	0.77	-0.050	0.030	0.050	0.032	871.00	1989.58
0.000238	1150.	1250.	1350.	2	0	0	0.0	121.72	2111.30
CCHV= 0.100 CEHV= 0.300									
*SECNO 3.000									
3470 ENCROACHMENT STATIONS= 2000.0 2466.0 TYPE= 1 TARGET= 466.000									
VALLEY SECTION B									
3.00	8.40	879.30	0.0	879.03	879.31	0.02	0.24	0.01	879.80
965.	0.	442.	523.	0.	306.	1139.	60.	17.	877.40
0.73	0.0	1.44	0.46	0.070	0.033	0.070	0.033	870.90	2001.68
0.000118	1500.	1500.	1500.	2	0	0	0.0	464.32	2466.00
*SECNO 3.800									
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	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TDC	ICCNT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS= 2000.0 3416.0 TYPE= 1 TARGET= -2000.000									
VALLEY SECTION C (90 FT DOWNSTREAM OF S. COCHRAN)									

3.80	5.95	879.55	0.0	879.36	879.69	0.14	0.34	0.04	878.00
965.	0.	965.	0.	0.	324.	0.	90.	26.	885.20
0.87	0.0	2.98	0.0	0.070	0.033	0.070	0.033	873.60	2000.00
0.000623	1440.	1460.	1490.	0	0	0	0.0	72.13	2072.13

CCHV= 0.300 CEHV= 0.500

*SECNO 3.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.90 ELREA= 883.90

BRIDGE SECTION D (DOWNSTREAM FACE OF S.COCHRAN BRIDGE)

3.90	5.95	879.55	0.0	879.37	879.82	0.27	0.07	0.06	874.60
965.	0.	965.	0.	0.	233.	0.	91.	26.	874.30
0.87	0.0	4.13	0.0	0.070	0.033	0.070	0.033	873.60	2018.00
0.000893	90.	90.	90.	2	0	0	0.0	42.00	2060.00

*SECNO 4.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 885.20 MAX ELLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.90 ELREA= 883.90

BRIDGE SECTION E

4.00	5.92	879.52	0.0	879.33	879.85	0.34	0.00	0.04	874.60
965.	0.	965.	0.	0.	207.	0.	91.	26.	874.30
0.87	0.0	4.65	0.0	0.070	0.033	0.070	0.033	873.60	2018.00
0.001836	1.	1.	1.	2	0	0	-49.51	42.00	2060.00

*SECNO 4.100

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 885.20 MAX ELLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.70 ELREA= 885.70

BRIDGE SECTION F (UPSTREAM FACE OF S. COCHRAN BRIDGE)

4.10	6.37	879.67	0.0	879.50	879.92	0.25	0.04	0.02	873.30
965.	0.	965.	0.	0.	239.	0.	91.	26.	873.60
0.88	0.0	4.04	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.001149	30.	30.	30.	2	0	0	-52.60	42.00	2060.00

*SECNO 4.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.70 ELREA= 885.70

BRIDGE SECTION G

4.20	6.44	879.74	0.0	879.57	879.94	0.20	0.00	0.02	873.30
965.	0.	965.	0.	0.	267.	0.	91.	26.	873.60
0.88	0.0	3.61	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.000572	1.	1.	1.	2	0	0	0.0	42.00	2060.00

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                                                                                                THIS RUN EXECUTED   10/26/79
*****************************************************
  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.   877.300    0.0

J2  NPROF    IPLOT    PREVS    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 .0
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

     0.0       7.30    877.30      0.0     877.30    877.38      0.08      0.0       0.0     875.00
     965.       15.      867.       83.       26.      353.      148.       0.        0.      875.00
     0.0       0.56      2.46      0.56     0.060     0.040     0.060     0.0     870.00    1977.00
 0.000425        0.        0.        0.         0         0         0       0.0     211.80    2188.80

CCHV=   0.300 CEHV=   0.500
*SECNO .500
     0.50      7.64    877.74      0.0       0.0     877.87      0.14      0.46      0.03     880.30
     965.        0.      965.        0.        0.      324.        0.       10.        3.      879.20
     0.09      0.0       2.98      0.0      0.060     0.035     0.060     0.035    870.10    1992.18
 0.000507     1000.     1000.     1000.         1         0         0       0.0      54.73    2046.90

*SECNO .600
     0.60      7.56    877.76      0.0       0.0     877.90      0.14      0.03      0.00     880.00
     965.        0.      965.        0.        0.      321.        0.       10.        3.      880.00
     0.10      0.0       3.00      0.0      0.060     0.035     0.060     0.035    870.20    1995.00
 0.000502       50.       50.       50.         0         0         0       0.0      51.00    2046.00

*SECNO .700

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD=  880.00 MAX ELLC=  879.00

     0.70      7.55    877.75      0.0       0.0     877.91      0.16      0.00      0.01     880.00
     965.        0.      965.        0.        0.      299.        0.       10.        3.      880.00
     0.10      0.0       3.23      0.0      0.060     0.035     0.060     0.035    870.20    1995.00
 0.000642        1.        1.        1.         1         0         0     -22.67      51.00    2046.00
```

*SECNO .800

SECNO	DEPTH	CWSEL	CRTWS	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
3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 880.00 MAX FLLC= 879.00									
0.80	7.57	877.77	0.0	0.0	877.93	0.16	0.02	0.00	880.00
965.	0.	965.	0.	0.	299.	0.	10.	3.	880.00
0.10	0.0	3.23	0.0	0.060	0.035	0.060	0.035	870.20	1995.00
0.000638	32.	32.	32.	0	0	0	-22.70	51.00	2046.00
*SECNO .900									
0.90	7.60	877.80	0.0	0.0	877.94	0.14	0.00	0.01	880.00
965.	0.	965.	0.	0.	324.	0.	10.	3.	880.00
0.10	0.0	2.98	0.0	0.060	0.035	0.060	0.035	870.20	1995.00
0.000492	1.	1.	1.	2	0	0	0.0	51.00	2046.00
*SECNO 1.000									
1.00	7.73	877.83	0.0	0.0	877.97	0.13	0.02	0.00	880.30
965.	0.	965.	0.	0.	330.	0.	11.	3.	879.20
0.11	0.0	2.93	0.0	0.060	0.035	0.060	0.035	870.10	1992.05
0.000483	50.	50.	50.	0	0	0	0.0	54.99	2047.04
CCHV= 0.100 CEHV= 0.300									
*SECNO 2.000									
3470 ENCROACHMENT STATIONS= 1984.0 3500.0 TYPE= 1 TARGET= 1516.000									
VALLEY SECTION A (WESTERN CORPORATE LIMIT)									
2.00	7.36	878.36	0.0	878.64	878.47	0.11	0.51	0.00	881.00
965.	0.	877.	88.	0.	310.	105.	22.	6.	874.60
0.24	0.0	2.83	0.83	0.050	0.030	0.050	0.032	871.00	1991.29
0.000341	1150.	1250.	1350.	2	0	0	0.0	110.79	2102.08
CCHV= 0.100 CEHV= 0.300									
*SECNO 3.000									
3470 ENCROACHMENT STATIONS= 2000.0 2466.0 TYPE= 1 TARGET= 466.000									
VALLEY SECTION B									
3.00	7.92	878.82	0.0	879.03	878.85	0.03	0.37	0.01	879.80
965.	0.	483.	482.	0.	279.	947.	50.	16.	877.40
0.61	0.0	1.73	0.51	0.070	0.033	0.070	0.033	870.90	2003.25
0.000185	1500.	1500.	1500.	2	0	0	0.0	462.75	2466.00
*SECNO 3.800									
SECNO	DEPTH	CWSEL	CRTWS	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= 2000.0 3416.0 TYPE= 1 TARGET= -2000.000									
VALLEY SECTION C (90 FT DOWNSTREAM OF S. COCHRAN)									

3.80	5.62	879.22	0.0	879.36	879.38	0.16	0.49	0.04	878.00
965.	0.	965.	0.	0.	300.	0.	76.	25.	885.20
0.74	0.0	3.22	0.0	0.070	0.033	0.070	0.033	873.60	2000.00
0.000792	1440.	1460.	1490.	1	0	0	0.0	71.35	2071.35

CCHV= 0.300 CEHV= 0.500
*SECNO 3.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.90 ELREA= 883.90

BRIDGE SECTION D (DOWNSTREAM FACE OF S.COCHRAN BRIDGE)

3.90	5.64	879.24	0.0	879.37	879.54	0.30	0.08	0.07	874.60
965.	0.	965.	0.	0.	220.	0.	76.	25.	874.30
0.74	0.0	4.38	0.0	0.070	0.033	0.070	0.033	873.60	2018.00
0.001079	90.	90.	90.	2	0	0	0.0	42.00	2060.00

*SECNO 4.000

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 885.20 MAX ELLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 883.90 ELREA= 883.90

BRIDGE SECTION E

4.00	5.60	879.20	0.0	879.33	879.58	0.38	0.00	0.04	874.60
965.	0.	965.	0.	0.	196.	0.	76.	25.	874.30
0.74	0.0	4.93	0.0	0.070	0.033	0.070	0.033	873.60	2018.00
0.002212	1.	1.	1.	2	0	0	-44.28	42.00	2060.00

*SECNO 4.100

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 885.20 MAX ELLC= 882.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 885.70 ELREA= 885.70

BRIDGE SECTION F (UPSTREAM FACE OF S. COCHRAN BRIDGE)

4.10	6.08	879.38	0.0	879.50	879.66	0.28	0.05	0.03	873.30
965.	0.	965.	0.	0.	229.	0.	76.	25.	873.60
0.74	0.0	4.22	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.001328	30.	30.	30.	2	0	0	-47.85	42.00	2060.00

*SECNO 4.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 885.70 ELREA= 885.70

BRIDGE SECTION G

4.20	6.15	879.45	0.0	879.57	879.67	0.22	0.00	0.02	873.30
965.	0.	965.	0.	0.	256.	0.	76.	25.	873.60
0.74	0.0	3.78	0.0	0.070	0.033	0.070	0.033	873.30	2018.00
0.000663	1.	1.	1.	2	0	0	0.0	42.00	2060.00

THIS RUN EXECUTED 10/26/79

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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

BATTLE CREEK RIVER

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROR	PERENC	STENCL	STCHL	STCHR	STENGR
0.0	877.79	-0.21	877.86	244.40	20.70	827.96	116.33	0.0	0.0	2000.00	2060.00	0.0
0.0	878.30	0.0	878.35	277.80	26.99	786.36	151.64	0.0	0.0	2000.00	2060.00	0.0
0.0	877.30	0.0	877.38	211.80	14.77	867.27	82.96	0.0	0.0	2000.00	2060.00	0.0
0.500	878.12	0.0	878.24	55.75	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
0.500	878.53	0.0	878.64	56.87	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
0.500	877.74	0.0	877.87	54.73	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
0.600	878.13	0.0	878.26	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.600	878.55	0.0	878.66	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.600	877.76	0.0	877.90	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.700	878.12	0.0	878.27	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.700	878.54	0.0	878.67	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.700	877.75	0.0	877.91	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.800	878.14	0.0	878.29	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.800	878.56	0.0	878.68	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.800	877.77	0.0	877.93	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.900	878.17	0.0	878.29	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.900	878.58	0.0	878.69	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
0.900	877.80	0.0	877.94	51.00	0.0	965.00	0.0	0.0	0.0	1995.00	2046.00	0.0
1.000	878.20	0.0	878.31	55.96	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
1.000	878.60	0.0	878.71	57.04	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
1.000	877.83	0.0	877.97	54.99	0.0	965.00	0.0	0.0	0.0	1989.00	2049.00	0.0
2.000	878.64	0.0	878.74	115.81	0.0	866.84	98.16	1516.00	1984.00	1984.00	2046.00	3500.00
2.000	878.98	0.33	879.06	121.72	0.0	854.77	110.23	1516.00	1984.00	1984.00	2046.00	3500.00
2.000	878.36	-0.28	878.47	110.79	0.0	877.08	87.92	1516.00	1984.00	1984.00	2046.00	3500.00
3.000	879.03	0.0	879.06	463.45	0.0	463.31	501.69	466.00	2000.00	2000.00	2060.00	2466.00
3.000	879.30	0.26	879.31	464.32	0.0	442.16	522.84	466.00	2000.00	2000.00	2060.00	2466.00
3.000	878.82	-0.21	878.85	462.75	0.0	482.71	482.29	466.00	2000.00	2000.00	2060.00	2466.00
3.800	879.36	0.0	879.51	71.67	0.0	965.00	0.0	-2000.00	2000.00	2000.00	2080.00	3416.00
3.800	879.55	0.19	879.69	72.13	0.0	965.00	0.0	-2000.00	2000.00	2000.00	2080.00	3416.00
3.800	879.22	-0.14	879.38	71.35	0.0	965.00	0.0	-2000.00	2000.00	2000.00	2080.00	3416.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
3.900	879.37	0.0	879.65	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
3.900	879.55	0.18	879.82	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
3.900	879.24	-0.13	879.54	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.000	879.33	0.0	879.69	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.000	879.52	0.19	879.85	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.000	879.20	-0.13	879.58	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.100	879.50	0.0	879.77	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.100	879.67	0.17	879.92	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.100	879.38	-0.12	879.66	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.200	879.57	0.0	879.78	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.200	879.74	0.17	879.94	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0
4.200	879.45	-0.12	879.67	42.00	0.0	965.00	0.0	0.0	0.0	2018.00	2060.00	0.0

BATTLE CREEK RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.0	0.0	0.0	0.0	870.00	965.00	877.79	0.0	877.86	2.96	2.16	640.23	561.11
0.0	0.0	0.0	0.0	870.00	965.00	878.30	0.0	878.35	2.07	1.90	772.38	671.00
0.0	0.0	0.0	0.0	870.00	965.00	877.30	0.0	877.38	4.25	2.46	527.58	468.35
0.500	1000.00	0.0	0.0	870.10	965.00	878.12	0.0	878.24	4.22	2.79	345.54	469.59
0.500	1000.00	0.0	0.0	870.10	965.00	878.53	0.0	878.64	3.49	2.61	369.13	516.28
0.500	1000.00	0.0	0.0	870.10	965.00	877.74	0.0	877.87	5.07	2.98	324.31	428.57
0.600	50.00	0.0	0.0	870.20	965.00	878.13	0.0	878.26	4.22	2.83	340.54	470.03
0.600	50.00	0.0	0.0	870.20	965.00	878.55	0.0	878.66	3.51	2.67	361.69	514.81
0.600	50.00	0.0	0.0	870.20	965.00	877.76	0.0	877.90	5.02	3.00	321.49	430.73
0.700	1.00	880.00	879.00	870.20	965.00	878.12	0.0	878.27	5.36	3.05	316.81	416.70
0.700	1.00	880.00	879.00	870.20	965.00	878.54	0.0	878.67	4.46	2.87	336.73	456.94
0.700	1.00	880.00	879.00	870.20	965.00	877.75	0.0	877.91	6.42	3.23	298.62	380.91
0.800	31.75	880.00	879.00	870.20	965.00	878.14	0.0	878.29	5.35	3.04	317.07	417.22
0.800	31.75	880.00	879.00	870.20	965.00	878.56	0.0	878.68	4.45	2.86	336.92	457.33
0.800	31.75	880.00	879.00	870.20	965.00	877.77	0.0	877.93	6.38	3.23	299.20	382.04
0.900	1.00	0.0	0.0	870.20	965.00	878.17	0.0	878.29	4.15	2.82	342.37	473.87
0.900	1.00	0.0	0.0	870.20	965.00	878.58	0.0	878.69	3.47	2.66	363.28	518.20
0.900	1.00	0.0	0.0	870.20	965.00	877.80	0.0	877.94	4.92	2.98	323.62	435.08
1.000	50.00	0.0	0.0	870.10	965.00	878.20	0.0	878.31	4.07	2.76	349.88	478.07
1.000	50.00	0.0	0.0	870.10	965.00	878.60	0.0	878.71	3.40	2.59	372.82	523.68
1.000	50.00	0.0	0.0	870.10	965.00	877.83	0.0	877.97	4.83	2.93	329.74	438.96
2.000	1250.00	0.0	0.0	871.00	965.00	878.64	0.0	878.74	2.88	2.66	447.63	568.64
2.000	1250.00	0.0	0.0	871.00	965.00	878.98	0.0	879.06	2.38	2.48	487.32	625.86
2.000	1250.00	0.0	0.0	871.00	965.00	878.36	0.0	878.47	3.41	2.83	415.45	522.77
3.000	1500.00	0.0	0.0	870.90	965.00	879.03	0.0	879.06	1.51	1.59	1323.07	785.47
3.000	1500.00	0.0	0.0	870.90	965.00	879.30	0.0	879.31	1.18	1.44	1445.12	887.03
3.000	1500.00	0.0	0.0	870.90	965.00	878.82	0.0	878.85	1.85	1.73	1225.91	708.68
3.800	1460.00	0.0	0.0	873.60	965.00	879.36	0.0	879.51	7.17	3.12	309.71	360.47
3.800	1460.00	0.0	0.0	873.60	965.00	879.55	0.0	879.69	6.23	2.98	324.27	386.69
3.800	1460.00	0.0	0.0	873.60	965.00	879.22	0.0	879.38	7.92	3.22	299.79	342.93
3.900	90.00	0.0	0.0	873.60	965.00	879.37	0.0	879.65	9.96	4.27	225.77	305.77
3.900	90.00	0.0	0.0	873.60	965.00	879.55	0.0	879.82	8.93	4.13	233.47	322.95
3.900	90.00	0.0	0.0	873.60	965.00	879.24	0.0	879.54	10.79	4.38	220.28	293.74
4.000	1.00	885.20	882.00	873.60	965.00	879.33	0.0	879.69	20.45	4.81	200.64	213.42
4.000	1.00	885.20	882.00	873.60	965.00	879.52	0.0	879.85	18.36	4.65	207.35	225.23
4.000	1.00	885.20	882.00	873.60	965.00	879.20	0.0	879.58	22.12	4.93	195.89	205.19
4.100	30.00	885.20	882.00	873.30	965.00	879.50	0.0	879.77	12.50	4.14	232.95	272.92
4.100	30.00	885.20	882.00	873.30	965.00	879.67	0.0	879.92	11.49	4.04	239.03	284.63
4.100	30.00	885.20	882.00	873.30	965.00	879.38	0.0	879.66	13.28	4.22	228.65	264.76

SECNO	XLCH	FLTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.200	1.00	0.0	0.0	873.30	965.00	879.57	0.0	879.78	6.23	3.70	260.47	386.54
4.200	1.00	0.0	0.0	873.30	965.00	879.74	0.0	879.94	5.72	3.61	267.47	403.52
4.200	1.00	0.0	0.0	873.30	965.00	879.45	0.0	879.67	6.63	3.78	255.59	374.85

BATTLE CREEK RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.0	965.00	877.79	0.0	0.0	-0.21	244.40	0.0
0.0	965.00	878.30	0.51	0.0	0.0	277.80	0.0
0.0	965.00	877.30	-1.00	0.0	0.0	211.80	0.0
0.500	965.00	878.12	0.0	0.32	0.0	55.75	1000.00
0.500	965.00	878.53	0.42	0.23	0.0	56.87	1000.00
0.500	965.00	877.74	-0.80	0.44	0.0	54.73	1000.00
0.600	965.00	878.13	0.0	0.02	0.0	51.00	50.00
0.600	965.00	878.55	0.42	0.02	0.0	51.00	50.00
0.600	965.00	877.76	-0.79	0.02	0.0	51.00	50.00
0.700	965.00	878.12	0.0	-0.01	0.0	51.00	1.00
0.700	965.00	878.54	0.42	-0.01	0.0	51.00	1.00
0.700	965.00	877.75	-0.79	-0.01	0.0	51.00	1.00
0.800	965.00	878.14	0.0	0.02	0.0	51.00	31.75
0.800	965.00	878.56	0.41	0.01	0.0	51.00	31.75
0.800	965.00	877.77	-0.78	0.02	0.0	51.00	31.75
0.900	965.00	878.17	0.0	0.03	0.0	51.00	1.00
0.900	965.00	878.58	0.41	0.02	0.0	51.00	1.00
0.900	965.00	877.80	-0.78	0.03	0.0	51.00	1.00
1.000	965.00	878.20	0.0	0.03	0.0	55.96	50.00
1.000	965.00	878.60	0.41	0.02	0.0	57.04	50.00
1.000	965.00	877.83	-0.77	0.03	0.0	54.99	50.00
2.000	965.00	878.64	0.0	0.45	0.0	115.81	1250.00
2.000	965.00	878.98	0.33	0.37	0.33	121.72	1250.00
2.000	965.00	878.36	-0.62	0.53	-0.28	110.79	1250.00
3.000	965.00	879.03	0.0	0.39	0.0	463.45	1500.00
3.000	965.00	879.30	0.26	0.32	0.26	464.32	1500.00
3.000	965.00	878.82	-0.47	0.47	-0.21	462.75	1500.00
3.800	965.00	879.36	0.0	0.33	0.0	71.67	1460.00
3.800	965.00	879.55	0.19	0.25	0.19	72.13	1460.00
3.800	965.00	879.22	-0.33	0.40	-0.14	71.35	1460.00
3.900	965.00	879.37	0.0	0.01	0.0	42.00	90.00
3.900	965.00	879.55	0.18	0.00	0.18	42.00	90.00
3.900	965.00	879.24	-0.31	0.01	-0.13	42.00	90.00
4.000	965.00	879.33	0.0	-0.04	0.0	42.00	1.00
4.000	965.00	879.52	0.19	-0.03	0.19	42.00	1.00
4.000	965.00	879.20	-0.32	-0.04	-0.13	42.00	1.00
4.100	965.00	879.50	0.0	0.17	0.0	42.00	30.00
4.100	965.00	879.67	0.17	0.15	0.17	42.00	30.00
4.100	965.00	879.38	-0.29	0.18	-0.12	42.00	30.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.200	965.00	879.57	0.0	0.07	0.0	42.00	1.00
4.200	965.00	879.74	0.17	0.07	0.17	42.00	1.00
4.200	965.00	879.45	-0.28	0.07	-0.12	42.00	1.00

SUMMARY OF ERRORS

THIS RUN EXECUTED 10/26/79

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01.02
  MODIFICATION =  50,51,52,53
**************************************************
```

Battle Creek River
Slope Area Method w/
Kalamo Bridge



1) COUNTY: Eaton

2) STUDY NAME: city of Charlotte

3) WATERCOURSE: Battle creek

4) DOCUMENT TYPE: report



HYDRAULIC ANALYSIS REPORT

BATTLE CREEK AT CHARLOTTE

EATON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington
Jackson, Michigan 49201

July, 1979

INTRODUCTION

Hydraulic calculations were performed for the Battle Creek River within the corporate boundaries of the city of Charlotte. The study limits were the west corporate boundary line and the South Cochran Street bridge. Field cross section data were surveyed by Commonwealth Associates in January, 1979. The flows for the 10, 50, 100, and 500-year recurrence intervals were approved by the Michigan Department of Natural Resources. In addition to published U.S.G.S. topographic maps, a preliminary 7.5 minute series topographic map with 10-foot contour intervals was obtained and utilized.

The study was performed by Commonwealth Associates Inc., Jackson, Michigan. The Project Manager was R. F. Tribukait, P.E.

Method of Analysis

The HEC-2 computer program was utilized for the entire hydraulic analysis.

Variables and Coefficients

Manning's Roughness Coefficient

For Channel	0.030 - 0.033
For Overbanks	0.05 - 0.07

Coefficients for Floodway

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 were no high water marks recorded for the reach studied.

Starting Conditions

The starting water surface elevation was specified by the slope area method. The computed water surface elevation for the 100-year recurrence interval flow was compared with a graph produced from recorded information obtained from Water Supply Paper 1677[1] for the Charlotte gaging station. This graph, Figure I in Appendix A, was a logarthmic plot of gage heights vs. flow. The elevation obtained by interpolating the 100-year flow from the graph was 2.32 feet higher than that obtained by the slope area method. The starting water surface elevations for the 10, 50, 100, and 500-year recurrence intervals were based on the recorded gaging station information.

Special Problems

There were no special problems in the study.

CROSS SECTION REFERENCE
BATTLE CREEK RIVER

Profile Table	Sect. No. In Hec 2 Program	Description
	0	Valley Section 1,000 feet downstream Kalamazoo Bridge
	0.5	Valley Section
	0.6	Valley Section 1 foot downstream Kalamazoo Bridge
	0.7	Bridge Section downstream face
	0.8	Bridge Section upstream face
	0.9	Valley Section 1 foot upstream
	1.0	Valley Section
A	2.0	Valley Section: Downstream limit of Study
B	3.0	Valley Section
C	3.8	Valley Section
	3.9	Valley Section 1 foot downstream South Cochran Street Bridge
	4.0	Bridge Section downstream face
D	4.1	Bridge Section upstream face
	4.2	Valley Section 1 foot upstream South Cochran Street Bridge

Bridge Notes and Skethces

Bridge sketches are found in cross section plots contained in Appendix B.

Map

A copy of the 100-year floodplain and floodway showing cross sections is contained in Appendix C.

Profiles

Copies of the water surface profiles are contained in Appendix D.

Computer Backwater Runs/Printouts

The final HEC-II printouts for the multiprofile run and floodway run are contained in Appendix E.

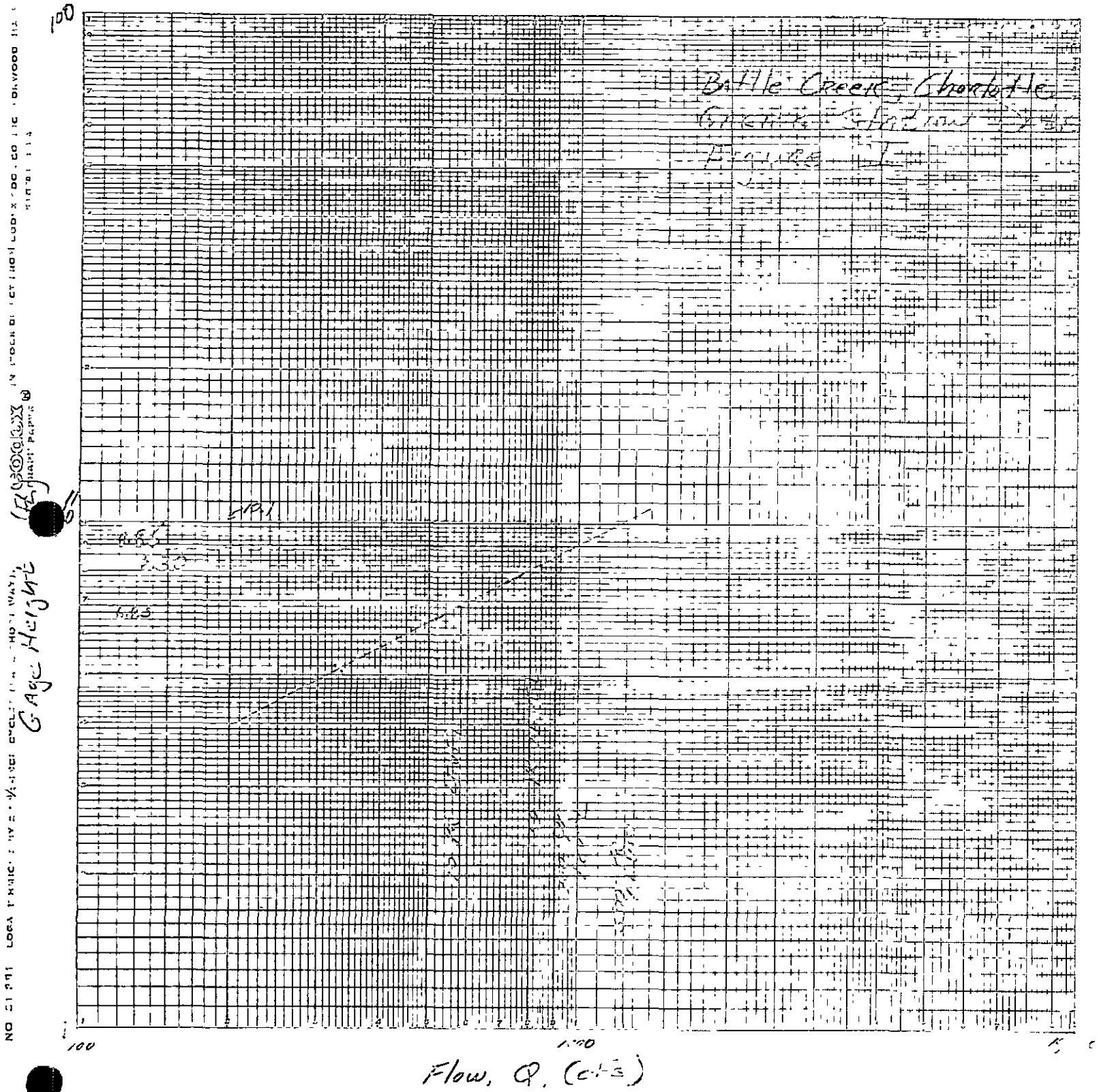
Cross Section Plots

Cross section plots showing floodway delineation and approximate 100-year elevation are contained in Appendix B.

References

1. Geological Survey, Water-Supply Paper 1677, p. 123, "Magnitude and Frequency of Floods in the U.S., Part 4, St. Lawrence River Basin."

APPENDIX A


Battle Creek, Charlotte
Gage Height
Flow, Q, (cfs)
100
1000

1040 Battle & Charlotte

Geological Survey Water-Supply Paper 1677

P. 123

Magnitude & Frequency of Floods in the US, Part 4, St. Lawrence River Basin

Datum Gage 869.36

Water Yr	Gage Height	Q(cfs)	Elevation
1948	*7.64	722.129	877.0
1949	6.50	376	874.9
1950	6.46	518	875.8
1951	5.72	336	875.1
1952	5.15	336	874.5
1953	5.2	326	874.6
1954	5.5	376	874.9

$\bar{V} = 2.67'$

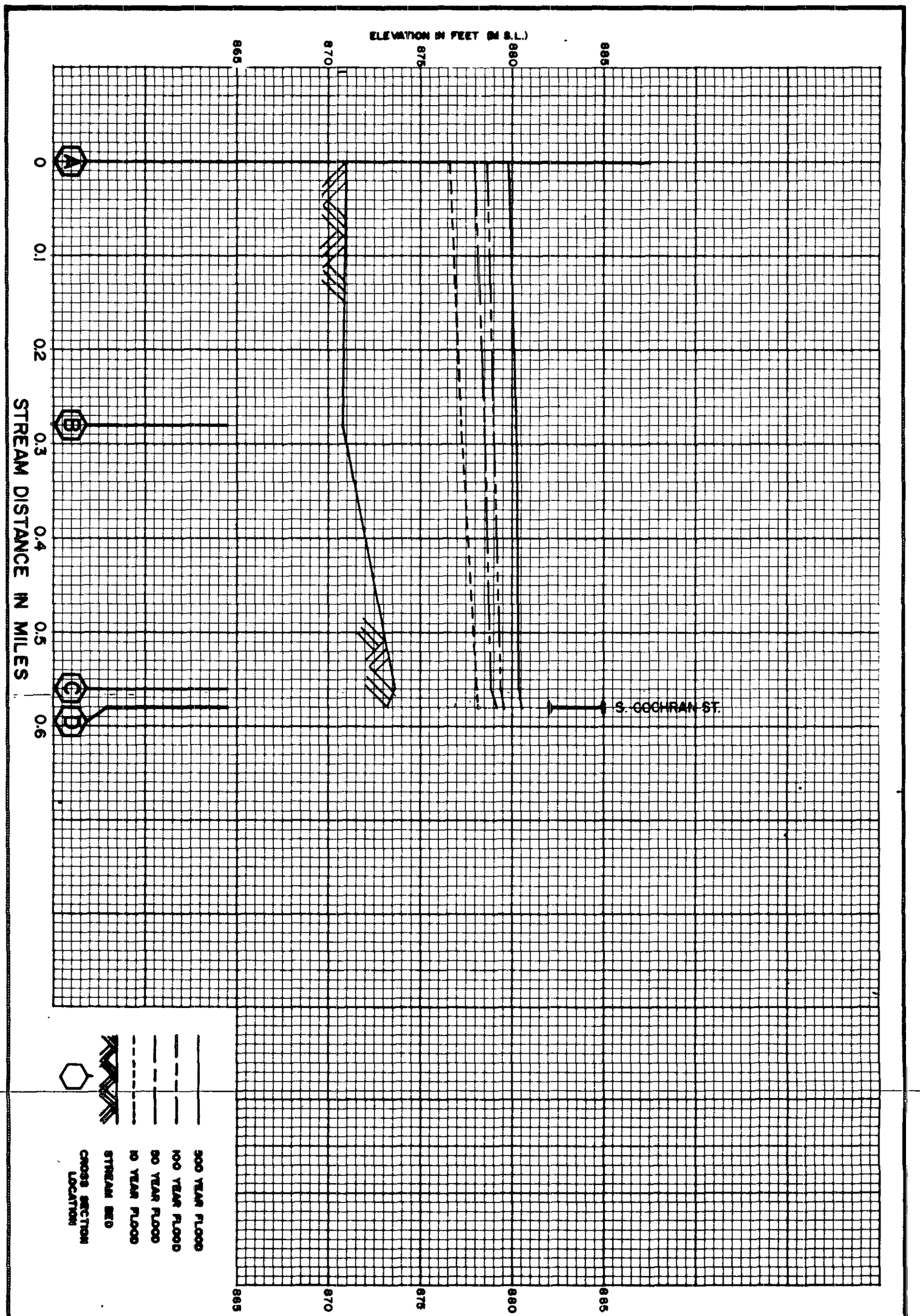
For Flow of 965 gh = 8.85 EL = 878.21

For Flow of 1250 = 879.46

Values from Graph

	W.S.EL.
100yr 8.85	= 878.21
10yr 6.85	= 876.21
50yr 8.3	= 877.66
500yr 10.1	879.46

APPENDIX B



CITY OF CHARLOTTE

BATTLE CREEK

FLOOD PROFILE

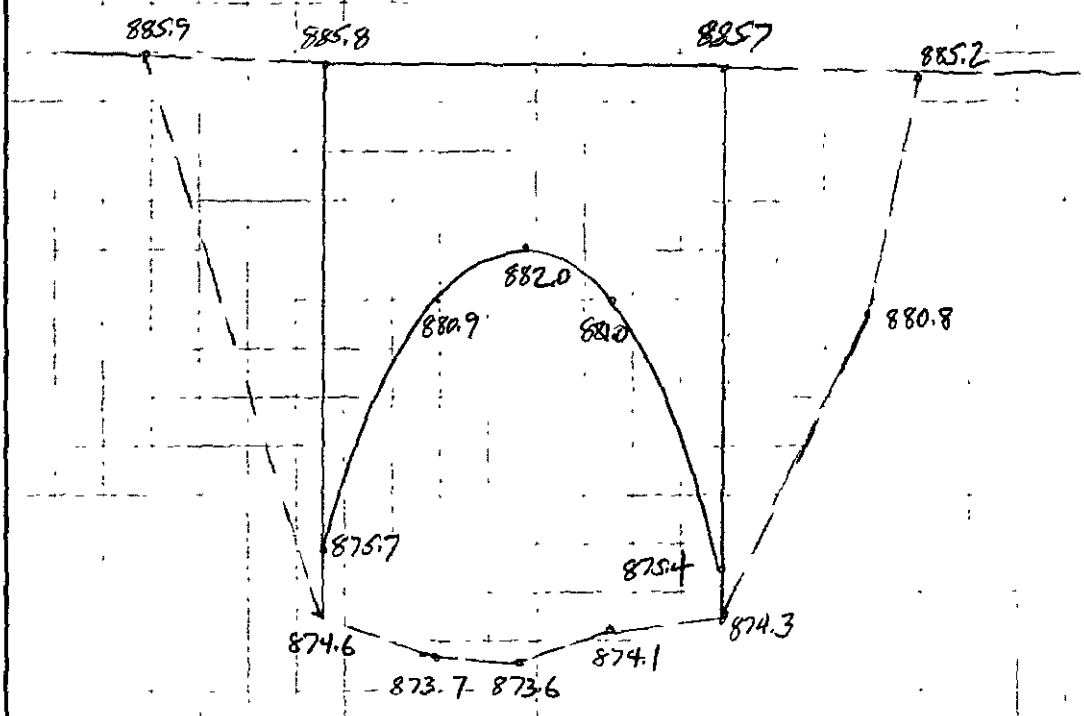
APPENDIX E

Gilbert/Commonwealth
209 E Washington Avenue, Jackson, MI 49201

CALCULATION SHEET

REV

CLIENT/OWNER		FILING CODE
		JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT Cochran St. Bridge	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.



X-Sec Downstream Face Cochran St. Bridge

COMMONWEALTH ASSOCIATES INC.

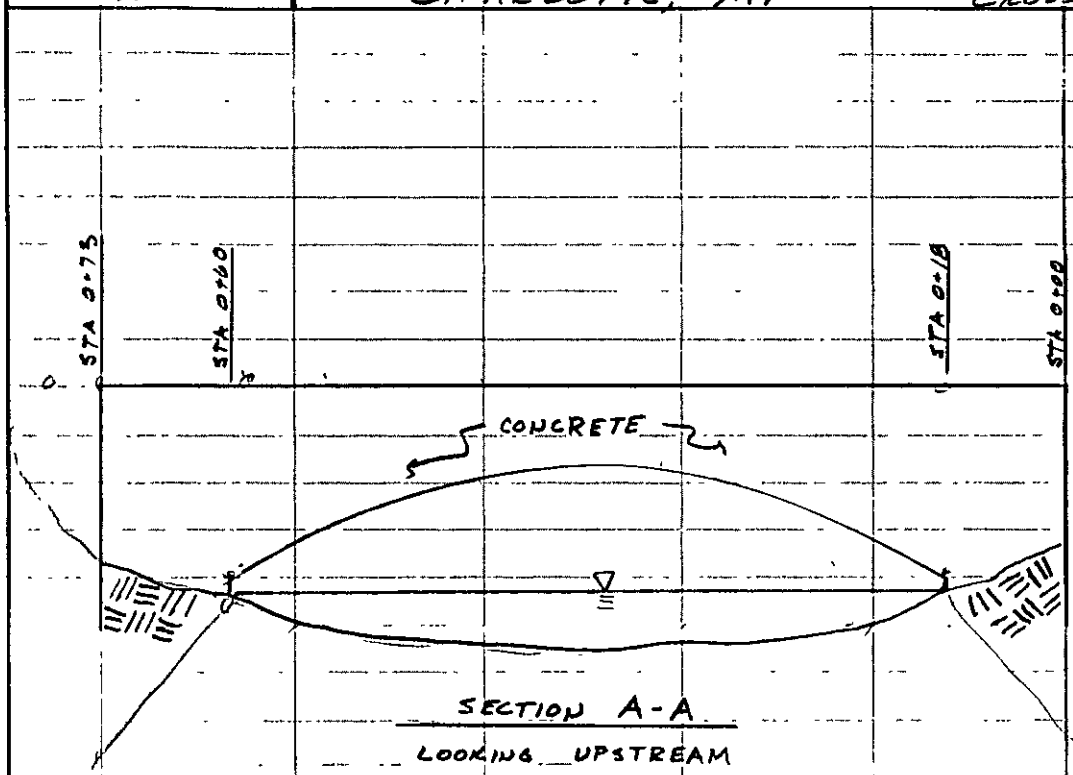
CREW: FOUTY, BEARINGER, HERR

DATE: 2-8-79 | INSTRUMENTS: NA 2 | TEMP (DRY BULB) 11 | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: CHARLOTTE, MI | CROSS SECTION # 3.3 | CHECKED BY | DATE

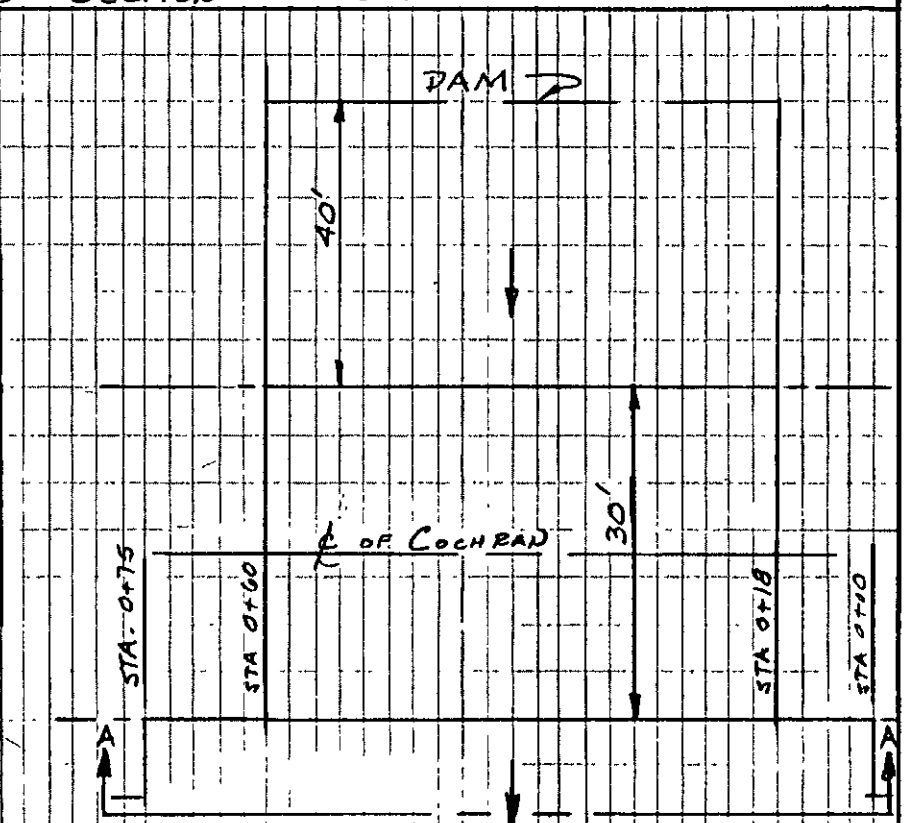
ACTIVITY Cross Section # 3.3 BOOK 21-05 PAGE 18A

STA.



SECTION A-A

LOOKING UPSTREAM

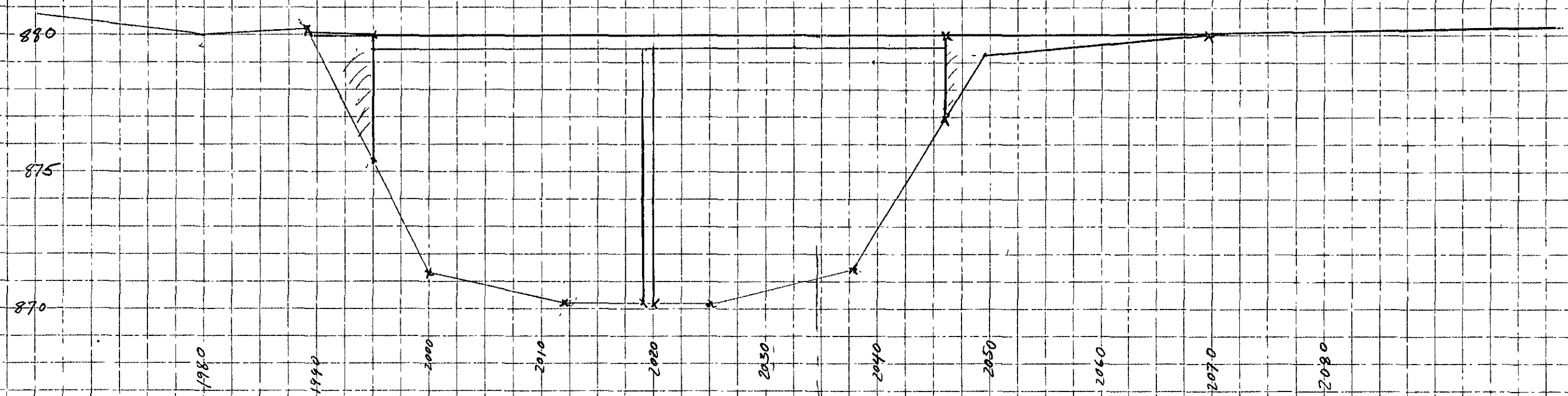


Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading,PA/Jackson,MI

CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO
CALC. BY/DATE	SUBJECT: X-Section Kalamo Bridge	SHEET OF
REVIEW BY/DATE		BOOK NO.



Note: Bridge is Downstream of Study Limit

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Charlotte

3) WATERCOURSE: Butternut creek

4) DOCUMENT TYPE: 100 yr. natural

00BREAK00

THIS RUN EXECUTED 10/11/79

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR =  01.02
  MODIFICATION =  50,51,52,53
**************************************************

C
T1      CHARLOTTE
T2      APPROXIMATE 100 YR LEVEL
T3      BUTTERNUT CREEK

J1  ICHECK      INP         NINV        IDTR        STRT        METRIC      HVINS       Q           WSEL        FR
          0.          2.          3.          0.    0.002800        0.0         0.0         0.     863.000         0.0

J2  NPROF       IPLOT       PRFVS       XSECV       XSECH       FN          ALLOC       IBW         CHNTM       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
    110.000     150.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0

QT        2.000     735.000     735.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0
NC        0.060       0.060       0.030       0.100       0.300       0.0         0.0         0.0         0.0         0.0

X1          0.0       5.000    1984.000    2032.000         0.0         0.0         0.0         0.0         0.0         0.0
GR      865.000    1984.000     859.000    2000.000     857.500    2005.000     859.300    2009.000     867.100    2032.000

X1        0.800      10.000    2000.000    2050.000     400.000     400.000     400.000         0.0         0.0         0.0
GR      867.400    1757.000     867.000    1877.000     865.000    2000.000     859.700    2016.000     859.100    2019.000
GR      858.900    2030.000     859.600    2033.000     864.100    2050.000     867.700    2123.000     871.100    2246.000
NC        0.060       0.060       0.030       0.300       0.500         0.0         0.0         0.0         0.0         0.0

X1        0.900      18.000    2027.000    2035.800      50.000      50.000      50.000         0.0         0.0         0.0
GR      867.400    1661.000     867.000    1781.000     865.600    2000.000     860.500    2027.000     859.700    2027.000
GR      858.900    2027.500     858.600    2028.100     858.400    2029.400     858.300    2030.700     858.300    2031.400
GR      858.300    2032.100     858.400    2033.400     858.600    2034.700     858.900    2035.300     859.700    2035.800
GR      860.500    2035.800     872.100    2070.000     871.100    2246.000         0.0         0.0         0.0         0.0
SH          0.0       3.000       2.930         0.0       7.160         0.0      43.000         0.0     858.400     858.300

                    BRIDGE SECTION A (UPSTREAM FACE PACKARD ST)

X1          1.200      22.000    2050.000    2058.800     113.000     113.000     113.000         0.0         0.0         0.0
X2            0.0         0.0       1.000     864.400     876.200         0.0         0.0         0.0         0.0         0.0
BT         16.000    1587.000     887.400         0.0    1720.000     884.300         0.0    1860.000     880.400         0.0
BT       1907.000     878.200         0.0    2000.000     875.600         0.0    2050.000     876.000     860.600    2050.500
BT        876.200     862.100    2051.100     876.300     863.200    2052.400     876.300     864.000    2053.700     876.400
BT        864.400    2055.100     876.500     864.400    2056.400     876.600     864.000    2057.700     876.700     863.200
BT       2058.300     876.700     862.100    2058.800     876.800     860.600    2146.000     876.800         0.0         0.0
GR        887.400    1587.000     884.300    1720.000     880.400    1860.000     878.200    1907.000     875.600    2000.000
GR        860.600    2050.000     859.800    2050.000     859.000    2050.500     858.700    2051.100     858.500    2052.400
GR        858.400    2053.700     858.400    2054.400     858.400    2055.100     858.500    2056.400     858.700    2057.700
GR        859.000    2058.300     859.800    2058.800     860.600    2058.800     867.700    2079.000     871.100    2111.000
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GR	876.800	2146.000	878.700	2349.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	1.300	13.000	1993.000	2033.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	880.000	1700.000	880.000	1700.000	880.000	1700.000	880.000	1700.000	880.000	1700.000
GR	865.800	1940.000	865.100	1943.000	858.800	2000.000	858.500	2020.000	864.700	2033.000
GR	871.200	2093.000	873.900	2153.000	880.000	2200.000	0.0	0.0	0.0	0.0
NC	0.080	0.080	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	1.800	13.000	2000.000	2073.000	680.000	720.000	700.000	0.0	0.0	0.0
GR	880.000	1750.000	872.000	1800.000	872.000	1900.000	872.000	1800.000	872.000	1800.000
GR	871.300	1947.000	867.900	1967.000	869.000	2000.000	863.300	2027.000	862.500	2033.000
GR	863.300	2040.900	874.500	2073.000	880.000	2100.000	0.0	0.0	0.0	0.0
NC	0.080	0.070	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	1.900	13.000	2000.000	2036.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	880.000	1750.000	872.000	1800.000	872.000	1800.000	872.000	1800.000	872.000	1800.000
GR	871.300	1947.000	867.900	1967.000	866.200	2000.000	862.100	2008.000	862.100	2013.500
GR	866.600	2022.000	872.800	2036.000	880.000	2100.000	0.0	0.0	0.0	0.0
NC	0.080	0.070	0.030	0.300	0.500	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION B (WIER IN CEMETRY)

X1	2.000	15.000	2000.000	2036.000	1.000	1.000	1.000	0.0	0.0	0.0
GR	880.000	1750.000	872.000	1800.000	872.000	1800.000	872.000	1800.000	872.000	1800.000
GR	871.300	1947.000	867.900	1967.000	866.200	2000.000	865.300	2008.000	864.800	2008.100
GR	868.800	2013.400	866.100	2013.500	866.600	2022.000	872.800	2036.000	880.000	2100.000
X1	2.100	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X1	2.200	13.000	2000.000	2036.000	1.000	1.000	1.000	0.0	0.0	0.0
GR	880.000	1750.000	872.000	1800.000	872.000	1800.000	872.000	1800.000	872.000	1800.000
GR	871.300	1947.000	867.900	1967.000	866.200	2000.000	862.400	2008.000	862.500	2013.500
GR	866.600	2022.000	872.800	2036.000	880.000	2100.000	0.0	0.0	0.0	0.0
NC	0.080	0.080	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	2.300	10.000	1967.000	2040.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	880.000	1750.000	872.000	1800.000	872.000	1800.000	872.000	1800.000	872.000	1800.000
GR	871.300	1947.000	867.900	1967.000	865.100	2000.000	862.700	2007.000	863.100	2014.000
GR	865.200	2020.000	867.600	2023.000	874.700	2040.000	880.000	2100.000	0.0	0.0
NC	0.060	0.050	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION C (GOLF COURSE)

X1	3.000	9.000	1987.000	2033.000	2200.000	2200.000	2200.000	0.0	0.0	0.0
GR	878.000	1822.000	877.100	1913.000	872.900	1987.000	869.100	2000.000	867.400	2006.000
GR	869.000	2013.000	871.200	2033.000	874.400	2143.000	878.000	2246.000	0.0	0.0
QT	2.000	585.000	585.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	3.800	8.000	2000.000	2080.000	1370.000	1340.000	1350.000	0.0	0.0	0.0
GR	878.500	1947.000	876.100	2000.000	869.600	2020.000	868.600	2033.000	869.600	2040.000
GR	875.300	2053.000	878.900	2080.000	881.500	2193.000	0.0	0.0	0.0	0.0
NC	0.060	0.060	0.030	0.300	0.500	0.0	0.0	0.0	0.0	0.0
X1	3.900	12.000	2013.000	2027.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	879.900	1670.000	880.200	1800.000	880.000	1927.000	880.400	2013.000	869.200	2013.000
GR	868.300	2020.000	870.400	2027.000	880.400	2027.000	882.100	2146.000	883.900	2246.000
GR	886.900	2405.000	888.100	2562.000	0.0	0.0	0.0	0.0	0.0	0.0

X1	4.000	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
BT	0.000	1800.000	880.200	0.0	1927.000	880.000	0.0	2013.000	880.400	869.200
BT	2013.000	880.400	878.000	2027.000	880.400	878.000	2027.000	880.400	870.400	2146.000
BT	882.100	0.0	2246.000	883.900	0.0	0.0	0.0	0.0	0.0	0.0

BRIDGE SECTION 1 (UPSTREAM FACE Nm 78)

X1	4.100	11.000	2013.000	2027.000	85.000	85.000	85.000	0.0	0.0	0.0
BT	0.000	1800.000	880.200	0.0	1967.000	880.100	0.0	2013.000	880.400	869.300
BT	2013.000	880.400	878.100	2027.000	880.400	878.000	2027.000	880.400	869.200	2107.000
BT	880.500	0.0	2233.000	882.500	0.0	2347.000	884.200	0.0	0.0	0.0
GR	879.900	1670.000	880.200	1800.000	880.100	1967.000	880.400	2013.000	869.300	2013.000
GR	867.300	2020.000	869.200	2027.000	880.400	2027.000	880.500	2107.000	882.500	2233.000
GR	884.200	2347.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	4.200	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0

X1	4.300	7.000	1973.000	2040.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	879.800	1973.000	869.700	2000.000	869.300	2019.000	869.500	2020.000	876.700	2040.000
GR	875.800	2140.000	878.000	2239.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.070	0.070	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION E (DOWNSTREAM I 69)

X1	4.800	7.000	2000.000	2054.000	840.000	870.000	850.000	0.0	0.0	0.0
GR	878.500	1957.000	877.400	2000.000	870.000	2020.000	868.800	2030.000	870.000	2034.000
GR	876.600	2054.000	877.400	2100.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.060	0.060	0.030	0.300	0.500	0.0	0.0	0.0	0.0	0.0

X1	4.900	17.000	2009.000	2021.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	879.270	1310.000	878.700	1800.000	879.600	1500.000	880.500	1600.000	879.100	1703.000
GR	878.800	1796.000	877.900	1893.000	877.900	1946.000	880.000	2009.000	868.900	2009.000
GR	868.300	2013.000	868.900	2021.000	880.000	2021.000	878.100	2064.000	878.400	2210.000
GR	879.100	2297.000	879.100	2383.000	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	1.880	2.930	0.0	12.000	0.0	96.000	0.0	868.300	868.900

BRIDGE SECTION F (UPSTREAM FACE I 69)

X1	5.200	15.000	2009.000	2021.000	188.000	188.000	188.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	875.700	877.400	0.0	0.0	0.0	0.0	0.0
BT	11.000	1600.000	880.500	0.0	1703.000	879.100	0.0	1796.000	878.800	0.0
BT	1893.000	877.900	0.0	1946.000	877.900	0.0	2009.000	880.000	868.900	2009.000
BT	880.000	875.700	2021.000	880.000	875.700	2021.000	880.000	868.900	2120.000	877.400
BT	0.0	2200.000	878.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	879.270	1310.000	878.700	1400.000	878.600	1500.000	880.500	1600.000	879.100	1703.000
GR	878.800	1796.000	877.900	1893.000	877.900	1946.000	880.000	2009.000	868.900	2009.000
GR	869.100	2015.000	868.900	2021.000	880.000	2021.000	877.400	2120.000	878.200	2200.000

X1	5.300	13.000	2000.000	2027.000	50.000	50.000	50.000	0.0	0.0	0.0
GR	880.000	1300.000	880.000	1300.000	880.000	1300.000	880.000	1300.000	880.000	1300.000
GR	875.600	1903.000	876.200	2000.000	868.900	2007.000	867.900	2014.000	869.000	2020.000
GR	875.100	2027.000	874.500	2080.000	879.000	2400.000	0.0	0.0	0.0	0.0
NC	0.060	0.060	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION G (EAST STUDY LIMIT)

X1	6.000	13.000	2127.000	2173.000	500.000	500.000	500.000	0.0	0.0	0.0
G	880.000	1850.000	880.000	1850.000	880.000	1850.000	880.000	1850.000	880.000	1850.000
G	876.500	2000.000	870.800	2127.000	870.200	2140.000	868.500	2153.000	870.200	2167.000

GR	874.600	2173.000	875.600	2253.000	879.000	2700.000	0.0	0.0	0.0	0.0
FJ	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 .0

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HI	OLOSS	BANK ELEV
0	0L00	0CH	0RCR	ALCR	ACH	ARCR	VOL	TWA	LEFT/RIGHT
TIME	VL03	VCH	VRCR	XNL	XNCH	XNR	PTN	ELMTN	SSTA
SLOPE	XL0BL	XLCH	XLCBR	ITRIAL	TOC	TCENT	CCRAR	TCRWTD	ENDST
0.0	6.82	864.32	0.0	863.00	864.82	0.50	0.0	0.0	865.00
735.	0.	735.	0.	0.	129.	0.	0.	0.	867.10
0.0	0.0	5.70	0.0	0.060	0.030	0.060	0.0	857.50	1985.82
0.002820	0.	0.	0.	0	0	4	0.0	37.98	2023.80

*SECNO .800

0.80	6.31	865.21	0.0	0.0	865.40	0.19	0.55	0.03	865.00
735.	0.	729.	6.	1.	206.	12.	2.	1.	860.10
0.03	0.15	3.53	0.47	0.060	0.030	0.060	0.030	858.90	1997.26
0.000801	400.	400.	400.	2	0	0	0.0	85.19	2072.45

CCHV= 0.300 CEHV= 0.500
*SECNO .900

3301 HV CHANGED MORE THAN HVINS

0.90	6.59	864.89	0.0	0.0	865.88	0.99	0.08	0.40	860.50
735.	139.	521.	75.	51.	156.	28.	2.	1.	860.50
0.03	2.71	9.33	2.65	0.060	0.030	0.060	0.030	858.30	2003.73
0.004294	50.	50.	50.	2	0	0	0.0	45.03	2048.76

SPECIAL BRIDGE

SO	XK	YKOR	CDEO	RDLEN	RWC	RWR	BAREA	SS	ELCHU	ELCHD
	0.0	3.00	2.93	0.0	7.16	0.0	43.00	0.0	859.40	858.30

*SECNO 1.200

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	AAREA	TRAPEZOID AREA	ELLC	ELTRD
878.50	866.20	0.0	67.	673.	43.	43.	864.40	876.20

BRIDGE SECTION A (UPSTREAM FACE PACKARD ST)

1.20	17.89	876.29	0.0	0.0	876.30	0.01	10.42	0.0	860.60
735.	207.	226.	702.	418.	155.	585.	3.	1.	860.60
0.07	0.50	1.45	0.52	0.060	0.030	0.060	0.030	858.40	1976.25
0.000027	113.	113.	113.	1	0	5	0.0	168.35	2143.59

*SECNO 1.300

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 ELMTN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
1.30	17.60	876.30	0.0	0.0	876.30	0.00	0.00	0.00	865.80
735.	256.	357.	122.	1088.	642.	748.	6.	1.	864.70
0.11	0.17	0.56	0.16	0.060	0.030	0.060	0.030	858.50	1762.55
0.000004	50.	50.	50.	2	0	0	0.0	808.94	2171.49
CCHV= 0.100 CEHV= 0.300									
*SECNO 1.000									
1.80	13.80	876.30	0.0	0.0	876.31	0.01	0.00	0.00	869.40
735.	222.	513.	0.	1130.	688.	8.	43.	7.	874.50
0.45	0.20	0.75	0.06	0.080	0.030	0.080	0.030	862.50	1773.06
0.000012	680.	700.	720.	0	0	0	0.0	308.82	2091.88
CCHV= 0.100 CEHV= 0.300									
*SECNO 1.900									
1.90	14.20	876.30	0.0	0.0	876.31	0.01	0.00	0.00	866.20
735.	339.	383.	8.	1181.	369.	54.	45.	7.	872.80
0.47	0.29	1.05	0.15	0.080	0.030	0.070	0.030	862.10	1773.12
0.000023	50.	50.	50.	0	0	0	0.0	290.00	2067.12
CCHV= 0.300 CEHV= 0.500									
*SECNO 2.000									
VALLEY SECTION H (WIER IN CEMETRY)									
2.00	11.50	876.30	0.0	0.0	876.31	0.01	0.00	0.00	866.20
735.	376.	350.	9.	1180.	324.	54.	45.	7.	872.80
0.47	0.32	1.08	0.16	0.080	0.030	0.070	0.030	864.80	1773.13
0.000028	1.	1.	1.	0	0	0	0.0	293.97	2067.10
*SECNO 2.100									
2.10	11.50	876.30	0.0	0.0	876.31	0.01	0.00	0.00	866.20
735.	376.	350.	9.	1180.	325.	54.	45.	7.	872.80
0.47	0.32	1.08	0.16	0.080	0.030	0.070	0.030	864.80	1773.13
0.000028	1.	1.	1.	0	0	0	0.0	293.98	2067.10
*SECNO 2.200									
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 ELMTN TOPWID	BANK ELEV LEFT/RTGHT SSTA ENDST
2.20	13.90	876.30	0.0	0.0	876.31	0.01	0.00	0.00	866.20
735.	382.	385.	8.	1180.	364.	54.	45.	7.	872.80
0.47	0.29	1.06	0.15	0.080	0.030	0.070	0.030	862.80	1773.13
0.000023	1.	1.	1.	0	0	0	0.0	293.98	2067.10
CCHV= 0.100 CEHV= 0.300									
*SECNO 2.300									
2.30	13.60	876.30	0.0	0.0	876.31	0.01	0.00	0.00	867.90
735.	172.	562.	1.	875.	694.	14.	47.	8.	874.70
0.49	0.20	0.81	0.06	0.080	0.030	0.080	0.030	862.70	1773.12
0.000014	50.	50.	50.	0	0	0	0.0	284.99	2058.12
CCHV= 0.100 CEHV= 0.300									

*SECNO 3.000

VALLEY SECTION C (GOLF COURSE)

3.00	8.95	876.35	0.0	0.0	876.37	0.02	0.06	0.00	882.90
735.	43.	849.	253.	104.	300.	454.	109.	32.	871.20
1.03	0.31	1.50	0.56	0.060	0.039	0.050	0.030	867.40	1926.35
0.000077	2200.	2200.	2200.	0	0	0	0.0	283.02	2209.37

*SECNO 3.800

3.80	7.08	876.48	0.0	0.0	876.55	0.07	0.16	0.01	876.10
585.	0.	585.	0.	2.	278.	0.	126.	27.	878.00
1.21	0.13	2.10	0.0	0.060	0.030	0.050	0.030	868.60	1991.55
0.000256	1370.	1350.	1340.	2	0	0	0.0	70.32	2061.87

CCHV= 0.300 CFHV= 0.500

*SECNO 3.900

3.90	7.99	876.29	0.0	0.0	876.80	0.52	0.03	0.22	880.40
585.	0.	585.	0.	0.	101.	0.	127.	28.	880.40
1.21	0.0	5.77	0.0	0.060	0.030	0.060	0.030	868.30	2013.00
0.002369	50.	50.	50.	2	0	0	0.0	14.00	2027.00

*SECNO 4.000

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	CLOB	ACH	ARCR	ALOB	ACH	ARCR	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VRCR	XNL	YNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBI	XICH	XICHR	TTRTAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 880.00 MAX ELLC= 878.00

4.00	7.99	876.29	0.0	0.0	876.81	0.52	0.00	0.00	880.40
585.	0.	585.	0.	0.	101.	0.	127.	28.	880.40
1.21	0.0	5.77	0.0	0.060	0.030	0.060	0.030	868.30	2013.00
0.002368	1.	1.	1.	0	0	0	0.0	14.00	2027.00

*SECNO 4.100

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 880.10 MAX ELLC= 878.10

BRIDGE SECTION D (UPSTREAM FACE M= 78)

4.10	9.32	876.62	0.0	0.0	877.01	0.39	0.16	0.04	880.40
585.	0.	585.	0.	0.	117.	0.	127.	28.	880.40
1.22	0.0	5.01	0.0	0.060	0.030	0.060	0.030	867.30	2013.00
0.001614	85.	85.	85.	2	0	0	0.0	14.00	2027.00

*SECNO 4.200

4.20	9.32	876.62	0.0	0.0	877.01	0.39	0.00	0.00	880.40
585.	0.	585.	0.	0.	117.	0.	127.	28.	880.40
1.22	0.0	5.01	0.0	0.060	0.030	0.060	0.030	867.30	2013.00
0.001613	1.	1.	1.	0	0	0	0.0	14.00	2027.00

*SECNO 4.300

4.30	7.78	877.08	0.0	0.0	877.13	0.05	0.02	0.10	879.80
585.	0.	556.	29.	0.	305.	109.	127.	28.	876.70
1.23	0.0	1.82	0.27	0.060	0.030	0.060	0.030	869.30	1980.26
0.000162	50.	50.	50.	2	0	0	0.0	199.45	2179.71

CCHV= 0.100 CEHV= 0.300
*SECNO 4.800

VALLEY SECTION F (DOWNSTREAM I 62)

4.80	8.48	877.20	0.0	0.0	877.32	0.08	0.17	0.01	877.40
585.	0.	583.	2.	0.	259.	12.	134.	31.	876.60
1.33	0.0	2.25	0.16	0.070	0.030	0.070	0.030	868.80	2000.44
0.000268	840.	850.	870.	2	0	0	0.0	90.24	2090.68

CCHV= 0.300 CEHV= 0.500
*SECNO 4.900

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AREA	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	TTRIAL	TOC	TCONT	CORAR	TOPWID	ENDST
4.90	8.75	877.05	0.0	0.0	877.56	0.52	0.03	0.22	880.00
585.	0.	585.	0.	0.	101.	0.	134.	31.	880.00
1.33	0.0	5.77	0.0	0.060	0.030	0.060	0.030	868.30	2009.00
0.002483	50.	50.	50.	2	0	0	0.0	12.00	2021.00

SPECIAL BRIDGE

SK	XK	XKOR	CORD	RDLEN	BRC	BSR	BAREA	SS	ELCHU	ELCHD
	0.0	1.08	2.03	0.0	12.00	0.0	96.00	0.0	868.30	868.90

*SECNO 5.200

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	W3	QWEIR	QBR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
878.13	877.62	0.0	42.	545.	96.	89.	875.70	877.40

BRIDGE SECTION F (UPSTREAM FACE I 61)

5.20	8.57	877.47	0.0	0.0	877.99	0.51	0.42	0.0	880.00
585.	0.	585.	0.	0.	102.	0.	134.	31.	880.00
1.34	0.0	5.75	0.14	0.060	0.030	0.060	0.030	868.90	2009.00
0.002549	188.	188.	188.	3	0	4	0.0	22.31	2127.47

*SECNO 5.300

3301 HV CHANGED MORE THAN HVINS

5.30	10.24	878.14	0.0	0.0	878.15	0.01	0.01	0.15	876.20
585.	137.	254.	194.	598.	208.	647.	135.	31.	875.10
1.36	0.23	1.22	0.30	0.060	0.030	0.060	0.030	867.90	1572.17
0.000051	50.	50.	50.	2	0	0	0.0	766.51	2338.67

CCHV= 0.100 CEHV= 0.300
*SECNO 6.000

VALLEY SECTION G (EAST STUDY LIMIT)

6.00	9.66	878.16	0.0	0.0	878.17	0.01	0.02	0.00	879.80

585.	89.	355.	141.	377.	346.	670.	15.	39.	870.60	
1.56	0.23	1.03	0.21	0.060	0.030	0.060	0.030	868.50	1929.00	
0.000031	500.	500.	500.	2	0	0	0.0	660.14	2589.13	

THTS RUN EXECUTED 10/11/79

****
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

BUTTERNUT CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	ALOB	ACH	ARCH	PERENC	STENCL	STCHL	STCHR	STENCR
0.0	864.32	1.32	864.82	37.98	0.0	735.00	0.0	0.0	0.0	1984.00	2032.00	0.0
0.800	865.21	0.0	865.40	85.19	0.20	728.93	5.87	0.0	0.0	2000.00	2050.00	0.0
0.900	866.89	0.0	865.88	45.03	138.70	520.94	75.36	0.0	0.0	2027.00	2035.80	0.0
1.200	876.29	0.0	876.30	168.35	207.39	225.61	301.99	0.0	0.0	2050.00	2058.80	0.0
1.300	876.30	0.0	876.30	408.94	255.94	356.60	122.45	0.0	0.0	1993.00	2033.00	0.0
1.800	876.30	0.0	876.31	308.82	222.01	512.51	0.48	0.0	0.0	2000.00	2073.00	0.0
1.900	876.30	0.0	876.31	294.00	338.65	388.36	7.99	0.0	0.0	2000.00	2036.00	0.0
2.000	876.30	0.0	876.31	293.97	375.91	350.23	8.86	0.0	0.0	2000.00	2036.00	0.0
2.100	876.30	0.0	876.31	293.98	375.91	350.23	8.86	0.0	0.0	2000.00	2036.00	0.0
2.200	876.30	0.0	876.31	293.98	341.58	385.36	8.05	0.0	0.0	2000.00	2036.00	0.0
2.300	876.30	0.0	876.31	284.99	172.00	562.13	0.87	0.0	0.0	1967.00	2040.00	0.0
3.000	876.35	0.0	876.37	283.02	32.64	449.07	253.29	0.0	0.0	1987.00	2033.00	0.0
3.800	876.48	0.0	876.55	70.32	0.21	584.79	0.0	0.0	0.0	2000.00	2080.00	0.0
3.900	876.29	0.0	876.80	14.00	0.0	585.00	0.0	0.0	0.0	2013.00	2027.00	0.0
4.000	876.29	0.0	876.81	14.00	0.0	585.00	0.0	0.0	0.0	2013.00	2027.00	0.0
4.100	876.62	0.0	877.01	14.00	0.0	585.00	0.0	0.0	0.0	2013.00	2027.00	0.0
4.200	876.62	0.0	877.01	14.00	0.0	585.00	0.0	0.0	0.0	2013.00	2027.00	0.0
4.300	877.09	0.0	877.13	199.45	0.0	559.70	29.30	0.0	0.0	1973.00	2040.00	0.0
4.800	877.24	0.0	877.32	90.20	0.0	583.10	1.90	0.0	0.0	2000.00	2054.00	0.0
4.900	877.05	0.0	877.56	12.00	0.0	585.00	0.0	0.0	0.0	2009.00	2021.00	0.0

SECNO	CWSEL	DTFKWS	FG	TOPWID	CLOB	DCH	QBOB	PERENC	STENCL	STCHL	STCHR	STENCR
5.200	877.47	0.0	877.99	22.31	0.0	584.95	0.05	0.0	0.0	2009.00	2021.00	0.0
5.300	878.14	0.0	878.15	766.51	136.52	254.05	194.43	0.0	0.0	2000.00	2027.00	0.0
6.000	878.16	0.0	878.17	660.14	88.51	355.10	141.38	0.0	0.0	2127.00	2173.00	0.0

BUTTERNUT CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRTWS	FC	10K*S	VCH	AREA	.01K
0.0	0.0	0.0	0.0	857.50	735.00	864.32	0.0	864.82	28.20	5.70	128.89	138.41
0.800	400.00	0.0	0.0	858.90	735.00	865.21	0.0	865.40	8.01	3.53	220.10	259.74
0.900	50.00	0.0	0.0	858.30	735.00	864.89	0.0	865.88	42.94	9.33	135.49	112.17
1.200	113.00	876.20	864.40	858.40	735.00	876.29	0.0	876.30	0.27	1.45	1158.23	1423.41
1.300	50.00	0.0	0.0	858.50	735.00	876.30	0.0	876.30	0.04	0.56	2878.20	3896.86
1.800	700.00	0.0	0.0	862.50	735.00	876.30	0.0	876.31	0.12	0.75	1825.81	2128.75
1.900	50.00	0.0	0.0	862.10	735.00	876.30	0.0	876.31	0.23	1.09	1604.60	1538.73
2.000	1.00	0.0	0.0	864.80	735.00	876.30	0.0	876.31	0.28	1.08	1559.28	1385.42
2.100	1.00	0.0	0.0	864.80	735.00	876.30	0.0	876.31	0.28	1.08	1559.36	1385.50
2.200	1.00	0.0	0.0	862.40	735.00	876.30	0.0	876.31	0.23	1.06	1599.27	1524.74
2.300	50.00	0.0	0.0	862.70	735.00	876.30	0.0	876.31	0.10	0.81	1584.05	1962.01
3.000	2290.00	0.0	0.0	867.40	735.00	876.35	0.0	876.37	0.77	1.50	858.41	835.33
3.800	1350.00	0.0	0.0	868.60	585.00	876.48	0.0	876.55	2.56	2.10	279.59	365.61
3.900	50.00	0.0	0.0	868.30	585.00	876.29	0.0	876.80	23.69	5.77	101.33	120.20
4.000	1.00	880.00	878.00	868.30	585.00	876.29	0.0	876.81	23.68	5.77	101.34	120.22
4.100	85.00	880.10	878.10	867.30	585.00	876.62	0.0	877.01	16.14	5.01	116.85	145.64
4.200	1.00	0.0	0.0	867.30	585.00	876.62	0.0	877.01	16.13	5.01	116.87	145.67
4.300	50.00	0.0	0.0	869.30	585.00	877.08	0.0	877.13	1.62	1.82	414.09	458.93
4.800	850.00	0.0	0.0	868.80	585.00	877.24	0.0	877.32	2.68	2.25	270.97	357.23
4.900	50.00	0.0	0.0	868.30	585.00	877.05	0.0	877.56	24.83	5.77	101.39	117.41
5.200	188.00	877.40	875.70	868.90	585.00	877.47	0.0	877.99	25.49	5.75	102.08	115.87
5.300	50.00	0.0	0.0	867.90	585.00	878.14	0.0	878.15	0.51	1.22	1453.45	816.78
6.000	500.00	0.0	0.0	868.50	585.00	878.16	0.0	878.17	0.31	1.03	1397.28	1046.48

BUTTERNUT CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFKSX	DIFKWS	TOPWID	XLCH
0.0	735.00	868.32	0.0	0.0	1.32	37.98	0.0
0.800	735.00	865.21	0.0	0.89	0.0	85.19	400.00
0.900	735.00	864.89	0.0	-0.32	0.0	45.03	50.00
1.200	735.00	876.29	0.0	11.40	0.0	168.35	113.00
1.300	735.00	876.30	0.0	0.01	0.0	408.98	50.00
1.800	735.00	876.30	0.0	0.00	0.0	308.82	700.00
1.900	735.00	876.30	0.0	-0.00	0.0	294.00	50.00
2.000	735.00	876.30	0.0	0.00	0.0	293.97	1.00
2.100	735.00	876.30	0.0	0.0	0.0	293.98	1.00
2.200	735.00	876.30	0.0	-0.00	0.0	293.98	1.00
2.300	735.00	876.30	0.0	0.00	0.0	284.99	50.00
3.000	735.00	876.35	0.0	0.05	0.0	283.02	2200.00
3.800	585.00	876.48	0.0	0.13	0.0	70.32	1350.00
3.900	585.00	876.29	0.0	-0.20	0.0	14.00	50.00
4.000	585.00	876.29	0.0	0.00	0.0	14.00	1.00
4.100	585.00	876.62	0.0	0.33	0.0	14.00	85.00
4.200	585.00	876.62	0.0	0.00	0.0	14.00	1.00
4.300	585.00	877.08	0.0	0.46	0.0	199.45	50.00
4.800	585.00	877.24	0.0	0.15	0.0	90.24	850.00
4.900	585.00	877.05	0.0	-0.19	0.0	12.00	50.00
5.200	585.00	877.47	0.0	0.43	0.0	27.31	188.00
5.300	585.00	878.14	0.0	0.66	0.0	766.51	50.00
6.000	585.00	878.16	0.0	0.02	0.0	660.14	500.00

SUMMARY OF ERRORS

THIS RUN EXECUTED 10/11/79

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

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Charlotte

3) WATERCOURSE: Buttenut creek

4) DOCUMENT TYPE: report

00BREAK00

CROSS SECTION REFERENCE
BUTTERNUT CREEK

Cross Section ID in Profile/Table	Sec. No. in Hec-2 Program	Description
	0	Valley Section: Used to determine S.W.E. by slope area method
	.8	Valley Section 50 feet downstream of Packard Street Bridge
	.9	Bridge Section: Downstream Face of Packard Street
A	1.2	Bridge Section: Upstream Face at Packard Street
	1.3	Valley Section: 50 feet upstream of Packard Street Bridge
	1.8	Valley Section
	1.9	Valley Section 1 foot downstream of dam (wier)
B	2.0	Downstream edge of wier
	2.1	Upstream Face of wier, 1.0 foot from Section 2 (repeated)
	2.2	Valley Section 1 foot upstream
	2.3	Valley Section
C	3.0	Valley Section (golf course)
	3.8	Valley Section downstream of M-76 Bridge (Lansing Road Bridge)
	3.9	Valley Section 1 foot downstream from M-78 box culvert
	4.0	Bridge Section downstream Face M-78
D	4.1	Bridge Section upstream Face M-78
	4.2	Valley 1 foot upstream from M-78 Face

Cross Section ID in Profile/Table	Sec. No. in Hec-2 Program	Description
	4.3	Valley Section
E	4.8	Valley Section downstream from I-69 box culvert
	4.9	Bridge Section downstream Face I-69
F	5.2	Bridge Section upstream Face I-69 box culvert
	5.3	Valley Section 50 feet upstream from I-69
G	6.0	Valley Section (east study limit)

Gilbert/Commonwealth
209 E. Washington Avenue Jackson, MI 49201

CALCULATION SHEET

REV.

CLIENT/OWNER U.S. FEMA F.I.S. Charlotte Butternut Creek		FILING CODE JOB NO. 62-0147-605
CALC BY/DATE (SIGNATURE) 10-9-79 M. Burkhalt CHECKED BY/DATE (SIGNATURE)	SUBJECT XKOR value for Packard St. Bridge	SHEET 1 OF 1 BOOK NO.

Ref. 1) Hec-2, Water Surface Profiles Users Manual, Nov. 1976 Exhibit 2

2) "Applied Hydraulics in Engineering" Morris-Wiggert 2nd Ed.

$$XKOR = 1 + \Sigma K = 1 + K_f + K_I$$

K_f = Friction Losses $= \frac{29.1\, n^2 L}{R^{4/3}}$

K_I = Intake losses

Assumptions & Conditions

$n = .027$ $L = 113'$

$R_h = 1.77'$ for 6'x8'10" each pipe

$$K_f = \frac{29.1\,(.027)^2\,(113)}{(1.77)^{4/3}} = 1.10$$

$K_I = .9$ Pipe or Pipe Arch projecting from fill (No headwall) U.S. Bureau of Public Roads, Hydraulics for Bridges & Culverts.

$XKOR = 1.1 + .9 + 1 = 3.0$

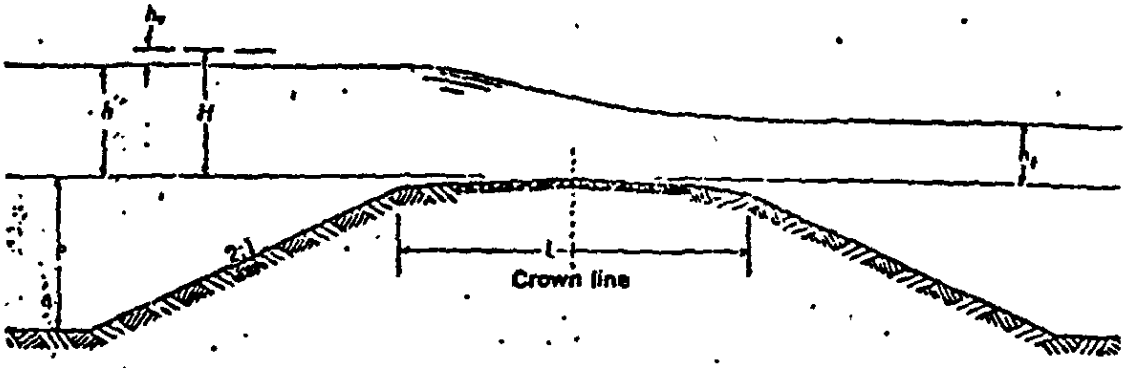


Figure 21.—Definition sketch of flow over a highway embankment.

Wier Coefficent. ~2.93
Taken from graph. below
U.S. Bureau of Pubic Roads
"Hydraulics for Bridges & Culverts

Basic equation

The discharge equation for flow over roadways is referred to the total head, H, and is

$$Q=CbH^{3/2}, \qquad (3)$$

where

Q=discharge,
C=coefficient of discharge,
b=length of the flow section along the road normal to the direction of flow, and
H=total head=$h+V_1^2/2g$.

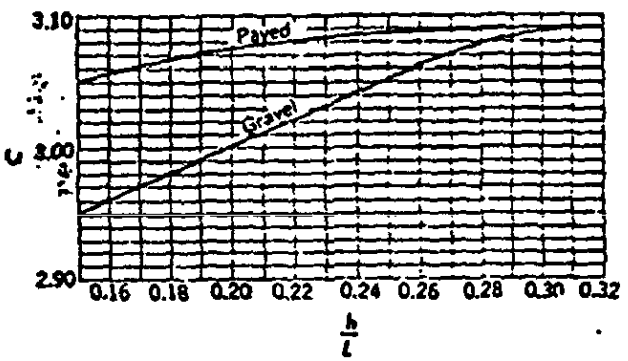
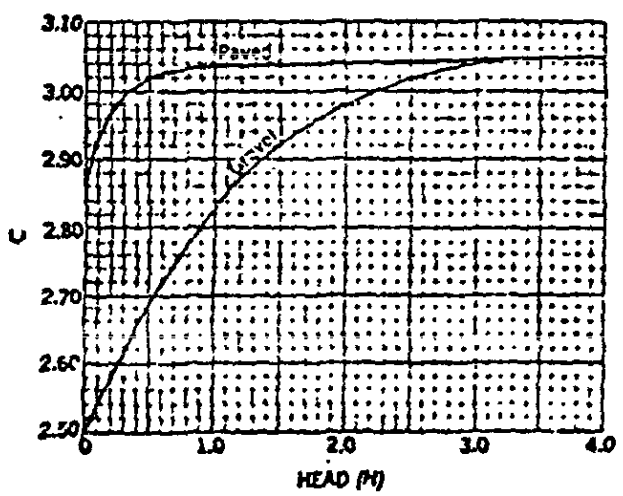


Figure 22.—Discharge coefficients for highway embankments for h/L ratios > 0.15.



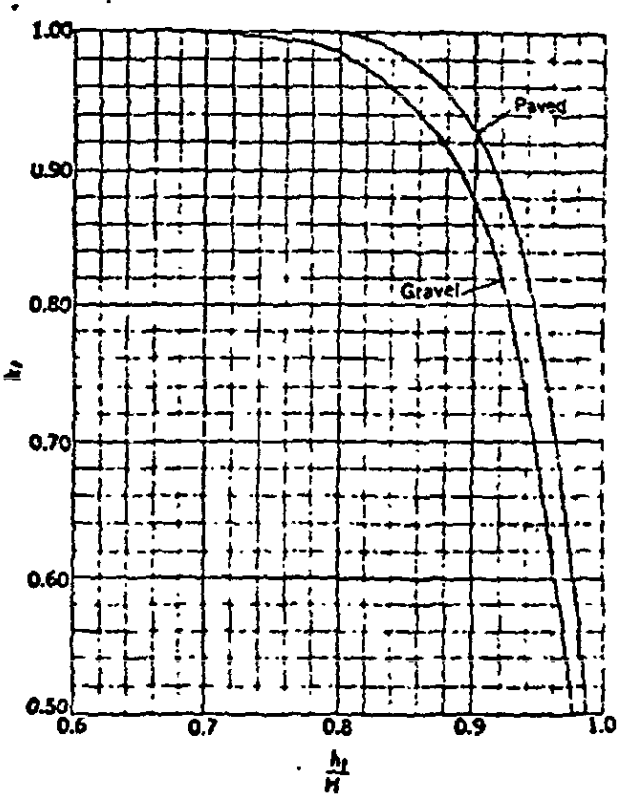


Figure 24.—Definition of adjustment factor, k_t, for submerged

Gilbert/Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

CALCULATION SHEET REV.

CLIENT/OWNER F.I.S. Charlotte Butternut Creek	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT XKOR value for I-69 Box Culvert
SHEET 1 OF / BOOK NO.	

$$XKOR = 1 + \Sigma K$$

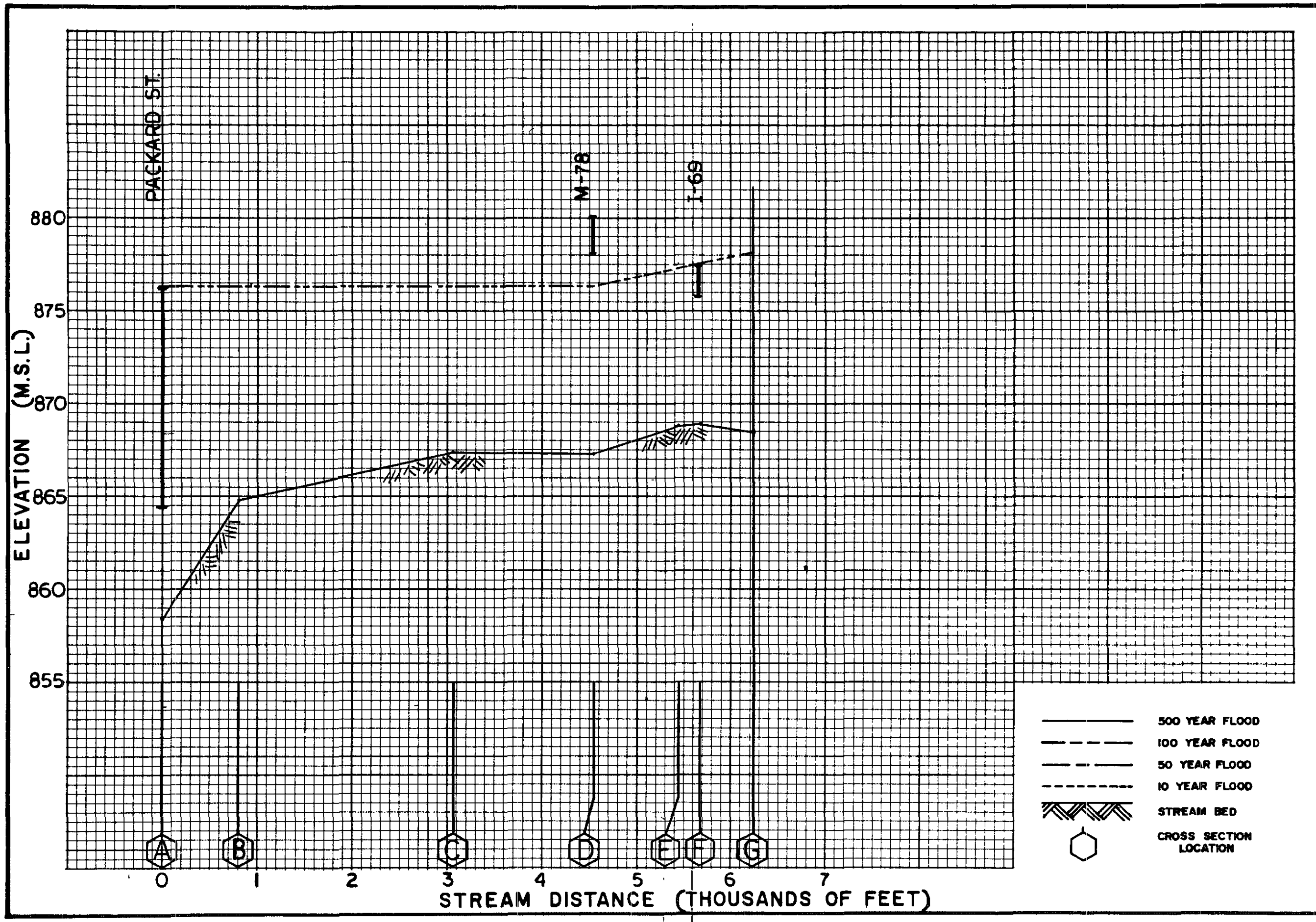
$$K_p = \frac{29.1\, n^2 L}{R^{4/3}}$$

$$R^{4/3} = \frac{12 \times 8}{2(12)+2(8)} = 2.4^{\frac{4}{3}} = 3.213$$

$$K_p = \frac{29.1\,(.015)^2\,188}{3.213} = .38$$

$K_{ENTRANCE} = .5$ Headwall parallel to embankment (No wingwalls)

$$XKOR = 1 + .5 + .38 = 1.88$$



BUTTERNUT CREEK

CHARLOTTE

FLOOD PROFILE

Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading,PA/Jackson,MI

CALCULATION SHEET

REV.

CLIENT/OWNER H.U.D F.I.S. Charlotte
Butternut Creek

FILING CODE

JOB NO. 62-0147-605

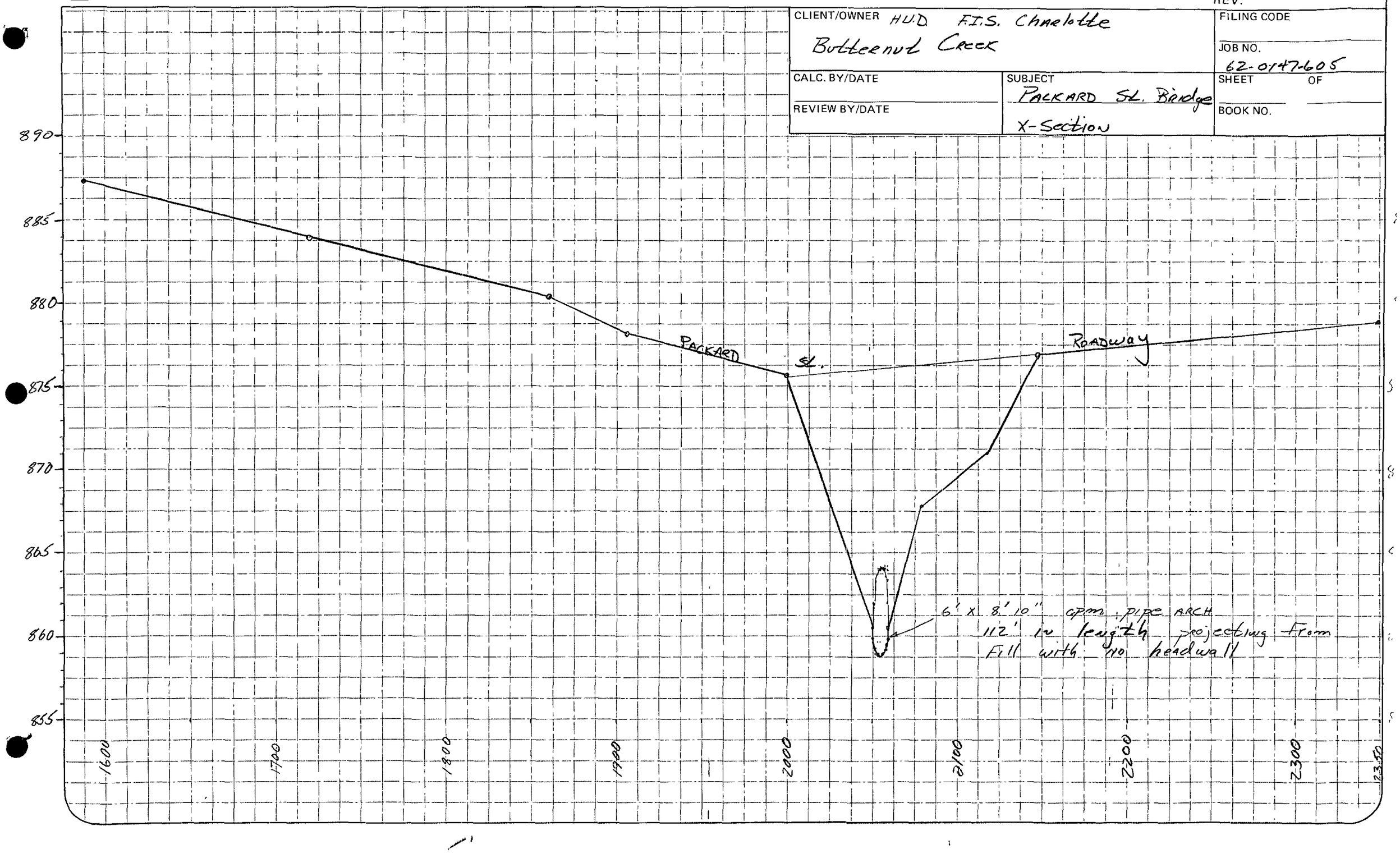
CALC. BY/DATE

REVIEW BY/DATE

SUBJECT Packard St. Bridge
X-Section

SHEET OF

BOOK NO.

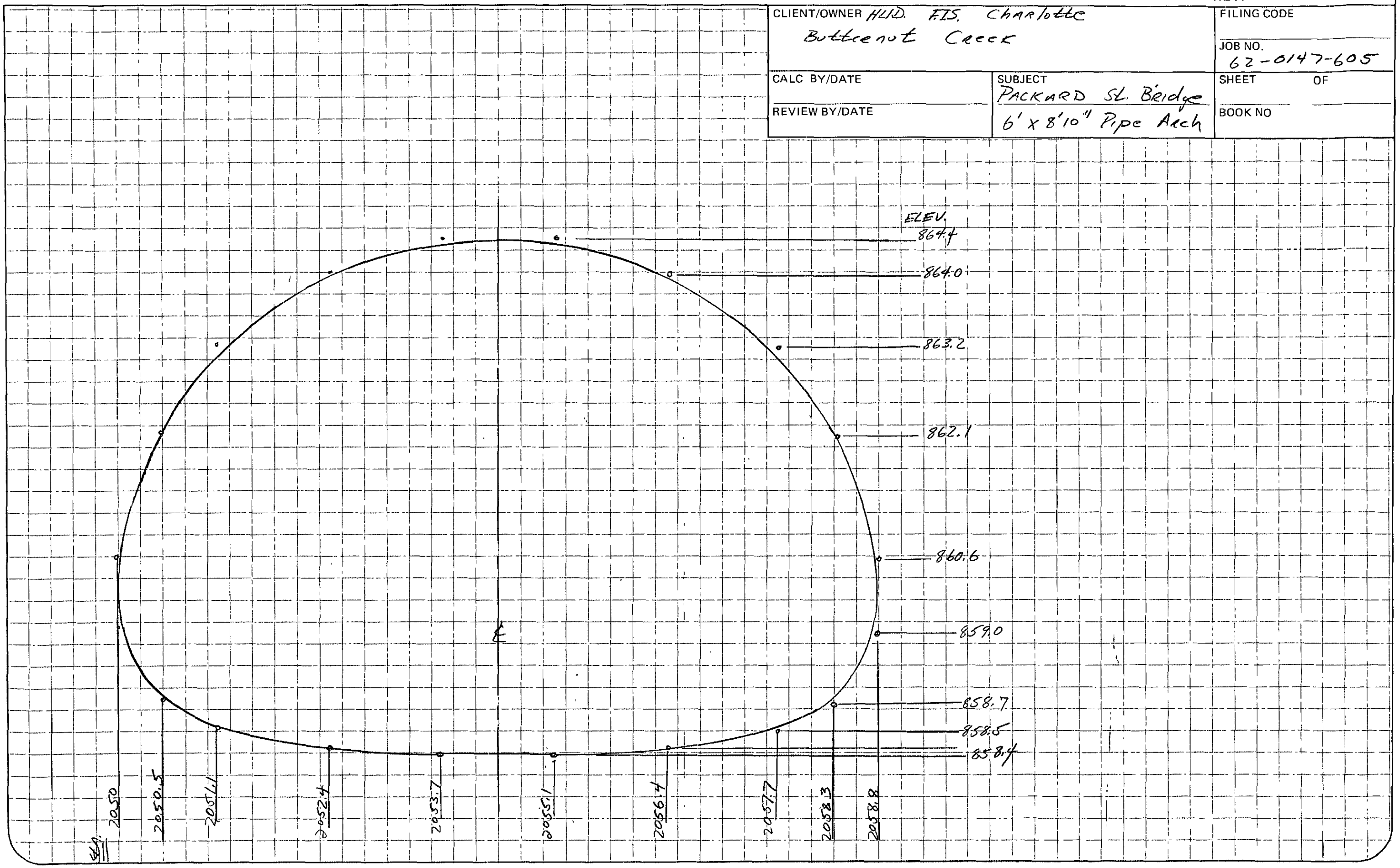


Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading,PA/Jackson,MI

CALCULATION SHEET

REV.

CLIENT/OWNER HUD. FIS. Charlotte Buttcenut Creek		FILING CODE
		JOB NO. 62-0147-605
CALC BY/DATE	SUBJECT PACKARD SL. Bridge 6' x 8'10" Pipe Arch	SHEET OF
REVIEW BY/DATE		BOOK NO

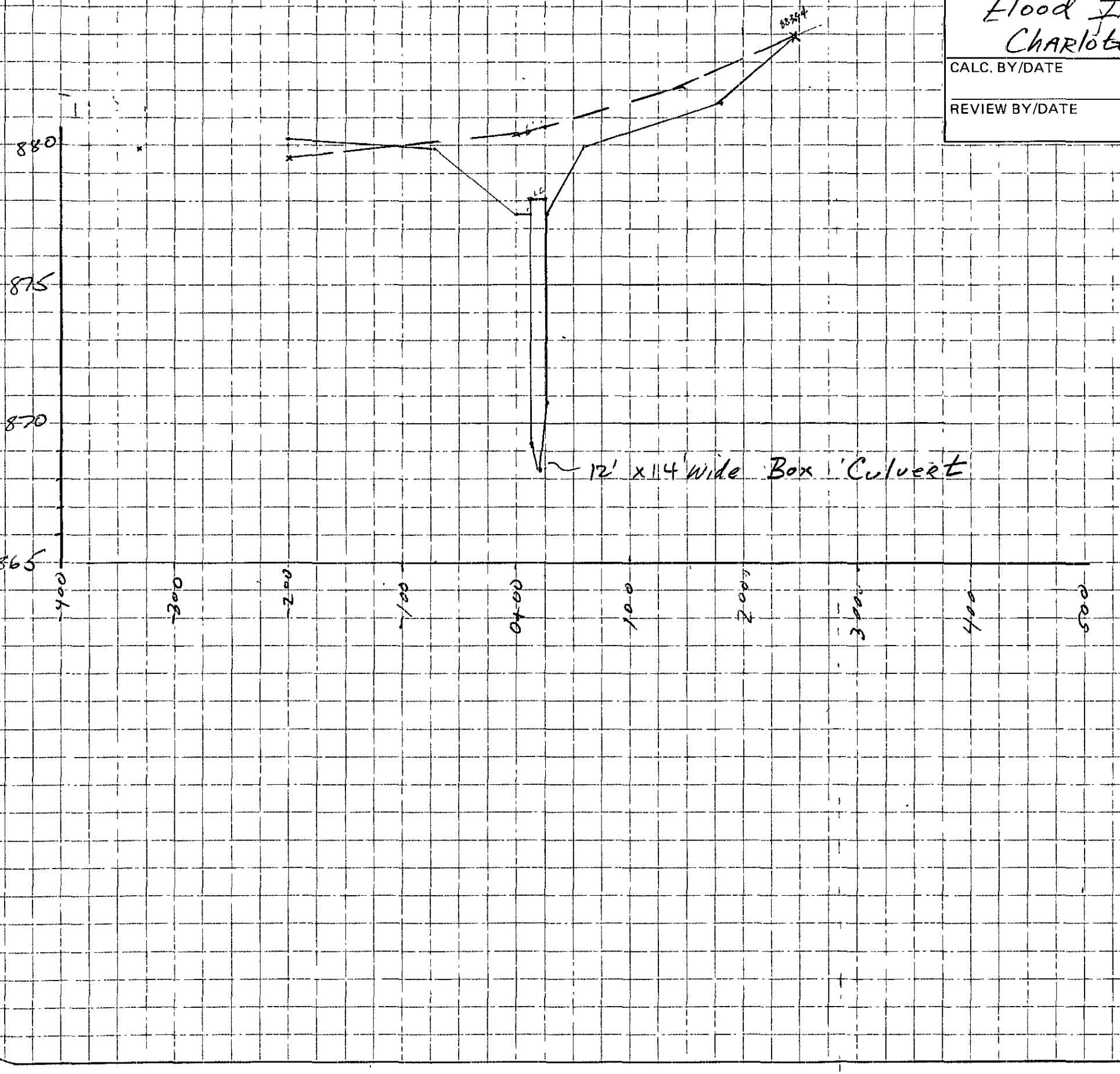


Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading,PA/Jackson,MI

CALCULATION SHEET

REV.

CLIENT/OWNER: Flood Insurance Study Charlotte - Butternut Creek	FILING CODE
	JOB NO. 62-0147-605
CALC. BY/DATE	SUBJECT: Lansing Rd. Bridge
REVIEW BY/DATE	SHEET OF
	BOOK NO.

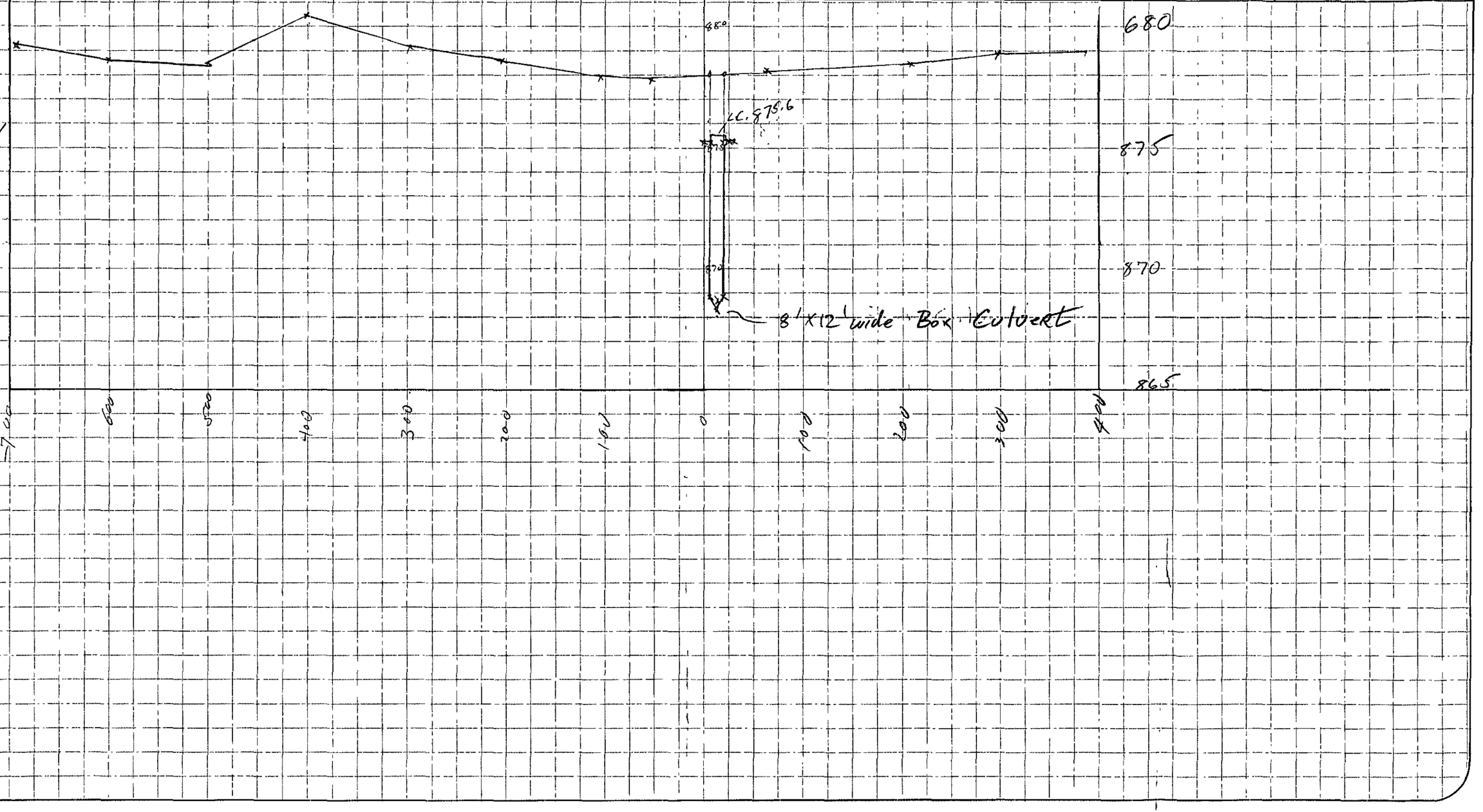


Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading, PA/Jackson, MI

CALCULATION SHEET

REV.

CLIENT/OWNER Flood Insurance Study Charlotte - Butternut Creek	FILING CODE / JOB NO
CALC BY/DATE / REVIEW BY/DATE	SUBJECT I-69 Bridge I...
	SHEET OF / BOOK NO



00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 10, 50, 100, 500 Yr.

00BREAK00

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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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RECEIVED
JAN 1 31981
WATER MANAGEMENT

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C
T1      EATON RAPIDS
T2      10 YEAR LEVEL
T3      GRAND RIVER
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       2.        0.        0.  0.000000      0.00      0.0       0.   861.700     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    1.000      0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
J3  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     .100      .100      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT    7.000  4593.000  6826.000  7850.000 10420.000  7850.000  6300.000  3860.000     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  290.000    12.000  2000.000  2170.000     0.000     0.000     0.000     0.000     0.000     0.000
GR  870.000  1600.000   867.000  1825.000   859.500  1970.000   859.000  2000.000   852.000  2005.000
GR  852.000  2090.000   851.500  2095.000   851.500  2100.000   852.000  2120.000   852.000  2160.000
GR  860.000  2170.000   870.000  2500.000     0.000     0.000     0.000     0.000     0.000     0.000

X1  300.000     9.000  2000.000  2200.000  3900.000  3900.000  3900.000     0.000     0.000     0.000
GR  874.000  1650.000   861.500  2000.000   855.000  2010.000   852.900  2100.000   854.300  2145.000
GR  855.000  2200.000   858.500  2200.000   861.000  2400.000   870.100  2500.000     0.000     0.000
QT    7.000  4540.000  6750.000  7760.000 10300.000  7760.000  6300.000  3860.000     0.000     0.000

                VALLEY SECTION (CORPS SECTION 31) A

X1  310.000    18.000  2000.000  2185.000  3700.000  3700.000  3700.000     0.000     0.000     0.000
GR  871.000  1700.000   860.000  1900.000   862.500  1980.000   862.000  2000.000   858.000  2015.000
GR  855.700  2015.000   854.000  2040.000   854.000  2100.000   855.300  2140.000   855.700  2160.000
GR  856.300  2185.000   860.000  2185.000   860.000  2230.000   862.500  2270.000   862.000  2300.000
GR  864.000  2370.000   866.000  2450.000   867.500  2500.000     0.000     0.000     0.000     0.000
ET    0.000     9.100     9.100     9.100     9.100     7.100  1460.000  2235.000  1460.000  2530.000
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VALLEY SECTION (CORPS SECTION 32) B

X1	320.000	30.000	2000.000	2125.000	2750.000	2810.000	2780.000	0.000	0.000	0.000
GR	880.000	700.000	875.000	750.000	870.000	800.000	865.000	1150.000	863.600	1300.000
GR	861.000	1460.000	861.100	1560.000	865.000	1660.000	866.000	1710.000	866.000	1810.000
GR	864.300	1860.000	862.900	1910.000	865.000	1960.000	857.000	2000.000	854.500	2030.000
GR	852.800	2040.000	853.300	2060.000	853.400	2085.000	854.000	2120.000	858.000	2125.000
GR	858.300	2135.000	861.200	2150.000	861.500	2200.000	868.500	2240.000	869.000	2270.000
GR	871.200	2320.000	873.000	2380.000	873.200	2430.000	874.000	2480.000	877.000	2530.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1620.000	2280.000

X1	323.900	38.000	2018.000	2120.000	1399.000	1289.000	1324.000	0.000	0.000	0.000
GR	878.300	500.000	878.800	600.000	880.000	700.000	880.000	800.000	878.800	900.000
GR	878.800	1000.000	881.000	1100.000	879.800	1200.000	879.800	1300.000	878.100	1400.000
GR	865.900	1500.000	865.200	1600.000	865.900	1700.000	866.700	1800.000	866.400	1900.000
GR	863.900	2000.000	862.800	2006.000	860.500	2018.000	855.000	2052.000	856.600	2076.000
GR	857.400	2102.000	860.500	2120.000	865.300	2130.000	866.000	2142.000	866.800	2200.000
GR	865.000	2300.000	865.600	2400.000	868.000	2500.000	869.200	2600.000	868.300	2700.000
GR	868.300	2800.000	871.000	2900.000	873.000	3000.000	873.000	3100.000	876.000	3200.000
GR	879.300	3300.000	878.400	3400.000	881.000	3500.000	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	1620.000	2280.000

VALLEY SECTION (NO CORPS SECTION) C

X1	324.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X5	-5.000	.060	.060	.060	.060	.060	0.000	0.000	0.000	0.000
QT	7.000	2950.000	4750.000	5600.000	7560.000	5600.000	4900.000	3140.000	0.000	0.000
NH	5.000	.100	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.100
NH	3500.000	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	1550.000	2210.000

X1	330.000	35.000	1700.000	2078.000	550.000	100.000	230.000	0.000	0.000	0.000
X4	2.000	856.000	1705.000	856.000	1795.000	0.000	0.000	0.000	0.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.000	862.600	1900.000
GR	861.200	2000.000	855.200	2000.000	856.100	2042.000	859.300	2068.000	861.200	2078.000
GR	868.000	2100.000	866.800	2200.000	865.900	2300.000	866.900	2400.000	867.500	2500.000
GR	867.700	2600.000	868.000	2700.000	868.200	2800.000	869.000	2900.000	870.200	3000.000
GR	873.000	3100.000	874.500	3200.000	876.000	3300.000	880.000	3400.000	880.000	3500.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.060
NH	3500.000	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	1550.000	2205.000

MOORE BUSINESS FORMS INC 27

X1	331.000	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

UPSTREAM FACE OF DAM (CORPS SECTION 33) D

X1	332.000	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	862.200	2000.100	862.200	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

X1	333.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
NH	5.000	.060	1700.000	.045	1800.100	.100	2000.000	.045	2068.100	.060
NH	3500.000	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	1550.000	2205.000

X1	333.500	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	861.300	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	860.600	2000.100	860.000	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.100	2022.000	.045	2115.000	.100	2157.000	.045	2300.000	.100
NH	3500.000	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	1.410	9.100	9.100	1885.000	2305.000

X1	335.000	33.000	2022.000	2300.000	20.000	340.000	240.000	0.000	0.000	0.000
X4	2.000	862.000	2115.100	861.000	2157.100	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	861.400	2022.000	858.600	2097.000	860.300	2115.000	862.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.100	2157.000	.045	2300.000	.060

MOORE BUSINESS FORMS INC 27

NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100
X1	336.000	33.000	2032.000	2300.000	20.000	20.000	20.000	0.000	0.000	0.000
X4	3.000	858.900	2032.100	864.300	2157.100	861.500	2165.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	864.300	2032.000	858.600	2097.000	859.200	2115.000	861.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100

UPSTREAM FACE OF DAM (NO CORPS SECTION) E

X1	337.000	32.000	2032.000	2300.000	4.000	4.000	4.000	0.000	0.000	0.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	862.300	2097.000	862.300	2115.000	862.300	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100
X1	338.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
NC	.060	.060	.045	.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	9.100	1900.000	2300.100
X1	338.500	32.000	2032.000	2300.000	5.000	5.000	5.000	0.000	0.000	0.000
X4	2.000	859.500	2160.000	860.700	2290.000	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	861.500	2097.000	861.500	2115.000	861.000	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	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	9.100	2000.000	2180.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 34) F

X1	340.000	16.000	2007.000	2170.000	300.000	390.000	325.000	0.000	0.000	0.000
GR	871.000	1950.000	870.000	1980.000	865.400	2005.000	863.000	2006.000	861.200	2007.000
GR	858.100	2025.000	858.000	2050.000	857.200	2100.000	857.200	2150.000	857.400	2160.000
GR	861.500	2170.000	863.000	2185.000	865.000	2225.000	868.500	2250.000	870.100	2280.000
GR	873.000	2320.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	349.000	37.000	2000.000	2161.000	30.000	30.000	30.000	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	869.900	1475.000	870.000	1575.000	870.000	1650.000	869.300	1675.000	869.000	1725.000
GR	869.000	1775.000	869.500	1875.000	870.000	1925.000	873.000	1975.000	873.400	2000.000
GR	860.000	2000.000	859.500	2010.000	858.800	2046.000	858.800	2046.100	858.800	2048.000
GR	858.800	2048.100	858.400	2055.000	858.400	2065.000	858.000	2070.000	858.400	2095.000
GR	858.500	2105.000	857.400	2114.000	857.400	2114.100	857.400	2116.000	857.400	2116.100
GR	858.000	2125.000	858.400	2145.000	857.600	2150.000	860.900	2161.000	873.400	2161.000
GR	873.000	2240.000	873.900	2300.000	876.000	2400.000	877.000	2440.000	877.100	2500.000
GR	878.500	2600.000	879.900	2690.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	350.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.800	0.000	161.000	4.000	1978.000	0.000	0.000	0.000

UPSTREAM FACE OF KNIGHT STREET BRIDGE (CORPS SECTION 35) G

X1	351.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.000	873.400	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	26.000	1475.000	869.900	0.000	1575.000	870.000	0.000	1650.000	870.000	0.000
BT	1675.000	869.300	0.000	1725.000	869.000	0.000	1775.000	869.000	0.000	1875.000
BT	869.500	0.000	1925.000	870.000	0.000	1975.000	873.000	0.000	2000.000	873.400
BT	0.000	2000.000	873.400	870.100	2046.000	873.400	870.100	2046.100	873.400	858.800
BT	2048.000	873.400	858.800	2048.100	873.400	870.100	2114.000	873.400	870.000	2114.100
BT	873.400	857.400	2116.000	873.400	857.400	2116.100	873.400	870.000	2161.000	873.400
BT	870.000	2161.000	873.400	0.000	2240.000	873.000	0.000	2300.000	873.900	0.000
BT	2400.000	876.000	0.000	2440.000	877.000	0.000	2500.000	877.100	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	352.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.020	2015.000	.045	2060.000	.100	2200.000	.045	2320.000	.100
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 36) H

X1	360.000	20.000	2015.000	2320.000	400.000	385.000	385.000	0.000	0.000	0.000
GR	869.500	1500.000	869.500	2015.000	861.000	2030.000	858.000	2045.000	858.000	2050.000
GR	858.500	2055.000	861.000	2060.000	863.800	2075.000	863.800	2185.000	861.000	2200.000
GR	858.500	2220.000	858.000	2250.000	858.000	2275.000	857.500	2300.000	861.000	2320.000
GR	870.500	2340.000	875.200	2390.000	877.200	2440.000	878.200	2480.000	879.900	2540.000
NH	5.000	.020	2030.000	.045	2060.000	.100	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	369.000	30.000	2000.000	2303.000	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	870.500	1410.000	870.900	1510.000	870.000	1560.000	870.400	1610.000	871.200	1660.000
GR	871.600	1725.000	870.500	1920.000	869.900	2000.000	861.000	2000.000	860.000	2008.000
GR	859.800	2016.000	860.100	2024.000	861.000	2033.000	868.400	2033.000	866.000	2125.000
GR	866.000	2186.000	861.300	2186.000	860.500	2215.000	860.700	2243.000	860.700	2243.100
GR	860.800	2245.000	860.800	2245.100	860.100	2273.000	861.300	2303.000	870.800	2303.000
GR	869.900	2325.000	876.600	2425.000	879.300	2485.000	880.500	2625.000	883.100	2825.000
NH	5.000	.020	2030.000	.018	2060.000	.055	2200.000	.018	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	370.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM FACE OF HAMLIN ST. PEDESTRIAN BRIDGE (CORPS SEC 37) I

X1	371.000	0.000	0.000	0.000	8.000	8.000	8.000	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	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FO RMS INC 27

X1	372.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	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	9.100	1985.000	2215.000

VALLEY SECTION (CORPS SECTION 38) J

X1	380.000	25.000	2000.000	2200.000	670.000	735.000	680.000	0.000	0.000	0.000
GR	870.500	1500.000	870.500	1600.000	869.500	1650.000	870.400	1700.000	870.500	1750.000
GR	869.600	1800.000	870.000	1900.000	869.000	1950.000	864.900	1999.000	861.300	2000.000
GR	859.800	2010.000	859.800	2050.000	859.000	2075.000	859.600	2100.000	860.000	2125.000
GR	859.800	2150.000	859.900	2175.000	860.000	2190.000	861.300	2200.000	864.500	2210.000
GR	866.300	2255.000	868.000	2305.000	871.100	2355.000	875.000	2405.000	875.300	2455.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	389.000	38.000	2000.000	2166.000	120.000	120.000	120.000	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	873.000	1470.000	873.000	1500.000	873.900	1575.000	874.900	1600.000	873.500	1625.000
GR	870.000	1700.000	871.000	1740.000	871.500	1775.000	871.400	1875.000	872.900	2000.000
GR	861.200	2000.000	860.500	2015.000	860.500	2025.000	860.600	2035.000	860.800	2048.000
GR	860.800	2048.100	860.800	2051.000	860.800	2051.100	860.400	2070.000	860.400	2083.000
GR	860.300	2095.000	860.800	2114.000	860.800	2114.100	860.800	2117.000	860.800	2117.100
GR	860.500	2130.000	860.600	2140.000	860.600	2150.000	861.200	2166.000	872.800	2166.000
GR	872.800	2200.000	872.700	2300.000	872.800	2340.000	873.100	2390.000	873.000	2440.000
GR	875.200	2540.000	876.500	2590.000	877.900	2690.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	390.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.800	0.000	130.000	6.000	1300.000	0.000	0.000	0.000

UPSTREAM FACE OF STATE STREET BRIDGE (CORPS SECTION 39) K

X1	391.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.800	872.800	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	0.000	0.000	0.000
BT	38.000	1470.000	873.000	0.000	1500.000	873.000	0.000	1575.000	873.900	0.000
BT	1600.000	874.500	0.000	1625.000	873.500	0.000	1700.000	870.000	0.000	1740.000
BT	871.000	0.000	1775.000	871.500	0.000	1875.000	871.400	0.000	2000.000	872.900
BT	0.000	2000.000	872.900	866.600	2015.000	872.900	869.000	2025.000	872.900	870.600
BT	2035.000	872.900	869.000	2048.000	872.900	866.600	2048.100	872.900	860.800	2051.000
BT	872.900	860.800	2051.100	872.900	866.900	2070.000	873.000	869.000	2083.000	873.000
BT	870.800	2095.000	873.000	869.000	2114.000	872.800	866.600	2114.100	872.800	860.800
BT	2117.000	872.800	860.800	2117.100	872.800	866.600	2130.000	872.800	869.000	2140.000
BT	872.800	870.500	2150.000	872.800	869.000	2166.000	872.800	866.600	2166.000	872.800
BT	0.000	2200.000	872.800	0.000	2300.000	872.700	0.000	2340.000	872.800	0.000
BT	2390.000	873.100	0.000	2440.000	873.000	0.000	2540.000	875.200	0.000	2590.000
BT	876.500	0.000	2690.000	877.900	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	392.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	1.410	9.100	9.100	2016.900	2225.100
X1	399.000	26.000	2017.000	2225.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	869.900	2017.000	860.600	2017.000	861.500	2225.000
GR	869.800	2225.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	400.000	26.000	2026.000	2216.000	15.000	15.000	15.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	856.900	2026.000	858.100	2216.000
GR	872.100	2216.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	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	2025.900	2216.200
SB	0.000	1.560	3.087	0.000	1.000	0.000	1.000	0.000	867.700	856.900

UPSTREAM FACE OF DAM (CORPS SECTION 40) L

X1	401.000	26.000	2026.000	2216.100	7.000	7.000	7.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	867.700	868.100	0.000	0.000	0.000	0.000	0.000
BT	4.000	2026.000	871.700	0.000	2026.100	868.100	0.000	2216.000	868.300	0.000
BT	2216.100	872.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	861.500	2026.100	861.500	2216.000
GR	872.300	2216.100	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	4050.000	6020.000	6930.000	9190.000	6930.000	4900.000	3140.000	0.000	0.000
NC	.100	.100	.045	.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	2025.900	2216.200

VALLEY SECTION (NO CORPS SECTION) M

X1	402.000	0.000	0.000	0.000	13.000	13.000	13.000	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

VALLEY SECTION (CORPS SECTION 41) N

X1	410.000	26.000	2075.000	2325.000	2675.000	2400.000	2500.000	0.000	0.000	0.000
GR	888.100	1560.000	886.500	1610.000	886.500	1670.000	885.000	1710.000	883.000	1760.000
GR	882.000	1820.000	880.900	1870.000	878.000	1920.000	874.000	1970.000	870.500	2020.000
GR	870.000	2070.000	867.000	2075.000	865.000	2076.000	864.500	2100.000	865.000	2125.000
GR	861.500	2250.000	862.500	2300.000	867.000	2325.000	871.000	2330.000	873.000	2355.000
GR	872.200	2425.000	873.500	2475.000	875.000	2525.000	877.000	2575.000	877.200	2625.000
GR	878.000	2660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION (CORPS SECTION 42) O

X1	420.000	23.000	2000.000	2120.000	3960.000	3440.000	3430.000	0.000	0.000	0.000
GR	894.900	1720.000	894.000	1760.000	894.900	1810.000	893.000	1850.000	871.900	1920.000
GR	868.900	1999.000	867.500	2000.000	865.800	2005.000	865.000	2040.000	865.300	2060.000
GR	864.700	2090.000	865.000	2105.000	867.500	2120.000	869.100	2125.000	873.900	2170.000
GR	872.800	2275.000	873.300	2375.000	874.200	2425.000	874.500	2475.000	878.100	2525.000
GR	885.900	2575.000	895.200	2625.000	899.000	2725.000	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

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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      EATON RAPIDS
T2      50 YEAR LEVEL
T3      GRAND RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -10.        3.         0.         0.   0.000000       0.00       0.0        0.    862.900      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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MOORE BUSINESS FO RMS INC 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
**************************************************

T1      EATON RAPIDS
T2      100 YEAR LEVEL
T3      GRAND RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.        4.        0.        0.   0.000000    0.00      0.0       0.    863.500   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
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MOORE BUSINESS FORMS INC 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 EATON RAPIDS
T2 500 YEAR LEVEL
T3 GRAND RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	865.100	0.000

J2	NPROF	IFLCT	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

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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

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	290.000	0.00	0.00	0.00	851.50	4593.00	861.70	0.00	861.82	3.88	2.83	1768.22	2331.98
	290.000	0.00	0.00	0.00	851.50	6826.00	862.90	0.00	863.10	5.56	3.67	2164.26	2895.79
	290.000	0.00	0.00	0.00	851.50	7850.00	863.50	0.00	863.73	5.99	3.95	2390.54	3206.40
	290.000	0.00	0.00	0.00	851.50	10420.00	865.10	0.00	865.39	6.35	4.44	3086.06	4135.68
	300.000	3900.00	0.00	0.00	852.90	4593.00	863.07	0.00	863.15	2.99	2.39	2479.32	2655.49
	300.000	3900.00	0.00	0.00	852.90	6826.00	864.68	0.00	864.79	3.44	2.86	3280.80	3682.81
	300.000	3900.00	0.00	0.00	852.90	7850.00	865.38	0.00	865.50	3.52	3.03	3660.99	4186.39
	300.000	3900.00	0.00	0.00	852.90	10420.00	867.06	0.00	867.21	3.53	3.33	4654.24	5542.52
	310.000	3700.00	0.00	0.00	854.00	4540.00	864.19	0.00	864.27	3.08	2.45	2549.30	2585.66
	310.000	3700.00	0.00	0.00	854.00	6750.00	865.93	0.00	866.03	3.28	2.85	3599.34	3724.95
	310.000	3700.00	0.00	0.00	854.00	7760.00	866.65	0.00	866.76	3.30	2.98	4085.35	4274.88
	310.000	3700.00	0.00	0.00	854.00	10300.00	868.33	0.00	868.46	3.22	3.23	5312.39	5736.78
	320.000	2780.00	0.00	0.00	852.80	4540.00	865.03	0.00	865.13	3.05	2.80	2617.82	2599.26
	320.000	2780.00	0.00	0.00	852.80	6750.00	866.83	0.00	866.95	3.29	3.22	3857.72	3723.33
	320.000	2780.00	0.00	0.00	852.80	7760.00	867.56	0.00	867.68	3.30	3.35	4419.20	4269.29
	320.000	2780.00	0.00	0.00	852.80	10300.00	869.23	0.00	869.36	3.26	3.61	5734.34	5701.10
	323.900	1324.00	0.00	0.00	855.00	4540.00	865.58	0.00	865.99	15.06	5.22	994.44	1169.78
	323.900	1324.00	0.00	0.00	855.00	6750.00	867.39	0.00	867.86	14.35	5.81	1908.46	1781.75
	323.900	1324.00	0.00	0.00	855.00	7760.00	868.12	0.00	868.56	13.30	5.86	2388.79	2127.56
	323.900	1324.00	0.00	0.00	855.00	10300.00	869.78	0.00	870.18	11.17	5.90	3483.37	3081.54
*	324.000	1.00	0.00	0.00	855.00	4540.00	865.64	0.00	866.05	14.67	5.17	1009.86	1185.28
*	324.000	1.00	0.00	0.00	855.00	6750.00	867.45	0.00	867.90	13.93	5.75	1947.90	1808.27
*	324.000	1.00	0.00	0.00	855.00	7760.00	868.18	0.00	868.61	12.93	5.80	2428.24	2158.07
*	324.000	1.00	0.00	0.00	855.00	10300.00	869.84	0.00	870.23	10.90	5.85	3522.87	3119.90
	330.000	230.00	0.00	0.00	855.20	2950.00	866.15	0.00	866.17	1.10	1.14	2837.76	2812.82
	330.000	230.00	0.00	0.00	855.20	4750.00	868.01	0.00	868.04	1.36	1.39	3931.30	4077.20
	330.000	230.00	0.00	0.00	855.20	5600.00	868.72	0.00	868.75	1.46	1.49	4398.11	4633.72
	330.000	230.00	0.00	0.00	855.20	7560.00	870.33	0.00	870.37	1.57	1.66	5458.85	6038.68

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
331.000	20.00	0.00	0.00	855.20	2950.00	866.15	0.00	866.17	1.05	1.12	2842.96	2872.72
331.000	20.00	0.00	0.00	855.20	4750.00	868.02	0.00	868.04	1.25	1.34	3934.92	4247.38
331.000	20.00	0.00	0.00	855.20	5600.00	868.73	0.00	868.76	1.32	1.42	4397.60	4865.10
331.000	20.00	0.00	0.00	855.20	7560.00	870.34	0.00	870.37	1.38	1.56	5449.04	6445.64
332.000	5.00	0.00	0.00	856.00	2950.00	866.15	0.00	866.18	2.03	1.42	2265.26	2070.42
332.000	5.00	0.00	0.00	856.00	4750.00	868.01	0.00	868.05	2.13	1.58	3346.63	3258.22
332.000	5.00	0.00	0.00	856.00	5600.00	868.72	0.00	868.76	2.16	1.65	3810.66	3812.02
332.000	5.00	0.00	0.00	856.00	7560.00	870.33	0.00	870.37	2.07	1.75	4864.78	5254.74
333.000	1.50	0.00	0.00	856.00	2950.00	866.15	0.00	866.18	2.04	1.42	2261.35	2066.44
333.000	1.50	0.00	0.00	856.00	4750.00	868.01	0.00	868.05	2.13	1.59	3342.31	3253.38
333.000	1.50	0.00	0.00	856.00	5600.00	868.72	0.00	868.76	2.16	1.65	3806.52	3806.92
333.000	1.50	0.00	0.00	856.00	7560.00	870.33	0.00	870.37	2.07	1.75	4861.22	5249.56
333.500	5.00	0.00	0.00	856.00	2950.00	866.15	0.00	866.18	1.82	1.34	2381.93	2189.11
333.500	5.00	0.00	0.00	856.00	4750.00	868.02	0.00	868.05	1.95	1.53	3463.05	3400.29
333.500	5.00	0.00	0.00	856.00	5600.00	868.73	0.00	868.76	2.00	1.60	3927.27	3961.31
333.500	5.00	0.00	0.00	856.00	7560.00	870.34	0.00	870.38	1.95	1.71	4981.93	5417.92
335.000	240.00	0.00	0.00	858.60	2950.00	866.19	0.00	866.25	5.07	2.08	1548.67	1309.76
335.000	240.00	0.00	0.00	858.60	4750.00	868.05	0.00	868.13	4.39	2.35	2331.11	2266.34
335.000	240.00	0.00	0.00	858.60	5600.00	868.75	0.00	868.84	4.34	2.49	2628.03	2689.56
335.000	240.00	0.00	0.00	858.60	7560.00	870.35	0.00	870.45	4.06	2.72	3295.77	3751.80
336.000	20.00	0.00	0.00	858.60	2950.00	866.20	0.00	866.26	4.52	1.99	1579.64	1387.16
336.000	20.00	0.00	0.00	858.60	4750.00	868.06	0.00	868.14	4.02	2.25	2324.55	2368.60
336.000	20.00	0.00	0.00	858.60	5600.00	868.77	0.00	868.85	3.98	2.37	2606.63	2806.26
336.000	20.00	0.00	0.00	858.60	7560.00	870.37	0.00	870.46	3.72	2.58	3246.43	3919.58
337.000	4.00	0.00	0.00	861.50	2950.00	866.17	0.00	866.28	11.97	2.71	1205.69	852.50
337.000	4.00	0.00	0.00	861.50	4750.00	868.04	0.00	868.15	7.03	2.72	1953.51	1791.46
337.000	4.00	0.00	0.00	861.50	5600.00	868.75	0.00	868.86	6.33	2.80	2240.32	2225.55
337.000	4.00	0.00	0.00	861.50	7560.00	870.35	0.00	870.47	5.16	2.93	2881.00	3328.76
338.000	1.50	0.00	0.00	861.50	2950.00	866.18	0.00	866.28	11.96	2.71	1206.18	853.02
338.000	1.50	0.00	0.00	861.50	4750.00	868.05	0.00	868.15	7.03	2.72	1953.84	1791.94
338.000	1.50	0.00	0.00	861.50	5600.00	868.75	0.00	868.86	6.36	2.80	2236.74	2219.89
338.000	1.50	0.00	0.00	861.50	7560.00	870.35	0.00	870.47	5.18	2.94	2877.82	3322.86
338.500	5.00	0.00	0.00	859.50	2950.00	866.23	0.00	866.29	4.42	2.05	1575.30	1403.95
338.500	5.00	0.00	0.00	859.50	4750.00	868.08	0.00	868.15	3.65	2.29	2315.47	2486.31
338.500	5.00	0.00	0.00	859.50	5600.00	868.78	0.00	868.87	3.56	2.42	2597.32	2967.11
338.500	5.00	0.00	0.00	859.50	7560.00	870.38	0.00	870.48	3.26	2.62	3236.62	4185.66
340.000	325.00	0.00	0.00	857.20	2950.00	866.33	0.00	866.40	2.39	2.11	1430.96	1907.87
340.000	325.00	0.00	0.00	857.20	4750.00	868.16	0.00	868.28	3.20	2.78	1760.62	2655.92
340.000	325.00	0.00	0.00	857.20	5600.00	868.86	0.00	869.00	3.56	3.07	1886.02	2965.93
340.000	325.00	0.00	0.00	857.20	7560.00	870.43	0.00	870.63	4.14	3.62	2168.90	3713.89

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
349.000	30.00	0.00	0.00	857.40	2950.00	866.32	0.00	866.41	3.68	2.36	1248.71	1537.51
349.000	30.00	0.00	0.00	857.40	4750.00	868.15	0.00	868.30	4.84	3.08	1543.22	2158.02
349.000	30.00	0.00	0.00	857.40	5600.00	868.85	0.00	869.02	5.41	3.39	1653.46	2408.63
349.000	30.00	0.00	0.00	857.40	7560.00	870.41	0.00	870.66	6.28	3.97	1905.61	3016.26
350.000	1.00	0.00	0.00	857.40	2950.00	866.32	0.00	866.41	.59	2.36	1247.61	3838.31
350.000	1.00	0.00	0.00	857.40	4750.00	868.15	0.00	868.30	.78	3.08	1541.77	5386.94
350.000	1.00	0.00	0.00	857.40	5600.00	868.85	0.00	869.02	.86	3.39	1653.53	6021.98
350.000	1.00	0.00	0.00	857.40	7560.00	870.41	0.00	870.66	1.00	3.97	1905.70	7541.17
351.000	40.00	873.40	870.00	857.40	2950.00	866.33	0.00	866.41	3.69	2.36	1248.21	1536.52
351.000	40.00	873.40	870.00	857.40	4750.00	868.16	0.00	868.31	4.85	3.08	1542.86	2157.20
351.000	40.00	873.40	870.00	857.40	5600.00	868.85	0.00	869.03	5.39	3.38	1654.93	2412.02
351.000	40.00	873.40	870.00	857.40	7560.00	870.53	0.00	870.77	6.09	3.93	1924.05	3062.47
352.000	1.00	0.00	0.00	857.40	2950.00	866.33	0.00	866.42	3.69	2.36	1248.24	1536.59
352.000	1.00	0.00	0.00	857.40	4750.00	868.16	0.00	868.31	4.85	3.08	1542.90	2157.30
352.000	1.00	0.00	0.00	857.40	5600.00	868.85	0.00	869.03	5.39	3.38	1654.98	2412.14
352.000	1.00	0.00	0.00	857.40	7560.00	870.53	0.00	870.77	6.09	3.93	1924.08	3062.56
360.000	385.00	0.00	0.00	857.50	2950.00	866.50	0.00	866.55	3.12	1.80	1659.43	1669.24
360.000	385.00	0.00	0.00	857.50	4750.00	868.40	0.00	868.47	3.56	2.14	2258.77	2515.78
360.000	385.00	0.00	0.00	857.50	5600.00	869.13	0.00	869.21	3.77	2.29	2492.99	2883.00
360.000	385.00	0.00	0.00	857.50	7560.00	870.87	0.00	870.96	3.56	2.44	3212.27	4004.23
369.000	50.00	0.00	0.00	859.80	2950.00	866.44	0.00	866.61	6.94	3.24	911.35	1119.61
369.000	50.00	0.00	0.00	859.80	4750.00	868.35	0.00	868.53	7.08	3.35	1416.73	1785.58
369.000	50.00	0.00	0.00	859.80	5600.00	869.09	0.00	869.27	7.66	3.41	1639.94	2023.35
369.000	50.00	0.00	0.00	859.80	7560.00	870.83	0.00	871.01	6.83	3.41	2314.38	2893.27
370.000	1.00	866.00	868.60	859.80	2950.00	866.42	0.00	866.61	2.69	3.52	838.58	1797.77
370.000	1.00	866.00	868.60	859.80	4750.00	868.30	0.00	868.55	3.24	3.97	1196.03	2638.56
370.000	1.00	866.00	868.60	859.80	5600.00	869.02	0.00	869.30	7.98	4.27	1310.72	1982.67
370.000	1.00	866.00	868.60	859.80	7560.00	870.72	0.00	871.05	11.29	4.65	1691.53	2250.41
371.000	8.00	866.00	868.60	859.80	2950.00	866.43	0.00	866.62	12.08	3.52	839.15	848.66
371.000	8.00	866.00	868.60	859.80	4750.00	868.31	0.00	868.55	15.50	3.97	1196.99	1206.61
371.000	8.00	866.00	868.60	859.80	5600.00	869.03	0.00	869.31	33.66	4.27	1311.60	965.16
371.000	8.00	866.00	868.60	859.80	7560.00	870.76	0.00	871.07	37.82	4.54	1709.43	1229.34
372.000	1.00	0.00	0.00	859.80	2950.00	866.46	0.00	866.62	6.85	3.22	915.62	1127.45
372.000	1.00	0.00	0.00	859.80	4750.00	868.39	0.00	868.56	6.64	3.33	1428.32	1843.48
372.000	1.00	0.00	0.00	859.80	5600.00	869.15	0.00	869.33	6.92	3.38	1657.81	2128.21
372.000	1.00	0.00	0.00	859.80	7560.00	870.92	0.00	871.09	5.74	3.36	2375.02	3155.82
380.000	680.00	0.00	0.00	859.00	2950.00	866.87	0.00	866.94	2.82	2.04	1489.29	1755.33
380.000	680.00	0.00	0.00	859.00	4750.00	868.79	0.00	868.89	3.22	2.56	1930.18	2645.81
380.000	680.00	0.00	0.00	859.00	5600.00	869.55	0.00	869.66	3.40	2.78	2104.13	3036.85
380.000	680.00	0.00	0.00	859.00	7560.00	871.25	0.00	871.40	3.59	3.17	2494.94	3991.97

MOORE BUSINESS FORMS INC. 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
389.000	120.00	0.00	0.00	860.30	2950.00	866.89	0.00	867.02	6.95	2.83	1041.45	1119.12
389.000	120.00	0.00	0.00	860.30	4750.00	868.80	0.00	868.99	7.65	3.50	1358.24	1717.71
389.000	120.00	0.00	0.00	860.30	5600.00	869.55	0.00	869.78	8.01	3.78	1483.28	1978.32
389.000	120.00	0.00	0.00	860.30	7560.00	871.24	0.00	871.53	8.41	4.29	1763.27	2607.13
390.000	1.00	0.00	0.00	860.30	2950.00	866.89	0.00	867.02	1.11	2.83	1041.53	2798.16
390.000	1.00	0.00	0.00	860.30	4750.00	868.80	0.00	868.99	1.22	3.50	1358.33	4294.74
390.000	1.00	0.00	0.00	860.30	5600.00	869.55	0.00	869.78	1.28	3.78	1483.37	4946.30
390.000	1.00	0.00	0.00	860.30	7560.00	871.24	0.00	871.53	1.35	4.29	1763.37	6518.41
391.000	38.00	872.80	870.80	860.30	2950.00	866.90	0.00	867.02	1.11	2.83	1042.33	2801.65
391.000	38.00	872.80	870.80	860.30	4750.00	868.81	0.00	869.00	1.22	3.49	1359.66	4301.49
391.000	38.00	872.80	870.80	860.30	5600.00	869.56	0.00	869.79	1.28	3.77	1484.97	4954.86
391.000	38.00	872.80	870.80	860.30	7560.00	871.80	0.00	872.06	1.14	4.07	1856.60	7074.47
392.000	1.00	0.00	0.00	860.30	2950.00	866.90	0.00	867.02	1.11	2.83	1042.35	2801.73
392.000	1.00	0.00	0.00	860.30	4750.00	868.81	0.00	869.00	1.22	3.49	1359.68	4301.59
392.000	1.00	0.00	0.00	860.30	5600.00	869.56	0.00	869.79	1.28	3.77	1485.00	4954.97
392.000	1.00	0.00	0.00	860.30	7560.00	871.80	0.00	872.06	1.14	4.07	1856.59	7074.39
399.000	90.00	0.00	0.00	860.60	2950.00	866.96	0.00	867.05	5.33	2.40	1228.36	1277.43
399.000	90.00	0.00	0.00	860.60	4750.00	868.89	0.00	869.03	5.49	2.91	1631.56	2026.48
399.000	90.00	0.00	0.00	860.60	5600.00	869.66	0.00	869.81	5.64	3.13	1791.31	2357.08
399.000	90.00	0.00	0.00	860.60	7560.00	871.91	0.00	872.09	4.75	3.35	2260.13	3467.67
400.000	15.00	0.00	0.00	856.90	2950.00	867.01	0.00	867.05	1.38	1.63	1807.32	2514.34
400.000	15.00	0.00	0.00	856.90	4750.00	868.96	0.00	869.04	1.96	2.18	2177.81	3388.85
400.000	15.00	0.00	0.00	856.90	5600.00	869.73	0.00	869.82	2.22	2.41	2324.63	3759.94
400.000	15.00	0.00	0.00	856.90	7560.00	871.98	0.00	872.10	2.33	2.73	2968.17	4956.37
401.000	7.00	868.10	867.70	861.50	2950.00	871.09	0.00	871.13	1.34	1.62	1821.84	2547.70
401.000	7.00	868.10	867.70	861.50	4750.00	872.17	0.00	872.26	2.46	2.34	2028.07	3029.82
401.000	7.00	868.10	867.70	861.50	5600.00	872.65	0.00	872.75	2.96	2.64	2117.94	3255.36
401.000	7.00	868.10	867.70	861.50	7560.00	873.77	0.00	873.93	3.92	3.24	2331.50	3820.09
402.000	13.00	0.00	0.00	861.50	4050.00	871.07	0.00	871.14	2.55	2.23	1817.47	2537.88
402.000	13.00	0.00	0.00	861.50	6020.00	872.14	0.00	872.28	3.99	2.98	2021.87	3014.70
402.000	13.00	0.00	0.00	861.50	6930.00	872.61	0.00	872.78	4.58	3.28	2111.03	3237.69
402.000	13.00	0.00	0.00	861.50	9190.00	873.72	0.00	873.96	5.87	3.96	2322.03	3794.29
410.000	2500.00	0.00	0.00	861.50	4050.00	871.67	0.00	871.73	2.14	1.96	2165.93	2770.19
410.000	2500.00	0.00	0.00	861.50	6020.00	873.02	0.00	873.11	2.78	2.47	2683.95	3610.34
410.000	2500.00	0.00	0.00	861.50	6930.00	873.59	0.00	873.70	2.98	2.66	2963.82	4011.28
410.000	2500.00	0.00	0.00	861.50	9190.00	874.92	0.00	875.05	3.32	3.04	3671.16	5044.71
420.000	2430.00	0.00	0.00	864.70	4050.00	872.94	0.00	873.19	10.65	4.15	1213.17	1240.83
420.000	2430.00	0.00	0.00	864.70	6020.00	874.55	0.00	874.86	10.68	4.73	1946.57	1842.44
420.000	2430.00	0.00	0.00	864.70	6930.00	875.20	0.00	875.51	10.41	4.88	2313.91	2148.14
420.000	2430.00	0.00	0.00	864.70	9190.00	876.62	0.00	876.94	9.77	5.18	3150.97	2939.62

MOORE BUSINESS FORMS INC 27

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	290.000	4593.00	861.70	0.00	0.00	0.00	298.63	0.00
	290.000	6826.00	862.90	1.20	0.00	0.00	361.43	0.00
	290.000	7850.00	863.50	.60	0.00	0.00	392.83	0.00
	290.000	10420.00	865.10	1.60	0.00	0.00	476.57	0.00
	300.000	4593.00	863.07	0.00	1.37	0.00	466.63	3900.00
	300.000	6826.00	864.68	1.61	1.78	0.00	529.37	3900.00
	300.000	7850.00	865.38	.70	1.88	0.00	556.67	3900.00
	300.000	10420.00	867.06	1.68	1.96	0.00	622.36	3900.00
	310.000	4540.00	864.19	0.00	1.12	0.00	553.72	3700.00
	310.000	6750.00	865.93	1.74	1.25	0.00	654.82	3700.00
	310.000	7760.00	866.65	.72	1.27	0.00	692.47	3700.00
	310.000	10300.00	868.33	1.68	1.27	0.00	751.47	3700.00
	320.000	4540.00	865.03	0.00	.84	0.00	583.46	2780.00
	320.000	6750.00	866.83	1.80	.90	1.80	770.45	2780.00
	320.000	7760.00	867.56	.73	.91	2.53	774.60	2780.00
	320.000	10300.00	869.23	1.67	.89	4.20	815.13	2780.00
	323.900	4540.00	865.58	0.00	.56	0.00	249.70	1324.00
	323.900	6750.00	867.39	1.81	.56	1.81	660.00	1324.00
	323.900	7760.00	868.12	.73	.56	2.53	660.00	1324.00
	323.900	10300.00	869.78	1.66	.55	4.19	660.00	1324.00
*	324.000	4540.00	865.64	0.00	.06	0.00	265.01	1.00
*	324.000	6750.00	867.45	1.81	.06	1.81	660.00	1.00
*	324.000	7760.00	868.18	.73	.06	2.53	660.00	1.00
*	324.000	10300.00	869.84	1.66	.06	4.19	660.00	1.00
	330.000	2950.00	866.15	0.00	.50	0.00	544.01	230.00
	330.000	4750.00	868.01	1.86	.56	1.86	660.00	230.00
	330.000	5600.00	868.72	.71	.54	2.57	660.00	230.00
	330.000	7560.00	870.33	1.61	.49	4.18	660.00	230.00
	331.000	2950.00	866.15	0.00	.00	0.00	544.04	20.00
	331.000	4750.00	868.02	1.87	.01	1.87	655.00	20.00
	331.000	5600.00	868.73	.71	.01	2.57	655.00	20.00
	331.000	7560.00	870.34	1.61	.01	4.18	655.00	20.00
	332.000	2950.00	866.15	0.00	-.01	0.00	535.63	5.00
	332.000	4750.00	868.01	1.87	-.01	1.87	655.00	5.00
	332.000	5600.00	868.72	.71	-.01	2.58	655.00	5.00
	332.000	7560.00	870.33	1.61	-.00	4.19	655.00	5.00

MOORE BUSINESS FORMS INC 27

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
333.000	2950.00	866.15	0.00	.00	0.00	535.57	1.50
333.000	4750.00	868.01	1.87	.00	1.87	655.00	1.50
333.000	5600.00	868.72	.71	.00	2.58	655.00	1.50
333.000	7560.00	870.33	1.61	.00	4.19	655.00	1.50
333.500	2950.00	866.15	0.00	.00	0.00	535.58	5.00
333.500	4750.00	868.02	1.87	.00	1.87	655.00	5.00
333.500	5600.00	868.73	.71	.00	2.58	655.00	5.00
333.500	7560.00	870.34	1.61	.00	4.18	655.00	5.00
335.000	2950.00	866.19	0.00	.04	0.00	420.00	240.00
335.000	4750.00	868.05	1.86	.03	1.86	420.00	240.00
335.000	5600.00	868.75	.70	.03	2.56	420.00	240.00
335.000	7560.00	870.35	1.60	.01	4.16	420.00	240.00
336.000	2950.00	866.20	0.00	.02	0.00	400.10	20.00
336.000	4750.00	868.06	1.86	.02	1.86	400.10	20.00
336.000	5600.00	868.77	.71	.02	2.56	400.10	20.00
336.000	7560.00	870.37	1.60	.02	4.16	400.10	20.00
337.000	2950.00	866.17	0.00	-.03	0.00	400.10	4.00
337.000	4750.00	868.04	1.87	-.02	1.87	400.10	4.00
337.000	5600.00	868.75	.71	-.02	2.58	400.10	4.00
337.000	7560.00	870.35	1.60	-.02	4.18	400.10	4.00
338.000	2950.00	866.18	0.00	.00	0.00	400.10	1.50
338.000	4750.00	868.05	1.87	.00	1.87	400.10	1.50
338.000	5600.00	868.75	.71	.00	2.58	400.10	1.50
338.000	7560.00	870.35	1.60	.00	4.18	400.10	1.50
338.500	2950.00	866.23	0.00	.05	0.00	400.10	5.00
338.500	4750.00	868.08	1.85	.03	1.85	400.10	5.00
338.500	5600.00	868.78	.70	.03	2.55	400.10	5.00
338.500	7560.00	870.38	1.60	.03	4.15	400.10	5.00
340.000	2950.00	866.33	0.00	.10	0.00	180.00	325.00
340.000	4750.00	868.16	1.83	.08	1.83	180.00	325.00
340.000	5600.00	868.86	.70	.07	2.53	180.00	325.00
340.000	7560.00	870.43	1.57	.05	4.10	180.00	325.00
349.000	2950.00	866.32	0.00	-.00	0.00	161.00	30.00
349.000	4750.00	868.15	1.83	-.01	1.83	161.00	30.00
349.000	5600.00	868.85	.69	-.01	2.52	161.00	30.00
349.000	7560.00	870.41	1.57	-.02	4.09	161.00	30.00
350.000	2950.00	866.32	0.00	.00	0.00	161.00	1.00
350.000	4750.00	868.15	1.83	-.00	1.83	161.00	1.00
350.000	5600.00	868.85	.69	.00	2.52	161.00	1.00
350.000	7560.00	870.41	1.57	.00	4.09	161.00	1.00

MOORE BUSINESS FORMS INC 27

SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
351.000	2950.00	866.33	0.00	.00	0.00	161.00	40.00
351.000	4750.00	868.16	1.83	.01	1.83	161.00	40.00
351.000	5600.00	868.85	.70	.01	2.53	161.00	40.00
351.000	7560.00	870.53	1.67	.11	4.20	161.00	40.00
352.000	2950.00	866.33	0.00	.00	0.00	161.00	1.00
352.000	4750.00	868.16	1.83	.00	1.83	161.00	1.00
352.000	5600.00	868.85	.70	.00	2.53	161.00	1.00
352.000	7560.00	870.53	1.67	.00	4.20	161.00	1.00
360.000	2950.00	866.50	0.00	.17	0.00	311.28	385.00
360.000	4750.00	868.40	1.90	.24	1.90	318.64	385.00
360.000	5600.00	869.13	.73	.28	2.63	321.48	385.00
360.000	7560.00	870.87	1.73	.34	4.37	443.91	385.00
369.000	2950.00	866.44	0.00	-.06	0.00	227.96	50.00
369.000	4750.00	868.35	1.91	-.05	1.91	301.19	50.00
369.000	5600.00	869.09	.74	-.04	2.65	303.00	50.00
369.000	7560.00	870.83	1.74	-.04	4.39	682.84	50.00
370.000	2950.00	866.42	0.00	-.02	0.00	227.19	1.00
370.000	4750.00	868.30	1.88	-.05	1.88	299.35	1.00
370.000	5600.00	869.02	.71	-.07	2.60	303.00	1.00
370.000	7560.00	870.72	1.71	-.11	4.30	587.95	1.00
371.000	2950.00	866.43	0.00	.00	0.00	227.34	8.00
371.000	4750.00	868.31	1.88	.01	1.88	299.50	8.00
371.000	5600.00	869.03	.72	.01	2.60	303.00	8.00
371.000	7560.00	870.76	1.73	.04	4.33	608.37	8.00
372.000	2950.00	866.46	0.00	.03	0.00	228.68	1.00
372.000	4750.00	868.39	1.93	.08	1.93	302.66	1.00
372.000	5600.00	869.15	.76	.12	2.69	303.00	1.00
372.000	7560.00	870.92	1.77	.16	4.45	726.11	1.00
380.000	2950.00	866.87	0.00	.41	0.00	230.00	680.00
380.000	4750.00	868.79	1.92	.40	1.92	230.00	680.00
380.000	5600.00	869.55	.76	.40	2.67	230.00	680.00
380.000	7560.00	871.25	1.70	.33	4.37	230.00	680.00
389.000	2950.00	866.89	0.00	.02	0.00	166.00	120.00
389.000	4750.00	868.80	1.91	.01	1.91	166.00	120.00
389.000	5600.00	869.55	.75	.01	2.66	166.00	120.00
389.000	7560.00	871.24	1.69	-.00	4.35	166.00	120.00
390.000	2950.00	866.89	0.00	.00	0.00	166.00	1.00
390.000	4750.00	868.80	1.91	.00	1.91	166.00	1.00
390.000	5600.00	869.55	.75	.00	2.66	166.00	1.00
390.000	7560.00	871.24	1.69	.00	4.35	166.00	1.00

MOORE BUSINESS FORMS INC 27

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
391.000	2950.00	866.90	0.00	.01	0.00	166.00	38.00
391.000	4750.00	868.81	1.91	.01	1.91	166.00	38.00
391.000	5600.00	869.56	.75	.01	2.67	166.00	38.00
391.000	7560.00	871.80	2.24	.56	4.91	166.00	38.00
392.000	2950.00	866.90	0.00	.00	0.00	166.00	1.00
392.000	4750.00	868.81	1.91	.00	1.91	166.00	1.00
392.000	5600.00	869.56	.75	.00	2.67	166.00	1.00
392.000	7560.00	871.80	2.24	.00	4.91	166.00	1.00
399.000	2950.00	866.96	0.00	.06	0.00	208.00	90.00
399.000	4750.00	868.89	1.94	.08	1.94	208.00	90.00
399.000	5600.00	869.66	.77	.10	2.71	208.00	90.00
399.000	7560.00	871.91	2.25	.11	4.96	208.20	90.00
400.000	2950.00	867.01	0.00	.06	0.00	190.00	15.00
400.000	4750.00	868.96	1.95	.07	1.95	190.00	15.00
400.000	5600.00	869.73	.77	.07	2.72	190.00	15.00
400.000	7560.00	871.98	2.25	.07	4.97	551.04	15.00
401.000	2950.00	871.09	0.00	4.08	0.00	190.08	7.00
401.000	4750.00	872.17	1.08	3.21	1.08	190.20	7.00
401.000	5600.00	872.65	.47	2.91	1.56	190.30	7.00
401.000	7560.00	873.77	1.12	1.78	2.68	190.30	7.00
402.000	4050.00	871.07	0.00	-.02	0.00	190.08	13.00
402.000	6020.00	872.14	1.08	-.03	1.08	190.20	13.00
402.000	6930.00	872.61	.47	-.04	1.54	190.30	13.00
402.000	9190.00	873.72	1.11	-.05	2.65	190.30	13.00
410.000	4050.00	871.67	0.00	.60	0.00	335.04	2500.00
410.000	6020.00	873.02	1.35	.88	1.35	472.35	2500.00
410.000	6930.00	873.59	.57	.98	1.92	502.17	2500.00
410.000	9190.00	874.92	1.33	1.20	3.25	563.70	2500.00
420.000	4050.00	872.94	0.00	1.27	0.00	285.50	3430.00
420.000	6020.00	874.55	1.61	1.54	1.61	564.55	3430.00
420.000	6930.00	875.20	.64	1.61	2.26	575.63	3430.00
420.000	9190.00	876.62	1.42	1.70	3.68	600.13	3430.00

MOORE BUSINESS FORMS INC 27

SUMMARY OF ERRORS

NOTE SECNO= 324.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 324.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 324.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 324.000 PROFILE= 4 WSEL BASED ON X5 CARD

MOORE BUSINESS FORMS INC 27

FLOOD INSURANCE ZONE DATA FOR GRAND RIVER

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
290.000	0.	-1.80	-.60	1.60
300.000	3900.	-2.31	-.70	1.68
310.000	7600.	-2.46	-.72	1.68
320.000	10380.	-2.53	-.73	1.67
323.900	11704.	-2.53	-.73	1.66
324.000	11705.	-2.53	-.73	1.66
330.000	11935.	-2.57	-.71	1.61
331.000	11955.	-2.57	-.71	1.61
332.000	11960.	-2.58	-.71	1.61
333.000	11962.	-2.58	-.71	1.61
333.500	11967.	-2.58	-.71	1.61
335.000	12207.	-2.56	-.70	1.60
336.000	12227.	-2.56	-.71	1.60
337.000	12231.	-2.58	-.71	1.60
338.000	12232.	-2.58	-.71	1.60
338.500	12237.	-2.55	-.70	1.60
340.000	12562.	-2.53	-.70	1.57
349.000	12592.	-2.52	-.69	1.57
350.000	12593.	-2.52	-.69	1.57
351.000	12633.	-2.53	-.70	1.67
352.000	12634.	-2.53	-.70	1.67
360.000	13019.	-2.63	-.73	1.73
369.000	13069.	-2.65	-.74	1.74
370.000	13070.	-2.60	-.71	1.71
371.000	13078.	-2.60	-.72	1.73
372.000	13079.	-2.69	-.76	1.77
380.000	13759.	-2.67	-.76	1.70
389.000	13879.	-2.66	-.75	1.69
390.000	13880.	-2.66	-.75	1.69
391.000	13918.	-2.67	-.75	2.24
392.000	13919.	-2.67	-.75	2.24
399.000	14009.	-2.71	-.77	2.25
400.000	14024.	-2.72	-.77	2.25
401.000	14031.	-1.56	-.47	1.12
402.000	14044.	-1.54	-.47	1.11
410.000	16544.	-1.92	-.57	1.33
420.000	19974.	-2.26	-.64	1.42

MOORE BUSINESS FORMS INC 27

WEIGHTED AVG FOR REACH -2.24 -.66 1.56

FHF FOR THE REACH = 020 WITH 100.0 PERCENT OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 4

Zone A5

(See Calculations)

MOORE BUSINESS FORMS INC 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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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

MOORE BUSINESS FORMS INC 27

FIS EATON RAPIDS GRAND RIVER FLOOD HAZARD FACTOR CALCLLATIONS
INPUT DATA-SECND,10,50,100 AND 500 YR ELEV,XLCH

310.00	864.19	865.93	866.65	868.33	3700.00
320.00	865.03	866.83	867.56	869.23	2780.00
323.90	865.58	867.39	868.12	869.78	1324.00
324.00	865.64	867.45	868.18	869.84	1.00
330.00	866.15	868.01	868.72	870.33	230.00
331.00	866.15	868.02	868.73	870.34	20.00
332.00	866.15	868.01	868.72	870.33	5.00
333.00	866.15	868.01	868.72	870.33	1.00
333.50	866.15	868.02	868.73	870.34	5.00
335.00	866.19	868.05	868.75	870.35	240.00
336.00	866.20	868.06	868.77	870.37	20.00
337.00	866.17	868.04	868.75	870.35	4.00
338.00	866.18	868.05	868.75	870.35	1.00
338.50	866.23	868.08	868.78	870.38	5.00
340.00	866.33	868.16	868.86	870.43	325.00
349.00	866.32	868.15	868.85	870.41	30.00
350.00	866.32	868.15	868.85	870.41	1.00
351.00	866.33	868.16	868.85	870.53	40.00
352.00	866.33	868.16	868.85	870.53	1.00
360.00	866.50	868.40	869.13	870.87	385.00
369.00	866.44	868.35	869.09	870.83	50.00
370.00	866.42	868.30	869.02	870.72	1.00
371.00	866.43	868.31	869.03	870.76	8.00
372.00	866.46	868.39	869.15	870.92	1.00
380.00	866.87	868.79	869.55	871.25	680.00
389.00	866.89	868.80	869.55	871.24	120.00
390.00	866.89	868.80	869.55	871.24	1.00
391.00	866.90	868.81	869.56	871.80	38.00
392.00	866.90	868.81	869.56	871.80	1.00
399.00	866.96	868.89	869.66	871.91	90.00
400.00	867.01	868.96	869.73	871.98	15.00
401.00	871.09	872.17	872.65	873.77	7.00
402.00	871.07	872.14	872.61	873.72	13.00
410.00	871.67	873.02	873.59	874.92	2500.00
420.00	872.94	874.55	875.20	876.62	3430.00

RECEIVED
JAN 13 1981
WATER MANAGEMENT

MOORE BUSINESS FORMS, INC 27

INTERPOLATED PROFILE DATA-10,50,100 AND 500 YR ELEV, CUM DIST

864.19	865.93	866.65	868.33	0.0
864.22	865.96	866.68	868.36	100.59
864.25	865.99	866.72	868.40	201.19
864.28	866.03	866.75	868.43	301.78
864.31	866.06	866.78	868.46	402.37
864.34	866.09	866.81	868.49	502.97
864.37	866.13	866.85	868.53	603.56
864.40	866.16	866.88	868.56	704.15
864.43	866.19	866.91	868.59	804.75
864.46	866.22	866.95	868.62	905.34
864.49	866.26	866.98	868.66	1005.93
864.52	866.29	867.01	868.69	1106.53
864.55	866.32	867.04	868.72	1207.12
864.58	866.35	867.08	868.75	1307.72
864.62	866.39	867.11	868.79	1408.31
864.65	866.42	867.14	868.82	1508.90
864.68	866.45	867.18	868.85	1609.50
864.71	866.48	867.21	868.88	1710.09
864.74	866.52	867.24	868.92	1810.68
864.77	866.55	867.28	868.95	1911.28
864.80	866.58	867.31	868.98	2011.87
864.83	866.61	867.34	869.01	2112.46
864.86	866.65	867.37	869.05	2213.06
864.89	866.68	867.41	869.08	2313.65
864.92	866.71	867.44	869.11	2414.24
864.95	866.74	867.47	869.14	2514.84
864.98	866.78	867.51	869.18	2615.43
865.01	866.81	867.54	869.21	2716.02
865.05	866.85	867.58	869.25	2816.62
865.09	866.89	867.62	869.29	2917.21
865.13	866.93	867.66	869.33	3017.80
865.17	866.97	867.70	869.37	3118.40
865.21	867.02	867.75	869.41	3218.99
865.25	867.06	867.79	869.45	3319.58
865.30	867.10	867.83	869.50	3420.18
865.34	867.14	867.87	869.54	3520.77
865.38	867.19	867.92	869.58	3621.37
865.42	867.23	867.96	869.62	3721.96
865.46	867.27	868.00	869.66	3822.55
865.50	867.31	868.04	869.70	3923.15
865.55	867.36	868.09	869.75	4023.74
865.68	867.50	868.23	869.88	4124.33
865.91	867.74	868.46	870.10	4224.93
866.13	867.99	868.70	870.31	4325.52
866.16	868.03	868.73	870.34	4426.11
866.18	868.04	868.74	870.35	4526.71
866.19	868.05	868.76	870.36	4627.30
866.26	868.10	868.80	870.39	4727.89
866.29	868.13	868.83	870.41	4828.48
866.32	868.15	868.85	870.42	4929.08
866.33	868.16	868.85	870.52	5029.67
866.37	868.22	868.92	870.62	5130.27
866.42	868.28	868.99	870.70	5230.86
866.46	868.35	869.07	870.79	5331.45
866.48	868.39	869.12	870.86	5432.05
866.49	868.42	869.18	870.95	5532.64
866.55	868.48	869.24	871.00	5633.23
866.61	868.54	869.30	871.04	5733.83
866.67	868.60	869.36	871.09	5834.42

MOORE BUSINESS FORMS INC 27

866.80	868.72	869.48	871.19	6035.61
866.86	868.78	869.54	871.24	6136.20
866.88	868.80	869.55	871.24	6236.79
866.91	868.83	869.58	871.82	6337.39
871.08	872.15	872.63	873.74	6437.98
871.09	872.17	872.65	873.77	6538.57
871.12	872.21	872.69	873.81	6639.17
871.14	872.24	872.73	873.86	6739.76
871.17	872.28	872.77	873.91	6840.36
871.19	872.32	872.81	873.96	6940.95
871.21	872.35	872.84	874.01	7041.54
871.24	872.39	872.88	874.06	7142.14
871.26	872.42	872.92	874.10	7242.73
871.29	872.46	872.96	874.15	7343.32
871.31	872.49	873.00	874.20	7443.92
871.33	872.53	873.04	874.25	7544.51
871.36	872.56	873.08	874.30	7645.10
871.38	872.60	873.12	874.35	7745.70
871.41	872.63	873.16	874.39	7846.29
871.43	872.67	873.20	874.44	7946.88
871.45	872.70	873.24	874.49	8047.48
871.48	872.74	873.28	874.54	8148.07
871.50	872.78	873.32	874.59	8248.66
871.53	872.81	873.36	874.63	8349.26
871.55	872.85	873.40	874.68	8449.85
871.58	872.88	873.44	874.73	8550.45
871.60	872.92	873.48	874.78	8651.04
871.62	872.95	873.51	874.83	8751.63
871.65	872.99	873.55	874.88	8852.23
871.67	873.02	873.59	874.92	8952.82
871.71	873.07	873.64	874.97	9053.41
871.75	873.11	873.69	875.02	9154.00
871.79	873.16	873.74	875.07	9254.60
871.82	873.20	873.78	875.12	9355.19
871.86	873.25	873.83	875.17	9455.79
871.90	873.29	873.88	875.22	9556.38
871.93	873.34	873.93	875.27	9656.97
871.97	873.38	873.97	875.32	9757.57
872.01	873.43	874.02	875.37	9858.16
872.05	873.47	874.07	875.42	9958.75
872.08	873.52	874.11	875.47	10059.35
872.12	873.56	874.16	875.52	10159.94
872.16	873.61	874.21	875.57	10260.54
872.19	873.65	874.26	875.62	10361.13
872.23	873.70	874.30	875.67	10461.72
872.27	873.74	874.35	875.72	10562.32
872.31	873.79	874.40	875.77	10662.91
872.34	873.83	874.44	875.82	10763.50
872.38	873.88	874.49	875.87	10864.09
872.42	873.92	874.54	875.92	10964.69
872.46	873.97	874.59	875.97	11065.28
872.49	874.01	874.63	876.02	11165.87
872.53	874.06	874.68	876.07	11266.47
872.57	874.10	874.73	876.12	11367.06
872.60	874.15	874.77	876.17	11467.66
872.64	874.19	874.82	876.22	11568.25
872.68	874.24	874.87	876.27	11668.84
872.72	874.28	874.92	876.32	11769.44
872.75	874.33	874.96	876.37	11870.03
872.79	874.37	875.01	876.42	11970.62
872.83	874.42	875.06	876.47	12071.22
872.87	874.46	875.11	876.52	12171.81
872.90	874.51	875.15	876.57	12272.40
872.94	874.55	875.20	876.62	12373.00

MOORE BUSINESS FO... INC

PROFILE DIFFERENCES- 10,50,100 AND 500 YR DIFF. CUM DIST

-2.46	-0.72	0.0	1.68	0.0
-2.46	-0.72	0.0	1.68	100.59
-2.46	-0.72	0.0	1.68	201.19
-2.47	-0.72	0.0	1.68	301.78
-2.47	-0.72	0.0	1.68	402.37
-2.47	-0.72	0.0	1.68	502.97
-2.48	-0.72	0.0	1.68	603.56
-2.48	-0.72	0.0	1.68	704.15
-2.48	-0.72	0.0	1.68	804.75
-2.48	-0.72	0.0	1.68	905.34
-2.49	-0.72	0.0	1.68	1005.93
-2.49	-0.72	0.0	1.68	1106.53
-2.49	-0.72	0.0	1.68	1207.12
-2.49	-0.72	0.0	1.68	1307.72
-2.50	-0.73	0.0	1.68	1408.31
-2.50	-0.73	0.0	1.67	1508.90
-2.50	-0.73	0.0	1.67	1609.50
-2.50	-0.73	0.0	1.67	1710.09
-2.51	-0.73	0.0	1.67	1810.68
-2.51	-0.73	0.0	1.67	1911.28
-2.51	-0.73	0.0	1.67	2011.87
-2.51	-0.73	0.0	1.67	2112.46
-2.52	-0.73	0.0	1.67	2213.06
-2.52	-0.73	0.0	1.67	2313.65
-2.52	-0.73	0.0	1.67	2414.24
-2.52	-0.73	0.0	1.67	2514.84
-2.53	-0.73	0.0	1.67	2615.43
-2.53	-0.73	0.0	1.67	2716.02
-2.53	-0.73	0.0	1.67	2816.62
-2.53	-0.73	0.0	1.67	2917.21
-2.53	-0.73	0.0	1.67	3017.80
-2.53	-0.73	0.0	1.67	3118.40
-2.53	-0.73	0.0	1.67	3218.99
-2.53	-0.73	0.0	1.67	3319.58
-2.53	-0.73	0.0	1.67	3420.18
-2.54	-0.73	0.0	1.66	3520.77
-2.54	-0.73	0.0	1.66	3621.37
-2.54	-0.73	0.0	1.66	3721.96
-2.54	-0.73	0.0	1.66	3822.55
-2.54	-0.73	0.0	1.66	3923.15
-2.54	-0.73	0.0	1.66	4023.74
-2.54	-0.73	0.0	1.66	4124.33
-2.56	-0.72	0.0	1.63	4224.93
-2.57	-0.71	0.0	1.61	4325.52
-2.57	-0.71	0.0	1.61	4426.11
-2.57	-0.70	0.0	1.60	4526.71
-2.57	-0.71	0.0	1.60	4627.30
-2.54	-0.70	0.0	1.59	4727.89
-2.54	-0.70	0.0	1.58	4828.48
-2.53	-0.70	0.0	1.57	4929.08
-2.52	-0.69	0.0	1.67	5029.67
-2.55	-0.70	0.0	1.70	5130.27
-2.58	-0.71	0.0	1.71	5230.86
-2.61	-0.72	0.0	1.73	5331.45
-2.64	-0.73	0.0	1.74	5432.05
-2.69	-0.76	0.0	1.76	5532.64
-2.69	-0.76	0.0	1.75	5633.23
-2.69	-0.76	0.0	1.74	5733.83
-2.69	-0.76	0.0	1.73	834.42

MOORE BUSINESS FORMS INC 27

-1.68	-0.76	0.0	1.71	6035.61
-2.68	-0.76	0.0	1.70	6136.20
-2.67	-0.75	0.0	1.69	6236.79
-2.67	-0.75	0.0	2.24	6337.39
-1.55	-0.47	0.0	1.11	6437.98
-1.55	-0.47	0.0	1.12	6538.57
-1.57	-0.48	0.0	1.13	6639.17
-1.59	-0.48	0.0	1.14	6739.76
-1.60	-0.49	0.0	1.15	6840.36
-1.62	-0.49	0.0	1.15	6940.95
-1.63	-0.49	0.0	1.16	7041.54
-1.65	-0.50	0.0	1.17	7142.14
-1.66	-0.50	0.0	1.18	7242.73
-1.68	-0.51	0.0	1.19	7343.32
-1.69	-0.51	0.0	1.20	7443.92
-1.71	-0.51	0.0	1.21	7544.51
-1.72	-0.52	0.0	1.22	7645.10
-1.74	-0.52	0.0	1.22	7745.70
-1.75	-0.53	0.0	1.23	7846.29
-1.77	-0.53	0.0	1.24	7946.88
-1.78	-0.53	0.0	1.25	8047.48
-1.80	-0.54	0.0	1.26	8148.07
-1.81	-0.54	0.0	1.27	8248.66
-1.83	-0.55	0.0	1.28	8349.26
-1.85	-0.55	0.0	1.29	8449.85
-1.86	-0.55	0.0	1.30	8550.45
-1.88	-0.56	0.0	1.30	8651.04
-1.89	-0.56	0.0	1.31	8751.63
-1.91	-0.57	0.0	1.32	8852.23
-1.92	-0.57	0.0	1.33	8952.82
-1.93	-0.57	0.0	1.33	9053.41
-1.94	-0.57	0.0	1.34	9154.00
-1.95	-0.58	0.0	1.34	9254.60
-1.96	-0.58	0.0	1.34	9355.19
-1.97	-0.58	0.0	1.34	9455.79
-1.98	-0.58	0.0	1.35	9556.38
-1.99	-0.59	0.0	1.35	9656.97
-2.00	-0.59	0.0	1.35	9757.57
-2.01	-0.59	0.0	1.35	9858.16
-2.02	-0.59	0.0	1.36	9958.75
-2.03	-0.60	0.0	1.36	10059.35
-2.04	-0.60	0.0	1.36	10159.94
-2.05	-0.60	0.0	1.36	10260.54
-2.06	-0.60	0.0	1.37	10361.13
-2.07	-0.61	0.0	1.37	10461.72
-2.08	-0.61	0.0	1.37	10562.32
-2.09	-0.61	0.0	1.38	10662.91
-2.10	-0.61	0.0	1.38	10763.50
-2.11	-0.61	0.0	1.38	10864.09
-2.12	-0.62	0.0	1.38	10964.69
-2.13	-0.62	0.0	1.39	11065.28
-2.14	-0.62	0.0	1.39	11165.87
-2.15	-0.62	0.0	1.39	11266.47
-2.16	-0.63	0.0	1.39	11367.06
-2.17	-0.63	0.0	1.40	11467.66
-2.18	-0.63	0.0	1.40	11568.25
-2.19	-0.63	0.0	1.40	11668.84
-2.20	-0.64	0.0	1.40	11769.44
-2.21	-0.64	0.0	1.41	11870.03
-2.22	-0.64	0.0	1.41	11970.62
-2.23	-0.64	0.0	1.41	12071.22
-2.24	-0.65	0.0	1.41	12171.81
-2.25	-0.65	0.0	1.42	12272.40
-2.26	-0.65	0.0	1.42	12373.00

10,50,AND 500 YR PROF DIFF FROM 100 YR ELEV

-2.3 -0.1 1.3

100. PERCENT WITHIN 1.0 FT TOLERENCE

FLOOD HAZARD FACTOR = 25
ZONE = A 5

MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: city of Eaton Rapids

3) WATERCOURSE: Grand River Bypass

4) DOCUMENT TYPE: 10, 50, 100, 500 yr. profiles

00BREAK00

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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      EATON RAPIDS
T2      10 YEAR FLOW
T3      GRAND RIVER BYPASS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        2.        0.        0.  0.000000      0.00       0.0        0.   869.200     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      .060      .045      .100      .300     0.000     0.000     0.000     0.000     0.000
QT   5.000  1590.000  2000.000  2160.000  2740.000  2160.000     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)

X1    21.700    23.000  2020.000  2170.000     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     0.000     0.000     0.000
GR   878.100  1500.000   878.600  1600.000   878.600  1700.000   877.500  1800.000   872.600  1900.000
GR   872.900  2000.000   871.700  2000.000   871.000  2014.000   869.400  2020.000   863.300  2046.000
GR   862.500  2064.000   862.500  2088.000   862.600  2112.000   864.200  2142.000   865.100  2154.000
GR   869.300  2170.000   872.800  2176.000   870.500  2190.000   870.200  2304.000   870.400  2412.000
GR   871.300  2500.000   871.300  2600.000   870.800  2700.000     0.000     0.000     0.000     0.000

          VALLEY SECTION 200 FT D.S. OF KNIGHT ST. (B)

X1    21.800     9.000  2000.000  2160.000   410.000   390.000   350.000     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   877.000  1800.000   871.000  2000.000   866.400  2010.000   863.500  2030.000   862.700  2070.000
GR   862.800  2110.000   865.600  2150.000   871.500  2160.000   871.000  2200.000     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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RECEIVED
JAN 13 1981
WATER MANAGEMENT

MOORE BUSINESS FORMS INC 27

X1	21.900	18.000	2132.000	2253.000	450.000	150.000	200.000	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	877.200	1478.000	875.800	1584.000	874.700	1692.000	873.700	1800.000	872.700	1896.000
GR	871.600	2000.000	872.700	2132.000	868.200	2132.000	863.500	2150.000	862.500	2170.000
GR	863.200	2190.000	863.900	2210.000	864.100	2230.000	868.400	2253.000	872.700	2253.000
GR	877.800	2352.000	877.800	2496.000	877.900	2652.000	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

X1	22.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	6.000	2000.000	871.600	0.000	2132.000	872.700	0.000	2132.000	872.700	871.500
BT	2253.000	872.700	871.500	2253.000	872.700	0.000	2352.000	877.800	0.000	0.000

UPSTREAM FACE OF KNIGHT STREET BRIDGE (C)

X1	22.100	0.000	0.000	0.000	18.000	18.000	18.000	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	1000.000	0.000	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

X1	22.200	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

VALLEY SECTION (D)

X1	22.300	12.000	2000.000	2170.000	500.000	500.000	500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	2000.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	875.000	950.000	875.000	950.000	875.000	950.000	875.000	950.000	870.000	1100.000
GR	870.800	2000.000	867.600	2011.000	865.400	2024.000	862.800	2062.000	865.200	2127.000
GR	866.800	2160.000	870.300	2170.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	1100.000	1270.000	1330.000	1630.000	1330.000	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	2009.900	2124.100

VALLEY SECTION 120 FT D.S. OF HALL ST (E)

X1	41.800	17.000	2010.000	2124.000	500.000	300.000	350.000	0.000	0.000	0.000
GR	876.100	1666.000	871.500	1762.000	870.800	1866.000	870.900	1970.000	869.900	2000.000
GR	869.700	2010.000	868.400	2032.000	867.000	2048.000	864.000	2068.000	863.000	2082.000
GR	863.100	2110.000	869.700	2124.000	873.000	2128.000	872.700	2140.000	870.500	2152.000
GR	870.200	2254.000	869.700	2416.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	41.900	17.000	2029.000	2071.000	130.000	120.000	120.000	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	873.300	1500.000	871.900	1718.000	871.400	1820.000	872.000	1902.000	872.400	2000.000
GR	872.000	2029.000	866.500	2029.000	863.100	2039.000	860.800	2049.000	862.400	2059.000
GR	863.400	2071.000	872.000	2071.000	872.000	2086.000	870.500	2191.000	870.200	2294.000

MOORE BUSINESS FORMS INC 27

GR	869.800	2399.000	869.800	2496.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	3.000	0.000	41.000	0.000	320.000	0.000	0.000	0.000

UPSTREAM FACE OF FALL STREET BRIDGE (F)

X1	42.100	16.000	2000.000	2041.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.600	872.000	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	0.000	0.000	0.000
BT	6.000	1902.000	872.000	0.000	2000.000	872.000	0.000	2000.000	872.000	870.600
BT	2041.000	872.000	870.500	2041.000	872.000	0.000	2086.000	872.000	0.000	0.000
GR	873.300	1500.000	871.900	1718.000	871.400	1820.000	872.000	1902.000	872.000	2000.000
GR	867.200	2000.000	863.500	2010.000	861.500	2020.000	861.000	2030.000	864.200	2041.000
GR	872.000	2041.000	872.000	2086.000	870.500	2191.000	870.200	2294.000	869.800	2399.000
GR	869.800	2496.000	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

VALLEY SECTION 120 FT D.S. OF MAIN ST (G)

X1	40.800	18.000	2000.000	2043.000	270.000	310.000	290.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1931.000	0.000	2055.000	0.000	0.000	0.000	0.000
GR	875.400	1400.000	873.300	1500.000	875.000	1600.000	874.400	1700.000	873.000	1800.000
GR	872.300	1829.000	874.200	1871.000	872.300	1931.000	870.300	2000.000	866.500	2000.000
GR	863.700	2015.000	863.800	2027.000	866.600	2043.000	872.200	2055.000	870.900	2155.000
GR	871.000	2200.000	871.500	2300.000	871.500	2400.000	0.000	0.000	0.000	0.000

X1	40.900	16.000	2062.000	2094.000	120.000	120.000	120.000	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	875.400	1586.000	874.500	1705.000	873.800	1806.000	873.400	1899.000	873.000	2000.000
GR	873.100	2056.000	873.000	2062.000	864.000	2062.000	863.500	2067.000	862.900	2078.000
GR	863.100	2088.000	864.100	2094.000	873.000	2094.000	871.400	2162.000	871.000	2274.000
GR	870.800	2376.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.800	3.000	0.000	32.000	0.000	189.000	0.000	0.000	0.000

UPSTREAM FACE OF MAIN STREET BRIDGE (H)

X1	41.100	16.000	2021.000	2053.000	101.000	101.000	101.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	871.200	873.000	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	0.000	0.000	0.000
BT	9.000	2000.000	873.000	0.000	2021.000	873.000	0.000	2021.000	873.000	866.500
BT	2027.000	873.000	869.800	2037.000	873.000	871.200	2047.000	873.000	869.800	2053.000
BT	873.000	866.500	2053.000	873.000	0.000	2056.000	873.100	0.000	0.000	0.000
GR	875.400	1586.000	874.500	1705.000	873.800	1806.000	873.400	1899.000	873.000	2000.000
GR	873.000	2021.000	864.400	2021.000	863.500	2027.000	862.700	2037.000	864.800	2047.000
GR	864.100	2053.000	873.000	2053.000	873.100	2056.000	871.400	2162.000	871.000	2274.000
GR	870.800	2376.000	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

FORMS INC. 27
MOORE BUSINESS

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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      EATON RAPIDS
T2      50 YEAR FLOW
T3      GRAND RIVER BYPASS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.      3.        0.        0.  0.000000      0.00      0.0       0.    869.600     0.000

J2  NPRCF     IFLCT     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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MOORE BUSINESS FORMS INC 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
**************************************************

T1      EATON RAPIDS
T2      100 YEAR FLOW
T3      GRAND RIVER BYPASS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.      4.        0.        0.   0.000000     0.00      0.0       0.    869.700    0.000

J2  NPROF     IFLCT     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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MOORE BUSINESS FORMS, INC. 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 EATON RAPIDS
T2 500 YEAR FLOW
T3 GRAND RIVER BYPASS

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	870.500	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

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

GRAND RIVER BYPASS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
21.700	0.00	0.00	0.00	862.50	1590.00	869.20	0.00	869.27	4.44	2.07	768.60	754.17
21.700	0.00	0.00	0.00	862.50	2000.00	869.60	0.00	869.69	5.54	2.41	828.65	849.86
21.700	0.00	0.00	0.00	862.50	2160.00	869.70	0.00	869.80	6.08	2.56	843.81	875.68
21.700	0.00	0.00	0.00	862.50	2740.00	870.50	0.00	870.62	6.24	2.83	1006.19	1096.59
21.800	350.00	0.00	0.00	862.70	1590.00	869.35	0.00	869.41	3.59	1.92	829.35	838.75
21.800	350.00	0.00	0.00	862.70	2000.00	869.79	0.00	869.87	4.46	2.23	896.65	947.45
21.800	350.00	0.00	0.00	862.70	2160.00	869.91	0.00	869.99	4.88	2.36	915.06	977.94
21.800	350.00	0.00	0.00	862.70	2740.00	870.72	0.00	870.83	5.24	2.63	1042.08	1196.61
21.900	200.00	0.00	0.00	862.50	1590.00	869.43	0.00	869.53	6.95	2.55	623.39	603.17
21.900	200.00	0.00	0.00	862.50	2000.00	869.88	0.00	870.01	8.38	2.95	678.22	690.81
21.900	200.00	0.00	0.00	862.50	2160.00	870.00	0.00	870.16	9.10	3.11	693.55	716.06
21.900	200.00	0.00	0.00	862.50	2740.00	870.82	0.00	871.00	9.57	3.46	791.91	885.57
22.000	1.00	871.60	871.50	862.50	1590.00	869.43	0.00	869.53	1.41	2.55	623.45	1341.21
22.000	1.00	871.60	871.50	862.50	2000.00	869.88	0.00	870.01	1.71	2.95	678.30	1529.00
22.000	1.00	871.60	871.50	862.50	2160.00	870.01	0.00	870.16	1.86	3.11	693.63	1582.89
22.000	1.00	871.60	871.50	862.50	2740.00	870.82	0.00	871.00	1.99	3.46	792.00	1941.92
22.100	18.00	871.60	871.50	862.50	1590.00	869.43	0.00	869.53	1.40	2.55	624.33	1344.17
22.100	18.00	871.60	871.50	862.50	2000.00	869.88	0.00	870.02	1.70	2.94	679.36	1532.73
22.100	18.00	871.60	871.50	862.50	2160.00	870.01	0.00	870.16	1.85	3.11	694.79	1586.98
22.100	18.00	871.60	871.50	862.50	2740.00	870.82	0.00	871.01	1.98	3.45	793.22	1946.51
22.200	1.00	0.00	0.00	862.50	1590.00	869.43	0.00	869.53	6.93	2.55	623.79	603.80
22.200	1.00	0.00	0.00	862.50	2000.00	869.88	0.00	870.02	8.36	2.95	678.72	691.63
22.200	1.00	0.00	0.00	862.50	2160.00	870.01	0.00	870.16	9.08	3.11	694.10	716.98
22.200	1.00	0.00	0.00	862.50	2740.00	870.82	0.00	871.01	9.55	3.46	792.51	886.64
22.300	500.00	0.00	0.00	862.80	1590.00	869.76	0.00	869.83	4.90	2.05	777.20	718.09
22.300	500.00	0.00	0.00	862.80	2000.00	870.29	0.00	870.37	5.59	2.31	864.42	845.66
22.300	500.00	0.00	0.00	862.80	2160.00	870.45	0.00	870.54	5.92	2.42	891.52	887.64
22.300	500.00	0.00	0.00	862.80	2740.00	871.29	0.00	871.40	5.92	2.65	1034.80	1126.53

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
41.800	350.00	0.00	0.00	863.00	1100.00	869.96	0.00	870.04	7.30	2.30	478.74	407.08
41.800	350.00	0.00	0.00	863.00	1270.00	870.49	0.00	870.58	6.51	2.35	540.19	497.70
41.800	350.00	0.00	0.00	863.00	1330.00	870.67	0.00	870.75	6.34	2.38	559.82	528.17
41.800	350.00	0.00	0.00	863.00	1630.00	871.51	0.00	871.61	5.60	2.48	656.53	688.62
41.900	120.00	0.00	0.00	860.80	1100.00	870.00	0.00	870.21	12.00	3.64	301.89	317.58
41.900	120.00	0.00	0.00	860.80	1270.00	870.52	0.00	870.76	13.00	3.92	323.74	352.22
41.900	120.00	0.00	0.00	860.80	1330.00	870.69	0.00	870.94	13.39	4.02	330.73	363.49
41.900	120.00	0.00	0.00	860.80	1630.00	871.51	0.00	871.82	15.04	4.46	365.11	420.25
42.100	38.00	872.00	870.60	861.00	1100.00	870.05	0.00	870.27	15.61	3.76	292.43	278.46
42.100	38.00	872.00	870.60	861.00	1270.00	870.67	0.00	870.91	13.21	4.00	317.70	349.48
42.100	38.00	872.00	870.60	861.00	1330.00	870.86	0.00	871.12	13.47	4.08	325.62	362.33
42.100	38.00	872.00	870.60	861.00	1630.00	872.05	0.00	872.13	5.24	2.72	1148.25	712.33
40.800	290.00	0.00	0.00	863.70	1100.00	870.51	0.00	870.80	19.02	4.34	264.66	252.25
40.800	290.00	0.00	0.00	863.70	1270.00	871.08	0.00	871.39	18.16	4.52	303.95	298.00
40.800	290.00	0.00	0.00	863.70	1330.00	871.28	0.00	871.59	17.80	4.56	320.31	315.27
40.800	290.00	0.00	0.00	863.70	1630.00	872.18	0.00	872.50	16.14	4.74	413.15	405.73
40.900	120.00	0.00	0.00	862.90	1100.00	870.74	0.00	871.07	21.63	4.63	237.78	236.52
40.900	120.00	0.00	0.00	862.90	1270.00	871.29	0.00	871.67	23.36	4.97	255.76	262.78
40.900	120.00	0.00	0.00	862.90	1330.00	871.48	0.00	871.88	24.00	5.08	261.62	271.47
40.900	120.00	0.00	0.00	862.90	1630.00	872.34	0.00	872.83	27.04	5.63	289.36	313.45
41.100	101.00	873.00	871.20	862.70	1100.00	870.80	0.00	871.34	13.39	5.86	187.78	300.62
41.100	101.00	873.00	871.20	862.70	1270.00	872.21	0.00	872.55	3.19	4.67	271.99	710.88
41.100	101.00	873.00	871.20	862.70	1330.00	872.52	0.00	872.87	3.16	4.72	281.75	747.61
41.100	101.00	873.00	871.20	862.70	1630.00	873.86	0.00	874.01	1.55	3.59	1209.77	1307.23

GRAND RIVER BYPASS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
21.700	1590.00	869.20	0.00	0.00	0.00	148.77	0.00
21.700	2000.00	869.60	.40	0.00	0.00	151.26	0.00
21.700	2160.00	869.70	.10	0.00	0.00	151.81	0.00
21.700	2740.00	870.50	.80	0.00	0.00	387.96	0.00
21.800	1590.00	869.35	0.00	.15	0.00	152.77	350.00
21.800	2000.00	869.79	.44	.19	0.00	154.46	350.00
21.800	2160.00	869.91	.12	.21	0.00	154.92	350.00
21.800	2740.00	870.72	.81	.22	0.00	158.06	350.00
21.900	1590.00	869.43	0.00	.08	0.00	121.00	200.00
21.900	2000.00	869.88	.45	.09	0.00	121.00	200.00
21.900	2160.00	870.00	.13	.10	0.00	121.00	200.00
21.900	2740.00	870.82	.81	.10	0.00	121.00	200.00
22.000	1590.00	869.43	0.00	.00	0.00	121.00	1.00
22.000	2000.00	869.88	.45	.00	0.00	121.00	1.00
22.000	2160.00	870.01	.13	.00	0.00	121.00	1.00
22.000	2740.00	870.82	.81	.00	0.00	121.00	1.00
22.100	1590.00	869.43	0.00	.00	0.00	121.00	18.00
22.100	2000.00	869.88	.45	.00	0.00	121.00	18.00
22.100	2160.00	870.01	.13	.00	0.00	121.00	18.00
22.100	2740.00	870.82	.81	.00	0.00	121.00	18.00
22.200	1590.00	869.43	0.00	.00	0.00	121.00	1.00
22.200	2000.00	869.88	.45	.00	0.00	121.00	1.00
22.200	2160.00	870.01	.13	.00	0.00	121.00	1.00
22.200	2740.00	870.82	.81	.00	0.00	121.00	1.00
22.300	1590.00	869.76	0.00	.34	0.00	164.91	500.00
22.300	2000.00	870.29	.52	.41	0.00	168.21	500.00
22.300	2160.00	870.45	.16	.44	0.00	168.79	500.00
22.300	2740.00	871.29	.84	.47	0.00	170.00	500.00
41.800	1100.00	869.96	0.00	.19	0.00	114.20	350.00
41.800	1270.00	870.49	.54	.21	.54	114.20	350.00
41.800	1330.00	870.67	.17	.22	.71	114.20	350.00
41.800	1630.00	871.51	.85	.22	1.56	114.20	350.00
41.900	1100.00	870.00	0.00	.05	0.00	42.00	120.00
41.900	1270.00	870.52	.52	.03	.52	42.00	120.00
41.900	1330.00	870.69	.17	.03	.69	42.00	120.00
41.900	1630.00	871.51	.82	-.00	1.51	42.00	120.00

MOORE BUSINESS FORMS INC. 27

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
42.100	1100.00	870.05	0.00	.04	0.00	41.00	38.00
42.100	1270.00	870.67	.62	.14	.62	41.00	38.00
42.100	1330.00	870.86	.19	.17	.81	41.00	38.00
42.100	1630.00	872.05	1.19	.54	2.00	801.90	38.00
40.800	1100.00	870.51	0.00	.47	0.00	58.80	290.00
40.800	1270.00	871.08	.57	.42	.57	79.61	290.00
40.800	1330.00	871.28	.20	.42	.76	86.81	290.00
40.800	1630.00	872.18	.90	.12	1.66	119.75	290.00
40.900	1100.00	870.74	0.00	.22	0.00	32.00	120.00
40.900	1270.00	871.29	.56	.21	.56	32.00	120.00
40.900	1330.00	871.48	.19	.20	.75	32.00	120.00
40.900	1630.00	872.34	.86	.16	1.61	32.00	120.00
41.100	1100.00	870.80	0.00	.07	0.00	32.00	101.00
41.100	1270.00	872.21	1.41	.92	1.41	32.00	101.00
41.100	1330.00	872.52	.30	1.04	1.72	32.00	101.00
41.100	1630.00	873.86	1.35	1.52	3.06	579.42	101.00

MOORE BUSINESS FORMS INC 27

SUMMARY OF ERRORS

MOORE BUSINESS FMS INC. 27

FLOOD INSURANCE ZONE DATA FOR GRAND RIVER BYPASS

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
21.700	0.	-.50	-.10	.80
21.800	350.	-.56	-.12	.81
21.900	550.	-.58	-.13	.81
22.000	551.	-.58	-.13	.81
22.100	569.	-.58	-.13	.81
22.200	570.	-.58	-.13	.81
22.300	1070.	-.68	-.16	.84
41.800	1420.	-.71	-.17	.85
41.900	1540.	-.69	-.17	.82
42.100	1578.	-.81	-.19	1.19
40.800	1868.	-.76	-.20	.90
40.900	1988.	-.75	-.19	.86
41.100	2089.	-1.72	-.30	1.35
WEIGHTED AVG FOR REACH		-.68	-.16	.88

FHF FOR THE REACH = 005 WITH 95.2 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 1

MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: 100 yr Encroached

00BREAK00

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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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Grand River Floodway

RECEIVED
JAN 13 1981
WATER MANAGEMENT

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C
T1      EATON RAPIDS
T2      100 YEAR FLOW
T3      GRAND RIVER
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ	
	0.	4.	0.	0.	0.000000	0.00	0.0	0.	863.500	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										
	110.000	200.000	38.000	1.000	53.000	21.000	22.000	54.000	4.000	39.000	
NC	.100	.100	.045	.100	.300	0.000	0.000	0.000	0.000	0.000	
QT	7.000	4593.000	6826.000	7850.000	10420.000	7850.000	6300.000	3860.000	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	290.000	12.000	2000.000	2170.000	0.000	0.000	0.000	0.000	0.000	0.000	
GR	870.000	1600.000	867.000	1825.000	859.500	1970.000	859.000	2000.000	852.000	2005.000	
GR	852.000	2090.000	851.500	2095.000	851.500	2100.000	852.000	2120.000	852.000	2160.000	
GR	860.000	2170.000	870.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	300.000	9.000	2000.000	2200.000	3900.000	3900.000	3900.000	0.000	0.000	0.000	
GR	874.000	1650.000	861.500	2000.000	855.000	2010.000	852.900	2100.000	854.300	2145.000	
GR	855.000	2200.000	858.500	2200.000	861.000	2400.000	870.100	2500.000	0.000	0.000	
QT	7.000	4540.000	6750.000	7760.000	10300.000	7760.000	6300.000	3860.000	0.000	0.000	

VALLEY SECTION (CORPS SECTION 31) A

X1	310.000	18.000	2000.000	2185.000	3700.000	3700.000	3700.000	0.000	0.000	0.000
GR	871.000	1700.000	860.000	1900.000	862.500	1980.000	862.000	2000.000	858.000	2015.000
GR	855.700	2015.000	854.000	2040.000	854.000	2100.000	855.300	2140.000	855.700	2160.000
GR	856.300	2185.000	860.000	2185.000	860.000	2230.000	862.500	2270.000	862.000	2300.000
GR	864.000	2370.000	866.000	2450.000	867.500	2500.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	7.100	1460.000	2235.000	1460.000	2530.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 32) B

X1	320.000	30.000	2000.000	2125.000	2750.000	2810.000	2780.000	0.000	0.000	0.000
GR	880.000	700.000	875.000	750.000	870.000	800.000	865.000	1150.000	863.600	1300.000
GR	861.000	1460.000	861.100	1560.000	865.000	1660.000	866.000	1710.000	866.000	1810.000
GR	864.300	1860.000	862.900	1910.000	865.000	1960.000	857.000	2000.000	854.900	2030.000
GR	852.800	2040.000	853.300	2060.000	853.400	2085.000	854.000	2120.000	858.000	2125.000
GR	858.300	2135.000	861.200	2150.000	861.500	2200.000	868.500	2240.000	869.000	2270.000
GR	871.200	2320.000	873.000	2380.000	873.200	2430.000	874.000	2480.000	877.000	2530.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1620.000	2280.000
X1	323.900	38.000	2018.000	2120.000	1399.000	1289.000	1324.000	0.000	0.000	0.000
GR	878.300	500.000	878.800	600.000	880.000	700.000	880.000	800.000	878.800	900.000
GR	878.800	1000.000	881.000	1100.000	879.800	1200.000	879.800	1300.000	878.100	1400.000
GR	865.900	1500.000	865.200	1600.000	865.900	1700.000	866.700	1800.000	866.400	1900.000
GR	863.900	2000.000	862.800	2006.000	860.500	2018.000	855.000	2052.000	856.600	2076.000
GR	857.400	2102.000	860.500	2120.000	865.300	2130.000	866.000	2142.000	866.800	2200.000
GR	865.000	2300.000	865.600	2400.000	868.000	2500.000	869.200	2600.000	868.300	2700.000
GR	868.300	2800.000	871.000	2900.000	873.000	3000.000	873.000	3100.000	876.000	3200.000
GR	879.300	3300.000	878.400	3400.000	881.000	3500.000	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	1620.000	2280.000

VALLEY SECTION (NO CORPS SECTION) C

X1	324.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X5	-5.000	.060	.060	.060	.060	.060	0.000	0.000	0.000	0.000
QT	7.000	2950.000	4750.000	5600.000	7560.000	5600.000	4900.000	3140.000	0.000	0.000
NH	5.000	.100	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.100
NH	3500.000	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	1550.000	2210.000
X1	330.000	35.000	1700.000	2078.000	550.000	100.000	230.000	0.000	0.000	0.000
X4	2.000	856.000	1705.000	856.000	1795.000	0.000	0.000	0.000	0.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.000	862.600	1900.000
GR	861.200	2000.000	855.200	2000.000	856.100	2042.000	859.300	2068.000	861.200	2078.000
GR	868.000	2100.000	866.800	2200.000	865.900	2300.000	866.900	2400.000	867.500	2500.000
GR	867.700	2600.000	868.000	2700.000	868.200	2800.000	869.000	2900.000	870.200	3000.000
GR	873.000	3100.000	874.500	3200.000	876.000	3300.000	880.000	3400.000	880.000	3500.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.060
NH	3500.000	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	1550.000	2205.000

RMS INC 27
MOORE BUSINESS FO

X1	331.000	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

UPSTREAM FACE OF DAM (CORPS SECTION 33) D

X1	332.000	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	862.200	2000.100	862.200	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

X1	333.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
NH	5.000	.060	1700.000	.045	1800.100	.100	2000.000	.045	2068.100	.060
NH	3500.000	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	1550.000	2205.000

X1	333.500	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	861.300	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	860.600	2000.100	860.000	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.100	2022.000	.045	2115.000	.100	2157.000	.045	2300.000	.100
NH	3500.000	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	1.410	9.100	9.100	1885.000	2305.000

X1	335.000	33.000	2022.000	2300.000	20.000	340.000	240.000	0.000	0.000	0.000
X4	2.000	862.000	2115.100	861.000	2157.100	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1100.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	861.400	2022.000	858.600	2097.000	860.300	2115.000	862.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.100	2157.000	.045	2300.000	.060

MOORE BUSINESS FORMS INC 27

NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100
X1	336.000	33.000	2032.000	2300.000	20.000	20.000	20.000	0.000	0.000	0.000
X4	3.000	858.900	2032.100	864.300	2157.100	861.500	2165.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	864.300	2032.000	858.600	2097.000	859.200	2115.000	861.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100

UPSTREAM FACE OF DAM (NO CORPS SECTION) E

X1	337.000	32.000	2032.000	2300.000	4.000	4.000	4.000	0.000	0.000	0.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	862.300	2097.000	862.300	2115.000	862.300	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100
X1	338.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
NC	.060	.060	.045	.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	9.100	1900.000	2300.100
X1	338.500	32.000	2032.000	2300.000	5.000	5.000	5.000	0.000	0.000	0.000
X4	2.000	859.500	2160.000	860.700	2290.000	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	861.500	2097.000	861.500	2115.000	861.000	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	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	9.100	2000.000	2180.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 34) F

X1	340.000	16.000	2007.000	2170.000	300.000	390.000	325.000	0.000	0.000	0.000
GR	871.000	1950.000	870.000	1980.000	865.400	2005.000	863.000	2006.000	861.200	2007.000
GR	858.100	2025.000	858.000	2050.000	857.200	2100.000	857.200	2150.000	857.400	2160.000
GR	861.500	2170.000	863.000	2185.000	865.000	2225.000	868.500	2250.000	870.100	2280.000
GR	873.000	2320.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	349.000	37.000	2000.000	2161.000	30.000	30.000	30.000	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	869.900	1475.000	870.000	1575.000	870.000	1650.000	869.300	1675.000	869.000	1725.000
GR	869.000	1775.000	869.500	1875.000	870.000	1925.000	873.000	1975.000	873.400	2000.000
GR	860.000	2000.000	859.500	2010.000	858.800	2046.000	858.800	2046.100	858.800	2048.000
GR	858.800	2048.100	858.400	2055.000	858.400	2065.000	858.000	2070.000	858.400	2095.000
GR	858.500	2105.000	857.400	2114.000	857.400	2114.100	857.400	2116.000	857.400	2116.100
GR	858.000	2125.000	858.400	2145.000	857.600	2150.000	860.900	2161.000	873.400	2161.000
GR	873.000	2240.000	873.900	2300.000	876.000	2400.000	877.000	2440.000	877.100	2500.000
GR	878.500	2600.000	879.900	2690.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	350.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.800	0.000	161.000	4.000	1978.000	0.000	0.000	0.000

UPSTREAM FACE OF KNIGHT STREET BRIDGE (CORPS SECTION 35) G

X1	351.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.000	873.400	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	26.000	1475.000	869.900	0.000	1575.000	870.000	0.000	1650.000	870.000	0.000
BT	1675.000	869.300	0.000	1725.000	869.000	0.000	1775.000	869.000	0.000	1875.000
BT	869.500	0.000	1925.000	870.000	0.000	1975.000	873.000	0.000	2000.000	873.400
BT	0.000	2000.000	873.400	870.100	2046.000	873.400	870.100	2046.100	873.400	858.800
BT	2048.000	873.400	858.800	2048.100	873.400	870.100	2114.000	873.400	870.000	2114.100
ET	873.400	857.400	2116.000	873.400	857.400	2116.100	873.400	870.000	2161.000	873.400
BT	870.000	2161.000	873.400	0.000	2240.000	873.000	0.000	2300.000	873.900	0.000
BT	2400.000	876.000	0.000	2440.000	877.000	0.000	2500.000	877.100	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	352.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.020	2015.000	.045	2060.000	.100	2200.000	.045	2320.000	.100
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION (CORPS SECTION 36) H

X1	360.000	20.000	2015.000	2320.000	400.000	385.000	385.000	0.000	0.000	0.000
GR	869.500	1900.000	869.500	2015.000	861.000	2030.000	858.000	2045.000	858.000	2050.000
GR	858.500	2055.000	861.000	2060.000	863.800	2075.000	863.800	2185.000	861.000	2200.000
GR	858.500	2220.000	858.000	2250.000	858.000	2275.000	857.500	2300.000	861.000	2320.000
GR	870.500	2340.000	875.200	2390.000	877.200	2440.000	878.200	2480.000	879.900	2540.000
NH	5.000	.020	2030.000	.045	2060.000	.100	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	369.000	30.000	2000.000	2303.000	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	870.500	1410.000	870.900	1510.000	870.000	1560.000	870.400	1610.000	871.200	1660.000
GR	871.600	1725.000	870.500	1920.000	869.900	2000.000	861.000	2000.000	860.000	2008.000
GR	859.800	2016.000	860.100	2024.000	861.000	2033.000	868.400	2033.000	866.000	2125.000
GR	866.000	2186.000	861.300	2186.000	860.500	2215.000	860.700	2243.000	860.700	2243.100
GR	860.800	2245.000	860.800	2245.100	860.100	2273.000	861.300	2303.000	870.800	2303.000
GR	869.900	2325.000	876.600	2425.000	879.300	2485.000	880.500	2625.000	883.100	2825.000
NH	5.000	.020	2030.000	.018	2060.000	.055	2200.000	.018	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	370.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM FACE OF HAMLIN ST. PEDESTRIAN BRIDGE (CORPS SEC 37) I

X1	371.000	0.000	0.000	0.000	8.000	8.000	8.000	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	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	372.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	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	9.100	1985.000	2215.000

VALLEY SECTION (CORPS SECTION 38) J

X1	380.000	25.000	2000.000	2200.000	670.000	735.000	680.000	0.000	0.000	0.000
GR	870.500	1500.000	870.500	1600.000	869.500	1650.000	870.400	1700.000	870.500	1750.000
GR	869.600	1800.000	870.000	1900.000	869.000	1950.000	864.900	1999.000	861.300	2000.000
GR	859.800	2010.000	859.800	2050.000	859.000	2075.000	859.600	2100.000	860.000	2125.000
GR	859.800	2150.000	859.900	2175.000	860.000	2190.000	861.300	2200.000	864.500	2210.000
GR	866.300	2255.000	868.000	2305.000	871.100	2355.000	875.000	2405.000	875.300	2455.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	389.000	38.000	2000.000	2166.000	120.000	120.000	120.000	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	873.000	1470.000	873.000	1500.000	873.900	1575.000	874.900	1600.000	873.500	1625.000
GR	870.000	1700.000	871.000	1740.000	871.500	1775.000	871.400	1875.000	872.900	2000.000
GR	861.200	2000.000	860.500	2015.000	860.500	2025.000	860.600	2035.000	860.800	2048.000
GR	860.800	2048.100	860.800	2051.000	860.800	2051.100	860.400	2070.000	860.400	2083.000
GR	860.300	2095.000	860.800	2114.000	860.800	2114.100	860.800	2117.000	860.800	2117.100
GR	860.500	2130.000	860.600	2140.000	860.600	2150.000	861.200	2166.000	872.800	2166.000
GR	872.800	2200.000	872.700	2300.000	872.800	2340.000	873.100	2390.000	873.000	2440.000
GR	875.200	2540.000	876.500	2590.000	877.900	2690.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	390.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.800	0.000	130.000	6.000	1300.000	0.000	0.000	0.000

UPSTREAM FACE OF STATE STREET BRIDGE (CORPS SECTION 39) K

X1	391.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.800	872.800	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	0.000	0.000	0.000
BT	38.000	1470.000	873.000	0.000	1500.000	873.000	0.000	1575.000	873.900	0.000
BT	1600.000	874.500	0.000	1625.000	873.500	0.000	1700.000	870.000	0.000	1740.000
BT	871.000	0.000	1775.000	871.500	0.000	1875.000	871.400	0.000	2000.000	872.900
BT	0.000	2000.000	872.900	866.600	2015.000	872.900	869.000	2025.000	872.900	870.600
BT	2035.000	872.900	869.000	2048.000	872.900	866.600	2048.100	872.900	860.800	2051.000
BT	872.900	860.800	2051.100	872.900	866.900	2070.000	873.000	869.000	2083.000	873.000
BT	870.800	2095.000	873.000	869.000	2114.000	872.800	866.600	2114.100	872.800	860.800
BT	2117.000	872.800	860.800	2117.100	872.800	866.600	2130.000	872.800	869.000	2140.000
BT	872.800	870.500	2150.000	872.800	869.000	2166.000	872.800	866.600	2166.000	872.800
BT	0.000	2200.000	872.800	0.000	2300.000	872.700	0.000	2340.000	872.800	0.000
BT	2390.000	873.100	0.000	2440.000	873.000	0.000	2540.000	875.200	0.000	2590.000
BT	876.500	0.000	2690.000	877.900	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	392.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	1.410	9.100	9.100	2016.900	2225.100
X1	399.000	26.000	2017.000	2225.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	869.900	2017.000	860.600	2017.000	861.500	2225.000
GR	869.800	2225.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	400.000	26.000	2026.000	2216.000	15.000	15.000	15.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	856.900	2026.000	858.100	2216.000
GR	872.100	2216.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	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	2025.900	2216.200
SB	0.000	1.560	3.087	0.000	1.000	0.000	1.000	0.000	867.700	856.900

UPSTREAM FACE OF DAM (CORPS SECTION 40) L

X1	401.000	26.000	2026.000	2216.100	7.000	7.000	7.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	867.700	868.100	0.000	0.000	0.000	0.000	0.000
BT	4.000	2026.000	871.700	0.000	2026.100	868.100	0.000	2216.000	868.300	0.000
BT	2216.100	872.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	861.500	2026.100	861.500	2216.000
GR	872.300	2216.100	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	4050.000	6020.000	6930.000	9190.000	6930.000	4900.000	3140.000	0.000	0.000
NC	.100	.100	.045	.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	2025.900	2216.200

VALLEY SECTION (NO CORPS SECTION) M

X1	402.000	0.000	0.000	0.000	13.000	13.000	13.000	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

VALLEY SECTION (CORPS SECTION 41) N

X1	410.000	26.000	2075.000	2325.000	2675.000	2400.000	2500.000	0.000	0.000	0.000
GR	888.100	1560.000	886.500	1610.000	886.500	1670.000	885.000	1710.000	883.000	1760.000
GR	882.000	1820.000	880.900	1870.000	878.000	1920.000	874.000	1970.000	870.500	2020.000
GR	870.000	2070.000	867.000	2075.000	865.000	2076.000	864.500	2100.000	865.000	2125.000
GR	861.500	2250.000	862.500	2300.000	867.000	2325.000	871.000	2330.000	873.000	2355.000
GR	872.200	2425.000	873.500	2475.000	875.000	2525.000	877.000	2575.000	877.200	2625.000
GR	878.000	2660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION (CORPS SECTION 42) O

X1	420.000	23.000	2000.000	2120.000	3960.000	3440.000	3430.000	0.000	0.000	0.000
GR	894.900	1720.000	894.000	1760.000	894.900	1810.000	893.000	1850.000	871.900	1920.000
GR	868.900	1999.000	867.500	2000.000	865.800	2005.000	865.000	2040.000	865.300	2060.000
GR	864.700	2090.000	865.000	2105.000	867.500	2120.000	869.100	2125.000	873.900	2170.000
GR	872.800	2275.000	873.300	2375.000	874.200	2425.000	874.500	2475.000	878.100	2525.000
GR	885.900	2575.000	895.200	2625.000	899.000	2725.000	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 / 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
*PROF 1									
CCHV= .100 CEHV= .300									
*SECNO 290.000									
290.00	12.00	863.50	0.00	863.50	863.73	.23	0.00	0.00	859.00
7850.	211.	7532.	107.	282.	1906.	202.	0.	0.	860.00
0.00	.75	3.95	.53	.100	.045	.100	0.000	851.50	1892.67
.000599	0.	0.	0.	0	0	0	0.00	392.83	2285.50
*SECNO 300.000									
300.00	12.48	865.38	0.00	0.00	865.50	.12	1.76	.01	861.50
7850.	91.	6717.	1042.	210.	2220.	1231.	271.	43.	858.50
.40	.43	3.03	.85	.100	.045	.100	.045	852.90	1891.43
.000352	3900.	3900.	3900.	2	0	0	0.00	556.67	2448.10
*SECNO 310.000 VALLEY SECTION (CORPS SECTION 31) A									
310.00	12.65	866.65	0.00	0.00	866.76	.11	1.26	.00	862.00
7760.	663.	6323.	774.	922.	2123.	1041.	600.	96.	860.00
.80	.72	2.98	.74	.100	.045	.100	.045	854.00	1779.13
.000330	3700.	3700.	3700.	2	0	0	0.00	692.47	2471.60
*SECNO 320.000									
3470 ENCROACHMENT STATIONS= 1460.0 2530.0 TYPE= 1 TARGET= 1070.000									
320.00	14.76	867.56	0.00	0.00	867.68	.13	.92	.00	857.00
7760.	1571.	5611.	578.	2120.	1673.	626.	871.	142.	858.00
1.09	.74	3.35	.92	.100	.045	.100	.045	852.80	1460.00
.000330	2750.	2780.	2810.	2	0	0	0.00	774.60	2234.60
*SECNO 323.900									
3470 ENCROACHMENT STATIONS= 1620.0 2280.0 TYPE= 1 TARGET= 660.000									
323.90	13.12	868.12	0.00	0.00	868.56	.45	.79	.10	860.50
7760.	977.	6458.	325.	942.	1102.	345.	977.	165.	860.50
1.17	1.04	5.86	.94	.100	.045	.100	.045	855.00	1620.00
.001330	1399.	1324.	1289.	2	0	0	0.00	660.00	2280.00

MOORE BUSINESS FORMS INC 27

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

*SECNO 324.000
WATER EL=XS CARD= 868.179 Low at WWTP

3470 ENCROACHMENT STATIONS= 1620.0 2280.0 TYPE= 1 TARGET= 660.000
VALLEY SECTION (NO CORPS SECTION) C

324.00	13.18	868.18	0.00	0.00	868.61	.43	.00	.00	860.50
7760.	1000.	6425.	334.	966.	1108.	354.	977.	165.	860.50
1.17	1.04	5.80	.94	.100	.045	.100	.045	855.00	1620.00
.001263	-1.	-1.	-1.	0	0	0	0.00	660.00	2280.00

1490 NH CARD USED
*SECNO 330.000

3470 ENCROACHMENT STATIONS= 1550.0 2210.0 TYPE= 1 TARGET= 660.000

330.00	13.52	868.72	0.00	0.00	868.75	.03	.10	.04	862.50
5600.	328.	5197.	74.	671.	3485.	242.	1000.	170.	861.20
1.22	.49	1.49	.31	.100	.072	.100	.045	855.20	1550.00
.000146	550.	230.	100.	2	0	0	0.00	660.00	2210.00

1490 NH CARD USED
*SECNO 331.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

331.00	13.53	868.73	0.00	0.00	868.76	.03	.00	.00	862.50
5600.	524.	4961.	114.	673.	3491.	234.	1002.	170.	861.20
1.22	.78	1.42	.49	.060	.072	.060	.045	855.20	1550.00
.000132	20.	20.	20.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 332.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000
UPSTREAM FACE OF DAM (CORPS SECTION 33) D

332.00	12.72	868.72	0.00	0.00	868.76	.04	.00	.00	862.50
5600.	667.	4807.	126.	672.	2908.	231.	1002.	170.	863.90
1.22	.95	1.65	.55	.060	.084	.060	.045	856.00	1550.00
.000216	5.	5.	5.	0	0	0	0.00	655.00	2205.00

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

1490 NH CARD USED
*SECNO 333.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

333.00	12.72	868.72	0.00	0.00	868.76	.04	.00	.00	862.50
5600.	667.	4808.	126.	671.	2905.	230.	1002.	170.	863.90
1.22	.99	1.65	.55	.060	.084	.060	.045	856.00	1550.00
.000216	2.	2.	2.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 333.500

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

333.50	12.73	868.73	0.00	0.00	868.76	.04	.00	.00	862.50
5600.	641.	4838.	121.	671.	3026.	230.	1003.	170.	863.90
1.22	.96	1.60	.52	.060	.079	.060	.045	856.00	1550.00
.000200	5.	5.	5.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 335.000

3470 ENCROACHMENT STATIONS= 1885.0 2305.0 TYPE= 1 TARGET= 420.000

335.00	10.15	868.75	0.00	0.00	868.84	.09	.06	.02	861.40
5600.	360.	5221.	19.	497.	2100.	30.	1018.	173.	862.50
1.25	.72	2.49	.61	.100	.071	.100	.045	858.60	1885.00
.000434	20.	240.	340.	1	0	0	0.00	420.00	2305.00

1490 NH CARD USED
*SECNO 336.000

3470 ENCROACHMENT STATIONS= 1900.0 2300.1 TYPE= 1 TARGET= 400.100

336.00	10.17	868.77	0.00	0.00	868.85	.08	.01	.00	864.30
5600.	522.	5078.	0.	465.	2141.	1.	1019.	173.	862.50
1.25	1.12	2.37	.10	.060	.071	.060	.045	858.60	1900.00
.000398	20.	20.	20.	1	0	0	0.00	400.10	2300.10

1490 NH CARD USED
*SECNO 337.000

MOORE BUSINESS FORMS INC 27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	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

3470 ENCROACHMENT STATIONS= 1900.0 2300.1 TYPE= 1 TARGET= 400.100
UPSTREAM FACE OF DAM (NO CORPS SECTION) E

337.00	7.25	868.75	0.00	0.00	868.86	.11	.00	.01	864.30
5600.	852.	4748.	0.	543.	1697.	1.	1020.	173.	863.50
1.25	1.57	2.80	.13	.060	.045	.060	.045	861.50	1900.00
.000633	4.	4.	4.	1	0	0	0.00	400.10	2300.10

1490 NH CARD USED
*SECNO 338.000

3470 ENCROACHMENT STATIONS= 1900.0 2300.1 TYPE= 1 TARGET= 400.100

338.00	7.25	868.75	0.00	0.00	868.86	.11	.00	.00	864.30
5600.	851.	4749.	0.	541.	1695.	1.	1020.	173.	863.50
1.25	1.57	2.80	.13	.060	.045	.060	.045	861.50	1900.00
.000636	2.	2.	2.	0	0	0	0.00	400.10	2300.10

CCHV= .100 CEHV= .300
*SECNO 338.500

3470 ENCROACHMENT STATIONS= 1900.0 2300.1 TYPE= 1 TARGET= 400.100

338.50	9.28	868.78	0.00	0.00	868.87	.08	.00	.00	864.30
5600.	645.	4955.	0.	546.	2051.	1.	1020.	173.	863.50
1.25	1.18	2.42	.10	.060	.045	.060	.045	859.50	1900.00
.000356	5.	5.	5.	2	0	0	0.00	400.10	2300.10

*SECNO 340.000

3470 ENCROACHMENT STATIONS= 2000.0 2180.0 TYPE= 1 TARGET= 180.000
VALLEY SECTION (CORPS SECTION 34) F

340.00	11.66	868.86	0.00	0.00	869.00	.14	.12	.02	861.20
5600.	21.	5496.	83.	26.	1791.	69.	1037.	175.	861.50
1.28	.80	3.07	1.21	.060	.045	.060	.045	857.20	2000.00
.000356	300.	325.	390.	2	0	0	0.00	180.00	2180.00

*SECNO 349.000

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 873.40 ELREA= 873.40

349.00	11.45	868.85	0.00	0.00	869.02	.18	.01	.01	873.40
5600.	0.	5600.	0.	0.	1653.	0.	1038.	175.	873.40
1.28	0.00	3.39	0.00	.060	.045	.060	.045	857.40	2000.00
.000541	30.	30.	30.	2	0	0	0.00	161.00	2161.00

*SECNO 350.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 873.40 ELREA= 873.40

350.00	11.45	868.85	0.00	0.00	869.02	.18	.00	.00	873.40
5600.	0.	5600.	0.	0.	1654.	0.	1038.	175.	873.40
1.29	0.00	3.39	0.00	.060	.018	.060	.045	857.40	2000.00
.000086	1.	1.	1.	0	0	0	0.00	161.00	2161.00

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	1.56	2.80	0.00	161.00	4.00	1978.00	0.00	857.40	857.40

*SECNO 351.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 868.84 BRIDGE VELOCITY= 3.12 CALCULATED CHANNEL AREA= 1796.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	865.03	.01	0.	5600.	1978.	1978.	870.00	873.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 873.40 ELREA= 873.40

UPSTREAM FACE OF KNIGHT STREET BRIDGE (CORPS SECTION 35) G

351.00	11.45	868.85	0.00	0.00	869.03	.18	.01	0.00	873.40	
5600.	0.	5600.	0.	0.	1655.	0.	1039.	175.	873.40	
1.29	0.00	3.38	0.00	.060	.045	.060	.045	857.40	2000.00	
.000539	40.	40.	40.	0	0	0	0.00	161.00	2161.00	

RMS INC 27
MOORE BUSINESS FO

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 352.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 873.40 ELREA= 873.40

352.00	11.45	868.85	0.00	0.00	869.03	.18	.00	.00	873.40
5600.	0.	5600.	0.	0.	1655.	0.	1039.	175.	873.40
1.29	0.00	3.38	0.00	.060	.045	.060	.045	857.40	2000.00
.000539	1.	1.	1.	0	0	0	0.00	161.00	2161.00

1490 NH CARD USED
*SECNO 360.000
VALLEY SECTION (CORPS SECTION 36) H

360.00	11.63	869.13	0.00	0.00	869.21	.08	.17	.01	869.50
5600.	0.	5552.	48.	0.	2423.	70.	1058.	178.	861.00
1.34	0.00	2.29	.69	.060	.054	.100	.045	857.50	2015.65
.000377	400.	385.	385.	2	0	0	0.00	321.48	2337.12

1490 NH CARD USED
*SECNO 369.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

369.00	9.25	869.09	0.00	0.00	869.27	.18	.03	.03	869.90
5600.	0.	5600.	0.	0.	1640.	0.	1060.	178.	870.80
1.34	0.00	3.41	0.00	.060	.047	.100	.045	859.80	2000.00
.000766	50.	50.	50.	2	0	0	0.00	303.00	2303.00

1490 NH CARD USED
*SECNO 370.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 866.00 MAX ELLC= 868.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

370.00	9.22	869.02	0.00	0.00	869.30	.28	.00	.03	869.90
5600.	0.	5600.	0.	0.	1311.	0.	1060.	178.	870.80
1.34	0.00	4.27	0.00	.060	.019	.100	.045	859.80	2000.00
.000798	1.	1.	1.	2	0	0	-307.73	303.00	2303.00

MOORE BUSINESS FORMS INC 27

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

1490 NH CARD USED
*SECNO 371.000

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 866.00 MAX ELLC= 868.60

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80
UPSTREAM FACE OF HAMLIN ST. PEDESTRIAN BRIDGE (CORPS SEC 37) I

371.00	9.23	869.03	0.00	0.00	869.31	.28	.01	.00	869.90
5600.	0.	5600.	0.	0.	1312.	0.	1060.	178.	870.80
1.34	0.00	4.27	0.00	.060	.045	.100	.045	859.80	2000.00
.003366	8.	8.	8.	0	0	0	-308.74	303.00	2303.00

1490 NH CARD USED
*SECNO 372.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

372.00	9.35	869.15	0.00	0.00	869.33	.18	.00	.01	869.90
5600.	0.	5600.	0.	0.	1658.	0.	1060.	178.	870.80
1.34	0.00	3.38	0.00	.060	.045	.100	.045	859.80	2000.00
.000692	1.	1.	1.	2	0	0	0.00	303.00	2303.00

CCHV= .300 CEHV= .500
*SECNO 380.000

3470 ENCROACHMENT STATIONS= 1985.0 2215.0 TYPE= 1 TARGET= 230.000
VALLEY SECTION (CORPS SECTION 38) J

380.00	10.55	869.55	0.00	0.00	869.66	.12	.32	.02	861.30
5600.	61.	5414.	125.	63.	1950.	91.	1090.	182.	861.30
1.41	.97	2.78	1.37	.060	.045	.060	.045	859.00	1985.00
.000340	670.	680.	735.	2	0	0	0.00	230.00	2215.00

*SECNO 389.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 872.90 ELREA= 872.80

MOORE BUSINESS FORMS INC 27

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
389.00	9.25	869.55	0.00	0.00	869.78	.22	.06	.05	872.90
5600.	0.	5600.	0.	0.	1483.	0.	1095.	183.	872.80
1.42	0.00	3.78	0.00	.060	.045	.060	.045	860.30	2000.00
.000801	120.	120.	120.	2	0	0	0.00	166.00	2166.00

*SECNO 390.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 872.90 ELREA= 872.80

390.00	9.25	869.55	0.00	0.00	869.78	.22	.00	.00	872.90
5600.	0.	5600.	0.	0.	1483.	0.	1095.	183.	872.80
1.42	0.00	3.78	0.00	.060	.018	.060	.045	860.30	2000.00
.000128	1.	1.	1.	0	0	0	0.00	166.00	2166.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	2.80	0.00	130.00	6.00	1300.00	0.00	860.30	860.30

*SECNO 391.000
CLASS A LOW FLOW

3420 BRIDGE W.S.= 869.52 BRIDGE VELOCITY=, 4.90 CALCULATED CHANNEL AREA=, 1143.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	869.79	.01	0.	5600.	1300.	1302.	870.80	872.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 872.90 ELREA= 872.80

UPSTREAM FACE OF STATE STREET BRIDGE (CORPS SECTION 39) K

391.00	9.26	869.56	0.00	0.00	869.79	.22	.01	0.00	872.90
5600.	0.	5600.	0.	0.	1485.	0.	1096.	183.	872.80
1.42	0.00	3.77	0.00	.060	.018	.060	.045	860.30	2000.00
.000128	38.	38.	38.	0	0	0	0.00	166.00	2166.00

MOORE BUSINESS FORMS INC 27

SECNC	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 392.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 872.90 ELREA= 872.80

392.00	9.26	869.56	0.00	0.00	869.79	.22	.00	.00	872.90
5600.	0.	5600.	0.	0.	1485.	0.	1096.	183.	872.80
1.42	0.00	3.77	0.00	.060	.018	.060	.045	860.30	2000.00
.000128	1.	1.	1.	0	0	0	0.00	166.00	2166.00

CCHV= .100 CEHV= .300

*SECNO 399.000

3470 ENCROACHMENT STATIONS= 2016.9 2225.1 TYPE= 1 TARGET= 208.200

399.00	9.06	869.66	0.00	0.00	869.81	.15	.02	.01	869.90
5600.	0.	5600.	0.	0.	1791.	0.	1099.	183.	869.80
1.43	0.00	3.13	0.00	.060	.045	.060	.045	860.60	2017.00
.000564	90.	90.	90.	2	0	0	0.00	208.00	2225.00

*SECNO 400.000

400.00	12.83	869.73	0.00	0.00	869.82	.09	.01	.01	871.70
5600.	0.	5600.	0.	0.	2325.	0.	1100.	183.	872.10
1.43	0.00	2.41	0.00	.060	.045	.060	.045	856.90	2026.00
.000222	15.	15.	15.	2	0	0	0.00	190.00	2216.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	3.09	0.00	1.00	0.00	1.00	0.00	867.70	856.90

*SECNO 401.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
760521.91	880.62	0.00	5621.	11.	1.	0.	867.70	868.10

3470 ENCROACHMENT STATIONS= 2025.9 2216.2 TYPE= 1 TARGET= 190.300

MOORE BUSINESS FO RMS INC 27

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
			UPSTREAM FACE OF DAM (CORPS SECTION 40) L						
401.00	11.15	872.65	0.00	0.00	872.75	.11	2.93	0.00	871.70
5600.	0.	5600.	0.	0.	2118.	0.	1101.	183.	872.30
1.43	.00	2.64	.00	.060	.045	.060	.045	861.50	2025.90
.000256	7.	7.	7.	2	0	16	0.00	190.30	2216.20
CCHV= .100 CEHV= .300									
*SECNO 402.000									
3470 ENCROACHMENT STATIONS= 2025.9 2216.2 TYPE= 1 TARGET= 190.300									
			VALLEY SECTION (NO CORPS SECTION) M						
402.00	11.11	872.61	0.00	0.00	872.78	.17	.00	.02	871.70
6930.	0.	6930.	0.	0.	2111.	0.	1101.	183.	872.30
1.43	.00	3.28	.00	.100	.045	.100	.045	861.50	2025.90
.000458	13.	13.	13.	2	0	0	0.00	190.30	2216.20
*SECNO 410.000									
			VALLEY SECTION (CORPS SECTION 41) N						
410.00	12.09	873.59	0.00	0.00	873.70	.11	.91	.01	867.00
6930.	137.	6740.	53.	261.	2534.	169.	1247.	203.	867.00
1.70	.52	2.66	.31	.100	.045	.100	.045	861.50	1975.85
.000298	2675.	2500.	2400.	2	0	0	0.00	502.17	2478.02
*SECNO 420.000									
			VALLEY SECTION (CORPS SECTION 42) O						
420.00	10.50	875.20	0.00	0.00	875.51	.31	1.75	.06	867.50
6930.	537.	5770.	623.	404.	1182.	728.	1459.	247.	867.50
1.93	1.33	4.88	.86	.100	.045	.100	.045	864.70	1909.06
.001041	3960.	3430.	3440.	2	0	0	0.00	575.63	2484.69

MOORE BUSINESS FORMS INC 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      EATON RAPIDS
T2      ENCROACHMENT RUN
T3      GRAND RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       6.         0.         0.      0.000000      0.00       0.0        0.      863.600     0.000

J2  NPROF      IFLCT      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

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 2

CCHV= .100 CEHV= .300

*SECNO 290.000

2800 NAT Q1= 3206.40 WSEL= 863.50 ENC Q1= 3206.40 WSEL= 863.60 RATIO= 0.0000

NAT Q1= 3260. RATIOS LOB,CH,ROB= .0278 .9578 .0144 WSEL= 863.60

3470 ENCROACHMENT STATIONS= 1960.5 2190.0 TYPE= 4 TARGET= .016

290.00	12.10	863.60	0.00	863.50	863.84	.24	0.00	0.00	859.00
7850.	153.	7648.	49.	167.	1923.	66.	0.	0.	860.00
0.00	.92	3.98	.73	.100	.045	.100	0.000	851.50	1960.49
.000600	0.	0.	0.	0	0	0	0.00	229.55	2190.04

*SECNO 300.000

2800 NAT Q1= 4186.39 WSEL= 865.38 ENC Q1= 4186.39 WSEL= 865.48 RATIO= 0.0000

NAT Q1= 4263. RATIOS LOB,CH,ROB= .0122 .8533 .1345 WSEL= 865.48

3470 ENCROACHMENT STATIONS= 1988.8 2398.8 TYPE= 4 TARGET= .018

300.00	12.58	865.48	0.00	865.38	865.61	.13	1.76	.01	861.50
7850.	24.	6822.	1004.	42.	2241.	1141.	250.	29.	858.50
.39	.56	3.04	.88	.100	.045	.100	.045	852.90	1988.81
.000351	3900.	3900.	3900.	2	0	0	0.00	409.97	2398.78

*SECNO 310.000

2800 NAT Q1= 4274.88 WSEL= 866.65 ENC Q1= 4274.88 WSEL= 866.75 RATIO= 0.0000

NAT Q1= 4356. RATIOS LOB,CH,ROB= .0869 .8115 .1016 WSEL= 866.75

3470 ENCROACHMENT STATIONS= 1860.9 2361.9 TYPE= 4 TARGET= .019

VALLEY SECTION (CORPS SECTION 31) A

310.00	12.75	866.75	0.00	866.65	866.87	.12	1.26	.00	862.00
7760.	613.	6417.	731.	752.	2142.	899.	556.	67.	860.00
.79	.81	3.00	.81	.100	.045	.100	.045	854.00	1860.94
.000329	3700.	3700.	3700.	2	0	0	0.00	501.00	2361.94

*SECNO 320.000

3470 ENCROACHMENT STATIONS= 1460.0 2235.0 TYPE= 1 TARGET= 775.000

VALLEY SECTION (CORPS SECTION 32) B

MOORE BUSINESS FORMS, INC 27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	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
320.00	14.85	867.65	0.00	867.56	867.77	.13	.90	.00	857.00
7760.	1558.	5581.	582.	2170.	1685.	636.	820.	108.	858.00
1.08	.74	3.31	.91	.100	.045	.100	.045	852.80	1460.00
.000319	2750.	2780.	2810.	2	0	0	0.00	775.00	2235.00

*SECNO 323.900

3470 ENCROACHMENT STATIONS= 1620.0 2280.0 TYPE= 1 TARGET= 660.000

323.90	13.19	868.19	0.00	868.12	868.62	.43	.76	.09	860.50
7760.	1005.	6418.	336.	971.	1110.	356.	928.	130.	860.50
1.16	1.04	5.78	.94	.100	.045	.100	.045	855.00	1620.00
.001285	1399.	1324.	1289.	2	0	0	0.00	660.00	2280.00

*SECNO 324.000
WATER EL=XS CARD= 868.252

3470 ENCROACHMENT STATIONS= 1620.0 2280.0 TYPE= 1 TARGET= 660.000
VALLEY SECTION (NO CORPS SECTION) C

324.00	13.25	868.25	0.00	868.18	868.67	.42	.00	.00	860.50
7760.	1028.	6386.	346.	995.	1116.	366.	928.	130.	860.50
1.16	1.03	5.72	.94	.100	.045	.100	.045	855.00	1620.00
.001249	1.	1.	1.	0	0	0	0.00	660.00	2280.00

1490 NH CARD USED
*SECNO 330.000

3470 ENCROACHMENT STATIONS= 1550.0 2210.0 TYPE= 1 TARGET= 660.000

330.00	13.58	868.78	0.00	868.72	868.81	.03	.10	.04	862.50
5600.	332.	5192.	76.	679.	3506.	250.	951.	135.	861.20
1.21	.49	1.48	.31	.100	.072	.100	.045	855.20	1550.00
.000143	550.	230.	100.	2	0	0	0.00	660.00	2210.00

1490 NH CARD USED
*SECNO 331.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

331.00	13.58	868.78	0.00	868.73	868.81	.03	.00	.00	862.50
5600.	529.	4953.	118.	681.	3512.	241.	953.	136.	861.20
1.21	.78	1.41	.49	.060	.072	.060	.045	855.20	1550.00
.000130	20.	20.	20.	0	0	0	0.00	655.00	2205.00

MOORE BUSINESS FORMS INC 27

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

1490 NH CARD USED
*SECNO 332.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000
UPSTREAM FACE OF DAM (CORPS SECTION 33) D

332.00	12.78	868.78	0.00	868.72	868.82	.04	.00	.00	862.50
5600.	673.	4796.	131.	680.	2929.	239.	954.	136.	863.90
1.21	.99	1.64	.55	.060	.084	.060	.045	856.00	1550.00
.000211	5.	5.	5.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 333.000

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

333.00	12.78	868.78	0.00	868.72	868.82	.04	.00	.00	862.50
5600.	672.	4797.	131.	679.	2926.	238.	954.	136.	863.90
1.21	.99	1.64	.55	.060	.084	.060	.045	856.00	1550.00
.000211	2.	2.	2.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 333.500

3470 ENCROACHMENT STATIONS= 1550.0 2205.0 TYPE= 1 TARGET= 655.000

333.50	12.78	868.78	0.00	868.73	868.82	.04	.00	.00	862.50
5600.	646.	4828.	126.	679.	3047.	238.	954.	136.	863.90
1.21	.95	1.58	.53	.060	.079	.060	.045	856.00	1550.00
.000195	5.	5.	5.	0	0	0	0.00	655.00	2205.00

1490 NH CARD USED
*SECNO 335.000
2800 NAT Q1= 2689.56 WSEL= 868.75 ENC Q1= 2689.56 WSEL= 868.85 RATIO= 0.0000
NAT Q1= 3429. RATIOS LOB,CH,ROB= .2214 .7459 .0327 WSEL= 868.85

3470 ENCROACHMENT STATIONS= 1920.4 2300.0 TYPE= 4 TARGET= .216

335.00	10.20	868.80	0.00	868.75	868.90	.09	.06	.02	861.40
5600.	276.	5324.	0.	373.	2113.	0.	970.	138.	862.50
1.24	.74	2.52	0.00	.100	.071	.100	.045	858.60	1920.42
.000454	20.	240.	340.	2	0	0	0.00	379.57	2300.00

MOORE BUSINESS FORMS INC 27

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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 336.000
  2800 NAT Q1=    2806.26  WSEL=     868.77  ENC Q1=    2806.26  WSEL=     868.87  RATIO=  0.0000
  NAT Q1=    4070.  RATIOS LOB,CH,ROB=    .3146    .6389    .0465  WSEL=     868.87

 3470 ENCROACHMENT STATIONS=    1930.3     2300.0  TYPE=       4  TARGET=          .310
    336.00      10.22     868.82       0.00     868.77     868.91        .08        .01        .00     864.30
     5600.       412.      5188.         0.       359.      2156.          0.       971.       139.     862.50
      1.24       1.15       2.41       0.00       .060       .072       .060       .045     858.60    1930.26
  .000417         20.        20.        20.          1          0          0       0.00     369.74    2300.00

 1490 NH CARD USED
 *SECNO 337.000
  2800 NAT Q1=    2225.55  WSEL=     868.75  ENC Q1=    2225.55  WSEL=     868.85  RATIO=  0.0000
  NAT Q1=    3428.  RATIOS LOB,CH,ROB=    .3941    .5635    .0423  WSEL=     868.85

 3470 ENCROACHMENT STATIONS=    1923.4     2300.0  TYPE=       4  TARGET=          .351
                UPSTREAM FACE OF DAM (NO CORPS SECTION) E

    337.00       7.31     868.81       0.00     868.75     868.92        .11        .00        .01     864.30
     5600.       746.      4854.         0.       459.      1712.          0.       971.       139.     863.50
      1.24       1.62       2.84       0.00       .060       .045       .060       .045     861.50    1923.39
  .000660          4.         4.         4.          1          0          0       0.00     376.61    2300.00

 1490 NH CARD USED
 *SECNO 338.000
  2800 NAT Q1=    2219.89  WSEL=     868.75  ENC Q1=    2219.89  WSEL=     868.85  RATIO=  0.0000
  NAT Q1=    3429.  RATIOS LOB,CH,ROB=    .3941    .5635    .0424  WSEL=     868.85

 3470 ENCROACHMENT STATIONS=    1925.8     2300.0  TYPE=       4  TARGET=          .353
    338.00       7.31     868.81       0.00     868.75     868.92        .11        .00        .00     864.30
     5600.       732.      4868.         0.       449.      1709.          0.       971.       139.     863.50
      1.24       1.63       2.85       0.00       .060       .045       .060       .045     861.50    1925.82
  .000667          2.         2.         2.          0          0          0       0.00     374.18    2300.00

 CCHV=     .100 CEHV=     .300
 *SECNO 338.500
  2800 NAT Q1=    2967.11  WSEL=     868.78  ENC Q1=    2967.11  WSEL=     868.88  RATIO=  0.0000
  NAT Q1=    4201.  RATIOS LOB,CH,ROB=    .3257    .6387    .0356  WSEL=     868.88
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MOORE BUSINESS FORMS INC 27

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

3470 ENCROACHMENT STATIONS= 1928.5 2300.0 TYPE= 4 TARGET= .294

338.50	9.34	868.84	0.00	868.78	868.93	.09	.00	.00	864.30
5600.	541.	5059.	0.	441.	2066.	0.	971.	139.	863.50
1.24	1.23	2.45	0.00	.060	.045	.060	.045	859.50	1928.49
.000372	5.	5.	5.	2	0	0	0.00	371.51	2300.00

*SECNO 340.000
2800 NAT Q1= 2965.93 WSEL= 868.86 ENC Q1= 2965.93 WSEL= 868.96 RATIO= 0.0000
NAT Q1= 3227. RATIOS LOB,CH,ROB= .0055 .9157 .0787 WSEL= 868.96

3470 ENCROACHMENT STATIONS= 2007.0 2172.8 TYPE= 4 TARGET= .081
VALLEY SECTION (CORPS SECTION 34) F

340.00	11.72	868.92	0.00	868.86	869.07	.15	.12	.02	861.20
5600.	0.	5584.	16.	0.	1801.	20.	988.	141.	861.50
1.27	0.00	3.10	.78	.060	.045	.060	.045	857.20	2007.00
.000384	300.	325.	390.	2	0	0	0.00	165.81	2172.81

*SECNO 349.000
2800 NAT Q1= 2408.63 WSEL= 868.85 ENC Q1= 2446.01 WSEL= 868.95 RATIO= -.0155
NAT Q1= 2446. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 868.95

3470 ENCROACHMENT STATIONS= 2000.0 2161.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 873.40 ELREA= 873.40

349.00	11.51	868.91	0.00	868.85	869.09	.18	.01	.01	873.40
5600.	0.	5600.	0.	0.	1666.	0.	989.	141.	873.40
1.27	0.00	3.36	0.00	.060	.045	.060	.045	857.40	2000.00
.000528	30.	30.	30.	1	0	0	0.00	161.00	2161.00

*SECNO 350.000
2800 NAT Q1= 6021.98 WSEL= 868.85 ENC Q1= 6115.22 WSEL= 868.95 RATIO= -.0155
NAT Q1= 6115. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 868.95

3470 ENCROACHMENT STATIONS= 2000.0 2161.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 873.40 ELREA= 873.40

MOORE BUSINESS FORMS INC 27

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
350.00	11.51	868.91	0.00	868.85	869.09	.18	.00	.00	873.40
5600.	0.	5600.	0.	0.	1664.	0.	989.	141.	873.40
1.27	0.00	3.36	0.00	.060	.018	.060	.045	857.40	2000.00
.000085	1.	1.	1.	0	0	0	0.00	161.00	2161.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BARFA	SS	ELCHU	ELCHD
	1.25	1.56	2.80	0.00	161.00	4.00	1978.00	0.00	857.40	857.40

*SECNO 351.000

3700. BRIDGE STENCL= 2000.00 STENCR= 2161.00

CLASS A LOW FLOW

3420 BRIDGE W.S.= 868.91 BRIDGE VELOCITY=, 3.10 CALCULATED CHANNEL AREA=, 1807.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	869.10	.01	0.	5600.	1978.	1978.	870.00	873.40

3470 ENCROACHMENT STATIONS= 2000.0 2161.0 TYPE= 4 TARGET= 0.000
ELENCL= 0.00 ELENCR= 0.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 873.40 ELREA= 873.40

UPSTREAM FACE OF KNIGHT STREET BRIDGE (CORPS SECTION 35) G

351.00	11.52	868.92	0.00	868.85	869.10	.18	.01	0.00	873.40
5600.	0.	5600.	0.	0.	1666.	0.	990.	141.	873.40
1.28	0.00	3.36	0.00	.060	.045	.060	.045	857.40	2000.00
.000528	40.	40.	40.	0	0	0	0.00	161.00	2161.00

*SECNO 352.000

2800 NAT Q1= 2412.14 WSEL= 868.85 ENC Q1= 2449.64 WSEL= 868.95 RATIO= -.0155
NAT Q1= 2450. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 868.95

3470 ENCROACHMENT STATIONS= 2000.0 2161.0 TYPE= 4 TARGET= 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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 873.40 ELREA= 873.40

352.00	11.52	868.92	0.00	868.85	869.10	.18	.00	.00	873.40
5600.	0.	5600.	0.	0.	1666.	0.	990.	141.	873.40
1.28	0.00	3.36	0.00	.060	.045	.060	.045	857.40	2000.00
.000528	1.	1.	1.	0	0	0	0.00	161.00	2161.00

1490 NH CARD USED
*SECNO 360.000
2800 NAT Q1= 2883.00 WSEL= 869.13 ENC Q1= 2909.47 WSEL= 869.23 RATIO= -.0092
NAT Q1= 2935. RATIOS LOB,CH,ROB= 0.0000 .9913 .0087 WSEL= 869.23

3470 ENCROACHMENT STATIONS= 2015.0 2320.0 TYPE= 4 TARGET= .009
VALLEY SECTION (CORPS SECTION 36) H

360.00	11.70	869.20	0.00	869.13	869.28	.08	.17	.01	869.50
5600.	0.	5600.	0.	0.	2442.	0.	1008.	143.	861.00
1.32	0.00	2.29	0.00	.060	.093	.100	.045	857.50	2015.54
.000376	400.	385.	385.	2	0	0	0.00	304.46	2320.00

1490 NH CARD USED
*SECNO 369.000
2800 NAT Q1= 2023.35 WSEL= 869.09 ENC Q1= 2065.75 WSEL= 869.19 RATIO= -.0210
NAT Q1= 2066. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.19

3470 ENCROACHMENT STATIONS= 2000.0 2303.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

369.00	9.35	869.15	0.00	869.09	869.33	.18	.03	.03	869.90
5600.	0.	5600.	0.	0.	1660.	0.	1011.	143.	870.80
1.33	0.00	3.37	0.00	.060	.047	.100	.045	859.80	2000.00
.000746	50.	50.	50.	2	0	0	0.00	303.00	2303.00

1490 NH CARD USED
*SECNO 370.000
3700. BRIDGE STENCL= 2000.00 STENCR= 2303.00
2800 NAT Q1= 1982.67 WSEL= 869.02 ENC Q1= 2082.27 WSEL= 869.12 RATIO= -.0502
NAT Q1= 2082. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.12

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	IDG	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 866.00 MAX ELLC= 868.60

3470 ENCROACHMENT STATIONS= 2000.0 2303.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

370.00	9.29	869.09	0.00	869.02	869.36	.26	.00	.03	869.90
5600.	0.	5600.	0.	0.	1357.	0.	1011.	143.	870.80
1.33	0.00	4.13	0.00	.060	.019	.100	.045	859.80	2000.00
.000724	1.	1.	1.	2	0	0	-284.23	303.00	2303.00

1490 NH CARD USED
*SECNO 371.000
3700. BRIDGE STENCL= 2000.00 STENCR= 2303.00
2800 NAT Q1= 965.16 WSEL= 869.03 ENC Q1= 1064.09 WSEL= 869.13 RATIO= -.1025
NAT Q1= 1064. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.13

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 866.00 MAX ELLC= 868.60

3470 ENCROACHMENT STATIONS= 2000.0 2303.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.80

UPSTREAM FACE OF HAMLIN ST. PEDESTRIAN BRIDGE (CORPS SEC 37) I

371.00	9.30	869.10	0.00	869.03	869.37	.26	.01	.00	869.90
5600.	0.	5600.	0.	0.	1359.	0.	1011.	143.	870.80
1.33	0.00	4.12	0.00	.060	.045	.100	.045	859.80	2000.00
.002773	8.	8.	8.	0	0	0	-286.33	303.00	2303.00

1490 NH CARD USED
*SECNO 372.000
2800 NAT Q1= 2128.21 WSEL= 869.15 ENC Q1= 2176.35 WSEL= 869.25 RATIO= -.0226
NAT Q1= 2176. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.25

3470 ENCROACHMENT STATIONS= 2000.0 2303.0 TYPE= 4 TARGET= 0.000

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        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=     869.90 ELREA=     870.80

     372.00      9.40    869.20      0.00    869.15    869.38      .17        .00        .01    869.90
      5600.       0.      5600.       0.       0.       1675.       0.      1011.       143.     870.80
       1.33      0.00      3.34      0.00      .060      .045      .100       .045     859.80   2000.00
   .000675        1.        1.        1.         2         0         0       0.00     303.00   2303.00

 CCHV=    .300  CEHV=    .500
 *SECNO 380.000
  2800 NAT Q1=    3036.85  WSEL=     869.55  ENC Q1=    3036.85  WSEL=     869.65  RATIO=   0.0000
  NAT Q1=    3297.  RATIOS LOB,CH,ROB=    .0203    .9059    .0738  WSEL=     869.65

 3470 ENCROACHMENT STATIONS=     2000.0     2211.0  TYPE=      4  TARGET=         .079
             VALLEY SECTION (CORPS SECTION 38) J

     380.00     10.60    869.60      0.00    869.55    869.72      .12        .33        .02    861.30
      5600.       0.      5489.       111.     0.       1961.      72.      1040.       147.     861.30
       1.40      0.00      2.80      1.54      .060      .045      .060       .045     859.00   2000.00
   .000362       670.      680.      735.         2         0         0       0.00     211.03   2211.03

 *SECNO 389.000
  2800 NAT Q1=    1978.32  WSEL=     869.55  ENC Q1=    2013.89  WSEL=     869.65  RATIO=  -.0180
  NAT Q1=    2014.  RATIOS LOB,CH,ROB=   0.0000   1.0000   0.0000  WSEL=     869.65

 3470 ENCROACHMENT STATIONS=     2000.0     2166.0  TYPE=      4  TARGET=         0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=     872.90 ELREA=     872.80

     389.00      9.32    869.62      0.00    869.55    869.83      .22        .06        .05    872.90
      5600.       0.      5600.       0.       0.       1493.       0.      1045.       148.     872.80
       1.41      0.00      3.75      0.00      .060      .045      .060       .045     860.30   2000.00
   .000784       120.      120.      120.         2         0         0       0.00     166.00   2166.00

 *SECNO 390.000
  2800 NAT Q1=    4946.30  WSEL=     869.55  ENC Q1=    5034.98  WSEL=     869.65  RATIO=  -.0179
  NAT Q1=    5035.  RATIOS LOB,CH,ROB=   0.0000   1.0000   0.0000  WSEL=     869.65

 3470 ENCROACHMENT STATIONS=     2000.0     2166.0  TYPE=      4  TARGET=         0.000
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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
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 872.90 ELREA= 872.80									
390.00	9.32	869.62	0.00	869.55	869.83	.22	.00	.00	872.90
5600.	0.	5600.	0.	0.	1493.	0.	1045.	148.	872.80
1.41	0.00	3.75	0.00	.060	.018	.060	.045	860.30	2000.00
.000125	1.	1.	1.	0	0	0	0.00	166.00	2166.00

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.56	2.80	0.00	130.00	6.00	1300.00	0.00	860.30	860.30

*SECNO 391.000

3700. BRIDGE STENCL= 2000.00 STENCR= 2166.00

CLASS A LOW FLOW

3420 BRIDGE W.S.= 869.58 BRIDGE VELOCITY=, 4.87 CALCULATED CHANNEL AREA=, 1151.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	869.84	.01	0.	5600.	1300.	1302.	870.80	872.80

3470 ENCROACHMENT STATIONS= 2000.0 2166.0 TYPE= 4 TARGET= 0.000

ELENCL= 0.00 ELENCR= 0.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 872.90 ELREA= 872.80

UPSTREAM FACE OF STATE STREET BRIDGE (CORPS SECTION 39) K

391.00	9.33	869.63	0.00	869.56	869.84	.22	.01	0.00	872.90
5600.	0.	5600.	0.	0.	1495.	0.	1046.	148.	872.80
1.41	0.00	3.75	0.00	.060	.018	.060	.045	860.30	2000.00
.000125	38.	38.	38.	0	0	0	0.00	166.00	2166.00

*SECNO 392.000

2800 NAT Q1= 4954.97 WSEL= 869.56 ENC Q1= 5043.96 WSEL= 869.66 RATIO= -.0180

NAT Q1= 5044. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.66

MOORE BUSINESS FORMS, INC. 27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
C	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

3470 ENCROACHMENT STATIONS= 2000.0 2166.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 872.90 ELREA= 872.80

392.00	9.33	869.63	0.00	869.56	869.84	.22	.00	.00	872.90	
5600.	0.	5600.	0.	0.	1495.	0.	1046.	148.	872.80	
1.41	0.00	3.75	0.00	.060	.018	.060	.045	860.30	2000.00	
.000125	1.	1.	1.	0	0	0	0.00	166.00	2166.00	

CCHV= .100 CEHV= .300

*SECNO 399.000

2800 NAT Q1= 2357.08 WSEL= 869.66 ENC Q1= 2401.44 WSEL= 869.76 RATIO= -.0188

NAT Q1= 2401. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.76

3470 ENCROACHMENT STATIONS= 2017.0 2225.0 TYPE= 4 TARGET= 0.000

399.00	9.12	869.72	0.00	869.66	869.87	.15	.02	.01	869.90	
5600.	0.	5600.	0.	0.	1804.	0.	1050.	148.	869.80	
1.42	0.00	3.10	0.00	.060	.045	.060	.045	860.60	2017.00	
.000552	90.	90.	90.	2	0	0	0.00	208.00	2225.00	

*SECNO 400.000

2800 NAT Q1= 3759.94 WSEL= 869.73 ENC Q1= 3808.93 WSEL= 869.83 RATIO= -.0130

NAT Q1= 3809. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 869.83

3470 ENCROACHMENT STATIONS= 2026.0 2216.0 TYPE= 4 TARGET= 0.000

400.00	12.89	869.79	0.00	869.73	869.88	.09	.00	.01	871.70	
5600.	0.	5600.	0.	0.	2336.	0.	1050.	148.	872.10	
1.42	0.00	2.40	0.00	.060	.045	.060	.045	856.90	2026.00	
.000219	15.	15.	15.	2	0	0	0.00	190.00	2216.00	

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	3.09	0.00	1.00	0.00	1.00	0.00	867.70	856.90

*SECNO 401.000

PRESSURE AND WEIR FLOW

MOORE BUSINESS FORMS INC 27

SECNO / 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

EGRRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
760521.97	880.68	0.00	5621.	11.	1.	0.	867.70	868.10

3470 ENCROACHMENT STATIONS= 2025.9 2216.2 TYPE= 1 TARGET= 190.300
UPSTREAM FACE OF DAM (CORPS SECTION 40) L

401.00	11.15	872.65	0.00	872.65	872.76	.11	2.88	0.00	871.70
5600.	0.	5600.	0.	0.	2119.	0.	1051.	148.	872.30
1.42	.00	2.64	.00	.060	.045	.060	.045	861.50	2025.90
.000296	7.	7.	7.	2	0	16	0.00	190.30	2216.20

CCHV= .100 CEHV= .300
*SECNO 402.000

3470 ENCROACHMENT STATIONS= 2025.9 2216.2 TYPE= 1 TARGET= 190.300
VALLEY SECTION (NO CORPS SECTION) M

402.00	11.11	872.61	0.00	872.61	872.78	.17	.00	.02	871.70
6930.	0.	6930.	0.	0.	2112.	0.	1051.	149.	872.30
1.42	.00	3.28	.00	.100	.045	.100	.045	861.50	2025.90
.000458	13.	13.	13.	2	0	0	0.00	190.30	2216.20

*SECNO 410.000
2800 NAT Q1= 4011.28 WSEL= 873.59 ENC Q1= 4011.28 WSEL= 873.69 RATIO= 0.0000
NAT Q1= 4084. RATIOS LOB,CH,ROB= .0204 .9711 .0085 WSEL= 873.69

3470 ENCROACHMENT STATIONS= 2039.0 2325.0 TYPE= 4 TARGET= .018
VALLEY SECTION (CORPS SECTION 41) N

410.00	12.12	873.62	0.00	873.59	873.73	.11	.94	.01	867.00
6930.	79.	6851.	0.	133.	2541.	0.	1189.	162.	867.00
1.68	.55	2.70	0.00	.100	.045	.100	.045	861.50	2038.99
.000316	2675.	2500.	2400.	2	0	0	0.00	286.01	2325.00

*SECNO 420.000

ESS FORMS INC 27
MOOPF BUSIN

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

2800 NAT Q1= 2148.14 WSEL= 875.20 ENC Q1= 2148.14 WSEL= 875.30 RATIO= .0000
NAT Q1= 2199. RATIOS LOB,CH,ROB= .0784 .8273 .0943 WSEL= 875.30

3470 ENCROACHMENT STATIONS= 1932.5 2371.0 TYPE= 4 TARGET= .023
VALLEY SECTION (CORPS SECTION 42) 0

420.00	10.59	875.29	0.00	875.20	875.61	.32	1.82	.06	867.50
6930.	477.	5868.	585.	348.	1193.	625.	1383.	191.	867.50
1.90	1.37	4.92	.94	.100	.045	.100	.045	864.70	1932.52
.001044	3960.	3430.	3440.	2	0	0	0.00	438.51	2371.03

MOORE BUSINESS FORMS INC 27

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  HEC2 RELEASE DATED NOV 76 UPDATED APR 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

GRAND RIVER

SUMMARY PRINTOUT

	SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
	290.000	863.50	1892.67	2000.00	2170.00	2285.50	392.83	0.00
	290.000	863.60	1960.49	2000.00	2170.00	2190.04	229.55	0.00
	300.000	865.38	1891.43	2000.00	2200.00	2448.10	556.67	3900.00
	300.000	865.48	1988.81	2000.00	2200.00	2398.78	409.97	3900.00
	310.000	866.65	1779.13	2000.00	2185.00	2471.60	692.47	3700.00
	310.000	866.75	1860.94	2000.00	2185.00	2361.94	501.00	3700.00
	320.000	867.56	1460.00	2000.00	2125.00	2234.60	774.60	2780.00
	320.000	867.65	1460.00	2000.00	2125.00	2235.00	775.00	2780.00
	323.900	868.12	1620.00	2018.00	2120.00	2280.00	660.00	1324.00
	323.900	868.19	1620.00	2018.00	2120.00	2280.00	660.00	1324.00
*	324.000	868.18	1620.00	2018.00	2120.00	2280.00	660.00	1.00
*	324.000	868.25	1620.00	2018.00	2120.00	2280.00	660.00	1.00
	330.000	868.72	1550.00	1700.00	2078.00	2210.00	660.00	230.00
	330.000	868.78	1550.00	1700.00	2078.00	2210.00	660.00	230.00
	331.000	868.73	1550.00	1700.00	2078.00	2205.00	655.00	20.00
	331.000	868.78	1550.00	1700.00	2078.00	2205.00	655.00	20.00
	332.000	868.72	1550.00	1700.00	2068.10	2205.00	655.00	5.00
	332.000	868.78	1550.00	1700.00	2068.10	2205.00	655.00	5.00
	333.000	868.72	1550.00	1700.00	2068.10	2205.00	655.00	1.50
	333.000	868.78	1550.00	1700.00	2068.10	2205.00	655.00	1.50
	333.500	868.73	1550.00	1700.00	2068.10	2205.00	655.00	5.00
	333.500	868.78	1550.00	1700.00	2068.10	2205.00	655.00	5.00

MOOPE BUSINESS FORMS INC 27

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
335.000	868.75	1885.00	2022.00	2300.00	2305.00	420.00	240.00
335.000	868.80	1920.42	2022.00	2300.00	2300.00	379.57	240.00
336.000	868.77	1900.00	2032.00	2300.00	2300.10	400.10	20.00
336.000	868.82	1930.26	2032.00	2300.00	2300.00	369.74	20.00
337.000	868.75	1900.00	2032.00	2300.00	2300.10	400.10	4.00
337.000	868.81	1923.39	2032.00	2300.00	2300.00	376.61	4.00
338.000	868.75	1900.00	2032.00	2300.00	2300.10	400.10	1.50
338.000	868.81	1925.82	2032.00	2300.00	2300.00	374.18	1.50
338.500	868.78	1900.00	2032.00	2300.00	2300.10	400.10	5.00
338.500	868.84	1928.49	2032.00	2300.00	2300.00	371.51	5.00
340.000	868.86	2000.00	2007.00	2170.00	2180.00	180.00	325.00
340.000	868.92	2007.00	2007.00	2170.00	2172.81	165.81	325.00
349.000	868.85	2000.00	2000.00	2161.00	2161.00	161.00	30.00
349.000	868.91	2000.00	2000.00	2161.00	2161.00	161.00	30.00
350.000	868.85	2000.00	2000.00	2161.00	2161.00	161.00	1.00
350.000	868.91	2000.00	2000.00	2161.00	2161.00	161.00	1.00
351.000	868.85	2000.00	2000.00	2161.00	2161.00	161.00	40.00
351.000	868.92	2000.00	2000.00	2161.00	2161.00	161.00	40.00
352.000	868.85	2000.00	2000.00	2161.00	2161.00	161.00	1.00
352.000	868.92	2000.00	2000.00	2161.00	2161.00	161.00	1.00
360.000	869.13	2015.65	2015.00	2320.00	2337.12	321.48	385.00
360.000	869.20	2015.54	2015.00	2320.00	2320.00	304.46	385.00
369.000	869.09	2000.00	2000.00	2303.00	2303.00	303.00	50.00
369.000	869.15	2000.00	2000.00	2303.00	2303.00	303.00	50.00
370.000	869.02	2000.00	2000.00	2303.00	2303.00	303.00	1.00
370.000	869.09	2000.00	2000.00	2303.00	2303.00	303.00	1.00
371.000	869.03	2000.00	2000.00	2303.00	2303.00	303.00	8.00
371.000	869.10	2000.00	2000.00	2303.00	2303.00	303.00	8.00
372.000	869.15	2000.00	2000.00	2303.00	2303.00	303.00	1.00
372.000	869.20	2000.00	2000.00	2303.00	2303.00	303.00	1.00
380.000	869.55	1985.00	2000.00	2200.00	2215.00	230.00	680.00
380.000	869.60	2000.00	2000.00	2200.00	2211.03	211.03	680.00
389.000	869.55	2000.00	2000.00	2166.00	2166.00	166.00	120.00
389.000	869.62	2000.00	2000.00	2166.00	2166.00	166.00	120.00

MOORE BUSINESS FORMS INC 27

SECNO	CWSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
390.000	869.55	2000.00	2000.00	2166.00	2166.00	166.00	1.00
390.000	869.62	2000.00	2000.00	2166.00	2166.00	166.00	1.00
391.000	869.56	2000.00	2000.00	2166.00	2166.00	166.00	38.00
391.000	869.63	2000.00	2000.00	2166.00	2166.00	166.00	38.00
392.000	869.56	2000.00	2000.00	2166.00	2166.00	166.00	1.00
392.000	869.63	2000.00	2000.00	2166.00	2166.00	166.00	1.00
399.000	869.66	2017.00	2017.00	2225.00	2225.00	208.00	90.00
399.000	869.72	2017.00	2017.00	2225.00	2225.00	208.00	90.00
400.000	869.73	2026.00	2026.00	2216.00	2216.00	190.00	15.00
400.000	869.79	2026.00	2026.00	2216.00	2216.00	190.00	15.00
401.000	872.65	2025.90	2026.00	2216.10	2216.20	190.30	7.00
401.000	872.65	2025.90	2026.00	2216.10	2216.20	190.30	7.00
402.000	872.61	2025.90	2026.00	2216.10	2216.20	190.30	13.00
402.000	872.61	2025.90	2026.00	2216.10	2216.20	190.30	13.00
410.000	873.59	1975.85	2075.00	2325.00	2478.02	502.17	2500.00
410.000	873.62	2038.99	2075.00	2325.00	2325.00	286.01	2500.00
420.000	875.20	1909.06	2000.00	2120.00	2484.69	575.63	3430.00
420.000	875.29	1932.52	2000.00	2120.00	2371.03	438.51	3430.00

MOORE BUSINESS FORMS INC 27

GRAND RIVER

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	290.000	863.50	0.00	863.73	392.83	210.94	7532.30	106.76	0.00	0.00	2000.00	2170.00	0.00
	290.000	863.60	.10	863.84	229.55	153.03	7648.45	48.53	.02	1960.49	2000.00	2170.00	2190.04
	300.000	865.38	0.00	865.50	556.67	91.15	6717.33	1041.52	0.00	0.00	2000.00	2200.00	0.00
	300.000	865.48	.10	865.61	409.97	23.78	6822.15	1004.07	.02	1988.81	2000.00	2200.00	2398.78
	310.000	866.65	0.00	866.76	692.47	663.17	6323.30	773.53	0.00	0.00	2000.00	2185.00	0.00
	310.000	866.75	.10	866.87	501.00	612.53	6416.57	730.89	.02	1860.94	2000.00	2185.00	2361.94
	320.000	867.56	0.00	867.68	774.60	1571.17	5611.11	577.73	1070.00	1460.00	2000.00	2125.00	2530.00
	320.000	867.65	.09	867.77	775.00	1597.65	5580.68	581.67	775.00	1460.00	2000.00	2125.00	2235.00
	323.900	868.12	0.00	868.56	660.00	976.90	6457.87	325.23	660.00	1620.00	2018.00	2120.00	2280.00
	323.900	868.19	.07	868.62	660.00	1005.27	6418.23	336.50	660.00	1620.00	2018.00	2120.00	2280.00
*	324.000	868.18	0.00	868.61	660.00	1000.18	6425.35	334.48	660.00	1620.00	2018.00	2120.00	2280.00
*	324.000	868.25	.07	868.67	660.00	1028.36	6385.96	345.69	660.00	1620.00	2018.00	2120.00	2280.00
	330.000	868.72	0.00	868.75	660.00	328.48	5197.48	74.04	660.00	1550.00	1700.00	2078.00	2210.00
	330.000	868.78	.06	868.81	660.00	331.93	5191.57	76.50	660.00	1550.00	1700.00	2078.00	2210.00
	331.000	868.73	0.00	868.76	655.00	524.16	4961.39	114.45	655.00	1550.00	1700.00	2078.00	2205.00
	331.000	868.78	.06	868.81	655.00	529.26	4952.64	118.10	655.00	1550.00	1700.00	2078.00	2205.00
	332.000	868.72	0.00	868.76	655.00	667.26	4806.56	126.18	655.00	1550.00	1700.00	2068.10	2205.00
	332.000	868.78	.06	868.82	655.00	672.77	4796.10	131.13	655.00	1550.00	1700.00	2068.10	2205.00
	333.000	868.72	0.00	868.76	655.00	666.62	4807.75	125.63	655.00	1550.00	1700.00	2068.10	2205.00
	333.000	868.78	.06	868.82	655.00	672.16	4797.25	130.58	655.00	1550.00	1700.00	2068.10	2205.00
	333.500	868.73	0.00	868.76	655.00	640.89	4838.26	120.85	655.00	1550.00	1700.00	2068.10	2205.00
	333.500	868.78	.06	868.82	655.00	646.43	4827.92	125.65	655.00	1550.00	1700.00	2068.10	2205.00
	335.000	868.75	0.00	868.84	420.00	360.06	5221.28	18.66	420.00	1885.00	2022.00	2300.00	2305.00
	335.000	868.80	.05	868.90	379.57	276.35	5323.65	0.00	.22	1920.42	2022.00	2300.00	2300.00
	336.000	868.77	0.00	868.85	400.10	522.37	5077.56	.06	400.10	1900.00	2032.00	2300.00	2300.10
	336.000	868.82	.05	868.91	369.74	411.75	5188.25	0.00	.31	1930.26	2032.00	2300.00	2300.00
	337.000	868.75	0.00	868.86	400.10	851.71	4748.22	.07	400.10	1900.00	2032.00	2300.00	2300.10
	337.000	868.81	.05	868.92	376.61	745.72	4854.28	0.00	.35	1923.39	2032.00	2300.00	2300.00
	338.000	868.75	0.00	868.86	400.10	850.83	4749.11	.07	400.10	1900.00	2032.00	2300.00	2300.10
	338.000	868.81	.05	868.92	374.18	731.66	4868.34	0.00	.35	1925.82	2032.00	2300.00	2300.00
	338.500	868.78	0.00	868.87	400.10	644.62	4955.33	.05	400.10	1900.00	2032.00	2300.00	2300.10
	338.500	868.84	.06	868.93	371.51	540.78	5059.21	0.00	.29	1928.49	2032.00	2300.00	2300.00

MOORE BUSINESS FORMS INC 27

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
340.000	868.86	0.00	869.00	180.00	21.18	5495.65	83.17	180.00	2000.00	2007.00	2170.00	2180.00
340.000	868.92	.06	869.07	165.81	0.00	5583.95	16.05	.08	2007.00	2007.00	2170.00	2172.81
349.000	868.85	0.00	869.02	161.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2161.00	0.00
349.000	868.91	.07	869.09	161.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2161.00	2161.00
350.000	868.85	0.00	869.02	161.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2161.00	0.00
350.000	868.91	.07	869.09	161.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2161.00	2161.00
351.000	868.85	0.00	869.03	161.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2161.00	0.00
351.000	868.92	.07	869.10	161.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2161.00	2161.00
352.000	868.85	0.00	869.03	161.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2161.00	0.00
352.000	868.92	.07	869.10	161.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2161.00	2161.00
360.000	869.13	0.00	869.21	321.48	0.00	5552.14	47.86	0.00	0.00	2015.00	2320.00	0.00
360.000	869.20	.06	869.28	304.46	0.00	5600.00	0.00	.01	2015.00	2015.00	2320.00	2320.00
369.000	869.09	0.00	869.27	303.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2303.00	0.00
369.000	869.15	.06	869.33	303.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2303.00	2303.00
370.000	869.02	0.00	869.30	303.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2303.00	0.00
370.000	869.09	.08	869.36	303.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2303.00	2303.00
371.000	869.03	0.00	869.31	303.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2303.00	0.00
371.000	869.10	.07	869.37	303.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2303.00	2303.00
372.000	869.15	0.00	869.33	303.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2303.00	0.00
372.000	869.20	.06	869.38	303.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2303.00	2303.00
380.000	869.55	0.00	869.66	230.00	61.12	5414.16	124.72	230.00	1985.00	2000.00	2200.00	2215.00
380.000	869.60	.06	869.72	211.03	0.00	5489.10	110.90	.08	2000.00	2000.00	2200.00	2211.03
389.000	869.55	0.00	869.78	166.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2166.00	0.00
389.000	869.62	.06	869.83	166.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2166.00	2166.00
390.000	869.55	0.00	869.78	166.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2166.00	0.00
390.000	869.62	.06	869.83	166.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2166.00	2166.00
391.000	869.56	0.00	869.79	166.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2166.00	0.00
391.000	869.63	.06	869.84	166.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2166.00	2166.00
392.000	869.56	0.00	869.79	166.00	0.00	5600.00	0.00	0.00	0.00	2000.00	2166.00	0.00
392.000	869.63	.06	869.84	166.00	0.00	5600.00	0.00	0.00	2000.00	2000.00	2166.00	2166.00
399.000	869.66	0.00	869.81	208.00	0.00	5600.00	0.00	208.20	2016.90	2017.00	2225.00	2225.10
399.000	869.72	.06	869.87	208.00	0.00	5600.00	0.00	0.00	2017.00	2017.00	2225.00	2225.00
400.000	869.73	0.00	869.82	190.00	0.00	5600.00	0.00	0.00	0.00	2026.00	2216.00	0.00
400.000	869.79	.06	869.88	190.00	0.00	5600.00	0.00	0.00	2026.00	2026.00	2216.00	2216.00

MOORE BUSINESS FORMS INC 27

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
401.000	872.65	0.00	872.75	190.30	.00	5600.00	.00	190.30	2025.90	2026.00	2216.10	2216.20
401.000	872.65	.00	872.76	190.30	.00	5600.00	.00	190.30	2025.90	2026.00	2216.10	2216.20
402.000	872.61	0.00	872.78	190.30	.00	6930.00	.00	190.30	2025.90	2026.00	2216.10	2216.20
402.000	872.61	.00	872.78	190.30	.00	6930.00	.00	190.30	2025.90	2026.00	2216.10	2216.20
410.000	873.59	0.00	873.70	502.17	136.65	6740.19	53.15	0.00	0.00	2075.00	2325.00	0.00
410.000	873.62	.03	873.73	286.01	78.85	6851.15	0.00	.02	2038.99	2075.00	2325.00	2325.00
420.000	875.20	0.00	875.51	575.63	536.93	5770.14	622.92	0.00	0.00	2000.00	2120.00	0.00
420.000	875.29	.09	875.61	438.51	477.02	5868.09	584.89	.02	1932.52	2000.00	2120.00	2371.03

MOORE BUSINESS FORMS INC 27

SUMMARY OF ERRORS

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NOTE      SECNO=  324.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE      SECNO=  324.000  PROFILE= 2  WSEL BASED ON X5 CARD
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MOORE BUSINESS FO... RMS INC. 27

FLOODWAY DATA, GRAND RIVER
PROFILE NO. 2

	STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
	290.000	230.	2156.	3.6	863.6	863.5	.1
	300.000	410.	3424.	2.3	865.5	865.4	.1
A	310.000	501.	3792.	2.0	866.7	866.6	.1
B	320.000	775.	4490.	1.7	867.7	867.6	.1
	323.500	660.	2437.	3.2	868.2	868.1	.1
C	324.000	660.	2476.	3.1	868.3	868.2	.1
	330.000	660.	4435.	1.3	868.8	868.7	.1
	331.000	655.	4434.	1.3	868.8	868.7	.1
D	332.000	655.	3848.	1.5	868.8	868.7	.1
	333.000	655.	3844.	1.5	868.8	868.7	.1
	333.500	655.	3964.	1.4	868.8	868.7	.1
	335.000	380.	2485.	2.3	868.9	868.8	.1
	336.000	370.	2515.	2.2	868.9	868.8	.1
E	337.000	377.	2171.	2.6	868.9	868.8	.1
	338.000	374.	2158.	2.6	868.9	868.8	.1
	338.500	372.	2508.	2.2	868.9	868.8	.1
F	340.000	166.	1822.	3.1	869.0	868.9	.1
	349.000	161.	1666.	3.4	868.9	868.8	.1
	350.000	161.	1664.	3.4	868.9	868.8	.1
G	351.000	161.	1666.	3.4	869.0	868.9	.1
	352.000	161.	1666.	3.4	869.0	868.9	.1
H	360.000	304.	2442.	2.3	869.2	869.1	.1
	369.000	303.	1660.	3.4	869.2	869.1	.1
	370.000	303.	1357.	4.1	869.1	869.0	.1
H	371.000	303.	1359.	4.1	869.1	869.0	.1
	372.000	303.	1675.	3.3	869.2	869.1	.1
J	380.000	211.	2033.	2.8	869.6	869.5	.1
	389.000	166.	1493.	3.7	869.7	869.6	.1
	390.000	166.	1493.	3.7	869.7	869.6	.1
K	391.000	166.	1495.	3.7	869.7	869.6	.1
	392.000	166.	1495.	3.7	869.7	869.6	.1
	399.000	208.	1804.	3.1	869.8	869.7	.1
	400.000	190.	2336.	2.4	869.8	869.7	.1
L	401.000	190.	2119.	2.6	872.6	872.6	0.0
M	402.000	190.	2112.	3.3	872.6	872.6	0.0
N	410.000	286.	2674.	2.6	873.6	873.6	0.0
O	420.000	439.	2165.	3.2	875.3	875.2	.1

MOORE BUSINESS FORMS INC 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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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

MOORE BUSINESS FO

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Floodway modified

00BREAK00

THIS RUN EXECUTED 12/18/81

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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FLOODWAY MODIFIED 1-5-82

T1 EATON RAPIDS
T2 100 YEAR FLOW
T3 GRAND RIVER

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.0	0.0	0.0	0.	863.500	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
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	0.100	0.100	0.045	0.100	0.300	0.0	0.0	0.0	0.0	0.0
QT	7.000	4593.000	6826.000	7850.000	10420.000	7850.000	6300.000	3860.000	0.0	0.0
ET	0.0	0.0	0.0	0.0	0.0	1.410	0.0	0.0	0.0	0.0
X1	290.000	12.000	2000.000	2170.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	870.000	1800.000	867.000	1825.000	859.500	1970.000	859.000	2000.000	852.000	2005.000
GR	852.000	2090.000	851.500	2095.000	851.500	2100.000	852.000	2120.000	852.000	2160.000
GR	860.000	2170.000	870.000	2500.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	300.000	9.000	2000.000	2200.000	3900.000	3900.000	3900.000	0.0	0.0	0.0
GR	874.000	1650.000	861.500	2000.000	855.000	2010.000	852.900	2100.000	854.300	2145.000
GR	855.000	2200.000	858.500	2200.000	861.000	2400.000	870.100	2500.000	0.0	0.0
QT	7.000	4540.000	6750.000	7760.000	10300.000	7760.000	6300.000	3860.000	0.0	0.0

VALLEY SECTION (CORPS SECTION 31) A

X1	310.000	18.000	2000.000	2185.000	3700.000	3700.000	3700.000	0.0	0.0	0.0
GR	871.000	1700.000	860.000	1900.000	862.500	1980.000	852.000	2000.000	858.000	2015.000
GR	855.700	2015.000	854.000	2040.000	854.000	2100.000	855.300	2140.000	855.700	2160.000
GR	855.300	2185.000	860.000	2185.000	860.000	2230.000	862.500	2270.000	862.000	2300.000
GR	864.000	2370.000	866.000	2450.000	867.500	2500.000	0.0	0.0	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	7.100	1460.000	2235.000	1460.000	2530.000

VALLEY SECTION (CORPS SECTION 32) B

X1	320.000	30.000	2000.000	2125.000	2750.000	2810.000	2780.000	0.0	0.0	0.0
GR	880.000	700.000	875.000	750.000	870.000	800.000	865.000	1150.000	863.600	1300.000
GR	861.000	1460.000	861.100	1560.000	865.000	1660.000	866.000	1710.000	866.000	1810.000
GR	864.300	1860.000	862.900	1910.000	865.000	1960.000	857.000	2000.000	854.900	2030.000
GR	852.800	2040.000	853.300	2060.000	853.400	2085.000	854.000	2120.000	858.000	2125.000
GR	853.300	2135.000	861.200	2150.000	861.500	2200.000	868.500	2240.000	869.000	2270.000
GR	871.200	2320.000	873.000	2380.000	873.200	2430.000	874.000	2480.000	877.000	2530.000
ET	9.0	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1880.000	2190.000
X1	323.000	38.000	2018.000	2120.000	1399.000	1289.000	1324.000	0.0	0.0	0.0
GR	879.300	500.000	878.800	600.000	880.000	700.000	880.000	820.000	0.0	0.0

GR	[illegible]	2000.000	[illegible]	2006.000	860.500	1700.000	866.700	1800.000	866.400	1900.000
GR	[illegible]	2102.000	860.500	2120.000	865.300	2018.000	855.000	2052.000	856.600	2076.000
GR	[illegible]	2300.000	865.600	2400.000	868.000	2130.000	866.000	2142.000	866.800	2200.000
GR	[illegible]	2800.000	871.000	2900.000	873.000	2500.000	869.200	2600.000	868.300	2700.000
GR	[illegible]	3300.000	878.400	3400.000	881.000	3000.000	873.000	3100.000	876.000	3200.000
ET	0.0	9.100	9.100	9.100	9.100	3500.000	0.0	0.0	0.0	0.0
						9.100	9.100	9.100	1880.000	2190.000

VALLEY SECTION (NO CORPS SECTION) C

X1	224.000	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
QT	7.000	2950.000	4750.000	5600.000	7560.000	5600.000	4900.000	3140.000	0.0	0.0
NH	5.000	0.100	1700.000	0.045	1800.000	0.100	2000.000	0.045	2078.000	0.100
NH	3500.000	0.0	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	9.100	9.100	1680.000	2130.000

X1	230.000	35.000	1700.000	2078.000	550.000	100.000	230.000	0.0	0.0	0.0
X4	2.000	856.000	1705.000	856.000	1795.000	0.0	0.0	0.0	0.0	0.0
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	865.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.000	862.600	1900.000
GR	861.200	2000.000	855.200	2000.000	856.100	2042.000	859.300	2068.000	861.200	2078.000
GR	868.000	2100.000	866.800	2200.000	865.900	2300.000	866.900	2400.000	867.500	2500.000
GR	867.700	2600.000	869.000	2700.000	868.200	2800.000	869.000	2900.000	870.200	3000.000
GR	873.000	3100.000	874.500	3200.000	876.000	3300.000	880.000	3400.000	880.000	3500.000
NH	5.000	0.060	1700.000	0.045	1800.000	0.100	2000.000	0.045	2078.000	0.060
NH	3500.000	0.0	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	9.100	9.100	1680.000	2130.000

X1	231.000	0.0	0.0	0.0	20.000	20.000	20.000	0.0	0.0	0.0
NH	5.000	0.060	1700.000	0.045	1800.000	0.100	2000.000	0.045	2068.000	0.060
NH	3500.000	0.0	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	9.100	9.100	1680.000	2130.000

UPSTREAM FACE OF DAM (CORPS SECTION 33) D

X1	232.000	33.000	1700.000	2068.100	5.000	5.000	5.000	0.0	0.0	0.0
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.0
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	865.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	862.200	2000.100	862.200	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.0	0.0	0.0	0.0
NH	5.000	0.060	1700.000	0.045	1800.000	0.100	2000.000	0.045	2068.000	0.060
NH	3500.000	0.0	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	9.100	9.100	1680.000	2130.000

X1	233.000	0.0	0.0	0.0	1.500	1.500	1.500	0.0	0.0	0.0
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.0
NH	5.000	0.060	1700.000	0.045	1800.100	0.100	2000.000	0.045	2068.100	0.060
NH	3500.000	0.0	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	9.100	9.100	1680.000	2130.000

X1	233.500	33.000	1700.000	2068.100	5.000	5.000	5.000	0.0	0.0	0.0
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	861.300	2068.000	0.0
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	865.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	860.600	2000.100	860.000	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.0	0.0	0.0	0.0
NH	5.000	0.100	2022.000	0.045	2115.000	0.100	2157.000			

ET		9.100	9.100	9.100	9.100	1.410	9.100	9.100	1885.000	2305.000
X1	339.000	33.000	2022.000	2300.000	20.000	340.000	240.000	0.0	0.0	0.0
X4	2.000	862.000	2115.100	861.000	2157.100	0.0	0.0	0.0	0.0	0.0
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	857.300	1800.000	865.000	1900.000
GR	865.600	2010.000	851.400	2022.000	859.600	2097.000	860.300	2115.000	862.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	891.600	3300.000	880.000	3400.000	879.300	3500.000	0.0	0.0	0.0	0.0
NH	5.000	0.060	2032.000	0.045	2115.000	0.100	2157.000	0.045	2300.000	0.060
NH	3500.000	0.0	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	0.0	9.100	9.100	2020.000	2300.100
X1	336.000	33.000	2032.000	2300.000	20.000	20.000	20.000	0.0	0.0	0.0
X4	3.000	859.900	2032.100	864.300	2157.100	861.500	2155.000	0.0	0.0	0.0
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	864.300	2032.000	858.600	2097.000	859.200	2115.000	861.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	891.600	3300.000	880.000	3400.000	879.300	3500.000	0.0	0.0	0.0	0.0
NH	5.000	0.060	2032.000	0.045	2115.000	0.045	2157.000	0.045	2300.000	0.060
NH	3500.000	0.0	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	0.0	9.100	9.100	2020.000	2300.100

UPSTREAM FACE OF DAM (NO CORPS SECTION) E

X1	337.000	32.000	2032.000	2300.000	4.000	4.000	4.000	0.0	0.0	0.0
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2150.000	861.500	2160.100	0.0
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	862.300	2097.000	862.300	2115.000	862.300	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.0	0.0	0.0	0.0	0.0	0.0
NH	5.000	0.060	2032.000	0.045	2115.000	0.045	2157.000	0.045	2300.000	0.060
NH	3500.000	0.0	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	0.0	9.100	9.100	2020.000	2300.100
X1	338.000	0.0	0.0	0.0	1.500	1.500	1.500	0.0	0.0	0.0
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.0
NC	0.060	0.060	0.045	0.100	0.300	0.0	0.0	0.0	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	0.0	9.100	9.100	2020.000	2300.100
X1	339.500	32.000	2032.000	2300.000	5.000	5.000	5.000	0.0	0.0	0.0
X4	2.000	859.500	2160.000	860.700	2290.000	0.0	0.0	0.0	0.0	0.0
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	861.500	2097.000	861.500	2115.000	861.000	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	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	9.100	9.100	2000.000	2180.000

VALLEY SECTION (CORPS SECTION 34) F

X1	340.000	16.000	2007.000	2170.000	300.000	390.000	325.000	0.0	0.0	0.0
GR	871.000	1950.000	870.000	1980.000	865.400	2005.000	863.000	2006.000	861.200	2007.000
GR	859.100	2025.000	858.000	2050.000	857.200	2100.000	857.200	2150.000	857.400	2160.000
GR	871.500	2170.000	867.000	2185.000	865.000	2205.000	863.000	2220.000	863.000	2230.000

EJ		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*PROF 1

CCHV= 0.100 CEHV= 0.500

*SECNO 290.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	GCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	WLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
290.00	12.00	863.50	0.0	863.50	863.73	0.23	0.0	0.0	859.00
7850.	211.	7532.	107.	282.	1906.	202.	0.	0.	860.00
0.0	0.75	3.95	0.53	0.100	0.045	0.100	0.0	851.50	1892.67
0.000599	0.	0.	0.	0	0	0	0.0	392.83	2285.50

*SECNO 300.000

300.00	12.48	865.38	0.0	0.0	865.50	0.12	1.76	0.01	861.50
7850.	91.	6717.	1041.	210.	2220.	1231.	271.	43.	858.50
0.40	0.43	3.03	0.85	0.100	0.045	0.100	0.045	852.90	1891.44
0.000352	3900.	3900.	3900.	2	0	0	0.0	556.66	2448.10

VALLEY SECTION A

*SECNO 310.000

310.00	12.65	866.65	0.0	0.0	866.76	0.11	1.26	0.00	862.00
7760.	663.	6323.	774.	922.	2123.	1041.	600.	96.	860.00
0.80	0.72	2.98	0.74	0.100	0.045	0.100	0.045	854.00	1779.13
0.000330	3700.	3700.	3700.	2	0	0	0.0	692.46	2471.59

*SECNO 320.000 VALLEY SECTION B

3470 ENCROACHMENT STATIONS= 1460.0 2530.0 TYPE= 1 TARGET= 1070.000

320.00	14.75	867.55	0.0	0.0	867.68	0.13	0.92	0.00	857.00
7760.	1571.	5611.	578.	2120.	1673.	626.	871.	142.	858.00
1.09	0.74	3.35	0.92	0.100	0.045	0.100	0.045	852.80	1460.00
0.000330	2750.	2780.	2810.	2	0	0	0.0	774.60	2234.60

*SECNO 323.900

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

3470 ENCROACHMENT STATIONS= 1880.0 2190.0 TYPE= 1 TARGET= 310.000

323.90	13.08	868.08	0.0	0.0	868.65	0.57	0.83	0.13	860.50
7760.	581.	6992.	187.	431.	1098.	165.	966.	159.	860.50
1.15	1.35	6.37	1.13	0.100	0.045	0.100	0.045	855.00	1880.00
0.001580	1399.	1324.	1299.	2	0	0	0.0	310.00	2190.00

*SECNO 324.000 VALLEY SECTION C

3470 ENCROACHMENT STATIONS= 1880.0 2190.0 TYPE= 1 TARGET= 310.000

324.00	13.08	868.08	0.0	0.0	868.65	0.57	0.00	0.00	860.50
7760.	582.	6992.	187.	431.	1098.	165.	966.	159.	860.50
1.15	1.35	6.37	1.13	0.100	0.045	0.100	0.045	855.00	1880.00
0.001580	1.	1.	1.	0	0	0	0.0	310.00	2190.00

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=			1680.0	2130.0	TYPE=	1	TARGET=		450.000	
333.00	13.57	868.77	0.0	0.0	868.81	0.04	0.11	0.05	862.50	
5500.	63.	5489.	48.	120.	3503.	120.	982.	162.	861.20	
1.20	0.63	1.57	0.40	0.100	0.072	0.100	0.045	855.20	1680.00	
0.000126	550.	230.	100.	2	0	0	0.0	450.00	2130.00	

1490 NH CARD USED
*SECNO 331.000

3470 ENCROACHMENT STATIONS=			1680.0	2130.0	TYPE=	1	TARGET=		450.000	
331.00	13.56	868.76	0.0	0.0	868.81	0.05	0.00	0.00	862.50	
5600.	150.	5335.	115.	120.	2908.	120.	983.	162.	861.20	
1.20	1.25	1.83	0.96	0.060	0.059	0.060	0.045	855.20	1680.00	
0.000326	20.	20.	20.	2	0	0	0.0	450.00	2130.00	

1490 NH CARD USED
*SECNO 332.000

Upstream Face of Dam D

3470 ENCROACHMENT STATIONS=			1680.0	2130.0	TYPE=	1	TARGET=		450.000	
332.00	12.77	868.77	0.0	0.0	868.82	0.05	0.00	0.00	862.50	
5600.	136.	5381.	93.	120.	2921.	118.	983.	162.	863.90	
1.20	1.13	1.84	0.70	0.060	0.084	0.060	0.045	856.00	1680.00	
0.000267	5.	5.	5.	0	0	0	0.0	450.00	2130.00	

1490 NH CARD USED
*SECNO 333.000

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=			1680.0	2130.0	TYPE=	1	TARGET=		450.000	
333.00	12.77	868.77	0.0	0.0	868.82	0.05	0.00	0.00	862.50	
5600.	136.	5381.	83.	120.	2922.	118.	984.	162.	863.90	
1.20	1.13	1.84	0.70	0.060	0.084	0.060	0.045	856.00	1680.00	
0.000267	2.	2.	2.	0	0	0	0.0	450.00	2130.00	

1490 NH CARD USED
*SECNO 333.500

3470 ENCROACHMENT STATIONS=			1680.0	2130.0	TYPE=	1	TARGET=		450.000	
333.50	12.77	868.77	0.0	0.0	868.82	0.05	0.00	0.00	862.50	
5600.	130.	5390.	79.	120.	3042.	118.	984.	162.	863.90	
1.20	1.09	1.77	0.67	0.060	0.079	0.060	0.045	856.00	1680.00	
0.000244	5.	5.	5.	0	0	0	0.0	450.00	2130.00	

1490 NH CARD USED
*SECNO 335.000

3470 ENCROACHMENT STATIONS=			1885.0	2305.0	TYPE=	1	TARGET=		420.000	
335.00	10.21	868.81	0.0	0.0	868.90	0.09	0.07	0.01	861.40	
5600.	365.	5216.	19.	506.	2118.	31.	999.	164.	862.50	
1.23	0.72	2.46	0.61	0.100	0.071	0.100	0.045	858.60	1885.00	
0.000421	20.	240.	340.	0	0	0	0.0	420.00	2305.00	

*SECNO 335.000

3470 ENCROACHMENT STATIONS= 2020.0 2300.1 TYPE= 1 TARGET= 280.100
336.00 10.21 868.81 0.0 0.0 868.92 0.10 0.01 0.00 864.30
5600. 57. 5543. 0. 50. 2157. 1. 1000. 164. 862.50
1.23 1.15 2.57 0.11 0.060 0.071 0.060 0.045 858.60 2020.00
0.000463 20. 20. 20. 0 0 0 0.0 280.10 2300.10

1490 NH CARD USED
*SECNO 337.000 Upstream Face of Dam E

3470 ENCROACHMENT STATIONS= 2020.0 2300.1 TYPE= 1 TARGET= 280.100
337.00 7.27 868.77 0.0 0.0 868.94 0.16 0.00 0.02 864.30
5600. 84. 5516. 0. 53. 1701. 1. 1000. 164. 863.50
1.23 1.58 3.24 0.15 0.060 0.045 0.060 0.045 861.50 2020.00
0.000843 4. 4. 4. 2 0 0 0.0 280.10 2300.10

1490 NH CARD USED
*SECNO 339.000

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

3470 ENCROACHMENT STATIONS= 2020.0 2300.1 TYPE= 1 TARGET= 280.100
338.00 7.28 868.78 0.0 0.0 868.94 0.16 0.00 0.00 864.30
5600. 84. 5516. 0. 53. 1701. 1. 1000. 164. 863.50
1.23 1.58 3.24 0.15 0.060 0.045 0.060 0.045 861.50 2020.00
0.000843 2. 2. 2. 0 0 0 0.0 280.10 2300.10

CCHV= 0.100 CEHV= 0.300
*SECNO 339.500

3470 ENCROACHMENT STATIONS= 2020.0 2300.1 TYPE= 1 TARGET= 280.100
338.50 9.33 868.83 0.0 0.0 868.95 0.11 0.00 0.01 864.30
5600. 62. 5538. 0. 54. 2065. 1. 1000. 164. 863.50
1.24 1.14 2.68 0.11 0.060 0.045 0.060 0.045 859.50 2020.00
0.000435 5. 5. 5. 2 0 0 0.0 280.10 2300.10

*SECNO 340.000 Valley Section F

3470 ENCROACHMENT STATIONS= 2000.0 2180.0 TYPE= 1 TARGET= 180.000
340.00 11.74 868.94 0.0 0.0 869.08 0.14 0.13 0.01 861.20
5600. 22. 5495. 84. 27. 1805. 69. 1015. 166. 861.50
1.27 0.80 3.05 1.20 0.060 0.045 0.060 0.045 857.20 2000.00
0.000348 300. 325. 390. 2 0 0 0.0 180.00 2180.00

THIS RUN EXECUTED 12/18/81

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1      EATON RAPIDS
T2      ENCROACHMENT RUN
T3      GRAND RIVER

J1  ICHECK     INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       6.        0.        0.  0.0           0.0       0.0       0.   863.600     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 290.000
 2800 NAT Q1=   3206.40  WSEL=    863.50  ENC Q1=   3206.40  WSEL=    863.60  RATIO=  0.0
 NAT Q1=   3260.  RATIOS LOB,CH,ROB=  0.0278  0.9578  0.0144  WSEL=    863.60
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         GLOB      GCH       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=    1960.5    2190.1  TYPE=     4  TARGET=          0.016
   290.00     12.10   863.60     0.0     863.50    863.84    0.24      0.0       0.0     859.00
    7850.      153.    7648.      49.      167.     1923.     66.       0.        0.      860.00
      0.0      0.92    3.98      0.73     0.100     0.045    0.100     0.0     851.50    1960.46
 0.000600        0.      0.        0.       0         0        0       0.0     229.63    2190.08

*SECNO 300.000
 2800 NAT Q1=   4186.17  WSEL=    865.38  ENC Q1=   4186.16  WSEL=    865.48  RATIO=  0.0000
 NAT Q1=   4265.  RATIOS LOB,CH,ROB=  0.0122  0.8533  0.1345  WSEL=    865.48

3470 ENCROACHMENT STATIONS=    1988.8    2398.8  TYPE=    -4  TARGET=          0.018
   300.00     12.58   865.48     0.0     865.38    865.61    0.13      1.76      0.01    861.50
    7850.      24.    6822.     1004.      42.     2241.    1141.     250.      29.     858.50
     0.39      0.56    3.04      0.88     0.100     0.045    0.100     0.045   852.90    1988.79
 0.000351      3900.   3900.     3900.      2         0        0       0.0     410.00    2398.80

*SECNO 310.000
 2800 NAT Q1=   4274.73  WSEL=    866.65  ENC Q1=   4274.73  WSEL=    866.75  RATIO=  0.0
 NAT Q1=   4355.  RATIOS LOB,CH,ROB=  0.0869  0.8115  0.1016  WSEL=    866.75

3470 ENCROACHMENT STATIONS=    1960.9    2362.0  TYPE=     4  TARGET=          0.019
   310.00     12.75   866.75     0.0     866.65    866.87    0.12      1.26      0.00    862.00
    7760.      613.    6416.     731.      752.     2142.     899.      556.      67.     860.00
     0.79      0.81    3.00      0.81     0.100     0.045    0.100     0.045   854.00    1860.89
 0.000329      3700.   3700.     3700.      2         0        0       0.0     501.16    2362.04
```

*S[illegible]

3470 ENCROACHMENT STATIONS= 1460.0 2235.0 TYPE= 1 TARGET= 775.000

320.00	14.85	867.55	0.0	867.55	867.77	0.13	0.90	0.00	857.00
7760.	1598.	5581.	582.	2169.	1685.	636.	820.	108.	858.00
1.09	0.74	3.31	0.91	0.100	0.045	0.100	0.045	852.80	1460.00
0.000319	2750.	2780.	2810.	2	0	0	0.0	775.00	2235.00

*SECNO 323.900

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

3470 ENCROACHMENT STATIONS= 1880.0 2190.0 TYPE= 1 TARGET= 310.000

323.90	13.15	868.15	0.0	868.08	868.71	0.56	0.80	0.13	860.50
7760.	594.	6974.	192.	441.	1105.	170.	916.	125.	860.50
1.15	1.35	6.31	1.13	0.100	0.045	0.100	0.045	855.00	1880.00
0.001538	1399.	1324.	1289.	2	0	0	0.0	310.00	2190.00

*SECNO 324.000

3470 ENCROACHMENT STATIONS= 1880.0 2190.0 TYPE= 1 TARGET= 310.000

324.00	13.15	868.15	0.0	868.08	868.71	0.56	0.00	0.00	860.50
7760.	594.	6974.	192.	441.	1105.	170.	916.	125.	860.50
1.15	1.35	6.31	1.13	0.100	0.045	0.100	0.045	855.00	1880.00
0.001537	1.	1.	1.	0	0	0	0.0	310.00	2190.00

1490 NH CARD USED
*SECNO 330.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1680.0 2130.0 TYPE= 1 TARGET= 450.000

330.00	13.63	868.83	0.0	868.77	868.86	0.04	0.10	0.05	862.50
5600.	64.	5487.	49.	122.	3525.	123.	933.	127.	861.20
1.19	0.52	1.56	0.40	0.100	0.072	0.100	0.045	855.20	1680.00
0.000158	550.	230.	100.	2	0	0	0.0	450.00	2130.00

1490 NH CARD USED
*SECNO 331.000

3470 ENCROACHMENT STATIONS= 1680.0 2130.0 TYPE= 1 TARGET= 450.000

331.00	13.62	868.82	0.0	868.76	868.87	0.05	0.00	0.00	862.50
5600.	151.	5332.	117.	121.	2930.	123.	934.	128.	861.20
1.19	1.24	1.82	0.95	0.060	0.059	0.060	0.045	855.20	1680.00
0.000318	20.	20.	20.	2	0	0	0.0	450.00	2130.00

1490 NH CARD USED
*SECNO 332.000

3470 ENCROACHMENT STATIONS= 1680.0 2130.0 TYPE= 1 TARGET= 450.000

332.00	12.82	868.82	0.0	868.77	868.87	0.05	0.00	0.00	862.50
5600.	136.	5378.	85.	121.	2942.	122.	935.	128.	863.90
1.19	1.12	1.83	0.70	0.060	0.084	0.060	0.045	856.00	1680.00
0.000261	5.	5.	5.	0	0	0	0.0	450.00	2130.00

1490 [illegible]

		CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	GCH	GROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TYP	WLOB	WCH	WROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1680.0 2130.0 TYPE= 1 TARGET= 450.000

333.00	12.82	868.82	0.0	868.77	868.87	0.05	0.00	0.00	862.50
5600.	136.	5378.	85.	121.	2943.	122.	935.	128.	863.90
1.10	1.12	1.83	0.70	0.060	0.084	0.060	0.045	856.00	1680.00
0.000281	2.	2.	2.	0	0	0	0.0	450.00	2130.00

1490 NH CARD USED
*SECNO 333.500

3470 ENCROACHMENT STATIONS= 1680.0 2130.0 TYPE= 1 TARGET= 450.000

333.50	12.83	868.83	0.0	868.77	868.87	0.05	0.00	0.00	862.50
5600.	131.	5387.	82.	121.	3063.	122.	935.	128.	863.90
1.10	1.08	1.76	0.67	0.060	0.079	0.060	0.045	856.00	1680.00
0.000239	5.	5.	5.	0	0	0	0.0	450.00	2130.00

1490 NH CARD USED
*SECNO 335.000
2800 NAT Q1= 2728.64 WSEL= 868.81 ENC Q1= 2728.64 WSEL= 868.91 RATIO= -0.0000
NAT Q1= 1489. RATIOS LOB,CH,ROB= 0.2232 0.7431 0.0337 WSEL= 868.91

3470 ENCROACHMENT STATIONS= 1920.2 2300.0 TYPE= 4 TARGET= 0.218

335.00	10.27	868.87	0.0	868.81	868.96	0.09	0.07	0.01	861.40
5600.	281.	5319.	0.	381.	2133.	0.	950.	130.	862.50
1.22	0.74	2.49	0.0	0.100	0.071	0.100	0.045	858.60	1920.19
0.000440	20.	240.	340.	0	0	0	0.0	379.81	2300.00

1490 NH CARD USED
*SECNO 336.000
2800 NAT Q1= 2601.85 WSEL= 868.81 ENC Q1= 2623.90 WSEL= 868.91 RATIO= -0.0085
NAT Q1= 4123. RATIOS LOB,CH,ROB= 0.3161 0.6364 0.0475 WSEL= 868.91

3470 ENCROACHMENT STATIONS= 2032.0 2300.0 TYPE= 4 TARGET= 0.364

336.00	10.27	868.87	0.0	868.81	868.97	0.10	0.01	0.00	864.30
5600.	0.	5600.	0.	0.	2172.	0.	951.	130.	862.50
1.22	0.0	2.58	0.0	0.060	0.077	0.060	0.045	858.60	2032.00
0.000478	20.	20.	20.	0	0	0	0.0	268.00	2300.00

1490 NH CARD USED
*SECNO 337.000
2800 NAT Q1= 1922.99 WSEL= 868.77 ENC Q1= 1943.68 WSEL= 868.87 RATIO= -0.0108
NAT Q1= 3455. RATIOS LOB,CH,ROB= 0.3946 0.5625 0.0429 WSEL= 868.87

3470 ENCROACHMENT STATIONS= 2032.0 2300.0 TYPE= 4 TARGET= 0.437

337.00	7.33	868.83	0.0	868.77	869.00	0.17	0.00	0.02	864.30
5600.	0.	5600.	0.	0.	1716.	0.	951.	130.	863.50
1.22	0.0	3.26	0.0	0.060	0.060	0.060	0.045	861.50	2032.00
0.000868	4.	4.	4.	2	0	0	0.0	268.00	2300.00

1490 NH CARD USED
*SECNO 338.000
2800 NAT Q1= 1923.25 WSEL= 868.78 ENC Q1= 1942.54 WSEL= 868.88 RATIO= -0.0100
NAT Q1= 3455. RATIOS LOB,CH,ROB= 0.3948 0.5622 0.0430 WSEL= 868.88

		CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	GCH	GROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

3470 ENCROACHMENT STATIONS= 2032.0 2300.0 TYPE= 4 TARGET= 0.438
338.50 7.33 868.83 0.0 868.78 869.00 0.17 0.00 0.00 864.30
5600. 0. 5600. 0. 0. 1716. 0. 951. 130. 863.50
1.25 0.0 3.26 0.0 0.060 0.060 0.060 0.045 861.50 2032.00
0.000370 2. 2. 2. 0 0 0 0.0 268.00 2300.00

CCHV= 0.100 CEHV= 0.300
*SECNO 338.500
2800 NAT Q1= 2684.28 WSEL= 868.83 ENC Q1= 2712.28 WSEL= 868.93 RATIO= -0.0104
NAT Q1= 4264. RATIOS LOB,CH,ROB= 0.3272 0.6361 0.0367 WSEL= 868.93

3470 ENCROACHMENT STATIONS= 2032.0 2300.0 TYPE= 4 TARGET= 0.364
338.50 9.39 868.89 0.0 868.83 869.00 0.11 0.00 0.01 864.30
5600. 0. 5600. 0. 0. 2080. 0. 951. 130. 863.50
1.25 0.0 2.69 0.0 0.060 0.045 0.060 0.045 859.50 2032.00
0.000496 5. 5. 5. 2 0 0 0.0 268.00 2300.00

*SECNO 340.000
2800 NAT Q1= 3003.63 WSEL= 868.94 ENC Q1= 3003.63 WSEL= 869.04 RATIO= 0.0
NAT Q1= 5272. RATIOS LOB,CH,ROB= 0.0057 0.9144 0.0799 WSEL= 869.04

3470 ENCROACHMENT STATIONS= 2007.0 2173.0 TYPE= 4 TARGET= 0.082
340.00 11.80 869.00 0.0 868.94 869.15 0.15 0.13 0.01 861.20
5600. 0. 5582. 18. 0. 1816. 22. 966. 132. 861.50
1.25 0.0 3.07 0.80 0.060 0.045 0.060 0.045 857.20 2007.00
0.000374 300. 325. 390. 1 0 0 0.0 166.02 2173.02

THIS RUN EXECUTED 12/18/81

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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

GRAND RIVER

SUMMARY PRINTOUT

	SECNO	CWSEL	SSTA	SICHL	SICHR	ENDST	TOPWID	XLCH
	290.000	863.50	1892.67	2000.00	2170.00	2285.50	392.83	0.0
	290.000	863.60	1960.46	2000.00	2170.00	2190.08	229.63	0.0
	300.000	865.38	1891.44	2000.00	2200.00	2448.10	556.66	3900.00
	300.000	865.48	1988.79	2000.00	2200.00	2398.80	410.00	3900.00
A	310.000	866.65	1779.13	2000.00	2185.00	2471.59	692.46	3700.00
	310.000	866.75	1860.89	2000.00	2185.00	2362.04	501.16	3700.00
B	320.000	867.55	1460.00	2000.00	2125.00	2234.60	774.60	2780.00
	320.000	867.65	1460.00	2000.00	2125.00	2235.00	775.00	2780.00
	323.900	868.08	1880.00	2018.00	2120.00	2190.00	310.00	1324.00
	323.900	868.15	1880.00	2018.00	2120.00	2190.00	310.00	1324.00
C	324.000	868.08	1880.00	2018.00	2120.00	2190.00	310.00	1.00
	324.000	868.15	1880.00	2018.00	2120.00	2190.00	310.00	1.00
	330.000	868.77	1680.00	1700.00	2078.00	2130.00	450.00	230.00
	330.000	868.83	1680.00	1700.00	2078.00	2130.00	450.00	230.00
	331.000	868.76	1680.00	1700.00	2078.00	2130.00	450.00	20.00
	331.000	868.82	1680.00	1700.00	2078.00	2130.00	450.00	20.00
D	332.000	868.77	1680.00	1700.00	2068.10	2130.00	450.00	5.00
	332.000	868.82	1680.00	1700.00	2068.10	2130.00	450.00	5.00
	333.000	868.77	1680.00	1700.00	2068.10	2130.00	450.00	1.50
	333.000	868.82	1680.00	1700.00	2068.10	2130.00	450.00	1.50
	333.500	868.77	1680.00	1700.00	2068.10	2130.00	450.00	5.00
	333.500	868.83	1680.00	1700.00	2068.10	2130.00	450.00	5.00
	335.000	868.81	1885.00	2022.00	2300.00	2305.00	420.00	240.00
	335.000	868.87	1920.19	2022.00	2300.00	2300.00	379.81	240.00
	336.000	868.81	2020.00	2032.00	2300.00	2300.10	280.10	20.00
	336.000	868.87	2032.00	2032.00	2300.00	2300.00	268.00	20.00

	SECNO	CNSEL	SSTA	STCHL	STCHR	ENDST	TOPWID	XLCH
E	337.000	868.77	2020.00	2032.00	2300.00	2300.10	280.10	4.00
	337.000	868.83	2032.00	2032.00	2300.00	2300.00	268.00	4.00
	338.000	868.79	2020.00	2032.00	2300.00	2300.10	280.10	1.50
	338.000	868.83	2032.00	2032.00	2300.00	2300.00	268.00	1.50
	338.500	868.83	2020.00	2032.00	2300.00	2300.10	280.10	5.00
	338.500	868.89	2032.00	2032.00	2300.00	2300.00	268.00	5.00
F	340.000	868.94	2000.00	2007.00	2170.00	2180.00	180.00	325.00
	340.000	869.00	2007.00	2007.00	2170.00	2173.02	166.02	325.00

GRAND RIVER

SUMMARY PRINTOUT TABLE 110

	STCNC	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	290.000	863.50	0.0	863.73	392.83	210.94	7532.30	106.76	0.0	0.0	2000.00	2170.00	0.0
	290.000	863.60	0.10	863.84	229.63	153.12	7648.25	48.63	0.02	1960.46	2000.00	2170.00	2190.08
	300.000	865.38	0.0	865.50	556.66	91.14	6717.39	1041.48	0.0	0.0	2000.00	2200.00	0.0
	300.000	865.48	0.10	865.61	410.00	23.82	6822.09	1004.09	0.02	1988.79	2000.00	2200.00	2398.80
A	310.000	866.65	0.0	866.76	692.46	663.15	6323.34	773.50	0.0	0.0	2000.00	2185.00	0.0
	310.000	866.75	0.10	866.87	501.16	612.69	6416.30	731.01	0.02	1860.89	2000.00	2185.00	2362.04
B	320.000	867.55	0.0	867.68	774.60	1571.03	5611.25	577.71	1070.00	1460.00	2000.00	2125.00	2530.00
	320.000	867.65	0.09	867.77	775.00	1597.55	5580.80	581.65	775.00	1460.00	2000.00	2125.00	2235.00
	323.900	868.08	0.0	868.65	310.00	581.47	6991.81	186.71	310.00	1880.00	2018.00	2120.00	2190.00
	323.900	868.15	0.07	868.71	310.00	593.77	6973.84	192.39	310.00	1880.00	2018.00	2120.00	2190.00
C	324.000	868.08	0.0	868.65	310.00	581.59	6991.63	186.77	310.00	1880.00	2018.00	2120.00	2190.00
	324.000	868.15	0.07	868.71	310.00	593.93	6973.60	192.46	310.00	1880.00	2018.00	2120.00	2190.00
	330.000	868.77	0.0	868.81	450.00	63.31	5488.27	48.43	450.00	1680.00	1700.00	2078.00	2130.00
	330.000	868.83	0.06	868.86	450.00	63.64	5486.88	49.48	450.00	1680.00	1700.00	2078.00	2130.00
	331.000	868.76	0.0	868.81	450.00	150.20	5335.07	114.73	450.00	1680.00	1700.00	2078.00	2130.00
	331.000	868.82	0.06	868.87	450.00	150.60	5332.45	116.95	450.00	1680.00	1700.00	2078.00	2130.00
D	332.000	868.77	0.0	868.82	450.00	135.99	5381.16	82.85	450.00	1680.00	1700.00	2068.10	2130.00
	332.000	868.82	0.06	868.87	450.00	136.49	5378.02	85.48	450.00	1680.00	1700.00	2068.10	2130.00
	333.000	868.77	0.0	868.82	450.00	135.99	5381.14	82.86	450.00	1680.00	1700.00	2068.10	2130.00
	333.000	868.82	0.06	868.87	450.00	136.49	5378.00	85.50	450.00	1680.00	1700.00	2068.10	2130.00
	333.500	868.77	0.0	868.82	450.00	130.15	5390.49	79.35	450.00	1680.00	1700.00	2068.10	2130.00
	333.500	868.83	0.06	868.87	450.00	130.67	5387.42	81.90	450.00	1680.00	1700.00	2068.10	2130.00
	335.000	868.81	0.0	868.90	420.00	365.00	5216.36	18.64	420.00	1885.00	2022.00	2300.00	2305.00
	335.000	868.87	0.05	868.96	379.81	281.41	5318.59	0.0	0.22	1920.19	2022.00	2300.00	2300.00
	336.000	868.81	0.0	868.92	280.10	57.37	5542.55	0.07	280.10	2020.00	2032.00	2300.00	2300.10
	336.000	868.87	0.06	868.97	268.00	0.0	5599.99	0.0	0.36	2032.00	2032.00	2300.00	2300.00
E	337.000	868.77	0.0	868.94	280.10	-84.35	5515.56	0.08	280.10	2020.00	2032.00	2300.00	2300.10
	337.000	868.83	0.06	869.00	268.00	0.0	5599.99	0.0	0.44	2032.00	2032.00	2300.00	2300.00
	338.000	868.78	0.0	868.94	280.10	84.36	5515.55	0.08	280.10	2020.00	2032.00	2300.00	2300.10
	338.000	868.83	0.05	869.00	268.00	0.0	5599.99	0.0	0.44	2032.00	2032.00	2300.00	2300.00
	338.500	868.83	0.0	868.95	280.10	61.63	5538.30	0.06	280.10	2020.00	2032.00	2300.00	2300.10
	338.500	868.89	0.05	869.00	268.00	0.0	5600.00	0.0	0.36	2032.00	2032.00	2300.00	2300.00
F	340.000	868.94	0.0	869.08	180.00	21.57	5494.92	83.51	180.00	2000.00	2007.00	2170.00	2180.00
	340.000	869.00	0.06	869.15	166.02	0.0	5582.12	17.87	0.08	2007.00	2007.00	2170.00	2173.03

SUMMARY OF ERRORS

FLOODWAY DATA, GRAND RIVER
PROFILE NO. 2

	STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
	230.000	230.	2157.	3.6	863.6	863.5	0.1
	300.000	410.	3424.	2.3	865.5	865.4	0.1
A	310.000	501.	3793.	2.0	866.7	866.6	0.1
B	320.000	775.	4490.	1.7	867.7	867.6	0.1
	321.900	310.	1716.	4.5	868.2	868.1	0.1
C	324.000	310.	1716.	4.5	868.2	868.1	0.1
	330.000	450.	3770.	1.5	868.9	868.8	0.1
	331.000	450.	3174.	1.8	868.9	868.8	0.1
D	332.000	450.	3186.	1.8	868.9	868.8	0.1
	333.000	450.	3186.	1.8	868.9	868.8	0.1
	334.500	450.	3306.	1.7	868.9	868.8	0.1
	335.000	380.	2514.	2.2	868.9	868.8	0.1
	336.000	268.	2172.	2.6	868.9	868.8	0.1
E	337.000	268.	1716.	3.3	868.9	868.8	0.1
	338.000	268.	1716.	3.3	868.9	868.8	0.1
	338.500	268.	2080.	2.7	868.9	868.8	0.1
F	340.000	166.	1839.	3.0	869.0	868.9	0.1

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: Reconstitution of 1950 and 1947 Flood in Grand River @ Eaton Rapids

00BREAK00

Reconstitution of 1950 and 1947 floods in Grand River @ Eaton Rapids

1950 Recorded at Hamlin St Foot Bridge 865.9 / 865.8
HEC-2

1947 Recorded at Hamlin St Foot Bridge 868.0 / 867.9
HEC-2

Cross Section 290 : USGS Gage
" " 371 : Weather Bureau Gage

RECEIVED
JAN 13 1981
WATER MANAGEMENT

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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      EATON RAPIDS
T2      1950 FLOOD
T3      GRAND RIVER
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	1.	8.	0.	0.	0.000000	0.00	0.0	0.	860.830	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
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	.100	.100	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	7.000	4593.000	6826.000	7850.000	10420.000	7850.000	6300.000	3860.000	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	290.000	12.000	2000.000	2170.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	870.000	1800.000	867.000	1825.000	859.500	1970.000	859.000	2000.000	852.000	2005.000
GR	852.000	2090.000	851.500	2095.000	851.500	2100.000	852.000	2120.000	852.000	2160.000
GR	860.000	2170.000	870.000	2500.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	300.000	9.000	2000.000	2200.000	3900.000	3900.000	3900.000	0.000	0.000	0.000
GR	874.000	1650.000	861.500	2000.000	855.000	2010.000	852.900	2100.000	854.300	2145.000
GR	855.000	2200.000	858.500	2200.000	861.000	2400.000	870.100	2500.000	0.000	0.000
QT	7.000	4540.000	6750.000	7760.000	10300.000	7760.000	6300.000	3860.000	0.000	0.000

VALLEY SECTION (CORPS SECTION 31) A

X1	310.000	18.000	2000.000	2165.000	3700.000	3700.000	3700.000	0.000	0.000	0.000
GR	871.000	1700.000	860.000	1900.000	862.500	1980.000	862.000	2000.000	858.000	2015.000
GR	855.700	2015.000	854.000	2040.000	854.000	2100.000	855.300	2140.000	855.700	2160.000
GR	856.300	2185.000	860.000	2185.000	860.000	2230.000	862.500	2270.000	862.000	2300.000
GR	864.000	2370.000	866.000	2450.000	867.500	2500.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	7.100	1460.000	2235.000	1460.000	2530.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 32) B

X1	320.000	30.000	2000.000	2125.000	2750.000	2810.000	2780.000	0.000	0.000	0.000
GR	880.000	700.000	875.000	750.000	870.000	800.000	865.000	1150.000	863.600	1300.000
GR	861.000	1460.000	861.100	1560.000	865.000	1660.000	866.000	1710.000	866.000	1810.000
GR	864.300	1860.000	862.900	1910.000	865.000	1960.000	857.000	2000.000	854.900	2030.000
GR	852.800	2040.000	853.300	2060.000	853.400	2085.000	854.000	2120.000	858.000	2125.000
GR	858.300	2135.000	861.200	2150.000	861.500	2200.000	868.500	2240.000	869.000	2270.000
GR	871.200	2320.000	873.000	2380.000	873.200	2430.000	874.000	2480.000	877.000	2530.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1620.000	2280.000

VALLEY SECTION (NO CORPS SECTION) C

X1	324.000	38.000	2018.000	2120.000	1400.000	1290.000	1325.000	0.000	0.000	0.000
GR	878.300	500.000	878.800	600.000	880.000	700.000	880.000	800.000	878.800	900.000
GR	878.800	1000.000	861.000	1100.000	879.800	1200.000	879.800	1300.000	878.100	1400.000
GR	865.900	1500.000	865.200	1600.000	865.900	1700.000	866.700	1800.000	866.400	1900.000
GR	863.900	2000.000	862.800	2006.000	860.500	2018.000	855.000	2052.000	856.600	2076.000
GR	857.400	2102.000	860.500	2120.000	865.300	2130.000	866.000	2142.000	866.800	2200.000
GR	865.000	2300.000	865.600	2400.000	868.000	2500.000	869.200	2600.000	868.300	2700.000
GR	868.300	2800.000	871.000	2900.000	873.000	3000.000	873.000	3100.000	876.000	3200.000
GR	879.300	3300.000	878.400	3400.000	881.000	3500.000	0.000	0.000	0.000	0.000
QT	7.000	2750.000	4520.000	5380.000	7340.000	5380.000	4900.000	3140.000	0.000	0.000
NH	5.000	.100	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.100
NH	3500.000	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	1550.000	2210.000

X1	330.000	35.000	1700.000	2078.000	550.000	100.000	230.000	0.000	0.000	0.000
X4	2.000	856.000	1705.000	856.000	1795.000	0.000	0.000	0.000	0.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.000	862.600	1900.000
GR	861.200	2000.000	855.200	2000.000	856.100	2042.000	859.300	2068.000	861.200	2078.000
GR	868.000	2100.000	866.800	2200.000	865.900	2300.000	866.900	2400.000	867.500	2500.000
GR	867.700	2600.000	868.000	2700.000	868.200	2800.000	869.000	2900.000	870.200	3000.000
GR	873.000	3100.000	874.500	3200.000	876.000	3300.000	880.000	3400.000	880.000	3500.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2078.000	.060
NH	3500.000	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	1550.000	2205.000

X1	331.000	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

MOORE BUSINESS FORMS INC 27

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
290.000	3860.00	860.83	0.00	0.00	0.00	253.10	0.00
290.000	6300.00	862.40	1.57	0.00	0.00	335.27	0.00
300.000	3860.00	862.21	0.00	1.38	0.00	433.32	3900.00
300.000	6300.00	864.21	1.99	1.81	0.00	510.92	3900.00
310.000	3860.00	863.39	0.00	1.17	0.00	510.17	3700.00
310.000	6300.00	865.49	2.10	1.28	0.00	629.24	3700.00
320.000	3860.00	864.23	0.00	.84	0.00	738.89	2780.00
320.000	6300.00	866.36	2.13	.87	0.00	1173.20	2780.00
324.000	3860.00	864.78	0.00	.55	0.00	164.12	1325.00
324.000	6300.00	866.83	2.05	.46	2.05	660.00	1325.00
330.000	3140.00	865.27	0.00	.49	0.00	517.78	230.00
330.000	4900.00	867.47	2.20	.64	2.20	614.00	230.00
331.000	3140.00	865.27	0.00	.00	0.00	518.95	20.00
331.000	4900.00	867.48	2.20	.01	2.20	610.10	20.00
332.000	3140.00	865.26	0.00	-.01	0.00	505.15	5.00
332.000	4900.00	867.47	2.21	-.01	2.21	607.28	5.00
333.000	3140.00	865.26	0.00	.00	0.00	504.36	1.50
333.000	4900.00	867.47	2.21	.00	2.21	606.43	1.50
333.500	3140.00	865.27	0.00	.01	0.00	504.56	5.00
333.500	4900.00	867.47	2.21	.01	2.21	606.56	5.00
335.000	3140.00	865.35	0.00	.08	0.00	371.97	240.00
335.000	4900.00	867.52	2.17	.04	2.17	420.00	240.00
336.000	3140.00	865.38	0.00	.03	0.00	354.41	20.00
336.000	4900.00	867.54	2.16	.02	2.16	400.10	20.00
337.000	3140.00	865.29	0.00	-.09	0.00	400.10	4.00
337.000	4900.00	867.51	2.22	-.03	2.22	400.10	4.00
338.000	3140.00	865.30	0.00	.01	0.00	400.10	1.50
338.000	4900.00	867.51	2.21	.00	2.21	400.10	1.50
338.500	3140.00	865.45	0.00	.15	0.00	400.10	5.00
338.500	4900.00	867.56	2.11	.05	2.11	400.10	5.00
340.000	3140.00	865.64	0.00	.19	0.00	176.32	325.00
340.000	4900.00	867.68	2.04	.12	2.04	180.00	325.00

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	FLLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
391.000	38.00	872.80	870.80	860.30	3140.00	866.50	0.00	866.66	1.55	3.21	976.88	2522.10
391.000	38.00	872.80	870.80	860.30	4900.00	868.50	0.00	868.72	1.47	3.74	1308.57	4044.63
392.000	1.00	0.00	0.00	860.30	3140.00	866.50	0.00	866.66	1.55	3.21	976.91	2522.21
392.000	1.00	0.00	0.00	860.30	4900.00	868.50	0.00	868.72	1.47	3.74	1308.59	4044.75
399.000	90.00	0.00	0.00	860.60	3140.00	866.58	0.00	866.70	7.49	2.73	1150.19	1147.45
399.000	90.00	0.00	0.00	860.60	4900.00	868.60	0.00	868.75	6.62	3.12	1570.39	1904.77
400.000	15.00	0.00	0.00	856.90	3140.00	866.66	0.00	866.71	1.76	1.80	1739.47	2364.84
400.000	15.00	0.00	0.00	856.90	4900.00	868.68	0.00	868.76	2.26	2.31	2124.34	3257.05
401.000	7.00	868.10	867.70	861.50	3140.00	871.21	0.00	871.25	1.46	1.70	1844.60	2598.98
401.000	7.00	868.10	867.70	861.50	4900.00	872.25	0.00	872.34	2.56	2.40	2041.96	3063.51
402.000	13.00	0.00	0.00	861.50	3140.00	871.21	0.00	871.26	1.46	1.70	1845.00	2599.88
402.000	13.00	0.00	0.00	861.50	4900.00	872.25	0.00	872.34	2.56	2.40	2042.46	3064.96
410.000	2500.00	0.00	0.00	861.50	3140.00	871.57	0.00	871.61	1.34	1.54	2134.49	2715.74
410.000	2500.00	0.00	0.00	861.50	4900.00	872.84	0.00	872.90	1.97	2.05	2600.98	3490.50
420.000	3430.00	0.00	0.00	864.70	3140.00	872.41	0.00	872.59	8.40	3.51	1082.28	1083.60
420.000	3430.00	0.00	0.00	864.70	4900.00	873.98	0.00	874.23	9.35	4.24	1645.36	1602.72

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	FLMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
336.000	20.00	0.00	0.00	858.60	3140.00	865.38	0.00	865.48	8.99	2.54	1255.20	1047.10
336.000	20.00	0.00	0.00	858.60	4900.00	867.54	0.00	867.63	5.63	2.54	2114.45	2065.22
337.000	4.00	0.00	0.00	861.50	3140.00	865.29	0.00	865.53	36.68	3.97	852.56	518.48
337.000	4.00	0.00	0.00	861.50	4900.00	867.51	0.00	867.65	10.75	3.15	1740.24	1494.25
338.000	1.50	0.00	0.00	861.50	3140.00	865.30	0.00	865.54	36.53	3.96	853.77	519.49
338.000	1.50	0.00	0.00	861.50	4900.00	867.51	0.00	867.65	10.74	3.15	1740.73	1494.90
338.500	5.00	0.00	0.00	859.50	3140.00	865.45	0.00	865.56	9.21	2.65	1263.40	1034.49
338.500	5.00	0.00	0.00	859.50	4900.00	867.56	0.00	867.66	5.16	2.59	2109.35	2157.84
340.000	325.00	0.00	0.00	857.20	3140.00	865.64	0.00	865.74	3.60	2.45	1308.85	1654.51
340.000	325.00	0.00	0.00	857.20	4900.00	867.68	0.00	867.82	4.00	3.01	1674.47	2450.92
349.000	30.00	0.00	0.00	857.40	3140.00	865.64	0.00	865.76	5.64	2.76	1137.11	1322.43
349.000	30.00	0.00	0.00	857.40	4900.00	867.67	0.00	867.84	6.09	3.35	1464.43	1984.85
350.000	1.00	0.00	0.00	857.40	3140.00	865.64	0.00	865.76	.90	2.76	1137.18	3306.43
350.000	1.00	0.00	0.00	857.40	4900.00	867.67	0.00	867.84	.97	3.35	1464.51	4962.56
351.000	40.00	873.40	870.00	857.40	3140.00	865.64	0.00	865.76	5.62	2.76	1138.08	1324.25
351.000	40.00	873.40	870.00	857.40	4900.00	867.68	0.00	867.85	6.08	3.34	1465.89	1988.01
352.000	1.00	0.00	0.00	857.40	3140.00	865.64	0.00	865.76	5.62	2.76	1138.13	1324.35
352.000	1.00	0.00	0.00	857.40	4900.00	867.68	0.00	867.85	6.07	3.34	1465.95	1988.13
360.000	385.00	0.00	0.00	857.50	3140.00	865.89	0.00	865.97	4.79	2.16	1472.02	1434.66
360.000	385.00	0.00	0.00	857.50	4900.00	867.98	0.00	868.06	4.49	2.35	2124.03	2313.44
369.000	50.00	0.00	0.00	859.80	3140.00	865.81	0.00	866.06	11.66	4.00	785.27	919.59
369.000	50.00	0.00	0.00	859.80	4900.00	867.91	0.00	868.14	9.18	3.81	1287.44	1617.61
370.000	1.00	866.00	868.60	859.80	3140.00	865.79	0.00	866.06	4.27	4.16	754.69	1520.19
370.000	1.00	866.00	868.60	859.80	4900.00	867.85	0.00	868.16	4.09	4.47	1095.34	2423.02
371.000	8.00	866.00	868.60	859.80	3140.00	865.80	0.00	866.07	18.45	4.16	754.54	731.05
371.000	8.00	866.00	868.60	859.80	4900.00	867.86	0.00	868.17	19.39	4.47	1096.46	1112.90
372.000	1.00	0.00	0.00	859.80	3140.00	865.83	0.00	866.07	11.53	3.98	788.02	924.61
372.000	1.00	0.00	0.00	859.80	4900.00	867.96	0.00	868.18	8.67	3.77	1300.98	1664.22
380.000	680.00	0.00	0.00	859.00	3140.00	866.47	0.00	866.55	3.92	2.32	1395.29	1585.30
380.000	680.00	0.00	0.00	859.00	4900.00	868.48	0.00	868.59	3.87	2.74	1857.76	2489.44
389.000	120.00	0.00	0.00	860.30	3140.00	866.50	0.00	866.66	9.73	3.22	975.58	1006.66
389.000	120.00	0.00	0.00	860.30	4900.00	868.49	0.00	868.71	9.21	3.75	1306.80	1614.35
390.000	1.00	0.00	0.00	860.30	3140.00	866.50	0.00	866.66	1.56	3.22	975.69	2517.12
390.000	1.00	0.00	0.00	860.30	4900.00	868.49	0.00	868.71	1.47	3.75	1306.91	4036.40

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

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
290.000	0.00	0.00	0.00	851.50	3860.00	860.83	0.00	860.94	3.85	2.64	1528.22	1967.78
290.000	0.00	0.00	0.00	851.50	6300.00	862.40	0.00	862.59	5.64	3.58	1990.09	2651.82
300.000	3900.00	0.00	0.00	852.90	3860.00	862.21	0.00	862.29	3.13	2.28	2094.99	2182.78
300.000	3900.00	0.00	0.00	852.90	6300.00	864.21	0.00	864.31	3.51	2.81	3034.60	3361.96
310.000	3700.00	0.00	0.00	854.00	3860.00	863.39	0.00	863.47	3.24	2.36	2123.42	2144.97
310.000	3700.00	0.00	0.00	854.00	6300.00	865.49	0.00	865.59	3.41	2.82	3317.21	3413.19
320.000	2780.00	0.00	0.00	852.80	3860.00	864.23	0.00	864.32	2.88	2.59	2508.55	2273.53
320.000	2780.00	0.00	0.00	852.80	6300.00	866.36	0.00	866.46	2.84	2.92	4524.33	3736.18
324.000	1325.00	0.00	0.00	855.00	3860.00	864.78	0.00	865.16	15.66	4.97	842.49	975.50
324.000	1325.00	0.00	0.00	855.00	6300.00	866.83	0.00	867.34	16.53	6.00	1535.68	1549.41
330.000	230.00	0.00	0.00	855.20	3140.00	865.27	0.00	865.30	1.86	1.42	2361.33	2304.21
330.000	230.00	0.00	0.00	855.20	4900.00	867.47	0.00	867.50	1.77	1.55	3584.05	3679.80
331.000	20.00	0.00	0.00	855.20	3140.00	865.27	0.00	865.30	1.81	1.40	2367.16	2334.62
331.000	20.00	0.00	0.00	855.20	4900.00	867.48	0.00	867.51	1.65	1.49	3588.06	3809.92
332.000	5.00	0.00	0.00	856.00	3140.00	865.26	0.00	865.31	3.75	1.86	1795.01	1621.47
332.000	5.00	0.00	0.00	856.00	4900.00	867.47	0.00	867.51	2.90	1.80	3003.29	2876.11
333.000	1.50	0.00	0.00	856.00	3140.00	865.26	0.00	865.31	3.77	1.87	1791.27	1618.09
333.000	1.50	0.00	0.00	856.00	4900.00	867.47	0.00	867.51	2.92	1.80	2997.63	2869.88
333.500	5.00	0.00	0.00	856.00	3140.00	865.27	0.00	865.31	3.31	1.74	1912.26	1726.81
333.500	5.00	0.00	0.00	856.00	4900.00	867.47	0.00	867.52	2.65	1.73	3118.53	3010.67
335.000	240.00	0.00	0.00	858.60	3140.00	865.35	0.00	865.46	10.66	2.71	1199.42	961.64
335.000	240.00	0.00	0.00	858.60	4900.00	867.52	0.00	867.62	6.18	2.66	2108.78	1970.37

MOORE BUSINESS FORMS INC 27

SECNO	DEPTH	CWSEL	CRIWS	WSELR	FQ	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

FLOW DISTRIBUTION FOR SECNO= 336.00 CWSEL= 867.54

STA=	1900.	2010.	2032.	2300.	2300.
PER Q=	5.0	1.3	93.8	.0	
AREA=	245.6	56.8	1811.6	.5	
VEL=	1.0	1.1	2.5	.1	

FLOW DISTRIBUTION FOR SECNO= 337.00 CWSEL= 867.51

STA=	1900.	2032.	2300.	2300.
PER Q=	12.5	87.5	.0	
AREA=	377.6	1362.2	.4	
VEL=	1.6	3.1	.2	

MOORE BUSINESS FORMS INC 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      EATON RAPIDS
T2      APRIL 1947 FLOOD
T3      GRAND RIVER

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       7.        0.        0.  0.000000      0.00      0.0       0.    862.400     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

FLOW DISTRIBUTION FOR SECNO=    332.00          CWSEL=    867.47

STA=     1550.     1700.     2068.     2205.
  PER Q=     9.3      90.0       .7
   AREA=   483.9    2447.0     72.3
    VEL=      .9       1.8       .5

FLOW DISTRIBUTION FOR SECNO=    333.00          CWSFL=    867.47

STA=     1550.     1700.     2068.     2205.
  PER Q=     9.3      90.0       .7
   AREA=   482.5    2443.6     71.5
    VEL=      .9       1.8       .5

FLOW DISTRIBUTION FOR SECNO=    333.50          CWSFL=    867.47

STA=     1550.     1700.     2068.     2205.
  PER Q=     8.9      90.5       .7
   AREA=   482.8    2564.2     71.6
    VEL=      .9       1.7       .5

FLOW DISTRIBUTION FOR SECNO=    335.00          CWSEL=    867.52

STA=     1885.     2010.     2022.     2300.     2305.
  PER Q=     3.6       .9     95.2       .3
   AREA=   279.7     48.3   1756.5     24.3
    VEL=      .6       .9      2.7       .7
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FORMS INC 11
MOORE BUSINESS

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

FLOW DISTRIBUTION FOR SECNO= 332.00 CWSEL= 865.26

STA=	1574.	1700.	2068.	2079.
PER Q=	3.1	96.9	.1	
AREA=	154.9	1632.8	7.2	
VEL=	.6	1.9	.4	

FLOW DISTRIBUTION FOR SECNO= 333.00 CWSEL= 865.26

STA=	1574.	1700.	2068.	2079.
PER Q=	3.0	96.9	.1	
AREA=	154.0	1630.1	7.2	
VEL=	.6	1.9	.4	

FLOW DISTRIBUTION FOR SECNO= 333.50 CWSEL= 865.27

STA=	1574.	1700.	2068.	2079.
PER Q=	2.9	97.1	.1	
AREA=	154.2	1750.8	7.2	
VEL=	.6	1.7	.3	

FLOW DISTRIBUTION FOR SECNO= 335.00 CWSEL= 865.35

STA=	1885.	1900.	1963.	2022.	2300.	2305.
PER Q=	.0	.1	.5	99.1	.3	
AREA=	2.6	10.8	22.2	1150.5	13.4	
VEL=	.1	.1	.7	2.7	.7	

FLOW DISTRIBUTION FOR SECNO= 336.00 CWSEL= 865.38

STA=	1900.	2032.	2300.	2300.
PER Q=	.2	99.7	.0	
AREA=	22.4	1232.5	.3	
VEL=	.3	2.5	.2	

FLOW DISTRIBUTION FOR SECNO= 337.00 CWSEL= 865.29

STA=	1900.	2032.	2300.	2300.
PER Q=	3.0	97.0	.0	
AREA=	84.8	767.6	.2	
VEL=	1.1	4.0	.3	

MOORE BUSINESS FORMS INC. 27

VALLEY SECTION (CORPS SECTION 41) N

X1	410.000	26.000	2075.000	2325.000	2675.000	2400.000	2500.000	0.000	0.000	0.000
GR	888.100	1560.000	886.500	1610.000	886.500	1670.000	885.000	1710.000	883.000	1760.000
GR	882.000	1820.000	880.900	1870.000	878.000	1920.000	874.000	1970.000	870.500	2020.000
GR	870.000	2070.000	867.000	2075.000	865.000	2076.000	864.500	2100.000	865.000	2125.000
GR	861.500	2250.000	862.500	2300.000	867.000	2325.000	871.000	2330.000	873.000	2355.000
GR	872.200	2425.000	873.500	2475.000	875.000	2525.000	877.000	2575.000	877.200	2625.000
GR	878.000	2660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION (CORPS SECTION 42) O

X1	420.000	23.000	2000.000	2120.000	3960.000	3440.000	3430.000	0.000	0.000	0.000
GR	894.900	1720.000	894.000	1760.000	894.900	1810.000	893.000	1850.000	871.900	1920.000
GR	868.900	1999.000	867.500	2000.000	865.800	2005.000	865.000	2040.000	865.300	2060.000
GR	864.700	2090.000	865.000	2105.000	867.500	2120.000	869.100	2125.000	873.900	2170.000
GR	872.800	2275.000	873.300	2375.000	874.200	2425.000	874.500	2475.000	878.100	2525.000
GR	885.900	2575.000	895.200	2625.000	899.000	2725.000	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

X1	392.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	1.410	9.100	9.100	2016.900	2225.100
X1	399.000	26.000	2017.000	2225.000	90.000	90.000	90.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	869.900	2017.000	860.600	2017.000	861.500	2225.000
GR	869.800	2225.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	400.000	26.000	2026.000	2216.000	15.000	15.000	15.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	856.900	2026.000	858.100	2216.000
GR	872.100	2216.000	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	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	2025.900	2216.200
SB	0.000	1.560	3.087	0.000	1.000	0.000	1.000	0.000	867.700	856.900

UPSTREAM FACE OF DAM (CORPS SECTION 40) L

X1	401.000	26.000	2026.000	2216.100	7.000	7.000	7.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	867.700	868.100	0.000	0.000	0.000	0.000	0.000
BT	4.000	2026.000	871.700	0.000	2026.100	868.100	0.000	2216.000	868.300	0.000
BT	2216.100	872.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	879.800	800.000	875.400	900.000	876.000	1000.000	876.000	1100.000	875.300	1200.000
GR	875.300	1300.000	874.400	1400.000	873.500	1500.000	875.800	1600.000	875.800	1700.000
GR	873.000	1800.000	871.000	1900.000	871.700	2026.000	861.500	2026.100	861.500	2216.000
GR	872.300	2216.100	871.200	2300.000	871.200	2400.000	877.400	2500.000	877.000	2600.000
GR	877.000	2700.000	878.400	2800.000	879.000	2900.000	882.000	3000.000	886.000	3100.000
GR	889.500	3200.000	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	2025.900	2216.200

VALLEY SECTION (NO CORPS SECTION) M

X1	402.000	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
QT	5.000	4050.000	6020.000	6930.000	9190.000	6930.000	4900.000	3140.000	0.000	0.000
NC	.100	.100	.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

MOORE BUSINESS FORMS INC 27

X1	372.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.045	.300	.500	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	9.100	1985.000	2215.000

VALLEY SECTION (CORPS SECTION 38) J

X1	380.000	25.000	2000.000	2200.000	670.000	735.000	680.000	0.000	0.000	0.000
GR	870.500	1500.000	870.500	1600.000	869.500	1650.000	870.400	1700.000	870.500	1750.000
GR	869.600	1800.000	870.000	1900.000	869.000	1950.000	864.900	1999.000	861.300	2000.000
GR	859.800	2010.000	859.800	2050.000	859.000	2075.000	859.600	2100.000	860.000	2125.000
GR	859.800	2150.000	859.400	2175.000	860.000	2190.000	861.300	2200.000	864.500	2210.000
GR	866.300	2255.000	868.000	2305.000	871.100	2355.000	875.000	2405.000	875.300	2455.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

X1	389.000	38.000	2000.000	2166.000	120.000	120.000	120.000	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	873.000	1470.000	873.000	1500.000	873.900	1575.000	874.900	1600.000	873.500	1625.000
GR	870.000	1700.000	871.000	1740.000	871.500	1775.000	871.400	1875.000	872.900	2000.000
GR	861.200	2000.000	860.500	2015.000	860.500	2025.000	860.600	2035.000	860.800	2048.000
GR	860.800	2048.100	860.800	2051.000	860.800	2051.100	860.400	2070.000	860.400	2083.000
GR	860.300	2095.000	860.800	2114.000	860.800	2114.100	860.800	2117.000	860.800	2117.100
GR	860.500	2130.000	860.600	2140.000	860.600	2150.000	861.200	2166.000	872.800	2166.000
GR	872.800	2200.000	872.700	2300.000	872.800	2340.000	873.100	2390.000	873.000	2440.000
GR	875.200	2540.000	876.500	2590.000	877.900	2690.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	390.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.800	0.000	130.000	6.000	1300.000	0.000	0.000	0.000

UPSTREAM FACE OF STATE STREET BRIDGE (CORPS SECTION 39) K

X1	391.000	0.000	0.000	0.000	38.000	38.000	38.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.800	872.800	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	0.000	0.000	0.000
BT	38.000	1470.000	873.000	0.000	1500.000	873.000	0.000	1575.000	873.900	0.000
BT	1600.000	874.900	0.000	1625.000	873.500	0.000	1700.000	870.000	0.000	1740.000
BT	871.000	0.000	1775.000	871.500	0.000	1875.000	871.400	0.000	2000.000	872.900
BT	0.000	2000.000	872.900	866.600	2015.000	872.900	869.000	2025.000	872.900	870.600
BT	2035.000	872.900	869.000	2048.000	872.900	866.600	2048.100	872.900	860.800	2051.000
BT	872.900	860.800	2051.100	872.900	866.900	2070.000	873.000	869.000	2083.000	873.000
BT	870.800	2095.000	873.000	869.000	2114.000	872.800	866.600	2114.100	872.800	860.800
BT	2117.000	872.800	860.800	2117.100	872.800	866.600	2130.000	872.800	869.000	2140.000
BT	872.800	870.500	2150.000	872.800	869.000	2166.000	872.800	866.600	2166.000	872.800
BT	0.000	2200.000	872.800	0.000	2300.000	872.700	0.000	2340.000	872.800	0.000
BT	2340.000	873.100	0.000	2440.000	873.000	0.000	2540.000	875.200	0.000	2590.000
BT	876.500	0.000	2690.000	877.900	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 36) H

X1	360.000	20.000	2015.000	2320.000	400.000	385.000	385.000	0.000	0.000	0.000
GR	869.500	1900.000	869.500	2015.000	861.000	2030.000	858.000	2045.000	858.000	2050.000
GR	858.500	2055.000	861.000	2060.000	863.800	2075.000	863.800	2185.000	861.000	2200.000
GR	858.500	2220.000	858.000	2250.000	858.000	2275.000	857.500	2300.000	861.000	2320.000
GR	870.500	2340.000	875.200	2390.000	877.200	2440.000	878.200	2480.000	879.900	2540.000
NH	5.000	.020	2030.000	.045	2060.000	.100	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	369.000	30.000	2000.000	2303.000	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	870.500	1410.000	870.900	1510.000	870.000	1560.000	870.400	1610.000	871.200	1660.000
GR	871.600	1725.000	870.500	1920.000	869.900	2000.000	861.000	2000.000	860.000	2008.000
GR	859.800	2016.000	860.100	2024.000	861.000	2033.000	868.400	2033.000	866.000	2125.000
GR	866.000	2186.000	861.300	2186.000	860.500	2215.000	860.700	2243.000	860.700	2243.100
GR	860.800	2245.000	860.800	2245.100	860.100	2273.000	861.300	2303.000	870.800	2303.000
GR	869.900	2375.000	876.600	2425.000	879.300	2485.000	880.500	2625.000	883.100	2825.000
NH	5.000	.020	2030.000	.018	2060.000	.055	2200.000	.018	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	370.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

UPSTREAM FACE OF HAMLIN ST. PEDESTRIAN BRIDGE (CORPS SEC 37) I

X1	371.000	0.000	0.000	0.000	8.000	8.000	8.000	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	26.000	1410.000	870.500	0.000	1510.000	870.900	0.000	1560.000	870.000	0.000
BT	1610.000	870.400	0.000	1660.000	871.200	0.000	1725.000	871.600	0.000	1920.000
BT	870.500	0.000	2000.000	869.900	0.000	2000.000	869.900	863.800	2008.000	869.500
BT	865.500	2016.000	869.200	868.500	2024.000	868.900	865.500	2033.000	868.400	863.800
BT	2033.000	868.400	0.000	2125.000	866.000	0.000	2186.000	871.000	0.000	2186.000
BT	871.000	868.600	2243.000	870.900	868.500	2243.100	870.900	860.800	2245.000	870.900
BT	860.800	2245.100	870.900	868.500	2303.000	870.800	868.400	2303.000	870.800	0.000
BT	2325.000	869.900	0.000	2425.000	876.600	0.000	2485.000	879.300	0.000	0.000
NH	5.000	.020	2030.000	.045	2060.000	.055	2200.000	.045	2320.000	.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

VALLEY SECTION (CORPS SECTION 34) F

X1	340.000	16.000	2007.000	2170.000	300.000	390.000	325.000	0.000	0.000	0.000
GP	871.000	1950.000	870.000	1960.000	865.400	2005.000	863.000	2006.000	861.200	2007.000
GP	858.100	2025.000	858.000	2050.000	857.200	2100.000	857.200	2150.000	857.400	2160.000
GP	861.500	2170.000	863.000	2185.000	865.000	2225.000	868.500	2250.000	870.100	2280.000
GR	873.000	2320.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	349.000	37.000	2000.000	2161.000	30.000	30.000	30.000	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	869.900	1475.000	870.000	1575.000	870.000	1650.000	869.300	1675.000	869.000	1725.000
GR	869.000	1775.000	869.500	1875.000	870.000	1925.000	873.000	1975.000	873.400	2000.000
GR	860.000	2000.000	859.500	2010.000	858.800	2046.000	858.800	2046.100	858.800	2048.000
GR	858.800	2048.100	856.400	2055.000	858.400	2065.000	858.000	2070.000	858.400	2095.000
GR	858.500	2105.000	857.400	2114.000	857.400	2114.100	857.400	2116.000	857.400	2116.100
GR	858.000	2125.000	858.400	2145.000	857.600	2150.000	860.900	2161.000	873.400	2161.000
GR	873.000	2240.000	873.900	2300.000	876.000	2400.000	877.000	2440.000	877.100	2500.000
GR	878.500	2600.000	879.900	2690.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	350.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.250	1.560	2.800	0.000	161.000	4.000	1978.000	0.000	0.000	0.000

UPSTREAM FACE OF KNIGHT STREET BRIDGE (CORPS SECTION 35) G

X1	351.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	870.000	873.400	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	26.000	1475.000	869.900	0.000	1575.000	870.000	0.000	1650.000	870.000	0.000
BT	1675.000	869.300	0.000	1725.000	869.000	0.000	1775.000	869.000	0.000	1875.000
BT	869.500	0.000	1925.000	870.000	0.000	1975.000	873.000	0.000	2000.000	873.400
BT	0.000	2000.000	873.400	870.100	2046.000	873.400	870.100	2046.100	873.400	858.800
BT	2048.000	873.400	858.800	2048.100	873.400	870.100	2114.000	873.400	870.000	2114.100
BT	873.400	857.400	2116.000	873.400	857.400	2116.100	873.400	870.000	2161.000	873.400
BT	870.000	2161.000	873.400	0.000	2240.000	873.000	0.000	2300.000	873.900	0.000
BT	2400.000	876.000	0.000	2440.000	877.000	0.000	2500.000	877.100	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	352.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.020	2015.000	.045	2060.000	.100	2200.000	.045	2320.000	.100
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

ET	0.000	9.100	9.100	9.100	9.100	0.000	9.100	9.100	1900.000	2300.100
X1	336.000	33.000	2032.000	2300.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	3.000	858.900	2032.100	864.300	2157.100	861.500	2165.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	864.300	2032.000	858.600	2097.000	859.200	2115.000	861.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100

UPSTREAM FACE OF DAM (NO CORPS SECTION) E

X1	337.000	32.000	2032.000	2300.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	862.300	2097.000	862.300	2115.000	862.300	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.045	2157.000	.045	2300.000	.060
NH	3500.000	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	0.000	9.100	9.100	1900.000	2300.100

X1	338.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X4	4.000	862.300	2032.100	864.400	2157.100	864.400	2160.000	861.500	2160.100	0.000
VC	.060	.060	.045	.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	9.100	1900.000	2300.100

X1	338.500	32.000	2032.000	2300.000	5.000	5.000	5.000	0.000	0.000	0.000
X4	2.000	859.500	2160.000	860.700	2290.000	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	864.300	2032.000	861.500	2097.000	861.500	2115.000	861.000	2157.000	863.500	2300.000
GR	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000	872.000	2800.000
GR	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000	881.600	3300.000
GR	880.000	3400.000	879.300	3500.000	0.000	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	9.100	2000.000	2180.000

MOORE BUSINESS FORMS INC 27

UPSTREAM FACE OF DAM (CORPS SECTION 33) D

X1	332.000	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	862.200	2000.100	862.200	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	1700.000	.045	1800.000	.100	2000.000	.045	2068.000	.060
NH	3500.000	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	1550.000	2205.000

X1	333.000	0.000	0.000	0.000	1.500	1.500	1.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	862.200	2068.000	0.000
NH	5.000	.060	1700.000	.045	1800.100	.100	2000.000	.045	2068.100	.060
NH	3500.000	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	1550.000	2205.000

X1	333.500	33.000	1700.000	2068.100	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	4.000	856.000	1700.100	856.000	1800.000	863.900	2000.000	861.300	2068.000	0.000
GR	869.000	500.000	871.000	600.000	869.600	700.000	870.600	800.000	870.600	900.000
GR	871.000	1000.000	869.200	1100.000	870.800	1200.000	870.800	1300.000	867.500	1400.000
GR	866.000	1500.000	865.000	1600.000	862.500	1700.000	862.000	1800.100	862.600	1900.000
GR	860.600	2000.100	860.000	2042.000	863.900	2068.100	868.000	2100.000	866.800	2200.000
GR	865.900	2300.000	866.900	2400.000	867.500	2500.000	867.700	2600.000	868.000	2700.000
GR	868.200	2800.000	869.000	2900.000	870.200	3000.000	873.000	3100.000	874.500	3200.000
GR	876.000	3300.000	880.000	3400.000	880.000	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.100	2022.000	.045	2115.000	.100	2157.000	.045	2300.000	.100
NH	3500.000	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	1.410	9.100	9.100	1885.000	2305.000

X1	335.000	33.000	2022.000	2300.000	20.000	340.000	240.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	15.000
X4	2.000	862.000	2115.100	861.000	2157.100	0.000	0.000	0.000	0.000	0.000
GR	874.200	500.000	878.000	600.000	877.900	700.000	871.000	800.000	872.800	900.000
GR	868.400	1000.000	862.500	1100.000	862.500	1200.000	871.000	1300.000	869.600	1400.000
GR	869.500	1500.000	869.200	1600.000	870.800	1700.000	867.300	1800.000	865.000	1900.000
GR	865.600	2010.000	861.400	2022.000	858.600	2097.000	860.300	2115.000	862.500	2157.000
GR	862.500	2300.000	869.000	2400.000	868.300	2500.000	868.300	2600.000	868.300	2700.000
GR	872.000	2800.000	878.000	2900.000	879.300	3000.000	879.000	3100.000	881.400	3200.000
GR	881.600	3300.000	880.000	3400.000	879.300	3500.000	0.000	0.000	0.000	0.000
NH	5.000	.060	2032.000	.045	2115.000	.100	2157.000	.045	2300.000	.060
NH	3500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
349.000	3140.00	865.64	0.00	-.01	0.00	161.00	30.00
349.000	4900.00	867.67	2.03	-.01	2.03	161.00	30.00
350.000	3140.00	865.64	0.00	.00	0.00	161.00	1.00
350.000	4900.00	867.67	2.03	.00	2.03	161.00	1.00
351.000	3140.00	865.64	0.00	.01	0.00	161.00	40.00
351.000	4900.00	867.68	2.04	.01	2.04	161.00	40.00
352.000	3140.00	865.64	0.00	.00	0.00	161.00	1.00
352.000	4900.00	867.68	2.04	.00	2.04	161.00	1.00
360.000	3140.00	865.89	0.00	.25	0.00	308.94	385.00
360.000	4900.00	867.98	2.08	.30	2.08	317.00	385.00
369.000	3140.00	865.81	0.00	-.09	0.00	150.00	50.00
369.000	4900.00	867.91	2.10	-.07	2.10	284.25	50.00
370.000	3140.00	865.79	0.00	-.01	0.00	150.00	1.00
370.000	4900.00	867.85	2.06	-.06	2.06	281.97	1.00
371.000	3140.00	865.80	0.00	.01	0.00	150.00	8.00
371.000	4900.00	867.86	2.06	.01	2.06	282.18	8.00
372.000	3140.00	865.83	0.00	.03	0.00	150.00	1.00
372.000	4900.00	867.96	2.13	.10	2.13	286.08	1.00
380.000	3140.00	866.47	0.00	.64	0.00	230.00	680.00
380.000	4900.00	868.48	2.01	.52	2.01	230.00	680.00
389.000	3140.00	866.50	0.00	.03	0.00	166.00	120.00
389.000	4900.00	868.49	2.00	.02	2.00	166.00	120.00
390.000	3140.00	866.50	0.00	.00	0.00	166.00	1.00
390.000	4900.00	868.49	2.00	.00	2.00	166.00	1.00
391.000	3140.00	866.50	0.00	.01	0.00	166.00	38.00
391.000	4900.00	868.50	2.00	.01	2.00	166.00	38.00
392.000	3140.00	866.50	0.00	.00	0.00	166.00	1.00
392.000	4900.00	868.50	2.00	.00	2.00	166.00	1.00
399.000	3140.00	866.58	0.00	.08	0.00	208.00	90.00
399.000	4900.00	868.60	2.02	.10	2.02	208.00	90.00
400.000	3140.00	866.66	0.00	.08	0.00	190.00	15.00
400.000	4900.00	868.68	2.02	.08	2.02	190.00	15.00
401.000	3140.00	871.21	0.00	4.55	0.00	190.09	7.00
401.000	4900.00	872.25	1.04	3.57	1.04	190.20	7.00

MOORE BUSINESS FORMS INC 27

SECNO	Q	CvSEL	DIFwSP	DIFwSX	DIFKWS	TOPWID	XLCH
402.000	3140.00	871.21	0.00	.00	0.00	190.09	13.00
402.000	4900.00	872.25	1.04	.00	1.04	190.20	13.00
410.000	3140.00	871.57	0.00	.36	0.00	332.52	2500.00
410.000	4900.00	872.84	1.27	.59	1.27	446.45	2500.00
420.000	3140.00	872.41	0.00	.84	0.00	237.70	3430.00
420.000	4900.00	873.98	1.58	1.15	1.58	499.88	3430.00

MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Eaton Rapids, City

3) WATERCOURSE: Spring Brook

4) DOCUMENT TYPE: 100 yr. natural

00BREAK00

THIS RUN EXECUTED 05/19/81

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

C
I1      EATON RAPIDS
T2      100 YEAR FLOW
T3      SPRING BROOK

J1  ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ
        0.          4.          0.          0.  0.0             0.0         0.0         0.      869.600     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
    150.000     200.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
NC      0.070       0.070       0.045       0.100       0.300         0.0         0.0         0.0         0.0         0.0
QT      5.000     585.000     975.000    1240.000    1820.000    1240.000         0.0         0.0         0.0         0.0

                VALLEY SECTION (A)

X1     22.800      20.000    2020.000    2092.000         0.0         0.0         0.0         0.0         0.0         0.0
X3     10.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
GR    870.000    1200.000     867.600    1538.000     868.300    1638.000     868.900    1678.000     869.600    1784.000
GR    868.700    1892.000     870.200    2000.000     871.000    2008.000     871.300    2014.000     869.900    2020.000
GR    865.000    2032.000     864.300    2044.000     863.600    2056.000     864.000    2072.000     865.200    2080.000
GR    868.700    2090.000     870.300    2092.000     870.300    2192.000     870.300    2290.000     871.300    2404.000

X1     22.900      28.000    2008.000    2080.000     100.000     100.000     100.000         0.0         0.0         0.0
X3     10.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
GR    870.000    1100.000     867.600    1538.000     868.300    1638.000     869.300    1742.000     869.500    1836.000
GR    869.000    1938.000     872.900    2000.000     874.200    2008.000     873.100    2008.000     869.600    2014.000
GR    867.200    2016.000     865.300    2024.000     864.700    2032.000     865.800    2040.000     866.000    2042.000
GR    866.100    2044.000     866.100    2048.000     866.100    2056.000     866.600    2064.000     867.700    2072.000
GR    869.600    2074.000     873.100    2080.000     873.700    2080.000     872.800    2090.000     872.200    2148.000
GR    874.000    2248.000     874.400    2296.000     874.900    2342.000         0.0         0.0         0.0         0.0

X1     23.000         0.0         0.0         0.0       1.000       1.000       1.000         0.0         0.0         0.0
X3     10.000         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0         0.0
BT     14.000    2000.000     872.900         0.0    2008.000     874.200         0.0    2016.000     874.600     867.200
BT   2024.000     874.900     871.900    2032.000     875.000     873.600    2040.000     875.100     874.300    2042.000
BT     875.200     874.400    2944.000     875.100     874.400    2048.000     875.000     874.300    2056.000     874.800
BT     873.500    2064.000     874.300     871.500    2072.000     874.100     867.700    2080.000     873.700         0.0
BT    2090.000     872.800         0.0         0.0         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

                UPSTREAM FACE OF PEDESTRIAN BRIDGE (B)
```

MOORE BUSINESS FORMS INC 23

X1	23.100	0.0	0.0	0.0	12.000	12.000	12.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	14.000	2000.000	872.900	0.0	2008.000	874.200	0.0	2016.000	874.600	867.200
BT	2024.000	874.900	871.900	2032.000	875.000	873.600	2040.000	875.100	874.300	2042.000
BT	875.200	874.400	2044.000	875.100	874.400	2048.000	875.000	874.300	2056.000	874.800
BT	873.500	2064.000	874.300	871.500	2072.000	874.100	867.700	2080.000	873.700	0.0
BT	2090.000	872.800	0.0	0.0	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	23.200	0.0	0.0	0.0	1.000	1.000	1.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	23.500	7.000	2120.000	2270.000	370.000	370.000	370.000	0.0	0.0	0.0
GR	869.800	2000.000	869.000	2120.000	865.000	2120.000	865.000	2270.000	869.000	2270.000
GR	870.000	2300.000	875.000	2320.000	0.0	0.0	0.0	0.0	0.0	0.0

VALLEY SECTION - OLD R.R. GRADE (C)

X1	24.000	17.000	2000.000	2117.000	930.000	930.000	930.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	875.800	1585.000	875.700	1690.000	875.600	1794.000	875.400	1900.000	874.900	2000.000
GR	869.600	2000.000	869.000	2000.000	866.900	2016.000	865.900	2034.000	866.700	2058.000
GR	866.500	2076.000	867.400	2092.000	870.000	2117.000	876.300	2118.000	876.000	2196.000
GR	876.000	2291.000	876.000	2384.000	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	1700.000	2150.000	0.0	0.0

VALLEY SECTION (D)

X1	24.500	14.000	2000.000	2070.000	980.000	675.000	750.000	0.0	0.0	0.0
GR	875.000	1250.000	870.000	1400.000	869.500	1500.000	868.200	1700.000	868.200	1775.000
GR	869.000	1950.000	869.000	2000.000	866.000	2020.000	866.000	2045.000	868.700	2070.000
GR	868.200	2090.000	870.000	2220.000	872.000	2350.000	874.000	2390.000	0.0	0.0
ET	0.0	9.100	9.100	9.100	9.100	9.100	0.0	0.0	1900.000	2480.000

VALLEY SECTION (E)

X1	25.000	21.000	2284.000	2376.000	950.000	650.000	540.000	0.0	0.0	0.0
GR	871.000	1400.000	867.600	1500.000	871.000	1600.000	877.000	1700.000	884.000	1800.000
GR	887.600	1900.000	884.000	1970.000	871.300	2000.000	870.000	2005.000	868.700	2096.000
GR	866.100	2250.000	869.000	2284.000	867.700	2328.000	869.900	2376.000	881.300	2420.000
GR	885.000	2448.000	869.100	2480.000	889.200	2572.000	888.600	2654.000	881.900	2762.000
GR	878.000	2900.000	0.0	0.0	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

ADVANCE BUSINESS FORMS INC 23

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO 22.800

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.30

VALLEY SECTION (A)

22.80	6.00	869.60	0.0	869.60	869.84	0.24	0.0	0.0	869.90
1240.	0.	1240.	0.	0.	313.	0.	0.	0.	870.30
0.0	0.0	3.96	0.0	0.070	0.045	0.070	0.0	863.60	2020.73
0.002043	0.	0.	0.	0	0	0	0.0	70.39	2091.12

*SECNO 22.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.20 ELREA= 873.70

22.90	5.03	869.73	0.0	0.0	870.26	0.53	0.33	0.09	874.20
1240.	0.	1240.	0.	0.	213.	0.	1.	0.	873.70
0.00	0.0	5.63	0.0	0.070	0.045	0.070	0.045	864.70	2013.78
0.006141	100.	100.	100.	2	0	0	0.0	60.44	2074.22

*SECNO 23.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 872.80 MAX ELLC= 874.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.20 ELREA= 873.70

23.00	4.91	869.61	0.0	0.0	870.32	0.71	0.01	0.05	874.20
1240.	0.	1240.	0.	0.	184.	0.	1.	0.	873.70
0.00	0.0	6.74	0.0	0.070	0.045	0.070	0.044	864.70	2013.98
0.009881	1.	1.	1.	2	0	0	-21.66	60.05	2074.02

*SECNO 23.100

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 872.80 MAX ELLC= 874.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.20 ELREA= 873.70

UPSTREAM FACE OF PEDESTRIAN BRIDGE (B)

23.10	4.98	869.68	0.0	0.0	870.36	0.68	0.04	0.00	874.20
1240.	0.	1240.	0.	0.	187.	0.	1.	0.	873.70
0.01	0.0	6.62	0.0	0.070	0.020	0.070	0.041	864.70	2013.86
0.001843	12.	12.	12.	2	0	0	-22.51	60.28	2074.14

*SECNO 23.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

MOORE BUSINESS FORMS INC 23

Q	GLOB	UCH	GROB	ALOB	ACH	AROB	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= 874.20 ELREA= 873.70

23.20	5.21	869.91	0.0	0.0	870.39	0.48	0.00	0.02	874.20
1240.	0.	1240.	0.	0.	224.	0.	1.	0.	873.70
0.01	0.0	5.54	0.0	0.070	0.040	0.070	0.041	864.70	2013.46
0.004151	1.	1.	1.	2	0	0	0.0	61.08	2074.54

*SECNO 23.500

3280 CROSS SECTION 23.50 EXTENDED 0.76 FEET

23.50	5.57	870.57	0.0	0.0	870.60	0.03	0.17	0.04	869.00
1240.	41.	1190.	9.	140.	835.	33.	6.	2.	868.00
0.08	0.30	1.43	0.28	0.070	0.040	0.070	0.040	865.00	2000.00
0.000160	370.	370.	370.	2	0	0	0.0	302.26	2302.26

*SECNO 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.90 ELREA= 870.00

VALLEY SECTION - OLD R.R. GRADE (C)

24.00	4.91	870.81	0.0	0.0	870.94	0.13	0.32	0.03	874.90
1240.	0.	1240.	0.	0.	424.	0.	21.	6.	870.00
0.17	0.0	2.92	0.01	0.070	0.040	0.070	0.040	865.90	2000.00
0.001141	930.	930.	930.	2	0	0	0.0	117.13	2117.13

*SECNO 24.500

3470 ENCROACHMENT STATIONS= 1700.0 2150.0 TYPE= 1 TARGET= 450.000

VALLEY SECTION (D)

24.50	5.33	871.33	0.0	0.0	871.35	0.02	0.40	0.01	869.00
1240.	576.	516.	151.	829.	309.	221.	39.	12.	868.70
0.37	0.69	1.66	0.68	0.070	0.040	0.070	0.039	866.00	1700.00
0.000278	980.	750.	675.	0	0	0	0.0	450.00	2150.00

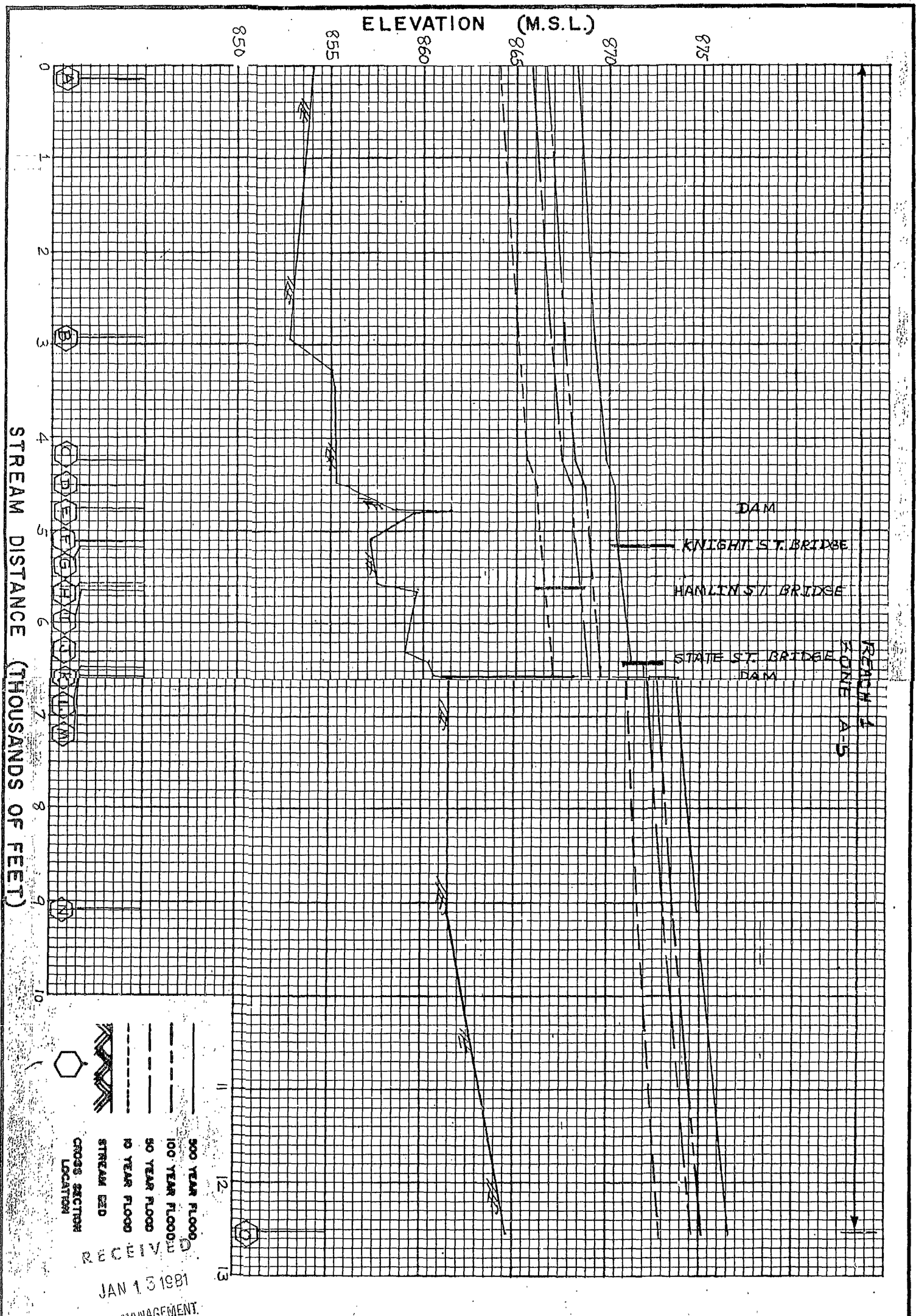
*SECNO 25.000

3470 ENCROACHMENT STATIONS= 1900.0 2480.0 TYPE= 1 TARGET= 580.000

VALLEY SECTION (E)

25.00	5.46	871.56	0.0	0.0	871.58	0.02	0.23	0.00	869.00
1240.	871.	368.	2.	983.	274.	5.	64.	20.	869.90
0.59	0.89	1.34	0.32	0.070	0.040	0.070	0.036	866.10	1999.38
0.000305	950.	540.	650.	2	0	0	0.0	383.04	2382.42

MOORE BUSINESS FORMS INC 23



RECEIVED
JAN 13 1981
MANAGEMENT

EATON RAPIDS

GRAND RIVER

FLOOD PROFILE

RECEIVED
DEC 16 1981
COMMONWEALTH ASSOC. INC.
CIVIL/HYDRAULICS DEPT.

14 December 1981

Mr. V. Danushkodi, P.E.
Gilbert/Commonwealth
209 East Washington Avenue
Jackson, Michigan 49201

Re: Flood Boundary and Floodway Map
Grand River
City of Eaton Rapids

Dear Danushkodi,

I have attached the best available topographic information of a site referred to as Horner Woolen Mills, in the City of Eaton Rapids.

You will note this is an existing 3 story structure, of concrete masonry, with no basement, constructed on this site in 1915. The first floor elevation is above the 100 year flood elevation, established by your office in the most recent investigation for F.E.M.A.

It is our desire to ammend the flood boundary map to remove this structure from the flood plain and floodway since it does have a floor elevation above the 100 year flood elevation. If a structure is above the 100 year elevation, is it also removed from the floodway?

Would you please review the attached information and determine if the floodway maps may be ammended as requested. If you have any questions, please call.

Sincerely,

LINSEMIER AND ASSOCIATES, P.C.

Leslie C. Linsemier

LCL/sr

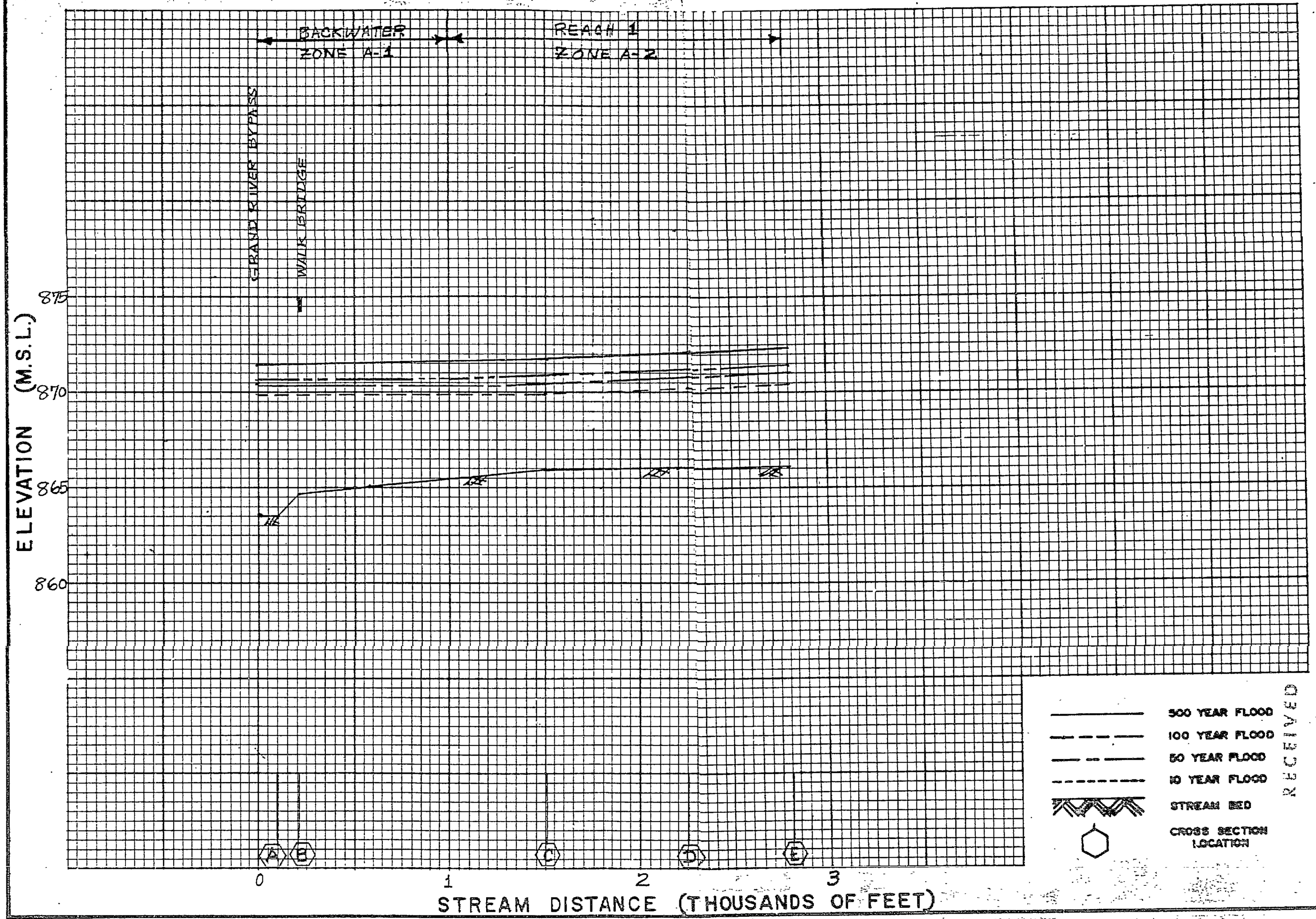
encl.

linsemier and associates p.c.
landscape architects • environmental planners • consultants
1120 keystone avenue • lansing, michigan 48910
(517) 394-4550

FLOOD PROFILE

SPRINGBROOK

EATON RAPIDS



RECEIVED
JAN 13 1981
MANAGEMENT

Gilbert/Commonwealth engineers/consultants/architects

COMMONWEALTH ASSOCIATES INC., 209 E. Washington Avenue, Jackson, MI 49201/Tel. 517 788-3000

January 5, 1982

RECEIVED
JAN 6 1982
WATER MANAGEMENT

Mr. Daniel H. Morgan, P.E., Chief
Flood Insurance Unit
Water Management Division
Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Subject: Contract H-4729
FIS - Eaton Rapids, Michigan
Grand River - Modification to Floodway

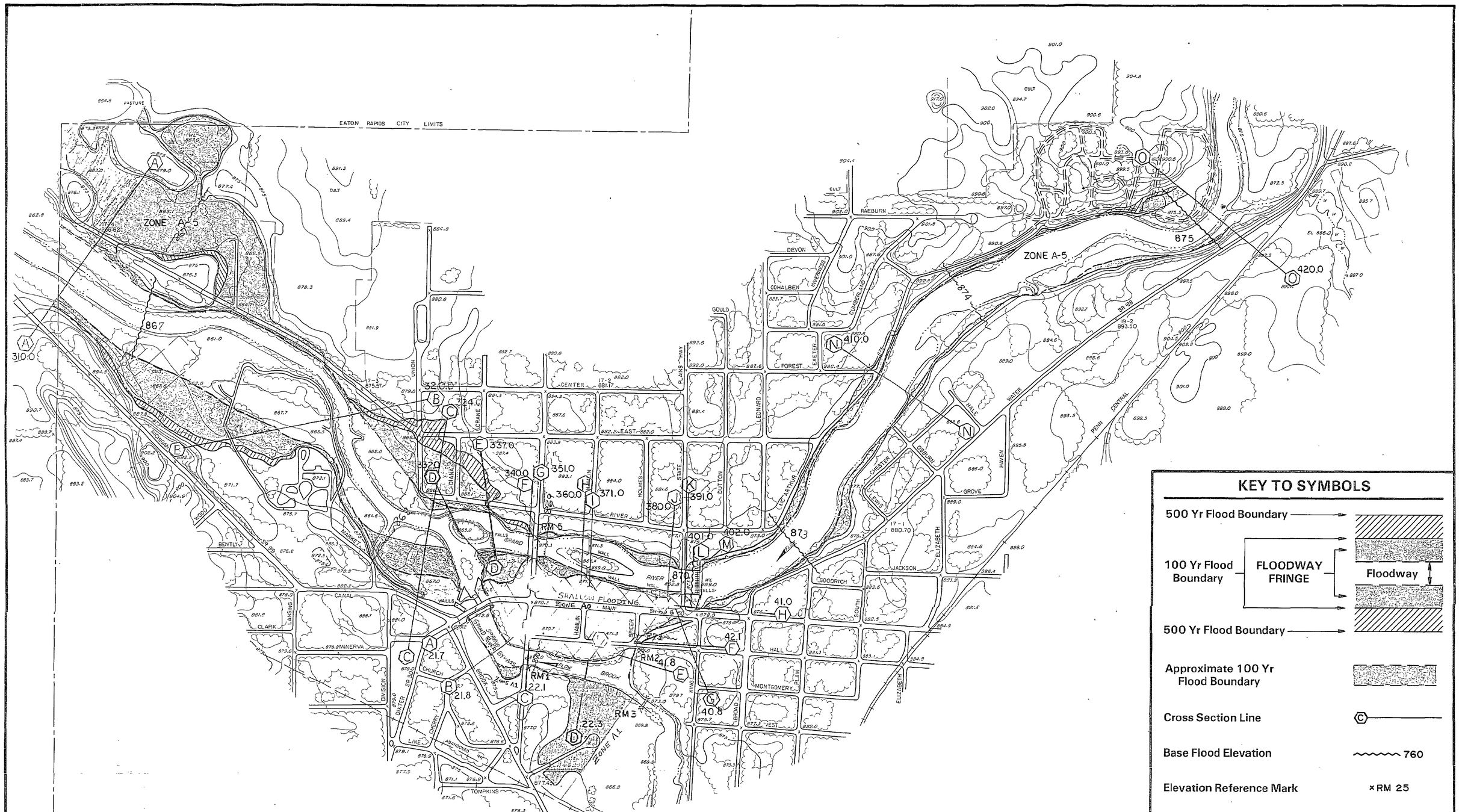
Dear Mr. Morgan:

A request to consider modification of the floodway of the Grand River at Eaton Rapids came from Linsemier and Associates of Lansing, Michigan. It was pointed out that there is a large three-story building within the floodway of the Grand River. A copy of Mr. Linsemier's letter and attachments are included for your reference.

A portion of the HEC-2 computer model was rerun excluding the large existing building. The modified 100-year levels do not change more than ± 0.1 foot from the original model as listed below:

Cross Section	Floodway Elevation	
	Revised Run	Original Run
A	866.7	866.7
B	867.7	867.7
C	868.2	868.3
D	868.9	868.8
E	868.9	868.9
F	869.0	869.0

Copies of the revised portion of the computer model and floodway map are attached.



KEY TO SYMBOLS

- 500 Yr Flood Boundary
- 100 Yr Flood Boundary
- FLOODWAY FRINGE
- Floodway
- 500 Yr Flood Boundary
- Approximate 100 Yr Flood Boundary
- Cross Section Line
- Base Flood Elevation — 760
- Elevation Reference Mark — × RM 25

FLOODWAY MODIFIED
1-5-82

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF EATON RAPIDS, MICH.
GRAND RIVER
& GRAND RIVER BYPASS

SCALE 1" = 400' CONTOUR INTERVAL 5'

A.A.S.C. 17298

ABRAMS
AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

Gilbert / Commonwealth
209 E. Washington Avenue, Jackson, MI 49201

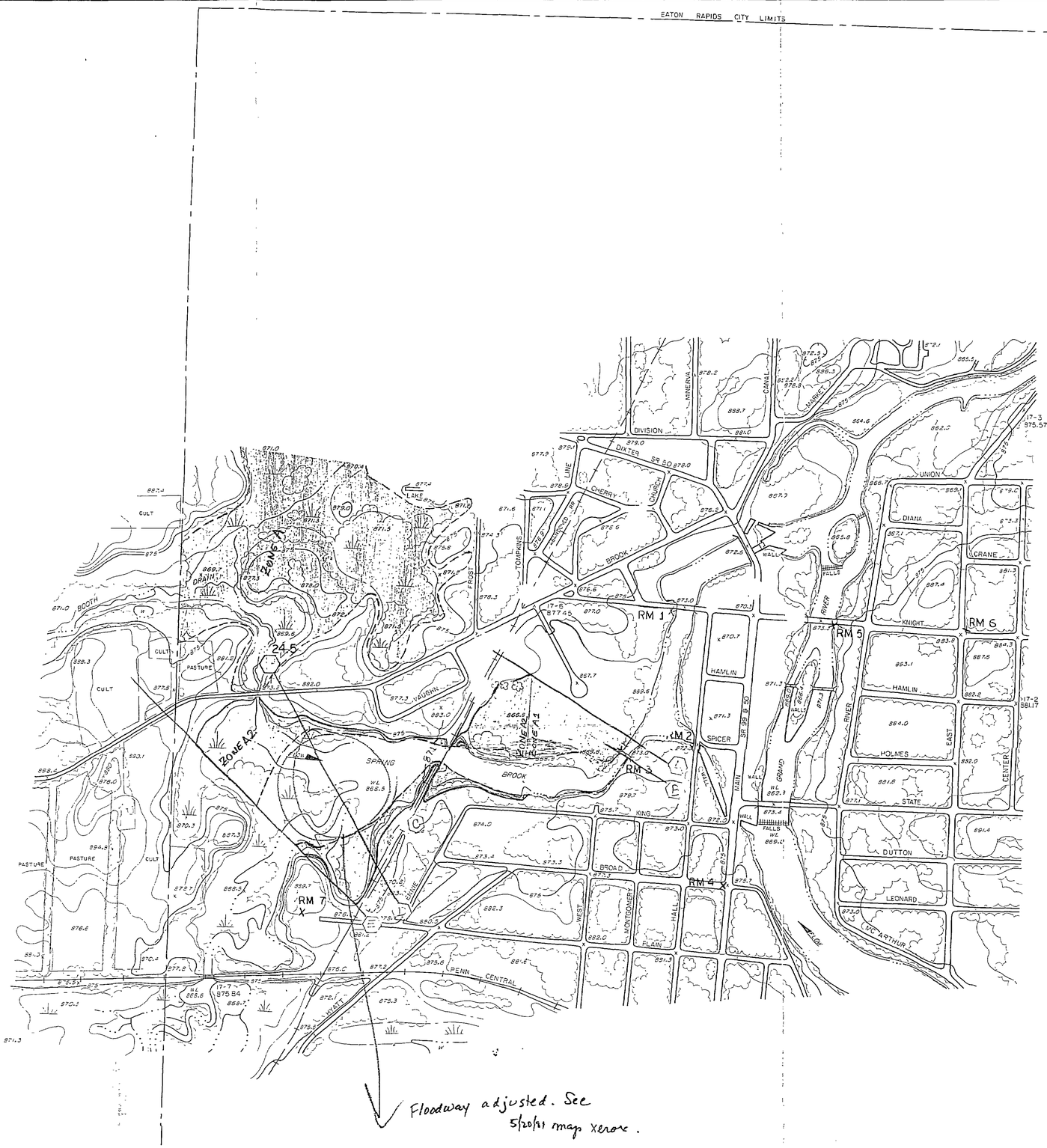
We request your approval of the modification to the floodway as soon as possible. The Technical Evaluation Contractor for the flood insurance study will be provided with the revised data after hearing from you. Thank you.

Yours very truly,

V. Danushkodi, P.E.
Project Manager

VD/lft

CC: N. Schwartz - GTM



KEY TO SYMBOLS

- 500 Yr Flood Boundary
- 100 Yr Flood Boundary
- FLOODWAY FRINGE
- Floodway
- 500 Yr Flood Boundary
- Approximate 100 Yr Flood Boundary
- Cross Section Line
- Base Flood Elevation — 760
- Elevation Reference Mark — × RM 25

RECEIVED
JAN 13 1981
WATER MANAGEMENT

N

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF EATON RAPIDS, MICH.
SPRINGBROOK

400 0 400 800 1200

SCALE 1" = 400' CONTOUR INTERVAL 5'

A. A. S. C. 17298

ABRAMS
AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

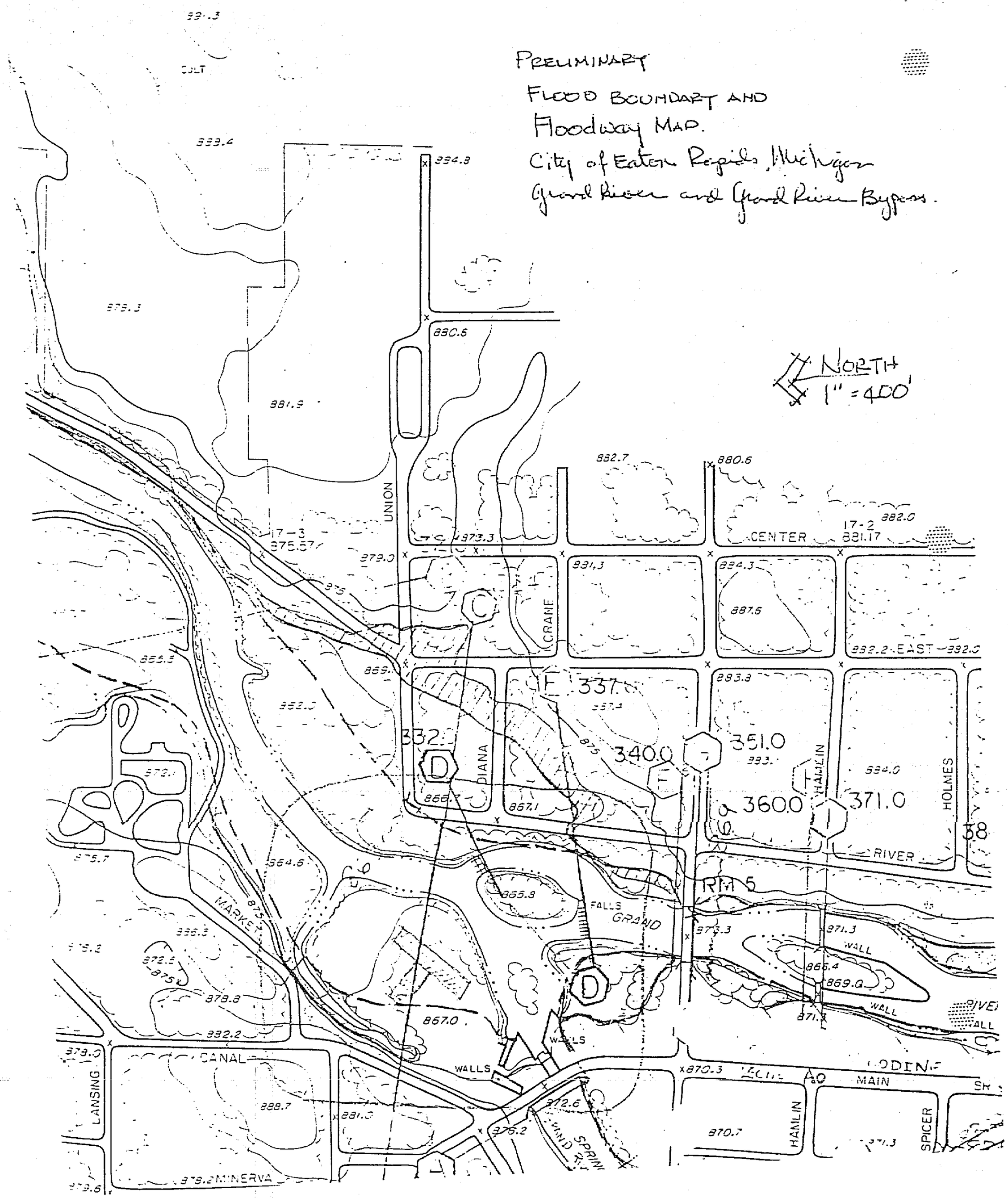
PRELIMINARY

FLOOD BOUNDARY AND

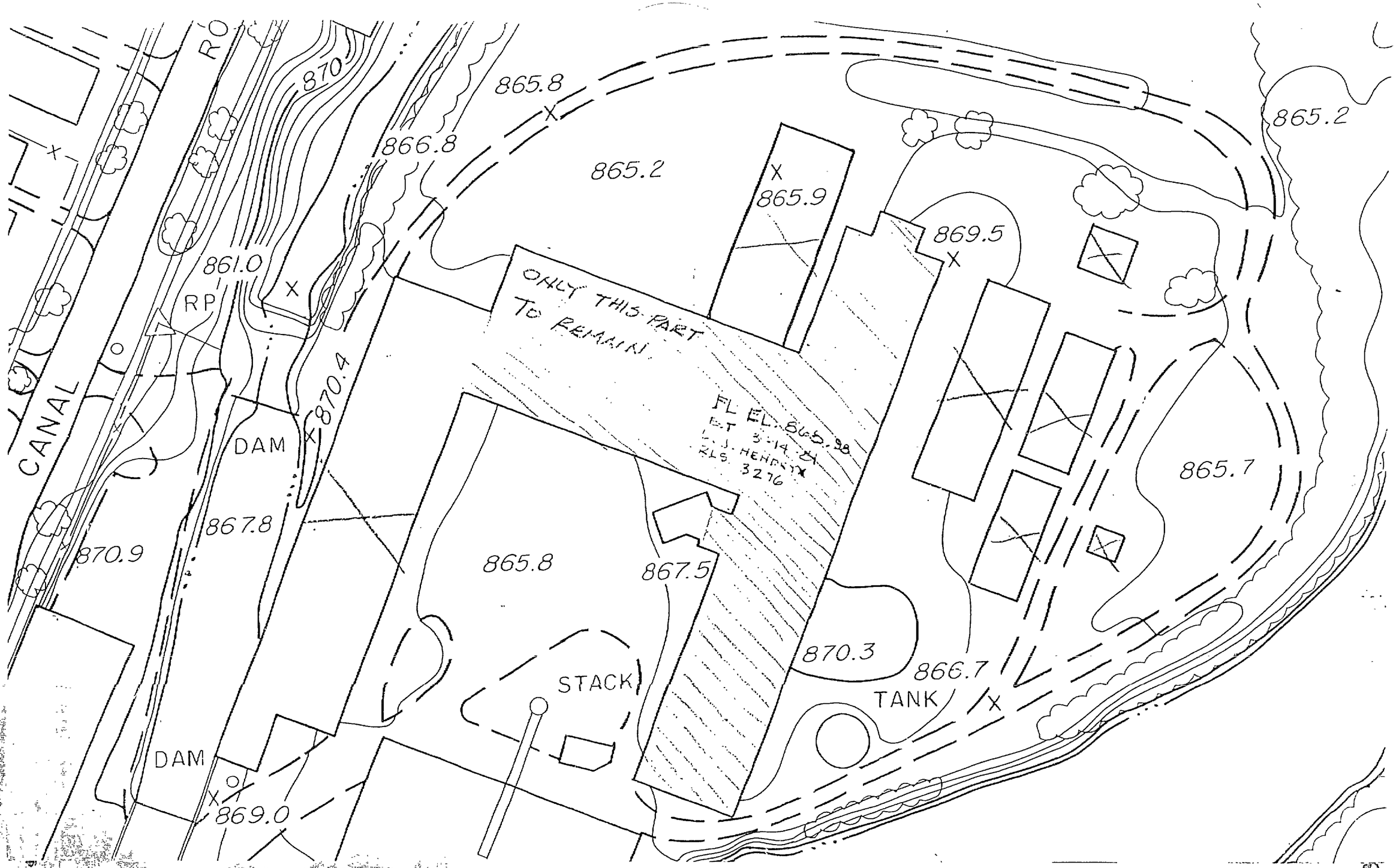
Floodway MAP.

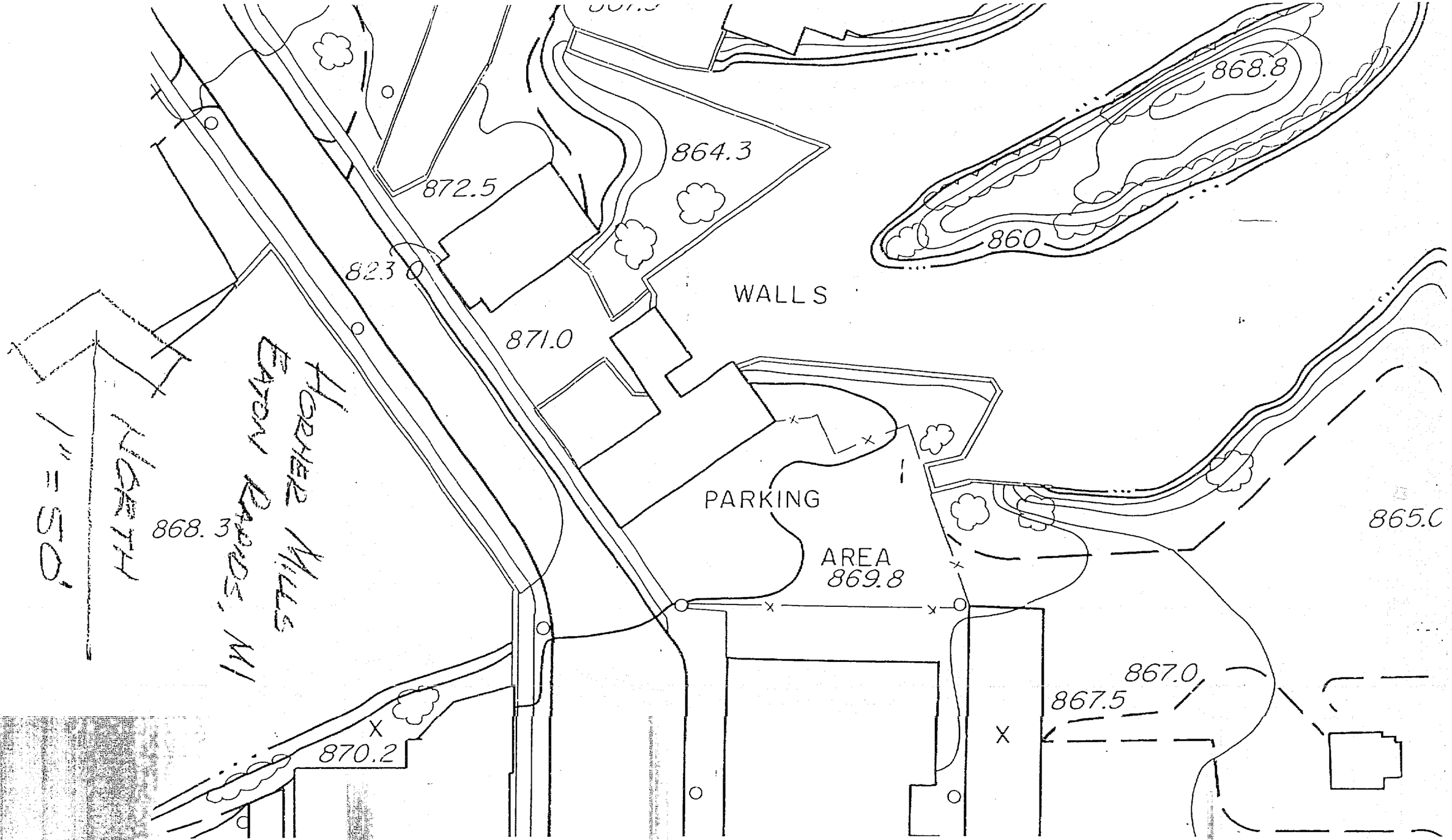
City of Eaton Rapids, Michigan

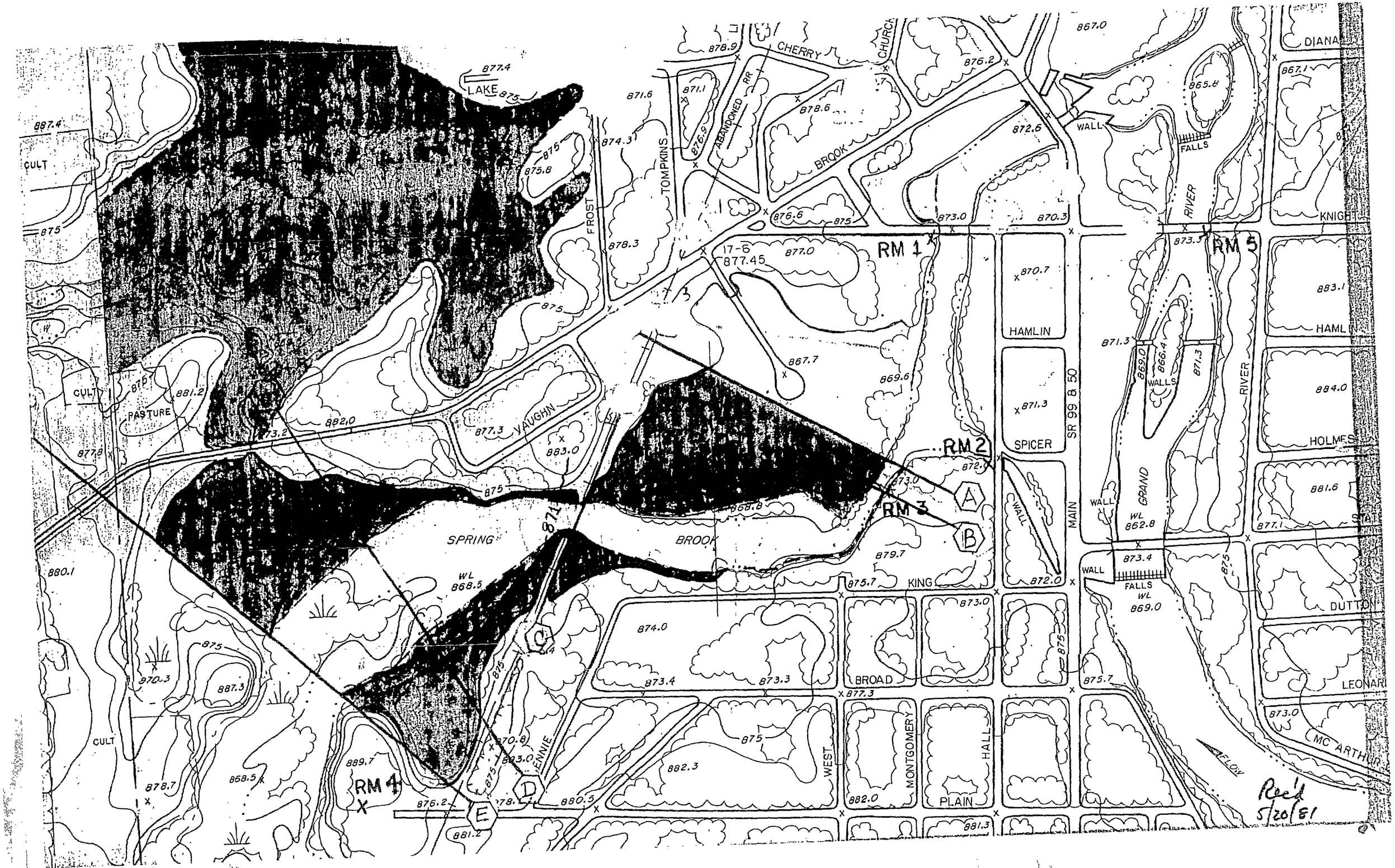
Grand River and Grand River Bypass.




ONLY THIS PART
TO REMAIN.
FL. EL. 865.38
E.T. 3-14-21
L. J. HERBERT
R.L.S. 3276
RP
CANAL
DAM
870.4
867.8
870.9
865.8
867.5
870.3
866.7
TANK
STACK
M-99
DAM
869.0
867.5
868.8
864.3
872.5
'5.6


RO
870
865.8
866.8
865.2
865.9
869.5
865.2
ONLY THIS PART
TO REMAIN
861.0
RP
CANAL
DAM
870.4
FL EL: 865.38
E.T. 3-14-74
L. J. HERRITT
RLS 3276
865.7
867.8
870.9
865.8
867.5
870.3
866.7
STACK
TANK
DAM
869.0


868.8
864.3
872.5
860
823.0
WALLS
871.0
PARKING
AREA
869.8
868.3
865.0
867.0
867.5
870.2
HORIZONTAL & VERTICAL ACCURACIES NOT GUARANTEED

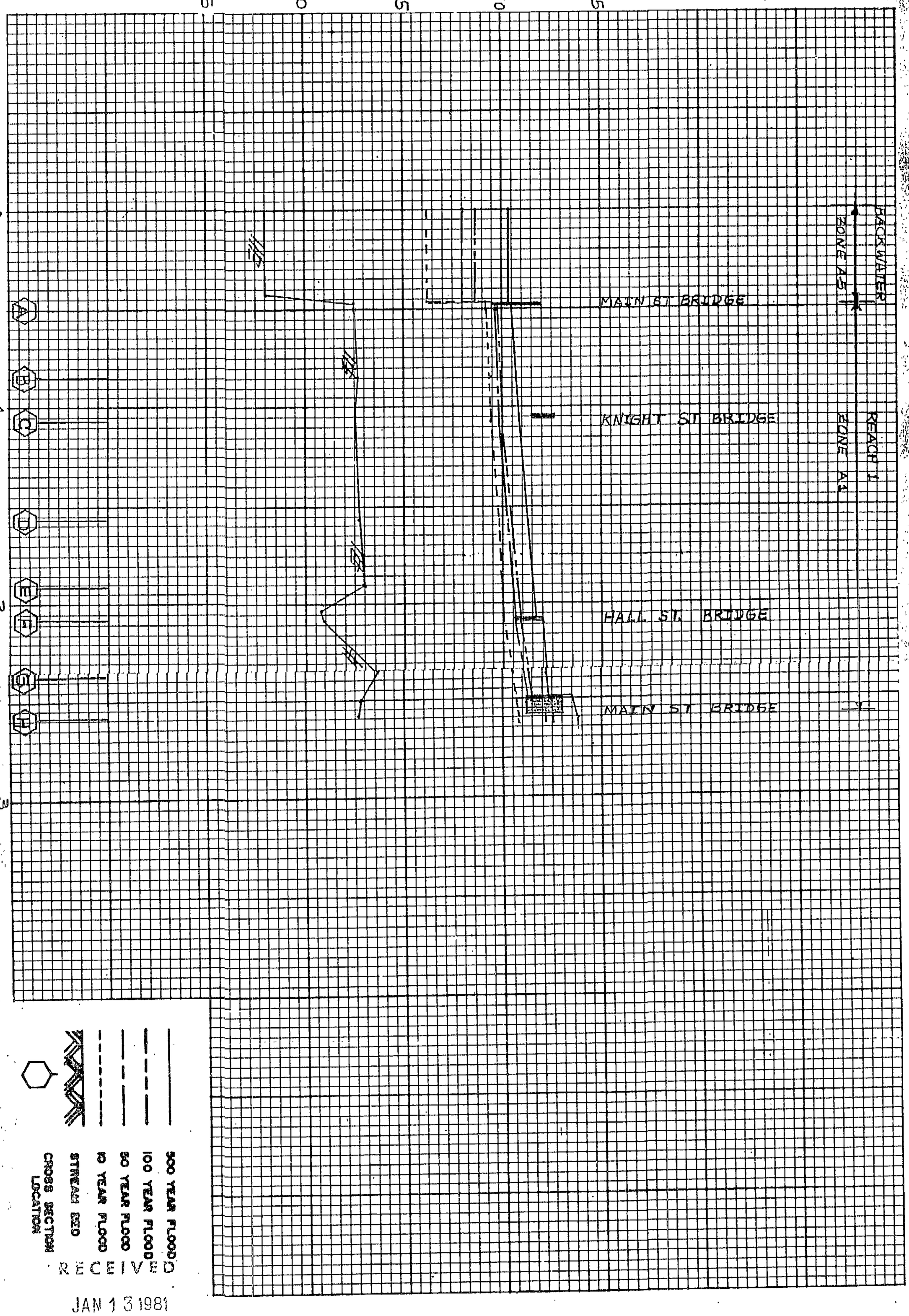

LAKE
CULT
PASTURE
FROST
TOMPKINS
CHERRY
CHURCH
ABANDONED RR
BROOK
WALL
FALLS
RIVER
DIANA
KNIGHT
HAMLIN
SPICER
SR 99 & 50
MAIN
WALLS
GRAND
WL 862.8
HOLMES
DUTTON
LEONARD
MC ARTHUR
FLOW
VAUGHN
SPRING
WL 868.5
JENNIE
WEST
BROAD
KING
MONTGOMERY
HALL
PLAIN
RM 1
RM 2
RM 3
RM 4
RM 5
17-6
877.45
A
B
C
D
E
Reed
5/20/81

ELEVATION (M.S.L.)

855 860 865 870 875

STREAM DISTANCE (THOUSANDS OF FEET)

0 1 2 3



500 YEAR FLOOD
100 YEAR FLOOD
50 YEAR FLOOD
10 YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

RECEIVED
JAN 13 1981
WATER MANAGEMENT

EATON RAPIDS

GRAND RIVER BYPASS

FLOOD PROFILE

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Delhi & Windsor Twp

3) WATERCOURSE: Gilbert Drain

4) DOCUMENT TYPE: 10, 50, 100 & 500 year profiles

00BREAK00

.20.41.12. 10/04/78 LQ21 TB76091
.20.41.12. 10/04/78 LQ21 TB76091
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Rec'd 10/6/78
WMD

GILBERT DRAIN

10-, 50-, 100-, and 500-Year
FLOOD WATER SURFACE PROFILES

Revised 10/6/78

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

C
T1      FIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2      10 YEAR FLOW
T3      GILBERT DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.         2.         1.         1.    .002850       0.00       0.0        0.    848.000     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       .100       .100       .145       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      4.000    400.000    575.000    685.000    900.000      0.000      0.000      0.000      0.000      0.000

        STARTING WATER SURFACE BY SLOPE-AREA

        SECTION A, SURVEYED VALLEY SECTION

X1      1.000     10.000    231.000    252.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    856.700      0.000    851.100     22.000    847.500     84.000    845.600    200.000    846.000    231.000
GR    843.400    234.000    842.900    240.000    843.400    246.000    844.900    252.000    856.700    307.000
NC       .035       .100       .145      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      1.100      0.000      0.000      0.000     62.000     62.000     62.000      0.000       .640      0.000

X1      1.900      9.000    175.000    185.000    130.000    130.000    130.000      0.000      -.510      0.000
X3      0.000      0.000      0.000    163.000      0.000    197.000      0.000      0.000      0.000      0.000
GR    857.400      0.000    848.600    100.000    846.000    175.000    846.000    175.000    845.400    180.000
GR    846.000    185.000    846.000    185.000    860.800    213.000    861.400    300.000      0.000      0.000

X1      1.950      0.000      0.000      0.000     25.000     25.000     25.000      0.000       .260      0.000
X3      0.000      0.000      0.000    169.000      0.000    191.000      0.000      0.000      0.000      0.000

X1      2.000      9.000    175.000    185.000     24.000     24.000     24.000      0.000      0.000      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    854.300    854.300      0.000
GR    857.400      0.000    848.600    100.000    846.000    175.000    846.000    175.000    845.400    180.000
GR    846.000    185.000    846.000    185.000    860.800    213.000    861.400    300.000      0.000      0.000
NC       .025       .025       .028      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        D/S FACE, JARVIS HIGHWAY

X1     2.010      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    854.300    854.300      0.000
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BT	9.000	0.000	857.400	0.000	100.000	854.300	0.000	175.000	854.300	846.000
BT	175.000	854.300	852.900	185.000	854.300	852.900	185.000	854.300	846.000	200.000
BT	854.600	0.000	213.000	860.800	0.000	300.000	861.400	0.000	0.000	0.000

SECTION B

JARVIS HIGHWAY, CONCRETE BOX CULVERT, 45 DEGREE WINGWALLS, GRAVEL ROAD

X1	2.090	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	854.300	854.300	0.000
NC	.110	.110	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	854.300	854.300	0.000
X1	2.200	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.110	0.000

SECTION C, SURVEYED VALLEY SECTION

X1	3.000	9.000	160.000	190.000	1465.000	1465.000	1465.000	0.000	0.000	0.000
GR	861.600	0.000	858.600	100.000	853.500	160.000	852.000	165.000	847.900	174.000
GR	852.000	183.000	854.100	190.000	860.800	300.000	864.500	350.000	0.000	0.000
QT	4.000	370.000	530.000	630.000	835.000	0.000	0.000	0.000	0.000	0.000
X1	3.900	13.000	206.000	240.000	637.000	637.000	637.000	0.000	-.150	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	873.700	0.000	865.900	100.000	858.300	206.000	852.750	220.250	851.380	221.620
GR	850.000	223.000	851.380	224.380	852.750	225.750	357.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000

X1	4.000	13.000	220.250	225.750	50.000	50.000	50.000	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	873.700	0.000	865.900	100.000	858.300	206.000	852.750	220.250	851.380	221.620
GR	850.000	223.000	851.380	224.380	852.750	225.750	857.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, FARM LANE 5.5 FT. DIAM. CMP (2 IN.), 26 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

X1	4.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	873.700	0.000	100.000	865.900	0.000	206.000	858.300	0.000
BT	220.250	857.900	852.750	221.620	857.300	854.120	223.000	857.800	855.500	224.380
BT	857.770	854.120	225.750	857.740	852.750	240.000	357.400	0.000	300.000	855.700
BT	0.000	400.000	863.500	0.000	500.000	868.600	0.000	600.000	873.700	0.000

SECTION D, U/S FACE, FARM LANE

X1	4.090	0.000	0.000	0.000	24.000	24.000	24.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BT	13.000	0.000	873.710	0.000	100.000	865.900	0.000	206.000	858.300	0.000
BT	220.250	857.900	853.250	221.620	857.800	854.620	223.000	857.350	856.000	224.380
BT	857.770	854.620	225.750	857.740	853.250	240.000	857.400	0.000	300.000	855.730
BT	0.000	400.000	863.510	0.000	500.000	868.600	0.000	600.000	873.700	0.000
NC	.110	.110	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.100	13.000	206.010	243.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.010	207.450	0.000	326.080	0.000	0.000	0.000	0.000
GR	873.700	0.000	865.910	100.000	858.300	206.000	853.250	220.250	851.880	221.620
GR	850.500	223.000	851.860	224.380	853.250	225.750	857.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000
X1	4.200	0.000	0.010	0.000	50.000	50.000	50.000	0.000	.040	0.000
X1	4.900	12.000	175.010	213.000	796.000	796.000	796.000	0.000	-.040	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.600	100.000	858.900	175.000	853.950	187.250	852.580	188.620
GR	851.200	190.000	852.500	191.380	853.950	192.750	858.000	213.000	862.600	300.000
GR	864.600	400.000	866.610	460.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, FARM LANE, 5.5 FT. DIAM. CMP (1/2 IN.),24 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

X1	5.000	12.000	175.610	213.000	50.010	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.610	100.000	858.900	175.000	853.950	187.250	852.580	188.620
GR	851.200	190.000	852.560	191.380	853.950	192.750	858.000	213.000	862.600	300.000
GR	864.600	400.000	866.600	460.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.157	2.960	0.000	5.500	0.000	23.760	0.000	851.500	851.200

SECTION E, U/S FACE, FARM LANE

X1	5.090	0.000	0.010	0.000	22.000	22.000	22.000	0.000	.300	0.000
X2	0.000	0.000	1.010	857.000	858.000	0.000	0.000	0.000	0.000	0.000
BT	12.000	0.000	866.610	0.000	100.000	863.600	0.000	175.000	858.900	0.000
BT	187.250	858.700	854.250	188.620	858.700	855.620	190.000	858.700	857.000	191.380
BT	858.700	855.620	192.750	858.600	854.250	213.000	858.000	0.000	300.000	862.600
BT	0.000	400.000	864.610	0.000	460.000	866.600	0.000	0.000	0.000	0.000
X1	5.100	12.000	175.010	213.000	50.000	50.000	50.000	0.000	.040	0.000
X3	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.610	100.000	858.900	175.000	854.250	187.250	852.880	188.620
GR	851.500	190.000	852.880	191.380	854.250	192.750	858.000	213.000	862.600	300.000
GR	864.600	400.000	866.600	460.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION F, SURVEYED VALLEY SECTION

X1	6.000	12.000	276.010	315.000	1019.000	1019.000	1019.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	240.000	0.000	600.000	0.000	0.000	0.000	0.000
GR	865.300	0.000	861.010	100.000	859.200	200.000	862.000	240.000	858.000	276.000
GR	854.400	280.000	852.300	291.000	854.400	300.000	859.900	315.000	861.300	400.000
GR	863.300	500.000	865.300	600.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	6.900	12.000	300.000	346.000	189.000	189.000	189.000	0.000	-.290	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.700	0.000	865.300	100.000	863.500	200.000	862.100	300.000	855.700	313.000
GR	854.700	314.000	853.700	315.000	854.700	316.000	855.700	317.000	862.600	346.000
GR	865.500	400.000	866.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION G, D/S FACE, DRIVEWAY CULVERT,4 FT. DIAM. BOILER PLATE PIPE

SANDBAG WINGWALLS, PAVED ROADWAY

X1	7.000	12.000	300.000	346.000	50.000	50.000	50.000	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	866.700	0.000	865.300	100.000	863.500	200.000	862.100	300.000	855.700	313.000
GR	854.700	314.000	853.700	315.000	854.700	316.000	855.700	317.000	862.600	346.000
GR	865.500	400.000	866.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.570	3.040	0.000	4.000	0.000	12.566	0.000	853.700	853.700

SECTION H, U/S FACE, DRIVEWAY CULVERT

X1	7.100	0.000	0.000	0.000	23.000	23.000	23.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	857.700	862.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	277.000	0.000	500.000	0.000	0.000	0.000	0.000
BT	12.000	277.000 Sta	862.350 Rd	0.000 ℄	277.000	862.350	0.000	277.000	862.350	0.000
BT	300.000	862.000	0.000	313.000 ℄	862.000	855.700	314.000	862.000	856.700	315.000
BT	862.000	857.700	316.000	862.000	856.700	317.000	862.000	855.700	346.000	862.600
BT	0.000	400.000	865.300	0.000	500.000	866.700	0.000	0.000	0.000	0.000
NC	.040	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	7.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.380	0.000

X1	8.000	25.000	1091.000	1097.000	8.000	258.000	158.000	.876	0.000	0.000
X3	0.000	0.000	0.000	930.000	0.000	1250.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	862.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.500	1094.000	855.600	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.020	.020	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, WAVERLY ROAD, 4 BY 6 FT. CMP ARCH (2 IN.), 60 FT. LONG

EXTENDING INLET, PAVED ROADWAY

X1	8.010	25.000	1091.000	1097.000	1.000	1.000	1.000	.876	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.876	0.000
X3	0.000	0.000	0.000	930.000	0.000	1250.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	876.400	0.000	176.000	873.000	0.000	412.000	867.400	0.000
BT	600.000	864.800	0.000	800.000	863.000	0.000	900.000	862.800	0.000	1000.000
BT	862.500	0.000	1033.000	862.500	0.000	1073.000	862.500	0.000	1091.000	862.500
BT	856.600	1092.500	862.500	858.100	1094.000	862.500	859.600	1095.500	862.600	858.100
BT	1097.000	862.600	856.600	1128.000	862.500	0.000	1300.000	863.300	0.000	1500.000
BT	866.900	0.000	1541.000	867.400	0.000	1700.000	868.400	0.000	1900.000	871.000
BT	0.000	2000.000	873.000	0.000	2200.000	874.000	0.000	2400.000	874.400	0.000

BT	2600.000	875.400	0.000	2700.000	876.400	0.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	862.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.600	1094.000	855.500	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000

SECTION I, U/S FACE, WAVERLY ROAD

X1	8.090	25.000	1091.000	1097.000	58.000	58.000	58.000	.876	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.876	0.000
X3	0.000	0.000	0.000	930.000	0.000	1250.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	876.400	0.000	176.000	873.000	0.000	412.000	867.400	0.000
BT	600.000	864.800	0.000	800.000	863.300	0.000	900.000	862.800	0.000	1000.000
BT	862.500	0.000	1033.000	862.500	0.000	1058.000	862.500	855.700	1059.500	862.500
BT	857.200	1061.000	862.500	858.700	1062.500	862.500	857.200	1064.000	862.500	855.700
BT	1073.000	862.500	0.000	1128.000	862.500	0.000	1300.000	863.900	0.000	1500.000
BT	866.900	0.000	1541.000	867.400	0.000	1700.000	868.400	0.000	1900.000	871.000
BT	0.000	2000.000	873.000	0.000	2200.000	874.000	0.000	2400.000	874.000	0.000
BT	2600.000	875.400	0.000	2700.000	876.400	0.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	862.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.600	1094.000	855.500	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.125	.125	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8.100	25.000	1058.000	1064.000	1.000	1.000	1.000	.876	0.000	0.000
X3	0.000	0.000	0.000	897.000	0.000	1217.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	855.700	1058.000	854.700	1059.500
GR	854.700	1061.000	854.700	1062.500	855.700	1064.000	862.500	1073.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000

X1	8.200	25.000	1058.000	1064.000	75.000	25.000	50.000	.876	-.160	0.000
X3	0.000	0.000	0.000	897.000	0.000	1217.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	855.700	1058.000	854.700	1059.500
GR	854.700	1061.000	854.700	1062.500	855.700	1064.000	862.500	1073.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.125	.125	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9.000	20.000	1721.000	1758.000	245.000	20.000	170.000	.788	0.000	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.020	.020	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, HOLT HIGHWAY, 8 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

SANDBAG WING WALLS, PAVED ROADWAY

X1	9.010	20.000	1738.600	1745.400	1.000	1.000	1.000	.788	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.788	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	872.100	0.000	200.000	871.300	0.000	400.000	870.500	0.000
BT	600.000	869.500	0.000	800.000	868.700	0.000	1000.000	868.000	0.000	1200.000
BT	866.300	0.000	1400.000	864.700	0.000	1600.000	863.600	0.000	1668.000	863.400
BT	0.000	1721.000	863.400	0.000	1738.600	863.500	853.900	1738.600	863.500	858.900
BT	1745.400	863.500	858.900	1745.400	863.500	853.900	2000.000	864.500	0.000	2200.000
BT	868.200	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000

SECTION J, U/S FACE, HOLT HIGHWAY

X1	9.000	20.000	1738.600	1745.400	101.000	101.000	101.000	.788	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.788	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
X5	1.000	864.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	872.100	0.000	200.000	871.300	0.000	400.000	870.500	0.000
BT	600.000	869.500	0.000	800.000	868.700	0.000	1000.000	868.000	0.000	1200.000
BT	866.300	0.000	1400.000	864.700	0.000	1600.000	863.600	0.000	1668.000	863.400
BT	0.000	1721.000	863.400	0.000	1738.600	863.500	853.900	1738.600	863.500	858.900
BT	1745.400	863.500	858.900	1745.400	863.500	853.900	2000.000	864.500	0.000	2200.000
BT	868.200	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.060	.060	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1600.000	.060	1664.000	.050	1671.400	.050	1721.000	.040
NH	2800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9.100	20.000	1664.600	1671.400	1.000	1.000	1.000	.788	0.000	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	863.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000

X1	9.200	20.000	1664.600	1671.400	50.000	50.000	50.000	.788	.130	0.000
X3	0.000	0.000	0.000	1300.000	0.000	2000.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	863.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	145.000	210.000	255.000	350.000	0.000	0.000	0.000	0.000	0.000

X1	9.900	16.000	311.000	357.000	137.000	507.000	337.000	0.000	-.130	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.300	0.000	865.500	100.000	862.000	200.000	861.200	300.000	860.900	311.000
GR	857.500	331.500	856.200	332.500	855.000	334.000	856.200	335.200	857.500	336.500
GR	861.200	357.000	861.200	410.000	863.700	500.000	863.900	700.000	866.700	800.000
GR	868.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.000	16.000	331.500	336.500	50.000	50.000	50.000	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	868.300	0.000	865.500	100.000	862.000	200.000	861.200	300.000	860.900	311.000
GR	857.500	331.500	856.200	332.800	855.000	334.000	856.200	335.200	857.500	336.500
GR	861.200	357.000	861.200	400.000	863.700	500.000	863.900	700.000	866.700	800.000
GR	868.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION K, D/S FACE, FARM LANE, 5 FT. DIAM. CMP (1/2 IN), 24 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

X1	11.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	868.300	0.000	100.000	865.500	0.000	200.000	862.100	0.000
BT	300.000	861.200	0.000	311.000	860.900	0.000	331.500	861.000	857.500	332.800
BT	861.100	858.800	334.000	861.100	860.000	335.200	861.100	858.800	336.500	861.100
BT	857.500	357.000	861.200	0.000	400.000	861.200	0.000	500.000	863.700	0.000
BT	700.000	863.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE, FARM LANE

X1	11.090	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	.060	.060	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	11.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	-.010	0.000

X1	11.900	20.000	416.000	462.000	1375.000	1575.000	1475.000	0.000	.010	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	873.800	0.000	869.700	100.000	865.800	201.000	362.400	300.000	862.800	400.000
GR	862.600	416.000	856.200	438.500	855.400	439.800	854.500	441.000	855.400	442.200
GR	856.200	443.500	863.200	462.000	863.300	500.000	366.300	600.000	868.300	700.000
GR	869.500	800.000	870.800	900.000	871.200	1000.000	872.100	1100.000	873.300	1200.000

X1	12.000	20.000	438.500	443.500	50.000	50.000	50.000	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	873.800	0.000	869.700	100.000	865.800	200.000	862.400	300.000	862.800	400.000
GR	862.600	416.000	856.200	438.500	855.400	439.800	854.500	441.000	855.400	442.200
GR	856.200	443.500	863.200	462.000	863.300	500.000	366.300	600.000	868.300	700.000
GR	869.500	800.000	870.800	900.000	871.200	1000.000	872.100	1100.000	873.300	1200.000
NC	.030	.030	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION L, D/S FACE, FARM LANE, 3.5 BY 5 FT. CMP ARCH (1/2 IN.)

EXTENDING INLET, GRAVEL ROADWAY

X1	12.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	20.000	0.000	873.800	0.000	100.000	869.700	0.000	200.000	865.800	0.000
BT	300.000	862.400	0.000	400.000	862.800	0.000	416.000	862.600	0.000	438.500

BT	862.600	856.200	439.800	862.500	857.100	441.000	862.600	858.000	442.200	862.700
BT	857.100	443.500	862.700	856.200	462.000	863.200	0.000	500.000	863.300	0.000
BT	600.000	866.300	0.000	700.000	868.300	0.000	800.000	869.500	0.000	900.000
BT	870.800	0.000	1000.000	871.200	0.000	1100.000	872.000	0.000	1200.000	873.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE, FARM LANE CULVERT

X1	12.090	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	12.200	0.000	0.000	1.000	50.000	50.000	50.000	0.000	0.000	0.000
NH	5.000	.040	1276.000	.125	1300.000	.060	1304.000	.125	1321.000	.040
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.900	18.000	1300.000	1304.000	606.000	606.000	606.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
GR	864.000	0.000	864.000	1676.000	863.700	1176.000	864.000	1276.000	856.500	1300.000
GR	855.500	1301.000	854.500	1302.000	855.500	1303.000	856.500	1304.000	864.000	1321.000
GR	864.000	1376.000	864.400	1476.000	865.200	1576.000	865.700	1676.000	866.500	1776.000
GR	867.500	1876.000	868.600	1976.000	869.100	2026.000	0.000	0.000	0.000	0.000
X1	13.000	18.000	1300.000	1304.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
GR	864.000	0.000	864.000	1076.000	863.700	1176.000	864.000	1276.000	856.500	1300.000
GR	855.000	1300.500	854.500	1302.000	855.000	1303.500	856.500	1304.000	864.000	1321.000
GR	864.000	1376.000	864.400	1476.000	865.200	1576.000	865.700	1676.000	866.500	1776.000
GR	867.500	1876.000	868.600	1976.000	869.100	2026.000	0.000	0.000	0.000	0.000
NC	.025	.025	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION M, D/S FACE, GILBERT ROAD, 4 FT. DIAM. CMP (1/2 IN.), 63 FT LONG

EXTENDING INLET, PAVED ROADWAY

X1	13.010	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	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
BT	17.000	1076.000	864.000	0.000	1176.000	863.700	0.000	1276.000	864.000	0.000
BT	1300.000	864.000	856.500	1300.500	864.000	858.000	1302.000	864.000	858.500	1303.500
BT	864.000	858.000	1304.000	864.000	856.500	1321.000	864.000	0.000	1376.000	864.000
BT	0.000	1476.000	864.400	0.000	1576.000	865.200	0.000	1676.000	865.700	0.000
BT	1776.000	866.500	0.000	1876.000	867.500	0.000	1976.000	868.600	0.000	2026.000
BT	869.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE, GILBERT ROAD

X1	13.090	0.000	0.000	0.000	61.000	61.000	61.000	0.000	.300	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	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
NH	5.000	.035	1276.000	.125	1300.000	.060	1304.000	.125	1321.000	.035
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	13.100	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	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
X1	13.200	0.000	0.000	0.000	50.000	50.000	50.000	.997	.200	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2026.000	0.000	0.000	0.000	0.000
NC	.100	.100	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	150.000	225.000	265.000	340.000	0.000	0.000	0.000	0.000	0.000

SECTION N, SURVEYED VALLEY SECTION

X1	14.000	20.000	1355.000	1370.000	748.000	748.000	748.000	0.000	0.000	0.000
GR	870.000	0.000	864.600	1000.000	864.600	1100.000	864.700	1200.000	864.500	1300.000
GR	864.000	1322.000	861.100	1344.000	858.300	1355.000	858.400	1362.000	858.900	1370.000
GR	861.100	1380.000	862.000	1400.100	861.800	1500.000	862.200	1600.000	862.100	1700.000
GR	862.000	1800.000	861.800	1900.000	866.000	2000.000	868.100	2100.000	869.200	2200.000
X1	15.000	23.000	1029.000	1033.000	1777.000	727.000	1727.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
GR	871.200	0.000	870.900	100.000	865.700	200.000	860.000	300.000	860.600	400.000
GR	866.200	500.000	864.600	600.000	862.300	700.000	865.000	900.000	866.300	1012.000
GR	860.600	1029.000	859.600	1030.000	858.500	1031.000	859.600	1032.000	860.600	1033.000
GR	865.200	1043.000	867.200	1100.000	863.000	1300.000	863.600	1600.000	864.800	2000.000
GR	864.400	2400.000	866.300	2800.000	871.200	3200.000	0.000	0.000	0.000	0.000

SECTION O, D/S FACE, FARM LANE, 4 FT. DIAM. CMP (1/2 IN.),46 FT. LONG

GRAVEL ROADWAY

X1	15.010	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	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
BT	23.300	0.000	871.200	0.000	100.000	870.900	0.000	200.000	865.700	0.000
BT	300.000	860.000	0.000	400.000	860.600	0.000	500.000	866.200	0.000	600.000
BT	864.600	0.000	700.000	862.300	0.000	900.000	865.000	0.000	1012.000	866.300
BT	0.000	1029.000	865.700	860.600	1030.000	865.700	861.600	1031.000	865.600	862.600
BT	1032.000	865.600	861.600	1033.000	865.600	860.600	1043.000	865.200	0.000	1100.000
BT	867.200	0.000	1300.000	863.000	0.000	1600.000	863.600	0.000	2000.000	864.800
BT	0.000	2400.000	864.400	0.000	2800.000	866.300	0.000	3200.000	871.200	0.000

U/S FACE, FARM LANE

X1	15.090	0.000	0.000	0.000	44.000	44.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
X1	15.100	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	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
NC	.100	.070	.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION P, FABRICATED FROM SECTION Q AND U.S.G.S. MAPS

X1	16.900	9.000	10.300	14.000	1238.000	1238.000	1238.000	0.000	0.000	0.000
GR	866.500	0.000	859.900	10.000	858.160	12.000	859.900	14.000	862.800	115.000
GR	862.700	315.000	863.100	515.000	863.200	715.000	870.000	1900.000	0.000	0.000

QT	4.000	110.000	150.000	175.000	220.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, GROVENBURG ROAD, 4 FT. DIAM. CMP (1/2 IN.), 78 FT. LONG

EXTENDING INLET, PAVED ROADWAY

X1	17.000	21.000	1690.000	1694.000	362.000	1122.000	700.000	0.000	0.000	0.000
X3	0.000	5.300	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.900	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	860.000	1678.000	859.900	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	860.500	1708.000
GR	862.800	1800.000	862.700	2000.000	863.100	2200.000	863.200	2400.000	865.500	2600.000
GR	870.700	2700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.125	.125	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.175	3.000	0.000	4.000	0.000	12.570	0.000	858.700	857.900

SECTION Q, U/S FACE GROVENBURG ROAD

X1	17.100	0.000	0.000	0.000	78.000	78.000	78.000	0.000	.800	0.000
X2	0.000	0.000	1.000	862.700	865.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
BT	10.000	1000.000	867.700	0.000	1690.000	865.800	0.000	1678.000	865.700	0.000
BT	1690.000	865.700	869.700	1691.000	865.700	862.000	1692.000	865.700	862.700	1693.000
BT	865.700	862.000	1694.000	865.700	860.700	1708.000	865.700	0.000	2200.000	865.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17.200	15.000	1690.000	1694.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1020.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.900	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	860.000	1678.000	859.900	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	866.000	3000.000
QT	4.000	110.000	150.000	175.000	220.000	0.000	0.000	0.000	0.000	0.000

SECTION R, SURVEYED VALLEY SECTION

X1	18.000	18.000	431.000	468.000	1481.000	1481.000	1481.000	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	870.100	0.000	865.100	100.000	865.500	200.000	866.000	300.000	865.500	400.000
GR	865.700	431.000	861.100	444.000	859.000	450.000	861.100	455.000	865.600	468.000
GR	866.600	500.000	865.900	700.000	866.200	900.000	865.600	1100.000	866.000	1300.000
GR	867.600	1500.000	869.500	1700.000	870.700	1800.000	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  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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T1      FIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2      100 YEAR FLOW
T3      GILBERT DRAIN

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       4.        1.        0.   .002850      0.00       0.0        0.   849.100     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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*PROF 3

CCHV=     .300 CEHV=     .500
*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

        STARTING WATER SURFACE BY SLOPE-AREA

        SECTION A, SURVEYED VALLEY SECTION

      1.00      5.09    847.99      0.00    849.10    848.19      .20      0.00      0.00    846.00
       685.      251.      411.      23.      230.      91.      22.        0.        0.     844.90
      0.00      1.09      4.52      1.05      .100      .045      .100    0.000     342.90     77.11
  .002857        0.        0.        0.         0         0         5     0.00     189.29    266.40

*SECNO 1.100
      1.10      4.69    848.23      0.00      0.00    848.36      .13      .15       .02    846.64
       685.      376.      296.      14.      170.      83.      17.        0.        0.     845.54
       .01      2.21      3.58       .81       .035      .045      .100      .044     843.54     84.53
  .002938        62.       62.       62.         2         0         0     0.00     179.91    264.53

*SECNO 1.900

3301 HV CHANGED MORE THAN HVINS

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     163.0     197.0  TYPE=      1  TARGET=     34.000
      1.90      3.63    848.52    848.52      0.00    849.99      1.48      .60       .67    845.49
       685.      339.      325.      21.      34.      33.      9.        1.        1.     845.49
       .11     10.03      9.76      2.44      .035      .045      .100      .045     844.89    163.00
  .018214       130.      130.      130.        20        15         2     0.00     27.73    190.73

*SECNO 1.950
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3470 ENCROACHMENT STATIONS=      169.0      191.0  TYPE=      1  TARGET=      22.000
     1.95      4.20    849.35    849.35      0.00    851.10      1.75       .47       .14    845.75
     685.      212.      437.       35.       21.       39.       12.        1.        1.     845.75
      .01     10.14     11.23      2.93      .035      .045      .100      .044    845.15    169.00
 .019554       25.       25.       25.        20         8         0      0.00     22.00    191.00


*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

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


3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

     2.00      5.54    850.94    850.94      0.00    853.59      2.65       .57       .45    846.00
     685.        0.      685.        0.        0.       52.        0.        1.        1.     846.00
      .01      0.00     13.06      0.00      .035      .045      .100      .044    845.40    175.00
 .029803       24.       24.       24.        20        11         0      0.00     10.00    185.00


*SECNO 2.010

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

        D/S FACE, JARVIS HIGHWAY

     2.01      6.65    852.05      0.00      0.00    853.86      1.81       .01       .25    846.00
     685.        0.      685.        0.        0.       64.        0.        1.        1.     846.00
      .01      0.00     10.78      0.00      .025      .028      .025      .044    845.40    175.00
 .006499         1.        1.        1.         8         0         0    -34.65     10.00    185.00


*SECNO 2.090

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

        SECTION B

        JARVIS HIGHWAY, CONCRETE BOX CULVERT, 45 DEGREE WINGWALLS,GRAVEL ROAD
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     2.09      6.97    852.37      0.00      0.00    854.01      1.64       .10       .05    846.00
      685.       0.      685.       0.        0.       67.        0.        1.        1.     846.00
       .01      0.00     10.28      0.01      .025     .028      .025      .043    845.40    175.00
  .005687        17.      17.       17.         0        0         0    -38.29     10.00    185.00

*SECNO 2.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

     2.10      7.02    852.42      0.00      0.00    854.03      1.62       .01       .01    846.00
      685.       0.      685.       0.        0.       67.        0.        1.        1.     846.00
       .01      0.00     10.26      0.01      .110     .070      .110      .043    845.40    175.00
  .035780         1.       1.        1.         2        0         0      0.01     10.00    185.00

*SECNO 2.200

3301 HV CHANGED MORE THAN HVINS

     2.20      9.06    854.57      0.01      0.00    854.58       .01       .07       .48    846.11
      685.      524.     126.       36.       731.      88.       68.        2.        1.     846.11
       .04       .72     1.44       .53       .110     .070      .110      .049    845.51     33.47
  .000263        75.      75.       75.         2        0         0      0.01    157.53    201.00

*SECNO 3.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

      SECTION C, SURVEYED VALLEY SECTION

     3.00      7.61    855.51      0.00      0.00    855.86       .35      1.11       .17    853.50
      685.       29.     641.       16.       24.      131.       16.       20.        5.     854.10
       .12      1.22     4.90       .97       .110     .070      .110      .066    847.90    136.45
  .008238      1465.    1465.     1465.         4        0         0      0.00     76.56    213.01

*SECNO 3.900

     3.90      8.90    858.75      0.00      0.00    858.83       .08      2.89       .08    858.15
      630.       1.      390.       240.        2.      144.      206.       23.        6.     857.25
       .21       .32     2.71       1.16      .110     .070      .110      .067    849.85    197.72
  .002768       637.     637.       637.         3        0         0      0.00    143.23    340.95

*SECNO 4.000

     4.00      8.90    858.90      0.00      0.00    858.99       .09       .16       .00    852.75
      630.       85.     162.       383.       51.       41.      262.       24.        7.     852.75
       .21      1.68     3.91       1.46      .110     .070      .110      .067    850.00    197.59
  .003653        50.      50.       50.         2        0         0      0.00    143.48    341.07

*SECNO 4.010

3370 NORMAL BRIDGE,NRD=  13 MIN ELTRD=   855.70 MAX ELLC=   855.50
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D/S FACE, FARM LANE 5.5 FT. DIAM. CMP (2 IN.), 26 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

4.01	8.90	858.91	0.00	0.00	859.00	.09	.00	.00	852.75
630.	17.	43.	570.	14.	21.	226.	24.	7.	852.75
.21	1.19	2.03	2.52	.035	.033	.035	.067	850.00	197.53
.001368	1.	1.	1.	0	0	0	-92.45	143.59	341.12

*SECNO 4.090

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 855.70 MAX ELLC= 856.00

SECTION D, U/S FACE;FARM LANE

4.09	8.42	858.92	0.01	0.00	859.07	.15	.05	.03	853.25
630.	12.	63.	555.	8.	21.	175.	24.	7.	853.25
.22	1.48	2.94	3.17	.035	.033	.035	.067	850.50	204.32
.002859	24.	24.	24.	2	0	0	-82.57	130.55	334.87

*SECNO 4.100

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

3470 ENCROACHMENT STATIONS= 207.5 326.1 TYPE= 1 TARGET= 118.630

4.10	8.52	859.02	0.01	0.00	859.10	.07	.00	.02100000.00	
630.	0.	364.	266.	0.	137.	209.	24.	7.	857.40
.22	0.00	2.66	1.27	.110	.070	.110	.067	850.50	207.45
.002787	1.	1.	1.	2	0	0	0.00	118.63	326.08

*SECNO 4.200

4.20	8.62	859.16	0.01	0.00	859.23	.07	.13	.00	858.34
630.	2.	361.	257.	5.	142.	230.	24.	7.	857.44
.22	.37	2.55	1.16	.110	.070	.110	.067	850.54	194.50
.002471	50.	50.	50.	0	0	0	0.00	149.40	343.90

*SECNO 4.900

4.90	9.74	860.91	0.01	0.00	861.00	.10	1.76	.02	858.86
630.	20.	546.	63.	33.	202.	82.	31.	9.	857.95
.31	.61	2.71	.78	.110	.070	.110	.067	851.16	142.44
.001981	796.	796.	796.	2	0	0	0.00	126.17	268.61

*SECNO 5.000

D/S FACE, FARM LANE, 5.5 FT. DIAM. CMP (1/2 IN.),24 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

5.00	9.80	861.0J	L.UL	0.00	861.10	.10	.1[	.00	858.90
630.	22.	543.	66.	36.	205.	86.	31.	10.	858.00
.32	.60	2.65	.77	.110	.070	.11C	.067	351.20	141.27
.001866	50.	50.	50.	0	0	0	0.00	128.74	270.00

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	AREA	SS	ELCHU	ELCHD
0.00	2.16	2.8[	0.00	5.50	0.00	23.76	3.00	851.5J	851.20

*SECNO 5.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	AREA	TRAPEZOID AREA	ELLC	ELTRD
884.55	861.40	6.UL	569.	56.	24.	30.	857.00	858.00

SECTION E, U/S FACE, FARM LANE

5.09	9.58	861.08	0.0[	0.00	861.19	.11	.09	0.00	859.20
630.	17.	554.	58.	28.	196.	73.	31.	10.	858.30
.32	.62	2.83	.8[	.110	.070	.110	.067	851.50	145.04
.002263	22.	22.	22.	2	0	9	0.00	120.48	265.53

*SECNO 5.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK E.EV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	9.66	861.2[	0.0[	0.00	861.29	.09	.10	.01	858.94
630.	25.	531.	74.	41.	204.	95.	32.	10.	858.04
.33	.62	2.6J	.78	.110	.070	.11[	.067	851.54	138.86
.001800	50.	50.	50.	2	0	0	0.00	133.99	272.85

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 240.0 600.0 TYPE= 1 TARGET= 350.000

SECTION F, SURVEYED VALLEY SECTION

6.00	9.95	862.25	0.00	0.00	862.29	.04	.99	.01	858.00
630.	46.	515.	70.	81.	279.	163.	42.	14.	859.90
.51	.56	1.85	.43	.110	.070	.110	.068	852.30	240.00
.000603	1019.	1019.	1019.	3	0	0	0.00	207.55	447.55

*SECNO 6.900

6.90	9.02	862.43	0.00	0.00	862.60	.18	.24	.07	861.81
630.	6.	624.	0.	14.	185.	0.	43.	14.	862.31
.52	.41	3.37	.14	.110	.070	.110	.068	853.41	255.89
.004399	189.	189.	189.	2	0	0	0.00	92.30	348.19

*SECNO 7.000

SECTION G, D/S FACE, DRIVEWAY CULVERT,4 FT. DIAM. BOILER PLATE PIPE

SANDBAG WINGWALLS, PAVED ROADWAY

7.00	8.81	862.51	0.00	0.00	862.70	.20	.09	.01	862.10
630.	3.	627.	0.	6.	175.	0.	44.	14.	862.60
.53	.46	3.56	1.10	.035	.030	.035	.068	853.70	271.02
.000966	50.	50.	50.	2	0	0	0.00	74.59	345.60

SPECIAL BRIDGE

SB	KK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.57	3.04	0.00	4.00	0.00	12.57	0.00	853.70	853.70

*SECNO 7.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	43	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
923.78	862.70	0.10	539.	97.	13.	16.	857.70	862.00

3470 ENCROACHMENT STATIONS= 277.0 500.0 TYPE= 1 TARGET= 223.000

SECTION H, U/S FACE, DRIVEWAY CULVERT

7.10	10.17	863.87	0.01	0.00	863.96	.09	1.26	0.00	862.10
630.	36.	585.	8.	37.	238.	15.	44.	15.	862.60
.53	.98	2.46	.55	.035	.030	.035	.067	853.70	277.00
.000306	23.	23.	23.	2	0	0	0.00	92.69	369.69

*SECNO 7.200

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	XLOER	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7.20	9.80	863.88	0.00	0.00	863.98	.10	.02	.01	862.48
630.	41.	585.	4.	70.	221.	8.	44.	15.	862.98
.53	.58	2.65	.49	.040	.030	.035	.067	854.08	199.85
.000392	50.	50.	50.	2	0	0	0.00	162.96	362.81

*SECNO 8.000

3470 ENCROACHMENT STATIONS= 814.7 1095.0 TYPE= 1 TARGET= 320.000

8.00	8.41	864.01	0.00	0.00	864.05	.04	.04	.02	856.50
630.	237.	122.	270.	253.	43.	221.	45.	15.	856.60
.56	.94	2.85	1.22	.040	.030	.035	.066	855.60	814.68
.000237	8.	158.	258.	2	0	0	0.00	280.32	1095.00

```
*SECNO 8.010
3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  859.60

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000
      D/S FACE, WAVERLY ROAD, 4 BY 6 FT. CMP ARCH (2 IN.), 60 FT. LONG

      EXTENDING INLET, PAVED ROADWAY

     8.01      8.40    864.00      0.00      0.00    864.05      .05       .01       .00    856.60
      630.      394.       20.      216.      206.       20.      139.       45.       15.    856.60
      .56      1.91      1.03      1.55      .020      .033      .(2       .066    855.60    814.53
  .000406        1.        1.        1.         0         0         0   -151.31    280.32   1095.00

*SECNO 8.090
337J NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  859.70

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000
      SECTION I, U/S FACE, WAVERLY ROAD

     8.09      8.43    864.03      0.00      0.00    864.08      .05       .02       .00    856.60
      630.      398.       9.      223.      208.       8.      142.       46.       16.    856.60
      .57      1.92      1.09      1.57      .021      .033      .020      .066    855.60    814.53
  .000405       58.       58.       58.         0         0         0   -162.63    280.32   1095.00

*SECNO 8.100
3470 ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
     8.10      9.25    863.95      0.0       0.00    864.15      .20       .00       .00    855.70
      630.      242.      261.      127.      265.       47.      185.       46.       16.    855.70
      .57       .91      5.52       .69       .125      .045      .125      .066    854.70    785.77
  .001750        1.        1.        1.         2         0         0      0.00    280.32   1066.09

*SECNO 8.200
   SECNO     DEPTH     QWSEL     QRIWS     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

347J ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
     8.20      9.58    864.12      0.00      0.00    864.25      .13       .08       .02    855.54
      630.      253.      232.      145.      311.       49.      229.       46.       16.    855.54
      .58       .81      4.74       .63       .125      .045      .125      .065    854.54    785.77
  .001230       75.       50.       25.         2         0         0      0.00    280.32   1066.09

*SECNO 9.000
347J ENCROACHMENT STATIONS=    1063.4    1536.0  TYPE=     1  TARGET=     600.000
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     9.00     10.42    864.32      0.00      0.00    864.45      .13       .20       .00    863.40
      630.      39.      581.       12.       121.     190.      56.       48.       17.     863.60
      .59       .32      3.05       .21       .125     .050      .125      .065   353.90   1156.14
  .001159       245.     170.       20.          1        0         0      0.00   379.88   1536.01

*SECNO 9.010

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  863.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=    1063.4    1536.0  TYPE=     1  TARGET=     600.000

       D/S FACE, HOLT HIGHWAY, 8 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

       SANDBAG WING WALLS, PAVED ROADWAY

     9.01     10.42    864.32      0.00      0.00    864.46      .13       .00       .00    853.90
      630.      391.     113.       126.      132.      31.       63.       48.       17.     853.90
      .59      2.97      3.64       2.00      .020      .032      .020      .065   853.90   1156.99
  .002580         1.       1.         1.         0         3         0   -138.82   379.02   1536.01

*SECNO 9.090

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  863.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=    1063.4    1536.0  TYPE=     1  TARGET=     600.000

       SECTION J, U/S FACE, HOLT HIGHWAY

     9.69     10.66    864.56      0.00      0.00    864.63      .08       .15       .02    853.90
      630.      367.      74.       169.      188.      32.      102.       49.       18.     853.90
       .61      2.06      2.27       1.66      .020      .032      .020      .064   853.90   1122.13
  .000950       101.     101.       101.         2         0         0   -138.82   413.68   1536.01

CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 9.100

3470 ENCROACHMENT STATIONS=    1063.4    1536.0  TYPE=     1  TARGET=     600.000
     9.10     11.06    864.56      0.00      0.00    864.63      .06       .00       .00    853.50
      630.      253.     192.       184.      203.      59.      218.       49.       18.     853.50
       .61      1.25      3.24       .85       .040      .040      .040      .064   853.50   1121.89
  .000325         1.       1.         1.         0         0         0      0.00   414.12   1536.01


*SECNO 9.200
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        ILOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=    1024.0    1575.4  TYPE=     1  TARGET=     700.000
     9.20     10.94    864.57      0.00      0.00    864.65      .08       .02       .00    853.63
      630.      255.     206.       159.      180.      59.      192.       49.       18.     853.63
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     .62      1.41      3.52      .88      .040      .040      .040      .064    853.63   1139.89
  .000388      50.       50.      50.         2         0         0      0.00    423.70   1563.59

*SECNO 9.900
     9.90      9.81    864.68     0.00      0.00    864.68      .00       .02       .01    860.77
     255.       81.       87.      86.      477.      270.      611.       56.       23.    861.07
     1.03       .17       .32      .14      .060      .050      .060      .063    854.87    119.50
  .000012      137.      337.     517.         0         0         0      0.00    613.26    732.76

*SECNO 11.000
    11.00      9.68    864.68     0.00      0.00    864.68      .00       .00       .00    857.50
     255.      119.       16.     120.      565.       42.      672.       58.       24.    857.50
     1.10       .21       .38      .18      .060      .050      .060      .063    855.00    123.18
  .000015       50.       50.      50.         0         0         0      0.00    605.00    728.17

*SECNO 11.010

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  860.90 MAX ELLC=  860.00

        SECTION K, D/S FACE, FARM LANE, 5 FT. DIAM. CMP (1/2 IN ), 24 FT. LONG

        EXTENDING INLET, GRAVEL ROADWAY

    11.01      9.68    864.68     0.00      0.00    864.68      .00       .00       .00    857.50
     255.      122.        8.     125.      518.       30.      632.       58.       24.    857.50
     1.10       .24       .25      .20      .030      .023      .030      .063    855.00    123.44
  .000006        1.        1.       1.         0         0         0    -93.29    604.41    727.85

*SECNO 11.090

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  860.90 MAX ELLC=  860.00

        U/S FACE, FARM LANE

    11.09      9.68    864.68     0.00      0.00    864.68      .00       .00       .00    857.50
     255.      122.        8.     125.      518.       30.      632.       58.       24.    857.50
     1.12       .24       .25      .20      .030      .023      .030      .063    855.00    123.43
  .000006       22.       22.      22.         0         0         0    -93.29    604.42    727.85

*SECNO 11.100
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    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

    11.10      9.68    864.68     0.00      0.00    864.68      .00       .00       .00    857.50
     255.      119.       16.     120.      563.       42.      669.       58.       24.    857.50
     1.13       .21       .39      .18      .060      .050      .060      .063    855.00    123.43
  .000016        1.        1.       1.         0         0         0      0.00    604.41    727.85

*SECNO 11.200
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     11.20      9.69    864.68      0.00      0.00    864.68       .00       .00       .00    857.49
       255.       119.       16.      120.      565.       42.      673.       50.       25.     857.49
      1.19       .21       .38       .15      .360      .050      .060      .063    854.99    123.13
  .000015        50.       50.       50.         0         0         0      0.00    605.09    728.23

 *SECNO 11.900
     11.90     10.20    864.71      0.00      0.00    864.72       .00       .04       .00    862.61
       255.       81.      158.       16.      320.      258.       88.       93.       40.     863.21
      2.06       .25       .61       .19      .060      .050      .060      .060    854.51    232.38
  .000046     1375.     1475.     1575.         1         0         0      0.00    314.26    546.64

 *SECNO 12.000
     12.00     10.22    864.72      0.00      0.00    864.72       .00       .00       .00    856.20
       255.       151.       39.       64.      442.       47.      182.       93.       41.     856.20
      2.09       .34       .84       .35      .060      .050      .060      .060    854.50    231.83
  .000053        50.       50.       50.         0         0         0      0.00    315.33    547.21

 *SECNO 12.010

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00

        SECTION L, D/S FACE, FARM LANE, 3.5 BY 5 FT. CMP ARCH (1/2 IN.)

        EXTENDING INLET, GRAVEL ROADWAY

     12.01     10.22    864.72      0.00      0.00    854.72       .00       .00       .00    856.20
       255.       195.       10.       50.      371.       19.      122.       93.       41.     856.20
      2.09       .53       .55       .41      .030      .024      .030      .060    854.50    231.83
  .000049         1.        1.        1.         0         0         0   -159.90    315.44    547.26

 *SECNO 12.090
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        IV        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


 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00

        U/S FACE, FARM LANE CULVERT

     12.09     10.22    864.72      0.00      0.00    864.72       .00       .00       .00    856.20
       255.       195.       10.       50.      371.       19.      122.       94.       41.     856.20
      2.10       .53       .55       .41      .030      .024      .030      .060    854.50    231.81
  .000048        24.       24.       24.         0         0         0   -159.90    315.48    547.29

 *SECNO 12.100
     12.10     10.22    864.72      0.00      0.00    854.72       .00       .00       .00    856.20
       255.       151.       39.       64.      443.       47.      182.       94.       41.     856.20
      2.10       .34       .84       .35      .060      .050      .060      .060    854.50    231.81
  .000053         1.        1.        1.         0         0         0      0.00    315.48    547.29
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*SECNO 12.200

12.20	10.22	864.72	0.00	0.00	864.73	.00	.00	.00	856.20
255.	151.	39.	64.	444.	47.	183.	95.	41.	856.20
2.14	.34	.84	.35	.060	.050	.060	.060	854.50	231.71
.000052	50.	50.	50.	0	0	0	0.00	315.69	547.40

1490 NH CARD USED

*SECNO 12.900

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

12.90	10.27	864.77	0.00	0.00	864.78	.01	.05	.00	856.50
255.	148.	41.	66.	349.	37.	183.	103.	47.	856.50
2.46	.42	1.11	.36	.065	.060	.079	.059	854.50	1000.00
.000163	606.	606.	606.	1	0	0	0.00	521.41	1521.41

*SECNO 13.000

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

13.00	10.28	864.78	0.00	0.00	864.79	.00	.01	.00	856.50
255.	148.	41.	66.	353.	39.	186.	104.	48.	856.50
2.49	.42	1.04	.36	.065	.060	.078	.059	854.50	1000.00
.000156	50.	50.	50.	0	0	0	0.00	523.22	1523.22

*SECNO 13.010

SECNO	DEPTH	QWSEL	QRIWS	WSELK	EG	HV	HL	ILOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 17 MIN ELTRD= 863.70 MAX ELLC= 858.50

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

SECTION M, D/S FACE, GILBERT ROAD, 4 FT. DIAM. CMP (1/2 IN.), 63 FT LONG

EXTENDING INLET, PAVED ROADWAY

13.01	10.28	864.78	0.00	0.00	864.79	.01	.00	.00	856.50
255.	177.	13.	66.	264.	15.	123.	104.	48.	856.50
2.49	.67	.83	.53	.025	.024	.025	.059	854.50	1000.00
.000150	1.	1.	1.	0	0	0	-177.75	523.62	1523.62

*SECNO 13.090

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 863.70 MAX ELLC= 858.80

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

U/S FACE, GILBERT ROAD

13.09	9.99	864.79	0.00	0.00	864.80	.02	.02	.00	856.80

255.	179.	24.	51.	180.	15.	67.	104.	48.	856.80
2.51	.99	1.63	.77	.025	.024	.025	.059	854.80	1000.00
.000548	61.	61.	61.	0	0	0	-172.40	487.14	1487.14

1490 NH CARD USED

*SECNO 13.100

3470 ENCROACHMENT STATIONS= 1010.0 2026.0 TYPE= 1 TARGET= 1026.000

13.10	10.00	864.81	0.00	0.00	864.81	.01	.00	.00	856.80
255.	142.	54.	59.	267.	38.	128.	104.	48.	856.80
2.51	.53	1.43	.46	.069	.060	.092	.059	854.80	1000.00
.000308	1.	1.	1.	0	0	0	0.00	487.11	1487.11

*SECNO 13.200

3470 ENCROACHMENT STATIONS= 1010.0 2026.0 TYPE= 1 TARGET= 1026.000

13.20	9.81	864.81	0.00	0.00	864.83	.02	.02	.00	857.00
255.	130.	69.	56.	214.	37.	99.	105.	49.	857.00
2.52	.61	1.84	.57	.080	.060	.107	.059	855.00	1000.00
.000522	50.	50.	50.	0	0	0	0.00	450.98	1450.98

*SECNO 14.000

SECTION N, SURVEYED VALLEY SECTION

14.00	6.47	864.87	0.00	0.00	864.87	.00	.04	.00	858.90
265.	18.	34.	214.	194.	93.	1661.	124.	61.	858.90
3.86	.09	.36	.13	.100	.060	.100	.059	858.40	950.49
.000019	748.	748.	748.	2	0	0	0.01	1022.54	1973.03

*SECNO 15.000

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	IOC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1012.0 3200.0 TYPE= 1 TARGET= 2188.000

15.00	6.31	864.91	0.00	0.00	864.91	.00	.04	.00	860.60
265.	10.	19.	236.	28.	21.	1021.	154.	86.	860.50
4.72	.36	.89	.23	.100	.060	.100	.064	858.60	1016.16
.000222	1777.	1727.	727.	2	0	0	0.00	1323.58	2506.60

*SECNO 15.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 23 MIN E_TRD= 860.00 MAX ELLC= 862.60

3470 ENCROACHMENT STATIONS= 1012.0 3200.0 TYPE= 1 TARGET= 2188.000

SECTION O, D/S FACE, FARM LANE, 4 FT. DIAM. CMP (1/2 IN.),46 FT. LONG

GRAVEL ROADWAY

15.01	6.31	864.91	1.01	0.00	864.91	.00	.00	.00	860.60
265.	0.	3.	262.	0.	8.	1011.	154.	86.	860.60
4.72	0.00	.40	.26	.100	.060	.100	.064	858.60	1016.16
.000289	1.	1.	1.	0	0	0	-61.04	1323.65	2506.65

*SECNO 15.090

3265 DIVIDED FLOW

3375 NORMAL BRIDGE,NRD= 23 MIN ELTRD= 860.00 MAX ELLC= 862.60

3470 ENCROACHMENT STATIONS= 1012.0 3200.0 TYPE= 1 TARGET= 2188.000

U/S FACE, FARM LANE

15.09	6.32	864.92	0.00	0.00	864.92	.00	.01	.00	860.60
265.	0.	3.	262.	0.	8.	1017.	155.	88.	860.60
4.77	0.00	.39	.26	.100	.060	.100	.064	858.60	1016.12
.000278	44.	44.	44.	0	0	0	-61.36	1326.83	2509.19

*SECNO 15.100

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1012.0 3200.0 TYPE= 1 TARGET= 2188.000

15.10	6.32	864.92	0.01	0.00	864.92	.00	.00	.00	860.60
265.	10.	19.	237.	28.	21.	1039.	155.	88.	860.60
4.77	.35	.87	.23	.100	.060	.100	.064	858.60	1016.12
.000213	1.	1.	1.	0	0	0	0.00	1327.24	2509.52

*SECNO 16.900

SECTION P, FABRICATED FROM SECTION Q AND U.S.G.S. MAPS

16.90	6.81	864.97	0.00	0.00	864.97	.00	.05	.00	859.90
265.	2.	3.	260.	19.	24.	1859.	197.	121.	859.90
7.24	.10	.13	.14	.100	.120	.170	.076	858.16	2.32
.000016	1238.	1238.	1238.	2	0	0	0.00	1320.87	1023.19

*SECNO 17.000

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= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

D/S FACE, GROVENBURG ROAD, 4 FT. DIAM. CMP (1/2 IN.), 78 FT. LONG

EXTENDING INLET, PAVED ROADWAY

17.00	7.07	864.97	0.00	0.00	864.97	.00	.00	.00	859.90
175.	110.	1.	64.	2401.	24.	1232.	247.	144.	859.90
12.31	.05	.04	.05	.100	.120	.072	.072	857.90	1000.00
.000002	362.	700.	1122.	2	0	0	0.00	1200.00	2200.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.18	3.00	1.00	4.00	0.00	12.57	0.00	858.70	857.90

*SECNO 17.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	CWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
874.53	865.77	0.00	122.	55.	13.	16.	862.70	865.70

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

SECTION Q, D/S FACE GROVENBURG ROAD

17.10	7.21	865.91	0.00	0.00	865.91	.00	.94	0.00	860.70
175.	122.	2.	51.	2496.	25.	1302.	254.	146.	860.70
12.78	.05	.09	.04	.125	.080	.125	.072	858.70	1000.00
.000063	78.	78.	78.	0	0	8	0.00	1200.00	2200.00

*SECNO 17.200

3470 ENCROACHMENT STATIONS= 1020.0 2200.0 TYPE= 1 TARGET= 1180.000

17.20	8.01	865.91	0.00	0.00	865.91	.00	.00	.00	859.90
175.	94.	1.	80.	2978.	28.	2444.	259.	147.	859.90
13.21	.03	.05	.03	.125	.080	.125	.072	857.90	1020.00
.000061	50.	50.	50.	0	0	0	0.00	1180.00	2200.00

*SECNO 18.000

3265 DIVIDED FLOW

SECTION R, SURVEYED VALLEY SECTION

18.00	6.91	865.91	0.00	0.00	865.92	.02	.01	.01	865.70
175.	21.	150.	4.	112.	131.	43.	357.	178.	865.50
13.62	.19	1.15	.10	.125	.080	.125	.073	859.00	83.70
.000768	1481.	1481.	1481.	0	0	0	0.00	637.28	1257.53

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GILBERT DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10<*S	VCH	AREA	.01<
	1.000	0.00	0.00	0.00	842.90	400.00	847.20	0.00	847.38	28.87	3.97	203.95	74.44
	1.000	0.00	0.00	0.00	842.90	575.00	847.72	0.00	847.92	28.82	4.35	293.58	107.10
	1.000	0.00	0.00	0.00	842.90	685.00	847.99	0.00	848.19	23.57	4.52	343.53	126.16
	1.000	0.00	0.00	0.00	842.90	900.00	848.46	0.00	848.66	28.06	4.80	434.35	169.90
	1.100	62.00	0.00	0.00	843.54	400.00	847.40	0.00	847.58	33.34	3.91	142.39	69.28
	1.100	62.00	0.00	0.00	843.54	575.00	847.96	0.00	848.09	23.08	3.63	223.28	119.69
	1.100	62.00	0.00	0.00	843.54	685.00	848.23	0.00	848.36	20.38	3.58	269.64	151.72
	1.100	62.00	0.00	0.00	843.54	900.00	848.71	0.00	848.81	15.73	3.39	356.19	226.34
	1.900	130.00	0.00	0.00	844.89	400.00	847.85	0.00	848.53	133.28	7.35	57.69	33.59
*	1.900	130.00	0.00	0.00	844.89	575.00	848.19	848.19	849.51	185.70	9.20	66.83	42.19
*	1.900	130.00	0.00	0.00	844.89	685.00	848.52	848.52	849.99	182.14	9.76	75.78	50.76
*	1.900	130.00	0.00	0.00	844.89	900.00	849.12	849.12	850.86	175.48	10.69	92.70	67.94
*	1.950	25.00	0.00	0.00	845.15	400.00	848.24	848.24	849.50	210.73	9.32	48.00	27.55
*	1.950	25.00	0.00	0.00	845.15	575.00	848.97	848.97	850.52	194.90	10.48	63.70	41.19
*	1.950	25.00	0.00	0.00	845.15	685.00	849.35	849.35	851.10	195.54	11.23	71.95	48.99
*	1.950	25.00	0.00	0.00	845.15	900.00	850.03	850.03	852.15	195.25	12.50	87.05	64.41
*	2.000	24.00	0.00	0.00	845.40	400.00	849.36	849.36	851.21	290.40	10.93	36.61	23.47
*	2.000	24.00	0.00	0.00	845.40	575.00	850.36	850.36	852.72	294.43	12.33	46.64	33.51
*	2.000	24.00	0.00	0.00	845.40	685.00	850.94	850.94	853.59	298.03	13.06	52.43	39.68
*	2.000	24.00	0.00	0.00	845.40	900.00	851.99	851.99	853.17	306.25	14.30	62.93	51.43
*	2.010	1.00	854.30	852.90	845.40	400.00	850.14	849.38	851.40	61.85	9.01	44.41	50.86
	2.010	1.00	854.30	852.90	845.40	575.00	851.38	0.00	852.97	62.62	10.11	56.87	72.66
	2.010	1.00	854.30	852.90	845.40	685.00	852.05	0.00	853.86	64.99	10.78	63.53	84.97
	2.010	1.00	854.30	852.90	845.40	900.00	852.99	0.00	855.41	146.90	12.50	72.00	74.26
	2.090	17.00	854.30	852.90	845.40	400.00	850.44	0.00	851.55	51.03	8.43	47.44	55.99
	2.090	17.00	854.30	852.90	845.40	575.00	851.68	0.00	853.11	54.21	9.61	59.84	78.10
	2.090	17.00	854.30	852.90	845.40	685.00	852.37	0.00	854.01	56.87	10.28	66.62	90.83
	2.090	17.00	854.30	852.90	845.40	900.00	853.24	0.00	855.67	148.72	12.50	72.00	73.80
	2.100	1.00	0.00	0.00	845.40	400.00	850.46	0.00	851.56	327.42	8.42	47.48	22.11
	2.100	1.00	0.00	0.00	845.40	575.00	851.69	0.00	853.12	348.57	9.61	59.85	30.30
	2.100	1.00	0.00	0.00	845.40	685.00	852.42	0.00	854.03	357.80	10.20	67.15	36.21
	2.100	1.00	0.00	0.00	845.40	900.00	854.11	0.00	855.88	332.96	10.71	84.02	49.32

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01K
2.200	75.00	0.00	0.00	845.51	400.00	851.98	0.00	851.99	4.42	1.47	497.34	190.18
2.200	75.00	0.00	0.00	845.51	575.00	853.62	0.00	853.63	3.12	1.45	733.29	325.70
2.200	75.00	0.00	0.00	845.51	685.00	854.57	0.00	854.58	2.63	1.44	886.58	422.36
2.200	75.00	0.00	0.00	845.51	900.00	856.45	0.00	856.46	1.89	1.39	1225.77	655.26
3.000	1465.00	0.00	0.00	847.90	400.00	853.71	0.00	854.12	175.35	5.17	77.53	30.21
3.000	1465.00	0.00	0.00	847.90	575.00	854.77	0.00	855.17	117.10	5.16	122.03	53.14
3.000	1465.00	0.00	0.00	847.90	685.00	855.51	0.00	855.85	82.38	4.90	170.53	75.47
3.000	1465.00	0.00	0.00	847.90	900.00	857.09	0.00	857.30	37.84	4.08	327.36	146.31
3.900	637.00	0.00	0.00	849.85	370.00	857.85	0.00	857.92	27.19	2.33	235.02	70.96
3.900	637.00	0.00	0.00	849.85	530.00	858.45	0.00	858.52	27.17	2.56	311.04	101.68
3.900	637.00	0.00	0.00	849.85	630.00	858.75	0.00	858.83	27.68	2.71	352.25	119.74
3.900	637.00	0.00	0.00	849.85	835.00	859.30	0.00	859.39	27.53	2.94	438.26	159.14
4.000	50.00	0.00	0.00	850.00	370.00	858.04	0.00	858.09	36.46	3.59	233.60	61.28
4.000	50.00	0.00	0.00	850.00	530.00	858.61	0.00	858.68	36.26	3.79	310.53	88.01
4.000	50.00	0.00	0.00	850.00	630.00	858.90	0.00	858.99	36.53	3.91	353.61	104.24
4.000	50.00	0.00	0.00	850.00	835.00	859.46	0.00	859.55	36.53	4.11	438.92	138.15
4.010	1.00	855.70	855.50	850.00	370.00	857.99	0.00	858.10	26.22	2.35	144.30	72.26
4.010	1.00	855.70	855.50	850.00	530.00	858.59	0.00	858.69	16.19	2.09	218.88	131.71
4.010	1.00	855.70	855.50	850.00	630.00	858.90	0.00	859.00	13.68	2.03	261.75	170.32
4.010	1.00	855.70	855.50	850.00	835.00	859.46	0.00	859.55	10.79	1.97	345.93	254.22
4.090	24.00	855.70	856.00	850.50	370.00	858.04	0.00	858.25	77.57	4.09	101.74	42.11
4.090	24.00	855.70	856.00	850.50	530.00	858.62	0.00	858.78	36.91	3.17	167.57	87.23
4.090	24.00	855.70	856.00	850.50	630.00	858.92	0.00	859.07	28.59	2.94	204.85	117.83
4.090	24.00	855.70	856.00	850.50	835.00	859.47	0.00	859.51	19.85	2.68	280.94	187.39
4.100	1.00	0.00	0.00	850.50	370.00	858.25	0.00	858.30	23.28	2.15	254.02	76.68
4.100	1.00	0.00	0.00	850.50	530.00	858.74	0.00	858.81	26.51	2.49	312.23	102.93
4.100	1.00	0.00	0.00	850.50	630.00	859.02	0.00	859.10	27.87	2.66	345.44	119.34
4.100	1.00	0.00	0.00	850.50	835.00	859.54	0.00	859.63	30.06	2.96	406.97	152.29
4.200	50.00	0.00	0.00	850.54	370.00	858.37	0.00	858.42	21.70	2.07	265.77	79.43
4.200	50.00	0.00	0.00	850.54	530.00	858.88	0.00	858.94	23.95	2.39	334.23	108.29
4.200	50.00	0.00	0.00	850.54	630.00	859.16	0.00	859.23	24.71	2.55	376.10	126.75
4.200	50.00	0.00	0.00	850.54	835.00	859.70	0.00	859.77	25.61	2.81	459.24	165.10
4.900	796.00	0.00	0.00	851.16	370.00	859.87	0.00	859.93	16.66	2.15	204.78	90.65
4.900	796.00	0.00	0.00	851.16	530.00	860.55	0.00	860.64	18.82	2.52	274.09	122.17
4.900	796.00	0.00	0.00	851.16	630.00	860.90	0.00	861.00	19.81	2.71	316.84	141.56
4.900	796.00	0.00	0.00	851.16	835.00	861.53	0.00	861.65	21.28	3.02	402.80	181.01
5.000	50.00	0.00	0.00	851.20	370.00	859.95	0.00	860.02	15.89	2.11	209.52	92.83
5.000	50.00	0.00	0.00	851.20	530.00	860.64	0.00	860.73	17.83	2.47	281.44	125.50
5.000	50.00	0.00	0.00	851.20	630.00	861.01	0.00	861.13	18.66	2.65	326.24	145.84
5.000	50.00	0.00	0.00	851.20	835.00	861.64	0.00	861.75	20.03	2.96	414.74	186.55
5.090	22.00	858.00	857.00	851.50	370.00	860.10	0.00	860.17	18.31	2.22	195.74	86.48
5.090	22.00	858.00	857.00	851.50	530.00	860.74	0.00	860.83	21.34	2.63	257.66	114.73
5.090	22.00	858.00	857.00	851.50	630.00	861.08	0.00	861.19	22.63	2.83	296.74	132.43
5.090	22.00	858.00	857.00	851.50	835.00	861.69	0.00	861.82	24.37	3.17	377.13	169.15

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.100	50.00	0.00	0.00	851.54	370.00	860.20	0.00	860.25	14.93	2.06	221.73	95.75
5.100	50.00	0.00	0.00	851.54	530.00	860.85	0.00	860.93	17.21	2.43	293.40	127.75
5.100	50.00	0.00	0.00	851.54	630.00	861.21	0.00	861.29	18.00	2.60	339.50	148.48
5.100	50.00	0.00	0.00	851.54	835.00	861.83	0.00	861.94	19.31	2.90	430.34	190.04
6.000	1019.00	0.00	0.00	852.30	370.00	861.05	0.00	861.09	4.99	1.49	314.29	165.67
6.000	1019.00	0.00	0.00	852.30	530.00	861.85	0.00	861.89	5.74	1.73	443.05	221.15
6.000	1019.00	0.00	0.00	852.30	630.00	862.25	0.00	862.29	6.03	1.85	522.70	256.63
6.000	1019.00	0.00	0.00	852.30	835.00	862.96	0.00	863.00	6.39	2.02	681.51	330.31
6.900	189.00	0.00	0.00	853.41	370.00	861.21	0.00	861.34	39.92	2.80	132.21	58.56
6.900	189.00	0.00	0.00	853.41	530.00	862.02	0.00	862.18	43.45	3.18	168.29	80.40
6.900	189.00	0.00	0.00	853.41	630.00	862.43	0.00	862.60	43.99	3.37	198.91	94.39
6.900	189.00	0.00	0.00	853.41	835.00	863.13	0.00	863.33	41.25	3.64	286.17	130.01
7.000	50.00	0.00	0.00	853.70	370.00	861.29	0.00	861.43	8.78	2.99	123.62	124.30
7.000	50.00	0.00	0.00	853.70	530.00	862.10	0.00	862.28	9.45	3.37	157.29	172.37
7.000	50.00	0.00	0.00	853.70	630.00	862.51	0.00	862.70	9.66	3.58	181.31	202.74
7.000	50.00	0.00	0.00	853.70	835.00	863.20	0.00	863.42	8.98	3.84	254.34	278.64
7.100	23.00	862.00	857.70	853.70	370.00	863.26	0.00	863.31	1.72	1.69	237.42	281.34
7.100	23.00	862.00	857.70	853.70	530.00	863.66	0.00	863.73	2.57	2.19	270.74	330.72
7.100	23.00	862.00	857.70	853.70	630.00	863.87	0.00	863.96	3.06	2.46	290.40	359.32
7.100	23.00	862.00	857.70	853.70	835.00	864.25	0.00	864.38	4.04	2.96	327.09	415.25
7.200	50.00	0.00	0.00	854.08	370.00	863.27	0.00	863.32	2.38	1.88	215.96	239.31
7.200	50.00	0.00	0.00	854.08	530.00	863.66	0.00	863.75	3.40	2.39	265.51	287.47
7.200	50.00	0.00	0.00	854.08	630.00	863.88	0.00	863.98	3.92	2.65	299.13	318.15
7.200	50.00	0.00	0.00	854.08	835.00	864.27	0.00	864.46	4.67	3.04	369.77	386.59
8.000	158.00	0.00	0.00	855.60	370.00	863.32	0.00	863.36	2.05	2.50	326.89	258.16
8.000	158.00	0.00	0.00	855.60	530.00	863.76	0.00	863.80	2.31	2.76	447.94	348.37
8.000	158.00	0.00	0.00	855.60	630.00	864.01	0.00	864.05	2.37	2.85	516.28	409.29
8.000	158.00	0.00	0.00	855.60	835.00	864.43	0.00	864.47	2.48	3.02	635.40	530.53
8.010	1.00	862.50	859.60	855.60	370.00	863.30	0.00	863.38	14.62	1.69	173.38	96.76
8.010	1.00	862.50	859.60	855.60	530.00	863.76	0.00	863.81	5.65	1.16	296.68	222.72
8.010	1.00	862.50	859.60	855.60	630.00	864.00	0.00	864.05	4.06	1.03	365.02	312.52
8.010	1.00	862.50	859.60	855.60	835.00	864.43	0.00	864.48	2.81	.92	484.14	498.18
8.090	58.00	862.50	858.70	855.60	370.00	863.39	0.00	863.46	11.67	1.28	181.28	108.29
8.090	58.00	862.50	858.70	855.60	530.00	863.79	0.00	863.84	5.63	1.15	289.98	223.27
8.090	58.00	862.50	858.70	855.60	630.00	864.03	0.00	864.08	4.05	1.09	357.65	313.11
8.090	58.00	862.50	858.70	855.60	835.00	864.44	0.00	864.49	2.80	1.07	476.20	499.37
8.100	1.00	0.00	0.00	854.70	370.00	863.35	0.00	863.50	12.02	4.36	327.73	106.73
8.100	1.00	0.00	0.00	854.70	530.00	863.72	0.00	863.91	16.04	5.19	432.58	132.33
8.100	1.00	0.00	0.00	854.70	630.00	863.95	0.00	864.15	17.50	5.52	497.19	150.60
8.100	1.00	0.00	0.00	854.70	835.00	864.36	0.00	864.58	19.80	6.04	613.05	187.65
8.200	50.00	0.00	0.00	854.54	370.00	863.47	0.00	863.57	8.70	3.79	406.46	125.47
8.200	50.00	0.00	0.00	854.54	530.00	863.88	0.00	864.01	11.23	4.45	522.27	158.16
8.200	50.00	0.00	0.00	854.54	630.00	864.12	0.00	864.25	12.30	4.74	589.37	179.65
8.200	50.00	0.00	0.00	854.54	835.00	864.54	0.00	864.69	14.16	5.23	708.06	221.36

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.000	170.00	0.00	0.00	853.90	370.00	863.64	0.00	863.72	6.77	2.17	188.04	142.25
9.000	170.00	0.00	0.00	853.90	530.00	864.08	0.00	864.19	10.13	2.78	282.08	166.50
9.000	170.00	0.00	0.00	853.90	630.00	864.32	0.00	864.45	11.59	3.05	366.87	185.05
9.000	170.00	0.00	0.00	853.90	835.00	864.77	0.00	864.92	13.34	3.42	547.47	228.66
9.010	1.00	863.40	858.90	853.90	370.00	862.20	858.90	865.15	267.35	13.82	26.78	22.63
9.010	1.00	863.40	858.90	853.90	530.00	864.14	864.14	864.33	41.08	4.50	163.22	82.69
9.010	1.00	863.40	858.90	853.90	630.00	864.32	0.00	864.45	25.80	3.64	225.78	124.04
9.010	1.00	863.40	858.90	853.90	835.00	864.90	0.00	864.95	5.41	1.78	469.13	359.01
9.090	101.00	100000.00	100000.00	853.90	370.00	864.04	0.00	864.07	.86	1.97	271.55	398.46
9.090	101.00	863.40	858.90	853.90	530.00	864.49	0.00	864.54	8.99	2.19	291.10	176.76
9.090	101.00	863.40	858.90	853.90	630.00	864.56	0.00	864.63	9.50	2.27	322.27	204.44
9.090	101.00	863.40	858.90	853.90	835.00	864.96	0.00	865.00	4.62	1.65	493.93	388.65
9.100	1.00	0.00	0.00	853.50	370.00	864.03	0.00	864.08	2.13	2.54	285.81	253.81
9.100	1.00	0.00	0.00	853.50	530.00	864.49	0.00	864.54	2.54	2.36	449.55	332.54
9.100	1.00	0.00	0.00	853.50	630.00	864.56	0.00	864.63	3.25	3.24	480.25	349.65
9.100	1.00	0.00	0.00	853.50	835.00	864.95	0.00	865.01	3.31	3.35	651.41	459.06
9.200	50.00	0.00	0.00	853.63	370.00	864.03	0.00	864.09	2.38	2.67	253.78	239.57
9.200	50.00	0.00	0.00	853.63	530.00	864.50	0.00	864.56	3.00	3.08	401.55	306.01
9.200	50.00	0.00	0.00	853.63	630.00	864.57	0.00	864.65	3.88	3.52	431.24	319.39
9.200	50.00	0.00	0.00	853.63	835.00	864.96	0.00	865.03	3.88	3.61	614.81	423.59
9.900	337.00	0.00	0.00	854.87	145.00	864.11	0.00	864.11	.08	.24	1013.04	520.03
9.900	337.00	0.00	0.00	854.87	210.00	864.58	0.00	864.59	.09	.28	1297.57	693.32
9.900	337.00	0.00	0.00	854.87	255.00	864.68	0.00	864.68	.12	.32	1357.42	733.44
9.900	337.00	0.00	0.00	854.87	350.00	865.06	0.00	865.06	.15	.38	1594.87	899.54
11.000	50.00	0.00	0.00	855.00	145.00	864.11	0.00	864.11	.10	.30	944.14	454.55
11.000	50.00	0.00	0.00	855.00	210.00	864.58	0.00	864.59	.12	.33	1220.66	612.09
11.000	50.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.15	.38	1279.15	648.51
11.000	50.00	0.00	0.00	855.00	350.00	865.06	0.00	865.06	.19	.44	1513.35	803.51
11.010	1.00	860.90	860.00	855.00	145.00	864.11	0.00	864.11	.04	.20	848.46	700.33
11.010	1.00	860.90	860.00	855.00	210.00	864.58	0.00	864.59	.04	.22	1123.25	997.00
11.010	1.00	860.90	860.00	855.00	255.00	864.68	0.00	864.68	.06	.25	1180.31	1064.64
11.010	1.00	860.90	860.00	855.00	350.00	865.06	0.00	865.06	.07	.28	1413.81	1360.39
11.090	22.00	860.90	860.00	855.00	145.00	864.11	0.00	864.11	.04	.20	848.54	701.07
11.090	22.00	860.90	860.00	855.00	210.00	864.58	0.00	864.59	.04	.22	1123.34	997.10
11.090	22.00	860.90	860.00	855.00	255.00	864.68	0.00	864.68	.06	.25	1180.43	1064.79
11.090	22.00	860.90	860.00	855.00	350.00	865.06	0.00	865.06	.07	.28	1413.96	1360.59
11.100	1.00	0.00	0.00	855.00	145.00	864.11	0.00	864.11	.10	.30	940.98	452.91
11.100	1.00	0.00	0.00	855.00	210.00	864.58	0.00	864.59	.12	.33	1216.45	609.50
11.100	1.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.16	.39	1273.66	645.05
11.100	1.00	0.00	0.00	855.00	350.00	865.06	0.00	865.06	.19	.44	1507.71	799.71
11.200	50.00	0.00	0.00	854.99	145.00	864.11	0.00	864.11	.10	.30	946.89	455.39
11.200	50.00	0.00	0.00	854.99	210.00	864.59	0.00	864.59	.12	.33	1222.70	613.34
11.200	50.00	0.00	0.00	854.99	255.00	864.68	0.00	864.68	.15	.38	1280.06	649.08
11.200	50.00	0.00	0.00	854.99	350.00	865.06	0.00	865.06	.19	.44	1514.43	804.37

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	11.900	1475.00	0.00	0.00	854.51	145.00	864.13	0.00	864.14	.29	.45	493.49	268.54
	11.900	1475.00	0.00	0.00	854.51	210.00	864.61	0.00	864.61	.35	.53	632.48	353.24
	11.900	1475.00	0.00	0.00	854.51	255.00	864.71	0.00	864.72	.46	.61	665.57	374.50
	11.900	1475.00	0.00	0.00	854.51	350.00	865.11	0.00	865.11	.58	.72	791.66	458.31
	12.000	50.00	0.00	0.00	854.50	145.00	864.14	0.00	864.14	.33	.64	498.50	250.71
	12.000	50.00	0.00	0.00	854.50	210.00	864.61	0.00	864.62	.40	.73	638.54	331.64
	12.000	50.00	0.00	0.00	854.50	255.00	864.72	0.00	864.72	.53	.84	670.95	351.45
	12.000	50.00	0.00	0.00	854.50	350.00	865.11	0.00	865.11	.65	.96	798.05	432.59
	12.010	1.00	862.40	858.00	854.50	145.00	864.14	0.00	864.14	.53	.51	338.86	199.52
	12.010	1.00	862.40	858.00	854.50	210.00	864.61	0.00	864.62	.40	.49	479.03	332.45
	12.010	1.00	862.40	858.00	854.50	255.00	864.72	0.00	864.72	.49	.55	511.58	366.04
	12.010	1.00	862.40	858.00	854.50	350.00	865.11	0.00	865.11	.48	.58	638.93	505.86
	12.090	24.00	862.40	858.00	854.50	145.00	864.14	0.00	864.14	.53	.51	338.98	199.73
	12.090	24.00	862.40	858.00	854.50	210.00	864.61	0.00	864.62	.40	.49	479.20	332.62
	12.090	24.00	862.40	858.00	854.50	255.00	864.72	0.00	864.72	.48	.55	511.81	366.28
	12.090	24.00	862.40	858.00	854.50	350.00	865.11	0.00	865.11	.48	.58	639.23	506.21
	12.100	1.00	0.00	0.00	854.50	145.00	864.14	0.00	864.14	.33	.64	498.97	250.96
	12.100	1.00	0.00	0.00	854.50	210.00	864.61	0.00	864.62	.40	.73	639.12	331.99
	12.100	1.00	0.00	0.00	854.50	255.00	864.72	0.00	864.72	.53	.84	671.72	351.93
	12.100	1.00	0.00	0.00	854.50	350.00	865.11	0.00	865.11	.65	.96	799.08	433.26
	12.200	50.00	0.00	0.00	854.50	145.00	864.14	0.00	864.14	.33	.64	499.84	251.44
	12.200	50.00	0.00	0.00	854.50	210.00	864.62	0.00	864.62	.40	.73	639.94	332.48
	12.200	50.00	0.00	0.00	854.50	255.00	864.72	0.00	864.73	.52	.84	672.76	352.57
	12.200	50.00	0.00	0.00	854.50	350.00	865.11	0.00	865.12	.65	.96	800.29	434.06
	12.900	606.00	0.00	0.00	854.50	145.00	864.18	0.00	864.19	2.71	1.37	284.94	88.12
	12.900	606.00	0.00	0.00	854.50	210.00	864.66	0.00	864.66	1.50	1.05	510.71	171.56
	12.900	606.00	0.00	0.00	854.50	255.00	864.77	0.00	864.78	1.63	1.11	569.31	199.73
	12.900	606.00	0.00	0.00	854.50	350.00	865.16	0.00	865.17	1.20	.98	784.48	320.00
	13.000	50.00	0.00	0.00	854.50	145.00	864.19	0.00	864.20	2.56	1.28	293.85	90.54
	13.000	50.00	0.00	0.00	854.50	210.00	864.67	0.00	864.67	1.44	.99	519.17	175.01
	13.000	50.00	0.00	0.00	854.50	255.00	864.78	0.00	864.79	1.56	1.04	578.87	203.94
	13.000	50.00	0.00	0.00	854.50	350.00	865.17	0.00	865.17	1.17	.92	792.69	324.15
	13.010	1.00	863.71	858.50	854.50	145.00	864.17	0.00	864.21	22.13	2.85	108.56	30.82
	13.010	1.00	863.71	858.50	854.50	210.00	864.66	0.00	864.67	1.66	.86	343.04	162.33
	13.010	1.00	863.70	858.50	854.50	255.00	864.78	0.00	864.79	1.50	.83	402.80	208.49
	13.010	1.00	863.70	858.50	854.50	350.00	865.17	0.00	865.17	.77	.64	615.87	399.93
*	13.090	61.00	863.70	858.80	854.80	145.00	864.35	858.34	864.53	57.35	4.77	70.10	19.13
	13.090	61.00	863.70	858.80	854.80	210.00	864.67	0.00	864.69	7.51	1.83	207.23	76.64
	13.090	61.00	863.70	858.80	854.80	255.00	864.79	0.00	864.80	5.48	1.60	262.65	108.93
	13.090	61.00	863.70	858.80	854.80	350.00	865.17	0.00	865.18	1.86	.99	459.84	256.43
	13.100	1.00	0.00	0.00	854.80	145.00	864.54	0.00	864.55	2.10	1.17	316.57	99.35
	13.100	1.00	0.00	0.00	854.80	210.00	864.68	0.00	864.69	2.91	1.39	380.26	123.02
	13.100	1.00	0.00	0.00	854.80	255.00	864.80	0.00	864.81	3.08	1.43	432.96	145.36
	13.100	1.00	0.00	0.00	854.80	350.00	865.18	0.00	865.18	1.97	1.18	629.31	249.67

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13.200	50.00	0.00	0.00	855.00	145.00	864.55	0.00	864.56	3.50	1.48	236.73	77.55
13.200	50.00	0.00	0.00	855.00	210.00	864.73	0.00	864.72	4.92	1.78	300.07	94.70
13.200	50.00	0.00	0.00	855.00	255.00	864.81	0.00	864.83	5.22	1.84	349.67	111.52
13.200	50.00	0.00	0.00	855.00	350.00	865.19	0.00	865.20	3.30	1.51	527.64	192.62
14.000	748.00	0.00	0.00	858.40	150.00	864.58	0.00	864.58	.08	.23	1678.83	518.77
14.000	748.00	0.00	0.00	858.40	225.00	864.75	0.00	864.75	.15	.32	1827.54	572.46
14.000	748.00	0.00	0.00	858.40	265.00	864.87	0.00	864.87	.19	.36	1947.79	614.00
14.000	748.00	0.00	0.00	858.40	340.00	865.24	0.00	865.24	.20	.39	2339.10	758.41
15.000	1727.00	0.00	0.00	858.60	150.00	864.60	0.00	864.60	1.73	.76	703.19	114.01
15.000	1727.00	0.00	0.00	858.60	225.00	864.78	0.00	864.78	2.32	.90	907.79	147.75
15.000	1727.00	0.00	0.00	858.60	265.00	864.91	0.00	864.91	2.22	.89	1069.54	177.85
15.000	1727.00	0.00	0.00	858.60	340.00	865.27	0.00	865.27	1.37	.73	1571.67	293.76
15.010	1.00	860.00	862.60	858.60	150.00	864.60	0.00	864.60	2.49	.37	649.87	95.10
15.010	1.00	860.00	862.60	858.60	225.00	864.78	0.00	864.78	3.14	.42	850.04	126.99
15.010	1.00	860.00	862.60	858.60	265.00	864.91	0.00	864.91	2.89	.40	1008.84	155.30
15.010	1.00	860.00	862.60	858.60	340.00	865.27	0.00	865.27	1.65	.30	1501.31	264.42
15.090	44.00	860.00	862.60	858.60	150.00	864.61	0.00	864.61	2.41	.36	659.54	96.56
15.090	44.00	860.00	862.60	858.60	225.00	864.81	0.00	864.80	3.02	.41	866.25	129.57
15.090	44.00	860.00	862.60	858.60	265.00	864.92	0.00	864.92	2.78	.39	1024.50	158.35
15.090	44.00	860.00	862.60	858.60	340.00	865.28	0.00	865.28	1.62	.30	1511.11	266.31
15.100	1.00	0.00	0.00	858.60	150.00	864.61	0.00	864.61	1.67	.74	714.79	115.95
15.100	1.00	0.00	0.00	858.60	225.00	864.80	0.00	864.80	2.22	.88	926.85	150.38
15.100	1.00	0.00	0.00	858.60	265.00	864.92	0.00	864.92	2.13	.87	1087.92	181.51
15.100	1.00	0.00	0.00	858.60	340.00	865.28	0.00	865.28	1.34	.72	1582.94	293.57
16.900	1238.00	0.00	0.00	858.16	150.00	864.64	0.00	864.64	.09	.10	1576.96	510.38
16.900	1238.00	0.00	0.00	858.16	225.00	864.84	0.00	864.84	.14	.12	1773.82	603.46
16.900	1238.00	0.00	0.00	858.16	265.00	864.97	0.00	864.97	.16	.13	1902.32	666.72
16.900	1238.00	0.00	0.00	858.16	340.00	865.32	0.00	865.32	.16	.14	2275.87	860.74
17.000	700.00	0.00	0.00	857.90	110.00	864.64	0.00	864.64	.01	.03	3261.01	1106.21
17.000	700.00	0.00	0.00	857.90	150.00	864.85	0.00	864.85	.01	.04	3504.35	1242.36
17.000	700.00	0.00	0.00	857.90	175.00	864.97	0.00	864.97	.02	.04	3657.62	1332.64
17.000	700.00	0.00	0.00	857.90	220.00	865.33	0.00	865.33	.02	.05	4083.16	1595.49
17.100	78.00	865.70	862.70	858.70	110.00	865.84	0.00	865.84	.01	.06	3732.62	985.68
17.100	78.00	865.70	862.70	858.70	150.00	865.89	0.00	865.89	.02	.07	3790.99	1010.19
17.100	78.00	865.70	862.70	858.70	175.00	865.91	0.00	865.91	.03	.09	3823.26	1023.86
17.100	78.00	865.70	862.70	858.70	220.00	865.96	0.00	865.96	.04	.11	3876.52	1046.58
17.200	50.00	0.00	0.00	857.90	110.00	865.84	0.00	865.84	.00	.03	5361.20	1761.07
17.200	50.00	0.00	0.00	857.90	150.00	865.89	0.00	865.89	.01	.05	5418.62	1792.18
17.200	50.00	0.00	0.00	857.90	175.00	865.91	0.00	865.91	.01	.05	5450.37	1809.47
17.200	50.00	0.00	0.00	857.90	220.00	865.96	0.00	865.96	.01	.06	5502.77	1838.15
18.000	1481.00	0.00	0.00	859.00	110.00	865.83	0.00	865.84	3.54	.77	241.60	58.45
18.000	1481.00	0.00	0.00	859.00	150.00	865.88	0.00	865.89	5.97	1.00	269.15	61.38
18.000	1481.00	0.00	0.00	859.00	175.00	865.91	0.00	865.92	7.68	1.15	285.98	63.15
18.000	1481.00	0.00	0.00	859.00	220.00	865.95	0.00	865.97	11.16	1.39	312.54	65.84

GILBERT DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	400.00	847.20	0.00	0.00	-.80	155.35	0.00
	1.000	575.00	847.72	.52	0.00	-.78	183.29	0.00
	1.000	685.00	847.99	.27	0.00	-1.11	189.29	0.00
	1.000	900.00	845.46	.47	0.00	-2.04	199.74	0.00
	1.100	400.00	847.40	1.00	.21	0.00	128.14	62.00
	1.100	575.00	847.96	.56	.24	0.00	162.96	62.00
	1.100	685.00	848.23	.27	.24	0.00	179.91	62.00
	1.100	900.00	848.70	.47	.24	0.00	190.78	62.00
	1.900	400.00	847.85	0.00	.45	0.00	26.46	130.00
*	1.900	575.00	848.19	.34	.23	0.00	27.11	130.00
*	1.900	685.00	848.52	.33	.29	0.00	27.73	130.00
*	1.900	900.00	849.12	.60	.42	0.00	28.86	130.00
*	1.950	400.00	848.24	0.00	.39	0.00	20.70	25.00
*	1.950	575.00	848.97	.73	.78	0.00	22.00	25.00
*	1.950	685.00	849.35	.37	.83	0.00	22.00	25.00
*	1.950	900.00	850.03	.69	.92	0.00	22.00	25.00
*	2.000	400.00	849.36	0.00	1.12	0.00	10.00	24.00
*	2.000	575.00	850.36	1.00	1.39	0.00	10.00	24.00
*	2.000	685.00	850.94	.58	1.60	0.00	10.00	24.00
*	2.000	900.00	851.99	1.65	1.96	0.00	10.00	24.00
*	2.010	400.00	850.14	0.00	.78	0.00	10.00	1.00
	2.010	575.00	851.38	1.24	1.02	0.00	10.00	1.00
	2.010	685.00	852.05	.67	1.11	0.00	10.00	1.00
	2.010	900.00	852.99	.93	1.00	0.00	10.00	1.00
	2.090	400.00	850.44	0.00	.30	0.00	10.00	17.00
	2.090	575.00	851.68	1.24	.30	0.00	10.00	17.00
	2.090	685.00	852.37	.69	.32	0.00	10.00	17.00
	2.090	900.00	853.24	.87	.25	0.00	10.00	17.00
	2.100	400.00	850.46	0.00	.01	0.00	10.00	1.00
	2.100	575.00	851.69	1.23	.01	0.00	10.00	1.00
	2.100	685.00	852.42	.72	.05	0.00	10.00	1.00
	2.100	900.00	854.10	1.68	.86	0.00	10.00	1.00
	2.200	400.00	851.98	0.00	1.52	0.00	133.22	75.00
	2.200	575.00	853.62	1.64	1.93	0.00	154.93	75.00
	2.200	685.00	854.57	.95	2.15	0.00	167.53	75.00
	2.200	900.00	856.45	1.88	2.35	0.00	192.51	75.00
	3.000	400.00	853.71	0.00	1.73	0.00	31.13	1465.00
	3.000	575.00	854.77	1.06	1.15	0.00	55.92	1465.00
	3.000	685.00	855.51	.74	.94	0.00	76.56	1465.00
	3.000	900.00	857.09	1.58	.64	0.00	121.25	1465.00
	3.900	370.00	857.85	0.00	4.15	0.00	122.79	637.00
	3.900	530.00	858.45	.59	3.68	0.00	135.31	637.00
	3.900	630.00	858.75	.30	3.24	0.00	143.23	637.00

3.900	835.00	859.30	.55	2.22	0.00	158.49	637.00

SECNO	Q	CNSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.000	370.00	858.00	0.00	.15	0.00	122.61	50.00
4.000	530.00	858.60	.60	.15	0.00	135.21	50.00
4.000	630.00	858.90	.31	.15	0.00	143.48	50.00
4.000	835.00	859.46	.56	.16	0.00	158.61	50.00
4.010	370.00	857.99	0.00	-.01	0.00	122.76	1.00
4.010	530.00	858.59	.60	-.00	0.00	135.36	1.00
4.010	630.00	858.90	.31	-.00	0.00	143.59	1.00
4.010	835.00	859.46	.56	-.00	0.00	158.51	1.00
4.090	370.00	858.04	0.00	.05	0.00	115.66	24.00
4.090	530.00	858.62	.58	.02	0.00	124.54	24.00
4.090	630.00	858.92	.30	.02	0.00	130.55	24.00
4.090	835.00	859.47	.55	.01	0.00	145.32	24.00
4.100	370.00	858.25	0.00	.21	0.00	118.63	1.00
4.100	530.00	858.74	.49	.12	0.00	118.63	1.00
4.100	630.00	859.02	.28	.10	0.00	118.63	1.00
4.100	835.00	859.54	.52	.07	0.00	118.63	1.00
4.200	370.00	858.37	0.00	.12	0.00	128.11	50.00
4.200	530.00	858.88	.51	.13	0.00	141.70	50.00
4.200	630.00	859.16	.29	.14	0.00	149.40	50.00
4.200	835.00	859.70	.53	.15	0.00	163.62	50.00
4.900	370.00	859.87	0.00	1.50	0.00	90.02	796.00
4.900	530.00	860.55	.68	1.67	0.00	113.74	796.00
4.900	630.00	860.90	.36	1.74	0.00	126.17	796.00
4.900	835.00	861.53	.63	1.83	0.00	148.03	796.00
5.000	370.00	859.95	0.00	.08	0.00	91.84	50.00
5.000	530.00	860.64	.69	.10	0.00	115.97	50.00
5.000	630.00	861.01	.36	.10	0.00	128.74	50.00
5.000	835.00	861.64	.64	.11	0.00	150.82	50.00
5.090	370.00	860.10	0.00	.15	0.00	86.45	22.00
5.090	530.00	860.74	.63	.09	0.00	108.59	22.00
5.090	630.00	861.08	.34	.07	0.00	120.48	22.00
5.090	835.00	861.69	.61	.05	0.00	141.86	22.00
5.100	370.00	860.20	0.00	.10	0.00	98.69	50.00
5.100	530.00	860.85	.66	.12	0.00	121.40	50.00
5.100	630.00	861.20	.35	.13	0.00	133.99	50.00
5.100	835.00	861.83	.63	.14	0.00	155.85	50.00
6.000	370.00	861.05	0.00	.85	0.00	136.47	1019.00
6.000	530.00	861.85	.79	.99	0.00	185.97	1019.00
6.000	630.00	862.25	.40	1.05	0.00	207.55	1019.00
6.000	835.00	862.96	.71	1.12	0.00	242.81	1019.00
6.900	370.00	861.21	0.00	.16	0.00	40.18	189.00
6.900	530.00	862.02	.81	.18	0.00	59.94	189.00
6.900	630.00	862.43	.41	.18	0.00	92.30	189.00
6.900	835.00	863.13	.71	.18	0.00	155.68	189.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.000	370.00	861.29	0.00	.07	0.00	38.83	50.00
7.000	530.00	862.10	.81	.08	0.00	43.92	50.00
7.000	630.00	862.51	.41	.08	0.00	74.59	50.00
7.000	835.00	863.20	.70	.07	0.00	136.02	50.00
7.100	370.00	863.26	0.00	1.98	0.00	81.35	23.00
7.100	530.00	863.66	.39	1.56	0.00	88.65	23.00
7.100	630.00	863.87	.22	1.37	0.00	92.69	23.00
7.100	835.00	864.25	.38	1.05	0.00	99.79	23.00
7.200	370.00	863.27	0.00	.00	0.00	107.66	50.00
7.200	530.00	863.66	.40	.01	0.00	143.23	50.00
7.200	630.00	863.88	.22	.01	0.00	162.96	50.00
7.200	835.00	864.27	.39	.02	0.00	192.44	50.00
8.000	370.00	863.32	0.00	.06	0.00	257.28	158.00
8.000	530.00	863.76	.44	.10	0.00	280.32	158.00
8.000	630.00	864.01	.24	.12	0.00	280.32	158.00
8.000	835.00	864.43	.42	.16	0.00	280.32	158.00
8.010	370.00	863.30	0.00	-.02	0.00	256.28	1.00
8.010	530.00	863.76	.45	-.01	0.00	280.32	1.00
8.010	630.00	864.00	.25	-.00	0.00	280.32	1.00
8.010	835.00	864.43	.43	-.00	0.00	280.32	1.00
8.090	370.00	863.39	0.00	.08	0.00	264.83	58.00
8.090	530.00	863.79	.40	.03	0.00	280.32	58.00
8.090	630.00	864.03	.24	.02	0.00	280.32	58.00
8.090	835.00	864.44	.42	.02	0.00	280.32	58.00
8.100	370.00	863.35	0.00	-.04	0.00	280.32	1.00
8.100	530.00	863.72	.37	-.07	0.00	280.32	1.00
8.100	630.00	863.95	.23	-.08	0.00	280.32	1.00
8.100	835.00	864.36	.41	-.08	0.00	280.32	1.00
8.200	370.00	863.47	0.00	.12	0.00	280.32	50.00
8.200	530.00	863.88	.41	.16	0.00	280.32	50.00
8.200	630.00	864.12	.24	.17	0.00	280.32	50.00
8.200	835.00	864.54	.42	.18	0.00	280.32	50.00
9.000	370.00	863.64	0.00	.18	0.00	139.56	170.00
9.000	530.00	864.08	.43	.20	0.00	293.68	170.00
9.000	630.00	864.32	.24	.20	0.00	379.88	170.00
9.000	835.00	864.77	.45	.23	0.00	439.80	170.00
9.010	370.00	862.21	0.00	-1.44	0.00	25.96	1.00
9.010	530.00	864.14	1.94	.07	0.00	316.90	1.00
9.010	630.00	864.32	.18	.00	0.00	379.02	1.00
9.010	835.00	864.90	.58	.13	0.00	453.14	1.00
9.090	370.00	864.04	0.00	1.84	0.00	280.67	101.00
9.090	530.00	864.49	.45	.35	0.00	402.95	101.00
9.090	630.00	864.56	.08	.24	0.00	413.88	101.00
9.090	835.00	864.96	.39	.06	0.00	458.51	101.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.100	370.00	864.03	0.00	-.01	0.00	282.41	1.00
9.100	530.00	864.49	.46	.00	0.00	403.36	1.00
9.100	630.00	864.56	.07	-.00	0.00	414.12	1.00
9.100	835.00	864.95	.38	-.01	0.00	458.55	1.00
9.200	370.00	864.03	0.00	.01	0.00	240.38	50.00
9.200	530.00	864.50	.46	.01	0.00	398.94	50.00
9.200	630.00	864.57	.07	.01	0.00	423.70	50.00
9.200	835.00	864.96	.39	.01	0.00	486.23	50.00
9.900	145.00	864.11	0.00	.08	0.00	576.03	337.00
9.900	210.00	864.58	.47	.09	0.00	606.95	337.00
9.900	255.00	864.68	.09	.11	0.00	613.26	337.00
9.900	350.00	865.06	.38	.10	0.00	637.66	337.00
11.000	145.00	864.11	0.00	.00	0.00	568.29	50.00
11.000	210.00	864.58	.47	.00	0.00	598.75	50.00
11.000	255.00	864.68	.10	.00	0.00	605.00	50.00
11.000	350.00	865.06	.38	.00	0.00	629.39	50.00
11.010	145.00	864.11	0.00	-.00	0.00	567.92	1.00
11.010	210.00	864.58	.47	-.00	0.00	598.29	1.00
11.010	255.00	864.68	.10	-.00	0.00	604.41	1.00
11.010	350.00	865.06	.38	-.00	0.00	628.81	1.00
11.090	145.00	864.11	0.00	.00	0.00	567.93	22.00
11.090	210.00	864.58	.47	.00	0.00	598.30	22.00
11.090	255.00	864.68	.10	.00	0.00	604.42	22.00
11.090	350.00	865.06	.38	.00	0.00	628.82	22.00
11.100	145.00	864.11	0.00	.00	0.00	567.93	1.00
11.100	210.00	864.58	.47	.00	0.00	598.31	1.00
11.100	255.00	864.68	.10	.00	0.00	604.41	1.00
11.100	350.00	865.06	.38	.00	0.00	628.82	1.00
11.200	145.00	864.11	0.00	.00	0.00	568.60	50.00
11.200	210.00	864.59	.47	.00	0.00	598.97	50.00
11.200	255.00	864.68	.10	.00	0.00	605.09	50.00
11.200	350.00	865.06	.38	.00	0.00	629.51	50.00
11.900	145.00	864.13	0.00	.02	0.00	277.78	1475.00
11.900	210.00	864.61	.48	.03	0.00	307.58	1475.00
11.900	255.00	864.71	.10	.03	0.00	314.26	1475.00
11.900	350.00	865.11	.39	.04	0.00	338.50	1475.00
12.000	145.00	864.14	0.00	.00	0.00	278.91	50.00
12.000	210.00	864.61	.48	.00	0.00	308.81	50.00
12.000	255.00	864.72	.10	.00	0.00	315.33	50.00
12.000	350.00	865.11	.39	.00	0.00	339.68	50.00
12.010	145.00	864.14	0.00	-.00	0.00	278.97	1.00
12.010	210.00	864.61	.48	-.00	0.00	308.89	1.00
12.010	255.00	864.72	.10	-.00	0.00	315.44	1.00
12.010	350.00	865.11	.39	-.00	0.00	339.82	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12.090	145.00	864.14	0.00	.00	0.00	279.00	24.00
12.090	210.00	864.61	.48	.00	0.00	308.93	24.00
12.090	255.00	864.72	.10	.00	0.00	315.48	24.00
12.090	350.00	865.11	.39	.00	0.00	339.88	24.00
12.100	145.00	864.14	0.00	.00	0.00	279.02	1.00
12.100	210.00	864.61	.48	.00	0.00	308.93	1.00
12.100	255.00	864.72	.10	.00	0.00	315.48	1.00
12.100	350.00	865.11	.39	.00	0.00	339.87	1.00
12.200	145.00	864.14	0.00	.00	0.00	279.21	50.00
12.200	210.00	864.62	.48	.00	0.00	309.10	50.00
12.200	255.00	864.72	.11	.00	0.00	315.69	50.00
12.200	350.00	865.11	.39	.00	0.00	340.09	50.00
12.900	145.00	864.18	0.00	.04	0.00	418.29	606.00
12.900	210.00	864.66	.48	.04	0.00	507.16	606.00
12.900	255.00	864.77	.12	.05	0.00	521.41	606.00
12.900	350.00	865.16	.39	.05	0.00	570.67	606.00
13.000	145.00	864.19	0.00	.01	0.00	422.40	50.00
13.000	210.00	864.67	.47	.01	0.00	508.75	50.00
13.000	255.00	864.78	.12	.01	0.00	523.22	50.00
13.000	350.00	865.17	.39	.01	0.00	572.02	50.00
13.010	145.00	864.17	0.00	-.03	0.00	417.92	1.00
13.010	210.00	864.66	.50	-.00	0.00	509.15	1.00
13.010	255.00	864.78	.12	-.00	0.00	523.62	1.00
13.010	350.00	865.17	.39	-.00	0.00	572.23	1.00
13.090	145.00	864.35	0.00	.19	0.00	389.55	61.00
13.090	210.00	864.67	.32	.01	0.00	469.38	61.00
13.090	255.00	864.79	.12	.01	0.00	487.14	61.00
13.090	350.00	865.17	.38	.00	0.00	535.35	61.00
13.100	145.00	864.54	0.00	.18	0.00	435.65	1.00
13.100	210.00	864.68	.15	.01	0.00	470.78	1.00
13.100	255.00	864.80	.11	.01	0.00	487.11	1.00
13.100	350.00	865.18	.38	.00	0.00	535.13	1.00
13.200	145.00	864.55	0.00	.01	0.00	383.51	50.00
13.200	210.00	864.70	.15	.01	0.00	422.68	50.00
13.200	255.00	864.81	.11	.01	0.00	450.98	50.00
13.200	350.00	865.19	.38	.01	0.00	507.19	50.00
14.000	150.00	864.58	0.00	.03	0.00	665.48	748.00
14.000	225.00	864.75	.17	.05	0.00	997.66	748.00
14.000	265.00	864.87	.12	.06	0.00	1022.54	748.00
14.000	340.00	865.24	.37	.05	0.00	1099.62	748.00
15.000	150.00	864.60	0.00	.02	0.00	976.43	1727.00
15.000	225.00	864.78	.18	.03	0.00	1267.58	1727.00
15.000	265.00	864.91	.12	.04	0.00	1323.58	1727.00
15.000	340.00	865.27	.37	.04	0.00	1421.86	1727.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15.010	150.00	864.60	0.00	.00	0.00	976.32	1.00
15.010	225.00	864.78	.18	.00	0.00	1267.68	1.00
15.010	265.00	864.91	.12	.00	0.00	1323.65	1.00
15.010	340.00	865.27	.37	.00	0.00	1421.91	1.00
15.090	150.00	864.61	0.00	.01	0.00	992.40	44.00
15.090	225.00	864.80	.19	.01	0.00	1288.36	44.00
15.090	265.00	864.92	.12	.01	0.00	1326.83	44.00
15.090	340.00	865.28	.36	.01	0.00	1423.94	44.00
15.100	150.00	864.61	0.00	-.00	0.00	995.21	1.00
15.100	225.00	864.80	.19	-.00	0.00	1291.36	1.00
15.100	265.00	864.92	.12	-.00	0.00	1327.24	1.00
15.100	340.00	865.28	.36	-.00	0.00	1424.15	1.00
16.900	150.00	864.64	0.00	.03	0.00	963.22	1238.00
16.900	225.00	864.84	.20	.05	0.00	998.50	1238.00
16.900	265.00	864.97	.13	.05	0.00	1020.87	1238.00
16.900	340.00	865.32	.35	.04	0.00	1083.28	1238.00
17.000	110.00	864.64	0.00	.00	0.00	1200.00	700.00
17.000	150.00	864.85	.20	.00	0.00	1200.00	700.00
17.000	175.00	864.97	.13	.00	0.00	1200.00	700.00
17.000	220.00	865.33	.35	.00	0.00	1200.00	700.00
17.100	110.00	865.84	0.00	1.19	0.00	1200.00	78.00
17.100	150.00	865.89	.05	1.04	0.00	1200.00	78.00
17.100	175.00	865.91	.03	.94	0.00	1200.00	78.00
17.100	220.00	865.96	.04	.63	0.00	1200.00	78.00
17.200	110.00	865.84	0.00	.00	0.00	1180.00	50.00
17.200	150.00	865.89	.05	.00	0.00	1180.00	50.00
17.200	175.00	865.91	.03	.00	0.00	1180.00	50.00
17.200	220.00	865.96	.04	.00	0.00	1180.00	50.00
18.000	110.00	865.83	0.00	-.00	0.00	523.70	1481.00
18.000	150.00	865.88	.05	-.01	0.00	587.46	1481.00
18.000	175.00	865.91	.03	-.01	0.00	637.28	1481.00
18.000	220.00	865.95	.04	-.01	0.00	724.56	1481.00

SUMMARY OF ERRORS

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CAUTION  SECNO=    1.900  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    1.900  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    1.900  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    1.900  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    1.900  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=    1.900  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    1.900  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    1.900  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=    1.950  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    1.950  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=    1.950  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=    1.950  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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 CAUTION  SECNO=     1.950  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     1.950  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     1.950  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=     1.950  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     1.950  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     1.950  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=     2.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     2.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     2.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=     2.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     2.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     2.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=     2.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     2.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     2.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=     2.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     2.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     2.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=     2.010  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=     9.010  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=     9.010  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=     9.010  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 NOTE     SECNO=     9.090  PROFILE= 1  WSEL BASED ON X5 CARD

 CAUTION  SECNO=    13.090  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
 CAUTION  SECNO=    13.090  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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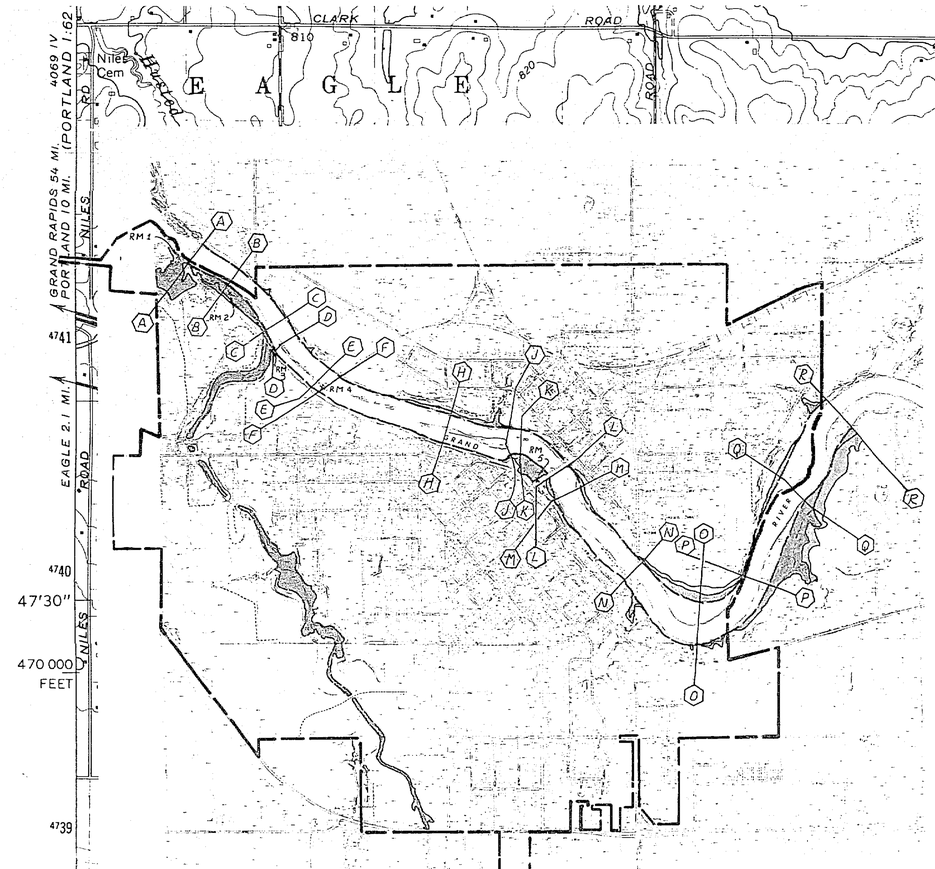
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BR 866
BR 863
BR 816
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ROAD
Drain
Summers
Ditch
Delta Mills
Hillside Cem
GRAND RIVER
DELTA
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D E L T A
20
21
22
23
29
28
27
32
33
34
35
2
1
5
4
12
7
8
9
10
11
T. 5 N.
T. 4 N.
R. 4 W.
R. 3 W.
(DIMONDALE)
4067 II NW
6 MI. TO U.S. 27
HOWELL 43 MI.
2 LANE
Openlander Dr
Summers Dr
Lowell
Francis
Forest
Broadbent
Nixon
Waconsta
Bauer
Clinton
Canal
Grietz
Watson
Hill
Scott
Main
Madison
McKinley
High St
Delta
Willow
Rd
Ave
St
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
APPROXIMATE 100 YEAR FLOOD BOUNDARY
RECEIVED
JUL 08 1975
Exhibit 2
CITY OF GRAND LEDGE,
DELTA TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 1A
INTERIOR—GEOLOGICAL SURVEY RESTON, VIRGINIA—1974

10 Year Flood Elevation
50 Year Flood Elevation
100 Year Flood Elevation
500 Year Flood Elevation

WILLOW HIGHWAY
FARM LANE CULVERT
DRIVEWAY CULVERT
GRAND RIVER
℄ Creek Bed
HOLLYWOOD DRIVE
LAWERENCE PARKWAY
FOOT BRIDGE
SAGINAW HIGHWAY
ROCK BRIDGE ROAD
SAGINAW HIGHWAY

STREAM DISTANCE IN HUNDREDS OF FEET

MILLER CREEK PROFILE
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=200'

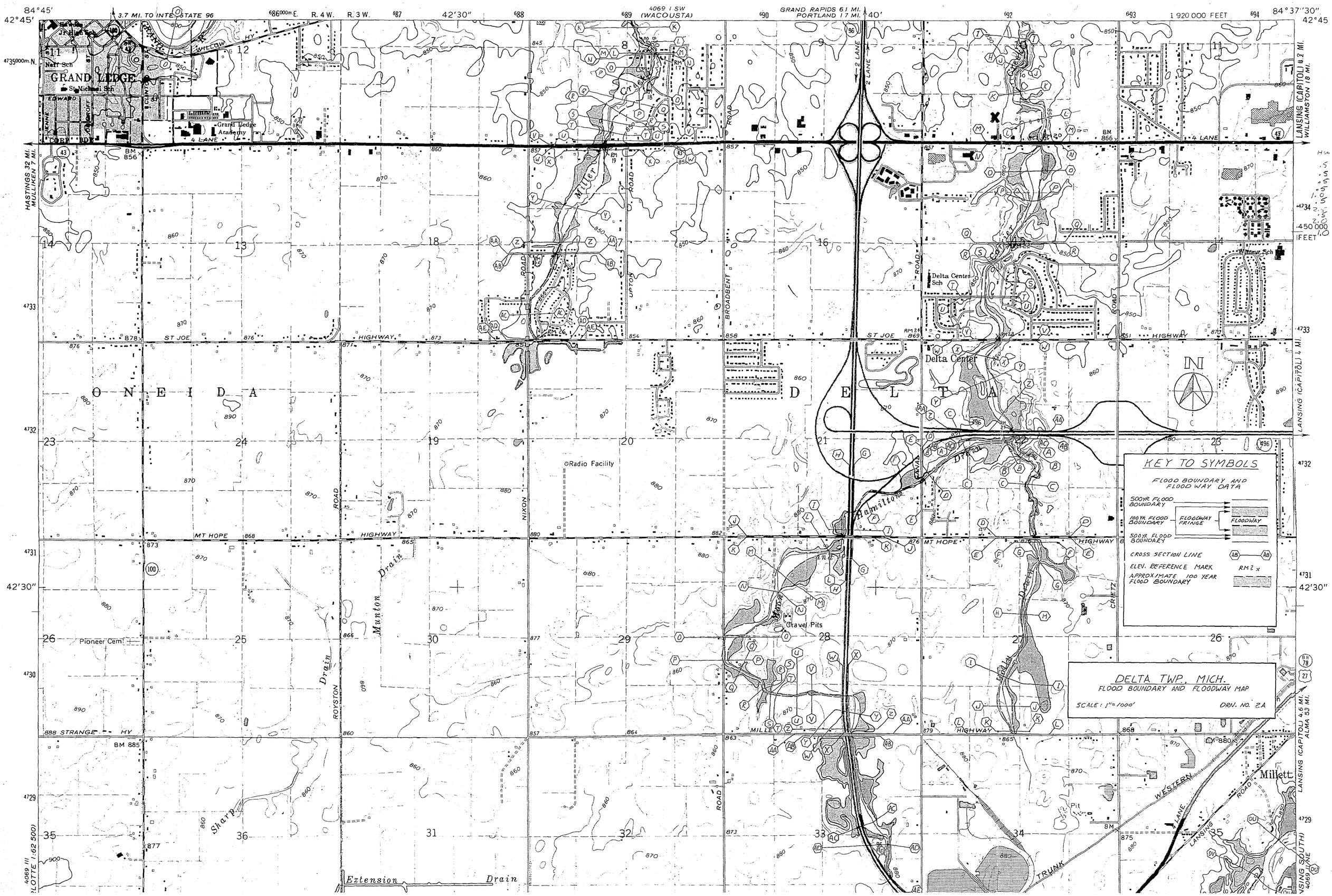
Figure Nº
Sheet 1 of 1

NOTE: All elevations are referenced to U.S.G.S. elevations

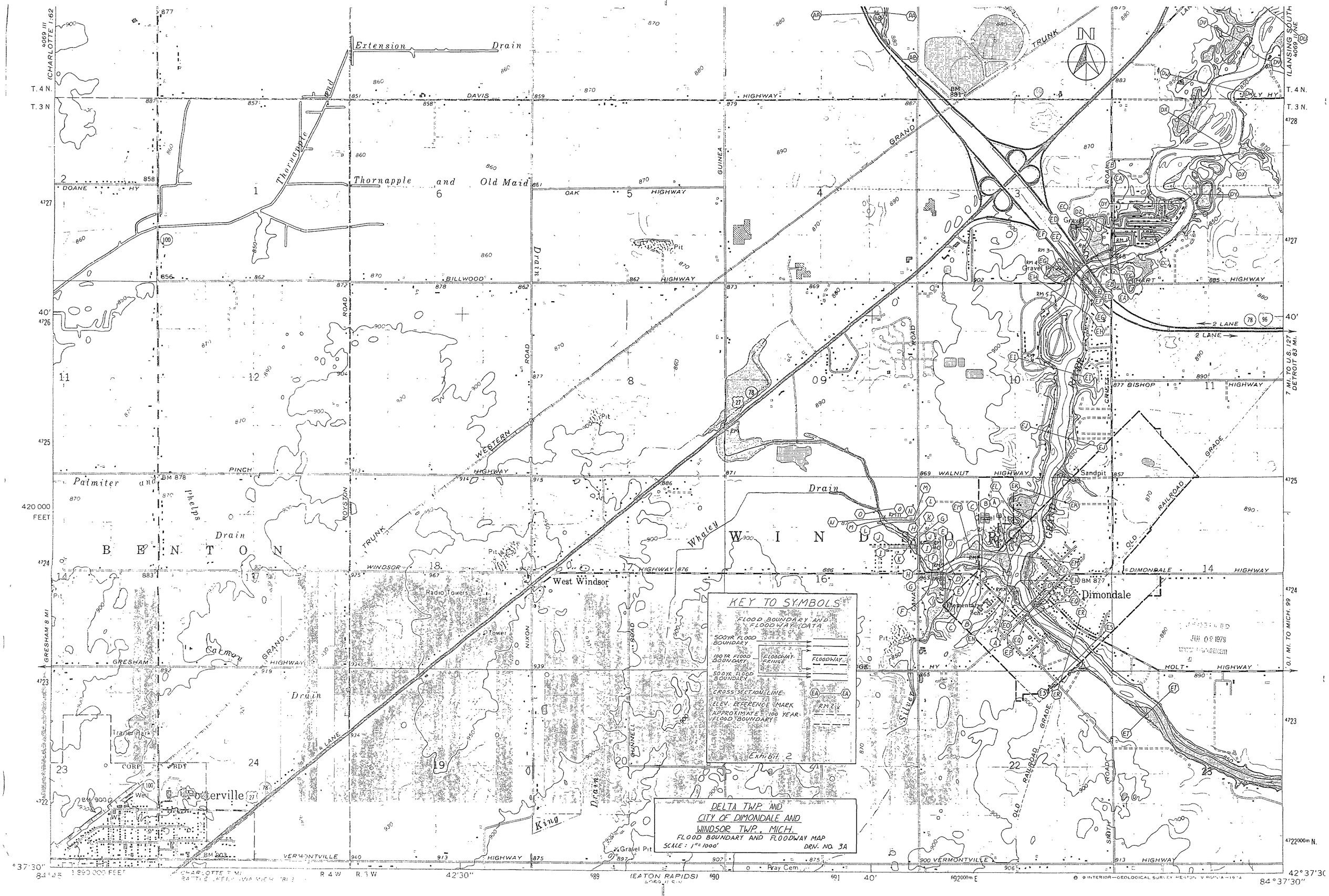
PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO. CHICAGO - NEW YORK

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

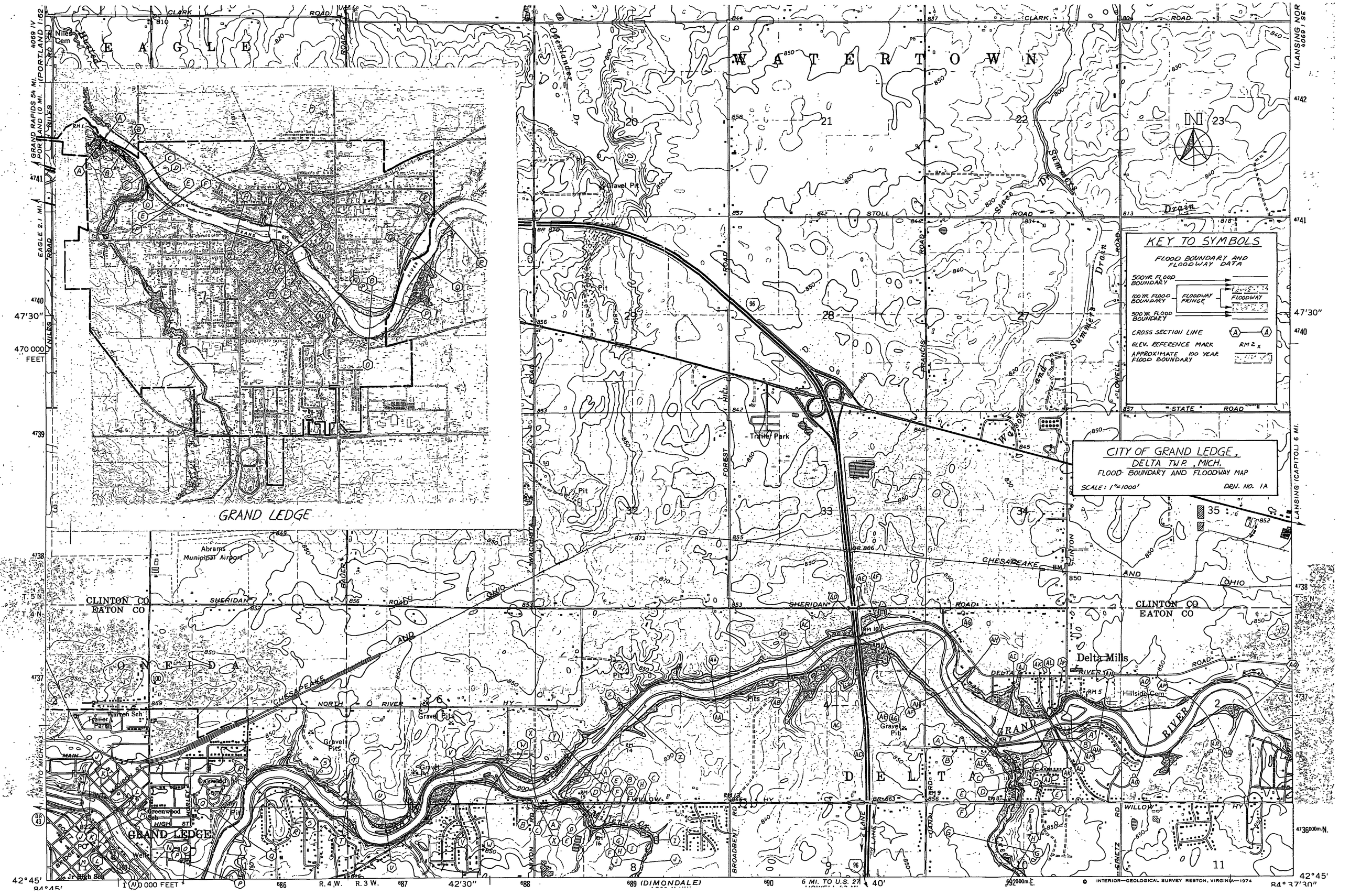
ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE



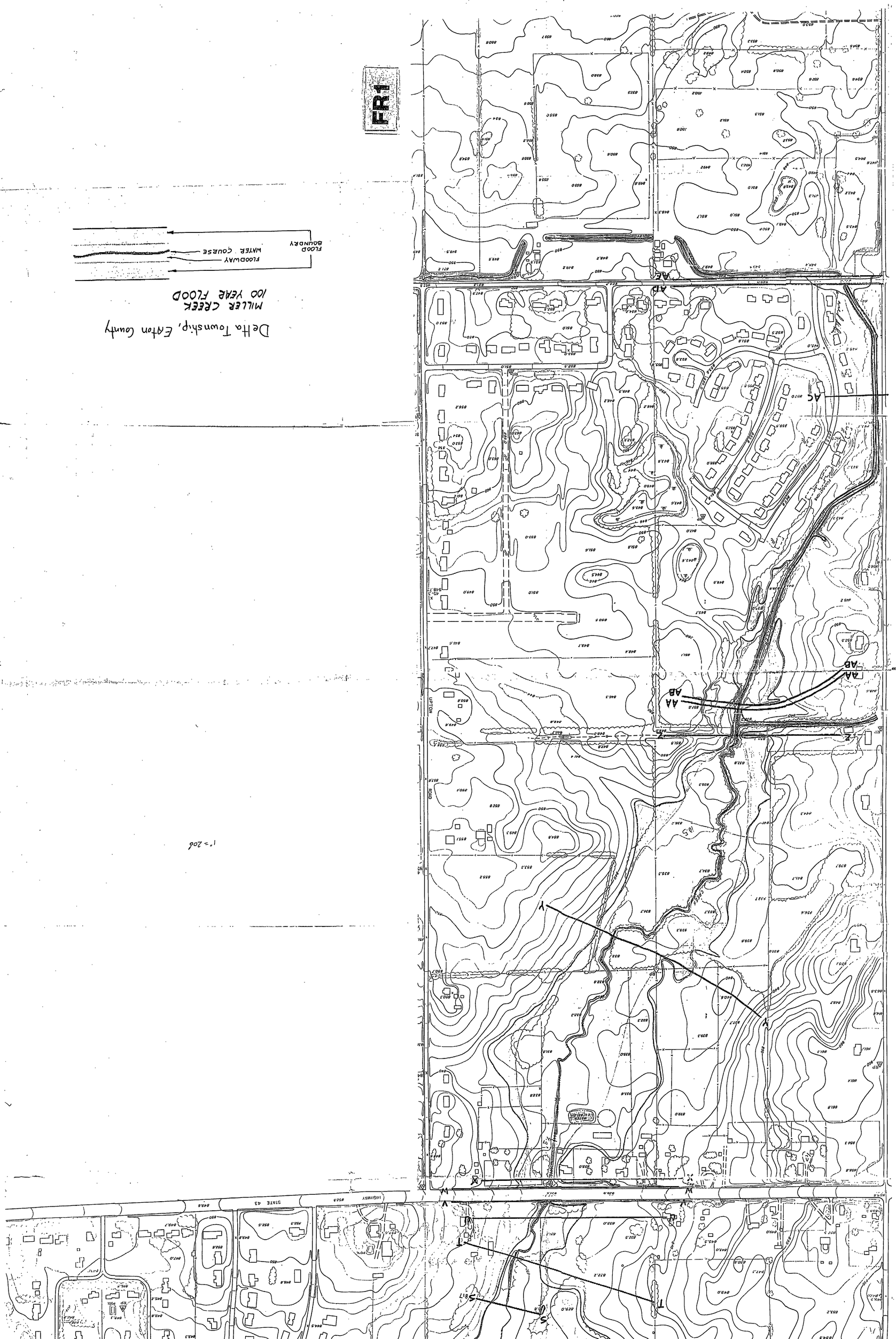
DELTA TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 2A
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOOD WAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
RM 2 x
APPROXIMATE 100 YEAR FLOOD BOUNDARY
GRAND LEDGE
Grand Ledge Academy
Delta Center
Delta Center Sch
Radio Facility
Gravel Pits
Pioneer Cem
Millett
Miller Creek
Hamilton Drain
Munton Drain
Sharp Drain
Extension Drain
ST JOE HIGHWAY
MT HOPE HIGHWAY
MILLETT HIGHWAY
STRANGE HY
WESTERN TRUNK
LANSING ROAD
BROADBENT ROAD
UPTON ROAD
NIXON ROAD
ROYSTON ROAD
CRIETZ ROAD
LANSING (CAPITOL) 4.2 MI.
WILLIAMSTON 18 MI.
LANSING (CAPITOL) 4 MI.
LANSING (CAPITOL) 4.6 MI.
ALMA 53 MI.
HASTINGS 32 MI.
MULLIKEN 7 MI.
3.7 MI. TO INTERSTATE 96
GRAND RAPIDS 61 MI.
PORTLAND 17 MI.
4069 I SW (WACOUSTA)
1 920 000 FEET
450 000 FEET
84°45'
42°45'
84°37'30"
42'30"
42'30"
R. 4 W.
R. 3 W.



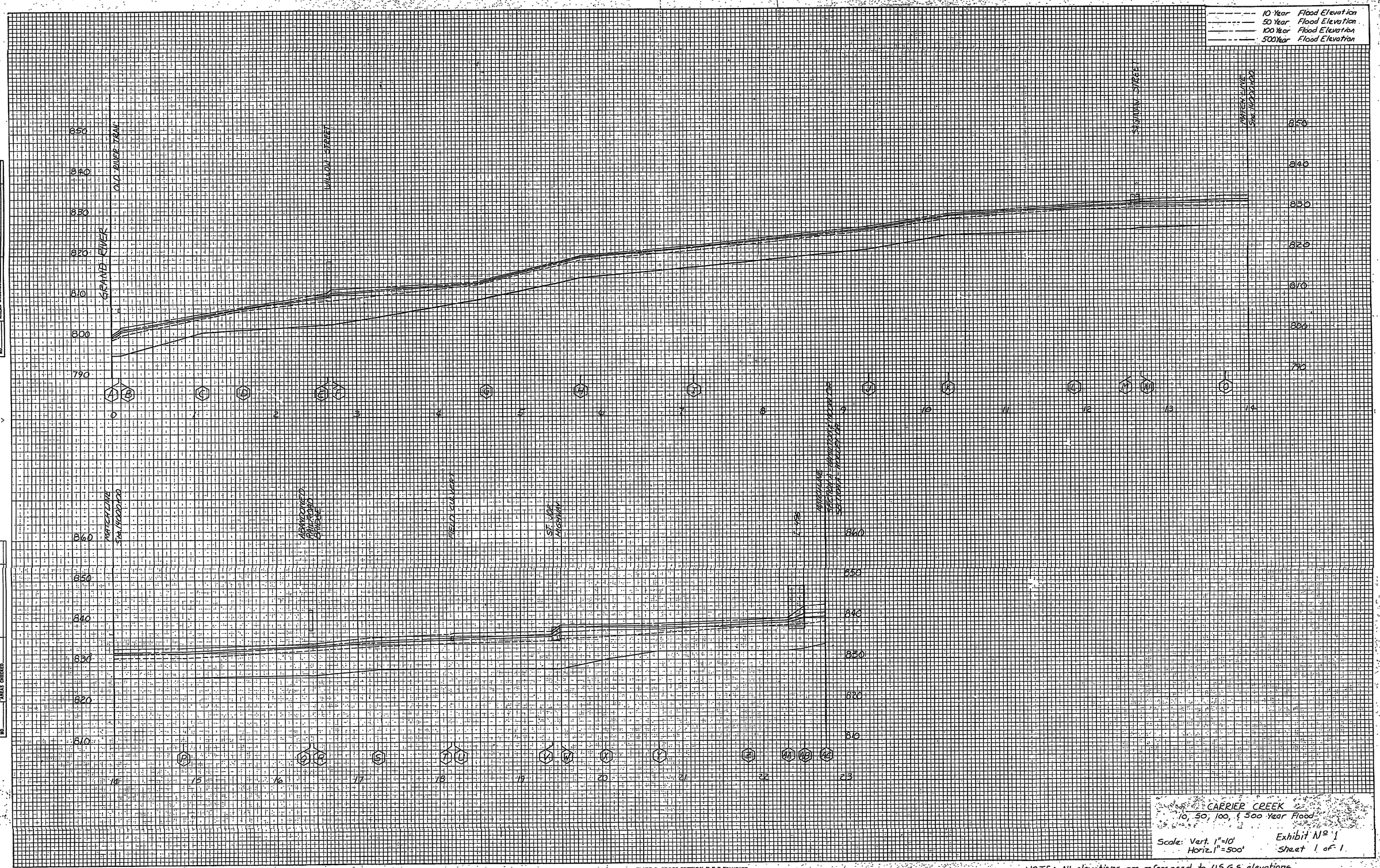
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
APPROXIMATE 100 YEAR FLOOD BOUNDARY
Exhibit 2
DELTA TWP. AND
CITY OF DIMONDALE AND
WINDSOR TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 3A
Extension Drain
Thornapple and Old Maid
Thornapple and
Palmiter and Phelps Drain
Carman Drain
Whaley Drain
King Drain
Silver Creek
West Windsor
Dimondale
Potterville
Sandpit
Gravel Pit
Radio Towers
Trailer Park
Pray Cem
BENTON
WINDSOR
DAVIS HIGHWAY
OAK HIGHWAY
BILLWOOD HIGHWAY
PINCH HIGHWAY
WALNUT HIGHWAY
WINDSOR HIGHWAY
DIMONDALE HIGHWAY
GRESHAM HIGHWAY
HOLT HIGHWAY
VERMONTVILLE HIGHWAY
DOANE HY
HART HIGHWAY
BISHOP HIGHWAY
GRAND TRUNK
WESTERN
ROYSTON ROAD
NIXON ROAD
GUINEA ROAD
CANAL ROAD
OLD RAILROAD GRADE
SMITH ROAD
T. 4 N.
T. 3 N.
R. 4 W.
R. 3 W.
(EATON RAPIDS)
(CHARLOTTE 1:62)
(LANSING SOUTH)
7 MI. TO U.S. 127 DETROIT 83 MI.
0.1 MI. TO MICH. 99
420 000 FEET
1 890 000 FEET
42°30"
42°37'30"
84°45'
84°37'30"



CITY OF GRAND LEDGE,
DELTA TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 1A
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
RM 2
APPROXIMATE 100 YEAR FLOOD BOUNDARY
EAGLE
WATERTOWN
ONEIDA
DELTA
GRAND LEDGE
Delta Mills
Abrams Municipal Airport
Trailer Park
Gravel Pit
Gravel Pits
Hillside Cem
Greenwood Sch
Warren Sch
Jr High Sch
CLINTON CO
EATON CO
CHESAPEAKE AND OHIO
GRAND RIVER
Summers Drain
Watson and Summers Drain
STOLL ROAD
STATE ROAD
SHERIDAN ROAD
NORTH RIVER HY
WILLOW HY
CLARK ROAD
47'30"
42°45'
84°45'
42'30"
40'
84°37'30"
R. 4 W.
R. 3 W.
T. 5 N.
T. 4 N.
470 000 FEET
1 000 FEET
6 MI. TO U.S. 27
(DIMONDALE)
(LANSING NOR 4069 I SE
(LANSING (CAPITOL) 6 MI.
GRAND RAPIDS 54 MI.
PORTLAND 10 MI.
EAGLE 2.1 MI.
4069 IV
(PORTLAND 1:62
INTERIOR—GEOLOGICAL SURVEY RESTON, VIRGINIA—1974


FR1
Delta Township, Eaton County
MILLER CREEK
100 YEAR FLOOD
FLOOD BOUNDARY
FLOODWAY
WATER COURSE
1" = 206'
AA
AB
AC
AD
AE
UPTON ROAD
STATE 43
HIGHWAY


FR2
Willow Hwy
STATE 43
HIGHWAY



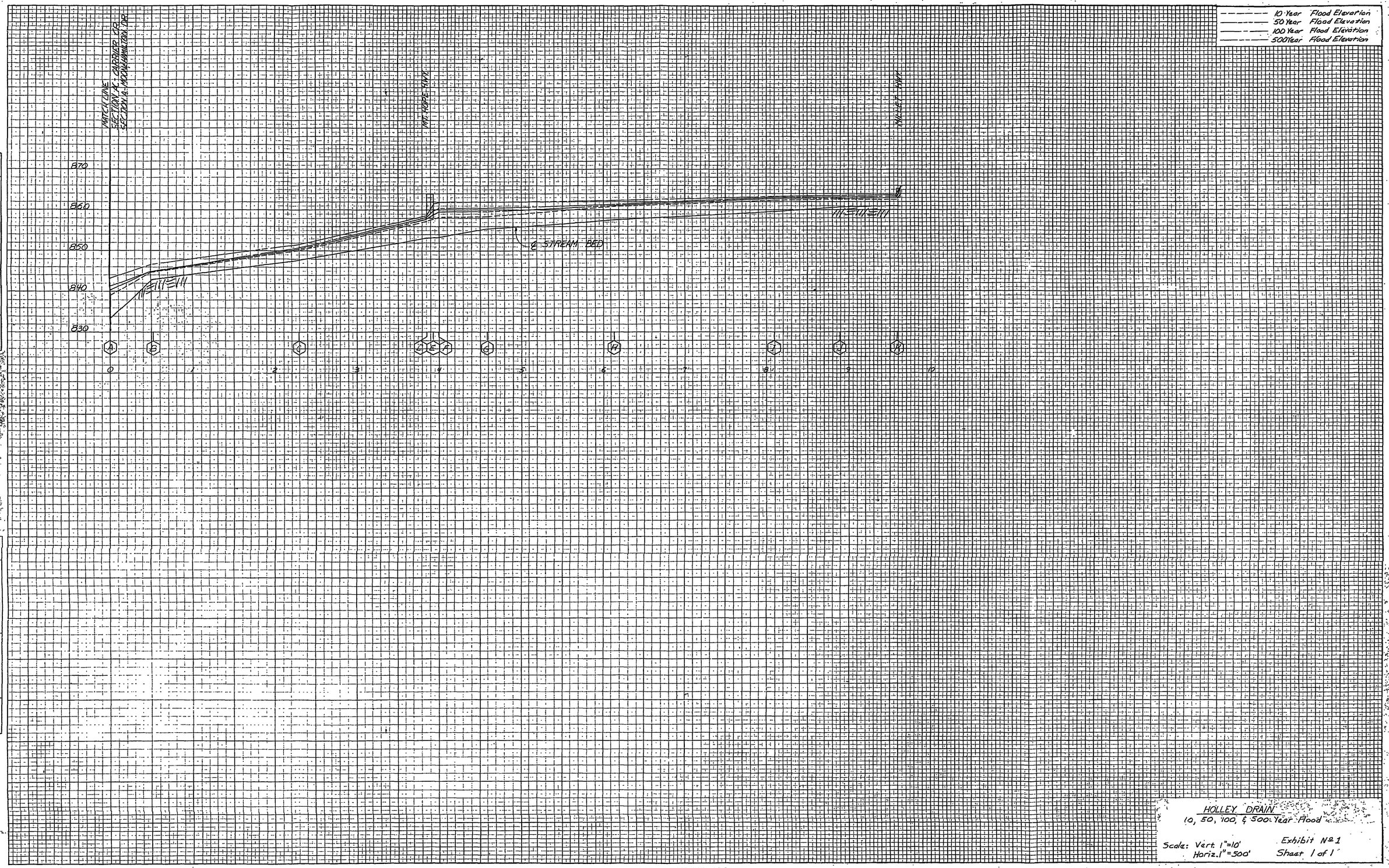
ORIGINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

FINAL SURVEY
NOTE BOOK
NO.
SURVEYED
PLOTTED
TEMPLATE
AREAS
AREAS CHECKED
BY
DATE

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



HOLLEY DRAIN
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=500'

Exhibit No 1
Sheet 1 of 1

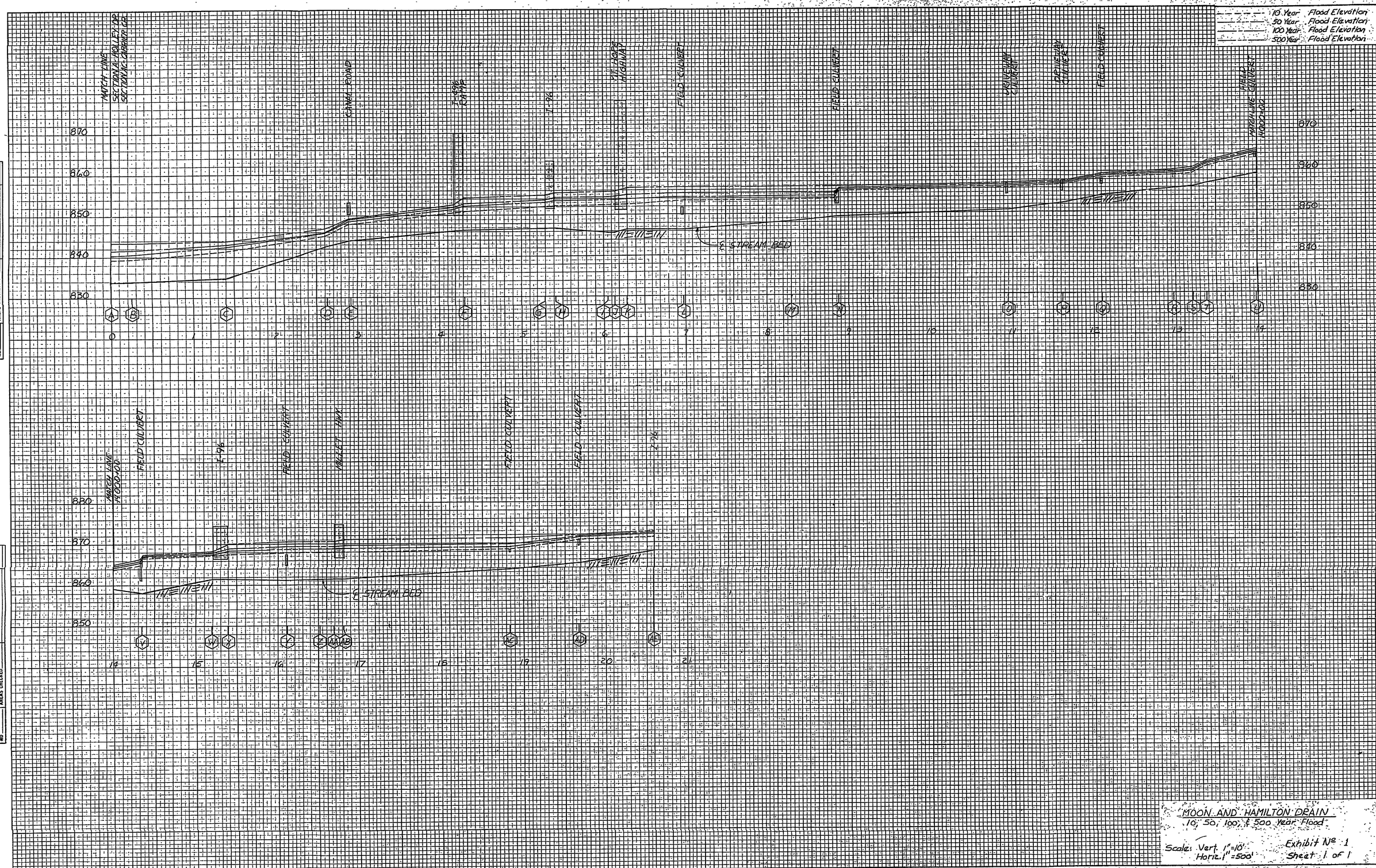
NOTE: All elevations are referenced to U.S.G.S. elevations

STREAM DISTANCE IN THOUSANDS OF FEET

PLATE 3 CROSS SECTION B P R STANDARD
EUGENE DIETZGEN CO., CHICAGO - NEW YORK

FINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		

ORIGINAL SURVEY		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	TEMPLATE		
	AREAS		
	AREAS CHECKED		



MOON AND HAMILTON DRAIN
10, 50, 100, & 500 Year Flood

Scale: Vert. 1"=10'
Horiz. 1"=500'

Exhibit Nº 1
Sheet 1 of 1

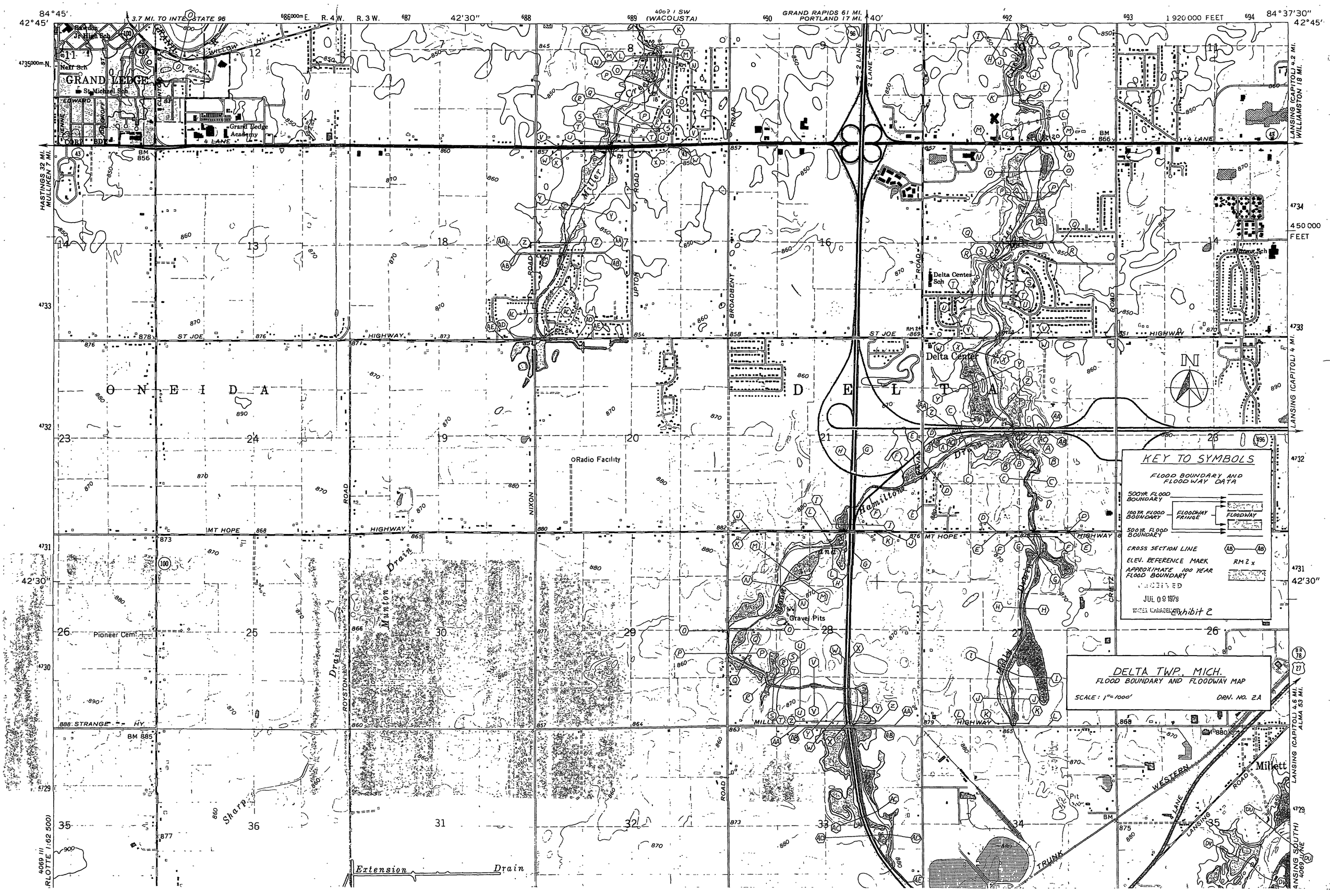
NOTE: All elevations are referenced to U.S.G.S. elevations

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



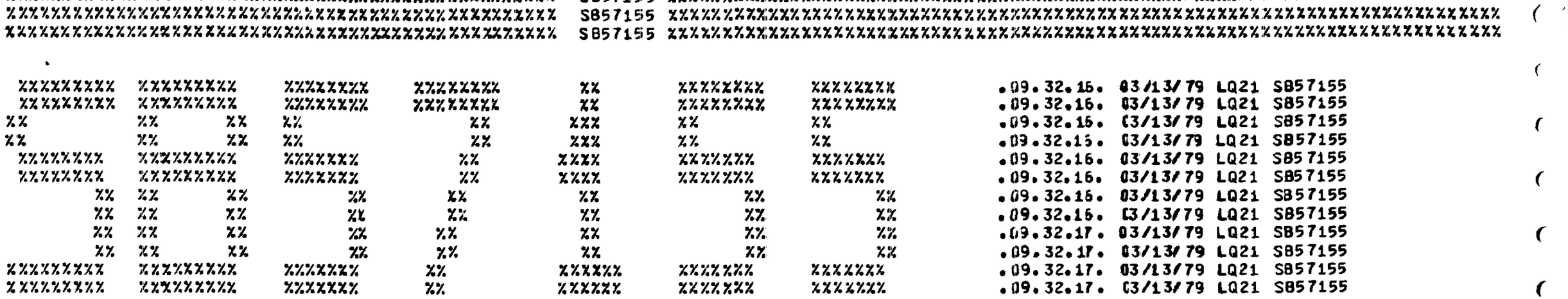
DELTA TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 2A
KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
RM 2 x
APPROXIMATE 100 YEAR FLOOD BOUNDARY
RECEIVED
JUL 09 1979
WATER MANAGEMENT
Exhibit 2
GRAND LEDGE
Grand Ledge Academy
Delta Center
Delta Center Sch
Radio Facility
Gravel Pits
Pioneer Cem.
Millett
ST JOE HIGHWAY
MT HOPE HIGHWAY
STRANGE HY
MILLETT HIGHWAY
Hamilton Drain
Munton Drain
Sharp Drain
Extension Drain
Miller Creek
UPTON ROAD
BROADBENT ROAD
NIXON ROAD
ROYSTON ROAD
CRIETZ ROAD
LANSING ROAD
WESTERN TRUNK LANE
LANSING (CAPITOL) 4.2 MI.
WILLIAMSTON 18 MI.
LANSING (CAPITOL) 4 MI.
LANSING (CAPITOL) 4.6 MI.
ALMA 53 MI.
HASTINGS 32 MI.
MULLIKEN 7 MI.
3.7 MI. TO INTERSTATE 96
GRAND RAPIDS 61 MI.
PORTLAND 17 MI.
1 920 000 FEET
450 000 FEET
84°45'
42°45'
84°37'30"
42°30"
R. 4 W.
R. 3 W.

1) COUNTY: Eaton

2) STUDY NAME: Delta TWP

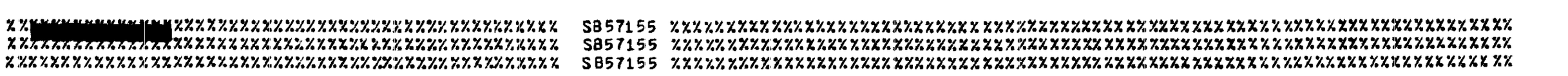
3) WATERCOURSE: Carrier Creek

4) DOCUMENT TYPE: 100-year



CARRIER CREEK 100 YR DETAILED 3-13-79

FINAL DNR SUBMITTAL



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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 EL FROM SLOPE AREA
T3      CARRIER CREEK

J1  ICHECK      INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        7.        0.        0.    .005700     0.00      0.0       0.    800.000     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      0.000     0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

NC      .050      .050      .040      .100      .300      0.000     0.000     0.000     0.000     0.000
QT     7.000    10.000    10.000    10.000   468.000   657.000   748.000   910.000     0.000     0.000

X1      .500     8.000    55.000    85.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   802.000     0.000   800.000    40.000   798.000    55.000   796.000    60.000   795.400    70.000
GR   796.000    79.000   797.000    85.000   798.000    90.000     0.000     0.000     0.000     0.000

X1      .600     0.000     0.000     0.000     5.000     5.000     5.000     0.000     0.000     0.000

X1      .700     0.000     0.000     0.000     5.000     5.000     5.000     0.000     0.000     0.000

X1     1.000    33.000   439.000   455.600   110.000    50.000    70.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   806.100   806.100     0.000
GR   817.900     0.000   814.500    50.000   811.100   100.000   808.500   150.000   805.900   200.000
GR   802.900   250.000   799.800   300.000   799.500   350.000   799.300   400.000   799.100   439.000
GR   799.100   440.200   798.000   441.500   796.000   441.500   795.500   450.000   795.800   453.000
GR   798.000   453.000   799.000   454.300   799.000   455.600   798.200   500.000   810.000   550.000
GR   801.700   600.000   801.900   650.000   802.100   700.000   803.000   750.000   803.800   800.000
GR   805.300   850.000   806.700   900.000   806.900   950.000   807.100  1000.000   807.100  1050.000
GR   807.100  1100.000   807.000  1150.000   806.300  1200.000     0.000     0.000     0.000     0.000
ET     0.000     3.100     1.000  1199.000     3.100     3.100     3.100     3.100     0.000     0.000
NC      .025      .025      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     1.100     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   806.100   806.100     0.000
BT    33.000     0.000   826.800   826.400    50.000   823.600   821.900   100.000   820.600   811.800
BT   150.000   817.600   814.610   200.000   814.300   811.800   250.000   812.700   809.600   300.000
BT   811.000   807.400   350.000   809.000   804.400   400.000   808.100   801.400   439.000   806.800
BT   806.100   440.200   806.800   806.100   441.500   806.900   806.100   441.500   806.900   806.100
BT   450.000   807.300   806.100   453.000   807.300   806.100   453.000   807.300   806.100   454.300
BT   807.300   806.100   455.600   807.400   806.100   500.000   806.800   798.700   550.000   806.500
BT   800.100   600.000   806.600   801.400   650.000   806.700   801.600   700.000   806.900   801.900
BT   750.000   807.100   803.800   800.000   807.600   805.700   850.000   807.700   805.800   900.000
BT   807.700   805.900   950.000   807.300   806.000  1000.000   808.200   806.000  1050.000   808.400
```

BT	806.300	1100.000	808.600	806.600	1150.000	808.800	806.500	1200.000	808.900	806.400
ET	0.000	3.100	1.000	1199.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	1.500	33.000	439.000	455.600	24.000	24.000	24.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	806.500	806.500	0.000
BT	33.000	0.000	826.800	826.400	50.000	823.600	821.900	100.000	820.600	811.800
BT	150.000	817.600	814.600	200.000	814.800	811.800	250.000	812.700	809.600	300.000
BT	811.000	807.400	350.000	809.000	804.400	400.000	808.100	801.400	439.000	806.800
BT	806.100	440.200	806.800	806.100	441.500	806.900	806.100	441.500	806.900	806.100
BT	450.000	807.300	806.100	453.000	807.300	806.100	453.000	807.300	806.100	454.300
BT	807.300	806.100	455.600	807.400	806.100	500.000	806.800	798.700	550.000	806.500
BT	800.100	600.000	806.600	801.400	650.000	806.700	801.600	700.000	806.900	801.900
BT	750.000	807.100	803.800	800.000	807.600	805.700	850.000	807.700	805.800	900.000
BT	807.700	805.900	950.000	807.300	806.000	1000.000	808.200	806.000	1050.000	808.400
BT	806.300	1100.000	808.600	806.500	1150.000	808.800	806.500	1200.000	808.900	806.400
GR	826.400	0.000	821.900	50.000	811.800	100.000	814.600	150.000	811.800	200.000
GR	809.600	250.000	807.400	300.000	804.400	350.000	801.400	400.000	799.100	439.000
GR	799.100	440.200	798.200	441.500	795.800	441.500	795.500	450.000	795.500	453.000
GR	798.500	453.000	799.200	454.300	799.200	455.600	798.700	500.000	800.100	550.000
GR	801.400	600.000	801.600	650.000	801.900	700.000	803.800	750.000	805.700	800.000
GR	805.800	850.000	805.900	900.000	806.000	950.000	806.000	1000.000	806.300	1050.000
GR	806.600	1100.000	806.500	1150.000	806.400	1200.000	0.000	0.000	0.000	0.000
ET	0.000	3.100	1.000	1199.000	3.100	3.100	3.100	3.100	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.550	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	806.500	806.500	0.000
NC	0.000	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	3.100	150.000	320.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	1.600	17.000	236.000	246.000	140.000	110.000	180.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	10.000	822.000	40.000	820.000	60.000	810.000	125.000
GR	808.000	140.000	806.000	165.000	804.000	185.000	802.000	200.000	800.000	215.000
GR	798.500	236.000	797.500	240.000	798.500	246.000	800.000	385.000	802.000	510.000
GR	804.000	750.000	805.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.100	.300	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.700	11.000	101.000	109.000	610.000	580.000	820.000	0.000	0.000	0.000
GR	810.000	0.000	808.000	30.000	806.000	65.000	804.000	70.000	802.000	101.000
GR	801.000	105.000	802.000	109.000	804.000	202.000	806.000	212.000	808.000	327.000
GR	810.000	342.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	17.000	180.000	189.000	380.000	460.000	500.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	10.000	822.000	15.000	820.000	25.000	818.000	40.000
GR	816.500	45.000	811.700	65.000	807.100	90.000	803.800	180.000	801.600	185.000
GR	802.600	189.000	804.700	210.000	805.000	275.000	812.400	310.000	813.900	340.000
GR	815.600	380.000	818.000	385.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.900	32.000	375.000	385.000	420.000	310.000	460.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	5.000	822.000	10.000	820.000	15.000	816.000	35.000
GR	814.200	40.000	813.500	85.000	819.000	85.000	819.000	110.000	818.000	110.000
GR	813.000	155.000	812.000	185.000	815.000	200.000	815.000	210.000	811.500	225.000
GR	814.500	225.000	814.500	295.000	812.500	295.000	810.000	335.000	814.000	335.000
GR	814.000	345.000	808.500	345.000	803.000	375.000	803.000	380.000	803.000	385.000

GR	814.500	410.000	816.000	415.000	818.000	425.000	820.000	430.000	822.000	435.000
GR	824.000	440.000	826.000	445.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.950	15.000	464.000	488.000	260.000	440.000	530.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	501.000	0.000	0.000	0.000	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	812.900	477.000
GR	803.500	488.000	810.100	500.000	815.900	600.000	822.600	685.000	825.300	700.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.000	15.000	464.000	488.000	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	818.200	818.200	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	812.900	477.000
GR	803.500	488.000	810.100	500.000	815.900	600.000	822.600	685.000	825.300	700.000
NC	.025	.025	.017	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	818.200	818.200	0.000
SB	.950	2.150	3.000	0.000	21.400	1.000	138.400	.218	803.500	803.500
X1	2.500	21.000	364.000	388.000	59.000	59.000	59.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	809.600	818.200	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	818.200	818.200	0.000
BT	21.000	0.000	828.400	828.400	33.000	823.500	823.100	50.000	822.600	820.400
BT	100.000	820.800	812.600	150.000	819.700	810.700	200.000	818.800	808.800	250.000
BT	818.300	808.800	300.000	818.200	808.800	350.000	818.400	803.400	356.000	818.400
BT	808.300	364.000	818.500	809.600	369.000	818.500	809.600	377.000	818.600	809.600
BT	388.000	818.700	809.600	388.000	818.700	809.600	400.000	818.900	811.100	450.000
BT	819.800	813.400	500.000	821.100	815.700	550.000	823.000	820.100	585.000	824.400
BT	823.200	600.000	832.900	832.900	0.000	0.000	0.000	0.000	0.000	0.000
GR	828.400	0.000	823.100	33.000	820.400	50.000	812.600	100.000	810.700	150.000
GR	808.800	200.000	808.800	250.000	808.800	300.000	808.300	350.000	818.300	356.000
GR	805.000	364.000	803.600	369.000	802.900	377.000	803.600	388.000	809.300	388.000
GR	811.100	400.000	813.400	450.000	815.700	500.000	820.100	550.000	823.200	585.000
GR	832.900	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.510	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	818.000	818.000	0.000
X1	2.550	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.120	0.000
X3	0.000	0.000	0.000	349.000	0.000	403.000	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	2.700	26.000	594.000	602.000	590.000	650.000	860.000	0.000	0.000	0.000
GR	828.000	0.000	826.000	40.000	824.000	145.000	822.000	200.000	820.000	255.000
GR	818.700	310.000	816.600	335.000	810.300	370.000	809.100	500.000	809.500	515.000
GR	808.900	535.000	810.000	552.000	806.000	594.000	805.000	598.000	816.000	602.000
GR	807.900	605.000	808.600	658.000	814.200	675.000	815.300	680.000	816.000	685.000
GR	818.000	698.000	820.000	705.000	822.000	720.000	824.000	745.000	826.000	770.000
GR	828.000	815.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	2.900	25.000	316.000	324.000	300.000	430.000	620.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	40.000	822.000	55.000
GR	820.000	65.000	818.000	80.000	816.000	100.000	814.000	110.000	812.000	130.000
GR	810.000	170.000	808.800	316.000	807.800	320.000	808.800	324.000	810.000	345.000
GR	812.000	365.000	814.000	375.000	816.000	380.000	818.000	385.000	820.000	395.000
GR	822.000	400.000	824.000	405.000	826.000	415.000	828.000	440.000	830.000	495.000
X1	2.905	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.130	0.000
X1	2.910	17.000	156.000	164.000	90.000	65.000	130.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	15.000	814.000	20.000
GR	812.000	55.000	810.000	125.000	808.800	156.000	808.100	160.000	808.800	164.000
GR	810.000	200.000	812.000	275.000	814.000	285.000	816.000	290.000	818.000	295.000
GR	820.000	300.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.920	17.000	158.000	166.000	95.000	85.000	120.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	22.000	814.000	33.000
GR	812.000	60.000	810.000	150.000	809.500	158.000	808.500	162.000	809.500	166.000
GR	810.000	180.000	812.000	290.000	814.000	315.000	816.000	330.000	818.000	348.000
GR	820.000	350.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.940	10.000	312.000	330.000	60.000	25.000	55.000	0.000	0.000	0.000
GR	817.500	160.000	814.000	194.000	812.200	220.000	811.300	280.000	810.500	312.000
GR	808.900	325.000	810.400	330.000	811.100	350.000	812.400	464.000	818.500	500.000
X1	3.000	23.000	316.000	335.000	50.000	30.000	50.000	0.000	0.000	0.000
GR	831.100	0.000	828.700	50.000	827.600	100.000	826.000	122.000	817.600	158.000
GR	813.500	200.000	812.000	250.000	812.000	281.000	810.600	316.000	809.200	323.000
GR	809.200	323.100	810.400	327.000	811.500	331.000	811.500	333.300	810.000	334.000
GR	809.500	335.000	810.000	336.000	812.300	336.700	812.300	340.000	812.600	400.000
GR	812.300	463.000	819.000	500.000	830.100	542.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.000	16.000	160.000	173.000	1200.000	940.000	1160.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	45.000	820.000	70.000
GR	818.000	90.000	816.600	115.000	816.000	130.000	814.300	160.000	814.000	170.000
GR	814.300	173.000	816.000	180.000	818.000	190.000	820.000	200.000	830.000	215.000
GR	832.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.500	21.000	254.000	262.000	720.000	1000.000	1400.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	15.000	830.000	25.000	828.000	55.000	826.000	70.000
GR	824.000	80.000	822.000	90.000	820.000	105.000	818.000	240.000	817.500	254.000
GR	816.500	258.000	817.500	262.000	818.000	275.000	820.000	280.000	822.000	285.000
GR	824.000	290.000	826.000	295.000	828.000	300.000	830.000	305.000	832.000	310.000
GR	834.000	315.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	16.000	70.000	79.000	1525.000	1800.000	2150.000	0.000	0.000	0.000
GR	836.000	0.000	834.000	20.000	832.000	35.000	830.000	45.000	826.000	60.000
GR	824.000	70.000	820.500	75.000	821.500	79.000	822.000	125.000	824.000	155.000
GR	826.000	165.000	828.000	175.000	830.000	185.000	834.000	200.000	836.000	225.000
GR	840.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000

BT	845.100	832.000	403.000	845.100	831.400	404.000	845.100	830.400	404.700	845.100
BT	825.900	410.300	845.000	825.900	411.000	845.000	830.400	412.000	845.000	831.400
BT	415.000	844.900	832.000	418.000	844.900	831.400	419.000	844.900	830.400	419.700
BT	844.900	825.900	422.000	844.700	826.300	428.000	844.600	830.000	450.000	844.300
BT	831.300	500.000	844.300	831.200	600.000	844.300	839.500	700.000	844.300	841.500
GR	840.700	0.000	837.400	100.000	832.600	200.000	834.400	300.000	831.400	350.000
GR	826.300	380.000	825.900	380.300	825.800	380.900	825.600	381.900	825.500	385.000
GR	825.600	388.000	825.800	389.000	825.900	389.700	825.900	395.300	825.800	396.000
GR	825.700	397.000	825.500	400.000	825.700	403.000	825.800	404.000	825.900	404.700
GR	825.900	410.300	825.800	411.000	825.700	412.000	825.500	415.000	825.700	418.000
GR	825.800	419.000	825.900	419.700	826.300	422.000	830.000	428.000	831.900	450.000
GR	831.200	500.000	839.500	500.000	841.500	700.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.600	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	1.000	0.000	0.000	0.000
ET	0.000	3.100	355.000	445.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	6.650	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.050	0.000
ET	0.000	3.100	330.000	1295.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	6.700	22.000	426.000	434.000	970.000	720.000	1000.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	15.000	840.000	20.000	838.000	40.000	836.000	65.000
GR	834.000	95.000	832.000	105.000	830.000	115.000	828.000	145.000	826.500	426.000
GR	826.000	430.000	826.500	434.000	826.000	1190.000	828.000	1200.000	830.000	1205.000
GR	832.000	1225.000	834.000	1240.000	836.000	1250.000	838.000	1270.000	840.000	1285.000
GR	842.000	1290.000	844.000	1295.000	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
X1	7.000	15.000	121.000	129.000	1060.000	700.000	1130.000	0.000	0.000	0.000
GR	840.000	0.000	836.000	20.000	834.000	40.000	832.000	65.000	830.000	80.000
GR	829.000	115.000	827.000	121.000	826.000	125.000	827.000	129.000	828.000	340.000
GR	830.000	350.000	834.000	370.000	836.000	380.000	838.000	398.000	840.000	400.000
NC	.080	.080	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	7.100	9.000	294.000	304.000	550.000	600.000	650.000	0.000	0.000	0.000
GR	834.000	230.000	830.000	288.000	827.000	294.000	826.000	300.000	827.000	304.000
GR	828.300	320.000	830.100	525.000	834.000	587.000	836.000	597.000	0.000	0.000
ET	0.000	3.100	240.000	355.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	7.300	22.000	290.000	307.000	550.000	600.000	650.000	0.000	0.000	0.000
GR	837.100	0.000	829.400	50.000	833.300	100.000	833.500	150.000	833.200	200.000
GR	832.400	250.000	831.300	290.000	827.200	294.000	826.000	300.000	827.200	305.000
GR	829.200	307.000	829.200	319.000	831.500	327.000	831.500	350.000	830.300	400.000
GR	831.300	450.000	831.200	500.000	831.200	550.000	831.500	600.000	836.500	650.000
GR	836.200	700.000	840.300	720.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	331.000	464.000	550.000	726.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	7.500	24.000	392.000	407.600	300.000	200.000	250.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.800	840.800	0.000
GR	840.700	50.000	837.000	100.000	835.000	150.000	832.500	200.000	835.000	250.000
GR	837.500	300.000	838.800	340.000	836.600	390.000	827.500	392.000	827.500	392.000
GR	826.600	400.000	827.500	407.600	827.500	407.600	827.500	408.000	835.400	410.000

X1	2.900	25.000	316.000	324.000	300.000	430.000	620.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	40.000	822.000	55.000
GR	820.000	65.000	818.000	80.000	816.000	110.000	814.000	110.000	812.000	130.000
GR	810.000	170.000	808.800	316.000	807.800	320.000	808.800	324.000	810.000	345.000
GR	812.000	365.000	814.000	375.000	816.000	380.000	818.000	385.000	820.000	395.000
GR	822.000	400.000	824.000	405.000	826.000	415.000	828.000	440.000	830.000	495.000
X1	2.905	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.130	0.000
X1	2.910	17.000	156.000	164.000	90.000	65.000	130.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	15.000	814.000	20.000
GR	812.000	55.000	810.000	125.000	808.800	156.000	808.100	160.000	808.800	164.000
GR	810.000	200.000	812.000	275.000	814.000	285.000	816.000	290.000	818.000	295.000
GR	820.000	300.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.920	17.000	158.000	166.000	95.000	85.000	120.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	22.000	814.000	33.000
GR	812.000	60.000	810.000	150.000	809.500	158.000	808.500	162.000	809.500	166.000
GR	810.000	180.000	812.000	290.000	814.000	315.000	816.000	330.000	818.000	348.000
GR	820.000	350.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.940	10.000	312.000	330.000	60.000	25.000	55.000	0.000	0.000	0.000
GR	817.500	160.000	814.000	194.000	812.200	220.000	811.300	280.000	810.500	312.000
GR	808.900	325.000	810.400	330.000	811.100	350.000	812.400	464.000	818.500	500.000
X1	3.000	23.000	316.000	335.000	50.000	30.000	50.000	0.000	0.000	0.000
GR	831.100	0.000	828.700	50.000	827.600	110.000	826.000	122.000	817.600	158.000
GR	813.500	200.000	812.000	250.000	812.000	281.000	810.600	316.000	809.200	323.000
GR	809.200	323.100	810.400	327.000	811.500	331.000	811.500	333.300	810.000	334.000
GR	809.500	335.000	810.000	336.000	812.300	336.700	812.300	340.000	812.600	400.000
GR	812.300	463.000	819.000	500.000	830.100	542.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.000	16.000	160.000	173.000	1200.000	940.000	1160.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	45.000	820.000	70.000
GR	818.000	90.000	816.600	115.000	816.000	130.000	814.300	160.000	814.000	170.000
GR	814.300	173.000	816.000	180.000	818.000	190.000	820.000	200.000	830.000	215.000
GR	832.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.500	21.000	254.000	262.000	720.000	1000.000	1400.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	15.000	830.000	25.000	828.000	55.000	826.000	70.000
GR	824.000	80.000	822.000	90.000	820.000	105.000	818.000	240.000	817.500	254.000
GR	816.500	258.000	817.500	262.000	818.000	275.000	820.000	280.000	822.000	285.000
GR	824.000	290.000	826.000	295.000	828.000	300.000	830.000	305.000	832.000	310.000
GR	834.000	315.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	16.000	70.000	79.000	1525.000	1800.000	2150.000	0.000	0.000	0.000
GR	836.000	0.000	834.000	20.000	832.000	35.000	830.000	45.000	826.000	60.000
GR	824.000	70.000	820.500	75.000	821.500	79.000	822.000	125.000	824.000	155.000
GR	826.000	165.000	828.000	175.000	830.000	185.000	834.000	200.000	836.000	225.000
GR	840.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	5.500	12.000	55.000	63.000	840.000	840.000	980.000	0.000	0.000	0.000
GR	837.200	0.000	827.400	43.000	826.100	55.000	824.000	60.000	826.100	63.000
GR	829.500	88.000	832.100	131.000	824.700	151.000	828.900	200.000	825.800	250.000
GR	824.600	300.000	841.200	385.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.700	31.000	346.000	354.000	1220.000	1240.000	1570.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	10.000	836.000	30.000	834.000	55.000	834.000	100.000
GR	836.000	110.000	838.000	125.000	840.000	140.000	842.000	145.000	844.000	160.000
GR	846.000	170.000	846.000	210.000	844.000	230.000	842.000	240.000	840.000	250.000
GR	838.000	255.000	836.000	270.000	834.000	290.000	832.000	300.000	830.000	305.000
GR	828.000	310.000	826.000	346.000	825.000	350.000	826.000	354.000	828.000	410.000
GR	830.000	425.000	832.000	440.000	834.000	450.000	836.000	460.000	838.000	470.000
GR	840.000	475.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	439.000	817.000	702.000	872.000	0.000	0.000
ET	0.000	3.100	370.000	430.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	5.990	8.000	370.000	430.000	660.000	640.000	650.000	0.000	0.000	0.000
GR	836.600	300.000	829.600	350.000	826.300	380.000	825.100	385.000	825.100	415.000
GR	826.300	420.000	830.100	450.000	834.100	500.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	6.000	31.000	380.000	419.700	40.000	40.000	40.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	837.200	837.200	0.000
BT	31.000	0.000	846.300	840.700	100.000	844.100	837.400	200.000	843.800	832.600
BT	300.000	843.600	834.400	350.000	842.900	831.400	380.000	844.200	826.300	380.300
BT	844.200	825.500	380.900	844.200	830.000	381.900	844.300	831.000	385.000	844.400
BT	831.600	388.000	844.500	831.000	389.000	844.600	830.000	389.700	844.600	825.500
BT	395.300	844.800	825.500	396.000	844.900	830.000	397.000	844.900	831.000	400.000
BT	845.100	831.600	403.000	845.100	831.000	404.000	845.100	830.000	404.700	845.100
BT	825.500	410.300	845.000	825.500	411.000	845.000	830.000	412.000	845.000	831.000
BT	415.000	844.900	831.600	418.000	844.900	831.000	419.000	844.900	830.000	419.700
BT	844.900	825.500	420.000	844.700	830.100	450.000	844.300	834.100	500.000	844.300
BT	840.800	600.000	844.300	840.800	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.300	0.000	840.000	100.000	838.200	200.000	836.600	300.000	829.600	350.000
GR	826.300	380.000	825.500	380.300	825.400	380.900	825.200	381.900	825.100	385.000
GR	825.200	388.000	825.400	389.000	825.500	389.700	825.500	395.300	825.400	396.000
GR	825.300	397.000	825.100	400.000	825.300	403.000	825.400	404.000	825.500	404.700
GR	825.500	410.300	825.400	411.000	825.300	412.000	825.100	415.000	825.300	418.000
GR	825.400	419.000	825.500	419.700	826.300	420.000	830.100	450.000	834.100	500.000
GR	840.800	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	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	1.000	0.000	0.000	0.000
X1	6.500	33.000	380.300	419.700	119.000	119.000	119.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.860	842.860	0.000
BT	33.000	0.000	846.300	840.700	100.000	844.100	837.400	200.000	843.800	832.600
BT	300.000	843.600	834.400	350.000	842.900	831.400	380.000	844.200	826.300	380.300
BT	844.200	825.900	380.900	844.200	830.400	381.900	844.300	831.400	385.000	844.400
BT	832.000	388.000	844.500	831.400	389.000	844.600	830.400	389.700	844.600	825.900
BT	395.300	844.800	825.900	396.000	844.900	830.400	397.800	844.900	831.400	400.000

GR	834.500	425.000	835.000	450.000	835.200	500.000	835.700	550.000	836.200	600.000
GR	839.500	700.000	843.000	800.000	844.800	850.000	846.500	900.000	0.000	0.000
NC	.030	.030	.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.510	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	840.800	840.800	0.000
BT	24.000	50.000	846.800	0.000	100.000	846.800	0.000	150.000	846.800	0.000
BT	200.000	846.800	0.000	250.000	845.800	0.000	300.000	845.900	0.000	340.000
BT	843.700	0.000	390.000	842.700	0.000	392.000	842.700	827.500	392.000	842.700
BT	837.420	400.000	842.700	837.420	407.600	842.400	837.420	407.600	842.400	0.000
BT	408.000	842.400	0.000	410.000	842.200	0.000	425.000	841.600	0.000	450.000
BT	841.200	0.000	500.000	840.800	0.000	550.000	841.700	0.000	600.000	841.800
BT	0.000	700.000	841.800	0.000	800.000	843.000	0.000	850.000	844.800	0.000
BT	900.000	846.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.590	26.000	392.000	407.600	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.800	840.800	0.000
BT	26.000	50.000	846.800	0.000	100.000	846.800	0.000	150.000	846.800	0.000
BT	200.000	846.800	0.000	250.000	845.800	0.000	300.000	845.900	0.000	340.000
BT	843.700	0.000	350.000	843.200	0.000	385.000	842.800	0.000	390.000	842.700
BT	0.000	392.000	842.700	827.500	392.000	842.700	837.420	400.000	842.700	837.420
BT	407.600	842.400	837.420	407.600	842.400	827.500	409.000	842.400	0.000	419.000
BT	842.000	0.000	425.000	841.600	0.000	450.000	841.200	0.000	500.000	840.800
BT	0.000	550.000	841.700	0.000	600.000	841.800	0.000	700.000	841.800	0.000
BT	800.000	843.000	0.000	850.000	844.800	0.000	900.000	846.500	0.000	0.000
GR	844.700	50.000	844.700	100.000	844.700	150.000	838.300	200.000	836.800	250.000
GR	835.300	300.000	835.700	340.000	835.800	350.000	836.000	385.000	828.200	390.000
GR	827.500	392.000	827.500	392.000	826.500	400.000	827.500	407.600	827.500	407.600
GR	827.500	409.000	835.400	419.000	835.050	425.000	834.700	450.000	833.600	500.000
GR	834.500	550.000	835.300	600.000	837.400	700.000	839.400	800.000	840.500	850.000
GR	840.500	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.600	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	840.300	840.300	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.800	0.000
ET	0.000	3.100	210.000	290.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	7.700	14.000	244.000	256.000	70.000	70.000	70.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	50.000	833.200	100.000	830.600	140.000	831.100	240.000
GR	827.200	244.000	826.900	250.000	827.200	256.000	835.700	260.000	836.200	310.000
GR	836.200	315.000	836.200	350.000	840.100	410.000	850.000	550.000	0.000	0.000
X1	8.000	13.000	162.000	173.000	670.000	780.000	730.000	0.000	0.000	0.000
GR	845.200	0.000	841.100	10.000	837.300	20.000	835.000	70.000	832.600	120.000
GR	830.600	154.000	828.400	162.000	827.800	170.000	828.400	173.000	828.600	187.000
GR	835.800	206.000	837.300	222.000	846.400	272.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.500	18.000	292.000	308.000	900.000	730.000	750.000	0.000	0.000	0.000
GR	837.800	0.000	837.800	50.000	837.800	100.000	837.800	150.000	833.000	250.000
GR	833.300	283.000	829.100	290.000	828.000	292.000	828.000	292.000	828.550	295.000
GR	828.000	300.000	828.550	305.000	828.000	308.000	828.000	308.000	829.100	309.000
GR	831.400	314.000	836.500	330.000	843.100	350.000	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	9.000	0.000	0.000	0.000	150.000	150.000	150.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
BT	18.000	0.000	846.300	0.000	50.000	842.700	0.000	100.000	840.600	0.000
BT	150.000	839.700	0.000	250.000	834.400	0.000	283.000	835.500	0.000	290.000
BT	835.680	0.000	292.000	835.740	0.000	292.000	835.740	832.000	295.000	835.840
BT	834.000	300.000	836.000	835.000	305.000	836.060	834.000	308.000	836.130	832.000
BT	308.000	836.130	0.000	309.000	836.150	0.000	314.000	836.230	0.000	330.000
BT	836.500	0.000	350.000	843.100	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.100	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	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
X1	9.400	18.000	292.000	308.000	38.500	38.500	38.500	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
BT	18.000	0.000	846.300	0.000	50.000	842.700	0.000	100.000	840.600	0.000
BT	150.000	839.700	0.000	200.000	836.000	0.000	250.000	834.400	0.000	278.000
BT	835.200	0.000	290.000	835.500	0.000	292.000	835.740	0.000	292.000	835.740
BT	831.500	296.000	835.870	833.500	300.000	836.000	835.000	305.000	836.070	833.500
BT	308.000	836.200	831.500	308.000	836.200	0.000	318.000	836.400	0.000	330.000
BT	836.500	0.000	350.000	843.500	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.300	0.000	842.700	50.000	840.600	100.000	839.700	150.000	836.000	200.000
GR	833.700	250.000	832.700	278.000	829.000	290.000	828.600	292.000	828.600	292.000
GR	828.300	296.000	828.000	300.000	828.500	305.000	829.000	308.000	829.000	308.000
GR	832.200	318.000	836.500	330.000	843.500	350.000	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
ET	0.000	3.100	215.000	310.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	9.500	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	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
X1	9.550	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
NC	.060	.060	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	9.600	11.000	893.000	909.000	270.000	160.000	220.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	200.000	837.000	750.000	830.700	820.000	831.800	885.000
GR	828.600	893.000	827.800	901.000	828.600	909.000	832.300	911.000	835.100	976.000
GR	852.300	1051.000	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
X1	9.700	15.000	312.000	328.000	490.000	550.000	500.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	150.000	832.200	170.000	830.500	210.000	830.300	240.000
GR	834.600	250.000	834.400	290.000	829.100	312.000	827.800	320.000	829.100	328.000
GR	833.800	345.000	833.600	440.000	836.100	470.000	840.000	600.000	850.000	900.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	304.000	426.000	512.000	689.000	0.000	0.000
ET	0.000	3.100	535.000	575.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	10.000	17.000	548.000	563.000	350.000	450.000	400.000	0.000	0.000	0.000
GR	850.800	0.000	844.500	185.000	841.000	285.000	838.000	385.000	829.200	524.000

GR	833.700	531.000	828.800	544.000	828.300	548.000	827.800	556.000	828.300	563.000
GR	828.800	567.000	830.100	571.000	834.900	582.000	832.600	645.000	835.400	785.000
GR	844.500	885.000	850.800	917.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.100	0.000	0.000	0.000	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	837.930	837.930	0.000
SB	0.000	2.400	3.000	0.000	10.000	0.000	75.000	0.000	827.800	827.800
X1	10.400	20.000	511.000	526.000	104.000	114.000	104.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	834.800	838.500	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	837.930	837.930	0.000
BT	20.000	35.000	853.000	853.000	85.000	845.400	845.400	185.000	842.300	842.300
BT	285.000	839.130	835.400	385.000	838.060	834.200	499.000	838.050	836.800	511.000
BT	838.100	828.800	512.000	838.200	831.800	516.000	838.200	834.100	518.700	838.200
BT	834.800	521.000	838.200	834.100	525.000	838.300	831.800	526.000	828.300	828.800
BT	529.000	838.300	0.000	535.000	838.350	0.000	545.000	838.400	0.000	585.000
BT	839.330	0.000	685.000	839.200	0.000	785.000	842.800	0.000	815.000	847.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	850.800	35.000	845.400	85.000	842.300	185.000	835.400	285.000	834.200	385.000
GR	836.800	499.000	828.800	511.000	828.500	512.000	828.000	516.000	827.800	518.700
GR	828.000	521.000	828.500	525.000	828.800	526.000	828.800	529.000	830.770	535.000
GR	836.370	545.000	839.330	585.000	839.200	685.000	842.800	785.000	847.100	815.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	3.100	468.000	575.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	10.550	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	10.700	22.000	315.000	325.000	500.000	510.000	510.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	10.000	846.000	20.000	844.000	25.000	842.000	35.000
GR	840.000	40.000	838.000	50.000	836.000	65.000	834.000	300.000	832.000	305.000
GR	830.000	315.000	830.000	325.000	832.000	335.000	834.000	340.000	836.000	345.000
GR	838.000	425.000	840.000	445.000	842.000	455.000	844.000	465.000	846.000	480.000
GR	848.000	485.000	850.000	495.000	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
ET	0.000	3.100	415.000	850.000	3.100	3.100	3.100	0.000	0.000	0.000
X1	10.800	32.000	665.000	675.000	840.000	580.000	650.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	2.000	846.000	17.000	844.000	20.000	842.000	35.000
GR	840.000	55.000	838.000	85.000	838.000	295.000	840.000	320.000	850.000	370.000
GR	852.000	380.000	854.000	385.000	856.000	390.000	858.000	400.000	858.000	415.000
GR	856.000	425.000	854.000	430.000	850.000	435.000	840.000	460.000	838.000	500.000
GR	836.000	650.000	834.000	655.000	832.000	665.000	832.000	675.000	834.000	685.000
GR	836.000	690.000	838.000	750.000	840.000	775.000	842.000	795.000	844.000	815.000
GR	846.000	855.000	850.000	865.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.900	20.000	345.000	365.000	1280.000	1000.000	1100.000	0.000	0.000	0.000
X4	1.000	832.100	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	30.000	846.000	70.000	844.000	120.000	842.000	140.000
GR	840.000	155.000	838.000	160.000	838.000	165.000	838.000	220.000	836.000	335.000
GR	834.000	345.000	834.000	365.000	836.000	375.000	838.000	385.000	840.000	540.000
GR	842.000	1020.000	844.000	1185.000	846.000	1300.000	848.000	1330.000	850.000	1350.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	260.000	372.000	451.000	609.000	0.000	0.000

X1	11.000	15.000	193.000	207.000	450.000	780.000	490.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	847.800	847.800	0.000
GR	848.700	0.000	848.700	50.000	848.700	100.000	848.700	117.000	843.500	150.000
GR	832.600	193.000	832.100	193.500	832.100	200.000	832.100	206.500	832.600	207.000
GR	840.500	250.000	847.000	283.000	847.000	300.000	847.000	350.000	847.000	400.000
NC	.013	.013	.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.090	3.000	0.000	13.000	0.000	61.360	0.000	832.600	832.100

X1	11.400	15.000	193.000	207.000	219.000	219.000	219.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.320	847.790	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	847.520	847.520	0.000
BT	15.000	0.000	852.000	852.000	50.000	852.000	852.000	100.000	852.000	852.000
BT	119.000	852.000	852.000	150.000	847.790	844.000	193.000	848.000	832.700	193.500
BT	848.000	837.320	200.000	848.090	837.320	206.500	848.000	837.320	207.000	848.000
BT	832.700	250.000	847.770	844.000	261.000	847.770	846.600	300.000	848.470	846.600
BT	350.000	848.770	846.600	400.000	849.170	846.600	0.000	0.000	0.000	0.000
GR	852.000	0.000	852.000	50.000	852.000	100.000	852.000	119.000	844.000	150.000
GR	832.700	193.000	832.600	193.500	832.600	200.000	832.600	206.500	832.700	207.000
GR	844.000	250.000	846.600	261.000	846.600	300.000	846.600	350.000	846.600	400.000
NC	.050	.050	.035	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	12.000	13.000	42.000	85.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	854.100	0.000	843.000	42.000	836.000	59.000	834.400	70.000	833.800	73.000
GR	834.400	78.000	835.200	83.000	838.800	85.000	846.900	116.000	850.800	200.000
GR	846.700	300.000	850.700	400.000	854.500	500.000	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 .500
 3280 CROSS SECTION       .50 EXTENDED      2.19 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

       .50      4.79    800.19      0.00    800.00    800.62      .43      0.00      0.00    798.00
     748.        35.     678.        35.      18.      123.       13.        0.        0.     797.00
      0.00      1.90      5.50      2.61      .065      .052      .065    0.000    795.40     36.24
   .005751        0.        0.        0.         0         0         4     0.00     53.76     90.00

 *SECNO .600
 3280 CROSS SECTION       .60 EXTENDED      2.22 FEET

       .60      4.82    800.22      0.00      0.00    800.65      .43       .03       .00    798.00
     748.        36.     677.        35.      19.      124.       14.        0.        0.     797.00
       .00      1.90      5.45      2.58      .065      .052      .065      .043    795.40     35.67
   .005602        5.        5.        5.         0         0         0     0.00     54.33     90.00

 *SECNO .700
 3280 CROSS SECTION       .70 EXTENDED      2.25 FEET

       .70      4.86    800.26      0.00      0.00    800.68      .42       .03       .00    798.00
     748.        37.     676.        35.      19.      125.       14.        0.        0.     797.00
       .00      1.89      5.39      2.56      .065      .052      .065      .043    795.40     34.93
   .005418        5.        5.        5.         0         0         0     0.00     55.07     90.00

 *SECNO 1.000

 3301 HV CHANGED MORE THAN HVINS

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

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.10 ELREA=      806.10

      1.00      5.12    800.62    800.62      0.00    802.63      2.02       .80       .48    799.10
     748.         0.     748.        0.        0.      66.        0.        0.        0.     799.00
       .00      0.00     11.39      0.00      .065      .052      .065      .050    795.50    439.00
   .037681       110.      70.       50.        20         8         6     0.00     16.60    455.60
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 *SECNO 1.100
    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     COPAR     TOPWID      ENDST


 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

 3470 ENCROACHMENT STATIONS=        1.0     1199.0  TYPE=      1  TARGET=     1198.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.10 ELREA=       806.10

      1.10      5.51    801.01      0.00      0.00    802.68      1.67       .01       .03   799.10
      748.       0.      748.       0.        0.       72.        0.         0.        0.    799.00
       .00      0.00     10.38      0.00      .033     .026      .033       .049    795.50   439.00
  .007039        1.       1.        1.         4        0         0     -51.15     16.60    455.60

 *SECNO 1.500

 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

 3470 ENCROACHMENT STATIONS=        1.0     1199.0  TYPE=      1  TARGET=     1198.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.50 ELREA=       806.50

      1.50      6.05    801.55      0.00      0.00    802.86      1.31       .14       .04   799.10
      748.       0.      748.       0.        0.       81.        0.         0.        0.    799.20
       .00      0.00      9.16      0.00      .033     .026      .033       .044    795.50   439.00
  .005049         24.      24.       24.        0        0         0     -63.16     16.60    455.60

 *SECNO 1.550

 3470 ENCROACHMENT STATIONS=        1.0     1199.0  TYPE=      1  TARGET=     1198.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.50 ELREA=       806.50

      1.55      6.07    801.57      0.00      0.00    802.87      1.30       .01       .00   799.10
      748.       0.      748.       0.        0.       82.        0.         0.        0.    799.20
       .00      0.00      9.14      0.00      .091     .065      .091       .043    795.50   439.00
  .031181         1.       1.        1.         1        0         0       0.01     16.60    455.60

 *SECNO 1.600

 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      150.0      320.0  TYPE=      1  TARGET=      170.000
      1.60      6.02    803.52      0.00      0.00    803.56       .04       .56       .13   798.50
      748.      185.     141.       422.      136.      55.       342.        1.        0.    798.50
       .03      1.36     2.56       1.23      .091     .065      .117       .062    797.50   188.59
  .001317       140.     180.       110.         3        0         0       0.00    131.41   320.00
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 CCHV=     .300 CEHV=     .300
 *SECNO 1.700
      1.70      4.23    805.23      0.00      0.00    805.32       .09      1.75       .01    802.00
       748.      168.       79.       501.       71.       30.       212.       7.        2.     802.00
        .10      2.35      2.65      2.37      .104      .130      .104      .138    801.00     66.91
   .009624       610.      820.      580.         4         0         0      0.00    141.26    208.17

 *SECNO 1.800
    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     CCRAR     TOPWID     ENDST

      1.80      5.29    806.89      0.00      0.00    806.97       .08      1.65       .00    803.60
       748.      221.      151.       376.      131.       40.       210.      11.        4.     802.60
        .16      1.69      3.75      1.79      .052      .046      .065      .109    801.60     95.42
   .001946       380.      500.      460.         2         0         0      0.00    188.57    283.99

 *SECNO 1.900

 3301 HV CHANGED MORE THAN HVINS

      1.90      4.86    807.86      0.00      0.00    808.49       .63      1.35       .16    803.00
       748.      278.      385.       84.       64.       49.       26.       13.        5.     803.00
        .18      4.33      7.94      3.28      .052      .046      .065      .096    803.00    348.51
   .007180       420.      460.      310.         3         0         0      0.00     47.05    395.56

 *SECNO 1.950

 3470 ENCROACHMENT STATIONS=      451.0      501.0  TYPE=      1  TARGET=       50.000
      1.95      6.95    809.85      0.00      0.00    810.13       .27      1.54       .11    808.70
       748.       18.       658.       72.       14.       149.       37.       15.        5.     803.50
        .21      1.25      4.43      1.96      .052      .046      .065      .086    802.90    451.00
   .001876       260.      530.      440.         2         0         0      0.00     48.55    499.55

 CCHV=     .300 CEHV=     .500
 *SECNO 2.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       818.20 ELREA=       818.20

      2.00      7.01    809.91      0.00      0.00    810.29       .39       .11       .06    808.70
       748.        0.      748.        0.        0.       150.        0.       15.        5.     803.50
        .21      0.00      4.99      0.00      .052      .046      .065      .086    802.90    464.00
   .002497        50.       50.       50.         2         0         0      0.00     24.00    488.00

 CCHV=     .300 CEHV=     .500
 *SECNO 2.100

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       818.20 ELREA=       818.20

      2.10      7.01    809.91      0.00      0.00    810.29       .39       .00       .00    808.70
       748.        0.      748.        0.        0.       150.        0.       15.        5.     803.50
        .21      0.00      4.99      0.00      .033      .022      .033      .089    802.90    464.00
   .000589         1.        1.        1.         0         0         0      0.00     24.00    488.00
```

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	2.15	3.00	0.00	21.40	1.00	138.40	.21	803.50	803.50

*SECNO 2.500

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	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

w. 1100

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
810.88	810.30	.03	0.	748.	138.	132.	809.60	818.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.20 ELREA= 818.20

2.50	7.69	810.59	0.00	0.00	810.88	.30	.59	0.00	805.00
748.	0.	748.	0.	0.	171.	0.	15.	5.	809.30
.22	0.00	4.36	0.00	.033	.022	.033	.084	802.90	364.00
.000480	59.	59.	59.	2	0	0	0.00	24.00	388.00

*SECNO 2.510

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.00 ELREA= 818.00

2.51	7.69	810.59	0.00	0.00	810.88	.30	.00	.00	805.00
748.	0.	748.	0.	0.	171.	0.	15.	5.	809.30
.22	0.00	4.38	0.00	.091	.065	.091	.084	802.90	364.00
.004155	1.	1.	1.	0	0	0	0.00	24.00	388.00

*SECNO 2.550

3470 ENCROACHMENT STATIONS= 349.0 403.0 TYPE= 1 TARGET= 54.000

2.55	7.79	810.81	0.00	0.00	811.01	.20	.10	.03	805.12
748.	88.	656.	4.	49.	173.	6.	15.	5.	809.42
.22	1.80	3.78	.65	.091	.065	.091	.084	803.02	349.00
.002633	30.	30.	30.	2	0	0	0.00	48.27	397.27

CCHV= .100 CEHV= .300

*SECNO 2.700

2.70	6.83	811.83	0.00	0.00	811.85	.02	.82	.02	806.00
748.	447.	96.	204.	578.	51.	221.	23.	8.	806.00
.43	.77	1.90	.92	.091	.065	.091	.082	805.00	361.45
.000614	590.	860.	650.	3	0	0	0.00	306.39	667.83

*SECNO 2.900

2.90	4.30	812.10	0.00	0.00	812.13	.03	.28	.00	808.80
748.	997.	53.	98.	438.	30.	79.	29.	10.	808.80

.50	1.36	1.75	1.24	.065	.065	.065	.085	807.80	128.99
.001034	300.	620.	430.	2	0	0	0.00	236.51	365.50

*SECNO 2.905

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.91	4.21	812.14	0.00	0.00	812.17	.03	.03	.00	808.93
748.	596.	55.	97.	419.	30.	75.	29.	10.	808.93
.51	1.42	1.85	1.30	.065	.065	.065	.085	807.93	130.82
.001188	30.	30.	30.	0	0	0	0.00	234.96	364.99

*SECNO 2.910

2.91	4.16	812.26	0.00	0.00	812.32	.06	.14	.01	808.80
748.	313.	82.	353.	176.	30.	197.	30.	11.	808.80
.52	1.77	2.70	1.60	.065	.065	.065	.085	808.10	50.62
.002402	90.	130.	65.	1	0	0	0.00	225.63	276.25

*SECNO 2.920

2.92	4.01	812.51	0.00	0.00	812.57	.06	.25	.00	809.50
748.	287.	82.	360.	160.	28.	207.	31.	11.	809.50
.54	1.79	2.91	1.84	.065	.065	.065	.085	808.50	53.10
.003156	95.	120.	85.	2	0	0	0.00	243.29	296.39

*SECNO 2.940

2.94	3.77	812.67	0.00	0.00	812.78	.11	.19	.02	810.50
748.	251.	204.	293.	113.	54.	143.	31.	11.	810.40
.54	2.22	3.81	2.05	.065	.065	.065	.085	808.90	213.27
.006613	60.	55.	25.	2	0	0	0.00	252.30	465.57

*SECNO 3.000

3.00	3.80	813.00	0.00	0.00	813.22	.21	.41	.03	810.60
748.	343.	253.	152.	108.	51.	77.	32.	12.	809.50
.54	3.18	4.95	1.98	.065	.065	.065	.085	809.20	216.42
.013858	50.	50.	30.	2	0	0	0.00	250.49	466.91

*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	5.23	819.23	0.00	0.00	819.33	.10	6.10	.01	814.30
748.	416.	236.	96.	222.	66.	55.	39.	16.	814.30
.68	1.88	3.57	1.77	.091	.065	.091	.080	814.00	77.74
.002801	1200.	1160.	940.	4	0	0	0.00	118.39	196.13

*SECNO 4.500

4.50	4.96	821.46	0.00	0.00	821.50	.04	2.17	.01	817.50
748.	546.	98.	103.	392.	36.	63.	47.	19.	817.50

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     .83      1.39      2.76      1.63      .091      .065      .091      .083   816.50    94.04
  .002063     720.     1400.     1000.         6         0         0      0.00   189.61   283.65

*SECNO 5.000
     5.00      5.38    825.88      0.00      0.00    825.97       .09      4.45      .01   824.00
     748.        8.     117.      624.        9.       38.      285.       63.      25.    821.50
     1.04       .88      3.10      2.18      .091      .065      .091      .083   820.50    60.59
  .003220     1525.     2150.     1800.         2         0         0      0.00   103.83   164.41

*SECNO 5.500

3265 DIVIDED FLOW

     5.50      4.97    828.97      0.00      0.00    829.00       .03      3.02      .01   826.10
     748.       35.      73.      640.       32.       31.      478.       72.      28.    826.10
     1.21      1.10      2.32      1.34      .130      .091      .130      .085   824.00    36.15
  .003880      840.      980.      840.         3         0         0      0.00   230.73   322.33

*SECNO 5.700
     5.70      5.94    830.94      0.00      0.00    830.99       .05      1.99      .00   826.00
     748.      244.     109.      395.      153.       44.      253.       86.      33.    826.00
     1.42      1.59      2.50      1.55      .065      .052      .065      .082   825.00   302.64
  .000834     1220.     1570.     1240.         4         0         0      0.00   129.45   432.09

*SECNO 5.990
   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       VROE      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=      370.0      430.0  TYPE=      1  TARGET=       60.000
     5.99      6.30    831.40      0.00      0.00    831.47       .07       .47      .01   827.40
     702.        0.     702.        0.        0.      336.        0.       92.      34. 100000.00
     1.51      0.00      2.09      0.00      .065      .052      .065      .080   825.10   370.00
  .000640      660.      650.      640.         2         0         0      0.00    60.00   430.00

CCHV=     .300 CEHV=     .500
*SECNO 6.000

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  842.90 MAX ELLC=  840.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      837.20 ELREA=      837.20

     6.00      6.23    831.33      0.00      0.00    831.67       .34       .06      .14   826.30
     702.        0.     702.        0.        0.      149.        0.       92.      35.    825.50
     1.51      0.00      4.70      0.00      .065      .052      .065      .080   825.10   380.00
  .008429       40.       40.       40.         2         0         0    -89.79    39.70   419.70

*SECNO 6.100

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  842.90 MAX ELLC=  840.80
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      6.10      6.48    831.58      0.00      0.00    831.73      .15       .00       .06    826.30
       702.       29.      530.      143.       40.      151.       93.       92.       35.     825.50
      1.51       .72      3.51      1.53      .065      .031      .065      .080    825.10    335.88
  .001498        1.        1.        1.         2         0         0   -203.43    132.57    468.45

 *SECNO 6.500

 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  842.90 MAX ELLC=  841.50

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      842.86 ELREA=      842.86

      6.50      6.23    831.73      0.00      0.00    832.07      .34       .24       .09    825.90
       702.        0.      702.        0.        0.      150.        0.       93.       35.     825.90
      1.52       0.00      4.67      0.00      .065      .031      .065      .079    825.50    380.30
  .002937       119.      119.      119.         3         0         0    -99.05     39.40    419.70

 *SECNO 6.600

 3265 DIVIDED FLOW

 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  842.90 MAX ELLC=  841.50

      6.60      6.23    831.73      0.00      0.00    832.07      .35       .00       .00    825.90
       702.        0.      702.        0.        0.      149.        0.       93.       35.     825.90
      1.52       0.00      4.72      0.00      .130      .052      .130      .079    825.50    344.51
  .007517         1.        1.        1.         0         0         0   -240.34    147.71    506.38

 *SECNO 6.650
    SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST

 3470 ENCROACHMENT STATIONS=      355.0      445.0  TYPE=      1  TARGET=       90.000
      6.65      6.60    832.15      0.00      0.00    832.23      .08       .07       .08    825.95
       702.       60.      607.       35.       94.      251.       61.       93.       35.     825.95
      1.52       .64      2.42       .59      .130      .052      .130      .079    825.55    355.00
  .000607        50.       50.       50.         2         0         0      0.00     90.00    445.00

 *SECNO 6.700

 3470 ENCROACHMENT STATIONS=      330.0     1295.0  TYPE=      1  TARGET=      965.000
      6.70      6.28    832.28      0.00      0.00    832.28      .00       .03       .02    826.50
       702.       65.       16.      621.      531.       48.     4657.      142.       44.     826.50
      3.28       .12       .33       .13      .130      .052      .130      .078    826.00    330.00
  .000013       970.     1000.      720.         3         0         0      0.00    897.13   1227.13

 CCHV=     .100 CEHV=     .300
 *SECNO 7.000
      7.00      6.30    832.30      0.00      0.00    832.31      .01       .02       .00    827.00
       702.       57.       50.      595.      144.       46.     1059.      198.       54.     827.00
      3.64       .40      1.09       .56      .078      .046      .078      .077    826.00     51.23
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  .000110     1060.     1130.      700.         2         0         0      0.00    300.28    361.51

CCHV=     .100 CEHV=     .300
*SECNO 7.100
      7.10      6.41    832.41      0.00      0.00    832.43       .02       .12       .00    827.00
       702.       32.       137.       533.        66.        59.       777.       213.        58.     827.00
      3.80       .49      2.32       .69      .104      .046      .104      .076    826.00    253.02
  .000484       550.       650.       600.         2         0         0      0.00    308.73    561.76

*SECNO 7.300

3470 ENCROACHMENT STATIONS=      240.0      355.0  TYPE=      1  TARGET=      115.000
      7.30      6.82    832.83      0.00      0.00    833.18       .35       .65       .10    831.30
       702.       35.       508.       159.        43.        92.       101.       220.        61.     829.20
      3.84       .82      5.52      1.57      .104      .046      .104      .075    826.01    240.00
  .003683       550.       650.       600.         2         0         0      0.00    115.00    355.00

CCHV=     .300 CEHV=     .500
*SECNO 7.500
    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    IOC       ICONT     CORAR     TOPWID      ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80
      7.50      7.06    833.66      0.00      0.00    834.10       .44       .87       .05    827.50
       550.        0.       550.        0.        0.       103.        0.       221.        61.     827.50
      3.86      0.00      5.34      0.00      .104      .046      .104      .074    826.60    392.00
  .003399       300.       250.       200.         2         0         0      0.00     15.60    407.60

*SECNO 7.510

3370 NORMAL BRIDGE,NRO= 24 MIN ELTRD=  840.80 MAX ELLC=  837.42

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80
      7.51      7.06    833.66      0.00      0.00    834.10       .44       .00       .00    827.50
       550.        0.       550.        0.        0.       103.        0.       221.        61.     827.50
      3.86      0.00      5.33      0.00      .039      .025      .039      .074    826.60    392.00
  .001000         1.        1.        1.         0         0         0     -2.46     15.60    407.60

*SECNO 7.590

3370 NORMAL BRIDGE,NRO= 26 MIN ELTRD=  840.80 MAX ELLC=  837.42

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80
      7.59      7.22    833.72      0.00      0.00    834.15       .43       .04       .00    827.50
       550.        0.       550.        0.        0.       105.        0.       222.        61.     827.50
      3.86      0.00      5.25      0.00      .039      .025      .039      .074    826.50    392.00
  .000951        44.       44.       44.         2         0         0     -8.71     15.60    407.60
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 *SECNO 7.600

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.30 ELREA=      840.30

      7.60      7.22    833.72      0.00      0.00    834.15      .43       .00       .00    827.50
      550.        0.      550.        0.        0.      105.        0.      222.       61.     827.50
      3.86      0.00      5.25      0.00      .091      .046      .091      .074    826.50    392.00
   .003226        1.        1.        1.         0         0         0      0.00     15.60    407.60

 CCHV=     .100 CEHV=     .300
 *SECNO 7.700

 3470 ENCROACHMENT STATIONS=      210.0      290.0  TYPE=      1  TARGET=       80.000
      7.70      7.16    834.06      0.00      0.00    834.32      .26       .15       .02    827.20
      550.      144.      396.        9.      111.      84.       11.      222.       61.     827.20
      3.86      1.30      4.71       .83      .091      .046      .091      .074    826.90    210.00
   .001552       70.       70.       70.         2         0         0      0.00     49.23    259.23

 *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      7.12    834.92      0.00      0.00    834.98      .06       .64       .02    828.40
      550.      174.      211.      165.      213.      75.       143.      227.       63.     828.40
      3.98       .82      2.81      1.15      .091      .046      .091      .072    827.80     71.59
   .000578      670.      730.      780.         3         0         0      0.00    132.09    203.59

 *SECNO 8.500
      8.50      7.39    835.39      0.00      0.00    835.50      .11       .50       .01    828.00
      550.      134.      361.       55.      177.      114.       58.      234.       65.     828.00
      4.08       .76      3.17       .95      .091      .046      .091      .071    828.00    200.17
   .000710      900.      750.      730.         2         0         0      0.00    126.35    326.52

 CCHV=     .300 CEHV=     .500
 *SECNO 9.000

 3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  834.40 MAX ELLC=  835.00

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      834.60 ELREA=      836.50

      9.00      7.47    835.47      0.00      0.00    835.92      .45       .25       .17    828.00
      550.       42.      508.        0.       45.      91.        0.      235.       66.     828.00
      4.08       .93      5.61      0.00      .091      .046      .091      .071    828.00    198.58
   .007473      150.      150.      150.         2         0         0  -170.00     109.42    308.00

 *SECNO 9.100

 3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  834.40 MAX ELLC=  835.00
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.10	7.51	835.51	0.00	0.00	835.93	.42	.00	.01	828.00
550.	53.	497.	0.	47.	91.	0.	235.	66.	828.00
4.08	1.12	5.48	0.00	.052	.031	.052	.071	828.00	197.72
.003360	1.	1.	1.	2	0	0	-172.15	110.28	308.00

*SECNO 9.400

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 834.40 MAX ELLC= 835.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.40	7.64	835.64	0.00	0.00	836.09	.45	.15	.01	828.60
550.	77.	473.	0.	53.	82.	0.	235.	66.	829.00
4.09	1.45	5.78	0.00	.052	.031	.052	.070	828.00	207.88
.004261	39.	39.	39.	2	0	0	-211.91	100.12	308.00

*SECNO 9.500

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= 18 MIN ELTRD= 834.40 MAX ELLC= 835.00

3470 ENCROACHMENT STATIONS= 215.0 310.0 TYPE= 1 TARGET= 95.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.50	7.73	835.73	0.00	0.00	836.12	.39	.01	.02	828.60
550.	103.	447.	0.	58.	82.	0.	235.	66.	829.00
4.09	1.77	5.47	0.00	.065	.046	.065	.070	828.00	215.00
.008107	1.	1.	1.	2	0	0	-177.13	93.00	308.00

*SECNO 9.550

9.55	8.20	836.20	0.00	0.00	836.25	.04	.02	.10	828.60
550.	197.	273.	60.	231.	125.	78.	235.	66.	829.00
4.09	.85	2.18	1.02	.065	.046	.065	.070	828.00	197.26
.000292	30.	30.	30.	2	0	0	0.00	131.91	329.17

CCHV= .100 CEHV= .300

*SECNO 9.600

9.60	8.48	836.28	0.00	0.00	836.29	.01	.04	.00	828.60
550.	298.	182.	70.	548.	129.	182.	239.	67.	828.60
4.17	.54	1.41	.38	.078	.046	.078	.070	827.80	758.05
.000116	270.	220.	160.	2	0	0	0.00	223.08	981.13

*SECNO 9.700

9.70	8.54	836.34	0.00	0.00	836.35	.01	.06	.00	829.10
550.	268.	159.	123.	613.	126.	380.	251.	70.	829.10
4.39	.44	1.26	.32	.104	.052	.104	.069	827.80	159.38

.000125	490.	500.	550.	2	0	0	0.00	318.67	478.05

CCHV= .300 CEHV= .500
*SECNO 10.000

3470 ENCROACHMENT STATIONS= 535.0 575.0 TYPE= 1 TARGET= 40.000

10.00	8.59	836.39	0.00	0.00	836.47	.08	.09	.04	828.30
512.	84.	341.	66.	84.	125.	81.	257.	72.	828.30
4.44	1.00	2.73	1.07	.104	.052	.104	.069	827.80	535.00
.000541	350.	400.	450.	0	0	0	0.00	40.00	575.00

*SECNO 10.100

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	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	COPAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 837.93 ELREA= 837.93

10.10	8.55	836.35	0.00	0.00	836.61	.26	.04	.09	828.30
512.	0.	512.	0.	0.	124.	0.	257.	72.	828.30
4.44	0.00	4.11	0.00	.104	.052	.104	.069	827.80	548.00
.001659	50.	50.	50.	2	0	0	0.00	15.00	563.00

SPECIAL BRIDGE St Joe Hwy

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.40	3.00	0.00	10.00	0.00	75.00	0.00	827.80	827.80

*SECNO 10.400
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.08	836.62	0.00	0.	512.	75.	70.	834.80	838.50

10.40	10.27	838.07	0.00	0.00	838.08	.01	1.47	0.00	828.80
512.	235.	211.	66.	736.	148.	130.	258.	72.	828.80
4.48	.32	1.42	.51	.104	.052	.104	.069	827.80	246.22
.000119	104.	104.	104.	1	0	0	0.00	317.51	563.74

*SECNO 10.550

3470 ENCROACHMENT STATIONS= 460.0 575.0 TYPE= 1 TARGET= 115.000

10.55	10.05	838.05	0.00	0.00	838.12	.06	.01	.02	829.00
512.	61.	345.	106.	119.	145.	122.	259.	72.	829.00
4.48	.51	2.38	.87	.104	.052	.104	.069	828.00	460.00
.000342	50.	50.	50.	2	0	0	0.00	99.98	559.98

CCHV= .100 CEHV= .300
*SECNO 10.700

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   10.70      8.21    838.21      0.00      0.00    838.22       .01       .10       .01    830.00
     512.      325.      106.       78.      872.       82.      212.      268.       75.    830.00
     4.73       .37      1.32       .37      .104      .052      .104      .068    830.00     48.93
  .000129      500.      510.      510.         2         0         0      0.00    378.21    427.14


CCHV=     .100 CEHV=     .300
*SECNO 10.800

3470 ENCROACHMENT STATIONS=      415.0      850.0  TYPE=      1  TARGET=      435.000
   10.80      6.38    838.38      0.00      0.00    838.43       .06       .20       .01    832.00
     512.      195.      188.      129.      279.       64.      154.      283.       81.    832.00
     4.86       .70      2.95       .84      .104      .052      .104      .067    832.00    492.47
  .000899      840.      650.      560.         0         0         0      0.00    262.23    754.70


*SECNO 10.900
   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      XLDBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


   10.90      7.06    839.16      0.00      0.00    839.20       .04       .76       .00    834.00
     512.      194.      261.       58.      361.      122.      115.      298.       89.    834.00
     5.10       .54      2.13       .50      .104      .052      .104      .066    832.10    157.10
  .000511     1260.     1100.     1000.         2         0         0      0.00    317.87    474.97


CCHV=     .300 CEHV=     .500
*SECNO 11.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       847.80 ELREA=       847.80

   11.00      7.41    839.51      0.00      0.00    839.80       .29       .48       .13    832.60
     451.        0.      451.        0.        0.      103.        0.      302.       91.    832.60
     5.13      0.00      4.36      0.00      .104      .052      .104      .066    832.10    193.00
  .002797      450.      490.      780.         2         0         0      0.00     14.00    207.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.09      3.00      0.00     13.00      0.00     61.36      0.00    832.60    832.10

*SECNO 11.400
PRESSURE FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRO
                                                              AREA
   841.26    840.30     0.00        0.      451.       61.       61.      837.32    847.79


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       847.52 ELREA=       847.52

   11.40      8.44    841.04      0.00      0.00    841.26       .23      1.46      0.00    832.70
     451.        0.      451.        0.        0.      118.        0.      302.       91.    832.70
     5.15      0.00      3.82      0.00      .017      .022      .017      .066    832.60    193.00
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    .000343     219.     219.     219.        2        0        0     0.00    14.00   207.00

CCHV=    .100 CEHV=    .300
*SECNO 12.000
    12.00     7.51   841.31     0.00     0.00   841.39      .07      .11      .02   843.00
     451.       0.     443.       8.       0.     200.      12.     303.      91.    838.80
     5.18     0.00     2.21      .63     .065     .046     .065     .065   833.80    46.10
  .000578     250.     250.     250.        2        0        0     0.00    48.52    94.61
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1) COUNTY: Eaton

2) STUDY NAME: Delta Twp.

3) WATERCOURSE: Carrier Creek ~~Moon and Hamilton Drain~~

4) DOCUMENT TYPE: 100-year Floodway

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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      100 YEAR FLOODWAY
T2      SURCHARGE LESS THAN OR EQUAL TO 0.1 FT.
T3      CARRIER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.       8.        0.        0.  0.000000      0.00      0.0       0.   800.290     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000     0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000
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*PROF 2

CCHV=    .100 CEHV=    .300
*SECNO .500
 2800 NAT Q1=     98.63  WSEL=    800.19  ENC Q1=     98.63  WSEL=    800.29  RATIO=    .0000
 NAT Q1=    103.  RATIOS LOB,CH,ROB=    .0509   .9020   .0471  WSEL=    800.29
3280 CROSS SECTION       .50 EXTENDED       2.29 FEET

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

3470 ENCROACHMENT STATIONS=      50.1      87.9  TYPE=     4  TARGET=        .044
      .50     4.89   800.29     0.00   800.19   800.75      .46      0.00     0.00   798.00
     748.      21.     707.      20.      10.      126.       9.       0.       0.    797.00
     0.00     2.23     5.59     2.30     .065     .052     .065    0.000   795.40    50.15
  .005753       0.       0.       0.        0        0        0     0.00    37.73    87.88

*SECNO .600
 2800 NAT Q1=     99.94  WSEL=    800.22  ENC Q1=     99.94  WSEL=    800.32  RATIO=    .0000
 NAT Q1=    105.  RATIOS LOB,CH,ROB=    .0526   .9002   .0472  WSEL=    800.32
3280 CROSS SECTION       .60 EXTENDED       2.32 FEET

3470 ENCROACHMENT STATIONS=      50.2      87.7  TYPE=     4  TARGET=        .048
      .60     4.92   800.32     0.00   800.22   800.78      .46      .03      .00   798.00
     748.      21.     708.      19.      10.      127.       8.       0.       0.    797.00
      .00     2.22     5.57     2.24     .065     .052     .065     .043   795.40    50.20
  .005652       5.       5.       5.        0        0        0     0.00    37.52    87.72

*SECNO .700
 2800 NAT Q1=    101.62  WSEL=    800.26  ENC Q1=    101.62  WSEL=    800.36  RATIO=    .0000
 NAT Q1=    107.  RATIOS LOB,CH,ROB=    .0544   .8982   .0473  WSEL=    800.36
3280 CROSS SECTION       .70 EXTENDED       2.35 FEET

3470 ENCROACHMENT STATIONS=      49.9      87.7  TYPE=     4  TARGET=        .048
      .70     4.96   800.36     0.00   800.26   800.81      .45      .03      .00   798.00
     748.      23.     707.      19.      10.      128.       8.       0.       0.    797.00
      .00     2.22     5.51     2.21     .065     .052     .065     .043   795.40    49.93
  .005468       5.       5.       5.        1        0        0     0.00    37.78    87.71

*SECNO 1.000
 2800 NAT Q1=     38.53  WSEL=    800.62  ENC Q1=     40.08  WSEL=    800.72  RATIO=  -.0400
 NAT Q1=     40.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    800.72

3301 HV CHANGED MORE THAN HVINS

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       GLOSS   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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      439.0      455.6  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.10 ELREA=       806.10

      1.00      5.12    800.62    800.62    800.62    802.63      2.02       .84       .47    799.10
      748.        0.      748.        0.        0.       66.        0.        0.        0.    799.00
       .00      0.00     11.39      0.00      .065      .052      .065      .050    795.50    439.00
  .043408      110.       70.       50.        20         8         0     0.000     16.60    455.60


*SECNO 1.100
 2800 NAT Q1=      89.15  WSEL=     801.01  ENC Q1=      92.52  WSEL=     801.11  RATIO=  -.0377
 NAT Q1=      93.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     801.11
   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


3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

3470 ENCROACHMENT STATIONS=      439.0      455.6  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.10 ELREA=       806.10

      1.10      5.51    801.01      0.00    801.01    802.68      1.67       .02       .03    799.10
      748.        0.      748.        0.        0.       72.        0.        0.        0.    799.00
       .00      0.00     10.37      0.00      .033      .026      .033      .049    795.50    439.00
  .008267         1.        1.        1.         4         0         0     0.000     16.60    455.60


*SECNO 1.500
 2800 NAT Q1=     105.26  WSEL=     801.55  ENC Q1=     108.83  WSEL=     801.65  RATIO=  -.0339
 NAT Q1=     109.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     801.65

3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

3470 ENCROACHMENT STATIONS=      439.0      455.6  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       806.50 ELREA=       806.50

      1.50      6.11    801.61      0.00    801.55    802.89      1.28       .16       .04    799.10
      748.        0.      748.        0.        0.       83.        0.        0.        0.    799.20
       .00      0.00      9.07      0.00      .033      .026      .033      .044    795.50    439.00
  .005807        24.       24.       24.         3         0         0     0.000     16.60    455.60


*SECNO 1.550
 2800 NAT Q1=      42.36  WSEL=     801.57  ENC Q1=      43.82  WSEL=     801.67  RATIO=  -.0344
 NAT Q1=      44.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     801.67
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3470 ENCROACHMENT STATIONS=     439.0     455.6  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.50 ELREA=      806.50

     1.55      6.14   801.64     0.00   801.57   802.90     1.26      .01      .00   799.10
     748.        0.     748.       0.       0.      83.       0.       0.       0.    799.20
      .00      0.00     9.02     0.00     .091     .065     .091     .043   795.50   439.00
  .035800        1.       1.       1.        0        0        0     0.00    16.60   455.60


*SECNO 1.600

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     150.0     320.0  TYPE=     1  TARGET=     170.000
     1.60      6.05   803.55     0.00   803.52   803.59      .04      .57      .12   798.50
     748.      186.     141.     421.     138.      56.     344.       1.       0.    798.50
      .03      1.35     2.54     1.22     .091     .065     .117     .062   797.50   188.36
  .001287      140.     180.     110.        3        0        0     0.00   131.64   320.00


CCHV=    .300 CEHV=    .300
*SECNO 1.700
 2800 NAT Q1=     76.25  WSEL=    805.23  ENC Q1=     76.25  WSEL=    805.33  RATIO=   .0000
 NAT Q1=     82.  RATIOS LOB,CH,ROB=   .2247   .1028   .6724  WSEL=    805.33

3470 ENCROACHMENT STATIONS=      76.7     193.5  TYPE=     4  TARGET=        .068
     1.70      4.26   805.26     0.00   805.23   805.37      .10     1.76      .02   802.00
     748.      154.      84.     510.      60.      30.     199.       7.       2.    802.00
      .10      2.56     2.78     2.56     .104     .130     .104     .138   801.00    76.71
  .010492      610.     820.     580.        3        0        0     0.00   116.78   193.49


*SECNO 1.800
 2800 NAT Q1=    169.57  WSEL=    806.89  ENC Q1=    169.57  WSEL=    806.99  RATIO=  0.0000
 NAT Q1=    180.  RATIOS LOB,CH,ROB=   .3007   .1959   .5034  WSEL=    806.99
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     141.1     272.0  TYPE=     4  TARGET=        .060
     1.80      5.38   806.98     0.00   806.89   807.08      .10     1.71      .00   803.80
     748.      216.     156.     376.      96.      41.     203.      10.       3.    802.60
      .15      2.25     3.81     1.86     .052     .046     .065     .109   801.60   141.11
  .001963      380.     500.     460.        3        0        0     0.00   130.93   272.03


*SECNO 1.900
 2800 NAT Q1=     88.28  WSEL=    807.86  ENC Q1=     88.28  WSEL=    807.96  RATIO=  0.0000
 NAT Q1=     92.  RATIOS LOB,CH,ROB=   .3760   .5103   .1137  WSEL=    807.96

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     359.6     390.8  TYPE=     4  TARGET=        .043
     1.90      4.92   807.92     0.00   807.86   808.63      .71     1.37      .18   803.00
     748.      278.     397.      73.      54.      49.      21.      12.       4.    803.00
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      .17      5.12      8.07      3.50      .052      .046      .065      .096   803.00   359.56
   .007277      420.      460.      310.         2         0         0      0.00    31.20   390.76

 *SECNO 1.950

 3470 ENCROACHMENT STATIONS=      451.0      501.0  TYPE=      1  TARGET=       50.000
      1.95      7.07    809.97      0.00    809.85    810.23       .26      1.47      .13   808.70
      748.       20.      655.       73.       16.      151.       38.       14.       4.    803.50
       .20      1.28      4.32      1.91      .052      .046      .065      .086   802.90   451.00
   .001745      260.      530.      440.         2         0         0      0.00    48.77   499.77

 CCHV=     .300 CEHV=     .500
 *SECNO 2.000
  2800 NAT Q1=     149.68  WSEL=     809.91  ENC Q1=     153.33  WSEL=     810.01  RATIO=  -.0243
  NAT Q1=     153.  RATIOS LOB,CH,ROB=   0.0000  1.0000  0.0000  WSEL=     810.01

 3470 ENCROACHMENT STATIONS=      464.0      488.0  TYPE=      4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       818.20 ELREA=       818.20

      2.00      7.13    810.03      0.00    809.91    810.40       .37       .11       .06   808.70
      748.        0.      748.        0.        0.      153.        0.       14.        4.    803.50
       .20      0.00      4.89      0.00      .052      .046      .065      .085   802.90   464.00
   .003118       50.       50.       50.         2         0         0      0.00    24.00   488.00

 CCHV=     .300 CEHV=     .500
 *SECNO 2.100
  2800 NAT Q1=     308.32  WSEL=     809.91  ENC Q1=     315.77  WSEL=     810.01  RATIO=  -.0242
  NAT Q1=     316.  RATIOS LOB,CH,ROB=   0.0000  1.0000  0.0000  WSEL=     810.01

 3470 ENCROACHMENT STATIONS=      464.0      488.0  TYPE=      4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       818.20 ELREA=       818.20

      2.10      7.13    810.03      0.00    809.91    810.40       .37       .00       .00   808.70
      748.        0.      748.        0.        0.      153.        0.       14.        4.    803.50
       .20      0.00      4.89      0.00      .033      .022      .033      .085   802.90   464.00
   .000735         1.        1.        1.         0         0         0      0.00    24.00   488.00


 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .95       2.15       3.00        0.00     21.40       1.00     138.40        .21     803.50     803.50

 *SECNO 2.500
  2800 NAT Q1=     341.34  WSEL=     810.59  ENC Q1=     348.74  WSEL=     810.69  RATIO=  -.0217
  NAT Q1=     349.  RATIOS LOB,CH,ROB=   0.0000  1.0000  0.0000  WSEL=     810.69
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        GLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       HTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CCRAR     TOPWID     ENDST


 3470 ENCROACHMENT STATIONS=      364.0      388.0  TYPE=      4  TARGET=       0.000
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      818.20 ELREA=      818.20

     2.50     7.81   810.71     0.00   810.59   811.00      .29      .04      .03   805.00
     748.       0.     748.       0.       0.     174.       0.      14.       4.    809.30
      .21     0.00     4.30     0.00     .033     .022     .033     .084   802.90   364.00
  .000524       59.      59.      59.        0        0        0     0.00    24.00   388.00


*SECNO 2.510
 2800 NAT Q1=     116.05  WSEL=     810.59  ENC Q1=     118.60  WSEL=     810.69  RATIO=  -.0220
 NAT Q1=     119.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     810.69

3470 ENCROACHMENT STATIONS=      364.0      388.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      818.00 ELREA=      818.00

     2.51     7.81   810.71     0.00   810.59   811.00      .29      .00      .00   805.00
     748.       0.     748.       0.       0.     174.       0.      14.       4.    809.30
      .21     0.00     4.30     0.00     .091     .065     .091     .084   802.90   364.00
  .004529        1.       1.       1.        0        0        0     0.00    24.00   388.00


*SECNO 2.550

3470 ENCROACHMENT STATIONS=      349.0      403.0  TYPE=      1  TARGET=       54.000
     2.55     7.91   810.93     0.00   810.81   811.13      .19      .10      .03   805.12
     748.       91.      652.       5.       51.     176.       8.      15.       4.    809.42
      .21     1.78     3.70      .67     .091     .065     .091     .083   803.02   349.00
  .002464       30.      30.      30.        2        0        0     0.00    49.09   398.09


CCHV=     .100 CEHV=     .300
*SECNO 2.700
 2800 NAT Q1=     301.98  WSEL=     811.83  ENC Q1=     301.98  WSEL=     811.93  RATIO=  0.0000
 NAT Q1=     317.  RATIOS LOB,CH,ROB=   .6030   .1257   .2713  WSEL=     811.93

3470 ENCROACHMENT STATIONS=      385.6      657.3  TYPE=      4  TARGET=        .048
     2.70     6.93   811.93     0.00   811.83   811.95      .02      .00      .02   806.00
     748.      455.      99.      194.      564.       51.      208.      23.       7.    806.00
      .42      .81     1.92      .94     .091     .065     .091     .082   805.00   385.60
  .000616      590.      860.      650.        2        0        0     0.00   271.69   657.29


*SECNO 2.900
 2800 NAT Q1=     232.61  WSEL=     812.10  ENC Q1=     232.61  WSEL=     812.20  RATIO=   .0000
 NAT Q1=     249.  RATIOS LOB,CH,ROB=   .7979   .0697   .1324  WSEL=     812.20

3470 ENCROACHMENT STATIONS=      163.7      344.8  TYPE=      4  TARGET=        .065
     2.90     4.40   812.20     0.00   812.10   812.23      .03      .28      .00   808.80
     748.      612.      56.      80.      421.       31.      58.      28.       8.    808.80
      .48     1.45     1.79     1.37     .065     .065     .065     .085   807.80   163.71
  .001044      300.      620.      430.        2        0        0     0.00   181.09   344.80


*SECNO 2.905
 2800 NAT Q1=     217.05  WSEL=     812.14  ENC Q1=     217.05  WSEL=     812.24  RATIO=   .0000
 NAT Q1=     233.  RATIOS LOB,CH,ROB=   .7977   .0713   .1310  WSEL=     812.24
   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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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      818.20 ELREA=      818.20

     2.50      7.81    810.71      0.00    810.59    811.00      .29      .04      .03   805.00
     748.       0.      748.        0.        0.      174.        0.      14.       4.    809.30
      .21      0.00     4.30       0.00      .033      .022      .033     .084   802.90   364.00
  .000524       59.      59.        59.         0         0         0     0.00    24.00   388.00


*SECNO 2.510
 2800 NAT Q1=     116.05  WSEL=     810.59  ENC Q1=     118.60  WSEL=     810.69  RATIO=  -.0220
 NAT Q1=     119.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     810.69

3470 ENCROACHMENT STATIONS=      364.0      388.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      818.00 ELREA=      818.00

     2.51      7.81    810.71      0.00    810.59    811.00      .29      .00      .00   805.00
     748.       0.      748.        0.        0.      174.        0.      14.       4.    809.30
      .21      0.00     4.30       0.00      .091      .065      .091     .084   802.90   364.00
  .004529          1.       1.         1.         0         0         0     0.00    24.00   388.00


*SECNO 2.550

3470 ENCROACHMENT STATIONS=      349.0      403.0  TYPE=      1  TARGET=       54.000
     2.55      7.91    810.93      0.00    810.81    811.13      .19      .10      .03   805.12
     748.       91.      652.        5.        51.      176.        8.      15.       4.    809.42
      .21      1.78     3.70        .67       .091      .065      .091     .083   803.02   349.00
  .002464          30.      30.        30.         2         0         0     0.00    49.09   398.09


CCHV=     .100 CEHV=     .300
*SECNO 2.700
 2800 NAT Q1=     301.98  WSEL=     811.83  ENC Q1=     301.98  WSEL=     811.93  RATIO=  0.0000
 NAT Q1=     317.  RATIOS LOB,CH,ROB=   .6030   .1257   .2713  WSEL=     811.93

3470 ENCROACHMENT STATIONS=      385.6      657.3  TYPE=      4  TARGET=        .048
     2.70      6.93    811.93      0.00    811.83    811.95      .02      .00      .02   806.00
     748.       455.      99.       194.       564.       51.      208.      23.       7.    806.00
      .42       .81      1.92       .94       .091      .065      .091     .082   805.00   385.60
  .000616          590.      860.       650.         2         0         0     0.00   271.69   657.29


*SECNO 2.900
 2800 NAT Q1=     232.61  WSEL=     812.10  ENC Q1=     232.61  WSEL=     812.20  RATIO=   .0000
 NAT Q1=     249.  RATIOS LOB,CH,ROB=   .7979   .0697   .1324  WSEL=     812.20

3470 ENCROACHMENT STATIONS=      163.7      344.8  TYPE=      4  TARGET=        .065
     2.90      4.40    812.20      0.00    812.10    812.23      .03      .28      .00   808.80
     748.       612.      56.       80.       421.       31.       58.      28.       8.    808.80
      .48      1.45      1.79      1.37       .065      .065      .065     .085   807.80   163.71
  .001044          300.      620.       430.         2         0         0     0.00   181.09   344.80


*SECNO 2.905
 2800 NAT Q1=     217.05  WSEL=     812.14  ENC Q1=     217.05  WSEL=     812.24  RATIO=   .0000
 NAT Q1=     233.  RATIOS LOB,CH,ROB=   .7977   .0713   .1310  WSEL=     812.24
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        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     XLOEL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      165.9      343.7  TYPE=      4  TARGET=          .070
      2.91      4.30    812.23      0.00    812.14    812.27       .04       .03       .00    808.93
      748.      613.       57.       78.      402.       30.       54.       28.        9.     808.93
       .49      1.52      1.89      1.44      .065      .065      .065      .085    807.93    165.94
   .001199       30.       30.       30.         0         0         0      0.00    177.78    343.72


*SECNO 2.910
 2800 NAT Q1=     152.63  WSEL=     812.26  ENC Q1=     152.63  WSEL=     812.36  RATIO=    .0000
 NAT Q1=     166.  RATIOS LOB,CH,ROB=    .4207    .1056    .4737  WSEL=     812.36

3470 ENCROACHMENT STATIONS=       94.9      233.1  TYPE=      4  TARGET=          .083
      2.91      4.25    812.35      0.00    812.26    812.42       .07       .14       .01    808.80
      748.      309.       86.      352.      149.       31.      169.       29.        9.     808.80
       .50      2.07      2.77      2.08      .065      .065      .065      .085    808.10     94.88
   .002435       90.      130.       65.         2         0         0      0.00    138.26    233.14


*SECNO 2.920
 2800 NAT Q1=     133.15  WSEL=     812.51  ENC Q1=     133.15  WSEL=     812.61  RATIO=    0.0000
 NAT Q1=     146.  RATIOS LOB,CH,ROB=    .3861    .1044    .5096  WSEL=     812.61

3470 ENCROACHMENT STATIONS=       94.8      250.6  TYPE=      4  TARGET=          .088
      2.92      4.10    812.60      0.00    812.51    812.68       .08       .26       .00    809.50
      748.      261.       86.      381.      132.       29.      178.       30.        9.     809.50
       .51      2.12      2.99      2.14      .065      .065      .065      .085    808.50     94.84
   .003218       95.      120.       65.         0         0         0      0.00    155.80    250.63


*SECNO 2.940
 2800 NAT Q1=      91.98  WSEL=     812.67  ENC Q1=      91.98  WSEL=     812.77  RATIO=    .0000
 NAT Q1=     103.  RATIOS LOB,CH,ROB=    .3397    .2575    .4028  WSEL=     812.77

3470 ENCROACHMENT STATIONS=      253.3      408.2  TYPE=      4  TARGET=          .107
      2.94      3.85    812.75      0.00    812.67    812.89       .14       .19       .02    810.50
      748.      239.      217.      292.       93.       55.      117.       30.        9.     810.40
       .52      2.58      3.92      2.49      .065      .065      .065      .085    808.90    253.33
   .006747       60.       55.       25.         2         0         0      0.00    154.88    408.21


*SECNO 3.000
 2800 NAT Q1=      63.54  WSEL=     813.00  ENC Q1=      63.54  WSEL=     813.10  RATIO=    .0000
 NAT Q1=      72.  RATIOS LOB,CH,ROB=    .4560    .3165    .2275  WSEL=     813.10

3470 ENCROACHMENT STATIONS=      253.4      433.4  TYPE=      4  TARGET=          .118
      3.00      3.89    813.09      0.00    813.00    813.35       .25       .42       .03    810.60
      748.      337.      270.      141.       93.       53.       65.       30.       10.     809.50
       .52      3.62      5.10      2.17      .065      .065      .065      .085    809.20    253.38
   .014140       50.       50.       30.         2         0         0      0.00    180.05    433.43


*SECNO 4.000
 2800 NAT Q1=     141.34  WSEL=     819.23  ENC Q1=     141.34  WSEL=     819.33  RATIO=    .0000
 NAT Q1=     148.  RATIOS LOB,CH,ROB=    .5593    .3106    .1301  WSEL=     819.33
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOE      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       HTN       ELMIN       SSTA
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    SLOPE     XLOBL     XLCH      XLOER     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST

3470 ENCRCACHMENT STATIONS=      95.5      185.3  TYPE=      4  TARGET=          .046
      4.00      5.34    819.34     0.00    819.23    819.45      .11      6.09       .01    814.30
      748.      421.      243.      64.      214.      68.       44.       37.       13.     814.30
       .65      1.96      3.60     1.90      .091      .065      .091      .080    814.30     95.52
  .002756      1200.     1160.     940.         5         0         0      0.00     89.79    185.32

*SECNO 4.500
 2800 NAT Q1=     164.68  WSEL=     821.46  ENC Q1=     164.68  WSEL=     821.56  RATIO=    .0000
 NAT Q1=     175.  RATIOS LOB,CH,ROB=    .7345    .1288    .1367  WSEL=     821.56

3470 ENCROACHMENT STATIONS=      114.2      276.4  TYPE=      4  TARGET=          .056
      4.50      5.05    821.55     0.00    821.46    821.60      .05      2.15       .01    817.50
      748.      554.      101.      92.      383.      36.       54.       45.       15.     817.50
       .80      1.45      2.78     1.71      .091      .065      .091      .083    816.50     114.22
  .002044      720.     1400.     1000.         2         0         0      0.00    162.17    276.39

*SECNO 5.000
 2800 NAT Q1=     131.82  WSEL=     825.88  ENC Q1=     131.82  WSEL=     825.98  RATIO=    .0000
 NAT Q1=     138.  RATIOS LOB,CH,ROB=    .0114    .1550    .8336  WSEL=     825.98

3470 ENCROACHMENT STATIONS=       70.0      152.2  TYPE=      4  TARGET=          .045
      5.00      5.50    826.00     0.00    825.88    826.08      .09      4.47       .01    824.00
      748.        0.      109.      639.        0.       39.      279.       60.       20.     821.50
      1.00      0.00      2.82     2.29      .091      .065      .091      .083    820.50     70.00
  .003298      1525.     2150.     1800.         2         0         0      0.00     82.20    152.20

*SECNO 5.500
 2800 NAT Q1=     120.09  WSEL=     828.97  ENC Q1=     120.09  WSEL=     829.07  RATIO=    .0000
 NAT Q1=     128.  RATIOS LOB,CH,ROB=    .0480    .0952    .8568  WSEL=     829.07

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=       50.3      306.7  TYPE=      4  TARGET=          .061
      5.50      5.09    829.09     0.00    828.97    829.12      .03      3.03       .01    826.10
      748.       13.       76.      659.       13.       32.      478.       69.       23.     826.10
      1.17      1.04      2.35     1.38      .130      .091      .130      .085    824.00     50.28
  .003608       840.      980.      840.         2         0         0      0.00    232.25    306.68

*SECNO 5.700
 2800 NAT Q1=     259.04  WSEL=     830.94  ENC Q1=     259.04  WSEL=     831.04  RATIO=    .0000
 NAT Q1=     270.  RATIOS LOB,CH,ROB=    .3262    .1440    .5298  WSEL=     831.04

3470 ENCROACHMENT STATIONS=      308.4      416.7  TYPE=      4  TARGET=          .041
      5.70      6.03    831.03     0.00    830.94    831.08      .05      1.96       .00    826.00
      748.      244.      111.      393.      150.       44.      243.       83.       27.     826.00
      1.37      1.63      2.51     1.61      .065      .052      .065      .082    825.00     308.39
  .000821      1220.     1570.     1240.         3         0         0      0.00    138.30    416.69

*SECNO 5.990
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   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    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCRCACHMENT STATIONS=      370.0      430.0  TYPE=      1  TARGET=       60.000
      5.99      6.38    831.48      0.00    831.40    831.55       .07       .46       .01    827.40
       702.       0.       702.       0.        0.       341.       0.       88.       28. 100000.00
      1.46      0.00      2.06      0.00      .065      .052      .065      .080    825.10    370.00
  .000612       660.      650.      640.         2         0         0      0.00     60.00    430.00

CCHV=     .300 CEHV=     .500
*SECNO 6.000

3370 NORMAL BRIDGE,NRO= 31 MIN ELTRD=   842.90 MAX ELLC=   840.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       837.20 ELREA=       837.20

      6.00      6.31    831.41      0.00    831.33    831.75       .34       .06       .14    826.30
       702.       0.       702.       0.        0.       150.       0.       89.       28.    825.50
      1.46      0.00      4.68      0.00      .065      .052      .065      .080    825.10    380.00
  .008308        40.       40.       40.         2         0         0    -92.22     39.70    419.70

*SECNO 6.100

3370 NORMAL BRIDGE,NRO= 31 MIN ELTRD=   842.90 MAX ELLC=   840.80

      6.10      6.57    831.67      0.00    831.58    831.81       .14       .01       .06    826.31
       702.       31.       513.       158.       40.       151.       97.       89.       28.    825.50
      1.46       .77      3.39      1.64      .065      .031      .065      .080    825.10    335.22
  .001697         1.        1.        1.         3         0         0  -211.88    134.40    469.62

*SECNO 6.500

3370 NORMAL BRIDGE,NRO= 33 MIN ELTRD=   842.90 MAX ELLC=   841.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       842.86 ELREA=       842.86

      6.50      6.33    831.83      0.00    831.73    832.16       .33       .26       .10    825.90
       702.       0.       702.       0.        0.       151.       0.       89.       29.    825.90
      1.47      0.00      4.64      0.00      .065      .031      .065      .079    825.50    380.30
  .002883       119.      119.      119.         3         0         0  -102.31     39.40    419.70

*SECNO 6.600

3265 DIVIDED FLCW

3370 NORMAL BRIDGE,NRO= 33 MIN ELTRD=   842.90 MAX ELLC=   841.50

      6.60      6.33    831.83      0.00    831.73    832.17       .34       .01       .00    825.90
       702.       0.       702.       0.        0.       150.       0.       89.       29.    825.90
      1.47      0.00      4.69      0.00      .130      .052      .130      .079    825.50    342.79
  .007362         1.        1.        1.         0         0         0  -255.21    159.21    507.62
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*SECNO 6.650
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         CLOB      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=      355.0      445.0  TYPE=      1  TARGET=       90.000
      6.65      6.70    832.25      0.00    832.15    832.32       .08       .07       .08    825.95
       702.       61.      605.       36.       96.      255.       63.       90.       29.     825.95
      1.47       .63      2.37       .58       .13       .052      .130      .079    825.55    355.00
  .000574       50.       50.       50.         2         0         0      0.00     90.00    445.00


*SECNO 6.700

3470 ENCROACHMENT STATIONS=      400.0     1000.0  TYPE=      1  TARGET=      690.000
      6.70      6.40    832.40      0.00    832.28    832.40       .00       .06       .02    826.50
       702.       25.       24.       654.      152.       49.      3447.      125.       35.     826.50
      2.68       .16       .48       .19       .13       .052      .130      .078    826.00    400.00
  .000025       970.      1000.      720.         3         0         0      0.00    600.00   1000.00


CCHV=    .100 CEHV=    .300
*SECNO 7.000
 2800 NAT Q1=     665.30  WSEL=     832.29  ENC Q1=     665.30  WSEL=     832.39  RATIO=    .0000
 NAT Q1=     690.  RATIOS LOB,CH,ROB=    .0827    .0713    .8460  WSEL=     832.39

3470 ENCROACHMENT STATIONS=       86.3      343.8  TYPE=      4  TARGET=        .036
      7.00      6.43    832.43      0.00    832.29    832.44       .01       .03       .00    827.00
       702.       48.       52.       603.      113.       47.      1056.      165.       42.     827.00
      3.02       .42      1.09       .57       .078      .046      .078      .077    826.00     86.27
  .000108      1060.     1130.      700.         2         0         0      0.00    257.56    343.83


CCHV=    .100 CEHV=    .300
*SECNO 7.100
 2800 NAT Q1=     317.61  WSEL=     832.40  ENC Q1=     317.61  WSEL=     832.50  RATIO=  0.0000
 NAT Q1=     333.  RATIOS LOB,CH,ROB=    .0467    .1918    .7615  WSEL=     832.50

3470 ENCROACHMENT STATIONS=      286.9      527.3  TYPE=      4  TARGET=        .046
      7.10      6.54    832.54      0.00    832.40    832.56       .02       .12       .01    827.00
       702.       18.      140.       544.       27.       60.      769.      180.       45.     827.00
      3.19       .68      2.31       .71       .104      .046      .104      .076    826.00    286.85
  .000467       550.      650.      600.         2         0         0      0.00    240.47    527.32


*SECNO 7.300

3470 ENCROACHMENT STATIONS=      240.0      355.0  TYPE=      1  TARGET=      115.000
      7.30      6.94    832.95      0.00    832.82    833.27       .32       .61       .09    831.30
       702.       41.      499.       162.       49.       94.      107.      187.       48.     829.20
      3.23       .84      5.30      1.52       .104      .046      .104      .075    826.01    240.00
  .003304       550.      650.      600.         2         0         0      0.00    115.00    355.00


CCHV=    .300 CEHV=    .500
*SECNO 7.500
   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     .XLOEL      XLCH       XLOBR      ITRIAL     IOC        ICONT      CCRAR      TOPWID      ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

      7.50       7.10    833.70       0.00    833.65    834.14       .44        .81        .06    827.50
      550.         0.      550.         0.        0.      104.         0.      188.        48.     827.50
      3.24       0.00      5.30       0.00      .104      .046       .104       .074     826.60    392.00
   .003330        300.      250.       200.         2         0          0       0.00      15.60    407.60

*SECNO 7.510

3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  840.80 MAX ELLC=  837.42

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

      7.51       7.10    833.70       0.00    833.66    834.14       .44        .00        .00    827.50
      550.         0.      550.         0.        0.      104.         0.      188.        48.     827.50
      3.24       0.00      5.30       0.00      .039      .025       .039       .074     826.60    392.00
   .000980          1.        1.         1.         0         0          0      -2.48      15.60    407.60

*SECNO 7.590

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  840.80 MAX ELLC=  837.42

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

      7.59       7.26    833.76       0.00    833.72    834.19       .42        .04        .00    827.50
      550.         0.      550.         0.        0.      106.         0.      188.        48.     827.50
      3.24       0.00      5.21       0.00      .039      .025       .039       .074     826.50    392.00
   .000933         44.       44.        44.         2         0          0      -8.77      15.60    407.60

*SECNO 7.600

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.30 ELREA=      840.30

      7.60       7.27    833.77       0.00    833.72    834.19       .42        .00        .00    827.50
      550.         0.      550.         0.        0.      106.         0.      188.        48.     827.50
      3.24       0.00      5.21       0.00      .091      .046       .091       .074     826.50    392.00
   .003165          1.        1.         1.         0         0          0       0.00      15.60    407.60


CCHV=     .100 CEHV=     .300
*SECNO 7.700

3470 ENCROACHMENT STATIONS=     210.0     290.0  TYPE=      1  TARGET=       80.000
      7.70       7.20    834.10       0.00    834.06    834.35       .25        .15        .02    827.20
      550.        145.      395.         9.      112.       85.        11.      189.        48.     827.20
      3.25       1.30      4.67        .82      .091      .046       .091       .074     826.90    210.00
   .001514         70.       70.        70.         2         0          0       0.00      49.25    259.25


*SECNO 8.000
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 2800 NAT Q1=     228.71  WSEL=     834.92  ENC Q1=     228.71  WSEL=     835.02  RATIO=  0.0000
 NAT Q1=     237.  RATIOS LOB,CH,ROB=    .3229    .3794    .2978  WSEL=     835.02
   SECNO     OEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   Q         OLOE      QCH       QROB      ALOB      ACH       AROB      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=      145.9      195.1  TYPE=      4  TARGET=         .035
      8.00      7.16    834.96      0.00    834.92    835.02       .06       .65       .02    828.40
      550.      173.      217.      160.      186.       75.      129.      194.       49.    828.40
      3.36       .93      2.88      1.24      .091      .046      .091      .072    827.80    105.94
   .000602      670.      730.      760.         2         0         0      0.00     89.11    195.05


*SECNO 8.500
 2800 NAT Q1=     206.30  WSEL=     835.39  ENC Q1=     206.30  WSEL=     835.49  RATIO=   .0000
 NAT Q1=     214.  RATIOS LOB,CH,ROB=    .2512   .6489    .0999  WSEL=     835.49

3470 ENCROACHMENT STATIONS=      234.1      316.8  TYPE=      4  TARGET=         .035
      8.50      7.45    835.45      0.00    835.39    835.56       .11       .52       .02    828.00
      550.      132.      372.       45.      153.      115.       43.      200.       51.    828.00
      3.45       .87      3.24      1.06      .091      .046      .091      .071    828.00    234.09
   .000732      900.      750.      730.         1         0         0      0.00     82.69    316.78


CCHV=     .300 CEHV=     .500
*SECNO 9.000

3370 NORMAL BRIDGE,NRD= 18 MIN EL TRD=  834.40 MAX ELLC=  835.00


3470 ENCROACHMENT STATIONS=      198.6      308.0  TYPE=      1  TARGET=      109.420

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.60 ELREA=       836.50

      9.00      7.56    835.56      0.00    835.47    835.98       .42       .27       .15    828.00
      550.       55.      495.        0.       50.       91.        0.      201.       51. 100000.00
      3.46      1.10      5.46      0.00      .091      .046      .091      .071    828.00    198.58
   .009350      150.      150.      150.         1         0         0  -167.61     109.42    308.00


*SECND 9.100

3370 NORMAL BRIDGE,NRD= 18 MIN EL TRD=  834.40 MAX ELLC=  835.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       834.60 ELREA=       836.50

      9.10      7.59    835.59      0.00    835.51    835.99       .40       .01       .01    828.00
      550.       63.      487.        0.       54.       91.        0.      201.       51.    828.00
      3.46      1.17      5.38      0.00      .052      .031      .052      .071    828.00    195.98
   .003231        1.        1.        1.         2         0         0  -175.25     112.02    308.00


*SECNO 9.400

3370 NORMAL BRIDGE,NRD= 18 MIN EL TRD=  834.40 MAX ELLC=  835.00
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      834.60 ELREA=      836.50

     9.40     7.72    835.72     0.00    835.64    836.14      .42      .14      .01   828.60
      550.      89.      461.       0.      60.       82.       0.     201.      52.    829.00
     3.46     1.49     5.63     0.00     .052      .031     .052     .071   828.00   205.99
  .004045      39.      39.      39.        3         0         0  -214.91   102.01   308.00


*SECNO 9.500
   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     COPAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  834.40 MAX ELLC=  835.00

3470 ENCROACHMENT STATIONS=      215.0      310.0  TYPE=      1  TARGET=      95.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      834.60 ELREA=      836.50

     9.50     7.81    835.81     0.00    835.73    836.17      .35      .01      .02   828.60
      550.      116.      434.       0.      64.       82.       0.     201.      52.    829.00
     3.46     1.81     5.29     0.00     .065      .046     .065     .071   828.00   215.00
  .007563       1.       1.       1.        2         0         0  -178.46    93.00   308.00


*SECNO 9.550
 2800 NAT Q1=     321.63  WSEL=     836.20  ENC Q1=     321.63  WSEL=     836.30  RATIO=    .0000
 NAT Q1=     333.  RATIOS LOB,CH,ROB=    .3647    .4893    .1459  WSEL=     836.30

3470 ENCROACHMENT STATIONS=      229.7      319.8  TYPE=      4  TARGET=        .034
     9.55     8.24    836.24     0.01    836.20    836.28      .05      .03      .09   828.60
      550.      197.      281.       72.      207.      126.      63.     201.      52.    829.00
     3.46      .95     2.23     1.15     .065      .046     .065     .070   828.00   229.69
  .000306       30.      30.      30.        2         0         0     0.00    90.07   319.77


CCHV=    .100 CEHV=    .300
*SECNO 9.600
 2800 NAT Q1=     510.90  WSEL=     836.28  ENC Q1=     510.90  WSEL=     836.38  RATIO=    .0000
 NAT Q1=     529.  RATIOS LOB,CH,ROB=    .5429    .3269    .1302  WSEL=     836.38

3470 ENCROACHMENT STATIONS=      791.8      957.0  TYPE=      4  TARGET=        .034
     9.60     8.51    836.31     0.00    836.28    836.33      .01      .04      .00   828.60
      550.      299.      187.       64.      501.      130.     151.     205.      52.    828.60
     3.54      .60     1.44      .42      .078      .046      .078     .070   827.80   791.84
  .000120      270.      220.      160.        2         0         0     0.00   165.18   957.02


*SECNO 9.700
 2800 NAT Q1=     491.64  WSEL=     836.34  ENC Q1=     491.64  WSEL=     836.44  RATIO=    .0000
 NAT Q1=     510.  RATIOS LOB,CH,ROB=    .4872    .2838    .2289  WSEL=     836.44

3470 ENCROACHMENT STATIONS=      169.1      440.2  TYPE=      4  TARGET=        .036
     9.70     8.58    836.38     0.00    836.34    836.39      .01      .06      .00   829.10
      550.      270.      162.      118.      600.      127.     338.     215.      55.    829.10
     3.75      .45     1.28      .35      .104      .052      .104     .069   827.80   169.14
  .000129      490.      500.      550.         0         0         0     0.00   271.05   440.19
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CCHV=    .300 CEHV=    .500
*SECNO 10.000

3470 ENCROACHMENT STATIONS=     535.0     575.0  TYPE=     1  TARGET=      40.000
    10.00      8.64    836.44      0.00    836.39    836.52       .08       .09       .04    828.30
      512.       84.       341.       86.       85.       126.       81.       221.       56.    828.30
     3.80       .99      2.71      1.06      .104      .052      .104      .069    827.80    535.00
  .000531       350.      400.      450.         0         0         0      0.00     40.00    575.00

*SECNO 10.100
   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    IOC       ICONT     CORAR     TOPWID      ENDST


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      837.93 ELREA=      837.93

     10.10      8.59    836.39      0.00    836.35    836.65       .26       .04       .09    828.30
      512.         0.       512.         0.         0.       125.         0.       222.       56.    828.30
      3.80      0.00      4.09      0.00      .104      .052      .104      .069    827.80    548.00
  .001634        50.       50.       50.         2         0         0      0.00     15.00    563.00


SPECIAL BRIDGE

SB  XK        XKQR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.40      3.00      0.00     10.00      0.00     75.00      0.00    827.80    827.80

*SECNO 10.400
PRESSURE FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
   838.13    836.66      0.00         0.       512.        75.       70.       834.80    838.50


     10.40     10.31    838.11      0.00    838.07    838.13       .01      1.48      0.00    828.80
      512.      237.      209.       66.       748.      149.      132.      223.       57.    828.80
      3.84       .32      1.41       .50      .104      .052      .104      .069    827.80    245.59
  .000115       104.      104.      104.         1         0         0      0.00    318.88    564.48

*SECNO 10.550

3470 ENCROACHMENT STATIONS=     460.0     575.0  TYPE=     1  TARGET=     115.000
    10.55     10.10    838.10      0.00    838.05    838.16       .06       .01       .02    829.00
      512.       62.       344.      106.       121.      146.      124.      224.       57.    829.00
      3.84       .51      2.36       .86      .104      .052      .104      .069    828.00    460.00
  .000335        50.       50.       50.         2         0         0      0.00    100.72    560.72


CCHV=    .100 CEHV=    .300
*SECNO 10.700
 2800 NAT Q1=     451.35  WSEL=     838.21  ENC Q1=     451.35  WSEL=     838.31  RATIO=  0.0000
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 NAT Q1=    471.  RATIOS LOB,CH,ROB=   .6382   .2070   .1548  WSEL=    838.31

3470 ENCROACHMENT STATIONS=      73.9      362.8  TYPE=     4  TARGET=        .842
    10.70     8.26   838.26     0.00   838.21   838.27      .01      .10      .01   830.00
      512.      329.      112.      72.      844.      83.      151.      232.      59.      830.00
      4.07      .39      1.35      .47      .104      .052      .104      .068   830.00      73.85
  .000134      500.      510.      510.         2         0         0      0.00   288.94   362.79


CCHV=    .100 CEHV=    .300
*SECNO 10.800

3470 ENCROACHMENT STATIONS=      415.0      850.0  TYPE=     1  TARGET=      435.000
    10.80     6.43   838.43     0.00   838.38   838.48      .05      .20      .01   832.00
      512.      197.      185.      130.      286.      64.      158.      246.      64.      832.00
      4.21      .69      2.89      .82      .104      .052      .104      .067   832.00      491.61
  .000856      840.      650.      580.         0         0         0      0.00   263.64   755.24


*SECNO 10.900
 2800 NAT Q1=    226.51  WSEL=    839.16 ENC Q1=    226.51  WSEL=    839.26  RATIO=  0.8000
 NAT Q1=    239.  RATIOS LOB,CH,ROB=   .3877   .4961   .1162  WSEL=    839.26
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   0         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    IOC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      187.9      386.2  TYPE=     4  TARGET=        .052
    10.90     7.11   839.21     0.00   839.16   839.25      .04      .77      .00   834.00
      512.      193.      271.      48.      335.      123.      66.      260.      71.      834.00
      4.43      .58      2.20      .74      .104      .052      .104      .066   832.10      187.86
  .000537     1280.     1100.     1000.         2         0         0      0.00   198.34   386.22


CCHV=    .300 CEHV=    .500
*SECNO 11.000

3470 ENCROACHMENT STATIONS=      193.0      207.0  TYPE=     1  TARGET=       14.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    847.80 ELREA=    847.80

    11.00     7.52   839.62     0.00   839.51   839.91      .29      .54      .12   832.60
      451.      0.      451.      0.      0.      105.      0.      264.      72.  100000.00
      4.46      0.00      4.30      0.00      .104      .052      .104      .066   832.10      193.00
  .003963      450.      490.      780.         1         0         0      0.00    14.00   207.00


SPECIAL BRIDGE
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.09      3.00      0.00     13.00      0.00     61.36     0.00    832.60    832.10

*SECNO 11.400
PRESSURE FLOW
 EGPRS     EGLWC     H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                             AREA
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    841.38    840.41      0.00        0.      451.       61.       61.      837.32    847.79


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      847.52 ELREA=      847.52

     11.40      8.56    841.16      0.00    841.04    841.38      .22      1.47      0.00   832.70
       451.       0.      451.       0.       0.      120.       0.      265.       72.    832.70
      4.48      0.00      3.77      0.00      .017      .022      .017      .066   832.60   193.00
   .000329       219.      219.      219.         2         0         0      0.00    14.00   207.00

COHV=     .100 CEHV=     .300
*SECNO 12.000

3470 ENCROACHMENT STATIONS=      46.1      94.6  TYPE=     1  TARGET=      48.510
     12.00      7.63    841.43      0.00    841.31    841.50      .07       .10       .01100000.00
       451.       0.      443.       8.       0.      205.      13.      266.       72.    838.80
      4.51      0.00      2.16       .63      .065      .046      .065      .065   833.80    46.10
   .000537       250.      250.      250.         2         0         0      0.00    48.51    94.61
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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

CARRIER CREEK

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	.500	800.19	.19	800.62	53.76	34.57	678.38	35.04	0.00	0.00	55.00	85.00	0.00
	.500	800.29	.10	800.75	37.73	21.29	706.82	19.89	.04	50.15	55.00	85.00	87.33
	.600	800.22	0.00	800.65	54.33	35.56	677.33	35.11	0.00	0.00	55.00	85.00	0.00
	.600	800.32	.10	800.78	37.52	21.31	708.11	18.58	.05	50.20	55.00	85.00	87.72
	.700	800.26	0.00	800.68	53.07	36.83	675.98	35.19	0.00	0.00	55.00	85.00	0.00
	.700	800.36	.10	800.81	37.78	22.71	706.79	18.50	.05	49.93	55.00	85.00	87.71
*	1.000	800.62	0.00	802.63	16.60	0.00	748.00	0.00	0.00	0.00	439.00	455.60	0.00
*	1.000	800.62	.00	802.63	16.60	0.00	748.00	0.00	0.00	439.00	439.00	455.60	455.60
	1.100	801.01	0.00	802.68	16.60	0.00	748.00	0.00	0.00	0.00	439.00	455.60	0.00
	1.100	801.01	.01	802.68	16.60	0.00	748.00	0.00	0.00	439.00	439.00	455.60	455.60
	1.500	801.55	0.00	802.86	16.60	0.00	748.00	0.00	0.00	0.00	439.00	455.60	0.00
	1.500	801.61	.06	802.89	16.60	0.00	748.00	0.00	0.00	439.00	439.00	455.60	455.60
	1.550	801.57	0.00	802.87	16.60	0.00	748.00	0.00	0.00	0.00	439.00	455.60	0.00
	1.550	801.64	.06	802.90	16.60	0.00	748.00	0.00	0.00	439.00	439.00	455.60	455.60
	1.600	803.52	0.00	803.56	131.41	185.25	141.18	421.57	170.00	150.00	236.00	246.00	320.00
	1.600	803.55	.03	803.59	131.64	185.86	140.87	421.27	170.00	150.00	236.00	246.00	320.00
	1.700	805.23	0.00	805.32	141.26	167.52	79.02	501.46	0.00	0.00	101.00	109.00	0.00
	1.700	805.26	.03	805.37	116.78	154.33	83.63	510.03	.07	76.71	101.00	109.00	193.49
	1.800	806.89	0.00	806.97	188.57	221.40	150.69	375.91	0.00	0.00	180.00	189.00	0.00
	1.800	806.98	.09	807.08	130.93	215.71	155.99	376.30	.06	141.11	180.00	189.00	272.04
	1.900	807.86	0.00	808.49	47.05	278.35	385.47	84.17	0.00	0.00	375.00	385.00	0.00
	1.900	807.92	.07	808.63	31.20	277.79	397.47	72.73	.04	359.56	375.00	385.00	390.77
	1.950	809.85	0.00	810.13	48.55	17.75	658.32	71.93	50.00	451.00	464.00	488.00	501.00
	1.950	809.97	.12	810.23	48.77	20.16	655.01	72.83	50.00	451.00	464.00	488.00	501.00
	2.000	809.91	0.00	810.29	24.00	0.00	748.00	0.00	0.00	0.00	464.00	488.00	0.00
	2.000	810.03	.12	810.40	24.00	0.00	748.00	0.00	0.00	464.00	464.00	488.00	488.00

SECNO	CHSEL	DIFKHS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2.100	809.91	0.00	810.29	24.00	0.00	748.00	0.00	0.00	0.00	464.00	488.00	0.00
2.100	810.03	.12	810.40	24.00	0.00	748.00	0.00	0.00	464.00	464.00	488.00	489.00
2.500	810.59	0.00	810.88	24.00	0.00	748.00	0.00	0.00	0.00	364.00	388.00	0.00
2.500	810.71	.12	811.00	24.00	0.00	748.00	0.00	0.00	364.00	364.00	388.00	388.00
2.510	810.59	0.00	810.88	24.00	0.00	748.00	0.00	0.00	0.00	364.00	388.00	0.00
2.510	810.71	.12	811.00	24.00	0.00	748.00	0.00	0.00	364.00	364.00	388.00	388.00
2.550	810.81	0.00	811.01	48.27	88.29	655.50	4.21	54.00	349.00	364.00	388.00	403.00
2.550	810.93	.12	811.13	49.09	90.57	652.33	5.11	54.00	349.00	364.00	388.00	403.00
2.700	811.83	0.00	811.85	306.39	447.30	96.42	204.28	0.00	0.00	594.00	602.00	0.00
2.700	811.93	.10	811.95	271.69	454.75	98.86	194.39	.05	385.60	594.00	602.00	657.29
2.900	812.10	0.00	812.13	236.51	596.67	53.35	97.97	0.00	0.00	316.00	324.00	0.00
2.900	812.20	.09	812.23	181.09	612.07	55.92	80.01	.07	163.71	316.00	324.00	344.80
2.905	812.14	0.00	812.17	234.96	596.49	54.64	96.87	0.00	0.00	316.00	324.00	0.00
2.905	812.23	.09	812.27	177.78	612.73	57.42	77.86	.07	165.94	316.00	324.00	343.72
2.910	812.26	0.00	812.32	225.63	312.87	82.13	353.00	0.00	0.00	156.00	164.00	0.00
2.910	812.35	.09	812.42	138.26	309.24	86.27	352.50	.08	94.88	156.00	164.00	233.15
2.920	812.51	0.00	812.57	243.29	286.68	81.68	379.65	0.00	0.00	158.00	166.00	0.00
2.920	812.60	.09	812.68	155.80	280.54	86.01	381.45	.09	94.84	158.00	166.00	250.64
2.940	812.67	0.00	812.78	252.30	250.90	204.10	293.00	0.00	0.00	312.00	330.00	0.00
2.940	812.75	.09	812.89	154.88	239.48	216.52	292.00	.11	253.33	312.00	330.00	408.21
3.000	813.00	0.00	813.22	250.49	342.89	253.12	151.99	0.00	0.00	316.00	335.00	0.00
3.000	813.09	.09	813.35	180.05	336.98	269.57	141.45	.12	253.38	316.00	335.00	433.43
4.000	819.23	0.00	819.33	118.39	415.98	235.60	96.42	0.00	0.00	160.00	173.00	0.00
4.000	819.34	.11	819.45	89.79	421.06	242.79	84.15	.05	95.52	160.00	173.00	185.32
4.500	821.46	0.00	821.50	189.61	546.44	98.44	103.12	0.00	0.00	254.00	262.00	0.00
4.500	821.55	.09	821.60	162.17	554.36	101.35	92.28	.06	114.22	254.00	262.00	276.39
5.000	825.88	0.00	825.97	103.83	7.79	116.69	623.52	0.00	0.00	70.00	79.00	0.00
5.000	826.00	.11	826.08	82.20	0.00	109.05	638.95	.04	70.00	70.00	79.00	152.20
5.500	828.97	0.00	829.00	230.73	35.10	72.56	640.34	0.00	0.00	55.00	63.00	0.00
5.500	829.09	.12	829.12	202.25	13.40	75.89	658.72	.06	50.28	55.00	63.00	306.68
5.700	830.94	0.00	830.99	129.45	243.80	109.03	395.16	0.00	0.00	346.00	354.00	0.00
5.700	831.03	.09	831.08	108.30	243.98	111.21	392.81	.04	308.39	346.00	354.00	416.69
5.990	831.40	0.00	831.47	60.00	0.00	702.00	0.00	60.00	370.00	370.00	430.00	430.00
5.990	831.48	.08	831.55	60.00	0.00	702.00	0.00	60.00	370.00	370.00	430.00	430.00
6.000	831.33	0.00	831.67	39.70	0.00	702.00	0.00	0.00	0.00	380.00	419.70	0.00
6.000	831.41	.08	831.75	39.70	0.00	702.00	0.00	0.00	0.00	380.00	419.70	0.00
6.100	831.58	0.00	831.73	132.57	28.76	530.11	143.13	0.00	0.00	380.00	419.70	0.00
6.100	831.67	.09	831.81	134.40	30.94	512.68	158.38	0.00	0.00	380.00	419.70	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6.500	831.73	0.00	832.07	39.40	0.00	702.00	0.00	0.00	0.00	380.30	419.70	0.00
6.500	831.83	.10	832.16	39.40	0.00	702.00	0.00	0.00	0.00	380.30	419.70	0.00
6.600	831.73	0.00	832.07	147.71	0.00	702.00	0.00	0.00	0.00	380.30	419.70	0.00
6.600	831.83	.10	832.17	159.21	0.00	702.00	0.00	0.00	0.00	380.30	419.70	0.00
6.650	832.15	0.00	832.23	90.00	59.83	606.67	35.50	90.00	355.00	380.30	419.70	445.00
6.650	832.25	.10	832.32	90.00	60.61	605.03	36.36	90.00	355.00	380.30	419.70	445.00
6.700	832.28	0.00	832.28	1123.35	152.89	13.88	535.22	0.00	0.00	426.00	434.00	0.00
6.700	832.40	.13	832.40	600.00	24.64	23.55	653.81	600.00	400.00	426.00	434.00	1000.00
7.000	832.29	0.00	832.30	300.09	56.73	50.46	594.82	0.00	0.00	121.00	129.00	0.00
7.000	832.43	.14	832.44	257.56	47.67	51.78	602.56	.04	86.27	121.00	129.00	343.33
7.100	832.40	0.00	832.42	308.44	31.93	137.29	532.79	0.00	0.00	294.00	304.00	0.00
7.100	832.54	.14	832.56	240.47	18.40	139.53	544.07	.05	286.85	294.00	304.00	527.32
7.300	832.82	0.00	833.18	115.00	34.88	508.78	158.35	115.00	240.00	290.00	307.00	355.00
7.300	832.95	.12	833.27	115.00	40.68	498.91	162.41	115.00	240.00	290.00	307.00	355.00
7.500	833.65	0.00	834.10	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.500	833.70	.05	834.14	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.510	833.66	0.00	834.10	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.510	833.70	.05	834.14	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.590	833.72	0.00	834.15	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.590	833.76	.05	834.19	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.600	833.72	0.00	834.15	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.600	833.77	.05	834.19	15.60	0.00	550.00	0.00	0.00	0.00	392.00	407.60	0.00
7.700	834.06	0.00	834.32	49.23	144.36	396.46	9.18	80.00	210.00	244.00	256.00	290.00
7.700	834.10	.04	834.35	49.25	145.46	395.33	9.21	80.00	210.00	244.00	256.00	290.00
8.000	834.92	0.00	834.98	132.07	174.35	210.99	164.66	0.00	0.00	162.00	173.00	0.00
8.000	834.96	.04	835.02	89.11	172.57	217.34	160.10	.03	105.94	162.00	173.00	195.05
8.500	835.39	0.00	835.50	126.34	133.95	361.40	54.65	0.00	0.00	292.00	308.00	0.00
8.500	835.45	.06	835.56	82.69	132.23	372.29	45.48	.04	234.09	292.00	308.00	316.78
9.000	835.47	0.00	835.92	109.41	41.84	508.16	0.00	0.00	0.00	292.00	308.00	0.00
9.000	835.56	.10	835.98	109.42	55.01	494.99	0.00	109.42	198.58	292.00	308.00	308.00
9.100	835.51	0.00	835.93	110.26	53.07	496.93	0.00	0.00	0.00	292.00	308.00	0.00
9.100	835.59	.08	835.99	112.02	62.77	487.23	0.00	0.00	0.00	292.00	308.00	0.00
9.400	835.64	0.00	836.09	100.11	76.83	473.17	0.00	0.00	0.00	292.00	308.00	0.00
9.400	835.72	.08	836.14	102.01	89.04	460.96	0.00	0.00	0.00	292.00	308.00	0.00
9.500	835.73	0.00	836.12	93.00	102.36	447.64	0.00	95.00	215.00	292.00	308.00	310.00
9.500	835.81	.08	836.17	93.00	116.49	433.51	0.00	95.00	215.00	292.00	308.00	310.00
9.550	836.20	0.00	836.24	131.90	196.94	272.85	80.21	0.00	0.00	292.00	308.00	0.00
9.550	836.24	.03	836.28	90.07	196.65	281.19	72.16	.03	229.69	292.00	308.00	319.77

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
9.600	836.28	0.00	836.29	223.08	298.12	182.26	69.61	0.00	0.00	893.00	909.00	0.00
9.600	836.31	.04	836.33	165.18	298.87	187.22	63.90	.03	791.84	893.00	909.00	957.02
9.700	836.34	0.00	836.35	318.65	268.04	158.61	123.35	0.00	0.00	312.00	328.00	0.00
9.700	836.38	.04	836.39	271.05	270.15	162.05	117.80	.04	169.14	312.00	328.00	440.19
10.000	836.39	0.00	836.47	40.00	84.14	341.46	86.40	40.00	535.00	548.00	563.00	575.00
10.000	836.44	.04	836.52	40.00	84.20	341.34	86.47	40.00	535.00	548.00	563.00	575.00
10.100	836.35	0.00	836.61	15.00	0.00	512.00	0.00	0.00	0.00	548.00	563.00	0.00
10.100	836.39	.04	836.65	15.00	0.00	512.00	0.00	0.00	0.00	548.00	563.00	0.00
10.400	838.07	0.00	838.08	317.50	234.55	211.27	66.18	0.00	0.00	511.00	526.00	0.00
10.400	838.11	.04	838.13	318.88	236.57	209.49	65.94	0.00	0.00	511.00	526.00	0.00
10.550	838.05	0.00	838.12	99.97	61.29	345.09	105.62	115.00	460.00	511.00	526.00	575.00
10.550	838.10	.04	838.16	100.72	62.19	344.03	105.78	115.00	460.00	511.00	526.00	575.00
10.700	838.21	0.00	838.22	378.21	325.11	108.40	78.49	0.00	0.00	315.00	325.00	0.00
10.700	838.26	.04	838.27	288.94	328.53	111.78	71.69	.04	73.85	315.00	325.00	362.80
10.800	838.38	0.00	838.43	262.22	194.91	187.92	129.17	435.00	415.00	665.00	675.00	850.00
10.800	838.43	.05	838.48	263.64	197.09	185.37	129.54	435.00	415.00	665.00	675.00	850.00
10.900	839.16	0.00	839.20	317.87	193.65	260.79	57.56	0.00	0.00	345.00	365.00	0.00
10.900	839.21	.05	839.25	198.34	192.75	270.81	48.45	.05	187.88	345.00	365.00	386.22
11.000	839.51	0.00	839.80	14.00	0.00	451.00	0.00	0.00	0.00	193.00	207.00	0.00
11.000	839.62	.12	839.91	14.00	0.00	451.00	0.00	14.00	193.00	193.00	207.00	207.00
11.400	841.04	0.00	841.26	14.00	0.00	451.00	0.00	0.00	0.00	193.00	207.00	0.00
11.400	841.16	.12	841.38	14.00	0.00	451.00	0.00	0.00	0.00	193.00	207.00	0.00
12.000	841.31	0.00	841.39	48.52	0.00	443.44	7.56	0.00	0.00	42.00	85.00	0.00
12.000	841.43	.11	841.50	48.51	0.00	442.65	8.35	48.51	46.10	42.00	85.00	94.61

CARRIER CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLOC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	.500	0.00	0.00	0.00	795.40	748.00	800.19	0.00	800.62	57.51	5.50	154.95	96.53
	.500	0.00	0.00	0.00	795.40	748.00	800.29	0.00	800.75	57.53	5.59	144.56	96.62
	.600	5.00	0.00	0.00	795.40	748.00	800.22	0.00	800.65	56.02	5.45	156.50	99.94
	.600	5.00	0.00	0.00	795.40	748.00	800.32	0.00	800.78	56.52	5.57	145.08	99.49
	.700	5.00	0.00	0.00	795.40	748.00	800.26	0.00	800.68	54.18	5.39	158.51	101.62
	.700	5.00	0.00	0.00	795.40	748.00	800.36	0.00	800.81	54.68	5.51	146.92	101.16
*	1.000	70.00	0.00	0.00	795.50	748.00	800.62	800.62	802.63	376.81	11.39	65.66	38.53
*	1.000	70.00	0.00	0.00	795.50	748.00	800.62	800.62	802.63	434.08	11.39	65.66	35.90
	1.100	1.00	806.50	826.40	795.50	748.00	801.01	0.00	802.66	70.39	10.38	72.06	89.15
	1.100	1.00	806.50	826.40	795.50	748.00	801.01	0.00	802.66	82.67	10.37	72.13	82.27
	1.500	24.00	806.50	826.40	795.50	748.00	801.55	0.00	802.86	50.49	9.18	81.49	105.26
	1.500	24.00	806.50	826.40	795.50	748.00	801.61	0.00	802.89	58.07	9.07	82.51	98.16
	1.550	1.00	0.00	0.00	795.50	748.00	801.57	0.00	802.87	311.81	9.14	81.81	42.36
	1.550	1.00	0.00	0.00	795.50	748.00	801.64	0.00	802.90	358.00	9.02	82.91	39.53
	1.600	180.00	0.00	0.00	797.50	748.00	803.52	0.00	803.56	13.17	2.56	533.44	206.11
	1.600	180.00	0.00	0.00	797.50	748.00	803.55	0.00	803.59	12.87	2.54	537.46	208.47
	1.700	820.00	0.00	0.00	801.00	748.00	805.23	0.00	805.32	96.24	2.65	312.61	76.25
	1.700	820.00	0.00	0.00	801.00	748.00	805.26	0.00	805.37	104.92	2.78	289.46	73.03
	1.800	500.00	0.00	0.00	801.60	748.00	806.89	0.00	806.97	19.46	3.75	381.53	169.57
	1.800	500.00	0.00	0.00	801.60	748.00	806.98	0.00	807.08	19.63	3.81	339.77	168.84
	1.900	460.00	0.00	0.00	803.00	748.00	807.86	0.00	808.49	71.80	7.94	138.54	88.28
	1.900	460.00	0.00	0.00	803.00	748.00	807.92	0.00	808.63	72.77	8.07	124.24	87.69
	1.950	530.00	0.00	0.00	802.90	748.00	809.85	0.00	810.13	19.76	4.43	199.58	172.70
	1.950	530.00	0.00	0.00	802.90	748.00	809.97	0.00	810.23	17.45	4.32	205.27	179.06
	2.000	50.00	0.00	0.00	802.90	748.00	809.91	0.00	810.29	24.97	4.99	149.91	149.68
	2.000	50.00	0.00	0.00	802.90	748.00	810.03	0.00	810.40	31.18	4.89	152.90	133.95
	2.100	1.00	0.00	0.00	802.90	748.00	809.91	0.00	810.29	5.89	4.99	149.96	308.32
	2.100	1.00	0.00	0.00	802.90	748.00	810.03	0.00	810.40	7.35	4.89	152.94	275.89
	2.500	59.00	818.20	809.60	802.90	748.00	810.59	0.00	810.88	4.80	4.38	170.81	341.34
	2.500	59.00	999999.00	0.00	802.90	748.00	810.71	0.00	811.00	5.24	4.30	173.78	326.77
	2.510	1.00	0.00	0.00	802.90	748.00	810.59	0.00	810.88	41.55	4.38	170.81	116.05
	2.510	1.00	0.00	0.00	802.90	748.00	810.71	0.00	811.00	45.29	4.30	173.84	111.15
	2.550	30.00	0.00	0.00	803.02	748.00	810.81	0.00	811.01	26.33	3.78	228.84	145.78
	2.550	30.00	0.00	0.00	803.02	748.00	810.93	0.00	811.13	24.64	3.70	234.83	150.68
	2.700	860.00	0.00	0.00	805.00	748.00	811.83	0.00	811.85	5.14	1.90	849.10	301.98
	2.700	860.00	0.00	0.00	805.00	748.00	811.93	0.00	811.95	6.16	1.92	823.26	301.41

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2.900	620.00	0.00	0.00	807.80	748.00	812.10	0.00	812.13	10.34	1.75	547.56	232.61
2.900	620.00	0.00	0.00	807.80	748.00	812.20	0.00	812.23	10.44	1.79	510.92	231.52
2.905	30.00	0.00	0.00	807.93	748.00	812.14	0.00	812.17	11.88	1.85	523.51	217.05
2.905	30.00	0.00	0.00	807.93	748.00	812.23	0.00	812.27	11.99	1.89	486.59	216.03
2.910	130.00	0.00	0.00	808.10	748.00	812.26	0.00	812.32	24.02	2.70	403.38	152.63
2.910	130.00	0.00	0.00	808.10	748.00	812.35	0.00	812.42	24.35	2.77	349.62	151.57
2.920	120.00	0.00	0.00	808.50	748.00	812.51	0.00	812.57	31.56	2.91	394.48	133.15
2.920	120.00	0.00	0.00	808.50	748.00	812.60	0.00	812.68	32.18	2.99	339.55	131.87
2.940	55.00	0.00	0.00	808.90	748.00	812.67	0.00	812.78	66.13	3.81	309.60	91.98
2.940	55.00	0.00	0.00	808.90	748.00	812.75	0.00	812.89	67.47	3.92	265.17	91.06
3.000	50.00	0.00	0.00	809.20	748.00	813.00	0.00	813.22	138.51	4.95	235.91	63.54
3.000	50.00	0.00	0.00	809.20	748.00	813.09	0.00	813.35	141.40	5.10	211.02	62.90
4.000	1160.00	0.00	0.00	814.00	748.00	819.23	0.00	819.33	28.01	3.57	342.39	141.34
4.000	1160.00	0.00	0.00	814.00	748.00	819.34	0.00	819.45	27.56	3.60	326.11	142.49
4.500	1400.00	0.00	0.00	816.50	748.00	821.46	0.00	821.50	20.63	2.76	491.18	164.68
4.500	1400.00	0.00	0.00	816.50	748.00	821.55	0.00	821.60	20.44	2.78	473.36	165.45
5.000	2150.00	0.00	0.00	820.50	748.00	825.86	0.00	825.97	32.20	3.10	332.01	131.82
5.000	2150.00	0.00	0.00	820.50	748.00	826.00	0.00	826.06	32.98	2.82	318.08	130.24
5.500	980.00	0.00	0.00	824.00	748.00	828.97	0.00	829.00	38.80	2.32	540.88	120.09
5.500	980.00	0.00	0.00	824.00	748.00	829.09	0.00	829.12	38.08	2.35	523.39	121.21
5.700	1570.00	0.00	0.00	825.00	748.00	830.94	0.00	830.99	8.34	2.50	449.88	259.04
5.700	1570.00	0.00	0.00	825.00	748.00	831.03	0.00	831.08	8.21	2.51	437.27	261.05
5.990	650.00	0.00	0.00	825.10	702.00	831.40	0.00	831.47	6.40	2.09	335.75	277.56
5.990	650.00	0.00	0.00	825.10	702.00	831.48	0.00	831.55	6.12	2.06	340.58	283.80
6.000	40.00	842.90	840.80	825.10	702.00	831.33	0.00	831.67	84.29	4.70	149.43	76.46
6.000	40.00	842.90	840.80	825.10	702.00	831.41	0.00	831.75	83.08	4.68	150.16	77.02
6.100	1.00	842.90	840.80	825.10	702.00	831.56	0.00	831.73	14.98	3.51	283.97	181.38
6.100	1.00	842.90	840.80	825.10	702.00	831.67	0.00	831.81	16.97	3.39	287.96	170.42
6.500	119.00	842.90	841.50	825.50	702.00	831.73	0.00	832.07	29.37	4.67	150.42	129.53
6.500	119.00	842.90	841.50	825.50	702.00	831.83	0.00	832.16	28.83	4.64	151.37	130.74
6.600	1.00	842.90	841.50	825.50	702.00	831.73	0.00	832.07	75.17	4.72	148.70	80.97
6.600	1.00	842.90	841.50	825.50	702.00	831.83	0.00	832.17	73.62	4.69	149.63	81.82
6.650	50.00	0.00	0.00	825.55	702.00	832.15	0.00	832.23	6.07	2.42	405.48	284.91
6.650	50.00	0.00	0.00	825.55	702.00	832.25	0.00	832.32	5.74	2.37	414.26	293.01
6.700	1000.00	0.00	0.00	826.00	702.00	832.28	0.00	832.28	.09	.29	6213.65	2290.25
6.700	1000.00	0.00	0.00	826.00	702.00	832.40	0.00	832.40	.25	.48	3648.21	1400.83
7.000	1130.00	0.00	0.00	826.00	702.00	832.29	0.00	832.30	1.11	1.09	1246.54	665.30
7.000	1130.00	0.00	0.00	826.00	702.00	832.43	0.00	832.44	1.08	1.09	1217.41	675.18

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRITWS	EG	10K*S	VCH	AREA	.01K
7.100	650.00	0.00	0.00	826.00	702.00	832.40	0.00	832.42	4.89	2.33	898.96	317.61
7.100	650.00	0.00	0.00	826.00	702.00	832.54	0.00	832.56	4.67	2.31	856.19	324.82
7.300	650.00	0.00	0.00	826.01	702.00	832.82	0.00	833.18	37.01	5.53	235.30	115.39
7.300	650.00	0.00	0.00	826.01	702.00	832.95	0.00	833.27	33.04	5.30	249.32	122.12
7.500	250.00	0.00	0.00	826.60	550.00	833.65	0.00	834.10	34.02	5.34	103.02	94.30
7.500	250.00	0.00	0.00	826.60	550.00	833.70	0.00	834.14	33.30	5.30	103.77	95.30
7.510	1.00	840.80	837.42	826.60	550.00	833.66	0.00	834.10	10.01	5.34	103.08	173.86
7.510	1.00	840.80	837.42	826.60	550.00	833.70	0.00	834.14	9.80	5.30	103.82	175.69
7.590	44.00	840.80	837.42	826.50	550.00	833.72	0.00	834.15	9.52	5.25	104.80	178.27
7.590	44.00	840.80	837.42	826.50	550.00	833.76	0.00	834.19	9.33	5.21	105.52	180.07
7.600	1.00	0.00	0.00	826.50	550.00	833.72	0.00	834.15	32.29	5.25	104.82	96.80
7.600	1.00	0.00	0.00	826.50	550.00	833.77	0.00	834.19	31.69	5.21	105.54	97.77
7.700	70.00	0.00	0.00	826.90	550.00	834.06	0.00	834.32	15.54	4.71	205.95	139.54
7.700	70.00	0.00	0.00	826.90	550.00	834.11	0.00	834.35	15.14	4.67	208.01	141.33
8.000	730.00	0.00	0.00	827.80	550.00	834.92	0.00	834.93	5.78	2.81	430.25	228.71
8.000	730.00	0.00	0.00	827.80	550.00	834.96	0.00	835.02	6.02	2.88	391.37	224.18
8.500	750.00	0.00	0.00	828.00	550.00	835.39	0.00	835.50	7.11	3.17	347.93	206.30
8.500	750.00	0.00	0.00	828.00	550.00	835.45	0.00	835.56	7.32	3.24	310.48	203.26
9.000	150.00	834.40	835.00	828.00	550.00	835.47	0.00	835.92	74.74	5.61	135.66	63.62
9.000	150.00	834.40	835.00	828.00	550.00	835.56	0.00	835.98	93.50	5.46	140.44	56.88
9.100	1.00	834.40	835.00	828.00	550.00	835.51	0.00	835.93	33.61	5.48	138.03	94.57
9.100	1.00	834.40	835.00	828.00	550.00	835.59	0.00	835.99	32.31	5.38	144.35	96.76
9.400	38.50	834.40	835.00	828.00	550.00	835.64	0.00	836.09	42.62	5.78	134.92	84.25
9.400	38.50	834.40	835.00	828.00	550.00	835.72	0.00	836.14	40.45	5.63	141.59	86.48
9.500	1.00	834.40	835.00	828.00	550.00	835.73	0.00	836.12	81.12	5.47	139.70	61.06
9.500	1.00	834.40	835.00	828.00	550.00	835.81	0.00	836.17	75.63	5.29	146.20	63.24
9.550	30.00	0.00	0.00	828.00	550.00	836.20	0.00	836.24	2.92	2.18	434.70	321.63
9.550	30.00	0.00	0.00	828.00	550.00	836.24	0.00	836.28	3.06	2.23	395.33	314.33
9.600	220.00	0.00	0.00	827.80	550.00	836.28	0.00	836.29	1.16	1.41	859.25	510.30
9.600	220.00	0.00	0.00	827.80	550.00	836.31	0.00	836.33	1.20	1.44	781.25	501.38
9.700	500.00	0.00	0.00	827.80	550.00	836.34	0.00	836.35	1.25	1.26	1119.41	491.64
9.700	500.00	0.00	0.00	827.80	550.00	836.38	0.00	836.39	1.29	1.28	1064.98	484.70
10.000	400.00	0.00	0.00	827.80	512.00	836.39	0.00	836.47	5.41	2.73	290.26	220.11
10.000	400.00	0.00	0.00	827.80	512.00	836.44	0.00	836.52	5.31	2.71	291.99	222.39
10.100	50.00	0.00	0.00	827.80	512.00	836.35	0.00	836.61	16.59	4.11	124.43	125.70
10.100	50.00	0.00	0.00	827.80	512.00	836.39	0.00	836.65	16.34	4.09	125.09	126.66
10.400	104.00	838.50	834.80	827.80	512.00	838.07	0.00	838.08	1.19	1.42	1014.54	469.93
10.400	104.00	838.50	834.80	827.80	512.00	838.11	0.00	838.13	1.15	1.41	1028.54	477.32

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10.550	50.00	0.00	0.00	828.00	512.00	838.05	0.00	838.12	3.42	2.38	386.09	276.96
10.550	50.00	0.00	0.00	828.00	512.00	838.10	0.00	838.16	3.35	2.36	390.54	279.94
10.700	510.00	0.00	0.00	830.00	512.00	838.21	0.00	838.22	1.29	1.32	1165.49	451.35
10.700	510.00	0.00	0.00	830.00	512.00	838.26	0.00	838.27	1.34	1.35	1078.07	441.65
10.800	650.00	0.00	0.00	832.00	512.00	838.38	0.00	838.43	9.00	2.95	496.30	170.70
10.800	650.00	0.00	0.00	832.00	512.00	838.43	0.00	838.48	8.56	2.89	507.75	175.03
10.900	1100.00	0.00	0.00	832.10	512.00	839.16	0.00	839.20	5.11	2.13	599.08	226.51
10.900	1100.00	0.00	0.00	832.10	512.00	839.21	0.00	839.25	5.37	2.20	523.89	221.04
11.000	490.00	0.00	0.00	832.10	451.00	839.51	0.00	839.80	27.97	4.36	103.48	85.27
11.000	490.00	0.00	0.00	832.10	451.00	839.62	0.00	839.91	39.63	4.30	104.98	71.64
11.400	219.00	847.79	837.32	832.60	451.00	841.04	0.00	841.26	3.43	3.82	118.05	243.51
11.400	219.00	847.79	837.32	832.60	451.00	841.16	0.00	841.38	3.29	3.77	119.76	248.59
12.000	250.00	0.00	0.00	833.80	451.00	841.31	0.00	841.39	5.78	2.21	212.46	187.62
12.000	250.00	0.00	0.00	833.80	451.00	841.43	0.00	841.50	5.37	2.16	217.94	194.54

SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.900	748.00	812.10	0.00	.27	0.00	236.51	620.00
2.900	748.00	812.20	.09	.27	.09	181.09	620.00
2.905	748.00	812.14	0.00	.03	0.00	234.96	30.00
2.905	748.00	812.23	.09	.03	.09	177.76	30.00
2.910	748.00	812.26	0.00	.12	0.00	225.63	130.00
2.910	748.00	812.35	.09	.12	.09	138.26	130.00
2.920	748.00	812.51	0.00	.25	0.00	243.29	120.00
2.920	748.00	812.60	.09	.26	.09	155.80	120.00
2.940	748.00	812.67	0.00	.15	0.00	252.30	55.00
2.940	748.00	812.75	.09	.15	.09	154.88	55.00
3.000	748.00	813.00	0.00	.34	0.00	250.49	50.00
3.000	748.00	813.09	.09	.34	.09	180.09	50.00
4.000	748.00	819.23	0.00	6.22	0.00	118.39	1160.00
4.000	748.00	819.34	.11	6.25	.11	89.79	1160.00
4.500	748.00	821.46	0.00	2.23	0.00	189.61	1400.00
4.500	748.00	821.55	.09	2.21	.09	182.17	1400.00
5.000	748.00	825.88	0.00	4.42	0.00	103.83	2150.00
5.000	748.00	826.00	.11	4.44	.11	82.20	2150.00
5.500	748.00	828.97	0.00	3.08	0.00	230.73	980.00
5.500	748.00	829.09	.12	3.09	.12	202.25	980.00
5.700	748.00	830.94	0.00	1.98	0.00	129.45	1570.00
5.700	748.00	831.03	.09	1.95	.09	108.30	1570.00
5.990	702.00	831.40	0.00	.46	0.00	60.00	650.00
5.990	702.00	831.48	.08	.45	.08	60.00	650.00
6.000	702.00	831.33	0.00	-.07	0.00	39.70	40.00
6.000	702.00	831.41	.08	-.08	.08	39.70	40.00
6.100	702.00	831.58	0.00	.25	0.00	132.57	1.00
6.100	702.00	831.67	.09	.26	.09	134.40	1.00
6.500	702.00	831.73	0.00	.15	0.00	39.40	119.00
6.500	702.00	831.83	.10	.16	.10	39.40	119.00
6.600	702.00	831.73	0.00	.00	0.00	147.71	1.00
6.600	702.00	831.83	.10	.00	.10	159.21	1.00
6.650	702.00	832.15	0.00	.42	0.00	90.00	50.00
6.650	702.00	832.25	.10	.42	.10	90.00	50.00
6.700	702.00	832.28	0.00	.13	0.00	1123.35	1000.00
6.700	702.00	832.40	.13	.16	.13	600.00	1000.00
7.000	702.00	832.29	0.00	.01	0.00	300.09	1130.00
7.000	702.00	832.43	.14	.03	.14	257.56	1130.00

SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.100	702.00	832.40	0.00	.11	0.00	308.44	650.00
7.100	702.00	832.54	.14	.11	.14	240.47	650.00
7.300	702.00	832.82	0.00	.42	0.00	115.0(	650.00
7.300	702.00	832.95	.12	.40	.12	115.0(	650.00
7.500	550.00	833.65	0.00	.83	0.00	15.60	250.00
7.500	550.00	833.70	.05	.76	.05	15.6(	250.00
7.510	550.00	833.66	0.00	.00	0.00	15.6(	1.00
7.510	550.00	833.70	.05	.00	.05	15.6(	1.00
7.590	550.00	833.72	0.00	.06	0.00	15.6(	44.00
7.590	550.00	833.76	.05	.06	.05	15.6(	44.00
7.600	550.00	833.72	0.00	.00	0.00	15.6(	1.00
7.600	550.00	833.77	.05	.00	.05	15.6(	1.00
7.700	550.00	834.06	0.00	.34	0.00	49.23	70.00
7.700	550.00	834.10	.04	.34	.04	49.25	70.00
8.000	550.00	834.92	0.00	.86	0.00	132.07	730.00
8.000	550.00	834.96	.04	.86	.04	89.11	730.00
8.500	550.00	835.39	0.00	.47	0.00	126.34	750.00
8.500	550.00	835.45	.06	.48	.06	82.69	750.00
9.000	550.00	835.47	0.00	.08	0.00	109.41	150.00
9.000	550.00	835.56	.10	.12	.10	109.42	150.00
9.100	550.00	835.51	0.00	.04	0.00	110.26	1.00
9.100	550.00	835.59	.08	.03	.08	112.02	1.00
9.400	550.00	835.64	0.00	.13	0.00	100.11	38.50
9.400	550.00	835.72	.08	.13	.08	102.01	38.50
9.500	550.00	835.73	0.00	.09	0.00	93.0(	1.00
9.500	550.00	835.81	.08	.09	.08	93.0(	1.00
9.550	550.00	836.20	0.00	.47	0.00	131.90	30.00
9.550	550.00	836.24	.03	.42	.03	99.07	30.00
9.600	550.00	836.28	0.00	.07	0.00	223.06	220.00
9.600	550.00	836.31	.04	.08	.04	165.18	220.00
9.700	550.00	836.34	0.00	.07	0.00	318.65	500.00
9.700	550.00	836.38	.04	.07	.04	271.05	500.00
10.000	512.00	836.39	0.00	.05	0.00	40.0(	400.00
10.000	512.00	836.44	.04	.05	.04	40.0(	400.00
10.100	512.00	836.35	0.00	-.05	0.00	15.0(	50.00
10.100	512.00	836.39	.04	-.05	.04	15.0(	50.00
10.400	512.00	838.07	0.00	1.72	0.00	317.50	104.00
10.400	512.00	838.11	.04	1.72	.04	318.88	104.00

SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10.550	512.00	838.05	0.00	-.01	0.00	99.97	50.00
10.550	512.00	838.10	.04	-.01	.04	110.72	50.00
10.700	512.00	838.21	0.00	.16	0.00	378.21	510.00
10.700	512.00	838.26	.04	.16	.04	288.94	510.00
10.800	512.00	838.38	0.00	.17	0.00	262.22	650.00
10.800	512.00	838.43	.05	.17	.05	263.64	650.00
10.900	512.00	839.16	0.00	.78	0.00	317.87	1100.00
10.900	512.00	839.21	.05	.78	.05	198.34	1100.00
11.000	451.00	839.51	0.00	.35	0.00	14.00	490.00
11.000	451.00	839.62	.12	.42	.12	14.00	490.00
11.400	451.00	841.04	0.00	1.53	0.00	14.00	219.00
11.400	451.00	841.16	.12	1.53	.12	14.00	219.00
12.000	451.00	841.31	0.00	.28	0.00	48.52	250.00
12.000	451.00	841.43	.11	.27	.11	48.51	250.00

SUMMARY OF ERRORS

CAUTION	SECNO=	1.000	PROFILE= 1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	1.000	PROFILE= 1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	1.000	PROFILE= 1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO=	1.000	PROFILE= 2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO=	1.000	PROFILE= 2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO=	1.000	PROFILE= 2	20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, CARRIER CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.500	38.	145.	5.2	800.3	800.2	.1
.600	38.	145.	5.2	800.3	800.2	.1
.700	38.	147.	5.1	800.4	800.3	.1
1.000	17.	66.	11.4	800.6	800.6	0.0
1.100	17.	72.	10.4	801.0	801.0	0.0
1.500	17.	83.	9.1	801.7	801.6	.1
1.550	17.	63.	9.0	801.7	801.6	.1
1.650	132.	537.	1.4	803.5	803.5	0.0
1.700	117.	239.	2.6	805.2	805.2	0.0
1.800	131.	340.	2.2	807.0	806.9	.1
1.900	31.	124.	6.0	808.0	807.9	.1
1.950	49.	205.	3.6	810.0	809.9	.1
2.000	24.	153.	4.9	810.0	809.9	.1
2.100	24.	153.	4.9	810.0	809.9	.1
2.500	24.	174.	4.3	810.7	810.6	.1
2.510	24.	174.	4.3	810.7	810.6	.1
2.550	49.	235.	3.2	810.9	810.8	.1
2.700	272.	823.	.9	811.9	811.8	.1
2.900	181.	511.	1.5	812.2	812.1	.1
2.905	178.	487.	1.5	812.2	812.1	.1
2.910	138.	350.	2.1	812.4	812.3	.1
2.920	156.	340.	2.2	812.6	812.5	.1
2.940	155.	265.	2.8	812.8	812.7	.1
3.000	180.	211.	3.5	813.1	813.0	.1
4.000	90.	326.	2.3	819.3	819.2	.1
4.500	162.	473.	1.6	821.6	821.5	.1
5.000	82.	318.	2.4	826.0	825.9	.1
5.500	256.	523.	1.4	829.1	829.0	.1
5.700	108.	437.	1.7	831.0	830.9	.1
5.990	60.	341.	2.1	831.5	831.4	.1
6.000	40.	150.	4.7	831.4	831.3	.1
6.100	134.	288.	2.4	831.7	831.6	.1
6.500	39.	151.	4.6	831.8	831.7	.1
6.600	165.	150.	4.7	831.8	831.7	.1
6.650	90.	414.	1.7	832.2	832.1	.1
6.700	600.	3648.	.2	832.4	832.3	.1
7.000	258.	1217.	.6	832.4	832.3	.1
7.100	240.	856.	.8	832.5	832.4	.1
7.300	115.	249.	2.8	832.9	832.8	.1
7.500	16.	104.	5.3	833.7	833.7	0.0
7.510	16.	104.	5.3	833.7	833.7	0.0
7.590	16.	106.	5.2	833.7	833.7	0.0
7.600	16.	106.	5.2	833.7	833.7	0.0
7.700	49.	208.	2.6	834.1	834.1	0.0
8.000	89.	391.	1.4	834.9	834.9	0.0
8.500	83.	310.	1.8	835.5	835.4	.1
9.000	109.	140.	3.9	835.6	835.5	.1
9.100	112.	144.	3.8	835.6	835.5	.1
9.400	102.	142.	3.9	835.7	835.6	.1
9.500	93.	146.	3.8	835.8	835.7	.1

FLOODWAY DATA, CARRIER CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
9.550	90.	395.	1.4	836.2	836.2	0.0
9.600	165.	781.	.7	836.3	836.3	0.0
9.700	271.	1065.	.5	836.3	836.3	0.0
10.000	40.	292.	1.6	836.4	836.4	0.0
10.100	15.	125.	4.1	836.3	836.3	0.0
10.400	319.	1029.	.5	838.1	838.1	0.0
10.550	101.	391.	1.3	838.1	838.1	0.0
10.700	289.	1078.	.5	838.2	838.2	0.0
10.800	264.	508.	1.0	838.5	838.4	.1
10.900	198.	524.	1.0	839.2	839.2	0.0
11.000	14.	105.	4.3	839.6	839.5	.1
11.400	14.	120.	3.8	841.1	841.0	.1
12.000	49.	218.	2.1	841.4	841.3	.1

CARRIER CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.500	748.00	800.19	0.00	0.00	.19	53.76	0.00
	.500	748.00	800.29	.10	0.00	.10	37.73	0.00
	.600	748.00	800.22	0.00	.04	0.00	54.33	5.00
	.600	748.00	800.32	.10	.03	.10	37.52	5.00
	.700	748.00	800.26	0.00	.04	0.00	55.07	5.00
	.700	748.00	800.36	.10	.04	.10	37.78	5.00
*	1.000	748.00	800.62	0.00	.36	0.00	16.60	70.00
*	1.000	748.00	800.62	.00	.26	.00	16.60	70.00
	1.100	748.00	801.01	0.00	.39	0.00	16.60	1.00
	1.100	748.00	801.01	.01	.40	.01	16.60	1.00
	1.500	748.00	801.55	0.00	.54	0.00	16.60	24.00
	1.500	748.00	801.61	.06	.60	.06	16.60	24.00
	1.550	748.00	801.57	0.00	.02	0.00	16.60	1.00
	1.550	748.00	801.64	.06	.03	.06	16.60	1.00
	1.600	748.00	803.52	0.00	1.95	0.00	131.41	180.00
	1.600	748.00	803.55	.03	1.91	.03	131.64	180.00
	1.700	748.00	805.23	0.00	1.71	0.00	141.26	820.00
	1.700	748.00	805.26	.03	1.71	.03	116.78	820.00
	1.800	748.00	806.89	0.00	1.66	0.00	188.57	500.00
	1.800	748.00	806.98	.09	1.72	.09	130.93	500.00
	1.900	748.00	807.86	0.00	.96	0.00	47.05	460.00
	1.900	748.00	807.92	.07	.94	.07	31.20	460.00
	1.950	748.00	809.85	0.00	2.00	0.00	48.55	530.00
	1.950	748.00	809.97	.12	2.05	.12	48.77	530.00
	2.000	748.00	809.91	0.00	.05	0.00	24.00	50.00
	2.000	748.00	810.03	.12	.06	.12	24.00	50.00
	2.100	748.00	809.91	0.00	.00	0.00	24.00	1.00
	2.100	748.00	810.03	.12	.00	.12	24.00	1.00
	2.500	748.00	810.59	0.00	.68	0.00	24.00	59.00
	2.500	748.00	810.71	.12	.68	.12	24.00	59.00
	2.510	748.00	810.59	0.00	.00	0.00	24.00	1.00
	2.510	748.00	810.71	.12	.00	.12	24.00	1.00
	2.550	748.00	810.81	0.00	.22	0.00	48.27	30.00
	2.550	748.00	810.93	.12	.22	.12	49.09	30.00
	2.700	748.00	811.83	0.00	1.02	0.00	306.39	860.00
	2.700	748.00	811.93	.10	.99	.10	271.69	860.00

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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 EL FROM SLOPE AREA
T3      ~~CARRIER CREEK~~ MOON AND HAMILTON DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.         7.         0.         0.    .005700       0.00       0.0        0.    800.000    0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      0.000      0.000     -1.000      0.000      0.000      1.300      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       .040       .100       .300      0.000      0.000      0.000      0.000      0.000
QT     7.000     10.000     10.000     10.000    468.000    657.000    748.000    748.000      0.000      0.000
ET     0.000      0.000      0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000

X1      .500      8.000     55.000     85.000      0.000      0.000      0.000      0.000      0.000      0.000
GR   802.000      0.000    800.000     40.000    798.000     55.000    796.000     60.000    795.400     70.000
GR   796.000     79.000    797.000     85.000    798.000     90.000      0.000      0.000      0.000      0.000

X1      .600      0.000      0.000      0.000      5.000      5.000      5.000      0.000      0.000      0.000

X1      .700      0.000      0.000      0.000      5.000      5.000      5.000      0.000      0.000      0.000

X1     1.000     33.000    439.000    455.000    110.000     50.000     70.000      0.000      0.000      0.000
X3    10.000      0.000      0.000      0.000      0.000      0.000      0.000    806.100    806.100      0.000
GR   817.900      0.000    814.500     50.000    811.100    100.000    808.500    150.000    805.900    200.000
GR   802.900    250.000    799.800    300.000    799.500    350.000    799.300    400.000    799.100    439.000
GR   799.100    440.200    798.000    441.500    796.000    441.500    795.500    450.000    795.800    453.000
GR   798.000    453.000    799.000    454.300    799.000    455.600    798.200    500.000    800.000    550.000
GR   801.700    600.000    801.900    650.000    802.100    700.000    803.000    750.000    803.800    800.000
GR   805.300    850.000    806.700    900.000    806.900    950.000    807.100   1000.000    807.100   1050.000
GR   807.100   1100.000    807.000   1150.000    806.900   1200.000      0.000      0.000      0.000      0.000
NC      .025       .025       .020      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     1.100      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    806.100    806.100      0.000
BT    33.000      0.000    826.800    826.400     50.000    823.600    821.900    100.000    820.600    811.800
BT   150.000    817.600    814.600    200.000    814.300    811.800    250.000    812.700    809.600    300.000
BT   811.000    807.400    350.000    809.100    804.400    400.000    803.100    801.400    439.000    806.800
BT   806.100    440.200    806.800    806.100    441.500    806.900    606.100    441.500    806.900    806.100
BT   450.000    807.300    806.100    453.000    807.300    806.100    453.000    807.300    806.100    454.300
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BT	807.300	806.100	455.600	807.400	806.100	500.000	806.800	798.700	550.000	806.500
BT	800.100	600.000	806.600	801.400	650.000	806.700	801.600	700.000	806.900	801.900
BT	750.000	807.100	803.800	800.000	807.600	805.700	850.000	807.700	805.800	900.000
BT	807.700	805.900	950.000	807.800	806.000	1000.000	808.200	806.000	1050.000	808.400
BT	806.300	1100.000	808.600	806.600	1150.000	808.800	806.500	1200.000	808.900	806.400
X1	1.500	33.000	439.000	455.600	24.000	24.000	24.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	806.500	806.500	0.000
BT	33.000	0.000	826.800	826.400	50.000	823.600	821.900	100.000	820.600	811.800
BT	150.000	817.600	814.600	200.000	814.800	811.800	250.000	812.700	809.600	300.000
BT	811.000	807.400	350.000	809.000	804.400	400.000	808.100	801.400	439.000	806.800
BT	806.100	440.200	806.800	806.100	441.500	806.900	806.100	441.500	806.900	806.100
BT	450.000	807.300	806.100	453.000	807.300	806.100	453.000	807.300	806.100	454.300
BT	807.300	806.100	455.600	807.400	806.100	500.000	806.800	798.700	550.000	806.500
BT	800.100	600.000	806.600	801.400	650.000	806.700	801.600	700.000	806.900	801.900
BT	750.000	807.100	803.800	800.000	807.600	805.700	850.000	807.700	805.800	900.000
BT	807.700	805.900	950.000	807.800	806.000	1000.000	808.200	806.000	1050.000	808.400
BT	806.300	1100.000	808.600	806.600	1150.000	808.800	806.500	1200.000	808.900	806.400
GR	826.400	0.000	821.900	50.000	811.600	100.000	814.600	150.000	811.800	200.000
GR	809.600	250.000	807.400	300.000	804.400	350.000	801.400	400.000	799.100	439.000
GR	799.100	440.200	798.200	441.500	795.800	441.500	795.500	450.000	795.500	453.000
GR	798.500	453.000	799.200	454.300	799.200	455.600	798.700	500.000	800.100	550.000
GR	801.400	600.000	801.600	650.000	801.900	700.000	803.800	750.000	805.700	800.000
GR	805.800	850.000	805.900	900.000	806.000	950.000	806.000	1000.000	806.300	1050.000
GR	806.600	1100.000	806.500	1150.000	806.400	1200.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.550	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	806.500	806.500	0.000
NC	0.000	.090	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.300	3.100	150.000	320.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	1.600	17.000	236.000	246.000	140.000	110.000	180.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	10.000	822.000	40.000	820.000	60.000	810.000	125.000
GR	808.000	140.000	806.000	165.000	804.000	185.000	802.000	200.000	800.000	215.000
GR	798.500	236.000	797.500	240.000	798.500	246.000	800.000	385.000	802.000	510.000
GR	804.000	750.000	805.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.080	.100	.300	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	1.700	11.000	101.000	109.000	610.000	580.000	820.000	0.000	0.000	0.000
GR	810.000	0.000	808.000	30.000	806.000	65.000	804.000	70.000	802.000	101.000
GR	801.000	105.000	802.000	109.000	804.000	202.000	806.000	212.000	808.000	327.000
GR	810.000	342.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.050	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	17.000	180.000	189.000	380.000	460.000	500.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	10.000	822.000	15.000	820.000	25.000	818.000	40.000
GR	816.500	45.000	811.700	65.000	807.100	90.000	803.600	180.000	801.600	185.000
GR	802.600	189.000	804.700	210.000	805.000	275.000	812.400	310.000	813.900	340.000
GR	815.600	380.000	818.000	385.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.900	32.000	375.000	385.000	420.000	310.000	460.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	5.000	822.000	10.000	820.000	15.000	816.000	35.000
GR	814.200	40.000	813.500	85.000	819.000	85.000	819.000	110.000	818.000	110.000

GR	813.000	155.000	812.000	185.000	815.000	260.000	815.000	210.000	811.500	225.000
GR	814.500	225.000	814.500	295.000	812.500	295.000	810.000	335.000	814.000	335.000
GR	814.000	345.000	808.500	345.000	803.000	375.000	803.000	380.000	803.000	385.000
GR	814.500	410.000	816.000	415.000	818.000	425.000	820.000	430.000	822.000	435.000
GR	824.000	440.000	826.000	445.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.950	15.000	464.000	488.000	260.000	440.000	530.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	561.000	0.000	0.000	0.000	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	802.900	477.000
GR	803.500	488.000	810.100	500.000	815.900	600.000	622.600	685.000	825.300	700.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.000	15.000	464.000	488.000	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	818.200	818.200	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	802.900	477.000
GR	803.500	488.000	810.100	500.000	815.900	600.000	822.600	685.000	825.300	700.000
NC	.025	.025	.017	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	818.200	818.200	0.000
SB	.950	2.150	3.000	0.000	21.400	1.000	138.400	.210	803.500	803.500
X1	2.500	21.000	364.000	388.000	59.000	59.000	59.000	0.000	0.000	0.000
X2	0.000	0.000	1.010	809.600	818.200	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	818.200	818.200	0.000
BT	21.000	0.000	828.400	828.400	33.000	823.500	823.100	50.000	822.600	820.400
BT	100.000	821.800	812.610	150.000	819.700	810.700	200.000	818.800	808.800	250.000
BT	818.300	808.800	300.000	818.200	808.800	350.000	818.400	803.400	356.000	818.400
BT	808.300	364.300	818.500	809.600	369.000	818.500	809.600	377.000	818.600	809.600
BT	388.000	818.700	809.600	388.000	818.700	809.600	409.000	818.900	811.100	450.000
BT	819.800	813.400	500.000	821.100	815.700	550.000	823.000	820.100	585.000	824.400
BT	823.200	600.000	832.900	832.900	0.000	0.000	0.000	0.000	0.000	0.000
GR	828.400	0.000	823.100	33.000	820.400	50.000	812.600	100.000	810.700	150.000
GR	808.900	200.000	808.800	250.000	808.800	300.000	808.300	350.000	808.300	356.000
GR	805.000	364.000	803.600	369.000	802.900	377.000	803.600	388.000	809.300	388.000
GR	811.100	400.000	813.400	450.000	815.700	500.000	820.100	550.000	823.200	585.000
GR	832.900	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.510	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	818.000	818.000	0.000
X1	2.550	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.120	0.000
X3	0.000	0.000	0.000	349.000	0.000	403.000	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	2.700	26.000	594.000	602.000	590.000	650.000	860.000	0.000	0.000	0.000
GR	828.000	0.000	826.000	40.000	824.000	145.000	822.000	200.000	820.000	255.000
GR	818.700	310.000	816.600	335.000	810.300	370.000	809.100	500.000	819.500	515.000
GR	808.900	535.000	810.000	552.000	806.000	594.000	805.000	598.000	806.000	602.000
GR	807.900	605.000	808.600	658.000	814.200	675.000	815.300	680.000	816.000	685.000
GR	818.000	698.000	820.000	705.000	822.000	720.000	824.000	745.000	826.000	770.000

GR	813.000	155.000	812.000	185.000	815.000	200.000	815.000	210.000	811.500	225.000
GR	814.500	225.000	814.500	295.000	812.500	295.000	810.000	335.000	814.000	335.000
GR	814.000	345.000	808.500	345.000	803.000	375.000	803.000	380.000	803.000	385.000
GR	814.500	410.000	816.000	415.000	818.000	425.000	820.000	430.000	822.000	435.000
GR	824.000	440.000	826.000	445.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.950	15.000	464.000	488.000	260.000	440.000	530.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	451.000	0.000	501.000	0.000	0.000	0.000	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	802.900	477.300
GR	803.500	488.000	810.100	500.000	815.900	600.000	822.600	685.000	825.300	700.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.000	15.000	464.000	488.000	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	818.200	818.200	0.000
GR	831.400	0.000	824.000	100.000	822.900	164.000	818.400	200.000	811.900	300.000
GR	809.300	400.000	808.700	464.000	806.800	464.000	803.700	469.000	802.900	477.000
GR	803.500	488.000	810.100	500.000	815.900	600.000	822.600	685.000	825.300	700.000
NC	.025	.025	.017	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	818.200	818.200	0.000
SB	.950	2.150	3.000	3.000	21.450	1.000	138.400	.210	803.500	803.500
X1	2.500	21.000	364.000	388.000	59.000	59.000	59.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	809.600	818.200	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	818.200	818.200	0.000
BT	21.000	0.000	828.400	828.400	33.000	823.500	823.100	50.000	822.600	820.400
BT	100.000	820.800	812.600	150.000	819.700	810.700	200.000	818.800	808.800	250.000
BT	818.300	808.800	300.000	816.200	808.800	350.000	818.400	803.400	356.000	818.400
BT	808.300	364.000	818.500	809.600	369.000	818.500	809.600	377.000	818.600	809.600
BT	388.000	818.700	809.600	388.000	818.700	809.600	409.000	818.900	811.100	450.000
BT	819.800	813.400	500.000	821.100	815.700	550.000	823.000	820.100	585.000	824.400
BT	823.200	600.000	832.900	832.900	0.000	0.000	0.000	0.000	0.000	0.000
GR	828.400	0.000	823.100	33.000	820.400	50.000	812.600	100.000	810.700	150.000
GR	808.800	200.000	808.800	250.000	808.800	300.000	808.300	350.000	808.300	356.000
GR	805.000	364.000	803.600	369.000	802.900	377.000	803.600	388.000	809.300	388.000
GR	811.100	400.000	813.400	450.000	815.700	500.000	820.100	550.000	823.200	585.000
GR	832.900	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.510	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	818.000	818.000	0.000
X1	2.550	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.120	0.000
X3	0.000	0.000	0.000	349.000	0.000	403.000	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	2.700	26.000	594.000	602.000	590.000	650.000	860.000	0.000	0.000	0.000
GR	828.000	0.000	826.000	40.000	824.000	145.000	822.000	200.000	820.000	255.000
GR	818.700	310.000	816.600	335.000	810.300	370.000	809.100	500.000	809.500	515.000
GR	808.900	535.000	810.000	552.000	806.000	594.000	805.000	598.000	806.000	602.000
GR	807.900	605.000	808.600	658.000	814.200	675.000	815.300	680.000	816.000	685.000
GR	818.000	698.000	820.000	705.000	822.000	720.000	824.000	745.000	826.000	770.000

GR	828.000	815.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.900	25.000	316.000	324.000	300.000	430.000	620.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	40.000	822.000	55.000
GR	820.000	65.000	818.000	80.000	816.000	100.000	814.000	110.000	812.000	130.000
GR	810.000	170.000	808.800	316.000	807.800	320.000	808.800	324.000	810.000	345.000
GR	812.000	365.000	814.000	375.000	816.000	380.000	818.000	385.000	820.000	395.000
GR	822.000	400.000	824.000	405.000	826.000	415.000	828.000	440.000	830.000	495.000
X1	2.905	0.000	0.000	0.000	30.000	30.000	30.000	0.000	.130	0.000
X1	2.910	17.000	156.000	164.000	90.000	65.000	130.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	15.000	814.000	20.000
GR	812.000	55.000	810.000	125.000	808.800	156.000	808.100	160.000	808.800	164.000
GR	810.000	200.000	812.000	275.000	814.000	285.000	816.000	290.000	818.000	295.000
GR	820.000	300.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.920	17.000	158.000	166.000	95.000	85.000	120.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	5.000	818.000	10.000	816.000	22.000	814.000	33.000
GR	812.000	60.000	810.000	150.000	809.500	158.000	808.500	162.000	809.500	166.000
GR	810.000	180.000	812.000	290.000	814.000	315.000	816.000	330.000	818.000	348.000
GR	820.000	350.000	822.000	355.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.940	10.000	312.000	330.000	60.000	25.000	55.000	0.000	0.000	0.000
GR	817.500	160.000	814.000	194.000	812.200	220.000	811.300	280.000	810.500	312.000
GR	808.900	325.000	810.400	330.000	811.100	350.000	812.400	464.000	818.500	500.000
X1	3.000	23.000	316.000	335.000	50.000	30.000	50.000	0.000	0.000	0.000
GR	831.100	0.000	828.700	50.000	827.600	100.000	826.000	122.000	817.600	158.000
GR	813.500	200.000	812.000	250.000	812.000	231.000	810.600	316.000	809.200	323.000
GR	809.200	323.100	810.400	327.000	811.500	331.000	811.500	333.300	810.000	334.000
GR	809.500	335.000	810.000	336.000	812.300	336.700	812.300	340.000	812.600	400.000
GR	812.300	463.000	819.000	500.000	830.100	542.000	0.000	0.000	0.000	0.000
NC	.070	.070	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.000	16.000	160.000	173.000	1200.000	940.000	1160.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	20.000	826.000	30.000	824.000	45.000	820.000	70.000
GR	818.000	90.000	816.600	115.000	816.000	130.000	814.300	160.000	814.000	170.000
GR	814.300	173.000	816.000	180.000	818.000	190.000	820.000	200.000	830.000	215.000
GR	832.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.500	21.000	254.000	262.000	720.000	1090.000	1400.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	15.000	830.000	25.000	828.000	55.000	816.000	70.000
GR	824.000	80.000	822.000	90.000	820.000	105.000	818.000	240.000	817.500	254.000
GR	816.500	258.000	817.500	262.000	818.000	275.000	820.000	280.000	822.000	285.000
GR	824.000	290.000	826.000	295.000	828.000	310.000	830.000	305.000	832.000	310.000
GR	834.000	315.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	16.000	70.000	79.000	1525.000	1800.000	2150.000	0.000	0.000	0.000
GR	836.000	0.000	834.000	20.000	832.000	35.000	830.000	45.000	826.000	60.000
GR	824.000	70.000	820.500	75.000	821.500	79.000	822.000	125.000	824.000	155.000

GR	826.000	165.000	828.000	175.000	830.000	185.000	834.000	200.000	836.000	225.000
GR	840.000	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.500	12.000	55.000	63.000	840.000	840.000	980.000	0.000	0.000	0.000
GR	837.200	1.000	827.400	43.000	826.100	55.000	824.000	60.000	826.100	63.000
GR	829.500	88.000	832.100	131.000	824.700	151.000	828.900	200.000	825.800	250.000
GR	824.600	300.000	841.200	385.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.700	31.000	346.000	354.000	1220.000	1240.000	1570.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	10.000	836.000	30.000	834.000	55.000	834.000	100.000
GR	836.000	110.000	838.000	125.000	840.000	140.000	842.000	145.000	844.000	160.000
GR	846.000	170.000	846.000	210.000	844.000	230.000	842.000	240.000	840.000	250.000
GR	838.000	255.000	836.000	270.000	834.000	290.000	832.000	300.000	830.000	305.000
GR	828.000	310.000	826.000	346.000	825.000	350.000	826.000	354.000	828.000	410.000
GR	830.000	425.000	832.000	440.000	834.000	450.000	836.000	460.000	838.000	470.000
GR	840.000	475.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	0.000	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	439.000	617.000	702.000	702.000	0.000	0.000
ET	0.000	3.100	370.000	430.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	5.990	8.000	370.000	430.000	660.000	640.000	650.000	0.000	0.000	0.000
GR	836.600	300.000	829.600	350.000	826.300	380.000	825.100	385.000	825.100	415.000
GR	826.300	420.000	830.100	450.000	834.100	500.000	0.000	0.000	0.000	0.000
NC	.050	.050	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	6.000	31.000	380.000	419.700	40.000	40.000	40.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	837.200	837.200	0.000
BT	31.000	0.000	846.300	840.700	100.000	844.100	837.400	200.000	843.800	832.600
BT	300.000	843.600	834.400	350.000	842.900	831.400	380.000	844.200	826.300	380.300
BT	844.200	825.500	380.900	844.200	830.000	381.900	844.300	831.000	385.000	844.400
BT	831.600	388.000	844.500	831.000	389.000	844.600	830.000	389.700	844.600	825.500
BT	395.300	844.800	825.500	396.000	844.900	830.000	397.000	844.900	831.000	400.000
BT	845.100	831.600	403.000	845.100	831.000	404.000	845.100	830.000	414.700	845.100
BT	825.500	410.300	845.000	825.500	411.000	845.000	830.000	412.000	845.000	831.000
BT	415.000	844.900	831.600	418.000	844.900	831.000	419.000	844.900	830.000	419.700
BT	844.900	825.500	420.000	844.700	830.100	450.000	844.300	834.100	500.000	844.300
BT	840.800	600.000	844.300	840.800	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.300	0.000	840.000	100.000	838.200	200.000	836.600	300.000	829.600	350.000
GR	826.300	380.000	825.500	380.300	825.400	380.900	825.200	381.900	825.100	385.000
GR	825.200	388.000	825.400	389.000	825.500	389.700	825.500	395.300	825.400	396.000
GR	825.300	397.000	825.100	400.000	825.300	413.000	825.400	404.000	825.500	404.700
GR	825.500	410.300	825.400	411.000	825.300	412.000	825.100	415.000	825.300	418.000
GR	825.400	419.000	825.500	419.700	826.300	420.000	830.100	450.000	834.100	500.000
GR	840.800	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	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	1.000	0.000	0.000	0.000
X1	6.500	33.000	380.300	419.700	119.000	119.000	119.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	842.860	842.860	0.000
BT	33.000	0.000	846.300	840.700	100.000	844.100	837.400	200.000	843.800	832.600
BT	300.000	843.600	834.400	350.000	842.900	831.400	380.000	844.200	826.300	380.300

BT	844.200	825.900	380.900	844.200	830.400	381.900	844.300	831.400	385.000	844.400
BT	832.000	388.000	844.500	831.400	389.000	844.600	830.400	389.700	844.600	825.900
BT	395.300	844.800	825.900	396.000	844.900	830.400	397.000	844.900	831.400	400.000
BT	845.100	832.000	403.000	845.100	831.400	404.000	845.100	830.400	404.700	845.100
BT	825.900	410.300	845.000	825.900	411.000	845.000	830.400	412.000	845.000	831.400
BT	415.000	844.900	832.000	416.000	844.900	831.400	419.000	844.900	830.400	419.700
BT	844.900	825.900	422.000	844.700	826.300	428.000	844.600	830.000	450.000	844.300
BT	831.900	500.000	844.300	831.200	600.000	844.300	839.500	700.000	844.300	841.500
GR	840.700	0.000	837.400	100.000	832.600	200.000	834.400	300.000	831.400	350.000
GR	826.300	380.000	825.900	380.300	825.800	380.900	825.600	381.900	825.500	385.000
GR	825.600	388.000	825.800	389.000	825.900	389.700	825.900	395.300	825.800	395.000
GR	825.700	397.000	825.500	400.000	825.700	403.000	825.800	404.000	825.900	404.700
GR	825.900	410.300	825.800	411.000	825.700	412.000	825.500	415.000	825.700	416.000
GR	825.800	419.000	825.900	419.700	826.300	422.000	830.000	428.000	831.900	450.000
GR	831.200	500.000	839.500	600.000	841.500	700.000	0.000	0.000	0.000	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.600	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	1.000	0.000	0.000	0.000
ET	0.000	3.100	355.000	445.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	6.650	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.050	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.100	400.000	1000.000
X1	6.700	22.000	426.000	434.000	970.000	720.000	1000.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	15.000	840.000	20.000	838.000	40.000	836.000	65.000
GR	834.000	95.000	832.000	105.000	830.000	115.000	828.000	145.000	826.500	426.000
GR	826.000	430.000	826.500	434.000	826.000	1190.000	828.000	1200.000	830.000	1205.000
GR	832.000	1225.000	834.000	1240.000	836.000	1250.000	838.000	1270.000	840.000	1285.000
GR	842.000	1290.000	844.000	1295.000	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
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	7.000	15.000	121.000	129.000	1060.000	700.000	1130.000	0.000	0.000	0.000
GR	840.000	0.000	836.000	20.000	834.000	40.000	832.000	65.000	830.000	80.000
GR	829.000	115.000	827.000	121.000	826.000	125.000	827.000	129.000	828.000	340.000
GR	830.000	350.000	834.000	370.000	836.000	380.000	838.000	390.000	840.000	400.000
NC	.080	.080	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	7.100	9.000	294.000	304.000	550.000	600.000	650.000	0.000	0.000	0.000
GR	834.000	230.000	830.000	288.000	827.000	294.000	826.000	300.000	827.000	304.000
GR	828.300	320.000	830.100	525.000	834.000	587.000	836.000	597.000	0.000	0.000
ET	0.000	3.100	240.000	355.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	7.300	22.000	290.000	307.000	550.000	600.000	650.000	0.000	0.000	0.000
GR	837.180	0.000	829.400	50.000	833.300	100.000	833.500	150.000	833.200	200.000
GR	832.400	250.000	831.300	290.000	827.200	294.000	826.010	300.000	827.200	305.000
GR	829.200	307.000	829.200	319.000	831.500	327.000	831.500	350.000	830.300	400.000
GR	831.300	450.000	831.200	500.000	831.200	550.000	831.500	600.000	836.500	650.000
GR	836.200	700.000	840.300	720.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	331.000	464.000	550.000	550.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	7.500	24.000	392.000	407.600	380.000	200.000	250.000	0.000	0.000	0.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.800	840.800	0.000
GR	840.700	50.000	837.000	100.000	835.000	150.000	832.500	200.000	835.000	250.000
GR	837.500	300.000	838.800	340.000	836.600	390.000	827.500	392.000	827.500	392.000
GR	826.600	400.000	827.500	407.600	827.500	407.600	827.500	406.000	835.400	410.000
GR	834.500	425.000	835.000	450.000	835.200	500.000	835.700	550.000	836.200	600.000
GR	839.500	700.000	843.000	800.000	844.800	850.000	846.500	900.000	0.000	0.000
NC	.030	.030	.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.510	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	840.800	840.800	0.000
BT	24.000	50.000	846.800	0.000	100.000	846.800	0.000	150.000	846.800	0.000
BT	200.000	846.800	0.000	250.000	845.800	0.000	300.000	845.900	0.000	340.000
BT	843.700	0.000	390.000	842.700	0.000	392.000	842.700	827.500	392.000	842.700
BT	837.420	400.000	842.700	837.420	407.600	842.400	837.420	407.600	842.400	0.000
BT	408.000	842.400	0.000	410.000	842.200	0.000	425.000	841.600	0.000	450.000
BT	841.200	0.000	500.000	840.800	0.000	550.000	841.700	0.000	600.000	841.800
BT	0.000	700.000	841.800	0.000	800.000	843.000	0.000	850.000	844.800	0.000
BT	900.000	846.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.590	26.000	392.000	407.600	44.000	44.000	44.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	840.800	840.800	0.000
BT	26.000	50.000	846.800	0.000	100.000	846.800	0.000	150.000	846.800	0.000
BT	200.000	846.800	0.000	250.000	845.800	0.000	300.000	845.900	0.000	340.000
BT	843.700	0.000	350.000	843.200	0.000	385.000	842.800	0.000	390.000	842.700
BT	0.000	392.000	842.700	827.500	392.000	842.700	837.420	400.000	842.700	837.420
BT	407.600	842.400	837.420	407.600	842.400	827.500	409.000	842.400	0.000	419.000
BT	842.000	0.000	425.000	841.600	0.000	450.000	841.200	0.000	500.000	840.800
BT	0.000	550.000	841.700	0.000	600.000	841.800	0.000	700.000	841.800	0.000
BT	800.000	843.000	0.000	850.000	844.800	0.000	900.000	846.500	0.000	0.000
GR	844.700	50.000	844.700	100.000	844.700	150.000	838.300	200.000	836.800	250.000
GR	835.300	300.000	835.700	340.000	835.800	350.000	836.000	385.000	828.200	390.000
GR	827.500	392.000	827.500	392.000	826.500	400.000	827.500	407.600	827.500	407.600
GR	827.500	409.000	835.400	419.000	835.050	425.000	834.700	450.000	833.600	500.000
GR	834.500	550.000	835.300	600.000	837.400	700.000	839.400	800.000	840.500	850.000
GR	840.500	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.600	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	840.300	840.300	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	3.100	210.000	290.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	7.700	14.000	244.000	256.000	70.000	70.000	70.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	50.000	833.200	100.000	830.600	140.000	831.100	240.000
GR	827.200	244.000	826.900	250.000	827.200	256.000	835.700	260.000	836.200	310.000
GR	836.200	315.000	836.200	350.000	840.100	410.000	850.000	550.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	8.000	13.000	162.000	173.000	670.000	780.000	730.000	0.000	0.000	0.000
GR	845.200	0.000	841.100	10.000	837.300	20.000	835.000	70.000	832.600	120.000
GR	830.600	154.000	828.400	162.000	827.300	170.000	828.400	173.000	828.600	187.000
GR	835.800	206.000	837.300	222.000	846.400	272.000	0.000	0.000	0.000	0.000
NC	.070	.070	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.500	18.000	292.000	308.000	900.000	730.000	750.000	0.000	0.000	0.000

GR	837.800	0.000	837.800	50.000	837.800	100.000	837.800	150.000	833.000	250.000
GR	833.300	283.000	829.100	290.000	828.000	292.000	828.000	292.000	828.550	295.000
GR	828.000	300.000	828.550	305.000	828.000	308.000	828.000	308.000	829.100	309.000
GR	831.400	314.000	836.500	330.000	843.100	350.000	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	198.580	308.000	0.000	0.000	0.000	3.100	0.000	0.000
X1	9.000	0.000	0.000	0.000	150.000	150.000	150.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
BT	18.000	0.000	846.300	0.000	50.000	842.700	0.000	100.000	840.600	0.000
BT	150.000	839.700	0.000	250.000	834.400	0.000	283.000	835.500	0.000	290.000
BT	835.680	0.000	292.000	835.740	0.000	292.000	835.740	832.000	295.000	835.840
BT	834.000	300.000	836.000	835.000	305.000	836.060	834.000	308.000	836.130	832.000
BT	308.000	836.130	0.000	309.000	836.150	0.000	314.000	836.230	0.000	330.000
BT	836.500	0.000	350.000	843.100	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.100	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	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
X1	9.400	18.000	292.000	308.000	38.500	38.500	38.500	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
BT	18.000	0.000	846.300	0.000	50.000	842.700	0.000	100.000	840.600	0.000
BT	150.000	839.700	0.000	200.000	836.000	0.000	250.000	834.400	0.000	278.000
BT	835.200	0.000	290.000	835.500	0.000	292.000	835.740	0.000	292.000	835.740
BT	831.500	296.000	835.870	833.500	300.000	836.000	835.000	305.000	836.070	833.500
BT	308.000	836.200	831.500	308.000	836.200	0.000	318.000	836.400	0.000	330.000
BT	836.500	0.000	350.000	843.500	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.300	0.000	842.700	50.000	840.600	100.000	839.700	150.000	836.000	200.000
GR	833.700	250.000	832.700	278.000	829.000	290.000	828.600	292.000	828.600	292.000
GR	828.300	296.000	828.000	300.000	828.500	305.000	829.000	308.000	829.000	308.000
GR	832.200	318.000	836.500	330.000	843.500	350.000	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
ET	0.000	3.100	215.000	310.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	9.500	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	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	834.600	836.500	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	9.550	0.000	0.000	0.000	30.000	30.000	30.000	0.000	0.000	0.000
NC	.060	.060	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	9.600	11.000	893.000	909.000	270.000	160.000	220.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	200.000	837.000	750.000	830.700	820.000	831.800	885.000
GR	828.600	893.000	827.810	901.000	828.600	909.000	832.300	911.000	835.100	976.000
GR	852.300	1051.000	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
X1	9.700	15.000	312.000	328.000	490.000	550.000	500.000	0.000	0.000	0.000
GR	850.000	0.000	840.000	150.000	832.200	170.000	830.500	210.000	830.300	240.000
GR	834.600	250.000	834.400	290.000	829.100	312.000	827.800	320.000	829.100	326.000
GR	833.800	345.000	833.600	440.000	836.100	470.000	840.000	600.000	850.000	900.000

NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	304.000	426.000	512.000	512.000	0.000	0.000
ET	0.000	3.100	535.000	575.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	10.000	17.000	548.000	563.000	350.000	450.000	400.000	0.000	0.000	0.000
GR	850.800	0.000	844.500	185.000	841.000	285.000	838.000	385.000	829.200	524.000
GR	833.700	531.000	828.800	544.000	828.300	548.000	827.800	556.000	828.300	563.000
GR	828.800	567.000	830.100	571.000	834.900	582.000	832.600	645.000	835.400	785.000
GR	844.500	885.000	850.800	917.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.100	0.000	0.000	0.000	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	837.930	837.930	0.000
SB	0.000	2.400	3.000	0.000	10.000	0.000	75.000	0.000	827.830	827.800
X1	10.400	20.000	511.000	526.000	104.000	114.000	104.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	834.800	838.500	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	837.930	837.930	0.000
BT	20.000	35.000	853.000	853.000	85.000	845.400	845.400	185.000	842.300	842.300
BT	285.000	839.130	835.400	385.000	838.060	834.200	499.000	838.050	836.800	511.000
BT	838.100	828.800	512.000	838.200	831.800	516.000	838.200	834.100	516.700	836.200
BT	834.800	521.000	838.200	834.100	525.000	838.300	831.800	526.000	838.300	828.800
BT	529.000	838.300	0.000	535.000	838.350	0.000	545.000	838.400	0.000	585.000
BT	839.330	0.000	685.000	839.200	0.000	785.300	842.800	0.000	815.000	847.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	850.800	35.000	845.400	85.000	842.300	185.000	835.400	285.000	834.200	385.000
GR	836.800	499.000	828.800	511.000	828.500	512.000	828.000	516.000	827.800	518.700
GR	828.000	521.000	828.500	525.000	828.800	526.000	828.800	529.000	830.770	535.000
GR	836.979	545.000	839.330	585.000	839.200	685.000	842.800	785.000	847.100	815.000
NC	.080	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	3.100	460.000	575.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	10.550	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.200	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	0.000	0.000	1.400	0.000	0.000
X1	10.700	22.000	315.000	325.000	500.000	510.000	510.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	10.000	846.000	20.000	844.000	25.000	842.000	35.000
GR	840.000	40.000	838.000	50.000	836.000	65.000	834.000	300.000	832.000	305.000
GR	830.000	315.000	830.000	325.000	832.000	335.000	834.000	340.000	836.000	345.000
GR	838.000	425.000	840.000	445.000	842.000	455.000	844.000	465.000	846.000	480.000
GR	848.000	485.000	850.000	495.000	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
ET	0.000	3.100	415.000	850.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	10.800	32.000	665.000	675.000	840.000	580.000	650.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	2.000	846.000	17.000	844.000	20.000	842.000	35.000
GR	840.000	55.000	838.000	85.000	838.000	295.000	840.000	320.000	850.000	370.000
GR	852.000	380.000	854.000	385.000	856.000	390.000	858.000	400.000	858.000	415.000
GR	856.000	425.000	854.000	430.000	850.000	435.000	840.000	460.000	838.000	500.000
GR	836.000	650.000	834.000	655.000	832.000	665.000	832.000	675.000	834.000	685.000
GR	836.000	690.000	838.000	750.000	840.000	775.000	842.000	795.000	844.000	815.000
GR	846.000	855.000	850.000	865.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000

X1	10.900	20.000	345.000	365.000	1280.000	1000.000	1100.000	0.000	0.000	0.000
X4	1.000	832.100	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	848.000	30.000	846.000	70.000	844.000	120.000	842.000	140.000
GR	840.000	155.000	838.000	160.000	838.000	165.000	838.000	220.000	836.000	335.000
GR	834.000	345.000	834.000	365.000	836.000	375.000	838.000	385.000	840.000	540.000
GR	842.000	1020.000	844.000	1185.000	846.000	1330.000	848.000	1330.000	850.000	1350.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	260.000	372.000	451.000	451.000	0.000	0.000
ET	0.000	0.000	193.000	207.000	0.000	0.000	0.000	3.140	0.000	0.000
X1	11.000	15.000	193.000	207.000	450.000	780.000	490.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	847.800	847.800	0.000
GR	848.700	0.000	848.700	50.000	848.700	100.000	848.700	117.000	843.500	150.000
GR	832.600	193.000	832.100	193.500	832.100	200.000	832.100	206.500	832.600	207.000
GR	840.500	250.000	847.000	283.000	847.000	300.000	847.000	350.000	847.000	400.000
NC	.013	.013	.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.090	3.000	0.000	13.000	0.000	61.360	0.000	832.600	832.100
X1	11.400	15.000	193.000	207.000	219.000	219.000	219.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.320	847.790	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	847.520	847.520	0.000
BT	15.000	0.000	852.000	852.000	50.000	852.000	852.000	100.000	852.000	852.000
BT	119.000	852.000	852.000	150.000	847.790	844.000	193.000	848.000	832.700	193.500
BT	848.000	837.320	200.010	848.090	837.320	206.500	848.000	837.320	207.000	848.000
BT	832.700	250.000	847.770	844.000	261.000	847.770	846.600	300.000	848.470	846.600
BT	350.000	848.770	846.600	400.000	849.170	846.600	0.000	0.000	0.000	0.000
GR	852.000	0.000	852.000	50.000	852.000	100.000	852.000	119.000	844.000	150.000
GR	832.700	193.000	832.600	193.500	832.600	200.000	832.600	206.500	832.700	207.000
GR	844.000	250.000	846.600	261.000	846.600	300.000	846.600	350.000	846.600	400.000
NC	.050	.050	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	46.100	94.610	0.000	0.000	0.000	3.100	0.000	0.000
X1	12.000	13.000	42.000	85.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	854.100	0.000	843.000	42.000	836.000	59.000	834.400	70.000	833.800	73.000
GR	834.400	78.000	835.200	83.000	838.300	85.000	846.900	116.000	850.800	200.000
GR	846.700	300.000	850.700	400.000	854.500	500.000	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

1) COUNTY: Eaton

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Carrier Creek

4) DOCUMENT TYPE: 1975 Flood

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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      1975 FLOOD
T2      START ELEV. FROM GRAPH OF Q VS. ELEV    Q GRAND R. AT CC PEAK=805.4
T3      CARRIER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       5.        0.        0.  0.000000      0.00      0.0       0.   805.400     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

NC      .050      .050      .040      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     7.000    10.000    10.000    10.000   532.000   657.000   748.000   910.000     0.000     0.000

X1      .500     8.000    55.000    85.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   802.000     0.000   800.000    40.000   798.000    55.000   796.000    60.000   795.400    70.000
GR   796.000    79.000   797.000    85.000   798.000    90.000     0.000     0.000     0.000     0.000

X1      .600     0.000     0.000     0.000     5.000     5.000     5.000     0.000     0.000     0.000

X1      .700     0.000     0.000     0.000     5.000     5.000     5.000     0.000     0.000     0.000

X1     1.000    33.000   439.000   455.600   110.000    50.000    70.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   806.100   806.100     0.000
GR   817.900     0.000   814.500    50.000   811.100   100.000   808.500   150.000   805.900   200.000
GR   802.900   250.000   799.800   300.000   799.500   350.000   799.300   400.000   799.100   439.000
GR   799.100   440.200   798.000   441.500   796.000   441.500   795.500   450.000   795.800   453.000
GR   798.000   453.000   799.000   454.300   799.000   455.600   798.200   500.000   800.000   550.000
GR   801.700   600.000   801.900   650.000   802.100   700.000   803.000   750.000   803.800   800.000
GR   805.300   850.000   806.700   900.000   806.900   950.000   807.100  1000.000   807.100  1050.000
GR   807.100  1100.000   807.000  1150.000   806.900  1200.000     0.000     0.000     0.000     0.000
ET     0.000     3.100     1.000  1199.000     3.100     3.100     3.100     3.100     0.000     0.000
NC      .025      .025      .020     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     1.100     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   806.100   806.100     0.000
BT    33.000     0.000   826.800   826.400    50.000   823.600   821.900   100.000   820.600   811.800
BT   150.000   817.600   814.600   200.000   814.800   811.800   250.000   812.700   809.600   300.000
BT   811.000   807.400   350.000   809.000   804.400   400.000   808.100   801.400   439.000   806.800
BT   806.100   440.200   806.800   806.100   441.500   806.900   806.100   441.500   806.900   806.100
BT   450.000   807.300   806.100   453.000   807.300   806.100   453.000   807.300   806.100   454.300
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CARRIER CREEK 1975 FLOOD

GR	832.600	193.000	832.100	193.500	832.100	200.000	832.100	206.500	832.600	207.000
GR	840.500	250.000	847.000	283.000	847.000	300.000	847.000	350.000	847.000	400.000
NC	.013	.013	.017	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.090	3.000	0.000	13.000	0.000	61.360	0.000	832.600	832.100
X1	11.400	15.000	193.000	207.000	219.000	219.000	219.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	837.320	847.790	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	847.520	847.520	0.000
BT	15.000	0.000	852.000	852.000	50.000	852.000	852.000	100.000	852.000	852.000
BT	119.000	852.000	852.000	150.000	847.790	844.000	193.000	848.000	832.700	193.500
BT	848.000	837.320	200.000	848.090	837.320	206.500	848.000	837.320	207.000	848.000
BT	832.700	250.000	847.770	844.000	261.000	847.770	846.600	300.000	848.470	846.600
BT	350.000	848.770	846.600	400.000	849.170	846.600	0.000	0.000	0.000	0.000
GR	852.000	0.000	852.000	50.000	852.000	100.000	852.000	119.000	844.000	150.000
GR	832.700	193.000	832.600	193.500	832.600	200.000	832.600	206.500	832.700	207.000
GR	844.000	250.000	846.600	261.000	846.600	300.000	846.600	350.000	846.600	400.000
NC	.050	.050	.035	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	12.000	13.000	42.000	85.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	854.100	0.000	843.000	42.000	836.000	59.000	834.400	70.000	833.800	73.000
GR	834.400	78.000	835.200	83.000	838.800	85.000	846.900	116.000	850.800	200.000
GR	846.700	300.000	850.700	400.000	854.500	500.000	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 .500

3280 CROSS SECTION .50 EXTENDED 7.40 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
.50	10.00	805.40	0.00	805.40	805.42	.02	0.00	0.00	798.00
532.	173.	341.	19.	272.	280.	40.	0.	0.	797.00
0.00	.63	1.22	.48	.065	.052	.065	0.000	795.40	0.00
.000095	0.	0.	0.	0	0	0	0.00	90.00	90.00

*SECNO .600

3280 CROSS SECTION .60 EXTENDED 7.40 FEET

.60	10.00	805.40	0.00	0.00	805.42	.02	.00	.00	798.00
532.	173.	341.	19.	272.	280.	40.	0.	0.	797.00
.00	.63	1.22	.48	.065	.052	.065	.043	795.40	0.00
.000095	5.	5.	5.	0	0	0	0.00	90.00	90.00

*SECNO .700

3280 CROSS SECTION .70 EXTENDED 7.40 FEET

.70	10.00	805.40	0.00	0.00	805.42	.02	.00	.00	798.00

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      532.      173.      341.       19.      272.      280.       40.        0.        0.     797.00
       .00       .63      1.22       .48      .065      .052      .065      .043    795.40      0.00
   .000095        5.        5.        5.         0         0         0      0.00     90.00     90.00

  *SECNO 1.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.10 ELREA=      806.10

      1.00      9.78    805.28      0.00      0.00    805.50       .21       .02       .06    799.10
       532.        0.      532.        0.        0.      143.        0.        1.        0.     799.00
       .01      0.00      3.72      0.00      .065      .052      .065      .047    795.50    439.00
   .001803       110.       70.       50.         2         0         0      0.00     16.60    455.60

  *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

  3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

  3470 ENCROACHMENT STATIONS=       1.0     1199.0  TYPE=      1  TARGET=     1198.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.10 ELREA=      806.10

      1.10      9.78    805.28      0.00      0.00    805.50       .21       .00       .00    799.10
       532.        0.      532.        0.        0.      143.        0.        1.        0.     799.00
       .01      0.00      3.72      0.00      .033      .026      .033      .046    795.50    439.00
   .000451         1.        1.        1.         0         0         0   -146.13     16.60    455.60

  *SECNO 1.500

  3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  806.50 MAX ELLC=  826.40

  3470 ENCROACHMENT STATIONS=       1.0     1199.0  TYPE=      1  TARGET=     1198.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.50 ELREA=      806.50

      1.50      9.80    805.30      0.00      0.00    805.51       .21       .01       .00    799.10
       532.        0.      532.        0.        0.      144.        0.        1.        0.     799.20
       .01      0.00      3.70      0.00      .033      .026      .033      .041    795.50    439.00
   .000463        24.       24.       24.         1         0         0   -146.58     16.60    455.60

  *SECNO 1.550

  3470 ENCROACHMENT STATIONS=       1.0     1199.0  TYPE=      1  TARGET=     1198.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      806.50 ELREA=      806.50

      1.55      9.80    805.30      0.00      0.00    805.51       .21       .00       .00    799.10
       532.        0.      532.        0.        0.      144.        0.        1.        0.     799.20
       .01      0.00      3.70      0.00      .091      .065      .091      .041    795.50    439.00
   .002898         1.        1.        1.         0         0         0      0.00     16.60    455.60
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 *SECNO 1.600
 3280 CROSS SECTION      1.60 EXTENDED       .59 FEET


 3470 ENCROACHMENT STATIONS=     150.0     320.0  TYPE=     1  TARGET=     170.000
      1.60     8.09   805.59      0.00      0.00   805.60      .01       .07       .02   798.50
       532.     160.     89.       284.      254.     76.      495.       2.        0.    798.50
       .07      .63     1.17       .57       .091    .065     .117      .060   797.50   169.07
   .000180      140.     180.      110.         2       0        0      0.00   150.93   320.00


 CCHV=     .300 CEHV=     .300
 *SECNO 1.700
      1.70     4.85   805.85      0.00      0.00   805.88      .03       .27       .01   802.00
       532.     121.     49.       362.       93.     35.      273.      11.        2.    802.00
       .20      1.31    1.40      1.32       .104    .130     .104      .138   801.00    65.38
   .002199      610.     820.      580.         2       0        0      0.00   145.87   211.24


 *SECNO 1.800
    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

      1.80     5.02   806.62      0.00      0.00   806.68      .06       .79       .01   803.80
       532.     149.     118.      265.      108.     38.      184.      15.        4.    802.60
       .27      1.38    3.12       1.44      .052    .046     .065      .109   801.60   103.10
   .001473      380.     500.      460.         2       0        0      0.00   179.56   282.66


 *SECNO 1.900
      1.90     4.39   807.39      0.00      0.00   807.83      .44      1.04       .12   803.00
       532.     188.     288.      57.       53.     44.      21.       17.        5.    803.00
       .29      3.57    6.56       2.71      .052    .046     .065      .096   803.00   351.07
   .005609      420.     460.      310.         2       0        0      0.00    43.47   394.54


 *SECNO 1.950

 3470 ENCROACHMENT STATIONS=     451.0     501.0  TYPE=     1  TARGET=      50.000
      1.95     6.11   809.01      0.00      0.00   809.22      .20      1.31       .07   808.70
       532.       1.     484.      46.        3.     128.     28.       18.        5.    803.50
       .33      .46     3.77      1.67       .052    .046     .065      .086   802.90   451.00
   .001654      260.     530.      440.         2       0        0      0.00    47.02   498.02


 CCHV=     .300 CEHV=     .500
 *SECNO 2.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      818.20 ELREA=      818.20

      2.00     6.17   809.07      0.00      0.00   809.33      .26       .09       .03   808.70
       532.       0.     532.      0.        0.      130.     0.        18.        5.    803.50
       .33      0.00    4.09       0.00      .052    .046     .065      .085   802.90   464.00
   .001955       50.      50.       50.          2       0        0      0.00    24.00   488.00


 CCHV=     .300 CEHV=     .500
```

*SECNO 2.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.20 ELREA= 818.20

2.10	6.17	809.07	0.00	0.00	809.34	.26	.00	.00	808.70
532.	0.	532.	0.	0.	130.	0.	18.	5.	803.50
.33	0.00	4.09	0.00	.033	.022	.033	.085	802.90	464.00
.000461	1.	1.	1.	0	0	0	0.00	24.00	488.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.95	2.15	3.00	0.00	21.40	1.00	138.40	.21	803.50	803.50

*SECNO 2.500

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

CLASS A LOW FLOW

3420 BRIDGE W.S.= 809.05 BRIDGE VELOCITY= 4.45 CALCULATED CHANNEL AREA= 120.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.00	809.33	.02	0.	532.	138.	132.	809.60	818.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.20 ELREA= 818.20

2.50	6.19	809.09	0.00	0.00	809.33	.24	-.00	0.00	805.00
532.	0.	532.	0.	0.	135.	0.	18.	6.	809.30
.34	0.00	3.94	0.00	.033	.022	.033	.083	802.90	364.00
.000504	59.	59.	59.	0	0	0	0.00	24.00	388.00

*SECNO 2.510

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 818.00 ELREA= 818.00

2.51	6.19	809.09	0.00	0.00	809.34	.24	.00	.00	805.00
532.	0.	532.	0.	0.	135.	0.	18.	6.	809.30
.34	0.00	3.94	0.00	.091	.065	.091	.083	802.90	364.00
.004355	1.	1.	1.	0	0	0	0.00	24.00	388.00

*SECNO 2.550

3470 ENCROACHMENT STATIONS= 349.0 403.0 TYPE= 1 TARGET= 54.000

2.55	6.25	809.27	0.00	0.00	809.46	.19	.11	.01	805.12
532.	38.	494.	0.	26.	136.	0.	19.	6.	809.42
.34	1.45	3.62	0.00	.091	.065	.091	.083	803.02	349.00
.003307	30.	30.	30.	2	0	0	0.00	39.00	388.00

CCHV= .100 CEHV= .300

*SECNO 2.700

2.70	5.82	810.82	0.00	0.00	810.84	.03	1.36	.02	806.00
532.	274.	98.	160.	343.	43.	155.	24.	8.	806.00
.52	.80	2.31	1.03	.091	.065	.091	.081	805.00	367.12
.001145	590.	860.	650.	3	0	0	0.00	297.62	664.74

*SECNO 2.900

2.90	3.52	811.32	0.00	0.00	811.35	.03	.51	.00	808.80
532.	421.	47.	65.	298.	24.	49.	28.	10.	808.80
.59	1.41	1.93	1.32	.065	.065	.065	.084	807.80	143.56
.001694	300.	620.	430.	3	0	0	0.00	214.66	358.22

*SECNO 2.905

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.91	3.44	811.37	0.00	0.00	811.41	.04	.05	.00	808.93
532.	420.	48.	64.	283.	23.	46.	28.	10.	808.93
.60	1.48	2.04	1.39	.065	.065	.065	.084	807.93	145.32
.001983	30.	30.	30.	0	0	0	0.00	212.03	357.34

*SECNO 2.910

2.91	3.48	811.58	0.00	0.00	811.65	.07	.23	.01	808.80
532.	214.	75.	243.	112.	25.	126.	29.	10.	808.80
.61	1.91	2.99	1.94	.065	.065	.065	.084	808.10	69.53
.003800	90.	130.	65.	2	0	0	0.00	189.90	259.43

*SECNO 2.920

2.92	3.49	811.99	0.00	0.00	812.06	.07	.41	.00	809.50
532.	192.	78.	261.	107.	24.	140.	29.	11.	809.50
.62	1.80	3.28	1.86	.065	.065	.065	.084	808.50	60.44
.004962	95.	120.	85.	2	0	0	0.00	229.02	289.46

*SECNO 2.940

2.94	3.34	812.24	0.00	0.00	812.38	.15	.30	.02	810.50
532.	160.	194.	178.	72.	46.	87.	29.	11.	810.40
.63	2.22	4.21	2.05	.065	.065	.065	.084	808.90	219.43
.009963	60.	55.	25.	2	0	0	0.00	230.49	449.92

*SECNO 3.000

3.00	3.54	812.74	0.00	0.00	812.95	.21	.55	.02	810.60
532.	246.	221.	66.	83.	46.	42.	30.	11.	809.50
.63	2.96	4.77	1.55	.065	.065	.065	.084	809.20	225.17
.014806	50.	50.	30.	2	0	0	0.00	240.29	465.46

*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	4.66	818.66	0.00	0.00	818.74	.08	5.78	.01	814.30

532.	285.	183.	65.	177.	59.	42.	35.	16.	814.30
.78	1.61	3.11	1.53	.091	.065	.091	.079	814.00	83.36
.002491	1200.	1160.	940.	5	0	0	0.00	109.96	193.32

*SECNO 4.500

4.50	4.38	820.88	0.00	0.00	820.92	.04	2.18	.00	817.50
532.	373.	81.	78.	301.	31.	51.	42.	18.	817.50
.96	1.24	2.61	1.53	.091	.065	.091	.082	816.50	98.36
.002221	720.	1400.	1000.	6	0	0	0.00	183.86	282.21

*SECNO 5.000

5.00	4.80	825.30	0.00	0.00	825.36	.06	4.43	.01	824.00
532.	3.	86.	443.	4.	32.	237.	55.	24.	821.50
1.20	.65	2.66	1.87	.091	.065	.091	.082	820.50	63.47
.002888	1525.	2150.	1800.	2	0	0	0.00	98.05	161.53

*SECNO 5.500

3265 DIVIDED FLOW

5.50	4.34	828.34	0.00	0.00	828.37	.03	3.00	.00	826.10
532.	20.	57.	455.	21.	26.	356.	61.	27.	826.10
1.38	.96	2.17	1.28	.130	.091	.130	.084	824.00	38.93
.004310	840.	980.	840.	3	0	0	0.00	202.42	319.09

*SECNO 5.700

5.70	5.29	830.29	0.00	0.00	830.33	.04	1.96	.00	826.00
532.	172.	85.	275.	125.	38.	204.	73.	31.	826.00
1.61	1.37	2.22	1.34	.065	.052	.065	.081	825.00	304.26
.000775	1220.	1570.	1240.	4	0	0	0.00	122.98	427.23

*SECNO 5.990

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 370.0 430.0 TYPE= 1 TARGET= 60.000

5.99	5.58	830.68	0.00	0.00	830.73	.05	.40	.00	827.40
499.	0.	499.	0.	0.	293.	0.	77.	33.	100000.00
1.72	0.00	1.70	0.00	.065	.052	.065	.079	825.10	370.00
.000494	660.	650.	640.	3	0	0	0.00	60.00	430.00

CCHV= .300 CEHV= .500

*SECNO 6.000

3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD= 842.90 MAX ELLC= 840.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 837.20 ELREA= 837.20

6.00	5.55	830.65	0.00	0.00	830.85	.20	.04	.08	826.30
499.	0.	499.	0.	0.	139.	0.	78.	33.	825.50
1.72	0.00	3.59	0.00	.065	.052	.065	.079	825.10	380.00

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 .004009      40.      40.      40.        2        0        0   -73.11    39.70   419.70

 *SECNO 6.100

 3370 NORMAL BRIDGE,NRD= 31 MIN ELTRD=  842.90 MAX ELLC=  840.80

      6.10     5.66   830.76     0.00     0.00   830.88      .11      .00      .03   826.30
      499.       10.     412.      76.      22.     141.      70.      78.      33.    825.50
      1.72      .46     2.93     1.09     .065     .031     .065     .079   825.10   341.69
    .000838       1.       1.       1.        2        0        0  -152.83   116.60   458.29

 *SECNO 6.500

 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  842.90 MAX ELLC=  841.50

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      842.86 ELREA=      842.86

      6.50     5.35   830.85     0.00     0.00   831.06      .21      .13      .05   825.90
      499.       0.     499.       0.       0.     136.       0.      78.      33.    825.90
      1.73     0.00     3.68     0.00     .065     .031     .065     .079   825.50   380.30
    .001540      119.     119.     119.        2        0        0   -77.23    39.40   419.70

 *SECNO 6.600

 3370 NORMAL BRIDGE,NRD= 33 MIN ELTRD=  842.90 MAX ELLC=  841.50

      6.60     5.35   830.85     0.00     0.00   831.06      .22      .00      .00   825.90
      499.       0.     499.       0.       0.     134.       0.      78.      33.    825.90
      1.73     0.00     3.72     0.00     .130     .052     .130     .079   825.50   353.25
    .003903       1.       1.       1.        0        0        0  -161.33    84.56   437.81

 *SECNO 6.650
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      355.0      445.0  TYPE=      1  TARGET=      90.000
      6.65     5.56   831.11     0.00     0.00   831.17      .06      .06      .05   825.95
      499.       35.     445.      19.      67.     210.      35.      78.      33.    825.95
      1.74      .52     2.12      .54     .130     .052     .130     .079   825.55   355.00
    .000592       50.      50.      50.        2        0        0     0.00    85.23   440.23

 *SECNO 6.700

 3470 ENCROACHMENT STATIONS=      330.0     1295.0  TYPE=      1  TARGET=     965.000
      6.70     5.22   831.22     0.00     0.00   831.22      .00      .03      .02   826.50
      499.       45.      12.     442.     428.      40.    3813.     119.      42.    826.50
      3.76      .11      .29      .12     .130     .052     .130     .077   826.00   330.00
    .000012      970.     1000.     720.        2        0        0     0.00   887.13  1217.13

 CCHV=     .100 CEHV=     .300
 *SECNO 7.000
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     7.00      5.24   831.24      0.00      0.00   831.24      .01       .02       .00   827.00
      499.       29.      40.      430.       86.      38.      815.      163.       52.   827.00
     4.14       .34     1.05       .53      .078      .046      .078      .077   826.00    70.72
  .000135     1060.    1130.      700.         2         0         0      0.00   285.47   356.19

 CCHV=     .100 CEHV=     .300
  *SECNO 7.100
     7.10      5.38   831.38      0.00      0.00   831.41      .03       .16       .01   827.00
      499.       17.      125.     357.       31.      49.      520.      174.       56.   827.00
     4.28       .55     2.56       .69      .104      .046      .104      .075   826.00   267.96
  .000761      550.     650.      600.         2         0         0      0.00   277.42   545.38

  *SECNO 7.300

 3470 ENCROACHMENT STATIONS=      240.0      355.0  TYPE=      1  TARGET=      115.000
     7.30      6.07   832.08      0.00      0.00   832.41      .33       .91       .09   831.30
      499.       5.      404.      90.       11.      79.      65.       179.       58.   829.20
     4.32       .47     5.09      1.37      .104      .046      .104      .074   826.01   261.32
  .003805      550.     650.      600.         2         0         0      0.00    93.68   355.00

 CCHV=     .300 CEHV=     .500
 *SECNO 7.500
    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

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

     7.50      6.31   832.91      0.00      0.00   833.17      .26       .74       .02   827.50
      376.       0.      376.       0.        0.       91.       0.       180.       58.   827.50
     4.34      0.00     4.12      0.00      .104      .046      .104      .074   826.60   392.00
  .002267      300.     250.      200.         2         0         0      0.00    15.60   407.60

  *SECNO 7.510

 3370 NORMAL BRIDGE,NRD= 24 MIN ELTRD=  840.80 MAX ELLC=  837.42

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

     7.51      6.31   832.91      0.00      0.00   833.17      .26       .00       .00   827.50
      376.       0.      376.       0.        0.       91.       0.       180.       58.   827.50
     4.34      0.00     4.11      0.00      .039      .025      .039      .074   826.60   392.00
  .000667        1.       1.        1.         0         0         0     -2.16    15.60   407.60

  *SECNO 7.590

 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  840.80 MAX ELLC=  837.42

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.80 ELREA=      840.80

     7.59      6.45   832.95      0.00      0.00   833.20      .26       .03       .00   827.50
      376.       0.      376.       0.        0.       93.       0.       180.       58.   827.50
```

```
      4.34      0.00      4.05      0.00      .039      .025      .039      .073    826.50    392.00
   .000637       44.       44.       44.         2         0         0     -7.62     15.60    407.60

 *SECNO 7.600

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      840.30 ELREA=      840.30

      7.60      6.45    832.95      0.00      0.00    833.20       .26       .00       .00    827.50
       376.        0.       376.        0.        0.        93.        0.       180.        58.    827.50
      4.34      0.00      4.05      0.00      .091      .046      .091      .073    826.50    392.00
   .002162         1.        1.        1.         0         0         0      0.00     15.60    407.60

 CCHV=     .100 CEHV=     .300
 *SECNO 7.700

 3470 ENCROACHMENT STATIONS=      210.0      290.0  TYPE=      1  TARGET=       80.000
      7.70      6.23    833.13      0.00      0.00    833.33       .20       .12       .01    827.20
       376.       79.       292.        6.       79.       73.        8.       180.       59.    827.20
      4.35       .99      4.00       .70       .091      .046      .091      .073    826.90    210.00
   .001351       70.       70.       70.         2         0         0      0.00     48.79    258.79

 *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      6.11    833.91      0.00      0.00    833.96       .05       .62       .01    828.40
       376.       95.       162.       119.       131.       64.       113.       184.       60.    828.40
      4.47       .73      2.54      1.05       .091      .046      .091      .072    827.80     92.90
   .000585       670.      730.      780.         2         0         0      0.00    108.09    200.99

 *SECNO 8.500
      8.50      6.37    834.37      0.00      0.00    834.47       .10       .50       .01    828.00
       376.       61.       281.       35.       94.       98.       40.       189.       62.    828.00
      4.57       .65      2.88       .86       .091      .046      .091      .070    828.00    221.37
   .000716       900.      750.      730.         2         0         0      0.00    101.96    323.33

 CCHV=     .300 CEHV=     .500
 *SECNO 9.000

 3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  834.40 MAX ELLC=  835.00

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      834.60 ELREA=      836.50

      9.00      6.50    834.50      0.00      0.00    834.79       .28       .22       .09    828.00
       376.        0.       376.        0.        0.        88.        0.       189.       62.    828.00
      4.58      0.00      4.27      0.00      .091      .046      .091      .070    828.00    292.00
   .004749       150.      150.      150.         2         0         0    -17.51     16.00    308.00

 *SECNO 9.100

 3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD=  834.40 MAX ELLC=  835.00
```

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.10	6.51	834.51	0.00	0.00	834.79	.28	.00	.00	828.00
376.	0.	376.	0.	0.	88.	0.	189.	62.	828.00
4.58	0.00	4.27	0.00	.052	.031	.052	.070	828.00	292.00
.002232	1.	1.	1.	0	0	0	-17.54	16.00	308.00

*SECNO 9.400

3370 NORMAL BRIDGE,NRD= 18 MIN ELTRD= 834.40 MAX ELLC= 835.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.40	6.58	834.58	0.00	0.00	834.92	.34	.10	.03	828.60
376.	0.	376.	0.	0.	80.	0.	189.	62.	829.00
4.58	0.00	4.70	0.00	.052	.031	.052	.070	828.00	292.00
.003139	39.	39.	39.	3	0	0	-59.15	16.00	308.00

*SECNO 9.500

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= 18 MIN ELTRD= 834.40 MAX ELLC= 835.00

3470 ENCROACHMENT STATIONS= 215.0 310.0 TYPE= 1 TARGET= 95.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 834.60 ELREA= 836.50

9.50	6.58	834.58	0.00	0.00	834.93	.34	.00	.00	828.60
376.	0.	376.	0.	0.	80.	0.	189.	62.	829.00
4.58	0.00	4.70	0.00	.065	.046	.065	.070	828.00	292.00
.006670	1.	1.	1.	0	0	0	-29.96	16.00	308.00

*SECNO 9.550

9.55	7.00	835.00	0.00	0.00	835.04	.04	.03	.09	828.60
376.	105.	218.	53.	131.	106.	55.	189.	62.	829.00
4.58	.80	2.06	.96	.065	.046	.065	.070	828.00	221.72
.000326	30.	30.	30.	2	0	0	0.00	104.09	325.82

CCHV= .100 CEHV= .300

*SECNO 9.600

9.60	7.28	835.08	0.00	0.00	835.09	.01	.05	.00	828.60
376.	198.	150.	28.	394.	110.	99.	192.	63.	828.60
4.66	.50	1.36	.28	.078	.046	.078	.070	827.80	771.35
.000134	270.	220.	160.	2	0	0	0.00	204.16	975.51

*SECNO 9.700

9.70	7.36	835.16	0.00	0.00	835.17	.01	.07	.00	829.10
376.	182.	134.	60.	434.	107.	216.	200.	66.	829.10
4.86	.42	1.25	.28	.104	.052	.104	.069	827.80	162.42

.000155	490.	500.	550.	2	0	0	0.00	296.24	458.66

CCHV= .300 CEHV= .500
*SECNO 10.000

3470 ENCROACHMENT STATIONS= 535.0 575.0 TYPE= 1 TARGET= 40.000

10.00	7.42	835.22	0.00	0.00	835.27	.04	.08	.02	828.30
316.	51.	213.	52.	69.	107.	67.	204.	67.	828.30
4.93	.73	1.99	.78	.104	.052	.104	.069	827.80	535.00
.000351	350.	400.	450.	0	0	0	0.00	40.00	575.00

*SECNO 10.100

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 837.93 ELREA= 837.93

10.10	7.40	835.20	0.00	0.00	835.34	.13	.03	.05	828.30
316.	0.	316.	0.	0.	107.	0.	205.	67.	828.30
4.94	0.00	2.94	0.00	.104	.052	.104	.069	827.80	548.00
.000976	50.	50.	50.	2	0	0	0.00	15.00	563.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.40	3.00	0.00	10.00	0.00	75.00	0.00	827.80	827.80	

*SECNO 10.400
PRESSURE FLOW

St. Joseph

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
835.87	835.34	0.00	0.	316.	75.	70.	834.80	838.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 837.93 ELREA= 837.93

10.40	7.95	835.75	0.00	0.00	835.87	.12	.53	0.00	828.80
316.	0.	316.	0.	0.	113.	0.	205.	67.	828.80
4.95	0.00	2.79	0.00	.104	.052	.104	.069	827.80	511.00
.001032	104.	104.	104.	2	0	0	0.00	15.00	526.00

*SECNO 10.550

3470 ENCROACHMENT STATIONS= 460.0 575.0 TYPE= 1 TARGET= 115.000

10.55	7.86	835.86	0.00	0.00	835.92	.05	.03	.02	829.00
316.	20.	236.	60.	35.	112.	75.	205.	67.	829.00
4.95	.56	2.11	.80	.104	.052	.104	.069	828.00	500.71
.000377	50.	50.	50.	2	0	0	0.00	42.18	542.89

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 CCHV=    .100 CEHV=    .300
 *SECNO 10.700
    10.70     6.10   836.10     0.00     0.00   836.13      .03      .21      .00   830.00
     316.      137.     123.      56.      325.     61.      72.      209.      69.    830.00
     5.08       .42     2.01      .78      .104     .052     .104     .068   830.00   64.26
  .000445      500.     510.     510.        2        0        0     0.00   284.68   348.94

 CCHV=    .100 CEHV=    .300
 *SECNO 10.800

 3470 ENCROACHMENT STATIONS=     415.0     850.0  TYPE=     1  TARGET=     435.000
    10.80     4.62   836.62     0.00     0.00   836.76      .14      .60      .03   832.00
     316.      71.     178.      68.      59.      46.      50.      214.      73.    832.00
     5.15     1.20     3.84     1.35      .104     .052     .104     .067   832.00   603.17
  .002349      840.     650.     580.        2        0        0     0.00   105.56   708.73

 *SECNO 10.900
    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

    10.90     5.94   838.04     0.00     0.00   838.09      .05     1.32      .01   834.00
     316.      70.     218.      28.      152.     100.     41.      220.      78.    834.00
     5.34       .46     2.18      .68      .104     .052     .104     .066   832.10   159.90
  .000701     1280.     1100.     1000.        2        0        0     0.00   228.13   388.03

 CCHV=    .300 CEHV=    .500
 *SECNO 11.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     847.80 ELREA=     847.80

    11.00     6.38   838.48     0.00     0.00   838.62      .14      .48      .05   832.60
     270.       0.     270.       0.       0.      89.       0.      222.      79.    832.60
     5.39     0.00     3.03     0.00      .104     .052     .104     .066   832.10   193.00
  .001548      450.     490.     780.        2        0        0     0.00    14.00   207.00

 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      0.00      2.09      3.00      0.00     13.00      0.00     61.36      0.00    832.60    832.10

 *SECNO 11.400

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=   839.107  EGLWC=   839.121  ELLC=   837.320  PCWSE=   838.479  ELTRD=   847.790

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  847.79 MAX ELLC=  837.32

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     847.52 ELREA=     847.52

    11.40     6.15   838.75     0.00     0.00   839.02      .27      .34      .06   832.70
     270.       0.     270.       0.       0.      65.       0.      223.      79.    832.70
     5.40     0.00     4.14     0.00      .017     .022     .017     .065   832.60   193.00
```

.001539	219.	219.	219.	2	0	0	-90.64	14.00	207.00

CCHV= .100 CEHV= .300

*SECNO 12.000

12.00	5.45	839.25	0.00	0.00	839.32	.07	.28	.02	843.00
270.	0.	270.	0.	0.	125.	0.	223.	79.	838.80
5.43	0.00	2.15	.24	.065	.046	.065	.065	833.80	51.11
.000854	250.	250.	250.	2	0	0	0.00	35.61	86.72

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

READY 11.29.31

1) COUNTY: Eaton County

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Carrier Creek

4) DOCUMENT TYPE: Summary

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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

CARRIER CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	.500	0.00	0.00	0.00	795.40	468.00	799.25	0.00	799.57	57.85	4.64	109.79	61.53
	.500	0.00	0.00	0.00	795.40	657.00	799.92	0.00	800.32	56.98	5.24	141.28	87.04
	.500	0.00	0.00	0.00	795.40	748.00	800.19	0.00	800.62	57.51	5.50	154.95	98.63
	.500	0.00	0.00	0.00	795.40	910.00	800.66	0.00	801.14	55.96	5.84	182.81	121.64
	.600	5.00	0.00	0.00	795.40	468.00	799.29	0.00	799.60	56.00	4.59	111.07	62.54
	.600	5.00	0.00	0.00	795.40	657.00	799.96	0.00	800.35	55.47	5.19	142.70	88.22
	.600	5.00	0.00	0.00	795.40	748.00	800.22	0.00	800.65	56.02	5.45	156.50	99.94
	.600	5.00	0.00	0.00	795.40	910.00	800.70	0.00	801.17	54.66	5.79	184.59	123.09
	.700	5.00	0.00	0.00	795.40	468.00	799.32	0.00	799.63	53.84	4.54	112.65	63.78
	.700	5.00	0.00	0.00	795.40	657.00	799.99	0.00	800.38	53.65	5.14	144.46	89.70
	.700	5.00	0.00	0.00	795.40	748.00	800.26	0.00	800.68	54.18	5.39	158.51	101.62
	.700	5.00	0.00	0.00	795.40	910.00	800.74	0.00	801.20	52.79	5.73	187.25	125.25
*	1.000	70.00	0.00	0.00	795.50	468.00	799.55	799.55	801.03	403.54	9.76	47.97	23.30
*	1.000	70.00	0.00	0.00	795.50	657.00	800.29	800.29	802.14	382.60	10.91	60.19	33.59
*	1.000	70.00	0.00	0.00	795.50	748.00	800.62	800.62	802.63	376.81	11.39	65.66	38.53
*	1.000	70.00	0.00	0.00	795.50	910.00	801.17	801.17	803.47	369.99	12.16	74.87	47.31
	1.100	1.00	806.50	826.40	795.50	468.00	799.87	0.00	801.07	71.97	8.79	53.23	55.16
	1.100	1.00	806.50	826.40	795.50	657.00	800.68	0.00	802.19	69.41	9.86	66.52	78.86
	1.100	1.00	806.50	826.40	795.50	748.00	801.01	0.00	802.68	70.39	10.38	72.06	89.15
	1.100	1.00	806.50	826.40	795.50	910.00	801.62	0.00	803.52	69.15	11.06	82.26	109.43
	1.500	24.00	806.50	826.40	795.50	468.00	800.35	0.00	801.24	47.46	7.60	61.61	67.94
	1.500	24.00	806.50	826.40	795.50	657.00	801.18	0.00	802.36	49.36	8.70	75.50	93.51
	1.500	24.00	806.50	826.40	795.50	748.00	801.55	0.00	802.86	50.49	9.18	81.49	105.26
	1.500	24.00	806.50	826.40	795.50	910.00	802.19	0.00	803.70	51.25	9.88	92.14	127.11
	1.550	1.00	0.00	0.00	795.50	468.00	800.36	0.00	801.25	295.40	7.59	61.69	27.23
	1.550	1.00	0.00	0.00	795.50	657.00	801.20	0.00	802.37	307.28	8.69	75.60	37.48
	1.550	1.00	0.00	0.00	795.50	748.00	801.57	0.00	802.87	311.81	9.14	81.81	42.36
	1.550	1.00	0.00	0.00	795.50	910.00	802.20	0.00	803.71	319.31	9.87	92.24	50.93
	1.600	180.00	0.00	0.00	797.50	468.00	802.05	0.00	802.09	19.03	2.50	348.77	107.27
	1.600	180.00	0.00	0.00	797.50	657.00	803.06	0.00	803.10	14.64	2.54	473.32	171.73
	1.600	180.00	0.00	0.00	797.50	748.00	803.52	0.00	803.56	13.17	2.56	533.44	206.11
	1.600	180.00	0.00	0.00	797.50	910.00	804.31	0.00	804.35	11.27	2.58	639.00	271.10

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.700	820.00	0.00	0.00	801.00	468.00	804.52	0.00	804.60	128.21	2.65	213.76	41.33
1.700	820.00	0.00	0.00	801.00	657.00	804.98	0.00	805.07	109.22	2.69	277.23	62.86
1.700	820.00	0.00	0.00	801.00	748.00	805.23	0.00	805.32	96.24	2.65	312.61	76.25
1.700	820.00	0.00	0.00	801.00	910.00	805.73	0.00	805.82	74.12	2.52	383.41	105.70
1.800	500.00	0.00	0.00	801.60	468.00	806.30	0.00	806.37	18.85	3.35	274.17	107.79
1.800	500.00	0.00	0.00	801.60	657.00	806.71	0.00	806.79	19.47	3.64	347.27	148.91
1.800	500.00	0.00	0.00	801.60	748.00	806.89	0.00	806.97	19.46	3.75	381.53	169.57
1.800	500.00	0.00	0.00	801.60	910.00	807.21	0.00	807.30	18.95	3.87	441.48	209.06
1.900	460.00	0.00	0.00	803.00	468.00	807.25	0.00	807.63	49.90	6.05	111.21	66.25
1.900	460.00	0.00	0.00	803.00	657.00	807.69	0.00	808.23	64.62	7.35	130.59	81.73
1.900	460.00	0.00	0.00	803.00	748.00	807.86	0.00	808.49	71.80	7.94	138.54	88.28
1.900	460.00	0.00	0.00	803.00	910.00	808.12	0.00	808.91	84.56	8.92	151.23	98.96
1.950	530.00	0.00	0.00	802.90	468.00	808.72	0.00	808.90	15.59	3.53	146.39	118.51
1.950	530.00	0.00	0.00	802.90	657.00	809.52	0.00	809.77	17.92	4.17	183.44	155.21
1.950	530.00	0.00	0.00	802.90	748.00	809.85	0.00	810.13	18.76	4.43	199.58	172.70
1.950	530.00	0.00	0.00	802.90	910.00	810.40	0.00	810.72	19.91	4.83	226.43	203.95
2.000	50.00	0.00	0.00	802.90	468.00	808.79	0.00	809.01	17.90	3.80	123.00	110.61
2.000	50.00	0.00	0.00	802.90	657.00	809.58	0.00	809.91	22.71	4.63	142.02	137.86
2.000	50.00	0.00	0.00	802.90	748.00	809.91	0.00	810.29	24.97	4.99	149.91	149.68
2.000	50.00	0.00	0.00	802.90	910.00	810.43	0.00	810.92	28.91	5.60	162.58	169.23
2.100	1.00	0.00	0.00	802.90	468.00	808.79	0.00	809.01	4.22	3.80	123.04	227.84
2.100	1.00	0.00	0.00	802.90	657.00	809.58	0.00	809.91	5.35	4.62	142.07	283.98
2.100	1.00	0.00	0.00	802.90	748.00	809.91	0.00	810.29	5.89	4.99	149.96	308.32
2.100	1.00	0.00	0.00	802.90	910.00	810.44	0.00	810.92	6.82	5.60	162.63	348.58
2.500	59.00	818.20	809.60	802.90	468.00	808.80	0.00	809.01	4.56	3.66	127.98	219.26
2.500	59.00	818.20	809.60	802.90	657.00	810.06	0.00	810.33	4.69	4.15	158.30	303.22
2.500	59.00	818.20	809.60	802.90	748.00	810.59	0.00	810.88	4.80	4.38	170.81	341.34
2.500	59.00	818.20	809.60	802.90	910.00	811.54	0.00	811.88	4.83	4.70	193.64	414.17
2.510	1.00	0.00	0.00	802.90	468.00	808.80	0.00	809.01	39.40	3.66	127.99	74.56
2.510	1.00	0.00	0.00	802.90	657.00	810.06	0.00	810.33	40.61	4.15	158.30	103.09
2.510	1.00	0.00	0.00	802.90	748.00	810.59	0.00	810.88	41.55	4.38	170.81	116.05
2.510	1.00	0.00	0.00	802.90	910.00	811.54	0.00	811.88	41.76	4.70	193.63	140.81
2.550	30.00	0.00	0.00	803.02	468.00	808.95	0.00	809.13	31.35	3.42	149.94	83.59
2.550	30.00	0.00	0.00	803.02	657.00	810.26	0.00	810.45	27.56	3.67	203.39	125.14
2.550	30.00	0.00	0.00	803.02	748.00	810.81	0.00	811.01	26.33	3.78	228.84	145.78
2.550	30.00	0.00	0.00	803.02	910.00	811.81	0.00	812.01	23.24	3.87	280.75	188.77
2.700	860.00	0.00	0.00	805.00	468.00	810.57	0.00	810.60	13.13	2.40	467.50	129.17
2.700	860.00	0.00	0.00	805.00	657.00	811.42	0.00	811.44	7.51	2.02	723.54	238.10
2.700	860.00	0.00	0.00	805.00	748.00	811.83	0.00	811.85	6.14	1.90	849.10	301.98
2.700	860.00	0.00	0.00	805.00	910.00	812.62	0.00	812.64	4.22	1.70	1092.56	442.83
2.900	620.00	0.00	0.00	807.80	468.00	811.15	0.00	811.18	18.12	1.91	333.98	109.95
2.900	620.00	0.00	0.00	807.80	657.00	811.76	0.00	811.79	12.81	1.83	468.18	183.57
2.900	620.00	0.00	0.00	807.80	748.00	812.10	0.00	812.13	10.34	1.75	547.56	232.61
2.900	620.00	0.00	0.00	807.80	910.00	812.80	0.00	812.82	6.68	1.58	715.92	352.01

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.000	40.00	842.90	840.80	825.10	439.00	830.42	0.00	830.58	34.77	3.28	134.03	74.45
6.000	40.00	842.90	840.80	825.10	617.00	831.06	0.00	831.34	68.38	4.20	147.00	74.61
6.000	40.00	842.90	840.80	825.10	702.00	831.33	0.00	831.67	84.29	4.70	149.43	76.46
6.000	40.00	842.90	840.80	825.10	872.00	831.73	0.00	832.25	148.59	5.74	151.96	71.54
6.100	1.00	842.90	840.80	825.10	439.00	830.51	0.00	830.61	7.58	2.72	216.56	159.45
6.100	1.00	842.90	840.80	825.10	617.00	831.25	0.00	831.38	12.90	3.22	265.70	171.80
6.100	1.00	842.90	840.80	825.10	702.00	831.58	0.00	831.73	14.98	3.51	283.97	181.38
6.100	1.00	842.90	840.80	825.10	872.00	832.16	0.00	832.35	23.59	4.00	309.53	179.55
6.500	119.00	842.90	841.50	825.50	439.00	830.59	0.00	830.76	13.61	3.38	129.94	118.98
6.500	119.00	842.90	841.50	825.50	617.00	831.36	0.00	831.64	18.42	4.21	146.46	143.74
6.500	119.00	842.90	841.50	825.50	702.00	831.73	0.00	832.07	29.37	4.67	150.42	129.53
6.500	119.00	842.90	841.50	825.50	872.00	832.40	0.00	832.91	51.97	5.70	153.10	120.96
6.600	1.00	842.90	841.50	825.50	439.00	830.59	0.00	830.77	34.74	3.41	128.56	74.49
6.600	1.00	842.90	841.50	825.50	617.00	831.36	0.00	831.64	46.01	4.26	144.94	90.97
6.600	1.00	842.90	841.50	825.50	702.00	831.73	0.00	832.07	75.17	4.72	148.70	80.97
6.600	1.00	842.90	841.50	825.50	872.00	832.40	828.88	832.92	134.02	5.77	151.15	75.32
6.650	50.00	0.00	0.00	825.55	439.00	830.81	0.00	830.86	5.66	1.99	287.61	184.50
6.650	50.00	0.00	0.00	825.55	617.00	831.70	0.00	831.77	6.15	2.32	364.91	248.81
6.650	50.00	0.00	0.00	825.55	702.00	832.15	0.00	832.23	6.07	2.42	405.48	284.91
6.650	50.00	0.00	0.00	825.55	872.00	833.04	0.00	833.13	5.79	2.57	485.72	362.44
6.700	1000.00	0.00	0.00	826.00	439.00	830.91	0.00	830.91	.12	.27	4006.68	1277.98
6.700	1000.00	0.00	0.00	826.00	617.00	831.83	0.00	831.83	.13	.32	4820.32	1731.26
6.700	1000.00	0.00	0.00	826.00	702.00	832.28	0.00	832.28	.13	.33	5236.04	1982.44
6.700	1000.00	0.00	0.00	826.00	872.00	833.19	0.00	833.19	.12	.36	6048.13	2509.75
7.000	1130.00	0.00	0.00	826.00	439.00	830.93	0.00	830.93	1.42	1.03	850.89	368.74
7.000	1130.00	0.00	0.00	826.00	617.00	831.84	0.00	831.85	1.22	1.08	1114.33	559.42
7.000	1130.00	0.00	0.00	826.00	702.00	832.30	0.00	832.31	1.10	1.09	1249.73	667.92
7.000	1130.00	0.00	0.00	826.00	872.00	833.20	0.00	833.21	.92	1.09	1527.14	907.80
7.100	650.00	0.00	0.00	826.00	439.00	831.08	0.00	831.12	8.80	2.64	518.24	147.95
7.100	650.00	0.00	0.00	826.00	617.00	831.97	0.00	831.99	5.86	2.42	768.33	254.94
7.100	650.00	0.00	0.00	826.00	702.00	832.41	0.00	832.43	4.84	2.32	901.95	319.10
7.100	650.00	0.00	0.00	826.00	872.00	833.29	0.00	833.31	3.47	2.15	1184.74	467.83
7.300	650.00	0.00	0.00	826.01	439.00	831.88	0.00	832.18	35.81	4.79	138.14	73.36
7.300	650.00	0.00	0.00	826.01	617.00	832.49	0.00	832.85	39.16	5.46	197.66	98.60
7.300	650.00	0.00	0.00	826.01	702.00	832.83	0.00	833.18	36.83	5.52	235.90	115.67
7.300	650.00	0.00	0.00	826.01	872.00	833.56	0.00	833.87	29.75	5.40	320.27	159.87
7.500	250.00	0.00	0.00	826.60	331.00	832.66	0.00	832.88	20.00	3.79	87.45	74.02
7.500	250.00	0.00	0.00	826.60	464.00	833.34	0.00	833.68	27.98	4.73	98.08	87.73
7.500	250.00	0.00	0.00	826.60	550.00	833.66	0.00	834.10	33.99	5.34	103.05	94.34
7.500	250.00	0.00	0.00	826.60	726.00	834.27	0.00	834.92	45.60	6.44	112.70	107.51
7.510	1.00	840.80	837.42	826.60	331.00	832.66	0.00	832.88	5.88	3.78	87.49	136.45
7.510	1.00	840.80	837.42	826.60	464.00	833.34	0.00	833.69	8.23	4.73	98.13	161.73
7.510	1.00	840.80	837.42	826.60	550.00	833.66	0.00	834.10	10.00	5.33	103.11	173.93
7.510	1.00	840.80	837.42	826.60	726.00	834.28	0.00	834.92	13.42	6.44	112.75	198.18

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2.905	30.00	0.00	0.00	807.93	468.00	811.20	0.00	811.24	21.33	2.04	316.63	101.32
2.905	30.00	0.00	0.00	807.93	657.00	811.80	0.00	811.84	14.77	1.93	446.54	170.94
2.905	30.00	0.00	0.00	807.93	748.00	812.14	0.00	812.17	11.88	1.85	523.51	217.05
2.905	30.00	0.00	0.00	807.93	910.00	812.82	0.00	812.85	7.55	1.65	688.28	331.23
2.910	130.00	0.00	0.00	808.10	468.00	811.43	0.00	811.50	39.56	2.95	233.62	74.41
2.910	130.00	0.00	0.00	808.10	657.00	811.96	0.00	812.02	30.26	2.88	338.88	119.44
2.910	130.00	0.00	0.00	808.10	748.00	812.26	0.00	812.32	24.02	2.70	403.38	152.63
2.910	130.00	0.00	0.00	808.10	910.00	812.89	0.00	812.94	14.26	2.31	551.35	240.98
2.920	120.00	0.00	0.00	808.50	468.00	811.85	0.00	811.92	52.05	3.25	240.59	64.87
2.920	120.00	0.00	0.00	808.50	657.00	812.28	0.00	812.34	38.92	3.08	338.23	105.31
2.920	120.00	0.00	0.00	808.50	748.00	812.51	0.00	812.57	31.56	2.91	394.48	133.15
2.920	120.00	0.00	0.00	808.50	910.00	813.04	0.00	813.09	19.26	2.49	527.32	207.37
2.940	55.00	0.00	0.00	808.90	468.00	812.12	0.00	812.27	107.57	4.24	177.64	45.12
2.940	55.00	0.00	0.00	808.90	657.00	812.47	0.00	812.60	82.39	4.06	260.93	72.38
2.940	55.00	0.00	0.00	808.90	748.00	812.67	0.00	812.78	66.13	3.81	309.60	91.98
2.940	55.00	0.00	0.00	808.90	910.00	813.13	0.00	813.21	37.94	3.17	427.90	147.74
3.000	50.00	0.00	0.00	809.20	468.00	812.65	0.00	812.86	148.50	4.67	151.18	38.40
3.000	50.00	0.00	0.00	809.20	657.00	812.89	0.00	813.11	145.46	4.93	208.13	54.48
3.000	50.00	0.00	0.00	809.20	748.00	813.00	0.00	813.22	138.58	4.95	235.91	63.54
3.000	50.00	0.00	0.00	809.20	910.00	813.32	0.00	813.48	94.83	4.40	316.14	93.45
4.000	1160.00	0.00	0.00	814.00	468.00	818.46	0.00	818.53	24.04	2.97	256.40	95.45
4.000	1160.00	0.00	0.00	814.00	657.00	819.01	0.00	819.10	26.55	3.38	317.42	127.50
4.000	1160.00	0.00	0.00	814.00	748.00	819.23	0.00	819.33	28.01	3.57	342.39	141.34
4.000	1160.00	0.00	0.00	814.00	910.00	819.44	0.00	819.57	34.35	4.06	366.86	155.27
4.500	1400.00	0.00	0.00	816.50	468.00	820.69	0.00	820.73	23.00	2.57	348.58	97.59
4.500	1400.00	0.00	0.00	816.50	657.00	821.23	0.00	821.27	21.18	2.70	447.50	142.76
4.500	1400.00	0.00	0.00	816.50	748.00	821.46	0.00	821.50	20.63	2.76	491.18	164.68
4.500	1400.00	0.00	0.00	816.50	910.00	821.84	0.00	821.89	19.92	2.86	564.43	203.89
5.000	2150.00	0.00	0.00	820.50	468.00	825.11	0.00	825.16	27.57	2.50	255.20	89.14
5.000	2150.00	0.00	0.00	820.50	657.00	825.65	0.00	825.73	30.96	2.92	308.18	118.07
5.000	2150.00	0.00	0.00	820.50	748.00	825.88	0.00	825.97	32.20	3.10	332.01	131.82
5.000	2150.00	0.00	0.00	820.50	910.00	826.26	0.00	826.36	33.95	3.37	372.09	156.18
5.500	980.00	0.00	0.00	824.00	468.00	828.11	0.00	828.14	44.82	2.12	360.95	69.90
5.500	980.00	0.00	0.00	824.00	657.00	828.72	0.00	828.75	40.27	2.26	484.78	103.53
5.500	980.00	0.00	0.00	824.00	748.00	828.97	0.00	829.00	38.80	2.32	540.88	120.09
5.500	980.00	0.00	0.00	824.00	910.00	829.35	0.00	829.39	36.57	2.40	631.96	150.48
5.700	1570.00	0.00	0.00	825.00	468.00	830.07	0.00	830.10	7.62	2.13	340.39	169.51
5.700	1570.00	0.00	0.00	825.00	657.00	830.68	0.00	830.72	8.11	2.39	416.75	230.76
5.700	1570.00	0.00	0.00	825.00	748.00	830.94	0.00	830.99	8.34	2.50	449.88	259.04
5.700	1570.00	0.00	0.00	825.00	910.00	831.35	0.00	831.41	8.78	2.70	503.81	307.10
5.990	650.00	0.00	0.00	825.10	439.00	830.44	0.00	830.48	4.48	1.58	278.70	207.37
5.990	650.00	0.00	0.00	825.10	617.00	831.12	0.00	831.17	5.79	1.93	319.10	256.39
5.990	650.00	0.00	0.00	825.10	702.00	831.40	0.00	831.47	6.40	2.09	335.75	277.56
5.990	650.00	0.00	0.00	825.10	872.00	831.86	0.00	831.95	7.70	2.40	363.62	314.17

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7.590	44.00	840.80	837.42	826.50	331.00	832.69	0.00	832.91	5.63	3.73	88.77	139.55
7.590	44.00	840.80	837.42	826.50	464.00	833.39	0.00	833.72	7.85	4.66	99.65	165.57
7.590	44.00	840.80	837.42	826.50	550.00	833.72	0.00	834.15	9.51	5.25	104.83	178.35
7.590	44.00	840.80	837.42	826.50	726.00	834.37	0.00	834.99	12.68	6.32	114.90	203.85
7.600	1.00	0.00	0.00	826.50	331.00	832.69	0.00	832.91	19.09	3.73	88.78	75.77
7.600	1.00	0.00	0.00	826.50	464.00	833.39	0.00	833.73	26.64	4.66	99.66	89.90
7.600	1.00	0.00	0.00	826.50	550.00	833.72	0.00	834.15	32.26	5.25	104.85	96.84
7.600	1.00	0.00	0.00	826.50	726.00	834.37	0.00	834.99	43.02	6.32	114.92	110.69
7.700	70.00	0.00	0.00	826.90	331.00	832.84	0.00	833.02	13.01	3.79	146.15	91.78
7.700	70.00	0.00	0.00	826.90	464.00	833.65	0.00	833.87	14.39	4.35	185.62	122.34
7.700	70.00	0.00	0.00	826.90	550.00	834.06	0.00	834.32	15.52	4.71	206.04	139.61
7.700	70.00	0.00	0.00	826.90	726.00	834.89	0.00	835.20	16.84	5.29	246.94	176.93
8.000	730.00	0.00	0.00	827.80	331.00	833.59	0.00	833.64	5.86	2.45	275.08	136.78
8.000	730.00	0.00	0.00	827.80	464.00	834.46	0.00	834.51	5.79	2.68	370.78	192.75
8.000	730.00	0.00	0.00	827.80	550.00	834.92	0.00	834.98	5.78	2.81	430.38	228.79
8.000	730.00	0.00	0.00	827.80	726.00	835.80	0.00	835.86	5.48	2.97	555.79	310.01
8.500	750.00	0.00	0.00	828.00	331.00	834.06	0.00	834.15	7.13	2.77	201.01	123.93
8.500	750.00	0.00	0.00	828.00	464.00	834.93	0.00	835.03	7.11	3.04	291.97	173.96
8.500	750.00	0.00	0.00	828.00	550.00	835.39	0.00	835.50	7.10	3.17	348.02	206.35
8.500	750.00	0.00	0.00	828.00	726.00	836.25	0.00	836.36	6.84	3.36	465.72	277.59
9.000	150.00	834.40	835.00	828.00	331.00	834.20	0.00	834.43	38.52	3.82	86.62	53.33
9.000	150.00	834.40	835.00	828.00	464.00	835.03	0.00	835.40	58.73	4.97	114.09	60.55
9.000	150.00	834.40	835.00	828.00	550.00	835.47	0.00	835.92	74.73	5.61	135.69	63.62
9.000	150.00	834.40	835.00	828.00	726.00	836.41	0.00	836.71	96.33	5.13	225.05	73.97
9.100	1.00	834.40	835.00	828.00	331.00	834.21	0.00	834.43	18.11	3.82	86.63	77.79
9.100	1.00	834.40	835.00	828.00	464.00	835.04	0.00	835.41	27.26	4.94	114.37	88.87
9.100	1.00	834.40	835.00	828.00	550.00	835.51	0.00	835.93	33.60	5.48	138.08	94.89
9.100	1.00	834.40	835.00	828.00	726.00	836.51	0.00	836.74	35.91	4.61	239.76	121.15
9.400	38.50	834.40	835.00	828.00	331.00	834.26	0.00	834.54	25.50	4.21	78.54	65.55
9.400	38.50	834.40	835.00	828.00	464.00	835.13	0.00	835.57	37.68	5.44	103.26	75.59
9.400	38.50	834.40	835.00	828.00	550.00	835.64	0.00	836.09	42.61	5.78	134.96	84.26
9.400	38.50	834.40	835.00	828.00	726.00	836.70	0.00	836.88	32.03	4.19	250.75	128.29
9.500	1.00	834.40	835.00	828.00	331.00	834.27	0.00	834.54	54.20	4.21	78.55	44.96
9.500	1.00	834.40	835.00	828.00	464.00	835.14	0.00	835.57	78.83	5.39	103.66	52.26
9.500	1.00	834.40	835.00	828.00	550.00	835.73	0.00	836.12	81.07	5.47	139.77	61.09
9.500	1.00	834.40	835.00	828.00	726.00	836.70	0.00	836.89	63.72	4.05	227.43	90.95
9.550	30.00	0.00	0.00	828.00	331.00	834.60	0.00	834.64	3.46	2.03	251.93	177.89
9.550	30.00	0.00	0.00	828.00	464.00	835.67	0.00	835.72	3.02	2.11	367.82	267.02
9.550	30.00	0.00	0.00	828.00	550.00	836.20	0.00	836.25	2.92	2.18	434.75	321.67
9.550	30.00	0.00	0.00	828.00	726.00	836.91	0.00	836.95	3.16	2.40	531.43	408.10
9.600	220.00	0.00	0.00	827.80	331.00	834.68	0.00	834.69	1.46	1.36	524.19	274.35
9.600	220.00	0.00	0.00	827.80	464.00	835.75	0.00	835.76	1.20	1.37	743.84	422.91
9.600	220.00	0.00	0.00	827.80	550.00	836.28	0.00	836.29	1.16	1.41	859.34	510.96
9.600	220.00	0.00	0.00	827.80	726.00	836.99	0.00	837.00	1.27	1.56	1021.85	644.00

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.700	500.00	0.00	0.00	827.80	331.00	834.76	0.00	834.77	1.73	1.27	641.39	251.66
9.700	500.00	0.00	0.00	827.80	464.00	835.82	0.00	835.83	1.34	1.24	956.44	401.39
9.700	500.00	0.00	0.00	827.80	550.00	836.34	0.00	836.35	1.25	1.26	1119.53	491.71
9.700	500.00	0.00	0.00	827.80	726.00	837.06	0.00	837.07	1.32	1.37	1357.21	632.49
10.000	400.00	0.00	0.00	827.80	304.00	834.84	0.00	834.89	3.94	2.03	227.95	153.13
10.000	400.00	0.00	0.00	827.80	426.00	835.88	0.00	835.94	4.69	2.43	269.39	196.68
10.000	400.00	0.00	0.00	827.80	512.00	836.39	0.00	836.47	5.41	2.73	290.27	220.12
10.000	400.00	0.00	0.00	827.80	689.00	837.10	0.00	837.23	7.36	3.36	319.09	254.05
10.100	50.00	0.00	0.00	827.80	304.00	834.82	0.00	834.96	10.64	2.99	101.60	93.21
10.100	50.00	0.00	0.00	827.80	426.00	835.84	0.00	836.05	13.78	3.64	116.89	114.74
10.100	50.00	0.00	0.00	827.80	512.00	836.35	0.00	836.61	16.59	4.11	124.44	125.71
10.100	50.00	0.00	0.00	827.80	689.00	837.02	0.00	837.43	23.97	5.12	134.57	140.72
10.400	104.00	838.50	834.80	827.80	304.00	835.31	0.00	835.44	11.33	2.85	106.85	90.31
10.400	104.00	838.50	834.80	827.80	426.00	836.88	0.00	837.04	12.60	3.27	130.39	120.01
10.400	104.00	838.50	834.80	827.80	512.00	838.07	0.00	838.08	1.19	1.42	1014.66	469.89
10.400	104.00	838.50	834.80	827.80	689.00	838.60	0.00	838.61	1.49	1.65	1187.47	565.17
10.550	50.00	0.00	0.00	828.00	304.00	835.43	0.00	835.49	4.35	2.17	204.71	145.72
10.550	50.00	0.00	0.00	828.00	426.00	837.04	0.00	837.11	3.90	2.36	293.54	215.84
10.550	50.00	0.00	0.00	828.00	512.00	838.05	0.00	838.12	3.42	2.38	386.13	276.99
10.550	50.00	0.00	0.00	828.00	689.00	838.57	0.00	838.66	4.83	2.93	440.28	313.44
10.700	510.00	0.00	0.00	830.00	304.00	835.72	0.00	835.76	6.45	2.32	355.57	119.66
10.700	510.00	0.00	0.00	830.00	426.00	837.24	0.00	837.26	2.19	1.58	815.30	288.04
10.700	510.00	0.00	0.00	830.00	512.00	838.21	0.00	838.22	1.29	1.32	1165.61	451.41
10.700	510.00	0.00	0.00	830.00	689.00	838.79	0.00	838.80	1.46	1.47	1384.53	569.70
10.800	650.00	0.00	0.00	832.00	304.00	836.44	0.00	836.59	26.24	3.95	137.56	59.35
10.800	650.00	0.00	0.00	832.00	426.00	837.52	0.00	837.62	16.50	3.63	292.03	104.89
10.800	650.00	0.00	0.00	832.00	512.00	838.38	0.00	838.43	8.99	2.95	496.38	170.73
10.800	650.00	0.00	0.00	832.00	689.00	838.97	0.00	839.01	6.73	2.71	874.52	265.56
10.900	1100.00	0.00	0.00	832.10	304.00	837.94	0.00	837.99	7.22	2.19	274.41	113.12
10.900	1100.00	0.00	0.00	832.10	426.00	838.66	0.00	838.71	6.15	2.21	450.59	171.80
10.900	1100.00	0.00	0.00	832.10	512.00	839.16	0.00	839.20	5.11	2.13	599.12	226.52
10.900	1100.00	0.00	0.00	832.10	689.00	839.67	0.00	839.71	5.47	2.33	771.31	294.58
11.000	490.00	0.00	0.00	832.10	260.00	838.39	0.00	838.52	14.97	2.96	87.77	67.20
11.000	490.00	0.00	0.00	832.10	372.00	839.08	0.00	839.31	22.61	3.82	97.46	78.23
11.000	490.00	0.00	0.00	832.10	451.00	839.51	0.00	839.80	27.97	4.36	103.48	85.27
11.000	490.00	0.00	0.00	832.10	609.00	840.02	0.00	840.49	42.12	5.50	110.64	93.83
11.400	219.00	847.79	837.32	832.60	260.00	838.65	0.00	838.90	14.23	3.99	65.21	68.93
11.400	219.00	847.79	837.32	832.60	372.00	840.08	0.00	840.27	3.29	3.56	104.62	205.18
11.400	219.00	847.79	837.32	832.60	451.00	841.04	0.00	841.26	3.43	3.82	118.06	243.61
11.400	219.00	847.79	837.32	832.60	609.00	842.94	0.00	843.21	3.54	4.21	144.68	323.51
12.000	250.00	0.00	0.00	833.80	260.00	839.12	0.00	839.19	8.80	2.15	121.13	87.66
12.000	250.00	0.00	0.00	833.80	372.00	840.32	0.00	840.40	7.34	2.27	167.51	137.34
12.000	250.00	0.00	0.00	833.80	451.00	841.31	0.00	841.39	5.78	2.21	212.46	187.62
12.000	250.00	0.00	0.00	833.80	609.00	843.26	0.00	843.32	3.68	2.07	318.89	317.27

CARRIER CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.500	468.00	799.25	0.00	0.00	1.25	44.37	0.00
	.500	657.00	799.92	.67	0.00	.92	49.41	0.00
	.500	748.00	800.19	.27	0.00	.19	53.76	0.00
	.500	910.00	800.66	.48	0.00	-.34	63.28	0.00
	.600	468.00	799.29	0.00	.04	0.00	44.59	5.00
	.600	657.00	799.96	.67	.04	0.00	49.62	5.00
	.600	748.00	800.22	.27	.04	0.00	54.33	5.00
	.600	910.00	800.70	.48	.04	0.00	63.84	5.00
	.700	468.00	799.32	0.00	.04	0.00	44.85	5.00
	.700	657.00	799.99	.67	.04	0.00	49.89	5.00
	.700	748.00	800.26	.27	.04	0.00	55.07	5.00
	.700	910.00	800.74	.48	.04	0.00	64.67	5.00
*	1.000	468.00	799.55	0.00	.23	0.00	16.60	70.00
*	1.000	657.00	800.29	.74	.30	0.00	16.60	70.00
*	1.000	748.00	800.62	.33	.36	0.00	16.60	70.00
*	1.000	910.00	801.17	.55	.43	0.00	16.60	70.00
	1.100	468.00	799.87	0.00	.32	0.00	16.60	1.00
	1.100	657.00	800.68	.80	.39	.80	16.60	1.00
	1.100	748.00	801.01	.33	.39	1.14	16.60	1.00
	1.100	910.00	801.62	.61	.45	1.75	16.60	1.00
	1.500	468.00	800.35	0.00	.47	0.00	16.60	24.00
	1.500	657.00	801.18	.84	.51	.84	16.60	24.00
	1.500	748.00	801.55	.37	.54	1.21	16.60	24.00
	1.500	910.00	802.19	.63	.57	1.84	16.60	24.00
	1.550	468.00	800.36	0.00	.01	0.00	16.60	1.00
	1.550	657.00	801.20	.84	.01	.84	16.60	1.00
	1.550	748.00	801.57	.38	.02	1.22	16.60	1.00
	1.550	910.00	802.20	.63	.01	1.84	16.60	1.00
	1.600	468.00	802.05	0.00	1.69	0.00	120.41	180.00
	1.600	657.00	803.06	1.00	1.86	1.00	127.93	180.00
	1.600	748.00	803.52	.46	1.95	1.47	131.41	180.00
	1.600	910.00	804.31	.79	2.11	2.26	138.06	180.00
	1.700	468.00	804.52	0.00	2.47	0.00	135.91	820.00
	1.700	657.00	804.98	.46	1.92	.46	139.36	820.00
	1.700	748.00	805.23	.25	1.71	.71	141.26	820.00
	1.700	910.00	805.73	.49	1.41	1.21	144.97	820.00
	1.800	468.00	806.30	0.00	1.78	0.00	169.38	500.00
	1.800	657.00	806.71	.41	1.73	.41	182.67	500.00
	1.800	748.00	806.89	.18	1.66	.59	188.57	500.00
	1.800	910.00	807.21	.32	1.48	.92	196.07	500.00
	1.900	468.00	807.25	0.00	.95	0.00	42.39	460.00
	1.900	657.00	807.69	.44	.97	.44	45.74	460.00
	1.900	748.00	807.86	.17	.96	.61	47.05	460.00

1.900	910.00	808.12	.26	.91	.87	49.06	460.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.950	468.00	808.72	0.00	1.48	0.00	36.14	530.00
1.950	657.00	809.52	.80	1.84	.80	47.95	530.00
1.950	748.00	809.85	.33	2.00	1.13	48.55	530.00
1.950	910.00	810.40	.54	2.28	1.67	50.00	530.00
2.000	468.00	808.79	0.00	.06	0.00	24.00	50.00
2.000	657.00	809.58	.79	.06	.79	24.00	50.00
2.000	748.00	809.91	.33	.05	1.12	24.00	50.00
2.000	910.00	810.43	.53	.04	1.65	24.00	50.00
2.100	468.00	808.79	0.00	.00	0.00	24.00	1.00
2.100	657.00	809.58	.79	.00	.79	24.00	1.00
2.100	748.00	809.91	.33	.00	1.12	24.00	1.00
2.100	910.00	810.44	.53	.00	1.65	24.00	1.00
2.500	468.00	808.80	0.00	.01	0.00	24.00	59.00
2.500	657.00	810.06	1.26	.48	1.26	24.00	59.00
2.500	748.00	810.59	.52	.68	1.78	24.00	59.00
2.500	910.00	811.54	.95	1.10	2.73	24.00	59.00
2.510	468.00	808.80	0.00	.00	0.00	24.00	1.00
2.510	657.00	810.06	1.26	.00	1.26	24.00	1.00
2.510	748.00	810.59	.52	.00	1.78	24.00	1.00
2.510	910.00	811.54	.95	.00	2.73	24.00	1.00
2.550	468.00	808.95	0.00	.15	0.00	39.00	30.00
2.550	657.00	810.26	1.31	.20	1.31	44.62	30.00
2.550	748.00	810.81	.55	.22	1.86	48.27	30.00
2.550	910.00	811.81	1.00	.27	2.86	54.00	30.00
2.700	468.00	810.57	0.00	1.62	0.00	295.49	860.00
2.700	657.00	811.42	.85	1.16	.85	302.85	860.00
2.700	748.00	811.83	.41	1.02	1.26	306.39	860.00
2.700	910.00	812.62	.79	.81	2.05	313.14	860.00
2.900	468.00	811.15	0.00	.57	0.00	209.37	620.00
2.900	657.00	811.76	.62	.34	.62	227.79	620.00
2.900	748.00	812.10	.34	.27	.96	236.51	620.00
2.900	910.00	812.80	.69	.18	1.65	246.96	620.00
2.905	468.00	811.20	0.00	.06	0.00	206.87	30.00
2.905	657.00	811.80	.60	.04	.60	224.92	30.00
2.905	748.00	812.14	.33	.03	.93	234.96	30.00
2.905	910.00	812.82	.68	.02	1.62	245.27	30.00
2.910	468.00	811.43	0.00	.23	0.00	178.53	130.00
2.910	657.00	811.96	.53	.16	.53	217.11	130.00
2.910	748.00	812.26	.30	.12	.83	225.63	130.00
2.910	910.00	812.89	.63	.07	1.47	239.93	130.00
2.920	468.00	811.85	0.00	.42	0.00	215.22	120.00
2.920	657.00	812.28	.42	.32	.42	237.20	120.00
2.920	748.00	812.51	.23	.25	.66	243.29	120.00
2.920	910.00	813.04	.53	.15	1.19	257.10	120.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.940	468.00	812.12	0.00	.26	0.00	213.65	55.00
2.940	657.00	812.47	.35	.19	.35	248.34	55.00
2.940	748.00	812.67	.19	.15	.55	252.30	55.00
2.940	910.00	813.13	.47	.09	1.02	261.66	55.00
3.000	468.00	812.65	0.00	.53	0.00	236.98	50.00
3.000	657.00	812.89	.24	.42	.24	246.14	50.00
3.000	748.00	813.00	.11	.34	.35	250.49	50.00
3.000	910.00	813.32	.32	.19	.67	262.64	50.00
4.000	468.00	818.46	0.00	5.81	0.00	106.94	1160.00
4.000	657.00	819.01	.55	6.12	.55	115.18	1160.00
4.000	748.00	819.23	.21	6.22	.77	118.39	1160.00
4.000	910.00	819.44	.21	6.12	.98	121.45	1160.00
4.500	468.00	820.69	0.00	2.23	0.00	181.94	1400.00
4.500	657.00	821.23	.54	2.22	.54	187.30	1400.00
4.500	748.00	821.46	.23	2.23	.77	189.61	1400.00
4.500	910.00	821.84	.38	2.41	1.15	193.44	1400.00
5.000	468.00	825.11	0.00	4.41	0.00	96.15	2150.00
5.000	657.00	825.65	.54	4.42	.54	101.51	2150.00
5.000	748.00	825.88	.23	4.42	.78	103.83	2150.00
5.000	910.00	826.26	.38	4.42	1.15	107.29	2150.00
5.500	468.00	828.11	0.00	3.01	0.00	192.27	980.00
5.500	657.00	828.72	.60	3.07	.60	220.67	980.00
5.500	748.00	828.97	.25	3.08	.85	230.73	980.00
5.500	910.00	829.35	.39	3.09	1.24	238.32	980.00
5.700	468.00	830.07	0.00	1.96	0.00	120.70	1570.00
5.700	657.00	830.68	.61	1.97	.61	126.87	1570.00
5.700	748.00	830.94	.26	1.98	.87	129.45	1570.00
5.700	910.00	831.35	.41	2.00	1.28	133.55	1570.00
5.990	439.00	830.44	0.00	.37	0.00	60.00	650.00
5.990	617.00	831.12	.67	.43	.67	60.00	650.00
5.990	702.00	831.40	.29	.46	.96	60.00	650.00
5.990	872.00	831.86	.46	.51	1.42	60.00	650.00
6.000	439.00	830.42	0.00	-.03	0.00	39.70	40.00
6.000	617.00	831.06	.65	-.05	.65	39.70	40.00
6.000	702.00	831.33	.26	-.07	.91	39.70	40.00
6.000	872.00	831.73	.41	-.13	1.32	39.70	40.00
6.100	439.00	830.51	0.00	.09	0.00	111.57	1.00
6.100	617.00	831.25	.75	.19	.75	126.21	1.00
6.100	702.00	831.58	.33	.25	1.07	132.57	1.00
6.100	872.00	832.16	.58	.42	1.65	144.01	1.00
6.500	439.00	830.59	0.00	.08	0.00	39.40	119.00
6.500	617.00	831.36	.78	.11	.78	39.40	119.00
6.500	702.00	831.73	.37	.15	1.14	39.40	119.00
6.500	872.00	832.40	.67	.24	1.82	39.40	119.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.600	439.00	830.59	0.00	.00	0.00	80.01	1.00
6.600	617.00	831.36	.78	-.00	.78	107.19	1.00
6.600	702.00	831.73	.37	.00	1.14	147.71	1.00
6.600	872.00	832.40	.68	.00	1.82	181.29	1.00
6.650	439.00	830.81	0.00	.22	0.00	81.76	50.00
6.650	617.00	831.70	.89	.34	.89	90.00	50.00
6.650	702.00	832.15	.45	.42	1.34	90.00	50.00
6.650	872.00	833.04	.89	.64	2.23	90.00	50.00
6.700	439.00	830.91	0.00	.10	0.00	884.04	1000.00
6.700	617.00	831.83	.92	.13	.92	893.20	1000.00
6.700	702.00	832.28	.46	.14	1.37	897.13	1000.00
6.700	872.00	833.19	.90	.15	2.28	903.89	1000.00
7.000	439.00	830.93	0.00	.02	0.00	281.60	1130.00
7.000	617.00	831.84	.92	.02	.92	293.06	1130.00
7.000	702.00	832.30	.46	.02	1.37	300.28	1130.00
7.000	872.00	833.20	.90	.02	2.27	316.03	1130.00
7.100	439.00	831.08	0.00	.15	0.00	268.31	650.00
7.100	617.00	831.97	.89	.13	.89	295.28	650.00
7.100	702.00	832.41	.44	.11	1.33	308.73	650.00
7.100	872.00	833.29	.88	.09	2.21	335.42	650.00
7.300	439.00	831.88	0.00	.80	0.00	86.42	650.00
7.300	617.00	832.49	.61	.52	.61	111.14	650.00
7.300	702.00	832.83	.33	.42	.95	115.00	650.00
7.300	872.00	833.56	.74	.27	1.68	115.00	650.00
7.500	331.00	832.66	0.00	.77	0.00	15.60	250.00
7.500	464.00	833.34	.68	.84	.68	15.60	250.00
7.500	550.00	833.66	.32	.83	1.00	15.60	250.00
7.500	726.00	834.27	.62	.71	1.62	15.60	250.00
7.510	331.00	832.66	0.00	.00	0.00	15.60	1.00
7.510	464.00	833.34	.68	.00	.68	15.60	1.00
7.510	550.00	833.66	.32	.00	1.00	15.60	1.00
7.510	726.00	834.28	.62	.00	1.62	15.60	1.00
7.590	331.00	832.69	0.00	.03	0.00	15.60	44.00
7.590	464.00	833.39	.70	.05	.70	15.60	44.00
7.590	550.00	833.72	.33	.06	1.03	15.60	44.00
7.590	726.00	834.37	.65	.09	1.68	15.60	44.00
7.600	331.00	832.69	0.00	.00	0.00	15.60	1.00
7.600	464.00	833.39	.70	.00	.70	15.60	1.00
7.600	550.00	833.72	.33	.00	1.03	15.60	1.00
7.600	726.00	834.37	.65	.00	1.68	15.60	1.00
7.700	331.00	832.84	0.00	.15	0.00	48.65	70.00
7.700	464.00	833.65	.81	.26	.81	49.03	70.00
7.700	550.00	834.06	.42	.34	1.22	49.23	70.00
7.700	726.00	834.89	.83	.52	2.05	49.62	70.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.000	331.00	833.59	0.00	.75	0.00	100.79	730.00
8.000	464.00	834.46	.87	.81	.87	121.04	730.00
8.000	550.00	834.92	.46	.86	1.33	132.09	730.00
8.000	726.00	835.80	.88	.91	2.21	153.46	730.00
8.500	331.00	834.06	0.00	.47	0.00	94.43	750.00
8.500	464.00	834.93	.87	.47	.87	115.23	750.00
8.500	550.00	835.39	.46	.47	1.33	126.35	750.00
8.500	726.00	836.25	.86	.45	2.19	147.00	750.00
9.000	331.00	834.20	0.00	.14	0.00	16.00	150.00
9.000	464.00	835.03	.82	.10	.82	100.19	150.00
9.000	550.00	835.47	.44	.08	1.26	109.42	150.00
9.000	726.00	836.41	.95	.16	2.21	129.15	150.00
9.100	331.00	834.21	0.00	.00	0.00	16.00	1.00
9.100	464.00	835.04	.83	.01	.83	100.32	1.00
9.100	550.00	835.51	.47	.04	1.30	110.28	1.00
9.100	726.00	836.51	1.00	.09	2.30	153.06	1.00
9.400	331.00	834.26	0.00	.06	0.00	16.00	38.50
9.400	464.00	835.13	.86	.09	.86	89.00	38.50
9.400	550.00	835.64	.52	.13	1.38	100.12	38.50
9.400	726.00	836.70	1.06	.19	2.44	140.07	38.50
9.500	331.00	834.27	0.00	.00	0.00	16.00	1.00
9.500	464.00	835.14	.88	.02	.88	89.23	1.00
9.500	550.00	835.73	.59	.09	1.46	93.00	1.00
9.500	726.00	836.70	.97	.00	2.44	95.00	1.00
9.550	331.00	834.60	0.00	.33	0.00	94.16	30.00
9.550	464.00	835.67	1.08	.53	1.08	120.63	30.00
9.550	550.00	836.20	.53	.47	1.61	131.91	30.00
9.550	726.00	836.91	.70	.20	2.31	143.39	30.00
9.600	331.00	834.68	0.00	.08	0.00	190.38	220.00
9.600	464.00	835.75	1.07	.07	1.07	214.92	220.00
9.600	550.00	836.28	.53	.07	1.60	223.08	220.00
9.600	726.00	836.99	.71	.08	2.31	234.08	220.00
9.700	331.00	834.76	0.00	.08	0.00	290.49	500.00
9.700	464.00	835.82	1.06	.07	1.06	305.88	500.00
9.700	550.00	836.34	.52	.07	1.58	318.67	500.00
9.700	726.00	837.06	.72	.07	2.30	344.40	500.00
10.000	304.00	834.84	0.00	.08	0.00	40.00	400.00
10.000	426.00	835.88	1.04	.06	1.04	40.00	400.00
10.000	512.00	836.39	.52	.05	1.55	40.00	400.00
10.000	689.00	837.10	.71	.04	2.26	40.00	400.00
10.100	304.00	834.82	0.00	-.02	0.00	15.00	50.00
10.100	426.00	835.84	1.02	-.03	1.02	15.00	50.00
10.100	512.00	836.35	.50	-.05	1.52	15.00	50.00
10.100	689.00	837.02	.68	-.08	2.20	15.00	50.00

H. Joe Hay

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10.400	304.00	835.31	0.00	.49	0.00	15.00	104.00
10.400	426.00	836.88	1.57	1.04	1.57	15.00	104.00
10.400	512.00	838.07	1.19	1.72	2.76	317.51	104.00
10.400	689.00	838.60	.53	1.58	3.29	334.19	104.00
10.550	304.00	835.43	0.00	.12	0.00	40.84	50.00
10.550	426.00	837.04	1.61	.16	1.61	84.79	50.00
10.550	512.00	838.05	1.01	-.01	2.62	99.98	50.00
10.550	689.00	838.57	.52	-.02	3.14	108.77	50.00
10.700	304.00	835.72	0.00	.29	0.00	246.04	510.00
10.700	426.00	837.24	1.53	.20	1.53	339.12	510.00
10.700	512.00	838.21	.97	.16	2.50	378.21	510.00
10.700	689.00	838.79	.57	.21	3.07	386.80	510.00
10.800	304.00	836.44	0.00	.72	0.00	85.96	650.00
10.800	426.00	837.52	1.08	.27	1.08	199.56	650.00
10.800	512.00	838.38	.86	.16	1.94	262.23	650.00
10.800	689.00	838.97	.59	.18	2.53	518.21	650.00
10.900	304.00	837.94	0.00	1.50	0.00	161.33	1100.00
10.900	426.00	838.66	.72	1.14	.72	277.99	1100.00
10.900	512.00	839.16	.50	.78	1.22	317.87	1100.00
10.900	689.00	839.67	.51	.70	1.73	358.60	1100.00
11.000	260.00	838.39	0.00	.45	0.00	14.00	490.00
11.000	372.00	839.08	.69	.42	.69	14.00	490.00
11.000	451.00	839.51	.43	.35	1.12	14.00	490.00
11.000	609.00	840.02	.51	.34	1.63	14.00	490.00
11.400	260.00	838.65	0.00	.26	0.00	14.00	219.00
11.400	372.00	840.08	1.42	1.00	1.42	14.00	219.00
11.400	451.00	841.04	.96	1.53	2.38	14.00	219.00
11.400	609.00	842.94	1.90	2.92	4.29	14.00	219.00
12.000	260.00	839.12	0.00	.47	0.00	34.80	250.00
12.000	372.00	840.32	1.20	.25	1.20	42.33	250.00
12.000	451.00	841.31	.99	.28	2.19	48.52	250.00
12.000	609.00	843.26	1.95	.32	4.14	61.05	250.00

SUMMARY OF ERRORS

CAUTION SECNO= 1.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

1) COUNTY: Eaton

2) STUDY NAME: Delta ~~Township~~ TWP

3) WATERCOURSE: Holley Drain

4) DOCUMENT TYPE: 100-year

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

C
T1      100 YEAR FLOOD
T2
T3      HOLLEY DRAIN
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        4.        0.        0.  0.000000      0.00      0.0       0.   841.310      0.000
J2  NFROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     I3W       CHNIM     ITRACE
     0.000     0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000
NC       .050      .050      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000   122.000   183.000   219.000   286.000     0.000     0.000     0.000     0.000     0.000

        CONFLUENCE OF HOLLEY DRAIN AND MOON AND HAMILTON DRAIN

X1     12.000    13.000    42.000    85.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    854.100     0.000   843.000    42.000   836.000    59.000   834.400    70.000   833.800    73.000
GR    834.400    78.000   835.200    83.000   838.800    85.000   846.900   116.000   850.800   200.000
GR    846.700   300.000   850.700   401.000   854.500   500.000     0.000     0.000     0.000     0.000

X1     12.100     0.000     0.000     0.000   165.000   125.000   170.000     0.000     3.000     0.000
NC       .070      .070      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     19.900    12.000   133.000   156.000   184.000   140.000   180.000     0.000    -3.000     0.000
GR    857.900     0.000   844.100    23.000   844.400   100.000   844.800   133.000   843.800   136.000
GR    843.500   139.000   843.600   144.000   844.200   156.000   842.900   166.000   844.900   174.000
GR    848.700   190.000   858.100   215.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     20.000    12.000   133.000   156.000   165.000   125.000   170.000     0.000     0.000     0.000
X5     -4.000     0.000     0.000     0.000     3.090     0.000     0.000     0.000     0.000     0.000
GR    857.900     0.000   844.100    23.000   844.400   100.000   844.800   133.000   843.800   136.000
GR    843.500   139.000   843.600   144.000   844.200   156.000   842.900   166.000   844.900   174.000
GR    848.700   190.000   858.100   215.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     20.100     0.000     0.000     0.000   530.000   670.000   940.000     0.000     2.550     0.000

X1     20.500    10.000    70.000    90.000   460.000   680.000   830.000     0.000     0.000     0.000
GR    869.000     0.000   850.300    50.000   848.600    76.000   847.700    79.000   849.400    90.000
GR    850.300   100.000   850.800   130.000   861.800   169.000   865.800   269.000   870.600   369.000
NC       .100      .100      .080     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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X1	20.900	11.000	131.000	230.000	1060.000	1045.000	1075.000	0.000	0.000	0.000
GR	870.000	0.000	866.000	50.000	860.000	100.000	856.000	123.000	854.000	131.000
GR	852.400	150.000	852.400	210.000	854.000	230.000	860.000	286.000	864.000	309.000
GR	870.000	360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20.990	5.000	30.000	75.000	190.000	190.000	200.000	0.000	0.000	0.000
GR	858.000	0.000	854.000	30.000	852.900	60.000	854.000	75.000	858.000	130.000
QT	4.000	69.000	104.000	125.000	165.000	0.000	0.000	0.000	0.000	0.000
X1	21.000	12.000	286.000	300.000	260.000	200.000	280.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
GR	874.400	0.000	860.700	100.000	855.300	200.000	855.800	286.000	855.600	290.500
GR	853.700	291.100	853.100	293.000	853.700	294.900	855.600	295.500	856.600	300.000
GR	860.100	400.000	876.400	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.016	.016	.033	.300	.500	0.000	0.000	0.000	0.000	0.000

MT. HOPE HIGHWAY

X1	21.200	16.000	290.500	295.500	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
GR	870.900	0.000	860.700	100.000	855.300	200.000	855.800	286.000	854.100	290.500
GR	853.900	291.100	853.900	291.110	853.100	293.000	853.100	293.100	854.050	294.900
GR	854.050	294.910	854.350	295.500	856.500	300.000	860.100	400.000	876.400	500.000
GR	872.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.500	3.000	0.000	4.000	0.000	18.100	0.000	853.200	853.100
X1	21.210	14.000	290.500	295.500	67.000	67.000	67.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	858.000	863.900	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	864.000	864.000	0.000
BT	13.000	0.000	870.900	0.000	100.000	867.300	0.000	200.000	864.000	0.000
BT	290.490	863.900	0.000	290.500	863.900	855.600	291.100	863.900	857.500	293.000
BT	863.900	858.100	294.900	863.900	857.500	295.500	863.900	855.600	295.510	863.900
BT	855.600	400.000	864.800	0.000	500.000	868.300	0.000	600.000	872.100	0.000
GR	874.400	0.000	858.100	100.000	856.300	200.000	855.100	286.000	853.800	290.490
GR	855.600	290.500	853.700	291.100	853.200	293.000	854.150	294.900	855.600	295.500
GR	854.450	295.510	856.700	300.000	858.700	400.000	877.100	500.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.220	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
X1	21.230	0.000	286.000	300.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	350.000	0.000	0.000	0.000	0.000
NC	.060	.060	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	300.000	.050	705.000	.060	718.000	.050	1150.000	0.000
X1	21.300	18.000	705.000	718.000	575.000	625.000	585.000	0.000	0.000	0.000
GR	870.000	130.000	868.000	330.000	866.000	510.000	864.000	625.000	862.000	641.000
GR	860.000	655.000	858.000	672.000	857.100	705.000	855.600	706.000	855.300	710.000
GR	855.600	713.000	857.600	714.000	859.600	718.000	863.000	800.000	863.600	900.000
GR	863.400	1000.000	864.800	1100.000	870.800	1150.000	0.000	0.000	0.000	0.000
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.000	22.000	211.000	226.000	1625.000	1400.000	1560.000	0.000	0.000	0.000
GR	872.400	0.000	865.300	100.000	861.200	200.000	860.200	211.000	858.100	214.000
GR	857.600	219.000	858.100	223.000	860.300	226.000	860.000	300.000	862.700	400.000
GR	864.300	500.000	864.800	600.000	865.900	700.000	866.200	800.000	866.900	900.000
GR	867.200	1000.000	869.500	1100.000	870.100	1200.000	870.100	1300.000	870.100	1400.000
GR	871.100	1500.000	872.100	1600.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	43.000	77.000	100.000	144.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.040	500.000	.060	1400.000	.080	2066.000	0.000	0.000	0.000

X1	22.500	25.000	965.000	974.000	1900.000	1930.000	1950.000	0.000	0.000	0.000
GR	875.900	0.000	873.000	100.000	870.900	200.000	869.900	300.000	867.100	400.000
GR	864.700	500.000	863.700	600.000	864.100	700.000	863.300	800.000	862.600	900.000
GR	861.000	964.000	860.100	965.000	859.700	971.000	860.100	974.000	861.700	977.000
GR	861.500	1000.000	869.500	1100.000	870.100	1200.000	870.100	1300.000	870.100	1400.000
GR	865.000	1500.000	864.600	1600.000	864.980	1700.000	866.500	1900.000	874.600	2066.000
NC	.120	.120	.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	22.800	16.000	346.000	714.000	855.000	700.000	805.000	0.000	0.000	0.000
GR	874.000	0.000	872.000	100.000	870.000	205.000	868.000	235.000	866.000	269.000
GR	864.000	327.000	862.000	346.000	861.000	370.000	860.700	549.000	861.000	680.000
GR	862.000	714.000	864.000	765.000	866.000	812.000	868.000	849.000	870.000	905.000
GR	874.600	1030.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	4.000	17.000	50.000	74.000	123.000	0.000	0.000	0.000	0.000	0.000

X1	22.900	9.000	368.000	417.000	620.000	580.000	580.000	0.000	0.000	0.000
GR	868.000	60.000	866.000	91.000	864.000	321.000	862.000	368.000	860.850	376.000
GR	862.000	417.000	864.000	461.000	866.000	660.000	868.000	693.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	23.000	20.000	415.000	421.000	120.000	100.000	100.000	0.000	0.000	0.000
GR	874.100	0.000	867.300	200.000	862.300	415.000	861.370	417.000	861.250	417.250
GR	861.250	417.260	860.900	419.000	860.900	418.100	861.320	418.750	861.330	418.760
GR	861.470	419.000	862.600	421.000	864.900	600.000	868.100	800.000	868.480	1000.000
GR	867.000	1200.000	868.300	1400.000	869.600	1600.000	872.500	1800.000	874.100	1900.000
NC	.020	.020	.021	.300	.500	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.770	3.000	0.000	2.000	0.000	3.140	0.000	860.900	860.900

MILLETT HIGHWAY

X1	23.200	0.000	417.000	419.000	48.000	48.000	48.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	862.900	865.400	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	865.400	865.400	0.000
BT	18.000	0.000	874.100	0.000	200.000	857.900	0.000	417.000	865.400	861.900
BT	417.250	865.400	861.150	417.260	865.400	862.650	418.000	865.400	860.900	418.100
BT	865.400	862.900	418.750	865.400	862.650	418.760	865.400	861.150	419.000	865.400
BT	861.900	600.000	865.800	0.000	800.000	858.100	0.000	1000.000	868.400	0.000
BT	1200.000	867.100	0.000	1400.000	868.300	0.000	1600.000	869.500	0.000	1800.000
BT	872.400	0.000	1900.000	874.100	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	23.400	0.000	415.000	421.000	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	865.400	865.400	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= .300 CEHV= .500

*SECNO 12.000

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
		CONFLUENCE OF HOLLEY DRAIN AND MOON AND HAMILTON DRAIN							
12.00	7.51	841.31	0.00	841.31	841.33	.02	0.00	0.00	843.00
219.	0.	214.	5.	0.	200.	12.	0.	0.	838.60
0.00	0.00	1.07	.39	.065	.059	.065	0.000	833.80	46.10
.000223	0.	0.	0.	0	0	0	0.00	48.50	94.61

*SECNO 12.100

12.10	4.56	841.36	0.00	0.00	841.44	.08	.09	.03	846.00
219.	0.	219.	0.	0.	96.	0.	1.	0.	841.80
.02	0.00	2.28	0.00	.065	.059	.065	.058	836.80	53.28
.002027	165.	170.	125.	1	0	0	0.00	31.47	84.75

*SECNO 19.900

19.90	2.18	842.08	0.00	0.00	842.13	.05	.67	.01	841.80
219.	108.	62.	49.	90.	28.	25.	1.	1.	841.20
.05	1.34	2.17	2.00	.091	.078	.091	.069	839.90	21.37
.009863	180.	180.	140.	3	0	0	0.00	153.39	174.76

*SECNO 20.000

3265 DIVIDED FLOW

20.00	1.85	844.75	844.63	0.00	844.89	.13	2.71	.04	844.80
219.	83.	73.	63.	44.	21.	19.	1.	1.	844.20
.06	1.89	3.49	3.37	.091	.078	.091	.874	842.90	21.92
.038372	165.	170.	125.	15	14	0	0.00	147.13	173.40

*SECNO 20.100

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
20.10	2.79	848.24	0.00	0.00	848.26	.02	3.34	.04	847.35
219.	127.	52.	40.	150.	43.	37.	4.	3.	846.75
.26	.85	1.22	1.07	.091	.078	.091	.093	845.45	20.34
.001820	530.	940.	670.	8	0	0	0.00	157.02	177.35

*SECNO 20.500

20.50	2.94	850.64	0.00	0.00	850.79	.15	2.47	.07	848.60
219.	47.	159.	14.	24.	45.	11.	6.	5.	849.40
.32	1.94	3.49	1.19	.091	.078	.091	.095	847.70	49.08

.011350	460.	830.	680.	5	0	0	0.00	71.52	120.60

*SECNO 20.900

20.90	2.46	854.86	0.00	0.00	854.88	.02	4.04	.04	854.00
219.	0.	218.	1.	1.	212.	3.	10.	7.	854.00
.61	.28	1.02	.28	.130	.104	.130	.098	852.40	127.56
.001860	1060.	1075.	1045.	5	0	0	0.00	110.48	238.04

*SECNO 20.990

20.99	2.62	855.52	0.00	0.00	855.59	.06	.69	.02	854.00
219.	7.	198.	14.	9.	93.	16.	10.	7.	854.00
.64	.87	2.13	.87	.130	.104	.130	.099	852.90	18.63
.008440	190.	200.	190.	2	0	0	0.00	77.21	95.84

*SECNO 21.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 864.00 ELREA= 864.00

21.00	5.08	858.18	0.00	0.00	858.32	.13	2.69	.03	855.80
125.	0.	125.	0.	0.	43.	0.	11.	8.	856.60
.66	0.00	2.91	0.00	.130	.104	.130	.099	853.10	286.00
.012787	260.	280.	200.	2	0	0	0.00	14.00	300.00

CCHV= .300 CEHV= .500

*SECNO 21.200

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 864.00 ELREA= 864.00

MT. HOPE HIGHWAY

21.20	5.06	858.16	0.00	0.00	858.64	.48	.15	.17	854.10
125.	0.	125.	0.	0.	22.	0.	11.	8.	854.35
.67	0.00	5.56	0.00	.021	.043	.021	.099	853.10	290.50
.007997	15.	15.	15.	2	0	0	0.00	5.00	295.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.50	3.00	0.00	4.00	0.00	18.18	0.00	853.20	853.10

*SECNO 21.210
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.01	858.76	0.00	0.	125.	18.	19.	858.00	863.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 864.00 ELREA= 864.00

21.21	6.53	859.73	0.00	0.00	860.01	.28	1.37	0.00	855.60
125.	0.	125.	0.	0.	29.	0.	11.	8.	855.60
.67	0.00	4.25	0.00	.021	.043	.021	.098	853.20	290.50
.004416	67.	67.	67.	2	0	0	0.00	5.00	295.50

*SECNO 21.220

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 864.00 ELREA= 864.00

21.22	6.65	859.85	0.00	0.00	860.12	.27	.11	.00	855.60
125.	0.	125.	0.	0.	30.	0.	11.	8.	855.60
.67	0.00	4.16	0.00	.078	.078	.078	.098	853.20	290.50
.013823	15.	15.	15.	2	0	0	0.00	5.00	295.50

*SECNO 21.230

3470 ENCROACHMENT STATIONS= 230.0 350.0 TYPE= 1 TARGET= 120.000

21.23	7.01	860.21	0.00	0.00	860.21	.00	.01	.08	855.60
125.	80.	8.	36.	290.	32.	171.	11.	8.	855.60
.72	.28	.26	.21	.078	.078	.078	.097	853.20	230.00
.000029	50.	50.	50.	2	0	0	0.00	120.00	350.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 21.300

21.30	4.94	860.24	0.00	0.00	860.25	.01	.04	.00	857.10
125.	87.	37.	1.	110.	48.	5.	16.	9.	859.60
.93	.79	.78	.21	.065	.078	.065	.093	855.30	653.33
.000377	575.	585.	625.	2	0	0	0.00	80.07	733.40

*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	3.67	861.27	0.00	0.00	861.29	.02	1.03	.00	860.20
125.	2.	61.	62.	6.	43.	113.	21.	13.	860.30
1.38	.38	1.41	.55	.104	.078	.104	.089	857.60	198.31
.001500	1625.	1560.	1400.	2	0	0	0.00	148.70	347.01

1490 NH CARD USED
*SECNO 22.500

22.50	3.33	863.03	0.00	0.00	863.04	.01	1.75	.00	860.10
100.	44.	27.	29.	95.	28.	54.	29.	20.	860.10
2.24	.47	.96	.53	.078	.078	.078	.086	859.70	838.36
.000554	1900.	1950.	1930.	2	0	0	0.00	180.78	1019.14

*SECNO 22.800

22.80	2.44	863.14	0.00	0.00	863.14	.00	.11	.00	862.00

100.	0.	99.	1.	6.	806.	17.	38.	26.	862.00
4.07	.05	.12	.05	.156	.156	.156	.093	860.70	335.14
.000058	855.	805.	700.	3	0	0	0.00	408.02	743.16

*SECNO 22.900

22.90	2.37	863.22	0.00	0.00	863.23	.01	.08	.00	862.00
74.	6.	62.	6.	18.	88.	16.	44.	29.	862.00
4.32	.34	.71	.34	.156	.156	.156	.097	860.85	339.30
.002534	620.	580.	580.	2	0	0	0.00	104.57	443.87

CCHV= .300 CEHV= .500

*SECNO 23.000

23.00	2.78	863.68	0.00	0.00	863.69	.01	.46	.00	862.30
74.	30.	16.	28.	41.	12.	45.	45.	29.	862.60
4.35	.73	1.34	.62	.156	.156	.156	.098	860.90	355.61
.009521	120.	100.	100.	2	0	0	0.00	149.54	505.14

CCHV= .300 CEHV= .500

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.77	3.00	0.00	2.00	0.00	3.14	0.00	860.90	860.90

*SECNO 23.200

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
867.57	864.27	0.00	52.	22.	3.	4.	862.90	865.40

MILLETT HIGHWAY

23.20	4.88	865.78	0.00	0.00	865.78	.00	2.09	0.00	862.30
74.	27.	4.	43.	260.	25.	387.	45.	30.	862.60
4.47	.10	.16	.11	.026	.027	.026	.097	860.90	265.38
.000002	48.	48.	48.	0	0	12	0.00	389.59	654.97

*SECNO 23.400

23.40	4.88	865.78	0.00	0.00	865.78	.00	.00	.00	862.30
74.	27.	4.	43.	261.	25.	389.	45.	30.	862.60
4.48	.10	.17	.11	.078	.078	.078	.097	860.90	265.18
.000014	1.	1.	1.	0	0	0	0.00	390.08	655.26



1) COUNTY: Eaton

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Holley Drain

4) DOCUMENT TYPE: 100-year Floodway



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

T1       100 YEAR FLOODWAY
T2
T3       HOLLEY DRAIN

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      2          WSEL       FQ
        0.         6.         0.         0.    0.000000       0.00       0.0         0.    841.420    0.000
J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     15.000     0.000     -1.000      0.000      0.000      1.300      0.000      0.000      0.000      0.000
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*PROF 2

CCHV=    .300 CEHV=    .500
*SECNO 12.000
   SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       APOB      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=      46.1      94.6  TYPE=     1  TARGET=      48.510

        CONFLUENCE OF HOLLEY DRAIN AND MOON AND HAMILTON DRAIN

    12.00      7.62    841.42      0.00    841.31    841.44      .02      0.00      0.00100000.00
      219.        0.      214.        5.        0.      205.       13.        0.        0.    838.80
     0.00      0.00      1.05       .39      .065      .059      .065     0.000    833.80     46.10
  .003248        0.        0.        0.         0         0         0      0.00     48.51     94.61


*SECNO 12.100
 2900 NAT Q1=      48.64  WSEL=    841.36  ENC Q1=      51.20  WSEL=    841.46  RATIO=  -.0525
 NAT Q1=      51.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    841.46

3470 ENCROACHMENT STATIONS=      42.0      85.0  TYPE=     4  TARGET=       0.000
    12.10      4.67    841.47      0.00    841.36    841.54      .08       .08       .03    846.80
      219.        0.      219.        0.        0.      100.        0.        1.        0.    841.80
      .02      0.01      2.20      0.00      .065      .059      .065      .058    836.80     53.80
  .001820      165.      170.      125.         2         0         0      0.00     31.81     84.82


*SECNO 19.900
 2900 NAT Q1=      22.05  WSEL=    842.08  ENC Q1=      22.05  WSEL=    842.18  RATIO=   .0000
 NAT Q1=      26.  RATIOS LOB,CH,ROB=   .5141   .2710   .2149  WSEL=    842.18

3470 ENCROACHMENT STATIONS=      33.2     166.7  TYPE=     4  TARGET=        .154
    19.90      2.24    842.14      0.00    842.08    842.20       .06       .65       .01    841.80
      219.      110.       70.       39.       76.       30.       17.        1.        4.    841.20
      .05      1.45      2.36      2.21      .091      .078      .091      .069    839.90     33.22
  .010957      180.      180.      140.         2         0         0      0.00    133.50    166.71


*SECNO 20.000
 2900 NAT Q1=      11.18  WSEL=    844.75  ENC Q1=      11.18  WSEL=    844.85  RATIO=  0.0000
 NAT Q1=      14.  RATIOS LOB,CH,ROB=   .4226   .3134   .2640  WSEL=    844.85

3470 ENCROACHMENT STATIONS=      37.9     166.1  TYPE=     4  TARGET=        .205
    20.00      1.98    844.88      0.00    844.75    845.01       .13      2.77       .04    844.80
      219.       89.       83.       47.       47.       24.       13.        1.        1.    844.20
      .06      1.91      3.48      3.48      .091      .078      .091      .073    842.90     37.91
  .032031      165.      170.      125.         2         0         0      0.00    128.18    166.09


*SECNO 20.100
 2900 NAT Q1=      51.33  WSEL=    848.24  ENC Q1=      51.33  WSEL=    848.34  RATIO=   .0000
 NAT Q1=      57.  RATIOS LOB,CH,ROB=   .5898   .2333   .1779  WSEL=    848.34
   SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       APOB      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=       28.3      167.9  TYPE=      4  TARGET=          .097
     20.10      2.89    848.34      0.00    848.24    848.36       .02      3.31       .04    847.35
      219.       131.       57.       31.       149.       45.       27.       4.        3.    846.75
       .25        .88      1.27      1.12       .191      .678      .091      .093    845.45     28.32
  .001858       530.       940.      670.         5         0         0      0.00    139.58    167.91


*SECNO 20.500
 2900 NAT Q1=      20.56  WSEL=     850.64  ENC Q1=      20.56  WSEL=     850.74  RATIO=    .0000
 NAT Q1=      23.  RATIOS LOB,CH,ROB=    .2299    .7042    .0749  WSEL=     850.74

3470 ENCROACHMENT STATIONS=       59.0       93.2  TYPE=      4  TARGET=          .095
     20.50      3.06    850.76      0.00    850.64    850.93       .17      2.50       .08    848.60
      219.       42.       170.       6.       19.       48.       4.        6.        4.    849.40
       .31       2.27      3.56      1.61       .191      .678      .091      .094    847.70     59.01
  .013996       460.       830.      680.         3         0         0      0.00     34.23     93.24


*SECNO 20.900
 2900 NAT Q1=      50.78  WSEL=     854.86  ENC Q1=      54.44  WSEL=     854.96  RATIO=   -.0722
 NAT Q1=      55.  RATIOS LOB,CH,ROB=    .0023    .9922    .0055  WSEL=     854.95

3470 ENCROACHMENT STATIONS=      131.0      230.0  TYPE=      4  TARGET=          .008
     20.90      2.50    854.90      0.00    854.86    854.92       .02      3.94       .05    854.00
      219.        0.       219.       0.        0.       217.       0.        9.        6.    854.00
       .60       0.00      1.01      0.00       .130      .104      .130      .098    852.40    131.00
  .001814      1060.      1075.     1045.         3         0         0      0.00     99.00    230.00


*SECNO 20.931

3470 ENCROACHMENT STATIONS=       18.6       85.8  TYPE=      1  TARGET=        67.210
     20.99      2.65    855.55      0.00    855.52    855.61       .06       .67       .02    854.00
      219.        8.       198.       13.       9.        94.       12.       10.       6.    854.00
       .63       .87      2.11      1.08       .130      .104      .130      .098    852.90     18.63
  .008163       190.       200.      190.         2         0         0      0.00     67.21     85.84


*SECNO 21.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      864.00 ELREA=      864.00

     21.00      5.06    858.16      0.00    858.18    858.30       .13      2.65       .03    855.80
      125.        0.       125.       0.        0.        43.       0.        10.       6.    856.60
       .66       0.00      2.93      0.00       .130      .104      .130      .099    853.13    286.00
  .013389       260.       280.      200.         2         0         0      0.00     14.00    300.00


CCHV=     .300 CEHV=     .500
*SECNO 21.200
   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
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      864.00 ELREA=      864.00

        MT. HOPE HIGHWAY

    21.20      5.04    859.14      0.00    858.16    858.63      .48      .15      .18    854.10
    125.        0.      125.        0.        0.       22.       0.       11.       6.     854.35
     .66       0.00      5.58      0.00      .021      .043      .021      .098    853.10   290.50
  .003086       15.       15.       15.         2         0         0      0.00     5.00   295.50


SPECIAL BRIDGE

SB  XK        XKOR       COFQ       ROLEN      BWC        BWP        BAREA      SS        ELCHU      ELCHD
     3.00       2.50       3.00       0.00       4.00       0.00      18.10       0.00    853.20     853.10

*SECNO 21.210
PRESSURE FLOW

 EGPRS       EGLWC       H3         QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                      AREA
   859.99     858.74       0.00         3.       125.        18.       19.       858.00     863.90


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      864.00 ELREA=      864.00

    21.21      6.51    859.71      0.00    859.73    859.99      .28      1.37      0.00    855.60
    125.        0.      125.        0.        0.       29.       0.       11.       6.     855.60
     .66       0.00      4.27      0.00      .021      .043      .021      .097    853.20   290.50
  .004457       67.       67.       67.         2         0         0      0.00     5.00   295.50

*SECNO 21.220

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      864.00 ELREA=      864.00

    21.22      6.63    859.83      0.00    859.85    860.11      .27      .11      .00     855.60
    125.        0.      125.        0.        0.       30.       0.       11.       6.     855.60
     .66       0.00      4.18      0.00      .078      .078      .078      .097    853.20   290.50
  .013941       15.       15.       15.         2         0         0      0.00     5.00   295.50

*SECNO 21.230

3470 ENCROACHMENT STATIONS=      230.0      350.0  TYPE=      1  TARGET=      120.000
    21.23      6.99    860.19      0.00    860.21    860.19      .00      .01      .08     855.60
    125.       80.         8.       36.       299.       32.      170.       11.       6.     855.60
     .72       .28        .26       .21       .078      .078      .078      .097    853.20   230.00
  .000029       50.       50.       50.         2         0         0      0.00   120.00   350.00


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 21.300
 2900 NAT Q1=      64.40  WSEL=     860.24  ENC Q1=      64.40  WSEL=     860.34  RATIO=     .0000
 NAT Q1=      69.  RATIOS LOB,CH,ROB=    .6979    .2907    .0114  WSEL=     860.34

3470 ENCROACHMENT STATIONS=      668.2      718.0  TYPE=      4  TARGET=         .066
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    21.30      4.93    860.23      0.00    860.24    860.24       .01       .04       .00    857.10
    125.        85.       39.        0.       96.       47.        0.        15.        8.     859.60
     .90        .90       .82      0.00      .165      .078      .065      .092    855.30     668.25
  .000442     575.      585.      625.         2         0         0      0.00     49.75     718.00


*SECNO 22.000
 2900 NAT Q1=      32.28  WSEL=     861.27  ENC Q1=      32.28  WSEL=     861.37  RATIO=    .0000
 NAT Q1=      36.  RATIOS LOB,CH,ROB=    .0225    .4626    .5149  WSEL=     861.37
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLOSS    BANK ELEV
   0         QLOB      QCH       QROB      ALCH      ACH       AFOB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNF       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      211.0      304.3  TYPE=      4  TARGET=        .105
     22.00      3.78    861.38      0.00    861.27    861.40       .02      1.16       .00    860.20
     125.         0.       63.        62.       0.        45.       97.       20.        16.     860.30
      1.32      0.00      1.40       .64       .104      .178      .104      .089    857.80     211.00
  .001552     1625.     1560.     1400.         2         0         0      0.00     93.32     304.32


1490 NH CARD USED
*SECNO 22.500
 2900 NAT Q1=      42.48  WSEL=     863.03  ENC Q1=      42.48  WSEL=     863.13  RATIO=  0.0000
 NAT Q1=      48.  RATIOS LOB,CH,ROB=    .4603    .2532    .2865  WSEL=     863.13

3470 ENCROACHMENT STATIONS=      914.6     1000.5  TYPE=      4  TARGET=        .108
     22.50      3.44    863.14      0.00    863.03    863.15       .01      1.75       .00    860.10
     100.        46.       26.        26.       78.       29.       43.       27.        14.     860.10
      2.09       .58       .97       .61       .078      .078      .078      .086    859.70     914.62
  .000540     1900.     1950.     1930.         2         0         0      0.00     85.84    1000.47


*SECNO 22.800
 2900 NAT Q1=     131.05  WSEL=     863.14  ENC Q1=     139.52  WSEL=     863.24  RATIO=  -.0647
 NAT Q1=     141.  RATIOS LOB,CH,ROB=    .0036    .9868    .0097  WSEL=     863.24

3470 ENCROACHMENT STATIONS=      346.0      714.0  TYPE=      4  TARGET=        .013
     22.80      2.55    863.25      0.00    863.14    863.25       .00       .10       .00    862.00
     100.         0.      100.         0.        0.      644.         0.       36.       18.     862.00
      3.97      0.00       .12      0.00      .156      .156      .156      .093    860.70     346.00
  .000352     855.      805.      700.         2         0         0      0.00    368.00     714.00


*SECNO 22.900
 2900 NAT Q1=      14.70  WSEL=     863.22  ENC Q1=      14.70  WSEL=     863.32  RATIO=    .0000
 NAT Q1=      16.  RATIOS LOB,CH,ROB=    .0913    .8252    .0845  WSEL=     863.32

3470 ENCROACHMENT STATIONS=      362.8      421.4  TYPE=      4  TARGET=        .104
     22.90      2.47    863.32      0.00    863.22    863.32       .01       .07       .00    862.00
      74.         3.       68.         3.        6.       93.         5.       42.       21.     862.00
      4.20       .48       .74       .47       .156      .156      .156      .097    860.85     362.79
  .002581     620.      580.      580.         2         0         0      0.00     58.59     421.38


CCHV=    .300 CEHV=    .500
*SECNO 23.000
 2900 NAT Q1=       7.58  WSEL=     863.68  ENC Q1=       7.58  WSEL=     863.78  RATIO=    .0000
 NAT Q1=       9.  RATIOS LOB,CH,ROB=    .4035    .1971    .3994  WSEL=     863.78
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3470 ENCROACHMENT STATIONS=     392.1     453.6  TYPE=     4  TARGET=        .168
    23.00      2.88   863.78      0.00   863.68   863.79      .02      .47      .00   862.30
      74.        28.      17.        28.      28.      13.      32.      42.      21.   862.60
     4.22      1.03     1.38       .89      .156     .156     .156     .097   860.90   392.05
  .009500      120.      106.      100.         2        0        0     0.00    61.58   453.63


CCHV=    .300 CEHV=    .500

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       2.77       3.00       0.00       2.00       0.00       3.14       0.00     860.90     860.90

*SECNO 23.200
 2900 NAT Q1=     587.18  WSEL=     865.78  ENC Q1=     587.18  WSEL=     865.88  RATIO=    .0000
 NAT Q1=     636.  RATIOS LOB,CH,ROB=    .3650    .0511    .5839  WSEL=     865.88
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        APOB       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=     348.0     570.9  TYPE=     4  TARGET=        .076

        MILLETT HIGHWAY

    23.20      4.97   865.87      0.00   865.78   865.87      .00      .00      .01   862.30
      74.        26.       4.        44.      197.      25.      346.      43.      21.   862.60
     4.32       .14       .16       .13      .126     .027     .026     .097   860.90   347.98
  .000302        48.       48.       48.         0        0       12     0.00   222.89   570.87


*SECNO 23.400
 2900 NAT Q1=     196.97  WSEL=     865.78  ENC Q1=     196.97  WSEL=     865.88  RATIO=    .0000
 NAT Q1=     212.  RATIOS LOB,CH,ROB=    .3641    .0535    .5824  WSEL=     865.88

3470 ENCROACHMENT STATIONS=     347.4     572.3  TYPE=     4  TARGET=        .073
    23.40      4.97   865.87      0.00   865.78   865.87      .00      .00      .00   862.30
      74.        26.       4.        43.      196.      25.      348.      43.      21.   862.60
     4.33       .14       .17       .12      .078     .078     .078     .097   860.90   347.41
  .000014         1.        1.        1.         0        0        0     0.00   224.93   572.35
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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

HOLLEY DRAIN

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
12.000	841.31	0.00	841.33	48.50	0.00	214.31	4.69	0.00	0.00	42.00	85.00	0.00
12.000	841.42	.11	841.44	48.51	0.00	213.84	5.16	48.51	46.10	42.00	85.00	94.61
12.100	841.36	0.00	841.44	31.47	0.00	219.00	0.00	0.00	0.00	42.00	85.00	0.00
12.100	841.47	.11	841.54	31.81	0.00	219.00	0.00	0.00	42.00	42.00	85.00	85.00
19.900	842.08	0.00	842.13	153.39	107.90	61.61	49.49	0.00	0.00	133.00	156.00	0.00
19.900	842.14	.06	842.20	133.50	110.01	70.39	38.60	.15	33.22	133.00	156.00	166.71
20.000	844.75	0.00	844.89	147.13	82.87	72.73	63.40	0.00	0.00	133.00	156.00	0.00
20.000	844.88	.13	845.01	128.18	89.06	83.00	46.94	.21	37.91	133.00	156.00	166.09
20.100	848.24	0.00	848.26	157.02	127.26	51.99	39.75	0.00	0.00	133.00	156.00	0.00
20.100	848.34	.10	848.36	139.58	131.46	56.85	30.69	.10	28.32	133.00	156.00	167.91
20.500	850.64	0.00	850.79	71.52	46.68	158.62	13.70	0.00	0.00	70.00	90.00	0.00
20.500	850.76	.12	850.93	34.23	42.29	170.34	6.37	.10	59.81	70.00	90.00	93.24
20.900	854.86	0.00	854.88	110.48	.41	217.62	.97	0.00	0.00	131.00	230.00	0.00
20.900	854.90	.04	854.92	99.00	0.00	219.00	0.00	.01	131.00	131.00	230.00	230.00
20.990	855.52	0.00	855.59	77.21	7.48	197.76	13.76	0.00	0.00	30.00	75.00	0.00
20.990	855.55	.02	855.61	67.21	7.70	197.93	13.37	67.21	18.63	30.00	75.00	85.84
21.000	858.18	0.00	858.32	14.00	0.00	125.00	0.00	0.00	0.00	286.00	300.00	0.00
21.000	858.16	-.02	858.30	14.00	0.00	125.00	0.00	0.00	0.00	286.00	300.00	0.00
21.200	858.16	0.00	858.64	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.200	858.14	-.02	858.63	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.210	859.73	0.00	860.01	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.210	859.71	-.02	859.99	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.220	859.85	0.00	860.12	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.220	859.83	-.02	860.11	5.00	0.00	125.00	0.00	0.00	0.00	290.50	295.50	0.00
21.230	860.21	0.00	860.21	120.00	80.27	8.37	36.36	120.00	230.00	290.50	295.50	350.00
21.230	860.19	-.02	860.19	120.00	80.33	8.39	36.28	120.00	230.00	290.50	295.50	350.00

SECNO	CHSEL	DIFKHS	EG	TOPWID	QLOB	QCH	QROB	PERENC	ST ENCL	STCHL	STCHR	STENCR
21.300	860.24	0.03	860.25	80.07	86.85	37.13	1.02	0.00	0.00	705.00	718.00	0.00
21.300	860.23	-.02	860.24	49.75	86.21	38.79	0.00	.07	668.25	705.00	718.00	718.00
22.000	861.27	0.00	861.29	148.70	2.37	61.03	61.60	0.00	0.00	211.00	226.00	0.00
22.000	861.38	.11	861.40	93.32	0.00	62.88	62.12	.10	211.00	211.00	226.00	304.32
22.500	863.03	0.00	863.04	180.78	44.42	26.97	28.61	0.00	0.00	965.00	974.00	0.00
22.500	863.14	.11	863.15	85.84	45.71	28.31	25.99	.11	914.52	965.00	974.00	1000.47
22.800	863.14	0.00	863.14	408.02	.31	98.86	.83	0.00	0.00	346.00	714.00	0.00
22.800	863.25	.10	863.25	368.00	0.00	100.00	0.00	.01	346.00	346.00	714.00	714.00
22.900	863.22	0.00	863.23	104.57	6.05	62.29	5.66	0.00	0.00	368.00	417.00	0.00
22.900	863.32	.09	863.32	58.59	3.03	68.45	2.52	.10	362.79	368.00	417.00	421.38
23.000	863.68	0.00	863.69	149.54	29.78	16.17	28.05	0.00	0.00	415.00	421.00	0.00
23.000	863.78	.09	863.79	61.58	28.43	17.43	28.14	.17	392.15	415.00	421.00	453.64
23.200	865.78	0.00	865.78	389.59	27.12	3.93	42.95	0.00	0.00	415.00	421.00	0.00
23.200	865.87	.09	865.87	222.89	26.36	4.10	43.54	.08	347.98	415.00	421.00	570.87
23.400	865.78	0.00	865.78	390.08	27.04	4.11	42.85	0.00	0.00	415.00	421.00	0.00
23.400	865.87	.09	865.87	224.93	26.32	4.28	43.40	.07	347.41	415.00	421.00	572.35

HOLLEY DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRITS	EG	10K*S	VCH	AREA	.01K
12.000	0.00	0.00	0.00	833.80	219.00	841.31	0.00	841.33	2.23	1.07	212.35	146.53
12.000	0.00	0.00	0.00	833.80	219.00	841.42	0.00	841.44	2.08	1.05	217.69	151.85
12.100	170.00	0.00	0.00	836.80	219.00	841.36	0.00	841.44	20.27	2.28	95.99	48.64
12.100	170.00	0.00	0.00	836.80	219.00	841.47	0.00	841.54	18.20	2.20	99.65	51.34
19.900	180.00	0.00	0.00	839.90	219.00	842.08	0.00	842.13	98.63	2.17	133.73	22.85
19.900	180.00	0.00	0.00	839.90	219.00	842.14	0.00	842.20	109.57	2.36	123.28	20.92
20.000	170.00	0.00	0.00	842.90	219.00	844.75	844.63	844.89	383.72	3.49	83.48	11.18
20.000	170.00	0.00	0.00	842.90	219.00	844.88	0.00	845.01	320.31	3.48	84.07	12.24
20.100	940.00	0.00	0.00	845.45	219.00	848.24	0.00	848.26	18.20	1.22	229.52	51.33
20.100	940.00	0.00	0.00	845.45	219.00	848.34	0.00	848.36	18.58	1.27	220.71	50.81
20.500	830.00	0.00	0.00	847.70	219.00	850.64	0.00	850.79	113.50	3.49	80.96	20.56
20.500	830.00	0.00	0.00	847.70	219.00	850.76	0.00	850.93	109.96	3.56	78.52	20.88
20.900	1075.00	0.00	0.00	852.40	219.00	854.86	0.00	854.88	18.60	1.02	217.39	50.78
20.900	1075.00	0.00	0.00	852.40	219.00	854.90	0.00	854.92	18.14	1.01	216.60	51.42
20.990	200.00	0.00	0.00	852.90	219.00	855.52	0.00	855.59	64.40	2.13	117.37	23.84
20.990	200.00	0.00	0.00	852.90	219.00	855.55	0.00	855.61	61.63	2.11	115.21	24.24
21.000	280.00	0.00	0.00	853.10	125.00	858.18	0.00	858.32	127.37	2.91	42.95	11.05
21.000	280.00	0.00	0.00	853.10	125.00	858.16	0.00	858.30	130.89	2.93	42.64	10.93
21.200	15.00	0.00	0.00	853.10	125.00	858.16	0.00	858.64	79.97	5.56	22.48	13.98
21.200	15.00	0.00	0.00	853.10	125.00	858.14	0.00	858.63	80.36	5.58	22.39	13.90
21.210	67.00	863.90	858.00	853.20	125.00	859.73	0.00	860.01	44.16	4.25	29.41	18.81
21.210	67.00	863.90	858.00	853.20	125.00	859.71	0.00	859.99	44.57	4.27	29.30	18.72
21.220	15.00	0.00	0.00	853.20	125.00	859.85	0.00	860.12	138.23	4.16	30.02	10.63
21.220	15.00	0.00	0.00	853.20	125.00	859.83	0.00	860.11	139.41	4.18	29.92	10.59
21.230	50.00	0.00	0.00	853.20	125.00	860.21	0.00	860.21	.29	.26	493.08	233.74
21.230	50.00	0.00	0.00	853.20	125.00	860.19	0.00	860.19	.29	.26	491.06	232.23
21.300	585.00	0.00	0.00	855.30	125.00	860.24	0.00	860.25	3.77	.78	162.49	64.40
21.300	585.00	0.00	0.00	855.30	125.00	860.23	0.00	860.24	4.42	.82	143.28	59.47
22.000	1560.00	0.00	0.00	857.60	125.00	861.27	0.00	861.29	15.00	1.41	162.33	32.38
22.000	1560.00	0.00	0.00	857.60	125.00	861.38	0.00	861.40	15.52	1.48	141.78	31.73
22.500	1950.00	0.00	0.00	859.70	100.00	863.03	0.00	863.04	5.54	.96	176.76	42.48
22.500	1950.00	0.00	0.00	859.70	100.00	863.14	0.00	863.15	5.40	.97	150.58	43.14
22.800	805.00	0.00	0.00	860.70	100.00	863.14	0.00	863.14	.58	.12	829.13	131.15
22.800	805.00	0.00	0.00	860.70	100.00	863.25	0.00	863.25	.32	.12	843.89	139.11
22.900	580.00	0.00	0.00	860.85	74.00	863.22	0.00	863.23	25.34	.71	121.96	14.70
22.900	580.00	0.00	0.00	860.85	74.00	863.32	0.00	863.32	25.81	.74	104.24	14.57

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
23.000	100.00	0.00	0.00	860.90	74.00	863.68	0.00	863.69	95.21	1.34	98.55	7.58
23.000	100.00	0.00	0.00	860.90	74.00	863.78	0.00	863.79	95.00	1.38	71.85	7.59
23.200	48.00	865.40	862.90	860.90	74.00	865.78	0.00	865.78	.02	.16	672.42	587.18
23.200	48.00	999999.00	0.00	860.90	74.00	865.87	0.00	865.87	.02	.16	558.70	584.26
23.400	1.00	0.00	0.00	860.90	74.00	865.78	0.00	865.78	.14	.17	674.20	196.97
23.400	1.00	0.00	0.00	860.90	74.00	865.87	0.00	865.87	.14	.17	561.81	195.98

HOLLEY ORAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CHSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12.000	219.00	841.31	0.00	0.00	0.00	48.50	0.00
12.000	219.00	841.42	.11	0.00	.11	48.51	0.00
12.100	219.00	841.36	0.00	.05	0.00	31.47	170.00
12.100	219.00	841.47	.11	.05	.11	31.81	170.00
19.900	219.00	842.08	0.00	.72	0.00	153.39	180.00
19.900	219.00	842.14	.06	.67	.06	133.50	180.00
20.000	219.00	844.75	0.00	2.67	0.00	147.13	170.00
20.000	219.00	844.88	.13	2.73	.13	128.18	170.00
20.100	219.00	848.24	0.00	3.49	0.00	157.02	940.00
20.100	219.00	848.34	.10	3.46	.10	139.58	940.00
20.500	219.00	850.64	0.00	2.46	0.00	71.52	830.00
20.500	219.00	850.76	.12	2.43	.12	34.23	830.00
20.900	219.00	854.86	0.00	4.22	0.00	110.48	1075.00
20.900	219.00	854.90	.04	4.14	.04	99.00	1075.00
20.990	219.00	855.52	0.00	.66	0.00	77.21	200.00
20.990	219.00	855.55	.02	.64	.02	67.21	200.00
21.000	125.00	858.18	0.00	2.66	0.00	14.00	280.00
21.000	125.00	858.16	-.02	2.62	-.02	14.00	280.00
21.200	125.00	858.16	0.00	-.02	0.00	5.00	15.00
21.200	125.00	858.14	-.02	-.02	-.02	5.00	15.00
21.210	125.00	859.73	0.00	1.57	0.00	5.00	67.00
21.210	125.00	859.71	-.02	1.57	-.02	5.00	67.00
21.220	125.00	859.85	0.00	.12	0.00	5.00	15.00
21.220	125.00	859.83	-.02	.12	-.02	5.00	15.00
21.230	125.00	860.21	0.00	.35	0.00	120.00	50.00
21.230	125.00	860.19	-.02	.36	-.02	120.00	50.00
21.300	125.00	860.24	0.00	.04	0.00	80.07	585.00
21.300	125.00	860.23	-.02	.04	-.02	49.75	585.00
22.000	125.00	861.27	0.00	1.03	0.00	148.70	1560.00
22.000	125.00	861.38	.11	1.15	.11	93.32	1560.00
22.500	100.00	863.33	0.00	1.76	0.00	180.78	1950.00
22.500	100.00	863.14	.11	1.76	.11	85.84	1950.00
22.800	100.00	863.14	0.00	.11	0.00	408.02	805.00
22.800	100.00	863.25	.10	.11	.10	368.00	805.00
22.980	74.00	863.22	0.00	.08	0.00	104.57	580.00
22.980	74.00	863.32	.09	.07	.09	58.59	580.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
23.000	74.00	863.66	0.00	.46	0.00	149.54	100.00
23.000	74.00	863.73	.09	.46	.09	61.58	100.00
23.200	74.00	865.73	0.00	2.10	0.00	389.59	48.00
23.200	74.00	865.87	.09	2.10	.09	222.89	48.00
23.400	74.00	865.78	0.00	.00	0.00	390.08	1.00
23.400	74.00	865.87	.09	.01	.09	224.93	1.00

SUMMARY OF ERRORS

FLOODWAY DATA, HOLLEY DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
12.000	49.	218.	1.0	841.4	841.3	.1
12.100	32.	130.	2.2	841.5	841.4	.1
19.900	133.	123.	1.8	842.2	842.1	.1
20.000	128.	84.	2.6	844.9	844.8	.1
20.100	140.	221.	1.0	848.3	848.2	.1
20.500	34.	71.	3.1	850.7	850.6	.1
20.900	99.	217.	1.0	854.9	854.9	0.0
20.990	67.	115.	1.9	855.5	855.5	0.0
21.000	14.	43.	2.9	858.2	858.2	0.0
21.200	5.	22.	5.6	858.2	858.2	0.0
21.210	5.	29.	4.3	859.7	859.7	0.0
21.220	5.	30.	4.2	859.9	859.9	0.0
21.230	120.	431.	.3	860.2	860.2	0.0
21.300	50.	143.	.9	860.2	860.2	0.0
22.000	93.	142.	.9	861.4	861.3	.1
22.500	86.	151.	.7	863.1	863.0	.1
22.800	368.	844.	.1	863.2	863.1	.1
22.900	59.	134.	.7	863.3	863.2	.1
23.000	62.	72.	1.0	863.8	863.7	.1
23.200	223.	559.	.1	865.9	865.8	.1
23.400	225.	562.	.1	865.9	865.8	.1

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

C
T1      100 YEAR FLOOD
T2
T3      ~~HOLLEY DRAIN~~ PROPOSED BRANCH 2

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        1.  0.100000      0.00      0.0       0.   841.310   0.000
J2  NPROF      IPLOT     PFPVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      0.000     0.000    -1.000     0.000     0.000     1.300     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     1.000     0.000     0.000

NC      .050      .050      .045      .300      .500     0.000     0.000     0.000     0.000     0.000
QT     5.000   122.000   183.000   219.000   286.000   219.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     1.000     0.000     7.100    46.100    94.610     0.000     0.000

        CONFLUENCE OF HOLLEY DRAIN AND MOON AND HAMILTON DRAIN

X1     12.000    13.000    42.000    85.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    954.100     0.000   843.000    42.000   836.000    59.000   934.400    70.000   833.800    73.000
GR    834.400    78.000   835.200    83.000   838.800    85.000   846.900   116.000   850.800   200.000
GR    846.700   300.000   850.700   401.000   854.500   500.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     1.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     12.100     1.000     0.000     1.000   165.000   125.000   170.000     0.000     3.000     0.000
NC      .070      .070      .060      1.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     19.900    12.000   133.000   156.000   180.000   140.000   180.000     0.000    -3.000     0.000
GR    857.900     0.000   844.100    23.000   844.400   100.000   844.800   133.000   843.800   136.000
GR    843.500   139.000   843.600   144.000   844.200   156.000   842.900   166.000   844.900   174.000
GR    849.700   190.000   858.100   215.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     20.000    12.000   133.000   156.000   165.000   125.000   170.000     0.000     0.000     0.000
X5     -4.000     1.000     0.000     1.000     3.000     0.000     0.000     0.000     0.000     0.000
GR    857.900     1.000   844.100    23.000   844.400   100.000   844.800   133.000   843.800   136.000
GR    843.500   139.000   843.600   144.000   844.200   156.000   842.900   166.000   844.900   174.000
GR    849.700   190.000   858.100   215.000     0.000     0.000     0.000     0.000     0.000     0.000

X1'    20.100     1.000     0.000     1.000   530.000   670.000   940.000     0.000     2.550     0.000
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X1	20.500	13.000	70.000	90.000	460.000	680.000	830.000	0.000	0.000	0.000
GR	869.000	0.000	850.300	50.000	848.600	70.000	847.700	79.000	849.400	90.000
GR	850.300	100.000	850.800	130.000	861.800	169.000	865.800	269.000	870.600	360.000
NC	.100	.100	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	20.900	11.000	131.000	230.000	1060.000	1045.000	1075.000	0.000	0.000	0.000
GR	870.000	0.000	866.000	50.000	860.000	100.000	856.000	123.000	854.000	131.000
GR	852.400	150.000	852.400	210.000	854.000	230.000	860.000	286.000	864.000	305.000
GR	870.000	360.000	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	7.100	18.630	85.840	0.000	0.000
X1	20.990	5.000	30.000	75.000	190.000	190.000	200.000	0.000	0.000	0.000
GR	858.000	0.000	854.000	30.000	852.900	60.000	854.000	75.000	858.000	130.000
QT	5.000	69.000	104.000	125.000	165.000	125.000	0.000	0.000	0.000	0.000
X1	21.000	12.000	286.000	340.000	260.000	200.000	280.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
GR	874.400	0.000	860.700	100.000	855.300	200.000	855.800	286.000	855.600	290.500
GR	853.700	291.100	853.100	293.000	853.700	294.900	855.600	295.500	856.600	300.000
GR	860.100	400.000	876.400	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.016	.016	.033	.300	.500	0.000	0.000	0.000	0.000	0.000

MT. HOPE HIGHWAY

X1	21.200	16.000	290.500	295.500	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
GR	870.900	0.000	860.700	100.000	855.300	200.000	855.800	286.000	854.100	290.500
GR	853.900	291.100	853.900	291.110	853.100	293.000	853.100	293.100	854.050	294.900
GR	854.050	294.910	854.350	295.500	856.600	300.000	860.100	400.000	876.400	500.000
GR	872.100	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.500	3.000	0.000	4.000	0.000	18.100	0.000	853.200	853.100
X1	21.210	14.000	290.500	295.500	67.000	67.000	67.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	858.000	863.900	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	864.000	864.000	0.000
BT	13.000	0.000	870.900	0.000	100.000	867.300	0.000	200.000	864.000	0.000
BT	290.490	863.900	0.000	295.500	863.900	855.600	291.100	863.900	857.500	293.000
BT	863.900	858.100	294.900	863.900	857.500	295.500	863.900	855.600	295.510	863.900
BT	855.600	400.000	864.800	0.000	500.000	858.300	0.000	600.000	872.100	0.000
GR	874.400	0.000	858.100	100.000	856.300	200.000	855.100	286.000	853.800	290.490
GR	855.600	290.500	853.700	291.100	853.200	293.000	854.150	294.900	855.600	295.500
GR	854.450	295.510	856.700	300.000	858.700	400.000	877.100	500.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.220	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	864.000	864.000	0.000
X1	21.230	0.000	286.000	300.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	230.000	0.000	350.000	0.000	0.000	0.000	0.000
NC	.060	.060	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	4.000	.040	300.000	.050	705.000	.050	718.000	.050	1150.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

X1	21.300	18.000	705.000	719.000	575.000	625.000	585.000	0.000	0.000	0.000
GR	870.000	130.000	868.000	330.000	866.000	510.000	864.000	625.000	862.000	641.000
GR	860.000	655.000	858.000	672.000	857.100	705.000	855.600	706.000	855.300	710.000
GR	855.600	713.000	857.600	714.000	859.600	718.000	863.000	800.000	963.600	900.000
GR	863.400	1000.000	864.800	1100.000	870.800	1150.000	0.000	0.000	0.000	0.000
NC	.080	.080	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.000	22.000	211.000	226.000	1625.000	1400.000	1550.000	0.000	0.000	0.000
GR	872.400	0.000	865.300	100.000	861.200	200.000	860.200	211.000	858.100	214.000
GR	857.600	219.000	858.100	223.000	860.300	226.000	860.300	300.000	862.700	400.000
GR	864.300	500.000	864.800	600.000	865.900	700.000	866.200	800.000	866.900	900.000
GR	867.200	1000.000	869.500	1100.000	870.100	1200.000	870.100	1300.000	870.100	1400.000
GR	871.100	1500.000	872.100	1600.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	43.000	77.000	100.000	144.000	100.000	0.000	0.000	0.000	0.000
NH	3.000	.040	500.000	.060	1400.000	.080	2066.000	0.000	0.000	0.000
X1	22.500	25.000	965.000	974.000	1900.000	1930.000	1950.000	0.000	0.000	0.000
GR	875.900	0.000	873.000	100.000	870.900	200.000	869.900	300.000	867.100	400.000
GR	864.700	500.000	863.700	600.000	864.100	700.000	863.300	800.000	862.600	900.000
GR	861.000	964.000	860.100	965.000	859.700	971.000	860.100	974.000	861.700	977.000
GR	861.500	1000.000	869.500	1100.000	870.100	1200.000	870.100	1300.000	870.100	1400.000
GR	865.000	1500.000	864.600	1600.000	864.900	1700.000	866.500	1930.000	874.600	2066.000
NC	.120	.120	.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	22.800	16.000	346.000	714.000	855.000	700.000	805.000	0.000	0.000	0.000
GR	874.000	0.000	872.000	100.000	870.100	205.000	868.000	235.000	866.000	269.000
GR	864.000	327.000	862.000	346.000	861.000	370.000	860.700	549.000	861.000	680.000
GR	862.000	714.000	864.000	765.000	866.000	812.000	868.000	849.000	870.000	905.000
GR	874.600	1030.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	17.000	50.000	74.000	123.000	74.000	0.000	0.000	0.000	0.000
X1	22.900	9.000	368.000	417.000	620.000	580.000	580.000	0.000	0.000	0.000
GR	868.000	60.000	866.000	91.000	864.000	321.000	862.000	368.000	860.850	376.000
GR	862.000	417.000	864.000	461.000	866.000	650.000	868.000	693.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	23.000	21.000	415.000	421.000	120.000	100.000	100.000	0.000	0.000	0.000
GR	874.100	0.000	867.300	200.000	862.300	415.000	861.370	417.000	861.250	417.250
GR	861.250	417.260	860.900	419.000	860.900	418.100	861.320	418.750	861.330	418.760
GR	861.470	419.000	862.600	421.000	864.900	600.000	868.100	800.000	869.400	1000.000
GR	867.000	1200.000	868.300	1400.000	869.600	1600.000	872.500	1800.000	874.100	1900.000
NC	.020	.020	.021	.300	.500	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.770	3.000	0.000	2.000	0.000	3.140	0.000	860.900	860.900

MILLETT HIGHWAY

X1	23.200	0.000	417.000	419.000	48.000	48.000	48.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	862.900	865.400	0.000	0.000	0.000	0.000	0.000
X3	19.000	0.001	0.000	0.000	0.000	0.000	0.000	865.400	865.400	0.000
BT	19.000	0.000	874.100	0.000	200.800	867.900	0.000	417.000	865.400	861.900
BT	417.250	865.400	861.150	417.260	865.400	862.650	418.000	865.400	860.900	418.100
BT	865.400	862.900	418.750	865.400	862.650	418.750	865.400	861.150	419.000	865.400
BT	861.900	600.000	865.800	0.000	800.000	868.100	0.000	1000.000	868.400	0.000
BT	1200.000	867.100	0.000	1401.000	868.300	0.000	1600.000	869.500	0.000	1800.000
BT	872.400	0.000	1900.000	874.100	0.000	0.000	0.000	0.000	0.000	0.000

NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	23.400	0.000	415.000	421.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1.000	0.000	0.000	0.000	865.400	865.400	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1) COUNTY: Eaton County

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Holley Drain

4) DOCUMENT TYPE: Summary

00BREAK00

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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

HOLLEY DRAIN

SUMMARY PRINTOUT TABLE  150
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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	12.100	0.00	0.00	0.00	833.80	122.00	839.12	0.00	839.14	3.20	1.01	121.14	68.19
	12.100	0.00	0.00	0.00	833.80	183.00	840.32	0.00	840.34	2.93	1.11	167.40	106.98
	12.000	0.00	0.00	0.00	833.80	219.00	841.31	0.00	841.33	2.23	1.07	212.35	146.53
	12.000	0.00	0.00	0.00	833.80	286.00	843.26	0.00	843.27	1.31	.96	318.87	249.98
	12.100	170.00	0.00	0.00	836.80	122.00	839.20	0.00	839.38	126.00	3.48	35.02	10.87
	12.100	170.00	0.00	0.00	836.80	183.00	840.40	0.00	840.51	40.82	2.72	67.19	28.93
	12.100	170.00	0.00	0.00	836.80	219.00	841.36	0.00	841.44	28.27	2.28	95.99	48.64
	12.100	170.00	0.00	0.00	836.80	286.00	843.29	0.00	843.33	7.35	1.76	165.72	105.46
	19.900	180.00	0.00	0.00	839.90	122.00	841.71	841.43	841.76	142.31	2.08	77.94	10.21
	19.900	180.00	0.00	0.00	839.90	183.00	841.80	841.57	841.88	211.87	2.68	91.15	12.57
	19.900	180.00	0.00	0.00	839.90	219.00	842.08	0.00	842.13	98.63	2.17	133.73	22.15
	19.900	180.00	0.00	0.00	839.90	286.00	843.47	0.00	843.48	7.88	1.01	352.53	101.85
	20.000	170.00	0.00	0.00	842.90	122.00	844.60	844.44	844.68	259.83	2.58	62.02	7.57
	20.000	170.00	0.00	0.00	842.90	183.00	844.83	844.56	844.90	177.90	2.52	97.02	13.72
	20.000	170.00	0.00	0.00	842.90	219.00	844.75	844.63	844.89	383.72	3.49	83.48	11.18
*	20.000	170.00	0.00	0.00	842.90	286.00	846.56	0.00	846.57	6.92	.97	367.12	108.68
	20.100	940.00	0.00	0.00	845.45	122.00	847.80	0.00	847.81	17.72	1.08	159.68	28.99
	20.100	940.00	0.00	0.00	845.45	183.00	848.04	0.00	848.05	20.85	1.20	196.34	40.68
	20.100	940.00	0.00	0.00	845.45	219.00	848.24	0.00	848.26	18.20	1.22	229.52	51.33
	20.100	940.00	0.00	0.00	845.45	286.00	847.72	0.00	847.79	124.38	2.55	147.54	25.64
	20.500	830.00	0.00	0.00	847.70	122.00	850.16	0.00	850.26	100.00	2.79	53.16	12.20
	20.500	830.00	0.00	0.00	847.70	183.00	850.56	0.00	850.68	93.57	3.09	75.37	18.92
	20.500	830.00	0.00	0.00	847.70	219.00	850.64	0.00	850.79	113.50	3.49	80.96	20.56
	20.500	830.00	0.00	0.00	847.70	286.00	851.62	0.00	851.68	34.45	2.44	161.21	48.73
	20.900	1075.00	0.00	0.00	852.40	122.00	854.22	0.00	854.24	18.94	.82	149.62	28.03
	20.900	1075.00	0.00	0.00	852.40	183.00	854.63	0.00	854.64	19.37	.97	191.37	41.58
	20.900	1075.00	0.00	0.00	852.40	219.00	854.86	0.00	854.88	18.60	1.02	217.39	50.78
	20.900	1075.00	0.00	0.00	852.40	286.00	854.95	0.00	854.98	27.54	1.28	227.52	54.50
	20.990	200.00	0.00	0.00	852.90	122.00	854.92	0.00	854.97	91.73	1.76	74.81	12.74
	20.990	200.00	0.00	0.00	852.90	183.00	855.32	0.00	855.37	86.50	2.01	102.08	19.68
	20.990	200.00	0.00	0.00	852.90	219.00	855.52	0.00	855.59	84.40	2.13	117.37	23.84
	20.990	200.00	0.00	0.00	852.90	286.00	855.82	0.00	855.90	86.01	2.35	141.87	30.84

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
21.000	280.00	0.00	0.00	853.10	69.00	857.47	0.00	857.54	92.03	2.09	32.95	7.19
21.000	280.00	0.00	0.00	853.10	104.00	857.94	0.00	858.05	115.17	2.63	39.60	9.70
21.000	280.00	0.00	0.00	853.10	125.00	858.18	0.00	858.32	127.87	2.91	42.95	11.05
21.000	280.00	0.00	0.00	853.10	165.00	858.62	0.00	858.79	146.87	3.37	48.92	13.61
21.200	15.00	0.00	0.00	853.10	69.00	857.49	0.00	857.69	37.90	3.61	19.12	11.21
21.200	15.00	0.00	0.00	853.10	104.00	857.94	0.00	858.31	63.50	4.87	21.37	13.65
21.200	15.00	0.00	0.00	853.10	125.00	858.16	0.00	858.64	79.97	5.56	22.48	13.98
21.200	15.00	0.00	0.00	853.10	165.00	858.54	0.00	859.25	111.93	6.76	24.40	15.60
21.210	67.00	863.90	858.00	853.20	69.00	857.61	0.00	858.03	69.01	3.76	18.37	8.31
21.210	67.00	863.90	858.00	853.20	104.00	858.96	0.00	859.22	44.56	4.07	25.56	15.58
21.210	67.00	863.90	858.00	853.20	125.00	859.73	0.00	860.01	44.15	4.25	29.41	18.81
21.210	67.00	863.90	858.00	853.20	165.00	861.48	0.00	861.77	38.91	4.33	38.14	26.45
21.220	15.00	0.00	0.00	853.20	69.00	858.01	0.00	858.18	114.52	3.32	20.79	6.45
21.220	15.00	0.00	0.00	853.20	104.00	859.09	0.00	859.33	138.19	3.97	26.18	8.85
21.220	15.00	0.00	0.00	853.20	125.00	859.85	0.00	860.12	138.23	4.16	30.02	10.63
21.220	15.00	0.00	0.00	853.20	165.00	861.58	0.00	861.87	123.86	4.26	38.70	14.83
21.230	50.00	0.00	0.00	853.20	69.00	858.24	0.00	858.24	.64	.31	256.91	86.25
21.230	50.00	0.00	0.00	853.20	104.00	859.41	0.00	859.41	.39	.28	397.46	166.77
21.230	50.00	0.00	0.00	853.20	125.00	860.21	0.00	860.21	.29	.26	493.08	233.74
21.230	50.00	0.00	0.00	853.20	165.00	861.95	0.00	861.95	.16	.23	702.48	409.31
21.300	585.00	0.00	0.00	855.30	69.00	858.33	0.00	858.37	32.15	1.67	50.50	12.17
21.300	585.00	0.00	0.00	855.30	104.00	859.46	0.00	859.48	8.82	.98	109.28	36.73
21.300	585.00	0.00	0.00	855.30	125.00	860.24	0.00	860.25	3.77	.78	162.49	64.40
21.300	585.00	0.00	0.00	855.30	165.00	861.97	0.00	861.97	.94	.50	347.55	170.25
22.000	1560.00	0.00	0.00	857.60	69.00	860.94	0.00	860.96	10.28	1.07	115.60	21.52
22.000	1560.00	0.00	0.00	857.60	104.00	861.11	0.00	861.13	15.01	1.36	139.57	26.85
22.000	1560.00	0.00	0.00	857.60	125.00	861.27	0.00	861.29	15.80	1.41	162.33	32.28
22.000	1560.00	0.00	0.00	857.60	165.00	862.23	0.00	862.24	4.25	.91	334.24	80.10
22.500	1950.00	0.00	0.00	859.70	43.00	862.42	0.00	862.42	5.82	.79	93.01	19.19
22.500	1950.00	0.00	0.00	859.70	77.00	862.85	0.00	862.85	5.18	.89	145.74	33.85
22.500	1950.00	0.00	0.00	859.70	100.00	863.03	0.00	863.04	5.54	.96	176.76	42.48
22.500	1950.00	0.00	0.00	859.70	144.00	863.25	0.00	863.26	7.00	1.12	219.31	54.42
22.800	805.00	0.00	0.00	860.70	43.00	862.49	0.00	862.49	.36	.08	567.42	71.42
22.800	805.00	0.00	0.00	860.70	77.00	862.94	0.00	862.94	.48	.10	747.69	111.21
22.800	805.00	0.00	0.00	860.70	100.00	863.14	0.00	863.14	.58	.12	829.13	131.85
22.800	805.00	0.00	0.00	860.70	144.00	863.41	0.00	863.41	.52	.16	936.16	158.70
22.900	580.00	0.00	0.00	860.85	17.00	862.53	0.00	862.53	8.80	.30	60.34	5.73
22.900	580.00	0.00	0.00	860.85	50.00	863.00	0.00	863.01	19.51	.57	100.03	11.32
22.900	580.00	0.00	0.00	860.85	74.00	863.22	0.00	863.23	25.34	.71	121.96	14.70
22.900	580.00	0.00	0.00	860.85	123.00	863.53	0.00	863.54	36.70	.95	156.09	20.30
23.000	100.00	0.00	0.00	860.90	17.00	862.78	0.00	862.83	427.33	1.91	12.89	.82
23.000	100.00	0.00	0.00	860.90	50.00	863.42	0.00	863.43	125.39	1.40	63.99	4.47
23.000	100.00	0.00	0.00	860.90	74.00	863.68	0.00	863.69	95.21	1.34	98.55	7.58
23.000	100.00	0.00	0.00	860.90	123.00	864.06	0.00	864.07	73.58	1.32	162.90	14.33

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
23.200	48.00	865.40	862.90	860.90	17.00	863.91	0.00	864.15	169.79	3.86	4.41	1.30
23.200	48.00	865.40	862.90	860.90	50.00	865.69	0.00	865.69	.81	.11	638.54	546.20
23.200	48.00	865.40	862.90	860.90	74.00	865.78	0.00	865.78	.02	.16	672.42	587.18
23.200	48.00	865.40	862.90	860.90	123.00	865.89	0.00	865.89	.84	.25	716.09	640.99
23.400	1.00	0.00	0.00	860.90	17.00	864.19	0.00	864.21	15.40	1.12	15.13	4.33
23.400	1.00	0.00	0.00	860.90	50.00	865.69	0.00	865.69	.07	.12	640.89	183.51
23.400	1.00	0.00	0.00	860.90	74.00	865.78	0.00	865.78	.14	.17	674.20	196.97
23.400	1.00	0.00	0.00	860.90	123.00	865.89	0.00	865.89	.33	.26	717.38	214.74

HOLLEY [RAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	12.000	122.00	839.12	0.00	0.00	0.00	34.80	0.00
	12.000	183.00	840.32	1.20	0.00	0.00	42.31	0.00
	12.000	219.00	841.31	.99	0.00	0.00	48.50	0.00
	12.000	286.00	843.26	1.95	0.00	0.00	61.05	0.00
	12.100	122.00	839.21	0.00	.08	0.00	25.03	170.00
	12.100	183.00	840.40	1.20	.08	0.00	28.61	170.00
	12.100	219.00	841.36	.97	.05	0.00	31.47	170.00
	12.100	286.00	843.29	1.92	.03	0.00	42.06	170.00
	19.900	122.00	841.71	0.00	2.51	0.00	143.66	180.00
	19.900	183.00	841.80	.09	1.41	0.00	151.77	180.00
	19.900	219.00	842.08	.28	.72	0.00	153.39	180.00
	19.900	286.00	843.47	1.39	.18	0.00	161.55	180.00
	20.000	122.00	844.60	0.00	2.89	0.00	133.18	170.00
	20.000	183.00	844.83	.24	3.03	0.00	151.99	170.00
	20.000	219.00	844.75	-.08	2.67	0.00	147.13	170.00
*	20.000	286.00	846.56	1.81	3.09	0.00	162.08	170.00
	20.100	122.00	847.80	0.00	3.20	0.00	154.38	940.00
	20.100	183.00	848.04	.24	3.21	0.00	155.77	940.00
	20.100	219.00	848.24	.21	3.49	0.00	157.02	940.00
	20.100	286.00	847.72	-.52	1.16	0.00	153.92	940.00
	20.500	122.00	850.16	0.00	2.36	0.00	46.72	830.00
	20.500	183.00	850.56	.41	2.53	0.00	66.44	830.00
	20.500	219.00	850.64	.08	2.40	0.00	71.52	830.00
	20.500	286.00	851.62	.97	3.90	0.00	86.40	830.00
	20.900	122.00	854.22	0.00	4.07	0.00	101.98	1075.00
	20.900	183.00	854.63	.40	4.06	0.00	107.30	1075.00
	20.900	219.00	854.86	.24	4.22	0.00	110.48	1075.00
	20.900	286.00	854.95	.09	3.34	0.00	111.70	1075.00
	20.990	122.00	854.92	0.00	.70	0.00	64.44	200.00
	20.990	183.00	855.32	.39	.69	0.00	72.88	200.00
	20.990	219.00	855.52	.21	.66	0.00	77.21	200.00
	20.990	286.00	855.82	.30	.87	0.00	83.68	200.00
	21.000	69.00	857.47	0.00	2.55	0.00	14.00	280.00
	21.000	104.00	857.94	.47	2.63	0.00	14.00	280.00
	21.000	125.00	858.18	.24	2.66	0.00	14.00	280.00
	21.000	165.00	858.62	.43	2.80	0.00	14.00	280.00
	21.200	69.00	857.49	0.00	.02	0.00	5.00	15.00
	21.200	104.00	857.94	.45	-.00	0.00	5.00	15.00
	21.200	125.00	858.16	.22	-.02	0.00	5.00	15.00
	21.200	165.00	858.54	.38	-.08	0.00	5.00	15.00
	21.210	69.00	857.81	0.00	.33	0.00	5.00	67.00
	21.210	104.00	858.96	1.15	1.02	0.00	5.00	67.00
	21.210	125.00	859.73	.77	1.57	0.00	5.00	67.00

21.210	165.00	861.48	1.75	2.94	0.00	5.00	67.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
21.220	69.00	858.01	0.00	.19	0.00	5.00	15.00
21.220	104.00	859.09	1.08	.12	0.00	5.00	15.00
21.220	125.00	859.85	.77	.12	0.00	5.00	15.00
21.220	165.00	861.58	1.73	.11	0.00	5.00	15.00
21.230	69.00	858.24	0.00	.23	0.00	120.00	50.00
21.230	104.00	859.41	1.17	.32	0.00	120.00	50.00
21.230	125.00	860.21	.80	.35	0.00	120.00	50.00
21.230	165.00	861.95	1.75	.37	0.00	120.00	50.00
21.300	69.00	858.33	0.00	.09	0.00	46.24	585.00
21.300	104.00	859.46	1.13	.05	0.00	58.08	585.00
21.300	125.00	860.24	.78	.04	0.00	80.07	585.00
21.300	165.00	861.97	1.73	.02	0.00	133.90	585.00
22.000	69.00	860.94	0.00	2.61	0.00	131.72	1560.00
22.000	104.00	861.11	.17	1.65	0.00	140.19	1560.00
22.000	125.00	861.27	.15	1.03	0.00	148.70	1560.00
22.000	165.00	862.23	.96	.26	0.00	207.92	1560.00
22.500	43.00	862.42	0.00	1.47	0.00	104.01	1950.00
22.500	77.00	862.85	.43	1.73	0.00	151.81	1950.00
22.500	100.00	863.03	.18	1.76	0.00	180.78	1950.00
22.500	144.00	863.25	.22	1.02	0.00	214.25	1950.00
22.800	43.00	862.49	0.00	.08	0.00	384.91	805.00
22.800	77.00	862.94	.45	.10	0.00	400.97	805.00
22.800	100.00	863.14	.20	.11	0.00	408.02	805.00
22.800	144.00	863.41	.26	.16	0.00	417.10	805.00
22.900	17.00	862.53	0.00	.03	0.00	73.00	580.00
22.900	50.00	863.00	.47	.06	0.00	94.55	580.00
22.900	74.00	863.22	.22	.08	0.00	104.57	580.00
22.900	123.00	863.53	.31	.12	0.00	118.49	580.00
23.000	17.00	862.78	0.00	.25	0.00	40.75	100.00
23.000	50.00	863.42	.63	.42	0.00	118.36	100.00
23.000	74.00	863.68	.27	.46	0.00	149.54	100.00
23.000	123.00	864.06	.38	.53	0.00	194.70	100.00
23.200	17.00	863.91	0.00	1.13	0.00	6.00	48.00
23.200	50.00	865.69	1.78	2.28	0.00	380.31	48.00
23.200	74.00	865.78	.09	2.10	0.00	389.59	48.00
23.200	123.00	865.89	.11	1.83	0.00	401.25	48.00
23.400	17.00	864.19	0.00	.28	0.00	6.00	1.00
23.400	50.00	865.69	1.50	.00	0.00	380.96	1.00
23.400	74.00	865.78	.09	.00	0.00	390.08	1.00
23.400	123.00	865.89	.11	.00	0.00	401.59	1.00

SUMMARY OF ERRORS

NOTE SECNO= 20.000 PROFILE= 4 WSEL BASED ON X5 CARD

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Delta Twp.

3) WATERCOURSE: Miller Creek

4) DOCUMENT TYPE: 100 yr Encroached.

00BREAK00

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

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C
T1      DELTA TWP.,FIA    (JOB NO. 17287A)
T2      100 YEAR FLOOD, NATURAL FLOODWAY
T3      MILLER CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       2.        0.        0.  0.000000      0.00      0.0       0.   796.490   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   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC     .080      .080      .045      .300      .500    0.000     0.000     0.000     0.000     0.000
QT    2.000   635.000   635.000     0.000     0.000    0.000     0.000     0.000     0.000     0.000

X1     .900    19.000   245.000   254.000     0.000    0.000     0.000     0.000    -2.880     0.000
GR  820.600     0.000   817.100    50.000   813.900  100.000   808.800   150.000   807.900   200.000
GR  802.800   237.000   795.800   245.000   794.800  245.500   794.300   246.000   794.300   247.500
GR  794.300   249.500   794.300   251.500   794.300  253.000   794.800   253.500   795.800   254.000
GR  797.200   260.000   798.500   300.000   798.500  369.000   813.000   407.000     0.000     0.000

X1     .910     0.000     0.000     0.000    50.000   50.000    50.000     0.000      .400     0.000

X1     .920     0.000     0.000     0.000    50.000   50.000    50.000     0.000      .400     0.000
NC     .080      .050      .045     0.000     0.000    0.000     0.000     0.000     0.000     0.000

X1     .990     0.000     0.000     0.000   165.000  190.000   160.000     0.000    1.280     0.000

X1    1.000    19.000   245.000   254.000   100.000  100.000   100.000     0.000    0.000     0.000
GR  820.600     0.000   817.100    50.000   813.900  100.000   808.800   150.000   807.900   200.000
GR  802.800   237.000   795.800   245.000   794.800  245.500   794.300   246.000   794.300   247.500
GR  794.300   249.500   794.300   251.500   794.300  253.000   794.800   253.500   795.800   254.000
GR  797.200   260.000   798.500   300.000   798.500  369.000   813.000   407.000     0.000     0.000
NC     .015      .015      .031     0.000     0.000    0.000     0.000     0.000     0.000     0.000

        D/S FACE OF DRIVEWAY CULVERT, 9 BY 5.8 FT. CMP (2 IN.), 31 FT. LONG

              PAVED ROADWAY

        SECTION A
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X1	1.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	820.600	0.000	50.000	817.100	0.000	100.000	813.900	0.000
BT	150.000	808.800	0.000	200.000	807.900	0.000	245.000	802.560	795.800	245.500
BT	802.500	797.800	246.000	802.440	798.800	247.500	802.270	799.800	249.500	801.970
BT	800.300	251.500	801.830	799.800	253.000	801.730	798.800	253.500	801.690	797.800
BT	254.000	801.660	795.800	300.000	798.500	0.000	369.000	798.500	0.000	407.000
BT	813.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF DRIVEWAY CULVERT

X1	1.090	0.000	0.000	0.000	30.000	30.000	30.000	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	.040	.040	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	1.200	10.000	20.000	40.000	25.000	25.000	25.000	0.000	0.000	0.000
GR	806.000	0.000	800.000	15.000	796.000	20.000	794.600	30.000	794.600	37.000
GR	796.000	40.000	798.000	48.000	800.000	110.000	802.000	120.000	810.000	150.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	9.000	35.000	47.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	808.000	0.000	796.000	35.000	795.100	36.000	795.100	45.000	796.000	47.000
GR	798.000	52.000	800.000	89.000	802.000	120.000	810.000	140.000	0.000	0.000
X1	1.900	10.000	38.000	43.000	360.000	365.000	450.000	0.000	0.000	0.000
GR	810.000	0.000	802.000	17.000	800.000	27.000	799.800	38.000	798.700	39.000
GR	798.700	42.000	799.800	43.000	800.000	48.000	810.000	75.000	820.000	90.000
X1	2.000	19.000	430.000	444.000	40.000	60.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	812.300	813.000	0.000
GR	810.200	0.000	805.100	200.000	803.300	400.000	804.700	420.000	799.200	427.000
GR	800.700	430.000	799.200	430.500	799.100	431.000	799.100	432.000	799.100	433.500
GR	799.100	437.000	799.100	440.500	799.100	442.000	799.100	443.000	799.100	443.500
GR	800.700	444.000	806.300	459.000	813.000	500.000	819.700	550.000	0.000	0.000
NC	.015	.015	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF WILLOW HIGHWAY, 14 BY 8.6 FT. CMP ARCH (2 IN.), 54 FT. LONG

FAVED ROADWAY

SECTION B

X1	2.010	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	812.300	813.000	0.000
BT	21.000	0.000	809.810	0.000	50.000	808.920	0.000	100.000	807.680	0.000
BT	150.000	806.890	0.000	200.000	806.440	0.000	250.000	807.520	0.000	300.000
BT	807.320	0.000	350.000	808.550	0.000	400.000	810.270	0.000	430.000	811.490
BT	800.700	430.500	811.510	803.200	432.000	811.570	805.700	433.500	811.630	806.700
BT	437.000	811.770	807.700	440.500	811.910	806.700	442.000	811.970	805.700	443.500
BT	812.030	803.200	444.000	812.060	800.700	500.000	814.650	0.000	550.000	818.070
BT	0.000	600.000	821.710	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF WILLOW HIGHWAY

SECTION C

X1	2.090	20.000	451.000	465.000	53.000	53.000	53.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	812.300	813.000	0.000
BT	22.000	0.000	809.810	0.000	50.000	808.920	0.000	100.000	807.680	0.000
BT	150.000	806.890	0.000	200.000	806.440	0.000	250.000	807.520	0.000	300.000
BT	807.320	0.000	350.000	808.550	0.000	400.000	810.270	0.000	450.000	812.300
BT	0.000	451.000	812.350	800.800	451.500	812.370	803.300	453.000	812.440	805.800
BT	454.500	812.510	806.800	458.000	812.680	807.800	461.500	812.840	806.700	463.000
BT	812.910	805.800	464.500	812.980	803.300	465.000	813.000	800.600	500.000	814.650
BT	0.000	550.000	818.070	0.000	600.000	821.710	0.000	0.000	0.000	0.000
GR	813.300	0.000	805.700	200.000	802.500	445.000	800.800	451.000	799.300	451.500
GR	799.300	452.000	799.200	453.000	799.200	454.500	799.200	458.000	799.200	461.500
GR	799.200	463.000	799.200	464.000	799.300	464.500	800.600	465.000	799.600	467.000
GR	806.700	469.000	801.700	500.000	806.000	550.000	818.100	600.000	824.300	650.000
NC	.065	.065	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	812.300	813.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION D, FABRICATED VALLEY SECTION

X1	3.000	23.000	283.000	297.000	260.000	250.000	275.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	30.000	822.000	65.000	820.000	145.000	818.000	155.000
GR	816.000	160.000	814.000	165.000	812.000	175.000	810.000	185.000	808.000	205.000
GR	806.000	235.000	804.000	245.000	802.000	283.000	801.000	290.000	802.000	297.000
GR	806.000	305.000	810.000	320.000	812.000	335.000	814.000	345.000	818.000	380.000
GR	820.000	390.000	824.000	420.000	826.000	430.000	0.000	0.000	0.000	0.000
QT	2.000	495.000	495.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION E, FABRICATED VALLEY SECTION

X1	3.500	15.000	155.000	165.000	400.000	425.000	460.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	50.000	822.000	80.000	820.000	95.000	810.000	145.000
GR	804.000	154.000	803.500	155.000	802.700	156.000	802.700	160.000	803.500	165.000
GR	804.000	172.000	806.000	215.000	808.000	290.000	810.000	415.000	818.000	470.000
X1	3.900	21.000	410.000	420.000	324.000	159.000	274.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	55.000	818.000	140.000	816.000	200.000	814.000	290.000
GR	812.000	350.000	810.000	370.000	808.000	390.000	806.000	405.000	805.500	410.000
GR	804.300	411.000	804.300	419.000	805.500	420.000	806.000	423.000	808.000	480.000
GR	810.000	600.000	812.000	635.000	814.000	650.000	816.000	655.000	818.000	665.000
GR	820.000	675.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF FARM LANE BRIDGE, 3 FT. DIAM. CMP (1/2 IN.), 12 FT. LONG

GRAVEL ROADWAY

SECTION F

X1	4.000	19.000	453.000	469.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	826.400	0.000	824.700	50.000	822.400	100.000	819.900	150.000	817.100	200.000
GR	815.400	250.000	812.000	300.000	810.000	350.000	808.000	400.000	807.400	453.000
GR	804.900	457.000	804.500	461.000	804.900	465.000	807.000	469.000	807.700	500.000
GR	810.500	550.000	813.300	600.000	819.800	650.000	824.800	700.000	0.000	0.000
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.195	3.050	0.000	3.000	0.000	7.070	0.000	804.400	804.500

X1	4.090	19.000	459.500	462.500	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	807.400	807.700	0.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	826.400	0.000	50.000	824.700	0.000	100.000	822.400	0.000
BT	150.000	819.900	0.000	200.000	817.100	0.000	250.000	815.400	0.000	300.000
BT	812.000	0.000	350.000	810.000	0.000	400.000	808.000	0.000	459.500	808.500
BT	806.000	460.000	808.500	807.250	461.000	808.500	807.500	462.000	808.500	807.250
BT	462.500	808.500	806.000	500.000	807.700	0.000	550.000	810.500	0.000	600.000
BT	813.300	0.000	650.000	819.800	0.000	700.000	824.800	0.000	0.000	0.000
GR	826.400	0.000	824.700	50.000	822.400	100.000	819.900	150.000	817.100	200.000
GR	815.400	250.000	812.000	300.000	810.000	350.000	808.000	400.000	806.000	459.500
GR	805.000	460.000	804.500	461.000	805.000	462.000	806.000	462.500	807.700	500.000
GR	810.500	550.000	813.300	600.000	819.800	650.000	824.800	700.000	0.000	0.000

SECTION G, FABRICATED VALLEY SECTION

X1	4.300	17.000	142.000	150.000	500.000	575.000	625.000	0.000	0.000	0.000
GR	820.000	0.000	818.000	35.000	816.000	80.000	814.000	90.000	812.000	100.000
GR	810.000	110.000	808.000	132.000	807.800	142.000	807.100	145.000	807.800	150.000
GR	808.000	155.000	810.000	165.000	812.000	230.000	814.000	370.000	816.000	391.000
GR	818.000	415.000	820.000	425.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION H, FABRICATED VALLEY SECTION

X1	4.500	14.000	245.000	265.000	200.000	200.000	210.000	0.000	0.000	0.000
GR	826.000	0.000	822.000	100.000	820.000	135.000	816.000	165.000	812.000	195.000
GR	810.000	245.000	808.300	255.000	810.000	265.000	812.000	295.000	814.000	305.000
GR	816.000	325.000	818.000	340.000	820.000	350.000	830.000	375.000	0.000	0.000

SECTION I, SURVEYED VALLEY SECTION

X1	5.000	22.000	347.000	359.000	800.000	925.000	1050.000	0.000	0.000	0.000
GR	825.700	0.000	824.800	50.000	824.900	100.000	824.700	150.000	823.700	200.000
GR	821.600	250.000	816.700	300.000	814.000	347.000	812.600	348.000	812.000	353.000
GR	812.600	358.000	813.700	359.000	821.700	381.000	821.700	389.000	818.000	400.000
GR	818.000	520.000	818.900	550.000	820.200	600.000	821.200	650.000	823.300	700.000
GR	824.500	750.000	825.700	800.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION J, FABRICATED VALLEY SECTION

X1	5.500	17.000	480.000	500.000	575.000	625.000	600.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	70.000	826.000	280.000	824.000	340.000	822.000	360.000
GR	820.000	380.000	818.000	420.000	816.000	480.000	815.500	490.000	816.000	500.000
GR	818.000	505.000	820.000	515.000	822.000	530.000	824.000	850.000	826.000	950.000
GR	828.000	1145.000	830.000	1295.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION K, FABRICATED VALLEY SECTION

X1	5.700	12.000	165.000	170.000	725.000	625.000	750.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	22.000	820.000	108.000	818.000	160.000	817.800	165.000
GR	817.300	168.000	817.800	170.000	818.000	180.000	820.000	189.000	822.000	193.000
GR	824.000	205.000	826.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION L, FABRICATED VALLEY SECTION

X1	5.800	15.000	174.000	182.000	750.000	610.000	850.000	0.000	0.000	0.000
GR	828.000	0.000	826.000	80.000	824.000	100.000	822.000	130.000	820.000	170.000
GR	819.700	174.000	819.200	177.000	819.200	179.000	819.700	182.000	820.000	190.000

GR	822.000	205.000	824.000	330.000	826.000	430.000	828.000	475.000	830.000	510.000
NC	.030	.030	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.900	16.000	652.000	660.000	225.000	300.000	275.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	170.000	828.000	200.000	828.000	390.000	826.000	480.000
GR	826.000	500.000	826.000	526.000	824.000	640.000	822.000	647.000	820.300	652.000
GR	820.300	660.000	822.000	665.000	824.000	672.000	826.000	715.000	828.000	760.000
GR	830.000	885.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF PHILWOOD DRIVE, WOODEN BOX CULVERT, 45 DEGREE WINGWALLS

BADLY ERODED AROUND WINGWALLS

SECTION M

X1	6.000	23.000	1099.000	1109.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	836.600	0.000	832.100	100.000	830.800	200.000	830.300	300.000	829.900	400.000
GR	828.700	500.000	828.800	600.000	829.300	700.000	829.300	800.000	826.400	900.000
GR	826.100	1000.000	825.200	1094.000	820.500	1098.900	820.500	1099.000	820.500	1103.000
GR	820.500	1104.200	821.100	1109.000	821.400	1109.100	824.300	1124.000	827.200	1200.000
GR	829.300	1300.000	831.300	1400.000	834.800	1500.000	0.000	0.000	0.000	0.000
NH	3.000	.035	1098.000	.100	1128.000	.030	1500.000	0.000	0.000	0.000
SB	0.000	2.010	3.010	0.000	10.000	0.000	28.500	0.000	820.100	820.500

SECTION N, U/S FACE OF PHILWOOD DRIVE

X1	6.040	23.000	1103.000	1113.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	823.600	826.100	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1062.000	0.000	1155.000	0.000	0.000	0.000	0.000
BT	10.000	1062.000	826.100	0.000	1102.900	826.100	0.000	1103.000	826.100	823.600
BT	1107.800	826.100	823.600	1107.800	826.100	820.100	1108.200	826.100	820.100	1108.200
BT	826.100	823.600	1113.000	826.100	823.600	1113.100	826.100	0.000	1155.000	826.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	836.600	0.000	832.100	100.000	830.800	200.000	830.300	300.000	829.900	400.000
GR	828.700	500.000	828.800	600.000	829.300	700.000	829.300	800.000	826.400	900.000
GR	826.100	1000.000	824.800	1098.000	821.100	1102.900	821.200	1103.000	820.100	1107.800
GR	820.100	1108.200	821.200	1113.000	821.100	1113.100	824.400	1128.000	827.300	1200.000
GR	829.300	1300.000	831.300	1400.000	834.800	1500.000	0.000	0.000	0.000	0.000
X1	6.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.210	0.000
NH	5.000	.035	187.000	.100	330.000	.090	340.000	.100	380.000	.035
NH	490.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.500	12.000	330.000	340.000	260.000	325.000	590.000	0.000	0.000	0.000
GR	829.500	0.000	828.000	140.000	826.000	187.000	824.000	325.000	823.000	330.000
GR	821.440	331.000	821.440	339.000	823.000	340.000	824.000	350.000	826.000	380.000
GR	828.000	450.000	834.000	490.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	290.000	.100	420.000	.090	430.000	.100	450.000	.035
NH	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.900	12.000	420.000	430.000	329.000	424.000	409.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	365.000	0.000	465.000	0.000	0.000	0.000	0.000
GR	829.500	0.000	828.000	225.000	826.000	290.000	826.000	390.000	824.500	420.000
GR	822.390	421.000	822.390	429.000	824.500	430.000	826.000	450.000	828.000	609.000
GR	830.000	685.000	836.000	785.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.035	600.000	.100	700.000	.035	1100.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	608.900	681.300	0.000	0.000	0.000	0.000	0.000

X1	7.000	26.000	622.000	642.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	827.700	0.000	827.700	100.000	829.000	200.000	829.300	239.000	829.200	300.000
GR	829.100	350.000	828.800	400.000	828.400	450.000	828.200	500.000	828.400	550.000
GR	828.700	600.000	827.100	622.000	823.900	627.000	823.870	627.100	822.500	631.670
GR	822.500	631.680	822.500	631.900	822.500	632.000	824.660	636.900	824.700	637.000
GR	826.900	642.000	828.600	700.000	829.060	800.000	830.350	900.000	831.930	1000.000
GR	835.040	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.015	.015	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF LAWRENCE DRIVE, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

SECTION 0

X1	7.010	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	608.000	0.000	682.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	827.700	0.000	100.000	827.700	0.000	200.000	829.000	0.000
BT	239.000	829.300	0.000	300.000	829.200	0.000	350.000	829.100	0.000	400.000
BT	828.800	0.000	450.000	828.400	0.000	500.000	828.200	0.000	550.000	828.400
BT	0.000	600.000	828.400	0.000	627.000	828.570	823.900	627.100	828.580	826.700
BT	631.670	828.570	822.500	631.680	828.600	826.700	631.900	828.600	826.700	632.000
BT	828.600	822.500	636.900	828.480	826.700	637.000	828.470	824.700	650.000	828.150
BT	0.000	700.000	828.540	0.000	800.000	829.060	0.000	900.000	830.350	0.000
BT	1000.000	831.930	0.000	1100.000	835.040	0.000	0.000	0.000	0.000	0.000

X1	7.090	0.000	0.000	0.000	31.000	31.000	31.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	577.000	0.000	713.000	0.000	0.000	0.000	0.000
NC	.040	.040	.030	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	7.100	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	576.000	0.000	714.000	0.000	0.000	0.000	0.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8.000	27.000	878.500	889.500	278.000	293.000	298.000	0.000	0.000	0.000
GR	836.000	0.000	834.000	127.000	832.000	190.000	830.000	310.000	828.000	430.000
GR	826.600	550.000	827.700	630.000	827.700	680.000	828.500	730.000	826.000	780.000
GR	827.500	830.000	826.500	875.000	824.000	878.500	823.300	878.600	823.300	884.000
GR	823.300	889.400	824.000	889.500	826.400	894.000	827.500	930.000	827.000	980.000
GR	828.300	1030.000	828.100	1080.000	829.100	1130.000	929.500	1180.000	830.600	1230.000
GR	832.200	1280.000	033.700	1330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.020	.020	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF FOOT BRIDGE, CONCRETE BOX CULVERT, NO WINGWALLS

SECTION P

X1	8.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	8.000	830.000	827.500	0.000	878.500	827.690	824.000	878.600	827.690	826.600
BT	884.000	827.700	826.600	889.400	827.700	826.600	809.500	827.700	824.000	930.000
BT	827.700	0.000	980.000	827.700	0.000	0.000	0.000	0.000	0.000	0.000

X1	8.090	0.000	0.000	0.000	11.000	11.000	11.000	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	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	8.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

QT	2.000	430.000	430.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.085	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION Q, FABRICATED VALLEY SECTION

X1	8.500	11.000	720.000	745.000	638.000	338.000	538.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	230.000	830.000	450.000	828.000	655.000	826.000	720.000
GR	823.900	735.000	826.000	745.000	828.000	940.000	830.000	1000.000	832.000	1025.000
GR	834.000	1270.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION R, FABRICATED VALLEY SECTION

X1	8.600	10.000	225.000	240.000	270.000	425.000	380.000	0.000	0.000	0.000
GR	832.000	0.000	830.000	100.000	828.000	198.000	826.100	225.000	824.290	227.000
GR	824.290	238.000	826.100	240.000	828.000	260.000	830.000	460.000	832.000	510.000

SECTION S, FABRICATED VALLEY SECTION

X1	8.700	10.000	200.000	210.000	430.000	370.000	460.000	0.000	0.000	0.000
GR	830.600	0.000	830.000	95.000	828.100	200.000	824.790	201.000	824.790	209.000
GR	828.100	210.000	830.000	280.000	832.000	315.000	834.000	340.000	836.000	375.000

SECTION T, FABRICATED VALLEY SECTION

X1	8.800	15.000	825.000	833.000	255.000	255.000	255.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	100.000	836.000	210.000	834.000	250.000	832.000	630.000
GR	830.000	815.000	828.500	825.000	825.100	829.000	828.500	833.000	830.000	850.000
GR	832.000	880.000	834.000	915.000	836.000	950.000	838.000	1050.000	840.000	1125.000
ET	0.000	4.100	4.100	700.000	779.200	0.000	0.000	0.000	0.000	0.000

SECTION U, FABRICATED VALLEY SECTION

X1	8.900	14.000	730.000	742.000	275.000	250.000	300.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	30.000	836.000	80.000	834.000	410.000	832.000	570.000
GR	831.000	730.000	825.190	734.000	825.190	738.000	831.000	742.000	832.000	750.000
GR	834.000	805.000	836.000	945.000	838.000	1035.000	840.000	1100.000	0.000	0.000
NC	.090	.090	.060	.300	.500	0.000	0.000	0.000	0.000	0.000

D/S FACE OF SAGINAW HIGHWAY, CONCRETE BOX CULVERT, 45 DEG. WINGWALLS

SECTION V

X1	9.000	20.000	743.000	757.000	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	836.020	836.020	0.000
GR	840.410	0.000	839.840	50.000	839.000	100.000	837.600	150.000	835.600	350.000
GR	832.600	550.000	833.000	729.000	833.500	743.000	830.100	745.740	825.600	745.750
GR	825.600	745.760	825.600	750.000	825.600	754.240	825.600	754.250	830.100	754.260
GR	833.500	757.000	830.600	767.000	834.900	900.000	838.200	1100.000	841.100	1300.000
NH	5.000	.030	729.000	.100	743.000	.060	757.000	.100	900.000	.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.590	2.900	0.000	8.500	0.000	59.500	0.000	825.600	825.600

U/S FACE OF SAGINAW HIGHWAY

SECTION W

X1	9.090	0.000	0.000	0.000	79.000	79.000	79.000	0.000	0.000	0.000

X2	0.000	0.000	1.000	832.660	836.020	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	836.020	836.020	0.000
RT	26.000	0.000	840.410	0.000	50.000	839.840	0.000	100.000	839.080	0.000
BT	150.000	838.560	0.000	200.000	837.930	0.000	250.000	837.360	0.000	300.000
BT	837.010	0.000	350.000	836.680	0.000	400.000	836.300	0.000	450.000	836.140
BT	0.000	500.000	836.020	0.000	700.000	836.460	0.000	745.740	836.750	830.100
BT	745.750	836.750	832.660	745.760	836.750	832.660	750.000	836.780	832.660	754.240
BT	836.790	832.660	754.250	836.790	832.660	754.260	836.790	830.100	800.000	836.940
BT	0.000	850.000	837.410	0.000	900.000	837.840	0.000	950.000	838.340	0.000
BT	1000.000	839.030	0.000	1050.000	839.700	0.000	1100.000	840.460	0.000	0.000
NC	.100	.100	.070	.100	.300	0.000	0.000	0.000	0.000	0.000

SECTION X, FABRICATED VALLEY SECTION

X1	9.200	14.000	755.000	770.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	705.000	0.000	820.000	0.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	170.000	836.000	380.000	834.000	725.000	832.000	745.000
GR	831.000	755.000	825.800	760.000	825.800	765.000	831.000	770.000	832.000	800.000
GR	834.000	945.000	836.000	990.000	838.000	1095.000	840.000	1160.000	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	9.300	0.000	0.000	0.000	200.000	200.000	200.000	0.000	.800	0.000
LT	0.000	4.100	0.000	650.000	1390.000	0.000	0.000	0.000	0.000	0.000

SECTION Y, FABRICATED VALLEY SECTION.

X1	10.000	19.000	970.000	990.000	1200.000	1250.000	1370.000	0.000	0.000	0.000
GR	846.000	0.000	840.000	65.000	838.000	105.000	838.000	180.000	840.000	220.000
GR	840.000	310.000	838.000	415.000	836.000	480.000	834.000	810.000	833.000	970.000
GR	832.000	980.000	833.000	990.000	834.000	1045.000	836.000	1090.000	838.000	1170.000
GR	840.000	1210.000	842.000	1255.000	844.000	1315.000	846.000	1390.000	0.000	0.000
X1	10.500	14.000	392.000	404.000	940.000	850.000	1160.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	60.000	840.000	218.000	838.000	250.000	836.000	290.000
GR	835.000	392.000	833.350	396.000	833.350	400.000	835.000	404.000	836.000	445.000
GR	838.000	700.000	840.000	725.000	842.000	870.000	844.000	895.000	0.000	0.000

SECTION Z, SURVEYED VALLEY SECTION

X1	11.000	16.000	586.000	608.000	500.000	525.000	640.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	576.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	844.800	0.000	844.600	100.000	843.700	200.000	842.500	300.000	839.000	400.000
GR	842.400	500.000	842.800	576.000	835.400	586.000	834.100	591.000	835.400	608.000
GR	841.500	630.000	842.900	658.000	843.600	700.000	844.100	800.000	844.500	900.000
GR	844.000	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.030	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	2.000	265.000	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

/DS FACE OF ROCKBRIDGE ROAD, 6 FT. DIAM. CMP (1/2 IN.), PROJECTING INLET

PAVED ROADWAY

SECTION AA

X1	12.000	21.000	673.000	679.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	850.100	0.000	847.800	100.000	846.800	200.000	844.800	300.000	842.100	400.000
GR	840.800	500.000	840.000	600.000	839.900	658.000	838.200	663.000	835.200	672.000
GR	835.100	673.000	832.600	674.000	832.100	676.000	832.600	678.000	835.100	679.000

GR	835.200	683.000	839.000	687.000	840.400	700.000	842.900	800.000	846.800	900.000
GR	850.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.650	3.010	0.000	6.000	0.000	28.270	0.000	832.600	832.100

U/S FACE OF ROCKBRIDGE ROAD, SECTION AB

X1	12.090	17.000	654.000	660.000	83.000	83.000	83.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	838.600	840.000	0.000	0.000	0.000	0.000	0.000
BT	16.000	-0.000	850.100	0.000	100.000	847.800	0.000	200.000	846.800	0.000
BT	300.000	844.900	0.000	400.000	842.100	0.000	500.000	840.800	0.000	600.000
BT	840.000	0.000	654.000	839.900	835.600	655.000	839.900	838.100	657.000	839.900
BT	838.600	659.000	839.900	838.100	660.000	839.900	835.600	700.000	840.400	0.000
BT	800.000	842.900	0.000	900.000	846.800	0.000	1000.000	850.400	0.000	0.000
GR	850.100	0.000	847.800	100.000	846.800	200.000	844.900	300.000	842.100	400.000
GR	840.800	500.000	840.000	600.000	835.600	654.000	833.100	655.000	832.600	657.000
GR	833.100	659.000	835.600	660.000	840.400	700.000	842.900	800.000	846.800	900.000
GR	846.800	900.000	850.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION AC, SURVEYED VALLEY SECTION

X1	13.000	16.000	268.000	279.000	2050.000	2050.000	2050.000	0.000	0.000	0.000
GR	850.100	0.000	846.800	47.000	845.600	100.000	844.200	200.000	844.000	210.000
GR	845.000	216.000	845.100	239.000	842.900	260.000	838.100	268.000	837.000	274.000
GR	838.100	279.000	842.100	290.000	843.300	300.000	846.100	400.000	846.100	500.000
GR	850.100	560.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF ST. JOE HIGHWAY, 4 FT. DIAM. CMP (1/2 IN.), SANDBAG WINGWALL

PAVED ROADWAY

SECTION AD

X1	14.000	18.000	244.000	248.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	850.000	0.000	849.400	100.000	849.500	200.000	840.400	244.000	838.900	244.500
GR	838.400	246.000	838.900	247.500	840.400	248.000	847.700	300.000	847.700	400.000
GR	847.800	500.000	847.900	600.000	848.100	700.000	848.200	800.000	848.500	900.000
GR	848.900	1000.000	849.400	1100.000	850.600	1200.000	0.000	0.000	0.000	0.000
SB	0.000	2.480	3.020	0.000	4.000	0.000	12.570	0.000	838.400	838.400

U/S FACE OF ST. JOE HIGHWAY, SECTION AE

X1	14.090	0.000	0.000	0.000	60.000	60.000	60.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.400	847.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000
BT	11.000	0.000	850.000	0.000	100.000	849.400	0.000	200.000	848.500	0.000
BT	244.000	848.040	840.400	244.500	848.030	841.900	246.000	848.020	842.400	247.500
BT	848.000	841.900	248.000	847.990	840.400	257.000	847.900	0.000	300.000	847.700
BT	0.000	400.000	847.700	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= .300 CEHV= .500

*SECNO .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
.90	5.07	796.49	0.00	796.49	797.00	.51	0.00	0.00	792.92
635.	15.	339.	282.	7.	44.	139.	0.	0.	792.92
0.00	2.02	7.63	2.02	.080	.045	.080	0.000	791.42	240.92
.007969	0.	0.	0.	0	0	0	0.00	130.36	371.28

*SECNO .910

.91	5.07	796.09	0.00	0.00	797.40	.51	.40	.00	793.32
635.	15.	339.	281.	7.	44.	139.	0.	0.	793.32
.00	2.02	7.64	2.03	.080	.045	.080	.044	791.82	240.92
.007988	50.	50.	50.	0	0	0	0.00	130.35	371.28

*SECNO .920

.92	5.07	797.29	0.00	0.00	797.80	.51	.40	.00	793.72
635.	15.	339.	281.	7.	44.	139.	0.	0.	793.72
.01	2.02	7.65	2.03	.080	.045	.080	.044	792.22	240.92
.008003	50.	50.	50.	0	0	0	0.00	130.35	371.27

*SECNO .990

.99	5.14	798.64	0.00	0.00	798.90	.26	1.02	.07	795.00
635.	12.	259.	365.	8.	45.	147.	1.	1.	795.00
.02	1.53	5.75	2.49	.080	.045	.050	.042	793.50	240.84
.004444	165.	160.	190.	2	0	0	0.00	130.61	371.45

*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	4.81	799.11	0.00	0.00	799.58	.47	.58	.10	795.80
635.	12.	308.	315.	6.	42.	109.	2.	1.	795.80
.02	1.91	7.32	2.88	.080	.045	.050	.043	794.30	241.21
.007860	100.	100.	100.	2	0	0	0.00	129.40	370.61

*SECNO 1.010

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= 17 MIN ELTRD= 798.50 MAX ELLC= 800.30

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

D/S FACE OF DRIVEWAY CULVERT, 9 BY 5.8 FT. CMP (2 IN.), 31 FT. LONG

PAVED ROADWAY

SECTION A

1.01	4.99	799.29	799.29	0.00	799.82	.54	.01	.03	795.80
635.	0.	262.	373.	0.	39.	71.	2.	1.	795.80
.02	0.00	6.65	5.27	.015	.031	.015	.043	794.30	241.02
.004675	1.	1.	1.	20	16	0	-69.59	130.04	371.06

*SECNO 1.090

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 798.50 MAX ELLC= 800.30

U/S FACE OF DRIVEWAY CULVERT

1.09	5.40	799.70	0.00	0.00	799.98	.28	.08	.08	795.80
635.	0.	174.	461.	0.	42.	109.	2.	1.	795.80
.03	0.00	4.18	4.23	.015	.031	.015	.042	794.30	240.54
.001715	30.	30.	30.	4	0	0	-83.64	131.61	372.15

*SECNO 1.100

1.10	5.63	799.93	0.00	0.00	800.03	.10	.00	.05	795.80
635.	19.	174.	442.	10.	49.	206.	2.	1.	795.80
.03	1.91	3.53	2.15	.040	.045	.040	.042	794.30	240.27
.001472	1.	1.	1.	2	0	0	0.00	132.48	372.76

*SECNO 1.200

1.20	5.31	799.91	0.00	0.00	800.14	.24	.05	.07	796.00
635.	22.	433.	180.	10.	97.	80.	2.	1.	796.00
.03	2.35	4.46	2.25	.040	.045	.040	.042	794.60	15.11
.002281	25.	25.	25.	2	0	0	0.00	92.05	107.16

*SECNO 1.800

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
1.80	4.85	799.95	0.00	0.00	800.68	.73	.29	.25	796.00
635.	64.	452.	118.	23.	57.	50.	2.	1.	796.00
.03	2.83	7.96	2.37	.070	.045	.070	.042	795.10	23.48
.007739	75.	75.	75.	2	0	0	0.00	64.57	88.06

*SECNO 1.900

1.90	4.96	803.66	0.00	0.00	804.13	.47	3.37	.08	799.80
635.	307.	185.	143.	71.	24.	37.	3.	2.	799.80
.05	4.33	7.82	3.88	.070	.045	.070	.045	798.70	13.47
.008936	360.	450.	365.	3	0	0	0.00	44.40	57.88

*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

2.00	4.63	803.73	0.00	0.00	805.26	1.52	.60	.53	800.70
635.	0.	635.	0.	0.	64.	0.	3.	2.	800.70

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      .05       0.00       9.91       0.00       .070       .045       .070       .045     799.10     430.00
   .018121        40.        50.        60.          2          0          0       0.00      14.00     444.00

*SECNO 2.010

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD=  806.44 MAX ELLC=  807.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      812.30 ELREA=      813.00

      -- D/S FACE OF WILLOW HIGHWAY, 14 BY 8.6 FT. CMP ARCH (2 IN.), 54 FT. LONG

                PAVED ROADWAY

         SECTION B

      2.01       4.60     803.70       0.00       0.00     805.31       1.61        .01        .04     800.70
       635.         0.       635.         0.         0.       62.         0.         3.         2.      800.70
        .05       0.00      10.19       0.00       .015       .030       .015       .045     799.10     430.00
   .009424          1.         1.         1.          2          0          0     -13.33      14.00     444.00

*SECNO 2.090

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  806.44 MAX ELLC=  807.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      812.30 ELREA=      813.00

         U/S FACE OF WILLOW HIGHWAY

         SECTION C

      2.09       5.45     804.65       0.00       0.00     805.85       1.20        .41        .12     800.80
       635.         0.       635.         0.         0.       72.         0.         4.         2.      800.60
        .06       0.00       8.78       0.00       .015       .030       .015       .045     799.20     451.00
   .006540         53.        53.        53.          2          0          0     -12.27      14.00     465.00

*SECNO 2.100
    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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      812.30 ELREA=      813.00

      2.10       5.72     804.92       0.00       0.00     805.92       1.00        .01        .06     800.80
       635.         0.       635.         0.         0.       79.         0.         4.         2.      800.60
        .06       0.00       8.01       0.00       .065       .040       .065       .044     799.20     451.00
   .007435          1.         1.         1.          2          0          0       0.00      14.00     465.00

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS
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SECTION D, FABRICATED VALLEY SECTION

3.00	5.73	806.73	0.00	0.00	806.88	.15	.70	.26	802.00
635.	306.	296.	33.	164.	73.	23.	5.	2.	802.00
.08	1.87	4.03	1.46	.065	.040	.065	.044	801.00	223.90
.001313	260.	275.	250.	1	0	0	0.00	83.87	307.77

*SECND 3.500

SECTION E, FABRICATED VALLEY SECTION

3.50	4.71	807.41	0.00	0.00	807.55	.14	.67	.00	803.50
495.	19.	195.	281.	12.	45.	167.	7.	3.	803.50
.13	1.56	4.36	1.68	.065	.040	.065	.043	802.70	148.88
.001952	400.	460.	425.	2	0	0	0.00	119.24	268.12

*SECND 3.900

3.90	3.73	808.03	0.00	0.00	808.54	.51	.81	.18	805.50
495.	74.	269.	151.	27.	36.	66.	8.	4.	805.50
.14	2.75	7.43	2.29	.065	.040	.065	.044	804.30	389.59
.000294	324.	274.	159.	2	0	0	0.00	92.85	482.45

*SECND 4.000

D/S FACE OF FARM LANE BRIDGE, 3 FT. DIAM. CMP (1/2 IN.), 12 FT. LONG

GRAVEL ROADWAY

SECTION F

4.00	3.94	808.44	808.41	0.00	808.98	.54	.43	.01	807.40
495.	71.	342.	82.	42.	49.	39.	8.	4.	807.00
.14	1.70	6.96	2.12	.065	.040	.065	.044	804.50	383.90
.008714	50.	50.	50.	4	8	0	0.00	124.38	513.29

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.05	0.00	3.00	0.00	7.07	0.00	804.40	804.50

*SECND 4.090

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
975.52	808.88	0.00	460.	35.	7.	9.	807.40	807.70

4.09	4.74	809.24	0.00	0.00	809.29	.06	.31	0.00	806.00
495.	262.	40.	193.	152.	13.	111.	0.	4.	806.00
.14	1.72	3.15	1.74	.065	.045	.065	.044	804.50	369.04
.002252	13.	13.	13.	2	0	12	0.00	158.44	527.47

*SECNO 4.300

SECTION G, FABRICATED VALLEY SECTION

4.30	3.86	810.96	0.00	0.00	811.19	.23	1.81	-.09	807.80
495.	222.	154.	119.	76.	28.	50.	11.	5.	807.80
.19	2.91	5.49	2.39	.065	.045	.065	.045	807.10	105.19
.005285	500.	625.	575.	3	0	0	0.00	91.04	196.23

*SECNO 4.500

SECTION H, FABRICATED VALLEY SECTION

4.50	3.81	812.11	0.00	0.00	812.42	.32	1.19	.04	810.00
495.	109.	320.	65.	56.	59.	33.	11.	6.	810.00
.20	1.96	5.41	1.96	.065	.045	.065	.045	808.30	194.18
.006446	200.	210.	200.	2	0	0	0.00	101.37	295.55

*SECNO 5.000

SECTION I, SURVEYED VALLEY SECTION

5.00	5.04	817.04	0.00	0.00	817.34	.31	4.92	.00	814.00
495.	165.	300.	30.	80.	55.	15.	14.	8.	813.70
.26	2.06	5.45	1.98	.065	.045	.065	.046	812.00	296.55
.004100	800.	1050.	925.	4	0	0	0.00	71.63	368.18

*SECNO 5.500

SECTION J, FABRICATED VALLEY SECTION

5.50	3.59	819.09	0.00	0.00	819.21	.12	1.81	.06	816.00
495.	236.	239.	20.	137.	67.	13.	17.	9.	816.00
.33	1.72	3.58	1.51	.065	.045	.065	.046	815.50	398.27
.002363	575.	600.	625.	3	0	0	0.00	112.16	510.43

*SECNO 5.700

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

SECTION K, FABRICATED VALLEY SECTION

5.70	3.77	821.07	0.00	0.00	821.17	.10	1.96	.00	817.80
495.	292.	75.	128.	148.	18.	52.	20.	11.	817.80
.41	1.97	4.27	2.49	.065	.045	.065	.046	817.30	61.91
.003202	725.	750.	625.	2	0	0	0.00	129.24	191.14

*SECNO 5.800

SECTION L, FABRICATED VALLEY SECTION

5.80	3.96	823.16	0.00	0.00	823.26	.10	2.08	.00	819.70
495.	209.	122.	164.	110.	30.	101.	24.	13.	819.70
.50	1.91	4.03	1.63	.065	.045	.065	.047	819.20	112.61
.002569	750.	850.	610.	2	0	0	0.00	164.85	277.46

*SECNO 5.900

3301 HV CHANGED MORE THAN HVINS

5.90	3.59	823.89	0.00	0.00	824.71	.81	1.09	.36	820.30
495.	138.	219.	138.	20.	29.	20.	25.	14.	820.30
.51	6.89	7.62	6.89	.030	.040	.030	.047	820.30	640.37
.007642	225.	275.	300.	2	0	0	0.00	31.26	671.63

*SECNO 6.000

D/S FACE OF PHILWOOD DRIVE, WOODEN BOX CULVERT, 45 DEGREE WINGWALLS

BADLY ERODED AROUND WINGWALLS

SECTION M

6.00	3.75	824.25	0.00	0.00	825.22	.97	.44	.08	820.50
495.	49.	315.	131.	8.	36.	21.	25.	14.	821.10
.51	6.36	8.73	6.19	.030	.040	.030	.047	820.50	1094.99
.010037	50.	50.	50.	2	0	0	0.00	28.76	1123.75

1490 NH CARD USED

SPECIAL BRIDGE

SB	XH	XHOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.01	3.01	0.00	10.00	0.00	28.50	0.00	820.10	820.50

*SECNO 6.040

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.66	825.38	0.00	224.	272.	29.	35.	823.60	826.10

3470 ENCROACHMENT STATIONS= 1062.0 1155.0 TYPE= 1 TARGET= 93.000

SECTION N, U/S FACE OF PHILWOOD DRIVE

6.04	6.94	827.04	0.00	0.00	827.09	.05	1.87	0.00	821.20
495.	172.	103.	220.	93.	64.	121.	25.	14.	821.20
.51	1.85	1.61	1.82	.043	.100	.055	.047	820.10	1062.00
.001015	32.	32.	32.	2	0	5	0.00	93.00	1155.00

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*SECNO 6.
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IBC       ICONT     CORAR     TOPWID      ENDST

     6.20      6.84    827.15      0.00      0.00    827.17      .02       .07       .01    821.41
      495.      258.       73.      164.      240.       63.     143.       26.       14.    821.41
       .54      1.07      1.16      1.14      .039      .100     .054      .047    820.31    881.35
   .000539      100.      100.      100.         2         0        0      0.00    309.73   1191.08

1490 NH CARD-USED
*SECNO 6.500
      6.50      5.94    827.38      0.00      0.00    827.39      .01       .22       .00    823.00
      495.      290.       79.      126.      370.       58.     143.       30.       16.    823.00
       .64       .78      1.37       .88      .095      .090     .084      .048    821.44    154.65
   .000820      260.      590.      325.         2         0        0      0.00    273.54    428.18

1490 NH CARD USED
*SECNO 6.900

3470 ENCROACHMENT STATIONS=      365.0      465.0  TYPE=      1  TARGET=      100.000
      6.90      5.51    827.90      0.00      0.00    827.96      .06       .55       .03    824.50
      495.      188.       130.     177.      127.       53.      80.       33.       18.    824.50
       .69      1.48      2.45      2.21      .100      .090     .067      .048    822.39    365.00
   .003282      329.      409.      424.         2         0        0      0.00    100.00    465.00

1490 NH CARD USED
*SECNO 7.000

3470 ENCROACHMENT STATIONS=      608.9      681.3  TYPE=      1  TARGET=       72.400
      7.00      5.55    828.05      0.00      0.00    828.59      .54       .39       .24    827.10
      495.       11.       439.      45.       6.         71.     23.       34.       18.    826.90
       .69      1.74      6.21      1.98      .100      .100     .100      .048    822.50    608.92
   .037135       50.       50.       50.         2         0        0      0.00     72.37    681.28

*SECNO 7.010
   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    IBC       ICONT     CORAR     TOPWID      ENDST

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  827.70 MAX ELLC=  826.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      608.0      682.0  TYPE=      1  TARGET=       74.000

        D/S FACE OF LAWRENCE DRIVE, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

        SECTION 0

      7.01      6.84    829.34    829.34      0.00    829.95      .61       .01       .04    827.10
      495.       71.       161.     263.      12.        29.     39.       34.       18.    826.90
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.69	5.99	5.50	6.79	.015	.018	.015	.047	822.50	608.00
.005129	1.	1.	1.	20	13	0	-115.12	74.00	682.00

*SECNO 7.090

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	CLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 827.70 MAX ELLC= 826.70

3470 ENCROACHMENT STATIONS= 577.0 713.0 TYPE= 1 TARGET= 136.000

7.09	7.56	830.06	0.00	0.00	830.14	.08	.03	.16	827.10
495.	146.	81.	268.	64.	44.	110.	34.	18.	826.90
.70	2.27	1.85	2.43	.015	.018	.015	.047	822.50	577.00
.000340	31.	31.	31.	3	0	0	-125.03	136.00	713.00

CCHV= .100 CEHV= .300
*SECNO 7.100

3470 ENCROACHMENT STATIONS= 576.0 714.0 TYPE= 1 TARGET= 138.000

7.10	7.59	830.09	0.00	0.00	830.14	.05	.00	.00	827.10
495.	75.	262.	158.	83.	112.	156.	34.	18.	826.90
.70	.90	2.35	1.01	.040	.030	.040	.047	822.50	576.00
.000260	1.	1.	1.	2	0	0	0.00	138.00	714.00

*SECNO 8.000

8.00	6.87	830.17	0.00	0.00	830.17	.00	.02	.01	824.00
495.	315.	50.	130.	1432.	76.	642.	42.	21.	824.00
1.01	.22	.67	.20	.070	.040	.070	.047	823.30	299.67
.000028	278.	298.	293.	1	0	0	0.00	910.88	1210.55

*SECNO 8.010

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 827.50 MAX ELLC= 826.60

D/S FACE OF FOOT BRIDGE, CONCRETE BOX CULVERT, NO WINGWALLS

SECTION P

8.01	6.87	830.17	0.00	0.00	830.17	.00	.00	.00	824.00
495.	361.	13.	121.	1394.	63.	561.	42.	21.	824.00
1.01	.26	.20	.22	.020	.020	.020	.047	823.30	300.04
.000003	1.	1.	1.	0	0	0	-125.56	910.24	1210.28

*SECNO 8.090

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 827.50 MAX ELLC= 826.60

8.09	6.87	830.17	0.00	0.00	830.17	.00	.00	.00	824.00
495.	361.	13.	121.	1394.	63.	562.	42.	22.	824.00

1.02	.26	.20	.22	.020	.020	.020	.047	823.30	300.01
.000003	11.	11.	11.	0	0	0	-125.56	910.29	1210.30

*SECNO 8.100

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	IBC	ICONT	CORAR	TOPWID	ENDST
8.10	6.87	830.17	0.00	0.00	830.17	.00	.00	.00	824.00
495.	315.	50.	130.	1429.	75.	640.	43.	22.	824.00
1.02	.22	.67	.20	.070	.040	.070	.047	823.30	300.02
.000028	1.	1.	1.	0	0	0	0.00	910.27	1210.29

*SECNO 8.500

SECTION Q, FABRICATED VALLEY SECTION

8.50	6.29	830.19	0.00	0.00	830.19	.00	.02	.00	826.00
430.	117.	83.	231.	451.	131.	691.	63.	31.	826.00
1.40	.26	.63	.33	.085	.065	.085	.048	823.90	430.10
.000086	638.	538.	338.	1	0	0	0.00	572.16	1002.26

*SECNO 8.600

SECTION R, FABRICATED VALLEY SECTION

8.60	5.95	830.24	0.00	0.00	830.26	.02	.06	.00	826.10
430.	129.	133.	168.	209.	86.	343.	71.	34.	826.10
1.51	.62	1.55	.54	.085	.065	.085	.049	824.29	87.87
.000509	270.	380.	425.	2	0	0	0.00	378.20	466.07

*SECNO 8.700

3280 CROSS SECTION 8.70 EXTENDED .00 FEET

SECTION S, FABRICATED VALLEY SECTION

8.70	5.81	830.60	0.00	0.00	830.64	.04	.38	.01	828.10
430.	181.	133.	115.	192.	55.	112.	75.	37.	828.10
1.60	.94	2.43	1.03	.085	.065	.085	.050	824.79	0.00
.001998	430.	460.	370.	2	0	0	0.00	290.58	290.58

*SECNO 8.800

SECTION T, FABRICATED VALLEY SECTION

8.80	6.30	831.40	0.00	0.00	831.55	.15	.87	.03	828.50
430.	158.	164.	107.	112.	37.	51.	77.	39.	828.50
1.62	1.41	4.47	2.09	.085	.065	.085	.051	825.10	685.52
.007179	255.	255.	255.	3	0	0	0.00	185.48	871.00

*SECNO 8.900

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
8.90	7.87	833.06	0.00	0.00	833.25	.18	1.69	.01	831.00
430.	110.	287.	33.	59.	71.	20.	78.	40.	831.00
-1.65	1.86	4.03	1.19	.085	.065	.085	.051	825.19	700.00
.004996	275.	300.	250.	2	0	0	0.00	79.19	779.19

3470 ENCROACHMENT STATIONS= 700.0 779.2 TYPE= 1 TARGET= 79.200

SECTION U, FABRICATED VALLEY SECTION

CCHV= .300 CEHV= .500
*SECNO 9.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.02 ELREA= 836.02

D/S FACE OF SAGINAW HIGHWAY, CONCRETE BOX CULVERT, 45 DEG. WINGWALLS

SECTION V

9.00	8.05	833.65	0.00	0.00	834.11	.46	.72	.14	833.50
430.	0.	430.	0.	0.	79.	0.	78.	40.	833.50
1.65	0.00	5.47	0.00	.090	.060	.090	.051	825.60	743.00
.011449	100.	100.	100.	2	0	0	0.00	14.00	757.00

1490 NH CARD USED

SPECIAL BRIDGE

SB	XR	XROR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.59	2.90	0.00	8.50	0.00	59.50	0.00	825.60	825.60

*SECNO 9.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
834.94	834.11	0.00	0.	430.	60.	60.	832.66	836.02

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.02 ELREA= 836.02

U/S FACE OF SAGINAW HIGHWAY

SECTION W

9.09	9.00	834.60	0.00	0.00	834.94	.34	.83	0.00	833.50
430.	0.	430.	0.	0.	92.	0.	78.	40.	833.50
1.66	0.00	4.68	0.00	.090	.060	.090	.051	825.60	743.00
.007066	79.	79.	79.	2	0	0	0.00	14.00	757.00

CCHV= .100 CEHV= .300
*SECNO 9.200

```
3470 ENCROACHMENT STATIONS=     705.0     820.0  TYPE=     1  TARGET=     115.000

        SECTION X, FABRICATED VALLEY SECTION

      9.20      9.22    835.02      0.00      0.00    835.05       .03       .09       .03    831.00
       430.       68.       215.      146.       95.      112.      163.       79.       40.     831.00
      1.67       .72      1.92       .90      .100      .070      .100      .052    825.80    705.00
   .000787       49.       49.       49.         2         0         0      0.00    115.00    820.00

*SECNO 9.300
      9.30      8.59    835.19      0.00      0.00    835.22       .03       .17       .00    831.80
       430.       43.       198.      189.       70.      103.      290.       80.       41.     831.80
      1.71       .62      1.92       .65      .100      .070      .100      .052    826.60    657.53
   .000887       200.      200.      200.         2         0         0      0.00    296.27    953.80

*SECNO 10.000
    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=     650.0    1390.0  TYPE=     1  TARGET=     740.000

        SECTION Y, FABRICATED VALLEY SECTION

     10.00      3.92    835.92      0.00      0.00    835.93       .00       .70       .00    833.00
       430.       285.       64.       81.       615.       68.       174.       99.       51.     833.00
      2.37       .46       .94       .46      .100      .070      .100      .055    832.00    650.00
   .000380      1200.     1370.     1250.         2         0         0      0.00    438.08   1080.08

*SECNO 10.500
     10.50      3.48    836.83      0.00      0.00    836.90       .07       .95       .02    835.00
       430.       202.       119.      109.       143.       35.       100.       112.       59.     835.00
      2.51      1.41      3.37      1.10      .100      .070      .100      .057    833.35    273.25
   .006433       940.      1160.      850.         2         0         0      0.00    278.52    551.77

*SECNO 11.000

3470 ENCROACHMENT STATIONS=     576.0    1000.0  TYPE=     1  TARGET=     424.000

        SECTION Z, SURVEYED VALLEY SECTION

     11.00      5.40    839.50      0.00      0.00    839.68       .18      2.75       .03    835.40
       430.       14.       373.       43.       11.      105.       30.       114.       61.     835.40
      2.56      1.24      3.57      1.40      .100      .070      .100      .058    834.10    580.46
   .003587       500.      640.      525.         3         0         0      0.00     42.34    622.80

.CCHV=     .300 CEHV=     .500
*SECNO 12.000

   /DS FACE OF ROCKBRIDGE ROAD, 6 FT. DIAM. CMP (1/2 IN.), PROJECTING INLET

        PAVED ROADWAY
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SECTION AA

12.00	7.75	839.85	0.00	0.00	839.96	.11	.26	.02	835.10
265.	45.	119.	101.	37.	42.	33.	115.	61.	835.10
2.58	1.22	2.83	3.05	.070	.040	.030	.058	832.10	658.15
.000801	150.	150.	150.	2	0	0	0.00	36.72	694.87

SPECIAL BRIDGE

SD	XR	XRDR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.65	3.01	0.00	6.00	0.00	28.27	0.00	832.60	832.10

*SECNO 12.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
843.46	840.46	0.00	148.	197.	28.	36.	838.60	840.00

U/S FACE OF ROCKBRIDGE ROAD, SECTION AB

12.09	7.94	840.54	0.00	0.00	840.56	.01	.59	0.00	835.60
265.	137.	41.	87.	167.	43.	102.	115.	61.	835.60
2.61	.82	.94	.85	.030	.040	.030	.058	832.60	531.30
.000086	83.	83.	83.	1	0	6	0.00	174.69	705.98

*SECNO 13.000

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

SECTION AC, SURVEYED VALLEY SECTION

13.00	3.89	840.89	0.00	0.00	841.29	.40	.54	.19	838.10
265.	24.	199.	42.	6.	37.	11.	124.	66.	838.10
2.72	3.69	5.41	3.92	.030	.040	.030	.055	837.00	263.35
.004361	2050.	2050.	2050.	3	0	0	0.00	23.33	206.68

*SECNO 14.000

D/S FACE OF ST. JOE HIGHWAY, 4 FT. DIAM. CMP (1/2 IN.), SANDBAG WINGWALL

PAVED ROADWAY

SECTION AD

14.00	5.05	843.45	0.00	0.00	843.77	.31	2.45	.03	840.40
265.	36.	105.	124.	23.	18.	33.	125.	66.	840.40
2.76	1.59	5.75	3.74	.070	.030	.030	.054	838.40	229.23
.003285	650.	650.	650.	4	0	0	0.00	40.53	269.76

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.48	3.02	0.00	4.00	0.00	12.57	0.00	838.40	838.40

*SECNO 14.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.57	843.77	0.00	127.	139.	13.	16.	842.40	847.70

3470 ENCROACHMENT STATIONS= .0 400.0 TYPE= 1 TARGET= 399.999

U/S FACE OF ST. JOE HIGHWAY, SECTION AE

14.09	9.75	848.15	0.00	0.00	848.16	.01	4.40	0.00	840.40
265.	48.	38.	180.	146.	37.	260.	125.	66.	840.40
2.79	.33	1.02	.69	.070	.030	.030	.054	838.40	206.47
.000040	60.	60.	60.	0	0	8	0.00	193.53	400.00

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HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
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T1 DELTA TWP., FIA (JOB NO. 17287A)
T2 100 YEAR FLOOD, ENCROACHED FLOODWAY
T3 MILLER CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.000000	0.00	0.0	0.	796.590	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= .300 CEHV= .500
*SECNO .900

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
	.90	5.17	796.59	0.00	796.59	797.03	.44	0.00	0.00	792.92

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      635.       15.      325.      295.        8.       45.      151.        0.        0.     792.92
      0.00      1.91      7.18      1.96      .080      .045      .080     0.000   791.42     240.81
   .006863        0.        0.        0.         0         0         0      0.00   130.74     371.54

 *SECNO .910
       .91      5.11    796.93      0.00      0.00    797.41       .48       .36       .02    793.32
      635.       15.      333.      288.        7.       45.      144.        0.        0.     793.32
       .00      1.97      7.43      2.00      .080      .045      .080      .044   791.82     240.87
   .007468       50.       50.       50.         0         0         0      0.00   130.52     371.39

 *SECNO .920
       .92      5.08    797.30      0.00      0.00    797.81       .51       .39       .02    793.72
      635.       15.      339.      282.        7.       44.      139.        0.        0.     793.72
       .01      2.02      7.63      2.02      .080      .045      .080      .044   792.22     240.92
   .007957       50.       50.       50.         1         0         0      0.00   130.36     371.28

 *SECNO .990
       .99      5.14    798.64      0.00      0.00    798.91       .27      1.02       .07    795.00
      635.       12.      259.      364.        8.       45.      146.        1.        1.     795.00
       .02      1.53      5.76      2.49      .080      .045      .050      .042   793.50     240.85
   .004468      165.      160.      190.         1         0         0      0.00   130.60     371.44

 *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      4.82    799.12      0.00      0.00    799.58       .46       .58       .10    795.80
      635.       12.      307.      316.        6.       42.      110.        2.        1.     795.80
       .02      1.90      7.28      2.87      .080      .045      .050      .043   794.30     241.20
   .007770       100.      100.      100.         2         0         0      0.00   129.43     370.63

 *SECNO 1.010
    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= 17 MIN ELTRD=  798.50 MAX ELLC=  800.30

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

         D/S FACE OF DRIVEWAY CULVERT, 9 BY 5.8 FT. CMP (2 IN.), 31 FT. LONG

                  PAVED ROADWAY

         SECTION A

      1.01      4.99    799.29    799.29      0.00    799.82       .54       .01       .04    795.80
      635.        0.      262.      373.        0.       39.       71.        2.        1.     795.80
       .02      0.00      6.65      5.27      .015      .031      .015      .043   794.30     241.02
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   .004675        1.        1.        1.        20        16         0    -69.59    130.04    371.06

*SECNO 1.090

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  798.50 MAX ELLC=  800.30

         U/S FACE OF DRIVEWAY CULVERT

      1.09      5.40    799.70      0.00      0.00    799.98       .28       .08       .08    795.80
       635.        0.      174.      461.        0.      42.      109.        2.        1.    795.80
        .03      0.00     4.18      4.23      .015      .031      .015      .042    794.30    240.54
   .001715        30.       30.       30.         4         0         0    -83.64    131.61    372.15

*SECNO 1.100
      1.10      5.63    799.93      0.00      0.00    800.03       .10       .00       .05    795.80
       635.       19.      174.      442.       10.      49.      206.        2.        1.    795.80
        .03      1.91     3.53      2.15      .040      .045      .040      .042    794.30    240.27
   .001472         1.        1.        1.         2         0         0      0.00    132.48    372.76

*SECNO 1.200
      1.20      5.31    799.91      0.00      0.00    800.14       .24       .05       .07    796.00
       635.       22.      433.      180.       10.      97.       80.        2.        1.    796.00
        .03      2.35     4.46      2.25      .040      .045      .040      .042    794.60     15.11
   .002281         25.       25.       25.         2         0         0      0.00     92.05    107.16

*SECNO 1.800
   SECNO      DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS   BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH       AROH       VOL       TWA   LEFT/RIGHT
   TIME       VLOB      VCH       VROB       XNL      XNCH       XNR       WTN     ELMIN       SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IBC     ICONT     CORAR     TOPWID      ENDST

      1.80      4.85    799.95      0.00      0.00    800.68       .73       .29       .25    796.00
       635.       64.      452.      118.       23.      57.       50.        2.        1.    796.00
        .03      2.83     7.96      2.37      .070      .045      .070      .042    795.10     23.48
   .007739         75.       75.       75.         2         0         0      0.00     64.57     88.06

*SECNO 1.900
      1.90      4.96    803.66      0.00      0.00    804.13       .47      3.37       .08    799.80
       635.      307.      185.      143.       71.      24.       37.        3.        2.    799.80
        .05      4.33     7.82      3.88      .070      .045      .070      .045    798.70     13.47
   .000936       360.      450.      365.         3         0         0      0.00     44.40     57.88

*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      812.30 ELREA=      813.00

      2.00      4.63    803.73      0.00      0.00    805.26      1.52       .60       .53    800.70
       635.        0.      635.        0.        0.      64.        0.        3.        2.    800.70
        .05      0.00     9.91      0.00      .070      .045      .070      .045    799.10    430.00
   .018121        40.       50.       60.         2         0         0      0.00     14.00    444.00

*SECNO 2.010
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 3370 NORMAL BRIDGE,NRD= 21 MIN-ELTRD= 806.44 MAX ELLC= 807.70

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

        D/S FACE OF WILLOW HIGHWAY, 14 BY 8.6 FT. CMP ARCH (2 IN.), 54 FT. LONG

        PAVED ROADWAY

        SECTION B

      2.01      4.60    803.70      0.00      0.00    805.31      1.61       .01       .04    800.70
       635.       0.      635.       0.        0.       62.        0.        3.        2.    800.70
        .05      0.00     10.19      0.00      .015     .030      .015      .045    799.10    430.00
    .009424        1.        1.        1.         2        0         0    -13.33     14.00    444.00

 *SECNO 2.090
 3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 806.44 MAX ELLC= 807.80

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

        U/S FACE OF WILLOW HIGHWAY

        SECTION C

      2.09      5.45    804.65      0.00      0.00    805.85      1.20       .41       .12    800.80
       635.       0.      635.       0.        0.       72.        0.        4.        2.    800.60
        .06      0.00     8.78      0.00      .015     .030      .015      .045    799.20    451.00
    .006540        53.       53.       53.         2        0         0    -12.27     14.00    465.00

 *SECNO 2.100
     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

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

      2.10      5.72    804.92      0.00      0.00    805.92      1.00       .01       .06    800.80
       635.       0.      635.       0.        0.       79.        0.        4.        2.    800.60
        .06      0.00     8.01      0.00      .065     .040      .065      .044    799.20    451.00
    .007435        1.        1.        1.         2        0         0      0.00     14.00    465.00

 *SECNO 3.000
  2800 NAT Q1=    175.27  WSEL=    806.73  ENC Q1=    175.27  WSEL=    806.83  RATIO=    .0000
 NAT Q1=  182.  RATIOS LOB,CH,ROB=  .4847   .4615   .0537  WSEL=  806.83

 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=     240.6     301.5  TYPE=     4  TARGET=       .038
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SECTION D, FABRICATED VALLEY SECTION

3.00	5.75	806.75	0.00	806.73	806.91	.16	.74	.25	802.00
635.	305.	306.	23.	152.	73.	16.	5.	2.	802.00
.08	2.00	4.17	1.43	.065	.040	.065	.044	801.00	240.63
.001401	260.	275.	250.	3	0	0	0.00	60.90	301.53

*SECNO 3.500
2800 NAT Q1= 112.05 WSEL= 807.41 ENC Q1= 112.05 WSEL= 807.51 RATIO= 0.0000
NAT Q1= 118. RATIOS LOB,CH,ROB= .0392 .3859 .5749 WSEL= 807.51

3470 ENCROACHMENT STATIONS= 153.5 229.5 TYPE= 4 TARGET= .053

SECTION E, FABRICATED VALLEY SECTION

3.50	4.76	807.46	0.00	807.41	807.62	.16	.71	.00	803.50
495.	10.	202.	283.	5.	45.	150.	7.	3.	803.50
.12	1.76	4.48	1.89	.065	.040	.065	.043	802.70	153.48
.002035	400.	460.	425.	2	0	0	0.00	75.99	229.47

*SECNO 3.900
2800 NAT Q1= 54.35 WSEL= 808.03 ENC Q1= 54.35 WSEL= 808.13 RATIO= .0000
NAT Q1= 59. RATIOS LOB,CH,ROB= .1538 .5240 .3223 WSEL= 808.13

3470 ENCROACHMENT STATIONS= 401.5 449.7 TYPE= 4 TARGET= .076

3.90	3.78	808.08	0.00	808.03	808.68	.59	.84	.22	805.50
495.	60.	284.	151.	18.	37.	50.	7.	3.	805.50
.13	3.32	7.73	3.00	.065	.040	.065	.044	804.30	401.55
.008799	324.	274.	159.	2	0	0	0.00	48.14	449.69

*SECNO 4.000
2800 NAT Q1= 53.03 WSEL= 808.44 ENC Q1= 53.03 WSEL= 808.54 RATIO= .0000
NAT Q1= 58. RATIOS LOB,CH,ROB= .1623 .6608 .1769 WSEL= 808.54

3470 ENCROACHMENT STATIONS= 420.8 491.7 TYPE= 4 TARGET= .092

D/S FACE OF FARM LANE BRIDGE, 3 FT. DIAM. CMP (1/2 IN.), 12 FT. LONG

GRAVEL ROADWAY

SECTION F

4.00	4.02	808.52	0.00	808.44	809.13	.61	.45	.01	807.40
495.	62.	362.	71.	30.	50.	29.	8.	3.	807.00
.14	2.05	7.20	2.47	.065	.040	.065	.044	804.50	420.82
.009020	50.	50.	50.	2	0	0	0.00	70.84	491.66

SPECIAL BRIDGE

SB	XA	XAOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.05	0.00	3.00	0.00	7.07	0.00	804.40	804.50

*SECNO 4.090
2800 NAT Q1= 104.31 WSEL= 809.24 ENC Q1= 104.31 WSEL= 809.34 RATIO= .0000
NAT Q1= 113. RATIOS LOB,CH,ROB= .5321 .0778 .3901 WSEL= 809.34
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

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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     IBC        ICONT     CORAR     TOPWID      ENDST

 3470 ENCROACHMENT STATIONS=      398.0      501.4  TYPE=      4  TARGET=         .074
       4.09      4.82    809.32      0.00    809.24    809.38       .07       .05       .16    806.00
       495.       267.       42.       187.      140.       13.       95.        8.        3.    806.00
        .14       1.90      3.22     -1.97      .065      .045      .065      .044    804.50    398.00
    .002298        13.       13.       13.         0         0        12      0.00    103.42    501.42

 *SECNO 4.300
  2800 NAT Q1=      68.09  WSEL=     810.96  ENC Q1=      68.09  WSEL=     811.06  RATIO=    .0000
  NAT Q1=      73.  RATIOS LOB,CH,ROB=    .4483    .3044    .2473  WSEL=     811.06

 3470 ENCROACHMENT STATIONS=      114.2      166.4  TYPE=      4  TARGET=         .067

         SECTION G, FABRICATED VALLEY SECTION

       4.30      3.95    811.05      0.00    810.96    811.31       .26      1.83       .09    807.80
       495.       221.      161.       113.       71.       29.       38.       10.        4.    807.80
        .18       3.09      5.60      2.99      .065      .045      .065      .045    807.10    114.25
    .005312        500.      625.      575.         2         0         0      0.00     52.12    166.37

 *SECNO 4.500
  2800 NAT Q1=      61.65  WSEL=     812.11  ENC Q1=      61.65  WSEL=     812.21  RATIO=    .0000
  NAT Q1=      67.  RATIOS LOB,CH,ROB=    .2330    .6273    .1397  WSEL=     812.21

 3470 ENCROACHMENT STATIONS=      221.9      276.4  TYPE=      4  TARGET=         .082

         SECTION H, FABRICATED VALLEY SECTION

       4.50      3.90    812.20      0.00    812.11    812.56       .36      1.20       .05    810.00
       495.       104.      339.       53.       40.       61.       21.       11.        4.    810.00
        .19       2.57      5.55      2.54      .065      .045      .065      .045    808.30    221.80
    .006490        200.      210.      200.         2         0         0      0.00     54.50    276.38

 *SECNO 5.000
  2800 NAT Q1=      77.30  WSEL=     817.04  ENC Q1=      77.30  WSEL=     817.14  RATIO=  0.0000
  NAT Q1=      82.  RATIOS LOB,CH,ROB=    .3456    .5920    .0624  WSEL=     817.14

 3470 ENCROACHMENT STATIONS=      317.5      361.7  TYPE=      4  TARGET=         .058

         SECTION I, SURVEYED VALLEY SECTION

       5.00      5.16    817.16      0.00    817.04    817.49       .33      4.92       .01    814.00
       495.       168.      312.       15.       68.       56.        8.       13.        5.    813.70
        .25       2.46      5.52      1.90      .065      .045      .065      .046    812.00    317.46
    .004055        800.     1050.      925.         3         0         0      0.00     44.24    361.70

 *SECNO 5.500
  2800 NAT Q1=     101.83  WSEL=     819.09  ENC Q1=     101.83  WSEL=     819.19  RATIO=    .0000
  NAT Q1=     109.  RATIOS LOB,CH,ROB=    .4842    .4739    .0419  WSEL=     819.19

 3470 ENCROACHMENT STATIONS=      422.5      501.3  TYPE=      4  TARGET=         .065

         SECTION J, FABRICATED VALLEY SECTION
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     5.50      3.70    819.20      0.00    819.09    819.33       .13      1.78       .06    816.00
      495.      240.      251.        4.      129.      69.        4.       16.        6.    816.00
      .31      1.86      3.63      1.05      .065      .045      .065      .046    815.50    422.50
  .002324      575.      600.      625.         2         0         0      0.00     78.78    501.28


*SECNO 5.700
 2800 NAT Q1=      87.48  WSEL=     821.07  ENC Q1=      87.48  WSEL=     821.17  RATIO=    .0000
 NAT Q1=      94.  RATIOS LOB,CH,ROB=    .5968    .1477    .2554  WSEL=     821.17
   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=      102.5     184.8  TYPE=      4  TARGET=       .071

        SECTION K, FABRICATED VALLEY SECTION

     5.70      3.87    821.17      0.00    821.07    821.29       .12      1.95       .00    817.80
      495.      299.       79.      117.      135.       18.       45.       19.        8.    817.80
      .39      2.21      4.34      2.59      .065      .045      .065      .046    817.30    102.46
  .003196      725.      750.      625.         2         0         0      0.00     82.34    184.79


*SECNO 5.800
 2800 NAT Q1=      97.66  WSEL=     823.16  ENC Q1=      97.66  WSEL=     823.26  RATIO=    .0000
 NAT Q1=     105.  RATIOS LOB,CH,ROB=    .4233    .2378    .3389  WSEL=     823.26

3470 ENCROACHMENT STATIONS=      133.2     222.2  TYPE=      4  TARGET=       .073

        SECTION L, FABRICATED VALLEY SECTION

     5.80      4.06    823.26      0.00    823.16    823.37       .11      2.08       .00    819.70
      495.      207.      127.      162.      100.       31.       80.       22.        9.    819.70
      .46      2.07      4.09      2.01      .065      .045      .065      .047    819.20    133.18
  .002557      750.      850.      610.         2         0         0      0.00     88.97    222.15


*SECNO 5.900
 2800 NAT Q1=      56.63  WSEL=     823.89  ENC Q1=      56.63  WSEL=     823.99  RATIO=    .0000
 NAT Q1=      60.  RATIOS LOB,CH,ROB=    .2821    .4357    .2821  WSEL=     823.99

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      645.4     666.6  TYPE=      4  TARGET=       .060
     5.90      3.65    823.95      0.00    823.89    824.91       .97      1.12       .43    820.30
      495.      131.      233.      131.       17.       29.       17.       23.        9.    820.30
      .47      7.84      7.96      7.84      .030      .040      .030      .047    820.30    645.42
  .008156      225.      275.      300.         2         0         0      0.00     21.16    666.58


*SECNO 6.000
 2800 NAT Q1=      49.41  WSEL=     824.25  ENC Q1=      49.41  WSEL=     824.35  RATIO=    .0000
 NAT Q1=      53.  RATIOS LOB,CH,ROB=    .0995    .6253    .2752  WSEL=     824.35

3470 ENCROACHMENT STATIONS=     1097.0    1117.1  TYPE=      4  TARGET=       .060

        D/S FACE OF PHILWOOD DRIVE, WOODEN BOX CULVERT, 45 DEGREE WINGWALLS


                BADLY ERODED AROUND WINGWALLS
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SECTION M

6.00	3.84	824.34	0.00	824.25	825.42	1.08	.45	.06	820.50
495.	36.	329.	130.	6.	37.	18.	23.	9.	821.10
.48	6.04	8.91	7.36	.030	.040	.030	.047	820.50	1096.99
.010099	50.	50.	50.	2	0	0	0.00	20.08	1117.08

1490 NH CARD USED

SPECIAL BRIDGE

SB	XR	XROR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.01	3.01	0.00	10.00	0.00	28.50	0.00	820.10	820.50

*SECNO 6.040

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.76	828.73	0.00	228.	268.	29.	35.	823.60	826.10

3470 ENCROACHMENT STATIONS= 1062.0 1155.0 TYPE= 1 TARGET= 93.000

SECTION N, U/S FACE OF PHILWOOD DRIVE

6.04	6.95	827.05	0.00	827.04	827.10	.05	1.68	0.00	821.20
495.	172.	103.	220.	93.	64.	122.	23.	9.	821.20
.48	1.85	1.60	1.81	.043	.100	.055	.047	820.10	1062.00
.001002	32.	32.	32.	2	0	5	0.00	93.00	1155.00

*SECNO 6.200

2800 NAT Q1= 213.27 WSEL= 827.15 ENC Q1= 213.27 WSEL= 827.25 RATIO= .0000

NAT Q1= 236. RATIOS LOB,CH,ROB= .5389 .1370 .3241 WSEL= 827.25

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	OLOSS	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

3470 ENCROACHMENT STATIONS= 942.4 1151.4 TYPE= 4 TARGET= .098

6.20	6.85	827.16	0.00	827.15	827.19	.03	.08	.01	821.41
495.	261.	79.	155.	211.	63.	112.	24.	10.	821.41
.50	1.23	1.26	1.38	.039	.100	.057	.046	820.31	942.41
.000631	100.	100.	100.	2	0	0	0.00	209.02	1151.42

1490 NH CARD USED

*SECNO 6.500

2800 NAT Q1= 172.84 WSEL= 827.38 ENC Q1= 172.84 WSEL= 827.48 RATIO= .0000

NAT Q1= 186. RATIOS LOB,CH,ROB= .5874 .1533 .2593 WSEL= 827.48

3470 ENCROACHMENT STATIONS= 183.5 390.6 TYPE= 4 TARGET= .070

6.50	5.98	827.42	0.00	827.38	827.43	.01	.25	.00	823.00

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      495.      293.       83.      119.      359.       58.      125.       27.       11.    823.00
       .60       .82      1.43       .95       .099      .090      .090      .048    821.44    183.48
   .000878      260.      590.      325.         0         0         0      0.00    207.12    390.61

 1490 NH CARD USED
 *SECNO 6.900

 3470 ENCROACHMENT STATIONS=      365.0      465.0  TYPE=      1  TARGET=      100.000
      6.90      5.56    827.95      0.00    827.90    828.02       .06       .56       .02    824.50
      495.      189.      128.      178.      130.       54.       82.       31.       12.    824.50
       .65      1.45      2.39      2.17      .100      .090      .066      .047    822.39    365.00
   .003061      329.      409.      424.         2         0         0      0.00    100.00    465.00

 1490 NH CARD USED
 *SECNO 7.000

 3470 ENCROACHMENT STATIONS=      608.9      681.3  TYPE=      1  TARGET=       72.400
      7.00      5.60    828.10      0.00    828.05    828.60       .51       .36       .22    827.10
      495.       12.      434.       49.        7.       72.       24.       31.       13.    826.90
       .64      1.78      6.05      2.01      .100      .100      .100      .047    822.50    608.90
   .034689       50.       50.       50.         2         0         0      0.00     72.40    681.30

 *SECNO 7.010
    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= 25 MIN ELTRD=  827.70 MAX ELLC=  826.70

 3605 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      608.0      682.0  TYPE=      1  TARGET=       74.000

          D/S FACE OF LAWRENCE DRIVE, WOODEN BOX CULVERT, 45 DEG. WINGWALLS


          SECTION 0

      7.01      6.84    829.34    829.34    829.34    829.95       .61      -.01       .05    827.10
      495.       71.      161.      263.       12.       29.       39.       31.       13.    826.90
       .66      5.99      5.50      6.79      .015      .018      .015      .047    822.50    608.00
   .005129         1.        1.        1.        20        13         0   -115.12     74.00    682.00

 *SECNO 7.090

 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


 3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  827.70 MAX ELLC=  826.70
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 3470 ENCROACHMENT STATIONS=     577.0     713.0  TYPE=     1  TARGET=     136.000
      7.09     7.56   830.06     0.00   830.06   830.14      .08      .03      .16   827.10
      495.      146.     81.      268.     64.      44.      110.      31.      13.    826.90
       .66     2.27     1.85     2.43     .015     .018     .015     .047   822.50   577.00
   .000340      31.      31.      31.        3        0        0  -125.03   136.00   713.00


 CCHV=    .100 CEHV=    .300
*SECNO 7.100

 3470 ENCROACHMENT STATIONS=     576.0     714.0  TYPE=     1  TARGET=     138.000
      7.10     7.59   830.09     0.00   830.09   830.14      .05      .00      .00   827.10
      495.      75.      262.     158.     83.      112.     156.      31.      13.    826.90
       .66      .90     2.35     1.01     .040     .030     .040     .047   822.50   576.00
   .000260       1.       1.       1.        2        0        0     0.00   138.00   714.00


*SECNO 8.000
      8.00     6.87   830.17     0.00   830.17   830.17      .00      .02      .01   824.00
      495.      315.     50.      130.    1432.      76.     642.      39.      16.    824.00
       .97      .22      .67      .20      .070     .040     .070     .047   823.30   299.67
   .000028      278.     298.     293.        1        0        0     0.00   910.88  1210.55


*SECNO 8.010

3370 NORMAL BRIDGE,NRD=   8 MIN ELTRD=  827.50 MAX ELLC=  826.60

        D/S FACE OF FOOT BRIDGE, CONCRETE BOX CULVERT, NO WINGWALLS

        SECTION P

      8.01     6.87   830.17     0.00   830.17   830.17      .00      .00      .00   824.00
      495.      361.     13.      121.    1394.      63.     561.      39.      16.    824.00
       .97      .26      .20      .22      .020     .020     .020     .047   823.30   300.04
   .000003       1.       1.       1.        0        0        0  -125.56   910.24  1210.28


*SECNO 8.090

3370 NORMAL BRIDGE,NRD=   8 MIN ELTRD=  827.50 MAX ELLC=  826.60

      8.09     6.87   830.17     0.00   830.17   830.17      .00      .00      .00   824.00
      495.      361.     13.      121.    1394.      63.     562.      40.      16.    824.00
       .98      .26      .20      .22      .020     .020     .020     .047   823.30   300.01
   .000003       11.      11.      11.        0        0        0  -125.56   910.29  1210.30


*SECNO 8.100
    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

      8.10     6.87   830.17     0.00   830.17   830.17      .00      .00      .00   824.00
      495.      315.     50.      130.    1429.      75.     640.      40.      16.    824.00
       .98      .22      .67      .20      .070     .040     .070     .047   823.30   300.02
   .000028       1.       1.       1.        0        0        0     0.00   910.27  1210.29
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*SECNO 8.500

        SECTION Q, FABRICATED VALLEY SECTION

      8.50      6.29    830.19      0.00    830.19    830.19       .00       .02       .00    826.00
       430.      117.       83.      231.      451.      131.      691.       60.       25.    826.00
      1.36       .26       .63       .33      .085      .065      .085      .048    823.90    430.10
   .000086      638.      538.      338.         1         0         0      0.00    572.16   1002.26

*SECNO 8.600

        SECTION R, FABRICATED VALLEY SECTION

      8.60      5.95    830.24      0.00    830.24    830.26       .02       .06       .00    826.10
       430.      129.      133.      168.      209.       86.      313.       68.       29.    826.10
      1.48       .62      1.55       .54      .085      .065      .085      .049    824.29     87.87
   .000509      270.      380.      425.         2         0         0      0.00    378.20    466.07

*SECNO 8.700
3280 CROSS SECTION      8.70 EXTENDED        .00 FEET


        SECTION S, FABRICATED VALLEY SECTION

      8.70      5.81    830.60      0.00    830.60    830.64       .04       .38       .01    828.10
       430.      181.      133.      115.      192.       55.      112.       73.       32.    828.10
      1.56       .94      2.43      1.03      .085      .065      .085      .050    824.79      0.00
   .001998      430.      460.      370.         2         0         0      0.00    290.58    290.58

*SECNO 8.800

        SECTION T, FABRICATED VALLEY SECTION

      8.80      6.30    831.40      0.00    831.40    831.55       .15       .87       .03    828.50
       430.      158.      164.      107.      112.       37.       51.       74.       33.    828.50
      1.58      1.41      4.47      2.09      .085      .065      .085      .051    825.10    685.52
   .007179      255.      255.      255.         3         0         0      0.00    185.48    871.00

*SECNO 8.900
    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    IBC       ICONT     CORAR     TOPWID    ENDST

3470 ENCROACHMENT STATIONS=     700.0     779.2 TYPE=      1 TARGET=     79.200

        SECTION U, FABRICATED VALLEY SECTION

      8.90      7.87    833.06      0.00    833.06    833.25       .18      1.69       .01    831.00
       430.      110.      287.       33.       59.       71.       28.       75.       34.    831.00
      1.61      1.86      4.03      1.19      .085      .065      .085      .051    825.19    700.00
   .004996      275.      300.      250.         2         0         0      0.00     79.19    779.19

CCHV=    .300 CEHV=     .500
*SECNO 9.000
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 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.02 ELREA=      836.02

        D/S FACE OF SAGINAW HIGHWAY, CONCRETE BOX CULVERT, -45 DEG. WINGWALLS

           SECTION V

      9.00     8.05   833.65     0.00   833.65   834.11      .46      .72      .14   833.50
      430.        0.     430.       0.       0.      79.       0.      76.      34.    833.50
      1.61     0.00     5.47     0.00     .090     .060     .090     .051   825.60   743.00
  .014449      100.      100.      100.        2        0        0     0.00    14.00   757.00

 1490 NH CARD USED

 SPECIAL BRIDGE

 SK   XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU     ELCHD
      0.00      1.59      2.90       0.00      8.50      0.00      59.60      0.00      825.60    825.60

 *SECNO 9.090
 PRESSURE FLOW

  EGPRS      EGLWC       H3        QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                    AREA
  834.94     834.11      0.00         0.      430.       60.       60.       832.66    836.02

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      836.02 ELREA=      836.02

           U/S FACE OF SAGINAW HIGHWAY

           SECTION W

      9.09     9.00   834.60     0.00   834.60   834.94      .34      .83     0.00   833.50
      430.        0.     430.       0.       0.      92.       0.      76.      34.    833.50
      1.62     0.00     4.68     0.00     .090     .060     .090     .051   825.60   743.00
  .007066      79.       79.       79.        2        0        0     0.00    14.00   757.00

 CCHV=     .100 CEHV=     .300
 *SECNO 9.200

 3470 ENCROACHMENT STATIONS=      705.0      820.0  TYPE=      1  TARGET=      115.000

           SECTION X, FABRICATED VALLEY SECTION

      9.20     9.22   835.02     0.00   835.02   835.05      .03      .09      .03   831.00
      430.       68.     215.      146.       95.      112.      163.      76.      34.    831.00
      1.63      .72     1.92      .90      .100      .070      .100      .052   825.80   705.00
  .000787      49.       49.       49.        2        0        0     0.00    115.00   820.00

 *SECNO 9.300
  2000 NAT Q1=     144.41  WSEL=     835.19  ENC Q1=     144.41  WSEL=     835.29  RATIO=  0.0000
  NAT Q1=     154.  RATIOS LOB,CH,ROB=    .1051    .4416    .4533  WSEL=     835.29

 3470 ENCROACHMENT STATIONS=      740.6      887.8  TYPE=      4  TARGET=         .062
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     9.30      8.59    835.19      0.00    835.19    835.23       .04       .18       .00    831.80
      430.       33.      208.       188.      38.       103.      243.       78.       35.     831.80
     1.67       .86      2.03       .78      .100      .070      .100      .052    826.60    740.56
  .000990      200.      200.       200.         1         0         0      0.00    147.27    887.03


*SECNO 10.000
 2800 NAT Q1=     220.53  WSEL=     835.92  ENC Q1=     220.53  WSEL=     836.02  RATIO=  0.0000
 NAT Q1=     242.  RATIOS LOB,CH,ROB=    .6704    .1428    .1868  WSEL=     836.02
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=     690.7    1039.8  TYPE=     4  TARGET=        .087

        SECTION Y, FABRICATED VALLEY SECTION

    10.00      3.98    835.98      0.00    835.92    835.99       .01       .76       .00    833.00
      430.      295.       60.       68.      591.       70.      126.       94.       42.     833.00
     2.28       .50       .97       .54      .100      .070      .100      .055    832.00    690.68
  .000398     1200.     1370.     1250.         2         0         0      0.00    349.09   1039.78


*SECNO 10.500
 2800 NAT Q1=      53.61  WSEL=     836.83  ENC Q1=      53.61  WSEL=     836.93  RATIO=   .0000
 NAT Q1=      60.  RATIOS LOB,CH,ROB=    .4725    .2607    .2668  WSEL=     836.93

3470 ENCROACHMENT STATIONS=     306.0     461.5  TYPE=     4  TARGET=        .104
    10.50      3.58    836.93      0.00    836.83    837.01       .08       .99       .02    835.00
      430.      201.      125.      103.      129.       36.       73.      106.       47.     835.00
     2.41      1.56      3.45      1.42      .100      .070      .100      .057    833.35    305.96
  .006472      940.     1160.      850.         3         0         0      0.00    155.51    461.47


*SECNO 11.000

3470 ENCROACHMENT STATIONS=     576.0    1000.0  TYPE=     1  TARGET=     424.000

        SECTION Z, SURVEYED VALLEY SECTION

    11.00      5.46    839.56      0.00    839.50    839.73       .17      2.69       .03    835.40
      430.       14.      373.       43.       12.      106.       31.      108.       49.     835.40
     2.46      1.23      3.52      1.38      .100      .070      .100      .058    834.10    580.38
  .003441      500.      640.      525.         3         0         0      0.00     42.60    622.99


CCHV=     .300 CEHV=     .500
*SECNO 12.000
 2800 NAT Q1=      93.62  WSEL=     839.85  ENC Q1=      93.62  WSEL=     839.95  RATIO=   .0000
 NAT Q1=      97.  RATIOS LOB,CH,ROB=    .1736    .4418    .3847  WSEL=     839.95

3470 ENCROACHMENT STATIONS=     662.6     687.2  TYPE=     4  TARGET=        .038

        /DS FACE OF ROCKBRIDGE ROAD, 6 FT. DIAM. CMP (1/2 IN.), PROJECTING INLET


              PAVED ROADWAY


        SECTION AA
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    12.00      7.78    839.88      0.00    839.85    840.00       .13       .26       .01    835.10
     265.       44.      121.      100.       34.       42.       30.      108.       49.     835.10
     2.47      1.30      2.86      3.32      .070      .040      .030      .058    832.10    662.57
  .000816      150.      150.      150.         0         0         0      0.00     24.64    687.21


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN      BWC       BWP       BAREA      SS        ELCHU     ELCHD
     0.00      2.65      3.01      0.00      6.00      0.00      28.27      0.00     832.60    832.10

*SECNO 12.090
 2800 NAT Q1=    285.88  WSEL=    840.54  ENC Q1=    285.88  WSEL=    840.64  RATIO=  0.0000
 NAT Q1=    303.  RATIOS LOB,CH,ROB=   .5224   .1484   .3293  WSEL=    840.64
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=     612.6     682.4  TYPE=     4  TARGET=        .057

        U/S FACE OF ROCKBRIDGE ROAD, SECTION AB

    12.09      7.97    840.57      0.00    840.54    840.59       .02       .02       .03    835.60
     265.      138.       42.       85.      136.       43.       81.      109.       49.     835.60
     2.49      1.02       .97      1.04      .030      .040      .030      .058    832.60    612.64
  .000091       83.       83.       83.         0         0         6      0.00     69.79    682.43


*SECNO 13.000
 2800 NAT Q1=     40.13  WSEL=    840.89  ENC Q1=     40.13  WSEL=    840.99  RATIO=   .0000
 NAT Q1=     43.  RATIOS LOB,CH,ROB=   .0935   .7425   .1640  WSEL=    840.99
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     265.9     283.1  TYPE=     4  TARGET=        .058

        SECTION AC, SURVEYED VALLEY SECTION

    13.00      3.93    840.93      0.00    840.89    841.38       .45       .57       .22    838.10
     265.       18.      210.       38.        5.       37.        9.      116.       51.     838.10
     2.60      3.73      5.63      4.42      .030      .040      .030      .055    837.00    265.86
  .004639     2050.     2050.     2050.         3         0         0      0.00     17.23    283.09


*SECNO 14.000
 2800 NAT Q1=     46.24  WSEL=    843.45  ENC Q1=     46.24  WSEL=    843.55  RATIO=  0.0000
 NAT Q1=     49.  RATIOS LOB,CH,ROB=   .1381   .3834   .4784  WSEL=    843.55

3470 ENCROACHMENT STATIONS=     237.7     260.0  TYPE=     4  TARGET=        .064

        D/S FACE OF ST. JOE HIGHWAY, 4 FT. DIAM. CMP (1/2 IN.), SANDBAG WINGWALL

                PAVED ROADWAY

        SECTION AD

    14.00      5.15    843.55      0.00    843.45    843.93       .38      2.53       .02    840.40
     265.       29.      109.      127.       16.       19.       28.      117.       51.     840.40
     2.64      1.87      5.85      4.58      .070      .030      .030      .054    838.40    237.74
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.003315	650.	650.	650.	2	0	0	0.00	22.24	259.99

SPECIAL BRIDGE

SR	XN	XNOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.48	3.02	0.00	4.00	0.00	12.57	0.00	838.40	838.40

*SECNO 14.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.66	849.18	0.00	128.	138.	13.	16.	842.40	847.70

3470 ENCROACHMENT STATIONS= .0 400.0 TYPE= 1 TARGET= 399.999

U/S FACE OF ST. JOE HIGHWAY, SECTION AE

14.09	9.76	848.16	0.00	848.15	848.16	.01	4.24	0.00	840.40
265.	48.	38.	180.	146.	37.	260.	117.	51.	840.40
2.66	.33	1.02	.69	.070	.030	.030	.054	838.40	206.46
.000040	60.	60.	60.	0	0	8	0.00	193.54	400.00

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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

MILLER CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
.900	796.49	0.00	797.00	130.36	14.70	338.79	281.51	0.00	0.00	245.00	254.00	0.00
.900	796.59	0.00	797.03	130.74	14.69	325.10	295.21	0.00	0.00	245.00	254.00	0.00
.910	796.89	0.00	797.40	130.35	14.70	339.02	281.28	0.00	0.00	245.00	254.00	0.00
.910	796.93	0.00	797.41	130.52	14.70	332.76	287.54	0.00	0.00	245.00	254.00	0.00
.920	797.29	0.00	797.80	130.35	14.70	339.19	281.10	0.00	0.00	245.00	254.00	0.00
.920	797.30	0.00	797.81	130.36	14.70	338.64	281.65	0.00	0.00	245.00	254.00	0.00
.990	798.64	0.00	798.90	130.61	11.53	258.64	364.83	0.00	0.00	245.00	254.00	0.00
.990	798.64	0.00	798.91	130.60	11.53	259.08	364.39	0.00	0.00	245.00	254.00	0.00
1.000	799.11	0.00	799.58	129.40	11.99	308.08	314.92	0.00	0.00	245.00	254.00	0.00

1.000	799.12	0.00	799.58	129.43	11.98	306.98	316.03	0.00	0.00	245.00	254.00	0.00
* 1.010	799.29	0.00	799.82	130.04	0.00	262.06	372.94	0.00	0.00	245.00	254.00	0.00
* 1.010	799.29	0.00	799.82	130.04	0.00	262.06	372.94	0.00	0.00	245.00	254.00	0.00
1.090	799.70	0.00	799.98	131.61	0.00	174.38	460.62	0.00	0.00	245.00	254.00	0.00
1.090	799.70	0.00	799.98	131.61	0.00	174.38	460.62	0.00	0.00	245.00	254.00	0.00
1.100	799.93	0.00	800.03	132.48	18.69	174.42	441.89	0.00	0.00	245.00	254.00	0.00
1.100	799.93	0.00	800.03	132.48	18.69	174.42	441.89	0.00	0.00	245.00	254.00	0.00
1.200	799.91	0.00	800.14	92.05	22.46	433.04	179.51	0.00	0.00	20.00	40.00	0.00
1.200	799.91	0.00	800.14	92.05	22.46	433.04	179.51	0.00	0.00	20.00	40.00	0.00
1.800	799.95	0.00	800.68	64.57	64.41	452.26	118.32	0.00	0.00	35.00	47.00	0.00
1.800	799.95	0.00	800.68	64.57	64.41	452.26	118.32	0.00	0.00	35.00	47.00	0.00
1.900	803.66	0.00	804.13	44.40	306.52	185.36	143.12	0.00	0.00	38.00	43.00	0.00
1.900	803.66	0.00	804.13	44.40	306.52	185.36	143.12	0.00	0.00	38.00	43.00	0.00
2.000	803.73	0.00	805.26	14.00	0.00	635.00	0.00	0.00	0.00	430.00	444.00	0.00
2.000	803.73	0.00	805.26	14.00	0.00	635.00	0.00	0.00	0.00	430.00	444.00	0.00
2.010	803.70	0.00	805.31	14.00	0.00	635.00	0.00	0.00	0.00	430.00	444.00	0.00
2.010	803.70	0.00	805.31	14.00	0.00	635.00	0.00	0.00	0.00	430.00	444.00	0.00

SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2.090	804.65	0.00	805.85	14.00	0.00	635.00	0.00	0.00	0.00	451.00	465.00	0.00
2.090	804.65	0.00	805.85	14.00	0.00	635.00	0.00	0.00	0.00	451.00	465.00	0.00
2.100	804.92	0.00	805.92	14.00	0.00	635.00	0.00	0.00	0.00	451.00	465.00	0.00
2.100	804.92	0.00	805.92	14.00	0.00	635.00	0.00	0.00	0.00	451.00	465.00	0.00
3.000	806.73	0.00	806.88	83.87	305.69	295.88	33.43	0.00	0.00	283.00	297.00	0.00
3.000	806.75	.01	806.91	60.90	305.28	306.25	23.47	.04	240.63	283.00	297.00	301.53
3.500	807.41	0.00	807.55	119.24	19.35	195.10	280.55	0.00	0.00	155.00	165.00	0.00
3.500	807.46	.05	807.62	75.99	9.56	202.22	283.22	.05	153.48	155.00	165.00	229.47
3.900	808.03	0.00	808.54	92.85	74.49	269.06	151.44	0.00	0.00	410.00	420.00	0.00
3.900	808.08	.05	808.68	48.14	60.19	283.71	151.10	.08	401.55	410.00	420.00	449.69
4.000	808.44	-0.00	808.98	124.38	71.01	341.71	82.27	0.00	0.00	453.00	469.00	-0.00
4.000	808.52	.08	809.13	70.84	61.93	362.34	70.73	.09	420.82	453.00	469.00	491.66
4.090	809.24	0.00	809.29	158.44	262.27	39.99	192.74	0.00	0.00	459.50	462.50	0.00
4.090	809.32	.08	809.38	103.42	266.54	41.63	186.83	.07	398.00	459.50	462.50	501.42
4.300	810.96	0.00	811.19	91.04	221.59	154.11	119.29	0.00	0.00	142.00	150.00	0.00
4.300	811.05	.09	811.31	52.12	220.94	161.36	112.70	.07	114.25	142.00	150.00	166.37
4.500	812.11	0.00	812.42	101.37	109.11	320.48	65.41	0.00	0.00	245.00	265.00	0.00
4.500	812.20	.10	812.56	54.50	103.53	338.82	52.65	.08	221.88	245.00	265.00	276.38
5.000	817.04	0.00	817.34	71.63	164.72	300.00	30.28	0.00	0.00	347.00	359.00	0.00
5.000	817.16	.12	817.49	44.24	168.07	311.68	15.25	.06	317.46	347.00	359.00	361.70
5.500	819.09	0.00	819.21	112.16	235.83	238.99	20.17	0.00	0.00	480.00	500.00	0.00
5.500	819.20	.12	819.33	78.78	240.13	250.91	3.96	.07	422.50	480.00	500.00	501.28

8.600	430.00	830.24	0.00	.06	0.00	378.20	380.00
8.600	430.00	830.24	0.00	.06	0.00	378.20	380.00
8.700	430.00	830.60	0.00	.36	0.00	290.58	460.00
8.700	430.00	830.60	0.00	.36	0.00	290.58	460.00
8.800	430.00	831.40	0.00	.80	0.00	185.48	255.00
8.800	430.00	831.40	0.00	.80	0.00	185.48	255.00
8.900	430.00	833.06	0.00	1.66	0.00	79.19	300.00
8.900	430.00	833.06	0.00	1.66	0.00	79.19	300.00
9.000	430.00	833.65	0.00	.58	0.00	14.00	100.00
9.000	430.00	833.65	0.00	.58	0.00	14.00	100.00
9.090	430.00	834.60	0.00	.95	0.00	14.00	79.00
9.090	430.00	834.60	0.00	.95	0.00	14.00	79.00
9.200	430.00	835.02	0.00	.42	0.00	115.00	49.00
9.200	430.00	835.02	0.00	.42	0.00	115.00	49.00
9.300	430.00	835.19	0.00	.17	0.00	296.27	200.00
9.300	430.00	835.19	.00	.17	.00	147.27	200.00
10.000	430.00	835.92	0.00	.73	0.00	438.08	1370.00
10.000	430.00	835.98	.06	.79	.06	349.09	1370.00
10.500	430.00	836.83	0.00	.91	0.00	278.52	1160.00
10.500	430.00	836.93	.10	.94	.10	155.51	1160.00
11.000	430.00	839.50	0.00	2.67	0.00	42.34	640.00
11.000	430.00	839.56	.05	2.63	.05	42.60	640.00
12.000	265.00	839.85	0.00	.34	0.00	36.72	150.00
12.000	265.00	839.88	.03	.32	.03	24.64	150.00
12.090	265.00	840.54	0.00	.70	0.00	174.69	83.00
12.090	265.00	840.57	.03	.70	.03	69.79	83.00
13.000	265.00	840.89	0.00	.35	0.00	23.33	2050.00
13.000	265.00	840.93	.04	.36	.04	17.23	2050.00
14.000	265.00	843.45	0.00	2.56	0.00	40.53	650.00
14.000	265.00	843.55	.09	2.62	.09	22.24	650.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14.090	265.00	848.15	0.00	4.70	0.00	193.53	60.00
14.090	265.00	848.16	.00	4.61	.00	193.54	60.00

SUMMARY OF ERRORS

CAUTION SECNO= 1.010 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.010 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

	4.500	495.00	812.20	.10	1.15	.10	54.50	210.00
	5.000	495.00	817.04	0.00	4.93	0.00	71.63	1050.00
	5.000	495.00	817.16	.12	4.96	.12	44.24	1050.00
	5.500	495.00	819.09	0.00	2.05	0.00	112.16	600.00
	5.500	495.00	819.20	.12	2.04	.12	78.78	600.00
	5.700	495.00	821.07	0.00	1.98	0.00	129.24	750.00
	5.700	495.00	821.17	.10	1.97	.10	82.34	750.00
	5.800	495.00	823.16	0.00	2.09	0.00	164.85	850.00
	5.800	495.00	823.26	.10	2.09	.10	88.97	850.00
	5.900	495.00	823.89	0.00	.74	0.00	31.26	275.00
	5.900	495.00	823.95	.05	.69	.05	21.16	275.00
	6.000	495.00	824.25	0.00	.35	0.00	28.76	50.00
	6.000	495.00	824.34	.09	.40	.09	20.08	50.00
	6.040	495.00	827.04	0.00	2.79	0.00	93.00	32.00
	6.040	495.00	827.05	.01	2.71	.01	93.00	32.00
	6.200	495.00	827.15	0.00	.11	0.00	309.73	100.00
	6.200	495.00	827.16	.01	.11	.01	209.02	100.00
	6.500	495.00	827.38	0.00	.22	0.00	273.54	590.00
	6.500	495.00	827.42	.04	.26	.04	207.12	590.00
	6.900	495.00	827.90	0.00	.52	0.00	100.00	409.00
	6.900	495.00	827.95	.06	.53	.06	100.00	409.00
	7.000	495.00	828.05	0.00	.15	0.00	72.37	50.00
	7.000	495.00	828.10	.05	.14	.05	72.40	50.00
*	7.010	495.00	829.34	0.00	1.29	0.00	74.00	1.00
*	7.010	495.00	829.34	0.00	1.24	0.00	74.00	1.00
	7.090	495.00	830.06	0.00	.72	0.00	136.00	31.00
	7.090	495.00	830.06	0.00	.72	0.00	136.00	31.00
	7.100	495.00	830.09	0.00	.03	0.00	138.00	1.00
	7.100	495.00	830.09	0.00	.03	0.00	138.00	1.00
	8.000	495.00	830.17	0.00	.07	0.00	910.88	298.00
	8.000	495.00	830.17	0.00	.07	0.00	910.88	298.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.010	495.00	830.17	0.00	.00	0.00	910.24	1.00
	8.010	495.00	830.17	0.00	.00	0.00	910.24	1.00
	8.090	495.00	830.17	0.00	.00	0.00	910.29	11.00
	8.090	495.00	830.17	0.00	.00	0.00	910.29	11.00
	8.100	495.00	830.17	0.00	-.00	0.00	910.27	1.00
	8.100	495.00	830.17	0.00	-.00	0.00	910.27	1.00
	8.500	430.00	830.19	0.00	.02	0.00	572.16	538.00
	8.500	430.00	830.19	0.00	.02	0.00	572.16	538.00

.920	635.00	797.29	0.00	.40	0.00	130.35	50.00
.920	635.00	797.30	.01	.37	0.00	130.36	50.00
.990	635.00	798.64	0.00	1.35	0.00	130.61	160.00
.990	635.00	798.64	.00	1.34	0.00	130.60	160.00
1.000	635.00	799.11	0.00	.48	0.00	129.40	100.00
1.000	635.00	799.12	.01	.48	0.00	129.43	100.00
* 1.010	635.00	799.29	0.00	.17	0.00	130.04	1.00
* 1.010	635.00	799.29	0.00	.17	0.00	130.04	1.00
1.090	635.00	799.70	0.00	.42	0.00	131.61	30.00
1.090	635.00	799.70	0.00	.42	0.00	131.61	30.00
1.100	635.00	799.93	0.00	.22	0.00	132.48	1.00
1.100	635.00	799.93	0.00	.22	0.00	132.48	1.00
1.200	635.00	799.91	0.00	-.02	0.00	92.05	25.00
1.200	635.00	799.91	0.00	-.02	0.00	92.05	25.00
1.800	635.00	799.95	0.00	.04	0.00	64.57	75.00
1.800	635.00	799.95	0.00	.04	0.00	64.57	75.00
1.900	635.00	803.66	0.00	3.71	0.00	44.40	450.00
1.900	635.00	803.66	0.00	3.71	0.00	44.40	450.00
2.000	635.00	803.73	0.00	.07	0.00	14.00	50.00
2.000	635.00	803.73	0.00	.07	0.00	14.00	50.00
2.010	635.00	803.70	0.00	-.03	0.00	14.00	1.00
2.010	635.00	803.70	0.00	-.03	0.00	14.00	1.00
2.090	635.00	804.65	0.00	.95	0.00	14.00	53.00
2.090	635.00	804.65	0.00	.95	0.00	14.00	53.00
2.100	635.00	804.92	0.00	.27	0.00	14.00	1.00
2.100	635.00	804.92	0.00	.27	0.00	14.00	1.00
3.000	635.00	806.73	0.00	1.81	0.00	83.87	275.00
3.000	635.00	806.75	.01	1.82	.01	60.90	275.00
3.500	495.00	807.41	0.00	.67	0.00	119.24	460.00
3.500	495.00	807.46	.05	.71	.05	75.99	460.00
3.900	495.00	808.03	0.00	.63	0.00	92.85	274.00
3.900	495.00	808.08	.05	.63	.05	48.14	274.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFNWS	TOPWID	XLCH
4.000	495.00	808.44	0.00	.41	0.00	124.38	50.00
4.000	495.00	808.52	.08	.44	.08	70.84	50.00
4.090	495.00	809.24	0.00	.79	0.00	158.44	13.00
4.090	495.00	809.32	.08	.79	.08	103.42	13.00
4.300	495.00	810.96	0.00	1.72	0.00	91.04	625.00
4.300	495.00	811.05	.09	1.74	.09	52.12	625.00
4.500	495.00	812.11	0.00	1.15	0.00	101.37	210.00

8.[illegible]	460.00	0.00	0.00	824.79	430.00	830.60	0.00	830.64	19.98	2.43	358.95	[illegible]6.20
8.800	255.00	0.00	0.00	825.10	430.00	831.40	0.00	831.55	71.79	4.47	200.16	50.75
8.800	255.00	0.00	0.00	825.10	430.00	831.40	0.00	831.55	71.79	4.47	200.16	50.75
8.900	300.00	0.00	0.00	825.19	430.00	833.06	0.00	833.25	49.96	4.03	158.24	60.84
8.900	300.00	0.00	0.00	825.19	430.00	833.06	0.00	833.25	49.96	4.03	158.24	60.84
9.000	100.00	0.00	0.00	825.60	430.00	833.65	0.00	834.11	114.49	5.47	78.63	40.19
9.000	100.00	0.00	0.00	825.60	430.00	833.65	0.00	834.11	114.49	5.47	78.63	40.19
9.090	79.00	836.02	832.66	825.60	430.00	834.60	0.00	834.94	70.66	4.68	91.95	51.16
9.090	79.00	836.02	832.66	825.60	430.00	834.60	0.00	834.94	70.66	4.68	91.95	51.16
9.200	49.00	0.00	0.00	825.80	430.00	835.02	0.00	835.05	7.87	1.92	370.30	153.30
9.200	49.00	0.00	0.00	825.80	430.00	835.02	0.00	835.05	7.87	1.92	370.30	153.30
9.300	200.00	0.00	0.00	826.60	430.00	835.19	0.00	835.22	8.87	1.92	462.96	144.41
9.300	200.00	0.00	0.00	826.60	430.00	835.19	0.00	835.23	9.90	2.03	384.10	136.65
10.000	1370.00	0.00	0.00	832.00	430.00	835.92	0.00	835.93	3.80	.94	857.42	220.53
10.000	1370.00	0.00	0.00	832.00	430.00	835.98	0.00	835.99	3.98	.97	786.80	215.53
10.500	1160.00	0.00	0.00	833.35	430.00	836.83	0.00	836.90	64.33	3.37	278.22	53.61
10.500	1160.00	0.00	0.00	833.35	430.00	836.93	0.00	837.01	64.72	3.45	238.36	53.45
11.000	640.00	0.00	0.00	834.10	430.00	839.50	0.00	839.68	35.87	3.57	146.27	71.79
11.000	640.00	0.00	0.00	834.10	430.00	839.56	0.00	839.73	34.41	3.52	148.54	73.30
12.000	150.00	0.00	0.00	832.10	265.00	839.85	0.00	839.96	8.01	2.83	112.13	93.62
12.000	150.00	0.00	0.00	832.10	265.00	839.88	0.00	840.00	8.16	2.86	106.20	92.78
12.090	83.00	840.00	838.60	832.60	265.00	840.54	0.00	840.56	.86	.94	312.99	285.88
12.090	83.00	999999.00	0.00	832.60	265.00	840.57	0.00	840.59	.91	.97	260.65	277.92
13.000	2050.00	0.00	0.00	837.00	265.00	840.89	0.00	841.29	43.61	5.41	53.99	40.13
13.000	2050.00	0.00	0.00	837.00	265.00	840.93	0.00	841.38	46.39	5.63	50.49	38.91
14.000	650.00	0.00	0.00	838.40	265.00	843.45	0.00	843.77	32.85	5.75	74.03	46.24
14.000	650.00	0.00	0.00	838.40	265.00	843.55	0.00	843.93	33.15	5.85	61.91	46.02

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14.090	60.00	847.70	842.40	838.40	265.00	848.15	0.00	848.16	.40	1.02	442.56	418.50
14.090	60.00	847.70	842.40	838.40	265.00	848.16	0.00	848.16	.40	1.02	443.12	419.07

MILLER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.900	635.00	796.49	0.00	0.00	0.00	130.36	0.00
.900	635.00	796.59	.10	0.00	0.00	130.74	0.00
.910	635.00	796.89	0.00	.40	0.00	130.35	50.00
.910	635.00	796.93	.04	.34	0.00	130.52	50.00

5.500	600.00	0.00	0.00	815.50	495.00	819.09	0.00	819.21	23.63	3.58	217.11	101.83
5.500	600.00	0.00	0.00	815.50	495.00	819.20	0.00	819.33	23.24	3.63	201.87	102.68
5.700	750.00	0.00	0.00	817.30	495.00	821.07	0.00	821.17	32.02	4.27	217.43	87.48
5.700	750.00	0.00	0.00	817.30	495.00	821.17	0.00	821.29	31.96	4.34	198.94	87.56
5.800	850.00	0.00	0.00	819.20	495.00	823.16	0.00	823.26	25.69	4.03	240.73	97.66
5.800	850.00	0.00	0.00	819.20	495.00	823.26	0.00	823.37	25.57	4.09	211.19	97.89
5.900	275.00	0.00	0.00	820.30	495.00	823.89	0.00	824.71	76.42	7.62	68.78	56.63
5.900	275.00	0.00	0.00	820.30	495.00	823.95	0.00	824.91	81.56	7.96	62.70	54.81
6.000	50.00	0.00	0.00	820.50	495.00	824.25	0.00	825.22	100.37	8.73	64.95	49.41
6.000	50.00	0.00	0.00	820.50	495.00	824.34	0.00	825.42	100.99	8.91	60.54	49.26
6.040	32.00	826.10	823.60	820.10	495.00	827.04	0.00	827.09	10.15	1.61	277.95	155.36
6.040	32.00	826.10	823.60	820.10	495.00	827.05	0.00	827.10	10.02	1.60	278.94	156.35
6.200	100.00	0.00	0.00	820.31	495.00	827.15	0.00	827.17	5.39	1.16	446.62	213.27
6.200	100.00	0.00	0.00	820.31	495.00	827.16	0.00	827.19	6.31	1.26	386.29	197.05
6.500	590.00	0.00	0.00	821.44	495.00	827.38	0.00	827.39	8.20	1.37	570.67	172.84
6.500	590.00	0.00	0.00	821.44	495.00	827.42	0.00	827.43	8.78	1.43	542.37	167.01
6.900	409.00	0.00	0.00	822.39	495.00	827.90	0.00	827.96	32.82	2.45	259.81	86.41
6.900	409.00	0.00	0.00	822.39	495.00	827.95	0.00	828.02	30.61	2.39	265.48	89.47
7.000	50.00	0.00	0.00	822.50	495.00	828.05	0.00	828.59	371.35	6.21	99.59	25.69
7.000	50.00	0.00	0.00	822.50	495.00	828.10	0.00	828.60	346.89	6.05	102.80	26.58
* 7.010	1.00	827.70	826.70	822.50	495.00	829.34	829.34	829.95	51.29	5.50	79.82	69.12
* 7.010	1.00	827.70	826.70	822.50	495.00	829.34	829.34	829.95	51.29	5.50	79.82	69.12
7.090	31.00	827.70	826.70	822.50	495.00	830.06	0.00	830.14	3.40	1.85	218.45	268.39
7.090	31.00	827.70	826.70	822.50	495.00	830.06	0.00	830.14	3.40	1.85	218.45	268.39
7.100	1.00	0.00	0.00	822.50	495.00	830.09	0.00	830.14	2.60	2.35	351.11	306.71
7.100	1.00	0.00	0.00	822.50	495.00	830.09	0.00	830.14	2.60	2.35	351.11	306.71
8.000	298.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2149.55	931.43
8.000	298.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2149.55	931.43

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.010	1.00	827.50	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2018.48	2710.78
8.010	1.00	827.50	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2018.48	2710.78
8.090	11.00	827.50	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2018.90	2711.63
8.090	11.00	827.50	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2018.90	2711.63
8.100	1.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2144.35	928.21
8.100	1.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2144.35	928.21
8.500	538.00	0.00	0.00	823.90	430.00	830.19	0.00	830.19	.86	.63	1272.76	463.12
8.500	538.00	0.00	0.00	823.90	430.00	830.19	0.00	830.19	.86	.63	1272.76	463.12
8.600	380.00	0.00	0.00	824.29	430.00	830.24	0.00	830.26	5.09	1.55	608.26	190.66
8.600	380.00	0.00	0.00	824.29	430.00	830.24	0.00	830.26	5.09	1.55	608.26	190.66
8.700	460.00	0.00	0.00	824.79	430.00	830.60	0.00	830.64	19.98	2.43	358.95	96.20

.990	160.00	0.00	0.00	793.50	635.00	798.64	0.00	798.90	44.44	5.75	199.29	96.26
.990	160.00	0.00	0.00	793.50	635.00	798.64	0.00	798.91	44.68	5.76	198.86	94.99
1.000	100.00	0.00	0.00	794.30	635.00	799.11	0.00	799.58	78.60	7.32	157.72	71.63
1.000	100.00	0.00	0.00	794.30	635.00	799.12	0.00	799.58	77.70	7.28	158.52	72.04
* 1.010	1.00	798.50	800.30	794.30	635.00	799.29	799.29	799.82	46.75	6.65	110.21	92.87
* 1.010	1.00	798.50	800.30	794.30	635.00	799.29	799.29	799.82	46.75	6.65	110.21	92.87
1.090	30.00	798.50	800.30	794.30	635.00	799.70	0.00	799.98	17.15	4.18	150.66	153.35
1.090	30.00	798.50	800.30	794.30	635.00	799.70	0.00	799.98	17.15	4.18	150.66	153.35
1.100	1.00	0.00	0.00	794.30	635.00	799.93	0.00	800.03	14.72	3.53	264.89	165.53
1.100	1.00	0.00	0.00	794.30	635.00	799.93	0.00	800.03	14.72	3.53	264.89	165.53
1.200	25.00	0.00	0.00	794.60	635.00	799.91	0.00	800.14	22.81	4.46	186.34	132.95
1.200	25.00	0.00	0.00	794.60	635.00	799.91	0.00	800.14	22.81	4.46	186.34	132.95
1.800	75.00	0.00	0.00	795.10	635.00	799.95	0.00	800.68	77.39	7.96	129.46	72.18
1.800	75.00	0.00	0.00	795.10	635.00	799.95	0.00	800.68	77.39	7.96	129.46	72.18
1.900	450.00	0.00	0.00	798.70	635.00	803.66	0.00	804.13	89.36	7.82	131.42	67.17
1.900	450.00	0.00	0.00	798.70	635.00	803.66	0.00	804.13	89.36	7.82	131.42	67.17
2.000	50.00	0.00	0.00	799.10	635.00	803.73	0.00	805.26	181.21	9.91	64.08	47.17
2.000	50.00	0.00	0.00	799.10	635.00	803.73	0.00	805.26	181.21	9.91	64.08	47.17
2.010	1.00	806.44	807.70	799.10	635.00	803.70	0.00	805.31	94.24	10.19	62.33	65.41
2.010	1.00	806.44	807.70	799.10	635.00	803.70	0.00	805.31	94.24	10.19	62.33	65.41
2.090	53.00	806.44	807.80	799.20	635.00	804.65	0.00	805.85	65.40	8.78	72.32	78.52
2.090	53.00	806.44	807.80	799.20	635.00	804.65	0.00	805.85	65.40	8.78	72.32	78.52
2.100	1.00	0.00	0.00	799.20	635.00	804.92	0.00	805.92	74.35	8.01	79.29	73.64
2.100	1.00	0.00	0.00	799.20	635.00	804.92	0.00	805.92	74.35	8.01	79.29	73.64
3.000	275.00	0.00	0.00	801.00	635.00	806.73	0.00	806.88	13.13	4.03	259.93	175.27
3.000	275.00	0.00	0.00	801.00	635.00	806.75	0.00	806.91	14.01	4.17	242.22	169.63
3.500	460.00	0.00	0.00	802.70	495.00	807.41	0.00	807.55	19.52	4.36	224.37	112.05
3.500	460.00	0.00	0.00	802.70	495.00	807.46	0.00	807.62	20.35	4.48	200.48	109.74
3.900	274.00	0.00	0.00	804.30	495.00	808.03	0.00	808.54	82.94	7.43	129.53	54.35
3.900	274.00	0.00	0.00	804.30	495.00	808.08	0.00	808.68	87.99	7.73	105.22	52.77

SECNO	XLCH	CLTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOWAS	VCH	AREA	.01K
4.000	50.00	0.00	0.00	804.50	495.00	808.44	808.41	808.98	87.14	6.96	129.85	53.03
4.000	50.00	0.00	0.00	804.50	495.00	808.52	0.00	809.13	90.20	7.20	109.22	52.12
4.090	13.00	807.70	807.40	804.50	495.00	809.24	0.00	809.29	22.52	3.15	275.78	104.31
4.090	13.00	999999.00	0.00	804.50	495.00	809.32	0.00	809.38	22.98	3.22	247.97	103.27
4.300	625.00	0.00	0.00	807.10	495.00	810.96	0.00	811.19	52.85	5.49	154.07	68.09
4.300	625.00	0.00	0.00	807.10	495.00	811.05	0.00	811.31	53.12	5.60	137.96	67.91
4.500	210.00	0.00	0.00	808.30	495.00	812.11	0.00	812.42	64.46	5.41	148.05	61.65
4.500	210.00	0.00	0.00	808.30	495.00	812.20	0.00	812.56	64.90	5.55	122.12	61.45
5.000	1050.00	0.00	0.00	812.00	495.00	817.04	0.00	817.34	41.00	5.45	150.24	77.30
5.000	1050.00	0.00	0.00	812.00	495.00	817.16	0.00	817.49	40.55	5.52	132.75	77.73

8.900	833.06	0.00	833.25	79.19	110.02	286.76	33.22	79.20	700.00	730.00	742.00	779.20
8.900	833.06	0.00	833.25	79.19	110.02	286.76	33.22	79.20	700.00	730.00	742.00	779.20
9.000	833.65	0.00	834.11	14.00	0.00	430.00	0.00	0.00	0.00	743.00	757.00	0.00
9.000	833.65	0.00	834.11	14.00	0.00	430.00	0.00	0.00	0.00	743.00	757.00	0.00
9.090	834.60	0.00	834.94	14.00	0.00	430.00	0.00	0.00	0.00	743.00	757.00	0.00
9.090	834.60	0.00	834.94	14.00	0.00	430.00	0.00	0.00	0.00	743.00	757.00	0.00
9.200	835.02	0.00	835.05	115.00	68.21	215.36	146.43	115.00	705.00	755.00	770.00	820.00
9.200	835.02	0.00	835.05	115.00	68.21	215.36	146.43	115.00	705.00	755.00	770.00	820.00
9.300	835.19	0.00	835.22	296.27	43.13	197.54	189.33	0.00	0.00	755.00	770.00	0.00
9.300	835.19	.00	835.23	147.27	33.14	208.47	188.39	.06	740.56	755.00	770.00	887.83
10.000	835.92	0.00	835.93	438.08	285.26	63.89	80.85	740.00	650.00	970.00	990.00	1390.00
10.000	835.98	.06	835.99	349.09	294.86	67.61	67.53	.09	690.68	970.00	990.00	1039.78
10.500	836.83	0.00	836.90	278.52	202.04	118.82	109.14	0.00	0.00	392.00	404.00	0.00
10.500	836.93	.10	837.01	155.51	201.39	125.22	103.39	.10	305.96	392.00	404.00	461.47

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11.000	839.50	0.00	839.68	42.34	14.12	373.33	42.54	424.00	576.00	586.00	608.00	1000.00
11.000	839.56	.05	839.73	42.60	14.32	372.55	43.13	424.00	576.00	586.00	608.00	1000.00
12.000	839.85	0.00	839.96	36.72	45.23	118.85	100.92	0.00	0.00	673.00	679.00	0.00
12.000	839.88	.03	840.00	24.64	44.28	120.55	100.17	.04	662.57	673.00	679.00	687.21
12.090	840.54	0.00	840.56	174.69	137.18	40.81	87.02	0.00	0.00	654.00	660.00	0.00
12.090	840.57	.03	840.59	69.79	138.14	42.20	84.66	.06	612.64	654.00	660.00	682.43
13.000	840.89	0.00	841.29	23.33	23.96	199.00	42.03	0.00	0.00	268.00	279.00	0.00
13.000	840.93	.04	841.38	17.23	17.52	209.67	37.81	.06	265.86	268.00	279.00	283.09
14.000	843.45	0.00	843.77	40.53	35.91	104.73	124.36	0.00	0.00	244.00	248.00	0.00
14.000	843.55	.09	843.93	22.24	29.33	108.85	126.82	.06	237.74	244.00	248.00	259.99
14.090	848.15	0.00	848.16	193.53	47.67	37.76	179.57	400.00	.00	244.00	248.00	400.00
14.090	848.16	.00	848.16	193.54	47.65	37.72	179.62	400.00	.00	244.00	248.00	400.00

MILLER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.900	0.00	0.00	0.00	791.42	635.00	796.49	0.00	797.00	79.69	7.63	190.70	71.13
.900	0.00	0.00	0.00	791.42	635.00	796.59	0.00	797.03	68.63	7.18	203.76	76.65
.910	50.00	0.00	0.00	791.82	635.00	796.89	0.00	797.40	79.88	7.64	190.50	71.05
.910	50.00	0.00	0.00	791.82	635.00	796.93	0.00	797.41	74.68	7.43	196.33	73.48
.920	50.00	0.00	0.00	792.22	635.00	797.29	0.00	797.80	80.03	7.65	190.34	70.98
.920	50.00	0.00	0.00	792.22	635.00	797.30	0.00	797.81	79.57	7.63	190.84	71.19

5.700	821.07	0.00	821.17	129.24	291.78	75.15	128.07	0.00	0.00	165.00	170.00	0.00
5.700	821.17	.10	821.29	82.34	298.90	78.67	117.42	.07	102.46	165.00	170.00	184.79
5.800	823.16	0.00	823.26	164.85	209.18	121.55	164.27	0.00	0.00	174.00	182.00	0.00
5.800	823.26	.10	823.37	88.97	206.63	126.70	161.67	.07	133.18	174.00	182.00	222.15
5.900	823.89	0.00	824.71	31.26	137.91	219.18	137.91	0.00	0.00	652.00	660.00	0.00
5.900	823.95	.05	824.91	21.16	131.25	232.51	131.24	.06	645.42	652.00	660.00	666.58
6.000	824.25	0.00	825.22	28.76	49.02	314.94	131.04	0.00	0.00	1099.00	1109.00	0.00
6.000	824.34	.09	825.42	20.08	36.04	329.43	129.53	.06	1096.99	1099.00	1109.00	1117.08
6.040	827.04	0.00	827.09	93.00	171.58	103.10	220.32	93.00	1062.00	1103.00	1113.00	1155.00
6.040	827.05	.01	827.10	93.00	171.88	102.72	220.40	93.00	1062.00	1103.00	1113.00	1155.00
6.200	827.15	0.00	827.17	309.73	258.23	73.16	163.61	0.00	0.00	1103.00	1113.00	0.00
6.200	827.16	.01	827.19	209.02	260.84	79.39	154.77	.10	942.41	1103.00	1113.00	1151.42
6.500	827.38	0.00	827.39	273.54	289.76	79.27	125.97	0.00	0.00	330.00	340.00	0.00
6.500	827.42	.04	827.43	207.12	292.75	83.13	119.11	.07	183.48	330.00	340.00	390.61
6.900	827.90	0.00	827.96	100.00	188.22	130.01	176.77	100.00	365.00	420.00	430.00	465.00
6.900	827.95	.06	828.02	100.00	189.05	127.80	178.14	100.00	365.00	420.00	430.00	465.00

	SECNO	CWSEL	DIFNWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7.000	828.05	0.00	828.59	72.37	10.84	439.34	44.81	72.40	608.90	622.00	642.00	681.30
	7.000	828.10	.05	828.60	72.40	12.16	433.74	49.10	72.40	608.90	622.00	642.00	681.30
*	7.010	829.34	0.00	829.95	74.00	70.99	161.13	262.88	74.00	608.00	622.00	642.00	682.00
*	7.010	829.34	0.00	829.95	74.00	70.99	161.13	262.88	74.00	608.00	622.00	642.00	682.00
	7.090	830.06	0.00	830.14	136.00	146.31	80.60	268.09	136.00	577.00	622.00	642.00	713.00
	7.090	830.06	0.00	830.14	136.00	146.31	80.60	268.09	136.00	577.00	622.00	642.00	713.00
	7.100	830.09	0.00	830.14	138.00	74.73	261.97	158.31	138.00	576.00	622.00	642.00	714.00
	7.100	830.09	0.00	830.14	138.00	74.73	261.97	158.31	138.00	576.00	622.00	642.00	714.00
	8.000	830.17	0.00	830.17	910.88	314.88	50.23	129.88	0.00	0.00	878.50	889.50	0.00
	8.000	830.17	0.00	830.17	910.88	314.88	50.23	129.88	0.00	0.00	878.50	889.50	0.00
	8.010	830.17	0.00	830.17	910.24	361.18	12.93	120.89	0.00	0.00	878.50	889.50	0.00
	8.010	830.17	0.00	830.17	910.24	361.18	12.93	120.89	0.00	0.00	878.50	889.50	0.00
	8.090	830.17	0.00	830.17	910.29	361.17	12.93	120.90	0.00	0.00	878.50	889.50	0.00
	8.090	830.17	0.00	830.17	910.29	361.17	12.93	120.90	0.00	0.00	878.50	889.50	0.00
	8.100	830.17	0.00	830.17	910.27	314.85	50.34	129.81	0.00	0.00	878.50	889.50	0.00
	8.100	830.17	0.00	830.17	910.27	314.85	50.34	129.81	0.00	0.00	878.50	889.50	0.00
	8.500	830.19	0.00	830.19	572.16	116.53	82.85	230.62	0.00	0.00	720.00	745.00	0.00
	8.500	830.19	0.00	830.19	572.16	116.53	82.85	230.62	0.00	0.00	720.00	745.00	0.00
	8.600	830.24	0.00	830.26	378.20	129.21	133.02	167.77	0.00	0.00	225.00	240.00	0.00
	8.600	830.24	0.00	830.26	378.20	129.21	133.02	167.77	0.00	0.00	225.00	240.00	0.00
	8.700	830.60	0.00	830.64	290.58	181.34	133.48	115.19	0.00	0.00	200.00	210.00	0.00
	8.700	830.60	0.00	830.64	290.58	181.34	133.48	115.19	0.00	0.00	200.00	210.00	0.00
	8.800	831.40	0.00	831.55	185.48	158.46	164.47	107.07	0.00	0.00	825.00	833.00	0.00
	8.800	831.40	0.00	831.55	185.48	158.46	164.47	107.07	0.00	0.00	825.00	833.00	0.00

CAUTION SECNO= 7.010 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7.010 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA - MILLER CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.900	131.	204.	3.1	796.6	796.5	.1
.910	131.	196.	3.2	796.9	796.9	0.0
.920	130.	191.	3.3	797.3	797.3	0.0
.990	131.	199.	3.2	798.6	798.6	0.0
1.000	129.	159.	4.0	799.1	799.1	0.0
1.010	130.	110.	5.8	799.3	799.3	0.0
1.090	132.	151.	4.2	799.7	799.7	0.0
1.100	132.	265.	2.4	799.9	799.9	0.0
1.200	92.	186.	3.4	799.9	799.9	0.0
1.800	65.	129.	4.9	799.9	799.9	0.0
1.900	44.	131.	4.8	803.7	803.7	0.0
2.000	14.	64.	9.9	803.7	803.7	0.0
2.010	14.	62.	10.2	803.7	803.7	0.0
2.090	14.	72.	8.8	804.7	804.7	0.0
2.100	14.	79.	8.0	804.9	804.9	0.0
3.000	61.	242.	2.6	806.7	806.7	0.0
3.500	76.	200.	2.5	807.5	807.4	.1
3.900	48.	105.	4.7	808.1	808.0	.1
4.000	71.	109.	4.5	808.5	808.4	.1
4.090	103.	248.	2.0	809.3	809.2	.1
4.300	52.	138.	3.6	811.1	811.0	.1
4.500	55.	122.	4.1	812.2	812.1	.1
5.000	44.	133.	3.7	817.1	817.0	.1
5.500	79.	202.	2.5	819.2	819.1	.1
5.700	82.	199.	2.5	821.2	821.1	.1
5.800	89.	211.	2.3	823.3	823.2	.1
5.900	21.	63.	7.9	824.0	823.9	.1
6.000	20.	61.	8.2	824.3	824.2	.1
6.040	93.	279.	1.8	827.0	827.0	0.0
6.200	209.	386.	1.3	827.2	827.2	0.0
6.500	207.	542.	.9	827.4	827.4	0.0
6.900	100.	265.	1.9	828.0	827.9	.1
7.000	72.	103.	4.8	828.1	828.1	0.0
7.010	74.	80.	6.2	829.3	829.3	0.0
7.090	136.	218.	2.3	830.1	830.1	0.0
7.100	138.	351.	1.4	830.1	830.1	0.0
8.000	911.	2150.	.2	830.2	830.2	0.0
8.010	910.	2018.	.2	830.2	830.2	0.0
8.090	910.	2019.	.2	830.2	830.2	0.0
8.100	910.	2144.	.2	830.2	830.2	0.0
8.500	572.	1273.	.3	830.2	830.2	0.0
8.600	378.	608.	.7	830.2	830.2	0.0
8.700	291.	359.	1.2	830.6	830.6	0.0
8.800	185.	200.	2.1	831.4	831.4	0.0

8.900	79.	158.	2.7	833.1	833.1	0.0
9.000	14.	79.	5.5	833.6	833.6	0.0
9.090	14.	92.	4.7	834.6	834.6	0.0
9.200	115.	370.	1.2	835.0	835.0	0.0
9.300	147.	384.	1.1	835.2	835.2	0.0
10.000	349.	787.	.5	836.0	835.9	.1

FLOODWAY-DATA, MILLER CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
10.500	156.	238.	1.8	836.9	836.8	.1
11.000	43.	149.	2.9	839.6	839.5	.1
12.000	25.	106.	2.5	839.8	839.8	0.0
12.090	70.	261.	1.0	840.5	840.5	0.0
13.000	17.	50.	5.2	840.9	840.9	0.0
14.000	22.	62.	4.3	843.6	843.5	.1
14.090	194.	443.	.6	848.2	848.2	0.0

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

READY 11.21.58
ATTACH,B,OUT41.

ATTACH,B,OUT41.
LOGICAL FILE NAME ALREADY IN USE
CPU ABORT

READY 11.25.14
ATTACH,A,OUT41.

ATTACH,A,OUT41.
LOGICAL FILE NAME ALREADY IN USE
CPU ABORT

READY 11.25.25

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Delta twp

3) WATERCOURSE: Miller creek

4) DOCUMENT TYPE: 100 yr. Natural

00BREAK00

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************
C
T1      DELTA TWP., FIA      (JOB NO. 17287A)
T2      100 YEAR FLOW
T3      MILLER CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.008000	0.00	0.0	0.	797.000	0.000

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

NC	.080	.050	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	365.000	535.000	635.000	825.000	0.000	0.000	0.000	0.000	0.000
X1	.900	19.000	245.000	254.000	0.000	0.000	0.000	0.000	-2.880	0.000
GR	820.600	0.000	817.100	50.000	813.900	100.000	808.800	150.000	807.900	200.000
GR	802.800	237.000	795.800	245.000	794.800	245.500	794.300	246.000	794.300	247.500
GR	794.300	249.500	794.300	251.500	794.300	253.000	794.800	253.500	795.800	254.000
GR	797.200	260.000	798.500	300.000	798.500	369.000	813.000	407.000	0.000	0.000
X1	.910	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.400	0.000
X1	.920	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.400	0.000
NC	.080	.050	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	.990	0.000	0.000	0.000	165.000	190.000	160.000	0.000	1.280	0.000
X1	1.000	19.000	245.000	254.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	820.600	0.000	817.100	50.000	813.900	100.000	808.800	150.000	807.900	200.000
GR	802.800	237.000	795.800	245.000	794.800	245.500	794.300	246.000	794.300	247.500
GR	794.300	249.500	794.300	251.500	794.300	253.000	794.800	253.500	795.800	254.000
GR	797.200	260.000	798.500	300.000	798.500	369.000	813.000	407.000	0.000	0.000
NC	.015	.015	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF DRIVEWAY CULVERT, 9 BY 5.8 FT. CMP ARCH (2 IN.), 31 FT. LONG

PAVED ROADWAY

SECTION A

X1	1.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	320.600	0.000	50.000	817.100	0.000	100.000	813.900	0.000
BT	150.000	808.800	0.000	200.000	807.900	0.000	245.000	802.560	795.800	245.500

BT	802.500	797.800	246.000	802.440	798.800	247.500	802.270	799.800	249.500	801.970
BT	800.300	251.500	801.830	799.800	253.000	801.730	798.800	253.500	801.690	797.800
BT	254.000	801.660	795.800	300.000	798.500	0.000	369.000	798.500	0.000	407.000
BT	813.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF DRIVEWAY CULVERT

X1	1.090	0.000	0.000	0.000	30.000	30.000	30.000	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	.040	.040	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	1.200	10.000	20.000	40.000	25.000	25.000	25.000	0.000	0.000	0.000
GR	806.000	0.000	800.000	15.000	796.000	20.000	794.600	30.000	794.600	37.000
GR	795.000	40.000	798.000	48.000	800.000	110.000	802.000	120.000	810.000	150.000
NC	.070	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	1.800	9.000	35.000	47.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	809.000	0.000	796.000	35.000	795.100	36.000	795.100	45.000	796.000	47.000
GR	798.000	52.000	800.000	89.000	802.000	120.000	810.000	140.000	0.000	0.000
X1	1.900	10.000	38.000	43.000	360.000	365.000	450.000	0.000	0.000	0.000
GR	810.000	0.000	802.000	17.000	800.000	27.000	799.800	38.000	798.700	39.000
GR	798.700	42.000	799.800	43.000	800.000	48.000	810.000	75.000	820.000	90.000
X1	2.000	19.000	430.000	444.000	40.000	60.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	812.300	813.000	0.000
GR	810.200	0.000	805.100	200.000	803.300	400.000	804.700	420.000	799.200	427.000
GR	800.700	431.000	799.200	430.500	799.100	431.000	799.100	432.000	799.100	433.500
GR	799.100	437.000	799.100	440.500	799.100	442.000	799.100	443.000	799.100	443.500
GR	800.700	444.000	806.300	459.000	813.000	500.000	819.700	550.000	0.000	0.000
NC	.015	.015	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF WILLOW HIGHWAY, 14 BY 8.6 FT. CMP ARCH (2 IN.), 54 FT. LONG

PAVED ROADWAY

SECTION B

X1	2.010	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	812.300	813.000	0.000
BT	21.000	0.000	809.810	0.000	50.000	808.920	0.000	100.000	807.680	0.000
BT	150.000	806.890	0.000	200.000	806.440	0.000	250.000	807.520	0.000	300.000
BT	807.320	0.000	350.000	808.550	0.000	400.000	810.270	0.000	430.000	811.490
BT	800.700	430.500	811.510	863.200	432.000	811.570	805.700	433.500	811.630	806.700
BT	437.000	811.770	807.700	440.500	811.910	806.700	442.000	811.970	805.700	443.500
BT	812.030	803.200	444.000	812.060	800.700	500.000	814.650	0.000	550.000	813.070
BT	0.000	601.000	821.710	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF WILLOW HIGHWAY

SECTION C

X1	2.090	20.000	451.000	465.000	53.000	53.000	53.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	812.300	813.000	0.000
BT	22.000	0.000	809.810	0.000	50.000	808.920	0.000	100.000	807.680	0.000
BT	150.000	806.690	0.000	200.000	806.440	0.000	250.000	807.520	0.000	300.000
BT	307.320	0.000	350.000	808.550	0.000	400.000	810.270	0.000	450.000	812.300
BT	0.000	451.000	812.350	800.800	451.500	812.370	803.300	453.000	812.440	805.800
BT	454.500	812.510	806.800	458.000	812.680	807.800	461.500	812.840	806.700	463.000
BT	812.910	805.800	464.500	812.980	803.300	465.000	813.000	800.600	500.000	814.650
BT	0.000	550.000	818.070	0.000	600.000	821.710	0.000	0.000	0.000	0.000
GR	813.300	0.000	805.700	200.000	802.500	445.000	800.800	451.000	799.300	451.500
GR	799.300	452.000	799.200	453.000	799.200	454.500	799.200	458.000	799.200	461.500
GR	799.200	463.000	799.200	464.000	799.300	464.500	800.600	465.000	799.600	467.000
GR	806.700	469.000	801.700	500.000	806.000	550.000	818.100	600.000	824.300	650.000
NC	.065	.065	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	812.300	813.000	0.000

SECTION D, FABRICATED VALLEY SECTION

X1	3.000	23.000	283.000	297.000	260.000	250.000	275.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	30.000	822.000	65.000	820.000	145.000	818.000	155.000
GR	816.000	160.000	814.000	165.000	812.000	175.000	810.000	185.000	808.000	205.000
GR	806.000	235.000	804.000	245.000	802.000	283.000	801.000	290.000	802.000	297.000
GR	806.000	305.000	810.000	320.000	812.000	335.000	814.000	345.000	818.000	380.000
GR	820.000	390.000	824.000	420.000	826.000	430.000	0.000	0.000	0.000	0.000
QT	4.000	280.000	415.000	495.300	650.000	0.000	0.000	0.000	0.000	0.000

SECTION E, FABRICATED VALLEY SECTION

X1	3.500	15.000	155.000	165.000	400.000	425.000	460.000	0.000	0.000	0.000
GR	825.000	1.000	824.000	30.000	822.000	60.000	820.000	95.000	810.000	145.000
GR	804.000	154.000	803.500	155.000	802.700	156.000	802.700	160.000	803.500	165.000
GR	804.000	172.000	806.000	215.000	808.000	290.000	810.000	415.000	818.000	470.000
X1	3.900	21.000	410.000	420.000	324.000	159.000	274.000	0.000	0.000	0.000
GR	822.000	1.000	820.000	55.000	818.000	140.000	816.000	200.000	814.000	290.000
GR	812.000	350.000	810.000	370.000	808.000	390.000	806.000	405.000	805.500	410.000
GR	804.300	411.000	804.300	419.000	805.500	420.000	806.000	423.000	808.000	480.000
GR	810.000	600.000	812.000	635.000	814.000	650.000	816.000	655.000	818.000	665.000
GR	820.000	675.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF FARM LANE BRIDGE, 3 FT. DIAM. CMP (1/2 IN.), 12 FT. LONG

GRAVEL ROADWAY

SECTION F

X1	4.000	19.000	453.000	469.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	826.400	0.000	824.700	50.000	822.400	100.000	819.900	150.000	817.100	200.000
GR	815.400	250.000	812.000	300.000	810.000	350.000	808.000	400.000	807.400	453.000
GR	804.900	457.000	804.500	461.000	804.900	465.000	807.000	469.000	807.700	500.000
GR	810.500	550.000	813.300	600.000	819.800	650.000	824.800	700.000	0.000	0.000
NC	.020	.020	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.065	.065	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SB	0.000	2.195	3.050	0.000	3.000	0.000	7.070	0.000	804.400	804.500
X1	4.090	19.000	459.500	462.590	13.000	13.000	13.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	807.400	807.700	0.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	826.400	0.000	50.000	824.700	0.000	100.000	822.400	0.000
BT	150.000	819.900	0.000	200.000	817.100	0.000	250.000	815.400	0.000	300.000
BT	812.000	0.000	350.000	810.000	0.000	400.000	808.000	0.000	459.500	808.500
BT	806.000	460.000	808.500	807.250	461.000	808.500	807.500	462.000	808.500	807.250
BT	462.500	808.500	806.000	500.000	807.700	0.000	550.000	810.500	0.000	600.000
BT	813.300	0.000	650.000	819.800	0.000	700.000	824.800	0.000	0.000	0.000
GR	826.400	0.000	824.700	50.000	822.400	100.000	819.900	150.000	817.100	200.000
GR	815.400	250.000	812.000	300.000	810.000	350.000	808.000	400.000	806.000	459.500
GR	805.000	460.000	804.500	461.000	805.000	462.000	806.000	462.500	807.700	500.000
GR	810.500	550.000	813.300	600.000	819.800	650.000	824.800	700.000	0.000	0.000

SECTION G, FABRICATED VALLEY SECTION

X1	4.300	17.000	142.000	150.000	500.000	575.000	625.000	0.000	0.000	0.000
GR	820.000	0.000	818.000	35.000	816.000	80.000	814.000	90.000	812.000	100.000
GR	810.000	110.000	808.300	132.000	807.800	142.000	807.100	145.000	807.800	150.000
GR	808.000	155.000	810.000	165.000	812.000	230.000	814.000	370.000	816.000	391.000
GR	818.000	415.000	820.000	425.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION H, FABRICATED VALLEY SECTION

X1	4.500	14.000	243.000	265.000	200.000	200.000	210.000	0.000	0.000	0.000
GR	826.000	0.000	822.000	100.000	820.000	135.000	816.000	165.000	812.000	195.000
GR	810.000	245.000	808.300	255.000	810.000	265.000	812.000	295.000	814.000	305.000
GR	816.000	325.000	818.000	340.000	820.000	350.000	830.000	375.000	0.000	0.000

SECTION I, SURVEYED VALLEY SECTION

X1	5.000	22.000	347.000	359.000	800.000	925.000	1050.000	0.000	0.000	0.000
GR	825.700	0.000	824.800	50.000	824.900	100.000	824.700	150.000	823.700	200.000
GR	821.600	250.000	816.700	300.000	814.000	347.000	812.600	348.000	812.000	353.000
GR	812.600	358.000	813.700	359.000	821.700	381.000	821.700	389.000	818.000	400.000
GR	818.000	520.000	816.900	550.000	820.200	600.000	821.200	650.000	823.300	700.000
GR	824.500	750.000	825.700	800.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION J, FABRICATED VALLEY SECTION

X1	5.500	17.000	480.000	500.000	575.000	625.000	600.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	70.000	826.000	280.000	824.000	340.000	822.000	360.000
GR	820.000	380.000	818.000	420.000	816.000	480.000	815.500	490.000	816.000	500.000
GR	818.000	505.000	820.000	515.000	822.000	530.000	824.000	850.000	826.000	950.000
GR	828.000	1145.000	830.000	1295.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION K, FABRICATED VALLEY SECTION

X1	5.700	12.000	165.000	170.000	725.000	625.000	750.000	0.000	0.000	0.000
GR	824.000	0.000	822.000	22.000	820.000	108.000	818.000	160.000	817.800	165.000
GR	817.300	168.000	817.800	170.000	813.000	180.000	820.000	189.000	822.000	193.000
GR	824.000	205.000	826.000	220.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION L, FABRICATED VALLEY SECTION

X1	5.800	15.000	174.000	182.000	750.000	610.000	850.000	0.000	0.000	0.000
GR	828.000	0.000	826.000	90.000	824.000	100.000	822.000	130.000	820.000	170.000
GR	819.700	174.000	819.200	177.000	819.200	179.000	819.700	182.000	820.000	190.000
GR	822.000	205.000	824.000	330.000	826.000	430.000	828.000	475.000	830.000	510.000
NC	.030	.030	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.900	16.000	652.000	660.000	225.000	300.000	275.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	170.000	828.000	200.000	828.000	390.000	826.000	480.000
GR	826.000	500.000	826.000	526.000	824.000	640.000	822.000	647.000	820.300	652.000
GR	820.300	661.000	822.000	665.000	824.000	672.000	826.000	715.000	828.000	760.000
GR	830.000	885.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF PHILWOOD DRIVE, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

BADLY ERODED AROUND WINGWALLS

SECTION M

X1	6.000	23.000	1099.000	1109.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	836.600	0.000	832.100	100.000	830.800	200.000	830.300	300.000	829.900	400.000
GR	828.700	500.000	828.800	600.000	829.300	700.000	829.300	800.000	826.400	900.000
GR	825.100	1000.000	825.200	1094.000	820.500	1098.900	820.500	1099.000	820.500	1103.800
GR	820.500	1104.200	821.100	1109.000	821.400	1109.100	824.300	1124.000	827.200	1200.000
GR	829.300	1300.000	831.300	1400.000	834.800	1500.000	0.000	0.000	0.000	0.000
NH	3.000	.035	1098.000	.100	1128.000	.030	1500.000	0.000	0.000	0.000
SB	0.000	2.010	3.010	0.000	10.000	0.000	28.500	0.000	820.100	820.500

SECTION N, U/S FACE OF PHILWOOD DRIVE

X1	6.040	23.000	1103.000	1113.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	823.600	826.100	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1062.000	0.000	1155.000	0.000	0.000	0.000	0.000
BT	10.000	1062.000	826.100	0.000	1102.900	826.100	0.000	1103.000	826.100	823.600
BT	1107.800	826.100	823.600	1107.800	826.100	820.100	1108.200	826.100	820.100	1108.200
BT	825.100	823.600	1113.000	826.100	823.600	1113.100	826.100	0.000	1155.000	826.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	836.600	0.000	832.100	100.000	830.800	200.000	830.300	300.000	829.900	400.000
GR	828.700	500.000	828.800	600.000	829.300	700.000	829.300	800.000	826.400	900.000
GR	826.100	1000.000	824.800	1098.000	821.100	1102.900	821.200	1103.000	820.100	1107.800
GR	820.100	1108.200	821.200	1113.000	821.100	1113.100	824.400	1128.000	827.300	1200.000
GR	829.300	1300.000	831.300	1400.000	834.800	1500.000	0.000	0.000	0.000	0.000
X1	6.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.210	0.000
NH	5.000	.035	187.000	.100	330.000	.090	340.000	.100	380.000	.035
NH	490.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.500	12.000	330.000	340.000	260.000	325.000	590.000	0.000	0.000	0.000
GR	829.500	0.000	828.000	140.000	826.000	187.000	824.000	325.000	823.000	330.000
GR	821.440	331.000	821.440	339.000	823.000	340.000	824.000	350.000	826.000	380.000
GR	828.000	451.000	834.000	490.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	290.000	.100	420.000	.090	430.000	.100	450.000	.035
NH	785.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	6.900	12.000	420.000	430.000	329.000	424.000	409.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	365.000	0.000	465.000	0.000	0.000	0.000	0.000
GR	829.500	0.000	828.000	225.000	826.000	290.000	826.000	390.000	824.500	420.000
GR	822.390	421.000	822.390	429.000	824.500	430.000	826.000	450.000	829.000	609.000
GR	830.000	685.000	836.000	785.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	3.000	.035	600.000	.100	700.000	.035	1100.000	0.000	0.000	0.000
X1	7.000	26.000	622.000	642.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	239.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	827.700	0.000	827.700	100.000	829.000	200.000	829.300	239.000	829.200	300.000
GR	829.100	350.000	826.800	400.000	828.400	450.000	828.200	500.000	828.400	550.000
GR	828.700	600.000	827.100	622.000	823.900	627.000	823.870	627.100	822.500	631.670
GR	822.500	631.680	822.500	631.900	822.500	632.000	824.660	636.900	824.700	637.000
GR	826.900	642.000	828.600	700.000	829.060	800.000	830.350	900.000	831.930	1000.000
GR	835.040	1100.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.015	.015	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000

726-05

726

D/S FACE OF LAWRENCE PARKWAY, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

SECTION O

X1	7.010	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	600.000	0.000	682.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	827.700	0.000	100.000	827.700	0.000	200.000	829.000	0.000
BT	239.000	829.300	0.000	300.000	829.200	0.000	350.000	829.100	0.000	400.000
BT	828.800	0.000	450.000	828.400	0.000	500.000	828.200	0.000	550.000	828.400
BT	0.000	600.000	828.400	0.000	627.000	828.570	823.900	627.100	828.580	826.700
BT	631.670	828.570	822.500	631.680	828.600	826.700	631.900	828.600	826.700	632.000
BT	828.600	822.500	636.900	828.480	826.700	637.000	828.470	824.700	650.000	828.150
BT	0.000	700.000	828.540	0.000	800.000	829.060	0.000	900.000	830.350	0.000
BT	1000.000	831.930	0.000	1100.000	835.040	0.000	0.000	0.000	0.000	0.000
X1	7.090	0.000	0.000	0.000	31.000	31.000	31.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	577.000	0.000	713.000	0.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.040	.040	.030	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	7.100	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	576.000	0.000	714.000	0.000	0.000	0.000	0.000
NC	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.000	27.000	378.500	889.500	278.000	293.000	298.000	0.000	0.000	0.000
GR	836.000	0.000	834.000	127.000	832.000	190.000	830.000	310.000	828.000	430.000
GR	826.600	550.000	827.700	630.000	827.700	680.000	828.500	730.000	826.000	780.000
GR	827.500	830.000	826.500	875.000	824.000	878.500	823.300	878.600	823.300	884.000
GR	823.300	889.400	824.000	889.500	826.400	894.000	827.500	930.000	827.000	980.000
GR	828.300	1030.000	826.100	1080.000	829.100	1130.000	829.500	1180.000	830.600	1230.000
GR	832.200	1280.000	833.700	1330.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.020	.020	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF FOOT BRIDGE, CONCRETE BOX CULVERT, NO WINGWALLS

SECTION P

X1	8.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

BT	8.000	830.000	827.500	0.000	878.500	827.690	824.000	878.600	827.690	826.600
BT	884.000	827.700	826.600	889.400	827.700	826.600	889.500	827.700	824.000	930.000
BT	827.700	0.000	980.000	827.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.090	0.000	0.000	0.000	11.000	11.000	11.000	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	.070	.070	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
QT	4.000	250.000	365.000	430.000	550.000	0.000	0.000	0.000	0.000	0.000
NC	.085	.085	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION Q, FABRICATED VALLEY SECTION

X1	8.500	11.000	720.000	745.000	638.000	338.000	538.000	0.000	0.000	0.000
GR	834.000	0.000	832.000	230.000	830.000	450.000	828.000	655.000	826.000	720.000
GR	823.900	735.000	826.000	745.000	828.000	940.000	830.000	1000.000	832.000	1025.000
GR	834.000	1270.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION R, FABRICATED VALLEY SECTION

X1	8.600	10.000	225.000	240.000	270.000	425.000	380.000	0.000	0.000	0.000
GR	832.000	0.000	830.000	100.000	828.000	198.000	826.100	225.000	824.290	227.000
GR	824.290	236.000	826.100	240.000	828.000	260.000	830.000	460.000	832.000	510.000

SECTION S, FABRICATED VALLEY SECTION

X1	8.700	10.000	200.000	210.000	430.000	370.000	460.000	0.000	0.000	0.000
GR	830.600	0.000	830.000	95.000	828.100	200.000	824.790	201.000	824.790	209.000
GR	828.100	210.000	830.000	280.000	832.000	315.000	834.000	340.000	836.000	375.000

SECTION T, FABRICATED VALLEY SECTION

X1	8.800	15.000	825.000	833.000	255.000	255.000	255.000	0.000	0.000	0.000
GR	840.000	0.000	835.000	100.000	836.000	210.000	834.000	250.000	832.000	630.000
GR	830.000	815.000	826.500	825.000	825.100	829.000	828.500	833.000	830.000	850.000
GR	832.000	880.000	834.000	915.000	836.000	950.000	838.000	1050.000	840.000	1125.000

SECTION U, FABRICATED VALLEY SECTION

X1	8.900	14.000	730.000	742.000	275.000	250.000	300.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	1100.000	0.000	0.000	0.000	0.000
GR	840.000	0.000	838.000	30.000	836.000	80.000	834.000	410.000	832.000	570.000
GR	831.000	730.000	825.190	734.000	825.190	738.000	831.000	742.000	832.000	750.000
GR	834.000	805.000	836.000	945.000	838.000	1035.000	840.000	1100.000	0.000	0.000
NC	.090	.090	.060	.300	.500	0.000	0.000	0.000	0.000	0.000

D/S FACE OF SAGINAW HIGHWAY, CONCRETE BOX CULVERT, 45 DEG. WINGWALLS

SECTION V

X1	9.000	20.000	743.000	757.000	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	836.020	836.020	0.000

GR	840.410	0.000	839.840	50.000	839.080	100.000	837.600	150.000	835.600	350.000
GR	832.600	550.000	833.000	729.000	833.500	743.000	830.100	745.740	825.600	745.750
GR	825.600	745.760	825.600	750.000	825.600	754.240	825.600	754.250	830.100	754.260
GR	833.500	757.000	830.600	767.000	834.900	900.000	838.200	1100.000	841.100	1300.000
NH	5.000	.030	729.000	.100	743.000	.060	757.000	.100	900.000	.040
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.590	2.900	0.000	8.500	0.000	59.500	0.000	825.600	825.600

U/S FACE OF SAGINAW HIGHWAY

SECTION W

X1	9.090	0.000	0.000	0.000	79.000	79.000	79.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	832.660	836.020	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	836.020	836.020	0.000
BT	26.000	0.000	840.410	0.000	50.000	839.840	0.000	100.000	839.080	0.000
BT	150.000	838.560	0.000	200.000	837.930	0.000	250.000	837.360	0.000	300.000
BT	837.010	0.000	350.000	836.680	0.000	400.000	836.300	0.000	450.000	836.140
BT	0.000	500.000	836.020	0.000	700.000	836.460	0.000	745.740	836.750	830.100
BT	745.750	836.750	832.660	745.760	836.750	832.660	750.000	836.780	832.660	754.240
BT	836.790	832.660	754.250	836.790	832.660	754.260	836.790	830.100	800.000	836.940
BT	0.000	850.000	837.410	0.000	900.000	837.840	0.000	950.000	838.340	0.000
BT	1000.000	839.030	0.000	1050.000	839.700	0.000	1100.000	840.460	0.000	0.000
NC	.100	.100	.070	.100	.300	0.000	0.000	0.000	0.000	0.000

SECTION X, FABRICATED VALLEY SECTION

X1	9.200	14.000	755.000	770.000	49.000	49.000	49.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	735.000	0.000	820.000	0.000	0.000	0.000	0.000
GR	840.000	0.000	833.000	170.000	836.000	380.000	834.000	725.000	832.000	745.000
GR	831.000	755.000	825.800	760.000	825.800	765.000	831.000	770.000	832.000	800.000
GR	834.000	945.000	836.000	990.000	833.000	1095.000	840.000	1160.000	0.000	0.000

X1	9.300	0.000	0.000	0.000	200.000	200.000	200.000	0.000	.800	0.000

SECTION Y, FABRICATED VALLEY SECTION

X1	10.000	19.000	970.000	990.000	1200.000	1250.000	1370.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	650.000	0.000	1390.000	0.000	0.000	0.000	0.000
GR	846.000	0.000	840.000	65.000	838.000	105.000	838.000	180.000	840.000	220.000
GR	840.000	310.000	838.000	415.000	836.000	480.000	834.000	810.000	833.000	970.000
GR	832.000	980.000	833.000	990.000	834.000	1045.000	836.000	1090.000	836.000	1170.000
GR	840.000	1210.000	842.000	1255.000	844.000	1315.000	846.000	1390.000	0.000	0.000

X1	10.500	14.000	392.000	404.000	940.000	850.000	1160.000	0.000	0.000	0.000
GR	844.000	0.000	842.000	60.000	840.000	218.000	838.000	250.000	836.000	290.000
GR	835.000	392.000	833.350	396.000	833.350	400.000	835.000	404.000	836.000	445.000
GR	838.000	700.000	840.000	725.000	842.000	870.000	844.000	895.000	0.000	0.000

SECTION Z, SURVEYED VALLEY SECTION

X1	11.000	16.000	586.000	608.000	500.000	525.000	640.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	576.000	0.000	1000.000	0.000	0.000	0.000	0.000
GR	844.800	0.000	844.600	100.000	843.700	200.000	842.500	300.000	839.000	400.000
GR	842.400	500.000	842.800	576.000	835.400	586.000	834.100	591.000	835.400	608.000

GR	841.500	630.000	842.900	656.000	843.600	700.000	844.100	800.000	844.500	900.000
GR	844.000	1000.000	3.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.030	.040	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	4.000	150.000	220.000	265.000	340.000	0.000	0.000	0.000	0.000	0.000

O/S FACE OF ROCKBRIDGE ROAD, 6 FT, DIAM CMP (1/2), PROJECTING INLET

PAVED ROADWAY

SECTION AA

X1	12.000	21.000	673.000	679.000	150.000	150.000	150.000	0.000	0.000	0.000
GR	850.100	0.000	847.800	100.000	846.800	200.000	844.900	300.000	842.100	400.000
GR	840.800	500.000	840.000	600.000	839.900	658.000	838.200	663.000	835.200	672.000
GR	835.100	673.000	832.600	674.000	832.100	676.000	832.600	678.000	835.100	679.000
GR	835.200	683.000	839.000	687.000	840.400	700.000	842.900	800.000	846.800	900.000
GR	850.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.650	3.010	0.000	6.000	0.000	28.270	0.000	832.600	832.100

U/S FACE OF ROCKBRIDGE ROAD, SECTION AB

X1	12.000	17.000	654.000	660.000	83.000	83.000	83.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	838.600	840.000	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	850.100	0.000	100.000	847.800	0.000	200.000	846.300	0.000
BT	300.000	844.900	0.000	400.000	842.100	0.000	500.000	840.800	0.000	600.000
BT	840.000	0.000	654.000	839.900	835.600	655.000	839.900	838.100	657.000	839.900
BT	838.600	659.000	839.900	838.100	660.000	839.900	835.600	700.000	840.400	0.000
BT	800.000	842.900	0.000	900.000	846.800	0.000	1000.000	850.400	0.000	0.000
GR	850.100	0.000	847.800	100.000	846.800	200.000	844.900	300.000	842.100	400.000
GR	840.800	500.000	840.000	600.000	835.600	654.000	838.100	655.000	832.600	657.000
GR	838.100	659.000	835.600	660.000	840.400	700.000	842.900	800.000	846.800	900.000
GR	846.800	900.000	850.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION AC, SURVEYED VALLEY SECTION

X1	13.000	16.000	268.000	279.000	2050.000	2350.000	2050.000	0.000	0.000	0.000
GR	850.100	0.000	846.800	47.000	845.600	100.000	844.200	200.000	844.000	216.000
GR	845.000	216.000	845.100	239.000	842.900	260.000	838.100	268.000	837.000	274.000
GR	838.100	279.000	842.100	290.000	843.300	300.000	846.100	400.000	846.100	500.000
GR	850.100	560.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.030	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE OF ST. JOE HIGHWAY, 4 FT. DIAM. CMP (1/2IN.), SANDBAG WINGWALLS

PAVED ROADWAY

SECTION AD

X1	14.000	18.000	244.000	248.000	650.000	650.000	650.000	0.000	0.000	0.000
GR	850.000	0.000	849.400	100.000	849.500	200.000	840.400	244.000	838.900	244.500
GR	838.400	246.000	838.900	247.500	840.400	248.000	847.700	300.000	847.700	400.000
GR	847.800	500.000	847.900	600.000	848.100	700.000	848.200	800.000	848.500	900.000
GR	848.900	1000.000	849.400	1100.000	850.600	1200.000	0.000	0.000	0.000	0.000
SB	0.000	2.480	3.020	0.000	4.000	0.000	12.570	0.000	838.400	838.400

U/S FACE OF ST. JOE HIGHWAY, SECTION AE

X1	14.090	0.000	0.000	0.000	60.000	60.000	60.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	842.400	847.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	400.000	0.000	0.000	0.000	0.000
BT	11.000	0.000	850.000	0.000	100.000	849.400	0.000	200.000	848.500	0.000
BT	244.000	848.000	840.400	244.500	848.030	841.900	246.000	848.020	842.400	247.500
BT	848.000	841.900	248.000	847.990	840.400	257.000	847.900	0.000	300.000	847.700
BT	0.000	401.010	847.700	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= .300 CEHV= .500

*SECNO .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
.90	5.07	796.49	0.00	797.00	797.00	.52	0.00	0.00	792.92
635.	15.	339.	281.	7.	44.	139.	0.	0.	792.92
0.00	2.02	7.65	2.03	.080	.045	.080	0.000	791.42	240.92
.008010	0.	0.	0.	0	0	6	0.00	130.35	371.27

*SECNO .910

.91	5.07	796.89	0.00	0.00	797.40	.51	.40	.00	793.32
635.	15.	339.	281.	7.	44.	139.	0.	0.	793.32
.00	2.02	7.65	2.03	.080	.045	.080	.044	791.62	240.92
.008004	50.	50.	50.	0	0	0	0.00	130.35	371.27

*SECNO .920

.92	5.07	797.29	0.00	0.00	797.80	.51	.40	.00	793.72
635.	15.	339.	281.	7.	44.	139.	0.	0.	793.72
.01	2.02	7.64	2.03	.080	.045	.080	.044	792.22	240.92
.007996	50.	50.	50.	0	0	0	0.00	130.35	371.27

*SECNO .990

.99	5.14	798.64	0.00	0.00	798.90	.27	1.02	.07	795.00
635.	12.	259.	365.	8.	45.	147.	1.	1.	795.00
.02	1.53	5.75	2.49	.080	.045	.050	.042	793.50	240.85
.004446	165.	160.	190.	2	0	0	0.00	130.61	371.45

*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
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.00	4.81	799.11	0.00	0.00	799.58	.47	.58	.10	795.80
635.	12.	308.	315.	6.	42.	109.	2.	1.	795.80
.02	1.91	7.32	2.88	.080	.045	.050	.043	794.30	241.21
.007861	100.	100.	100.	2	0	0	0.00	129.40	370.61

*SECNO 1.010

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= 17 MIN ELTRD= 798.50 MAX ELLC= 800.30

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3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

        D/S FACE OF DRIVEWAY CULVERT, 9 BY 5.8 FT. CMP ARCH (2 IN.), 31 FT. LONG


                PAVED ROADWAY


        SECTION A

     1.01       4.98     799.28     799.28       0.00     799.82       .54        .01        .03     795.80
      635.         0.        261.       374.         0.       39.       71.         2.         1.      795.80
       .02       0.00       6.62       5.30       .015       .031       .015       .043     794.30     241.02
  .004764          1.         1.         1.         20         16          0     -69.49     130.03     371.05


*SECNO 1.090

337J NORMAL BRIDGE,NRO= 17 MIN ELTRD=   798.50 MAX ELLC=   800.30


        U/S FACE OF DRIVEWAY CULVERT

     1.09       5.40     799.71       0.00       0.00     799.98       .28        .08        .03     795.80
      635.         0.        173.       462.         0.       42.      109.         2.         1.      795.80
       .03       0.00       4.15       4.25       .015       .031       .015       .042     794.30     240.54
  .001732         30.        30.        30.          4          0          0     -83.59     131.61     372.15


*SECNO 1.100
     1.10       5.63     799.93       0.00       0.00     800.03       .10        .00        .05     795.80
      635.        19.       174.       442.         10.       49.      206.         2.         1.      795.80
       .03       1.91       3.53       2.15       .040       .045       .040       .042     794.30     240.28
  .001473          1.         1.         1.          2          0          0       0.00     132.48     372.76


*SECNO 1.200
     1.20       5.31     799.91       0.00       0.00     800.14       .24        .05        .07     796.00
      635.        22.       433.       179.         10.       97.       80.         2.         1.      796.00
       .03       2.35       4.46       2.25       .040       .045       .040       .042     794.60      15.12
  .002283         25.        25.        25.          2          0          0       0.00      92.02     107.14


*SECNO 1.800
   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

     1.80       4.85     799.95       0.00       0.00     800.68       .73        .29        .25     796.00
      635.        64.       452.       118.         23.       57.       50.         2.         1.      796.00
       .03       2.83       7.96       2.37       .070       .045       .070       .042     795.10      23.48
  .007745         75.        75.        75.          2          0          0       0.00      64.56      88.04


*SECNO 1.900
     1.90       4.96     803.65       0.00       0.00     804.13       .47       3.37       .08     799.80
      635.       307.       185.       143.         71.       24.       37.         3.         2.      799.80
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flow through culvert should be $Q_{CH\ (culvert)} \approx$ the same

.05	4.32	7.82	3.88	.070	.045	.070	.045	798.70	13.47
.008931	360.	450.	365.	3	0	0	0.00	44.41	57.88

*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

2.00	4.63	803.73	0.00	0.00	805.26	1.52	.60	.53	800.70
635.	0.	635.	0.	0.	64.	0.	3.	2.	800.70
.05	0.00	9.91	0.00	.070	.045	.070	.045	799.10	430.00
.018117	40.	50.	60.	2	0	0	0.00	14.00	444.00

*SECNO 2.010

3370 NORMAL BRIDGE,NRD= 21 MIN ELTRD= 806.44 MAX ELLC= 807.70

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

D/S FACE OF WILLOW HIGHWAY, 14 BY 8.6 FT. CMP ARCH (2 IN.), 54 FT. LONG

PAVED ROADWAY

SECTION B

2.01	4.58	803.68	0.00	0.00	805.31	1.62	0.00	.05	800.70
635.	0.	635.	0.	0.	62.	0.	3.	2.	800.70
.05	0.00	10.23	0.00	.015	.030	.015	.045	799.10	430.00
.009788	1.	0.	1.	2	0	0	-13.16	14.00	444.00

8930,RDST NOT ON GR CARD 50.00
8930,RDST NOT ON GR CARD 150.00
8930,RDST NOT ON GR CARD 250.00
8930,RDST NOT ON GR CARD 350.00
*SECNO 2.090

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 806.44 MAX ELLC= 807.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

U/S FACE OF WILLOW HIGHWAY

SECTION C

2.09	5.47	804.67	0.00	0.00	805.86	1.19	.42	.13	800.80
635.	0.	635.	0.	0.	73.	0.	4.	2.	800.60
.06	0.00	8.75	0.00	.015	.030	.015	.045	799.20	451.00
.006658	53.	53.	53.	2	0	0	-12.36	14.00	465.00

8930,RDST NOT ON GR CARD 50.00
8930,RDST NOT ON GR CARD 150.00
8930,RDST NOT ON GR CARD 250.00
8930,RDST NOT ON GR CARD 350.00
8930,RDST NOT ON GR CARD 450.00

*SECNO 2.100

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 812.30 ELREA= 813.00

2.10	5.74	804.94	0.00	0.00	805.93	.99	.01	.06	800.80
635.	0.	635.	0.	0.	80.	0.	4.	2.	800.60
.06	0.00	7.99	0.00	.065	.040	.065	.045	799.20	451.00
.007375	1.	1.	1.	2	0	0	0.00	14.00	465.00

*SECNO 3.000

3301 HV CHANGED MORE THAN HVINS

SECTION D, FABRICATED VALLEY SECTION

3.00	5.74	806.74	0.00	0.00	806.89	.15	.70	.25	802.00
635.	306.	296.	33.	164.	73.	23.	5.	2.	802.00
.08	1.87	4.03	1.46	.065	.040	.065	.044	801.00	223.91
.001313	260.	275.	250.	2	0	0	0.00	83.87	307.77

*SECNO 3.500

SECTION E, FABRICATED VALLEY SECTION

3.50	4.71	807.41	0.00	0.00	807.56	.14	.67	.00	803.50
495.	19.	195.	281.	12.	45.	168.	7.	3.	803.50
.13	1.55	4.35	1.67	.065	.040	.065	.043	802.70	148.87
.001937	400.	460.	425.	2	0	0	0.00	119.48	268.35

*SECNO 3.900

3.90	3.73	808.03	0.00	0.00	808.54	.51	.80	.18	805.50
495.	75.	269.	152.	27.	36.	66.	8.	4.	805.50
.14	2.75	7.42	2.28	.065	.040	.065	.044	804.30	389.58
.008274	324.	274.	159.	2	0	0	0.00	92.95	482.53

*SECNO 4.000

D/S FACE OF FARM LANE BRIDGE, 3 FT. DIAM. CMP (1/2 IN.), 12 FT. LONG

GRAVEL ROADWAY

SECTION F

4.00	3.94	808.49	808.41	0.00	808.98	.54	.42	.01	807.40
495.	71.	342.	82.	42.	49.	39.	8.	4.	807.00
.14	1.69	6.96	2.12	.065	.040	.065	.044	804.50	388.88
.008703	50.	50.	50.	4	8	0	0.00	124.41	513.30

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.05	0.00	3.00	0.00	7.07	0.00	804.40	804.50

*SECNO 4.090

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
975.52	808.88	0.00	460.	35.	7.	9.	807.40	807.70

4.09	4.74	809.24	0.00	0.00	809.29	.06	.31	0.00	806.00
495.	262.	40.	193.	152.	13.	111.	8.	4.	806.00
.14	1.72	3.14	1.74	.065	.045	.065	.044	804.50	359.04
.002252	13.	13.	13.	2	0	12	0.00	158.44	527.47

*SECNO 4.300

SECTION G, FABRICATED VALLEY SECTION

4.30	3.86	810.96	0.00	0.00	811.19	.23	1.81	.09	807.80
495.	222.	154.	119.	76.	28.	50.	11.	5.	807.80
.19	2.91	5.49	2.39	.065	.045	.065	.045	807.10	105.19
.015285	500.	625.	575.	3	0	0	0.00	91.04	196.23

*SECNO 4.500

SECTION H, FABRICATED VALLEY SECTION

4.50	3.81	812.11	0.00	0.00	812.42	.32	1.19	.04	810.00
495.	109.	320.	65.	56.	59.	33.	11.	6.	810.00
.20	1.96	5.41	1.96	.065	.045	.065	.045	808.30	194.18
.006446	200.	210.	200.	2	0	0	0.00	101.37	295.55

*SECNO 5.000

SECTION I, SURVEYED VALLEY SECTION

5.00	5.04	817.04	0.00	0.00	817.34	.31	4.92	.00	814.00
495.	165.	300.	30.	80.	55.	15.	14.	8.	813.70
.26	2.06	5.45	1.98	.065	.045	.065	.046	812.00	296.55

.004100	800.	1050.	925.	4	0	0	0.00	71.63	368.18

*SECNO 5.500

SECTION J, FABRICATED VALLEY SECTION

5.50	3.59	819.09	0.00	0.00	819.21	.12	1.81	.06	816.00
495.	236.	239.	20.	137.	67.	13.	17.	9.	816.00
.33	1.72	3.53	1.51	.065	.045	.065	.046	815.50	398.27
.002363	575.	600.	625.	3	0	0	0.00	112.16	510.43

*SECNO 5.700

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

SECTION K, FABRICATED VALLEY SECTION

5.70	3.77	821.07	0.00	0.00	821.17	.10	1.96	.00	817.80
495.	292.	75.	128.	148.	18.	52.	21.	11.	817.80
.41	1.97	4.27	2.49	.065	.045	.065	.046	817.30	61.91
.003202	725.	750.	625.	2	0	0	0.00	129.24	191.14

*SECNO 5.900

SECTION L, FABRICATED VALLEY SECTION

5.80	3.96	823.16	0.00	0.00	823.26	.10	2.08	.00	819.70
495.	209.	122.	164.	110.	30.	101.	24.	13.	819.70
.50	1.91	4.03	1.63	.065	.045	.065	.047	819.20	112.61
.002569	750.	850.	610.	2	0	0	0.00	164.85	277.46

*SECNO 5.900

3301 HV CHANGED MORE THAN HVINS

5.90	3.59	823.89	0.00	0.00	824.71	.81	1.09	.36	820.30
495.	138.	219.	136.	20.	29.	20.	25.	14.	820.30
.51	6.89	7.62	6.89	.030	.040	.030	.047	820.30	640.37
.007642	225.	275.	300.	2	0	0	0.00	31.26	671.63

*SECNO 6.000

D/S FACE OF PHILWOOD DRIVE, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

BADLY ERODED AROUND WINGWALLS

SECTION M

6.00	3.75	824.25	0.00	0.00	825.22	.97	.44	.08	820.50
495.	49.	315.	131.	8.	36.	21.	25.	14.	821.10

.51	6.36	8.73	6.19	.030	.040	.030	.047	820.50	1094.99
.010037	50.	50.	50.	2	0	0	0.00	28.75	1123.75

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.01	3.01	0.00	10.00	0.00	28.50	0.00	820.10	820.50

*SECNO 6.040

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

Weir width = 93 ft

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.66	825.38	0.00	224.	272.	29.	35.	823.60	826.10

3470 ENCROACHMENT STATIONS= 1062.0 1155.0 TYPE= 1 TARGET= 93.000

SECTION N,U/S FACE OF PHILWOOD DRIVE

6.04	6.94	827.04	0.00	0.00	827.09	.05	1.87	0.00	821.20
495.	172.	133.	220.	93.	64.	121.	25.	14.	821.20
.51	1.85	1.61	1.82	.043	.100	.055	.047	820.10	1062.00
.001015	32.	32.	32.	2	0	5	0.00	93.00	1155.00

8930,RDST NOT ON GR CARD 1061.99

*SECNO 6.200

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	XLOSL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
6.20	6.84	827.15	0.00	0.00	827.17	.02	.07	.01	821.41
495.	258.	73.	164.	240.	63.	143.	26.	14.	821.41
.54	1.07	1.16	1.14	.039	.100	.054	.047	820.31	881.35
.000539	100.	100.	100.	2	0	0	0.00	309.73	1191.08

1490 NH CARD USED

*SECNO 6.300

6.50	5.94	827.38	0.00	0.00	827.39	.01	.22	.00	823.00
495.	290.	79.	126.	370.	58.	143.	30.	16.	823.00
.64	.78	1.37	.88	.095	.090	.064	.048	821.44	154.65
.000820	260.	590.	325.	2	0	0	0.00	273.54	426.18

1490 NH CARD USED

*SECNO 6.900

3470 ENCROACHMENT STATIONS= 365.0 465.0 TYPE= 1 TARGET= 100.000

6.90	5.51	827.90	0.00	0.00	827.96	.06	.55	.03	824.50

495.	188.	130.	177.	127.	53.	80.	33.	16.	824.50
.69	1.48	2.45	2.21	.100	.090	.067	.048	822.39	365.00
.003282	329.	409.	424.	2	0	0	0.00	100.00	465.00

1490 NH CARD USED
*SECNO 7.000

3470 ENCROACHMENT STATIONS= 239.0 1100.0 TYPE= 1 TARGET= 861.000

7.00	5.55	828.05	0.00	0.00	828.59	.54	.39	.24	827.10
495.	11.	439.	45.	6.	71.	23.	34.	18.	826.90
.69	1.74	6.21	1.98	.100	.106	.100	.048	822.50	608.92
.037135	50.	50.	50.	2	0	0	0.00	72.37	681.29

*SECNO 7.010

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= 25 MIN ELTRD= 827.70 MAX ELLC= 826.70

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 608.0 682.0 TYPE= 1 TARGET= 74.000

D/S FACE OF LAWRENCE PARKWAY, WOODEN BOX CULVERT, 45 DEG. WINGWALLS

SECTION 0

7.01	6.84	829.34	829.34	0.00	829.95	.61	.01	.04	827.10
495.	71.	151.	263.	12.	29.	39.	34.	18.	826.90
.69	5.99	5.50	6.79	.015	.018	.015	.048	822.50	608.00
.005129	1.	1.	1.	20	13	0	-115.12	74.00	682.00

6930,RDST NOT ON GR. CARD 650.00
*SECNO 7.090

3301 HV CHANGED MORE THAN HVINS

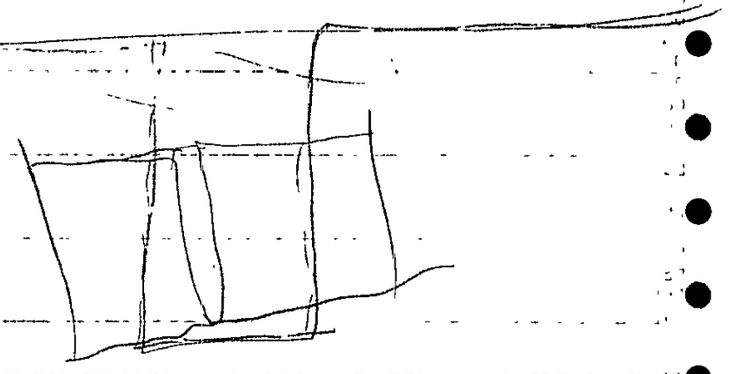
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD= 827.70 MAX ELLC= 826.70

3470 ENCROACHMENT STATIONS= 577.0 713.0 TYPE= 1 TARGET= 136.000

7.09	7.56	830.06	0.00	0.00	830.14	.08	.03	.16	827.10
495.	146.	811.	268.	64.	44.	110.	34.	18.	826.90
.70	2.27	1.85	2.43	.015	.018	.015	.047	822.50	577.00

Possibly wider



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 .000340      31.       31.       31.        3         0         0  -125.03   136.00   713.00

8930,RDST NOT ON GR CARD     650.00
CCHV=     .100 CEHV=     .300
*SECNO 7.100

3470 ENCROACHMENT STATIONS=      576.0      714.0  TYPE=      1  TARGET=      138.000
     7.10      7.59    830.09      0.00      0.00    830.14       .05       .00       .00    827.10
     495.       75.      262.      158.       83.      112.      156.       34.       18.    326.90
      .70       .90      2.35      1.01      .040      .030      .040      .047    822.50    576.00
 .000260        1.        1.        1.         2         0         0      0.00    138.00    714.00

*SECNO 8.000
     8.00      6.87    830.17      0.00      0.00    830.17       .00       .02       .01    824.00
     495.      315.       50.      130.     1432.       76.      642.       42.       21.    824.00
     1.01       .22       .67       .20      .070      .040      .070      .047    823.30    299.67   380
 .000028      278.      298.      293.         1         0         0      0.00    910.88   1210.55   1130
                                                                                  750

*SECNO 8.010

3370 NORMAL BRIDGE,NPD=  8 MIN ELTRD=  827.00 MAX ELLC=  826.60

      D/S FACE OF FOOT BRIDGE, CONCRETE BOX CULVERT, NO WINGWALLS

      SECTION P                                                                  755

     8.01      6.87    830.17      0.00      0.00    830.17       .00       .00       .00    824.00
     495.      351.       13.      132.     1394.       63.      596.       42.       21.    824.00
     1.01       .25       .20       .22      .020      .020      .020      .047    823.30    300.04
 .000003        1.        1.        1.         0         0         0    -90.56    910.24   1210.28

8930,RDST NOT ON GR CARD     829.99
*SECNO 8.090

3370 NORMAL BRIDGE,NPD=  8 MIN ELTRD=  827.00 MAX ELLC=  826.60

     8.09      6.87    830.17      0.00      0.00    830.17       .00       .00       .00    824.00
     495.      351.       13.      132.     1394.       63.      597.       42.       22.    824.00
     1.02       .25       .20       .22      .020      .020      .020      .047    823.30    300.01
 .000003       11.       11.       11.         0         0         0    -90.56    910.29   1210.30
                                                                                  725

8930,RDST NOT ON GR CARD     829.99
*SECNO 8.100
  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS     BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA       LEFT/RIGHT
  TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN     SSTA
  SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

     8.10      6.87    830.17      0.00      0.00    830.17       .00       .00       .00    824.00
     495.      315.       50.      130.     1429.       75.      640.       43.       22.    824.00
     1.02       .22       .67       .20      .070      .040      .070      .047    823.30    300.01
 .000028        1.        1.        1.         0         0         0      0.00    910.28   1210.29
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*SECNO 8.500

SECTION Q, FABRICATED VALLEY SECTION

8.50	6.29	830.19	0.00	0.00	830.19	.00	.02	.00	826.00
430.	117.	83.	231.	451.	131.	691.	63.	31.	826.00
1.40	.26	.63	.33	.085	.065	.085	.048	823.90	430.10
.000086	638.	538.	338.	1	0	0	0.00	572.16	1002.26

*SECNO 8.600

SECTION R, FABRICATED VALLEY SECTION

8.60	5.95	830.24	0.00	0.00	830.26	.02	.06	.00	826.10
430.	129.	133.	168.	209.	86.	313.	71.	34.	826.10
1.51	.62	1.55	.54	.085	.065	.085	.049	824.29	67.86
.000509	270.	380.	425.	2	0	0	0.00	378.20	466.07

*SECNO 8.700
3280 CROSS SECTION 8.70 EXTENDED .00 FEET

SECTION S, FABRICATED VALLEY SECTION

8.70	5.81	830.60	0.00	0.00	830.64	.04	.38	.01	828.10
430.	181.	133.	115.	192.	55.	112.	75.	37.	828.10
1.60	.94	2.43	1.03	.085	.065	.085	.050	824.79	0.00
.001998	430.	460.	370.	2	0	0	0.00	290.58	290.58

*SECNO 8.800

SECTION T, FABRICATED VALLEY SECTION

8.80	6.30	831.40	0.00	0.00	831.55	.15	.87	.03	828.50
430.	158.	164.	107.	112.	37.	51.	77.	39.	828.50
1.62	1.41	4.47	2.09	.085	.065	.085	.051	825.10	685.52
.007179	255.	255.	255.	3	0	0	0.00	185.48	871.00

*SECNO 8.900

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

3470 ENCROACHMENT STATIONS= 700.0 1100.0 TYPE= 1 TARGET= 400.000

SECTION U, FABRICATED VALLEY SECTION

8.90	7.87	833.06	0.00	0.00	833.25	.18	1.69	.01	831.00
430.	110.	287.	33.	59.	71.	28.	78.	40.	831.00
1.65	1.86	4.03	1.19	.085	.065	.085	.051	825.19	700.00
.004996	275.	300.	250.	2	0	0	0.00	79.19	779.19

CCHV= .300 CEHV= .500
*SECNC 9.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.02 ELREA= 836.02

D/S FACE OF SAGINAW HIGHWAY, CONCRETE BOX CULVERT, 45 DEG. WINGWALLS

SECTION V

9.00	8.85	833.65	0.00	0.00	834.11	.46	.72	.14	833.50
430.	0.	430.	0.	0.	79.	0.	78.	40.	833.50
1.65	0.00	5.47	0.00	.090	.060	.090	.051	825.60	743.00
.011449	100.	100.	100.	2	0	0	0.00	14.00	757.00

1490 NH CARD USED

SPECIAL BRIDGE

SB	XK	XKOR	DOFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.99	2.90	0.00	8.50	0.00	59.50	0.00	825.60	825.60

*SECNO 9.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLO	ELTRD
834.94	834.11	0.00	0.	430.	60.	60.	832.66	836.02

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 836.02 ELREA= 836.02

U/S FACE OF SAGINAW HIGHWAY

SECTION W

					835.16				
9.09	9.00	834.60	0.00	0.00	834.94	.34	.83	0.00	833.50
430.	0.	430.	0.	0.	92.	0.	78.	40.	833.50
1.66	0.00	4.68	0.00	.090	.060	.090	.051	825.60	743.00
.007066	79.	79.	79.	2	0	0	0.00	14.00	757.00

8930,RDST NOT ON GR CARD 200.00
8930,RDST NOT ON GR CARD 300.00
8930,RDST NOT ON GR CARD 400.00
8930,RDST NOT ON GR CARD 500.00
CCHV= .100 CEHV= .300
*SECNO 9.200

3470 ENCROACHMENT STATIONS= 705.0 820.0 TYPE= 1 TARGET= 115.000

SECTION X, FABRICATED VALLEY SECTION

9.20	9.22	835.02	0.00	0.00	835.05	.03	.09	.03	831.00

430.	69.	215.	146.	95.	112.	163.	79.	40.	831.00
1.67	.72	1.92	.90	.100	.070	.100	.052	825.80	705.00
.003787	49.	49.	49.	2	0	0	0.00	115.00	820.00

*SECNO 9.300

9.30	8.59	835.19	0.00	0.00	835.22	.03	.17	.00	831.80
430.	43.	198.	189.	70.	103.	290.	81.	41.	831.80
1.71	.62	1.92	.65	.100	.070	.100	.052	826.60	657.53
.009867	200.	200.	200.	2	0	0	0.00	296.27	953.80

*SECNO 10.000

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

3470 ENCROACHMENT STATIONS= 650.0 1390.0 TYPE= 1 TARGET= 740.000

SECTION Y, FABRICATED VALLEY SECTION

10.30	3.92	835.92	0.00	0.00	835.93	.00	.70	.00	833.00
430.	285.	64.	81.	615.	68.	174.	99.	51.	833.00
2.37	.46	.94	.46	.100	.070	.100	.055	832.00	650.00
.000380	1200.	1370.	1250.	2	3	0	0.00	438.08	1088.08

*SECNO 10.500

10.50	3.45	836.83	0.00	0.00	836.90	.07	.95	.02	835.00
430.	202.	119.	109.	143.	35.	100.	112.	59.	835.00
2.51	1.41	3.37	1.10	.100	.070	.100	.057	833.35	273.25
.006433	940.	1160.	850.	2	0	0	0.00	278.52	551.77

*SECNO 11.000

3470 ENCROACHMENT STATIONS= 576.0 1000.0 TYPE= 1 TARGET= 424.000

SECTION Z, SURVEYED VALLEY SECTION

11.00	5.40	839.50	0.00	0.00	839.68	.18	2.75	.03	835.40
430.	14.	373.	43.	11.	105.	30.	114.	61.	835.40
2.56	1.24	3.57	1.40	.100	.070	.100	.058	834.10	590.46
.003587	500.	640.	525.	3	0	0	0.00	42.34	622.80

CCHV= .300 CEHV= .500

*SECNO 12.000

D/S FACE OF ROCKBRIDGE ROAD, 6 FT. DIAM CMP (1/2), PROJECTING INLET

PAVED ROADWAY

SECTION AA

12.00	7.75	839.85	0.00	0.00	839.96	.11	.26	.02	835.10

265.	45.	119.	101.	37.	42.	33.	115.	61.	835.10
2.58	1.22	2.63	3.05	.070	.040	.030	.058	832.10	658.15
.000801	150.	150.	150.	2	0	0	0.00	36.72	694.87

restrictive?

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.65	3.01	0.00	6.00	0.00	28.27	0.00	832.60	832.10

*SECNO 12.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
843.46	840.46	0.00	148.	117.	28.	36.	838.60	840.00

U/S FACE OF ROCKBRIDGE ROAD, SECTION AB

12.09	7.94	940.54	0.00	0.00	840.56	.01	.59	0.00	835.60
265.	137.	41.	87.	167.	43.	102.	115.	61.	835.60
2.61	.62	.94	.85	.030	.040	.030	.058	832.60	531.30
.000986	83.	83.	83.	1	0	6	0.00	174.69	705.99

*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

SECTION AC, SURVEYED VALLEY SECTION

13.00	3.89	843.89	0.00	0.00	841.29	.40	.54	.19	838.10
265.	24.	199.	42.	6.	37.	11.	124.	66.	838.10
2.72	3.69	5.41	3.92	.030	.040	.030	.055	837.00	263.35
.004361	2050.	2050.	2050.	3	0	0	0.00	23.33	286.68

*SECNO 14.000

O/S FACE OF ST. JOE HIGHWAY, 4 FT. DIAM. CMP (1/2IN.), SANDBAG WINGWALLS

Will flow get over St. Joe.

PAVED ROADWAY

SECTION AD

14.00	5.05	843.45	0.00	0.00	843.77	.31	2.45	.03	840.40
265.	36.	195.	124.	23.	18.	33.	125.	66.	840.40
2.76	1.59	5.75	3.74	.070	.030	.030	.054	838.40	229.23
.003285	650.	650.	650.	4	0	0	0.00	40.53	269.76

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.48	3.02	0.00	4.00	0.00	12.57	0.00	838.40	838.40

*SECNO 14.09C
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.57	843.77	0.00	127.	139.	13.	16.	842.40	847.70

3470 ENCROACHMENT STATIONS= .0 400.0 TYPE= 1 TARGET= 399.999

U/S FACE OF ST. JOE HIGHWAY, SECTION AE

14.09	9.75	848.15	0.00	0.00	848.16	.01	4.40	0.00	840.40
265.	48.	38.	180.	146.	37.	260.	125.	66.	840.40
2.79	.33	1.02	.69	.070	.030	.030	.054	838.40	206.47
.000040	60.	60.	60.	0	0	8	0.00	193.53	400.00

8930,RDST NOT ON GR CARD 257.00

compare Standard has been carried 500 to 600 ft upstream to define floodway in Sub

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Delta twp

3) WATERCOURSE: Miller creek

4) DOCUMENT TYPE: 100 Yr. Summary

00BREAK00

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,L2
  MODIFICATION -  50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

MILLER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.900	0.00	0.00	0.00	791,42	365.00	795.80	795.39	796.35	80.83	6.95	101.48	40.60
.900	0.00	0.00	0.00	791.42	535.00	796.27	0.00	796.79	79.91	7.41	161.93	59.85
.900	0.00	0.00	0.00	791.42	635.00	796.49	0.00	797.00	80.10	7.65	190.27	70.95
.900	0.00	0.00	0.00	791.42	825.00	796.85	0.00	797.36	80.15	8.02	237.86	92.15
.910	50.00	0.00	0.00	791.82	365.00	796.21	796.16	796.76	80.29	6.93	102.01	40.74
.910	50.00	0.00	0.00	791.82	535.00	796.67	0.00	797.19	79.97	7.42	161.87	59.83
.910	50.00	0.00	0.00	791.82	635.00	796.89	0.00	797.40	80.04	7.65	190.32	76.98
.910	50.00	0.00	0.00	791.82	825.00	797.25	0.00	797.76	80.07	8.02	237.95	92.20
.920	50.00	0.00	0.00	792.22	365.00	796.61	796.55	797.16	79.43	6.90	102.84	40.95
.920	50.00	0.00	0.00	792.22	535.00	797.07	0.00	797.59	80.02	7.42	161.82	59.81
.920	50.00	0.00	0.00	792.22	635.00	797.29	0.00	797.80	79.96	7.64	190.41	71.11
.920	50.00	0.00	0.00	792.22	825.00	797.65	0.00	798.16	79.96	8.02	238.09	92.26
.990	160.00	0.00	0.00	793.50	365.00	797.98	0.00	798.28	49.53	5.53	115.05	51.96
.990	160.00	0.00	0.00	793.50	535.00	798.42	0.00	798.69	45.17	5.64	172.57	79.61
.990	160.00	0.00	0.00	793.50	635.00	798.64	0.00	798.90	44.46	5.75	199.25	95.24
.990	160.00	0.00	0.00	793.50	825.00	798.98	0.00	799.25	43.25	5.93	244.82	125.45
1.000	100.00	0.00	0.00	794.30	365.00	798.49	0.00	799.05	85.85	6.95	78.29	39.39
1.000	100.00	0.00	0.00	794.30	535.00	798.93	798.93	799.41	79.26	7.16	134.16	60.19
1.000	100.00	0.00	0.00	794.30	635.00	799.11	0.00	799.58	78.61	7.32	157.71	71.62
1.000	100.00	0.00	0.00	794.30	825.00	799.45	0.00	799.89	72.91	7.38	201.49	96.62
1.010	1.00	798.50	800.30	794.30	365.00	798.99	798.99	799.36	37.49	5.71	81.31	59.61
1.010	1.00	798.50	800.30	794.30	535.00	799.15	799.15	799.66	49.33	6.65	96.95	76.18
1.010	1.00	798.50	800.30	794.30	635.00	799.28	799.28	799.82	47.64	6.62	109.91	92.00
1.010	1.00	798.50	800.30	794.30	825.00	799.49	799.49	800.12	47.42	6.73	129.87	119.80
1.090	30.00	798.50	800.30	794.30	365.00	799.32	0.00	799.49	14.18	3.63	113.68	96.94
1.090	30.00	798.50	800.30	794.30	535.00	799.60	0.00	799.83	15.45	3.88	140.46	136.12
1.090	30.00	798.50	800.30	794.30	635.00	799.70	0.00	799.98	17.32	4.15	150.53	152.60
1.090	30.00	798.50	800.30	794.30	825.00	799.91	0.00	800.28	20.64	3.93	170.32	181.60
1.100	1.00	0.00	0.00	794.30	365.00	799.45	0.00	799.52	10.52	2.81	201.73	112.51
1.100	1.00	0.00	0.00	794.30	535.00	799.78	0.00	799.87	13.17	3.27	244.61	147.43
1.100	1.00	0.00	0.00	794.30	635.00	799.93	0.00	800.03	14.73	3.53	264.79	165.43
1.100	1.00	0.00	0.00	794.30	825.00	800.23	0.00	800.36	16.41	3.86	304.54	203.65

SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.200	25.00	0.00	0.00	794.60	365.00	799.45	0.00	799.57	12.51	3.09	147.85	103.20
1.200	25.00	0.00	0.00	794.60	535.00	799.77	0.00	799.96	18.95	3.99	173.54	122.91
1.200	25.00	0.00	0.00	794.60	635.00	799.91	0.00	800.14	22.83	4.46	186.26	132.89
1.200	25.00	0.00	0.00	794.60	825.00	800.20	0.00	800.50	27.50	5.09	214.14	157.32
1.800	75.00	0.00	0.00	795.10	365.00	799.49	0.00	799.85	41.20	5.42	102.11	56.87
1.800	75.00	0.00	0.00	795.10	535.00	799.81	0.00	800.39	63.49	7.06	120.52	67.15
1.800	75.00	0.00	0.00	795.10	635.00	799.95	0.00	800.68	77.45	7.96	129.41	72.16
1.800	75.00	0.00	0.00	795.10	825.00	800.23	0.00	801.18	97.58	9.28	148.20	83.52
1.900	450.00	0.00	0.00	798.70	365.00	802.29	801.89	802.80	143.70	7.91	75.25	30.45
1.900	450.00	0.00	0.00	798.70	535.00	803.19	0.00	803.67	102.35	7.81	111.01	52.88
1.900	450.00	0.00	0.00	798.70	635.00	803.66	0.00	804.13	89.31	7.82	131.45	67.19
1.900	450.00	0.00	0.00	798.70	825.00	804.38	0.00	804.86	80.16	8.14	164.44	92.14
2.000	50.00	0.00	0.00	799.10	365.00	802.79	0.00	803.59	121.27	7.18	50.82	33.14
2.000	50.00	0.00	0.00	799.10	535.00	803.42	0.00	804.67	160.05	8.97	59.61	42.29
2.000	50.00	0.00	0.00	799.10	635.00	803.73	0.00	805.26	181.17	9.91	64.08	47.18
2.000	50.00	0.00	0.00	799.10	825.00	804.17	0.00	806.32	232.44	11.75	70.20	54.11
2.010	1.00	806.44	807.70	799.10	365.00	802.78	0.00	803.60	57.23	7.25	50.31	48.25
2.010	1.00	806.44	807.70	799.10	535.00	803.39	0.00	804.70	83.84	9.17	58.35	58.43
2.010	1.00	806.44	807.70	799.10	635.00	803.68	0.00	805.31	97.88	10.23	62.10	64.18
2.010	1.00	806.44	807.70	799.10	825.00	804.07	803.85	806.43	144.86	12.32	66.94	68.55
2.090	53.00	806.44	807.80	799.20	365.00	803.20	0.00	803.90	44.00	6.70	54.48	55.62
2.090	53.00	806.44	807.80	799.20	535.00	804.17	0.00	805.16	60.31	8.01	66.80	68.99
2.090	53.00	806.44	807.80	799.20	635.00	804.67	0.00	805.86	66.58	8.75	72.53	77.82
2.090	53.00	806.44	807.80	799.20	825.00	805.73	0.00	807.21	72.32	9.78	84.32	97.61
2.100	1.00	0.00	0.00	799.20	365.00	803.25	0.00	803.92	70.58	6.54	55.80	43.45
2.100	1.00	0.00	0.00	799.20	535.00	804.31	0.00	805.20	74.36	7.57	70.66	62.04
2.100	1.00	0.00	0.00	799.20	635.00	804.94	0.00	805.93	73.75	7.99	79.51	73.94
2.100	1.00	0.00	0.00	799.20	825.00	806.21	0.00	807.33	68.99	8.48	97.26	99.33
3.000	275.00	0.00	0.00	801.00	365.00	804.97	0.00	805.17	26.56	4.36	134.76	70.83
3.000	275.00	0.00	0.00	801.00	535.00	806.09	0.00	806.26	16.80	4.17	209.08	130.54
3.000	275.00	0.00	0.00	801.00	635.00	806.74	0.00	806.89	13.13	4.03	259.90	175.25
3.000	275.00	0.00	0.00	801.00	825.00	808.02	0.00	808.13	8.37	3.72	382.18	285.16
3.500	460.00	0.00	0.00	802.70	280.00	806.24	0.00	806.43	32.09	4.55	110.41	49.42
3.500	460.00	0.00	0.00	802.70	415.00	806.95	0.00	807.12	24.87	4.57	172.84	83.22
3.500	460.00	0.00	0.00	802.70	495.00	807.41	0.00	807.56	19.37	4.35	225.12	112.47
3.500	460.00	0.00	0.00	802.70	650.00	808.45	0.00	808.53	10.42	3.66	371.22	201.34
3.900	274.00	0.00	0.00	804.30	280.00	807.31	0.00	807.81	90.98	6.69	72.10	29.35
3.900	274.00	0.00	0.00	804.30	415.00	807.77	0.00	808.30	90.83	7.38	105.71	43.54
3.900	274.00	0.00	0.00	804.30	495.00	808.03	0.00	808.54	82.74	7.42	129.66	54.42
3.900	274.00	0.00	0.00	804.30	650.00	808.76	0.00	809.06	45.86	6.24	214.46	95.98
* 4.000	50.00	0.00	0.00	804.50	280.00	807.87	807.87	808.41	92.57	6.24	65.86	29.10
* 4.000	50.00	0.00	0.00	804.50	415.00	808.27	808.27	808.80	86.61	6.68	109.17	44.59
4.000	50.00	0.00	0.00	804.50	495.00	808.44	808.41	808.98	87.03	6.96	129.93	53.16
4.000	50.00	0.00	0.00	804.50	650.00	808.98	0.00	809.34	56.55	6.24	202.88	86.44

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.090	13.00	807.70	807.40	804.50	280.00	808.90	0.00	808.92	12.75	2.24	223.89	78.41
4.090	13.00	807.70	807.40	804.50	415.00	809.12	0.00	809.17	19.07	2.84	257.55	95.03
4.090	13.00	807.70	807.40	804.50	495.00	809.24	0.00	809.29	22.52	3.14	275.79	104.32
4.090	13.00	807.70	807.40	804.50	650.00	809.48	0.00	809.55	27.00	3.57	315.35	125.09
4.300	625.00	0.00	0.00	807.10	280.00	810.14	0.00	810.34	61.53	4.95	91.76	35.70
4.300	625.00	0.00	0.00	807.10	415.00	810.69	0.00	810.91	54.82	5.30	130.99	56.15
4.300	625.00	0.00	0.00	807.10	495.00	810.96	0.00	811.19	52.85	5.49	154.07	68.09
4.300	625.00	0.00	0.00	807.10	650.00	811.39	0.00	811.63	51.72	5.85	195.86	90.38
4.500	210.00	0.00	0.00	808.30	280.00	811.44	0.00	811.71	68.93	4.72	87.48	33.73
4.500	210.00	0.00	0.00	808.30	415.00	811.89	0.00	812.20	67.18	5.24	125.84	50.63
4.500	210.00	0.00	0.00	808.30	495.00	812.11	0.00	812.42	64.46	5.41	148.05	61.65
4.500	210.00	0.00	0.00	808.30	650.00	812.48	0.00	812.80	59.95	5.65	186.64	83.95
5.000	1050.00	0.00	0.00	812.00	280.00	816.25	0.00	816.48	34.99	4.44	98.42	47.33
5.000	1050.00	0.00	0.00	812.00	415.00	816.81	0.00	817.08	38.49	5.10	133.89	66.89
5.000	1050.00	0.00	0.00	812.00	495.00	817.04	0.00	817.34	41.00	5.45	150.24	77.30
5.000	1050.00	0.00	0.00	812.00	650.00	817.42	0.00	817.78	45.34	6.05	178.97	96.53
5.500	600.00	0.00	0.00	815.50	280.00	818.26	0.00	818.37	28.12	3.24	133.70	52.80
5.500	600.00	0.00	0.00	815.50	415.00	818.82	0.00	818.93	24.55	3.45	187.70	83.76
5.500	600.00	0.00	0.00	815.50	495.00	819.09	0.00	819.21	23.63	3.58	217.11	101.83
5.500	600.00	0.00	0.00	815.50	650.00	819.55	0.00	819.68	22.48	3.81	271.49	137.09
5.700	750.00	0.00	0.00	817.30	280.00	820.41	0.00	820.49	30.81	3.65	142.18	50.44
5.700	750.00	0.00	0.00	817.30	415.00	820.84	0.00	820.94	32.05	4.08	189.29	73.30
5.700	750.00	0.00	0.00	817.30	495.00	821.07	0.00	821.17	32.02	4.27	217.43	87.48
5.700	750.00	0.00	0.00	817.30	650.00	821.47	0.00	821.58	31.51	4.54	271.57	115.79
5.800	850.00	0.00	0.00	819.20	280.00	822.47	0.00	822.55	25.53	3.51	145.62	55.42
5.800	850.00	0.00	0.00	819.20	415.00	822.93	0.00	823.03	25.60	3.86	205.89	82.02
5.800	850.00	0.00	0.00	819.20	495.00	823.16	0.00	823.26	25.69	4.03	240.73	97.66
5.800	850.00	0.00	0.00	819.20	650.00	823.53	0.00	823.64	25.60	4.28	307.41	128.48
5.900	275.00	0.00	0.00	820.30	280.00	823.25	0.00	823.74	58.98	5.87	50.12	36.46
5.900	275.00	0.00	0.00	820.30	415.00	823.69	0.00	824.37	69.63	7.00	62.61	49.73
5.900	275.00	0.00	0.00	820.30	495.00	823.89	0.00	824.71	76.42	7.62	68.78	56.63
5.900	275.00	0.00	0.00	820.30	650.00	824.45	824.45	825.21	64.41	7.70	94.70	80.99
6.000	50.00	0.00	0.00	820.50	280.00	823.53	0.00	824.16	83.71	6.88	45.89	30.60
6.000	50.00	0.00	0.00	820.50	415.00	824.01	0.00	824.86	95.27	8.13	58.24	42.52
6.000	50.00	0.00	0.00	820.50	495.00	824.25	0.00	825.22	100.37	8.73	64.95	49.41
6.000	50.00	0.00	0.00	820.50	650.00	824.77	824.77	825.79	90.34	9.06	82.91	68.39
6.040	32.00	826.10	823.60	820.10	280.00	826.26	0.00	826.29	9.58	1.43	205.50	90.49
6.040	32.00	826.10	823.60	820.10	415.00	826.82	0.00	826.86	9.35	1.51	257.81	135.73
6.040	32.00	826.10	823.60	820.10	495.00	827.04	0.00	827.09	10.15	1.61	277.95	155.36
6.040	32.00	826.10	823.60	820.10	650.00	827.41	0.00	827.48	11.56	1.78	312.08	191.17
6.200	100.00	0.00	0.00	820.31	280.00	826.37	0.00	826.39	10.22	1.46	230.95	87.58
6.200	100.00	0.00	0.00	820.31	415.00	826.93	0.00	826.95	6.14	1.21	378.30	167.41
6.200	100.00	0.00	0.00	820.31	495.00	827.15	0.00	827.17	5.39	1.16	446.62	213.27
6.200	100.00	0.00	0.00	820.31	650.00	827.54	0.00	827.56	4.43	1.09	570.49	308.87

SECNO	XLOB	ELTRO	ELLO	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.500	590.00	0.00	0.00	821.44	280.00	826.70	0.00	826.71	7.58	1.21	399.91	101.68
6.500	590.00	0.00	0.00	821.44	415.00	827.17	0.00	827.18	7.86	1.31	515.30	148.11
6.500	590.00	0.00	0.00	821.44	495.00	827.38	0.00	827.39	8.20	1.37	570.67	172.84
6.500	590.00	0.00	0.00	821.44	650.00	827.74	0.00	827.75	8.52	1.46	672.43	222.62
6.900	409.00	0.00	0.00	822.39	280.00	827.19	0.00	827.23	28.90	2.09	188.86	52.09
6.900	409.00	0.00	0.00	822.39	415.00	827.67	0.00	827.73	30.98	2.32	237.02	74.56
6.900	409.00	0.00	0.00	822.39	495.00	827.90	0.00	827.96	32.82	2.45	259.81	86.41
6.900	409.00	0.00	0.00	822.39	650.00	828.28	0.00	828.36	36.28	2.70	298.08	107.91
7.000	50.00	0.00	0.00	822.50	280.00	827.37	0.00	827.72	300.40	4.84	61.25	16.16
7.000	50.00	0.00	0.00	822.50	415.00	827.82	0.00	828.31	358.18	5.83	84.19	21.93
7.000	50.00	0.00	0.00	822.50	495.00	828.05	0.00	828.59	371.35	6.21	99.59	25.69
7.000	50.00	0.00	0.00	822.50	650.00	828.52	828.52	828.92	276.90	5.83	163.09	39.06
7.010	1.00	827.70	826.70	822.50	280.00	828.95	828.95	829.42	73.55	5.36	50.96	32.65
7.010	1.00	827.70	826.70	822.50	415.00	829.18	829.18	829.77	61.40	5.58	68.09	52.96
7.010	1.00	827.70	826.70	822.50	495.00	829.34	829.34	829.95	51.29	5.50	79.82	69.12
7.010	1.00	827.70	826.70	822.50	650.00	829.58	829.58	830.30	44.92	5.70	97.72	96.98
7.090	31.00	827.70	826.70	822.50	280.00	829.52	0.00	829.58	4.18	1.70	146.02	136.88
7.090	31.00	827.70	826.70	822.50	415.00	829.88	0.00	829.95	3.53	1.78	194.40	220.85
7.090	31.00	827.70	826.70	822.50	495.00	830.06	0.00	830.14	3.40	1.85	218.45	268.39
7.090	31.00	827.70	826.70	822.50	650.00	830.41	0.00	830.50	3.04	1.93	265.88	372.56
7.100	1.00	0.00	0.00	822.50	280.00	829.56	0.00	829.59	1.54	1.69	277.31	225.91
7.100	1.00	0.00	0.00	822.50	415.00	829.91	0.00	829.96	2.22	2.12	326.51	278.36
7.100	1.00	0.00	0.00	822.50	495.00	830.09	0.00	830.14	2.60	2.35	351.11	306.71
7.100	1.00	0.00	0.00	822.50	650.00	830.44	0.00	830.51	3.15	2.69	399.36	366.14
8.000	298.00	0.00	0.00	823.30	280.00	829.60	0.00	829.60	.19	.52	1645.59	640.77
8.000	298.00	0.00	0.00	823.30	415.00	829.98	0.00	829.98	.25	.62	1973.18	824.60
8.000	298.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2149.55	931.43
8.000	298.00	0.00	0.00	823.30	650.00	830.53	0.00	830.54	.32	.74	2483.03	1144.83
8.010	1.00	827.00	826.60	823.30	280.00	829.60	0.00	829.60	.02	.16	1555.11	1843.56
8.010	1.00	827.00	826.60	823.30	415.00	829.98	0.00	829.98	.03	.19	1882.73	2448.19
8.010	1.00	827.00	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2053.48	2790.37
8.010	1.00	827.00	826.60	823.30	650.00	830.53	0.00	830.54	.03	.22	2395.18	3517.43
8.090	11.00	827.00	826.60	823.30	280.00	829.60	0.00	829.60	.02	.16	1565.46	1844.18
8.090	11.00	827.00	826.60	823.30	415.00	829.98	0.00	829.98	.03	.19	1883.16	2449.03
8.090	11.00	827.00	826.60	823.30	495.00	830.17	0.00	830.17	.03	.20	2053.94	2791.32
8.090	11.00	827.00	826.60	823.30	650.00	830.53	0.00	830.54	.03	.22	2395.68	3516.54
8.100	1.00	0.00	0.00	823.30	280.00	829.60	0.00	829.60	.19	.52	1645.95	640.96
8.100	1.00	0.00	0.00	823.30	415.00	829.98	0.00	829.98	.25	.62	1973.62	824.86
8.100	1.00	0.00	0.00	823.30	495.00	830.17	0.00	830.17	.28	.67	2144.38	928.24
8.100	1.00	0.00	0.00	823.30	650.00	830.53	0.00	830.54	.32	.73	2486.10	1146.86
8.500	538.00	0.00	0.00	823.90	280.00	829.61	0.00	829.62	.60	.49	964.57	323.49
8.500	538.00	0.00	0.00	823.90	365.00	830.00	0.00	830.00	.79	.59	1165.61	411.56
8.500	538.00	0.00	0.00	823.90	430.00	830.19	0.00	830.19	.86	.63	1272.75	463.12
8.500	538.00	0.00	0.00	823.90	550.00	830.56	0.00	830.56	.92	.69	1492.33	573.01

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.600	380.00	0.00	0.00	824.29	250.00	829.65	0.00	829.67	4.27	1.32	402.95	120.97
8.600	380.00	0.00	0.00	824.29	365.00	830.05	0.00	830.06	5.02	1.51	535.53	162.91
8.600	380.00	0.00	0.00	824.29	430.00	830.24	0.00	830.26	5.09	1.55	608.26	190.66
8.600	380.00	0.00	0.00	824.29	550.00	830.61	0.00	830.63	4.81	1.58	754.25	250.67
8.700	460.00	0.00	0.00	824.79	250.00	829.99	0.00	830.03	23.03	2.41	212.83	52.09
8.700	460.00	0.00	0.00	824.79	365.00	830.41	0.00	830.45	20.75	2.42	305.81	80.12
8.700	460.00	0.00	0.00	824.79	430.00	830.60	0.00	830.64	19.98	2.43	358.95	96.20
8.700	460.00	0.00	0.00	824.79	550.00	830.95	0.00	830.98	17.66	2.38	459.69	130.86
8.800	255.00	0.00	0.00	825.10	250.00	830.86	0.00	831.01	69.16	4.04	115.46	30.06
8.800	255.00	0.00	0.00	825.10	365.00	831.23	0.00	831.38	71.84	4.36	169.73	43.06
8.800	255.00	0.00	0.00	825.10	430.00	831.40	0.00	831.55	71.79	4.47	200.16	50.75
8.800	255.00	0.00	0.00	825.10	550.00	831.67	0.00	831.82	71.02	4.62	254.86	65.26
8.900	300.00	0.00	0.00	825.19	250.00	832.32	0.00	832.45	37.74	3.20	106.97	40.70
8.900	300.00	0.00	0.00	825.19	365.00	832.83	0.00	833.00	45.84	3.76	140.86	53.91
8.900	300.00	0.00	0.00	825.19	430.00	833.06	0.00	833.25	49.96	4.03	158.24	60.84
8.900	300.00	0.00	0.00	825.19	550.00	833.41	0.00	833.63	56.99	4.47	187.71	72.86
9.000	100.00	0.00	0.00	825.60	250.00	832.75	0.00	832.97	60.80	3.76	66.49	32.06
9.000	100.00	0.00	0.00	825.60	365.00	833.37	0.00	833.74	95.32	4.88	74.79	37.38
9.000	100.00	0.00	0.00	825.60	430.00	833.65	0.00	834.11	114.49	5.47	78.63	40.19
9.000	100.00	0.00	0.00	825.60	550.00	834.06	0.00	834.72	150.36	6.52	84.41	44.85
9.090	79.00	836.02	832.66	825.60	250.00	832.98	0.00	833.18	54.07	3.59	69.55	34.10
9.090	79.00	836.02	832.66	825.60	365.00	834.00	0.00	834.30	68.08	4.36	83.66	44.24
9.090	79.00	836.02	832.66	825.60	430.00	834.60	0.00	834.94	70.66	4.68	91.95	51.16
9.090	79.00	836.02	832.66	825.60	550.00	836.14	0.00	836.14	.19	.29	1714.63	1257.19
9.200	49.00	0.00	0.00	825.80	250.00	833.26	0.00	833.31	13.19	2.08	187.00	68.84
9.200	49.00	0.00	0.00	825.80	365.00	834.39	0.00	834.43	9.61	2.00	298.51	117.76
9.200	49.00	0.00	0.00	825.80	430.00	835.02	0.00	835.05	7.87	1.92	370.30	153.30
9.200	49.00	0.00	0.00	825.80	550.00	836.12	0.00	836.15	5.79	1.80	497.48	228.48
9.300	200.00	0.00	0.00	826.60	250.00	833.58	0.00	833.66	21.96	2.53	154.78	53.35
9.300	200.00	0.00	0.00	826.60	365.00	834.61	0.00	834.65	13.40	2.22	320.75	99.71
9.300	200.00	0.00	0.00	826.60	430.00	835.19	0.00	835.22	8.87	1.92	462.96	144.41
9.300	200.00	0.00	0.00	826.60	550.00	836.24	0.00	836.25	4.01	1.42	879.84	274.61
10.000	1370.00	0.00	0.00	832.00	250.00	835.06	0.00	835.07	6.43	1.01	493.45	98.60
10.000	1370.00	0.00	0.00	832.00	365.00	835.59	0.00	835.60	4.66	.97	717.90	169.05
10.000	1370.00	0.00	0.00	832.00	430.00	835.92	0.00	835.93	3.80	.94	857.42	220.53
10.000	1370.00	0.00	0.00	832.00	550.00	836.63	0.00	836.63	2.36	.84	1177.69	357.76
10.500	1160.00	0.00	0.00	833.35	250.00	836.46	0.00	836.52	59.87	2.96	182.71	32.31
10.500	1160.00	0.00	0.00	833.35	365.00	836.69	0.00	836.76	67.43	3.33	238.29	44.45
10.500	1160.00	0.00	0.00	833.35	430.00	836.83	0.00	836.90	64.33	3.37	278.22	53.61
10.500	1160.00	0.00	0.00	833.35	550.00	837.19	0.00	837.25	46.63	3.10	388.42	80.54
11.000	640.00	0.00	0.00	834.10	250.00	838.63	0.00	838.73	25.30	2.62	111.63	49.70
11.000	640.00	0.00	0.00	834.10	365.00	839.25	0.00	839.39	31.66	3.23	135.69	64.87
11.000	640.00	0.00	0.00	834.10	430.00	839.50	0.00	839.68	35.87	3.57	146.27	71.79
11.000	640.00	0.00	0.00	834.10	550.00	839.79	0.00	840.03	47.31	4.26	158.48	79.96

SECNO	XLOH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.000	150.00	0.00	0.00	832.10	190.00	838.86	0.00	838.93	5.67	2.15	81.71	62.98
12.000	150.00	0.00	0.00	832.10	220.00	839.55	0.00	839.64	6.98	2.57	101.62	83.24
12.000	150.00	0.00	0.00	832.10	265.00	839.85	0.00	839.96	8.01	2.83	112.13	93.62
12.000	150.00	0.00	0.00	832.10	340.00	840.26	0.00	840.39	9.26	3.16	150.46	111.74
12.090	83.00	840.00	838.60	832.60	190.00	839.99	0.00	840.00	.53	.71	239.31	205.09
12.090	83.00	840.00	838.60	832.60	220.00	840.41	0.00	840.42	.70	.84	291.69	263.51
12.090	83.00	840.00	838.60	832.60	265.00	840.54	0.00	840.56	.86	.94	312.99	285.88
12.090	83.00	840.00	838.60	832.60	340.00	840.72	0.00	840.74	1.13	1.10	347.14	319.97
13.000	2050.00	0.00	0.00	837.00	190.00	840.22	0.00	840.46	34.10	4.13	39.47	25.69
13.000	2050.00	0.00	0.00	837.00	220.00	840.70	0.00	841.02	38.04	4.86	49.68	35.67
13.000	2050.00	0.00	0.00	837.00	265.00	840.89	0.00	841.29	43.61	5.41	53.99	40.13
13.000	2050.00	0.00	0.00	837.00	340.00	841.17	0.00	841.69	51.48	6.21	60.72	47.39
14.000	650.00	0.00	0.00	838.40	190.00	842.57	0.00	842.88	39.37	5.45	42.72	23.91
14.000	650.00	0.00	0.00	838.40	220.00	843.12	0.00	843.44	36.40	5.75	60.93	36.47
14.000	650.00	0.00	0.00	838.40	265.00	843.45	0.00	843.77	32.85	5.75	74.03	46.24
14.000	650.00	0.00	0.00	838.40	340.00	843.93	0.00	844.24	29.44	5.81	94.63	62.67
14.090	60.00	847.70	842.40	838.40	190.00	847.75	0.00	847.76	.19	.67	364.88	348.39
14.090	60.00	847.70	842.40	838.40	220.00	848.04	0.00	848.05	.31	.89	420.16	396.54
14.090	60.00	847.70	842.40	838.40	265.00	848.15	0.00	848.16	.40	1.02	442.56	418.50
14.090	60.00	847.70	842.40	838.40	340.00	848.30	0.00	848.32	.57	1.23	471.40	448.54

MILLER CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.900	365.00	795.80	0.00	0.00	.80	127.76	0.00
.900	535.00	796.27	.47	0.00	.27	129.53	0.00
.900	635.00	796.49	.22	0.00	-.51	130.35	0.00
.900	825.00	796.85	.36	0.00	-1.15	131.71	0.00
.910	365.00	796.21	0.00	.41	0.00	127.77	50.00
.910	535.00	796.67	.46	.40	0.00	129.52	50.00
.910	635.00	796.89	.22	.40	0.00	130.35	50.00
.910	825.00	797.25	.36	.40	0.00	131.72	50.00
.920	365.00	796.61	0.00	.41	0.00	127.80	50.00
.920	535.00	797.07	.45	.40	0.00	129.52	50.00
.920	635.00	797.29	.22	.40	0.00	130.35	50.00
.920	825.00	797.65	.36	.40	0.00	131.72	50.00
.990	365.00	797.93	0.00	1.36	0.00	128.16	160.00
.990	535.00	798.42	.45	1.36	0.00	129.84	160.00
.990	635.00	798.64	.21	1.35	0.00	130.61	160.00
.990	825.00	798.98	.35	1.33	0.00	131.91	160.00
1.000	365.00	798.49	0.00	.51	0.00	57.85	100.00
1.000	535.00	798.93	.44	.51	0.00	128.72	100.00
1.000	635.00	799.11	.18	.48	0.00	129.40	100.00
1.000	825.00	799.45	.34	.47	0.00	130.67	100.00
1.010	365.00	798.99	0.00	.50	0.00	128.91	1.00
1.010	535.00	799.15	.16	.22	0.00	129.53	1.00
1.010	635.00	799.28	.13	.17	0.00	130.03	1.00
1.010	825.00	799.49	.21	.04	0.00	130.81	1.00
1.090	365.00	799.32	0.00	.34	0.00	130.18	30.00
1.090	535.00	799.60	.28	.45	0.00	131.22	30.00
1.090	635.00	799.70	.10	.42	0.00	131.61	30.00
1.090	825.00	799.91	.21	.42	0.00	132.38	30.00
1.100	365.00	799.45	0.00	.13	0.00	130.68	1.00
1.100	535.00	799.78	.33	.18	0.00	131.91	1.00
1.100	635.00	799.93	.15	.22	0.00	132.48	1.00
1.100	825.00	800.23	.30	.32	0.00	133.61	1.00
1.200	365.00	799.45	0.00	.00	0.00	77.40	25.00
1.200	535.00	799.77	.31	-.01	0.00	87.45	25.00
1.200	635.00	799.91	.14	-.02	0.00	92.02	25.00
1.200	825.00	800.20	.29	-.03	0.00	96.51	25.00
1.300	365.00	799.49	0.00	.04	0.00	54.76	75.00
1.300	535.00	799.81	.32	.04	0.00	61.54	75.00
1.300	635.00	799.95	.14	.04	0.00	64.56	75.00
1.300	825.00	800.23	.28	-.02	0.00	69.86	75.00
1.900	365.00	802.29	0.00	2.80	0.00	37.81	450.00
1.900	535.00	803.19	.90	3.38	0.00	42.13	450.00
1.900	635.00	803.66	.47	3.71	0.00	44.41	450.00

1.900	825.00	804.38	.72	4.15	0.00	47.86	450.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2.000	365.00	802.79	0.00	.50	0.00	14.00	50.00
2.000	535.00	803.42	.63	.23	0.00	14.00	50.00
2.000	635.00	803.73	.32	.07	0.00	14.00	50.00
2.000	825.00	804.17	.44	-.20	0.00	14.00	50.00
2.010	365.00	802.78	0.00	-.01	0.00	14.00	1.00
2.010	535.00	803.39	.61	-.03	0.00	14.00	1.00
2.010	635.00	803.63	.29	-.05	0.00	14.00	1.00
2.010	825.00	804.07	.38	-.11	0.00	14.00	1.00
2.090	365.00	803.20	0.00	.42	0.00	14.00	53.00
2.090	535.00	804.17	.96	.78	0.00	14.00	53.00
2.090	635.00	804.67	.50	.99	0.00	14.00	53.00
2.090	825.00	805.73	1.06	1.66	0.00	14.00	53.00
2.100	365.00	803.25	0.00	.05	0.00	14.00	1.00
2.100	535.00	804.31	1.06	.14	0.00	14.00	1.00
2.100	635.00	804.94	.63	.27	0.00	14.00	1.00
2.100	825.00	806.21	1.28	.49	0.00	14.00	1.00
3.000	365.00	804.97	0.00	1.72	0.00	62.81	275.00
3.000	535.00	806.09	1.12	1.78	0.00	71.61	275.00
3.000	635.00	806.74	.65	1.80	0.00	83.87	275.00
3.000	825.00	808.02	1.28	1.81	0.00	107.71	275.00
3.500	280.00	806.24	0.00	1.26	0.00	73.00	460.00
3.500	415.00	806.95	.71	.86	0.00	100.99	460.00
3.500	495.00	807.41	.46	.67	0.00	119.48	460.00
3.500	650.00	808.45	1.03	.43	0.00	170.89	460.00
3.900	280.00	807.31	0.00	1.07	0.00	65.06	274.00
3.900	415.00	807.77	.46	.82	0.00	81.57	274.00
3.900	495.00	808.03	.27	.62	0.00	92.95	274.00
3.900	650.00	808.76	.73	.31	0.00	143.22	274.00
4.000	280.00	807.87	0.00	.56	0.00	91.32	50.00
4.000	415.00	808.27	.40	.51	0.00	117.04	50.00
4.000	495.00	808.44	.17	.41	0.00	124.41	50.00
4.000	650.00	808.98	.54	.22	0.00	147.41	50.00
4.090	280.00	808.90	0.00	1.03	0.00	143.72	13.00
4.090	415.00	809.12	.23	.85	0.00	153.43	13.00
4.090	495.00	809.24	.12	.79	0.00	158.44	13.00
4.090	650.00	809.48	.24	.50	0.00	168.80	13.00
4.300	280.00	810.14	0.00	1.24	0.00	60.12	625.00
4.300	415.00	810.69	.56	1.57	0.00	80.97	625.00
4.300	495.00	810.96	.27	1.72	0.00	91.04	625.00
4.300	650.00	811.39	.42	1.90	0.00	106.87	625.00
4.500	280.00	811.44	0.00	1.30	0.00	77.71	210.00
4.500	415.00	811.89	.45	1.20	0.00	95.43	210.00
4.500	495.00	812.11	.22	1.15	0.00	101.37	210.00
4.500	650.00	812.48	.38	1.10	0.00	106.02	210.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.000	280.00	816.25	0.00	4.81	0.00	58.13	1050.00
5.000	415.00	816.81	.56	4.92	0.00	58.61	1050.00
5.000	495.00	817.04	.23	4.93	0.00	71.63	1050.00
5.000	650.00	817.42	.39	4.94	0.00	76.65	1050.00
5.500	280.00	818.26	0.00	2.02	0.00	91.71	600.00
5.500	415.00	818.82	.55	2.01	0.00	105.40	600.00
5.500	495.00	819.09	.27	2.05	0.00	112.16	600.00
5.500	650.00	819.55	.46	2.12	0.00	123.69	600.00
5.700	280.00	820.41	0.00	2.15	0.00	99.65	750.00
5.700	415.00	820.84	.43	2.03	0.00	119.04	750.00
5.700	495.00	821.07	.23	1.98	0.00	129.24	750.00
5.700	650.00	821.47	.40	1.92	0.00	146.88	750.00
5.800	280.00	822.47	0.00	2.05	0.00	111.50	850.00
5.800	415.00	822.93	.47	2.09	0.00	147.56	850.00
5.800	495.00	823.16	.23	2.09	0.00	164.85	850.00
5.800	650.00	823.53	.37	2.06	0.00	193.68	850.00
5.900	280.00	823.25	0.00	.79	0.00	26.76	275.00
5.900	415.00	823.69	.44	.76	0.00	29.85	275.00
5.900	495.00	823.89	.21	.74	0.00	31.26	275.00
5.900	650.00	824.45	.56	.92	0.00	67.61	275.00
6.000	280.00	823.53	0.00	.28	0.00	24.32	50.00
6.000	415.00	824.01	.48	.32	0.00	27.28	50.00
6.000	495.00	824.25	.24	.35	0.00	28.76	50.00
6.000	650.00	824.77	.52	.31	0.00	41.78	50.00
6.040	280.00	826.26	0.00	2.73	0.00	93.00	32.00
6.040	415.00	826.82	.56	2.81	0.00	93.00	32.00
6.040	495.00	827.04	.22	2.79	0.00	93.00	32.00
6.040	650.00	827.41	.37	2.64	0.00	93.00	32.00
6.200	280.00	826.37	0.00	.11	0.00	190.68	100.00
6.200	415.00	826.93	.56	.10	0.00	296.35	100.00
6.200	495.00	827.15	.23	.11	0.00	309.73	100.00
6.200	650.00	827.54	.39	.13	0.00	333.26	100.00
6.500	280.00	826.70	0.00	.34	0.00	234.18	590.00
6.500	415.00	827.17	.47	.24	0.00	261.42	590.00
6.500	495.00	827.38	.21	.22	0.00	273.54	590.00
6.500	650.00	827.74	.36	.20	0.00	294.49	590.00
6.900	280.00	827.19	0.00	.48	0.00	100.00	409.00
6.900	415.00	827.67	.48	.50	0.00	100.00	409.00
6.900	495.00	827.90	.23	.52	0.00	100.00	409.00
6.900	650.00	828.28	.38	.55	0.00	100.00	409.00
7.000	280.00	827.37	0.00	.18	0.00	39.58	50.00
7.000	415.00	827.82	.45	.15	0.00	61.34	50.00
7.000	495.00	828.05	.23	.15	0.00	72.37	50.00
7.000	650.00	828.52	.47	.24	0.00	230.15	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
7.010	280.00	828.95	0.00	1.58	0.00	74.00	1.00
7.010	415.00	829.18	.23	1.36	0.00	74.00	1.00
7.010	495.00	829.34	.16	1.29	0.00	74.00	1.00
7.010	650.00	829.58	.24	1.06	0.00	74.00	1.00
7.090	280.00	829.52	0.00	.57	0.00	136.00	31.00
7.090	415.00	829.88	.36	.70	0.00	136.00	31.00
7.090	495.00	830.06	.18	.72	0.00	136.00	31.00
7.090	650.00	830.41	.35	.83	0.00	136.00	31.00
7.100	280.00	829.56	0.00	.03	0.00	138.00	1.00
7.100	415.00	829.91	.36	.03	0.00	138.00	1.00
7.100	495.00	830.09	.18	.03	0.00	138.00	1.00
7.100	650.00	830.44	.35	.03	0.00	138.00	1.00
8.000	280.00	829.63	0.00	.04	0.00	850.53	298.00
8.000	415.00	829.98	.36	.06	0.00	890.22	298.00
8.000	495.00	830.17	.19	.07	0.00	910.88	298.00
8.000	650.00	830.53	.37	.09	0.00	948.70	298.00
8.010	280.00	829.63	0.00	.00	0.00	850.54	1.00
8.010	415.00	829.98	.35	.00	0.00	890.24	1.00
8.010	495.00	830.17	.19	.00	0.00	910.24	1.00
8.010	650.00	830.53	.37	.00	0.00	949.00	1.00
8.090	280.00	829.63	0.00	.00	0.00	850.59	11.00
8.090	415.00	829.98	.38	.00	0.00	890.29	11.00
8.090	495.00	830.17	.19	.00	0.00	910.29	11.00
8.090	650.00	830.53	.37	.00	0.00	949.06	11.00
8.100	280.00	829.60	0.00	-.00	0.00	850.58	1.00
8.100	415.00	829.96	.38	-.00	0.00	890.28	1.00
8.100	495.00	830.17	.19	-.00	0.00	910.28	1.00
8.100	650.00	830.53	.37	-.00	0.00	949.04	1.00
8.500	250.00	829.61	0.00	.01	0.00	497.73	538.00
8.500	365.00	830.00	.38	.02	0.00	548.64	538.00
8.500	430.00	830.19	.19	.02	0.00	572.16	538.00
8.500	550.00	830.56	.37	.02	0.00	617.38	538.00
8.600	250.00	829.65	0.00	.04	0.00	308.40	380.00
8.600	365.00	830.05	.39	.05	0.00	363.49	380.00
8.600	430.00	830.24	.20	.06	0.00	378.20	380.00
8.600	550.00	830.61	.37	.06	0.00	406.12	380.00
8.700	250.00	829.99	0.00	.33	0.00	183.90	460.00
8.700	365.00	830.41	.42	.36	0.00	257.19	460.00
8.700	430.00	830.60	.19	.36	0.00	290.58	460.00
8.700	550.00	830.95	.34	.33	0.00	296.58	460.00
8.800	250.00	830.86	0.00	.87	0.00	127.25	255.00
8.800	365.00	831.23	.37	.82	0.00	166.91	255.00
8.800	430.00	831.43	.17	.80	0.00	185.48	255.00
8.800	550.00	831.67	.27	.73	0.00	214.86	255.00

SLCNO	Q	CWSLL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.900	250.00	832.32	0.00	1.46	0.00	58.75	330.00
8.900	365.00	832.83	.51	1.61	0.00	72.91	300.00
8.900	430.00	833.06	.23	1.66	0.00	79.19	300.00
8.900	550.00	833.41	.35	1.74	0.00	88.84	300.00
9.000	250.00	832.75	0.00	.43	0.00	12.79	100.00
9.000	365.00	833.37	.62	.54	0.00	13.79	100.00
9.000	430.00	833.65	.28	.58	0.00	14.00	100.00
9.000	550.00	834.06	.42	.65	0.00	14.00	100.00
9.090	250.00	832.98	0.00	.24	0.00	13.17	79.00
9.090	365.00	834.00	1.02	.63	0.00	14.00	79.00
9.090	430.00	834.60	.59	.95	0.00	14.00	79.00
9.090	550.00	836.14	1.54	2.08	0.00	679.58	79.00
9.200	250.00	833.26	0.00	.28	0.00	87.64	49.00
9.200	365.00	834.39	1.12	.38	0.00	115.00	49.00
9.200	430.00	835.02	.63	.42	0.00	115.00	49.00
9.200	550.00	836.12	1.11	-.02	0.00	115.00	49.00
9.300	250.00	833.53	0.00	.31	0.00	119.20	200.00
9.300	365.00	834.61	1.08	.22	0.00	203.94	200.00
9.300	430.00	835.19	.59	.17	0.00	296.27	200.00
9.300	550.00	836.24	1.05	.11	0.00	500.36	200.00
10.000	250.00	835.06	0.00	1.48	0.00	418.97	1370.00
10.000	365.00	835.59	.53	.99	0.00	430.85	1370.00
10.000	430.00	835.92	.33	.73	0.00	438.08	1370.00
10.000	550.00	836.63	.70	.39	0.00	465.00	1370.00
10.500	250.00	836.46	0.00	1.40	0.00	222.25	1160.00
10.500	365.00	836.69	.23	1.09	0.00	256.50	1160.00
10.500	430.00	836.83	.14	.91	0.00	278.52	1160.00
10.500	550.00	837.19	.37	.57	0.00	331.79	1160.00
11.000	250.00	838.63	0.00	2.17	0.00	38.07	640.00
11.000	365.00	839.25	.62	2.56	0.00	41.08	640.00
11.000	430.00	839.50	.25	2.67	0.00	42.34	640.00
11.000	550.00	839.79	.28	2.59	0.00	43.75	640.00
12.000	150.00	838.86	0.00	-.23	0.00	25.79	150.00
12.000	220.00	839.55	.69	.30	0.00	33.03	150.00
12.000	265.00	839.85	.30	.34	0.00	36.72	150.00
12.000	340.00	840.26	.41	.47	0.00	131.34	150.00
12.090	150.00	839.99	0.00	1.13	0.00	96.65	83.00
12.090	220.00	840.41	.42	.86	0.00	153.25	83.00
12.090	265.00	840.54	.13	.70	0.00	174.69	83.00
12.090	340.00	840.72	.18	.46	0.00	204.42	83.00
13.000	150.00	840.22	0.00	.23	0.00	20.40	2050.00
13.000	220.00	840.70	.47	.29	0.00	22.50	2050.00
13.000	265.00	840.89	.20	.35	0.00	23.33	2050.00
13.000	340.00	841.17	.28	.45	0.00	24.58	2050.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14.000	150.00	842.57	0.00	2.34	0.00	29.91	650.00
14.000	220.00	843.12	.55	2.42	0.00	36.47	650.00
14.000	265.00	843.45	.33	2.56	0.00	40.53	650.00
14.000	340.00	843.93	.47	2.76	0.00	46.21	650.00
14.090	150.00	847.75	0.00	5.19	0.00	191.57	60.00
14.090	220.00	848.04	.29	4.92	0.00	192.96	60.00
14.090	265.00	848.15	.11	4.78	0.00	193.53	60.00
14.090	340.00	848.30	.15	4.37	0.00	194.24	60.00

SUMMARY OF ERRORS

CAUTION SECNO= 1.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 1.010 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.010 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.010 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.010 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.010 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.010 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 4.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 5.900 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5.900 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 6.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 7.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 7.010 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7.010 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7.010 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7.010 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.010 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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1) COUNTY: Eaton

2) STUDY NAME: Delta twp

3) WATERCOURSE: Miller Creek

4) DOCUMENT TYPE: report

SNELL ENVIRONMENTAL GROUP, INC.

Delta Township

Flood Insurance Study
Miller Creek

Hydraulic Analysis Report

RECEIVED
SEP 25 1978
WATER MANAGEMENT

Snell Environmental Group

Engineering · Planning · Research

LETTER OF TRANSMITTAL

DATE	JOB NO.
September 20, 1978	17287A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: Delta Township	
Flood Insurance Studies	
Miller Creek	
Hydraulic Analysis Report	

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MILLER CREEK

HYDRAULIC ANALYSIS REPORT

TABLE OF CONTENTS

1. INTRODUCTION

2. FLOOD FLOWS

3. METHOD OF ANALYSIS

4. VARIABLES AND COEFFICIENTS

   4.1 Bridge Coefficients

5. HIGH WATER MARKS

6. STARTING CONDITIONS

7. SPECIAL PROBLEMS

REFERENCES

Appendix A — Cross-Section Description Table

Appendix B — Bridge Notes and Sketches

Appendix C — Calculations

Appendix D — Water Surface Profile

Appendix E — Map Delineating Floodway & Flood Fringe

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

Miller Creek is a small ungaged stream in Delta Township, Eaton County, Michigan. The detailed hydraulic analysis was performed for a 3.19 mile reach, extending from the Grand River to St. Joe Highway. 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 results were reviewed and approved by the Michigan Department of Natural Resources, Water Management Division. Table 1 gives a summary of the flows used in this analysis.

TABLE 1

REACH	Q (cfs)			
	10-yr.	50-yr.	100-yr.	500-yr.
Survey Section 12 to St. Joe Highway	150	220	265	340
Saginaw Highway to Survey Section 12	250	365	430	550
Survey Section 4 to Saginaw Highway	280	415	495	650
Grand River to Survey Section 4	365	535	635	825

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-foot contour interval maps. The cross-sections were repeated as required. Cross-sections 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 were 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. A HEC-2 run with a FN of 1.1 and 0.9 showed the majority of the reach to be relatively insensitive to"n" values.

TABLE 2

"n" value	Description
0.030 - 0.070	1. Channel
0.030 - 0.040	2. Lawns
0.040 - 0.050	3. Cropland
0.045 - 0.070	4. Meadows
0.070 - 0.100	5. Woods and Brush
0.015 - 0.020	6. Paved Roadways
0.020 - 0.025	7. Gravel Roadways

The contraction and expansion coefficients used were 0.3 and 0.5 respectively, at bridges and abrupt transitions. In reaches of gradual transitions the coefficients were reduced to 0.1 and 0.3 respectively. 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

As Miller Creek has no gaging station, calibration of the hydraulic model was impossible. Accordingly, no high water marks were sought or obtained.

6. STARTING CONDITIONS

As the watershed of Grand River is several orders of magnitude larger than that of Miller Creek, the storms causing a flood of particular probability were considered independent events in each watershed. Accordingly, the Miller Creek hydraulic model was started at normal depth rather than flood elevations on the Grand River. Normal depth was calculated using the slope area method and adjusting the input water elevation until the calculated slope matched the existing slope in Miller Creek. This starting elevation was compared to starting at critical depth. The water surface profile started at critical depth converged by SECNO 1.01.

7. SPECIAL PROBLEMS

The driveway culvert, Section A, was coded as normal bridge. The water surface, at the downstream face, SECNO 1.01, was calculated as critical depth. The upstream water surface calculated by the normal bridge routine was checked against combination low flow and weir flow. The low flow through the culvert was calculated using HEC-2. The weir flow was calculated using the Snell Environmental Group computer program WEIR. The combination flow analysis resulted in a slightly lower upstream energy gradeline and approximately the same flow distribution. Accordingly, the normal bridge routine was used.

The Lawrence Parkway Bridge, Section 0, was coded as a normal bridge. The weir rating curve developed by WEIR gave a substantially higher discharge at the same elevation. These results were checked against the special bridge calculations. The special bridge routine, using XKOR = 1.56 and COFQ = 2.9, calculated lower bridge losses than the normal bridge routine. Accordingly, the normal bridge routine was used. (The calculations referred to here were done only for the 100-year flow.)

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.

APPENDIX A

CROSS SECTION DESCRIPTION TABLE

CROSS-SECTION DESCRIPTION TABLE

Cross-Section	SECNO	DESCRIPTION
	0.9	Repeat of Section A, without BT cards, lowered 2.8 ft.
	1.0	Repeat of Section A without BT cards, 1 ft. d/s of driveway culvert
A	1.01	Surveyed bridge section, d/s face of driveway culvert
	1.09	Repeat of Section A, u/s face of driveway culvert
	1.1	Repeat of Section A without BT cards, 1 ft. u/s of driveway culvert
	1.2	Fabricated valley section
	1.8	Fabricated valley section
	1.9	Fabricated valley section
	2.0	Repeat of Section B, without BT cards, 1 ft. d/s of Willow Highway
B	2.01	Surveyed bridge section, d/s face of Willow Highway
C	2.09	Surveyed bridge section, u/s face of Willow Highway
	2.1	Repeat of Section C without BT cards, 1 ft. u/s of Willow Highway
D	3.0	Fabricated valley section
E	3.5	Fabricated valley section
	3.9	Repeat of Section F without BT cards, section lowered 0.19 ft.
F	4.0	Surveyed bridge section, d/s face of farm lane culvert
	4.09	Repeat of Section F, u/s face of farm lane culvert
G	4.3	Fabricated valley section

H	4.5	Fabricated valley section
I	5.0	Surveyed valley section
J	5.5	Fabricated valley section
K	5.7	Fabricated valley section
L	5.8	Fabricated valley section
	5.9	Fabricated valley section, 50 ft. d/s from Philwood Drive
M	6.0	Surveyed bridge section, d/s face of Philwood Drive
N	6.04	Surveyed bridge section, u/s face of Philwood Drive
	6.2	Repeat of Section N without BT cards, section lowered 0.01 ft.
	6.5	Fabricated valley section
	6.9	Fabricated valley section
	7.0	Repeat of Section O without BT cards, 1 ft. d/s of Lawrence Parkway
O	7.01	Field surveyed bridge section, d/s face of Lawrence Parkway
	7.09	Repeat of Section O, u/s face of Lawrence Parkway
	7.1	Repeat of Section O, without BT cards, 1 ft. u/s of Lawrence Parkway
	8.0	Repeat of Section P without BT cards, 1 ft. d/s of foot bridge
P	8.01	Surveyed bridge section, d/s face of foot bridge
	8.09	Repeat of Section P, u/s face of foot bridge
	8.1	Repeat of Section P without BT cards, 1 ft. u/s of foot bridge
Q	8.5	Fabricated valley section
R	8.6	Fabricated valley section

S	8.7	Fabricated valley section
T	8.8	Fabricated valley section
U	8.9	Fabricated valley section
V	9.0	Surveyed bridge section, d/s face of Saginaw Highway
W	9.09	Survey bridge section, u/s face of Saginaw highway
X	9.2	Fabricated valley section
	9.3	Repeat of Section X, section raised 0.77 ft.
Y	10.0	Fabricated valley section
Z	11.0	Surveyed valley section
AA	12.0	Surveyed bridge section, d/s face of Rock Bridge Road
AB	12.09	Surveyed bridge section, u/s face of Rock Bridge Road
AC	13.0	Surveyed valley section
AD	14.0	Surveyed bridge section, d/s face of St. Joe Highway
AE	14.09	Surveyed bridge section, u/s face of St. Joe Highway

APPENDIX B

BRIDGE NOTES AND SKETCHES

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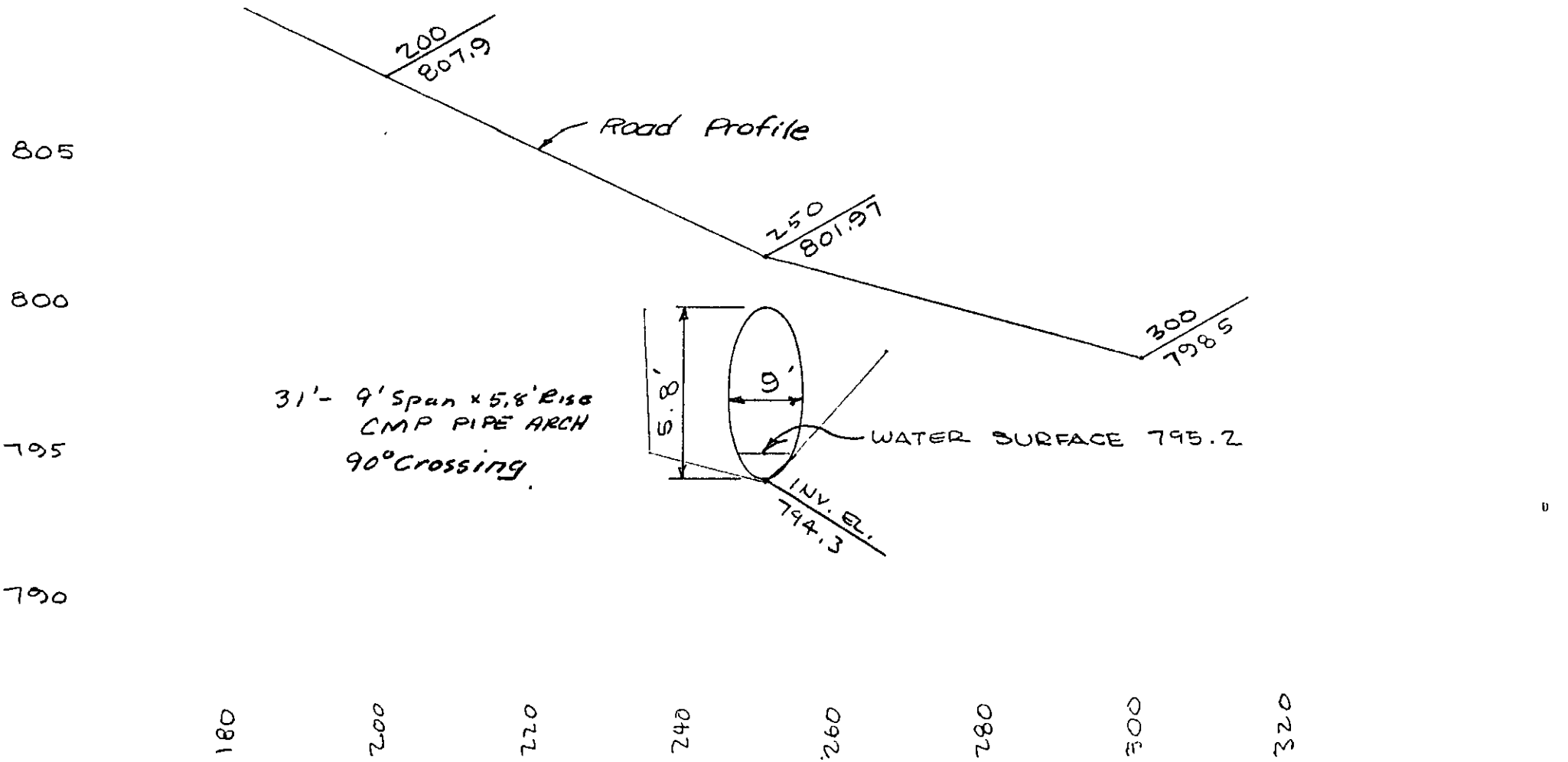

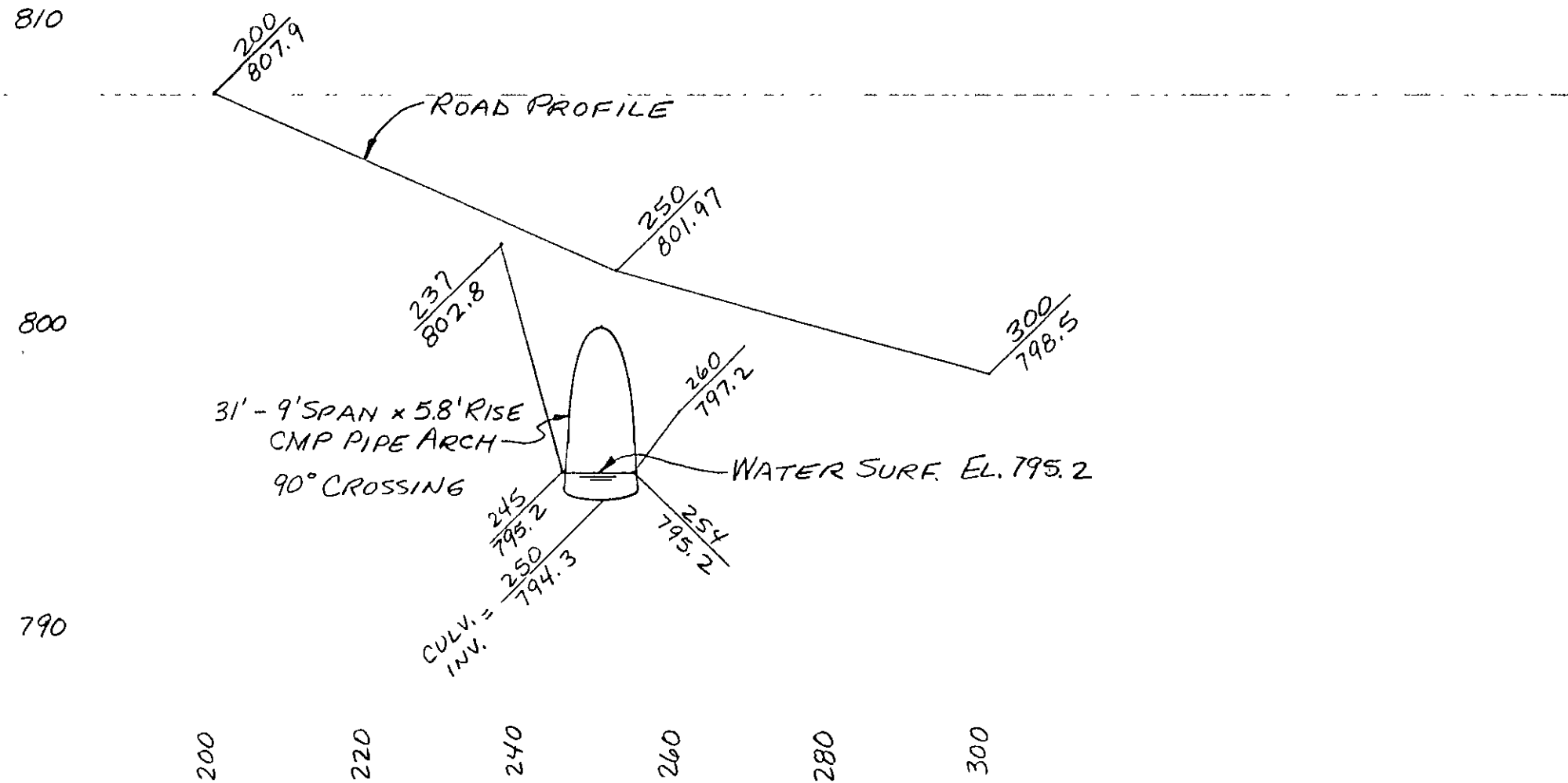

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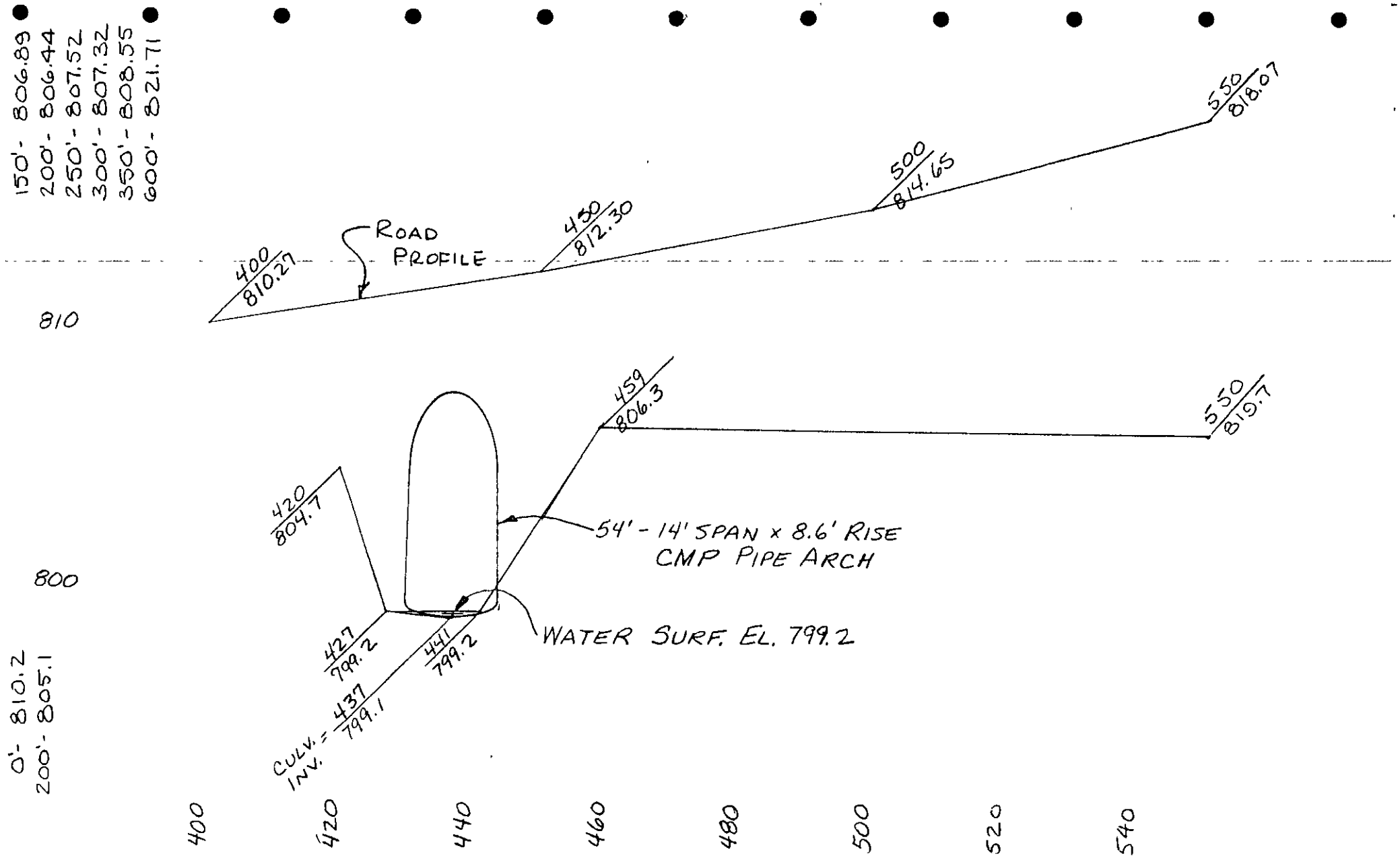

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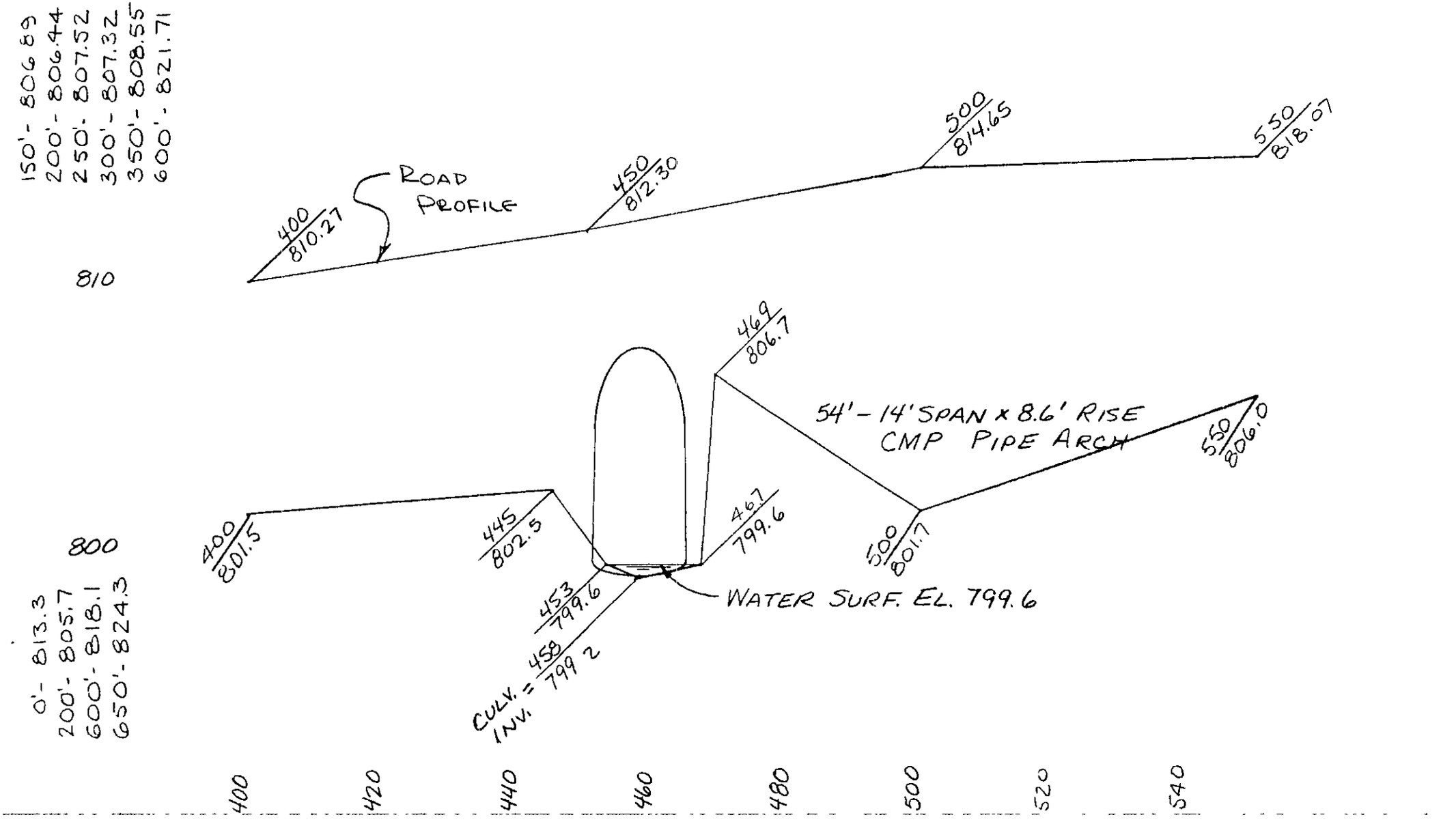
OUTLET W. How Hwy

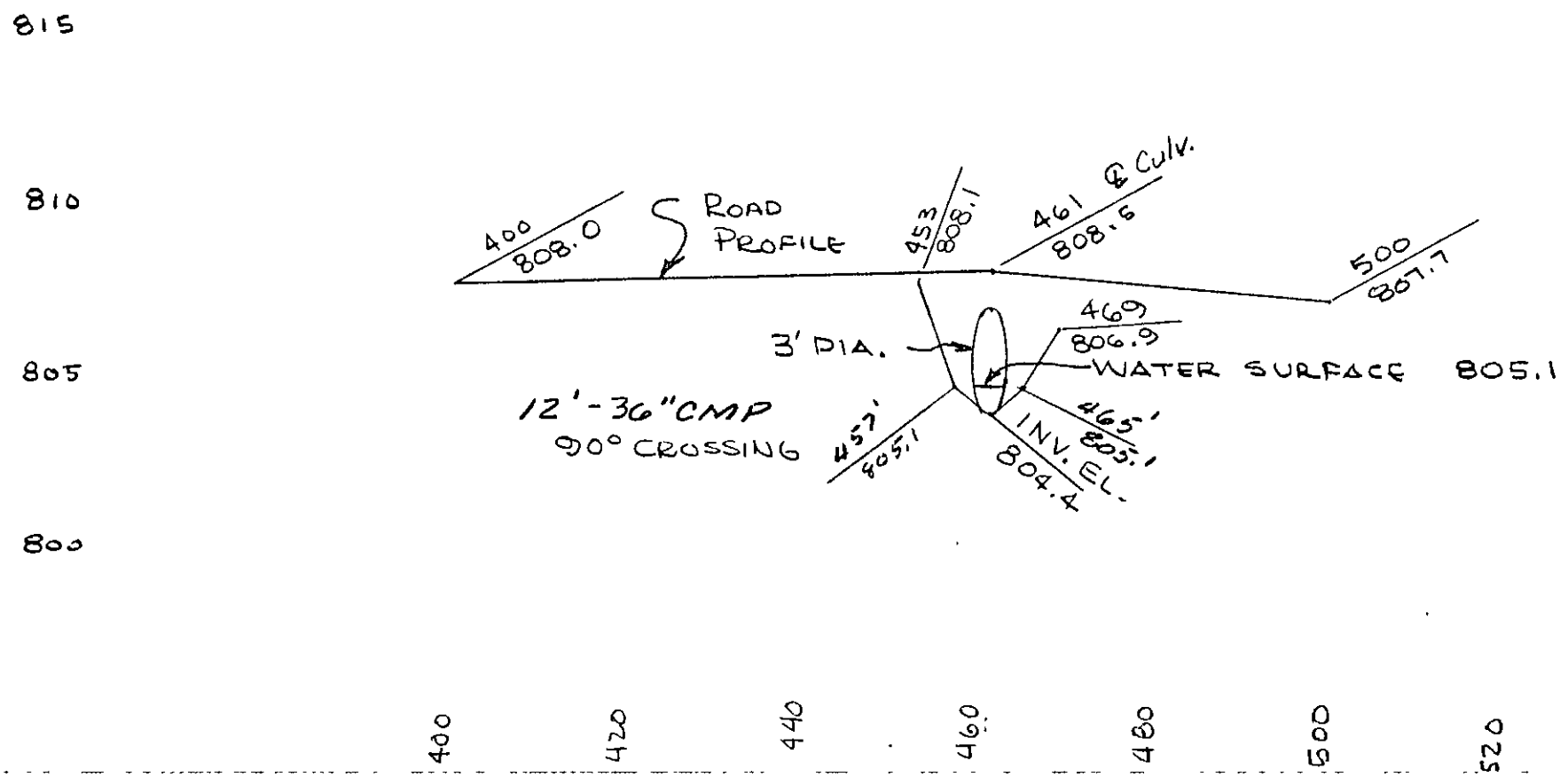


MILLER CREEK SEC. #2

INLET

MILLER CREEK STA. # 4

INLET Farm Lane Bridge



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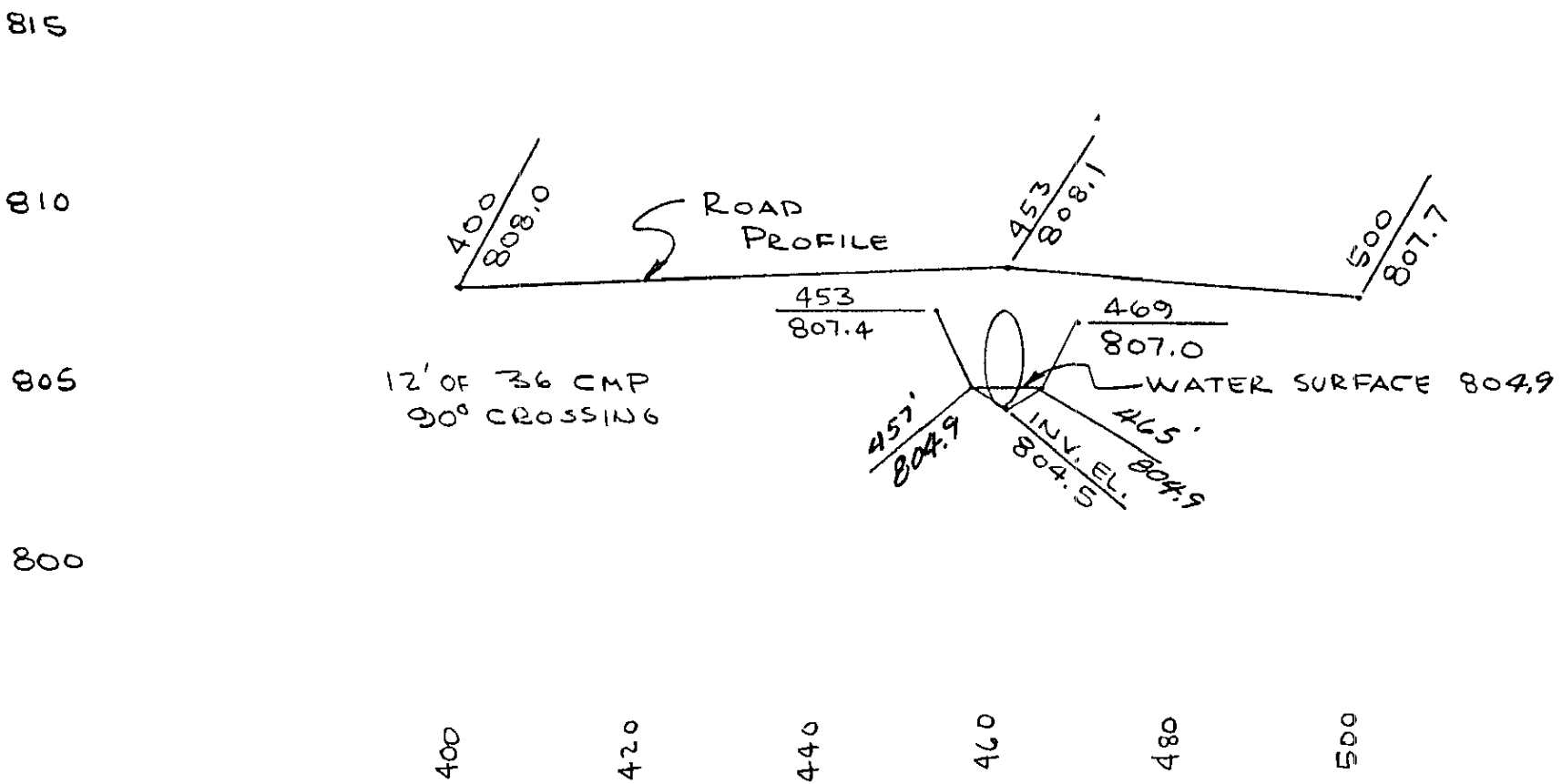
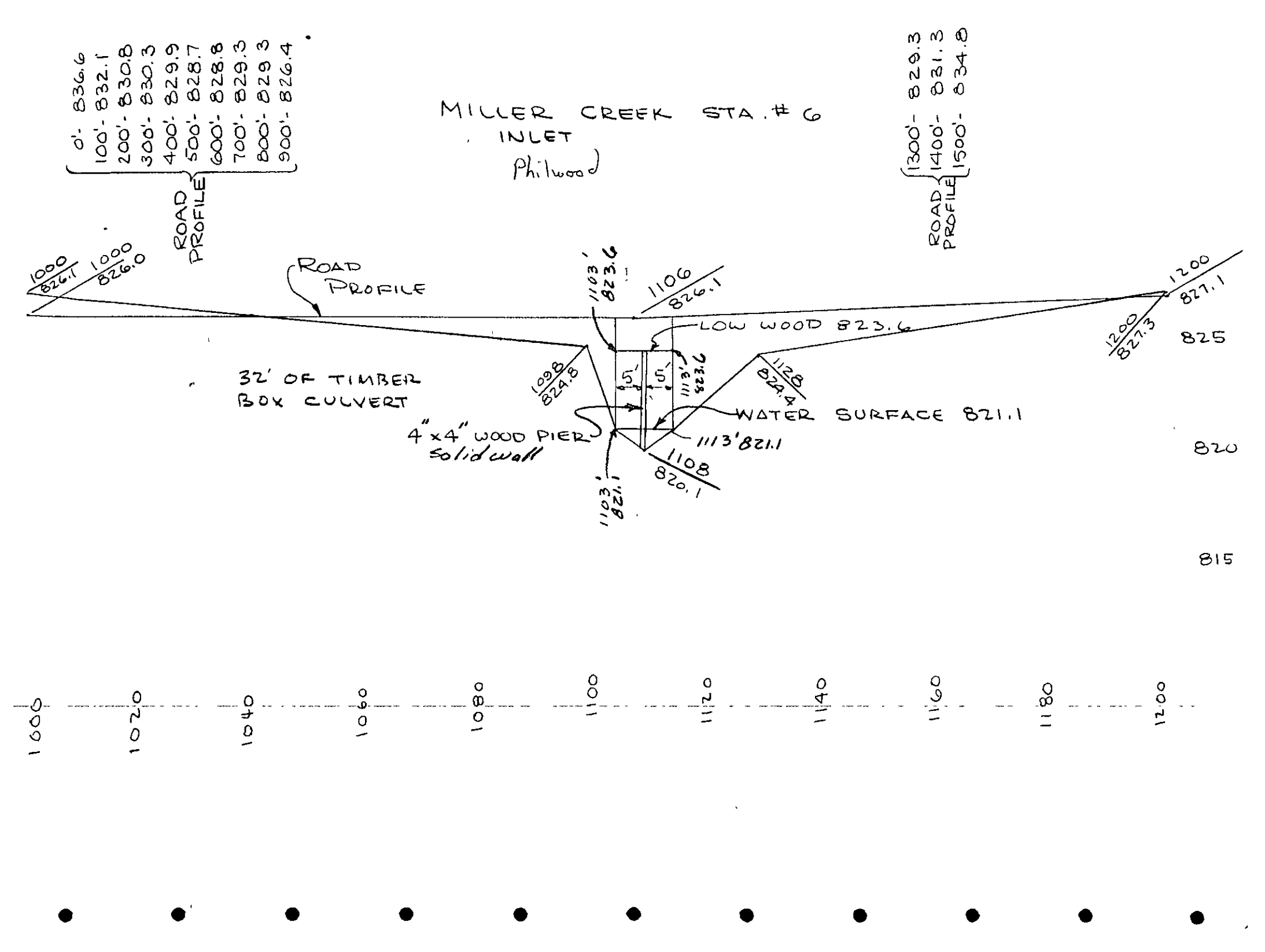
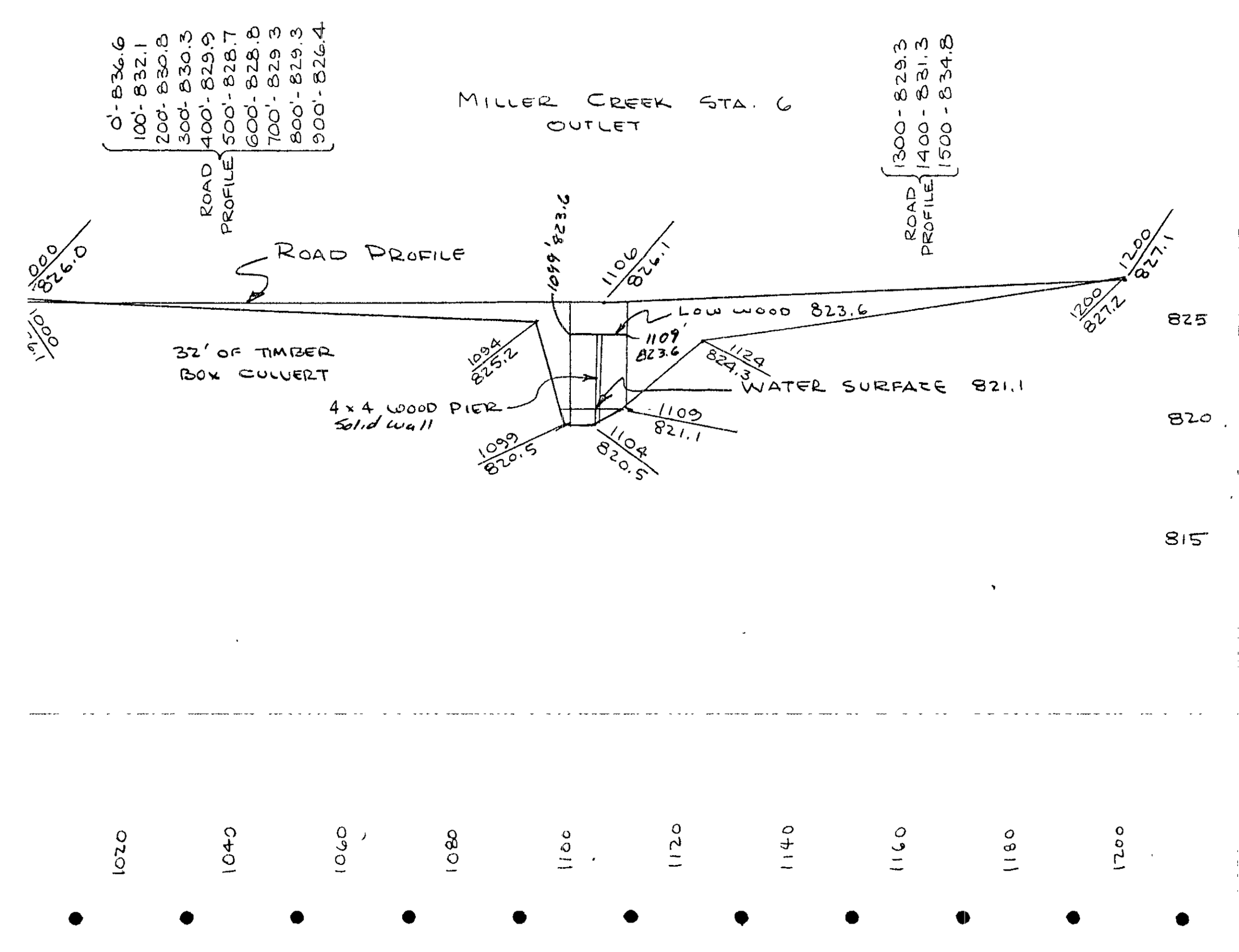
OUTLET



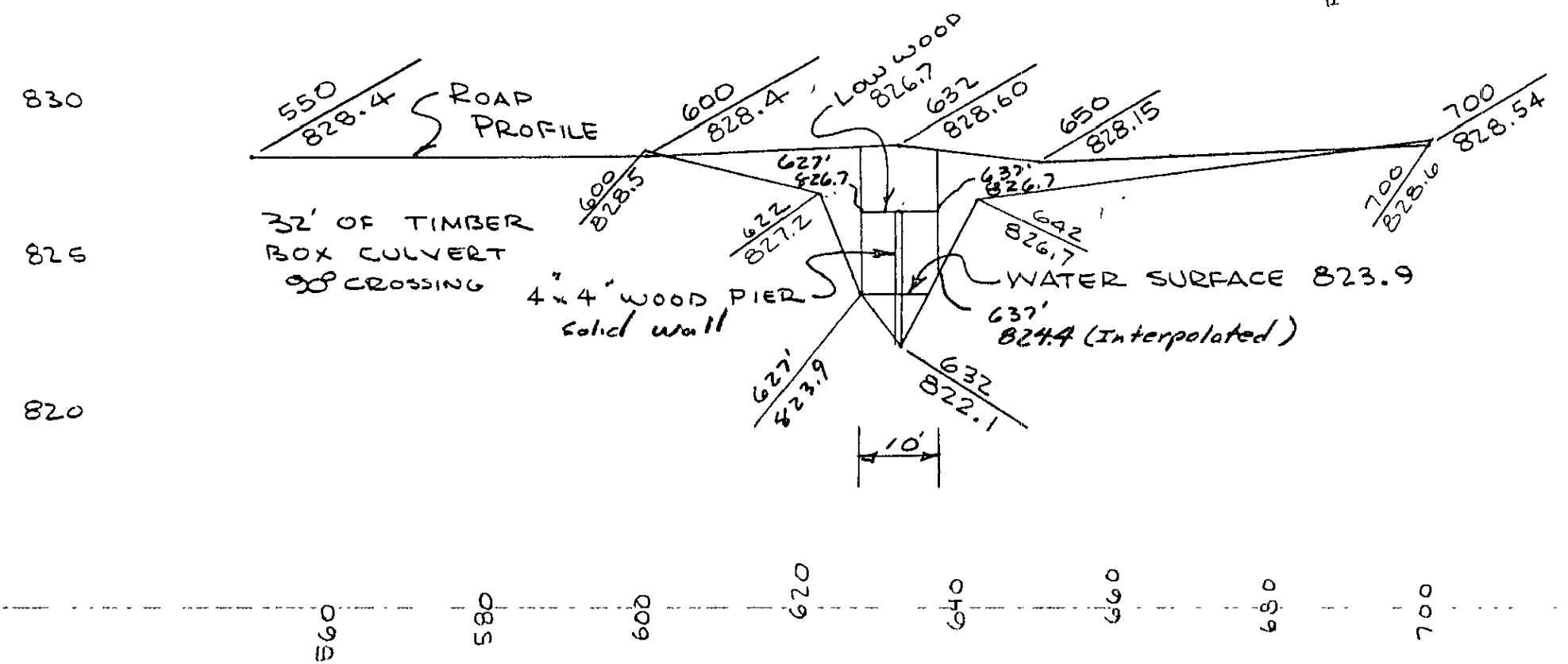

MILLER CREEK STA. # 6
INLET
Philwood
ROAD PROFILE
0' 836.6
100' - 832.1
200' - 830.8
300' - 830.3
400' - 829.9
500' - 828.7
600' - 828.8
700' - 829.3
800' - 829.3
900' - 826.4
ROAD PROFILE
1300' - 829.3
1400' - 831.3
1500' - 834.8
1000 826.1
1000 826.0
ROAD PROFILE
1103' 823.6
1106 826.1
LOW WOOD 823.6
1200 827.1
1200 827.3
825
1098 824.8
32' OF TIMBER BOX CULVERT
5'
5'
1113' 823.2
1128 824.4
WATER SURFACE 821.1
4" x 4" WOOD PIER solid wall
1113' 821.1
1108 820.1
1103' 821.1
820
815
1000
1020
1040
1060
1080
1100
1120
1140
1160
1180
1200

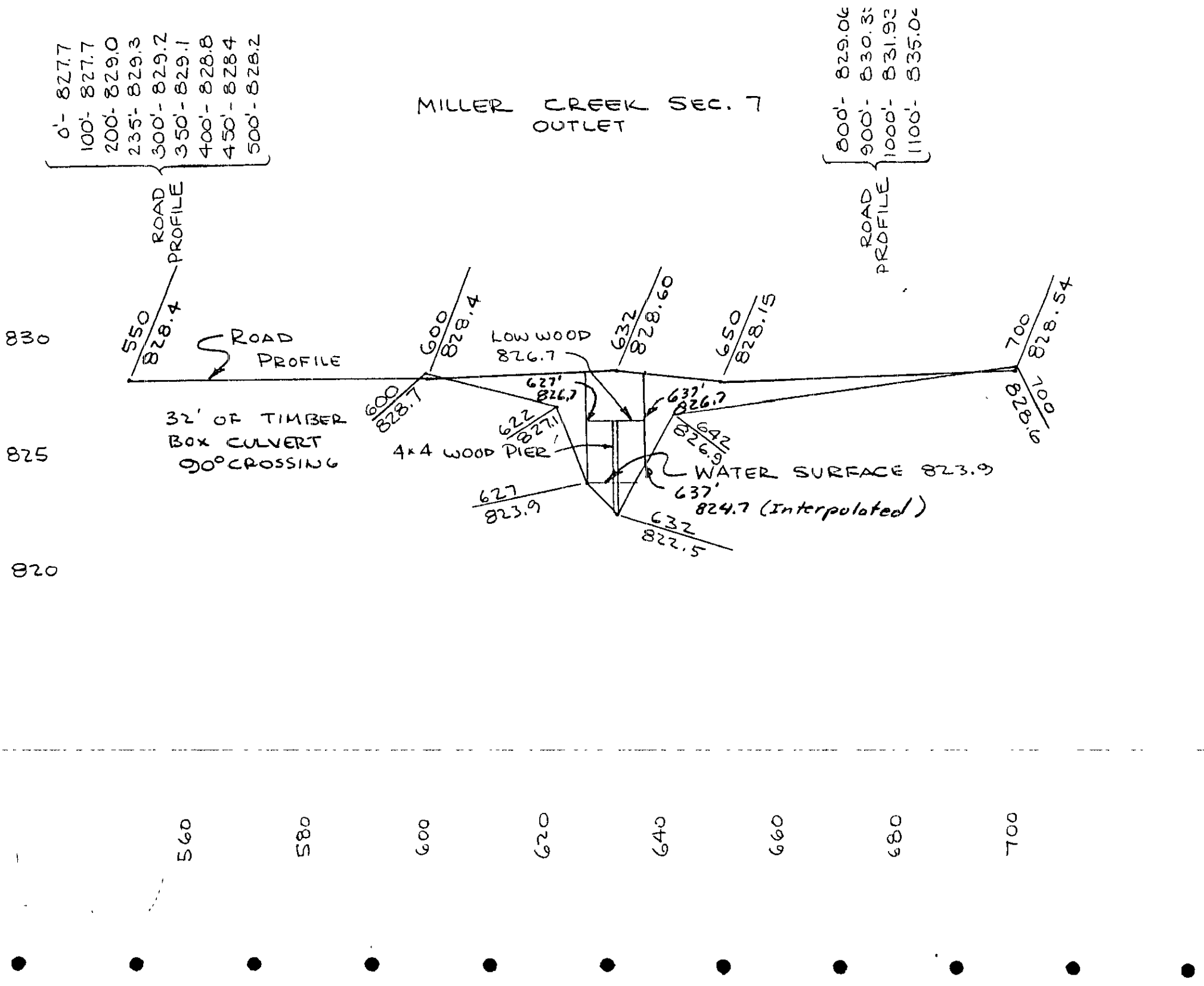

MILLER CREEK STA. 6
OUTLET
ROAD PROFILE
0' - 836.6
100' - 832.1
200' - 830.8
300' - 830.3
400' - 829.9
500' - 828.7
600' - 828.8
700' - 829 3
800' - 829.3
900' - 826.4
ROAD PROFILE
1300 - 829.3
1400 - 831.3
1500 - 834.8
ROAD PROFILE
000 826.0
1000 826.1
1099 823.6
1106 826.1
1200 827.1
1200 827.2
LOW WOOD 823.6
1109 823.6
1094 825.2
1124 824.3
WATER SURFACE 821.1
32' OF TIMBER BOX CULVERT
4 x 4 WOOD PIER Solid wall
1109 821.1
1099 820.5
1104 820.5
825
820
815
1020
1040
1060
1080
1100
1120
1140
1160
1180
1200

MILLER CREEK SEC. # 7
INLET

ROAD PROFILE
0'- 827.7
100'- 827.7
200'- 829.0
235'- 829.3
300'- 829.2
350'- 829.1
400'- 828.8
450'- 828.4
500'- 828.2

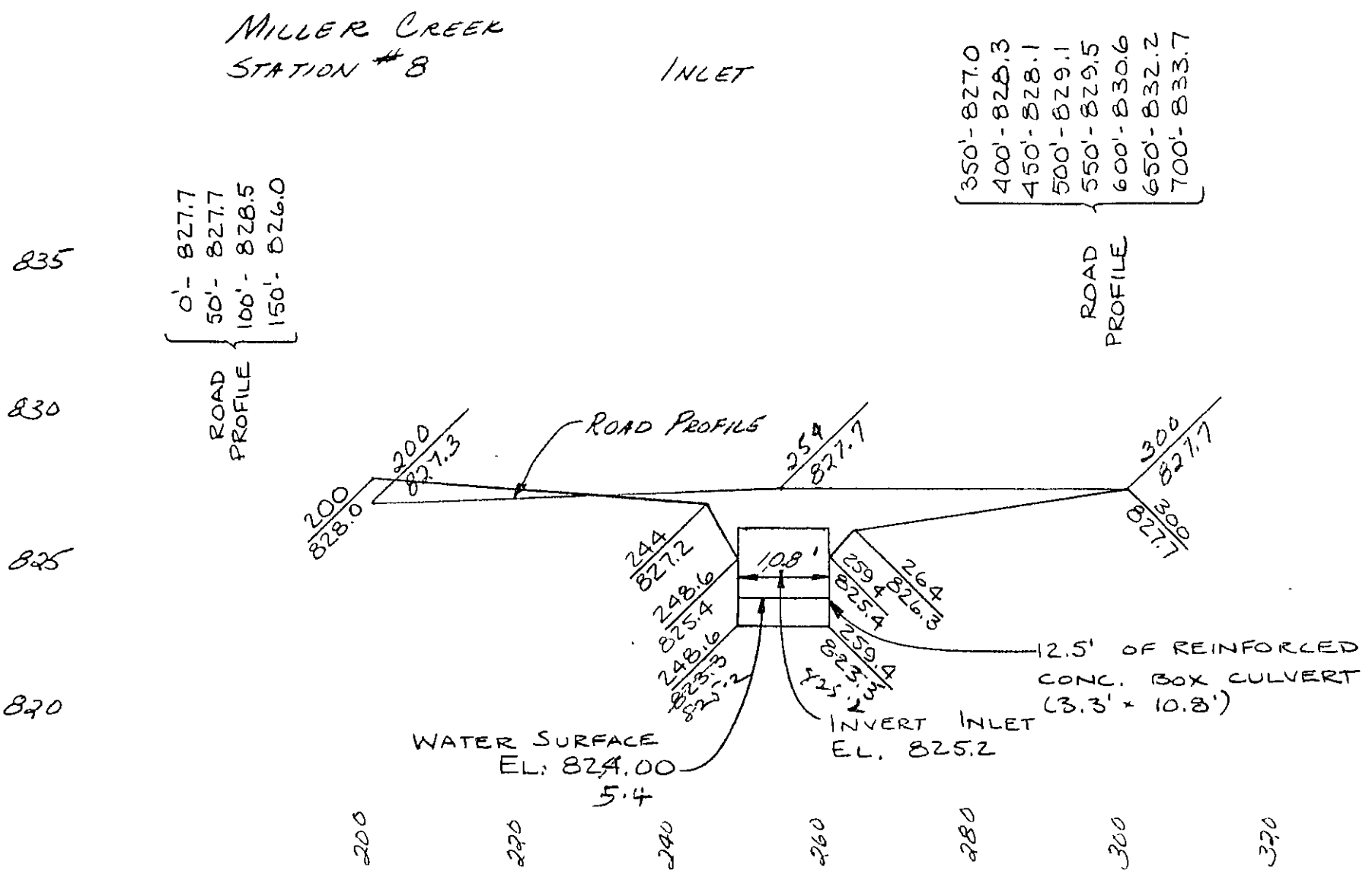
ROAD PROFILE
800'- 829.06
900'- 830.35
1000'- 831.93
1100'- 835.04




MILLER CREEK SEC. 7
OUTLET
0'- 827.7
100'- 827.7
200'- 829.0
235'- 829.3
300'- 829.2
350'- 829.1
400'- 828.8
450'- 828.4
500'- 828.2
ROAD PROFILE
800'- 829.06
900'- 830.3
1000'- 831.92
1100'- 835.0
ROAD PROFILE
830
825
820
550 828.4
ROAD PROFILE
600 828.4
LOW WOOD 826.7
632 828.60
650 828.15
700 828.54
600 828.7
627' 826.7
637' 826.7
622 827.1
642 826.9
700 828.6
32' OF TIMBER BOX CULVERT 90° CROSSING
4x4 WOOD PIER
WATER SURFACE 823.9
637' 824.7 (Interpolated)
627 823.9
632 822.5
560
580
600
620
640
660
680
700

MILLER CREEK
STATION #8

INLET



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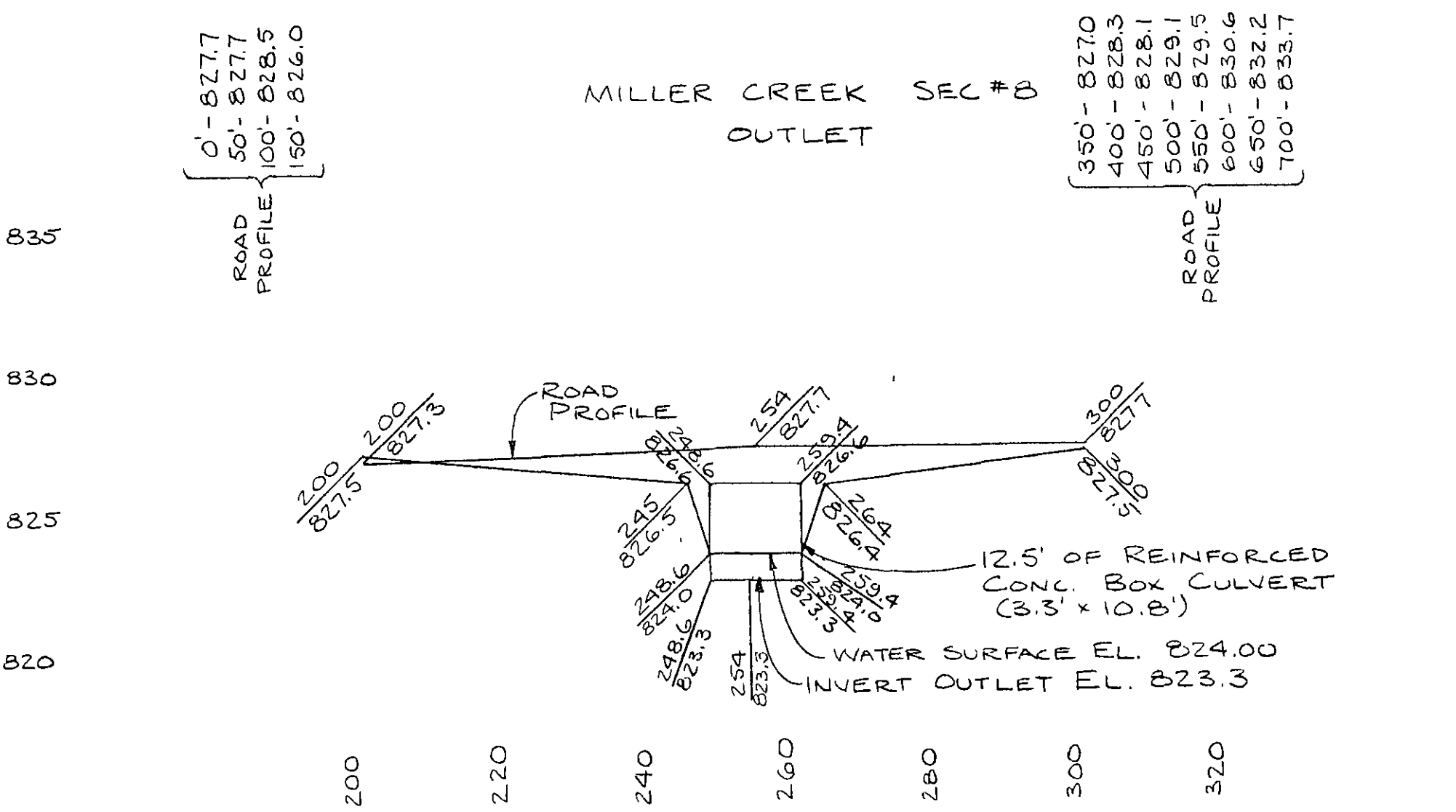
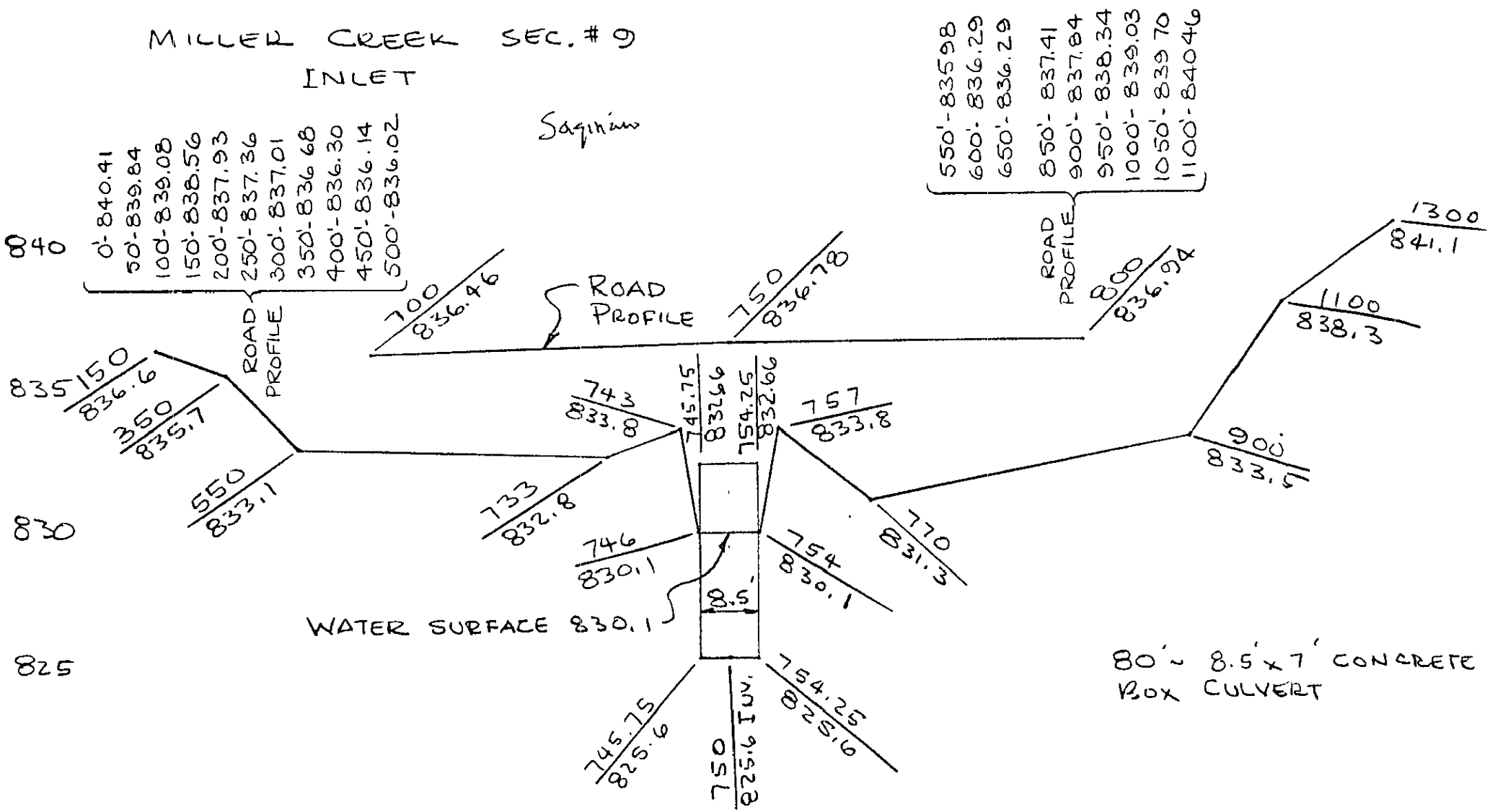
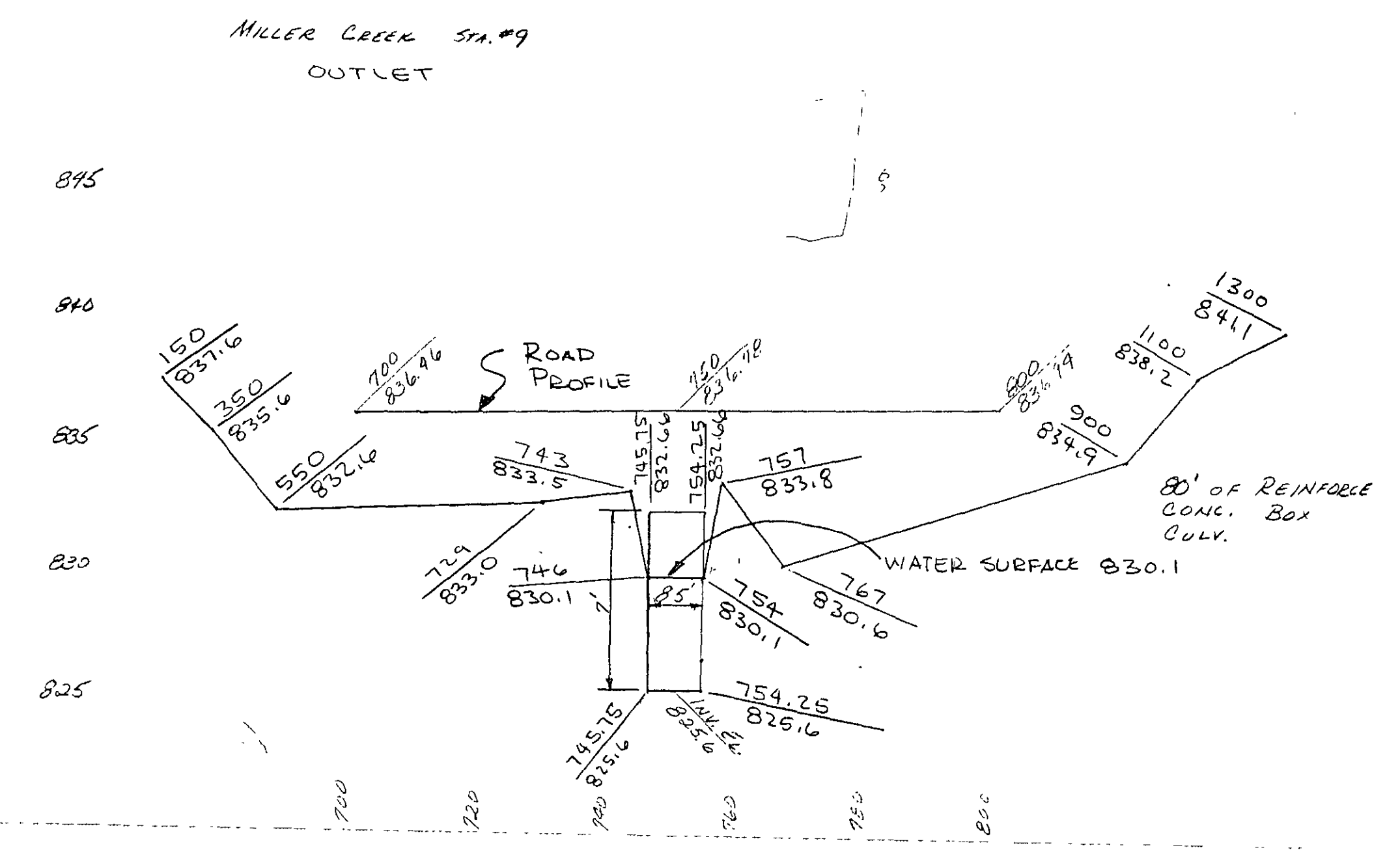
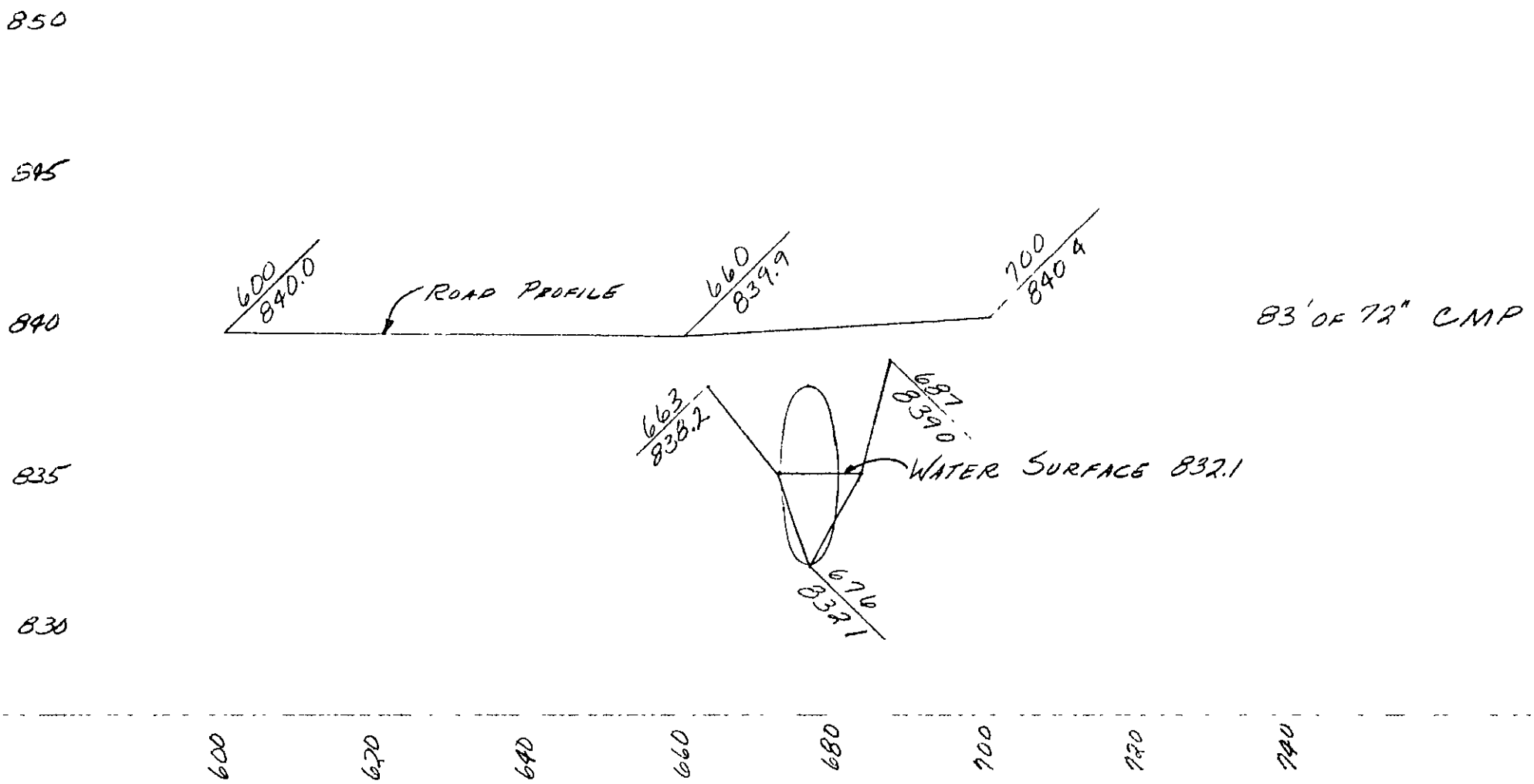


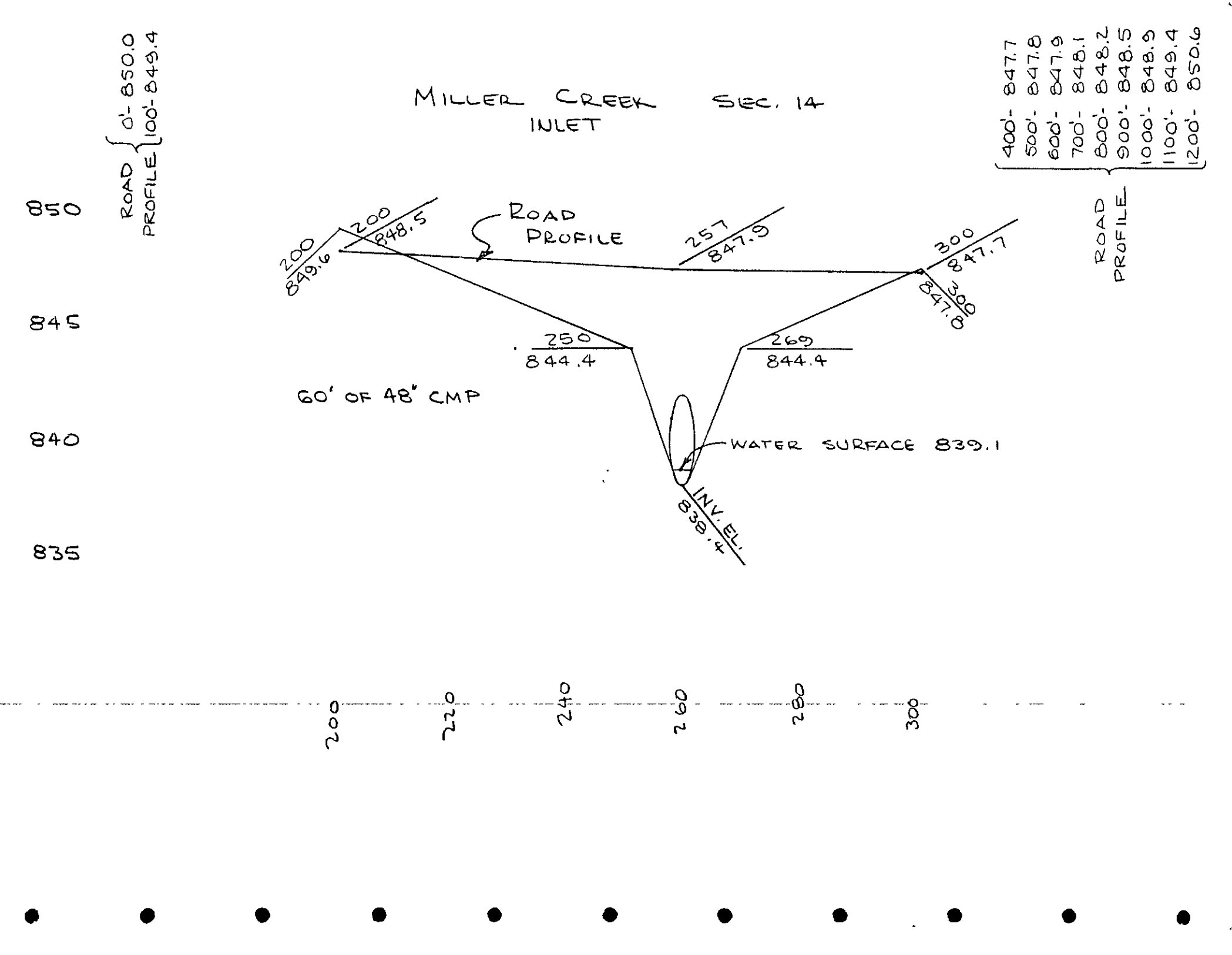

MILLER CREEK SEC. # 9
INLET
Saginaw
0'-840.41
50'-839.84
100'-839.08
150'-838.56
200'-837.93
250'-837.36
300'-837.01
350'-836.68
400'-836.30
450'-836.14
500'-836.02
550'-835.98
600'-836.29
650'-836.29
850'-837.41
900'-837.84
950'-838.34
1000'-839.03
1050'-839.70
1100'-840.46
ROAD PROFILE
700 836.46
750 836.78
800 836.94
1300 841.1
1100 838.3
900 833.5
840
835
830
825
150 836.6
350 835.7
550 833.1
743 833.8
745.75 832.66
754.25 832.66
757 833.8
733 832.8
746 830.1
754 830.1
770 831.3
8.5'
WATER SURFACE 830.1
745.75 825.6
750 825.1 Inv.
754.25 825.6
80' ~ 8.5' x 7' CONCRETE BOX CULVERT
700
720
740
760
780
800

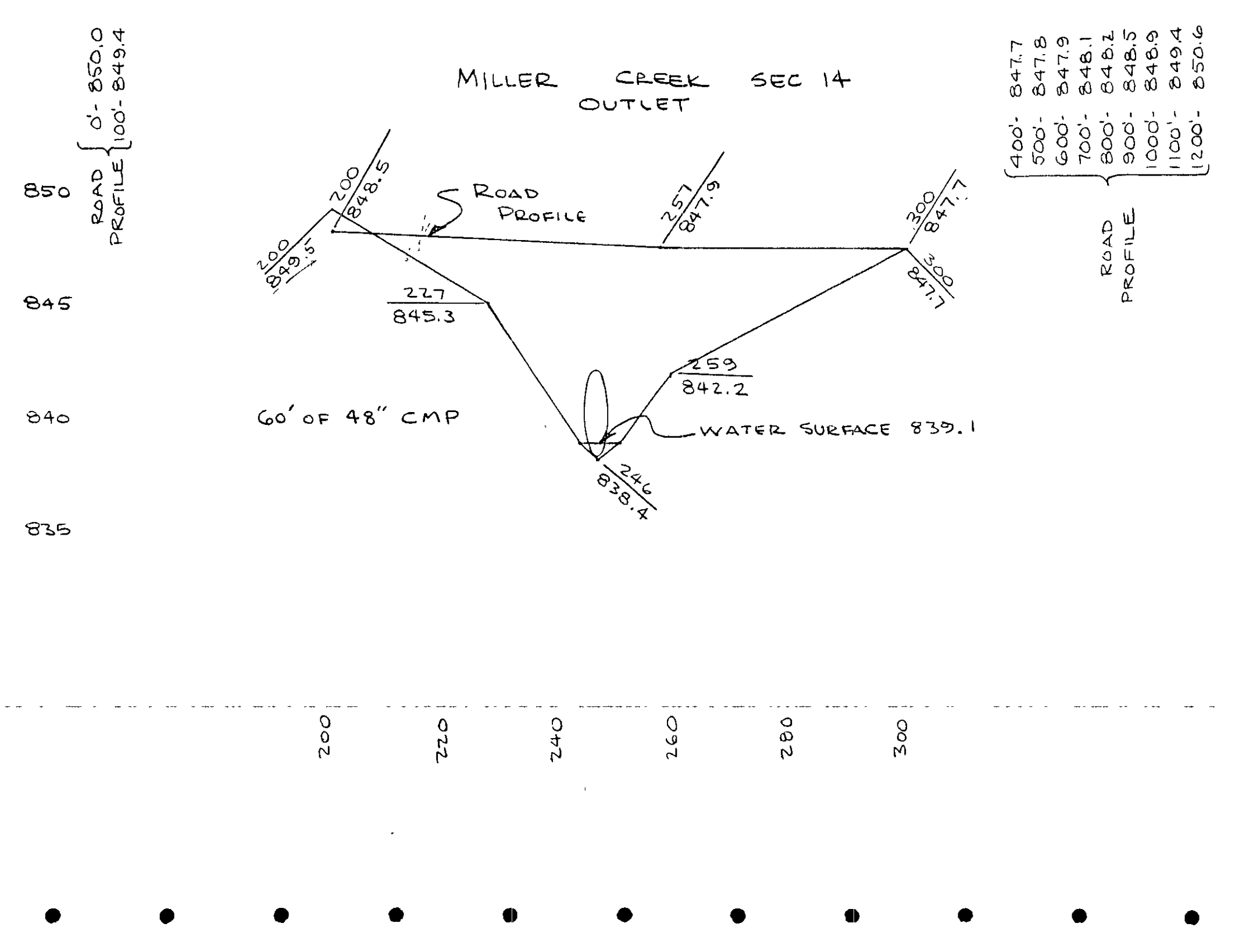

MILLER CREEK STA. #9
OUTLET
845
840
835
830
825
150
837.6
350
835.6
550
832.6
700
836.96
ROAD
PROFILE
750
836.78
800
836.79
1300
841.1
1100
838.2
900
834.9
743
833.5
745.75
832.66
754.25
832.66
757
833.8
729
833.0
746
830.1
85'
754
830.1
767
830.6
754.25
825.6
745.75
825.6
INVERT
825.6
80' OF REINFORCE
CONC. BOX
CULV.
WATER SURFACE 830.1
700
720
740
760
780
800

MILLER CREEK SEC. # 12
INLET

MILLER CREEK SEC. #12
OUTLET




MILLER CREEK SEC. 14
INLET
ROAD PROFILE 0'- 850.0
100'- 849.4
400'- 847.7
500'- 847.8
600'- 847.9
700'- 848.1
800'- 848.2
900'- 848.5
1000'- 848.9
1100'- 849.4
1200'- 850.6
ROAD PROFILE
850
845
840
835
200 849.6
200 848.5
ROAD PROFILE
257 847.9
300 847.7
300 847.8
250 844.4
269 844.4
60' OF 48" CMP
WATER SURFACE 839.1
INV. EL. 838.4
200
220
240
260
280
300


MILLER CREEK SEC 14
OUTLET
ROAD PROFILE { 0'- 850.0
100'- 849.4
200
848.5
200
849.5
ROAD
PROFILE
257
847.9
300
847.7
300
847.8
227
845.3
259
842.2
60' OF 48" CMP
WATER SURFACE 839.1
246
838.4
850
845
840
835
400'- 847.7
500'- 847.8
600'- 847.9
700'- 848.1
800'- 848.2
900'- 848.5
1000'- 848.9
1100'- 849.4
1200'- 850.6
ROAD PROFILE
200
220
240
260
280
300

APPENDIX C

CALCULATIONS

Snell Environmental Group
Engineering Planning Research
Michigan Ohio · Indiana

SUBJECT MILLER CREEK HYDRAULICS
JOB NUMBER 17287A
SHEET NO. ____ OF ____
COMP. BY KJG DATE 8/31/78
CHK'D. BY ____ DATE ____

B.S. #2

14' x 8.6' C.M.P. ARCH (2" CORROGATIONS)
54' LENGTH
PROJECTING INLET

ASSUME STANDARD SIZE 13.93' X 8.58'

AREA = 92.6 FT²
W.P. = 19.17 FT - WP = $\frac{\pi \times D}{12}$ = 36.13'
R = 4.83 FT - R = 2.563'
n = .0304

XKOR

$k_e = 0.9$

$k_f = \frac{29.1(.0304)^2 54}{(4.83)^{4/3}} = 0.18$ (.414)

XKOR = 1. + 0.9 + 0.18 = 2.08
2.31

Snell Environmental Group
Engineering Planning Research
Michigan · Ohio · Indiana

SUBJECT Miller Creek Hydraulics
JOB NUMBER 17267A
SHEET NO. ____ OF ____
COMP. BY KJS DATE 3/31/78
CHK'D. BY ____ DATE ____

B. S. II/14

4.' DIAM. CMP (1/2" CORROGATIONS)
INLET: SAND BAG WING WALLS PARALLEL TO EMBANKMENT
LENGTH: 60'

AREA = 12.57
W.P. = 12.57
R = 1.
n = .0237 used by BPR, may be low

XKOR

$k_e = .5$

$k_f = \frac{29.1\,(.0237)^2\,60.}{(1)^{4/3}} = 0.98$ If .031 is used $K_f = 1.68$

XKOR = 1. + 0.5 + 0.98 = 2.48 ✓

Snell Environmental Group
Engineering Planning Research
Michigan Ohio · Indiana

SUBJECT Miller Creek Hydraulics
JOB NUMBER
SHEET NO. OF
COMP. BY KEJ DATE 8/31/76
CHK'D. BY DATE

B.S.# 9 SAGINAW HIGHWAY

REINFORCED CONCRETE BOX CULVERT 7.' X 8.5'
WINGWALLS AT 30° TO 70°
LENGTH: 80'

AREA = 59.5 FT²
W.P. = 31'
R = 1.92 FT

n = 0.014 (may be somewhat low — CONCRETE IS CLEAN AND HAS SOME PITTING)

XKOR

$k_e = 0.4$

$k_f = \frac{29.1\,(.014)^2\,80}{(1.92)^{4/3}} = 0.19$

IF .02 IS USED XKOR = 1.79
INCREASE EG by .16ft

XKOR = 1. + 0.4 + 0.19 = 1.59 V

Snell Environmental Group
Engineering Planning Research
Michigan · Ohio · Indiana

SUBJECT. Miller Creek
Hydraulics

JOB NUMBER 17287A
SHEET NO ____ OF ____
COMP. BY KLJ DATE 8/31/78
CHK'D. BY ____ DATE ____

B.S. #7

TIMBER BOX CULVERT 10' X 3.5'
INLET; 45° WINGWALLS IN FAIR TO GOOD CONDITION
LENGTH: 32'
4" PIER IN CENTER

AREA = 35 FT^2
WP = 27. FT
R = 1.30 FT
n = 0.013 maybe low if n=.018 Kf = .21

XKOR

k_e = 0.4 + 0.05 = 0.45

k_p = 0.11 (.36

XKOR = 1. + 0.45 + 0.11 = 1.56 — special bridge routine not used on this bridge any way.

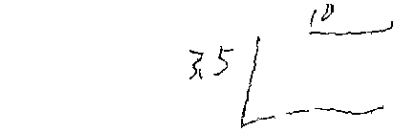
166

Snell Environmental Group
Engineering Planning Research
Michigan · Ohio · Indiana

SUBJECT Miller Creek Hydraulics
JOB NUMBER 17287A
SHEET NO. ____ OF ____
COMP. BY KJJ DATE 8/31/78
CHK'D. BY ____ DATE ____

B.S. # 6 -

TIMBER BOX CULVERT 10' X 3.5'
INLET: 45° WINGWALLS WITH EROSION BEHIND WALLS
LENGTH: 32'
4" PIER IN CENTER



AREA = 35 ft² — not the same as BAREA
W.P. = 27 FT
R = 1.30 FT
n = 0.013

$R = \frac{28.5}{27} = 1.06$ $K_{KOR} = 1.92$ $K_f = \frac{29.1(.013)^2 32}{(1.06)^{4/3}} = 2.88$ Q = 261 cfs

$R = \frac{28.5}{19.33 + 14.00} = .86$ $n = \frac{3.67 \times .014 + 14 \times .014 + .035(3.67)}{33.33} = .02$

$K_f = 463$ $K_{KOR} = 2.36$

XKOR

$k_e = \underbrace{0.4}_{\text{WINGWALLS ON BOX CULVERT}} + \underbrace{0.05}_{\text{PIER}} + \underbrace{0.45}_{\text{POOR CONDITION OF WINGWALLS}} = 0.9$

$K_f = \frac{29.1(0.013)^2 32.}{(1.3)^{4/3}} = 0.11$

if n = .018
$K_f = 21$

Philwood Dr.

XKOR = 1. + 0.9 + 0.11 = 2.01

XKOR = 2.11 Q = 265 cfs

Since there is ≃ 45% weir flow another 10 cfs will not drastically effect the W.S.

Snell Environmental Group
Engineering Planning · Research
Michigan · Ohio Indiana

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

B.S. # 4

36" ϕ CMP (1/2 IN)
12' LONG
PROJECTING INLET

n = 0.024
AREA = 7.069
W.P. = 9.425
R = 0.75

XKOR
$K_e = 0.9$

$$K_f = \frac{29.1 (0.024)^2 12}{(.75)^{4/3}} = 0.295$$

XKOR = 1. + 0.9 + 0.295 = 2.195

APPENDIX D

Water Surface Profile

APPENDIX E

Map Delineating Floodway
& Flood Fringe



1) COUNTY: Eaton

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Moon and Hamilton

4) DOCUMENT TYPE: 100-year Floodway



```
1234567 [illegible]456789.123456789.123456789.123456789.123456789.12  SB85122  456789.123456789.123456789.123456789.123456789.
12345678 [illegible]3456789.123456789.123456789.123456789.123456789.12  SB85122  456789.123456789.123456789.123456789.123456789.

 SSSSSSSS   BBBBBBBBB     888888     55555555      11       2222222     2222222       16:46:53 03/20/79 FEPR  80  SB85122
 SSSSSSSS   BBBBBBBBB     888888     55555555      11       2222222     2222222       16:46:53 03/20/79 FEPR  80  SB85122
SS          BB      BB   88    88   55           111      22     22   22     22       16:46:53 03/20/79 FEPR  80  SB85122
SS          BB      BB   88    88   55           111      22     22   22     22       16:46:53 03/20/79 FEPR  80  SB85122
 SSSSSSSS   BBBBBBBBB     888888     55555555    1111           22          22        16:46:54 03/20/79 FEPR  80  SB85122
 SSSSSSSS   BBBBBBBBB     888888     55555555    1111           22          22        16:46:54 03/20/79 FEPR  80  SB85122
        SS  BB      BB   88    88         55      11         22          22          16:46:54 03/20/79 FEPR  80  SB85122
        SS  BB      BB   88    88         55      11         22          22          16:46:54 03/20/79 FEPR  80  SB85122
SS      SS  BB      BB   88    88         55      11       22          22            16:46:54 03/20/79 FEPR  80  SB85122
SS      SS  BB      BB   88    88         55      11       22          22            16:46:54 03/20/79 FEPR  80  SB85122
 SSSSSSSS   BBBBBBBBB     888888     5555555    111111    222222222   222222222     16:46:54 03/20/79 FEPR  80  SB85122
 SSSSSSSS   BBBBBBBBB     888888     5555555    111111    222222222   222222222     16:46:55 03/20/79 FEPR  80  SB85122
```

FLOODWAY

MOON AND HAMILTON DRAIN UPSTREAM OF
PROPOSED BRANCH 2

Input in rear of folder.

```
123456789.123456789.123456789.123456789.123456789.123456789.12  SB85122  456789.123456789.123456789.123456789.123456789.123456789.123456
123456789.123456789.123456789.123456789.123456789.123456789.12  SB85122  456789.123456789.123456789.123456789.123456789.123456789.123456
123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456789.123456
[illegible]
```

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

T1      100 YEAR FLOODWAY
T2
T3      MOON AND HAMILTON DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        8.        0.        0.  0.000000      0.00      0.0       0.   841.420   0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000    0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000
```

```
*PROF 2

CCHV=     .100 CLHV=     .3 0
*SECNO 1. 00
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        OL SS   BANK ELEV
   Q         GLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTS       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      46.1      94.6  TYPE=     1  TARGET=      48.510

        CONFLUENCE OF MOON AND HAMILTON DRAIN AND HOLLEY DRAIN

     1.00      7.62   841.42      0.00   841.31   841.45      .03      0.00     0.00100000.00
     310.        0.     304.        6.        0.     205.      13.        0.        0.    838.80
     0.00      0.00     1.49       .44      .065     .046     .065     0.000   833.80    46.10
  .000255        0.       0.        0.        0        0        0      0.00    48.51    94.61


*SECNO 2.000
 2800 NAT Q1=      92.96   SEL=     841.41  ENC Q1=      92.96  WSEL=     841.51  RATIO=  0.0000
 NAT Q1=      96.  RATIOS LOB,CH,ROB=    .3048    .5886    .1065  WSEL=     841.51

3470 ENCROACHMENT STATIONS=     102.5     137.5  TYPE=     4  TARGET=        .033
     2.00      7.71   841.51      0.00   841.41   841.58      .07       .12       .01   635.50
     310.       92.     159.       29.       66.      75.      28.        1.        0.    837.10
      .03      1.39     2.53      1.02      .091     .065     .091      .065   833.80   102.51
  .001116      240.     250.      275.         2        0        0      0.00    35.01   137.53


*SECNO 2.500
 2800 NAT Q1=      92.73   SEL=     842.71  ENC Q1=      92.73  WSEL=     842.81  RATIO=  0.0000
 NAT Q1=      99.  RATIOS LOB,CH,ROB=    .1661    .6027    .2312  WSEL=     842.81

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     115.2     335.0  TYPE=     4  TARGET=        .067
     2.5       8.00   842.80      0.00   842.71   842.86      .05      1.27       .00   840.20
     310.       43.     198.       69.      105.      89.      58.        7.        3.    838.50
      .22       .41     2.22      1.20      .091     .065     .091      .065   834.80   115.24
  .001096     115 .    1150.     1150.         2        0        0      0.00   201.31   335.01


*SECNO 2. 00
 2800 NAT Q1=      28.23  WSEL=     845.82  ENC Q1=      29.89  WSEL=     845.92  RATIO=  -.0588
 NAT Q1=      30.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     845.92

3470 ENCROACHMENT STATIONS=     619.0     663.0  TYPE=     4  TARGET=       0.000
     2.90      3.35   845.85      0.00   845.82   846.05      .21      3.15       .05   848.40
     310.        0.     310.        0.        0.      85.       0.       11.        7.    846.40
      .31      0.00     3.65      0.00      .117     .078     .117      .071   842.50   676.93
  .011685     1275.    1225.     1210.         3        0        0      0.00    34.76   661.69


*SECNO 3.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        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


3470 ENCROACHMENT STATIONS=       10.0      450.0  TYPE=      1  TARGET=      440.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       853.20 ELREA=       853.20

      3.00      4.95    849.05      0.00    849.07    849.48      .43      3.36      .07    844.20
      310.        0.      310.        0.        0.       59.       0.       12.       7.     844.20
       .32       0.00     5.27       0.00      .104      .078      .104      .072   844.10   317.00
   .014339       260.     260.       270.         2         0         0      0.00    12.00   329.00

CCHV=     .300 CEHV=     .500
*SECNO 3.010

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  853.20 MAX ELLC=  850.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       853.20 ELREA=       853.20

        CANAL RD.

      3.01      4.95    849.5       0.00    849.07    849.48      .43       .00       .00    844.20
      310.        0.      310.        0.        0.       59.       0.       12.       7.     844.20
       .32       0.00     5.29       0.00      .026      .022      .026      .072   844.10   317.00
   .001166         1.       1.         1.         1         0         0    -8.66    12.00   329.00

*SECND 3.090

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  853.20 MAX ELLC=  850.10

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       853.20 ELREA=       853.20

      3.09      5.12    849.12      0.00    849.14    849.54      .41       .05       .01    844.20
      310.        0.      310.        0.        0.       60.       0.       12.       7.     844.20
       .33       0.00     5.17       0.00      .026      .022      .026      .071   844.00   350.00
   .001063         42.      42.        42.         2         0         0   -34.88    12.00   362.00

*SECNO 3.100
      3.10      5.49    849.49      0.00    849.50    849.62      .13       .00       .08    844.20
      310.        17.      214.       79.       11.       65.       40.       12.       7.     844.20
       .33       1.51     3.31       1.96      .078      .078      .078      .071   844.00   345.73
   .003192         1.       1.         1.         2         0         0      0.00    31.38   377.11

CCHV=     100 CEHV=     .300
*SECNO 3.200
 2800 NAT Q1=       58.47   SEL=     849.66  ENC Q1=       58.47  WSEL=     849.76  RATIO=  0.0000
 NAT Q1=       41.  RATIOS LOB,CH,ROB=    .0569    .6784    .2646  WSEL=     849.76

3470 ENCROACHMENT STATIONS=      347.7      372.3  TYPE=      4  TARGET=         .035
      3.20      5.64    849.64      0.00    849.66    849.78      .14       .16       .10    844.20
      310.        17.      217.       90.        9.       66.       37.       12.       7.     844.20
       .33       1.37     3.27       2.14      .078      .078      .078      .071   844.00   347.65
```

.003015	50.	50.	50.	0	0	0	0.00	24.67	372.32

*SECNO 4.000

3765 DIVIDED FLO

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
0	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

3470 ENCROACHMENT STATIONS= 442.0 548.0 TYPE= 1 TARGET= 106.000

4.00	5.45	851.95	.00	851.92	852.00	.05	2.22	.01	846.60
310.	67.	193.	55.	49.	90.	50.	16.	8.	846.40
.52	1.27	2.14	1.09	.078	.078	.078	.073	846.00	469.62
.001266	1185.	1185.	1210.	3	0	0	0.00	52.48	548.00

CONV= .300 CPEV= .500
*SECNO 4.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

I-96 EFF RATE

4.10	5.89	851.89	.00	851.86	852.08	.19	.01	.07	846.60
310.	0.	310.	0.	0.	89.	0.	16.	8.	846.40
.52	0.00	3.48	0.00	.078	.014	.078	.073	846.00	488.00
.000166	15.	15.	15.	2	0	0	0.00	16.00	504.00

SPECIAL BRIDGE

SK	XK	XK P	COEG	RDLEN	BxC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.9	3.00	0.00	15.00	0.00	51.00	0.00	846.00	846.30

*SECNO 4.200
PRESSURE FLOW

EGPRS	ELUPC	H	QWEIR	QBR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
853.03	852.89	0.00	0.	310.	51.	59.	849.90	868.00

7495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

4.2	6.59	852.39	.00	852.86	853.03	.14	.95	0.00	846.40
310.	0.	310.	0.	0.	104.	0.	17.	8.	846.40
.53	0.00	2.99	0.00	.078	.014	.078	.071	846.30	488.00
.000106	135.	135.	135.	2	0	0	0.00	16.00	504.00

1490 NH CARD USED
*SECNO 4.300

```
3470 ENCROACHMENT STATIONS=      476.0      521.0  TYPE=      1  TARGET=       45.000
     4.30      6.69    852.99      0.00    852.96    853.05       .06       .00       .02    846.40
     310.       40.      237.       33.       44.      106.       38.       17.        8.    846.40
      .53       .91      2.24       .86      .117      .078      .117      .071    846.30    476.00
  .001117       15.       15.       15.         2         0         0      0.00     39.55    515.55


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 5.000

3470 ENCROACHMENT STATIONS=      700.0      769.0  TYPE=      1  TARGET=       69.000
     5.00      6.97    853.77      0.00    853.75    853.80       .03       .75       .00    847.10
     310.       37.      204.       69.       74.      123.       59.       21.        9.    847.10
      .72       .50      1.66      1.18      .156      .078      .066      .060    846.80    706.77
  .000588     1000.      950.      900.         2         0         0      0.00     57.72    764.49


CCHV=     .300 CEHV=     .500
*SECNO 5.010
   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


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       860.00 ELREA=       860.00


        I-96

     5.01      6.94    853.74      0.00    853.72    853.84       .10       .00       .03    847.10
     310.        0.      310.        0.        0.      122.        0.       22.        9.    847.10
      .72      0.00      2.54      0.00      .033      .014      .033      .060    846.80    729.00
  .000070       15.       15.       15.         2         0         0      0.00     18.00    747.00


SPECIAL BRIDGE

SB  XK        XKOR      COEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHD     ELCHD
     0.00      1.82      3.00      0.00     15.00      0.00     73.00      0.00    846.80    846.40

*SECNO 5.090
PRESSURE FLOW


 EGPRS      EGLWC      HT        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
   854.25    853.84      .00         0.      310.       73.       68.      851.30    854.80


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       860.00 ELREA=       860.00

     5.09      7.36    854.16      0.00    854.14    854.25       .09       .41       .00    847.10
     310.        0.      310.        0.        0.      130.        0.       22.        9.    847.10
      .74      0.00      2.39      0.00      .033      .014      .033      .059    846.80    729.00
  .000059      119.      119.      119.         2         0         0      0.00     18.00    747.00
```

```
*SECNO 5.100

3470 ENCROACHMENT STATIONS=      700.0      769.0  TYPE=      1  TARGET=       69.000
     5.1       7.24    854.24      .00    854.22    854.27       .03       .01       .02    847.10
     31.       46.      219.       45.       61.      137.       56.       22.        9.    847.10
     .75       .77      1.60       .20      .078      .065      .065      .059    846.40    712. 3
  .00032       50.       50.       50.         2         0         0      0.00     48.79    760.82


CCHV=     .100 CEHV=     .300
*SECNO 5.900

3470 ENCROACHMENT STATIONS=      280.0      340.0  TYPE=      1  TARGET=       60.000
     5.93      8.59    854.39      .00    854.37    854.40       .02       .13       .00    849.90
     296.      17.      279.        0.       43.      277.        0.       26.       10.    854.60
      .91       .38      1.31      0.00      .104      .059      .104      .059    845.80    290.00
  .000159      600.      560.      490.         2         0         0      0.00     57.45    337.45


*SECNO 6.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       870.00 ELREA=       870.00

     6.00      8.00    854.4       0.00    854.39    854.42       .02       .02       .00    849.90
     296.        .      296.        0.        0.      278.        0.       27.       10.    854.60
      .94      0.00      1.07      0.00      .104      .059      .104      .059    845.80    290.00
  .000185      100.      100.      100.         3         0         0      0.00     47.51    337.51


CCHV=     .300 CEHV=     .500
*SECNO 6.110
   SECNO      DEPTH      QwSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=       870.00 ELREA=       870.00


        MT. HOPE HIGHWAY

     6.01      8.00    854.40      0.00    854.39    854.42       .02       .00       .00    849.91
     296.        .      296.        0.        0.      277.        0.       27.       10.    854.60
      .94      0.00      1.07      0.00      .104      .022      .104      .059    845.80    290.00
  .000027       1.        1.        1.         3         0         0      0.00     47.49    337.49


SPECIAL BRIDGE

SB  XK         XKOR       CDFG       RDLEN      BWC        BWP        PAREA      SS         ELCHU      ELCHD
     0.00       1.89       3.00       0.00      15.00       0.00      75.00      0.00     845.80     846.40

*SECNO 6.190
PRESSURE FLOW

 EGPRS      EGLWC       WS       QWEIR      QPR        PAREA    TRAPEZOID      ELLC      ELTRD
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                                                                  AREA
   854.86    854.50      0.00        0.      296.       75.       81.      851.20    868.40


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      870.00 ELREA=      870.00

     6.09      8.37   854.77      0.00   854.76   854.86      .09      .44      0.00   846.90
     296.        .     296.        0.       0.     126.       0.      27.      10.    846.90
      .95      0.00     2.34      0.00     .104     .022     .104     .058   846.40   302.00
  .000132      146.     146.      146.        2        0        0     0.00    16.00   318.00


*SECNO 6.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      870.00 ELREA=      870.00

     6.10      8.37   854.77      0.00   854.76   854.86      .09      .00      .00   846.90
     296.        .     296.        0.       0.     126.       0.      27.      10.    846.90
      .95      0.00     2.34      0.00     .130     .065     .130     .058   846.40   302.00
  .001145        1.       1.        1.        0        0        0     0.00    16.00   318.00


*SECNO 6.500

3470 ENCROACHMENT STATIONS=      270.0     350.0  TYPE=      1  TARGET=      80.000
     6.50      8.49   854.89       .00   854.87   854.89      .01      .01      .02   846.90
     296.       77.     137.       82.     189.     128.     194.      28.      10.    846.90
      .97       .41     1.07       .42     .130     .065     .130     .058   846.40   270.00
  .000138       40.      40.       40.        2        0        0     0.00    80.00   350.00


CCHV=     .100 CEHV=     .300
*SECNO 7.000
 2800 NAT Q1=     148.37  WSEL=     854.98  ENC Q1=     148.37  WSEL=     855.08  RATIO=    .0000
 NAT Q1=     154.  RATIOS LOB,CH,ROB=    .1505    .7279    .1216  WSEL=     855.08

3470 ENCROACHMENT STATIONS=      303.8     377.0  TYPE=      4  TARGET=        .034
     7.00      8.69   854.99      0.00   854.98   855.03      .04      .13      .01   847.30
     296.       40.     224.       31.      92.     121.       7.      33.      11.    847.30
     1.07       .44     1.85       .45     .130     .065     .130     .059   846.30   303.83
  .000417      475.     600.      600.        2        0        0     0.00    73.20   377.04


CCHV=     .300 CEHV=     .500
*SECNO 7.010
 2800 NAT Q1=     105.95   SEL=     855.00  ENC Q1=     105.95  WSEL=     855.10  RATIO=    .0000
 NAT Q1=     115.  RATIOS LOB,CH,ROB=    .4327    .3013    .2660  WSEL=     855.10
   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


3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  851.80 MAX ELLC=  849.92


3470 ENCROACHMENT STATIONS=      300.6     379.9  TYPE=      4  TARGET=        .079
     7.01      8.71   855.01      0.00   855.00   855.04      .04      .01      .00   847.30
     296.      126.      99.       72.      88.      56.      57.      33.      11.    847.30
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    1.08      1.43      1.77      1.26      .052      .046      .052      .059    846.30    300.60
  .000880      15.       15.       15.         0         0         0    -93.22     79.30    379.90

*SECNO 7.090
 2800 NAT Q1=     107.99  WSEL=     855.02  ENC Q1=     107.99  WSEL=     855.12  RATIO=    .0000
 NAT Q1=     117.  RATIOS LOB,CH,ROB=    .4325    .2992    .2683  WSEL=     855.12

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  851.80 MAX ELLC=  849.92

3470 ENCROACHMENT STATIONS=      300.3      380.6  TYPE=      4  TARGET=          .077
     7.09      8.73    855.03      0.00    855.02    855.07       .03       .02       .00    847.30
     296.      126.       98.       72.       89.       56.       59.       33.       11.    847.30
     1.08      1.41      1.74      1.24      .052      .046      .052      .059    846.30    300.27
  .000840      28.       28.       28.         0         0         0    -93.32     80.37    380.64

*SECNO 7.100
 2800 NAT Q1=     142.82  WSEL=     855.03  ENC Q1=     142.82  WSEL=     855.13  RATIO=    .0000
 NAT Q1=     148.  RATIOS LOB,CH,ROB=    .2015    .6344    .1642  WSEL=     855.13

3470 ENCROACHMENT STATIONS=      301.9      379.7  TYPE=      4  TARGET=          .038
     7.10      8.75    855.05      0.00    855.03    855.08       .03       .01       .00    847.30
     296.       55.      197.       44.       96.      122.       76.       33.       11.    847.30
     1.09       .57      1.61       .58      .104      .078      .104      .059    846.30    301.87
  .000454      15.       15.       15.         0         0         0      0.00     77.85    379.72

CCHV=     .100 CEHV=     .300
*SECNO 7.500

3470 ENCROACHMENT STATIONS=      174.0      500.0  TYPE=      1  TARGET=       326.000
     7.50      7.03    855.23      0.00    855.16    855.23       .00       .15       .00    850.00
     206.        5.       57.      145.       29.      153.      830.       56.       19.    850.00
     2.88       .16       .37       .17      .104      .078      .104      .061    848.20    174.00
  .000034     1650.     1315.     1600.         2                 0      0.00    326.00    500.00

*SECNO 8.000
 2800 NAT Q1=      37.55  WSEL=     855.14  ENC Q1=      37.55  WSEL=     855.24  RATIO=  0.0000
 NAT Q1=      39.  RATIOS LOB,CH,ROB=    .0923    .7814    .1263  WSEL=     855.24

3470 ENCROACHMENT STATIONS=      296.1      317.3  TYPE=      4  TARGET=          .036
     8.00      5.94    855.24      0.00    855.14    855.33       .09       .07       .03    850.40
     206.       16.      166.       24.       13.       65.       18.       65.       21.    850.40
     2.95      1.22      2.57      1.33      .104      .078      .104      .061    849.30    296.07
  .002965      620.      530.      710.         2         0         0      0.00     21.28    317.35

*SECNO 8.010
 2800 NAT Q1=      37.57  WSEL=     855.14  ENC Q1=      37.57  WSEL=     855.24  RATIO=  0.0000
 NAT Q1=      39.  RATIOS LOB,CH,ROB=    .0923    .7813    .1264  WSEL=     855.24
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        GLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      296.1      317.3  TYPE=      4  TARGET=          .036
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     8.01      5.94    855.24      0.00    855.14    855.33       .09       .00       .00    850.40
     206.       16.      166.       24.       13.       65.       18.       65.       21.     850.40
     2.95      1.22      2.57      1.33      .104      .078      .104      .061    849.30    296.09
  .002968        1.        1.        1.         0         0         0      0.00     21.23    317.32


CCHV=     .300 CEHV=     .500

SPECIAL BRIDGE

SB  XK         XKIR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       3.97       2.90       0.00       8.00       0.00       7.10       2.00     849.30     849.40

*SECNO 8.090
 2800 NAT Q1=     109.40  WSEL=     856.23  ENC Q1=     109.40  WSEL=     856.33  RATIO=    .0000
 NAT Q1=     116.  RATIOS LOB,CH,ROB=    .2376    .6103    .1521  WSEL=     856.33
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      227.4      318.4  TYPE=      4  TARGET=          .059
     8.09      7.03    856.33      0.00    856.23    856.36       .03       .03       .02    850.40
     206.       45.      133.       28.       71.       78.       26.       65.       21.     850.40
     2.96       .63      1.71      1.05      .052      .046      .052      .061    849.30    227.39
  .000351       40.       40.       40.         0         0        10      0.00     91.01    318.40


*SECNO 8.100
 2800 NAT Q1=      61.03  WSEL=     856.24  ENC Q1=      61.03  WSEL=     856.34  RATIO=    .0000
 NAT Q1=      64.  RATIOS LOB,CH,ROB=    .2171    .6448    .1381  WSEL=     856.34

3470 ENCROACHMENT STATIONS=      225.6      318.6  TYPE=      4  TARGET=          .051
     8.10      7.04    856.34      0.00    856.24    856.38       .04       .01       .00    850.40
     206.       41.      139.       25.       73.       78.       27.       65.       21.     850.40
     2.96       .57      1.79       .94      .104      .078      .104      .061    849.30    225.61
  .001125       15.       15.       15.         0         0         0      0.00     92.94    318.55


CCHV=     .100 CEHV=     .300
*SECNO 9.000

3470 ENCROACHMENT STATIONS=     1200.0     1570.0  TYPE=      1  TARGET=      370.000
     9.00      6.32    857.02      0.00    856.96    857.02       .00       .64       .00    851.30
     206.       27.       16.      163.       53.       29.      514.       80.       28.     852.70
     4.37       .51       .56       .32      .104      .078      .104      .066    850.70   1310.12
  .000168     2050.     2040.     1575.         3         0         0      0.00    259.88   1570.00


CCHV=     .300 CEHV=     .500
*SECNO 9.010

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  854.70 MAX ELLC=  854.70


3470 ENCROACHMENT STATIONS=     1200.0     1570.0  TYPE=      1  TARGET=      370.000
     9.01      6.32    857.02      0.00    856.96    857.02       .00       .00       .00    851.3
     206.        0.        6.      200.        0.       11.      466.       80.       28.     852.70
     4.37      0.00       .57       .43      .104      .046      .104      .066    850.70   1310.12
  .000333        1.        1.        1.         0         0         0   -117.90    259.88   1570.00


*SECNO 9.090
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
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   Q          QLOB       QCH        QRCB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VRCB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLCHP      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  854.70 MAX ELLC=  854.70


3470 ENCROACHMENT STATIONS=     1200.0     1570.0  TYPE=      1  TARGET=      370.000
     9.09       6.32     857.02       .00     856.96     857.03       .00        .01        .00     851.30
      206.         0.         6.      200.         0.        11.      467.        80.        28.      852.70
     4.38       0.00        .57        .43       .104       .046       .104       .066     850.70    1310.12
  .000331        19.        19.        19.          0          0          0    -118.00     259.88    1570.00


*SECNO 9.100

3470 ENCROACHMENT STATIONS=     1200.0     1570.0  TYPE=      1  TARGET=      370.000
     9.10       6.33     857.03       0.00     856.97     857.03       .00        .00        .00     851.30
      206.        27.        16.      163.        53.        29.      516.        80.        29.      852.70
     4.39        .51        .55        .32       .104       .078       .104       .066     850.70    1310.12
  .000166        15.        15.        15.          1          0          0       0.00     259.88    1570.00


CCHV=     .100 CEHV=     .300
*SECNO 10.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      370.0      831.0  TYPE=      1  TARGET=      461.000
    10.00       4.09     857.29       0.00     857.25     857.31       .02        .27        .01     853.30
      206.        108.        31.        67.       140.        15.        57.        87.        32.      852.30
     4.57         .77       2.67       1.18       .104       .078       .104       .066     852.30    370.00
  .002088        625.       625.       720.          2          0          0       0.00     142.19    526.21


CCHV=     .300 CEHV=     .500
*SECNO 10.010

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  855.50 MAX ELLC=  855.90


3470 ENCROACHMENT STATIONS=      370.0      831.0  TYPE=      1  TARGET=      461.000
    10.01       5.03     857.33       0.00     857.30     857.37       .03        .05        .01     853.30
      206.        158.        21.        27.       124.         8.        24.        87.        32.      852.30
     4.57        1.27       2.69       1.13       .104       .044       .104       .066     852.30    370.00
  .006026        15.        15.        15.          2          0          0    -61.54     144.36    526.41


*SECNO 10.090

3265 DIVIDED FLOW


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  855.50 MAX ELLC=  855.90
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3470 ENCROACHMENT STATIONS=      370.0      831.0  TYPE=      1  TARGET=      461.000
    10.09      5.14    857.44      0.00    857.41    857.47       .03       .10       .00    853.30
      206.       167.      19.       25.      136.       8.       25.       87.       32.     852.30
     4.57      1.19      2.43      1.02      .104      .044      .104      .066    852.30    370.00
  .004928       19.       19.       19.         2         0         0    -65.12    149.84    526.92

*SECNO 10.100

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     IDC       ICONT     CORAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      370.0      831.0  TYPE=      1  TARGET=      461.000
    10.10      5.21    857.51      0.00    857.48    857.52       .01       .05       .00    853.30
      206.       116.      27.       64.      168.       16.       62.       87.       32.     852.30
     4.58       .69      1.7       1.03      .130      .104      .130      .066    852.30    370.00
  .002317       15.       15.       15.         1         0         0      0.00    153.49    527.25

*SECNO 11.000
 2800 NAT Q1=      34.94  WSEL=     858.91  ENC Q1=      34.84  WSEL=     859.01  RATIO=    .0000
 NAT Q1=      38.  RATIOS LOB,CH,ROB=    .2926    .5348    .1726  WSEL=     859.01

3470 ENCROACHMENT STATIONS=      292.7      377.7  TYPE=      4  TARGET=         .078
    11.00      4.85    858.05      0.00    858.91    858.99       .04      1.46       .01    854.50
      206.       54.      121.       31.       68.       60.       25.       89.       33.     854.80
     4.67       .6        2.03      1.24      .130      .104      .130      .067    854.10    292.74
  .003765       59.       435.      440.         2         0         0      0.00     94.91    377.65

CCHV=     .300 CEHV=     .5 0
*SECNO 11.010
 2800 NAT Q1=      64.40  WSEL=     858.95  ENC Q1=      64.40  WSEL=     859.05  RATIO=    .0000
 NAT Q1=      70.  RATIOS LOB,CH,ROB=    .3355    .4717    .1929  WSEL=     859.05

3470 ENCROACHMENT STATIONS=      290.0      378.4  TYPE=      4  TARGET=         .075
    11.01      4.99    858.99      0.00    858.95    859.02       .03       .03       .00    854.50
      206.       64.      107.       36.       73.       60.       27.       90.       33.     854.80
     4.67       .58      1.77      1.35      .065      .065      .065      .067    854.10    289.99
  .001111       15.       15.       15.         0         0         0      0.00     88.44    378.42


SPECIAL BRIDGE

SB  XK        XK P      CDEQ      RDLEN     BWC       BWP       BAREA     SS        ELCHL     ELCHD
     0.00      2.2       2.50      0.00      8.00      0.00      7.10      2.00    854.10    854.10

*SECNO 11.030
 2800 NAT Q1=      67.30  WSEL=     859.02  ENC Q1=      67.70  WSEL=     859.12  RATIO=  0.0000
 NAT Q1=      71.  RATIOS LOB,CH,ROB=    .1496    .6461    .2042  WSEL=     859.12
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION     11.09 EXTENDED       .06 FEET
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3470 ENCROACHMENT STATIONS=      339.1      380.0  TYPE=      4  TARGET=          .057
    11.09      4.96    859.06      0.00    859.02    859.11       .05       .01       .01    854.60
     206.       26.      140.       40.       24.       71.       30.       90.       33.    854.70
     4.67      1.05      1.99      1.34      .065      .065      .065      .067    854.10    339.12
  .000965       14.       14.       14.         0         0         9      0.00     40.88    380.01

*SECNO 11.100
 2800 NAT Q1=      57.26  WSEL=     859.02  ENC Q1=      57.26  WSEL=     859.12  RATIO=    .0000
 NAT Q1=      61.  RATIOS LOB,CH,ROB=    .1260    .6336    .2405  WSEL=     859.12
3280 CROSS SECTION      11.10 EXTENDED        .06 FEET


3470 ENCROACHMENT STATIONS=      341.9      380.7  TYPE=      4  TARGET=          .056
    11.10      4.96    859.06      0.00    859.02    859.11       .05       .00       .00    854.60
     206.       21.      138.       47.       22.       71.       31.       90.       33.    854.70
     4.67       .94      1.95      1.56      .091      .078      .065      .067    854.10    341.86
  .001338        1.        1.        1.         0         0         0      0.00     38.80    380.66

*SECNO 11.300
 2800 NAT Q1=      73.03  WSEL=     859.93  ENC Q1=      76.44  WSEL=     860.03  RATIO=   -.0466
 NAT Q1=      76.  RATIOS LOB,CH,ROB=   0.0000   1.0000    .0000  WSEL=     860.03
   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


3470 ENCROACHMENT STATIONS=     1600.0     1667.0  TYPE=      4  TARGET=          .000
    11.30      4.08    859.98       .00    859.93    860.00       .02       .88       .01    863.50
     206.        0.      206.        0.        0.      184.        0.       93.       34.    860.90
     4.89      0.00      1.12      0.00      .091      .078      .065      .068    855.90   1605.10
  .000764      825.      875.      960.         0         0         0      0.00     57.98   1663.07

*SECNO 11.350
 2800 NAT Q1=      14.26  WSEL=     860.38  ENC Q1=      15.00  WSEL=     860.48  RATIO=   -.0525
 NAT Q1=      15.  RATIOS LOB,CH,ROB=    .0255    .9745   0.0000  WSEL=     860.48

3470 ENCROACHMENT STATIONS=      640.0      680.0  TYPE=      4  TARGET=          .026
    11.35      4.30    860.40      0.00    860.38    860.57       .17       .50       .07    860.00
     206.        0.      206.        0.        0.       63.        0.       93.       35.    862.00
     4.91       .00      3.26      0.00      .091      .104      .091      .068    856.10    640.00
  .021297      320.      230.      100.         3         0         0      0.00     30.41    670.41

*SECNO 11.400
 2800 NAT Q1=      28.81  WSEL=     862.02  ENC Q1=      30.57  WSEL=     862.12  RATIO=   -.0608
 NAT Q1=      31.  RATIOS LOB,CH,ROB=    .0003    .9997   0.0000  WSEL=     862.12

3470 ENCROACHMENT STATIONS=      615.0      655.0  TYPE=      4  TARGET=          .000
    11.40      5.05    862.05      0.00    862.02    862.14       .09      1.55       .02    862.00
     206.        0.      206.        0.        0.       85.        0.       94.       35.    864.00
     4.93      0.00      2.43      0.00      .091      .078      .091      .068    857.00    615.00
  .005031      120.      170.      120.         1         0         0      0.00     33.55    648.55
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*SECNO 12.000
 2800 NAT Q1=      31.27  WSEL=    864.78  ENC Q1=      33.06  WSEL=    864.88  RATIO=  -.0573
 NAT Q1=      33.  RATIOS LOB,CH,ROB=    .0023    .9948    .0029  WSEL=    864.88

3470 ENCROACHMENT STATIONS=      400.0      431.0  TYPE=      4  TARGET=         .005
    12.00      5.00    864.80      0.00   864.78   864.88      .08     2.74      .00   864.60
      206.        0.      206.        0.       0.      89.       0.      95.      35.    864.50
     5.00      0.00      2.32      0.00     .091     .078     .091     .069   859.20   400.00
  .004376      631.      585.      570.        2        0        0     0.00    31.00   431.00


*SECNO 12.010
 2800 NAT Q1=      37.65  WSEL=    864.78  ENC Q1=      39.76  WSEL=    864.88  RATIO=  -.0561
 NAT Q1=      40.  RATIOS LOB,CH,ROB=    .0027    .9938    .0035  WSEL=    864.88

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  864.20 MAX ELLC=  863.20


3470 ENCROACHMENT STATIONS=      400.0      431.0  TYPE=      4  TARGET=         .006
    12.01      5.00    864.86      0.00   864.78   864.88      .08      .00      .00   864.60
      206.        0.      206.        0.       0.      89.       0.      95.      35.    864.50
     5.00      0.00      2.32      0.00     .065     .065     .065     .069   859.20   400.00
  .003034        1.        1.        1.        0        0        0     0.00    31.00   431.00


*SECNO 12.090
 2800 NAT Q1=      39.01  WSEL=    864.84  ENC Q1=      40.92  WSEL=    864.94  RATIO=  -.0489
 NAT Q1=      41.  RATIOS LOB,CH,ROB=    .0041    .9912    .0047  WSEL=    864.94
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLASS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=  0 MIN ELTRD=  864.20 MAX ELLC=  863.20


3470 ENCROACHMENT STATIONS=      400.0      431.0  TYPE=      4  TARGET=         .009
    12.09      5.65    864.85      0.00   864.84   864.93      .08      .05      .00   864.60
      206.        0.      206.        0.       0.      90.       0.      95.      35.    864.50
     5.00      0.00      2.29      0.00     .065     .065     .065     .069   859.20   400.00
  .002691       16.       16.       16.        0        0        0     0.00    31.00   431.00


*SECNO 12.100
 2800 NAT Q1=      32.40  WSEL=    864.84  ENC Q1=      34.16  WSEL=    864.94  RATIO=  -.0544
 NAT Q1=      34.  RATIOS LOB,CH,ROB=    .0036    .9923    .0041  WSEL=    864.94

3470 ENCROACHMENT STATIONS=      400.0      431.0  TYPE=      4  TARGET=         .008
    12.10      5.66    864.86      0.00   864.84   864.94      .08      .00      .00   864.60
      206.        0.      206.        0.       0.      90.       0.      95.      35.    864.50
     5.00      0.00      2.28      0.00     .091     .078     .091     .069   859.20   400.00
  .004120        1.        1.        1.        0        0        0     0.00    31.00   431.00


*SECNO 13.000
 2800 NAT Q1=      40.51  WSEL=    865.90  ENC Q1=      42.01  WSEL=    866.00  RATIO=  -.0370
 NAT Q1=      42.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    866.00
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3470 ENCROACHMENT STATIONS=      539.0      570.0  TYPE=      4  TARGET=        0.000
    13.00      7.91   865.91      0.00   865.90   865.98      .07      1.04      .00   867.20
     206.         .     206.        0.       0.     100.       0.       96.      35.    866.50
     5.04      0.00     2.05      0.00     .091     .078     .091     .069   858.00   541.77
  .002550      340.     325.      340.        2        0        0      0.00    27.27   569.05

CCHV=     .300 CEHV=     .500
*SECNO 13.010
 2800 NAT Q1=      70.01  WSEL=     865.92  ENC Q1=      72.59  WSEL=     866.02  RATIO=  -.0768
 NAT Q1=      23.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     866.02

3470 ENCROACHMENT STATIONS=      539.0      570.0  TYPE=      4  TARGET=        0.000
    13.01      7.94   865.94      0.00   865.92   866.00      .06      .02      .00   867.20
     206.         0.     206.        0.       0.     101.       0.       96.      36.    866.50
     5.05      0.00     2.04      0.00     .052     .046     .052     .069   858.00   541.72
  .000652       15.      15.       15.        0        0        0      0.00    27.37   569.09


SPECIAL BRIDGE

SB   XK          XK R       COEQ       RDLEN      BWC        EWP        FAREA      SS         ELCHU      ELCHD
     0.00        2.04       0.60       0.00       5.00       0.00       7.10       1.00     858.20     858.00

*SECNO 13.090
 2800 NAT Q1=     123.75   SEL=     867.22  ENC Q1=     123.75  WSEL=     867.32  RATIO=    .0000
 NAT Q1=     131.  RATIOS LOB,CH,ROB=    .0004    .8741    .1255  WSEL=     867.32
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      539.0      603.1  TYPE=      4  TARGET=         .057
    13.09      9.24   867.24      0.00   867.22   867.26      .03      .01      .01   867.20
     206.         0.     193.       13.       0.     139.      30.       96.      36.    866.50
     5.05      0.00     1.38       .45     .052     .046     .052     .069   858.00   539.00
  .000301       20.      20.       20.        0        0       10      0.00    64.06   603.06


*SECNO 13.100
 2800 NAT Q1=     103.77  WSEL=     867.22  ENC Q1=     103.77  WSEL=     867.32  RATIO=    .0000
 NAT Q1=     109.  RATIOS LOB,CH,ROB=    .0006    .9232    .0762  WSEL=     867.32
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        CLASS    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      XLOPR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      539.0      595.8  TYPE=      4  TARGET=         .047
    13.1       9.24   867.24      0.00   867.22   867.27      .03      .01      .00   867.20
     206.         0.     200.        6.       0.     139.      22.       96.      36.    866.50
     5.05      0.00     1.43       .26     .052     .052     .104     .069   858.00   539.00
  .000424       15.      15.       15.        0        0        0      0.00    56.80   595.80


*SECNO 14.000

3470 ENCROACHMENT STATIONS=     1006.0     1053.0  TYPE=      1  TARGET=       47.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       875.00 ELREA=       875.00

    14.00      6.44   867.94      0.00   867.88   868.24      .29      .84      .13   864.00
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    206.       0.      206.       0.       0.      47.       0.      98.      36.    864.00
     5.11     0.00     4.34     0.00     .052     .052     .104     .068   861.50  1021.00
  .004777     850.     830.     850.        2        0        0     0.00     8.00  1029.00

CCHV=     .300 CEHV=     .500
*SECNO 14.010

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

        I-96

    14.01     6.46   867.96     0.00   867.90   868.25      .29      .01      .00   864.00
    206.       0.     206.       0.       0.      48.       0.      98.      36.    864.00
     5.11     0.00     4.33     0.00     .033     .014     .033     .068   861.50  1021.00
  .000359      15.      15.      15.        2        0        0     0.00     8.00  1029.00


SPECIAL BRIDGE

SB  XK        XKOP      COFG      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.72      2.60      0.00      8.00      0.00     29.50      0.00    861.50    861.50

*SECNO 14.090
PRESSURE FLOW


 EGPRS      EGLOC       HZ       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                AREA
   869.26    868.25      0.00        0.      206.       30.       43.      866.90    873.00


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

    14.09     7.05   869.05     0.00   868.99   869.26      .21     1.01     0.00   864.00
    206.       0.     206.       0.       0.      56.       0.      98.      36.    864.00
     5.12     0.00     3.66     0.00     .033     .014     .033     .067   861.50  1021.00
  .000225     207.     207.     207.        2        0        0     0.00     8.00  1029.00


*SECNO 14.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

    14.10     7.56   869.06     0.00   869.00   869.27      .21      .01      .00   864.00
    206.       0.     206.       0.       0.      56.       0.      98.      36.    864.00
     5.13     0.00     3.66     0.00     .065     .059     .052     .067   861.50  1021.00
  .003756      15.      15.      15.        0        0        0     0.00     8.00  1029.00


*SECNO 15.000
 2800 NAT Q1=     398.08  WSEL=     869.33  ENC Q1=     398.08  WSEL=     869.43  RATIO=    .0000
 NAT Q1=     425.  RATIOS LOB,CH,ROB=    .4470    .2753    .2777  WSEL=     869.43
3280 CROSS SECTION      15.00 EXTENDED       2.10 FEET


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   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


3470 ENCROACHMENT STATIONS=       43.1      386.5  TYPE=      4  TARGET=          .063
    15.00      8.20     69.40      0.00    869.33    869.40       .00       .06       .06    868.20
      206.       91.       61.       54.      415.      168.      238.      105.       39.     867.80
     5.82       .22       .36       .23      .065      .059      .052      .067    861.20     43.04
  .000028       525.      675.      855.         3         0         0      0.00    343.42    386.50


CCHV=     .300 CEHV=     .500
*SECNO 15.010
 2800 NAT Q1=     299.10  WSEL=     869.33  ENC Q1=     299.10  WSEL=     869.43  RATIO=    .0000
 NAT Q1=     323.  RATIOS LOB,CH,ROB=    .5880    .1197    .2923  WSEL=     869.43
3280 CROSS SECTION      15.01 EXTENDED       2.10 FEET


3370 NORML BRIDGE,NRD= 1  MIN ELTRD=  864.30 MAX ELLC=  864.82


3470 ENCROACHMENT STATIONS=       41.6      385.0  TYPE=      4  TARGET=          .074

        MILLETT HIGHWAY

    15.01      8.20    869.40      0.00    869.33    869.40       .00       .00       .00    868.20
      206.       123.       27.       57.      418.       64.      235.      105.       39.     867.80
     5.83       .29       .42       .24      .065      .033      .065      .067    861.20     41.57
  .000050         1.        1.        1.         0         0         0   -104.58    343.79    384.96


*SECNO 15.090
 2800 NAT Q1=     298.78  WSEL=     869.33  ENC Q1=     298.78  WSEL=     869.43  RATIO=    .0000
 NAT Q1=     323.  RATIOS LOB,CH,ROB=    .5880    .1197    .2923  WSEL=     869.43
3280 CROSS SECTION      15.09 EXTENDED       2.10 FEET


3370 NORML BRIDGE,NRD= 1  MIN ELTRD=  864.30 MAX ELLC=  864.82


3470 ENCROACHMENT STATIONS=       41.8      384.6  TYPE=      4  TARGET=          .075
    15.09      8.20    869.40      0.00    869.33    869.40       .00       .00       .00    868.20
      206.       123.       27.       57.      418.       64.      234.      105.       39.     867.80
     5.84       .29       .42       .24      .065      .033      .065      .067    861.20     41.84
  .000050         18.       18.       18.         0         0         0   -104.58    342.79    384.63


*SECNO 15.100
 2800 NAT Q1=     336.33  WSEL=     869.33  ENC Q1=     336.33  WSEL=     869.43  RATIO=  0.0000
 NAT Q1=     360.  RATIOS LOB,CH,ROB=    .5283    .2090    .2627  WSEL=     869.43
3280 CROSS SECTION      15.10 EXTENDED       2.10 FEET


3470 ENCROACHMENT STATIONS=       41.4      385.1  TYPE=      4  TARGET=          .066
    15.10      8.20    869.40      0.00    869.33    869.40       .00       .00       .00    868.20
      206.       109.       47.       50.      419.      168.      235.      105.       39.     867.80
     5.86       .26       .28       .21      .065      .091      .065      .067    861.20     41.43
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 .000039      15.      15.      15.        0        0        0     0.00   343.69   385.12

*SECNO 15.800
 2900 NAT Q1=    459.84  WSEL=    869.34  ENC Q1=    459.84  WSEL=    869.44  RATIO=  0.0000
 NAT Q1=    473.  RATIOS LOB,CH,ROB=   .3300   .1859   .4841  WSEL=    869.44
3280 CROSS SECTION      15.80 EXTENDED       3.41 FEET


3470 ENCROACHMENT STATIONS=      111.1      246.9  TYPE=      4  TARGET=        .028
    15.80      7.90   869.40      0.00   869.34   869.40      .00      .01      .00   862.00
     115.       37.      22.       56.     246.     138.     314.     112.      41.    862.00
     6.50       .15      .16       .18     .065     .091     .065     .067   861.50   111.14
  .000006      370.     390.      400.        0        0        0     0.00   135.78   246.92

*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


3470 ENCROACHMENT STATIONS=      780.0      800.0  TYPE=      1  TARGET=      20.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      880.00 ELREA=      880.00

    16.00      7.78   869.38       .00   869.31   869.44      .06      .00      .03   864.10
     115.        0.     115.        0.       0.      58.       0.     113.      42.    864.10
     6.53      0.00     1.98      0.00     .065     .091     .065     .068   861.60   789.00
  .002606      170.     160.      150.        2        0        0     0.00     8.00   797.00

CCHV=     .300 CEHV=     .500
*SECNO 16.010

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      880.00 ELREA=      880.00

    16.01      7.78   869.38      0.00   869.32   869.44      .06      .00      .00   864.10
     115.        0.     115.        0.       0.      58.       0.     113.      42.    864.10
     6.53      0.00     1.98      0.00     .065     .016     .065     .068   861.60   789.00
  .000076       15.      15.       15.        1        0        0     0.00     8.00   797.00


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.52      2.60      0.00      6.00      0.00     29.50      0.00    861.60    861.60

*SECNO 16.090
PRESSURE FLOW


 EGPRS      ECLWC      HV        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   869.74    869.44      0.00        0.      115.       30.       33.      867.10    880.00
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      880.00 ELREA=      880.00

    16.09      8.78   869.68      0.00   869.62   869.74      .06      .30      0.00   864.10
      115.         .      115.         .        0.      61.         0.      113.      42.    864.10
     6.55      0.00     1.96      0.00     .065     .016     .065     .067   861.60   789.00
  .000068      132.      132.      132.        2        .        0     0.00     8.00   797.00

*SECNO 16.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      880.00 ELREA=      880.00

    16.10      8.09   869.69      0.00   869.62   869.74      .06      .00      .00   864.10
      115.         0.      115.         0.        0.      61.         0.      113.      42.    864.10
     6.55      0.00     1.96      0.00     .065     .091     .065     .067   861.60   789.00
  .002329       15.       15.       15.        0        0        0     0.00     8.00   797.00


CCHV=     .100 CEHV=     .300
*SECNO 16.200
 2800 NAT Q1=     280.79   WSEL=     869.69  ENC Q1=     280.79  WSEL=     869.79  RATIO=    .0000
 NAT Q1=     290.  RATIOS LOB,CH,ROB=  0.0000   .6232   .3768  WSEL=     869.79
3280 CROSS SECTION      16.20 EXTENDED       3.76 FEET


3470 ENCROACHMENT STATIONS=      762.0      875.8  TYPE=      4  TARGET=         .032
    16.20      8.06   869.76      0.00   869.69   869.76      .00      .01      .01   870.40
      115.         .        74.       41.        0.      359.      187.      114.      42.    865.60
     6.71      0.00      .21       .22      .065     .091     .065     .067   861.70   764.02
  .000017      120.      120.      140.        2        0       10     0.00   111.80   875.82

*SECNO 16.500
 2800 NAT Q1=     110.58   WSEL=     869.75  ENC Q1=     110.68  WSEL=     869.85  RATIO=  0.0000
 NAT Q1=     126.  RATIOS LOB,CH,ROB=   .1849   .3112   .5040  WSEL=     869.85
3280 CROSS SECTION      16.50 EXTENDED        .92 FEET

   SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS   BANK ELEV
   Q          GLOB      CCH       QREC      ALOB       ACH       AROB      VOL      TWA   LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IBC       ICONT     COPAR    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      153.6      500.6  TYPE=      4  TARGET=         .121
    16.5       6.72   869.82      0.00   869.75   869.82      .00      .07      .00   869.10
      115.        16.       42.       58.       83.      104.      215.      134.      51.    868.70
     8.37        .19        .4        .27      .065     .091     .065     .070   863.10   153.56
  .000116     1850.     1850.     1850.        2        0        0     0.00   347.03   500.60


CCHV=     .300 CEHV=     .500
*SECNO 16.510
 2800 NAT Q1=     118.56   WSEL=     869.75  ENC Q1=     118.56  WSEL=     869.85  RATIO=    .0000
 NAT Q1=     138.  RATIOS LOB,CH,ROB=   .2112   .2136   .5752  WSEL=     869.85
3280 CROSS SECTION      16.51 EXTENDED        .82 FEET
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3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  867.80 MAX ELLC=  867.80


3470 ENCROACHMENT STATIONS=     154.7     500.3  TYPE=     4  TARGET=        .142
    16.51      6.62   869.82     0.00   869.75   869.82      .00       .00       .00   869.10
      115.       18.      29.      68.      82.      51.     215.      134.      51.    868.70
     8.38       .22      .57      .32     .052     .033     .052      .070   863.80   154.66
  .000103       15.      15.      15.        0        0        0    -52.43   345.64   500.30

*SECNO 16.590
 2800 NAT Q1=     119.00  WSEL=     869.76  ENC Q1=     119.00  WSEL=     869.86  RATIO=    .0000
 MAT Q1=     119.  RATIOS LOB,CH,ROB=    .2115    .2133    .5752  WSEL=     869.86
3280 CROSS SECTION      16.59 EXTENDED        .82 FEET


3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  867.80 MAX ELLC=  867.80


3470 ENCROACHMENT STATIONS=     154.4     500.4  TYPE=     4  TARGET=        .141
    16.59      6.62   869.82     0.00   869.76   869.83      .00       .00       .00   869.10
      115.       18.      29.      68.      82.      51.     215.      134.      52.    868.70
     8.40       .22      .56      .32     .052     .033     .052      .070   863.80   154.37
  .000102       20.      20.      20.        0        0        0    -52.43   346.00   500.37

*SECNO 16.600
 2800 NAT Q1=     115.96  WSEL=     869.76  ENC Q1=     115.96  WSEL=     869.86  RATIO=    .0000
 MAT Q1=     133.  RATIOS LOB,CH,ROB=    .2220    .2960    .4820  WSEL=     869.86
3280 CROSS SECTION      16.60 EXTENDED        .82 FEET


3470 ENCROACHMENT STATIONS=     147.8     499.6  TYPE=     4  TARGET=        .126
    16.60      6.63   869.83     0.00   869.76   869.83      .00       .00       .00   869.10
      115.       21.      40.      55.      88.     104.     214.      135.      52.    868.70
     8.41       .23      .39      .26     .052     .091     .065      .070   863.80   147.78
  .000107       15.      15.      15.        0        0        0      0.00   351.81   499.59


CCHV=     .100 CEHV=     .300
*SECNO 17.000
 2800 NAT Q1=      11.05  WSEL=     869.93  ENC Q1=      11.66  WSEL=     870.03  RATIO=  -.0552
 MAT Q1=      12.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     870.03

3470 ENCROACHMENT STATIONS=     309.0     324.0  TYPE=     4  TARGET=        0.000
    17.00      4.93   870.03     0.00   869.93   870.14      .11       .28       .03   871.30
      115.        0.      115.        0.       0.       43.       0.      139.      55.    871.30
     8.52       0.00     2.65     0.00     .052     .091     .065      .070   865.10   310.00
  .009801        700.     750.     800.        3        0        0      0.00    16.32   326.33


CCHV=     300 CEHV=     .500
*SECNO 17.010
 2800 NAT Q1=      64.64  WSEL=     869.94  ENC Q1=      68.07  WSEL=     870.04  RATIO=  -.0530
 MAT Q1=      68.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     870.04
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         CLASS    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=      309.0      328.0  TYPE=      4  TARGET=        0.000
    17.01      4.93    870.03      0.00    869.94    870.14       .11       .00       .00    871.30
     115.         .     115.        0.        0.       43.        0.      139.       55.     871.30
     8.50      0.00      2.64      0.00      .052      .016      .052      .070    865.10    310.00
  .000287        1.        1.        1.         0         0         0      0.00     16.33    326.33


SPECIAL BRIDGE

SH  XK          XKOR       COEQ       RDLEN      OWC        EWP        BAREA      SS         ELCHU      ELCHD
      .00        1.89       2.60       0.00      11.00       0.00      12.57       0.00     865.30     865.10

*SECNO 17.090
 2800 NAT Q1=     132.11  WSEL=     871.47  ENC Q1=     138.07  WSEL=     871.57  RATIO=  -.0451
 NAT Q1=     139.  RATIOS LOB,CH,ROB=    .0005    .9966    .0030  WSEL=     871.57
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      309.0      328.0  TYPE=      4  TARGET=         .003
    17.09      6.47    871.57      0.00    871.47    871.61       .04       .00       .02    871.30
     115.         .     115.        0.        0.       71.        0.      139.       55.     871.30
     8.50      0.00      1.62      0.00      .052      .016      .052      .070    865.10    309.00
  .000073       20.       20.       20.         0         0         5      0.00     19.00    328.00


*SECNO 17.100
 2800 NAT Q1=      22.80  WSEL=     871.48  ENC Q1=      23.71  WSEL=     871.58  RATIO=  -.0402
 NAT Q1=      24.  RATIOS LOB,CH,ROB=    .0022    .9801    .0177  WSEL=     871.58

3470 ENCROACHMENT STATIONS=      309.0      328.0  TYPE=      4  TARGET=         .020
    17.10      6.47    871.57       .00    871.48    871.61       .04       .00       .00    871.30
     115.         .     115.        0.        0.       71.        0.      139.       55.     871.30
     8.50      0.00      1.62      0.00      .065      .091      .052      .070    865.10    309.00
  .002453       15.       15.       15.         1         0         0      0.00     19.00    328.00


CCHV=     .100 CEHV=     .300
*SECNO 18.000
 2800 NAT Q1=      53.31   SEL=     872.34  ENC Q1=      56.11  WSEL=     872.44  RATIO=  -.0525
 NAT Q1=      56.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     872.44

3470 ENCROACHMENT STATIONS=       93.0      174.0  TYPE=      4  TARGET=        0.000

        SECTION IS IMMEDIATELY DOWNSTREAM OF I-96

    18.00      4.39    872.39      0.00    872.34    872.40       .01       .78       .00    872.80
     115.         .     115.        0.        0.      167.        0.      141.       56.     878.30
     8.86      0.00       .69      0.00      .065      .091      .052      .071    868.00     94.68
  .000441      920.      900.      920.         3         0         0      0.00     57.47    152.15
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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

MOGN AND HAMILTON DRAIN

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1.00	841.31	0.00	841.35	48.50	0.00	304.81	5.19	0.00	0.00	42.00	85.00	0.00
1.00	841.42	.11	841.45	48.51	0.00	304.28	5.72	48.51	46.10	42.00	85.00	94.61
2.00	841.41	0.00	841.48	50.36	93.73	184.13	32.13	.00	0.00	118.00	129.00	0.00
2.00	841.51	.10	841.58	35.01	92.01	189.11	28.88	.03	102.51	118.00	129.00	137.53
2.500	842.71	0.00	842.76	283.39	41.94	195.27	72.79	0.00	0.00	304.00	318.00	0.00
2.500	842.80	.09	842.86	201.31	42.96	198.01	69.02	.07	115.24	304.00	318.00	335.01
2.900	845.82	.00	846.03	34.61	0.00	310.00	0.00	0.00	0.00	619.00	663.00	0.00
2.900	845.85	.03	846.05	34.76	0.00	310.00	0.00	0.00	619.00	619.00	663.00	663.00
3.000	849.07	0.00	849.50	12.00	0.00	310.00	0.00	0.00	0.00	317.00	329.00	0.00
3.000	849.05	-.02	849.48	12.00	0.00	310.00	0.00	440.00	10.00	317.00	329.00	450.00
3.100	849.07	0.00	849.50	12.00	0.00	310.00	0.00	0.00	0.00	317.00	329.00	0.00
3.100	849.05	-.02	849.48	12.00	0.00	310.00	0.00	0.00	0.00	317.00	329.00	0.00
3.190	849.14	0.00	849.55	12.00	0.00	310.00	0.00	0.00	0.00	350.00	362.00	0.00
3.190	849.12	-.02	849.54	12.00	0.00	310.00	0.00	0.00	0.00	350.00	362.00	0.00
3.199	849.50	0.00	849.64	31.44	17.06	213.59	79.35	0.00	0.00	350.00	362.00	0.00
3.199	849.49	-.02	849.62	31.38	17.03	213.80	79.17	0.00	0.00	350.00	362.00	0.00
3.210	849.66	0.00	849.79	32.02	17.42	211.58	81.00	0.00	0.00	350.00	362.00	0.00
3.200	849.64	-.02	849.78	24.67	12.74	217.04	80.22	.04	347.65	350.00	362.00	372.32
4.000	851.92	0.00	851.98	52.29	62.33	192.97	54.70	106.00	442.00	488.00	504.00	548.00
4.000	851.95	.03	852.00	52.48	62.55	192.59	54.87	106.00	442.00	488.00	504.00	548.00
4.100	851.86	0.00	852.05	16.00	0.00	310.00	0.00	0.00	0.00	488.00	504.00	0.00
4.100	851.89	.03	852.08	16.00	0.00	310.00	0.00	0.00	0.00	488.00	504.00	0.00
4.200	852.86	0.00	853.00	16.00	0.00	310.00	0.00	0.00	0.00	488.00	504.00	0.00
4.200	852.89	.03	853.03	16.00	0.00	310.00	0.00	0.00	0.00	488.00	504.00	0.00
4.300	852.96	0.00	853.02	39.50	40.13	237.43	32.44	45.00	476.00	488.00	504.00	521.00
4.300	852.99	.03	853.05	39.55	40.26	237.19	32.55	45.00	476.00	488.00	504.00	521.00

SECNO	WSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
5.00	853.75	.00	853.79	57.61	37.09	203.92	68.99	69.00	700.00	729.00	747.00	769.00
5.00	853.77	.02	853.80	57.72	37.16	203.73	69.11	69.00	700.00	729.00	747.00	769.00
5.10	853.72	0.00	853.82	18.00	0.00	310.00	0.00	0.00	0.00	729.00	747.00	0.00
5.10	853.74	.02	853.84	18.00	0.00	310.00	0.00	0.00	0.00	729.00	747.00	0.00
5.90	854.14	0.00	854.23	18.00	0.00	310.00	0.00	0.00	0.00	729.00	747.00	0.00
5.90	854.16	.02	854.25	18.00	0.00	310.00	0.00	0.00	0.00	729.00	747.00	0.00
5.100	854.22	0.00	854.25	48.71	46.28	218.88	44.84	69.00	700.00	729.00	747.00	769.00
5.100	854.24	.02	854.27	48.79	46.37	218.71	44.93	69.00	700.00	729.00	747.00	769.00
5.900	854.37	0.00	854.39	57.41	16.48	279.52	0.00	60.00	280.00	290.00	338.00	340.00
5.900	854.39	.02	854.40	57.45	16.51	279.49	0.00	60.00	280.00	290.00	338.00	340.00
6.000	854.39	0.00	854.40	47.47	0.00	296.00	0.00	0.00	0.00	290.00	338.00	0.00
6.000	854.41	.02	854.42	47.51	0.00	296.00	0.00	0.00	0.00	290.00	338.00	0.00
6.010	854.3	0.00	854.40	47.45	0.00	296.00	0.00	0.00	0.00	290.00	338.00	0.00
6.010	854.41	.02	854.42	47.49	0.00	296.00	0.00	0.00	0.00	290.00	338.00	0.00
6.090	854.76	0.00	854.84	16.00	0.00	296.00	0.00	0.00	0.00	302.00	318.00	0.00
6.090	854.77	.02	854.86	16.00	0.00	296.00	0.00	0.00	0.00	302.00	318.00	0.00
6.100	854.76	0.00	854.84	16.00	0.00	296.00	0.00	0.00	0.00	302.00	318.00	0.00
6.100	854.77	.02	854.86	16.00	0.00	296.00	0.00	0.00	0.00	302.00	318.00	0.00
6.500	854.87	0.00	854.88	80.00	77.13	136.65	82.22	80.00	270.00	302.00	318.00	350.00
6.500	854.89	.02	854.89	80.00	77.16	136.59	82.25	80.00	270.00	302.00	318.00	350.00
7.00	854.98	0.00	855.01	138.77	43.16	218.51	34.33	0.00	0.00	337.00	352.00	0.00
7.00	854.99	.02	855.03	73.20	40.14	224.48	31.38	.03	303.63	337.00	352.00	377.04
7.10	855.00	0.00	855.02	139.90	128.21	92.30	75.49	0.00	0.00	337.00	352.00	0.00
7.10	855.01	.01	855.04	79.30	125.98	98.52	71.50	.08	300.60	337.00	352.00	379.90
7.90	855.04	0.00	855.05	142.25	128.19	91.58	76.23	.00	0.00	337.00	352.00	0.00
7.90	855.03	.01	855.07	80.37	125.99	97.53	72.48	.08	300.27	337.00	352.00	380.64
7.100	855.03	.00	855.05	143.91	58.11	191.29	46.60	0.00	0.00	337.00	352.00	0.00
7.100	855.05	.02	855.08	77.85	55.08	197.10	43.82	.04	301.87	337.00	352.00	379.72
7.500	855.16	0.00	855.16	671.87	9.76	42.14	154.10	0.00	0.00	180.00	205.00	0.00
7.500	855.23	.07	855.23	326.00	4.69	56.64	144.67	326.00	174.00	180.00	205.00	500.00
8.00	855.14	.00	855.23	26.97	18.65	161.82	25.53	.00	0.00	300.00	312.00	0.00
8.00	855.24	.10	855.33	21.28	16.33	165.83	23.64	.04	296.07	300.00	312.00	317.35
8.10	855.14	0.00	855.23	26.98	18.66	161.80	25.54	0.00	0.00	300.00	312.00	0.00
8.10	855.24	.10	855.33	21.23	16.27	165.93	23.80	.04	296.09	300.00	312.00	317.33
8.90	856.23	0.00	856.26	140.38	44.40	130.24	31.36	0.00	0.00	300.00	312.00	0.00
8.090	856.33	.10	856.36	91.01	45.26	132.99	27.75	.06	227.39	300.00	312.00	318.40
8.100	856.24	0.00	856.27	141.37	40.86	136.76	28.38	0.00	0.00	300.00	312.00	0.00
8.100	856.34	.10	856.38	92.94	41.44	139.24	25.32	.05	225.61	300.00	312.00	318.55

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
9.000	856.96	0.00	856.96	259.83	27.76	16.24	162.00	370.00	1200.00	1322.00	1327.00	1570.00
9.000	857.02	.06	857.02	259.88	27.21	15.88	162.91	370.00	1200.00	1322.00	1327.00	1570.00
9.010	856.96	0.00	856.96	259.83	0.00	6.72	199.28	370.00	1200.00	1322.00	1327.00	1570.00
9.010	857.02	.06	857.02	259.88	0.00	6.41	199.59	370.00	1200.00	1322.00	1327.00	1570.00
9.090	856.96	0.00	856.97	259.83	0.00	6.70	199.30	370.00	1200.00	1322.00	1327.00	1570.00
9.090	857.02	.06	857.03	259.88	0.00	6.39	199.61	370.00	1200.00	1322.00	1327.00	1570.00
9.100	856.97	0.00	856.97	259.84	27.66	16.18	162.16	370.00	1200.00	1322.00	1327.00	1570.00
9.100	857.03	.06	857.03	259.88	27.12	15.83	163.05	370.00	1200.00	1322.00	1327.00	1570.00
10.000	857.25	0.00	857.27	140.25	106.86	31.45	67.69	461.00	370.00	500.00	503.50	831.00
10.000	857.29	.04	857.31	142.19	108.11	30.93	66.95	461.00	370.00	500.00	503.50	831.00
10.010	857.30	0.00	857.33	142.56	156.12	22.01	27.87	461.00	370.00	500.00	503.50	831.00
10.010	857.33	.04	857.37	144.36	157.58	21.28	27.14	461.00	370.00	500.00	503.50	831.00
10.090	857.41	0.00	857.44	148.40	160.65	19.75	25.60	461.00	370.00	500.00	503.50	831.00
10.090	857.44	.03	857.47	149.84	161.68	19.24	25.08	461.00	370.00	500.00	503.50	831.00
10.100	857.48	0.00	857.50	152.26	115.08	26.93	63.99	461.00	370.00	500.00	503.50	831.00
10.100	857.51	.03	857.52	153.49	115.75	26.66	63.58	461.00	370.00	500.00	503.50	831.00
11.000	858.91	0.00	858.95	135.71	55.97	114.46	35.57	0.00	0.00	354.00	369.00	0.00
11.000	858.95	.04	858.99	84.91	54.17	120.83	31.00	.08	292.74	354.00	369.00	377.65
11.010	858.95	0.00	858.98	138.13	65.05	101.03	39.92	0.00	0.00	354.00	369.00	0.00
11.010	858.99	.04	859.02	88.44	63.68	106.56	35.76	.07	289.99	354.00	369.00	378.43
11.090	859.02	0.00	859.06	100.18	28.47	136.23	41.30	0.00	0.00	354.00	369.00	0.00
11.090	859.06	.04	859.11	40.88	25.65	140.34	40.01	.06	339.12	354.00	369.00	380.01
11.100	859.02	0.00	859.06	100.35	23.93	133.48	48.59	0.00	0.00	354.00	369.00	0.00
11.100	859.06	.04	859.11	38.80	20.75	137.78	47.47	.06	341.86	354.00	369.00	380.66
11.300	859.93	0.00	859.95	57.73	0.00	206.00	0.00	0.00	0.00	1600.00	1667.00	0.00
11.300	859.98	.04	860.00	57.98	0.00	206.00	0.00	.00	1600.00	1600.00	1667.00	1667.00
11.350	860.48	0.00	860.54	51.07	3.06	202.94	0.00	0.00	0.00	640.00	680.00	0.00
11.350	860.40	.02	860.57	30.41	0.00	206.00	0.00	.03	640.00	640.00	680.00	680.00
11.400	862.02	0.00	862.11	34.58	.00	206.00	0.00	0.00	0.00	615.00	655.00	0.00
11.400	862.05	.03	862.14	33.55	0.00	206.00	0.00	.00	615.00	615.00	655.00	655.00
12.000	864.78	0.00	864.86	45.73	.15	205.57	.28	0.00	0.00	400.00	431.00	0.00
12.000	864.80	.02	864.88	31.00	0.00	206.00	0.00	.01	400.00	400.00	431.00	431.00
12.010	864.78	0.00	864.87	46.07	.19	205.47	.34	0.00	0.00	400.00	431.00	0.00
12.010	864.80	.02	864.88	31.00	0.00	206.00	0.00	.01	400.00	400.00	431.00	431.00
12.090	864.84	0.00	864.92	50.03	.38	205.08	.54	0.00	0.00	400.00	431.00	0.00
12.090	864.85	.02	864.93	31.00	0.00	206.00	0.00	.01	400.00	400.00	431.00	431.00
12.100	864.84	0.00	864.92	49.71	.31	205.24	.45	0.00	0.00	400.00	431.00	0.00
12.100	864.88	.02	864.94	31.00	0.00	206.00	0.00	.01	400.00	400.00	431.00	431.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
13.00	865.90	0.00	865.96	27.29	0.00	206.00	0.00	0.00	0.00	539.00	570.00	0.00
13.00	865.91	.02	865.98	27.27	0.00	206.00	0.00	0.00	539.00	539.00	570.00	570.00
13.10	865.92	0.00	865.98	27.29	0.00	206.00	0.00	0.00	0.00	539.00	570.00	0.00
13.10	865.94	.02	866.00	27.37	0.00	206.00	0.00	0.00	539.00	539.00	570.00	570.00
13.90	867.22	0.00	867.24	133.89	.00	184.02	21.98	0.00	0.00	539.00	570.00	0.00
13.90	867.24	.02	867.26	64.06	0.00	192.54	13.46	.06	539.00	539.00	570.00	603.06
13.100	867.22	0.00	867.25	136.15	.00	192.64	13.36	0.00	0.00	539.00	570.00	0.00
13.100	867.24	.02	867.27	56.80	0.00	200.13	5.87	.05	539.00	539.00	570.00	595.80
14.000	867.88	0.00	868.18	8.00	0.00	206.00	0.00	47.00	1006.00	1021.00	1029.00	1053.00
14.000	867.94	.06	868.24	8.00	0.00	206.00	0.00	47.00	1006.00	1021.00	1029.00	1053.00
14.010	867.91	0.00	868.19	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
14.010	867.96	.06	868.25	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
14.090	868.99	0.00	869.20	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
14.090	869.05	.07	869.26	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
14.100	869.00	0.00	869.21	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
14.100	869.06	.07	869.27	8.00	0.00	206.00	0.00	0.00	0.00	1021.00	1029.00	0.00
15.000	869.33	0.00	869.33	384.55	91.54	58.59	55.88	.00	0.00	225.00	258.00	0.00
15.000	869.40	.06	869.40	343.42	90.95	61.29	53.77	.06	43.08	225.00	258.00	386.50
15.010	869.33	0.00	869.33	384.57	121.97	24.44	59.58	0.00	0.00	225.00	258.00	0.00
15.010	869.40	.06	869.40	343.39	122.73	26.57	56.70	.07	41.57	225.00	258.00	384.96
15.090	869.33	0.00	869.33	384.55	121.98	24.44	59.57	0.00	0.00	225.00	258.00	0.00
15.090	869.40	.06	869.40	342.79	122.75	26.62	56.63	.08	41.84	225.00	258.00	384.63
15.100	869.33	0.00	869.33	384.56	108.44	44.60	52.97	.00	0.00	225.00	258.00	0.00
15.100	869.40	.06	869.40	343.69	108.93	46.70	50.37	.07	41.43	225.00	258.00	385.12
15.200	869.34	0.00	869.34	150.00	37.64	21.57	55.79	0.00	0.00	172.00	190.00	0.00
15.200	869.40	.06	869.40	135.78	37.28	22.02	55.70	.03	111.14	172.00	190.00	246.92
16.000	869.31	0.00	869.37	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.000	869.38	.07	869.44	8.00	0.00	115.00	0.00	20.00	780.00	789.00	797.00	800.00
16.010	869.32	0.00	869.38	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.010	869.38	.07	869.44	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.090	869.62	0.00	869.68	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.090	869.68	.07	869.74	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.100	869.62	0.00	869.68	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.100	869.69	.07	869.74	8.00	0.00	115.00	0.00	0.00	0.00	789.00	797.00	0.00
16.200	869.69	0.00	869.69	115.78	0.00	72.04	42.96	0.00	0.00	762.00	830.00	0.00
16.200	869.76	.07	869.76	111.80	0.00	74.07	40.93	.03	762.00	762.00	830.00	875.82
16.500	869.75	0.00	869.75	420.05	19.07	38.99	56.93	0.00	0.00	279.00	306.00	0.00
16.500	869.82	.07	869.82	347.03	15.60	41.68	57.72	.12	153.56	279.00	306.00	500.60

SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
16.510	869.75	0.00	869.76	420.06	22.30	26.20	66.51	0.00	0.00	279.00	306.00	0.00
16.510	869.82	.07	869.82	345.64	18.15	29.07	67.78	.14	154.66	279.00	306.00	500.30
16.590	869.76	0.00	869.76	420.09	22.35	26.15	66.50	0.00	0.00	279.00	306.00	0.00
16.590	869.82	.07	869.83	346.00	18.22	29.02	67.76	.14	154.37	279.00	306.00	500.37
16.630	869.76	0.00	869.76	420.11	23.01	37.29	54.70	0.00	0.00	279.00	306.00	0.00
16.630	869.83	.07	869.83	351.81	20.16	40.06	54.78	.13	147.78	279.00	306.00	499.59
17.000	869.93	0.00	870.05	16.12	0.00	115.00	0.00	0.00	0.00	309.00	328.00	0.00
17.000	870.03	.09	870.14	16.32	0.00	115.00	0.00	0.00	309.00	309.00	328.00	328.00
17.010	869.94	0.00	870.05	16.14	0.00	115.00	0.00	0.00	0.00	309.00	328.00	0.00
17.010	870.03	.09	870.14	16.33	0.00	115.00	0.00	0.00	309.00	309.00	328.00	328.00
17.090	871.47	0.00	871.52	47.96	.02	114.88	.11	0.00	0.00	309.00	328.00	0.00
17.090	871.57	.09	871.61	19.00	0.00	115.00	0.00	.00	309.00	309.00	328.00	328.00
17.100	871.48	0.00	871.52	48.45	.08	114.27	.64	0.00	0.00	309.00	328.00	0.00
17.100	871.57	.09	871.61	19.00	0.00	115.00	0.00	.02	309.00	309.00	328.00	328.00
18.000	872.34	0.00	872.35	57.03	0.00	115.00	0.00	0.00	0.00	93.00	174.00	0.00
18.000	872.39	.05	872.40	57.47	0.00	115.00	0.00	0.00	93.00	93.00	174.00	174.00

MOON AND HAMILTON DRAIN

SUMMARY PRINT OUT TABLE 150

SEC#	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10KAS	VCH	AREA	.01K
1.00	0.00	0.00	0.00	833.80	310.00	841.31	0.00	841.35	2.73	1.52	212.35	187.50
1.00	0.00	0.00	0.00	833.80	310.00	841.42	0.00	841.45	2.55	1.49	217.69	194.21
2.000	250.00	.00	0.00	833.80	310.00	841.41	0.00	841.46	11.12	2.50	182.06	92.96
2.00	250.00	0.00	0.00	833.80	310.00	841.51	0.00	841.58	11.16	2.53	169.19	92.78
2.500	1150.00	0.00	0.00	834.80	310.00	842.71	0.00	842.76	11.18	2.22	269.97	92.73
2.500	1150.00	0.00	0.00	834.80	310.00	842.80	0.00	842.86	10.96	2.22	252.26	93.63
2.900	1225.00	0.00	0.00	842.50	310.00	845.82	0.00	846.03	120.61	3.69	83.92	28.23
2.900	1225.00	0.00	0.00	842.50	310.00	845.85	0.00	846.05	116.85	3.65	84.87	28.68
3.00	260.00	0.00	0.00	844.10	310.00	849.07	0.00	849.50	142.22	5.26	58.99	25.99
3.00	260.00	0.00	0.00	844.10	310.00	849.05	0.00	849.48	143.39	5.27	58.82	25.89
3.010	1.00	853.20	850.20	844.10	310.00	849.07	0.00	849.50	11.52	5.27	58.84	91.32
3.10	1.00	853.20	850.20	844.10	310.00	849.05	0.00	849.48	11.66	5.29	58.60	90.77
3.090	42.00	853.20	850.10	844.00	310.00	849.14	0.00	849.55	10.71	5.15	60.25	94.72
3.090	42.00	853.20	850.10	844.00	310.00	849.12	0.00	849.54	10.83	5.17	60.02	94.19
3.100	1.00	0.00	0.00	844.00	310.00	849.50	0.00	849.64	31.53	3.29	116.43	55.21
3.100	1.00	0.00	0.00	844.00	310.00	849.49	0.00	849.62	31.92	3.31	115.91	54.87
3.200	50.00	0.00	0.00	844.00	310.00	849.66	0.00	849.79	28.11	3.17	121.43	58.47
3.200	50.00	0.00	0.00	844.00	310.00	849.64	0.00	849.78	30.15	3.27	113.11	56.46
4.00	1185.00	0.00	0.00	846.00	310.00	851.92	0.00	851.98	12.91	2.15	188.00	86.26
4.00	1185.00	0.00	0.00	846.00	310.00	851.95	0.00	852.00	12.66	2.14	189.43	87.14
4.100	15.00	0.00	0.00	846.00	310.00	851.86	0.00	852.05	1.69	3.50	88.53	238.56
4.100	15.00	0.00	0.00	846.00	310.00	851.89	0.00	852.08	1.66	3.48	88.97	240.32
4.200	135.00	868.00	849.90	846.30	310.00	852.86	0.00	853.00	1.07	2.99	103.69	299.64
4.200	135.00	868.00	849.90	846.30	310.00	852.89	0.00	853.03	1.06	2.98	104.15	301.59
4.300	15.00	0.00	0.00	846.30	310.00	852.96	0.00	853.02	11.35	2.25	186.97	92.01
4.300	15.00	0.00	0.00	846.30	310.00	852.99	0.00	853.05	11.17	2.24	188.08	92.75
5.00	950.00	0.00	0.00	846.80	310.00	853.75	0.00	857.79	5.95	1.67	254.45	127.13
5.000	950.00	0.00	0.00	846.80	310.00	853.77	0.00	853.80	5.88	1.66	255.48	127.80
5.010	15.00	0.00	0.00	846.80	310.00	853.72	0.00	853.82	.71	2.54	121.82	368.45
5.10	15.00	0.00	0.00	846.80	310.00	853.74	0.00	853.84	.70	2.54	122.14	369.89
5.090	119.00	854.80	851.30	846.80	310.00	854.14	0.00	854.23	.59	2.40	129.39	402.80
5.090	119.00	854.80	851.30	846.80	310.00	854.16	0.00	854.25	.59	2.39	129.72	404.31
5.100	50.00	0.00	0.00	846.40	310.00	854.22	0.00	854.25	3.33	1.60	246.17	169.98
5.100	50.00	0.00	0.00	846.40	310.00	854.24	0.00	854.27	3.29	1.60	247.04	170.79
5.900	580.00	0.00	0.00	845.80	296.00	854.37	0.00	854.39	1.61	1.01	319.00	233.43
5.900	580.00	0.00	0.00	845.80	296.00	854.39	0.00	854.40	1.59	1.01	319.95	234.42

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7.00	100.00	0.00	0.00	845.80	296.00	854.39	0.00	854.40	1.87	1.07	276.91	216.62
6.00	100.00	0.00	0.00	845.80	296.00	854.40	0.00	854.42	1.85	1.07	277.69	217.49
6.10	1.00	0.00	0.00	845.80	296.00	854.39	0.00	854.40	.27	1.07	276.48	572.16
6.10	1.00	0.00	0.00	845.80	296.00	854.40	0.00	854.42	.27	1.07	277.26	574.46
6.90	146.00	868.40	851.20	846.40	296.00	854.76	0.00	854.84	1.33	2.35	126.15	256.48
6.90	146.00	868.40	851.20	846.40	296.00	854.77	0.00	854.86	1.32	2.34	126.42	257.27
6.100	1.00	0.00	0.00	846.40	296.00	854.76	0.00	854.84	11.52	2.35	126.15	87.20
6.100	1.00	0.00	0.00	846.40	296.00	854.77	0.00	854.86	11.45	2.34	126.42	87.47
6.500	40.00	0.00	0.00	846.40	296.00	854.87	0.00	854.88	1.39	1.07	510.31	250.86
6.500	40.00	0.00	0.00	846.40	296.00	854.89	0.00	854.89	1.38	1.07	511.62	251.84
7.00	600.00	0.00	0.00	846.30	296.00	854.98	0.00	855.01	3.98	1.80	323.68	148.37
7.00	600.00	0.00	0.00	846.30	296.00	854.99	0.00	855.03	4.17	1.85	283.46	144.89
7.10	15.00	851.80	849.92	846.30	296.00	855.00	0.00	855.02	7.81	1.67	230.70	105.95
7.10	15.00	851.80	849.92	846.30	296.00	855.01	0.00	855.04	8.80	1.77	200.19	99.80
7.90	26.00	851.80	849.92	846.30	296.00	855.02	0.00	855.05	7.51	1.64	234.19	107.99
7.90	26.00	851.80	849.92	846.30	296.00	855.03	0.00	855.07	8.40	1.74	203.94	102.12
7.100	15.00	0.00	0.00	846.30	296.00	855.03	0.00	855.05	4.30	1.57	331.33	142.82
7.100	15.00	0.00	0.00	846.30	296.00	855.05	0.00	855.08	4.54	1.61	294.59	138.96
7.500	1315.00	0.00	0.00	848.20	206.00	855.16	0.00	855.16	.27	.28	1544.14	464.47
7.500	1315.00	0.00	0.00	848.20	206.00	855.23	0.00	855.23	.34	.37	1011.49	352.66
8.00	530.00	0.00	0.00	849.30	206.00	855.14	0.00	855.23	30.09	2.55	98.86	37.55
8.00	530.00	0.00	0.00	849.30	206.00	855.24	0.00	855.33	29.65	2.57	95.88	37.83
8.10	1.00	0.00	0.00	849.30	206.00	855.14	0.00	855.23	30.06	2.55	98.90	37.57
8.10	1.00	0.00	0.00	849.30	206.00	855.24	0.00	855.33	29.68	2.57	95.81	37.81
8.90	40.00	855.50	852.30	849.30	206.00	856.23	0.00	856.26	3.55	1.70	186.97	109.40
8.90	40.00	999999.00	0.00	849.30	206.00	856.33	0.00	856.36	3.51	1.71	175.47	109.94
8.100	15.00	0.00	0.00	849.30	206.00	856.24	0.00	856.27	11.39	1.78	189.25	61.03
8.100	15.00	0.00	0.00	849.30	206.00	856.34	0.00	856.38	11.25	1.79	177.87	61.42
9.00	2040.00	0.00	0.00	850.70	206.00	856.96	0.00	856.96	1.82	.57	579.91	152.52
9.00	2.40.00	0.00	0.00	850.70	206.00	857.02	0.00	857.02	1.68	.56	595.79	158.78
9.10	1.00	854.70	854.70	850.70	206.00	856.96	0.00	856.96	3.66	.60	463.34	107.75
9.10	1.00	854.70	854.70	850.70	206.00	857.02	0.00	857.02	3.33	.57	477.61	112.95
9.90	19.00	854.70	854.70	850.70	206.00	856.96	0.00	856.97	3.63	.60	464.36	108.12
9.90	19.00	854.70	854.70	850.70	206.00	857.02	0.00	857.03	3.31	.57	478.54	113.29
9.100	15.00	0.00	0.00	850.70	206.00	856.97	0.00	856.97	1.80	.57	582.67	153.60
9.100	15.00	0.00	0.00	850.70	206.00	857.03	0.00	857.03	1.66	.55	598.23	159.76
10.000	625.00	0.00	0.00	852.30	206.00	857.25	0.00	857.27	22.26	2.13	205.94	43.66
10.000	625.00	0.00	0.00	852.30	206.00	857.29	0.00	857.31	20.88	2.07	211.50	45.09

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10.010	15.00	855.50	855.90	852.30	206.00	857.30	0.00	857.33	64.48	2.78	152.17	25.65
10.010	15.00	855.50	855.90	852.30	206.00	857.33	0.00	857.37	60.26	2.69	156.24	26.54
10.090	19.00	855.50	855.90	852.30	206.00	857.41	0.00	857.44	51.92	2.50	165.55	28.59
10.090	19.00	855.50	855.90	852.30	206.00	857.44	0.00	857.47	49.28	2.43	168.93	29.35
10.100	15.00	0.00	0.00	852.30	206.00	857.48	0.00	857.50	24.08	1.72	241.43	41.98
10.100	15.00	0.00	0.00	852.30	206.00	857.51	0.00	857.52	23.17	1.70	245.23	42.79
11.000	435.00	0.00	0.00	854.10	206.00	858.91	0.00	858.95	34.95	1.94	174.21	34.84
11.000	435.00	0.00	0.00	854.10	206.00	858.95	0.00	858.99	37.65	2.03	152.31	33.57
11.010	15.00	0.00	0.00	854.10	206.00	858.95	0.00	858.98	10.23	1.69	180.52	64.40
11.010	15.00	0.00	0.00	854.10	206.00	858.99	0.00	859.02	11.11	1.77	159.16	61.81
11.090	14.00	857.80	857.10	854.10	206.00	859.02	0.00	859.06	9.37	1.95	142.77	67.30
11.090	14.00	999999.00	0.00	854.10	206.00	859.06	0.00	859.11	9.65	1.99	124.23	66.32
11.100	1.00	0.00	0.00	854.10	206.00	859.02	0.00	859.06	12.94	1.91	142.87	57.26
11.100	1.00	0.00	0.00	854.10	206.00	859.06	0.00	859.11	13.38	1.95	123.11	56.31
11.300	875.00	0.00	0.00	855.90	206.00	859.93	0.00	859.95	7.96	1.13	181.85	73.03
11.300	875.00	0.00	0.00	855.90	206.00	859.98	0.00	860.00	7.64	1.12	184.38	74.51
11.350	230.00	0.00	0.00	856.10	206.00	860.38	0.00	860.54	208.81	3.25	66.35	14.26
11.350	230.00	0.00	0.00	856.10	206.00	860.40	0.00	860.57	212.97	3.26	63.11	14.12
11.400	170.00	0.00	0.00	857.00	206.00	862.02	0.00	862.11	51.11	2.45	84.19	28.81
11.400	170.00	0.00	0.00	857.00	206.00	862.05	0.00	862.14	50.31	2.43	84.84	29.04
12.000	585.00	0.00	0.00	859.20	206.00	864.78	0.00	864.86	43.40	2.33	89.76	31.27
12.000	585.00	0.00	0.00	859.20	206.00	864.80	0.00	864.88	43.76	2.32	88.68	31.14
12.010	1.00	864.20	863.20	859.20	206.00	864.78	0.00	864.87	29.93	2.33	89.98	37.65
12.010	1.00	864.20	863.20	859.20	206.00	864.80	0.00	864.88	30.34	2.32	88.73	37.40
12.090	16.00	864.20	863.20	859.20	206.00	864.84	0.00	864.92	27.88	2.28	92.77	39.01
12.090	16.00	864.20	863.20	859.20	206.00	864.85	0.00	864.93	28.91	2.29	90.11	38.31
12.100	1.00	0.00	0.00	859.20	206.00	864.84	0.00	864.92	40.43	2.28	92.54	32.40
12.100	1.00	0.00	0.00	859.20	206.00	864.86	0.00	864.94	41.20	2.28	90.41	32.09
13.000	325.00	0.00	0.00	858.00	206.00	865.90	0.00	865.96	25.86	2.06	99.89	40.51
13.000	325.00	0.00	0.00	858.00	206.00	865.91	0.00	865.98	25.50	2.05	100.41	40.79
13.010	15.00	0.00	0.00	858.00	206.00	865.92	0.00	865.98	8.66	2.05	100.49	70.01
13.010	15.00	0.00	0.00	858.00	206.00	865.94	0.00	866.00	8.52	2.04	101.09	70.57
13.090	20.00	866.70	861.20	858.00	206.00	867.22	0.00	867.24	2.77	1.33	200.14	123.75
13.090	20.00	999999.00	0.00	858.00	206.00	867.24	0.00	867.26	3.01	1.38	169.03	118.67
13.100	15.00	0.00	0.00	858.00	206.00	867.22	0.00	867.25	3.94	1.39	201.30	103.77
13.100	15.00	0.00	0.00	858.00	206.00	867.24	0.00	867.27	4.24	1.43	161.94	100.08
14.000	330.00	0.00	0.00	861.50	206.00	867.88	0.00	868.18	49.24	4.39	46.94	29.36
14.000	330.00	0.00	0.00	861.50	206.00	867.94	0.00	868.24	47.77	4.34	47.45	29.80

SECTN	ALCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14.110	15.00	0.00	0.00	861.50	206.00	867.90	0.00	868.19	3.70	4.38	47.06	107.13
14.110	15.00	0.00	0.00	861.50	206.00	867.96	0.00	868.25	3.59	4.33	47.57	108.75
14.090	207.00	873.00	866.90	861.50	206.00	868.99	.00	869.20	2.31	3.69	55.79	135.60
14.090	207.00	873.00	866.90	861.50	206.00	869.05	0.00	869.26	2.25	3.66	56.33	137.39
14.100	15.00	0.00	0.00	861.50	206.00	869.00	0.00	869.21	38.56	3.69	55.82	33.17
14.100	15.00	0.00	0.00	861.50	206.00	869.06	0.00	869.27	37.56	3.66	56.36	33.61
15.000	675.00	0.00	0.00	861.20	206.00	869.33	0.00	869.33	.27	.35	863.53	398.08
15.000	675.00	0.00	0.00	861.20	206.00	869.40	0.00	869.40	.28	.36	820.82	388.64
15.010	1.00	864.30	864.82	861.20	206.00	869.33	0.00	869.33	.47	.40	759.59	299.10
15.010	1.00	864.30	864.82	861.20	206.00	869.40	0.00	869.40	.50	.42	716.92	290.59
15.090	16.00	864.30	864.82	861.20	206.00	869.33	0.00	869.33	.48	.40	759.07	298.78
15.090	16.00	864.30	864.82	861.20	206.00	869.40	0.00	869.40	.50	.42	715.81	290.22
15.100	15.00	0.00	0.00	861.20	206.00	869.33	0.00	869.33	.38	.27	864.00	336.33
15.100	15.00	0.00	0.00	861.20	206.00	869.40	0.00	869.40	.39	.28	822.66	328.00
15.090	390.00	0.00	0.00	861.50	115.00	869.34	0.00	869.34	.06	.16	718.90	459.84
15.090	390.00	0.00	0.00	861.50	115.00	869.40	0.00	869.40	.06	.16	697.39	456.04
16.000	160.00	0.00	0.00	861.60	115.00	869.31	0.00	869.37	26.71	2.00	57.58	22.25
16.000	160.00	0.00	0.00	861.60	115.00	869.38	0.00	869.44	26.06	1.98	58.10	22.53
16.010	15.00	0.00	0.00	861.60	115.00	869.32	0.00	869.38	.78	1.99	57.67	130.10
16.010	15.00	0.00	0.00	861.60	115.00	869.38	0.00	869.44	.76	1.98	58.19	131.70
16.090	132.00	880.00	867.10	861.60	115.00	869.62	0.00	869.68	.70	1.92	60.02	137.36
16.090	132.00	880.00	867.10	861.60	115.00	869.68	0.00	869.74	.68	1.90	60.55	139.01
16.100	15.00	0.00	0.00	861.60	115.00	869.62	0.00	869.68	23.84	1.92	60.03	23.55
16.100	15.00	0.00	0.00	861.60	115.00	869.69	0.00	869.74	23.28	1.90	60.56	23.83
16.190	120.00	0.00	0.00	861.70	115.00	869.69	0.00	869.69	.17	.20	549.52	280.79
16.200	120.00	0.00	0.00	861.70	115.00	869.76	0.00	869.76	.17	.21	541.29	278.04
16.500	1850.00	0.00	0.00	863.80	115.00	869.75	0.00	869.75	1.08	.38	439.07	110.68
16.500	1850.00	0.00	0.00	863.80	115.00	869.82	0.00	869.82	1.16	.40	401.31	106.61
16.510	15.00	867.80	867.80	863.80	115.00	869.75	0.00	869.76	.94	.53	386.93	118.56
16.510	15.00	867.80	867.80	863.80	115.00	869.82	0.00	869.82	1.03	.57	347.88	113.49
16.590	20.00	867.80	867.80	863.80	115.00	869.76	0.00	869.76	.93	.53	387.90	119.00
16.590	20.00	867.80	867.80	863.80	115.00	869.82	0.00	869.83	1.02	.56	348.79	113.84
16.600	15.00	0.00	0.00	863.80	115.00	869.76	0.00	869.76	.98	.37	440.67	115.96
16.600	15.00	0.00	0.00	863.80	115.00	869.83	0.00	869.83	1.07	.39	405.67	111.15
17.000	790.00	0.00	0.00	865.10	115.00	869.93	0.00	870.05	108.31	2.74	41.92	11.05
17.000	790.00	0.00	0.00	865.10	115.00	870.03	0.00	870.14	98.01	2.65	43.42	11.62
17.010	1.00	0.00	0.00	865.10	115.00	869.94	0.00	870.05	3.16	2.74	42.00	64.64
17.010	1.00	0.00	0.00	865.10	115.00	870.03	0.00	870.14	2.87	2.64	43.49	67.91

SECNC	XLCH	ELTPD	FLLC	ELMIN	Q	CWSEL	CPIWS	EG	10K*S	VCH	AREA	.01K
17.000	20.00	871.10	869.30	865.10	115.00	871.47	0.00	871.52	.76	1.66	71.72	132.11
17.000	20.00	999999.00	0.00	865.10	115.00	871.57	0.00	871.61	.73	1.62	70.95	134.88
17.100	15.00	0.00	0.00	865.10	115.00	871.48	0.00	871.52	25.44	1.65	71.86	22.80
17.100	15.00	0.00	0.00	865.10	115.00	871.57	0.00	871.61	24.53	1.62	71.15	23.22
18.000	900.00	0.00	0.00	868.00	115.00	872.34	0.00	872.35	4.65	.70	163.54	53.31
18.000	900.00	0.00	0.00	868.00	115.00	872.39	0.00	872.40	4.41	.69	166.76	54.78

MOON AND HAMILTON DRAIN

SUMMARY PRINT OUT TABLE 150

SECT	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.00	310.00	841.31	0.00	0.00	0.00	48.50	0.00
1.00	310.00	841.42	.11	.00	.11	48.51	0.00
2.00	310.00	841.41	0.00	.10	0.00	50.36	250.00
2.00	310.00	841.51	.10	.09	.10	35.01	250.00
2.500	310.00	842.71	0.00	1.30	0.00	283.39	1150.00
2.500	310.00	842.80	.09	1.29	.09	201.31	1150.00
2.900	310.00	845.82	0.00	3.11	0.00	34.61	1225.00
2.900	310.00	845.85	.03	3.05	.03	34.76	1225.00
3.000	310.00	849.07	0.00	3.25	0.00	12.00	260.00
3.00	310.00	849.05	-.02	3.20	-.02	12.00	260.00
3.10	310.00	849.07	0.00	.00	0.00	12.00	1.00
3.010	310.00	849.05	-.02	.00	-.02	12.00	1.00
3.090	310.00	849.14	0.00	.07	0.00	12.00	42.00
3.090	310.00	849.12	-.02	.07	-.02	12.00	42.00
3.100	310.00	849.50	0.00	.36	0.00	31.44	1.00
3.100	310.00	849.49	-.02	.37	-.02	31.38	1.00
3.200	310.00	849.66	0.00	.16	0.00	32.02	50.00
3.200	310.00	849.64	-.02	.15	-.02	24.67	50.00
4.000	310.00	851.92	0.00	2.26	0.00	52.29	1185.00
4.000	310.00	851.95	.03	2.31	.03	52.48	1185.00
4.100	310.00	851.86	0.00	-.06	0.00	16.00	15.00
4.100	310.00	851.89	.03	-.06	.03	16.00	15.00
4.200	310.00	852.86	0.00	1.00	0.00	16.00	135.00
4.200	310.00	852.89	.03	1.00	.03	16.00	135.00
4.300	310.00	852.96	0.00	.10	0.00	39.50	15.00
4.300	310.00	852.99	.03	.10	.03	39.55	15.00
5.00	310.00	853.75	0.00	.79	0.00	57.61	950.00
5.00	310.00	853.77	.02	.79	.02	57.72	950.00
5.010	310.00	853.72	0.00	-.03	0.00	18.00	15.00
5.10	310.00	853.74	.02	-.03	.02	18.00	15.00
5.90	310.00	854.14	0.00	.42	0.00	18.00	119.00
5.090	310.00	854.16	.02	.42	.02	18.00	119.00
5.100	310.00	854.22	0.00	.08	0.00	48.71	50.00
5.100	310.00	854.24	.02	.08	.02	48.79	50.00
5.900	296.00	854.37	0.00	.15	0.00	57.41	580.00
5.900	296.00	854.39	.02	.15	.02	57.45	580.00

SEC (	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
6. 00	296.00	854.39	0.00	.02	0.00	47.47	1 0.00
6.100	296. 0	654.40	.02	.02	.02	47.51	1'0.00
6. 10	296. 0	854.39	.00	.00	0.00	47.45	1.00
6.110	296.00	854.40	.02	.00	.02	47.49	1.00
6. 90	296.00	854.76	0.00	.37	0.00	16.00	146.00
6. 90	296.00	854.77	.02	.37	.02	16.00	146.00
6.100	296.00	854.76	0.00	.00	0.00	16.00	1.00
6.100	296.00	854.77	.02	.00	.02	16.00	1.00
6.500	296.00	854.87	0.00	.11	0.00	80.00	40.00
6.500	296.00	854.89	.02	.11	.02	80.00	40.00
7. 00	296.00	854.98	0.00	.11	0.00	138.77	600.00
7. 00	296.00	854.99	.02	.11	.02	73.20	600.00
7. 10	296.00	855.00	0.00	.02	0.00	139.90	15.00
7. 10	296. 0	855.01	.01	.02	.01	79.30	15.00
7. 90	296.00	855.02	0.00	.02	0.00	142.25	28.00
7. 90	296.00	855.03	.01	.03	.01	80.37	28.00
7.100	296.00	855.03	0.00	.01	0.00	143.91	15.00
7.100	296.00	855.05	.02	.02	.02	77.85	15.00
7.500	206.00	855.16	0.00	.13	0.00	671.87	1315.00
7.500	206.00	855.23	.07	.18	.07	326.00	1315.00
8. 00	206.00	855.14	0.00	-.02	0.00	26.97	530.00
8. 00	206.00	855.24	.10	.01	.10	21.28	530.00
8.100	206.00	855.14	0.00	.00	0.00	26.98	1.00
8.100	206.00	855.24	.10	.00	.10	21.23	1.00
8.490	206.00	856.23	0.00	1.09	0.00	140.78	40.00
8.490	206.00	856.33	.10	1.09	.1	91.01	40.00
8.100	206.00	856.24	0.00	.01	0.00	141.37	15.00
8.100	206.00	856.34	.10	.01	.10	92.94	15.00
9.000	206.00	856.96	0.00	.72	0.00	259.83	2040.00
9.000	206.00	857.02	.06	.68	.06	259.88	2040.00
9. 10	206.00	856.96	0.00	-.00	0.00	259.83	1.00
9.110	206.00	857.02	.06	-.00	.06	259.88	1.00
9. 90	206.00	856.96	0.00	.01	0.00	259.83	19.00
9. 90	206.00	857.02	.06	.01	.06	259.88	19.00
9.100	206.00	856.97	0.00	.00	0.00	259.84	15.00
9.100	206.00	857.03	.06	.00	.06	259.89	15.00
10.000	206.00	857.25	0.00	.28	0.00	140.25	625.00
10.000	206.00	857.29	.04	.26	.04	142.19	625.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10.010	206.00	857.30	0.00	.05	0.00	142.56	15.00
10.010	206.00	857.33	.04	.04	.04	144.36	15.00
10.090	206.00	857.41	0.00	.12	0.00	148.40	19.00
10.090	206.00	857.44	.03	.11	.03	149.84	19.00
10.100	206.00	857.48	0.00	.07	0.00	152.26	15.00
10.100	206.00	857.51	.03	.07	.03	153.49	15.00
11.000	206.00	858.91	0.00	1.43	0.00	135.71	435.00
11.000	206.00	858.95	.04	1.44	.04	84.91	435.00
11.010	206.00	858.95	0.00	.04	0.00	136.13	15.00
11.010	206.00	858.99	.04	.04	.04	88.44	15.00
11.090	206.00	859.02	0.00	.07	0.00	100.18	14.00
11.090	206.00	859.06	.04	.07	.04	40.88	14.00
11.100	206.00	859.02	0.00	.00	0.00	100.35	1.00
11.100	206.00	859.06	.04	.00	.04	38.80	1.00
11.300	206.00	859.93	0.00	.91	0.00	57.73	875.00
11.300	206.00	859.98	.04	.91	.04	57.98	875.00
11.350	206.00	860.38	0.00	.44	0.00	51.07	230.00
11.350	206.00	860.40	.02	.42	.02	30.41	230.00
11.400	206.00	862.02	0.00	1.64	0.00	34.58	170.00
11.400	206.00	862.05	.03	1.65	.03	33.55	170.00
12.000	206.00	864.78	0.00	2.76	0.00	45.73	585.00
12.000	206.00	864.80	.02	2.75	.02	31.00	585.00
12.010	206.00	864.78	0.00	.00	0.00	46.07	1.00
12.010	206.00	864.80	.02	.00	.02	31.00	1.00
12.090	206.00	864.84	0.00	.05	0.00	50.03	16.00
12.090	206.00	864.85	.02	.05	.02	31.00	16.00
12.100	206.00	864.84	0.00	.00	0.00	49.71	1.00
12.100	206.00	864.86	.02	.00	.02	31.00	1.00
13.000	206.00	865.90	0.00	1.06	0.00	27.23	325.00
13.000	206.00	865.91	.02	1.06	.02	27.27	325.00
13.010	206.00	865.92	0.00	.02	0.00	27.29	15.00
13.010	206.00	865.94	.02	.02	.02	27.37	15.00
13.090	206.00	867.22	0.00	1.30	0.00	133.89	20.00
13.090	206.00	867.24	.02	1.30	.02	64.06	20.00
13.100	206.00	867.22	0.00	.00	0.00	136.15	15.00
13.100	206.00	867.24	.02	.00	.02	56.80	15.00
14.000	206.00	867.88	0.00	.66	0.00	8.00	830.00
14.000	206.00	867.94	.06	.70	.06	8.00	830.00

SECID	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14.110	206.00	867.90	0.00	.02	0.00	8.00	15.00
14.110	206.00	867.96	.06	.02	.06	8.00	15.00
14.090	206.00	868.99	0.00	1.09	.00	8.00	207.00
14.090	206.00	869.05	.07	1.09	.07	8.00	207.00
14.100	206.00	869.00	0.00	.01	0.00	8.00	15.00
14.100	206.00	869.06	.07	.01	.07	8.00	15.00
15.000	206.00	869.33	0.00	.33	0.00	384.55	675.00
15.000	206.00	869.40	.06	.33	.06	343.42	675.00
15.010	206.00	869.33	0.00	-.00	0.00	384.57	1.00
15.010	206.00	869.40	.06	-.00	.06	343.39	1.00
15.090	206.00	869.33	0.00	.00	0.00	384.55	18.00
15.090	206.00	869.40	.06	.00	.06	342.79	18.00
15.100	206.00	869.33	0.00	.00	0.00	384.56	15.00
15.100	206.00	869.40	.06	.00	.06	343.69	15.00
15.000	115.00	869.34	0.00	.01	0.00	150.00	360.00
15.000	115.00	869.40	.06	.01	.06	135.78	360.00
16.000	115.00	869.31	0.00	-.03	0.00	8.00	160.00
16.000	115.00	869.38	.07	-.03	.07	8.00	160.00
16.010	115.00	869.32	0.00	.00	0.00	8.00	15.00
16.010	115.00	869.38	.07	.00	.07	8.00	15.00
16.000	115.00	869.62	0.00	.30	0.00	8.00	132.00
16.000	115.00	869.68	.07	.30	.07	8.00	132.00
16.100	115.00	869.62	0.00	.00	0.00	8.00	15.00
16.100	115.00	869.69	.07	.00	.07	8.00	15.00
16.200	115.00	869.69	0.00	.07	0.00	115.78	120.00
16.200	115.00	869.76	.07	.07	.07	111.80	120.00
16.500	115.00	869.75	.00	.06	0.00	420.05	1850.00
16.500	115.00	869.82	.07	.06	.07	347.03	1850.00
16.510	115.00	869.75	0.00	.00	0.00	420.06	15.00
16.510	115.00	869.82	.07	.00	.07	345.64	15.00
16.590	115.00	869.76	0.00	.00	0.00	420.09	20.00
16.590	115.00	869.82	.07	.00	.07	346.00	20.00
16.600	115.00	869.76	0.00	.00	0.00	420.11	15.00
16.600	115.00	869.83	.07	.00	.07	351.81	15.00
17.000	115.00	869.93	0.00	.18	0.00	16.12	790.00
17.000	115.00	870.03	.09	.20	.09	16.32	790.00
17.010	115.00	869.94	0.00	.00	0.00	16.14	1.00
17.010	115.00	870.03	.09	.00	.09	16.33	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
17.090	115.00	871.47	0.00	1.54	0.00	47.96	20.00
17.090	115.00	871.57	.09	1.54	.09	19.00	20.00
17.100	115.00	871.48	0.00	.00	0.00	48.45	15.00
17.100	115.00	871.57	.09	.00	.09	19.00	15.00
18.000	115.00	872.34	0.00	.86	0.00	57.03	900.00
18.000	115.00	872.39	.05	.82	.05	57.47	900.00

SUMMARY OF ERRORS

FLOODWAY DATA, MOON AND HAMILTON DRAIN
PROFILE NO.

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.00	49.	216.	1.4	841.4	841.3	.1
2.000	35.	169.	1.8	841.5	841.4	.1
2.5[illegible]	22[illegible].	252.	1.7	842.8	842.7	.1
2.9[illegible]	35.	85.	3.7	845.8	845.8	0.0
3.000	12.	59.	5.3	849.1	849.1	0.0
3.01[illegible]	12.	59.	5.3	849.1	849.1	0.0
3.09[illegible]	12.	60.	5.2	849.1	849.1	0.0
3.19[illegible]	31.	116.	2.7	849.5	849.5	0.0
3.2[illegible]	25.	113.	2.7	849.7	849.7	0.0
4.000	7[illegible].	189.	1.6	851.9	851.9	0.0
4.1[illegible]	16.	89.	3.5	851.9	851.9	0.0
4.2[illegible]	16.	104.	3.0	852.9	852.9	0.0
4.3[illegible]	4[illegible].	188.	1.6	853.0	853.0	0.0
5.00[illegible]	5[illegible].	255.	1.2	853.8	853.8	0.0
5.01	1[illegible].	122.	2.5	853.7	853.7	0.0
5.09[illegible]	16.	130.	2.4	854.1	854.1	0.0
5.1[illegible]	49.	247.	1.3	854.2	854.2	0.0
5.9[illegible]	57.	320.	.9	854.4	854.4	0.0
6.00[illegible]	48.	278.	1.1	854.4	854.4	0.0
6.01[illegible]	47.	277.	1.1	854.4	854.4	0.0
6.09[illegible]	1[illegible].	126.	2.3	854.8	854.8	0.0
6.1[illegible]	1[illegible].	126.	2.3	854.8	854.8	0.0
6.500	[illegible].	512.	.6	854.9	854.9	0.0
7.00[illegible]	7[illegible].	283.	1.[illegible]	855.0	855.0	0.0
7.01[illegible]	79.	2[illegible]0.	1.5	855.0	855.0	0.0
7.09[illegible]	[illegible].	204.	1.5	855.0	855.0	0.0
7.1[illegible]	7[illegible].	295.	1.0	855.0	855.0	0.0
7.50[illegible]	326.	1011.	.2	855.3	855.2	.1
8.00	21.	96.	2.1	855.2	855.1	.1
8.01	21.	96.	2.2	855.2	855.1	.1
8.090	91.	175.	1.2	856.3	856.2	.1
8.10[illegible]	9[illegible].	178.	1.2	856.3	856.2	.1
9.00	26[illegible].	596.	.3	857.1	857.[illegible]	.1
9.01[illegible]	26[illegible].	478.	.4	857.1	857.0	.1
9.09[illegible]	26[illegible].	479.	.4	857.1	857.[illegible]	.1
9.10[illegible]	26[illegible].	596.	.3	857.1	857.[illegible]	.1
10.00[illegible]	156.	211.	1.[illegible]	857.2	857.2	.0
10.01[illegible]	156.	156.	1.3	857.3	857.3	0.0
10.09[illegible]	157.	169.	1.2	857.4	857.4	0.0
10.10[illegible]	157.	245.	.8	857.5	857.5	0.0
11.00[illegible]	8[illegible].	152.	1.4	858.9	858.9	.0
11.01[illegible]	8[illegible].	159.	1.3	858.9	858.9	.0
11.090	41.	124.	1.7	859.0	859.[illegible]	0.0
11.10[illegible]	39.	123.	1.7	859.0	859.[illegible]	0.0
11.30[illegible]	5[illegible].	184.	1.1	859.9	859.9	0.0
11.35[illegible]	3[illegible].	63.	3.3	860.4	860.4	0.0
11.40[illegible]	7[illegible].	85.	2.4	862.0	862.0	0.0
12.00[illegible]	31.	89.	2.3	864.8	864.8	0.0
12.01[illegible]	31.	89.	2.3	864.8	864.8	0.0
12.090	31.	90.	2.3	864.8	864.8	0.0

FLOODWAY DATA, MOGK AND HAMILTON DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
12.1[illegible]	31.	90.	2.3	864.8	864.8	0.0
13.[illegible]	27.	100.	2.1	865.9	865.9	0.0
13.010	27.	101.	2.0	865.9	865.9	0.0
13.090	64.	169.	1.2	867.2	867.2	0.0
13.100	57.	162.	1.3	867.2	867.2	0.0
14.000	8.	47.	4.3	868.0	867.9	.1
14.010	8.	48.	4.3	868.0	867.9	.1
14.090	8.	56.	3.7	869.1	869.0	.1
14.100	8.	56.	3.7	869.1	869.0	.1
15.000	343.	821.	.3	869.4	869.3	.1
15.010	343.	717.	.3	869.4	869.3	.1
15.090	343.	716.	.3	869.4	869.3	.1
15.100	344.	823.	.3	869.4	869.3	.1
15.800	136.	697.	.2	869.4	869.3	.1
16.000	8.	58.	2.6	869.4	869.3	.1
16.010	9.	58.	2.6	869.4	869.3	.1
16.090	8.	61.	1.9	869.7	869.6	.1
16.100	8.	61.	1.9	869.7	869.6	.1
16.200	112.	541.	.2	869.8	869.7	.1
16.500	347.	401.	.3	869.9	869.8	.1
16.51	346.	348.	.3	869.9	869.8	.1
16.590	346.	349.	.3	869.9	869.8	.1
16.600	352.	406.	.2	869.9	869.8	.1
17.000	16.	43.	2.6	870.0	869.9	.1
17.010	16.	43.	2.6	870.0	869.9	.1
17.090	19.	71.	1.6	871.6	871.5	.1
17.100	19.	71.	1.6	871.6	871.5	.1
18.000	57.	167.	.7	872.4	872.3	.1

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  31,02
  MODIFICATION -  50,51,52,53
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C
T1      100 YEAR FLOOD
T2
T3       MOON AND HAMILTON DRAIN

J1  ICHECK     INN        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.        7.         0.         0.  0.000000       0.00       0.0        0.    841.310      0.000

J2  NPROF      IPLOT      PRVS       XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     0.000      0.000     -1.000      0.000      0.000      1.300      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       .035       .100       .300      0.000      0.000      0.000      0.000      0.000
QT     7.000     10.000     10.000     10.000    185.000    264.000    310.000    310.000      0.000      0.000
ET     0.000      0.000      0.000      0.000      0.000      0.000      0.000      9.100     46.100     94.610

       CONFLUENCE OF MOON AND HAMILTON DRAIN AND HOLLEY DRAIN

X1      1.000     13. 00     42.000     85.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    854.100      0.000    843.000     42.000    836.000     59.000    834.400     70.000    833.800     73.000
GR    834.400     78.000    835.200     83.000    838.800     85.000    846.900    116.000    850.800    200.000
GR    846.700    300.000    850.700    400.000    854.500    500.000      0.000      0.000      0.000      0.000
NC       .070       .070       .050      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      1.000      0.000      0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000

X1      2. 00     15.000    118.000    129.000    240.000    275.000    250.000      0.000      0.000      0.000
GR    856.700      .000    855.700     48.000    849.100     70.000    837.900    107.000    835.500    118.000
GR    834.400    120.000    833.800    124.000    834.400    126.000    837.100    129.000    842.500    150.000
GR    842.600    250.000    843.600    350.000    843.200    450.000    854.600    500.000    859.200    515.000

X1      2.500     19.000    304.000    318.000   1150.000   1150.000   1150.000      0.000      0.000      0.000
GR    845.400      0.000    842.800     33.000    842.100    100.000    842.300    260.000    842.100    270.000
GR    845.700    280.000    842.500    291.000    842.200    298.000    840.200    304.000    835.700    306.000
GR    835.300    307.000    834.800    309.000    835.300    311.000    836.500    318.000    840.200    334.000
GR    842.500    342. 00    849.500    400.000    855.300    480.000    861.300    530.000      0.000      0.000
NC       .090       .090       .060      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET       .000      0.000      0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000

X1      2.500     12. 00    619.000    663.000   1275. 00   1210.000   1225.000      0.000     -1.600      0.000
GR    867.500    500.000    846.000    560.000    860.000    598.000    857.000    619.000    844.200    637.000
GR    844.100    646. 00    844.200    654.000    848.000    663.000    850.000    874.000    860.000    793.000
GR    864.000    850.000    865.200    940.000      0.000      0.000      0.000      0.000      0.000      0.000
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NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.170	10.000	450.000
X1	3.000	15.000	317.100	329.000	260.000	270.000	261.000	0.000	0.000	0.000
X3	15.000	0.000	0.000	0.000	0.000	0.000	0.000	853.200	853.200	0.000
GR	862.300	0.000	858.000	100.000	850.800	200.000	846.700	300.000	844.200	317.000
GR	844.200	317.100	844.100	323.000	844.200	328.900	844.200	329.000	852.600	335.000
GR	853.400	400.000	854.500	500.000	856.400	600.000	859.900	700.000	862.300	753.000
NC	.020	.020	.017	.300	.500	0.000	0.000	0.000	0.000	0.000

CANAL RD.

X1	3.010	0.000	317.000	329.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	15.000	0.000	0.000	0.000	0.000	0.000	0.000	853.200	853.200	0.000
BT	15.000	0.000	862.300	0.000	100.000	858.000	0.000	200.000	855.000	0.000
BT	300.000	853.200	0.000	317.100	853.200	844.200	317.100	853.200	850.200	323.000
BT	853.200	850.200	328.900	853.200	850.200	329.000	853.200	844.200	340.000	853.200
BT	0.000	400.000	853.400	0.000	500.000	854.500	0.000	600.000	856.400	0.000
BT	700.000	859.900	0.000	753.000	862.300	0.000	0.000	0.000	0.000	0.000
X1	3.050	16.000	350.000	362.000	42.000	42.000	42.000	0.000	0.000	0.000
X3	15.000	0.000	0.000	0.000	0.000	0.000	0.000	853.200	853.200	0.000
BT	15.000	0.000	862.300	0.000	100.000	858.000	0.000	200.000	854.700	0.000
BT	300.000	853.200	0.000	340.000	853.200	0.000	350.000	853.200	844.200	350.100
BT	853.200	850.100	356.000	853.300	850.100	361.900	853.200	850.100	362.000	853.200
BT	844.200	400.000	853.400	0.000	500.000	854.500	0.000	600.000	856.400	0.000
BT	700.000	859.900	0.000	753.000	862.300	0.000	0.000	0.000	0.000	0.000
GR	862.300	0.000	858.000	100.000	855.000	200.000	851.300	300.000	850.400	345.000
GR	844.200	350.000	844.200	350.100	844.000	356.000	844.200	361.900	844.200	362.000
GR	859.500	780.000	850.400	400.000	850.200	500.000	852.400	600.000	859.900	700.000
GR	862.300	753.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	15.000	0.000	0.000	0.000	0.000	0.000	0.000	835.200	835.200	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	0.000	0.000	1.470	0.000	0.000
X1	3.200	0.000	345.000	380.000	50.000	50.000	50.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	9.170	9.100	442.000	548.000
X1	4.000	19.000	428.000	504.000	1185.000	1210.000	1155.000	0.000	0.000	0.000
GR	871.100	0.000	865.100	100.000	859.500	200.000	860.100	300.000	860.700	400.000
GR	860.000	442.000	846.600	488.000	846.600	488.100	846.400	494.000	846.300	496.000
GR	846.300	496.100	846.300	496.900	846.300	497.000	846.900	500.000	846.400	504.000
GR	859.900	504.100	846.400	548.000	859.900	600.000	861.800	700.000	0.000	0.000
NC	0.000	0.000	.011	.300	.500	0.000	0.000	0.000	0.000	0.000

I-96 OFF RAMP

X1	4.100	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	870.000	870.000	0.000
SB	0.000	1.980	3.000	0.000	15.000	0.000	51.000	0.000	846.000	846.300

X1	4.200	18.000	488.000	504.000	135.000	135.000	175.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	849.900	868.000	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	870.000	870.000	0.000
BT	15.000	0.000	871.300	0.000	100.000	871.800	0.000	200.000	872.000	0.000
BT	300.000	871.700	0.000	400.000	871.000	0.000	488.000	870.100	846.400	488.100
BT	870.100	849.900	496.000	870.000	849.900	496.100	870.000	846.400	496.900	870.000
BT	846.400	497.100	870.000	849.900	503.900	869.900	849.900	504.000	869.900	846.300
BT	870.000	869.100	0.000	700.000	868.200	0.000	0.000	0.000	0.000	0.000
GR	871.300	0.000	866.900	100.000	863.100	200.000	859.100	300.000	855.700	400.000
GR	852.200	476.300	846.400	488.000	846.400	488.100	846.400	496.300	846.400	496.100
GR	846.400	496.900	846.400	497.000	846.300	500.000	846.400	503.900	846.400	504.000
GR	856.100	521.700	862.800	600.000	868.200	700.000	0.000	0.000	0.000	0.000
NH	5.000	.050	473.000	.090	488.000	.060	504.000	.090	519.000	.050
NH	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.300	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	5.000	0.000	0.000	476.000	0.000	521.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	714.000	.120	729.000	.060	747.000	.120	762.000	.050
NH	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	24.000	729.000	747.000	1000.000	900.000	950.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	769.000	0.000	0.000	0.000	0.000
GR	870.100	0.000	862.200	100.000	862.000	200.000	861.300	300.000	861.100	400.000
GR	859.600	500.000	857.100	600.000	855.800	700.000	847.100	729.100	847.100	729.100
GR	846.800	734.000	846.900	738.000	846.900	738.100	846.900	738.900	846.900	739.000
GR	847.100	742.000	847.100	747.000	847.100	747.100	855.500	769.000	858.100	800.000
GR	859.600	900.000	858.700	1000.000	859.900	1100.000	859.500	1200.000	0.000	0.000
NC	.025	.025	.011	.300	.500	0.000	0.000	0.000	0.000	0.000
	I-94									
X1	5.010	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.000	860.000	0.000
SB	0.000	1.520	3.000	0.000	15.000	0.000	73.000	0.000	846.800	846.400
X1	5.090	0.000	0.000	0.000	119.000	119.000	119.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.300	854.800	0.000	0.000	0.000	0.000	0.000
X3	10.200	0.000	0.000	0.000	0.000	0.000	0.000	860.000	860.000	0.000
BT	24.000	0.000	870.100	0.000	100.000	869.100	0.000	200.000	868.300	0.000
BT	300.000	867.200	0.000	400.000	866.200	0.000	500.000	865.300	0.000	600.000
BT	864.400	0.000	700.000	863.300	0.000	729.000	863.000	847.100	729.100	863.000
BT	851.300	738.000	862.900	851.300	736.100	862.900	846.400	738.900	862.900	846.400
BT	739.000	862.900	851.300	747.000	862.800	851.300	747.100	862.800	847.100	800.000
BT	862.300	0.000	900.000	861.400	0.000	1000.000	860.500	0.000	1100.000	859.500
BT	0.000	1200.000	859.300	0.000	1300.000	858.500	0.000	1414.000	857.900	0.000
BT	1414.000	879.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.100	25.000	729.000	747.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	769.000	0.000	0.000	0.000	0.000
GR	870.100	0.000	862.600	100.000	865.200	200.000	864.100	300.000	863.100	400.000
GR	862.500	500.000	861.400	600.000	859.300	700.000	847.100	729.000	847.100	729.100
GR	846.500	734.000	846.400	738.000	846.400	738.100	846.400	738.900	846.400	739.000
GR	846.500	742.000	847.100	747.000	847.100	747.100	858.500	769.000	859.100	800.000

GR	85[illegible].100	[illegible]0.000	856.700	1000.000	856.400	1100.000	854.800	1200.000	858.500	1300.000
NC	.080	.05	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	174.000	251.000	296.000	296.000	0.000	0.000
ET	1.000	3.100	290.000	340.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	5.900	22.000	290.000	338.000	600.000	490.000	580.000	0.000	0.000	0.000
GR	868.400	0.000	854.100	100.000	852.500	200.000	849.900	290.000	846.900	302.000
GR	846.900	302.100	845.900	306.000	845.800	310.000	845.800	310.100	845.800	310.900
GR	845.800	311.000	846.100	314.000	846.900	318.000	846.900	318.100	854.600	338.000
GR	855.900	400.000	858.000	500.000	860.100	600.000	862.100	700.000	864.300	800.000
GR	866.500	900.000	868.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	0.000	0.000	0.000	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	870.000	870.000	0.000
NC	0.000	0.000	.017	.300	.500	0.000	0.000	0.000	0.000	0.000
	MT. H [illegible] HIGH AY									
X1	6.010	0.000	302.000	318.000	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	870.000	870.000	0.000
SB	0.000	1.590	3.000	0.000	15.000	0.000	75.000	0.000	845.800	846.400
X1	6.090	21.000	302.000	318.000	146.000	146.000	146.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.200	868.400	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	870.000	870.000	0.000
BT	19.000	0.000	848.400	0.000	100.000	872.000	0.000	200.000	875.400	0.000
BT	300.000	977.900	0.000	302.000	878.000	846.900	302.100	878.000	851.200	310.000
BT	878.100	851.200	310.100	878.100	846.700	310.900	878.100	846.700	311.000	878.100
BT	851.200	318.000	878.300	351.200	318.000	878.300	846.900	400.000	879.700	0.000
BT	500.000	880.200	0.000	600.000	879.700	0.000	700.000	877.800	0.000	800.000
BT	875.500	0.000	900.000	872.200	0.000	1000.000	868.400	0.000	0.000	0.000
GR	868.400	0.000	853.900	100.000	852.300	200.000	849.100	291.000	846.900	302.000
GR	846.900	302.100	846.400	306.000	846.700	310.000	846.700	310.100	846.700	310.900
GR	846.700	311.000	847.600	314.000	846.900	318.000	849.800	340.000	850.600	400.000
GR	851.900	500.000	853.200	600.000	854.400	700.000	856.100	800.000	857.800	900.000
GR	869.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	0.000	302.000	318.000	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	870.000	870.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	270.000	350.000
X1	5.500	0.000	291.000	340.000	40.000	40.000	40.000	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	0.000	0.000	1.400	0.000	0.000
X1	7.000	26.000	337.000	352.000	475.000	600.000	600.000	0.000	0.000	0.000
GR	866.400	0.000	864.700	100.000	862.300	200.000	853.600	300.000	851.800	333.000
GR	847.300	337.000	846.700	342.240	846.700	342.250	846.740	342.750	846.300	344.100
GR	846.740	345.250	846.700	345.750	846.700	345.760	847.300	352.000	852.200	357.000
GR	854.700	400.000	855.900	500.000	856.500	600.000	857.400	700.000	858.100	800.000
GR	859.500	900.000	860.400	1000.000	861.400	1100.000	862.500	1200.000	864.500	1300.000
GR	866.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	7.010	0.000	342.250	345.750	15.000	15.000	15.000	0.000	0.000	0.000
BT	26.000	0.000	866.400	0.000	100.000	864.700	0.000	200.000	862.300	0.000
BT	300.000	853.600	0.000	333.000	851.800	0.000	337.000	851.800	0.000	342.240
BT	851.900	0.000	342.250	851.900	848.110	342.750	851.900	849.480	344.100	851.900
BT	849.920	345.250	851.900	849.480	345.750	851.900	848.110	345.760	851.900	0.000
BT	352.000	852.300	0.000	357.000	852.500	0.000	400.000	854.700	0.000	500.000
BT	855.900	0.000	600.000	856.800	0.000	700.000	857.400	0.000	800.000	858.100
BT	0.000	900.000	859.500	0.000	1000.000	860.400	0.000	1100.000	861.400	0.000
BT	1200.000	862.500	0.000	1300.000	864.500	0.000	1400.000	866.800	0.000	0.000
X1	7.090	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
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.100	0.000	337.000	352.000	15.000	15.000	15.000	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	7.000	10.000	10.000	10.000	121.000	174.000	206.000	206.000	0.000	0.000
FT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.100	174.000	500.000
X1	7.500	19.000	180.000	205.000	1650.000	1600.000	1315.000	0.000	0.000	0.000
GR	870.000	0.000	860.000	90.000	858.000	102.000	856.000	152.000	854.000	163.000
GR	852.000	167.000	850.000	180.000	848.200	191.000	850.000	205.000	851.900	230.000
GR	852.000	275.000	854.000	476.000	855.500	550.000	854.000	580.000	853.000	650.000
GR	853.000	800.000	860.000	972.000	862.000	1090.000	866.000	1180.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	8.000	19.000	300.000	312.000	620.000	710.000	530.000	0.000	0.000	0.000
GR	867.200	0.000	864.200	50.000	860.700	100.000	855.800	200.000	855.500	293.000
GR	850.400	300.000	849.400	304.490	850.800	304.500	849.740	304.940	849.300	306.000
GR	849.740	307.060	850.800	307.500	849.400	307.510	850.400	312.000	856.000	322.000
GR	857.900	400.000	860.200	500.000	864.400	600.000	867.400	650.000	0.000	0.000
X1	8.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.970	2.900	0.000	8.000	0.000	7.100	2.000	849.300	849.400
X1	8.090	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.300	855.500	0.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	867.200	0.000	50.000	864.200	0.000	100.000	860.700	0.000
BT	200.000	855.800	0.000	293.000	855.500	0.000	300.000	855.500	0.000	304.490
BT	855.500	0.000	304.500	855.500	850.800	304.940	855.500	851.860	306.000	855.500
BT	852.300	307.060	855.500	851.860	307.500	855.500	850.800	307.510	855.500	0.000
BT	312.000	855.700	0.000	322.000	856.000	0.000	400.000	857.900	0.000	500.000
BT	860.200	0.000	600.000	864.400	0.000	650.000	867.400	0.000	0.000	0.000
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.100	0.000	300.000	312.000	15.000	15.000	15.000	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	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1200.000	1570.000
X1	9.000	25.000	1322.000	1327.000	2050.000	1575.000	2040.000	0.000	0.000	0.000

GR	862.500	900.000	861.900	900.000	862.100	1000.000	861.800	1100.000	860.900	1200.000
GR	859.900	1300.000	858.500	1309.000	851.900	1314.700	851.300	1322.700	851.300	1322.590
GR	852.700	1323. 00	851.300	1323.600	850.700	1325.000	851.300	1326.410	852.700	1327.000
GR	851.300	1327.710	851.900	1331.000	856.900	1341.000	854.700	1400.000	854.700	1500.000
GR	854.700	1600.000	855.200	1700.000	856.500	1800.000	862.500	1900.000	871.100	2000.000
NC	.080	.080	.035	.300	.100	0.000	0.000	0.000	0.000	0.000
ET	9.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1200.000	1570.000
X1	9.010	0.000	1323.000	1327. 00	1.000	1.000	1.000	0.000	0.000	0.000
BT	25.000	800.000	862.500	0.000	900.000	861.900	0.000	1000.000	862.100	0.000
BT	1100.000	861.800	0.000	1200.000	860.900	0.000	1300.000	859.900	0.000	1309.000
BT	858.500	0.000	1314.000	858.000	0.000	1322.000	857.300	0.000	1322.990	857.300
BT	0.000	1323.000	857.300	852.700	1323.600	857.300	854.100	1325.000	857.300	854.700
BT	1326.400	857.300	854.100	1327.000	857.300	852.700	1327.010	857.300	0.000	1331.000
BT	857.200	0.000	1341.000	856.900	0.000	1400.000	854.700	0.000	1500.000	854.700
BT	0.000	1600.000	854.700	0.000	1700.000	855.200	0.000	1800.000	856.500	0.000
BT	1900.000	862.500	0.000	2000.000	871.100	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	1200.000	1570.000
X1	9.090	0.000	0.000	0.000	19.000	19.000	19.000	0.000	0.000	0.000
X2	.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	9.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1200.000	1570.000
X1	9.100	0.000	1322.000	1327.000	15.000	15.000	15.000	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	9.100	9.100	9.100	9.100	9.100	9.100	9.100	370.000	831.000
X1	1 .000	20.000	500.000	503.500	625.000	720.000	625.000	0.000	0.000	0.000
GR	871.000	0.000	868.600	100.000	862.600	200.000	855.900	300.000	855.500	400.000
GR	857.600	489.000	853.300	500.000	853.200	500.500	853.100	501.000	853.100	501.100
GR	852.900	502.000	852.100	502.100	853.100	503.000	853.100	503.100	852.300	503.500
GR	857.900	529.000	858.500	600.000	861.000	700.000	868.400	800.000	872.500	831.000
NC	.080	.080	.034	.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	370.000	831.000
X1	10.010	0.000	500.500	503.500	15.000	15.000	15.000	0.000	0.000	0.000
BT	17.000	0.000	870.000	0.000	100.000	868.600	0.000	200.000	862.600	0.000
BT	300.000	855.900	0.000	400.000	855.500	0.000	489.000	857.600	0.000	500.000
BT	857.700	0.000	500.500	857.700	854.400	501.000	857.700	855.650	502.100	857.700
BT	855.900	503.000	857.700	955.650	507.500	857.700	854.400	529.000	857.900	0.000
BT	800.000	858.500	0.000	700.000	861.000	0.000	800.000	868.400	0.000	831.000
BT	872.500	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	370.000	831.000
X1	1 .090	0.000	0.000	0.000	19.000	19.000	19.000	0.000	0.000	0.000
X2	.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.100	.100	.080	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	370.000	831.000
X1	10.100	0.000	500.000	505.000	15.000	15.000	15.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000

X1	11.000	15.000	354.000	369.000	590.000	440.000	435.000	0.000	0.000	0.000
GR	865.800	0.000	863.500	100.000	860.300	200.000	857.800	300.000	858.300	347.000
GR	854.500	354.000	855.600	361.500	854.350	362.000	854.100	363.000	854.350	364.000
GR	855.600	364.500	854.800	369.000	858.000	380.000	859.600	400.000	859.000	450.000
NC	.050	.050	.050	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	11.010	0.000	362.000	364.000	15.000	15.000	15.000	0.000	0.000	0.000
SP	0.000	2.200	2.500	0.000	8.000	0.000	7.100	2.000	854.100	854.100
X1	11.090	17.000	354.300	369.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	1.000	0.000	1.000	857.100	857.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	865.800	0.000	100.000	863.500	0.000	200.000	860.300	0.000
BT	360.000	857.800	0.000	347.000	858.300	0.000	361.500	858.100	855.600	362.000
BT	858.100	856.850	363.000	858.100	857.100	364.000	858.100	856.850	364.500	858.100
BT	855.600	380.000	858.000	0.000	400.000	859.600	0.000	450.000	859.000	0.000
GR	865.800	0.000	863.500	100.000	860.300	200.000	858.300	347.000	854.600	354.000
GR	854.100	361.500	854.100	362.000	854.100	362.100	854.100	363.000	854.100	363.100
GR	854.200	364.100	854.200	364.100	854.200	364.500	854.700	369.000	858.000	380.000
GR	859.600	400.000	859.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.050	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.100	1.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	11.300	13.000	1600.000	1667.000	875.000	960.000	875.000	0.000	0.000	0.000
GR	864.600	999.000	864.000	1430.000	863.500	1600.000	855.900	1611.000	855.900	1615.000
GR	856.200	1647.000	860.900	1667.000	860.000	1745.000	862.000	1740.000	864.000	1925.000
GR	866.000	1965.000	868.000	2020.000	870.000	2300.000	0.000	0.000	0.000	0.000
NC	.070	.070	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.150	11.000	640.000	680.000	320.000	100.000	230.000	0.000	0.000	0.000
GR	866.000	400.000	864.100	500.000	862.100	530.000	860.000	640.000	858.000	644.000
GR	856.100	648.000	858.000	656.000	860.000	668.000	862.000	650.000	864.000	830.000
GR	866.000	920.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.400	11.000	615.000	655.000	120.000	120.000	170.000	0.000	0.000	0.000
GR	870.000	0.000	868.000	130.000	866.000	415.000	864.000	495.000	862.000	615.000
GR	857.300	632.000	864.000	655.000	865.400	680.000	866.000	755.000	868.000	800.000
GR	870.000	1060.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.000	19.000	400.000	431.000	630.000	570.000	585.000	0.000	0.000	0.000
GR	872.000	0.000	869.900	100.000	868.900	200.000	866.900	300.000	864.600	400.000
GR	860.800	411.000	861.200	412.000	859.700	412.500	859.200	414.000	859.700	415.500
GR	861.200	416.000	860.900	422.000	864.500	431.000	867.300	500.000	867.300	600.000
GR	868.500	760.000	869.900	800.000	871.500	900.000	872.500	1000.000	0.000	0.000
NC	.050	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.010	0.000	412.000	416.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	872.000	0.000	100.000	869.900	0.000	200.000	868.900	0.000
BT	300.000	866.900	0.000	400.000	864.600	0.000	412.000	864.300	861.200	412.500
BT	864.300	862.700	414.000	864.200	863.200	415.500	864.200	862.700	416.000	864.200
BT	861.200	431.000	864.500	0.000	500.000	867.300	0.000	600.000	867.300	0.000
BT	760.000	868.800	0.000	800.000	869.900	0.000	900.000	871.500	0.000	1000.000

BT	872.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.090	0.000	0.000	0.000	16.000	16.000	16.000	0.000	0.000	0.000
X2	1.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.070	.070	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.100	0.000	400.000	431.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	13.000	23.000	539.000	570.000	340.000	340.000	325.000	0.000	0.000	0.000
GR	873.700	0.000	871.300	100.000	870.100	200.000	868.900	300.000	867.800	400.000
GR	867.400	500.000	867.200	539.000	862.100	550.000	859.500	554.500	858.250	555.000
GR	858.000	556.000	858.250	557.000	859.500	557.500	862.200	563.000	866.500	570.000
GR	866.200	600.000	867.300	675.000	868.300	725.000	869.200	775.000	870.200	825.000
GR	871.000	875.000	871.900	925.000	872.700	975.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	13.010	0.000	554.500	557.500	15.000	15.000	15.000	0.000	0.000	0.000
SB	0.000	2.740	2.600	0.000	5.000	0.000	7.100	1.000	858.200	858.000
X1	13.090	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	861.200	866.700	0.000	0.000	0.000	0.000	0.000
BT	21.000	0.000	873.700	0.000	100.000	871.300	0.000	200.000	870.100	0.000
BT	300.000	868.900	0.000	400.000	867.800	0.000	500.000	867.400	0.000	539.000
BT	867.200	0.000	554.500	866.700	859.500	555.000	866.700	858.750	556.000	866.700
BT	861.000	557.000	866.700	860.750	557.500	866.700	859.500	570.000	866.500	0.000
BT	600.000	866.000	0.000	675.000	867.300	0.000	725.000	868.300	0.000	775.000
BT	869.200	0.000	825.000	870.200	0.000	875.000	871.000	0.000	925.000	871.900
BT	0.000	975.000	872.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.100	0.000	539.00	570.000	15.000	15.000	15.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	9.100	9.100	9.100	9.100	1006.000	1053.000
X1	14.000	20.000	1021.000	1029.000	850.000	850.000	830.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.000	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	870.300	400.000
GR	867.600	600.000	865.900	800.000	869.400	1000.000	861.720	1020.000	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	861.700	1030.000
GR	870.100	1042.000	871.800	1100.000	873.600	1200.000	875.400	1300.000	875.900	1400.000
NC	.025	.025	.011	.300	.500	0.000	0.000	0.000	0.000	0.000

1-96

X1	14.010	20.000	1021.000	1029.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.000	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	870.300	400.000
GR	867.600	600.000	865.900	800.000	869.400	1000.000	861.720	1020.000	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	861.700	1030.000
GR	870.100	1042.000	871.800	1100.000	873.600	1200.000	875.400	1300.000	875.900	1400.000
SB	0.000	1.720	2.600	0.000	8.000	0.000	29.500	0.000	861.500	861.500

X1	14.090	20.000	1021.000	1029.000	207.000	207.000	207.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	866.900	873.000	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	875.000	875.000	0.000
BT	19.000	0.000	895.000	0.000	0.000	870.200	0.000	100.000	870.000	0.000
BT	200.000	870.000	0.000	400.000	871.400	0.000	600.000	872.400	0.000	800.000
BT	873.400	0.000	1000.000	874.500	0.000	1020.900	874.600	0.000	1021.000	874.500
BT	864.000	1021.850	874.500	866.000	1025.000	874.600	866.500	1028.160	874.600	866.000
BT	1029.000	874.600	864.000	1029.100	874.600	0.000	1100.000	875.000	0.000	1200.000
BT	875.100	0.000	1300.000	875.400	0.000	1400.000	875.900	0.000	0.000	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	871.400	400.000
GR	870.800	600.000	867.900	800.000	869.400	1000.000	861.700	1020.900	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	864.000	1029.100
GR	861.700	1030.000	870.800	1042.000	871.700	1100.000	871.400	1300.000	876.000	1400.000
NC	.050	.040	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14.100	0.000	1000.000	1042.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	15.000	17.000	225.000	258.000	525.000	855.000	675.000	0.000	0.000	0.000
GR	871.000	0.000	868.300	25.000	866.500	46.000	864.300	59.000	867.800	90.000
GR	867.200	200.000	868.200	225.000	862.000	236.000	863.000	239.250	861.640	239.750
GR	861.200	241.000	861.640	242.250	863.000	242.750	862.600	246.000	867.800	258.000
GR	867.600	300.000	867.300	400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.025	.300	.500	0.000	0.000	0.000	0.000	0.000

MILLETT HIGHWAY

X1	15.010	0.000	239.250	242.750	1.000	1.000	1.000	0.000	0.000	0.000
BT	15.000	0.000	871.000	0.000	25.000	868.300	0.000	46.000	866.500	0.000
BT	59.000	864.300	0.000	90.000	867.800	0.000	200.000	867.200	0.000	225.000
BT	868.200	0.000	239.250	867.600	863.000	239.750	867.500	864.390	241.000	867.500
BT	864.820	242.250	867.500	864.390	242.750	867.500	863.000	258.000	867.800	0.000
BT	300.000	867.600	0.000	400.000	867.300	0.000	0.000	0.000	0.000	0.000
X1	15.090	0.000	0.000	0.000	18.000	18.000	18.000	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	.050	.050	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.100	0.000	225.000	258.000	15.000	15.000	15.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	68.000	97.000	115.000	115.000	0.000	0.000
X1	15.800	8.000	172.000	190.000	370.000	400.000	390.000	0.000	0.000	0.000
GR	868.000	100.000	866.000	135.000	864.000	163.000	862.000	172.000	861.500	181.000
GR	862.000	191.000	864.000	220.000	866.000	250.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	9.100	780.000	800.000
X1	16.000	22.000	789.000	797.000	170.000	150.000	160.000	0.000	0.000	0.000
X3	1 .000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
GR	874.800	0.000	872.600	100.000	870.400	200.000	871.600	300.000	872.400	400.000
GR	870.800	500.000	869.300	600.000	869.980	700.000	870.400	762.000	862.100	788.000
GR	864.100	789.000	862.100	789.850	861.600	793.000	862.100	796.150	864.100	797.000
GR	862.100	798.000	865.800	830.000	866.300	900.000	867.000	1000.000	867.600	1100.000
GR	868.200	1200.000	872.600	1300.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.000	0.000	.012	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	16. 10	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	1.000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
SP	0.000	1.52	2.600	0.00	6.000	0.000	29.500	0.000	861.600	861.600
X1	16.990	0.000	0.000	0.000	132.000	132.000	132.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	867.100	880.000	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	880.000	880.000	0.000
BT	10.000	0.000	874.800	0.000	100.000	877.000	0.000	200.000	881.200	0.000
BT	300.000	885.100	0.000	400.000	888.200	0.000	500.000	890.500	0.000	600.000
BT	891.300	0.000	700.000	890.900	0.000	789.000	889.370	864.100	789.850	889.370
BT	866.100	793.000	869.300	866.600	796.150	889.200	866.100	797.000	890.780	864.100
BT	900.000	886.200	0.000	1000.000	883.000	0.000	1100.000	878.900	0.000	1200.000
BT	875.200	0.000	1300.000	872.600	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.100	22.000	799.000	797.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
GR	874.300	0.000	870.70	100.000	866.650	200.000	865.2 0	300.000	863.800	400.000
GR	866.550	500.000	869.300	600.000	870. 00	700.000	870.400	742.000	862.100	788.000
GR	864.100	789.000	862.100	789.850	861.690	793.000	862.1 0	796.150	864.100	797.000
GR	862.100	796.700	865.600	830.000	866.000	900.000	866.500	1000.000	867.350	1100.000
GR	868.200	1200.000	872.600	1300.000	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
ET	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000
X1	16.200	0.000	762. 00	830.000	120.000	140.000	120.000	0.000	0.000	0.000
GR	870.400	762.000	862.100	788.000	861.700	793.000	862.100	798.000	865.600	830.000
GR	866.000	880.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.500	18.000	279.000	306.000	1850.000	1800.000	1850.000	0.000	0.000	0.000
GR	869.000	110.000	869.000	200.000	869.500	268.000	869.500	268.100	869.500	268.200
GR	869.100	279.000	865.900	283.000	865.600	269.000	864.300	289.500	863.800	291.000
GR	864.300	292.500	864.270	293.000	865.900	300.000	868.700	306.000	869.200	400.000
GR	867.800	500.000	874.300	600.000	878.300	700.000	0.000	0.000	0.000	0.000
NC	.040	.040	.025	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	16.510	0.000	259.000	293.000	15. 00	15.000	15.000	0.000	0.000	0.000
BT	16.000	110.000	869.000	0.000	200.000	869.000	0.000	268.000	869.500	0.000
BT	268.100	869.500	0.000	268.200	869.500	0.000	279.000	869.100	0.000	289.000
BT	868.430	865.800	289.500	868.400	867.300	291.000	868.300	867.800	292.500	868.300
BT	867.300	293.000	868.300	865.600	306.000	868.700	0.000	400.000	869.200	0.000
BT	500.000	867.800	0.000	600.000	874.300	0.000	700.000	878.300	0.000	0.000
X1	16.590	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.040	.050	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.600	0.000	279.000	306.000	15.000	15.000	15.000	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	17.000	18.000	309.000	328.000	700.000	800.000	790.000	0.000	0.000	0.000
GR	879.000	0.000	875.100	100.000	872.700	200.000	871.700	300.000	871.300	309.000
GR	867.500	312.000	867.100	315.000	865.600	315.500	865.100	317.000	865.700	318.500
GR	867.100	319.000	867.500	323.000	871.300	328.000	871.800	400.000	875.700	500.000
GR	879.700	600.000	879.600	700.000	880.600	800.000	0.000	0.000	0.000	0.000
NC	.040	.040	.012	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	17.010	0.000	15.000	319.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.890	2.600	0.000	11.000	0.000	12.570	0.000	865.300	865.100
X1	17.090	.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	869.300	871.100	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	879.000	0.000	100.000	875.100	0.000	200.000	872.700	0.000
BT	300.000	871.700	0.000	309.000	871.300	0.000	315.000	871.100	867.100	315.500
BT	871.100	867.600	317.000	871.100	869.100	318.500	871.100	867.600	319.000	871.100
BT	867.100	328.000	871.100	0.000	400.000	871.800	0.000	500.000	875.700	0.000
BT	600.000	878.700	0.000	700.000	879.600	0.000	800.000	880.600	0.000	0.000
NC	.050	.040	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.100	0.000	309.000	328.000	15.000	15.000	15.000	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

SECTION IS IMMEDIATELY DOWNSTREAM OF I-96

X1	18.000	19.000	93.000	174.000	920.000	920.000	900.000	0.000	0.000	0.000
GR	878.900	0.000	878.200	18.000	872.800	93.000	868.400	111.000	868.100	118.500
GR	868.000	119.000	868.000	119.100	868.000	120.000	868.000	120.100	868.000	121.000
GR	868.000	121.100	868.100	121.500	869.100	140.000	878.300	174.000	878.400	200.000
GR	879.800	300.000	880.500	400.000	884.000	500.000	896.000	600.000	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

1) COUNTY: Eaton

2) STUDY NAME: Delta Twp.

3) WATERCOURSE: Moon and Hamilton Drain

4) DOCUMENT TYPE: 100-year

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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
T3          MOON AND HAMILTON DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0.        7.        0.        0.  0.000000      0.00      0.0       0.   841.310   0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      0.000     0.000    -1.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

NC      .050      .050      .035      .100      .300     0.000     0.000     0.000     0.000     0.000
QT     7.000    10.000    10.000    10.000   185.000   264.000   310.000   394.000     0.000     0.000

          CONFLUENCE OF MOON AND HAMILTON DRAIN AND HOLLEY DRAIN

X1     1.000    13.000    42.000    85.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   854.100     0.000   843.000    42.000   836.000    59.000   834.400    70.000   833.800    73.000
GR   834.400    78.000   835.200    83.000   838.800    85.000   846.900   116.000   850.800   200.000
GR   846.700   300.000   850.700   400.000   854.500   500.000     0.000     0.000     0.000     0.000
NC      .070      .070      .050     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     2.000    15.000   118.000   129.000   240.000   275.000   250.000     0.000     0.000     0.000
GR   856.700     0.000   855.700    48.000   849.100    70.000   837.900   107.000   835.500   118.000
GR   834.400   120.000   833.800   124.000   834.400   126.000   837.100   129.000   842.500   150.000
GR   842.600   250.000   843.600   350.000   843.200   450.000   854.600   500.000   859.200   515.000

X1     2.500    19.000   304.000   318.000  1150.000  1150.000  1150.000     0.000     0.000     0.000
GR   848.400     0.000   842.800    33.000   842.100   100.000   842.300   200.000   842.100   270.000
GR   846.300   280.000   842.500   291.000   842.200   298.000   840.200   304.000   835.700   306.000
GR   835.300   307.000   834.800   309.000   835.300   311.000   838.500   318.000   840.200   334.000
GR   842.500   342.000   849.500   400.000   855.300   480.000   861.300   530.000     0.000     0.000
NC      .090      .090      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET    0.000     3.100   150.000   940.000     3.100     3.100     3.100     3.100     0.000     0.000

X1     2.900    12.000   619.000   663.000  1275.000  1210.000  1225.000     0.000    -1.600     0.000
GR   867.500   500.000   866.000   560.000   860.000   598.000   850.000   619.000   844.200   637.000
GR   844.100   646.000   844.200   654.000   848.000   663.000   850.000   704.000   860.000   793.000
GR   864.000   850.000   865.200   940.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .080      .080      .060     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     3.000    15.000   317.000   329.000   260.000   270.000   260.000     0.000     0.000     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   853.200   853.200     0.000
GR   862.300     0.000   858.000   100.000   850.800   200.000   846.700   300.000   844.200   317.000
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MOON AND HAMILTON DRAIN

100 YEAR FLOOD

FINAL DNR SUBMITTAL

GR	844.200	317.100	844.100	323.000	844.200	328.900	844.200	329.000	852.600	335.000
GR	853.400	400.000	854.500	500.000	856.400	600.000	859.900	700.000	862.300	753.000
NC	.020	.020	.017	.300	.500	0.000	0.000	0.000	0.000	0.000

CANAL RD.

X1	3.010	0.000	317.000	329.000	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	853.200	853.200	0.000
BT	15.000	0.000	862.300	0.000	100.000	858.000	0.000	200.000	855.000	0.000
BT	300.000	853.200	0.000	317.000	853.200	844.200	317.100	853.200	850.200	323.000
BT	853.200	850.200	328.900	853.200	850.200	329.000	853.200	844.200	340.000	853.200
BT	0.000	400.000	853.400	0.000	500.000	854.500	0.000	600.000	856.400	0.000
BT	700.000	859.900	0.000	753.000	862.300	0.000	0.000	0.000	0.000	0.000

X1	3.090	16.000	350.000	362.000	42.000	42.000	42.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	853.200	853.200	0.000
BT	15.000	0.000	862.300	0.000	100.000	858.000	0.000	200.000	854.700	0.000
BT	300.000	853.200	0.000	340.000	853.200	0.000	350.000	853.200	844.200	350.100
BT	853.200	850.100	356.000	853.300	850.100	361.900	853.200	850.100	362.000	853.200
BT	844.200	400.000	853.400	0.000	500.000	854.500	0.000	600.000	856.400	0.000
BT	700.000	859.900	0.000	753.000	862.300	0.000	0.000	0.000	0.000	0.000
GR	862.300	0.000	858.000	100.000	855.000	200.000	851.300	300.000	850.400	345.000
GR	844.200	350.000	844.200	350.100	844.000	356.000	844.200	361.900	844.200	362.000
GR	850.500	380.000	850.400	400.000	850.200	500.000	852.400	600.000	859.900	700.000
GR	862.300	753.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	3.100	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	835.200	835.200	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	3.200	0.000	345.000	380.000	50.000	50.000	50.000	0.000	0.000	0.000

X1	4.000	19.000	488.000	504.000	1185.000	1210.000	1185.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	442.000	0.000	548.000	0.000	0.000	0.000	0.000
GR	871.100	0.000	865.100	100.000	859.500	200.000	860.100	300.000	860.700	400.000
GR	860.000	442.000	846.600	488.000	846.600	488.100	846.400	494.000	846.300	496.000
GR	846.300	496.100	846.300	496.900	846.300	497.000	846.000	500.000	846.400	504.000
GR	859.900	504.100	846.400	548.000	859.900	600.000	861.800	700.000	0.000	0.000
NC	0.000	0.000	.011	.300	.500	0.000	0.000	0.000	0.000	0.000

I-96 OFF RAMP

X1	4.100	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	870.000	870.000	0.000
SB	0.000	1.980	3.000	0.000	15.000	0.000	51.000	0.000	846.000	846.300

X1	4.200	18.000	488.000	504.000	135.000	135.000	135.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	849.900	868.000	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	870.000	870.000	0.000
BT	15.000	0.000	871.300	0.000	100.000	871.800	0.000	200.000	872.000	0.000
BT	300.000	871.700	0.000	400.000	871.000	0.000	488.000	870.100	846.400	488.100
BT	870.100	849.900	496.000	870.000	849.900	496.100	870.000	846.400	496.900	870.000
BT	846.400	497.000	870.000	849.900	503.900	869.900	849.900	504.000	869.900	846.300
BT	600.000	869.100	0.000	700.000	868.200	0.000	0.000	0.000	0.000	0.000
GR	871.300	0.000	866.900	100.000	863.100	200.000	859.100	300.000	855.700	400.000
GR	852.200	476.000	846.400	488.000	846.400	488.100	846.400	496.000	846.400	496.100
GR	846.400	496.900	846.400	497.000	846.300	500.000	846.400	503.900	846.400	504.000
GR	856.100	521.000	862.800	600.000	868.200	700.000	0.000	0.000	0.000	0.000

NH	5.000	.050	473.000	.090	488.000	.060	504.000	.090	519.000	.050
NH	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.300	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	476.000	0.000	521.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	714.000	.120	729.000	.060	747.000	.120	762.000	.050
NH	1200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.000	24.000	729.000	747.000	1000.000	900.000	950.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	769.000	0.000	0.000	0.000	0.000
GR	870.100	0.000	862.200	100.000	862.000	200.000	861.300	300.000	861.100	400.000
GR	859.800	500.000	857.100	600.000	855.800	700.000	847.100	729.000	847.100	729.100
GR	846.800	734.000	846.900	738.000	846.900	738.100	846.900	738.900	846.900	739.000
GR	847.000	742.000	847.100	747.000	847.100	747.100	855.500	769.000	858.100	800.000
GR	859.600	900.000	858.700	1000.000	859.900	1100.000	859.500	1200.000	0.000	0.000
NC	.025	.025	.011	.300	.500	0.000	0.000	0.000	0.000	0.000

I-96

X1	5.010	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	860.000	860.000	0.000
SB	0.000	1.820	3.000	0.000	15.000	0.000	73.000	0.000	846.800	846.400
X1	5.090	0.000	0.000	0.000	119.000	119.000	119.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.300	854.800	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	860.000	860.000	0.000
BT	24.000	0.000	870.100	0.000	100.000	869.100	0.000	200.000	868.300	0.000
BT	300.000	867.200	0.000	400.000	866.200	0.000	500.000	865.300	0.000	600.000
BT	864.400	0.000	700.000	863.300	0.000	729.000	863.000	847.100	729.100	863.000
BT	851.300	738.000	862.900	851.300	738.100	862.900	846.400	738.900	862.900	846.400
BT	739.000	862.900	851.300	747.000	862.800	851.300	747.100	862.800	847.100	800.000
BT	862.300	0.000	900.000	861.400	0.000	1000.000	860.500	0.000	1100.000	859.900
BT	0.000	1200.000	859.300	0.000	1300.000	858.500	0.000	1414.000	857.900	0.000
BT	1414.000	879.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.100	25.000	729.000	747.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	700.000	0.000	769.000	0.000	0.000	0.000	0.000
GR	870.100	0.000	809.600	100.000	865.200	200.000	864.100	300.000	863.100	400.000
GR	862.500	500.000	861.400	600.000	859.300	700.000	847.100	729.000	847.100	729.100
GR	846.500	734.000	846.400	738.000	846.400	738.100	846.400	738.900	846.400	739.000
GR	846.500	742.000	847.100	747.000	847.100	747.100	858.500	769.000	859.100	800.000
GR	858.100	900.000	856.700	1000.000	856.400	1100.000	854.800	1200.000	858.500	1300.000
NC	.080	.080	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	174.000	251.000	296.000	379.000	0.000	0.000
ET	0.000	3.100	280.000	340.000	3.100	3.100	3.100	3.100	0.000	0.000
X1	5.900	22.000	290.000	338.000	600.000	490.000	580.000	0.000	0.000	0.000
GR	868.400	0.000	854.100	100.000	852.500	200.000	849.900	290.000	846.900	302.000
GR	846.900	302.100	845.900	306.000	845.800	310.000	845.800	310.100	845.800	310.900
GR	845.800	311.000	846.100	314.000	846.900	318.000	846.900	318.100	854.600	338.000
GR	855.900	400.000	858.000	500.000	860.100	600.000	862.100	700.000	864.300	800.000
GR	866.500	900.000	868.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.000	0.000	0.000	0.000	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	870.000	870.000	0.000
NC	0.000	0.000	.017	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	6.010	0.000	302.000	318.000	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	870.000	870.000	0.000
SB	0.000	1.890	3.000	0.000	15.000	0.000	75.000	0.000	845.800	846.400
X1	6.090	21.000	302.000	318.000	146.000	146.000	146.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	851.200	868.400	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	870.000	870.000	0.000
BT	19.000	0.000	868.400	0.000	100.000	872.000	0.000	200.000	875.400	0.000
BT	300.000	877.900	0.000	302.000	878.000	846.900	302.100	878.000	851.200	310.000
BT	878.100	851.200	310.100	878.100	846.700	310.900	878.100	846.700	311.000	878.100
BT	851.200	318.000	878.300	351.200	318.000	878.300	846.900	400.000	879.700	0.000
BT	500.000	880.200	0.000	600.000	879.700	0.000	700.000	877.800	0.000	800.000
BT	875.500	0.000	900.000	872.200	0.000	1000.000	868.400	0.000	0.000	0.000
GR	868.400	0.000	853.900	100.000	852.300	200.000	849.100	291.000	846.900	302.000
GR	846.900	302.100	846.400	306.000	846.700	310.000	846.700	310.100	846.700	310.900
GR	846.700	311.000	847.600	314.000	846.900	318.000	849.800	340.000	850.600	400.000
GR	851.900	500.000	853.200	600.000	854.400	700.000	856.100	800.000	857.800	900.000
GR	869.400	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.100	.100	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6.100	0.000	302.000	318.000	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	870.000	870.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	9.100	9.100	270.000	350.000
X1	6.500	0.000	291.000	340.000	40.000	40.000	40.000	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	7.000	26.000	337.000	352.000	475.000	600.000	600.000	0.000	0.000	0.000
GR	866.400	0.000	864.700	100.000	862.300	200.000	853.600	300.000	851.800	333.000
GR	847.300	337.000	846.700	342.240	846.700	342.250	846.740	342.750	846.300	344.100
GR	846.740	345.250	846.700	345.750	846.700	345.760	847.300	352.000	852.200	357.000
GR	854.700	400.000	855.900	500.000	856.800	600.000	857.400	700.000	858.100	800.000
GR	859.500	900.000	860.400	1000.000	861.400	1100.000	862.500	1200.000	864.500	1300.000
GR	866.800	1400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	7.010	0.000	342.250	345.750	15.000	15.000	15.000	0.000	0.000	0.000
BT	26.000	0.000	866.400	0.000	100.000	864.700	0.000	200.000	862.300	0.000
BT	300.000	853.600	0.000	333.000	851.800	0.000	337.000	851.800	0.000	342.240
BT	851.900	0.000	342.250	851.900	848.110	342.750	851.900	849.480	344.100	851.900
BT	849.920	345.250	851.900	849.480	345.750	851.900	848.110	345.760	851.900	0.000
BT	352.000	852.300	0.000	357.000	852.500	0.000	400.000	854.700	0.000	500.000
BT	855.900	0.000	600.000	856.800	0.000	700.000	857.400	0.000	800.000	858.100
BT	0.000	900.000	859.500	0.000	1000.000	860.400	0.000	1100.000	861.400	0.000
BT	1200.000	862.500	0.000	1300.000	864.500	0.000	1400.000	866.800	0.000	0.000
X1	7.090	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
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.100	0.000	337.000	352.000	15.000	15.000	15.000	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	7.000	10.000	10.000	10.000	121.000	174.000	206.000	263.000	0.000	0.000
X1	7.500	19.000	180.000	205.000	1650.000	1600.000	1315.000	0.000	0.000	0.000

GR	870.000	0.000	860.000	90.000	858.000	102.000	856.000	152.000	854.000	163.000
GR	852.000	167.000	850.000	180.000	848.200	191.000	850.000	205.000	851.900	230.000
GR	852.000	375.000	854.000	476.000	855.500	550.000	854.000	580.000	853.000	650.000
GR	853.000	800.000	860.000	972.000	862.000	1090.000	866.000	1180.000	0.000	0.000
X1	8.000	19.000	300.000	312.000	620.000	710.000	530.000	0.000	0.000	0.000
GR	867.200	0.000	864.200	50.000	860.700	100.000	855.800	200.000	855.500	293.000
GR	850.400	300.000	849.400	304.490	850.800	304.500	849.740	304.940	849.300	306.000
GR	849.740	307.060	850.800	307.500	849.400	307.510	850.400	312.000	856.000	322.000
GR	857.900	400.000	860.200	500.000	864.400	600.000	867.400	650.000	0.000	0.000
X1	8.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.970	2.900	0.000	8.000	0.000	7.100	2.000	849.300	849.400
X1	8.090	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	852.300	855.500	0.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	867.200	0.000	50.000	864.200	0.000	100.000	860.700	0.000
BT	200.000	855.800	0.000	293.000	855.500	0.000	300.000	855.500	0.000	304.490
BT	855.500	0.000	304.500	855.500	850.800	304.940	855.500	851.860	306.000	855.500
BT	852.300	307.060	855.500	851.860	307.500	855.500	850.800	307.510	855.500	0.000
BT	312.000	855.700	0.000	322.000	856.000	0.000	400.000	857.900	0.000	500.000
BT	860.200	0.000	600.000	864.400	0.000	650.000	867.400	0.000	0.000	0.000
NC	.080	.080	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.100	0.000	300.000	312.000	15.000	15.000	15.000	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	9.100	9.100	9.100	9.100	9.100	9.100	9.100	1200.000	1570.000
X1	9.000	25.000	1322.000	1327.000	2050.000	1575.000	2040.000	0.000	0.000	0.000
GR	862.500	800.000	861.900	900.000	862.100	1000.000	861.800	1100.000	860.900	1200.000
GR	859.900	1300.000	858.500	1309.000	851.900	1314.000	851.300	1322.000	851.300	1322.990
GR	852.700	1323.000	851.300	1323.600	850.700	1325.000	851.300	1326.400	852.700	1327.000
GR	851.300	1327.010	851.900	1331.000	856.900	1341.000	854.700	1400.000	854.700	1500.000
GR	854.700	1600.000	855.200	1700.000	856.500	1800.000	862.500	1900.000	871.100	2000.000
NC	.080	.080	.035	.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	1200.000	1570.000
X1	9.010	0.000	1323.000	1327.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	25.000	800.000	862.500	0.000	900.000	861.900	0.000	1000.000	862.100	0.000
BT	1100.000	861.800	0.000	1200.000	860.900	0.000	1300.000	859.900	0.000	1309.000
BT	858.500	0.000	1314.000	858.000	0.000	1322.000	857.300	0.000	1322.990	857.300
BT	0.000	1323.000	857.300	852.700	1323.600	857.300	854.100	1325.000	857.300	854.700
BT	1326.400	857.300	854.100	1327.000	857.300	852.700	1327.010	857.300	0.000	1331.000
BT	857.200	0.000	1341.000	856.900	0.000	1400.000	854.700	0.000	1500.000	854.700
BT	0.000	1600.000	854.700	0.000	1700.000	855.200	0.000	1800.000	856.500	0.000
BT	1900.000	862.500	0.000	2000.000	871.100	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	1200.000	1570.000
X1	9.090	0.000	0.000	0.000	19.000	19.000	19.000	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	.080	.080	.060	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	1200.000	1570.000
X1	9.100	0.000	1322.000	1327.000	15.000	15.000	15.000	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	9.100	9.100	9.100	9.100	9.100	9.100	9.100	370.000	831.000

X1	10.000	20.000	500.000	503.500	625.000	720.000	625.000	0.000	0.000	0.000
GR	870.000	0.000	868.600	100.000	862.600	200.000	855.900	300.000	855.500	400.000
GR	857.600	489.000	853.300	500.000	853.200	500.500	853.100	501.000	853.100	501.100
GR	852.900	502.000	852.900	502.100	853.100	503.000	853.100	503.100	852.300	503.500
GR	857.900	529.000	858.500	600.000	861.000	700.000	868.400	800.000	872.500	831.000
NC	.080	.080	.034	.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	370.000	831.000

X1	10.010	0.000	500.500	503.500	15.000	15.000	15.000	0.000	0.000	0.000
BT	17.000	0.000	870.000	0.000	100.000	868.600	0.000	200.000	862.600	0.000
BT	300.000	855.900	0.000	400.000	855.500	0.000	489.000	857.600	0.000	500.000
BT	857.700	0.000	500.500	857.700	854.400	501.000	857.700	855.650	502.100	857.700
BT	855.900	503.000	857.700	855.650	503.500	857.700	854.400	529.000	857.900	0.000
BT	600.000	858.500	0.000	700.000	861.000	0.000	800.000	868.400	0.000	831.000
BT	872.500	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	370.000	831.000

X1	10.090	0.000	0.000	0.000	19.000	19.000	19.000	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	.100	.100	.080	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	370.000	831.000

X1	10.100	0.000	500.000	505.000	15.000	15.000	15.000	0.000	0.000	0.000

X1	11.000	15.000	354.000	369.000	590.000	440.000	435.000	0.000	0.000	0.000
GR	865.800	0.000	863.500	100.000	860.300	200.000	857.800	300.000	858.300	347.000
GR	854.500	354.000	855.600	361.500	854.350	362.000	854.100	363.000	854.350	364.000
GR	855.600	364.500	854.800	369.000	858.000	380.000	859.600	400.000	859.000	450.000
NC	.050	.050	.050	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	11.010	0.000	362.000	364.000	15.000	15.000	15.000	0.000	0.000	0.000
SB	0.000	2.200	2.500	0.000	8.000	0.000	7.100	2.000	854.100	854.100

X1	11.090	17.000	354.000	369.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	857.100	857.800	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	865.800	0.000	100.000	863.500	0.000	200.000	860.300	0.000
BT	300.000	857.800	0.000	347.000	858.300	0.000	361.500	858.100	855.600	362.000
BT	858.100	856.850	363.000	858.100	857.100	364.000	858.100	856.850	364.500	858.100
BT	855.600	380.000	858.000	0.000	400.000	859.600	0.000	450.000	859.000	0.000
GR	865.800	0.000	863.500	100.000	860.300	200.000	858.300	347.000	854.600	354.000
GR	854.180	361.500	854.100	362.000	854.100	362.100	854.100	363.000	854.100	363.100
GR	854.200	364.000	854.200	364.100	854.200	364.500	854.700	369.000	858.000	380.000
GR	859.600	400.000	859.000	450.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.050	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

X1	11.300	13.000	1600.000	1667.000	825.000	960.000	875.000	0.000	0.000	0.000
GR	864.600	999.000	864.000	1430.000	863.500	1600.000	855.900	1611.000	855.900	1615.000
GR	856.200	1647.000	860.900	1667.000	860.000	1745.000	862.000	1840.000	864.000	1925.000
GR	866.000	1965.000	868.000	2020.000	870.000	2300.000	0.000	0.000	0.000	0.000
NC	.070	.070	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	11.350	11.000	640.000	680.000	320.000	100.000	230.000	0.000	0.000	0.000
GR	866.000	400.000	864.000	500.000	862.000	530.000	860.000	640.000	858.000	644.000
GR	856.100	648.000	858.000	656.000	860.000	668.000	862.000	680.000	864.000	830.000

GR	866.000	920.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.070	.070	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.400	11.000	615.000	655.000	120.000	120.000	170.000	0.000	0.000	0.000
GR	870.000	0.000	868.000	130.000	866.000	415.000	864.000	495.000	862.000	615.000
GR	857.000	632.000	864.000	655.000	865.400	680.000	866.000	755.000	868.000	800.000
GR	870.000	1060.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.000	19.000	400.000	431.000	630.000	570.000	585.000	0.000	0.000	0.000
GR	872.000	0.000	869.900	100.000	868.900	200.000	866.900	300.000	864.600	400.000
GR	860.800	411.000	861.200	412.000	859.700	412.500	859.200	414.000	859.700	415.500
GR	861.200	416.000	860.900	422.000	864.500	431.000	867.300	500.000	867.300	600.000
GR	868.800	700.000	869.900	800.000	871.500	900.000	872.500	1000.000	0.000	0.000
NC	.050	.050	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.010	0.000	412.000	416.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	0.000	872.000	0.000	100.000	869.900	0.000	200.000	868.900	0.000
BT	300.000	866.900	0.000	400.000	864.600	0.000	412.000	864.300	861.200	412.500
BT	864.300	862.700	414.000	864.200	863.200	415.500	864.200	862.700	416.000	864.200
BT	861.200	431.000	864.500	0.000	500.000	867.300	0.000	600.000	867.300	0.000
BT	700.000	868.800	0.000	800.000	869.900	0.000	900.000	871.500	0.000	1000.000
BT	872.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.090	0.000	0.000	0.000	16.000	16.000	16.000	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	.070	.070	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.100	0.000	400.000	431.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	13.000	23.000	539.000	570.000	340.000	340.000	325.000	0.000	0.000	0.000
GR	873.700	0.000	871.300	100.000	870.100	200.000	868.900	300.000	867.800	400.000
GR	867.400	500.000	867.200	539.000	862.100	550.000	859.500	554.500	858.250	555.000
GR	858.000	556.000	858.250	557.000	859.500	557.500	862.200	563.000	866.500	570.000
GR	866.200	600.000	867.300	675.000	868.300	725.000	869.200	775.000	870.200	825.000
GR	871.000	875.000	871.900	925.000	872.700	975.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	13.010	0.000	554.500	557.500	15.000	15.000	15.000	0.000	0.000	0.000
SB	0.000	2.040	2.600	0.000	5.000	0.000	7.100	1.000	858.200	858.000
X1	13.090	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	861.200	866.700	0.000	0.000	0.000	0.000	0.000
BT	21.000	0.000	873.700	0.000	100.000	871.300	0.000	200.000	870.100	0.000
BT	300.000	868.900	0.000	400.000	867.800	0.000	500.000	867.400	0.000	539.000
BT	867.200	0.000	554.500	866.700	859.500	555.000	866.700	858.750	✓556.000	866.700
BT	861.000	557.000	866.700	860.750	557.500	866.700	859.500	570.000	866.500	0.000
BT	600.000	866.200	0.000	675.000	867.300	0.000	725.000	868.300	0.000	775.000
BT	869.200	0.000	825.000	870.200	0.000	875.000	871.000	0.000	925.000	871.900
BT	0.000	975.000	872.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.080	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.100	0.000	539.000	570.000	15.000	15.000	15.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1006.000	1053.000
X1	14.000	20.000	1021.000	1029.000	850.000	850.000	830.000	0.000	0.000	0.000

X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.00	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	870.300	400.000
GR	867.600	600.000	865.900	800.000	869.400	1000.000	861.720	1020.000	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	861.700	1030.000
GR	870.100	1042.000	871.800	1100.000	873.600	1200.000	875.400	1300.000	875.900	1400.000
NC	.025	.025	.011	.300	.500	0.000	0.000	0.000	0.000	0.000

I-96

X1	14.010	20.000	1021.000	1029.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.000	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	870.300	400.000
GR	867.600	600.000	865.900	800.000	869.400	1000.000	861.720	1020.000	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	861.700	1030.000
GR	870.100	1042.000	871.800	1100.000	873.600	1200.000	875.400	1300.000	875.900	1400.000
SB	0.000	1.720	2.600	0.000	8.000	0.000	29.500	0.000	861.500	861.500

X1	14.090	20.000	1021.000	1029.000	207.000	207.000	207.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	866.900	873.000	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	875.000	875.000	0.000
BT	19.000	0.000	895.000	0.000	0.000	870.200	0.000	100.000	870.000	0.000
BT	200.000	870.000	0.000	400.000	871.400	0.000	600.000	872.400	0.000	800.000
BT	873.400	0.000	1000.000	874.500	0.000	1020.900	874.600	0.000	1021.000	874.500
BT	864.000	1021.850	874.500	866.000	1025.000	874.600	866.500	1028.160	874.600	866.000
BT	1029.000	874.600	864.000	1029.100	874.600	0.000	1100.000	875.000	0.000	1200.000
BT	875.100	0.000	1300.000	875.400	0.000	1400.000	875.900	0.000	0.000	0.000
GR	895.000	0.000	870.200	1.000	868.600	100.000	869.500	200.000	871.400	400.000
GR	870.800	600.000	867.900	800.000	869.400	1000.000	861.700	1020.900	864.000	1021.000
GR	862.000	1021.850	861.500	1025.000	862.000	1028.160	864.000	1029.000	864.000	1029.100
GR	861.700	1030.000	870.800	1042.000	871.700	1100.000	871.400	1300.000	876.000	1400.000
NC	.050	.040	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	14.100	0.000	1000.000	1042.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	875.000	875.000	0.000

X1	15.000	17.000	225.000	258.000	525.000	855.000	675.000	0.000	0.000	0.000
GR	871.000	0.000	868.300	25.000	866.500	46.000	864.300	59.000	867.800	90.000
GR	867.200	200.000	868.200	225.000	862.000	236.000	863.000	239.250	861.640	239.750
GR	861.200	241.000	861.640	242.250	863.000	242.750	862.600	246.000	867.800	258.000
GR	867.600	300.000	867.300	400.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.050	.050	.025	.300	.500	0.000	0.000	0.000	0.000	0.000

MILLETT HIGHWAY

X1	15.010	0.000	239.250	242.750	1.000	1.000	1.000	0.000	0.000	0.000
BT	15.000	0.000	871.000	0.000	25.000	868.300	0.000	46.000	866.500	0.000
BT	59.000	864.300	0.000	90.000	867.800	0.000	200.000	867.200	0.000	225.000
BT	868.200	0.000	239.250	867.600	863.000	239.750	867.500	864.390	241.000	867.500
BT	864.820	242.250	867.500	864.390	242.750	867.500	863.000	258.000	867.800	0.000
BT	300.000	867.600	0.000	400.000	867.300	0.000	0.000	0.000	0.000	0.000

X1	15.090	0.000	0.000	0.000	18.000	18.000	18.000	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	.050	.050	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	15.100	0.000	225.000	258.000	15.000	15.000	15.000	0.000	0.000	0.000
QT	7.000	10.000	10.000	10.000	68.000	97.000	115.000	147.000	0.000	0.000

X1	15.800	8.000	172.000	190.000	370.000	400.000	3.0.000	0.000	0.000	0....
GR	868.000	100.000	866.000	135.000	864.000	163.000	862.000	172.000	861.500	181.000
GR	862.000	190.000	864.000	220.000	866.000	250.000	0.000	0.000	0.000	0.000
X1	16.000	22.000	789.000	797.000	170.000	150.000	160.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
GR	874.800	0.000	872.600	100.000	870.400	200.000	871.600	300.000	872.400	400.000
GR	870.800	500.000	869.300	600.000	869.980	700.000	870.400	762.000	862.100	788.000
GR	864.100	789.000	862.100	789.850	861.600	793.000	862.100	796.150	864.100	797.000
GR	862.100	798.000	865.800	830.000	866.300	900.000	867.000	1000.000	867.600	1100.000
GR	868.200	1200.000	872.600	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.012	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	16.010	0.000	0.000	0.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
SB	0.000	1.520	2.600	0.000	6.000	0.000	29.500	0.000	861.600	861.600
X1	16.090	0.000	0.000	0.000	132.000	132.000	132.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	867.100	880.000	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	880.000	880.000	0.000
BT	18.000	0.000	874.800	0.000	100.000	877.000	0.000	200.000	881.200	0.000
BT	300.000	885.100	0.000	400.000	888.200	0.000	500.000	890.500	0.000	600.000
BT	891.300	0.000	700.000	890.900	0.000	789.000	889.370	864.100	789.850	889.370
BT	866.100	793.000	889.300	866.600	796.150	889.200	866.100	797.000	890.780	864.100
BT	900.000	886.200	0.000	1000.000	883.000	0.000	1100.000	878.900	0.000	1200.000
BT	875.200	0.000	1300.000	872.600	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.100	22.000	789.000	797.000	15.000	15.000	15.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	880.000	880.000	0.000
GR	874.800	0.000	870.700	100.000	866.600	200.000	865.200	300.000	863.800	400.000
GR	866.550	500.000	869.300	600.000	870.000	700.000	870.400	762.000	862.100	788.000
GR	864.100	789.000	862.100	789.850	861.600	793.000	862.100	796.150	864.100	797.000
GR	862.100	798.000	865.600	830.000	866.000	900.000	866.500	1000.000	867.350	1100.000
GR	868.200	1200.000	872.600	1300.000	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	16.200	6.000	762.000	830.000	120.000	140.000	120.000	0.000	0.000	0.000
GR	870.400	762.000	862.100	788.000	861.700	793.000	862.100	798.000	865.600	830.000
GR	866.000	880.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.500	18.000	279.000	306.000	1850.000	1800.000	1850.000	0.000	0.000	0.000
GR	869.000	110.000	869.000	200.000	869.500	268.000	869.500	268.100	869.500	268.200
GR	869.100	279.000	865.900	283.000	865.800	289.000	864.300	289.500	863.800	291.000
GR	864.300	292.500	864.270	293.000	865.900	300.000	868.700	306.000	869.200	400.000
GR	867.800	500.000	874.300	600.000	878.300	700.000	0.000	0.000	0.000	0.000
NC	.040	.040	.025	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	16.510	0.000	289.000	293.000	15.000	15.000	15.000	0.000	0.000	0.000
BT	16.000	110.000	869.000	0.000	200.000	869.000	0.000	268.000	869.500	0.000
BT	268.100	869.500	0.000	268.200	869.500	0.000	279.000	869.100	0.000	289.000
BT	868.430	865.800	289.500	868.400	867.300	291.000	868.300	867.800	292.500	868.300
BT	867.300	293.000	868.300	865.800	306.000	868.700	0.000	400.000	869.200	0.000
BT	500.000	867.800	0.000	600.000	874.300	0.000	700.000	878.300	0.000	0.000
X1	16.590	0.000	0.000	0.000	20.000	20.000	20.000	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	.040	.050	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	16.600	0.000	279.000	306.000	15.000	15.000	15.000	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	17.000	18.000	309.000	328.000	700.000	800.000	790.000	0.000	0.000	0.000
GR	879.000	0.000	875.100	100.000	872.700	200.000	871.700	300.000	871.300	309.000
GR	867.500	312.000	867.100	315.000	865.600	315.500	865.100	317.000	865.700	318.500
GR	867.100	319.000	867.500	323.000	871.300	328.000	871.800	400.000	875.700	500.000
GR	878.700	600.000	879.600	700.000	880.600	800.000	0.000	0.000	0.000	0.000
NC	.040	.040	.012	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	17.010	0.000	315.000	319.000	1.000	1.000	1.000	0.000	0.000	0.000
SB	0.000	1.890	2.600	0.000	11.000	0.000	12.570	0.000	865.300	865.100
X1	17.090	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	869.300	871.100	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	879.000	0.000	100.000	875.100	0.000	200.000	872.700	0.000
BT	300.000	871.700	0.000	309.000	871.300	0.000	315.000	871.100	867.100	315.500
BT	871.100	867.600	317.000	871.100	869.100	318.500	871.100	867.600	319.000	871.100
BT	867.100	328.000	871.100	0.000	400.000	871.800	0.000	500.000	875.700	0.000
BT	600.000	878.700	0.000	700.000	879.600	0.000	800.000	880.600	0.000	0.000
NC	.050	.040	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.100	0.000	309.000	328.000	15.000	15.000	15.000	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

SECTION IS IMMEDIATELY DOWNSTREAM OF I-96

X1	18.000	19.000	93.000	174.000	920.000	920.000	900.000	0.000	0.000	0.000
GR	878.900	0.000	878.200	18.000	872.800	93.000	868.400	111.000	868.100	118.500
GR	868.000	119.000	868.000	119.100	868.000	120.000	868.000	120.100	868.000	121.000
GR	868.000	121.100	868.100	121.500	869.100	140.000	878.300	174.000	878.400	200.000
GR	879.800	300.000	880.500	400.000	884.000	500.000	886.000	600.000	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	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 OF MOON AND HAMILTON DRAIN AND HOLLEY DRAIN

1.00	7.51	841.31	0.00	841.31	841.35	.04	0.00	0.00	843.00
310.	0.	305.	5.	0.	200.	12.	0.	0.	838.80
0.00	0.00	1.52	.43	.065	.046	.065	0.000	833.80	46.10
.000273	0.	0.	0.	0	0	0	0.00	48.50	94.61

*SECNO 2.000

2.00	7.61	841.41	0.00	0.00	841.48	.07	.12	.01	835.50
310.	94.	184.	32.	72.	74.	36.	1.	0.	837.10
.04	1.30	2.50	.89	.091	.065	.091	.065	833.80	95.40

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    .001112      240.      250.      275.         2         0         0      0.00     50.36    145.76

  *SECNO 2.500

  3265 DIVIDED FLOW

       2.50      7.91    842.71      0.00      0.00    842.76       .05      1.28       .00    840.20
       310.       42.      195.       73.       117.      88.       65.       7.        5.     838.50
        .22       .36      2.22      1.12       .091      .065      .091      .065   834.80     41.44
    .001118      1150.     1150.     1150.         2         0         0      0.00   283.39    343.76

  *SECNO 2.900

  3470 ENCROACHMENT STATIONS=      150.0      940.0  TYPE=      1  TARGET=      790.000
       2.90      3.32    845.82      0.00      0.00    846.03       .21      3.22       .05    848.40
       310.         0.      310.         0.        0.      84.         0.       12.        9.     846.40
        .31      0.00      3.69      0.00       .117      .078      .117      .071   842.50    627.01
    .012061      1275.     1225.     1210.         4         0         0      0.00    34.61    661.62

  *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

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      853.20 ELREA=      853.20

       3.00      4.97    849.07      0.00      0.00    849.50       .43      3.40       .07    844.20
       310.         0.      310.         0.        0.      59.         0.       13.        9.     844.20
        .33      0.00      5.26      0.00       .104      .078      .104      .072   844.10    317.00
    .014222      260.      260.      270.         3         0         0      0.00    12.00    329.00

  CCHV=    .300 CEHV=    .500
  *SECNO 3.010

  3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  853.20 MAX ELLC=  850.20

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      853.20 ELREA=      853.20

         CANAL RD.

       3.01      4.97    849.07      0.00      0.00    849.50       .43       .00       .00    844.20
       310.         0.      310.         0.        0.      59.         0.       13.        9.     844.20
        .33      0.00      5.27      0.00       .026      .022      .026      .072   844.10    317.00
    .001152         1.        1.        1.         1         0         0     -8.73    12.00    329.00

  *SECNO 3.090

  3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  853.20 MAX ELLC=  850.10

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      853.20 ELREA=      853.20

       3.09      5.14    849.14      0.00      0.00    849.55       .41       .05       .01    844.20
       310.         0.      310.         0.        0.      60.         0.       13.        9.     844.20
        .33      0.00      5.15      0.00       .026      .022      .026      .071   844.00    350.00
    .001071       42.       42.       42.         2         0         0   -35.15    12.00    362.00
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*SECNO 3.100

3.10	5.50	849.50	0.00	0.00	849.64	.13	.00	.08	844.20
310.	17.	214.	79.	11.	65.	40.	13.	9.	844.20
.33	1.50	3.29	1.97	.078	.078	.078	.071	844.00	345.72
.003153	1.	1.	1.	2	0	0	0.00	31.44	377.16

CCHV= .100 CEHV= .300

*SECNO 3.200

3.20	5.66	849.66	0.00	0.00	849.79	.12	.15	.00	844.20
310.	17.	212.	81.	12.	67.	43.	13.	9.	844.20
.34	1.45	3.17	1.90	.078	.078	.078	.071	844.00	345.59
.002811	50.	50.	50.	2	0	0	0.00	32.02	377.61

*SECNO 4.000

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

3470 ENCROACHMENT STATIONS= 442.0 548.0 TYPE= 1 TARGET= 106.000

4.00	5.92	851.92	0.00	0.00	851.98	.05	2.18	.01	846.60
310.	62.	193.	55.	49.	90.	50.	17.	11.	846.40
.52	1.28	2.15	1.10	.078	.078	.078	.073	846.00	469.72
.001291	1185.	1185.	1210.	3	0	0	0.00	52.29	548.00

CCHV= .300 CEHV= .500

*SECNO 4.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

I-96 OFF RAMP

4.10	5.86	851.86	0.00	0.00	852.05	.19	.01	.07	846.60
310.	0.	310.	0.	0.	89.	0.	17.	11.	846.40
.52	0.00	3.50	0.00	.078	.014	.078	.073	846.00	488.00
.000169	15.	15.	15.	2	0	0	0.00	16.00	504.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.98	3.00	0.00	15.00	0.00	51.00	0.00	846.00	846.30

*SECNO 4.200

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
853.00	852.06	0.00	0.	310.	51.	59.	849.90	868.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

4.20	6.56	852.86	0.00	0.00	853.00	.14	.95	0.00	846.40
310.	0.	310.	0.	0.	104.	0.	17.	11.	846.40
.53	0.00	2.99	0.00	.078	.014	.078	.071	846.30	488.00
.000107	135.	135.	135.	2	0	0	0.00	16.00	504.00

1490 NH CARD USED
*SECNO 4.300

3470 ENCROACHMENT STATIONS= 476.0 521.0 TYPE= 1 TARGET= 45.000

4.30	6.66	852.96	0.00	0.00	853.02	.06	.00	.02	846.40
310.	40.	237.	32.	44.	105.	38.	17.	11.	846.40
.54	.91	2.25	.86	.117	.078	.117	.071	846.30	476.00
.001135	15.	15.	15.	2	0	0	0.00	39.50	515.50

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 5.000

3470 ENCROACHMENT STATIONS= 700.0 769.0 TYPE= 1 TARGET= 69.000

5.00	6.95	853.75	0.00	0.00	853.79	.03	.76	.00	847.10
310.	37.	204.	69.	74.	122.	58.	22.	12.	847.10
.72	.50	1.67	1.18	.156	.078	.066	.060	846.80	706.83
.000595	1000.	950.	900.	2	0	0	0.00	57.61	764.44

CCHV= .300 CEHV= .500
*SECNO 5.010

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860.00

I-96

5.01	6.92	853.72	0.00	0.00	853.82	.10	.00	.03	847.10
310.	0.	310.	0.	0.	122.	0.	22.	12.	847.10
.72	0.00	2.54	0.00	.033	.014	.033	.060	846.80	729.00
.000071	15.	15.	15.	2	0	0	0.00	18.00	747.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.82	3.00	0.00	15.00	0.00	73.00	0.00	846.80	846.40

*SECNO 5.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
854.23	853.82	0.00	0.	310.	73.	68.	851.30	854.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 860.00 ELREA= 860.00

5.09	7.34	854.14	0.00	0.00	854.23	.09	.41	0.00	847.10
310.	0.	310.	0.	0.	129.	0.	23.	12.	847.10
.74	0.00	2.40	0.00	.033	.014	.033	.059	846.80	729.00
.000059	119.	119.	119.	2	0	0	0.00	18.00	747.00

*SECNO 5.100

3470 ENCROACHMENT STATIONS= 700.0 769.0 TYPE= 1 TARGET= 69.000

5.10	7.82	854.22	0.00	0.00	854.25	.03	.01	.02	847.10
310.	46.	219.	45.	60.	136.	49.	23.	12.	847.10
.75	.77	1.60	.91	.078	.065	.065	.059	846.40	712.07
.000333	50.	50.	50.	2	0	0	0.00	48.71	760.78

CCHV= .100 CEHV= .300

*SECNO 5.900

3470 ENCROACHMENT STATIONS= 280.0 340.0 TYPE= 1 TARGET= 60.000

5.90	8.57	854.37	0.00	0.00	854.39	.02	.13	.00	849.90
296.	16.	280.	0.	43.	276.	0.	27.	13.	854.60
.91	.38	1.01	0.00	.104	.059	.104	.059	845.80	280.00
.000161	600.	580.	490.	2	0	0	0.00	57.41	337.41

*SECNO 6.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

6.00	8.59	854.39	0.00	0.00	854.40	.02	.02	.00	849.90
296.	0.	296.	0.	0.	277.	0.	27.	13.	854.60
.94	0.00	1.07	0.00	.104	.059	.104	.059	845.80	290.00
.000187	100.	100.	100.	0	0	0	0.00	47.47	337.47

CCHV= .300 CEHV= .500

*SECNO 6.010

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

MT. HOPE HIGHWAY

6.01	8.59	854.39	0.00	0.00	854.40	.02	.00	.00	849.90
296.	0.	296.	0.	0.	276.	0.	27.	13.	854.60
.94	0.00	1.07	0.00	.104	.022	.104	.059	845.80	290.00
.000027	1.	1.	1.	0	0	0	0.00	47.45	337.45

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.89	3.00	0.00	15.00	0.00	75.00	0.00	845.80	846.40

*SECNO 6.090

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

						AREA			
854.84	854.48	0.00	0.	296.	75.	81.	851.20	868.40	

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

6.09	8.36	854.76	0.00	0.00	854.84	.09	.44	0.00	846.90
296.	0.	296.	0.	0.	126.	0.	28.	13.	846.90
.95	0.00	2.35	0.00	.104	.022	.104	.058	846.40	302.00
.000133	146.	146.	146.	2	0	0	0.00	16.00	318.00

*SECNO 6.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 870.00 ELREA= 870.00

6.10	8.36	854.76	0.00	0.00	854.84	.09	.00	.00	846.90
296.	0.	296.	0.	0.	126.	0.	28.	13.	846.90
.95	0.00	2.35	0.00	.130	.065	.130	.058	846.40	302.00
.001152	1.	1.	1.	0	0	0	0.00	16.00	318.00

*SECNO 6.500

3470 ENCROACHMENT STATIONS= 270.0 350.0 TYPE= 1 TARGET= 80.000

6.50	8.47	854.87	0.00	0.00	854.88	.01	.01	.02	846.90
296.	77.	137.	82.	189.	128.	193.	28.	13.	846.90
.97	.41	1.07	.43	.130	.065	.130	.058	846.40	270.00
.000139	40.	40.	40.	2	0	0	0.00	80.00	350.00

CCHV= .100 CEHV= .300

*SECNO 7.000

7.00	8.68	854.98	0.00	0.00	855.01	.04	.13	.01	847.30
296.	43.	219.	34.	108.	121.	95.	34.	14.	847.30
1.08	.40	1.80	.36	.130	.065	.130	.059	846.30	284.19
.000398	475.	600.	600.	2	0	0	0.00	138.77	422.96

CCHV= .300 CEHV= .500

*SECNO 7.010

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= 851.80 MAX ELLC= 849.92

7.01	8.70	855.00	0.00	0.00	855.02	.03	.01	.00	847.30
296.	128.	92.	75.	99.	55.	76.	34.	14.	847.30
1.08	1.29	1.67	.99	.052	.046	.052	.059	846.30	284.05
.000781	15.	15.	15.	1	0	0	-94.63	139.90	423.95

*SECNO 7.090

3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD= 851.80 MAX ELLC= 849.92

7.09	8.72	855.02	0.00	0.00	855.05	.03	.02	.00	847.30
296.	128.	92.	76.	101.	56.	78.	34.	14.	847.30
1.09	1.27	1.64	.98	.052	.046	.052	.059	846.30	283.77
.000751	28.	28.	28.	0	0	0	-94.63	142.25	426.01

*SECNO 7.100

7.10	8.73	855.03	0.00	0.00	855.05	.03	.01	.00	847.30
296.	58.	191.	47.	111.	122.	99.	34.	14.	847.30
1.09	.53	1.57	.47	.104	.078	.104	.059	846.30	283.57
.000430	15.	15.	15.	0	0	0	0.00	143.91	427.48

CCHV= .100 CEHV= .300

*SECNO 7.500

3265 DIVIDED FLOW

7.50	6.96	855.16	0.00	0.00	855.16	.00	.10	.00	850.00
206.	10.	42.	154.	66.	151.	1327.	68.	29.	850.00
3.83	.15	.28	.12	.104	.078	.104	.061	848.20	156.68
.000020	1650.	1315.	1600.	2	0	0	0.00	671.87	852.83

*SECNO 8.000

8.00	5.84	855.14	0.00	0.00	855.23	.08	.04	.03	850.40
206.	19.	162.	26.	15.	63.	20.	80.	35.	850.40
3.90	1.21	2.55	1.27	.104	.078	.104	.061	849.30	293.49
.003009	620.	530.	710.	2	0	0	0.00	26.97	320.47

*SECNO 8.010

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
8.01	5.84	855.14	0.00	0.00	855.23	.08	.00	.00	850.40
206.	19.	162.	26.	15.	63.	20.	80.	35.	850.40
3.90	1.21	2.55	1.27	.104	.078	.104	.061	849.30	293.49
.003006	1.	1.	1.	0	0	0	0.00	26.98	320.47

CCHV= .300 CEHV= .500

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.97	2.90	0.00	8.00	0.00	7.10	2.00	849.30	849.40

*SECNO 8.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
907.04	855.22	0.00	177.	30.	7.	42.	852.30	855.50
8.09	6.93	856.23	0.00	0.00	856.26	.03	1.04	0.00	850.40
206.	44.	130.	31.	79.	76.	31.	81.	35.	850.40
3.91	.56	1.70	1.00	.052	.046	.052	.061	849.30	191.17
.000355	40.	40.	40.	2	0	10	0.00	140.38	331.55

*SECNO 8.100

8.10	6.94	856.24	0.00	0.00	856.27	.04	.01	.00	850.40
206.	41.	137.	28.	81.	77.	32.	81.	35.	850.40
3.91	.51	1.78	.89	.104	.078	.104	.061	849.30	190.84
.001139	15.	15.	15.	1	0	0	0.00	141.37	332.21

```
 CCHV=    .100 CEHV=    .300
 *SECNO 9.000

 3470 ENCROACHMENT STATIONS=    1200.0    1570.0  TYPE=     1  TARGET=     370.000
      9.00     6.26   856.96     0.00     0.00   856.96      .00      .68      .00   851.30
      206.      28.      16.      162.      53.      28.     499.      96.      43.    852.70
      5.28      .53      .57      .32     .104     .078     .104     .066   850.70  1310.17
   .000182    2050.    2040.    1575.        3        0        0     0.00   259.83  1570.00

 CCHV=    .300 CEHV=    .500
 *SECNO 9.010

 3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  854.70 MAX ELLC=  854.70

 3470 ENCROACHMENT STATIONS=    1200.0    1570.0  TYPE=     1  TARGET=     370.000
      9.01     6.26   856.96     0.00     0.00   856.96      .00      .00      .00   851.30
      206.       0.       7.      199.       0.      11.     452.      96.      43.    852.70
      5.28     0.00      .60      .44     .104     .046     .104     .066   850.70  1310.17
   .000366       1.       1.       1.        0        0        0  -116.32   259.83  1570.00

 *SECNO 9.090
    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= 25 MIN ELTRD=  854.70 MAX ELLC=  854.70

 3470 ENCROACHMENT STATIONS=    1200.0    1570.0  TYPE=     1  TARGET=     370.000
      9.09     6.26   856.96     0.00     0.00   856.97      .00      .01      .00   851.30
      206.       0.       7.      199.       0.      11.     453.      96.      43.    852.70
      5.29     0.00      .60      .44     .104     .046     .104     .065   850.70  1310.17
   .000363      19.      19.      19.        0        0        0  -116.43   259.83  1570.00

 *SECNO 9.100

 3470 ENCROACHMENT STATIONS=    1200.0    1570.0  TYPE=     1  TARGET=     370.000
      9.10     6.27   856.97     0.00     0.00   856.97      .00      .00      .00   851.30
      206.      28.      16.      162.      53.      28.     502.      96.      43.    852.70
      5.30      .53      .57      .32     .104     .078     .104     .065   850.70  1310.16
   .000180      15.      15.      15.        0        0        0     0.00   259.84  1570.00

 CCHV=    .100 CEHV=    .300
 *SECNO 10.000

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     370.0     831.0  TYPE=     1  TARGET=     461.000
     10.00     4.95   857.25     0.00     0.00   857.27      .02      .30      .01   853.30
      206.      107.      31.      68.      135.      15.      56.      102.      46.    852.30
      5.47      .79     2.13     1.21     .104     .078     .104     .066   852.30   370.00
   .002226      625.     625.     720.        2        0        0     0.00   140.25   526.03

 CCHV=    .300 CEHV=    .500
```

*SECNO 10.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 855.50 MAX ELLC= 855.90

3470 ENCROACHMENT STATIONS=		370.0	831.0	TYPE=	1	TARGET=	461.000		
10.01	5.00	857.30	0.00	0.00	857.33	.04	.05	.01	853.30
206.	156.	22.	28.	120.	8.	24.	103.	46.	852.30
5.47	1.30	2.78	1.17	.104	.044	.104	.066	852.30	370.00
.006448	15.	15.	15.	2	0	0	-60.38	142.56	526.25

*SECNO 10.090

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 855.50 MAX ELLC= 855.90

3470 ENCROACHMENT STATIONS=		370.0	831.0	TYPE=	1	TARGET=	461.000		
10.09	5.11	857.41	0.00	0.00	857.44	.03	.11	.00	853.30
206.	161.	20.	26.	133.	8.	24.	103.	47.	852.30
5.48	1.21	2.50	1.05	.104	.044	.104	.066	852.30	370.00
.005192	19.	19.	19.	2	0	0	-64.17	148.40	526.78

*SECNO 10.100

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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS=		370.0	831.0	TYPE=	1	TARGET=	461.000		
10.10	5.18	857.48	0.00	0.00	857.50	.02	.05	.00	853.30
206.	115.	27.	64.	164.	16.	61.	103.	47.	852.30
5.48	.70	1.72	1.04	.130	.104	.130	.066	852.30	370.00
.002408	15.	15.	15.	1	0	0	0.00	152.26	527.14

*SECNO 11.000

11.00	4.81	858.91	0.00	0.00	858.95	.04	1.44	.01	854.50
206.	56.	114.	36.	83.	59.	33.	105.	48.	854.80
5.58	.68	1.94	1.09	.130	.104	.130	.067	854.10	255.65
.003495	590.	435.	440.	2	0	0	0.00	135.71	391.36

CCHV= .300 CEHV= .500

*SECNO 11.010

11.01	4.85	858.95	0.00	0.00	858.98	.03	.03	.00	854.50
206.	65.	101.	40.	87.	60.	34.	105.	48.	854.80
5.58	.75	1.69	1.18	.065	.065	.065	.067	854.10	253.80
.001023	15.	15.	15.	0	0	0	0.00	138.13	391.94

SPECIAL BRIDGE

SB	XR	XROR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.50	0.00	8.00	0.00	7.10	2.00	854.10	854.10

*SECNO 11.090

3265 DIVIDED FLOW

3280 CROSS SECTION 11.09 EXTENDED .02 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
887.71	858.98	0.00	192.	13.	7.	42.	857.10	857.80
11.09	4.92	859.02	0.00	0.00	859.06	.04	.09	0.00	854.60
206.	28.	136.	41.	37.	70.	36.	105.	48.	854.70
5.58	.77	1.95	1.15	.065	.065	.065	.067	854.10	294.15
.000937	14.	14.	14.	2	0	7	0.00	100.18	450.00

*SECNO 11.100

3265 DIVIDED FLOW

3280 CROSS SECTION 11.10 EXTENDED .02 FEET

11.10	4.92	859.02	0.00	0.00	859.06	.04	.00	.00	854.60
206.	24.	133.	49.	37.	70.	36.	105.	48.	854.70
5.58	.65	1.91	1.35	.091	.078	.065	.067	854.10	294.07
.001294	1.	1.	1.	0	0	0	0.00	100.35	450.00

*SECNO 11.300

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
11.30	4.03	859.93	0.00	0.00	859.95	.02	.88	.01	863.50
206.	0.	206.	0.	0.	182.	0.	109.	50.	860.90
5.80	0.00	1.13	0.00	.091	.078	.065	.067	855.90	1605.16
.000796	825.	875.	960.	2	0	0	0.00	57.73	1662.89

*SECNO 11.350

11.35	4.28	860.38	0.00	0.00	860.54	.16	.51	.07	860.00
206.	3.	203.	0.	4.	62.	0.	109.	50.	862.00
5.82	.78	3.25	0.00	.091	.104	.091	.068	856.10	619.20
.020881	320.	230.	100.	2	0	0	0.00	51.07	670.27

*SECNO 11.400

11.40	5.02	862.02	0.00	0.00	862.11	.09	1.55	.02	862.00
206.	0.	206.	0.	0.	84.	0.	110.	51.	864.00
5.84	.01	2.45	0.00	.091	.078	.091	.068	857.00	613.91
.005111	120.	170.	120.	2	0	0	0.00	34.58	648.49

*SECNO 12.000

12.00	5.58	864.78	0.00	0.00	864.86	.08	2.75	.00	864.60

206.	0.	206.	0.	1.	88.	1.	111.	51.	864.50
5.91	.22	2.33	.29	.091	.078	.091	.069	859.20	392.17
.004340	630.	585.	570.	5	0	0	0.00	45.73	437.90

*SECNO 12.010

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 864.20 MAX ELLC= 863.20

12.01	5.58	864.78	0.00	0.00	864.87	.08	.00	.00	864.60
206.	0.	205.	0.	1.	88.	1.	111.	51.	864.50
5.91	.26	2.33	.34	.065	.065	.065	.069	859.20	391.95
.002993	1.	1.	1.	0	0	0	0.00	46.07	438.03

*SECNO 12.090

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= 0 MIN ELTRD= 864.20 MAX ELLC= 863.20

12.09	5.64	864.84	0.00	0.00	864.92	.08	.05	.00	864.60
206.	0.	205.	1.	1.	90.	1.	111.	51.	864.50
5.91	.30	2.28	.37	.065	.065	.065	.069	859.20	389.43
.002788	16.	16.	16.	0	0	0	0.00	50.03	439.46

*SECNO 12.100

12.10	5.64	864.84	0.00	0.00	864.92	.08	.00	.00	864.60
206.	0.	205.	0.	1.	90.	1.	111.	51.	864.50
5.91	.25	2.28	.32	.091	.078	.091	.069	859.20	389.63
.004043	1.	1.	1.	0	0	0	0.00	49.71	439.34

*SECNO 13.000

13.00	7.90	865.90	0.00	0.00	865.96	.07	1.04	.00	867.20
206.	0.	206.	0.	0.	100.	0.	111.	51.	866.50
5.95	0.00	2.06	0.00	.091	.078	.091	.069	858.00	541.81
.002586	340.	325.	340.	2	0	0	0.00	27.20	569.02

CCHV= .300 CEHV= .500

*SECNO 13.010

13.01	7.92	865.92	0.00	0.00	865.98	.07	.02	.00	867.20
206.	0.	206.	0.	0.	100.	0.	111.	51.	866.50
5.96	0.00	2.05	0.00	.052	.046	.052	.069	858.00	541.77
.000866	15.	15.	15.	2	0	0	0.00	27.29	569.05

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.04	2.60	0.00	5.00	0.00	7.10	1.00	858.20	858.00

*SECNO 13.090

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
892.58	866.18	0.00	162.	46.	7.	24.	861.20	866.70

13.09	9.22	867.22	0.00	0.00	867.24	.02	1.26	0.00	867.20
206.	0.	184.	22.	0.	139.	61.	112.	51.	866.50
5.96	.00	1.33	.36	.052	.046	.052	.069	858.00	535.51
.000277	20.	20.	20.	2	0	10	0.00	133.89	669.40

*SECNO 13.100

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
13.10	9.22	867.22	0.00	0.00	867.25	.03	.00	.00	867.20
206.	0.	193.	13.	0.	139.	62.	112.	51.	866.50
5.96	.01	1.39	.21	.052	.052	.104	.069	858.00	533.84
.000394	15.	15.	15.	0	0	0	0.00	136.15	669.99

*SECNO 14.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 875.00 ELREA= 875.00

14.00	6.38	867.88	0.00	0.00	868.18	.30	.80	.14	864.00
206.	0.	206.	0.	0.	47.	0.	114.	53.	864.00
6.02	0.00	4.39	0.00	.052	.052	.104	.068	861.50	1021.00
.004924	850.	830.	850.	2	0	0	0.00	8.00	1029.00

CCHV= .300 CEHV= .500

*SECNO 14.010

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 875.00 ELREA= 875.00

14.01	6.40	867.90	0.00	0.00	868.19	.30	.01	.00	864.00
206.	0.	206.	0.	0.	47.	0.	114.	53.	864.00
6.02	0.00	4.38	0.00	.033	.014	.033	.068	861.50	1021.00
.000370	15.	15.	15.	2	0	0	0.00	8.00	1029.00

SPECIAL BRIDGE

SB	XR	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.72	2.60	0.00	8.00	0.00	29.50	0.00	861.50	861.50

*SECNO 14.090
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
869.20	868.19	0.00	0.	206.	30.	43.	866.90	873.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 875.00 ELREA= 875.00

14.09	7.49	868.99	0.00	0.00	869.20	.21	1.00	0.00	864.00
206.	0.	206.	0.	0.	56.	0.	114.	53.	864.00
6.03	0.00	3.69	0.00	.033	.014	.033	.067	861.50	1021.00

.000231	207.	207.	207.	2	0	0	0.00	8.00	1029.00

*SECNO 14.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 875.00 ELREA= 875.00

14.10	7.50	869.00	0.00	0.00	869.21	.21	.01	.00	864.00
206.	0.	206.	0.	0.	56.	0.	114.	53.	864.00
6.03	0.00	3.69	0.00	.065	.059	.052	.067	861.50	1021.00
.003856	15.	15.	15.	0	0	0	0.00	8.00	1029.00

*SECNO 15.000

3280 CROSS SECTION 15.00 EXTENDED 2.03 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
15.00	8.13	869.33	0.00	0.00	869.33	.00	.06	.06	868.20
206.	92.	59.	56.	441.	166.	257.	121.	56.	867.80
6.77	.21	.35	.22	.065	.059	.052	.067	861.20	15.45
.000027	525.	675.	855.	3	0	0	0.00	384.55	400.00

CCHV= .300 CEHV= .500

*SECNO 15.010

3280 CROSS SECTION 15.01 EXTENDED 2.03 FEET

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 864.30 MAX ELLC= 864.82

MILLETT HIGHWAY

15.01	8.13	869.33	0.00	0.00	869.33	.00	.00	.00	868.20
206.	122.	24.	60.	441.	62.	257.	121.	56.	867.80
6.77	.28	.40	.23	.065	.033	.065	.067	861.20	15.44
.000047	1.	1.	1.	0	0	0	-104.58	384.57	400.00

*SECNO 15.090

3280 CROSS SECTION 15.09 EXTENDED 2.03 FEET

3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD= 864.30 MAX ELLC= 864.82

15.09	8.13	869.33	0.00	0.00	869.33	.00	.00	.00	868.20
206.	122.	24.	60.	441.	62.	257.	122.	56.	867.80
6.79	.28	.40	.23	.065	.033	.065	.067	861.20	15.45
.000048	18.	18.	18.	0	0	0	-104.58	384.55	400.00

*SECNO 15.100

3280 CROSS SECTION 15.10 EXTENDED 2.03 FEET

15.10	8.13	869.33	0.00	0.00	869.33	.00	.00	.00	868.20
206.	108.	45.	53.	441.	166.	257.	122.	56.	867.80
6.80	.25	.27	.21	.065	.091	.065	.067	861.20	15.44

.000038	15.	15.	15.	0	0	0	0.00	384.56	400.00

*SECNO 15.800

3280 CROSS SECTION 15.80 EXTENDED 3.35 FEET

15.80	7.84	869.34	0.00	0.00	869.34	.00	.01	.00	862.00
115.	38.	22.	56.	261.	137.	321.	129.	59.	862.00
7.47	.14	.16	.17	.065	.091	.065	.067	861.50	100.00
.000006	370.	390.	400.	0	0	0	0.00	150.00	250.00

*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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 880.00 ELREA= 880.00

16.00	7.71	869.31	0.00	0.00	869.37	.06	.00	.03	864.10
115.	0.	115.	0.	0.	58.	0.	130.	59.	864.10
7.49	0.00	2.00	0.00	.065	.091	.065	.067	861.60	789.00
.002671	170.	160.	150.	2	0	0	0.00	8.00	797.00

CCHV= .300 CEHV= .500

*SECNO 16.010

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 880.00 ELREA= 880.00

16.01	7.72	869.32	0.00	0.00	869.38	.06	.00	.00	864.10
115.	0.	115.	0.	0.	58.	0.	130.	59.	864.10
7.49	0.00	1.99	0.00	.065	.016	.065	.067	861.60	789.00
.000078	15.	15.	15.	1	0	0	0.00	8.00	797.00

SPECIAL BRIDGE

SB	XR	XNOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.52	2.60	0.00	6.00	0.00	29.50	0.00	861.60	861.60

*SECNO 16.090

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
869.68	869.38	0.00	0.	115.	30.	33.	867.10	880.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 880.00 ELREA= 880.00

16.09	8.02	869.62	0.00	0.00	869.68	.06	.30	0.00	864.10
115.	0.	115.	0.	0.	60.	0.	130.	59.	864.10
7.51	0.00	1.92	0.00	.065	.016	.065	.067	861.60	789.00
.000070	132.	132.	132.	2	0	0	0.00	8.00	797.00

*SECNO 16.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 880.00 ELREA= 880.00

16.10	8.02	869.62	0.00	0.00	869.68	.06	.00	.00	864.10
115.	0.	115.	0.	0.	60.	0.	130.	59.	864.10
7.51	0.00	1.92	0.00	.065	.091	.065	.067	861.60	789.00
.002384	15.	15.	15.	0	0	0	0.00	8.00	797.00

CCHV= .100 CEHV= .300

*SECNO 16.200

3280 CROSS SECTION 16.20 EXTENDED 3.69 FEET

16.20	7.99	869.69	0.00	0.00	869.69	.00	.01	.01	870.40
115.	0.	72.	43.	0.	355.	195.	131.	59.	865.60
7.68	0.00	.20	.22	.065	.091	.065	.067	861.70	764.22
.000017	120.	120.	140.	2	0	0	0.00	115.78	880.00

*SECNO 16.500

3280 CROSS SECTION 16.50 EXTENDED .75 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
16.50	5.95	869.75	0.00	0.00	869.75	.00	.06	.00	869.10
115.	19.	39.	57.	107.	102.	230.	152.	70.	868.70
9.48	.18	.38	.25	.065	.091	.065	.070	863.80	110.00
.000108	1850.	1850.	1800.	3	0	0	0.00	420.05	530.05

CCHV= .300 CEHV= .500

*SECNO 16.510

3280 CROSS SECTION 16.51 EXTENDED .75 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 867.80 MAX ELLC= 867.80

16.51	5.95	869.75	0.00	0.00	869.76	.00	.00	.00	869.10
115.	22.	26.	67.	107.	50.	230.	152.	70.	868.70
9.49	.21	.53	.29	.052	.033	.052	.070	863.80	110.00
.000094	15.	15.	15.	0	0	0	-52.43	420.06	530.06

*SECNO 16.590

3280 CROSS SECTION 16.59 EXTENDED .76 FEET

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 867.80 MAX ELLC= 867.80

16.59	5.96	869.76	0.00	0.00	869.76	.00	.00	.00	869.10
115.	22.	26.	66.	107.	50.	231.	152.	71.	868.70
9.51	.21	.53	.29	.052	.033	.052	.070	863.80	110.00
.000093	20.	20.	20.	0	0	0	-52.43	420.09	530.09

*SECNO 16.600

3280 CROSS SECTION 16.60 EXTENDED .76 FEET

16.60	5.96	869.76	0.00	0.00	869.76	.00	.00	.00	869.10
115.	23.	37.	55.	108.	102.	231.	153.	71.	868.70
9.53	.21	.37	.24	.052	.091	.065	.070	863.80	110.00
.000098	15.	15.	15.	0	0	0	0.00	420.11	530.11

CCHV= .100 CEHV= .300

*SECNO 17.000

17.00	4.83	869.93	0.00	0.00	870.05	.12	.26	.03	871.30
115.	0.	115.	0.	0.	42.	0.	157.	75.	871.30
9.61	0.00	2.74	0.00	.052	.091	.065	.070	865.10	310.08
.010831	700.	790.	800.	2	0	0	0.00	16.12	326.20

CCHV= .300 CEHV= .500

*SECNO 17.010

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
17.01	4.84	869.94	0.00	0.00	870.05	.12	.00	.00	871.30
115.	0.	115.	0.	0.	42.	0.	157.	75.	871.30
9.61	0.00	2.74	0.00	.052	.016	.052	.070	865.10	310.07
.000316	1.	1.	1.	0	0	0	0.00	16.14	326.21

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.89	2.60	0.00	11.00	0.00	12.57	0.00	865.30	865.10

*SECNO 17.090

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
872.39	870.24	0.00	23.	92.	13.	44.	869.30	871.10

17.09	6.37	871.47	0.00	0.00	871.52	.04	1.46	0.00	871.30
115.	0.	115.	0.	0.	69.	2.	157.	75.	871.30
9.61	.05	1.66	.05	.052	.016	.052	.070	865.10	305.09
.000076	20.	20.	20.	2	0	5	0.00	47.96	353.04

*SECNO 17.100

17.10	6.38	871.48	0.00	0.00	871.52	.04	.00	.00	871.30
115.	0.	114.	1.	0.	69.	2.	157.	75.	871.30
9.61	.23	1.65	.29	.065	.091	.052	.070	865.10	305.02
.002544	15.	15.	15.	0	0	0	0.00	48.45	353.47

CCHV= .100 CEHV= .300

*SECNO 18.000

SECTION IS IMMEDIATELY DOWNSTREAM OF I-96

18.00	4.34	872.34	0.00	0.00	872.35	.01	.82	.00	872.80
115.	0.	115.	0.	0.	164.	0.	159.	76.	878.30
9.97	0.00	.70	0.00	.065	.091	.052	.071	868.00	94.91
.000465	920.	900.	920.	2	0	0	0.00	57.03	151.94

1) COUNTY: Eaton

2) STUDY NAME: Delta Twp

3) WATERCOURSE: Moon and Hamilton Drain

4) DOCUMENT TYPE: Summary

00BREAK00

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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

 MOON AND HAMILTON DRAIN

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      833.80      185.00      839.12      0.00      839.16      4.45      1.53      121.14      87.66
      1.000      0.00      0.00      0.00      833.80      264.00      840.32      0.00      840.36      3.70      1.61      167.40      137.21
      1.000      0.00      0.00      0.00      833.80      310.00      841.31      0.00      841.35      2.73      1.52      212.35      187.50
      1.000      0.00      0.00      0.00      833.80      394.00      843.26      0.00      843.29      1.54      1.34      318.87      317.25

      2.000      250.00      0.00      0.00      833.80      185.00      839.29      0.00      839.38      21.42      2.69      91.54      39.98
      2.000      250.00      0.00      0.00      833.80      264.00      840.46      0.00      840.54      16.09      2.71      137.38      65.82
      2.000      250.00      0.00      0.00      833.80      310.00      841.41      0.00      841.48      11.12      2.50      182.06      92.96
      2.000      250.00      0.00      0.00      833.80      394.00      843.32      0.00      843.35      4.83      1.94      391.93      179.32

      2.500      1150.00      0.00      0.00      834.80      185.00      841.36      0.00      841.42      14.92      2.18      115.75      47.90
      2.500      1150.00      0.00      0.00      834.80      264.00      842.24      0.00      842.31      14.79      2.41      149.76      68.86
      2.500      1150.00      0.00      0.00      834.80      310.00      842.71      0.00      842.76      11.18      2.22      269.97      92.73
      2.500      1150.00      0.00      0.00      834.80      394.00      843.83      0.00      843.84      3.73      1.43      605.90      203.90

      2.900      1225.00      0.00      0.00      842.50      185.00      845.13      0.00      845.27      102.60      3.00      61.66      18.26
      2.900      1225.00      0.00      0.00      842.50      264.00      845.81      0.00      845.96      88.19      3.16      83.67      28.11
      2.900      1225.00      0.00      0.00      842.50      310.00      845.82      0.00      846.03      120.61      3.69      83.92      28.23
*     2.900      1225.00      0.00      0.00      842.50      394.00      846.94      0.00      847.09      60.32      3.13      128.57      50.73

      3.000      260.00      0.00      0.00      844.10      185.00      847.88      0.00      848.14      115.74      4.14      44.70      17.20
      3.000      260.00      0.00      0.00      844.10      264.00      848.54      0.00      848.93      144.70      5.02      52.61      21.95
      3.000      260.00      0.00      0.00      844.10      310.00      849.07      0.00      849.50      142.22      5.26      58.99      25.99
      3.000      260.00      0.00      0.00      844.10      394.00      849.24      0.00      849.88      207.74      6.45      61.04      27.34

      3.010      1.00      853.20      850.20      844.10      185.00      847.88      0.00      848.14      9.33      4.14      44.65      60.55
      3.010      1.00      853.20      850.20      844.10      264.00      848.54      0.00      848.93      11.68      5.03      52.53      77.23
      3.010      1.00      853.20      850.20      844.10      310.00      849.07      0.00      849.50      11.52      5.27      58.84      91.32
      3.010      1.00      853.20      850.20      844.10      394.00      849.24      0.00      849.89      16.83      6.47      60.89      96.04

      3.900      42.00      853.20      850.10      844.00      185.00      847.93      0.00      848.19      8.61      4.04      45.81      63.04
      3.900      42.00      853.20      850.10      844.00      264.00      848.61      0.00      848.98      10.78      4.90      53.91      80.40
      3.900      42.00      853.20      850.10      844.00      310.00      849.14      0.00      849.55      10.71      5.15      60.25      94.72
      3.900      42.00      853.20      850.10      844.00      394.00      849.36      0.00      849.97      15.24      6.26      62.92      100.94

      3.100      1.00      0.00      0.00      844.00      185.00      848.12      0.00      848.23      35.74      2.88      76.50      30.95
      3.100      1.00      0.00      0.00      844.00      264.00      848.92      0.00      849.06      35.88      3.26      98.78      44.08
      3.100      1.00      0.00      0.00      844.00      310.00      849.50      0.00      849.64      31.53      3.29      116.43      55.21
      3.100      1.00      0.00      0.00      844.00      394.00      849.93      0.00      850.10      37.42      3.78      130.37      64.41
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SECNO	XLOH	FLTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3.200	50.00	0.00	0.00	844.00	185.00	848.30	0.00	848.40	30.27	2.73	81.21	33.62
3.200	50.00	0.00	0.00	844.00	264.00	849.10	0.00	849.22	31.09	3.11	104.08	47.35
3.200	50.00	0.00	0.00	844.00	310.00	849.66	0.00	849.79	28.11	3.17	121.43	58.47
3.200	50.00	0.00	0.00	844.00	394.00	850.12	0.00	850.28	33.04	3.62	136.49	68.55
4.000	1185.00	0.00	0.00	846.00	185.00	850.65	0.00	850.69	13.27	1.84	126.69	50.78
4.000	1185.00	0.00	0.00	846.00	264.00	851.48	0.00	851.53	13.17	2.06	165.53	72.76
4.000	1185.00	0.00	0.00	846.00	310.00	851.92	0.00	851.98	12.91	2.15	188.00	86.26
4.000	1185.00	0.00	0.00	846.00	394.00	852.58	0.00	852.64	13.12	2.34	223.79	108.79
4.100	15.00	0.00	0.00	846.00	185.00	850.62	0.00	850.73	1.30	2.70	68.59	162.34
4.100	15.00	0.00	0.00	846.00	264.00	851.43	0.00	851.59	1.56	3.23	81.62	211.22
4.100	15.00	0.00	0.00	846.00	310.00	851.86	0.00	852.05	1.69	3.50	88.53	238.56
4.100	15.00	0.00	0.00	846.00	394.00	852.49	0.00	852.74	1.98	3.99	98.63	280.07
4.200	135.00	868.00	849.90	846.30	185.00	850.92	0.00	851.02	1.11	2.55	72.66	175.98
4.200	135.00	868.00	849.90	846.30	264.00	852.13	0.00	852.25	1.11	2.87	91.96	250.82
4.200	135.00	868.00	849.90	846.30	310.00	852.86	0.00	853.00	1.07	2.99	103.69	299.64
4.200	135.00	868.00	849.90	846.30	394.00	854.17	0.00	854.33	1.01	3.16	124.71	392.35
4.300	15.00	0.00	0.00	846.30	185.00	850.98	0.00	851.04	15.51	2.08	113.73	46.97
4.300	15.00	0.00	0.00	846.30	264.00	852.21	0.00	852.28	13.05	2.23	157.96	73.07
4.300	15.00	0.00	0.00	846.30	310.00	852.96	0.00	853.02	11.35	2.25	186.97	92.01
4.300	15.00	0.00	0.00	846.30	394.00	854.30	0.00	854.36	9.12	2.29	241.26	130.47
5.000	950.00	0.00	0.00	846.80	185.00	852.06	0.00	852.09	8.29	1.63	165.31	64.26
5.000	950.00	0.00	0.00	846.80	264.00	853.09	0.00	853.13	6.50	1.63	217.84	103.55
5.000	950.00	0.00	0.00	846.80	310.00	853.75	0.00	853.79	5.95	1.67	254.45	127.13
5.000	950.00	0.00	0.00	846.80	394.00	854.95	0.00	854.98	4.94	1.69	327.72	177.19
5.010	15.00	0.00	0.00	846.80	185.00	852.05	0.00	852.11	.59	2.02	91.66	240.42
5.010	15.00	0.00	0.00	846.80	264.00	853.07	0.00	853.16	.69	2.40	110.08	316.82
5.010	15.00	0.00	0.00	846.80	310.00	853.72	0.00	853.82	.71	2.54	121.82	368.45
5.010	15.00	0.00	0.00	846.80	394.00	854.91	0.00	855.03	.71	2.75	143.22	467.53
5.090	119.00	854.80	851.30	846.80	185.00	852.17	0.00	852.23	.55	1.97	93.84	249.15
5.090	119.00	854.80	851.30	846.80	264.00	853.36	0.00	853.44	.61	2.29	115.27	339.37
5.090	119.00	854.80	851.30	846.80	310.00	854.14	0.00	854.23	.59	2.40	129.39	402.80
5.090	119.00	857.90	851.30	846.80	394.00	855.63	0.00	855.73	.55	2.52	156.26	530.70
5.100	50.00	0.00	0.00	846.40	185.00	852.22	0.00	852.24	3.98	1.43	157.10	92.68
5.100	50.00	0.00	0.00	846.40	264.00	853.43	0.00	853.46	3.75	1.58	208.84	136.31
5.100	50.00	0.00	0.00	846.40	310.00	854.22	0.00	854.25	3.33	1.60	246.17	169.98
5.100	50.00	0.00	0.00	846.40	394.00	855.73	0.00	855.76	2.57	1.59	324.45	245.54
5.900	580.00	0.00	0.00	845.80	174.00	852.38	0.00	852.41	1.80	.90	210.02	129.60
5.900	580.00	0.00	0.00	845.80	251.00	853.59	0.00	853.61	1.76	.99	275.03	189.34
5.900	580.00	0.00	0.00	845.80	296.00	854.37	0.00	854.39	1.61	1.01	319.00	233.43
5.900	580.00	0.00	0.00	845.80	379.00	855.85	0.00	855.86	1.24	1.03	406.91	339.90
6.000	100.00	0.00	0.00	845.80	174.00	852.40	0.00	852.41	1.97	.93	187.62	123.86
6.000	100.00	0.00	0.00	845.80	251.00	853.61	0.00	853.63	2.00	1.04	240.58	177.33
6.000	100.00	0.00	0.00	845.80	296.00	854.39	0.00	854.40	1.87	1.07	276.91	216.62
6.000	100.00	0.00	0.00	845.80	379.00	855.86	0.00	855.88	1.49	1.09	347.37	310.47

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	6.010	1.00	0.00	0.00	845.80	174.00	852.40	0.00	852.41	.28	.93	187.40	327.30
	6.010	1.00	0.00	0.00	845.80	251.00	853.61	0.00	853.63	.29	1.04	240.35	468.77
	6.010	1.00	0.00	0.00	845.80	296.00	854.39	0.00	854.40	.27	1.07	276.48	572.16
	6.010	1.00	0.00	0.00	845.80	379.00	855.86	0.00	855.88	.21	1.09	347.02	820.48
	6.090	146.00	868.40	851.20	846.40	174.00	852.50	0.00	852.56	1.24	1.93	90.05	156.17
	6.090	146.00	868.40	851.20	846.40	251.00	853.86	0.00	853.94	1.36	2.25	111.76	215.01
	6.090	146.00	868.40	851.20	846.40	296.00	854.76	0.00	854.84	1.33	2.35	126.15	256.48
	6.090	146.00	868.40	851.20	846.40	379.00	856.51	0.00	856.61	1.23	2.46	154.23	342.03
	6.100	1.00	0.00	0.00	846.40	174.00	852.50	0.00	852.56	10.74	1.93	90.05	53.10
	6.100	1.00	0.00	0.00	846.40	251.00	853.86	0.00	853.94	11.79	2.25	111.76	73.10
	6.100	1.00	0.00	0.00	846.40	296.00	854.76	0.00	854.84	11.57	2.35	126.15	87.20
	6.100	1.00	0.00	0.00	846.40	379.00	856.51	0.00	856.61	10.62	2.46	154.23	116.29
	6.500	40.00	0.00	0.00	846.40	174.00	852.58	0.00	852.59	1.81	.97	327.23	129.19
	6.500	40.00	0.00	0.00	846.40	251.00	853.96	0.00	853.97	1.59	1.05	437.75	199.00
	6.500	40.00	0.00	0.00	846.40	296.00	854.87	0.00	854.88	1.39	1.07	510.31	250.86
	6.500	40.00	0.00	0.00	846.40	379.00	856.63	0.00	856.64	1.08	1.08	651.38	363.94
	7.000	600.00	0.00	0.00	846.30	174.00	852.73	0.00	852.78	6.26	1.82	125.50	69.54
	7.000	600.00	0.00	0.00	846.30	251.00	854.09	0.00	854.14	5.23	1.91	225.52	109.76
	7.000	600.00	0.00	0.00	846.30	296.00	854.98	0.00	855.01	3.98	1.80	323.68	148.37
	7.000	600.00	0.00	0.00	846.30	379.00	856.71	0.00	856.72	1.88	1.41	715.02	276.37
*	7.010	15.00	851.80	849.92	846.30	174.00	852.75	852.75	853.19	337.76	5.88	36.67	9.47
	7.010	15.00	851.80	849.92	846.30	251.00	854.09	0.00	854.16	25.27	2.49	132.92	49.93
	7.010	15.00	851.80	849.92	846.30	296.00	855.00	0.00	855.02	7.81	1.67	230.70	105.95
	7.010	15.00	851.80	849.92	846.30	379.00	856.72	0.00	856.73	1.22	.85	623.43	343.50
	7.090	28.00	851.80	849.92	846.30	174.00	853.48	0.00	853.57	46.39	2.86	81.33	25.55
	7.090	28.00	851.80	849.92	846.30	251.00	854.17	0.00	854.23	21.91	2.36	139.99	53.63
	7.090	28.00	851.80	849.92	846.30	296.00	855.02	0.00	855.05	7.51	1.64	234.19	107.99
	7.090	28.00	851.80	849.92	846.30	379.00	856.73	0.00	856.73	1.20	.85	627.22	345.93
	7.100	15.00	0.00	0.00	846.30	174.00	853.58	0.00	853.60	4.51	1.41	180.66	81.90
	7.100	15.00	0.00	0.00	846.30	251.00	854.22	0.00	854.25	5.79	1.70	237.25	104.33
	7.100	15.00	0.00	0.00	846.30	296.00	855.03	0.00	855.05	4.30	1.57	331.33	142.82
	7.100	15.00	0.00	0.00	846.30	379.00	856.73	0.00	856.74	1.77	1.14	722.17	284.98
	7.500	1315.00	0.00	0.00	848.20	121.00	853.79	0.00	853.79	.46	.36	723.57	177.80
	7.500	1315.00	0.00	0.00	848.20	174.00	854.42	0.00	854.42	.36	.34	1083.27	291.06
	7.500	1315.00	0.00	0.00	848.20	206.00	855.16	0.00	855.16	.20	.28	1544.14	464.47
	7.500	1315.00	0.00	0.00	848.20	263.00	856.77	0.00	856.77	.07	.19	2716.43	1024.30
	8.000	530.00	0.00	0.00	849.30	121.00	853.83	0.00	853.90	30.86	2.14	66.32	21.78
	8.000	530.00	0.00	0.00	849.30	174.00	854.43	0.00	854.52	37.49	2.59	80.51	28.42
	8.000	530.00	0.00	0.00	849.30	206.00	855.14	0.00	855.23	30.09	2.55	98.86	37.55
	8.000	530.00	0.00	0.00	849.30	263.00	856.77	0.00	856.80	10.07	1.77	270.98	82.89
	8.010	1.00	0.00	0.00	849.30	121.00	853.84	0.00	853.90	30.82	2.14	66.36	21.80
	8.010	1.00	0.00	0.00	849.30	174.00	854.43	0.00	854.52	37.44	2.59	80.55	28.44
	8.010	1.00	0.00	0.00	849.30	206.00	855.14	0.00	855.23	30.06	2.55	98.99	37.57
	8.010	1.00	0.00	0.00	849.30	263.00	856.77	0.00	856.80	10.06	1.77	271.06	82.91

SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.090	40.00	855.50	852.30	849.30	121.00	855.99	0.00	856.01	1.61	1.12	156.27	95.43
8.090	40.00	855.50	852.30	849.30	174.00	856.14	0.00	856.17	2.82	1.50	174.68	103.66
8.090	40.00	855.50	852.30	849.30	206.00	856.23	0.00	856.26	3.55	1.70	186.97	109.40
8.090	40.00	855.50	852.30	849.30	263.00	856.82	0.00	856.85	2.78	1.60	280.35	157.76
8.100	15.00	0.00	0.00	849.30	121.00	856.00	0.00	856.01	5.21	1.17	155.74	53.02
8.100	15.00	0.00	0.00	849.30	174.00	856.15	0.00	856.18	9.11	1.58	175.42	57.64
8.100	15.00	0.00	0.00	849.30	206.00	856.24	0.00	856.27	11.39	1.78	189.25	61.03
8.100	15.00	0.00	0.00	849.30	263.00	856.83	0.00	856.85	9.34	1.71	282.06	86.05
9.000	2040.00	0.00	0.00	850.70	121.00	856.44	0.00	856.44	1.31	.46	448.07	105.84
9.000	2040.00	0.00	0.00	850.70	174.00	856.77	0.00	856.78	1.66	.54	532.81	135.02
9.000	2040.00	0.00	0.00	850.70	206.00	856.96	0.00	856.96	1.82	.57	579.91	152.52
9.000	2040.00	0.00	0.00	850.70	263.00	857.45	0.00	857.45	1.63	.57	706.89	205.79
9.010	1.00	854.70	854.70	850.70	121.00	856.44	0.00	856.44	3.02	.55	347.85	69.61
9.010	1.00	854.70	854.70	850.70	174.00	856.77	0.00	856.78	3.47	.59	421.79	93.35
9.010	1.00	854.70	854.70	850.70	206.00	856.96	0.00	856.96	3.66	.60	463.34	107.75
9.010	1.00	854.70	854.70	850.70	263.00	857.45	0.00	857.45	2.98	.48	581.20	152.41
9.090	19.00	854.70	854.70	850.70	121.00	856.45	0.00	856.45	3.00	.54	348.66	69.86
9.090	19.00	854.70	854.70	850.70	174.00	856.78	0.00	856.78	3.45	.58	422.74	93.67
9.090	19.00	854.70	854.70	850.70	206.00	856.96	0.00	856.97	3.63	.60	464.36	108.12
9.090	19.00	854.70	854.70	850.70	263.00	857.45	0.00	857.45	2.96	.48	582.11	152.79
9.100	15.00	0.00	0.00	850.70	121.00	856.45	0.00	856.45	1.28	.45	451.30	106.90
9.100	15.00	0.00	0.00	850.70	174.00	856.79	0.00	856.79	1.64	.53	535.69	136.05
9.100	15.00	0.00	0.00	850.70	206.00	856.97	0.00	856.97	1.80	.57	582.67	153.60
9.100	15.00	0.00	0.00	850.70	263.00	857.46	0.00	857.46	1.62	.57	709.36	206.89
10.000	625.00	0.00	0.00	852.30	121.00	856.66	0.00	856.68	21.68	1.90	132.11	25.99
10.000	625.00	0.00	0.00	852.30	174.00	857.05	0.00	857.07	22.32	2.06	178.55	36.83
10.000	625.00	0.00	0.00	852.30	206.00	857.25	0.00	857.27	22.26	2.13	205.94	43.66
10.000	625.00	0.00	0.00	852.30	263.00	857.70	0.00	857.72	17.72	2.03	274.27	62.48
10.010	15.00	855.50	855.90	852.30	121.00	856.71	0.00	856.75	72.75	2.96	94.11	14.19
10.010	15.00	855.50	855.90	852.30	174.00	857.09	0.00	857.13	67.78	2.85	130.59	21.13
10.010	15.00	855.50	855.90	852.30	206.00	857.30	0.00	857.33	64.48	2.78	152.17	25.65
10.010	15.00	855.50	855.90	852.30	263.00	857.74	0.00	857.77	47.69	1.88	206.73	38.09
10.090	19.00	855.50	855.90	852.30	121.00	856.84	0.00	856.87	54.76	2.56	106.04	16.35
10.090	19.00	855.50	855.90	852.30	174.00	857.22	0.00	857.25	53.33	2.53	143.60	23.83
10.090	19.00	855.50	855.90	852.30	206.00	857.41	0.00	857.44	51.92	2.50	165.55	28.59
10.090	19.00	855.50	855.90	852.30	263.00	857.83	0.00	857.85	39.78	1.76	219.79	41.70
10.100	15.00	0.00	0.00	852.30	121.00	856.91	0.00	856.92	21.82	1.49	161.53	25.90
10.100	15.00	0.00	0.00	852.30	174.00	857.29	0.00	857.30	23.76	1.66	211.34	35.70
10.100	15.00	0.00	0.00	852.30	206.00	857.49	0.00	857.50	24.08	1.72	241.43	41.98
10.100	15.00	0.00	0.00	852.30	263.00	857.88	0.00	857.89	21.10	1.71	303.39	57.25
11.000	435.00	0.00	0.00	854.10	121.00	858.24	0.00	858.27	36.26	1.75	94.89	20.09
11.000	435.00	0.00	0.00	854.10	174.00	858.70	0.00	858.73	35.39	1.88	146.20	29.25
11.000	435.00	0.00	0.00	854.10	206.00	858.91	0.00	858.95	34.95	1.94	174.21	34.84
11.000	435.00	0.00	0.00	854.10	263.00	859.23	0.00	859.26	34.71	2.04	221.86	44.64

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.010	15.00	0.00	0.00	854.10	121.00	858.27	0.00	858.30	11.46	1.58	99.13	35.75
11.010	15.00	0.00	0.00	854.10	174.00	858.73	0.00	858.76	10.54	1.66	152.09	53.59
11.010	15.00	0.00	0.00	854.10	206.00	858.95	0.00	858.98	10.23	1.69	180.52	64.40
11.010	15.00	0.00	0.00	854.10	263.00	859.26	0.00	859.29	9.98	1.76	229.16	83.26
11.090	14.00	857.80	857.10	854.10	121.00	858.58	0.00	858.60	5.28	1.37	107.83	52.66
11.090	14.00	857.80	857.10	854.10	174.00	858.84	0.00	858.88	8.22	1.78	126.34	60.70
11.090	14.00	857.80	857.10	854.10	206.00	859.02	0.00	859.06	9.37	1.95	142.77	67.30
11.090	14.00	857.80	857.10	854.10	263.00	859.31	0.00	859.36	10.79	2.18	178.78	80.08
11.100	1.00	0.00	0.00	854.10	121.00	858.58	0.00	858.61	7.28	1.34	107.88	44.85
11.100	1.00	0.00	0.00	854.10	174.00	858.84	0.00	858.88	11.33	1.74	126.42	51.70
11.100	1.00	0.00	0.00	854.10	206.00	859.02	0.00	859.06	12.94	1.91	142.87	57.26
11.100	1.00	0.00	0.00	854.10	263.00	859.31	0.00	859.36	14.98	2.14	178.93	67.95
11.300	875.00	0.00	0.00	855.90	121.00	859.18	0.00	859.19	5.93	.87	139.70	49.69
11.300	875.00	0.00	0.00	855.90	174.00	859.66	0.00	859.68	7.35	1.05	166.39	64.18
11.300	875.00	0.00	0.00	855.90	206.00	859.93	0.00	859.95	7.96	1.13	181.85	73.03
11.300	875.00	0.00	0.00	855.90	263.00	860.35	0.00	860.37	8.91	1.27	214.17	88.11
11.350	230.00	0.00	0.00	856.10	121.00	859.52	0.00	859.67	266.88	3.11	38.91	7.41
11.350	230.00	0.00	0.00	856.10	174.00	860.08	0.00	860.24	234.80	3.24	53.83	11.36
11.350	230.00	0.00	0.00	856.10	206.00	860.38	0.00	860.54	208.81	3.25	66.35	14.26
11.350	230.00	0.00	0.00	856.10	263.00	860.84	0.00	860.98	163.28	3.12	96.27	20.58
11.400	170.00	0.00	0.00	857.00	121.00	861.19	0.00	861.26	46.03	2.06	58.80	17.83
11.400	170.00	0.00	0.00	857.00	174.00	861.75	0.00	861.83	48.88	2.30	75.49	24.89
11.400	170.00	0.00	0.00	857.00	206.00	862.02	0.00	862.11	51.11	2.45	84.19	28.81
11.400	170.00	0.00	0.00	857.00	263.00	862.36	0.00	862.47	55.82	2.73	99.77	35.20
12.000	585.00	0.00	0.00	859.20	121.00	863.85	0.00	863.91	44.58	2.00	60.49	18.12
12.000	585.00	0.00	0.00	859.20	174.00	864.48	0.00	864.55	44.29	2.21	78.83	26.15
12.000	585.00	0.00	0.00	859.20	206.00	864.78	0.00	864.86	43.40	2.33	89.76	31.27
12.000	585.00	0.00	0.00	859.20	263.00	865.21	0.00	865.30	42.08	2.52	115.63	40.54
12.010	1.00	864.20	863.20	859.20	121.00	863.85	0.00	863.91	30.79	2.00	60.61	21.81
12.010	1.00	864.20	863.20	859.20	174.00	864.48	0.00	864.56	30.68	2.21	78.91	31.41
12.010	1.00	864.20	863.20	859.20	206.00	864.78	0.00	864.87	29.93	2.33	89.98	37.65
12.010	1.00	864.20	863.20	859.20	263.00	865.21	0.00	865.31	28.88	2.51	115.80	48.94
12.090	16.00	864.20	863.20	859.20	121.00	863.90	0.00	863.96	28.60	1.94	62.24	22.63
12.090	16.00	864.20	863.20	859.20	174.00	864.53	0.00	864.61	28.69	2.16	80.75	32.49
12.090	16.00	864.20	863.20	859.20	206.00	864.84	0.00	864.92	27.88	2.28	92.77	39.01
12.090	16.00	864.20	863.20	859.20	263.00	865.26	0.00	865.35	26.89	2.45	120.21	50.72
12.100	1.00	0.00	0.00	859.20	121.00	863.90	0.00	863.96	41.47	1.95	62.08	18.79
12.100	1.00	0.00	0.00	859.20	174.00	864.54	0.00	864.61	41.56	2.16	80.58	26.99
12.100	1.00	0.00	0.00	859.20	206.00	864.84	0.00	864.92	40.43	2.28	92.54	32.40
12.100	1.00	0.00	0.00	859.20	263.00	865.27	0.00	865.36	39.28	2.47	119.98	41.96
13.000	325.00	0.00	0.00	858.00	121.00	864.84	0.00	864.89	20.43	1.65	73.33	26.77
13.000	325.00	0.00	0.00	858.00	174.00	865.56	0.00	865.62	23.73	1.91	90.93	35.72
13.000	325.00	0.00	0.00	858.00	206.00	865.90	0.00	865.96	25.86	2.06	99.89	40.51
13.000	325.00	0.00	0.00	858.00	263.00	866.38	0.00	866.47	29.83	2.31	116.24	48.17

SECAD	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13.110	15.00	0.00	0.00	858.00	121.00	864.86	0.00	864.90	6.84	1.64	73.77	46.26
13.110	15.00	0.00	0.00	858.00	174.00	865.58	0.00	865.63	7.95	1.90	91.47	61.72
13.110	15.00	0.00	0.00	858.00	206.00	865.92	0.00	865.98	8.66	2.05	100.49	70.01
13.110	15.00	0.00	0.00	858.00	263.00	866.41	0.00	866.49	9.92	2.29	118.09	83.52
13.190	20.00	866.70	861.20	858.00	121.00	866.89	0.00	866.90	1.34	.89	161.61	104.45
13.190	20.00	866.70	861.20	858.00	174.00	867.11	0.00	867.13	2.19	1.17	187.90	117.50
13.190	20.00	866.70	861.20	858.00	206.00	867.22	0.00	867.24	2.77	1.33	200.14	123.75
13.190	20.00	866.70	861.20	858.00	263.00	867.35	0.00	867.39	3.84	1.59	220.73	134.18
13.100	15.00	0.00	0.00	858.00	121.00	866.89	0.00	866.90	1.83	.91	161.64	89.36
13.100	15.00	0.00	0.00	858.00	174.00	867.11	0.00	867.14	3.10	1.21	187.63	98.78
13.100	15.00	0.00	0.00	858.00	206.00	867.22	0.00	867.25	3.94	1.39	201.30	103.77
13.100	15.00	0.00	0.00	858.00	263.00	867.36	0.00	867.40	5.58	1.68	222.48	111.34
14.000	830.00	0.00	0.00	861.50	121.00	867.20	0.00	867.34	24.00	2.91	41.53	24.70
14.000	830.00	0.00	0.00	861.50	174.00	867.64	0.00	867.87	39.56	3.87	45.00	27.67
14.000	830.00	0.00	0.00	861.50	206.00	867.88	0.00	868.18	49.24	4.39	46.94	29.36
14.000	830.00	0.00	0.00	861.50	263.00	868.28	0.00	868.71	66.77	5.24	50.14	32.19
14.010	15.00	0.00	0.00	861.50	121.00	867.21	0.00	867.34	1.80	2.91	41.63	90.14
14.010	15.00	0.00	0.00	861.50	174.00	867.65	0.00	867.88	2.96	3.85	45.18	101.18
14.010	15.00	0.00	0.00	861.50	206.00	867.90	0.00	868.19	3.70	4.38	47.06	107.13
14.010	15.00	0.00	0.00	861.50	263.00	868.30	0.00	868.73	5.00	5.23	50.31	117.57
14.090	207.00	873.00	866.90	861.50	121.00	867.55	0.00	867.66	1.52	2.73	44.25	98.26
14.090	207.00	873.00	866.90	861.50	174.00	868.40	0.00	868.58	2.10	3.41	51.10	120.14
14.090	207.00	873.00	866.90	861.50	206.00	868.99	0.00	869.20	2.31	3.69	55.79	135.60
14.090	207.00	873.00	866.90	861.50	263.00	870.17	0.00	870.43	2.46	4.03	65.28	167.81
14.100	15.00	0.00	0.00	861.50	121.00	867.55	0.00	867.67	25.35	2.73	44.27	24.03
14.100	15.00	0.00	0.00	861.50	174.00	868.41	0.00	868.59	35.05	3.40	51.13	29.39
14.100	15.00	0.00	0.00	861.50	206.00	869.00	0.00	869.21	38.56	3.69	55.82	33.17
14.100	15.00	0.00	0.00	861.50	263.00	870.18	0.00	870.43	41.03	4.03	65.32	41.06
15.000	675.00	0.00	0.00	861.20	121.00	867.90	0.00	867.90	1.11	.58	322.88	115.09
15.000	675.00	0.00	0.00	861.20	174.00	868.74	0.00	868.74	.46	.42	637.87	256.76
15.000	675.00	0.00	0.00	861.20	206.00	869.33	0.00	869.33	.27	.35	863.53	398.08
15.000	675.00	0.00	0.00	861.20	263.00	870.54	0.00	870.54	.12	.27	1332.30	773.47
15.010	1.00	864.30	864.82	861.20	121.00	867.89	0.00	867.90	5.48	.55	219.93	51.67
15.010	1.00	864.30	864.82	861.20	174.00	868.74	0.00	868.74	1.02	.45	533.59	172.55
15.010	1.00	864.30	864.82	861.20	206.00	869.33	0.00	869.33	.47	.40	759.59	299.10
15.010	1.00	864.30	864.82	861.20	263.00	870.54	0.00	870.54	.17	.33	1230.27	644.76
15.090	18.00	864.30	864.82	861.20	121.00	867.90	0.00	867.91	5.41	.55	221.27	52.02
15.090	18.00	864.30	864.82	861.20	174.00	868.74	0.00	868.74	1.02	.45	533.40	172.45
15.090	18.00	864.30	864.82	861.20	206.00	869.33	0.00	869.33	.48	.40	759.07	298.78
15.090	18.00	864.30	864.82	861.20	263.00	870.54	0.00	870.54	.17	.33	1229.54	644.14
15.100	15.00	0.00	0.00	861.20	121.00	867.91	0.00	867.92	1.74	.47	328.73	91.66
15.100	15.00	0.00	0.00	861.20	174.00	868.74	0.00	868.74	.67	.33	638.75	213.12
15.100	15.00	0.00	0.00	861.20	206.00	869.33	0.00	869.33	.38	.27	864.00	336.33
15.100	15.00	0.00	0.00	861.20	263.00	870.54	0.00	870.54	.16	.20	1334.23	667.11

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOK*S	VCH	AREA	.01K
	15.800	390.00	0.00	0.00	861.50	68.00	867.93	0.00	867.93	.06	.14	505.50	272.45
	15.800	390.00	0.00	0.00	861.50	97.00	868.75	0.00	868.75	.07	.15	629.35	375.64
	15.800	390.00	0.00	0.00	861.50	115.00	869.34	0.00	869.34	.06	.16	718.90	459.84
	15.800	390.00	0.00	0.00	861.50	147.00	870.54	0.00	870.54	.05	.16	898.15	649.68
	16.000	160.00	0.00	0.00	861.60	68.00	867.91	0.00	867.95	16.99	1.47	46.38	16.50
	16.000	160.00	0.00	0.00	861.60	97.00	868.73	0.00	868.78	23.96	1.83	52.92	19.82
	16.000	160.00	0.00	0.00	861.60	115.00	869.31	0.00	869.37	26.71	2.00	57.58	22.25
	16.000	160.00	0.00	0.00	861.60	147.00	870.51	0.00	870.58	28.80	2.19	67.14	27.39
	16.010	15.00	0.00	0.00	861.60	68.00	867.92	0.00	867.95	.50	1.46	46.44	96.42
	16.010	15.00	0.00	0.00	861.60	97.00	868.73	0.00	868.79	.70	1.83	53.00	115.86
	16.010	15.00	0.00	0.00	861.60	115.00	869.32	0.00	869.38	.78	1.99	57.67	130.10
	16.010	15.00	0.00	0.00	861.60	147.00	870.51	0.00	870.59	.84	2.19	67.24	160.11
	16.090	132.00	880.00	867.10	861.60	68.00	868.01	0.00	868.04	.48	1.44	47.14	98.47
	16.090	132.00	880.00	867.10	861.60	97.00	868.94	0.00	868.99	.65	1.78	54.59	120.68
	16.090	132.00	880.00	867.10	861.60	115.00	869.62	0.00	869.68	.70	1.92	60.02	137.36
	16.090	132.00	880.00	867.10	861.60	147.00	871.03	0.00	871.10	.72	2.06	71.33	173.23
	16.100	15.00	0.00	0.00	861.60	68.00	868.01	0.00	868.04	16.22	1.44	47.15	16.88
	16.100	15.00	0.00	0.00	861.60	97.00	868.94	0.00	868.99	21.98	1.78	54.60	20.69
	16.100	15.00	0.00	0.00	861.60	115.00	869.62	0.00	869.68	23.84	1.92	60.03	23.55
	16.100	15.00	0.00	0.00	861.60	147.00	871.04	0.00	871.10	24.49	2.06	71.34	29.70
	16.200	120.00	0.00	0.00	861.70	68.00	868.05	0.00	868.05	.21	.19	364.31	147.88
	16.200	120.00	0.00	0.00	861.70	97.00	869.00	0.00	869.00	.19	.20	470.79	220.57
	16.200	120.00	0.00	0.00	861.70	115.00	869.69	0.00	869.69	.17	.20	549.52	280.79
	16.200	120.00	0.00	0.00	861.70	147.00	871.11	0.00	871.11	.12	.19	716.54	427.66
	16.500	1850.00	0.00	0.00	863.80	68.00	868.17	0.00	868.19	16.06	1.10	65.91	16.97
	16.500	1850.00	0.00	0.00	863.80	97.00	869.10	0.00	869.11	5.45	.76	182.33	41.55
	16.500	1850.00	0.00	0.00	863.80	115.00	869.75	0.00	869.75	1.08	.38	439.07	110.68
	16.500	1850.00	0.00	0.00	863.80	147.00	871.14	0.00	871.14	.13	.16	1091.65	406.23
	16.510	15.00	867.80	867.80	863.80	68.00	868.14	0.00	868.32	129.18	3.56	22.66	5.98
	16.510	15.00	867.80	867.80	863.80	97.00	869.11	0.00	869.12	9.76	1.27	131.38	31.05
	16.510	15.00	867.80	867.80	863.80	115.00	869.75	0.00	869.76	.94	.53	386.93	118.56
	16.510	15.00	867.80	867.80	863.80	147.00	871.14	0.00	871.14	.09	.23	982.04	499.89
	16.590	20.00	867.80	867.80	863.80	68.00	868.47	0.00	868.54	68.88	2.45	38.04	8.19
	16.590	20.00	867.80	867.80	863.80	97.00	869.13	0.00	869.14	8.99	1.23	137.24	32.36
	16.590	20.00	867.80	867.80	863.80	115.00	869.76	0.00	869.76	.93	.53	387.90	119.00
	16.590	20.00	867.80	867.80	863.80	147.00	871.14	0.00	871.14	.09	.23	982.11	499.95
	16.600	15.00	0.00	0.00	863.80	68.00	868.57	0.00	868.58	8.10	.84	96.39	23.90
	16.600	15.00	0.00	0.00	863.80	97.00	869.15	0.00	869.15	4.82	.72	195.95	44.20
	16.600	15.00	0.00	0.00	863.80	115.00	869.76	0.00	869.76	.98	.37	440.87	115.96
	16.600	15.00	0.00	0.00	863.80	147.00	871.14	0.00	871.14	.11	.15	1034.58	438.91
	17.000	790.00	0.00	0.00	865.10	68.00	869.80	0.00	869.85	43.84	1.71	39.81	10.27
*	17.000	790.00	0.00	0.00	865.10	97.00	869.85	0.00	869.94	84.96	2.40	40.50	10.52
	17.000	790.00	0.00	0.00	865.10	115.00	869.93	0.00	870.05	108.31	2.74	41.92	11.05
	17.000	790.00	0.00	0.00	865.10	147.00	871.11	0.00	871.19	58.15	2.36	62.28	19.28

SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17.110	1.00	0.00	0.00	865.10	68.00	869.80	0.00	869.85	1.29	1.71	39.84	59.98
17.110	1.00	0.00	0.00	865.10	97.00	869.85	0.00	869.94	2.48	2.39	40.57	61.54
17.110	1.00	0.00	0.00	865.10	115.00	869.94	0.00	870.05	3.16	2.74	42.00	64.64
17.110	1.00	0.00	0.00	865.10	147.00	871.11	0.00	871.19	1.79	2.36	62.34	112.58
17.190	20.00	871.10	869.30	865.10	68.00	870.64	0.00	870.66	.55	1.26	53.76	91.55
17.190	20.00	871.10	869.30	865.10	97.00	871.31	0.00	871.35	.63	1.47	66.18	122.46
17.190	20.00	871.10	869.30	865.10	115.00	871.47	0.00	871.52	.76	1.66	71.72	132.11
17.190	20.00	871.10	869.30	865.10	147.00	871.80	0.00	871.85	.91	1.92	96.26	154.42
17.100	15.00	0.00	0.00	865.10	68.00	870.64	0.00	870.66	18.75	1.26	53.78	15.70
17.100	15.00	0.00	0.00	865.10	97.00	871.32	0.00	871.35	21.30	1.47	66.23	21.02
17.100	15.00	0.00	0.00	865.10	115.00	871.48	0.00	871.52	25.44	1.65	71.86	22.80
17.100	15.00	0.00	0.00	865.10	147.00	871.82	0.00	871.86	26.40	1.78	97.32	28.61
18.000	900.00	0.00	0.00	868.00	68.00	871.40	0.00	871.40	4.56	.60	113.55	31.84
18.000	900.00	0.00	0.00	868.00	97.00	872.08	0.00	872.09	4.28	.65	149.28	46.90
18.000	900.00	0.00	0.00	868.00	115.00	872.34	0.00	872.35	4.65	.70	163.54	53.31
18.000	900.00	0.00	0.00	868.00	147.00	872.75	0.00	872.76	5.16	.78	187.86	64.71

MOON AND HAMILTON DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	185.00	839.12	0.00	0.00	0.00	34.80	0.00
	1.000	264.00	840.32	1.20	0.00	0.00	42.31	0.00
	1.000	310.00	841.31	.99	0.00	0.00	48.50	0.00
	1.000	394.00	843.26	1.95	0.00	0.00	61.05	0.00
	2.000	185.00	839.29	0.00	.17	0.00	35.13	250.00
	2.000	264.00	840.46	1.17	.14	0.00	43.51	250.00
	2.000	310.00	841.41	.95	.10	0.00	50.36	250.00
	2.000	394.00	843.32	1.91	.06	0.00	259.53	250.00
	2.500	185.00	841.36	0.00	2.07	0.00	37.53	1150.00
	2.500	264.00	842.24	.88	1.78	0.00	172.70	1150.00
	2.500	310.00	842.71	.47	1.30	0.00	283.39	1150.00
	2.500	394.00	843.83	1.12	.51	0.00	312.96	1150.00
	2.900	185.00	845.13	0.00	3.77	0.00	30.90	1225.00
	2.900	264.00	845.81	.67	3.57	.67	34.57	1225.00
	2.900	310.00	845.82	.01	3.11	.68	34.61	1225.00
*	2.900	394.00	846.94	1.12	3.11	1.80	50.43	1225.00
	3.000	185.00	847.88	0.00	2.74	0.00	12.00	260.00
	3.000	264.00	848.54	.66	2.73	.66	12.00	260.00
	3.000	310.00	849.07	.53	3.25	1.19	12.00	260.00
	3.000	394.00	849.24	.17	2.30	1.36	12.00	260.00
	3.010	185.00	847.88	0.00	.00	0.00	12.00	1.00
	3.010	264.00	848.54	.66	.00	.66	12.00	1.00
	3.010	310.00	849.07	.53	.00	1.19	12.00	1.00
	3.010	394.00	849.24	.17	.00	1.36	12.00	1.00
	3.090	185.00	847.93	0.00	.05	0.00	12.00	42.00
	3.090	264.00	848.61	.68	.07	.68	12.00	42.00
	3.090	310.00	849.14	.53	.07	1.21	12.00	42.00
	3.090	394.00	849.36	.22	.12	1.43	12.00	42.00
	3.100	185.00	848.12	0.00	.19	0.00	26.38	1.00
	3.100	264.00	848.92	.80	.31	.80	29.31	1.00
	3.100	310.00	849.50	.58	.36	1.38	31.44	1.00
	3.100	394.00	849.93	.43	.57	1.81	33.02	1.00
	3.200	185.00	848.30	0.00	.18	0.00	27.03	50.00
	3.200	264.00	849.10	.80	.18	.89	29.97	50.00
	3.200	310.00	849.66	.56	.16	1.36	32.02	50.00
	3.200	394.00	850.12	.46	.19	1.82	33.70	50.00
	4.000	185.00	850.65	0.00	2.35	0.00	43.75	1185.00
	4.000	264.00	851.48	.83	2.38	.83	49.33	1185.00
	4.000	310.00	851.92	.44	2.26	1.28	52.29	1185.00
	4.000	394.00	852.58	.66	2.46	1.93	56.69	1185.00
	4.100	185.00	850.62	0.00	-.03	0.00	16.00	15.00
	4.100	264.00	851.43	.81	-.05	.81	16.00	15.00
	4.100	310.00	851.86	.43	-.06	1.25	16.00	15.00

4.100	394.30	852.49	.63	-.09	1.88	16.00	15.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.200	185.00	850.92	0.00	.30	0.00	16.00	135.00
4.200	264.00	852.13	1.21	.70	1.21	16.00	135.00
4.200	310.00	852.86	.73	1.00	1.94	16.00	135.00
4.200	394.00	854.17	1.31	1.68	3.25	16.00	135.00
4.300	185.00	850.98	0.00	.06	0.00	33.50	15.00
4.300	264.00	852.21	1.23	.09	1.23	38.19	15.00
4.300	310.00	852.96	.75	.10	1.98	39.50	15.00
4.300	394.00	854.30	1.33	.12	3.32	41.84	15.00
5.000	185.00	852.06	0.00	1.08	0.00	47.54	950.00
5.000	264.00	853.09	1.04	.88	1.04	53.71	950.00
5.000	310.00	853.75	.66	.79	1.69	57.61	950.00
5.000	394.00	854.95	1.20	.65	2.89	64.73	950.00
5.010	185.00	852.05	0.00	-.01	0.00	18.00	15.00
5.010	264.00	853.07	1.02	-.03	1.02	18.00	15.00
5.010	310.00	853.72	.65	-.03	1.68	18.00	15.00
5.010	394.00	854.91	1.19	-.04	2.86	18.00	15.00
5.090	185.00	852.17	0.00	.12	0.00	18.00	119.00
5.090	264.00	853.36	1.19	.29	1.19	18.00	119.00
5.090	310.00	854.14	.78	.42	1.97	18.00	119.00
5.090	394.00	855.63	1.49	.72	3.47	18.00	119.00
5.100	185.00	852.22	0.00	.05	0.00	40.09	50.00
5.100	264.00	853.43	1.21	.07	1.21	45.30	50.00
5.100	310.00	854.22	.79	.08	2.01	48.71	50.00
5.100	394.00	855.73	1.51	.09	3.51	55.19	50.00
5.900	174.00	852.38	0.00	.17	0.00	52.27	580.00
5.900	251.00	853.59	1.21	.16	1.21	55.39	580.00
5.900	296.00	854.37	.78	.15	1.99	57.41	580.00
5.900	379.00	855.85	1.47	.12	3.46	60.00	580.00
6.000	174.00	852.40	0.00	.02	0.00	42.33	100.00
6.000	251.00	853.61	1.21	.02	1.21	45.45	100.00
6.000	296.00	854.39	.78	.02	1.98	47.47	100.00
6.000	379.00	855.86	1.47	.01	3.46	48.00	100.00
6.010	174.00	852.40	0.00	.00	0.00	42.32	1.00
6.010	251.00	853.61	1.21	.00	1.21	45.44	1.00
6.010	296.00	854.39	.78	.00	1.98	47.45	1.00
6.010	379.00	855.86	1.47	.00	3.46	48.00	1.00
6.090	174.00	852.50	0.00	.10	0.00	16.00	146.00
6.090	251.00	853.86	1.36	.25	1.36	16.00	146.00
6.090	296.00	854.76	.90	.37	2.26	16.00	146.00
6.090	379.00	856.51	1.75	.66	4.01	16.00	146.00
6.100	174.00	852.50	0.00	.00	0.00	16.00	1.00
6.100	251.00	853.86	1.36	.00	1.36	16.00	1.00
6.100	296.00	854.76	.90	.00	2.26	16.00	1.00
6.100	379.00	856.51	1.75	.00	4.01	16.00	1.00

	SECID	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	6.500	174.00	852.58	0.00	.08	0.00	80.00	40.00
	6.500	251.00	853.96	1.38	.10	1.38	80.00	40.00
	6.500	296.00	854.87	.91	.11	2.29	81.00	40.00
	6.500	379.00	856.63	1.76	.12	4.05	80.00	40.00
	7.000	174.00	852.73	0.00	.15	0.00	50.23	600.00
	7.000	251.00	854.09	1.36	.13	1.36	95.13	600.00
	7.000	296.00	854.98	.89	.11	2.24	138.77	600.00
	7.000	379.00	856.71	1.73	.07	3.97	325.33	600.00
*	7.010	174.00	852.75	0.00	.02	0.00	50.78	15.00
	7.010	251.00	854.09	1.35	.01	1.35	95.24	15.00
	7.010	296.00	855.00	.90	.02	2.25	139.90	15.00
	7.010	379.00	856.72	1.73	.02	3.98	326.48	15.00
	7.090	174.00	853.48	0.00	.73	0.00	76.72	28.00
	7.090	251.00	854.17	.69	.07	.69	97.40	28.00
	7.090	296.00	855.02	.85	.02	1.54	142.25	28.00
	7.090	379.00	856.73	1.71	.00	3.25	327.90	28.00
	7.100	174.00	853.58	0.00	.10	0.00	80.27	15.00
	7.100	251.00	854.22	.64	.05	.64	98.57	15.00
	7.100	296.00	855.03	.81	.01	1.45	143.91	15.00
	7.100	379.00	856.73	1.70	.00	3.15	328.02	15.00
	7.500	121.00	853.79	0.00	.21	0.00	526.72	1315.00
	7.500	174.00	854.42	.63	.21	.63	599.82	1315.00
	7.500	206.00	855.16	.74	.13	1.37	671.87	1315.00
	7.500	263.00	856.77	1.62	.05	2.98	760.11	1315.00
	8.000	121.00	853.83	0.00	.04	0.00	22.85	530.00
	8.000	174.00	854.43	.60	.01	.60	24.73	530.00
	8.000	206.00	855.14	.71	-.02	1.31	26.97	530.00
	8.000	263.00	856.77	1.63	-.01	2.93	173.30	530.00
	8.010	121.00	853.84	0.00	.00	0.00	22.85	1.00
	8.010	174.00	854.43	.60	.00	.60	24.74	1.00
	8.010	206.00	855.14	.71	.00	1.31	26.98	1.00
	8.010	263.00	856.77	1.63	.00	2.93	173.33	1.00
	8.090	121.00	855.99	0.00	2.16	0.00	126.22	40.00
	8.090	174.00	856.14	.15	1.71	.15	134.89	40.00
	8.090	206.00	856.23	.09	1.09	.24	140.38	40.00
	8.090	263.00	856.82	.59	.05	.83	176.59	40.00
	8.100	121.00	856.00	0.00	.00	0.00	126.04	15.00
	8.100	174.00	856.15	.15	.01	.15	135.23	15.00
	8.100	206.00	856.24	.09	.01	.24	141.37	15.00
	8.100	263.00	856.83	.59	.01	.83	177.18	15.00
	9.000	121.00	856.44	0.00	.44	0.00	246.12	2040.00
	9.000	174.00	856.77	.33	.63	.33	256.10	2040.00
	9.000	206.00	856.96	.18	.72	.52	259.83	2040.00
	9.000	263.00	857.45	.49	.62	1.00	260.20	2040.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9.010	121.00	856.44	0.00	-.00	0.00	246.22	1.00
9.010	174.00	856.77	.33	-.00	.33	256.10	1.00
9.010	206.00	856.96	.18	-.00	.51	259.83	1.00
9.010	263.00	857.45	.49	-.00	1.00	260.20	1.00
9.090	121.00	856.45	0.00	.01	0.00	246.33	19.00
9.090	174.00	856.78	.33	.01	.33	256.23	19.00
9.090	206.00	856.96	.18	.01	.52	259.83	19.00
9.090	263.00	857.45	.49	.01	1.00	260.20	19.00
9.100	121.00	856.45	0.00	.00	0.00	246.51	15.00
9.100	174.00	856.79	.34	.00	.34	256.43	15.00
9.100	206.00	856.97	.18	.00	.52	259.84	15.00
9.100	263.00	857.46	.49	.00	1.01	260.21	15.00
10.000	121.00	856.66	0.00	.21	0.00	111.18	625.00
10.000	174.00	857.05	.38	.26	.38	130.22	625.00
10.000	206.00	857.25	.20	.28	.59	140.25	625.00
10.000	263.00	857.70	.45	.25	1.04	158.10	625.00
10.010	121.00	856.71	0.00	.04	0.00	113.35	15.00
10.010	174.00	857.09	.39	.05	.39	132.54	15.00
10.010	206.00	857.30	.20	.05	.59	142.56	15.00
10.010	263.00	857.74	.44	.04	1.03	158.27	15.00
10.090	121.00	856.84	0.00	.13	0.00	120.01	19.00
10.090	174.00	857.22	.38	.12	.38	138.68	19.00
10.090	206.00	857.41	.20	.12	.57	148.40	19.00
10.090	263.00	857.83	.41	.09	.99	158.66	19.00
10.100	121.00	856.91	0.00	.07	0.00	123.58	15.00
10.100	174.00	857.29	.37	.07	.37	142.14	15.00
10.100	206.00	857.48	.20	.07	.57	152.26	15.00
10.100	263.00	857.88	.40	.05	.97	158.93	15.00
11.000	121.00	858.24	0.00	1.32	0.00	94.12	435.00
11.000	174.00	858.70	.46	1.41	.46	124.41	435.00
11.000	206.00	858.91	.21	1.43	.68	135.71	435.00
11.000	263.00	859.23	.31	1.35	.99	171.07	435.00
11.010	121.00	858.27	0.00	.04	0.00	100.59	15.00
11.010	174.00	858.73	.46	.04	.46	126.87	15.00
11.010	206.00	858.95	.21	.04	.68	138.13	15.00
11.010	263.00	859.26	.31	.04	.99	176.77	15.00
11.090	121.00	858.58	0.00	.31	0.00	60.93	14.00
11.090	174.00	858.84	.26	.10	.26	83.05	14.00
11.090	206.00	859.02	.18	.07	.44	100.18	14.00
11.090	263.00	859.31	.29	.05	.73	149.10	14.00
11.100	121.00	858.58	0.00	.00	0.00	61.00	1.00
11.100	174.00	858.84	.26	.00	.26	83.13	1.00
11.100	206.00	859.02	.18	.00	.44	100.35	1.00
11.100	263.00	859.31	.29	.00	.73	149.27	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.300	121.00	859.18	0.00	.59	0.00	53.40	875.00
11.300	174.00	859.66	.49	.82	.49	56.18	875.00
11.300	206.00	859.93	.27	.91	.76	57.73	875.00
11.300	263.00	860.35	.41	1.04	1.17	106.51	875.00
11.350	121.00	859.52	0.00	.34	0.00	24.17	230.00
11.350	174.00	860.08	.56	.42	.56	32.86	230.00
11.350	206.00	860.39	.30	.44	.86	51.07	230.00
11.350	263.00	860.84	.46	.49	1.32	79.11	230.00
11.400	121.00	861.19	0.00	1.67	0.00	28.04	170.00
11.400	174.00	861.75	.56	1.67	.56	31.77	170.00
11.400	206.00	862.02	.27	1.64	.83	34.58	170.00
11.400	263.00	862.36	.34	1.52	1.17	56.28	170.00
12.000	121.00	863.85	0.00	2.65	0.00	27.18	585.00
12.000	174.00	864.48	.63	2.73	.63	30.61	585.00
12.000	206.00	864.78	.30	2.76	.93	45.73	585.00
12.000	263.00	865.21	.43	2.85	1.36	74.94	585.00
12.010	121.00	863.85	0.00	.00	0.00	27.21	1.00
12.010	174.00	864.48	.63	.00	.63	30.62	1.00
12.010	206.00	864.78	.30	.00	.93	46.07	1.00
12.010	263.00	865.21	.43	.01	1.36	75.10	1.00
12.090	121.00	863.90	0.00	.05	0.00	27.53	16.00
12.090	174.00	864.53	.63	.05	.63	31.88	16.00
12.090	206.00	864.84	.30	.05	.93	50.03	16.00
12.090	263.00	865.26	.43	.05	1.36	79.00	16.00
12.100	121.00	863.90	0.00	.00	0.00	27.50	1.00
12.100	174.00	864.54	.63	.00	.63	31.74	1.00
12.100	206.00	864.84	.30	.00	.93	49.71	1.00
12.100	263.00	865.27	.43	.00	1.36	78.80	1.00
13.000	121.00	864.84	0.00	.94	0.00	23.21	325.00
13.000	174.00	865.56	.72	1.02	.72	25.93	325.00
13.000	206.00	865.90	.34	1.06	1.05	27.20	325.00
13.000	263.00	866.38	.49	1.12	1.54	59.29	325.00
13.010	121.00	864.86	0.00	.02	0.00	23.29	15.00
13.010	174.00	865.58	.72	.02	.72	26.00	15.00
13.010	206.00	865.92	.34	.02	1.06	27.29	15.00
13.010	263.00	866.41	.49	.03	1.55	64.44	15.00
13.090	121.00	866.89	0.00	2.03	0.00	107.70	20.00
13.090	174.00	867.11	.22	1.53	.22	123.68	20.00
13.090	206.00	867.22	.11	1.31	.33	133.89	20.00
13.090	263.00	867.35	.14	.94	.47	168.66	20.00
13.100	121.00	866.89	0.00	.00	0.00	107.71	15.00
13.100	174.00	867.11	.22	.00	.22	123.52	15.00
13.100	206.00	867.22	.11	.00	.33	136.15	15.00
13.100	263.00	867.36	.14	.00	.47	171.19	15.00

SECNO	Q	CWSEL	DIFWSF	DIFWSX	DIFKWS	TOPWID	XLCH
14.000	121.00	867.20	0.00	.31	0.00	8.00	830.00
14.000	174.00	867.64	.43	.52	.43	8.00	830.00
14.000	206.00	867.88	.24	.66	.68	8.00	830.00
14.000	263.00	868.28	.40	.92	1.08	8.00	830.00
14.010	121.00	867.21	0.00	.01	0.00	8.00	15.00
14.010	174.00	867.65	.44	.01	.44	8.00	15.00
14.010	206.00	867.90	.24	.02	.68	8.00	15.00
14.010	263.00	868.30	.41	.02	1.09	8.00	15.00
14.090	121.00	867.55	0.00	.33	0.00	8.00	207.00
14.090	174.00	868.40	.86	.75	.86	8.00	207.00
14.090	206.00	868.99	.59	1.09	1.44	8.00	207.00
14.090	263.00	870.17	1.19	1.87	2.63	8.00	207.00
14.100	121.00	867.55	0.00	.01	0.00	8.00	15.00
14.100	174.00	868.41	.86	.01	.86	8.00	15.00
14.100	206.00	869.00	.59	.01	1.45	8.00	15.00
14.100	263.00	870.18	1.19	.01	2.63	8.00	15.00
15.000	121.00	867.90	0.00	.34	0.00	362.18	675.00
15.000	174.00	868.74	.84	.33	.84	379.08	675.00
15.000	206.00	869.33	.59	.33	1.44	384.55	675.00
15.000	263.00	870.54	1.21	.35	2.64	395.68	675.00
15.010	121.00	867.89	0.00	-.00	0.00	362.19	1.00
15.010	174.00	868.74	.84	-.00	.84	379.08	1.00
15.010	206.00	869.33	.59	-.00	1.44	384.57	1.00
15.010	263.00	870.54	1.21	-.00	2.64	395.74	1.00
15.090	121.00	867.90	0.00	.01	0.00	362.34	18.00
15.090	174.00	868.74	.84	.00	.84	379.08	18.00
15.090	206.00	869.33	.59	.00	1.43	384.55	18.00
15.090	263.00	870.54	1.21	.00	2.63	395.72	18.00
15.100	121.00	867.91	0.00	.01	0.00	362.80	15.00
15.100	174.00	868.74	.83	.00	.83	379.10	15.00
15.100	206.00	869.33	.59	.00	1.42	384.56	15.00
15.100	263.00	870.54	1.21	.00	2.63	395.72	15.00
15.800	68.00	867.93	0.00	.01	0.00	148.71	390.00
15.800	97.00	868.75	.83	.01	.83	150.00	390.00
15.800	115.00	869.34	.59	.01	1.41	150.00	390.00
15.800	147.00	870.54	1.20	.00	2.62	150.00	390.00
16.000	68.00	867.91	0.00	-.01	0.00	8.00	160.00
16.000	97.00	868.73	.82	-.02	.82	8.00	160.00
16.000	115.00	869.31	.58	-.03	1.40	8.00	160.00
16.000	147.00	870.51	1.20	-.03	2.59	8.00	160.00
16.010	68.00	867.92	0.00	.00	0.00	8.00	15.00
16.010	97.00	868.73	.82	.00	.82	8.00	15.00
16.010	115.00	869.32	.58	.00	1.40	8.00	15.00
16.010	147.00	870.51	1.20	.00	2.60	8.00	15.00

SECTION	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLOB
16.790	68.00	868.01	0.00	.09	0.00	8.00	132.00
16.790	97.00	868.94	.93	.21	.93	8.00	132.00
16.790	115.00	869.62	.68	.30	1.61	8.00	132.00
16.790	147.00	871.03	1.41	.52	3.02	8.00	132.00
16.100	68.00	868.01	0.00	.00	0.00	8.00	15.00
16.100	97.00	868.94	.93	.00	.93	8.00	15.00
16.100	115.00	869.62	.68	.00	1.61	8.00	15.00
16.100	147.00	871.04	1.41	.00	3.02	8.00	15.00
16.200	68.00	868.05	0.00	.04	0.00	110.65	120.00
16.200	97.00	869.00	.95	.06	.95	113.63	120.00
16.200	115.00	869.69	.69	.07	1.64	115.78	120.00
16.200	147.00	871.11	1.42	.08	3.06	118.00	120.00
16.500	68.00	868.17	0.00	.11	0.00	56.58	1850.00
16.500	97.00	869.10	.93	.10	.93	318.48	1850.00
16.500	115.00	869.75	.65	.06	1.59	420.05	1850.00
16.500	147.00	871.14	1.38	.02	2.97	441.22	1850.00
16.510	68.00	868.14	0.00	-.03	0.00	53.84	15.00
16.510	97.00	869.11	.97	.01	.97	320.51	15.00
16.510	115.00	869.75	.65	.00	1.62	420.06	15.00
16.510	147.00	871.14	1.38	.00	3.00	441.32	15.00
16.590	68.00	868.47	0.00	.32	0.00	83.29	20.00
16.590	97.00	869.13	.66	.02	.66	329.42	20.00
16.590	115.00	869.76	.63	.00	1.29	420.09	20.00
16.590	147.00	871.14	1.38	.00	2.67	441.32	20.00
16.600	68.00	868.57	0.00	.10	0.00	93.28	15.00
16.600	97.00	869.15	.57	.02	.57	336.68	15.00
16.600	115.00	869.76	.61	.00	1.18	420.11	15.00
16.600	147.00	871.14	1.38	.00	2.56	441.32	15.00
17.000	68.00	869.80	0.00	1.23	0.00	15.85	790.00
* 17.000	97.00	869.85	.04	.70	.04	15.94	790.00
17.000	115.00	869.93	.09	.18	.13	16.12	790.00
17.000	147.00	871.11	1.17	-.03	1.31	18.59	790.00
17.010	68.00	869.80	0.00	.00	0.00	15.85	1.00
17.010	97.00	869.85	.04	.00	.04	15.95	1.00
17.010	115.00	869.94	.09	.00	.13	16.14	1.00
17.010	147.00	871.11	1.17	.00	1.31	18.60	1.00
17.090	68.00	870.64	0.00	.83	0.00	17.60	20.00
17.090	97.00	871.31	.68	1.47	.68	21.33	20.00
17.090	115.00	871.47	.16	1.54	.84	47.96	20.00
17.090	147.00	871.80	.32	.69	1.16	109.25	20.00
17.100	68.00	870.64	0.00	.00	0.00	17.61	15.00
17.100	97.00	871.32	.68	.00	.68	21.72	15.00
17.100	115.00	871.48	.16	.00	.84	48.45	15.00
17.100	147.00	871.82	.34	.02	1.18	110.82	15.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
18.000	66.00	871.40	0.00	.76	0.00	49.74	900.00
18.000	97.00	872.08	.68	.76	.68	55.05	900.00
18.000	115.00	872.34	.26	.86	.94	57.03	900.00
18.000	147.00	872.75	.41	.93	1.35	60.26	900.00

SUMMARY OF ERRORS

NOTE SECNO= 2.900 PROFILE= 4 WSEL BASED ON X5 CARD

CAUTION SECNO= 7.010 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.010 PROFILE= 1 MINIMUM SPECIFIC ENERGY

NOTE SECNO= 17.000 PROFILE= 2 WSEL BASED ON X5 CARD

1) COUNTY: Eaton

2) STUDY NAME: Delta Twp

3) WATERCOURSE: ~~Eaton~~ Several

4) DOCUMENT TYPE: Report

SNELL ENVIRONMENTAL GROUP, INC.

CARRIER CREEK, MOON AND HAMILTON DRAINS AND HOLLEY DRAIN

FLOOD INSURANCE STUDY

HYDRAULIC ANALYSIS

SEG FILE NO.:
17287A

Snell Environmental Group, Inc.
1120 May Street
Lansing, Michigan 48906

(517) 374-6800

Snell Environmental Group

Engineering · Planning · Research

LETTER OF TRANSMITTAL

DATE	JOB NO.
December 29, 1978	17287A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: Carrier Creek, Moon & Hamilton Drains and Holley Drain	
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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TABLE OF CONTENTS

INTRODUCTION

FLOOD FLOWS

METHOD OF ANALYSIS

HEC-2 COEFFICIENTS

STARTING ELEVATION

WATER SURFACE PROFILE COMPUTATIONS

SPECIAL PROBLEMS RELATING TO MODELING

REFERENCES

APPENDICES:

Appendix A - Michigan DNR Letter of Approval

Appendix B - Cross Section Description Table

Appendix C - Bridge Sketches

Appendix D - Carrier Creek 100-Year Flood Detailed Computer Printout

Appendix E - Moon and Hamilton Drains 100-Year Flood Detailed Computer Printout

Appendix F - Holley Drain 100-Year Flood Detailed Computer Printout

Appendix G - Carrier Creek 10, 50, 100 and 500-Year Flood Summary Computer Printout

Appendix H - Moon and Hamilton Drains 10, 50, 100 and 500-Year Flood Summary Computer Printout

Appendix I - Holley Drain 10, 50, 100 and 500-Year Flood Summary Computer Printout

Appendix J - 100-Year Flood Plain Map

Appendix K - 10-, 50-, 100-, and 500-Year Flood Water Surface Profiles

INTRODUCTION

This hydraulic analysis is part of a Federal Insurance Administration Flood Study for Delta Township in Eaton County, Michigan. The area studied includes the entire length of Carrier Creek, Moon and Hamilton Drains from the mouth to I-96 near Jolly Roads, and Holley Drain from the mouth to Millett Highway. Profiles of the 10-, 50-, 100- and 500-year floods, included in this report, were developed from the HEC-2 computer model. Also included in this study is mapping of 100-year and 500-year flood plains.

FLOOD FLOWS

Flood discharges for the 10-, 50-, 100- and 500-year floods were developed from a TR-20 model of the Carrier Creek Basin (Reference 1). Listed in Table 1 are the discharges used for the respective reaches in the hydraulic analysis. The discharges were reviewed and approved by the Michigan Department of Natural Resources (Appendix A).

TABLE 1 - FLOOD FLOWS

Reach	10-Year	50-Year	100-Year	500-Year
Carrier Creek				
Mouth	468	657	748	910
Saginaw Highway	439	617	702	872
Abandoned R.R. Bridge (Section 7.5)	331	464	550	726
St. Joe Highway	304	426	512	689
I-496	260	372	451	609
Confluence Moon and Hamilton Drain and Holley Drain				
Moon and Hamilton Drain				
Mouth	185	264	310	394
Mt. Hope Highway	174	251	296	379
Approximately 1800' upstream Mt. Hope Highway (Section 7.5)	121	174	206	262
Millett Highway	68	97	115	147
I-96 near Jolly Road				
Holley Drain				
Mouth of Holley Drain	122	183	219	286
Mt. Hope Highway	69	104	125	165
Millett Highway outlet	17	50	74	123
Millett Highway inlet				

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). The 100-Year flood, expected to occur from intense summer precipitation, was the base flood for which the hydraulic model was developed.

Cross sections (Appendix B) used in the analysis were obtained from field survey and two foot contour maps (Reference 8). Locations of cross sections were chosen from 1:2400, two foot contour maps and field inspections according to the guidelines suggested by the HEC-2 training documents. Valley cross sections are plotted in Appendices D, E and F computer printout. Bridge sketches are given in Appendix C.

Bridges and culverts were modeled using the special and normal bridge routines. Cross sections were located according to the HEC-2 training document, Application of the HEC-2 Bridge Routines, (Reference 3), unless fewer or or more cross sections were needed to model the flow. Highly submerged bridge cross sections with flat overbanks which carry significant overbank flow were modeled using the normal bridge routine unless critical depth occurred. Where critical depth occurred the special bridge routine with a low weir coefficient was used.

HEC-2 COEFFICIENTS

Manning roughness factors chosen from field inspection are based on values listed in References 5 and 6. Excluding structures, roughness coefficients used for the main channel range from .035 to .120. Overbank n values range from .040 to .120.

Contraction and expansion coefficients of 0.1 and 0.3 respectively were used for reaches between valley sections where flow transition is smooth. For reaches having abrupt flow transition coefficients of 0.3 and 0.5 were used.

COFQ coefficients used in the special bridge routine range from 2.20 to 3.00 depending on the efficiency of the weir. Only one bridge was modeled using a weir coefficient less than 2.50. For Cross Section 11 of Moon and Hamilton Drain a COFQ coefficient of 2.20 was used to avoid critical depth occurring upstream.

XKOR values used in the special bridge routine were calculated according to HEC-2 training documents. Entrance coefficients, Ke, were selected from a field inspection trip and survey notes according to the values listed in Hydraulic Charts for the Selection of Highway Culverts, (Reference 7).

STARTING ELEVATIONS

Flooding on Carrier Creek is expected to occur independently from Grand River flooding because of the longer time to peak for Grand River. As a result of this, starting elevations for 10, 50, 100 and 500-year floods at the mouth of Carrier Creek were determined by the slope area method. The bed slope of 0.0057 was used as an approximation for the energy grade line slope in this computation. Table 2 lists the computed starting elevations. The starting elevations for 10, 50, 100 and 500-year floods are greater than the average Grand River elevation during non-flood periods.

TABLE 2

Flood	Flow at Mouth (cfs)	Starting Elevation
10 Year	468	798.83
50 Year	657	799.38
100 Year	748	799.65
500 Year	910	800.05

WATER SURFACE PROFILE COMPUTATIONS

A search for high water marks failed; calibration of the HEC-2 hydraulic model was therefore impossible.

The detailed computer printouts of the 100-year flood water surface profile computations are given in Appendices D, E and F. The 100-year flood plain under the existing conditions is shown in Appendix J. Water surface profile computations for the 10-, 50-, 100-, and 500-year flood profiles are listed in summary computer printouts in Appendices G, H and I. The 10-, 50-, 100- and 500-year flood profiles are shown in Appendix K.

SPECIAL PROBLEMS RELATING TO MODELING

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; hydraulic computations, however, are not affected.

Critical depth occurs for the 10, 50, 100 and 500-year floods at Canal Road Bridge (Carrier Creek cross section 1.00) because of the severe flow constriction. Critical depth elevations were computed by the HEC-2 computer program. Supercritical flow analysis downstream of the bridge was not investigated because of the short reach length to the starting cross section.

Initially because of critical depth problems, 500-year flood elevations for cross section 20.0 of Holley Drain were lower than the elevations of the 100-year flood. This was corrected at this section by using the same headloss of the 100-year flood for the 500-year flood.

REFERENCES

1. Snell Environmental Group, Inc., Carrier Creek Hydrologic Analysis Report, October, 1978.

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. Highway Task Force, Committee of Galvanized Sheet Rollers, Committee of Hot Rolled and Cold Rolled Sheet and Strip Producers, Handbook of Steel Drainage and Highway Construction Products, Second Edition, American Iron and Steel Institute, New York, New York, 1971.

7. Federal Highway Administration, Hydraulic Charts for the Selection of Highway Culverts, Washington, D.C., December, 1965.

8. Abrams Aerial Survey Corporation, Delta Township Topographic Map, Scale 1:2400, contour interval two feet, 1969-1971.

APPENDIX A

DNR LETTER OF APPROVAL

STATE OF MICHIGAN

NATURAL RESOURCES COMMISSION
CARL T JOHNSON
E M LAITALA
DEAN PRIDGEON
HILARY F SNELL
HARRY H WHITELEY
JOAN L WOLFE
CHARLES G YOUNGLOVE

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T MASON BUILDING, BOX 30028 LANSING MICHIGAN 48909
HOWARD A TANNER Director

November 15, 1978

RECEIVED
NOV 17 1978
SNELL ENVIRONMENTAL GROUP, INC.

Snell Environmental Group
1120 May Street
Lansing, Michigan 48906

Attn: Sam M. Nalluswami, P.E.

Re: FIS Hydrology - Delta Township

Dear Sam:

We have reviewed the revised hydrology for Carrier Creek and concur with the flood discharge estimates submitted on November 8, 1978.

If you have any questions concerning the hydrology, please contact me.

Sincerely,

Richard C. Sorrell, Engineer
Hydrologic Studies Unit
Water Management Division

RCS:cjs

cc: D. Morgan

MICHIGAN
THE GREAT LAKE STATE

R1026 10/76

APPENDIX B

CROSS SECTION DESCRIPTION TABLE

SECNO TABLE

CARRIER CREEK

Cross Section	Section Number
A	1.1
B	1.5
C	1.7
D	1.8
E	2.1
F	2.5
G	3.0
H	4.0
I	4.5
J	5.0
K	5.5
L	5.7
M	6.1
N	6.5
O	6.7
P	7.0
Q	7.51
R	7.59
S	8.0
T	9.1
U	9.4
V	10.1
W	10.4
X	10.7
Y	10.8
Z	10.9
AA	11.0
AB	11.4
AC	12.0

MOON AND HAMILTON DRAIN

Cross Section	Section Number
A	1.0
B	2.0
C	2.5
D	2.9
E	3.09
F	4.2
G	5.01
H	5.09
I	5.9
J	6.01
K	6.09
L	7.09
M	7.5
N	8.09
O	9.09
P	10.09
Q	11.09
R	11.3
S	11.35
T	11.4
U	12.09
V	13.09
W	14.01
X	14.09
Y	15.09
Z	15.8
AA	16.01
AB	16.09
AC	16.59
AD	17.09
AE	18

HOLLEY DRAIN

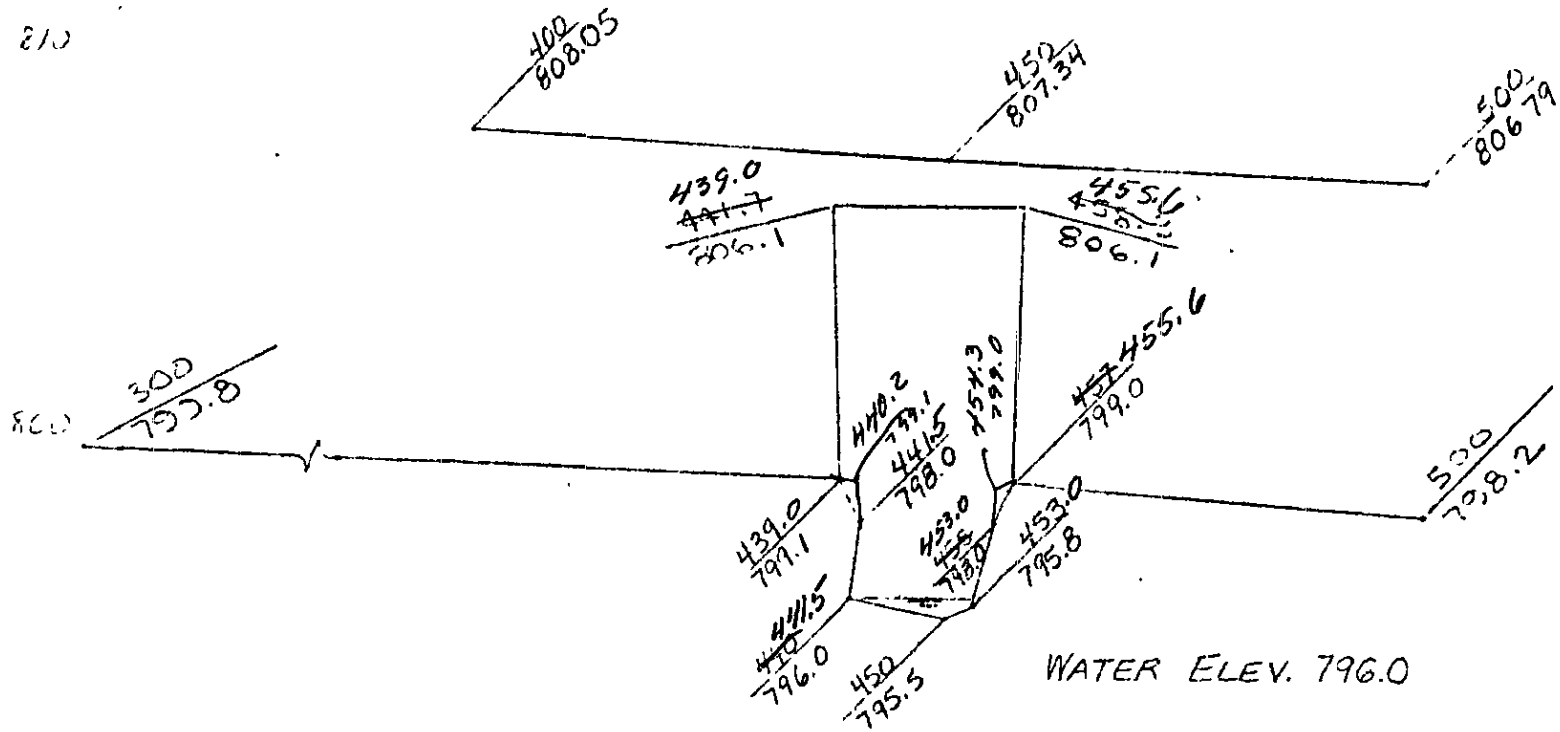
Cross Section	Section Number
A	12.0
B	20.0
C	20.5
D	21.2
E	21.21
F	21.23
G	21.3
H	22.0
I	22.5
J	22.8
K	23.

APPENDIX C

BRIDGE SKETCHES

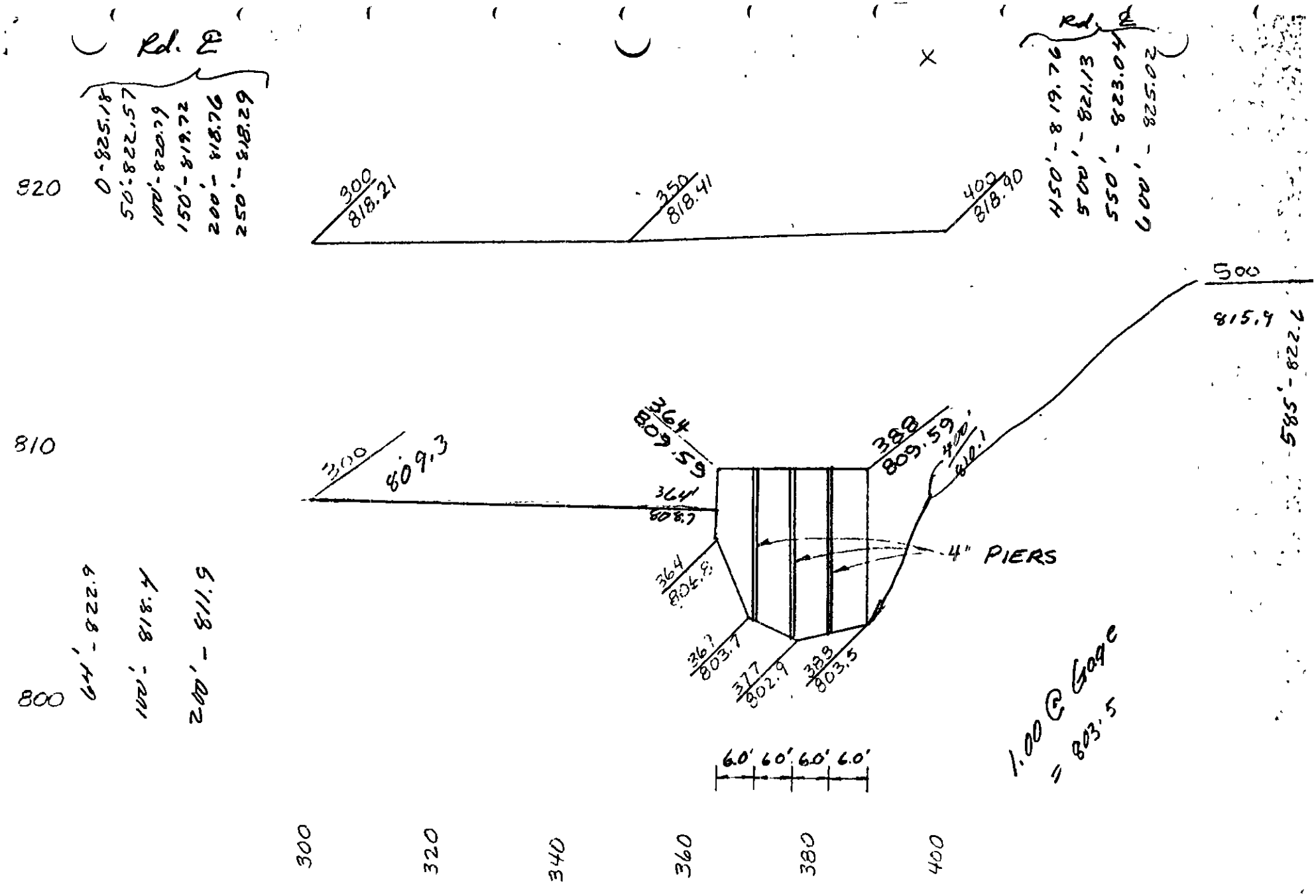
BRIDGE #1 INLET

OLD RIVER TRAIL OVER CARRIER CREEK



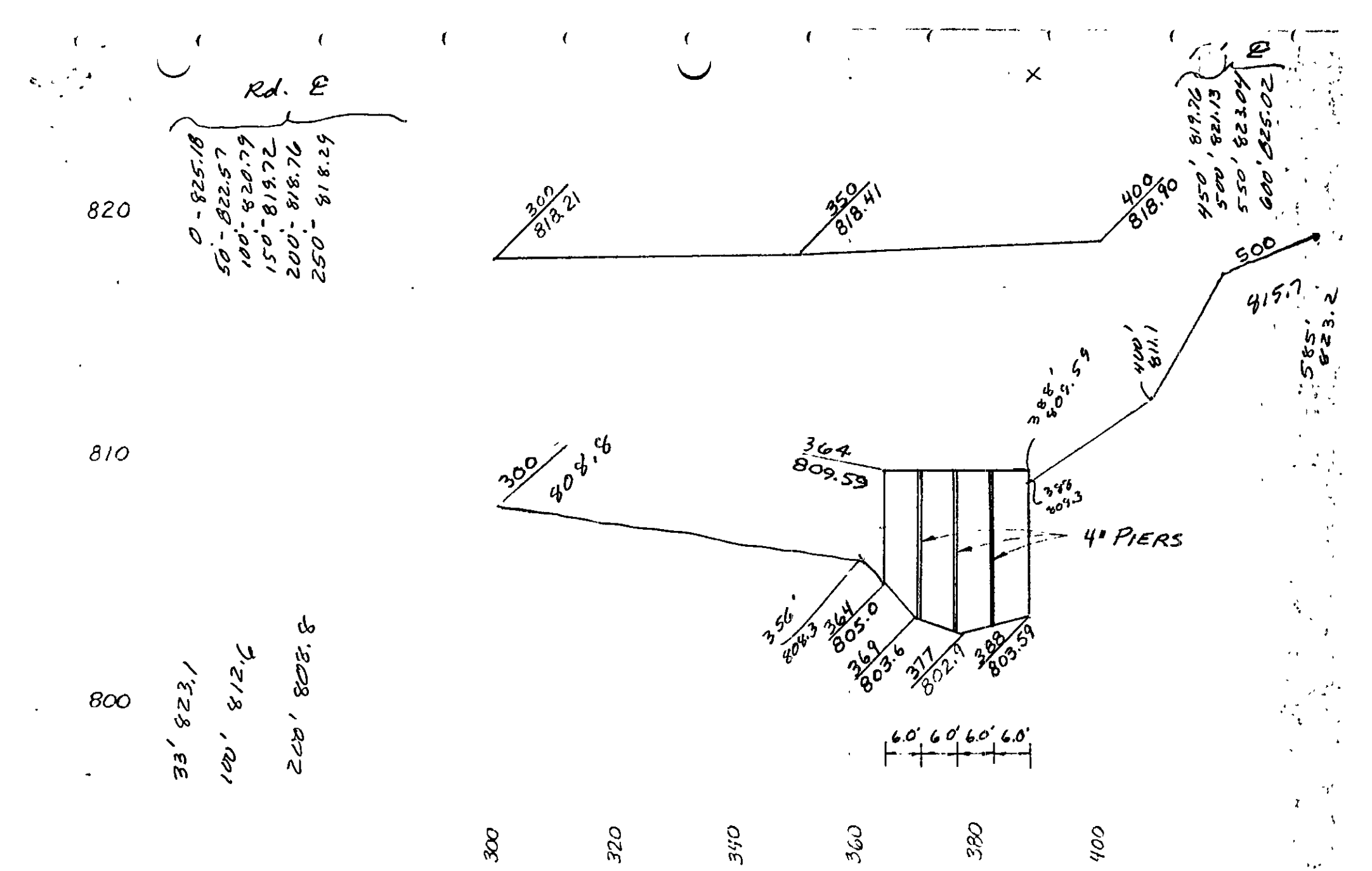
FOR 0' TO 300'
& 500' TO 1200'
SEE NOTES

BRIDGE #1 OUTLET
OLD RIVER TRAIL OVER CARRIER CREEK



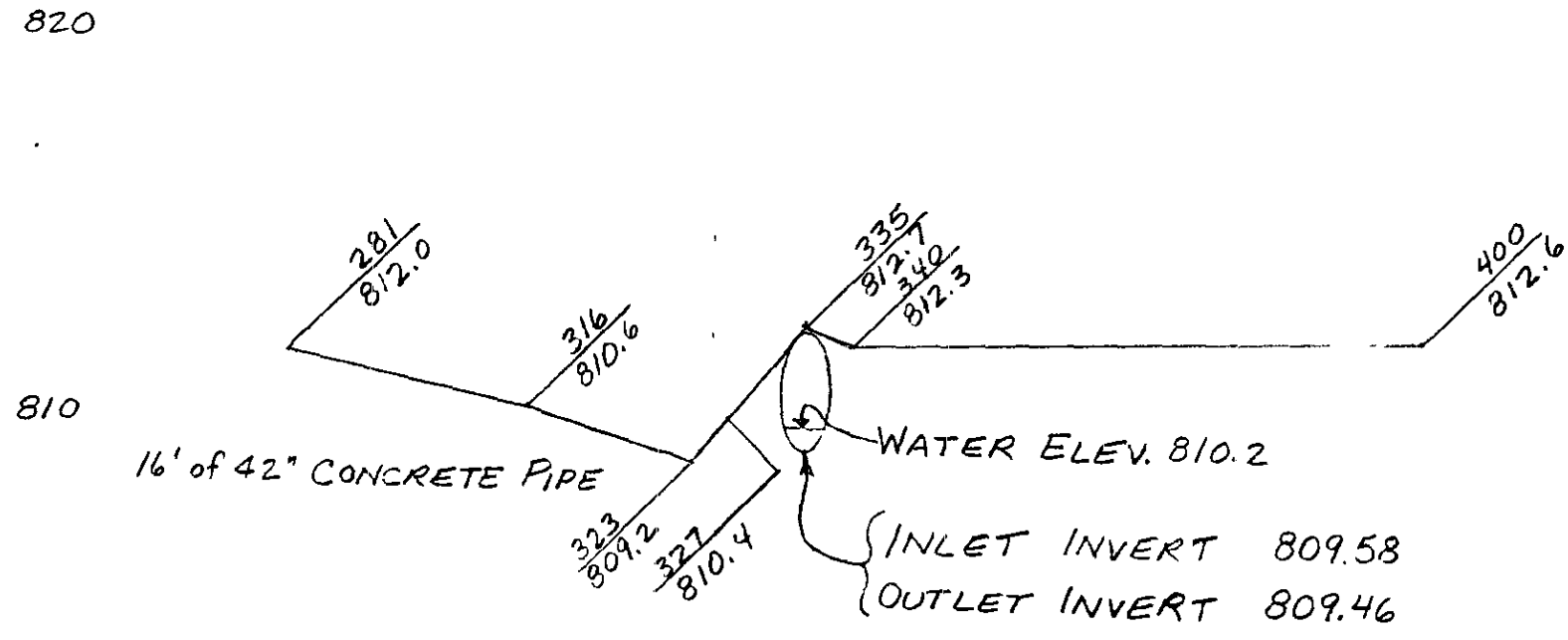
BRIDGE #2 OUTLET

WILLOW STREET OVER CARRIER CREEK

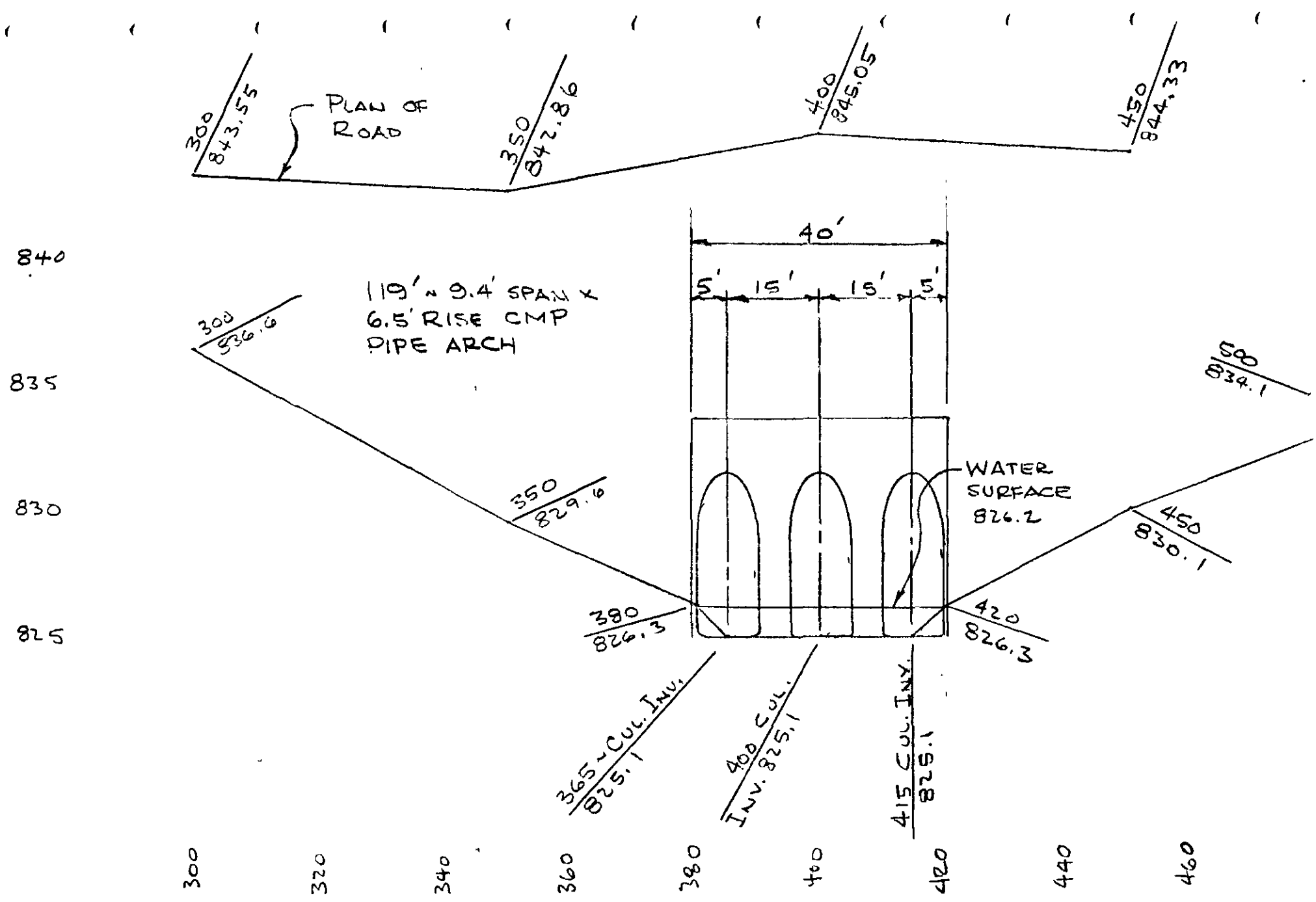


BRIDGE #2 INLET

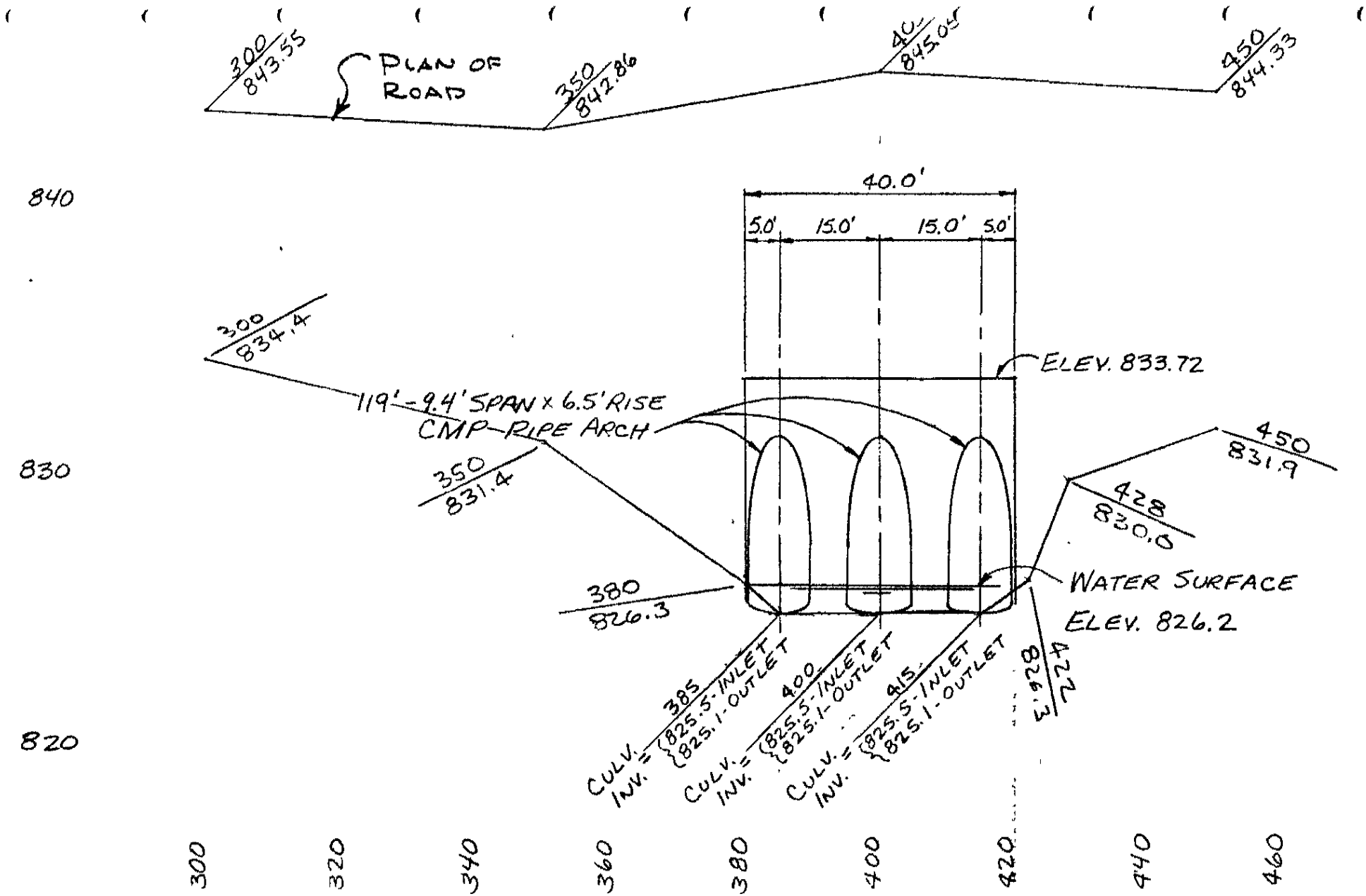
WILLOW STREET OVER CARRIER CREEK



CROSS SECTION #3
CARRIER CREEK



CROSS SECTION # 6
SAGINAW BRIDGE OVER
CARRIER CREEK
OUTLET

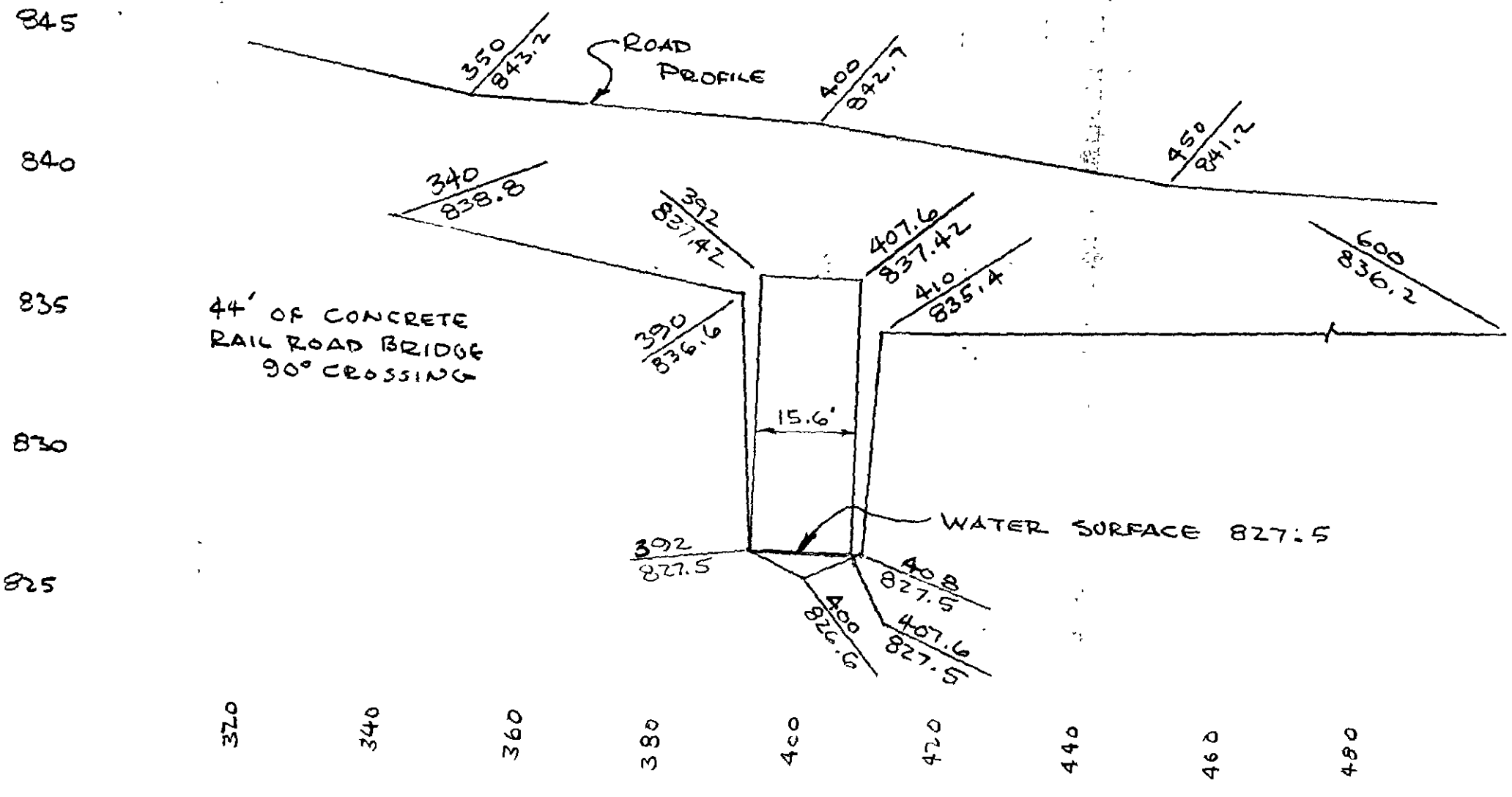


CROSS SECTION #6

SAGINAW BRIDGE OVER CARRIER CREEK

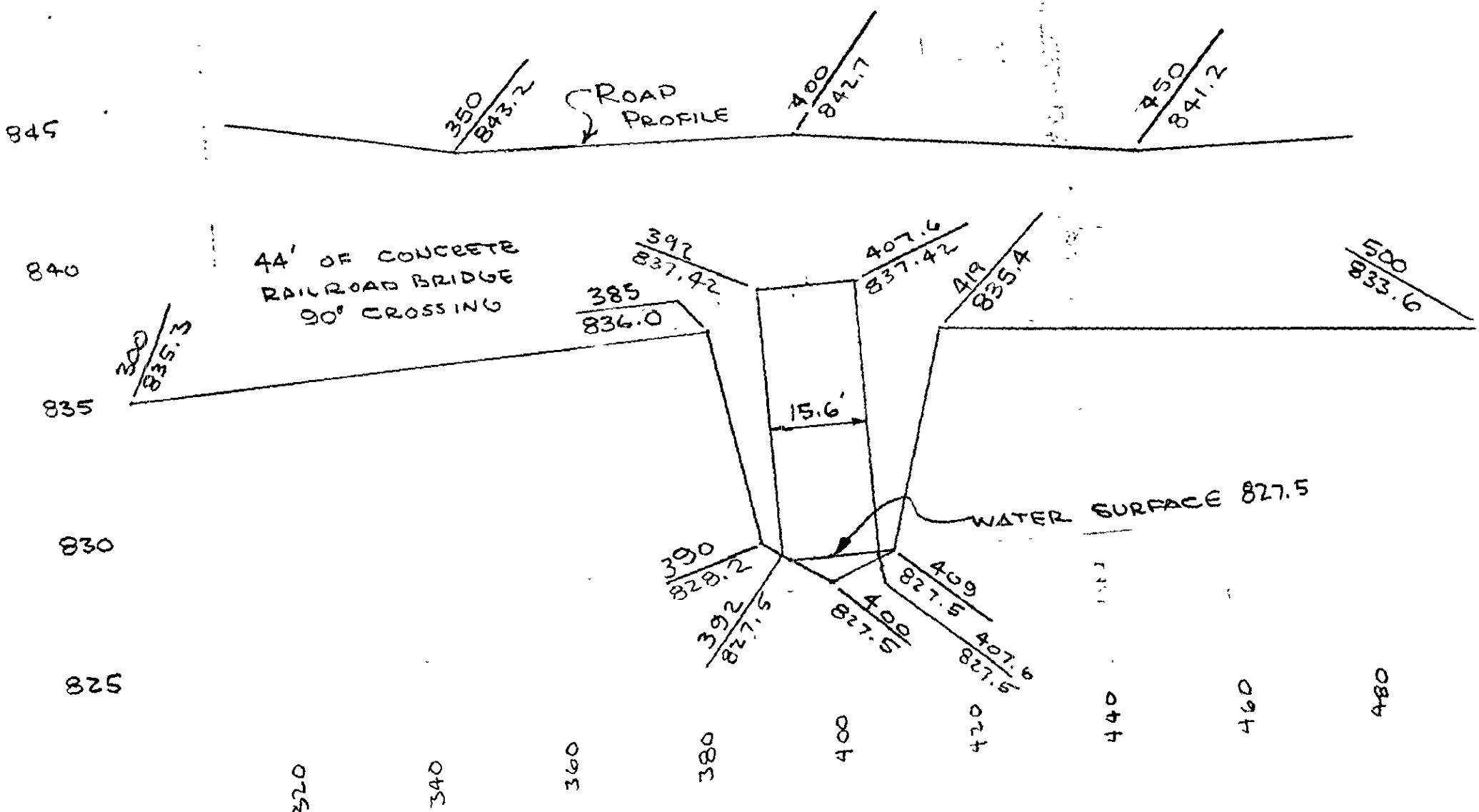
INLET

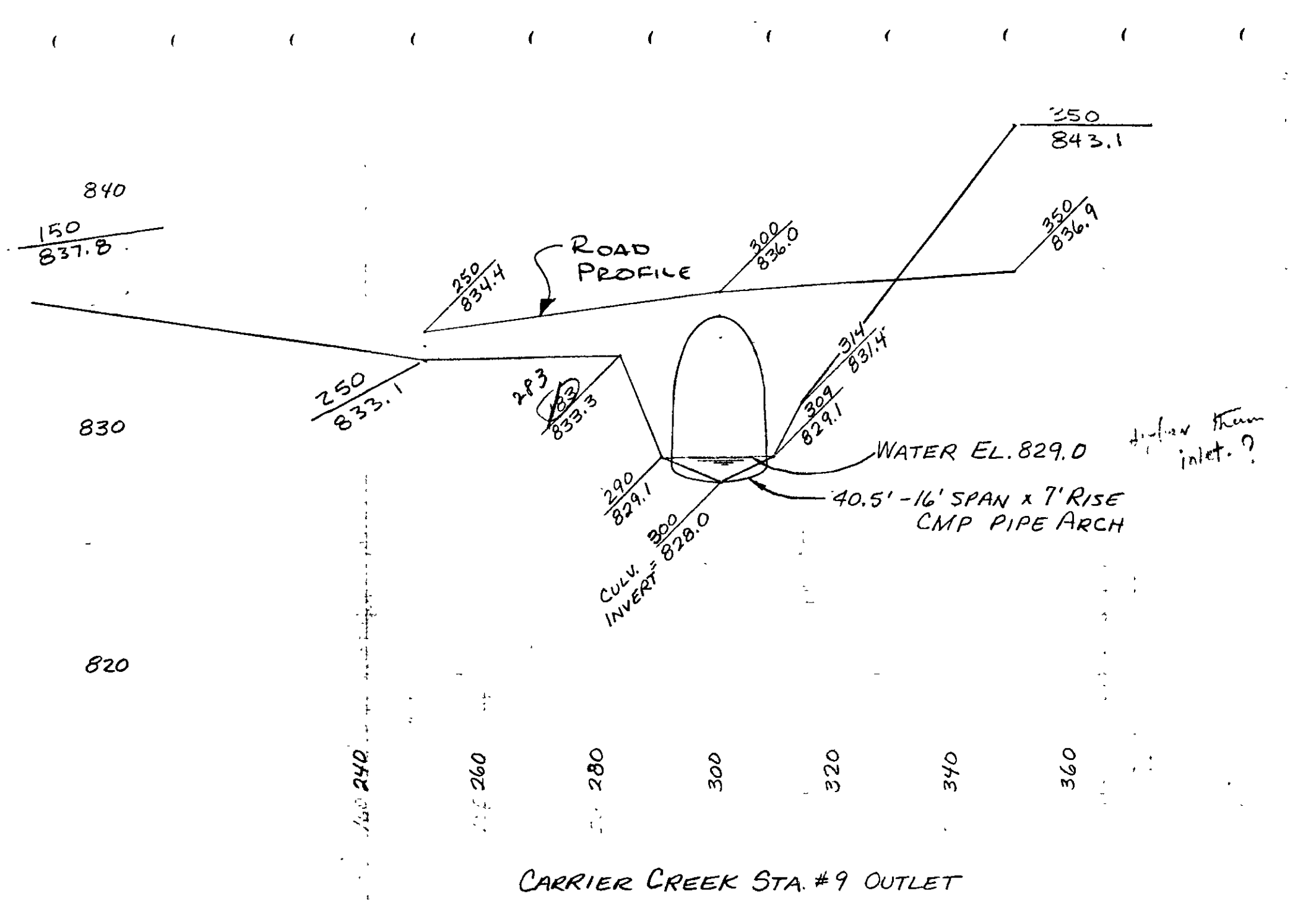
CARRIER CREEK SEC. 7.5
OUTLET



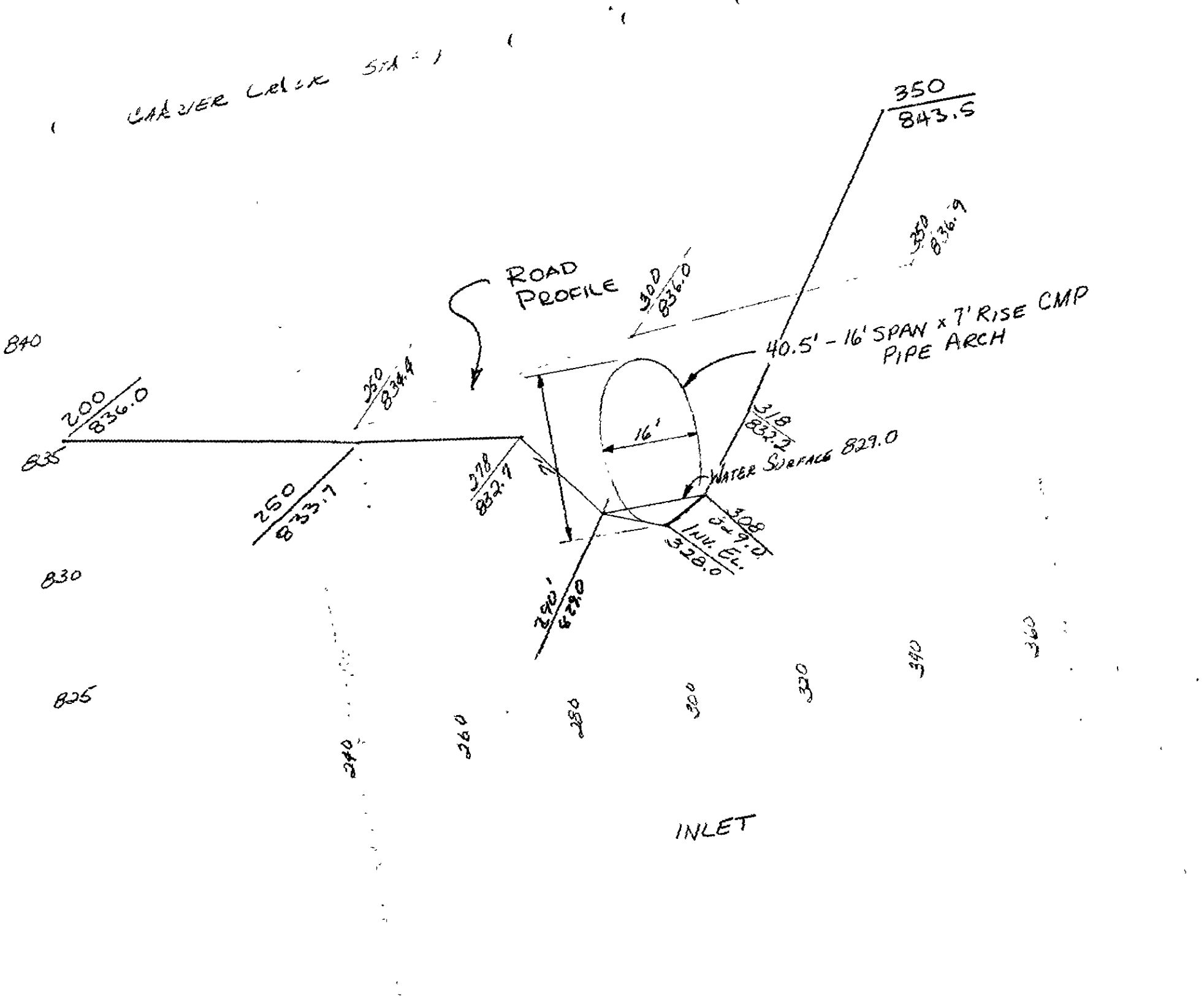
CARRIER CREEK SEC. 7.5

INLET

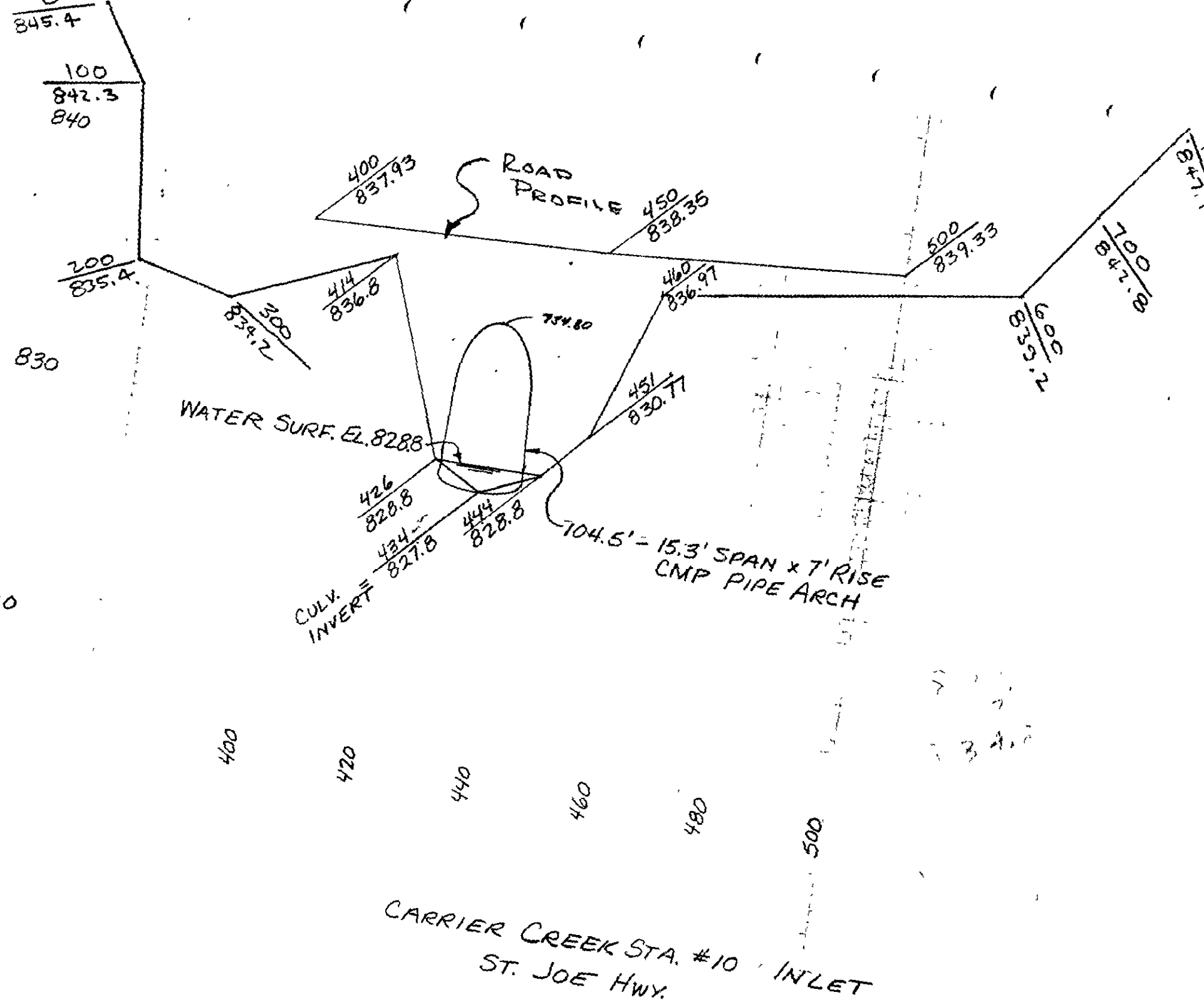




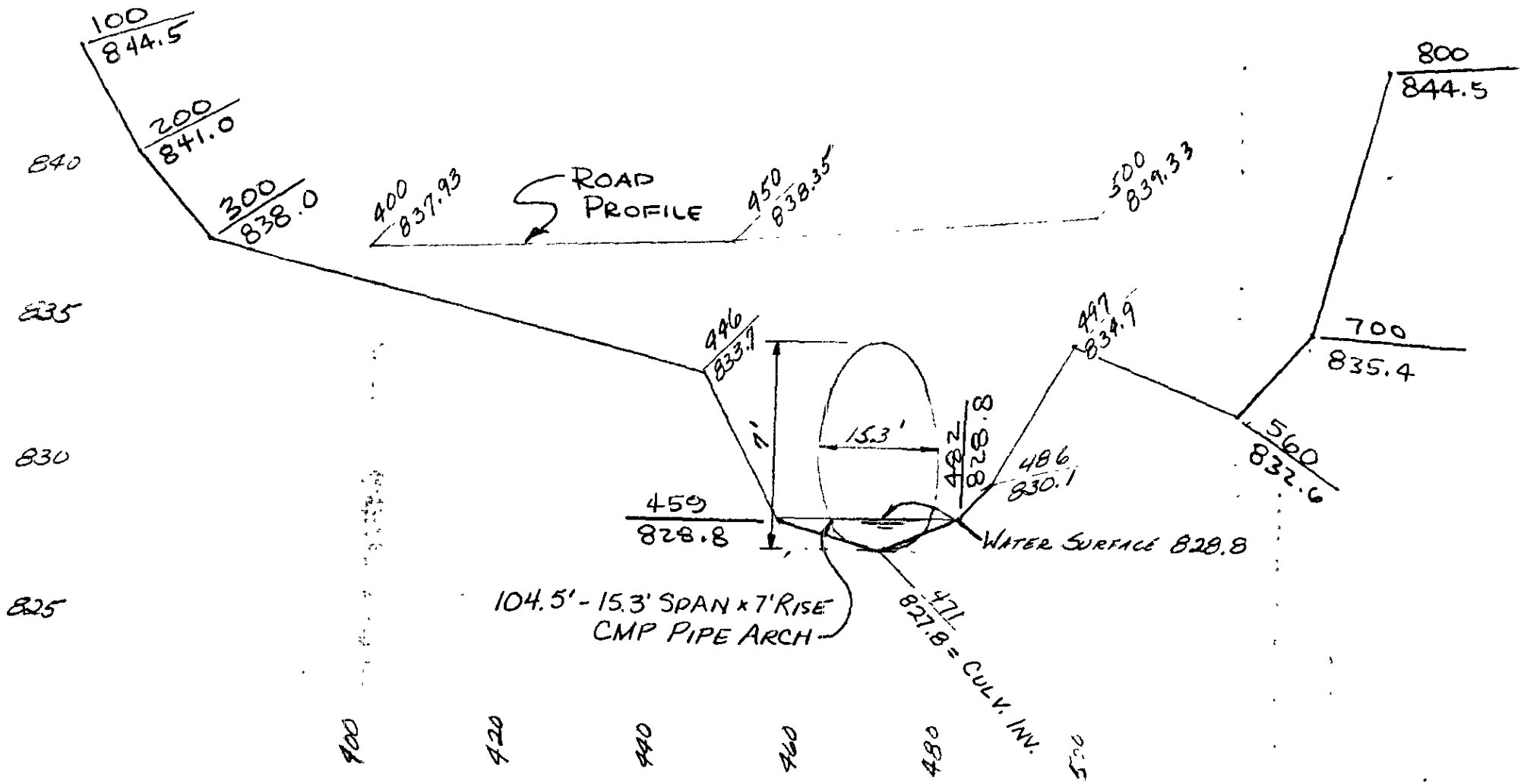
CARRIER CREEK STA. #9 OUTLET



CARVER CREEK STA 1
350
843.5
350
836.9
ROAD PROFILE
300
836.0
40.5' - 16' SPAN x 7' RISE CMP PIPE ARCH
840
200
836.0
250
834.4
16'
318
832.2
835
WATER SURFACE 829.0
250
833.7
278
832.7
7'
308
829.0
INV. EL.
328.0
830
290'
829.0
825
240
260
280
300
320
340
360
INLET


845.4
100
842.3
840
200
835.4
300
834.2
414
836.8
400
837.93
ROAD PROFILE
450
838.35
500
839.33
460
836.97
700
842.8
600
839.2
734.80
451
830.77
WATER SURF. EL. 828.8
426
828.8
434
827.8
444
828.8
CULV. INVERT =
704.5' - 15.3' SPAN x 7' RISE
CMP PIPE ARCH
830
820
400
420
440
460
480
500
CARRIER CREEK STA. #10 INLET
ST. JOE HWY.

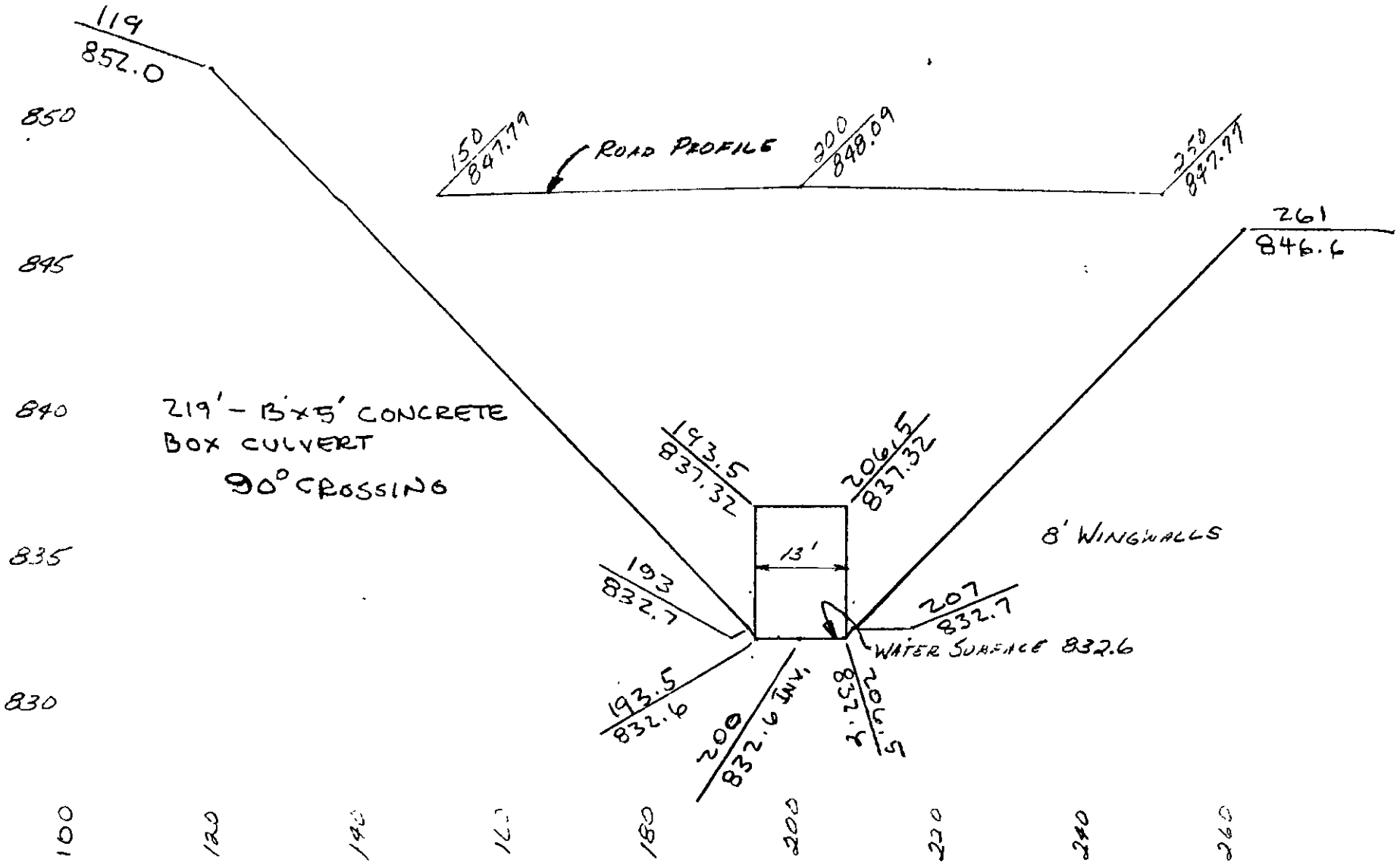
CARRIER CREEK STA. #10

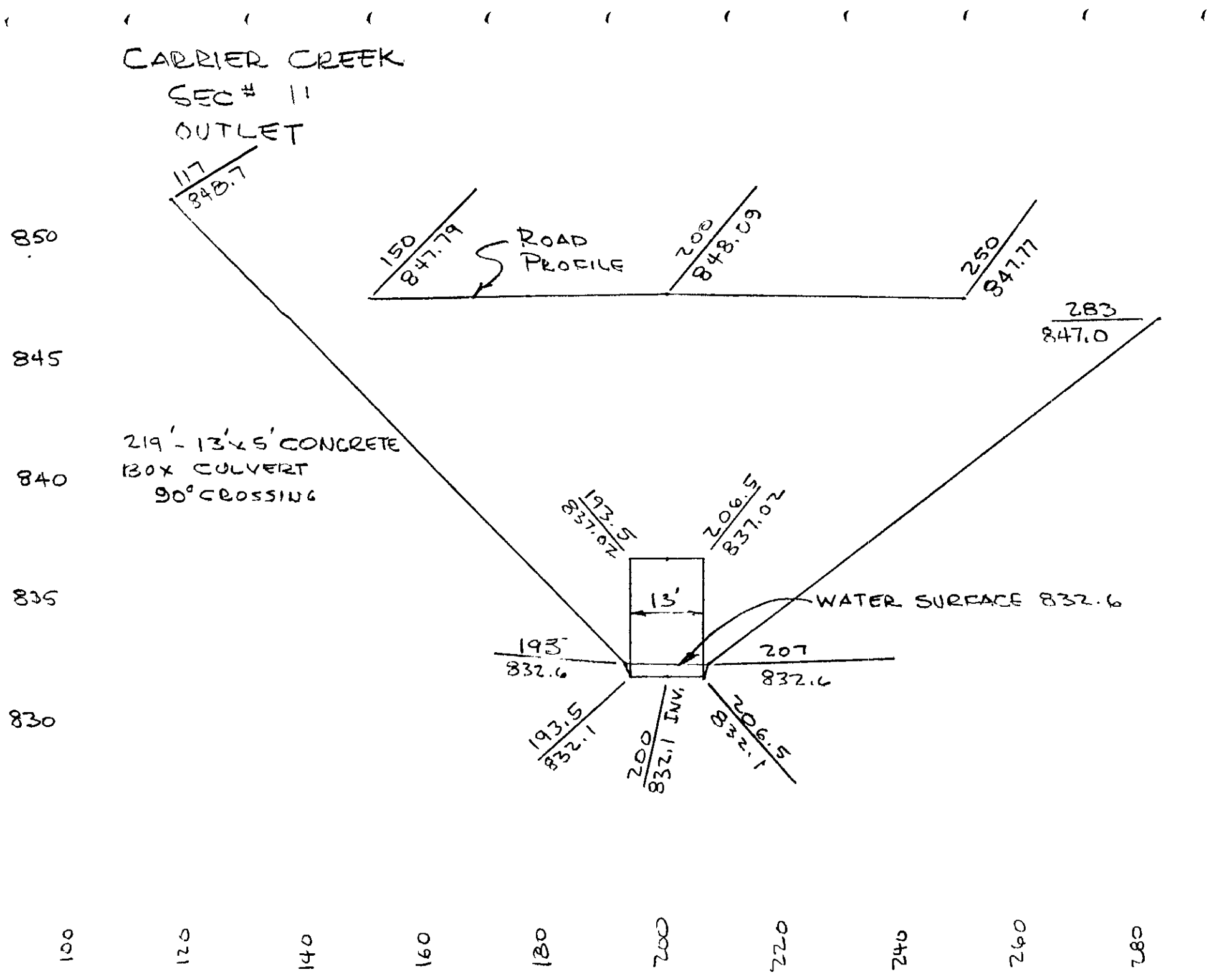


OUTLET

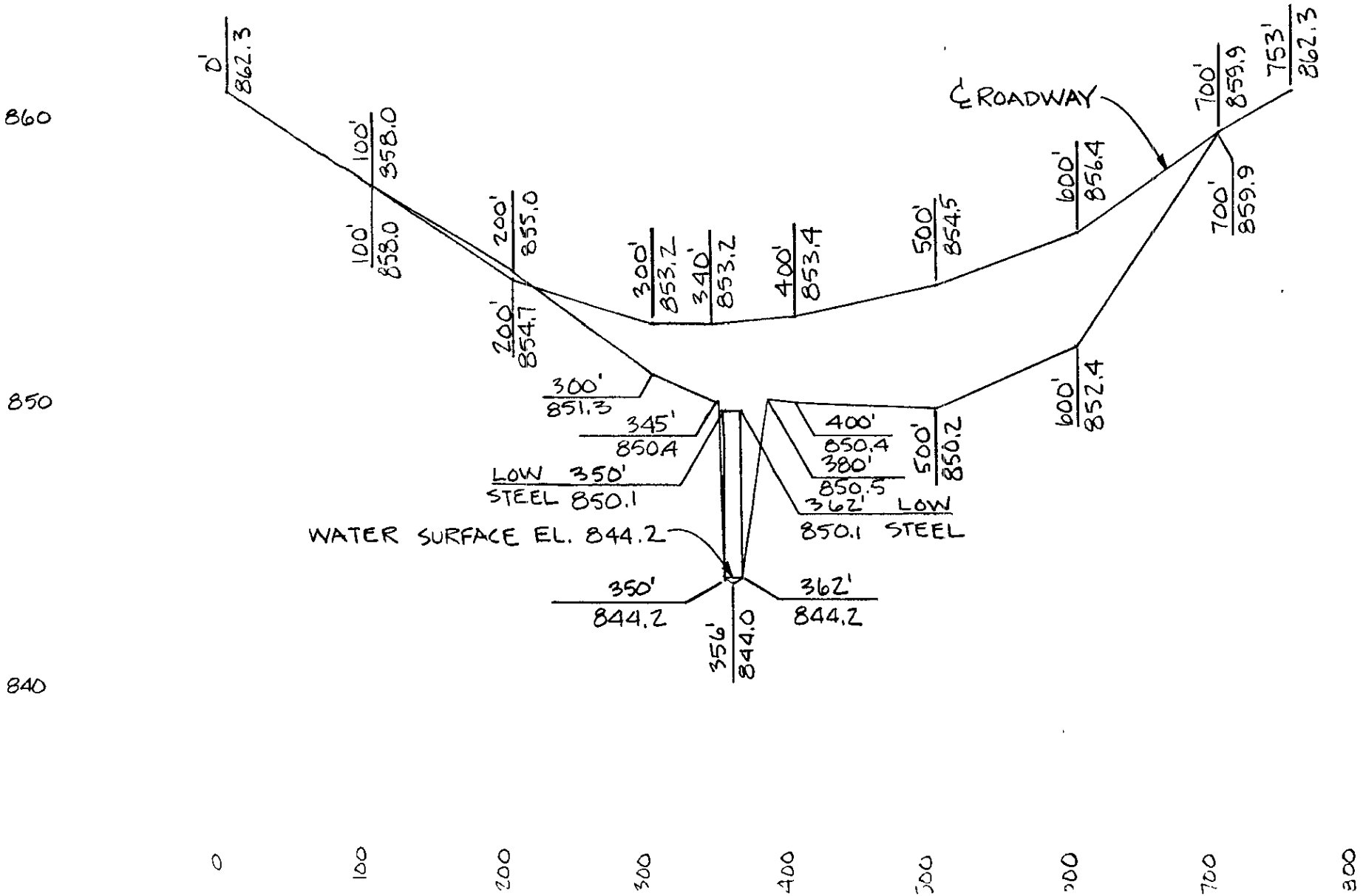
CARRIER CREEK STA. #11

INLET

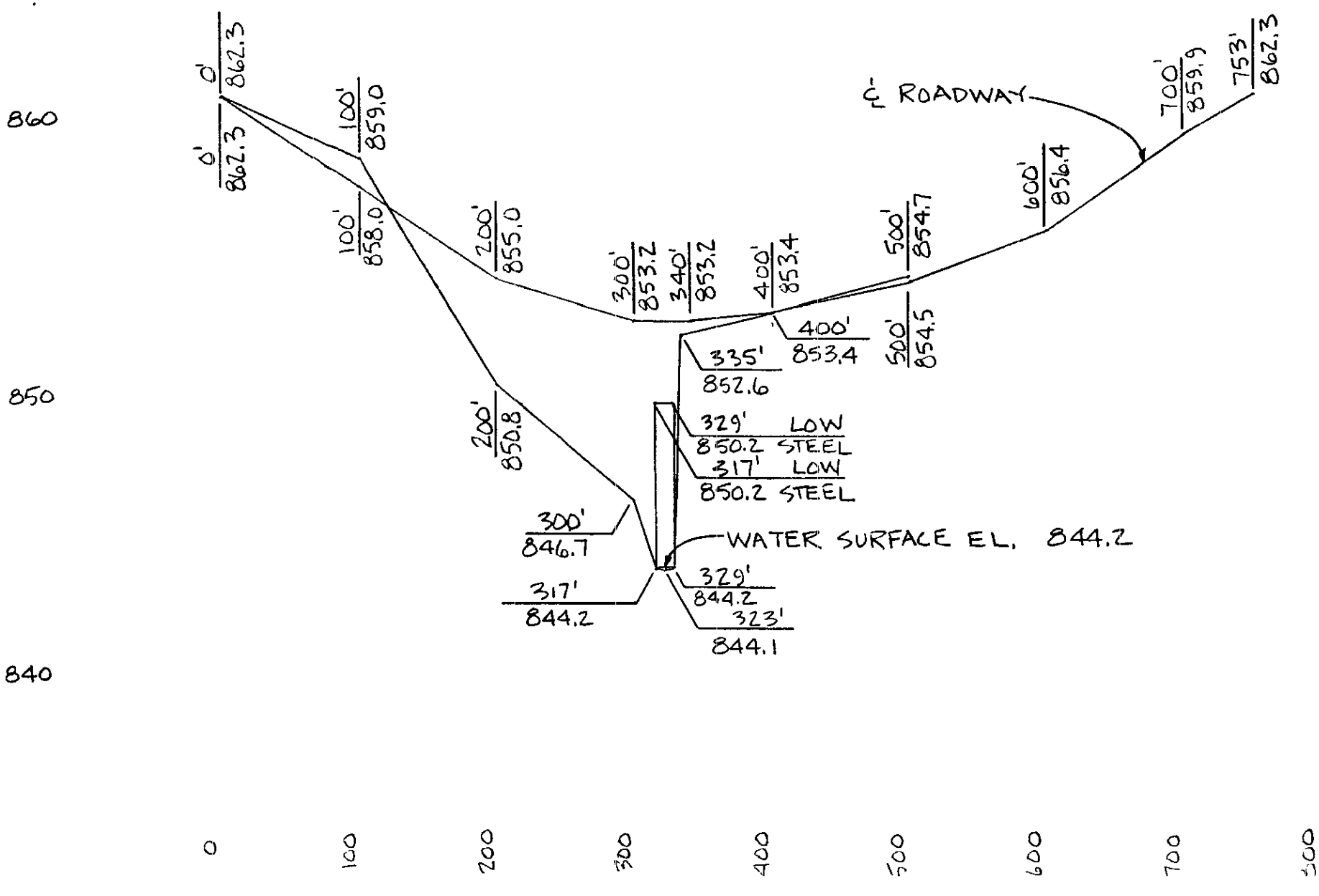



CARRIER CREEK
SEC # 11
OUTLET
117
848.7
150
847.79
ROAD PROFILE
200
848.09
250
847.77
283
847.0
219' - 13'x5' CONCRETE
130x CULVERT
90° CROSSING
193.5
837.02
206.5
837.02
13'
WATER SURFACE 832.6
193
832.6
207
832.6
193.5
832.1
200
832.1 INV.
206.5
832.1
850
845
840
835
830
100
120
140
160
180
200
220
240
260
280

HAMILTON & MOON DRAIN AT CANAL RD.
SEC. # 3
INLET



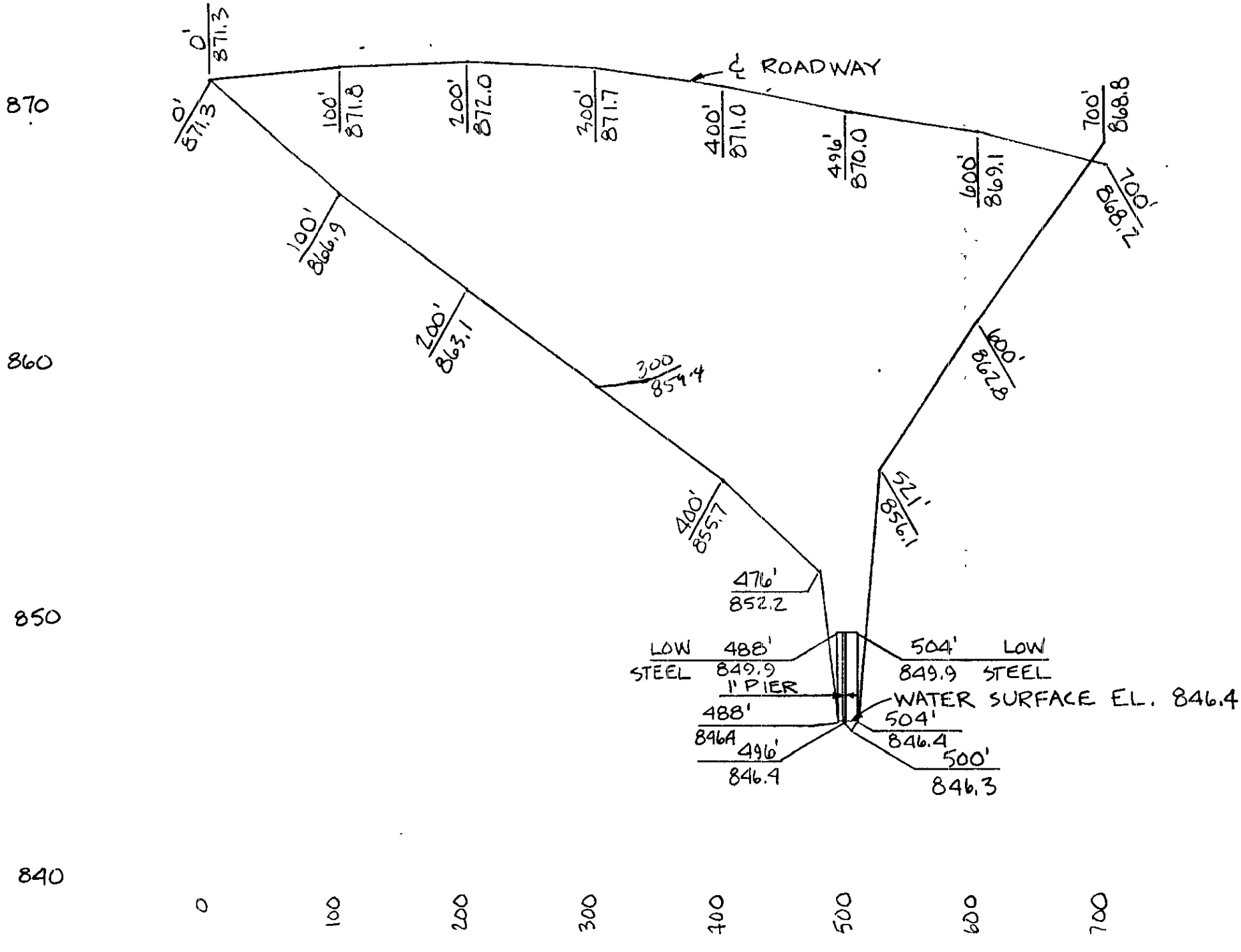
HAMILTON & MOON DRAIN AT CANAL RD.
SEC. # 3
OUTLET



HAMILTON & MOON DRAIN AT I-496 & I-96

SEC # 4

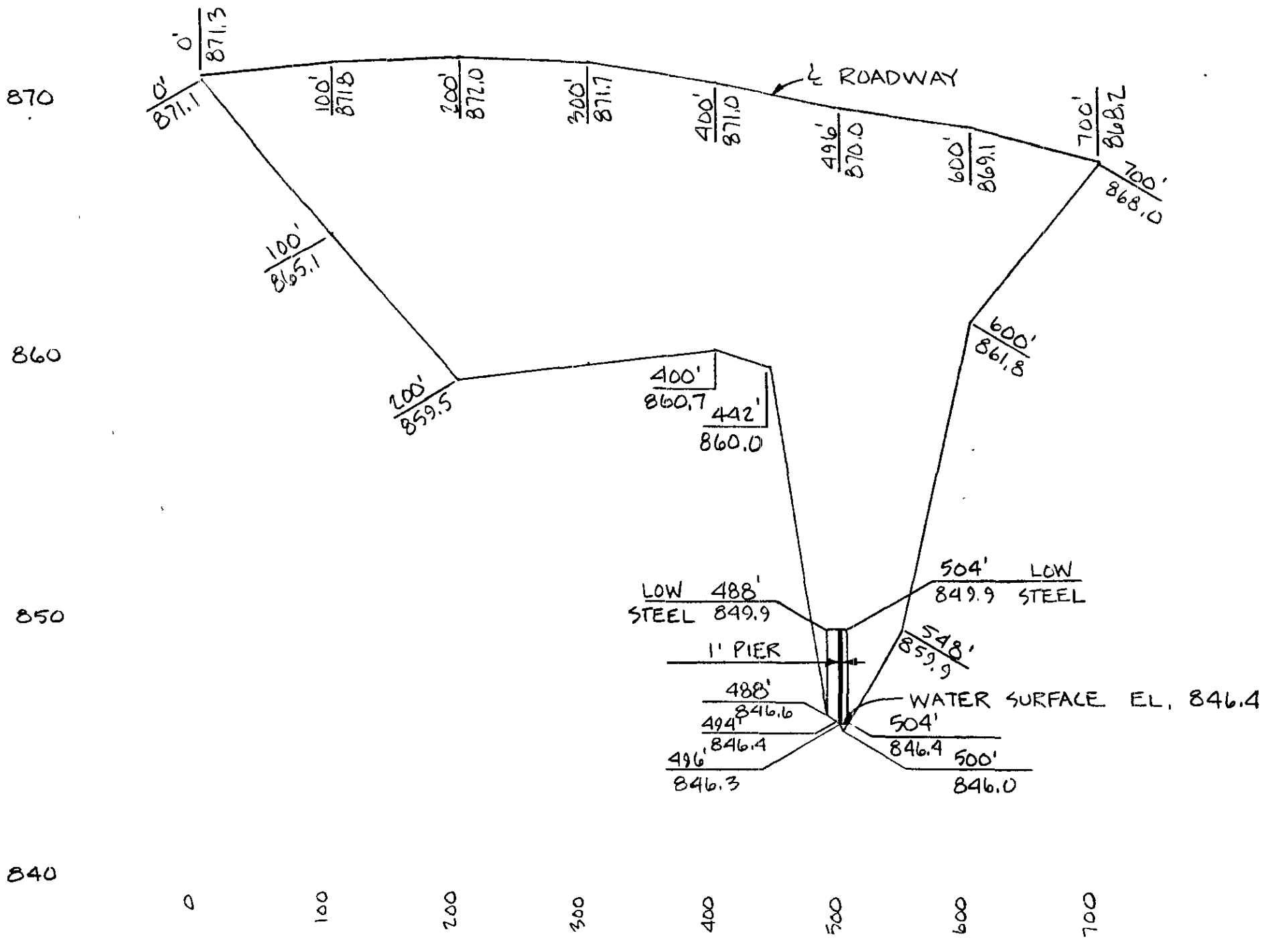
INLET



HAMILTON & MOON DRAIN AT I-496 & I-96

SEC. # 4

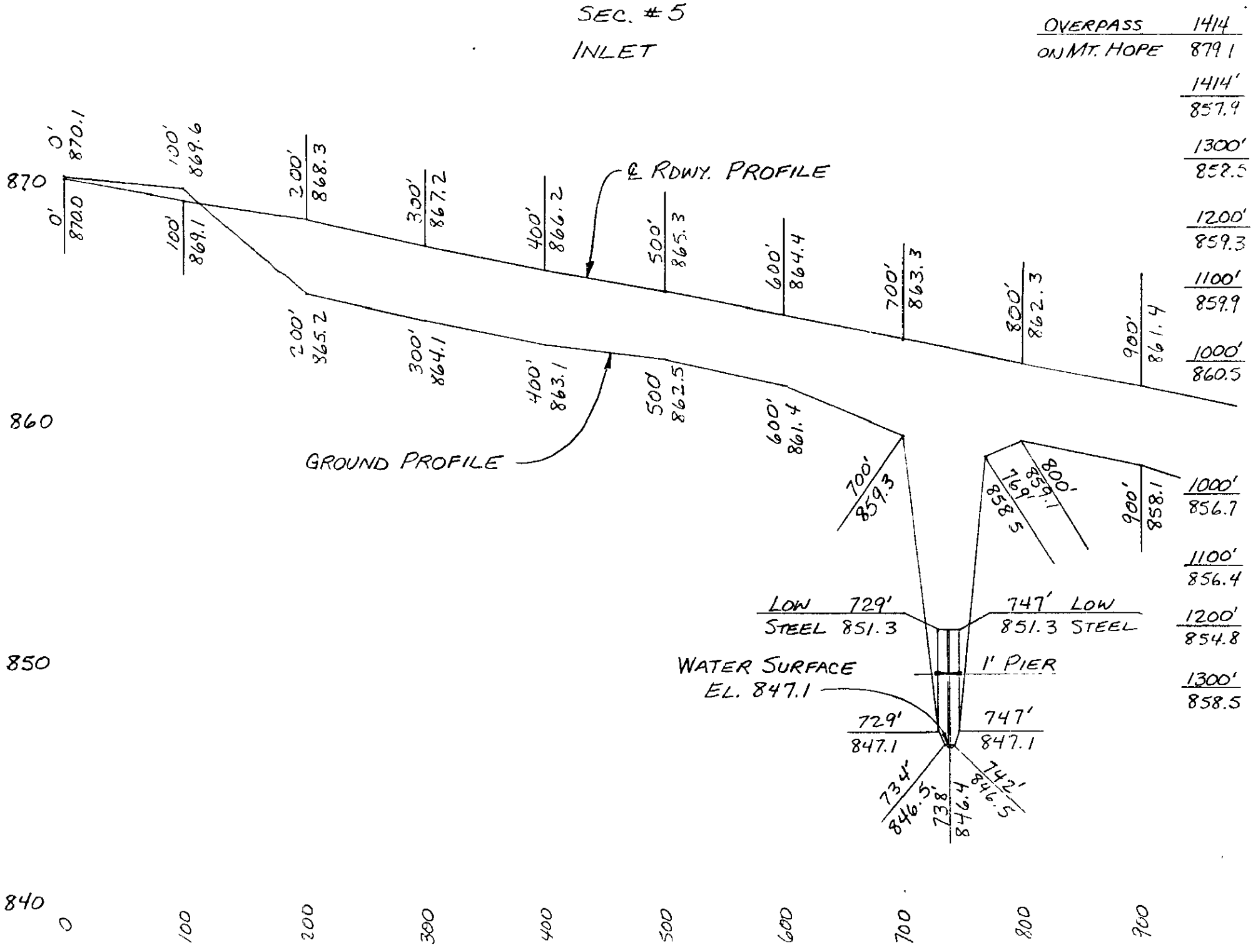
OUTLET

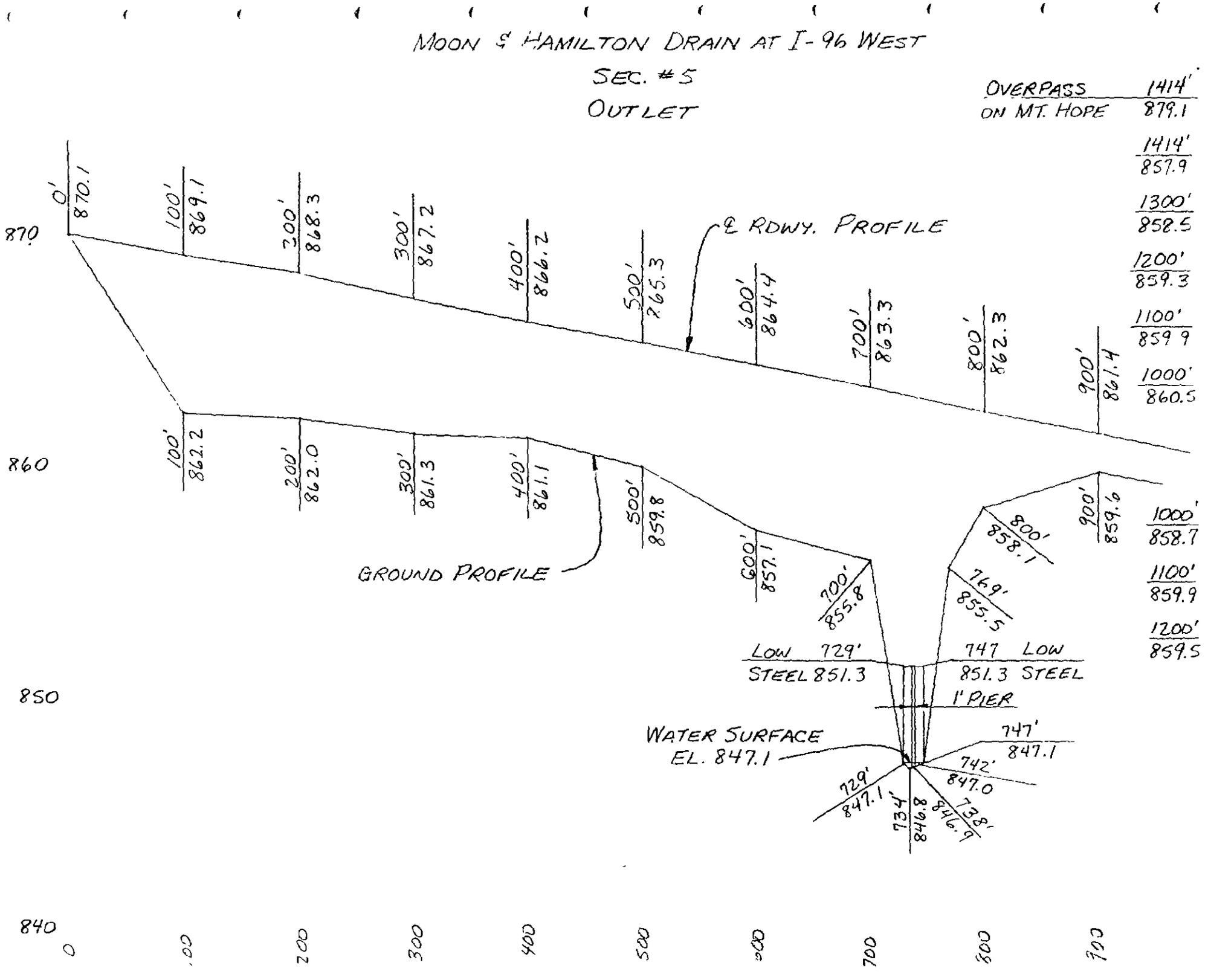


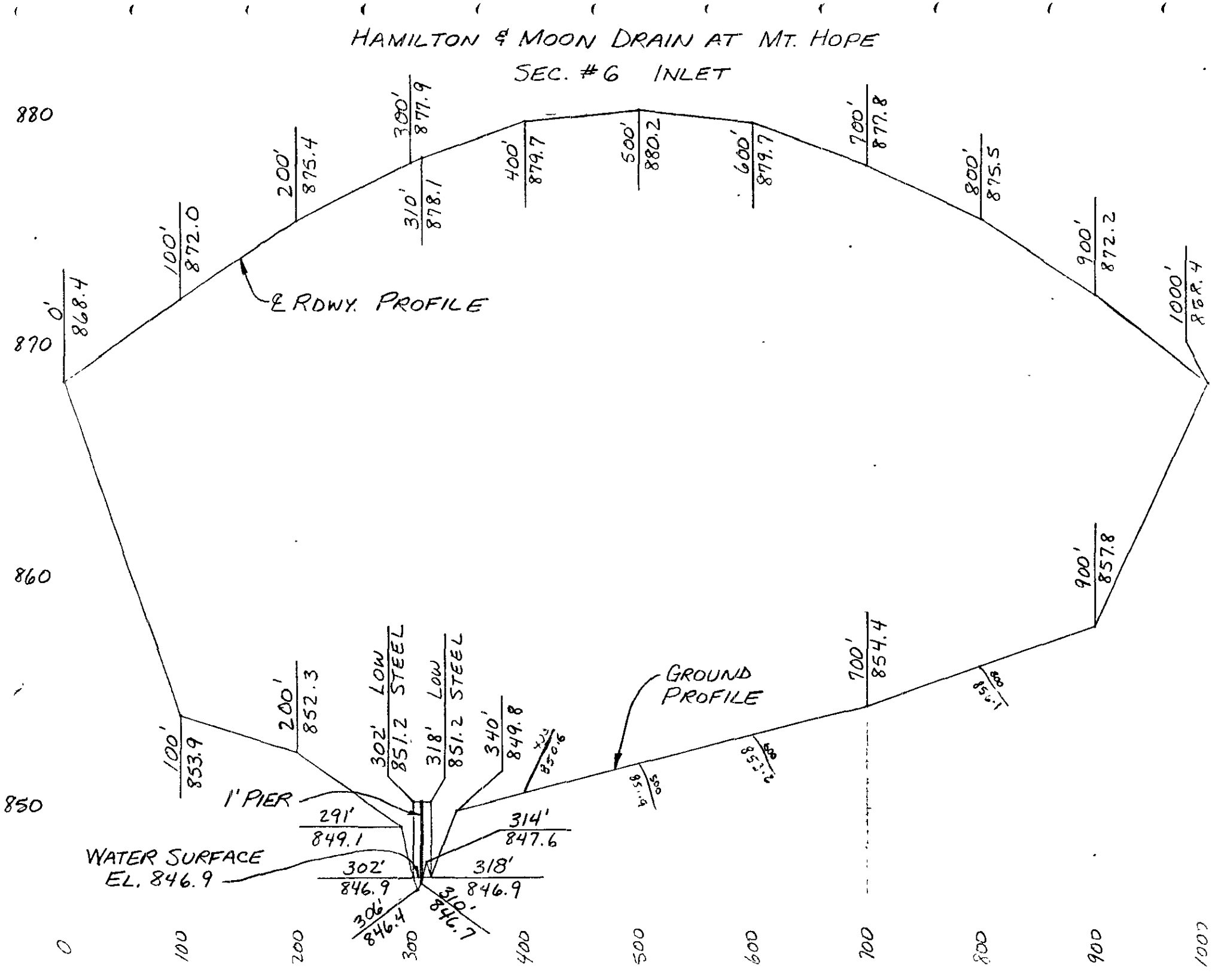
MOON & HAMILTON DRAIN AT I-96 WEST

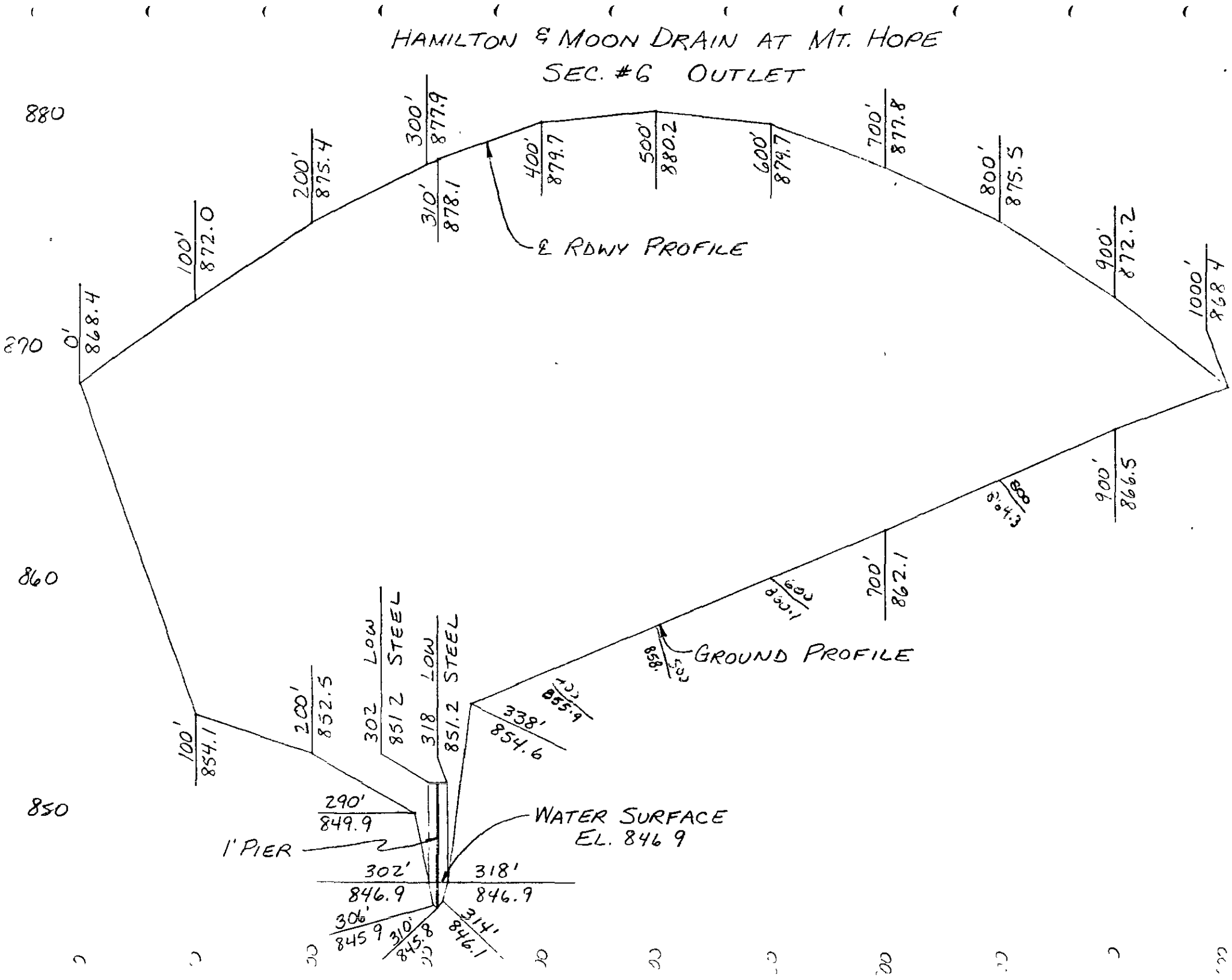
SEC. #5

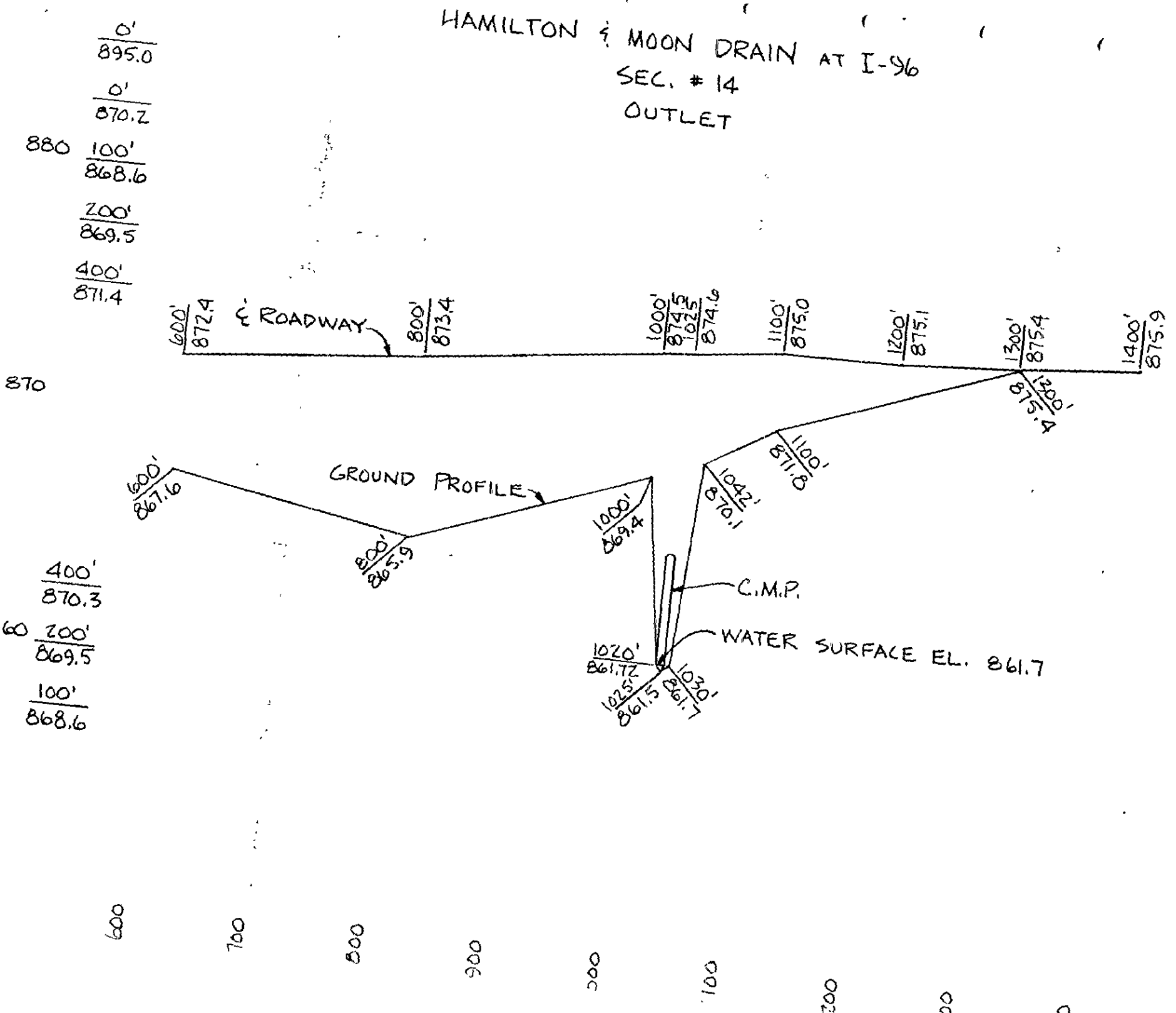
INLET

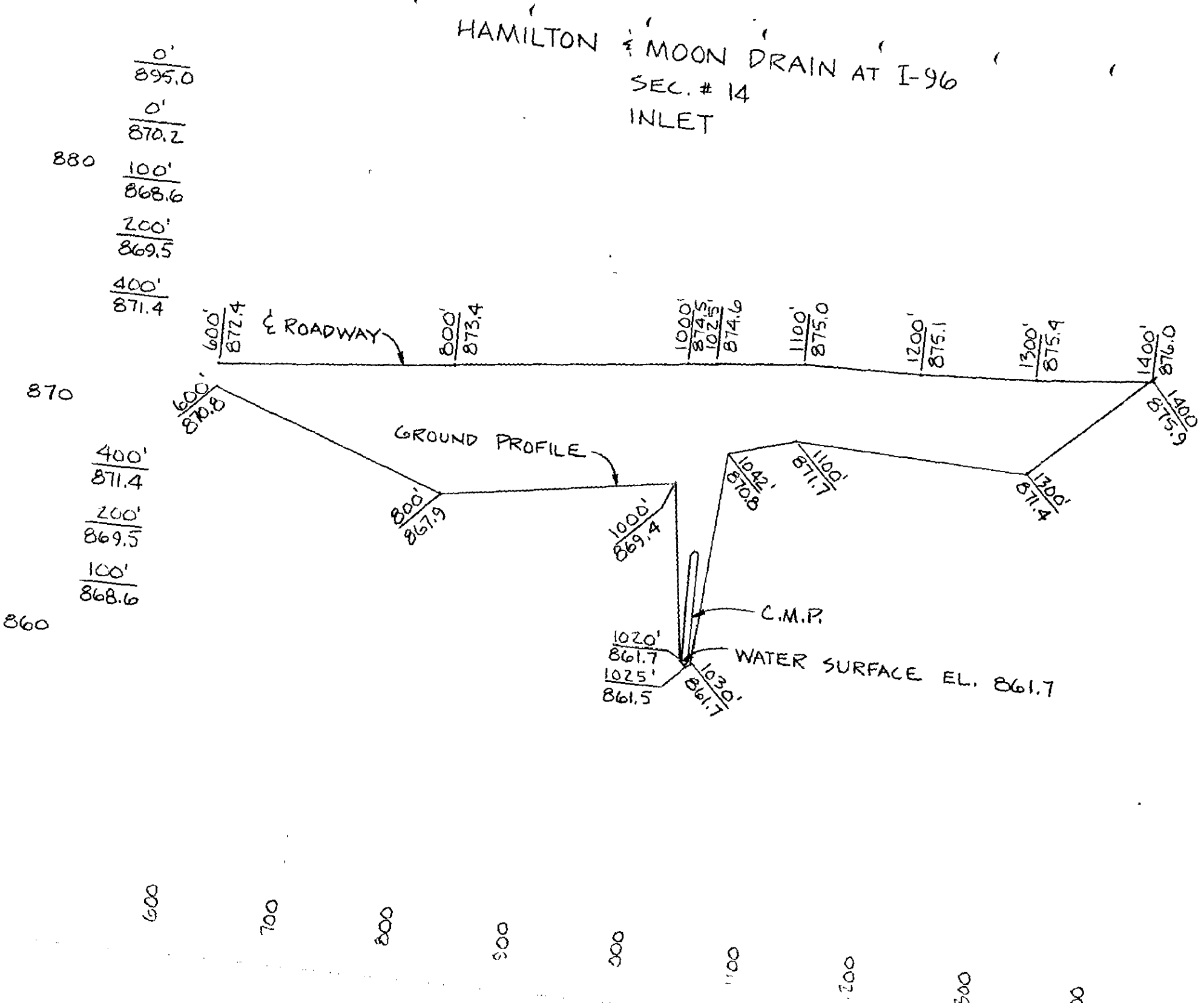



MOON & HAMILTON DRAIN AT I-96 WEST
SEC. #5
OUTLET
OVERPASS ON MT. HOPE
1414' 879.1
1414' 857.9
1300' 858.5
1200' 859.3
1100' 859 9
1000' 860.5
℄ RDWY. PROFILE
0' 870.1
100' 869.1
200' 868.3
300' 867.2
400' 866.2
500' 765.3
600' 864.4
700' 863.3
800' 862.3
900' 861.4
100' 862.2
200' 862.0
300' 861.3
400' 861.1
GROUND PROFILE
500' 859.8
600' 857.1
700' 855.8
800' 858.1
900' 859.6
1000' 858.7
1100' 859.9
1200' 859.5
769' 855.5
LOW STEEL 851.3
729'
747 LOW 851.3 STEEL
1' PIER
WATER SURFACE EL. 847.1
747' 847.1
742' 847.0
729' 847.1
734' 846.8
738' 846.9
870
860
850
840
0
100
200
300
400
500
600
700


HAMILTON & MOON DRAIN AT MT. HOPE
SEC. #6 INLET
880
870
860
850
0' 868.4
100' 872.0
200' 875.4
300' 877.9
310' 878.1
400' 879.7
500' 880.2
600' 879.7
700' 877.8
800' 875.5
900' 872.2
1000' 868.4
℄ RDWY. PROFILE
100' 853.9
200' 852.3
302' LOW STEEL 851.2
318' LOW STEEL 851.2
340' 849.8
1' PIER
291' 849.1
314' 847.6
WATER SURFACE EL. 846.9
302' 846.9
318' 846.9
306' 846.4
310' 846.7
GROUND PROFILE
700' 854.4
900' 857.8
0
100
200
300
400
500
600
700
800
900
1000


HAMILTON & MOON DRAIN AT MT. HOPE
SEC. #6 OUTLET
880
870
860
850
0' 868.4
100' 872.0
200' 875.4
300' 877.9
310' 878.1
400' 879.7
500' 880.2
600' 879.7
700' 877.8
800' 875.5
900' 872.2
1000' 868.4
℄ RDWY PROFILE
100' 854.1
200' 852.5
302 LOW STEEL 851.2
318 LOW STEEL 851.2
338' 854.6
700' 862.1
900' 866.5
GROUND PROFILE
290' 849.9
1' PIER
WATER SURFACE EL. 846.9
302' 846.9
318' 846.9
306' 845.9
310' 845.8
314' 846.1

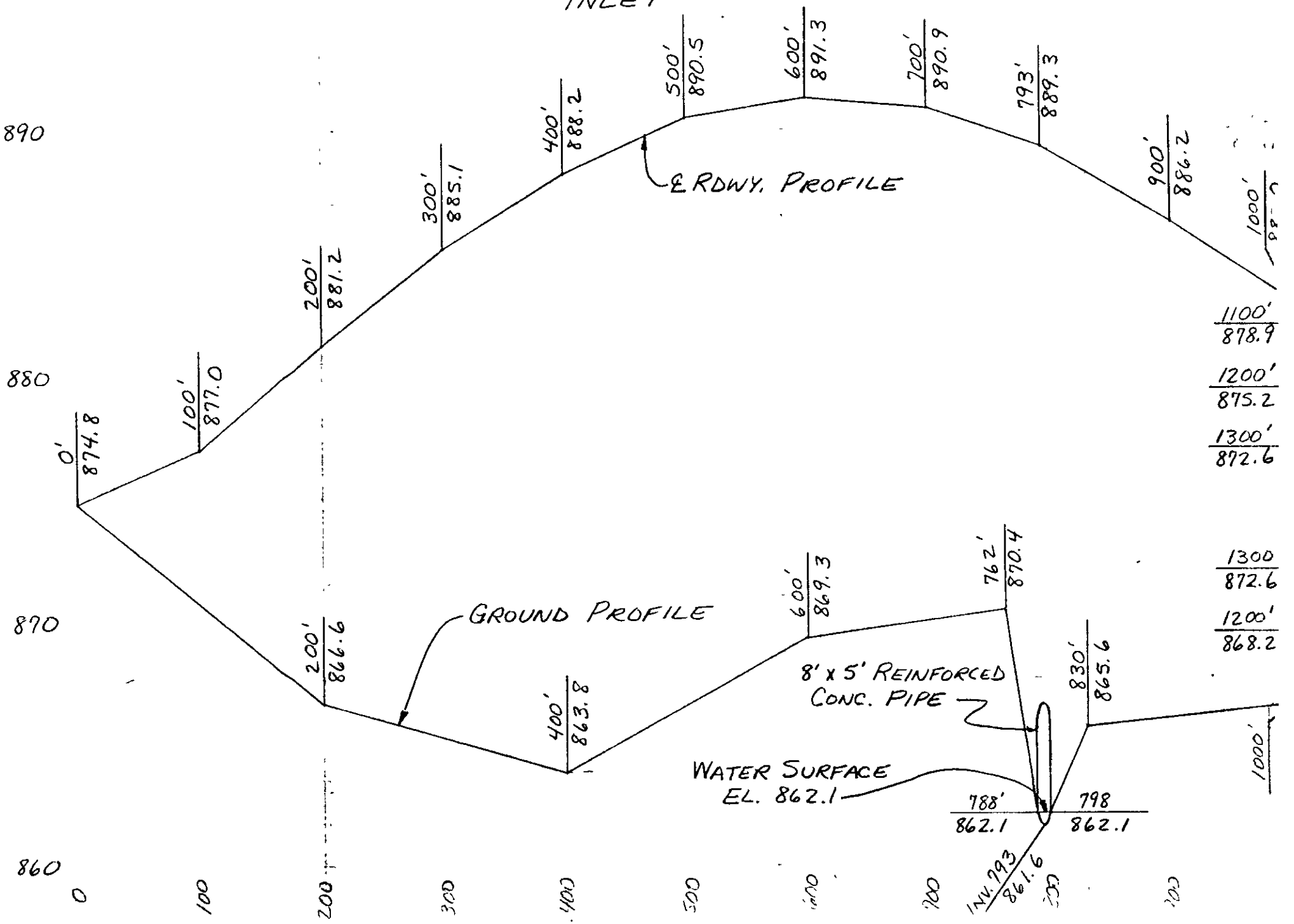

HAMILTON & MOON DRAIN AT I-96
SEC. # 14
OUTLET
0' 895.0
0' 870.2
880 100' 868.6
200' 869.5
400' 871.4
870
600' 872.4
℄ ROADWAY
800' 873.4
1000' 874.5
1025' 874.6
1100' 875.0
1200' 875.1
1300' 875.4
1400' 875.9
1300' 875.4
1100' 871.8
1042' 870.1
600' 867.6
GROUND PROFILE
800' 865.9
1000' 869.4
C.M.P.
WATER SURFACE EL. 861.7
1020' 861.72
1025' 861.5
1030' 861.7
400' 870.3
860 200' 869.5
100' 868.6
600
700
800
900
100


HAMILTON & MOON DRAIN AT I-96
SEC. # 14
INLET
0' 895.0
0' 870.2
880
100' 868.6
200' 869.5
400' 871.4
600' 872.4
℄ ROADWAY
800' 873.4
1000' 874.5
1025' 874.6
1100' 875.0
1200' 875.1
1300' 875.4
1400' 876.0
870
600' 870.8
GROUND PROFILE
400' 871.4
800' 867.9
200' 869.5
1000' 869.4
100' 868.6
1042' 870.8
1100' 871.7
1300' 871.4
1400' 875.9
860
C.M.P.
1020' 861.7
WATER SURFACE EL. 861.7
1025' 861.5
1030' 861.7
600
700
800
900
000
100
200
300

HAMILTON & MOON DRAIN AT MILLET HWY. & I-96

SEC. # 16

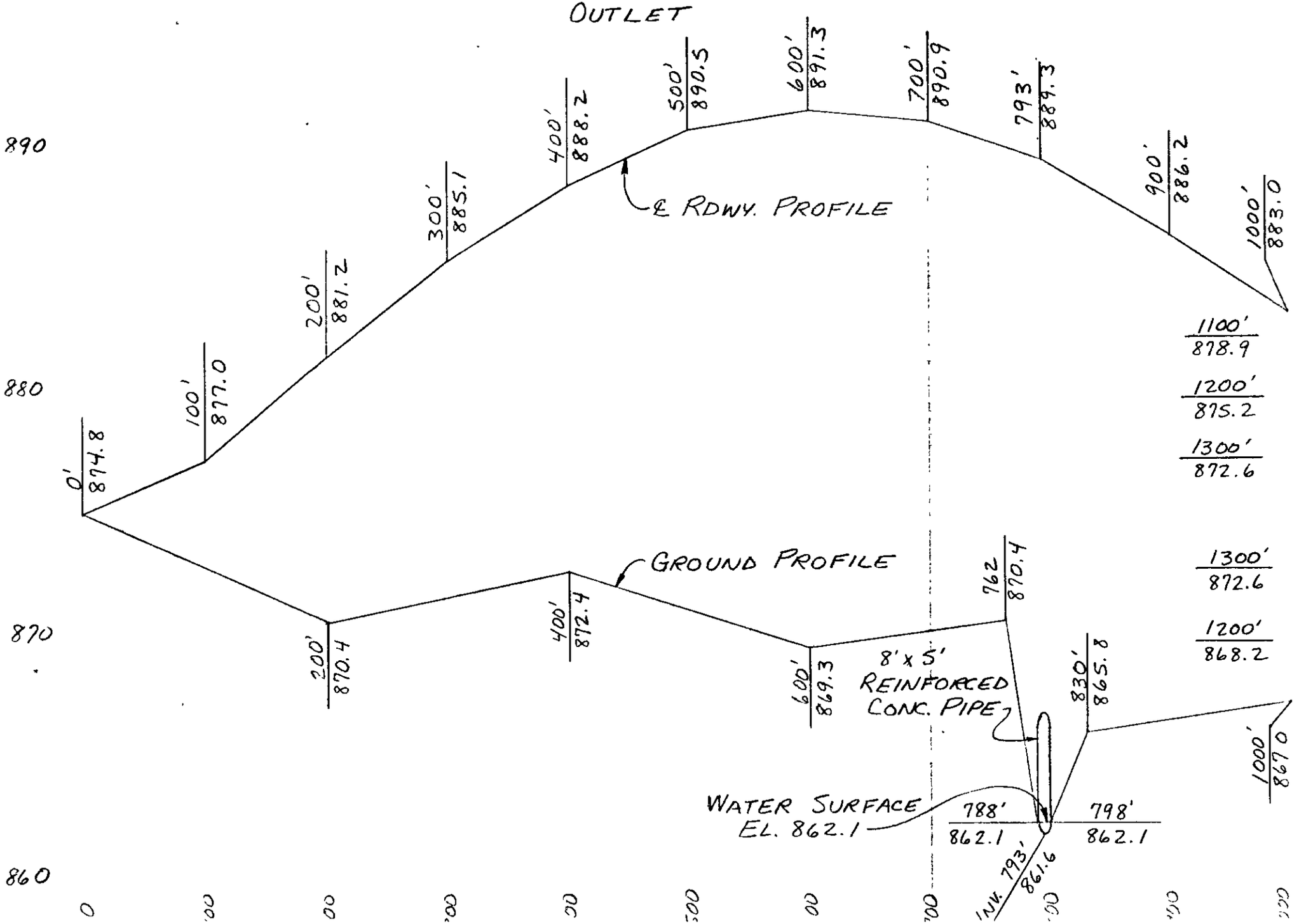
INLET



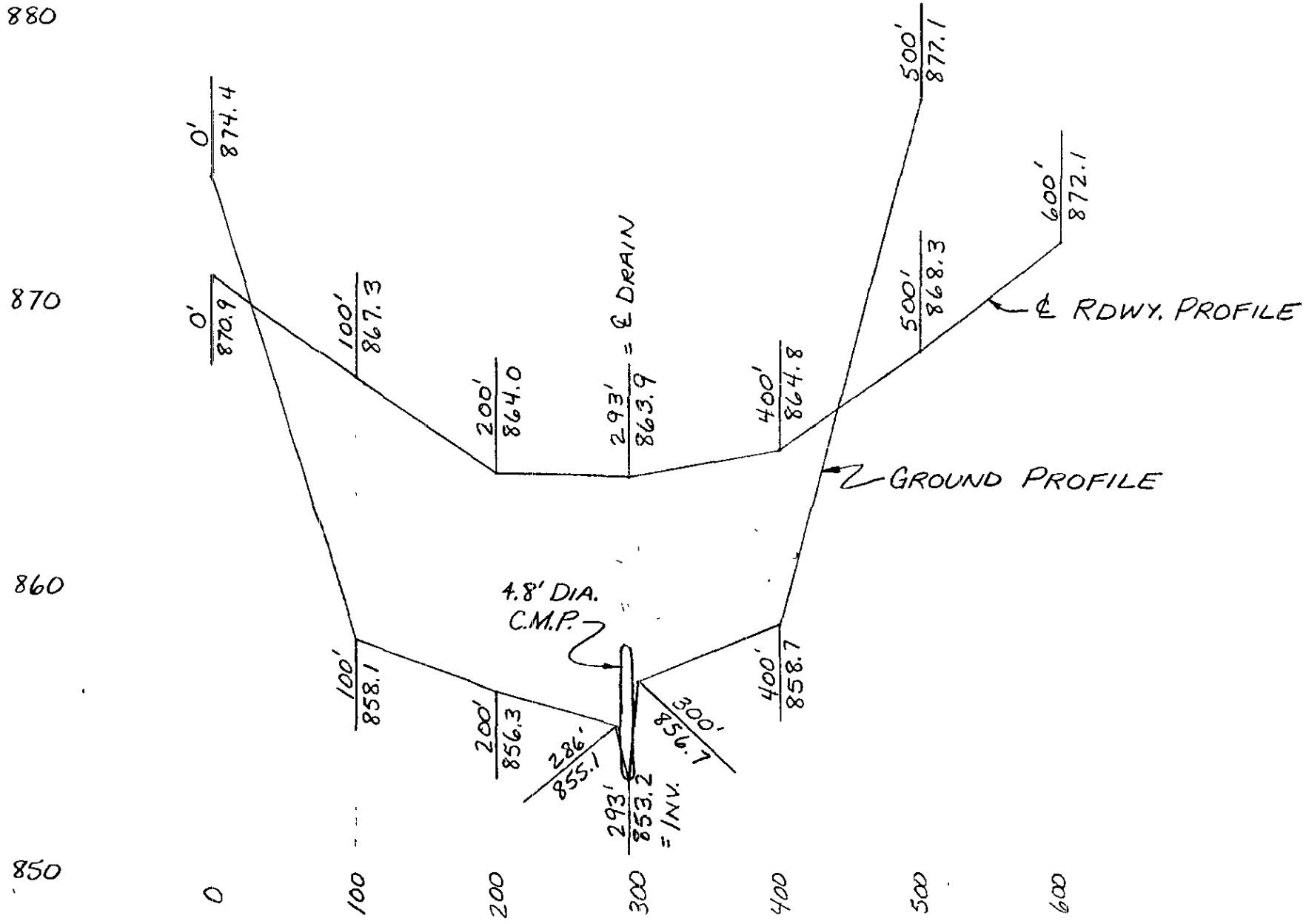
HAMILTON & MOON DRAIN AT MILLET HWY. & I-96

SEC. # 16

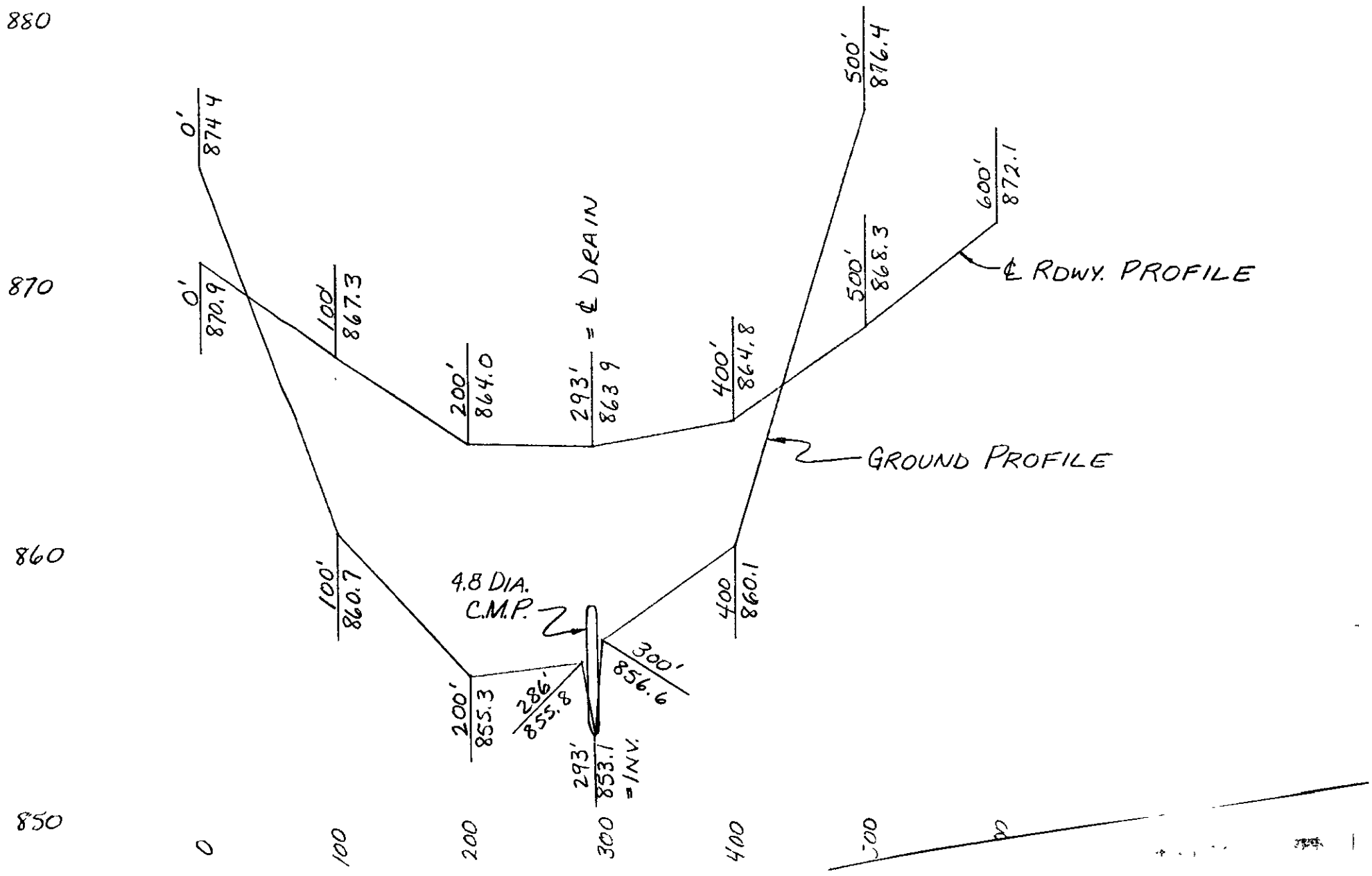
OUTLET



HOLLY DRAIN @ MT. HOPE
SEC. #21
INLET



HOLLY DRAIN @ MT. HOPE
SEC. #21
OUTLET



LANSING (CAPITOL) 6 MI.
4069 II NE
(LANSING SOUTH)

GRAND RAPIDS 74 MI.
9 MI. TO U.S. 27

(WILLIAMSTON)
4169 III NE

FOWLERVILLE 17 MI.
DETROIT 67 MI.

T. 4 N.
T. 3 N.

D E L H I

A L A I E D O N

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WAY DATA

500YR FLOOD BOUNDARY

100YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

500YR FLOOD BOUNDARY

CROSS SECTION LINE (AE — AE)

ELEV. REFERENCE MARK RM 2 x

APPROXIMATE 100 YEAR FLOOD BOUNDARY

Exhibit 2

DELHI TWP., LANSING TWP., AND CITY OF LANSING, MICH.

FLOOD BOUNDARY AND FLOODWAY MAP

SCALE: 1"= 1000'

DRN. NO. 12A

U.S. GOVERNMENT PRINTING OFFICE: 1973—486—610/9

420 000 FEET

4727 4726 4725 4724 4723 000m N.

42° 37' 30"
84° 30'
84° 22' 30"

R. 2 W. 1 960 000 FEET R. 1 W.

MASON 4 MI.
JACKSON 27 MI.

MASON 3.2 MI.

(MASON)
4169 III SW

LANSING (CAPITOL) 6 MI.
4069 II NE
(LANSING SOUTH)

GRAND RAPIDS 74 MI.
9 MI. TO U.S. 27

(WILLIAMSTO
4169 III NE

FOWLERVILLE 17 MI.
DETROIT 67 MI.

T. 4 N.
T. 3 N.

T. 3 N.

Bertig Drain

LANSING

COLLEGE ROAD

JOLLY ROAD

HAGADORN ROAD

HULETT ROAD

DOBIE ROAD

STILLMAN ROAD

SUTTON ROAD

SANDHILL ROAD

WILLOUGHBY ROAD

HOLT ROAD

OKEMOS ROAD

SIMMONS ROAD

WALLING ROAD

LAMB ROAD

HOLT 0.8 MI.

Okemos South Ch

Radio Tower

Gravel Pit

Rest Area

Leek Cems

Dobie Lake

Sycamore Creek

Mud Creek

Plaiedon Sch

BM 886

RM 6

RM 7

ZONE A

ZONE A1

ZONE A5

ZONE B

ZONE C

DELHI

PLAIEDON

PENNSYLVANIA CENTRAL AND THORBURN DRAIN

660'

BR 906

BR 896

420 000 FEET

4727

4726

4725

4724

4723

40'

42° 37' 30"

84° 30'

84° 22' 30"

27' 30"

25'

R. 2 W. 1 960 000 FEET

R. 1 W.

MASON 4 MI.
JACKSON 27 MI.

MASON 3.2 MI.

(MASON)
4169 III SW

708

709

711

712

713 000m E.

4723 000m N.

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

Exhibit 3

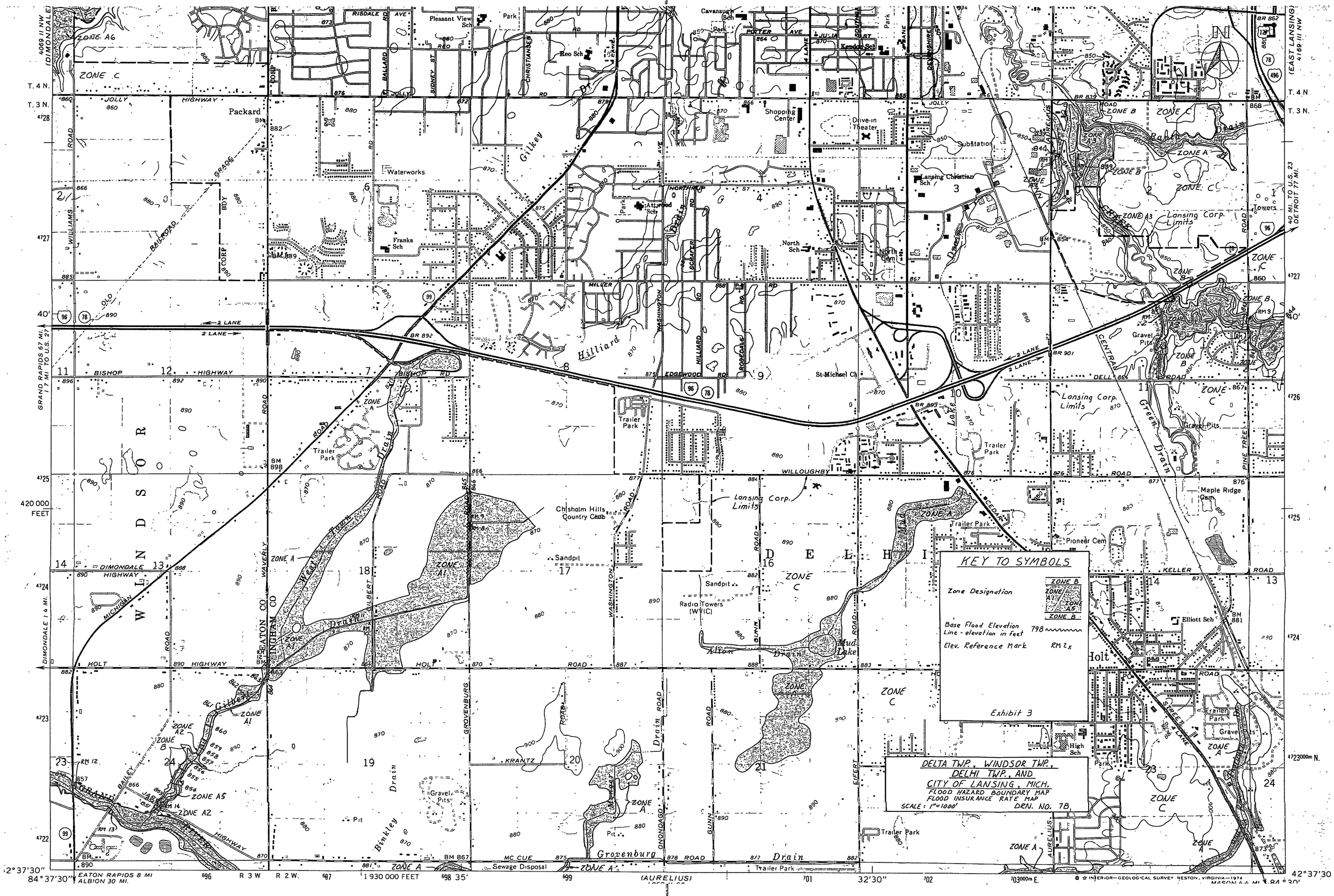
DELHI TWP., LANSING TWP., AND CITY OF LANSING, MICH.

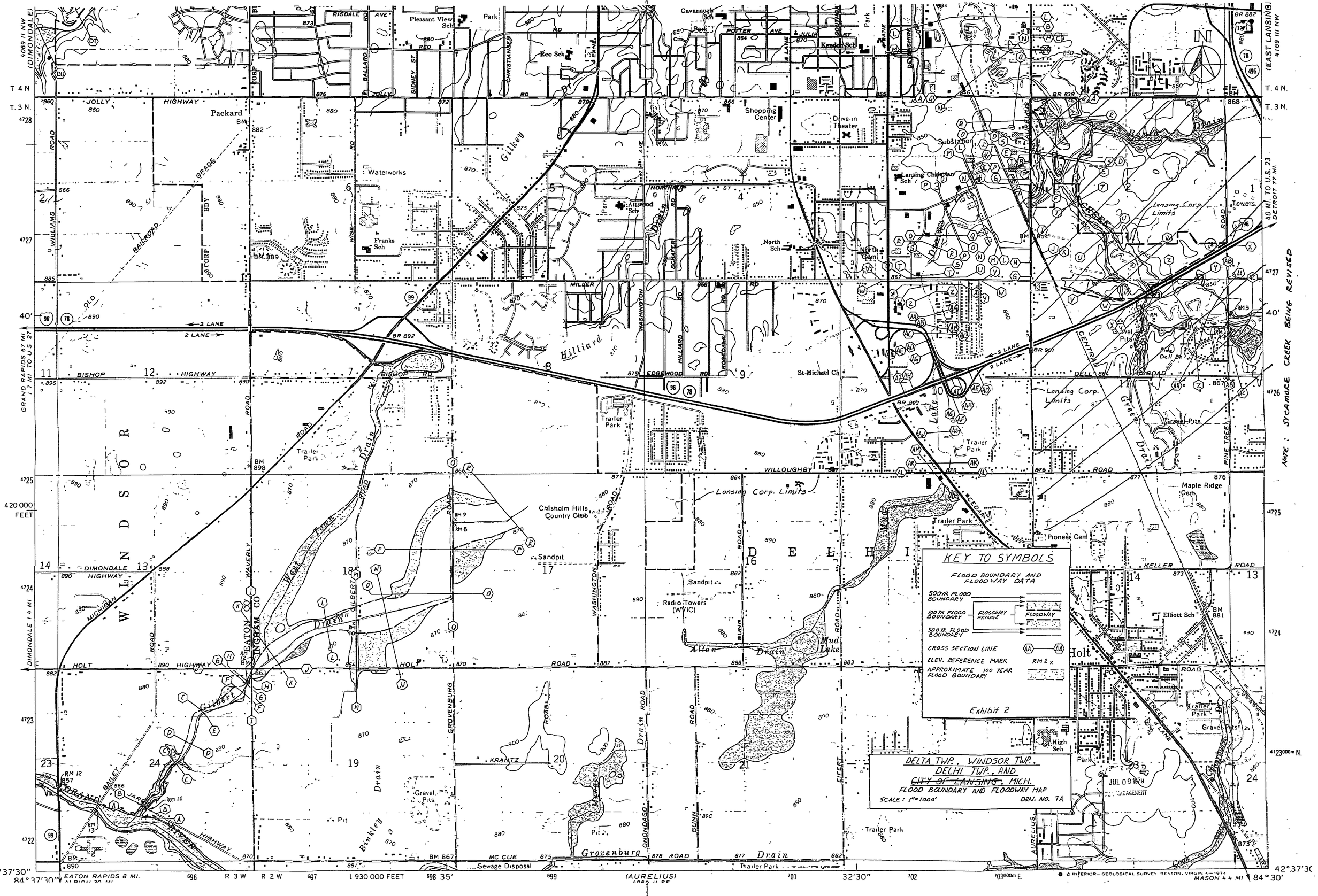
FLOOD HAZARD BOUNDARY MAP
FLOOD INSURANCE RATE MAP

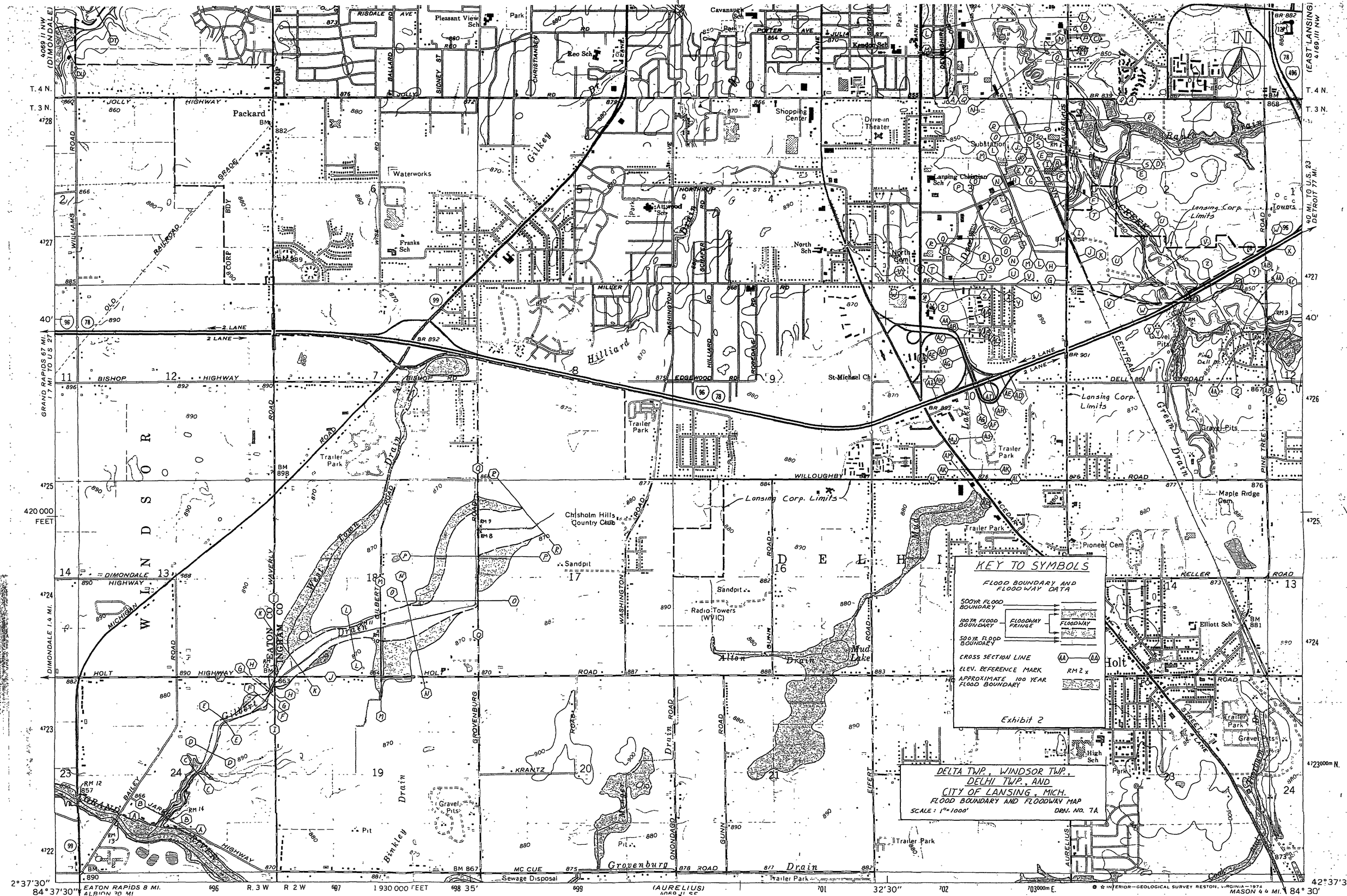
SCALE: 1" = 1000'

DRN. NO. 128

☆U.S. GOVERNMENT PRINTING OFFICE: 1973—486—610/9


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
Exhibit 3
DELTA TWP., WINDSOR TWP., DELHI TWP., AND CITY OF LANSING, MICH.
FLOOD HAZARD BOUNDARY MAP
FLOOD INSURANCE RATE MAP
SCALE: 1"=1000'
DRN. NO. 7B
W I N D S O R
D E L H I
ZONE A6
ZONE C
ZONE A
ZONE A1
ZONE A2
ZONE A5
ZONE B
ZONE C
Packard
Waterworks
Franks Sch
Reo Sch
Pleasant View Sch
Cavanaugh Sch
Kendon Sch
Shopping Center
Drive-in Theater
Substation
Lansing Christian Sch
Attwood Sch
North Sch
North Cem
St Michael Ch
Trailer Park
Sandpit
Radio Towers (WVIC)
Chisholm Hills Country Club
Gravel Pits
Pit
Pioneer Cem
Maple Ridge Cem
Elliott Sch
High Sch
Towers
Lansing Corp. Limits
Gilkey
West Side Drain
Baker Drain
Dart Drain
Mud Lake Drain
Grovenburg
Bailey Drain
Binkley Drain
Onondago Drain
Green Lane Drain
Alton Drain
Hilliard
Delta
Holt
Dimondale
Grovenburg
Aurelius
Lake Lansing
Mud Lake
Gravel Pits
Trailer Park
Sewage Disposal
MC CUE
RISDALE AVE
REO ROAD
JOLLY ROAD
HIGHWAY
BISHOP RD
MILLER ROAD
EDGEWOOD RD
WILLOUGHBY ROAD
DELL ROAD
KELLER ROAD
HOLT ROAD
GREEN LANE
PINE TREE ROAD
CEDAR ST
CENTRAL ROAD
AURELIUS ROAD
KRANTZ ROAD
MICHIGAN AVE
GRAND RAPIDS 67 MI. I-7 MI TO U.S. 27
40 MI. TO U.S. 23 DETROIT 77 MI.
DIMONDALE 1 4 MI.
EATON RAPIDS 8 MI
ALBION 30 MI.
(EAST LANSING) 4169 III NW
4069 II NW (DIMONDALE)
T. 4 N.
T. 3 N.
420 000 FEET
1 930 000 FEET
R 3 W
R 2 W.
84°37'30"
42°37'30"
MASON 44 MI.
© ☆ INTERIOR—GEOLOGICAL SURVEY RESTON, VIRGINIA—1974


4069 II NW (DIMONDALE)
4169 III NW (EAST LANSING)
T 4 N
T. 3 N.
RISDALE AVE
Pleasant View Sch
Park
Reo Sch
Cavanaugh Sch
Park
POTTER AVE
Kendon Sch
SOUTHAM AVE
DEVONSHIRE
JULIA ST
JOLLY ROAD
HIGHWAY
Packard
BM 882
Waterworks
Gilkey Drain
Shopping Center
Drive-in Theater
Substation
Lansing Christian Sch
Lansing Corp. Limits
Towers
40 MI. TO U.S. 23
DETROIT 77 MI.
WILLIAMS ROAD
GRADE
RAILROAD
BTDY
BTCORP
Franks Sch
BM 889
NORTHRUP ST
Allwood Sch
North Sch
North Gem
MILLER RD
SCHAFER RD
WASHINGTON RD
HILLIARD RD
ROSEDALE
EDGEWOOD RD
St. Michael Ch
BR 892
BR 901
BR 839
BR 882
2 LANE
OLD
BISHOP HIGHWAY
BISHOP RD
ROAD
Hilliard Drain
Trailer Park
BM 898
Lansing Corp. Limits
Gravel Pits
Green Drain
DELL ROAD
Maple Ridge Cem
PINE TREE ROAD
WILLOUGHBY
CEDAR ST
Mud Lake Drain
Pioneer Cem
Chisholm Hills Country Club
Sandpit
Radio Towers (WVIC)
Allen Drain
KELLER ROAD
Elliott Sch
BM 881
Holt
STREET
Trailer Park
Gravel Pits
High Sch
Park
JUL 09 1979
FLOOD INSURANCE
Trailer Park
Maple Ridge Cem
WINDSOR
DELHI
DIMONDALE 1/4 MI
DIMONDALE HIGHWAY
MICHIGAN ROAD
HOLT ROAD
HOLT HIGHWAY
EATON CO
INGHAM CO
WAVERLY
GILBERT
GROVENBURG
KRANTZ
BAILEY
JARVIS
TRIPLETT
RIPPER
West Town Drain
Binkley Drain
Mud Lake Drain
Allen Drain
Grovenburg Drain
Sewage Disposal
MC CUE
BM 867
BM 898
RM 9
RM 8
RM 11
RM 12
RM 14
RM 13
RM 2
RM 3
Gravel Pits
Pit
Trailer Park
Sandpit
Trailer Park
Trailer Park
Trailer Park


KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOOD WAY DATA
500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
50 0YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
APPROXIMATE 100 YEAR FLOOD BOUNDARY
Exhibit 2
DELTA TWP., WINDSOR TWP., DELHI TWP., AND CITY OF LANSING, MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1"=1000'
DRN. NO. 7A
Packard
Waterworks
Franks Sch
Pleasant View Sch
Reo Sch
Cavanaugh Park
Kendon Sch
Shopping Center
Drive-in Theater
Substation
Lansing Christian Sch
Lansing Corp. Limits
Towers
Attwood Sch
North Sch
North Sem
St-Michael Ch
Trailer Park
Gravel Pits
Maple Ridge Cem
Pioneer Cem
Elliott Sch
Holt
High Sch
Chisholm Hills Country Club
Sandpit
Radio Towers (WVIC)
Pit
Sewage Disposal
Mud Lake
Hilliard
Gilkey
Gilbert
Grovenburg
Krantz
Allen Drain
Green Drain
Bailey Drain
Binkley Drain
West Town Drain
Mud Lake Drain
Trailer Park
Gravel Pits
Lansing Corp. Limits
Maple Ridge Cem
Pioneer Cem
Elliott Sch
Holt
High Sch
Sewage Disposal
Trailer Park
Pit
Sandpit
Radio Towers (WVIC)
Chisholm Hills Country Club
Grovenburg
Krantz
Allen Drain
Mud Lake Drain
Green Drain
Bailey Drain
Binkley Drain
West Town Drain
Gilbert
Gilkey
Hilliard
Mud Lake
T. 4 N.
T. 3 N.
R. 3 W
R 2 W
DELHI
WINDSOR
420 000 FEET
1 930 000 FEET
4069 II NW (DIMONDALE)
4169 III NW (EAST LANSING)
GRAND RAPIDS 67 MI. I 7 MI TO U S 27
40 MI. TO U.S. 23 DETROIT 77 MI.
DIMONDALE 1.4 MI.
EATON RAPIDS 8 MI.
ALBION 30 MI
MASON 4 4 MI.
84°37'30"
84° 30'
42°37'30
2°37'30"
4723000m N.
703000m E.

4069 III (CHARLOTTE 1:62

T. 4 N.
T. 3 N

Extension Drain
Thornapple Drain
DAVIS HIGHWAY
DOANE HY
Thornapple and Old Maid
OAK HIGHWAY
GUINEA Drain
BILLWOOD HIGHWAY
ROAD
TRUNK
GRAND HIGHWAY
Pit
Gravel Pit
RM 3
RM 4
RM 5
CHART
885 HIGHWAY
2 LANE
2 LANE
877 BISHOP
11 HIGHWAY
(LANSING SOUTH 4069 II/NE
T. 4 N.
T. 3 N.
7 MI. TO U.S. 127 DETROIT 83 MI.
40'
4728
4727
4726
4725
4724
4723
4722
420 000 FEET
1 890 000 FEET
42'30"
84°37'30"
84°45'
R 4 W
R 3 W
CHARLOTTE 7 MI
BATTLE CREEK 44 MILES
(EATON RAPIDS)
692000m E
4722000m N.
0.1 MI. TO MICH. 99
GRESHAM 8 MI

Palmiter and Phelps Drain
BENTON
WINDSOR 18
West Windsor
Radio Towers
Tower
Catman
GRESHAM
GRAND HIGHWAY
Drain
Trailer Park
CORP BDY
Vermontville
WESTERN HIGHWAY
TRUNK
ROYSTON ROAD
NIXON ROAD
BONNELL ROAD
King Drain
VERMONTVILLE HIGHWAY
Gravel Pit
Pray Cem
WINDSOR HIGHWAY
WALNUT HIGHWAY
Sandpit
Whaley Drain
DIMONDALE HIGHWAY
Dimondale
Elementary Sch.
HOLT HIGHWAY
SILVER ROAD
OLD RAILROAD GRADE
SMITH ROAD
CANAL ROAD
CRUM ROAD
RAILROAD GRADE
OLD RAILROAD GRADE

KEY TO SYMBOLS

FLOOD BOUNDARY AND FLOOD WATER DATA

500YR FLOOD BOUNDARY
100YR FLOOD BOUNDARY
FLOODWAY FRINGE
FLOODWAY
500YR FLOOD BOUNDARY
CROSS SECTION LINE
ELEV. REFERENCE MARK
APPROXIMATE 100 YEAR FLOOD BOUNDARY

Exhibit 2

DELTA TWP. AND
CITY OF DIMONDALE AND
WINDSOR TWP., MICH.
FLOOD BOUNDARY AND FLOODWAY MAP
SCALE: 1" = 1000'
DRN. NO. 3A

REVISED
JUL 09 1979

☆ INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1974

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Grand River at Eaton Rapids

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: report

00BREAK00

This report was compiled for an earlier submittal than the approved one received on Jan. 13, 1981. New rating charts + calculations may supersede those within. charts + calcs are separate + in the packet

HYDRAULIC ANALYSIS REPORT

GRAND RIVER AT EATON RAPIDS

EATON COUNTY

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

September, 1980

INTRODUCTION

The flood insurance study for the City of Eaton Rapids consists of analyzing the Grand River and one of its tributaries, Spring Brook. This report will describe the hydraulic calculations performed in analyzing the Grand River within the corporate boundaries of the city of Eaton Rapids. The Spring Brook portion of the study study is included in a separate report. The entire reach of the Grand River was studied in detail. Included in the analysis was a small diversion or bypass channel which merges with the Spring Brook and feeds a small hydro plant. The portion of river after the confluence with the Spring Brook was analyzed in both the Grand River and Spring Brook studies but with the appropriate flows and starting water surfaces controlling.

The majority of the cross sections used in this study were taken from data received from the Corps of Engineers which had been used in their "Flood Plain Information, Grand River," Ingham and Eaton counties, 1969, study. Structure data and selected cross sections were taken by Commonwealth survey crews in January of 1979. Additional information was also taken from 1968 aerial topographic maps with 2-foot contour intervals prepared by Abrams Aerial Survey Corporation. The flood discharge values (10-, 50-, 100-, and 500-year recurrence intervals) were obtained from the hydrology report for the Grand River at Eaton Rapids. This report was prepared by Commonwealth Associates in March, 1979 and approved by the Michigan DNR.

The analysis of the hydraulic characteristics of this portion of the Grand River were performed by Commonwealth Associates Inc. of Jackson, Michigan under the supervision of Project Manager V. Danushkodi, P.E.

METHOD OF ANALYSIS

The water surface profile was computed and plotted at various cross sections using the HEC-2 computer program. The cross sections were taken at hydraulic structures and at representative locations along the river reach where changes occurred in slope or cross sectional area. Where an abrupt change occurred in the channel, several cross sections were taken to accurately describe the transition. Hydraulic structures were analyzed using the Normal or Special Bridge Routine Option of the HEC-2 program.

VARIABLES AND COEFFICIENTS

Manning's coefficient of roughness "n" depends on several factors such as: 1) type and amount of vegetation, 2) channel configuration and stage, 3) material through which the channel is constructed, and 4) channel meandering. Without an in-depth study of these factors, an "n" value can only be estimated. The method used in estimating the roughness coefficient for this study is described in the preface, Supplement B of the "Guide for Selecting Roughness Coefficient "n" Values for Channels," United States Department of Agriculture - Soil Conservation Service, December, 1963. To confirm that the calculated coefficients were reasonable, the values obtained were compared with photographs taken at the time of the field survey.

Manning's Roughness Coefficient

For natural channel	0.045
For bridge channels	0.018
For overbanks	0.060
For overbanks	0.08

The loss coefficients (contraction and expansion and special bridge routine) were all obtained from the Application of the HEC-2 Bridge Routines. The calculations for the value XKOR are included with this report.

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Special Bridge Coefficients

Loss coefficient*	XKOR

HIGH-WATER MARKS

There have been a number of major floods on the Grand River in Eaton Rapids, the largest recorded flood being in April of 1947. The U.S. Weather Bureau staff gage located on the upstream face of the Hamlin Street footbridge recorded

*See Calculations Appendix B

an elevation of 868.00 during the flood. The estimated peak discharges during the same period were 6,300 cfs and 4,900 cfs downstream and upstream of the confluence with the Spring Brook, respectively. An attempt was made to reproduce the 1947 flood stage using the HEC-2 program. The results indicated a water surface elevation at the upstream face of the Hamlin Street footbridge of 868.12. The very small difference (0.12 feet) between the measured and calculated water surface can be attributed to three factors:

1) Peak flows during the 1947 flood were not measured, only estimated.

2) "n" factors used in the HEC-2 program were only estimated (these factors could be adjusted but it was not felt to be necessary with the small difference).

3) Three new bridges have been built over the Grand River in Eaton Rapids since 1947.

Knight Street Bridge	1954
Hamlin Street Footbridge (east)	1960
State Street Bridge	1948

STARTING CONDITIONS

The starting water surface for the Grand River was calculated approximately 1.5 miles downstream from the study area at the U.S.G.S. gaging station located 400 feet upstream of the Petrieville Highway bridge. A rating table for the gage (see Appendix A) received from the U.S.G.S. did not contain recorded data with flows high enough to correspond to the 10-, 50-, 100-, and 500-year levels used in the study. The rating table was plotted (see Appendix A) and the rating curve was extended to obtain the necessary elevations. Because of the great difference in recorded values and the study flows, the slope-area method was also used to verify the results. A computer run was made using a recorded high-water mark (859.2) and flow (2,000 cfs) and the slope obtained was used to calculate starting water surface for the higher flows. The two methods produced the following starting water surfaces:

CAUTION

SEE

ATTACHED COMMENTS

Recurrence Interval	Rating Curve	Slope Area	
10-Year	862.88	863.37	Q=4593
50	865.48	865.74	Q=6826
100	866.48	866.60	Q=7850
500	-	868.49	Q=10420

The differences between the starting water surfaces had all converged by the time the actual study area was reached. Cross sections for the Grand River between the gaging station and the study area were taken from the Corps of Engineers' "Flood Plain Information, Grand River" Ingham and Eaton Counties, 1969.

The starting water surface for the Grand River Bypass was taken as the water surface elevation between Section 324.0 and 330.0 when modeling the 100-year storm. However, the three separate channels for the Spring Brook-Bypass under Main Street required the computation of the stage-discharge relationship for the three branches. From the stage discharge data, a rating curve was plotted (see Appendix A) and a starting water surface for the 100-year level was interpolated from the graph to be used above Main Street. The rating curve indicated with a starting water surface of 868.8 the Grand River controlled and it made very little difference how much flow went through each channel. Therefore, the water surface of 868.8 from the Grand River was also used above Main Street. Since the river is only modeled for the 100-year recurrence, this elevation was used for all four flood levels. Otherwise, a stage discharge relationship would have to be developed for each corresponding water surface on the Grand River.

SPECIAL PROBLEMS AND CONSIDERATIONS

Several special considerations were taken into account in analyzing the Grand River and the Bypass. The first consideration concerned the Corps of Engineers' study conducted for the Grand River in the same area entitled "Flood Plain Information - Grand River" for Ingham and Eaton Counties (1969). Although Commonwealth used the surveyed cross sections provided by the Corps in analyzing the river, little effort was made to match the water elevations supplied in their report because of four differences in study methods.

1. The Corps utilized flows very different from the flows approved in the hydrology report

Location	Hydrology Report	Corps
At gage	7,850	8,851
At downstream study limit	7,760	8,851
Above Spring Brook	6,930	6,751

5360 + 1550

2. The flow diverted to the Grand River Bypass was not considered in the Corps' study

3. The Corps' study did not analyze one of the dams (Section 337.0). In addition, the areas behind the dams have silted in since the Corps' study

4. Commonwealth has used the HEC-2 computer program which is a much more sophisticated method of analysis than used by the Corps

Three problems developed in analyzing the Grand River Bypass. The first concerned the passing of the Spring Brook Bypass under Main Street through three separate channels. All three channels are controlled by gates used to regulate the water surface upstream of Main Street. A conversation with Don Cady (operator of the Smithville hydro-plant) indicated only two of the channels were actually in use at the present time.

1. North Channel - the gate is closed and is not used. The gate is old and rusted and has not been removed in years. The channel was analyzed with the gate closed.

2. Center Channel - feeds the "Mix" hydro-plant. The gates on the west side of Main Street are always open. The gates for the plant are regulated but will be opened during floods. The channel was analyzed with the gate open.

3. South Channel - The gate is the primary means of controlling the upstream water surface. The gate is entirely open during major floods. The channel was analyzed with the gate open.

CAUTION

SEE

ATTACHED COMMENTS

The second problem concerned the amount of flow that would be diverted from the Grand River to the Bypass. In order to analyze the two channels separately, a stage-discharge relationship had to be developed. Computations were made for both channels using various flows to obtain water surface elevations at their point of separation. The stage-discharge data for the two channels was plotted and a combined rating curve was developed (see Appendix B). The flow values used for the Grand River and the Bypass were taken from the rating curve.

The third problem in analyzing the bypass dealt with the amount of flow that would be contributed by the Spring Brook. A review of the hydrology reports indicated the drainage area for the Grand River (574.2 square miles) was significantly higher than the drainage area for the Spring Brook (86 square miles). From this fact, the assumption was made that the rivers were not in coincidence and peak flows on the Grand River were not matched by corresponding high flows on the Spring Brook. The flow contribution from the Spring Brook for all four flood discharges was taken as the mean annual flood flow (350 cfs) as taken from the graph in Appendix B.

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 calculations.

APPENDIX B

Calculations for "n" bridge factors and dam hydraulics along with bridge sketches.

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.

APPENDIX A

(STARTING WATER SURFACE ELEVATION)

9-210
(Rev 2-67)

UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY (WATER RESOURCES DIVISION)

Sta. No. 04 11 [redacted] 00

Table No. 11

Begin 78 10 01 __
YR MO D HR.

Rating table for Grand River near Eaton Rapids, MI

from Oct 1, 1978 to _____, from _____ to _____, from _____ to _____

Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs	Gage height Feet	Discharge Cfs	Difference Cfs
0.00			2.00	225	30	4.00	1080	50	6.00	2080	50	8.00	3250		.00			.00		
.10			.10	255	33	.10	1130		.10	2130		.10			.10			.10		
.20			.20	288	33	.20	1180		.20	2180		.20			.20			.20		
.30			.30	321	37	.30	1230		.30	2230		.30			.30			.30		
.40			.40	358	37	.40	1280		.40	2280	50	.40			.40			.40		
.50			.50	395	40	.50	1330		.50	2330	60	.50			.50			.50		
.60			.60	435	40	.60	1380		.60	2390		.60			.60			.60		
.70	19	5	.70	475	45	.70	1430		.70	2450		.70			.70			.70		
.80	24	7	.80	520		.80	1480		.80	2510		.80			.80			.80		
.90	31	9	.90	565		.90	1530		.90	2570		.90			.90			.90		
1.00	40	10	3.00	610		5.00	1580		7.00	2630		.00			.00			.00		
.10	50	12	.10	655		.10	1630		.10	2690		.10			.10			.10		
.20	62	14	.20	700		.20	1680		.20	2750		.20			.20			.20		
.30	76	16	.30	745		.30	1730		.30	2810		.30			.30			.30		
.40	92	18	.40	790		.40	1780		.40	2870		.40			.40			.40		
.50	110	19	.50	835	45	.50	1830		.50	2930		.50			.50			.50		
.60	129	21	.60	880	50	.60	1880		.60	2990		.60			.60			.60		
.70	150	23	.70	930		.70	1930		.70	3050	60	.70			.70			.70		
.80	173	25	.80	980		.80	1980		.80	3110	70	.80			.80			.80		
.90	198	27	.90	1030	50	.90	2030	50	.90	3180	70	.90			.90			.90		

This table is applicable for open-channel conditions. It is based on 11 discharge measurements made during 1978 (340-343) 1979 (344-346, 348-350) 1980 (351) and is _____ well defined between 50 cfs and 2,000 cfs.

It is identical to No. 10 above 2.0 ft.

Comp. by GLS date 12-12-79

Ckd. by WH date 1-3-80

* U S GOVERNMENT PRINTING OFFICE 1974 O 585-880

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REV.

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		JOB NO.
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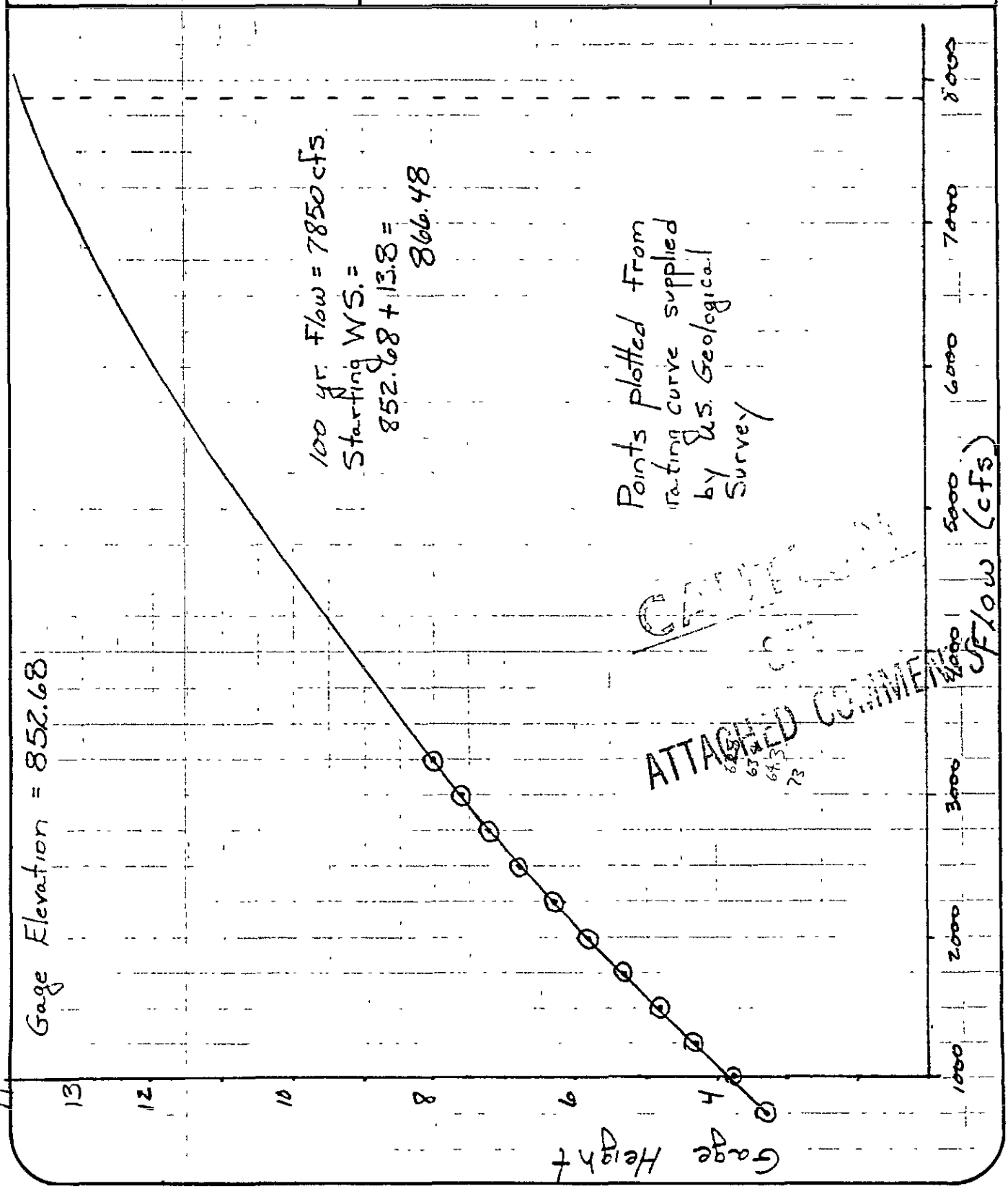
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

STARTING WATER SURFACE FROM GAGING STATION



FORM CAI/DCP 112 (9/78)

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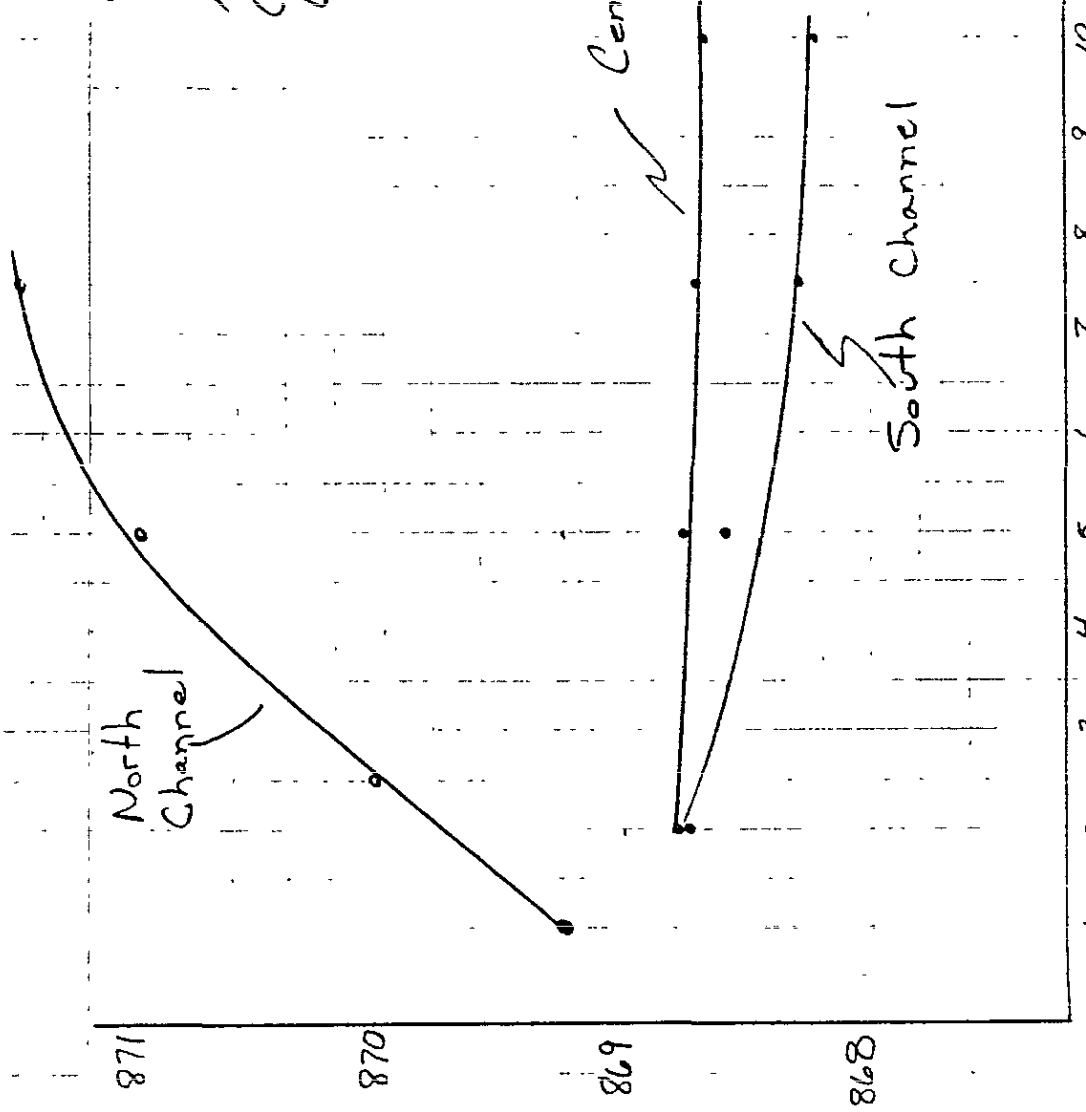
CHECKED BY/DATE	(SIGNATURE)		BOOK NO.

210 - 214
216 - 219

Spring brook channel using Grand River 100 year W.S. elevation (868.8) as starting W.S.

CAUTION

SEE ATTACHED COMMENTS



APPENDIX B

(CALCULATIONS AND BRIDGE SKETCHES)

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ENGINEERS/CONSULTANTS Reading,PA/Jackson,MI

CALCULATION SHEET

REV.

CLIENT/OWNER	FILING CODE
	JOB NO.
CALC. BY/DATE	SUBJECT
REVIEW BY/DATE	SHEET OF
	BOOK NO.

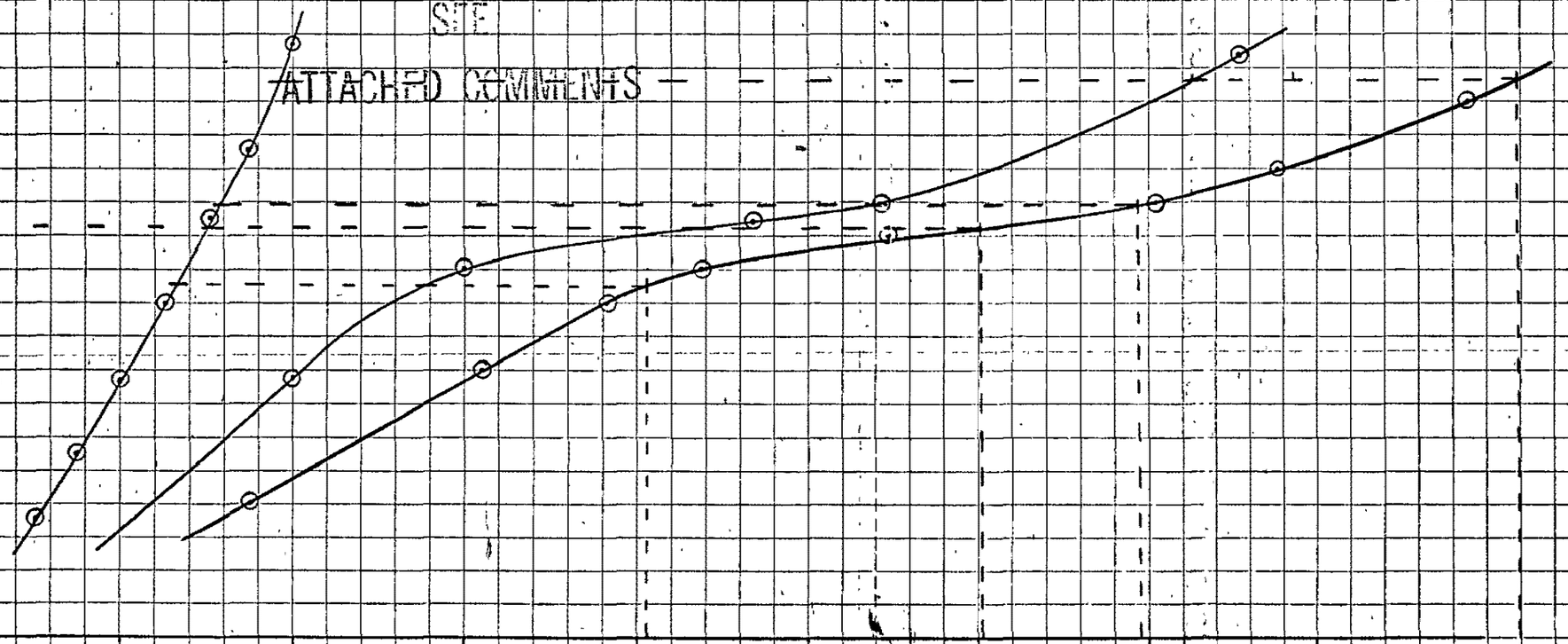
DIVISION OF FLOW
Grand River and Grand River Bypass into Spring Brook

Note: 1) Starting water surface from Grand River 100 year level at Section 330.0 — plotted points are final elevations computed at the dividing point of the Grand River and the Bypass (Sec 402.0)

2) Existing bridge was used at Knight St. over Spring Brook

	Total	Channel	Bypass
10 year -	4050	2750	1300 *
50 year -	6020	4520	1500 *
100 year -	6930	5380	1550 *
500 year -	9190	7340	1850 *
Mean Annual -	2000	1360	640

CAUTION
SITE
ATTACHED COMMENTS



*Spring Brook mean annual flow estimated at 350 cfs. Downstream of Sec 41 must add 350 to the listed Flow.

NO 3128 LOGARITHMIC PROBABILITY. DESIGNED BY HAZEN, WHIPPLE & FULLER.
codex GRAPH PAPER ® IN STOCK DIRECT FROM CODEX BOOK CO. INC NORWOOD, MASS 02062
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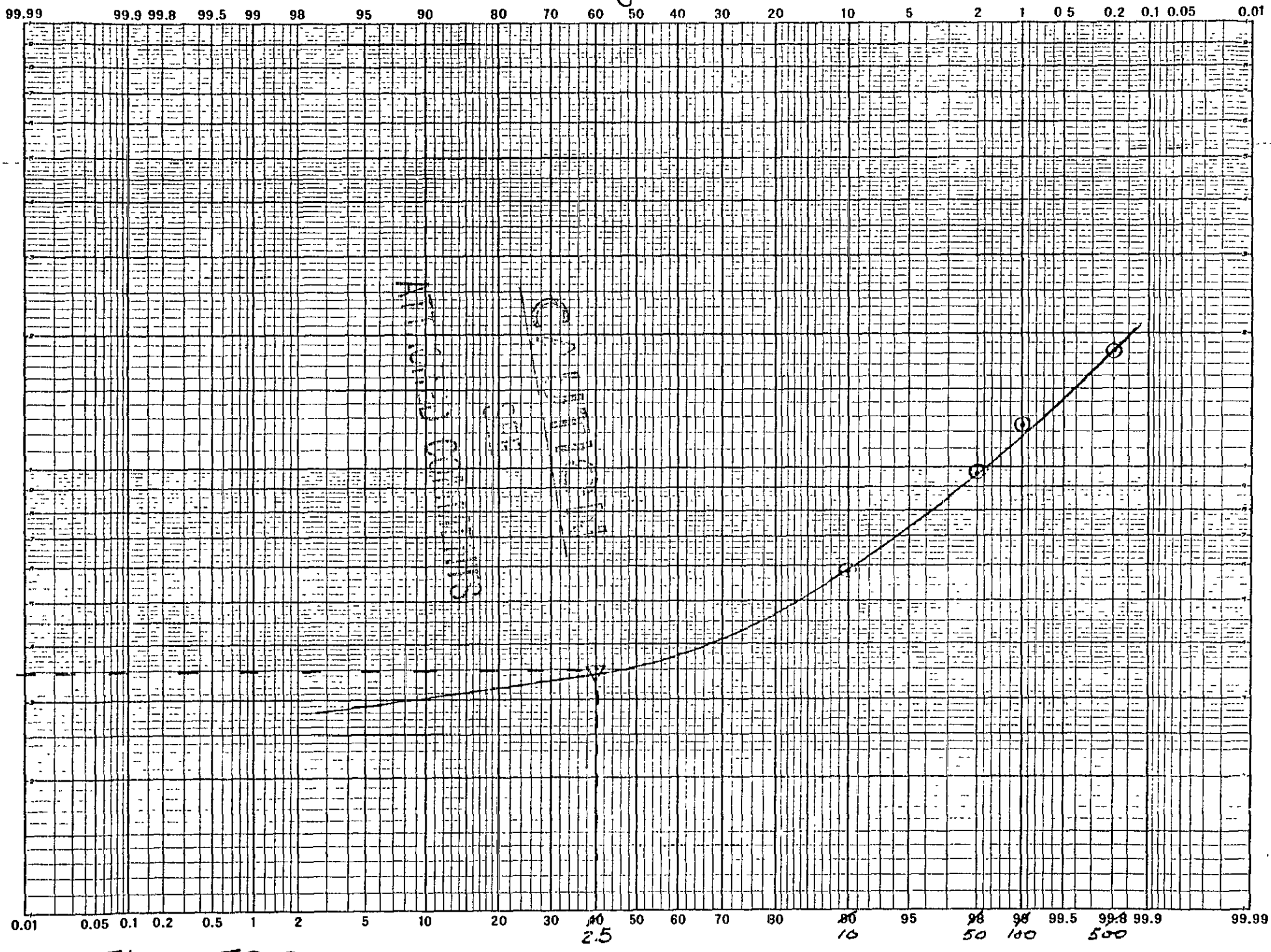
Mean Annual Flow - Spring Brook at Sec. 22.8



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CALCULATION SHEET REV.

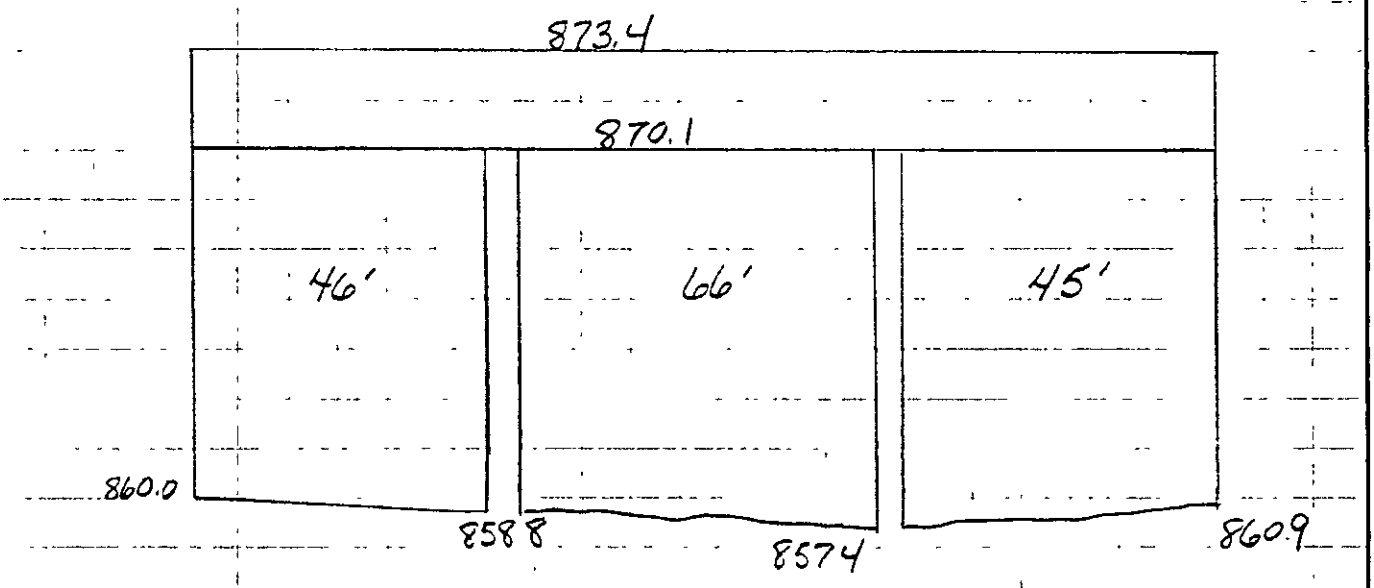
CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT Loss Coefficient (XKOR) - Knight St	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO

Intake .1 + .90
Piers .05
Friction K_f

$XKOR = 1 + \Sigma K$

K Intake = .4

K_f Friction = $\frac{29 n^2 L}{R^{4/3}}$ $R = A/P$



$A = (46)(10.1) + (46)(\frac{1}{2})(1.2) + 66(11.3) + \frac{1}{2}(66)(1.4) + 45(9.2) +$

$\frac{1}{2}(45)(3.5) - 2(11.3) - 2(13.5) = 1777 - 50 = 1727\ Ft^2$

$R = 46 + 66 + 45 + 10.1 + 11.3 + 11.3 + 12.7 + 12.7 + 9.5 = 225$

CALCULATION SHEET REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT	SHEET OF
CHECKED BY/DATE (SIGNATURE)	Knight St	BOOK NO.

$R = 1727/225 = 7.67$

$K_f = \frac{(29.1)(.018)^2(161)}{(7.67)^{4/3}} = .11$

$XKoR = 1 + .4 + .05 + .11 \approx 1.56$

Pier Coefficient $\approx$ 1.25 (Square)

Coefficient of Discharge $\approx$ 2.8

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CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO
CALC. BY/DATE (SIGNATURE)	SUBJECT: Loss Coefficient (XKOR) - State St	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

Intake = .1 to .9

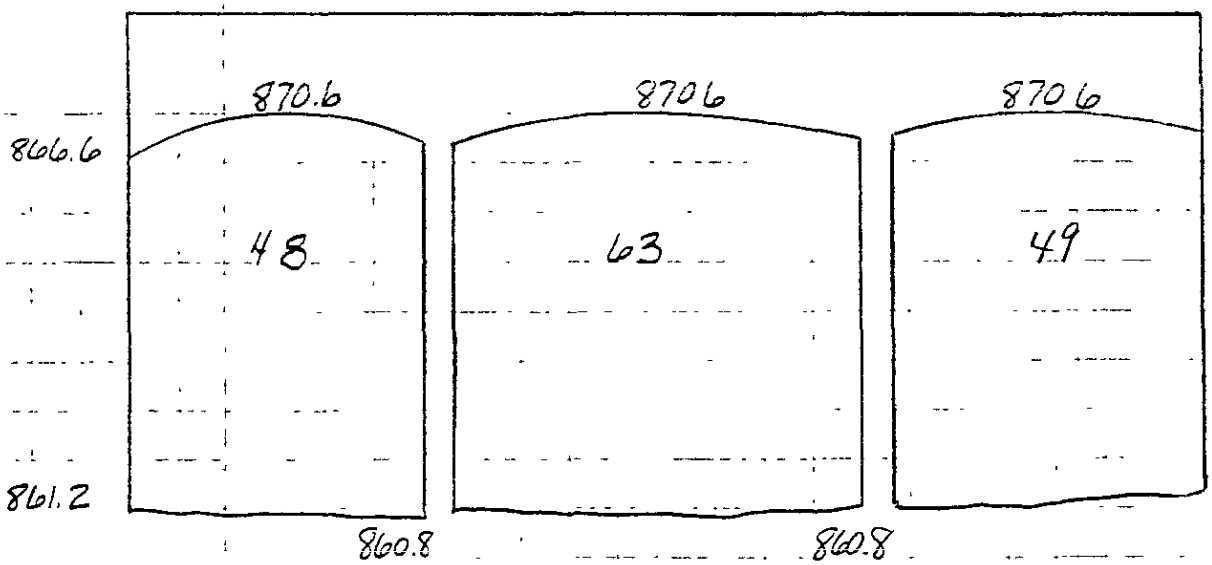
Piers .05

Friction $K_f = \frac{29.1\, n^2 L}{R^{4/3}}$

$XKOR = 1 + \Sigma F$

K intake =

K_f Friction $= \frac{29.1\, n^2 L}{R^{4/3}}$ $\quad R = A/P$



$A = (5.4)(48) + \frac{1}{2}(4)(48) + 63(5.8) + \frac{1}{2}(63)(4) + 49(5.4) + \frac{1}{2}(49)(4)$

$= 1209$

$R = 48 + 63 + 49 + 5.4 + 5.8 + 5.8 + 5.4 + 5.8 + 5.8 = 194$

CALCULATION SHEET REV

CLIENT/OWNER		FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT	SHEET OF
CHECKED BY/DATE (SIGNATURE)	State St	BOOK NO.

$R = 1209/194 = 6.23$

$K_F = \frac{(29.1)(.018)^2(166)}{(6.23)^{4/3}} = .13$

$XKOR = 1 + .4 + .05 + .13 = 1.58$

Pier Coefficient $\approx .9$ (Semi circular)
Coefficient of Discharge ≈ 2.8

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CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT: Loss Coefficient — State St. Dam	SHEET OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.

XKOR - orifice was not used (0 opening all wier flow)

Pier Coefficient = 0

Coefficient of Discharge = 3.087 (broad crested weir)

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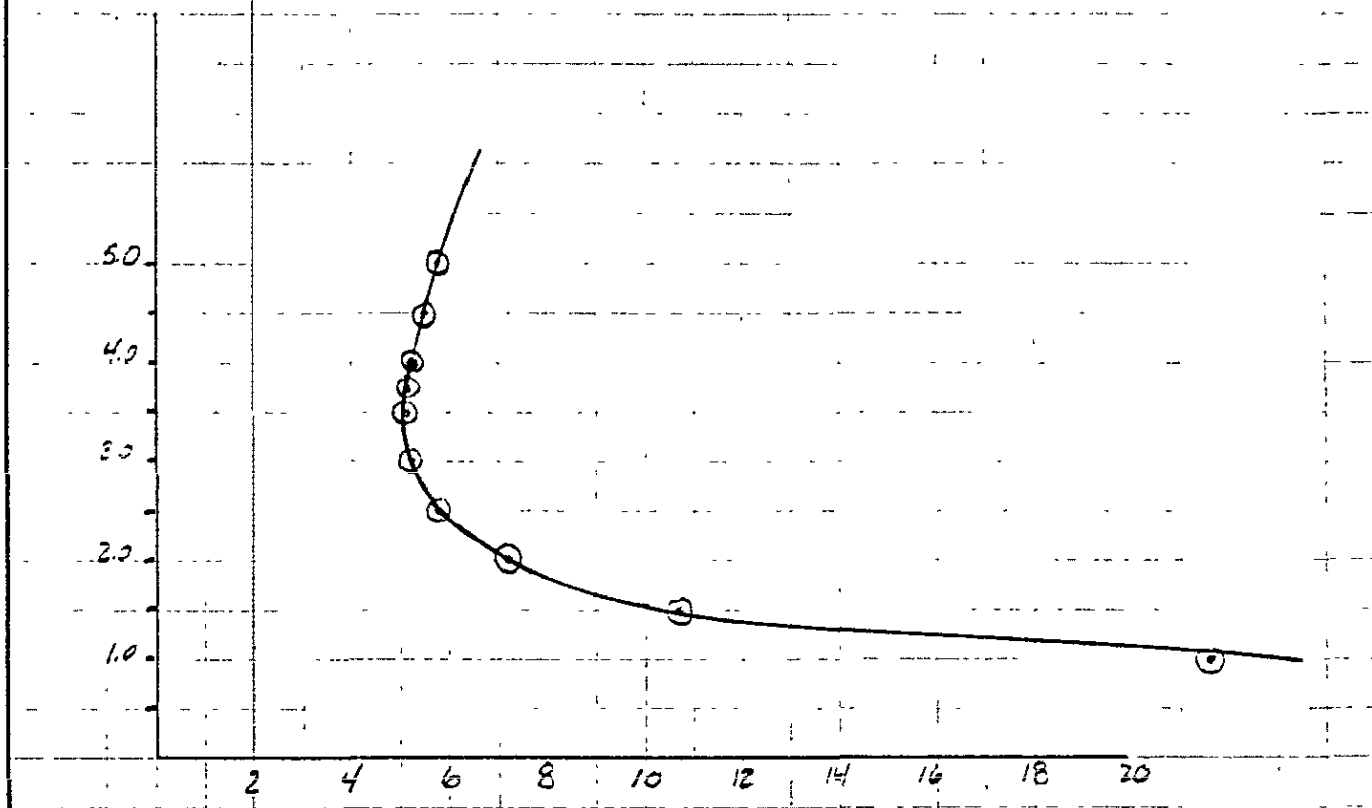
CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE)	SUBJECT: Confirming State St. Dam Critical Depth	SHEET 1 OF
CHECKED BY/DATE (SIGNATURE)		BOOK NO.



6,930 cfs
190 ft wide

36.47 sf/sec.

Depth	V	$V^2/2g$	D+ $V^2/2g$				
.5	72.94	82.6	83.1				
1.0	36.47	20.6	21.6				
1.5	24.31	9.2	10.7				
2.0	18.2	5.2	7.2				
2.5	14.6	3.3	5.8				
3.0	12.16	2.3	5.3				
3.5	10.421	1.686	5.186	← 3.75	9.726	1.469	5.22
4.0	9.118	1.291	5.291				
4.5	8.1	1.01	5.5				
5.0	7.3	.83	5.8				

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CALCULATION SHEET REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT: State St. Dam	SHEET 2 OF
CHECKED BY/DATE (SIGNATURE)	Critical Depth	BOOK NO.

Critical Depth ≈ 3.55 Ft.



Since the actual height of the weir is less than 1 foot we will analysis the weir as a broad-crested weir or, in effect, a channel.

$Q = C L H_e^{3/2}$

C = 3.087 for broad-crested weir (Design of Small Dams pg 573)

L = effective length = 190'

Q = discharge = 6930 cfs

H_e = total head on the crest

$6930 = (3.087)(190) H_e^{3/2}$

$H_e^{3/2} = 11.82'$ $H_e = 5.19'$

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CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE / JOB NO.
CALC BY/DATE (SIGNATURE)	SUBJECT: State St Dam	SHEET 3 OF
CHECKED BY/DATE (SIGNATURE)	Critical Depth	BOOK NO.

From Sheet 1

Velocity head = 1.69

Depth = 5.19 − 1.69 = 3.5 ft

Check using Channel Formulas (Manning eq)

$$Q = \frac{1.49}{n} A R^{2/3} S^{1/2}$$

assume slope = .002
n = .014
Q = 6930

$$6930 = \left(\frac{1.49}{.014}\right)(190D)\left[190D/(190+2D)\right]^{2/3}(.002)^{1/2}$$

$$1456 = (190D)\left[190D/(190+2D)\right]^{2/3}$$

4/60

D_N = 3.45′ ≈ 3.5′

$$Q^2 B = gA^3$$

$$(6930)^2(190) = (32.2)(190D)^3$$

$D_c \approx 3.45$

TABLE 1

RECOMMENDED FLOWS FOR GRAND RIVER
AT EATON RAPIDS

Location	Drainage Area sq mi	Exponent	Flows (cfs) for 10-yr	50-yr	100-yr	500-yr
At U.S.G.S. gage	661	-	4593	6826	7850	10420
At downstream limit of study	652.5	0.889	4540	6750	7760	10300
Above Spring Brook	574.2	0.889	4050	6020	6930	9190

APPENDIX C

(PROFILES)

APPENDIX D

(CROSS SECTION PLOTS)

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	310.0	Valley Section (Corps' Section 31)
B	320.0	Valley Section (Corps' Section 32)
C	324.0	Valley Section
D	332.0	Upstream face of dam (Corps' Section 33)
E	337.0	Upstream face of dam
F	340.0	Valley Section (Corps' Section 34)
G	351.0	Upstream face of Knight Street bridge (Corps' Section 35)
H	360.0	Valley Section (Corps' Section 36)
I	371.0	Upstream face of Hamlin Street pedestrian bridge (Corps' Sec. 37)
J	380.0	Valley Section (Corps' Section 38)
K	391.0	Upstream face of State Street bridge (Corps' Section 39)
L	401.0	Upstream face of State Street dam (Corps' Section 40)
M	402.0	Valley Section
N	410.0	Valley Section (Corps' Section 41)
O	420.0	Valley Section (Corps' Section 42)

Commonwealth Associates Inc. engineers/consultants/architects	OHIO EDISON COMPANY ERIE NUCLEAR PLANT	FILING CODE / JOB NO
ESTIMATED BY/DATE / DWG NO/REV	SUBJECT	SHEET ___ OF ___ / BOOK NO / REV.

Gilbert Commonwealth Companies

Grand River at Petriville Bridge U/S
(USGS Gage)
Data from CoE FPI Report

Flood	Flow (cfs)	WSEL
1947	6300	862.4
50 year	7670	863.3
100 year	8850	864.3
Standard Proj	25880	873.0

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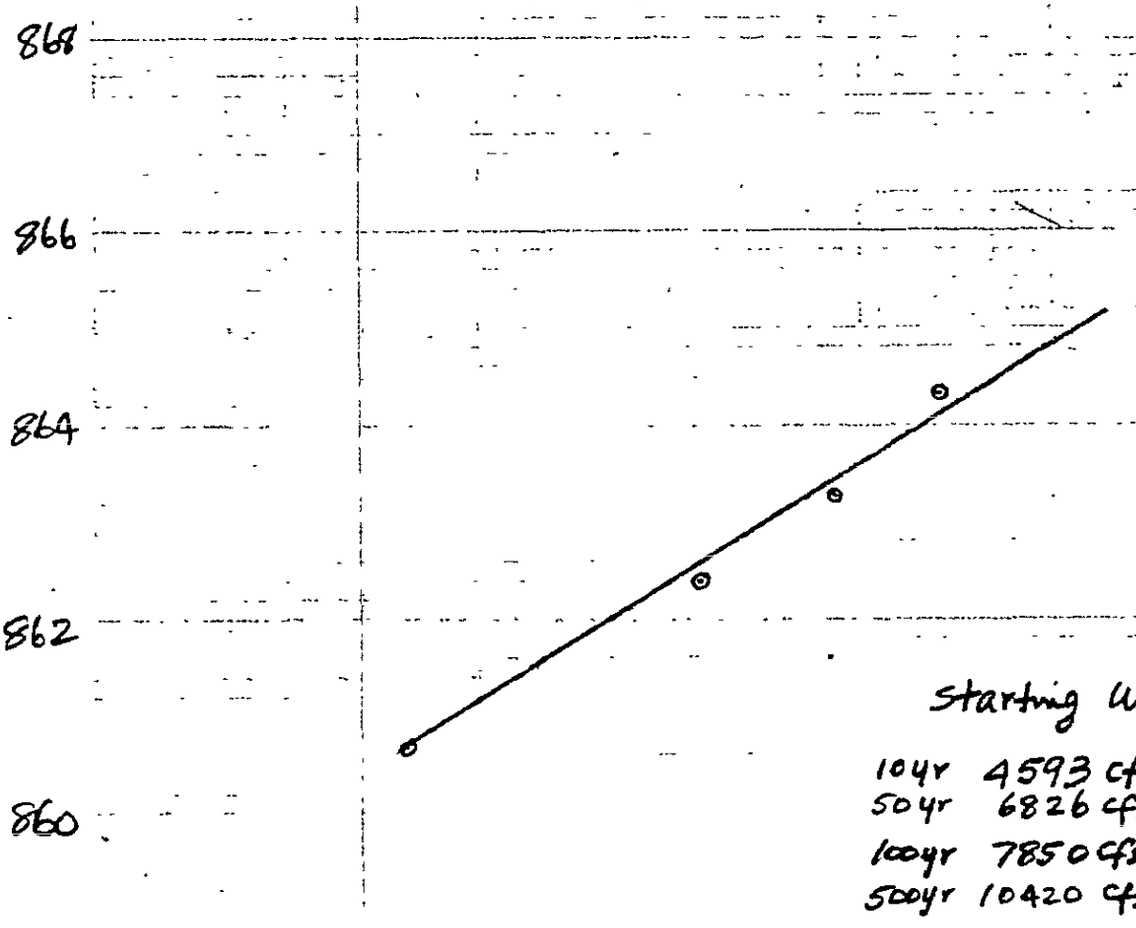

Starting WSEL

10yr	4593 cfs	861.7
50yr	6826 cfs	862.9
100yr	7850 cfs	863.5
500yr	10420 cfs	865.1

Commonwealth Associates Inc. engineers/consultants/architects	OHIO EDISON COMPANY ERIE NUCLEAR PLANT	FILING CODE / JOB NO
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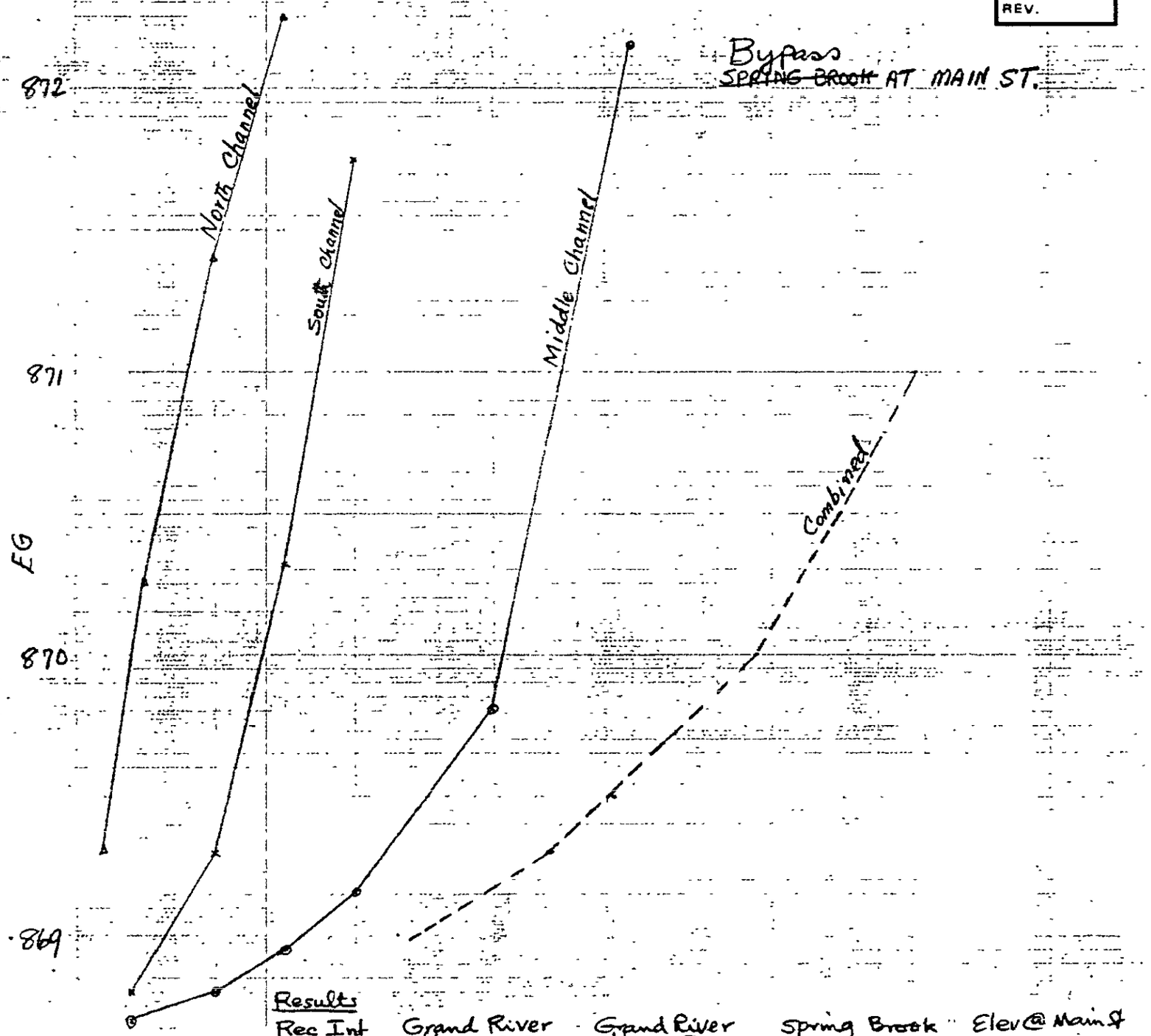
Gilbert Commonwealth Companies

Bypass
~~SPRING BROOK~~ AT MAIN ST.



Results

Rec Int yrs	Grand River d/s of Sp Brk	Grand River d/s of Dam	Spring Brook	Elev @ Main St
10	4540	2950	1590	869.2
50	6750	4750	2000	869.6
100	7760	5600	2160	869.7
500	10300	7560	2740	870.5

Gilbert Commonwealth Companies	Commonwealth Associates Inc. engineers/consultants/architects	OHIO EDISON COMPANY	FILING CODE
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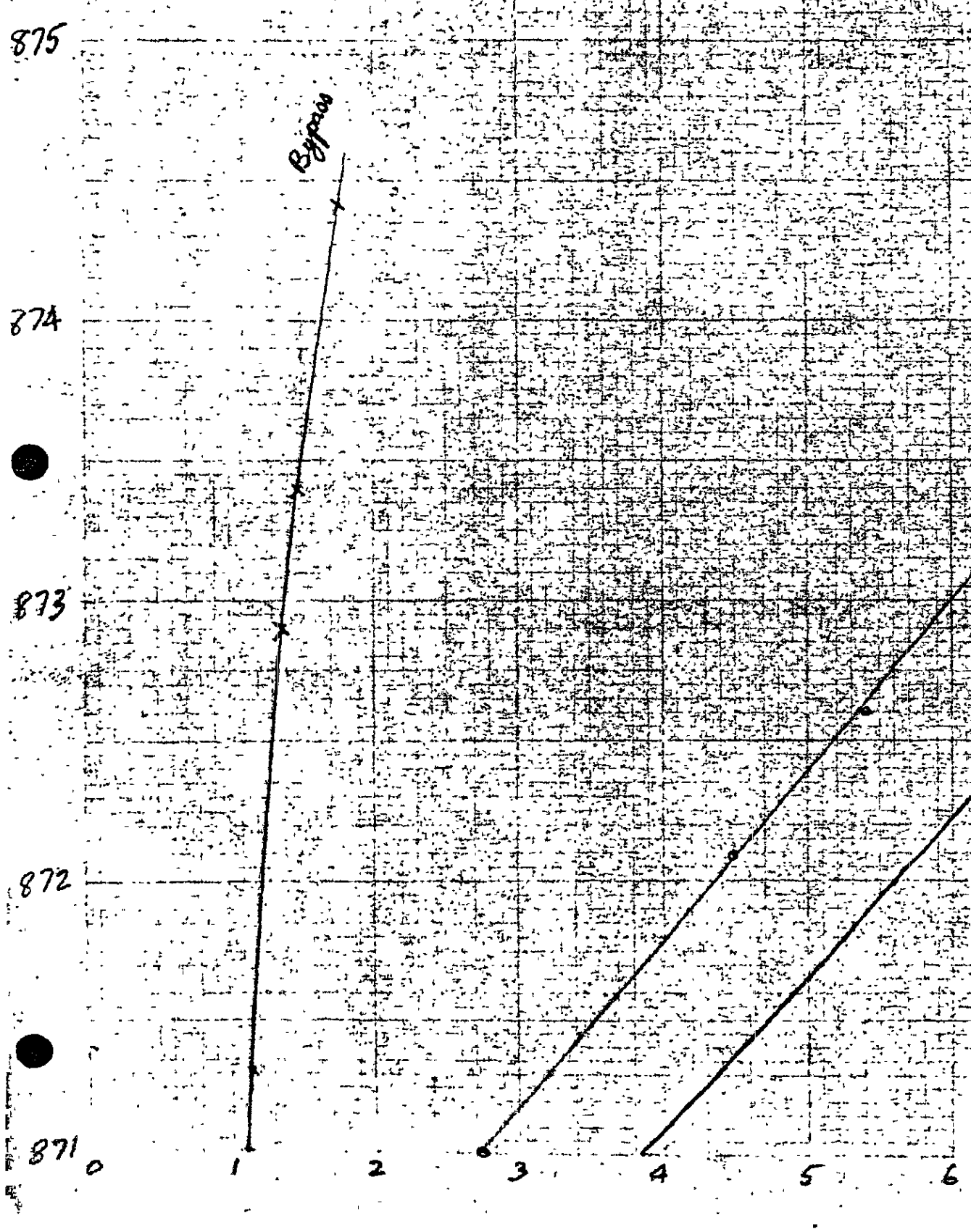
	REVIEW BY/DATE		SHEET ___ OF ___
			BOOK NO.
			REV.

GRAND RIVER AT STATE STREET DAM



Results

Rec Int Years	Total Flow cfs	Bypass cfs	Grand River cfs	EG Elev
10	4050	1100	2950	871.1
50	6020	1270	4750	872.3
100	6930	1330	5600	872.8
500	9190	1630	7560	874.0

Hall St Bridge on By Pass

Concrete Bridge

41' wide

Area = 320 ft^2

P = 41x2 + 8x2 = 98 ft

$R = \frac{320}{98} = 3.27$ ft

$K_f = \frac{29.1 n^2 L}{R^{4/3}}$ $n = 0.02$, $L = 38'$

$= 0.09$

$\Sigma K_{OR} = 1.0 + 0.5 + .09 = 1.59$

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FIS Eaton Rapids			JOB NO.
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Bypass Crossing Main Street

$\ell = 101$ ft

$A = 189$ ft^2

$n = 0.02$ $\quad R \simeq 2.7$ ft

$$K_f = \frac{29.1 n^2 \ell}{R^{4/3}} = 0.3$$

$\Sigma K_{OR} = 1.0 + 0.5 + 0.3 = \underline{\underline{1.8}}$

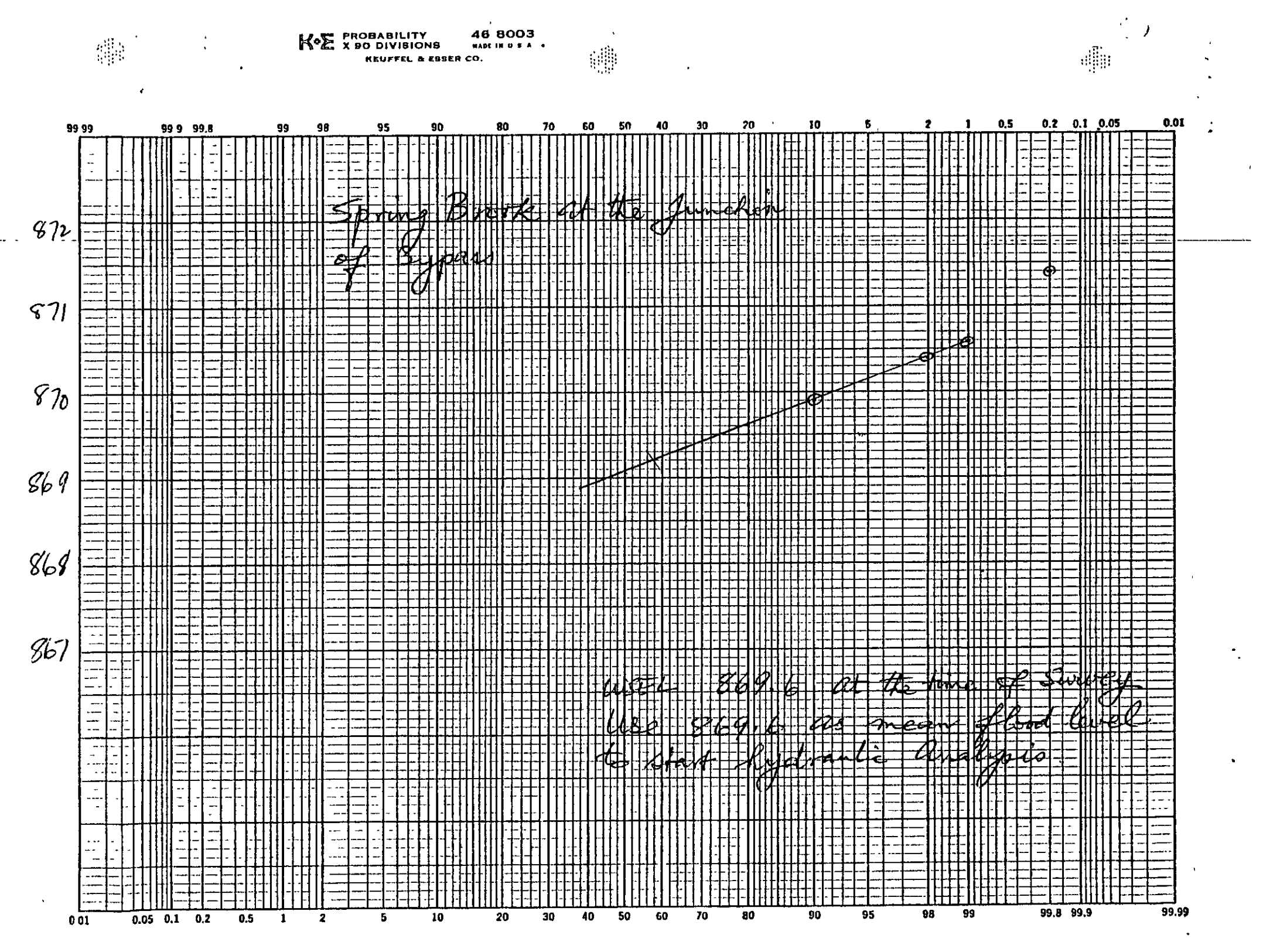
Starting WSEL for Spring Brook
At the junction of Bypass

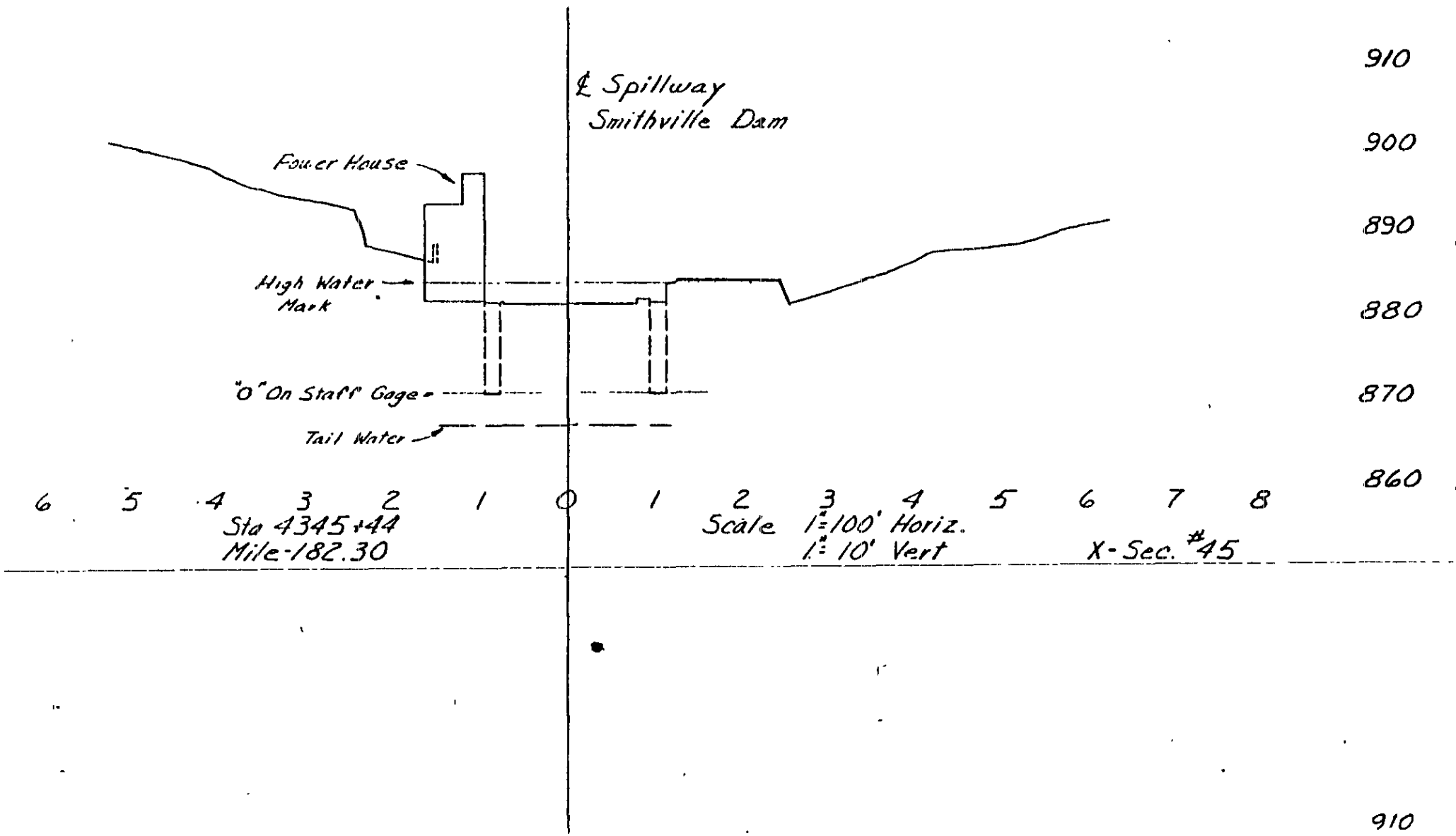
Elevations due to flooding from Bypass
At the junction

10 yr	869.9
50 yr	870.4
100 yr	870.6
500 yr	871.4

Annual
Calculated Mean flood ~~flood~~
level = 869.2

The observed water level at the time of survey at Walk Bridge was 869.6. Therefore, use 869.6 as starting water surface level At the junction of Bypass.


K•E PROBABILITY X 90 DIVISIONS
46 8003
MADE IN U S A
KEUFFEL & ESSER CO.
99.99 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.5 0.2 0.1 0.05 0.01
872
871
870
869
868
867
Spring Brook at the Junction of Bypass
Use 869.6 at the time of Survey
Use 869.6 as mean flood level to start Hydraulic Analysis
0.01 0.05 0.1 0.2 0.5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99.8 99.9 99.99


℄ Spillway
Smithville Dam
Power House
High Water Mark
"0" On Staff Gage
Tail Water
910
900
890
880
870
860
6 5 4 3 2 1 0 1 2 3 4 5 6 7 8
Sta 4345+44
Mile-182.30
Scale 1"=100' Horiz.
1"=10' Vert
X-Sec. #45
910

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Estimated 1947 flood flow at Smithville Dam

Spillway 190 ft (Excluding gate 20' wide)
Head over the spillway 2 ft

$\therefore$ Flow over Spillway $= 190 \times 3.3 \times 2^{1.5}$
$= \underline{1773 \text{ cfs}}$

Gate 20' x 12' deep
Head 12 ft + 2 ft = 14 ft

Flow through gate $= 20 \times 3.3 \times 14^{1.5}$
$= \underline{3457 \text{ cfs}}$

Total flow $= 1773 + 3457$
$= \underline{5230 \text{ cfs}}$

COE
~~USGS~~ estimated flow above Spring Brook through Smithville Dam } $= \underline{4900 \text{ cfs}}$

Considering the variability of weir flow coefficient, gate conditions etc ~~this~~ COE estimate appears reasonable.

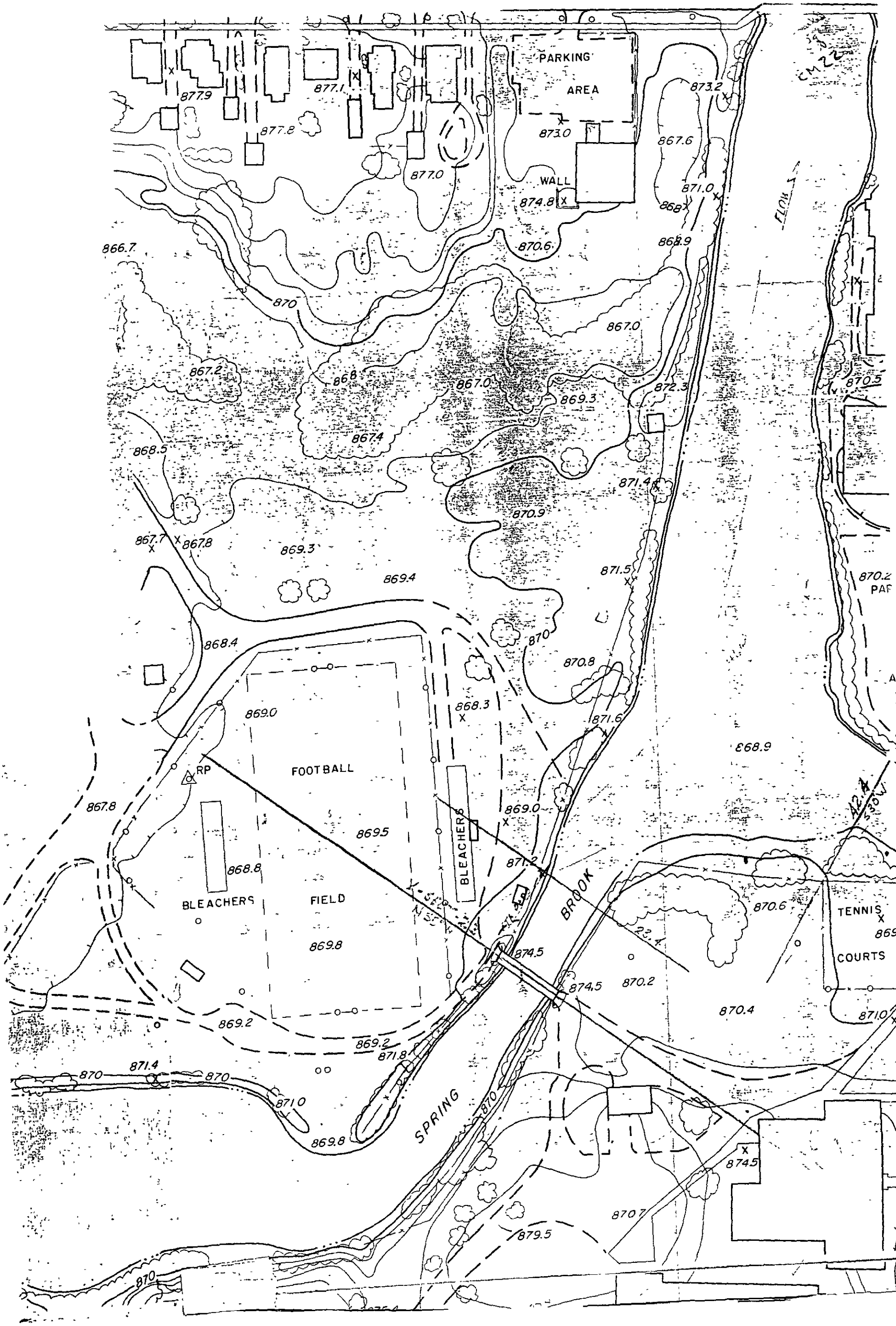
interference

Orig

(1) 866.6 863.5 present from FP2 report

By Pass

(1) Starting WBEZ = 869.7


PARKING
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WALL
FOOTBALL
RP
BLEACHERS
FIELD
BLEACHER
BROOK
SPRING
TENNIS
COURTS
FLOW
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877.1
877.8
877.0
873.0
873.2
867.6
874.8
871.0
868
868.9
870.6
866.7
870
867.0
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868
867.0
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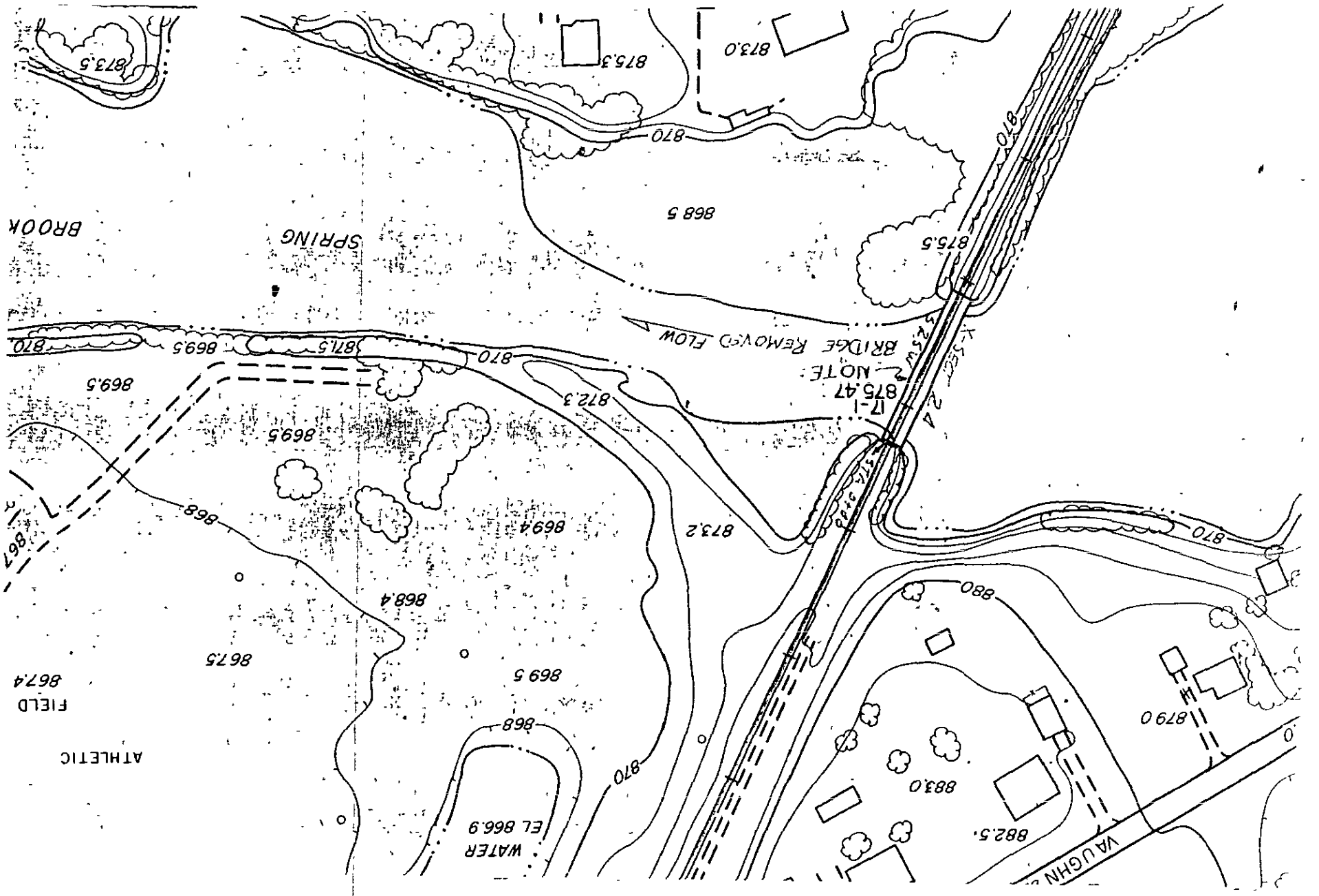

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

C
T1      1975 FLOOD
T2      DISCHARGE RANGES FROM 11600 CFS TO 11200 CFS THROUGHOUT REACH
T3      GRAND RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.  0.000000      0.00      0.0   11600.   792.520     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000    -1.000     0.000     0.000     1.290     0.000     0.000     0.000     0.000

NC       .021      .031      .018      .100      .300     0.000     0.000     0.000     0.000     0.000

         1975 FLOOD HIGH WATER RECORDED AT EL 792.52 ON GRAND LEDGE DAM CREST

X1      1.000    45.000    53.000   345.000     0.000     0.000     0.000     0.000    -3.120     0.000
GR    803.800     0.000   802.900    11.000   797.100    24.000   794.300    30.000   795.100    38.000
GR    795.550    53.000   790.940    53.000   790.850   100.000   790.850   100.400   790.850   100.600
GR    790.850   101.000   790.780   200.000   790.720   280.000   797.770   280.000   797.770   283.700
GR    792.270   283.700   792.270   288.760   797.770   288.760   797.770   292.460   792.270   292.460
GR    792.270   297.520   797.770   297.520   797.770   301.320   792.270   301.320   792.270   306.280
GR    797.770   306.280   797.770   309.980   792.270   309.980   792.270   315.040   797.770   315.040
GR    797.770   318.740   792.270   318.740   792.270   323.800   797.770   323.800   797.770   327.500
GR    792.270   327.500   792.270   332.560   797.770   332.560   797.770   336.260   792.270   336.260
GR    792.270   341.320   797.770   341.320   797.780   345.000   797.330   369.000   802.200   372.000

X1      1.100    12.000    42.000   335.000    20.000    20.000    20.000     0.000     0.000     0.000
GR    804.000     0.000   798.000    15.000   789.400    42.000   782.200    71.000   778.900   118.000
GR    778.500   153.000   778.800   213.000   779.600   255.000   781.700   304.000   789.600   335.000
GR    802.000   353.000   805.000   360.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      1.500    14.000   144.000   393.000   560.000   560.000   560.000     0.000    -3.120     0.000
GR    810.000   123.000   801.400   123.000   801.400   128.000   791.300   144.000   787.000   180.000
GR    783.300   200.000   782.800   240.000   782.300   280.000   783.200   320.000   783.300   360.000
GR    784.300   376.000   791.300   393.000   802.500   406.000   805.000   410.000     0.000     0.000
NC       .031      .031      .018     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      2.500    17.000   119.000   386.000   850.000   900.000   880.000     0.000    -3.120     0.000
GR    804.300     0.000   801.400     5.000   799.800    23.000   794.500    42.000   792.600   119.000
GR    791.300   123.000   789.300   140.000   785.300   180.000   784.300   210.000   783.800   250.000
GR    783.400   280.000   783.600   320.000   787.000   360.000   791.300   385.000   795.200   384.000
GR    798.200   396.000   805.600   396.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      2.700    28.000    64.000   408.000   300.000   290.000   290.000      .949    -3.640     0.000
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XSECNO 1-
XSECNO 72.90
were redub
on Nov 1

X sec 48.00
vicinity of 4250
Mar Moor Drive

X2	11500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	834.000	0.000	838.500	5.000	829.000	16.000	821.500	19.000	811.000	25.000
GR	800.100	53.000	797.800	56.000	791.600	64.000	788.000	80.000	785.900	100.000
GR	785.900	110.000	791.600	145.000	794.000	148.000	795.100	175.000	791.600	180.000
GR	788.600	190.000	785.800	220.000	784.700	240.000	785.000	270.000	786.100	290.000
GR	784.100	320.000	784.900	350.000	785.600	370.000	788.200	400.000	791.600	408.000
GR	811.500	450.000	831.000	460.000	838.000	470.000	0.000	0.000	0.000	0.000
X1	3.500	0.000	0.000	0.000	800.000	760.000	750.000	0.000	-2.690	0.000
X1	5.000	28.000	64.000	408.000	75.000	160.000	120.000	.949	-3.120	0.000
GR	834.000	0.000	838.500	5.000	829.000	16.000	821.500	19.000	811.000	25.000
GR	800.100	53.000	797.800	56.000	791.600	64.000	788.000	80.000	785.900	100.000
GR	785.900	110.000	791.600	145.000	794.000	148.000	795.100	175.000	791.600	180.000
GR	788.600	190.000	785.800	220.000	784.700	240.000	785.000	270.000	786.100	290.000
GR	784.100	320.000	784.900	350.000	785.600	370.000	788.200	400.000	791.600	408.000
GR	811.500	450.000	831.000	460.000	838.000	470.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.500	0.000	320.000	9.000	12214.000	.270	781.880	781.880
X1	5.500	26.000	70.000	420.000	22.000	22.000	22.000	.949	-3.120	0.000
X2	0.000	0.000	1.000	819.080	843.000	0.000	0.000	0.000	0.000	0.000
BT	26.000	0.000	843.000	0.000	25.000	843.000	819.080	35.000	843.000	819.080
BT	56.000	843.000	819.080	70.000	843.000	819.080	80.000	843.000	819.080	100.000
BT	843.000	819.080	120.000	843.000	819.080	148.000	843.000	819.080	150.000	843.000
BT	819.080	180.000	843.000	819.080	183.000	843.000	819.080	190.000	843.000	819.080
BT	220.000	843.000	819.080	240.000	843.000	819.080	270.000	843.000	819.080	290.000
BT	843.000	819.080	320.000	843.000	819.080	350.000	843.000	819.080	370.000	843.000
BT	818.880	400.000	843.000	818.880	420.000	843.000	819.080	450.000	843.000	818.880
BT	460.000	843.000	0.000	470.000	843.000	0.000	480.000	843.000	0.000	0.000
GR	834.000	0.000	811.000	25.000	807.100	35.000	800.100	56.000	791.600	70.000
GR	788.000	80.000	785.900	100.000	789.400	120.000	791.000	148.000	794.000	150.000
GR	795.600	180.000	791.600	183.000	788.600	190.000	785.800	220.000	784.700	240.000
GR	785.000	270.000	786.100	290.000	784.100	320.000	784.900	350.000	785.600	370.000
GR	788.200	400.000	791.600	420.000	811.500	450.000	831.000	460.000	838.000	470.000
GR	838.500	480.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7.000	20.000	26.000	420.000	1930.000	1660.000	1700.000	0.000	-3.120	0.000
GR	807.200	0.000	791.900	26.000	791.300	29.000	789.800	40.000	786.700	70.000
GR	787.500	100.000	787.500	150.000	787.500	180.000	791.300	195.000	793.400	200.000
GR	792.900	267.000	791.300	270.000	786.500	280.000	785.600	300.000	785.500	330.000
GR	785.100	370.000	786.700	410.000	791.300	420.000	795.300	430.000	807.600	516.000
NH	5.000	.031	50.000	.020	204.000	.024	346.000	.018	485.000	.031
NH	515.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.000	24.000	50.000	485.000	970.000	800.000	840.000	0.000	-3.120	0.000
GR	806.600	0.000	803.100	50.000	794.300	76.000	792.300	113.000	791.400	115.000
GR	790.100	124.000	790.100	124.000	788.800	128.000	788.800	128.000	786.600	164.000
GR	787.200	204.000	787.200	204.000	799.700	216.000	797.500	292.000	797.500	292.000
GR	796.000	346.000	791.400	350.000	789.400	352.000	784.400	365.000	784.500	390.000
GR	785.700	420.000	787.900	465.000	790.700	485.000	809.200	515.000	0.000	0.000
NH	5.000	.031	50.000	.020	204.000	.024	346.000	.018	485.000	.031
NH	515.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1975 FLOOD HIGH WATER RECORDED AT EL 794.3 AT U.S. WEATHER BUREAU GUAGE

ON ISLAND BRIDGE FROM SPOT READINGS.

FROM GRAPH OF SPOT READINGS HIGH WATER DETERMINED TO BE 794.4

X1	9.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	14.000	0.000	803.480	0.000	50.000	801.580	799.980	76.000	800.880	799.480
BT	113.000	800.180	798.780	115.000	800.180	798.780	124.000	799.980	798.580	124.000
BT	799.980	786.980	128.000	799.980	785.680	128.000	799.980	798.580	164.000	799.280
BT	797.880	204.000	798.580	797.080	204.000	785.680	784.080	216.000	798.180	0.000
BT	292.000	794.380	794.380	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.031	50.000	.020	204.000	.024	346.000	.018	485.000	.031
NH	515.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.200	0.000	0.000	0.000	14.000	14.000	14.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.031	50.000	.020	204.000	.024	346.000	.018	485.000	.031
NH	515.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.027	.027	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.500	22.000	147.000	450.000	150.000	300.000	250.000	0.000	-3.120	0.000
GR	805.800	0.000	803.000	60.000	802.100	128.000	793.800	142.000	792.900	147.000
GR	791.400	150.000	788.800	152.000	787.400	162.000	787.000	192.000	786.400	222.000
GR	786.600	252.000	787.400	292.000	788.400	312.000	788.900	322.000	793.200	327.000
GR	793.100	377.000	790.600	379.000	788.000	390.000	786.300	410.000	786.100	440.000
GR	790.300	450.000	808.500	480.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.018	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.000	14.000	339.500	590.500	450.000	675.000	550.000	0.000	-3.120	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.310	819.310	0.000
GR	824.200	300.000	824.100	339.500	788.500	339.500	786.300	380.000	788.000	420.500
GR	788.000	425.000	786.700	468.500	788.500	512.000	788.200	516.500	786.400	533.500
GR	786.900	590.500	822.500	590.500	822.000	663.000	822.200	700.000	0.000	0.000
SB	1.250	1.560	2.600	0.000	220.000	16.000	4398.000	0.000	783.880	783.880
NC	.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.500	11.000	339.500	590.500	69.000	69.000	69.000	0.000	-3.120	0.000
X2	0.000	0.000	1.000	803.880	819.310	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	819.310	819.310	0.000
BT	6.000	300.000	821.080	0.000	339.500	820.880	0.000	339.500	820.880	803.380
BT	590.500	819.380	803.380	590.500	819.380	0.000	700.000	819.080	0.000	0.000
GR	824.200	300.000	824.100	339.500	790.100	339.500	788.100	420.500	786.700	468.500
GR	787.900	512.000	787.700	516.500	787.200	553.500	787.200	590.500	822.500	590.500
GR	822.200	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	13.000	23.000	50.000	345.000	350.000	350.000	350.000	0.000	0.000	0.000
GR	810.000	0.000	808.000	10.000	806.000	15.000	804.000	20.000	802.000	25.000
GR	800.000	35.000	798.000	40.000	796.000	45.000	794.000	50.000	789.500	55.000
GR	785.000	65.000	785.200	75.000	784.400	110.000	783.700	145.000	783.200	205.000
GR	783.100	250.000	784.600	295.000	789.500	345.000	794.000	375.000	796.000	395.000
GR	798.000	455.000	800.000	465.000	810.000	480.000	0.000	0.000	0.000	0.000
NC	.034	.038	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1975 FLOOD HIGH WATER 200 FT UPSTREAM XSEC 14 AT ELEVATION 795.16

X1	14.000	16.000	142.000	363.000	1425.000	1425.000	1400.000	0.000	-3.120	0.000
GR	808.700	0.000	803.700	25.000	796.900	56.000	795.500	100.000	793.100	142.000
GR	791.100	144.000	788.300	152.000	788.300	172.000	787.500	202.000	786.800	232.000

GR	786.300	272.000	784.200	312.000	787.700	342.000	791.100	361.000	793.300	363.000
GR	807.100	395.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.061	.061	.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	15.000	17.000	75.000	330.000	1300.000	1100.000	1200.000	0.000	0.000	0.000
GR	810.000	0.000	800.000	10.000	796.000	45.000	790.050	75.000	785.600	85.000
GR	783.600	110.000	783.300	140.000	782.800	175.000	782.800	215.000	783.600	260.000
GR	788.600	325.000	792.000	330.000	794.000	340.000	796.000	430.000	798.000	420.000
GR	800.000	670.000	810.000	1005.000	0.000	0.000	0.000	0.000	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	16.000	15.000	312.000	534.000	1425.000	1100.000	1200.000	0.000	-3.120	0.000
GR	811.000	0.000	799.100	100.000	795.500	200.000	797.600	287.000	788.800	312.000
GR	785.800	340.000	785.100	380.000	785.300	420.000	785.100	460.000	785.600	500.000
GR	785.800	520.000	788.800	530.000	792.800	534.000	792.900	540.000	810.800	560.000
NC	0.000	0.000	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.500	28.000	540.000	768.000	1450.000	1500.000	1500.000	0.000	0.000	0.000
GR	810.000	0.000	808.000	130.000	806.000	275.000	804.000	320.000	802.000	480.000
GR	800.000	500.000	790.000	520.000	786.600	540.000	784.500	570.000	784.500	571.000
GR	784.500	572.000	783.600	620.000	783.100	660.000	781.000	700.000	785.400	730.000
GR	791.000	768.000	792.000	773.000	794.000	878.000	794.000	948.000	794.000	988.000
GR	796.000	1008.000	798.000	1038.000	800.000	1053.000	802.000	1068.000	804.000	1073.000
GR	806.000	1088.000	808.000	1108.000	810.000	1123.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.000	26.000	1013.000	1235.000	1350.000	1350.000	1350.000	0.000	0.000	0.000
GR	811.000	0.000	810.000	20.000	810.000	60.000	808.000	140.000	806.000	170.000
GR	806.000	420.000	806.000	470.000	804.000	570.000	802.000	680.000	800.000	740.000
GR	795.500	934.000	795.500	1013.000	791.500	1027.000	791.500	1033.000	787.500	1033.000
GR	787.700	1050.000	787.000	1066.000	785.800	1089.000	784.000	1136.000	783.900	1155.000
GR	785.500	1169.000	785.500	1178.000	786.000	1188.000	787.500	1225.000	792.000	1235.000
GR	811.000	1327.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	18.000	19.000	74.000	300.000	1500.000	1700.000	1600.000	0.000	0.000	0.000
GR	812.400	0.000	801.000	25.000	792.900	62.000	789.900	69.000	788.900	74.000
GR	788.300	80.000	786.600	110.000	787.100	150.000	787.100	200.000	787.700	270.000
GR	788.900	300.000	790.100	315.000	794.100	331.000	799.300	350.000	796.700	450.000
GR	804.800	550.000	804.800	650.000	809.600	700.000	812.700	750.000	0.000	0.000
NC	0.000	0.000	.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	19.000	30.000	80.000	280.000	1150.000	1250.000	1200.000	0.000	0.000	0.000
GR	820.000	0.000	818.000	10.000	816.000	20.000	814.000	30.000	812.000	35.000
GR	810.000	50.000	800.000	75.000	791.400	80.000	789.900	87.000	788.100	127.000
GR	787.300	157.000	786.800	197.000	787.100	237.000	788.400	257.000	791.400	265.000
GR	792.000	280.000	794.000	285.000	796.000	290.000	798.000	300.000	796.000	320.000
GR	798.000	440.000	800.000	520.000	802.000	555.000	804.000	590.000	806.000	630.000
GR	808.000	720.000	810.000	805.000	812.000	890.000	814.000	1025.000	816.000	1075.000
NC	0.000	0.000	.036	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1975 FLOOD HIGH WATER, 700 FT UPSTREAM XSEC 20, ELEVATION 801.49

WATER, 1.5 FT. ABOVE INSIDE FLOOR AT 6475 WILLOW HIGHWAY

X1	20.000	23.000	118.000	310.000	1500.000	1200.000	1300.000	0.000	0.000	0.000
GR	813.900	0.000	812.100	29.000	807.200	55.000	806.600	62.000	807.100	69.000

GR	806.700	79.000	807.000	89.000	805.900	93.000	795.300	118.000	790.400	123.000
GR	789.900	130.000	788.100	170.000	787.300	200.000	786.800	240.000	787.100	280.000
GR	788.400	300.000	790.400	310.000	791.800	323.000	795.900	336.000	794.700	400.000
GR	799.400	500.000	808.900	600.000	815.300	700.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	21.000	37.000	480.000	722.000	2260.000	2575.000	2450.000	0.000	0.000	0.000
GR	816.000	0.000	814.000	45.000	812.000	115.000	810.000	300.000	808.000	425.000
GR	806.000	445.000	804.000	455.000	802.000	460.000	800.000	465.000	798.000	470.000
GR	796.000	475.000	794.000	480.000	792.000	485.000	791.000	490.000	790.750	515.000
GR	790.500	535.000	789.200	580.000	788.400	635.000	787.200	670.000	791.000	715.000
GR	792.000	720.000	794.000	722.000	796.000	725.000	798.000	728.000	800.000	730.000
GR	800.000	750.000	800.000	775.000	800.000	820.000	800.000	855.000	802.000	890.000
GR	804.000	910.000	806.000	925.000	808.000	935.000	810.000	955.000	812.000	970.000
GR	814.000	990.000	816.000	1010.000	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	22.000	19.000	70.000	240.000	1000.000	1400.000	1250.000	0.000	0.000	0.000
GR	814.800	0.000	807.700	30.000	796.400	59.000	791.600	61.000	791.600	70.000
GR	790.600	90.000	790.600	90.000	790.200	110.000	789.500	150.000	787.500	200.000
GR	788.800	220.000	791.600	240.000	795.800	250.000	800.100	300.000	800.600	400.000
GR	801.400	500.000	805.800	600.000	811.800	700.000	817.900	800.000	0.000	0.000
NC	0.000	0.000	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	190.000	1010.000

XSEC IS IMMEDIATELY DOWNSTREAM FROM MILLER CREEK

X1	23.000	27.000	500.000	690.000	1200.000	1050.000	1100.000	0.000	0.000	0.000
GR	815.600	0.000	810.700	70.000	808.000	79.000	807.700	93.000	807.400	106.000
GR	806.800	117.000	803.600	150.000	800.700	200.000	800.700	300.000	796.600	400.000
GR	795.500	435.000	794.000	500.000	791.800	504.000	790.900	509.000	789.900	530.000
GR	787.900	560.000	786.700	600.000	787.400	630.000	788.900	660.000	790.900	675.000
GR	788.900	683.000	795.600	690.000	799.900	710.000	798.700	800.000	804.800	860.000
GR	806.500	900.000	815.800	1010.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	24.000	18.000	370.000	578.000	1400.000	1400.000	1400.000	0.000	0.000	0.000
X2	11430.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	818.000	0.000	810.000	54.000	805.000	146.000	803.500	329.000	801.000	354.000
GR	792.000	370.000	790.000	379.000	790.500	433.000	789.000	458.000	789.500	524.000
GR	790.000	532.000	790.500	545.000	791.000	553.000	791.000	574.000	792.000	578.000
GR	805.000	627.000	810.000	682.000	818.000	835.000	0.000	0.000	0.000	0.000
X1	25.000	20.000	431.000	710.000	2000.000	1950.000	1950.000	0.000	0.000	0.000
GR	819.200	0.000	811.100	100.000	806.100	200.000	805.300	231.000	802.300	300.000
GR	800.800	378.000	802.600	405.000	800.700	425.000	792.700	431.000	790.900	465.000
GR	790.900	495.000	790.100	555.000	790.400	585.000	790.000	615.000	790.400	645.000
GR	792.700	710.000	800.500	723.000	804.600	765.000	815.000	800.000	822.900	825.000
NC	0.000	0.000	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	26.000	20.000	74.000	357.000	2400.000	2600.000	2450.000	0.000	0.000	0.000
GR	820.000	0.000	806.000	74.000	795.500	88.000	793.000	112.000	792.800	133.000
GR	790.800	143.000	790.800	159.000	790.000	169.000	789.400	198.000	789.500	209.000
GR	789.500	245.000	789.800	259.000	792.800	334.000	793.500	352.000	801.000	357.000
GR	802.000	388.000	801.000	440.000	802.500	488.000	807.000	536.000	820.000	617.000
NC	0.000	0.000	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	27.000	16.000	90.000	325.000	2000.000	1950.000	1950.000	0.000	0.000	0.000

GR	816.800	0.000	807.300	40.000	804.100	75.000	797.600	90.000	792.800	92.000
GR	790.800	130.000	789.000	160.000	788.800	190.000	788.600	220.000	789.700	250.000
GR	792.800	300.000	801.300	325.000	801.400	400.000	803.700	500.000	807.400	600.000
GR	816.800	660.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	460.100	1170.100
X1	28.000	40.000	750.000	980.000	840.000	750.000	810.000	0.000	0.000	0.000
GR	820.000	0.000	818.000	45.000	816.000	140.000	814.000	245.000	812.000	260.000
GR	810.000	290.000	808.000	310.000	808.000	380.000	810.000	425.000	812.000	440.000
GR	812.000	485.000	810.000	495.000	808.000	520.000	806.000	550.000	804.000	600.000
GR	802.000	710.000	800.000	725.000	798.000	730.000	796.000	735.000	794.000	745.000
GR	793.100	750.000	790.800	790.000	789.000	825.000	788.800	860.000	788.600	890.000
GR	789.700	925.000	793.100	980.000	794.000	985.000	796.000	990.000	800.000	995.000
GR	802.000	1000.000	804.000	1070.000	806.000	1090.000	808.000	1110.000	810.000	1120.000
GR	812.000	1130.000	814.000	1140.000	816.000	1150.000	818.000	1160.000	820.000	1170.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

OUTLET I96 SOUTHBOUND BRIDGE

X1	29.000	23.000	1248.000	1511.000	1100.000	1190.000	1090.000	0.000	0.000	0.000
GR	814.900	1248.000	813.400	1248.000	812.000	1255.000	807.700	1262.000	807.300	1268.000
GR	793.400	1299.000	792.600	1310.000	791.800	1331.500	791.800	1331.500	791.800	1334.500
GR	791.800	1334.500	788.900	1360.000	789.800	1400.000	792.300	1425.500	792.300	1425.500
GR	792.300	1428.500	792.300	1428.500	792.300	1450.000	793.400	1460.000	799.600	1470.000
GR	815.500	1508.000	815.400	1511.000	816.900	1511.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.600	0.000	170.000	6.000	4884.000	.690	790.000	790.000
X1	29.090	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	816.700	818.600	0.000	0.000	0.000	0.000	0.000
BT	13.000	1200.000	818.600	0.000	1248.000	818.600	813.400	1248.000	818.600	814.900
BT	1331.500	818.600	815.400	1331.500	818.600	791.800	1334.500	818.600	791.800	1334.500
BT	818.600	815.400	1425.500	818.600	816.100	1425.500	818.600	792.300	1428.500	818.600
BT	792.300	1428.500	818.600	816.100	1511.000	818.900	818.900	1511.000	818.600	815.400
X1	29.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	30.000	23.000	1248.000	1511.000	60.000	60.000	60.000	0.000	0.000	0.000
GR	814.900	1248.000	813.400	1248.000	812.000	1255.000	807.700	1262.000	807.300	1268.000
GR	793.400	1299.000	792.600	1310.000	790.300	1331.500	790.300	1331.500	790.300	1334.500
GR	790.300	1334.500	790.000	1360.000	789.800	1400.000	790.100	1425.500	790.100	1425.500
GR	790.100	1428.500	790.100	1428.500	792.300	1450.000	793.400	1460.000	799.500	1470.000
GR	815.500	1508.000	815.500	1511.000	816.900	1511.000	0.000	0.000	0.000	0.000
SB	.900	1.560	2.600	0.000	170.000	6.000	4884.000	.690	790.000	790.000

INLET I96 NORTHBOUND BRIDGE

X1	30.090	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	816.700	818.600	0.000	0.000	0.000	0.000	0.000
BT	13.000	1200.000	818.600	0.000	1248.000	818.600	813.400	1248.000	818.600	814.900
BT	1331.500	818.600	815.400	1331.500	818.600	790.300	1334.500	818.600	790.300	1334.500
BT	818.600	815.400	1425.500	818.600	816.100	1425.500	818.600	790.100	1428.500	818.600
BT	790.100	1428.500	818.600	816.100	1511.000	818.600	816.900	1511.000	818.000	815.500
X1	30.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	30.500	27.000	790.000	1025.000	560.000	630.000	540.000	0.000	0.000	0.000

GR	818.000	0.000	816.000	95.000	814.000	130.000	812.000	170.000	810.000	485.000
GR	808.000	570.000	808.000	650.000	806.000	770.000	806.000	780.000	804.000	785.000
GR	800.000	790.000	793.600	800.000	792.500	830.000	790.600	885.000	790.100	905.000
GR	790.000	925.000	791.600	980.000	793.600	1010.000	800.000	1025.000	802.000	1030.000
GR	802.000	1205.000	804.000	1225.000	806.000	1375.000	808.000	1405.000	810.000	1410.000
GR	818.000	1430.000	820.000	1440.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.038	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	31.000	27.000	1464.000	1618.000	1650.000	1960.000	1860.000	0.000	0.000	0.000
GR	821.900	0.000	809.900	82.000	808.300	100.000	805.600	300.000	805.200	500.000
GR	804.500	700.000	802.800	900.000	802.500	1100.000	804.000	1200.000	802.600	1300.000
GR	801.200	1400.000	802.400	1429.000	799.600	1442.000	798.600	1464.000	794.300	1466.000
GR	793.400	1474.000	791.900	1494.000	790.900	1514.000	790.300	1544.000	790.700	1564.000
GR	792.200	1604.000	794.300	1614.000	798.100	1618.000	802.700	1634.000	818.100	1662.000
GR	820.000	1700.000	822.500	1710.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	32.000	22.000	466.000	669.000	1500.000	1475.000	1500.000	0.000	0.000	0.000
GR	830.000	0.000	825.000	45.000	820.000	75.000	810.000	150.000	805.000	239.000
GR	804.500	301.000	802.500	401.000	803.000	449.000	801.500	466.000	794.800	487.000
GR	792.500	524.000	792.200	566.000	790.100	607.000	792.200	638.000	794.800	659.000
GR	799.500	669.000	805.000	693.000	806.000	755.000	808.000	906.000	810.000	936.000
GR	820.000	1170.000	825.000	1220.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	1250.000

XSEC IS IMMEDIATELY DOWNSTREAM FROM CARRIER CREEK

1975 FLOOD HIGH WATER, XSEC 33 AT ELEVATION 808.34

WATER, 3 FT. ABOVE FLOOR TO TOP OF TELEVISION AT 7020 OLD RIVER TRAIL

X1	33.000	24.000	340.000	508.000	1900.000	1925.000	1925.000	0.000	0.000	0.000
GR	821.100	0.000	811.300	100.000	811.500	158.000	808.200	200.000	801.600	243.000
GR	802.200	300.000	802.300	340.000	795.400	351.000	793.100	361.000	793.100	391.000
GR	793.400	430.000	791.900	461.000	793.600	481.000	795.400	508.000	799.100	524.000
GR	800.300	552.000	805.000	573.000	803.700	700.000	806.000	800.000	806.600	1000.000
GR	806.400	1200.000	808.600	1400.000	817.900	1600.000	821.000	1649.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	300.000	1170.000

X1	34.000	38.000	690.000	890.000	1300.000	1100.000	1150.000	0.000	0.000	0.000
QT	1.000	11255.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	822.000	0.000	820.000	10.000	818.000	20.000	816.000	30.000	814.000	55.000
GR	812.000	125.000	810.000	305.000	808.000	330.000	806.000	430.000	806.000	520.000
GR	804.000	610.000	802.000	630.000	800.000	640.000	798.000	650.000	795.900	690.000
GR	795.700	720.000	794.200	750.000	794.400	780.000	794.400	810.000	793.000	840.000
GR	794.300	870.000	795.800	880.000	798.000	890.000	800.000	900.000	802.000	910.000
GR	804.000	920.000	806.000	985.000	808.000	1095.000	810.000	1215.000	812.000	1395.000
GR	814.000	1475.000	816.000	1525.000	818.000	1625.000	818.000	1675.000	816.000	1685.000
GR	818.000	1725.000	820.000	1770.000	822.000	1820.000	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	35.000	19.000	460.000	704.000	490.000	490.000	480.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	819.100	819.100	0.000
GR	822.300	0.000	818.300	100.000	811.800	200.000	808.800	300.000	805.300	400.000
GR	802.400	443.000	799.600	460.000	797.100	475.000	796.300	481.000	795.400	500.000
GR	795.700	514.000	794.100	655.000	796.300	682.000	800.000	704.000	803.600	726.000
GR	808.800	800.000	808.300	900.000	816.300	1000.000	820.900	1100.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	200.000	6.000	4761.000	.730	794.000	794.000

X1	35.400	20.000	459.000	704.000	43.000	43.000	43.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	815.900	819.100	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	819.100	819.100	0.000
BT	17.000	0.000	822.600	0.000	100.000	818.300	0.000	200.000	817.700	0.000
BT	300.000	818.000	0.000	400.000	818.000	0.000	443.000	818.000	0.000	443.000
BT	821.400	0.000	459.000	821.500	815.300	704.000	822.200	815.900	726.000	822.300
BT	0.000	726.000	819.000	0.000	800.000	819.500	0.000	800.000	819.500	0.000
BT	900.000	819.800	0.000	1000.000	820.100	0.000	1100.000	820.400	0.000	1200.000
BT	823.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	823.000	0.000	818.800	100.000	813.000	200.000	808.500	300.000	806.000	400.000
GR	802.700	443.000	799.900	459.000	797.100	475.000	796.300	481.000	795.400	500.000
GR	795.700	514.000	795.300	584.000	793.900	655.000	796.300	682.000	800.700	704.000
GR	805.000	726.000	819.300	800.000	813.100	900.000	816.500	1000.000	821.000	1100.000
NC	0.000	0.000	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	36.000	34.000	476.000	746.000	200.000	150.000	175.000	0.000	0.000	0.000
GR	822.500	0.000	817.300	100.000	811.300	200.000	807.700	300.000	806.300	400.000
GR	806.400	446.000	797.000	464.000	797.000	476.000	796.400	479.000	796.100	500.000
GR	796.400	511.000	798.400	521.000	799.400	542.000	798.400	556.000	796.400	558.000
GR	795.200	571.000	793.700	581.000	793.300	600.000	796.000	602.000	795.500	630.000
GR	796.400	670.000	797.200	673.000	800.100	714.000	796.400	719.000	796.300	720.000
GR	796.300	740.000	796.400	742.000	797.400	746.000	798.700	756.000	807.800	775.000
GR	812.800	836.000	816.300	900.000	821.800	1000.000	823.700	1050.000	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	.061	411.000	.036	497.000	.047	800.000	.038	900.000	.061
NH	1150.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	37.000	34.000	411.000	900.000	425.000	350.000	500.000	0.000	0.000	0.000
GR	822.900	0.000	815.600	100.000	810.500	200.000	808.100	300.000	808.000	366.000
GR	804.300	382.000	800.200	411.000	797.200	415.000	795.600	425.000	793.700	440.000
GR	793.600	456.000	793.400	474.000	797.200	497.000	802.700	507.000	805.200	533.000
GR	802.400	573.000	805.700	600.000	799.200	700.000	799.500	757.000	803.600	783.000
GR	802.300	793.000	797.000	800.000	796.500	813.000	795.000	822.000	794.300	831.000
GR	795.200	851.000	796.200	870.000	797.000	900.000	800.400	908.000	801.200	934.000
GR	812.100	970.000	813.700	1000.000	822.100	1100.000	824.000	1150.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	38.000	19.000	381.000	569.000	912.000	1350.000	975.000	0.000	0.000	0.000
GR	828.800	0.000	818.600	100.000	814.600	200.000	806.000	300.000	805.200	336.000
GR	802.000	368.000	797.600	381.000	796.800	390.000	795.400	420.000	795.100	450.000
GR	795.300	490.000	796.100	520.000	797.100	547.000	797.600	558.000	801.800	569.000
GR	803.400	600.000	808.700	615.000	814.900	715.000	823.900	774.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	39.000	25.000	72.000	333.000	1650.000	1600.000	1612.000	0.000	0.000	0.000
GR	825.000	0.000	804.500	37.000	803.500	48.000	799.500	58.000	798.500	72.000
GR	798.000	134.000	795.000	192.000	795.000	202.000	795.500	213.000	796.500	309.000
GR	798.500	333.000	807.500	357.000	807.000	381.000	805.000	423.000	804.500	474.000
GR	808.000	533.000	810.000	632.000	809.000	715.000	810.500	932.000	810.000	1100.000
GR	807.500	1170.000	808.000	1210.000	810.000	1300.000	811.000	1500.000	820.000	1500.000

X1	40.000	20.000	651.000	808.000	1650.000	1550.000	1450.000	0.000	0.000	0.000
GR	824.000	0.000	813.800	100.000	809.000	200.000	806.800	300.000	806.600	400.000
GR	806.600	500.000	808.900	600.000	804.700	615.000	801.100	651.000	798.700	655.000
GR	796.200	670.000	794.400	700.000	795.500	730.000	796.000	760.000	796.800	790.000
GR	798.700	799.000	801.900	808.000	808.600	834.000	811.200	881.000	824.300	912.000

X1	41.000	31.000	185.000	335.000	2250.000	2700.000	2500.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	40.000	826.000	80.000	824.000	130.000	822.000	140.000
GR	820.000	150.000	810.000	165.000	800.000	175.000	799.400	185.000	797.200	215.000
GR	795.400	245.000	796.500	275.000	797.000	305.000	797.800	335.000	800.000	345.000
GR	802.000	355.000	804.000	365.000	806.000	385.000	804.000	455.000	804.000	695.000
GR	806.000	735.000	808.000	805.000	808.000	1155.000	810.000	1205.000	812.000	1235.000
GR	814.000	1250.000	816.000	1260.000	818.000	1265.000	820.000	1270.000	822.000	1280.000
GR	824.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	45.000	38.000	1550.000	1842.000	4550.000	4220.000	4420.000	0.000	0.000	0.000
GR	825.100	0.000	818.800	100.000	817.700	200.000	817.200	300.000	816.800	400.000
GR	814.900	500.000	811.000	600.000	811.500	700.000	813.700	800.000	812.600	900.000
GR	807.200	1000.000	805.000	1100.000	803.700	1200.000	800.800	1300.000	805.600	1300.000
GR	812.100	1400.000	811.900	1464.000	802.000	1489.000	803.000	1520.000	805.900	1539.000
GR	800.500	1550.000	799.000	1560.000	797.200	1600.000	797.400	1640.000	800.500	1677.000
GR	804.500	1690.000	803.800	1724.000	800.500	1737.000	799.200	1750.000	798.200	1780.000
GR	797.700	1800.000	798.300	1830.000	800.500	1842.000	806.600	1855.000	808.000	1935.000
GR	808.200	2035.000	809.600	2135.000	825.000	2190.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.029	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1030.000	0.000
X1	47.000	30.000	1093.000	1310.000	1900.000	1900.000	1850.000	0.000	0.000	0.000
GR	826.100	0.000	816.100	200.000	813.800	400.000	813.800	600.000	813.200	647.000
GR	804.300	677.000	808.500	736.000	804.600	840.000	807.600	892.000	805.600	980.000
GR	807.100	1000.000	814.900	1030.000	814.500	1050.000	810.000	1064.000	809.400	1078.000
GR	801.600	1093.000	801.000	1100.000	800.400	1130.000	799.700	1190.000	799.300	1220.000
GR	800.600	1260.000	799.900	1290.000	801.600	1305.000	805.100	1310.000	811.900	1325.000
GR	809.900	1400.000	809.500	1500.000	809.800	1600.000	816.800	1700.000	823.300	1731.000
X1	48.000	26.000	121.000	325.000	1500.000	1700.000	1550.000	0.000	0.000	0.000
GR	826.200	0.000	815.800	32.000	810.200	92.000	808.200	93.000	805.300	107.000
GR	805.000	121.000	803.600	121.000	801.600	121.000	801.700	154.000	802.700	185.000
GR	802.200	200.000	801.900	220.000	802.000	245.000	801.900	275.000	802.100	292.000
GR	802.000	325.000	803.600	325.000	807.900	337.000	808.400	370.000	812.000	407.000
GR	815.900	465.000	815.700	500.000	815.700	600.000	817.700	700.000	821.000	800.000
GR	829.200	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.044	.044	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	800.000	1400.000

OUTLET WAVERLY ROAD BRIDGE

X1	50.000	31.000	1026.000	1308.000	1500.000	1125.000	1290.000	.926	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	817.600	817.800	0.000
GR	825.900	0.000	823.400	100.000	821.400	200.000	819.800	300.000	818.700	400.000
GR	818.100	505.000	818.000	600.000	817.800	700.000	817.600	800.000	817.800	900.000
GR	817.600	1000.000	817.900	1013.000	810.700	1026.000	804.100	1064.000	803.400	1081.000
GR	802.500	1085.000	800.900	1137.000	800.100	1141.000	801.100	1193.000	800.400	1197.000
GR	802.300	1249.000	803.000	1253.000	804.100	1298.000	808.700	1308.000	817.800	1330.000
GR	818.000	1400.000	819.000	1500.000	820.500	1600.000	822.400	1700.000	824.700	1800.000
GR	827.100	1900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.031	.031	.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	800.000	1400.000
SB	1.050	1.950	2.600	0.000	180.000	10.000	2819.000	4.300	801.000	801.000
X1	50.500	34.000	1048.000	1330.000	54.000	54.000	54.000	.926	0.000	0.000
X2	0.000	0.000	1.000	813.670	817.600	0.000	0.000	0.000	.926	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	817.600	817.800	0.000
BT	21.000	0.000	825.900	0.000	100.000	823.400	0.000	200.000	823.000	0.000

BT	823.000	0.000	800.000	823.000	0.000	800.000	817.600	0.000	900.000	817.800
BT	0.000	1000.000	817.600	0.000	1048.000	817.500	0.000	1048.000	818.350	813.700
BT	1330.000	818.350	813.700	1330.000	817.600	0.000	1400.000	818.000	0.000	1400.000
BT	840.000	0.000	1600.000	840.000	0.000	1700.000	840.000	0.000	1800.000	840.000
BT	0.000	1900.000	840.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	825.900	0.000	823.400	100.000	821.400	200.000	819.800	300.000	818.700	400.000
GR	818.100	505.000	818.000	600.000	817.800	700.000	817.600	800.000	817.800	900.000
GR	817.600	1000.000	817.600	1034.000	807.200	1048.000	807.200	1048.000	806.000	1066.000
GR	804.100	1073.000	802.600	1103.000	802.400	1107.000	800.500	1159.000	800.100	1163.000
GR	800.400	1215.000	801.100	1219.000	801.400	1271.000	801.400	1275.000	804.100	1303.000
GR	808.000	1330.000	808.000	1330.000	817.700	1363.000	818.000	1400.000	819.000	1500.000
GR	820.500	1600.000	822.400	1700.000	824.700	1800.000	827.100	1900.000	0.000	0.000
NC	.053	.044	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

X1	51.000	27.000	210.000	415.000	200.000	100.000	150.000	0.000	0.000	0.000
GR	826.000	0.000	824.000	10.000	820.000	15.000	818.000	20.000	816.000	25.000
GR	814.000	55.000	812.000	65.000	810.000	70.000	810.000	140.000	812.000	180.000
GR	810.000	195.000	808.000	200.000	806.000	205.000	804.100	210.000	802.100	215.000
GR	802.100	215.000	801.000	245.000	800.500	275.000	800.000	305.000	800.500	335.000
GR	801.000	365.000	802.100	395.000	804.100	415.000	810.000	445.000	820.000	455.000
GR	822.000	545.000	824.000	680.000	826.000	685.000	0.000	0.000	0.000	0.000
NC	.035	.031	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	52.000	17.000	493.000	637.000	925.000	1050.000	1000.000	0.000	0.000	0.000
GR	827.500	0.000	818.400	100.000	818.100	200.000	818.600	300.000	820.200	400.000
GR	807.100	445.000	805.600	493.000	804.500	495.000	803.000	510.000	801.500	540.000
GR	800.800	555.000	799.800	590.000	801.300	605.000	804.500	625.000	810.900	637.000
GR	826.400	666.000	827.000	668.000	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

X1	53.000	33.000	351.000	520.000	1575.000	1500.000	1550.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	15.000	826.000	33.000	824.000	50.000	822.000	60.000
GR	820.000	75.000	818.000	90.000	817.000	217.000	816.000	265.000	816.000	303.000
GR	805.000	344.000	804.500	351.000	802.000	389.000	802.000	406.000	801.500	437.000
GR	801.000	458.000	801.500	471.000	801.500	478.000	803.000	506.000	804.000	516.000
GR	810.000	520.000	814.000	550.000	815.000	588.000	816.500	643.000	815.000	722.000
GR	815.500	747.000	818.000	778.000	820.000	843.000	822.000	903.000	824.000	988.000
GR	826.000	1038.000	828.000	1093.000	830.000	1133.000	0.000	0.000	0.000	0.000
NC	.053	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	54.000	17.000	175.000	380.000	1700.000	1700.000	1700.000	0.000	0.000	0.000
GR	828.600	0.000	827.200	39.000	824.500	100.000	815.100	144.000	809.000	162.000
GR	808.300	175.000	805.400	182.000	803.300	220.000	802.400	252.000	801.800	282.000
GR	802.000	332.000	803.300	350.000	805.400	366.000	813.800	380.000	820.800	500.000
GR	824.000	600.000	832.200	700.000	0.000	0.000	0.000	0.000	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	55.000	30.000	106.000	343.000	2600.000	2450.000	2500.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	15.000	826.000	30.000	824.000	45.000	822.000	60.000
GR	820.000	75.000	806.400	104.000	803.500	136.000	803.000	154.000	803.000	164.000
GR	802.500	195.000	802.200	233.000	802.200	281.000	802.800	295.000	803.000	315.000
GR	803.100	333.000	806.400	343.000	814.000	367.000	813.000	408.000	813.500	429.000
GR	812.500	480.000	813.500	525.000	815.000	563.000	818.000	673.000	820.000	723.000
GR	822.000	733.000	824.000	743.000	826.000	748.000	828.000	753.000	830.000	763.000
NC	0.000	.053	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	56.000	27.000	300.000	455.000	1200.000	1175.000	1200.000	0.000	0.000	0.000
GR	830.000	0.000	828.000	15.000	826.000	25.000	824.000	35.000	822.000	45.000

GR	820.000	75.000	810.000	95.000	810.000	215.000	810.000	295.000	808.000	300.000
GR	805.500	330.000	803.200	360.000	802.600	390.000	802.900	420.000	805.500	450.000
GR	808.000	455.000	810.000	480.000	810.000	680.000	812.000	710.000	814.000	720.000
GR	814.000	760.000	812.000	875.000	814.000	925.000	816.000	1005.000	818.000	1010.000
GR	820.000	1020.000	830.000	1040.000	0.000	0.000	0.000	0.000	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	57.000	22.000	1045.000	1210.000	1150.000	1200.000	1150.000	0.000	0.000	0.000
GR	830.200	0.000	826.300	100.000	827.700	200.000	825.600	300.000	825.600	500.000
GR	825.600	600.000	824.200	700.000	812.300	800.000	814.000	900.000	812.000	1000.000
GR	817.800	1021.000	806.500	1045.000	806.000	1050.000	804.500	1080.000	805.100	1120.000
GR	802.800	1160.000	803.700	1180.000	806.500	1200.000	812.300	1210.000	818.000	1275.000
GR	823.200	1328.000	830.200	1346.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.053	.053	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000
X1	58.100	40.000	1068.000	1300.100	810.000	1050.000	900.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.200	826.500	0.000
GR	827.400	400.000	826.100	600.000	826.500	800.000	825.200	1000.000	817.600	1068.000
GR	817.600	1068.100	812.300	1083.000	812.300	1083.100	810.300	1087.000	810.300	1087.100
GR	806.600	1115.000	806.600	1115.100	805.400	1119.000	805.400	1119.100	803.800	1147.000
GR	803.800	1147.100	804.600	1151.000	804.600	1151.100	802.900	1179.000	802.900	1179.100
GR	802.900	1183.000	802.900	1183.100	802.600	1211.000	802.600	1211.100	803.300	1216.000
GR	803.300	1216.100	804.000	1247.000	804.000	1247.100	804.300	1251.000	804.300	1251.100
GR	806.600	1271.000	811.100	1282.000	811.100	1282.100	813.700	1286.000	813.700	1286.100
GR	820.000	1300.000	820.000	1300.100	825.300	1400.000	826.100	1500.000	827.400	1600.000
NC	.060	.060	.029	.500	1.000	0.000	0.000	0.000	0.000	0.000
X1	58.200	40.000	1068.000	1300.100	1.000	1.000	1.000	0.000	0.000	0.000
BT	40.000	400.000	827.400	0.000	600.000	826.100	0.000	800.000	826.500	0.000
BT	1000.000	826.500	0.000	1068.000	826.200	0.000	1068.100	826.200	822.500	1083.000
BT	826.200	822.500	1083.100	826.200	812.300	1087.000	826.200	810.300	1087.100	826.200
BT	822.500	1115.000	826.300	822.500	1115.100	826.300	806.600	1119.000	826.300	805.400
BT	1119.100	826.300	822.500	1147.000	826.300	822.500	1147.100	826.300	803.800	1151.000
BT	826.300	804.600	1151.100	826.300	822.500	1179.000	826.300	822.500	1179.100	826.300
BT	802.900	1183.000	826.300	802.900	1183.100	826.300	822.500	1211.000	826.300	822.500
BT	1211.100	826.300	802.600	1216.000	826.300	803.300	1216.100	826.300	822.500	1247.000
BT	826.400	822.500	1247.100	826.400	804.000	1251.000	826.400	804.300	1251.100	826.400
BT	822.500	1271.000	826.450	822.500	1282.000	826.500	822.500	1282.100	826.500	811.100
BT	1286.000	826.500	813.700	1286.100	826.500	822.500	1300.000	826.500	822.500	1300.100
BT	826.500	0.000	1400.000	826.900	0.000	1500.000	827.100	0.000	1600.000	827.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.400	400.000	826.100	600.000	826.500	800.000	825.200	1000.000	817.600	1068.000
GR	817.600	1068.100	812.300	1083.000	812.300	1083.100	810.300	1087.000	810.300	1087.100
GR	806.600	1115.000	806.600	1115.100	805.400	1119.000	805.400	1119.100	803.800	1147.000
GR	803.800	1147.100	804.600	1151.000	804.600	1151.100	802.900	1179.000	802.900	1179.100
GR	802.900	1183.000	802.900	1183.100	802.600	1211.000	802.600	1211.100	803.300	1216.000
GR	803.300	1216.100	804.000	1247.000	804.000	1247.100	804.300	1251.000	804.300	1251.100
GR	806.600	1271.000	811.100	1282.000	811.100	1282.100	813.700	1286.000	813.700	1286.100
GR	820.000	1300.000	820.000	1300.100	825.300	1400.000	826.100	1500.000	827.400	1600.000
X1	58.300	40.000	1068.000	1300.100	19.000	19.000	19.000	0.000	0.000	0.000
BT	40.000	400.000	827.400	0.000	600.000	826.100	0.000	800.000	826.500	0.000
BT	1000.000	826.500	0.000	1068.000	826.200	0.000	1068.100	826.200	822.500	1083.000
BT	826.200	822.500	1083.100	826.200	812.300	1087.000	826.200	810.300	1087.100	826.200
BT	822.500	1115.000	826.300	822.500	1115.100	826.300	806.600	1119.000	826.300	805.400
BT	1119.100	826.300	822.500	1147.000	826.300	822.500	1147.100	826.300	803.800	1151.000
BT	826.300	804.600	1151.100	826.300	822.500	1179.000	826.300	822.500	1179.100	826.300
BT	802.900	1183.000	826.300	802.900	1183.100	826.300	822.500	1211.000	826.300	822.500
BT	1211.100	826.300	802.600	1216.000	826.300	803.300	1216.100	826.300	822.500	1247.000
BT	826.400	822.500	1247.100	826.400	804.000	1251.000	826.400	804.300	1251.100	826.400

BT	822.500	1271.000	826.450	822.500	1282.000	826.500	822.500	1282.100	826.500	811.100
BT	1286.000	826.500	813.700	1286.100	826.500	822.500	1300.000	826.500	822.500	1300.100
BT	826.500	0.000	1400.000	826.900	0.000	1500.000	827.100	0.000	1600.000	827.500
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	827.400	400.000	826.100	600.000	826.500	800.000	825.200	1000.000	817.600	1068.000
GR	817.600	1068.100	812.300	1083.000	812.300	1083.100	810.300	1087.000	810.300	1087.100
GR	806.600	1115.000	806.600	1115.100	805.400	1119.000	805.400	1119.100	803.800	1147.000
GR	803.800	1147.100	804.600	1151.000	804.600	1151.100	802.900	1179.000	802.900	1179.100
GR	802.900	1183.000	802.900	1183.100	802.600	1211.000	802.600	1211.100	803.300	1216.000
GR	803.300	1216.100	804.000	1247.000	804.000	1247.100	804.300	1251.000	804.300	1251.100
GR	806.600	1271.000	811.100	1282.000	811.100	1282.100	813.700	1286.000	813.700	1286.100
GR	820.000	1300.000	820.000	1300.100	825.300	1400.000	826.100	1500.000	827.400	1600.000
X1	58.400	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	826.200	826.500	0.000

WATER SURFACE INCREASED 0.35 FT. BECAUSE OF DEBRIS CLOGGING R.R. BRIDGE

X1	58.500	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	.350	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.200	826.500	0.000
NC	.050	.061	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	60.000	24.000	434.000	585.000	520.000	480.000	500.000	0.000	0.000	0.000
GR	830.500	0.000	824.900	100.000	819.800	135.000	818.400	200.000	820.500	300.000
GR	820.900	321.000	808.900	372.000	817.700	396.000	818.100	400.000	817.400	410.000
GR	805.600	434.000	803.000	460.000	801.900	490.000	802.600	530.000	803.400	560.000
GR	805.600	585.000	808.700	600.000	809.500	617.000	817.400	650.000	817.200	675.000
GR	825.000	688.000	826.300	700.000	829.400	800.000	830.000	850.000	0.000	0.000
NC	.061	.061	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

OUTLET LOGAN ST. BRIDGE

X1	62.000	24.000	253.000	520.000	980.000	750.000	840.000	.882	0.000	0.000
GR	842.800	100.000	843.600	116.000	839.900	116.000	837.200	116.000	837.200	124.000
GR	826.600	148.000	823.400	207.500	819.700	215.500	819.600	219.500	816.700	253.000
GR	806.700	284.000	803.700	288.000	802.700	354.000	803.700	357.000	804.100	423.500
GR	803.500	426.500	803.900	493.000	806.700	494.500	810.300	496.000	825.600	530.000
GR	835.100	560.500	837.100	560.500	840.800	560.500	839.800	600.000	0.000	0.000
NC	.050	.040	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	210.000	18.000	10143.000	1.900	803.000	803.000
X1	62.400	27.000	221.000	500.000	53.000	53.000	53.000	.882	0.000	0.000
X2	0.000	0.000	1.000	838.300	833.100	0.000	0.000	0.000	.882	0.000
BT	16.000	0.000	840.200	0.000	83.000	842.400	0.000	83.000	843.200	0.000
BT	84.000	843.200	0.000	84.000	843.200	838.300	100.000	843.400	839.100	132.000
BT	845.200	840.700	201.500	846.100	841.600	270.500	846.500	842.000	339.500	846.400
BT	841.900	478.500	844.200	839.700	528.500	842.300	838.000	528.500	842.300	0.000
BT	529.500	842.300	0.000	529.500	841.800	0.000	544.500	841.200	0.000	0.000
GR	840.200	0.000	842.400	83.000	842.400	83.000	838.300	84.000	837.200	84.000
GR	837.200	94.000	826.600	116.000	823.500	175.500	819.600	183.500	819.400	187.500
GR	818.200	221.000	806.700	247.000	805.400	253.000	802.500	256.000	802.500	322.000
GR	801.700	325.000	805.500	391.500	804.000	394.500	806.000	461.000	806.700	462.500
GR	808.100	464.000	825.700	500.000	835.100	528.500	838.000	528.500	841.800	529.500
GR	841.800	529.500	841.200	544.500	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	670.000

1975 FLOOD HIGH WATER 500 FT UPSTREAM XSEC 63 AT ELEVATION 819.42

X1	63.000	20.000	175.000	375.000	190.000	250.000	220.000	0.000	0.000	0.000
GR	831.800	0.000	817.300	28.000	815.500	100.000	817.900	175.000	809.500	197.000
GR	806.600	200.000	805.500	210.000	803.500	230.000	803.500	260.000	804.300	300.000
GR	805.200	350.000	806.600	360.000	811.700	375.000	813.800	397.000	824.700	420.000
GR	826.700	466.000	827.200	520.000	828.000	600.000	828.200	700.000	833.400	800.000
NC	.050	.040	.032	.100	.300	0.000	0.000	0.000	0.000	0.000

X1	64.000	20.000	785.000	975.000	1200.000	1000.000	1100.000	0.000	0.000	0.000
X2	11200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X4	1.000	818.600	615.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	840.000	311.000	823.600	311.000	820.600	515.000	840.000	515.000	840.000	615.000
GR	818.000	765.000	810.000	785.000	806.950	790.000	805.750	825.000	804.150	845.000
GR	804.150	880.000	804.550	905.000	805.650	930.000	806.950	970.000	810.000	975.000
GR	814.000	985.000	816.000	1060.000	820.000	1090.000	830.000	1105.000	832.000	1125.000
NC	.114	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	65.000	15.000	717.000	868.000	2250.000	2100.000	2250.000	0.000	0.000	0.000
X4	1.000	827.100	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	832.900	0.000	822.700	577.000	818.800	690.000	810.600	717.000	807.300	717.000
GR	806.000	730.000	804.800	750.000	804.800	780.000	804.800	820.000	806.100	850.000
GR	807.300	860.000	813.100	868.000	813.300	878.000	823.500	898.000	833.000	911.000
NC	.050	.050	.032	.300	.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	786.000

OUTLET NORTH GRAND RIVER AVENUE

X1	67.000	41.000	500.000	699.500	390.000	300.000	330.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.100	825.100	0.000
GR	832.800	0.000	830.600	100.000	828.100	200.000	825.300	300.000	824.600	400.000
GR	826.800	468.000	826.800	468.000	815.000	500.000	812.000	506.000	807.800	506.000
GR	807.800	509.000	807.600	517.000	807.400	530.500	807.100	543.000	806.900	554.000
GR	806.800	561.500	806.800	561.500	806.800	566.500	806.800	566.500	806.800	574.000
GR	806.800	585.000	806.800	599.500	806.800	615.000	806.800	625.000	806.800	632.500
GR	806.800	632.500	807.100	637.500	807.100	637.500	807.200	644.000	807.300	655.000
GR	807.500	668.500	807.700	682.000	807.800	690.000	809.900	694.000	810.400	695.000
GR	810.700	699.500	824.800	731.000	824.800	731.000	827.300	800.000	829.100	900.000
GR	833.200	1000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.031	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	786.000

X1	67.010	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	825.100	825.100	0.000
BT	37.000	0.000	832.800	0.000	100.000	830.600	0.000	200.000	828.100	0.000
BT	300.000	825.300	0.000	400.000	824.900	0.000	468.000	826.800	0.000	468.000
BT	830.700	0.000	500.000	831.800	815.000	509.000	831.900	820.000	517.000	832.100
BT	824.000	530.500	832.300	825.400	543.000	832.500	824.000	554.000	832.700	820.000
BT	561.500	832.800	813.000	561.500	832.800	806.000	566.500	832.900	805.000	566.500
BT	832.900	813.000	574.000	833.000	820.000	585.000	833.200	824.000	599.500	833.200
BT	826.400	615.000	833.200	824.000	625.000	833.000	820.000	632.500	832.800	813.000
BT	632.500	832.800	805.800	637.500	832.800	805.500	637.500	832.800	813.000	644.000
BT	832.700	820.000	655.000	832.500	824.000	668.500	832.200	826.200	682.000	832.000
BT	824.000	690.000	831.900	820.000	699.500	831.700	810.700	731.000	831.200	0.000
BT	731.000	827.400	0.000	800.000	827.600	0.000	900.000	829.600	0.000	1000.000
BT	833.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	786.000

X1	67.090	39.000	500.000	699.500	56.000	56.000	56.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	825.100	825.100	0.000

BT	37.000	0.000	832.800	0.000	100.000	830.600	0.000	200.000	828.100	0.000
BT	300.000	825.300	0.000	400.000	824.900	0.000	468.000	826.800	0.000	468.000
BT	830.700	0.000	500.000	831.800	815.000	509.000	831.900	820.000	517.000	832.100
BT	824.000	530.500	832.300	825.400	543.000	832.500	824.000	554.000	832.700	820.000
BT	561.500	832.800	813.000	561.500	832.800	806.000	566.500	832.900	805.000	566.500
BT	832.900	813.000	574.000	833.000	820.000	585.000	833.200	824.000	599.500	833.200
BT	826.400	615.000	833.200	824.000	625.000	833.000	820.000	632.500	832.800	813.000
BT	632.500	832.800	805.800	637.500	832.800	805.500	637.500	832.800	813.000	644.000
BT	832.700	820.000	655.000	832.500	824.000	668.500	832.200	826.200	682.200	832.000
BT	824.000	690.000	831.900	820.000	699.500	831.700	81.000	731.000	831.200	0.000
BT	731.000	827.400	0.000	800.000	827.600	0.000	900.000	829.600	0.000	1000.000
BT	833.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	832.800	0.000	830.600	100.000	828.100	200.000	825.300	300.000	824.900	400.000
GR	819.300	468.000	819.300	468.000	811.900	500.000	807.800	507.000	807.700	509.000
GR	807.500	517.000	807.000	530.500	806.600	543.000	806.200	554.000	806.000	561.500
GR	806.000	561.500	805.000	566.500	805.000	566.500	805.100	574.000	805.200	585.000
GR	805.400	599.500	805.600	615.000	805.700	625.000	805.800	632.500	805.800	632.500
GR	805.500	637.500	805.500	637.500	805.800	644.000	806.600	655.000	806.800	668.500
GR	807.300	682.000	807.600	690.000	807.800	694.000	811.800	699.500	826.300	731.000
GR	826.300	731.000	827.500	800.000	829.600	900.000	833.200	1000.000	0.000	0.000
NC	0.000	0.000	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	786.000

USGS GUAGE 30 FT UPSTREAM OF BRIDGE INLET

1975 FLOOD ELEVATION RECORDED AT 820.93 ON USGS GUAGE

X1	67.100	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	825.100	825.100	0.000
X1	68.000	25.000	480.000	690.000	375.000	375.000	350.000	0.000	0.000	0.000
GR	831.000	0.000	826.000	50.000	826.000	115.000	840.000	115.000	840.000	190.000
GR	821.000	190.000	820.000	210.000	818.000	290.000	840.000	290.000	840.000	330.000
GR	817.500	330.000	816.000	410.000	814.000	450.000	812.000	465.000	808.200	480.000
GR	807.200	500.000	806.200	520.000	805.950	575.000	806.550	595.000	806.800	635.000
GR	808.200	685.000	812.000	690.000	820.000	705.000	820.000	730.000	840.000	730.000
NC	.045	.050	.033	.100	.300	0.000	0.000	0.000	0.000	0.000

1975 FLOOD HIGH WATER 390 FT UPSTREAM XSEC 69 AT ELEVATION 821.48

X1	69.000	15.000	1187.000	1360.000	500.000	575.000	550.000	0.000	0.000	0.000
GR	840.000	687.000	821.300	800.000	821.100	1000.000	821.300	1100.000	821.400	1126.000
GR	812.400	1176.000	808.500	1187.000	807.600	1200.000	805.700	1230.000	805.100	1270.000
GR	806.000	1300.000	806.400	1310.000	808.500	1320.000	824.800	1360.000	833.400	1375.000
NC	0.000	.050	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	70.000	22.000	390.000	535.000	688.000	875.000	775.000	0.000	0.000	0.000
GR	840.000	0.000	828.000	0.000	826.000	25.000	824.000	120.000	824.000	175.000
GR	822.000	315.000	820.000	355.000	818.000	360.000	816.000	365.000	814.000	370.000
GR	810.000	380.000	808.600	390.000	807.600	410.000	805.700	435.000	805.100	460.000
GR	806.000	485.000	806.400	510.000	808.500	530.000	820.000	535.000	822.000	540.000
GR	824.000	610.000	840.000	610.000	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

OUTLET GRAND RIVER AVENUE

X1	71.000	7.000	753.000	929.000	300.000	300.000	300.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	826.400	826.500	0.000
GR	847.000	753.000	807.700	754.000	805.500	809.000	805.000	869.000	806.900	873.000

GR	808.500	928.000	847.000	929.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	1.050	1.560	2.600	0.000	140.000	8.000	2644.000	.390	805.000	805.000
X1	71.500	18.000	753.000	929.000	72.000	72.000	72.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	822.700	826.400	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	826.400	826.500	0.000
BT	12.000	726.000	827.100	0.000	751.000	827.300	0.000	751.000	828.000	0.000
BT	753.000	828.000	0.000	753.000	828.000	822.700	800.000	828.600	822.700	900.000
BT	828.400	822.700	929.000	828.100	822.700	929.000	828.100	0.000	931.000	828.100
BT	0.000	931.000	827.400	0.000	932.500	827.400	0.000	0.000	0.000	0.000
GR	846.000	726.000	822.700	726.000	812.600	751.000	812.600	751.000	811.800	753.000
GR	811.800	753.000	808.700	763.000	806.200	809.000	805.300	813.000	806.700	869.000
GR	804.700	873.000	808.700	921.000	808.900	929.000	808.900	929.000	808.900	931.000
GR	808.900	931.000	808.900	932.500	846.000	932.500	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	206.000	506.000
X1	72.000	14.000	290.000	506.000	320.000	250.000	300.000	0.000	0.000	0.000
GR	835.900	0.000	831.400	100.000	830.000	200.000	826.500	290.000	816.500	306.000
GR	808.800	340.000	808.000	350.000	806.000	360.000	806.400	400.000	805.800	430.000
GR	807.800	480.000	808.800	500.000	810.300	506.000	835.800	506.000	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	9.100	0.000	0.000	0.000	0.000	0.000	0.000	1.000	680.000

XSEC IS 20 FT DOWNSTREAM FROM NORTH LANSING DAM

X1	72.900	20.000	338.000	610.000	330.000	330.000	330.000	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	808.600	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
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

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

1975 FLOOD HIGH WATER RECORDED AT EL 792.52 ON GRAND LEDGE DAM CREST

1.00	4.92	792.52	0.00	792.52	793.92	1.40	0.00	0.00	792.43
11600.	36.	11564.	0.	14.	1216.	0.	0.	0.	794.66
0.00	2.54	9.51	0.00	.028	.024	.039	0.000	787.60	27.13
.003836	0.	0.	0.	0	0	0	0.00	288.19	341.32

*SECNO 1.100

3301 HV CHANGED MORE THAN HVINS

1.10	15.41	793.91	0.00	0.00	794.05	.14	.00	.13	789.40

72.900	827.90	0.00	828.08	438.97	5.69	19393.59	.72	0.00	0.00	338.00	610.00	0.00
72.900	828.01	.11	828.19	272.00	0.00	19400.00	0.00	.00	338.00	338.00	610.00	610.00

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.100	0.00	0.00	0.00	778.50	20100.00	797.38	0.00	797.64	1.02	4.11	4995.29	19916.23
1.100	0.00	0.00	0.00	778.50	20100.00	797.48	0.00	797.74	1.09	4.12	4880.71	19251.31
1.500	560.00	0.00	0.00	779.18	20100.00	797.37	0.00	797.75	1.55	4.97	4126.77	16150.12
1.500	560.00	0.00	0.00	779.18	20100.00	797.47	0.00	797.86	1.70	4.98	4037.17	15432.70
2.500	880.00	0.00	0.00	780.28	20100.00	797.55	0.00	797.89	1.58	4.76	4656.15	15984.87
2.500	880.00	0.00	0.00	780.28	20100.00	797.67	0.00	798.01	1.62	4.77	4542.87	15800.23
2.700	290.00	0.00	0.00	780.46	19925.00	797.65	0.00	797.94	1.43	4.33	4713.58	16654.30
2.700	290.00	0.00	0.00	780.46	19925.00	797.76	0.00	798.06	1.53	4.33	4599.20	16093.87
3.500	750.00	0.00	0.00	777.77	19925.00	797.83	0.00	798.02	.76	3.57	5762.07	22839.49
3.500	750.00	0.00	0.00	777.77	19925.00	797.94	0.00	798.14	.76	3.59	5622.09	22857.93
5.000	120.00	0.00	0.00	780.98	19925.00	797.76	0.00	798.07	1.58	4.46	4567.93	15844.80
5.000	120.00	0.00	0.00	780.98	19925.00	797.88	0.00	798.19	1.68	4.46	4467.38	15355.97
5.500	22.00	843.00	819.08	780.98	19925.00	797.77	0.00	798.08	1.61	4.45	4571.87	15684.71
5.500	22.00	843.00	819.08	780.98	19925.00	797.87	0.00	798.19	1.57	4.42	4607.99	15883.04
7.000	1700.00	0.00	0.00	781.98	19925.00	798.10	0.00	798.32	1.23	3.84	5390.15	17949.86
7.000	1700.00	0.00	0.00	781.98	19925.00	798.21	0.00	798.44	1.27	3.85	5212.73	17686.06
9.000	840.00	0.00	0.00	781.28	19925.00	798.16	0.00	798.50	2.44	4.74	4259.78	12754.43
9.000	840.00	0.00	0.00	781.28	19925.00	798.27	0.00	798.61	2.40	4.72	4217.11	12858.91
9.100	1.00	785.68	799.98	781.28	19925.00	798.12	0.00	798.52	3.29	5.07	3989.02	10977.19
9.100	1.00	785.68	799.98	781.28	19925.00	798.23	0.00	798.63	3.27	5.07	3933.66	11019.29
9.200	14.00	785.68	799.98	781.28	19925.00	798.13	0.00	798.52	3.29	5.07	3990.28	10982.12
9.200	14.00	785.68	799.98	781.28	19925.00	798.24	0.00	798.63	3.27	5.06	3935.21	11025.00
9.300	1.00	0.00	0.00	781.28	19925.00	798.18	0.00	798.53	2.42	4.73	4271.73	12802.26
9.300	1.00	0.00	0.00	781.28	19925.00	798.30	0.00	798.64	2.38	4.71	4229.15	12908.74
10.500	250.00	0.00	0.00	782.98	19925.00	798.22	0.00	798.60	2.44	4.96	4130.93	12759.69
10.500	250.00	0.00	0.00	782.98	19925.00	798.33	0.00	798.71	2.44	4.99	4042.81	12756.92
12.000	550.00	0.00	0.00	783.18	19925.00	798.28	0.00	798.77	2.66	5.60	3556.01	12224.44
12.000	550.00	0.00	0.00	783.18	19925.00	798.40	0.00	798.88	2.59	5.56	3585.06	12384.48
12.500	69.00	819.31	803.88	783.58	19925.00	798.37	0.00	798.90	3.03	5.85	3407.45	11437.59
12.500	69.00	819.31	803.88	783.58	19925.00	798.47	0.00	799.00	2.96	5.80	3432.55	11572.78
13.000	350.00	0.00	0.00	783.10	19925.00	798.67	0.00	799.00	1.64	4.67	4551.05	15542.51
13.000	350.00	0.00	0.00	783.10	19925.00	798.76	0.00	799.09	1.68	4.68	4377.11	15380.91
14.000	1400.00	0.00	0.00	783.08	19925.00	798.86	0.00	799.34	2.84	5.79	3931.34	11827.35
14.000	1400.00	0.00	0.00	783.08	19925.00	798.95	0.00	799.45	2.98	5.81	3794.73	11534.07

15.000	1200.00	0.00	0.00	782.80	19925.00	799.38	0.00	799.74	3.64	4.93	5011.40	10444.47
15.000	1200.00	0.00	0.00	782.80	19925.00	799.49	0.00	799.85	3.63	4.95	4714.01	10451.63

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
16.000	1200.00	0.00	0.00	781.98	19925.00	799.86	0.00	800.18	3.46	4.73	5371.19	10713.47
16.000	1200.00	0.00	0.00	781.98	19925.00	799.97	0.00	800.29	3.45	4.74	5226.25	10722.96
16.500	1500.00	0.00	0.00	781.00	19925.00	800.52	0.00	800.79	4.88	4.51	5833.68	9022.15
16.500	1500.00	0.00	0.00	781.00	19925.00	800.63	0.00	800.90	4.87	4.52	5664.86	9028.80
17.000	1350.00	0.00	0.00	783.90	19925.00	801.27	0.00	801.70	8.62	5.52	4614.03	6785.76
17.000	1350.00	0.00	0.00	783.90	19925.00	801.37	0.00	801.81	8.64	5.55	4360.29	6780.44
18.000	1600.00	0.00	0.00	786.60	19925.00	802.49	0.00	802.86	6.14	5.13	4891.40	8044.28
18.000	1600.00	0.00	0.00	786.60	19925.00	802.60	0.00	802.97	6.14	5.15	4696.17	8042.74
19.000	1200.00	0.00	0.00	786.80	19925.00	803.35	0.00	803.78	9.29	5.65	4576.96	6537.02
19.000	1200.00	0.00	0.00	786.80	19925.00	803.48	0.00	803.91	9.85	5.62	4420.50	6348.01
20.000	1300.00	0.00	0.00	786.80	19925.00	804.42	0.00	804.77	6.41	5.19	5013.36	7870.48
20.000	1300.00	0.00	0.00	786.80	19925.00	804.57	0.00	804.92	6.35	5.20	4844.82	7908.24
21.000	2450.00	0.00	0.00	787.20	19925.00	805.91	0.00	806.21	5.32	4.58	5208.05	8635.43
21.000	2450.00	0.00	0.00	787.20	19925.00	806.05	0.00	806.35	5.27	4.58	5089.22	8683.32
22.000	1250.00	0.00	0.00	787.50	19925.00	806.68	0.00	807.03	7.70	5.31	5295.85	7178.99
22.000	1250.00	0.00	0.00	787.50	19925.00	806.81	0.00	807.16	7.65	5.32	5125.97	7205.67
23.000	1100.00	0.00	0.00	786.70	19925.00	807.35	0.00	807.54	2.86	3.98	7952.07	11778.44
23.000	1100.00	0.00	0.00	786.70	19925.00	807.48	0.00	807.67	2.84	3.98	7727.29	11821.04
24.000	1400.00	0.00	0.00	789.00	19800.00	807.74	0.00	808.07	4.44	4.85	5208.18	9396.66
24.000	1400.00	0.00	0.00	789.00	19800.00	807.87	0.00	808.20	4.41	4.85	5028.55	9431.02
25.000	1950.00	0.00	0.00	790.00	19800.00	808.54	0.00	808.73	2.50	3.64	6779.12	12510.78
25.000	1950.00	0.00	0.00	790.00	19800.00	808.66	0.00	808.85	2.49	3.65	6552.40	12541.54
26.000	2450.00	0.00	0.00	789.40	19800.00	809.18	0.00	809.38	2.84	3.73	6176.02	11757.06
26.000	2450.00	0.00	0.00	789.40	19800.00	809.30	0.00	809.51	2.85	3.73	6001.21	11721.53
27.000	1950.00	0.00	0.00	788.60	19800.00	809.72	0.00	809.94	2.81	3.96	6478.87	11801.95
27.000	1950.00	0.00	0.00	788.60	19800.00	809.84	0.00	810.06	2.80	3.97	6236.99	11833.13
28.000	810.00	0.00	0.00	788.60	19800.00	809.96	0.00	810.15	2.26	3.72	7270.00	13170.18
28.000	810.00	0.00	0.00	788.60	19800.00	810.08	0.00	810.27	2.25	3.73	6937.47	13195.86
29.000	1090.00	0.00	0.00	788.90	19800.00	810.23	0.00	810.68	6.85	5.38	3678.36	7565.63
29.000	1090.00	0.00	0.00	788.90	19800.00	810.35	0.00	810.79	6.70	5.34	3704.98	7646.65
29.090	35.00	818.60	816.70	788.90	19800.00	810.24	0.00	810.69	6.84	5.38	3679.37	7568.71
29.090	35.00	818.60	816.70	788.90	19800.00	810.34	0.00	810.78	6.71	5.35	3703.15	7641.08
29.100	1.00	0.00	0.00	788.90	19800.00	810.24	0.00	810.69	6.84	5.38	3679.54	7569.20
29.100	1.00	0.00	0.00	788.90	19800.00	810.34	0.00	810.78	6.71	5.35	3703.31	7641.57
30.000	60.00	0.00	0.00	789.80	19800.00	810.30	0.00	810.74	6.38	5.27	3759.01	7837.81
30.000	60.00	0.00	0.00	789.80	19800.00	810.40	0.00	810.83	6.27	5.23	3782.51	7910.17
30.060	75.00	818.60	816.70	788.80	19800.00	810.32	0.00	810.75	6.37	5.26	3762.09	7847.29

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
30.100	1.00	0.00	0.00	789.80	19800.00	810.32	0.00	810.75	6.37	5.26	3762.24	7847.76
30.100	1.00	0.00	0.00	789.80	19800.00	810.42	0.00	810.84	6.25	5.23	3786.05	7921.10
30.500	540.00	0.00	0.00	790.00	19800.00	810.85	0.00	811.03	2.38	3.66	8080.07	12844.41
30.500	540.00	0.00	0.00	790.00	19800.00	810.94	0.00	811.12	2.38	3.68	7744.09	12826.89
31.000	1860.00	0.00	0.00	790.30	19800.00	811.35	0.00	811.43	2.01	3.07	13208.09	13953.15
31.000	1860.00	0.00	0.00	790.30	19800.00	811.44	0.00	811.52	2.02	3.08	12980.72	13936.52
32.000	1500.00	0.00	0.00	790.10	19800.00	811.63	0.00	811.84	3.11	4.15	7373.91	11235.89
32.000	1500.00	0.00	0.00	790.10	19800.00	811.72	0.00	811.94	3.11	4.16	7092.88	11221.64
33.000	1925.00	0.00	0.00	791.90	19800.00	812.25	0.00	812.38	2.49	3.71	10550.71	12552.97
33.000	1925.00	0.00	0.00	791.90	19800.00	812.34	0.00	812.48	2.49	3.73	10215.05	12543.93
34.000	1150.00	0.00	0.00	793.00	19495.00	812.53	0.00	812.69	2.61	3.74	8982.70	12062.04
34.000	1150.00	0.00	0.00	793.00	19495.00	812.62	0.00	812.78	2.61	3.76	8482.37	12063.99
35.000	480.00	0.00	0.00	794.10	19495.00	812.60	0.00	812.94	4.57	4.70	4149.55	9123.19
35.000	480.00	0.00	0.00	794.10	19495.00	812.70	0.00	813.04	4.95	4.67	4174.26	8764.79
35.400	43.00	819.10	815.90	793.90	19495.00	812.61	0.00	812.96	4.63	4.71	4138.84	9063.17
35.400	43.00	819.10	815.90	793.90	19495.00	812.71	0.00	813.05	4.54	4.68	4163.34	9151.08
36.000	175.00	0.00	0.00	793.30	19495.00	812.86	0.00	813.07	3.12	3.87	6488.89	11040.71
36.000	175.00	0.00	0.00	793.30	19495.00	812.95	0.00	813.16	3.12	3.88	6202.75	11037.12
37.000	500.00	0.00	0.00	793.40	19495.00	813.11	0.00	813.21	2.49	2.62	8526.95	12349.95
37.000	500.00	0.00	0.00	793.40	19495.00	813.21	0.00	813.31	2.50	2.63	8251.98	12328.47
38.000	975.00	0.00	0.00	795.10	19495.00	813.26	0.00	813.63	4.90	5.22	4895.28	8807.66
38.000	975.00	0.00	0.00	795.10	19495.00	813.35	0.00	813.73	4.92	5.24	4622.80	8790.62
39.000	1612.00	0.00	0.00	795.00	19495.00	813.97	0.00	814.09	1.71	3.19	10873.99	14918.86
39.000	1612.00	0.00	0.00	795.00	19495.00	814.07	0.00	814.19	1.71	3.20	10619.77	14910.26
40.000	1450.00	0.00	0.00	794.40	19495.00	814.23	0.00	814.51	3.94	4.94	6865.88	9817.29
40.000	1450.00	0.00	0.00	794.40	19495.00	814.32	0.00	814.61	3.95	4.97	6605.47	9805.18
41.000	2500.00	0.00	0.00	795.40	19495.00	815.11	0.00	815.22	2.03	3.59	10920.23	13698.29
41.000	2500.00	0.00	0.00	795.40	19495.00	815.20	0.00	815.32	2.02	3.60	10782.14	13730.98
45.000	4420.00	0.00	0.00	797.20	19495.00	815.79	0.00	815.85	1.08	2.44	14475.27	18798.16
45.000	4420.00	0.00	0.00	797.20	19495.00	815.89	0.00	815.95	1.08	2.45	14090.40	18774.35
47.000	1850.00	0.00	0.00	799.30	19495.00	816.01	0.00	816.16	2.22	3.72	10017.95	13073.81
47.000	1850.00	0.00	0.00	799.30	19495.00	816.11	0.00	816.26	2.23	3.74	9514.76	13060.92
48.000	1550.00	0.00	0.00	801.60	19495.00	816.33	0.00	816.81	6.54	5.92	4271.33	7622.59
48.000	1550.00	0.00	0.00	801.60	19495.00	816.42	0.00	816.92	6.57	5.95	3968.70	7607.96
50.000	1290.00	0.00	0.00	800.10	19495.00	817.15	0.00	817.56	4.97	5.20	3749.40	8743.74
50.000	1290.00	0.00	0.00	800.10	19495.00	817.28	0.00	817.69	5.15	5.15	3784.11	8589.10
50.500	54.00	817.60	813.67	800.10	19495.00	818.20	0.00	818.52	3.14	4.59	4583.73	10994.21
50.500	54.00	999999.00	0.00	800.10	19495.00	818.33	0.00	818.65	3.12	4.60	4342.70	11030.56

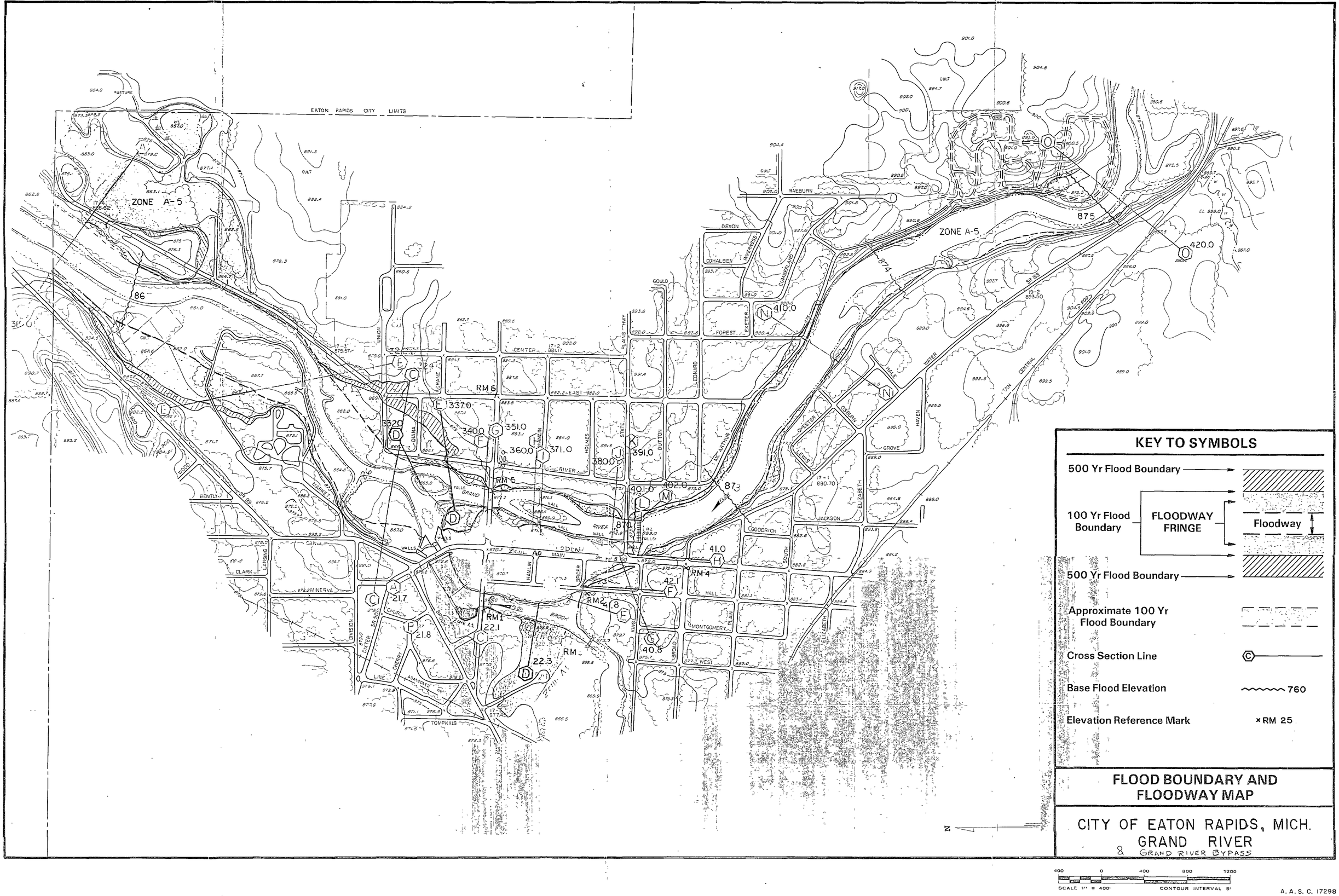
	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	51.000	150.00	0.00	0.00	800.00	19495.00	818.26	0.00	818.57	3.05	4.77	5221.80	11158.17
	51.000	150.00	0.00	0.00	800.00	19495.00	818.39	0.00	818.70	3.01	4.76	5141.99	11241.18
	52.000	1000.00	0.00	0.00	799.80	19495.00	818.46	0.00	819.11	6.97	6.89	3226.94	7381.99
	52.000	1000.00	0.00	0.00	799.80	19495.00	818.58	0.00	819.24	6.94	6.91	3117.15	7398.98
	53.000	1550.00	0.00	0.00	801.00	19495.00	819.68	0.00	819.98	4.35	4.97	5195.63	9350.30
	53.000	1550.00	0.00	0.00	801.00	19495.00	819.81	0.00	820.12	4.31	4.97	5022.15	9387.72
	54.000	1700.00	0.00	0.00	801.80	19495.00	820.40	0.00	820.81	5.11	5.31	4209.90	8627.63
	54.000	1700.00	0.00	0.00	801.80	19495.00	820.52	0.00	820.94	5.06	5.31	4012.09	8666.19
	55.000	2500.00	0.00	0.00	802.20	19495.00	821.38	0.00	821.57	1.92	3.84	7110.59	14062.49
	55.000	2500.00	0.00	0.00	802.20	19495.00	821.50	0.00	821.70	1.91	3.85	6905.66	14091.31
	56.000	1200.00	0.00	0.00	802.60	19495.00	821.71	0.00	821.80	1.69	3.28	10668.12	14982.38
	56.000	1200.00	0.00	0.00	802.60	19495.00	821.83	0.00	821.92	1.68	3.28	10504.72	15021.49
	57.000	1150.00	0.00	0.00	802.80	19495.00	821.83	0.00	822.16	3.92	5.18	5824.50	9847.17
	57.000	1150.00	0.00	0.00	802.80	19495.00	821.95	0.00	822.28	3.90	5.19	5616.41	9865.90
	58.100	900.00	0.00	0.00	802.60	19495.00	822.16	0.00	822.61	4.87	5.36	3635.86	8829.69
	58.100	900.00	0.00	0.00	802.60	19495.00	822.28	0.00	822.72	4.82	5.32	3663.65	8878.92
	58.200	1.00	826.10	822.50	802.60	19495.00	822.16	0.00	822.75	7.55	6.15	3171.49	7094.65
	58.200	1.00	826.10	822.50	802.60	19495.00	822.28	0.00	822.86	7.66	6.10	3195.83	7044.58
	58.300	19.00	826.10	822.50	802.60	19495.00	822.18	0.00	822.76	7.53	6.14	3173.92	7103.71
	58.300	19.00	826.10	822.50	802.60	19495.00	822.30	0.00	822.87	7.64	6.09	3198.72	7054.67
	58.400	1.00	0.00	0.00	802.60	19495.00	822.41	0.00	822.84	4.67	5.28	3693.14	9025.37
	58.400	1.00	0.00	0.00	802.60	19495.00	822.52	0.00	822.95	4.63	5.24	3720.05	9064.48
*	58.500	1.00	0.00	0.00	802.60	19495.00	822.76	0.00	823.17	4.35	5.17	3774.32	9349.45
*	58.500	1.00	0.00	0.00	802.60	19495.00	822.87	0.00	823.28	4.32	5.13	3801.23	9378.73
	60.000	500.00	0.00	0.00	801.90	19495.00	823.10	0.00	823.42	3.63	5.04	5701.32	10236.77
	60.000	500.00	0.00	0.00	801.90	19495.00	823.20	0.00	823.52	3.63	5.05	5559.21	10237.47
	62.000	840.00	0.00	0.00	802.70	19495.00	823.61	0.00	823.91	11.90	0.00	4415.65	5651.09
	62.000	840.00	0.00	0.00	802.70	19495.00	823.70	0.00	824.04	12.62	0.00	4160.11	5488.20
	62.400	53.00	833.10	838.30	801.70	19495.00	823.63	0.00	823.95	3.62	4.52	4437.45	10240.49
	62.400	53.00	833.10	838.30	801.70	19495.00	823.73	0.00	824.04	3.56	4.49	4466.01	10335.04
	63.000	220.00	0.00	0.00	803.50	19495.00	823.72	0.00	824.03	3.78	4.72	5013.40	10029.58
	63.000	220.00	0.00	0.00	803.50	19495.00	823.81	0.00	824.13	3.79	4.75	4925.78	10009.12
	64.000	1100.00	0.00	0.00	804.15	19400.00	824.16	0.00	824.41	3.00	4.37	6060.36	11194.32
	64.000	1100.00	0.00	0.00	804.15	19400.00	824.25	0.00	824.50	3.01	4.38	5823.98	11183.95
	65.000	2250.00	0.00	0.00	804.80	19400.00	824.86	0.00	825.43	6.08	6.24	4099.09	7867.26
	65.000	2250.00	0.00	0.00	804.80	19400.00	824.95	0.00	825.53	6.09	6.26	3807.86	7859.88
	67.000	330.00	0.00	0.00	806.80	19400.00	825.23	0.00	825.66	4.84	5.29	3961.85	8820.29
	67.000	330.00	0.00	0.00	806.80	19400.00	825.33	0.00	825.76	4.85	5.31	3828.06	8811.22

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
67.010	1.00	824.90	826.40	806.80	19400.00	825.05	0.00	825.84	23.56	7.12	2726.46	3996.51
67.010	1.00	824.90	826.40	806.80	19400.00	825.14	0.00	825.94	23.63	7.18	2711.80	3990.99
67.090	56.00	824.90	826.40	805.00	19400.00	825.27	0.00	825.98	18.99	6.78	2931.79	4452.24
67.090	56.00	824.90	826.40	805.00	19400.00	825.37	0.00	826.09	20.00	6.79	2858.03	4337.52
67.100	1.00	0.00	0.00	805.00	19400.00	825.76	0.00	826.09	3.42	4.74	4705.67	10495.37
67.100	1.00	0.00	0.00	805.00	19400.00	825.87	0.00	826.21	3.40	4.75	4508.02	10515.92
68.000	350.00	0.00	0.00	805.95	19400.00	826.04	0.00	826.23	2.26	3.86	6626.70	12915.80
68.000	350.00	0.00	0.00	805.95	19400.00	826.15	0.00	826.34	2.25	3.87	6480.85	12923.49
69.000	550.00	0.00	0.00	805.10	19400.00	826.12	0.00	826.44	4.61	4.99	5337.50	9037.09
69.000	550.00	0.00	0.00	805.10	19400.00	826.23	0.00	826.55	4.64	5.00	5226.01	9006.65
70.000	775.00	0.00	0.00	805.10	19400.00	826.41	0.00	826.85	5.14	5.74	4528.92	8559.03
70.000	775.00	0.00	0.00	805.10	19400.00	826.51	0.00	826.96	5.13	5.76	4325.15	8565.07
71.000	300.00	0.00	0.00	805.00	19400.00	826.55	0.00	827.02	5.60	5.54	3503.38	8198.09
71.000	300.00	0.00	0.00	805.00	19400.00	826.66	0.00	827.13	5.50	5.51	3523.33	8270.06
71.500	72.00	826.40	822.70	804.70	19400.00	827.44	0.00	827.84	3.76	5.20	3949.96	10010.19
71.500	72.00	999999.00	0.00	804.70	19400.00	827.55	0.00	827.96	3.71	5.19	3933.85	10067.72
72.000	300.00	0.00	0.00	805.80	19400.00	827.62	0.00	827.98	4.05	4.80	4059.57	9635.62
72.000	300.00	0.00	0.00	805.80	19400.00	827.73	0.00	828.09	4.01	4.77	4068.20	9691.92
72.900	330.00	0.00	0.00	805.80	19400.00	827.90	0.00	828.08	1.88	3.43	5688.71	14140.33
72.900	330.00	0.00	0.00	805.80	19400.00	828.01	0.00	828.19	1.85	3.41	5681.71	14248.78

GRAND RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.100	20100.00	797.38	0.00	0.00	0.00	329.35	0.00
1.100	20100.00	797.48	0.00	0.00	.10	293.00	0.00
1.500	20100.00	797.37	0.00	-.01	0.00	274.21	560.00
1.500	20100.00	797.47	0.00	-.01	.11	249.00	560.00
2.500	20100.00	797.55	0.00	.19	0.00	382.82	880.00
2.500	20100.00	797.67	0.00	.19	.11	337.57	880.00
2.700	19925.00	797.65	0.00	.10	0.00	359.20	290.00
2.700	19925.00	797.76	0.00	.10	.12	326.46	290.00
3.500	19925.00	797.83	0.00	.18	0.00	371.93	750.00
3.500	19925.00	797.94	0.00	.18	.12	333.97	750.00
5.000	19925.00	797.76	0.00	-.06	0.00	357.39	120.00
5.000	19925.00	797.88	0.00	-.06	.12	326.46	120.00
5.500	19925.00	797.77	0.00	.01	0.00	360.99	22.00
5.500	19925.00	797.87	0.00	-.01	.10	361.42	22.00
7.000	19925.00	798.10	0.00	.33	0.00	461.23	1700.00



KEY TO SYMBOLS

- 500 Yr Flood Boundary
- 100 Yr Flood Boundary
- FLOODWAY FRINGE
- Floodway
- 500 Yr Flood Boundary
- Approximate 100 Yr Flood Boundary
- Cross Section Line
- Base Flood Elevation — 760
- Elevation Reference Mark — × RM 25

FLOOD BOUNDARY AND FLOODWAY MAP

CITY OF EATON RAPIDS, MICH.

GRAND RIVER
& GRAND RIVER BYPASS

ABRAMS
AERIAL SURVEY CORPORATION
LANSING, MICHIGAN

400 0 400 800 1200
SCALE 1" = 400' CONTOUR INTERVAL 5'

A. A. S. C. 17298

CLINTON CO
EATON CO

CLINTON CO
EATON CO

SHERIDAN

ONEIDA

ROAD

OLD ROAD

LAWSON

ONEIDA

Claypit

Claypit

Claypit

Sew Disp

DAM

Grave Pit

Fitzgerald Park

BM 859

BM 842

Warren Sch

Trailer Park

CHESAPEAKE

NORTH

Gravel Pits

MAIN

ST

MADISON ST

WT

Oakwood Cem

Greenwood Sch

HIGH ST

GRAND LEDGE

GRAND LEDGE

Sandstone

Trailer Park

SCOTT

BRIDGE

PO

Well

Jr High Sch

Sawdon Jr High Sch

Neff Sch

GRAND LEDGE

St Michael Sch

EDWARD

GROFF

CLINTON ST

GRAND

WILLOW

HY

Grand Ledge Academy

4 LANE

CORP BDY

Athletic Field

Levee Limits

NOTE:
SEE ONEIDA TOWNSHIP BASE MAP FOR CORRECT CITY OF GRAND LEDGE BOUNDARIES

KEY TO SYMBOLS
FLOOD BOUNDARY AND FLOODWAY DATA

500 YR. FLOOD BOUNDARY
100 YR. FLOOD BOUNDARY
FLOODWAY RANGE
500 YR. FLOOD BOUNDARY
APPROX. 100 YR. FLOOD BOUNDARY
BASE FLOOD ELEVATIONS 879
CROSS SECTION LINE C—D
REFERENCE EL. RM1

FLOOD BOUNDARY AND FLOODWAY MAP

ONEIDA TOWNSHIP
EATON COUNTY

Grand River

RECEIVED
APR 03 1980
WATER MANAGEMENT

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Oneida Twp

3) WATERCOURSE: Grand River

4) DOCUMENT TYPE: report

00BREAK00

HYDROLOGY AND HYDRAULIC ANALYSIS REPORT

GRAND RIVER, ONEIDA TOWNSHIP

EATON COUNTY, MICHIGAN

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington
Jackson, Michigan 49201

August 1979

(Revised December 1979)

Introduction

This report presents the detailed study of the Grand River in Oneida Township, Eaton County, Michigan. Oneida Township is bounded on the east by Delta Township and on the north by Eagle Township. The city of Grand Ledge is completely surrounded by Oneida Township.

The reaches of the Grand River studied in Oneida Township were:

A. 1.1 miles of the Grand River extending downstream (west) from the Delta Township boundary to the city of Grand Ledge boundary, and

B. 0.8 miles of the Grand River extending downstream (north) from the city of Grand Ledge boundary.

The Grand River within the city of Grand Ledge and Delta Township was studied in detail by Snell Environmental Group of Lansing, Michigan in early 1979. To connect the two studies, Snell Environmental Group completed the hydraulic calculations within Oneida, Township between Grand Ledge and Delta Township. These computations were reviewed and will be utilized in the FIS study for Oneida Township.

For the reach of the Grand River downstream of Grand Ledge, cross sections were delineated and surveyed by Commonwealth Associates in February, 1979. U.S.G.S. topographical maps were obtained and utilized in the study for Oneida.

This study was performed by Commonwealth Associates Inc. of Jackson, Michigan under the direction of Mr. R. F. Tribukait, P.E., Project Manager.

Method of Analysis

A. Hydrology

The flood flows used by the Snell Environmental Group were reviewed, found to be acceptable, and used as input into the hydraulic analysis. The flood flows used in the Oneida Township study are as follows:

Location	Return Period	Discharge (cfs)
1. Grand River - Delta Township to city of Grand Ledge	10	10,990
	50	17,050
	100	19,925
	500	27,255
2. Grand River - Downstream of Grand Ledge city limits	10	11,085
	50	17,200
	100	20,100
	500	27,765

B. Hydraulic

The Corps of Engineers' HEC-II computer program was used to model the hydraulic characteristics of the Grand River downstream of the dam in Grand Ledge and within the corporate limits of Oneida Township.

Variables and Coefficients

Roughness coefficients ("n" Values)

For Overbank	n = 0.079
For Channel	n = 0.041

Loss Coefficients

Inlet (contraction)	c = 0.1
Outlet (expansion)	c = 0.3

The above values were selected based on aerial photographs, ground photographs taken by the survey crew, previous studies, and on the professional experience of staff engineers. The values selected are in complete agreement with values utilized by adjacent FIA studies.

High Water Marks

No attempt was made to verify high water marks for the upstream portion of the study because the results of that study have already been approved by the Michigan Department of Natural Resources.

Not true
308 Report shows
1904 stages clear county line
to be 792.1

There were no high water marks available for profile concurrence within the study area downstream of the Grand Ledge dam.

Starting Conditions

Water surface elevations for the Grand River study between Delta Township and the city of Grand Ledge will be selected in conference with elevations determined by the Snell Environmental Group. Starting water surface elevations for the study downstream of the dam in Grand Ledge were determined by using three sections downstream of the study and by using a slope of 0.0006 foot per foot in the slope-area method of computation. The water surface elevations were varied by one foot from the slope-area depth to ensure that the water surfaces converged at the downstream limit of the study. The three cross sections, Section Numbers 200, 201, and 202, were provided to Commonwealth Associates by Snell Environmental Group.

Special Problems

The information from the Snell Environmental Group was obtained with the understanding that their reports for Grand Ledge and Delta Township have not been approved by the Federal Insurance Agency (FIA). It is anticipated that their reports will be finalized (approved) prior to Commonwealth Associates submitting their FIS report for Oneida Township. Snell's data will be referenced in Commonwealth's FIS report.

Cross Section Reference

The following cross section reference table identifies section numbers as shown in the HEC-II printout, section letter designations as shown on the floodway tables prepared by the Snell Environmental Group.

Section Number	Floodway Section Designations CAI	Snell	Description
200.00		N/A	Valley Section(provided by Snell)
201.00		N/A	Valley Section(provided by Snell)
202.00	A	N/A	Valley Section(provided by Snell)
101.00	B	N/A	Valley Section
101.25		N/A	Interpolated Section
101.50		N/A	Interpolated Section
101.75		N/A	Interpolated Section
102.00	C	N/A	Valley Section
102.25		N/A	Interpolated Section
102.50		N/A	Interpolated Section
102.75		N/A	Interpolated Section
103.00	D	N/A	Valley Section
103.10		N/A	Repeat of Section 103.00
1.10	E	A	Valley Section
1.50	F	B	Valley Section
2.50	G	C	Valley Section
15.00	H	O	Valley Section
16.00	I	P	Valley Section
16.50	J	Q	Valley Section
17.00	K	R	Valley Section
18.00	L	S	Valley Section
19.00	M	T	Valley Section
20.00	N	U	Valley Section

Plots of the natural cross sections 101, 102, and 103 are contained in Appendix 1.

Bridge Notes and Sketches

There were no bridges spanning the river downstream of the dam and within Oneida Township.

Profile

Copies of the water surface profiles for the reach studied in detail are contained in Appendix 2.

Computer Backwater Runs/Printouts

Printouts of the final HEC-II printouts are contained in Appendix 3. Only information studied in detail by Commonwealth Associates is included, i.e., that area downstream of the dam in Grand Ledge. The following printouts are included:

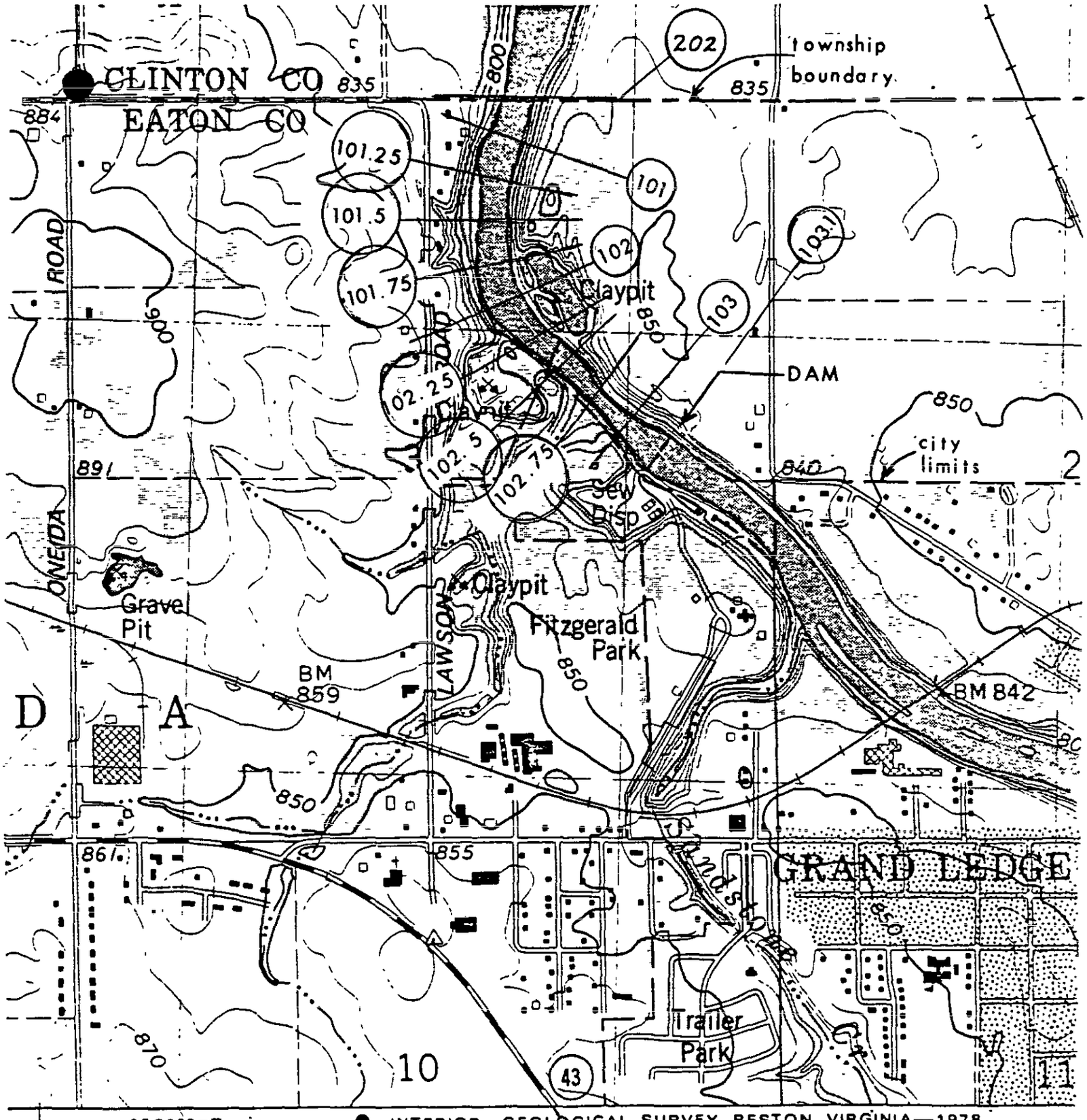
1. Calculations showing convergence for 100-year flow.

2. Flood Profiles - Sections 100.1 through 103.1 (used to determine starting WSEL at Section 100.9).

3. Flood Profiles - Sections 100.9 through 103.1 with Flood Hazard Factors.

4. Floodway Calculations.

scale: 1" = 965'



682000mE

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1978

1.5 MI. TO MICH. 100
LANSING (CAPITOL) 11 MI.

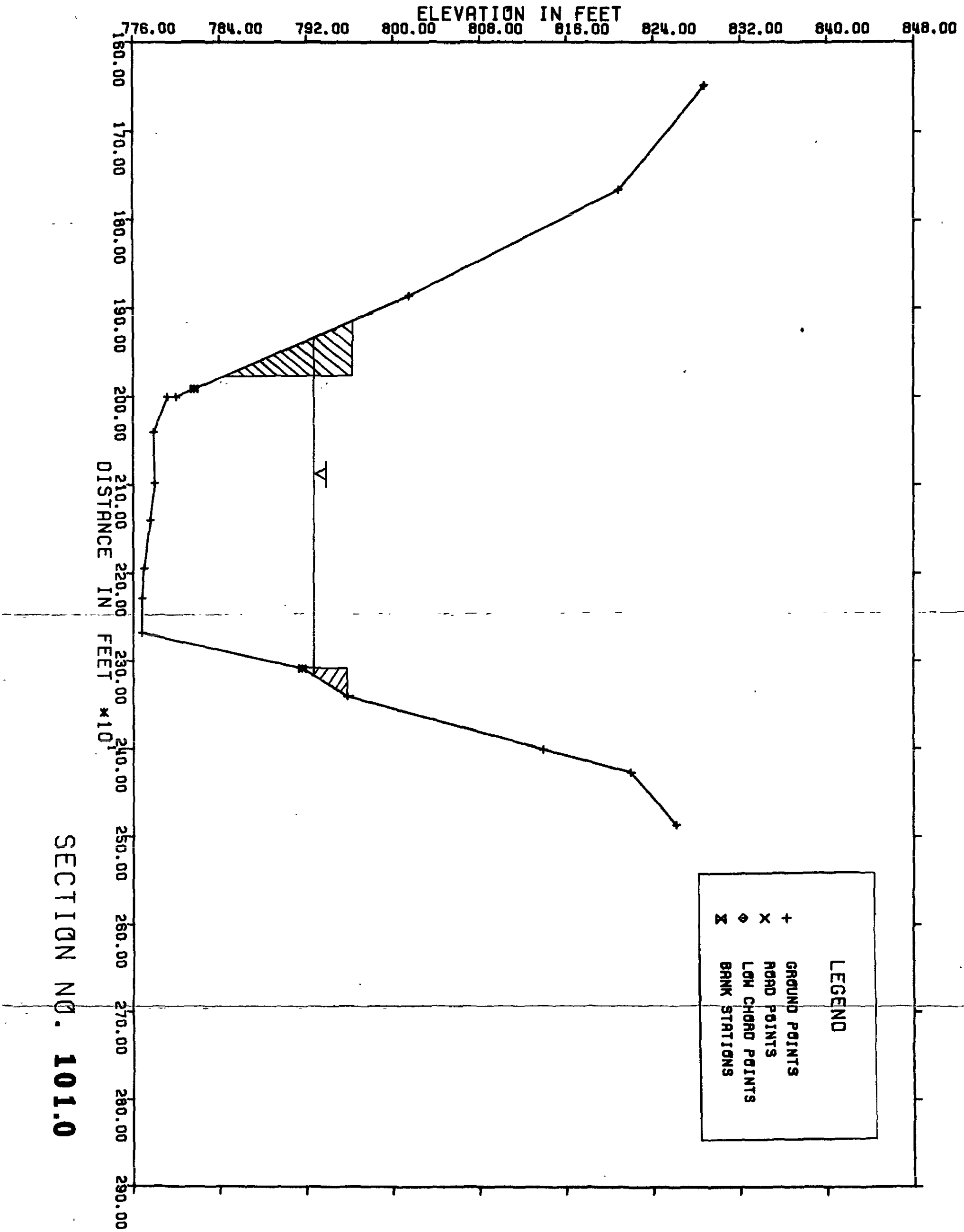
100-year flood boundary
floodway
500-year flood boundary

ROAD CLASSIFICATION

Primary highway, hard surface

Light-duty road, hard or improved surface

Secondary highway,

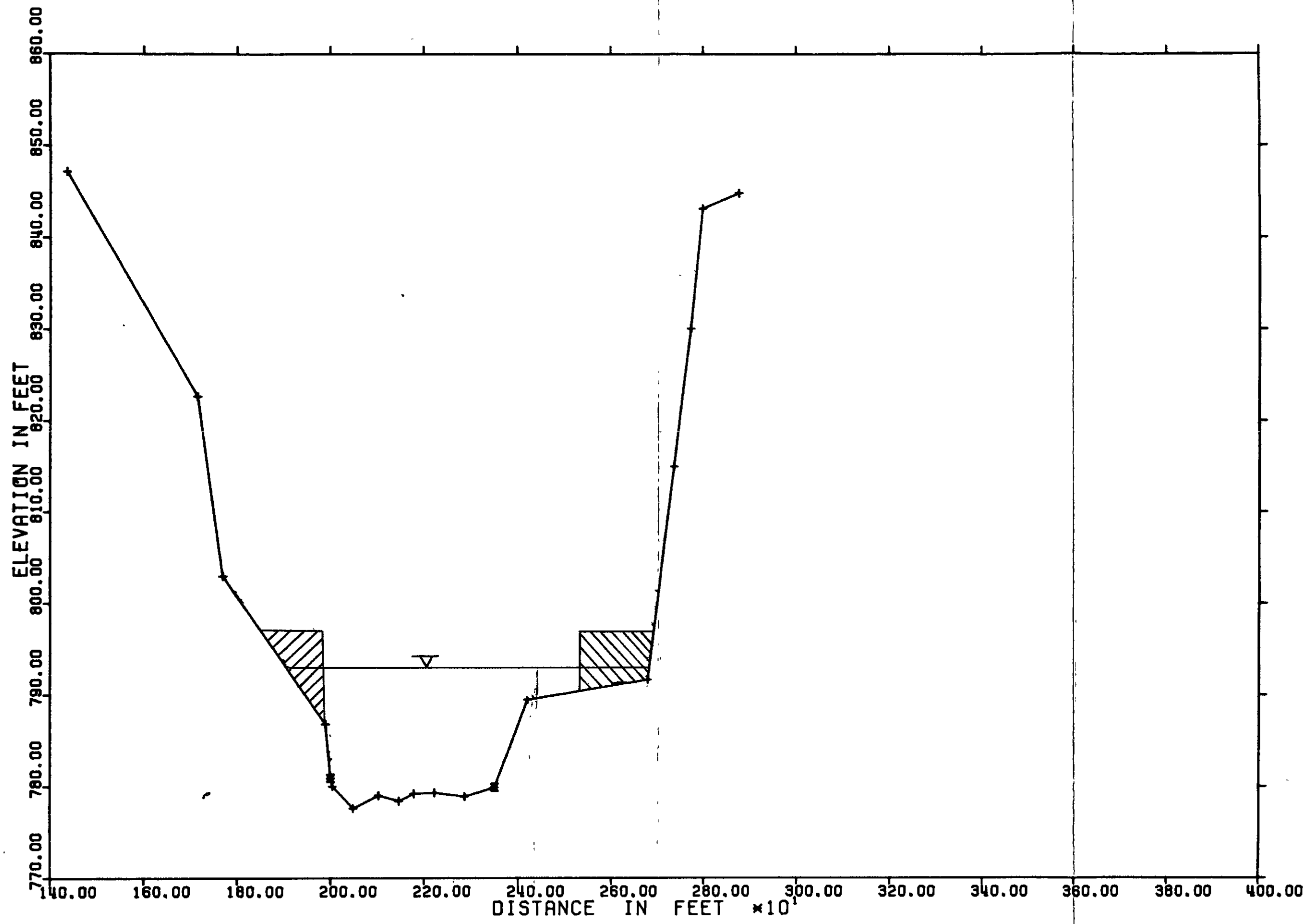


SECTION NO. 101.0

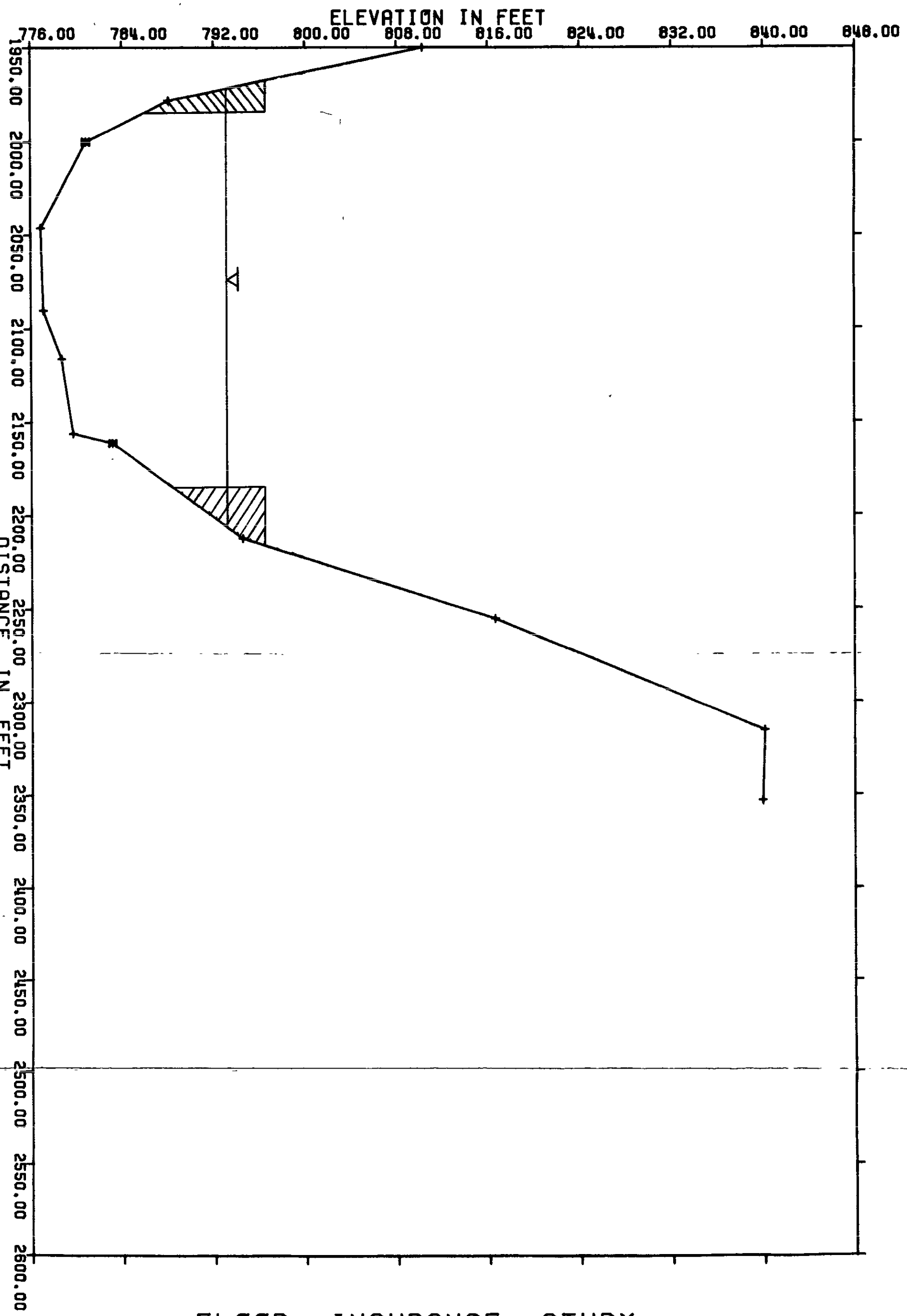
FLOOD INSURANCE STUDY

GRAND RIVER ONEIDA

FLOOD INSURANCE STUDY
GRAND RIVER ONEIDA

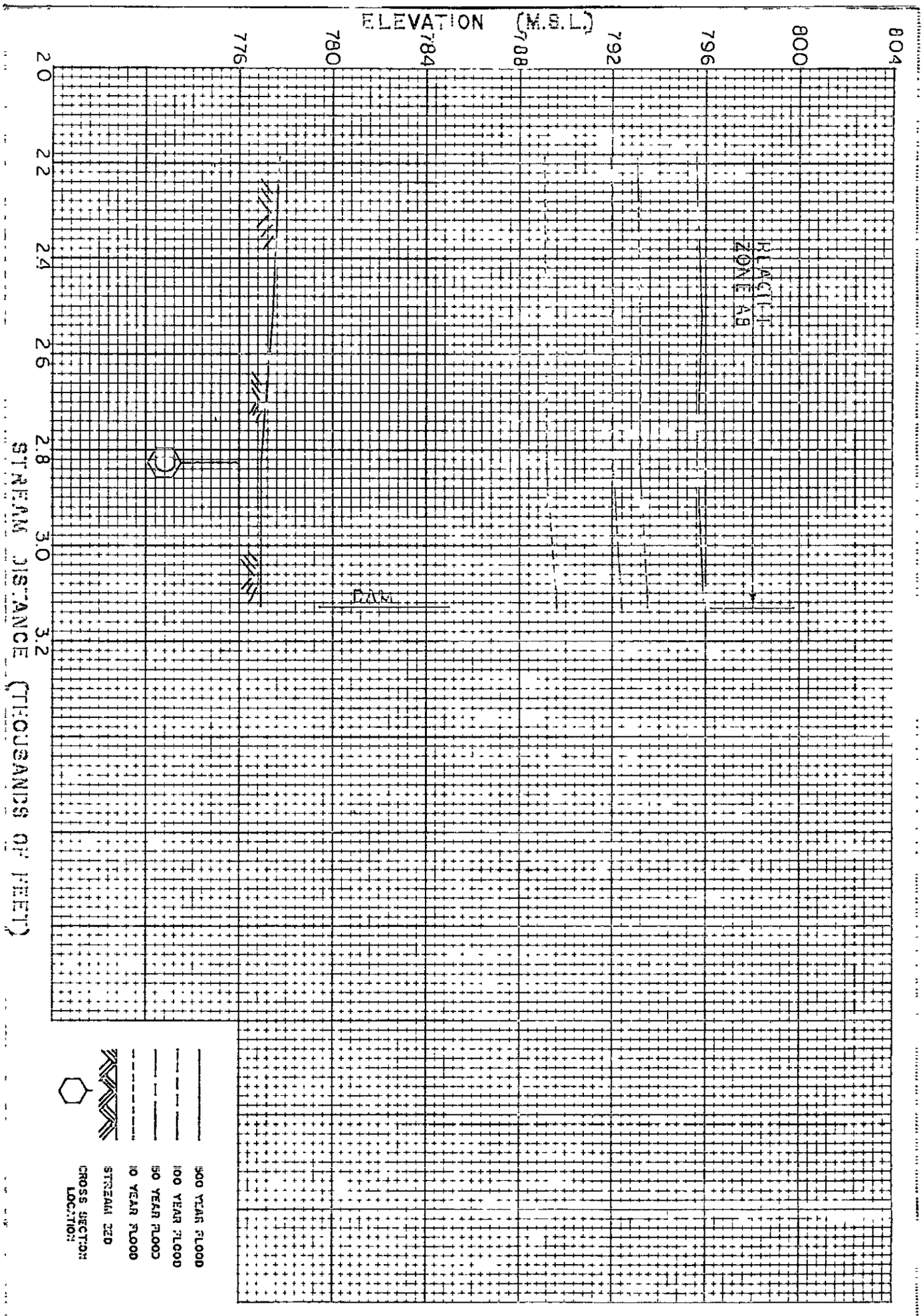


SECTION NO. **102.0**



FLOOD INSURANCE STUDY

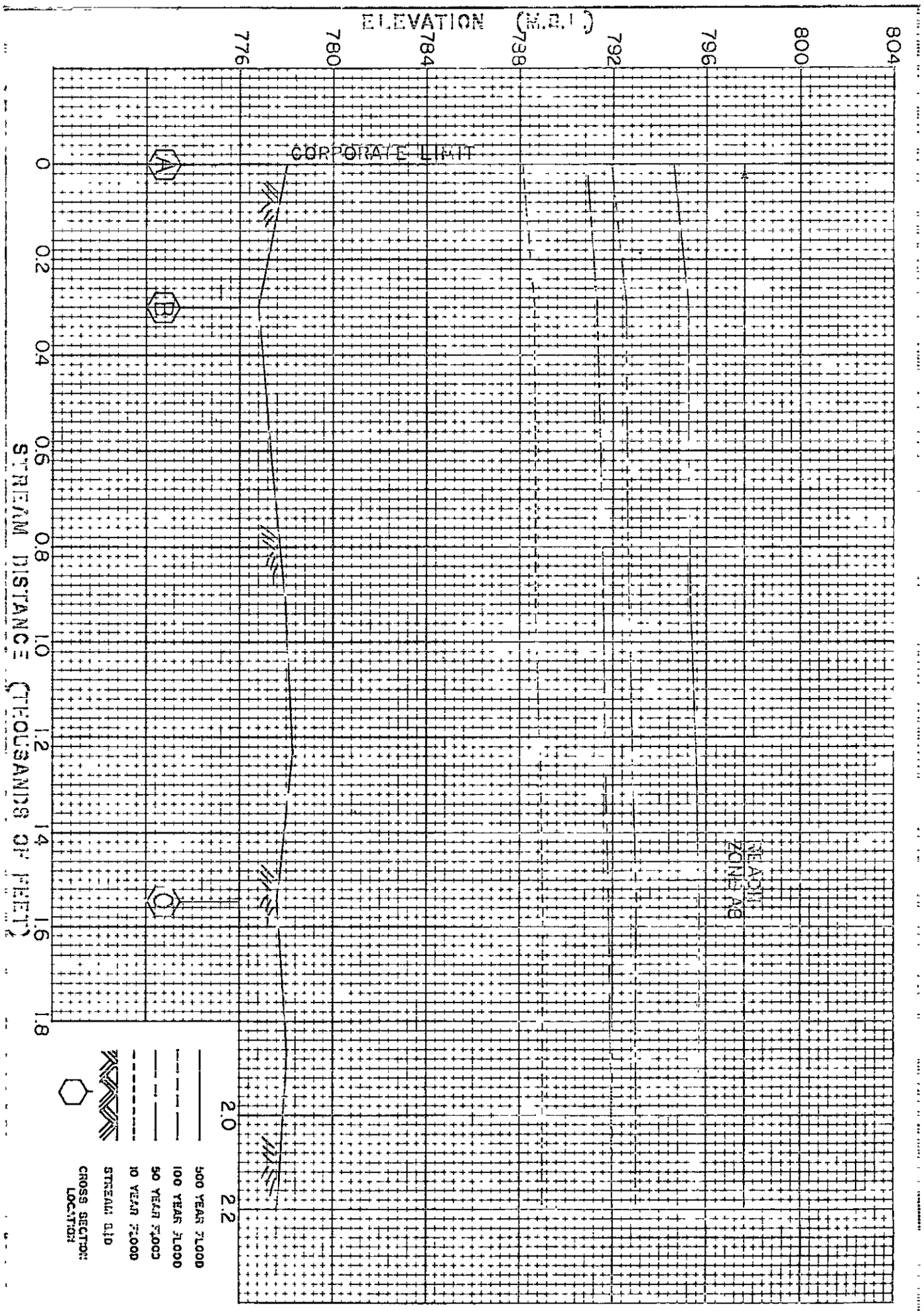
GRAND RIVER ONEIDA



ONEIDA TOWNSHIP

GRAND RIVER

FLOOD PROFILE



ONEIDA TOWNSHIP

GRAND RIVER

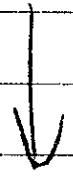
FLOOD PROFILE

GRAND RIVER - ONEIDA TWP.

(Downstream of Grand Ledge Dam)
100-Year Natural Profile and
Floodway Computations

DEC 6 1978

USE ENCROACHED RUN FOR 100YR
SUPPORT DATA FOR FIS



THIS RUN EXECUTED 12/07/79

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

C
T1       100  YEAR  PROFILE. 100  YEAR  FLOW  EQUAL  TO 20,100 CFS
T2       STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS.
T3       GRAND RIVER , ONEIDA

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0.        0.  0.0          0.0       0.0       0.   791.990     0.0

J2  NPROF     IPLOT     PREVS     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

    110.000   150.000   200.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC      0.079     0.079     0.035     0.100     0.300     0.0       0.0       0.0       0.0       0.0
QT      5.000 11085.000 17200.000 20100.000 27765.000 20100.000     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

X1    202.000    15.000   182.000   410.000     0.0       0.0       0.0       0.0       0.0       0.0
GR    802.300     0.0     791.700    63.000   789.800   100.000   787.100   165.000   783.900   180.000
GR    781.600   182.000   779.600   200.000   778.900   250.000   778.600   300.000   778.100   350.000
GR    779.600   400.000   781.600   410.000   792.300   425.000   797.300   440.000   802.300   470.000

X1    101.000    17.000  1991.000  2308.000   250.000   350.000   300.000     0.0       0.0       0.0
X4     19.000   799.700  1896.500   797.700  1907.000   795.700  1917.500   793.700  1928.000   791.700
X4   1938.500   789.700  1949.000   787.700  1959.500   785.700  1970.000   783.700  1980.500   781.700
X4   1991.000   792.030  2311.200   792.440  2314.400   792.860  2317.600   793.280  2320.800   793.700
X4   2324.000   794.120  2327.200   793.540  2330.400   794.960  2333.600   795.380  2336.800     0.0
GR    828.800  1648.000   820.900  1766.000   801.500  1886.000   781.700  1991.000   780.000  2000.000
GR    779.200  2000.000   777.900  2040.000   778.000  2098.000   777.600  2140.000   777.000  2194.000
GR    776.800  2228.000   776.800  2268.000   791.600  2308.000   795.800  2340.000   813.900  2400.000
GR    822.000  2426.000   826.200  2486.000     0.0       0.0       0.0       0.0       0.0       0.0

          CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

X1    101.250    25.000  2083.370  2390.070   355.000   275.000   313.000     0.0       0.0       0.0
X4      6.000   784.640  2065.680   783.830  2071.580   783.020  2077.480   786.630  2395.970   788.120
X4   2401.900   789.610  2407.770     0.0       0.0       0.0       0.0       0.0       0.0       0.0
GR    797.820  1989.000   797.820  1989.000   792.640  2012.590   788.950  2036.180   785.450  2059.780
GR    782.210  2083.370   779.010  2106.960   778.360  2130.550   778.050  2154.140   778.230  2177.740
GR    778.290  2201.330   778.130  2224.920   777.930  2248.510   777.690  2272.100   777.470  2295.700
GR    777.440  2319.290   777.490  2342.880   777.730  2366.470   785.140  2390.070   791.090  2413.660
GR    794.220  2437.250   794.220  2437.250   794.220  2437.250   794.220  2437.250   794.220  2437.250

X1    101.500    25.000  2082.160  2384.920   355.000   275.000   312.000     0.0       0.0       0.0
```

X4	2402.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	794.150	1989.000	794.150	1989.000	788.290	2012.290	785.420	2035.580	782.910	2058.870	
GR	780.950	2082.160	779.010	2105.450	778.470	2128.740	778.180	2152.030	778.490	2175.320	
GR	778.600	2198.600	778.510	2221.890	778.350	2245.180	778.150	2268.470	777.950	2291.760	
GR	778.030	2315.050	778.190	2338.340	778.540	2361.630	784.520	2384.920	789.530	2408.210	
GR	792.650	2431.500	792.650	2431.500	794.220	2431.500	794.220	2431.500	794.220	2431.500	
X1	101.750	25.000	2057.960	2379.780	355.000	275.000	313.000	0.0	0.0	0.0	
X4	5.000	782.900	2023.480	781.130	2046.470	784.920	2385.080	785.940	2391.180	784.960	
X4	2396.900	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GR	792.650	1981.370	790.470	1989.000	783.930	2011.990	781.880	2034.970	780.370	2057.960	
GR	779.690	2080.950	779.000	2103.930	778.570	2126.920	778.310	2149.910	778.750	2172.890	
GR	778.920	2195.880	778.900	2218.870	778.770	2241.850	778.600	2264.840	778.430	2287.830	
GR	778.630	2310.820	778.880	2333.800	779.350	2356.790	783.900	2379.780	787.960	2402.760	
GR	791.070	2425.750	791.070	2425.750	792.650	2425.750	792.650	2425.750	792.650	2425.750	
X1	102.000	19.000	2000.000	2350.000	355.000	275.000	312.000	0.0	0.0	0.0	
X4	18.000	786.210	1990.100	785.620	1991.200	785.030	1992.300	784.440	1993.400	783.850	
X4	1994.500	783.260	1995.600	782.670	1996.700	782.080	1997.800	781.490	1998.900	780.860	
X4	2357.000	781.820	2364.000	782.780	2371.000	783.740	2378.000	784.700	2385.000	785.660	
X4	2392.000	786.620	2399.000	787.580	2406.000	788.540	2413.000	0.0	0.0	0.0	
GR	847.200	1436.000	822.700	1714.000	803.000	1768.000	786.800	1989.000	780.900	2000.000	
GR	780.000	2001.000	777.600	2048.000	779.000	2102.000	778.400	2106.000	779.200	2178.000	
GR	779.300	2222.000	778.900	2286.000	779.900	2350.000	789.500	2420.000	791.700	2678.000	
GR	815.000	2736.000	830.100	2772.000	843.200	2798.000	844.900	2876.000	0.0	0.0	

CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

X1	102.250	21.000	2009.210	2292.160	355.000	293.000	320.000	0.0	0.0	0.0	
X4	5.000	785.060	1994.100	783.860	1999.200	782.260	2004.300	783.410	2322.470	786.660	
X4	2342.700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GR	792.650	1971.700	787.120	1989.000	780.660	2009.210	778.900	2029.420	778.240	2049.630	
GR	778.410	2069.840	778.560	2090.050	778.250	2110.260	778.080	2130.470	778.520	2150.680	
GR	778.750	2170.890	778.980	2191.100	779.090	2211.320	779.060	2231.530	779.040	2251.740	
GR	779.520	2271.950	780.950	2292.160	782.110	2312.370	785.160	2332.580	788.200	2352.790	
GR	792.650	2382.370	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
X1	102.500	21.000	2006.740	2255.050	355.000	292.000	320.000	0.0	0.0	0.0	
X4	5.000	785.950	1993.440	784.550	1997.880	783.150	2002.320	783.190	2263.920	785.550	
X4	2281.700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GR	794.310	1969.250	787.450	1989.000	781.750	2006.740	779.470	2024.470	778.660	2042.210	
GR	778.390	2059.950	778.120	2077.680	777.810	2095.420	777.720	2113.160	778.030	2130.890	
GR	778.260	2148.630	778.680	2166.370	778.980	2184.100	779.070	2201.840	779.160	2219.580	
GR	779.820	2237.320	782.330	2255.050	784.050	2272.790	787.040	2290.530	790.020	2308.260	
GR	794.310	2326.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
X1	102.750	21.000	2004.260	2217.950	355.000	293.000	320.000	0.0	0.0	0.0	
X4	5.000	786.550	1992.800	785.310	1996.600	784.070	2000.400	784.840	2225.580	787.450	
X4	2240.800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
GR	796.720	1964.180	787.770	1989.000	782.830	2004.260	780.030	2019.530	779.070	2034.790	
GR	778.380	2050.050	777.690	2065.320	777.380	2080.580	777.360	2095.840	777.540	2111.110	
GR	777.780	2126.370	778.380	2141.630	778.870	2156.890	779.080	2172.160	779.280	2187.420	
GR	780.120	2202.680	783.700	2217.950	785.990	2233.210	788.910	2248.470	791.840	2263.740	
GR	796.720	2279.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

300 FEET DOWNSTREAM OF DAM

X1	103.000	12.000	2000.000	2161.000	355.000	292.000	320.000	0.0	0.0	0.0	
X4	0.000	790.200	1960.000	784.500	1989.000	788.800	2186.500	805.500	2233.500	0.0	
GR	810.300	1950.000	788.100	1978.000	780.900	2000.000	776.900	2046.000	777.100	2090.000	
GR	778.700	2116.000	779.700	2156.000	783.100	2161.000	794.500	2212.000	816.600	2255.000	

```
X1     103.100      0.0        0.0        0.0       300.000    300.000    300.000      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 202.000
   SECNO      DEPTH      CWSEL      CRTWS      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      TOPWID      ENDST

   202.00     13.89      791.99      0.0       791.99     792.64      0.65       0.0        0.0       781.60
   20100.      520.      19476.      105.       392.      2957.       76.        0.         .0.       781.60
     0.0       1.33       6.59      1.38      0.079      0.035      0.079      0.0       778.10      61.28
 0.000791        0.         0.         0.         0         0          0        0.0       363.29     424.57

*SECNO 101.000
   101.00     15.72      792.52      0.0        0.0       792.82      0.30       0.15       0.04      781.70
   20100.      378.      19721.        1.       308.      4443.        3.        .28         .2.       791.60
     0.02      1.23       4.44      0.23      0.079      0.035      0.079      0.035      776.80     1934.18
 0.000329      250.       300.      350.         2         0          0        0.0       380.86     2315.04

*SECNO 101.250

          CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

   101.25     15.18      792.62      0.0        0.0       792.93      0.30       0.10       0.00      782.21
   20100.      455.      19538.      106.       379.      4355.       115.       .63.         .5.       785.14
     0.04      1.20       4.49      0.92      0.079      0.035      0.079      0.035      777.44     2012.70
 0.000327      355.       313.      275.         2         0          0        0.0       412.52     2425.21

*SECNO 101.500
   101.50     14.78      792.73      0.0        0.0       793.03      0.30       0.10       0.00      780.95
   20100.      880.      19054.      166.       627.      4244.       171.       .98.         .8.       784.52
     0.06      1.40       4.49      0.97      0.079      0.035      0.079      0.035      777.95     1994.66
 0.000332      355.       312.      275.         0         0          0        0.0       436.84     2431.50

*SECNO 101.750
3280 CROSS SECTION     101.75 EXTENDED       0.22 FEET

   SECNO      DEPTH      CWSEL      CRTWS      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      TOPWID      ENDST

   101.75     14.56      792.87      0.0        0.0       793.13      0.27       0.10       0.00      780.37
   20100.      941.      18912.      247.       639.      4441.       236.       136.         12.       783.90
     0.08      1.47       4.26      1.05      0.079      0.035      0.079      0.035      778.31     1981.37
 0.000304      355.       313.      275.         2         0          0        0.0       444.38     2425.75

*SECNO 102.000
   102.00     15.41      793.01      0.0        0.0       793.22      0.21       0.08       0.01      780.90
   20100.      202.      18762.     1056.       364.      4922.      1206.       178.         16.       779.90
     0.10      0.77       3.81      0.88      0.079      0.035      0.079      0.035      777.60     1904.26
 0.000239      355.       312.      275.         2         0          0        0.0       777.01     2681.27
```

OK

where did that come from? (interpolation - due to low pt on xsection shifting from i to r)

*SECNO 102.250
3280 CROSS SECTION 102.25 EXTENDED 0.37 FEET

CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

102.25	14.94	793.02	0.0	0.0	793.35	0.32	0.09	0.03	780.66
20100.	320.	18846.	930.	239.	4004.	628.	220.	20.	780.95
0.12	1.36	4.71	1.48	0.079	0.035	0.079	0.035	778.08	1971.70
0.000359	355.	320.	293.	2	0	0	0.0	410.67	2382.37

*SECNO 102.500

102.50	15.36	793.08	0.0	0.0	793.51	0.44	0.13	0.03	781.35
20100.	291.	19167.	642.	197.	3527.	409.	253.	23.	782.33
0.14	1.48	5.43	1.57	0.079	0.035	0.079	0.035	777.72	1972.80
0.000477	355.	320.	292.	2	0	0	0.0	348.09	2320.90

*SECNO 102.750

102.75	15.77	793.13	0.0	0.0	793.74	0.61	0.18	0.05	782.83
20100.	269.	19420.	821.	159.	3047.	258.	280.	25.	783.70
0.16	1.62	6.37	1.63	0.079	0.035	0.079	0.035	777.36	1974.13
0.000455	355.	320.	293.	2	0	0	0.0	293.66	2267.78

*SECNO 103.000

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

300 FEET DOWNSTREAM OF DAM

105.00	16.24	793.18	0.0	0.0	794.11	0.97	0.26	0.11	780.90
20100.	488.	19170.	442.	206.	2378.	256.	303.	27.	783.10
0.17	2.37	8.06	1.96	0.079	0.035	0.079	0.035	776.90	1971.64
0.001005	355.	320.	292.	2	0	0	0.0	234.28	2205.92

*SECNO 103.100

103.10	16.58	793.48	0.0	0.0	794.40	0.92	0.29	0.00	780.90
20100.	501.	19134.	465.	216.	2433.	241.	323.	29.	783.10
0.18	2.33	7.86	1.93	0.079	0.035	0.079	0.035	776.90	1971.21
0.000926	300.	300.	300.	2	0	0	0.0	236.24	2207.45

THIS RUN EXECUTED 12/07/79

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

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T1        100  YEAR  FLOODWAY
T2        STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS.
T3        GRAND RIVER , ONEIDA

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

     -10.        6.         0.         0.   0.0            0.0        0.0        0.    791.990      0.0

J2  NPROF      IPLOT      PREVS      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 202.000
 2800 NAT Q1=    7145.55  WSEL=     791.99  ENC Q1=    7145.55  WSEL=     792.09  RATIO=  0.0
 NAT Q1=    7244.  RATIOS LOB,CH,ROB=  0.0266  0.9681  0.0053  WSEL=     792.09
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       ARCB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTA       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      137.6      410.0  TYPE=      4  TARGET=        0.014
   202.00     13.89    791.99      0.0    791.99    792.67      0.68      0.0       0.0.    781.60
   20100.      378.    19722.       0.      234.     2957.        0.       .0.       .0.    781.60
     0.0       1.61      6.67      0.0     0.079     0.035     0.079      0.0     778.10    137.56
 0.000862        0.        0.        0.         0         0         0      0.0     272.44    410.00


*SECNO 101.000
 2800 NAT Q1=   11089.54  WSEL=     792.52  ENC Q1=   11089.54  WSEL=     792.62  RATIO=  0.0000
 NAT Q1=   11224.  RATIOS LOB,CH,ROB=  0.0191  0.9809  0.0000  WSEL=     792.62

3470 ENCROACHMENT STATIONS=     1978.0     2308.0  TYPE=      4  TARGET=        0.012
   101.00     15.75    792.55      0.0    792.52    792.86      0.31      0.15      0.04    781.30
   20100.      173.    19927.       0.      125.     4451.        0.       .27.       .2.    791.60
     0.02       1.39      4.48      0.0     0.079     0.035     0.079     0.035    776.80   1978.00
 0.000335      250.      300.      350.         2         0         0      0.0     329.96   2308.00


*SECNO 101.250
 2800 NAT Q1=   11122.98  WSEL=     792.62  ENC Q1=   11122.98  WSEL=     792.72  RATIO=  0.0
 NAT Q1=   11259.  RATIOS LOB,CH,ROB=  0.0230  0.9716  0.0054  WSEL=     792.72

3470 ENCROACHMENT STATIONS=     2055.4     2390.1  TYPE=      4  TARGET=        0.012

            CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

   101.25     15.21    792.65      0.0    792.62    792.97      0.31      0.11      0.00    782.21
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     0.04      1.39      4.53      0.0      0.079     0.035     0.079     0.035    777.44   2055.45
 0.000343      355.      313.      275.         0         0         0       0.0    334.62   2390.07

*SECNO 101.500
 2800 NAT Q1=  11030.93  WSEL=     792.73  ENC Q1=  11030.93  WSEL=     792.83  RATIO=  0.0
 NAT Q1=  11178.  RATIOS LOB,CH,ROB=  0.0441  0.9474  0.0085  WSEL=     792.83

3470 ENCROACHMENT STATIONS=     2028.2     2391.1  TYPE=      4  TARGET=        0.013
   101.50     14.81    792.76      0.0    792.73    793.07      0.31      0.11      0.00    780.95
   20100.      758.    19284.       59.      503.     4253.       47.       .94.       .7.    784.52
     0.06      1.51      4.53      1.25     0.079     0.035     0.079     0.035    777.95   2028.15
 0.000338      355.      312.      275.         0         0         0       0.0    362.96   2391.11

*SECNO 101.750
 2800 NAT Q1=  11518.86  WSEL=     792.87  ENC Q1=  11518.86  WSEL=     792.97  RATIO=  0.0
 NAT Q1=  11604.  RATIOS LOB,CH,ROB=  0.0471  0.9405  0.0125  WSEL=     792.97
3280 CROSS SECTION     101.75 EXTENDED       0.25 FEET

   SECNO     DEPTH     CWSEL     CRTWS     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     TCPWID      ENDST

3470 ENCROACHMENT STATIONS=     2010.3     2393.3  TYPE=      4  TARGET=        0.012
   101.75     14.59    792.90      0.0    792.87    793.18      0.28      0.10      0.00    780.37
   20100.      822.    19152.      126.      515.     4452.      106.      130.       10.    783.90
     0.08      1.60      4.30      1.19     0.079     0.035     0.079     0.035    778.31   2010.30
 0.000310      355.      313.      275.         2         0         0       0.0    383.03   2393.33

*SECNO 102.000
 2800 NAT Q1=  13037.54  WSEL=     793.01  ENC Q1=  13037.53  WSEL=     793.11  RATIO=  0.0000
 NAT Q1=  13211.  RATIOS LOB,CH,ROB=  0.0143  0.9321  0.0536  WSEL=     793.11

3470 ENCROACHMENT STATIONS=     1982.1     2531.8  TYPE=      4  TARGET=        0.013
   102.00     15.45    793.05      0.0    793.01    793.27      0.22      0.09      0.01    780.90
   20100.      148.    19001.      951.      143.     4935.      928.      169.       13.    779.90
     0.10      1.04      3.85      1.02     0.079     0.035     0.079     0.035    777.60   1982.06
 0.000242      355.      312.      275.         2         0         0       0.0    549.69   2531.75

*SECNO 102.250
 2800 NAT Q1=  10606.23  WSEL=     793.02  ENC Q1=  10606.23  WSEL=     793.12  RATIO=  0.0
 NAT Q1=  10737.  RATIOS LOB,CH,ROB=  0.0163  0.9371  0.0466  WSEL=     793.12
3280 CROSS SECTION     102.25 EXTENDED       0.41 FEET

3470 ENCROACHMENT STATIONS=     1995.4     2344.9  TYPE=      4  TARGET=        0.012

          CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

   102.25     14.98    793.06      0.0    793.02    793.40      0.33      0.09      0.03    780.66
   20100.      207.    19059.      834.      141.     4015.      510.      208.       16.    780.95
     0.12      1.47      4.75      1.63     0.079     0.035     0.079     0.035    778.08   1995.38
 0.000364      355.      320.      293.         2         0         0       0.0    349.56   2344.94

*SECNO 102.500
 2800 NAT Q1=   9201.60  WSEL=     793.08  ENC Q1=   9201.60  WSEL=     793.18  RATIO=  0.0
 NAT Q1=   9314.  RATIOS LOB,CH,ROB=  0.0146  0.9531  0.0323  WSEL=     793.18

3470 ENCROACHMENT STATIONS=     1995.8     2291.4  TYPE=      4  TARGET=        0.012
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   102.50     15.39    793.11      0.0     793.08    793.56      0.45      0.13      0.04    781.35
   20100.      174.    19376.      550.      105.     3536.      315.      240.       19.     782.33
     0.14      1.65      5.48      1.75     0.079    0.035     0.079     0.035    777.72   1995.82
 0.000483      355.      320.      292.         2        0         0       0.0    295.53   2291.35

*SECNO 102.750
 2800 NAT Q1=    7855.36  WSEL=     793.13  ENC Q1=    7855.36  WSEL=     793.23  RATIO=  0.0
 NAT Q1=    7951.  RATIOS LOB,CH,ROB=  0.0130  0.9657  0.0213  WSEL=     793.23

3470 ENCROACHMENT STATIONS=     1994.5     2240.8  TYPE=      4  TARGET=        0.012
   102.75     15.81    793.17      0.0     793.13    793.80      0.63      0.18      0.05    782.83
   20100.      154.    19638.      308.       86.     3055.      176.      266.       21.     783.70
     0.15      1.80      6.43      1.75     0.079    0.035     0.079     0.035    777.36   1994.47
 0.000664      355.      320.      293.         2        0         0       0.0    246.32   2240.79

*SECNO 103.000
 2800 NAT Q1=    6339.43  WSEL=     793.14  ENC Q1=    6339.43  WSEL=     793.24  RATIO=  0.0000
 NAT Q1=    6414.  RATIOS LOB,CH,ROB=  0.0245  0.9532  0.0223  WSEL=     793.24
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     FG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICCNT     COBAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=     1983.6     2183.6  TYPE=      4  TARGET=        0.012
            300  FEET  DOWNSTREAM  OF  DAM
   103.00     16.27    793.17      0.0     793.14    794.17      0.99      0.26      0.11    780.90
   20100.      377.    19382.      340.      158.     2183.      170.      288.       22.     783.10
     0.16      2.40      8.13      2.00     0.079    0.035     0.079     0.035    776.90   1983.56
 0.001020      355.      320.      292.         2        0         0       0.0    200.02   2183.58

*SECNO 103.100
 2800 NAT Q1=    6598.69  WSEL=     793.48  ENC Q1=    6598.69  WSEL=     793.58  RATIO=  0.0
 NAT Q1=    6675.  RATIOS LOB,CH,ROB=  0.0251  0.9514  0.0235  WSEL=     793.58

3470 ENCROACHMENT STATIONS=     1982.7     2184.9  TYPE=      4  TARGET=        0.011
   103.10     16.62    793.52      0.0     793.48    794.47      0.94      0.29      0.01    780.90
   20100.      395.    19342.      363.      170.     2439.      185.      307.       24.     783.10
     0.17      2.33      7.93      1.96     0.079    0.035     0.079     0.035    776.90   1982.68
 0.000940      300.      300.      300.         2        0         0       0.0    202.22   2184.90
```

Valley section G/C

* DON'T USE: ~~Snell = 794.7~~ ~~Δelmin = 118~~ Δ1.53'

* DON'T USE ~~Snell = 796.0~~ Δelmin = 118 Δ2.48'

* Differences in Snell's tailwater elevations have been resolved

THIS RUN EXECUTED 12/07/79

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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

GRAND RIVER , ONEIDA

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
202.000	791.99	0.0	792.64	363.29	519.77	19475.53	104.71	0.0	0.0	182.00	410.00	0.0
202.000	791.99	0.0	792.67	272.44	377.52	19722.49	0.0	0.01	137.56	182.00	410.00	410.00
101.000	792.52	0.0	792.82	380.86	378.21	19721.05	0.75	0.0	0.0	1991.00	2308.00	0.0
101.000	792.55	0.03	792.86	329.96	172.97	19927.04	0.0	0.01	1978.04	1991.00	2308.00	2308.00
101.250	792.62	0.0	792.93	412.52	455.39	19538.12	106.49	0.0	0.0	2083.37	2390.07	0.0
101.250	792.65	0.03	792.97	334.62	329.70	19770.30	0.0	0.01	2055.45	2083.37	2390.07	2390.07
101.500	792.73	0.0	793.03	436.84	880.22	19054.07	165.71	0.0	0.0	2082.16	2384.92	0.0
101.500	792.76	0.03	793.07	362.96	757.78	19283.58	58.64	0.01	2028.15	2082.16	2384.92	2391.12
101.750	792.87	0.0	793.13	444.38	941.02	18912.32	246.66	0.0	0.0	2057.96	2379.78	0.0
101.750	792.90	0.03	793.18	383.03	822.15	19151.80	126.05	0.01	2010.30	2057.96	2379.78	2393.33
102.000	793.01	0.0	793.22	777.01	282.08	18762.36	1055.56	0.0	0.0	2000.00	2350.00	0.0
102.000	793.05	0.04	793.27	549.69	148.49	19000.86	950.66	0.01	1982.06	2000.00	2350.00	2531.75
102.250	793.02	0.0	793.35	410.67	323.97	18845.97	930.06	0.0	0.0	2009.21	2292.16	0.0
102.250	793.06	0.04	793.40	349.56	206.76	19059.25	834.00	0.01	1995.38	2009.21	2292.16	2344.95
102.500	793.08	0.0	793.51	308.09	291.12	19167.11	641.77	0.0	0.0	2006.74	2255.05	0.0
102.500	793.11	0.04	793.56	295.53	174.09	19375.53	550.39	0.01	1995.82	2006.74	2255.05	2291.35
102.750	793.13	0.0	793.74	293.66	258.89	19420.17	420.95	0.0	0.0	2004.26	2217.95	0.0
102.750	793.17	0.04	793.80	246.32	153.96	19638.19	307.86	0.01	1994.47	2004.26	2217.95	2240.79
103.000	793.14	0.0	794.11	234.28	487.74	19169.91	442.37	0.0	0.0	2000.00	2161.00	0.0
103.000	793.17	0.03	794.17	200.02	377.33	19382.48	340.20	0.01	1983.56	2000.00	2161.00	2183.58
103.100	793.48	0.0	794.40	236.24	500.89	19134.12	465.00	0.0	0.0	2000.00	2161.00	0.0
103.100	793.52	0.04	794.47	202.22	394.52	19342.37	363.13	0.01	1982.68	2000.00	2161.00	2184.90

GRAND RIVER , ONEIDA

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	FLTRD	FLLC	ELMIN	Q	CWSEL	CRITWS	EG	10K*S	VCH	AREA	.01K
202.000	0.0	0.0	0.0	778.10	20100.00	791.99	0.0	792.64	7.91	6.59	3424.62	7145.55
202.000	0.0	0.0	0.0	778.10	20100.00	791.99	0.0	792.67	8.62	6.67	3191.30	6847.96
101.000	300.00	0.0	0.0	776.80	20100.00	792.52	0.0	792.82	3.29	4.44	4753.51	11089.54
101.000	300.00	0.0	0.0	776.80	20100.00	792.55	0.0	792.86	3.35	4.48	4575.33	10983.89
101.250	313.00	0.0	0.0	777.44	20100.00	792.62	0.0	792.93	3.27	4.49	4848.92	11122.98
101.250	313.00	0.0	0.0	777.44	20100.00	792.65	0.0	792.97	3.43	4.53	4601.74	10850.66
101.500	312.00	0.0	0.0	777.95	20100.00	792.73	0.0	793.03	3.32	4.49	5041.37	11030.93
101.500	312.00	0.0	0.0	777.95	20100.00	792.76	0.0	793.07	3.38	4.53	4803.16	10938.25
101.750	313.00	0.0	0.0	778.31	20100.00	792.87	0.0	793.13	3.04	4.26	5316.23	11518.86
101.750	313.00	0.0	0.0	778.31	20100.00	792.90	0.0	793.18	3.10	4.30	5073.07	11422.91
102.000	312.00	0.0	0.0	777.60	20100.00	793.01	0.0	793.22	2.38	3.81	6491.92	13037.54
102.000	312.00	0.0	0.0	777.60	20100.00	793.05	0.0	793.27	2.42	3.85	6005.20	12930.50
102.250	320.00	0.0	0.0	778.08	20100.00	793.02	0.0	793.35	3.59	4.71	4870.90	10606.23
102.250	320.00	0.0	0.0	778.08	20100.00	793.06	0.0	793.40	3.64	4.75	4666.20	10534.70
102.500	320.00	0.0	0.0	777.72	20100.00	793.08	0.0	793.51	4.77	5.43	4132.39	9201.60
102.500	320.00	0.0	0.0	777.72	20100.00	793.11	0.0	793.56	4.83	5.48	3956.75	9142.82
102.750	320.00	0.0	0.0	777.36	20100.00	793.13	0.0	793.74	6.55	6.37	3464.42	7855.36
102.750	320.00	0.0	0.0	777.36	20100.00	793.17	0.0	793.80	6.64	6.43	3316.51	7800.93
103.000	320.00	0.0	0.0	776.90	20100.00	793.14	0.0	794.11	10.05	8.06	2809.59	6339.43
103.000	320.00	0.0	0.0	776.90	20100.00	793.17	0.0	794.17	10.20	8.13	2711.21	6293.02
103.100	300.00	0.0	0.0	776.90	20100.00	793.48	0.0	794.40	9.28	7.86	2890.18	6598.69
103.100	300.00	0.0	0.0	776.90	20100.00	793.52	0.0	794.47	9.40	7.93	2794.13	6555.72

GRAND RIVER , ONEIDA

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSY	DIFKWS	TOPWID	XLCH
202.000	20100.00	791.99	0.0	0.0	0.0	363.29	0.0
202.000	20100.00	791.99	0.0	0.0	0.0	272.44	0.0
101.000	20100.00	792.52	0.0	0.53	0.0	380.86	300.00
101.000	20100.00	792.55	0.03	0.56	0.03	329.96	300.00
101.250	20100.00	792.62	0.0	0.10	0.0	412.52	313.00
101.250	20100.00	792.65	0.03	0.10	0.03	334.62	313.00
101.500	20100.00	792.73	0.0	0.11	0.0	436.84	312.00
101.500	20100.00	792.76	0.03	0.11	0.03	362.96	312.00
101.750	20100.00	792.87	0.0	0.13	0.0	444.38	313.00
101.750	20100.00	792.90	0.03	0.14	0.03	383.03	313.00
102.000	20100.00	793.01	0.0	0.14	0.0	777.01	312.00
102.000	20100.00	793.05	0.04	0.15	0.04	549.69	312.00
102.250	20100.00	793.02	0.0	0.01	0.0	410.67	320.00
102.250	20100.00	793.06	0.04	0.01	0.04	349.56	320.00
102.500	20100.00	793.08	0.0	0.05	0.0	348.09	320.00
102.500	20100.00	793.11	0.04	0.05	0.04	295.53	320.00
102.750	20100.00	793.13	0.0	0.06	0.0	293.66	320.00
102.750	20100.00	793.17	0.04	0.06	0.04	246.32	320.00
103.000	20100.00	793.14	0.0	0.01	0.0	234.28	320.00
103.000	20100.00	793.17	0.03	0.00	0.03	200.02	320.00
103.100	20100.00	793.48	0.0	0.34	0.0	236.24	300.00
103.100	20100.00	793.52	0.04	0.35	0.04	202.22	300.00

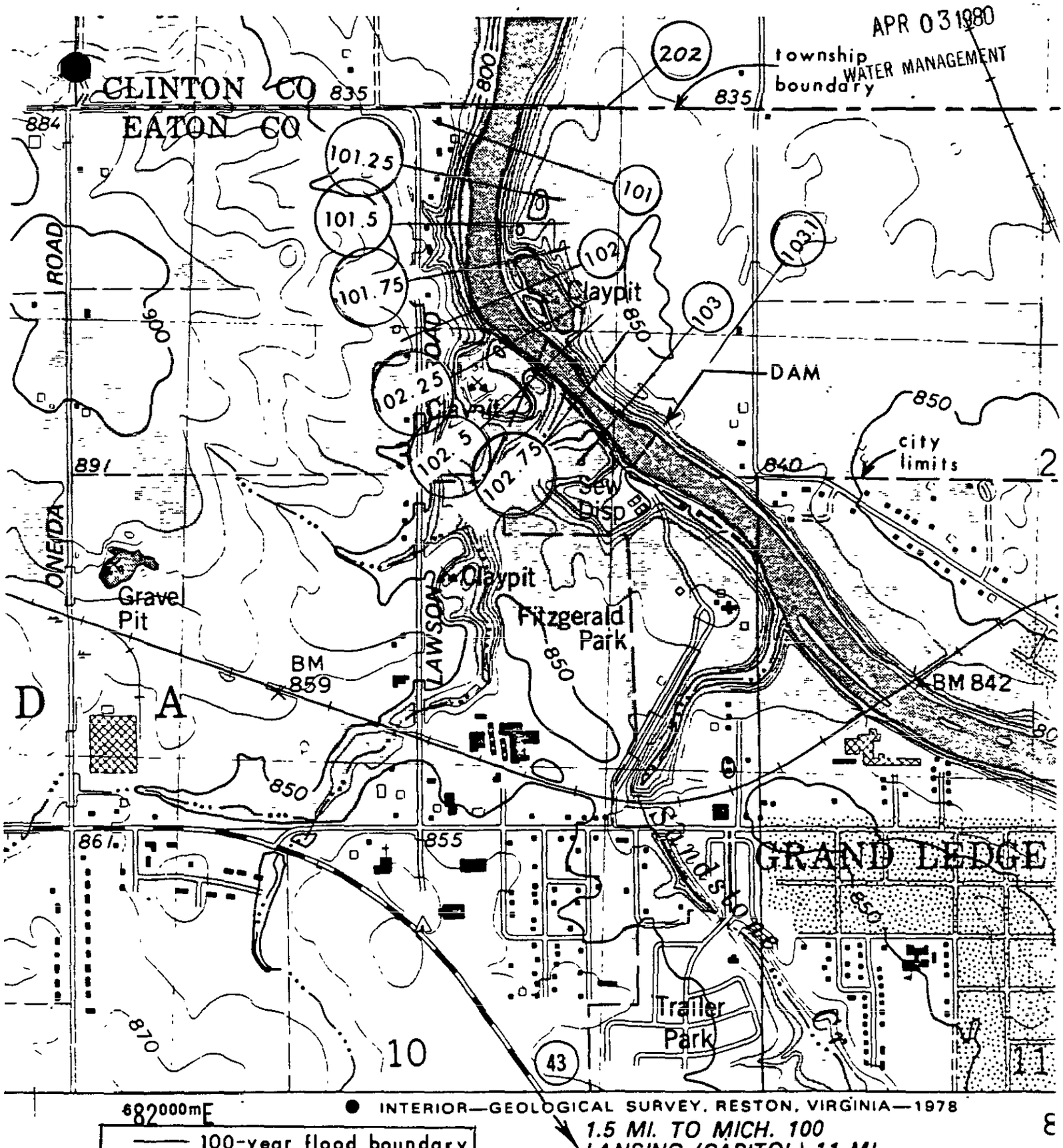
SUMMARY OF ERRORS

FLOODWAY DATA, GRAND RIVER , ONEIDA
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
202.000	272.	3191.	6.3	792.0	792.0	0.0
101.000	330.	4575.	4.4	792.5	792.5	0.0
101.250	335.	4602.	4.4	792.6	792.6	0.0
101.500	363.	4803.	4.2	792.7	792.7	0.0
101.750	383.	5073.	4.0	792.9	792.9	0.0
102.000	550.	6005.	3.3	793.0	793.0	0.0
102.250	350.	4666.	4.3	793.0	793.0	0.0
102.500	296.	3957.	5.1	793.1	793.1	0.0
102.750	246.	3317.	6.1	793.1	793.1	0.0
103.000	200.	2711.	7.4	793.1	793.1	0.0
103.100	202.	2794.	7.2	793.5	793.5	0.0

scale: 1" = 965'

RECEIVED
APR 03 1980
WATER MANAGEMENT



682000mE

● INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1978

1.5 MI. TO MICH. 100
LANSING (CAPITOL) 11 MI.

100-year flood boundary
floodway
500-year flood boundary

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway,

Light-duty road, hard or improved surface

GRAND RIVER - ONEIDA TWP.

(Downstream of Grand Ledge Dam)
Multi-Profile and Flood Hazard
Factor Computations

DEC 6 1979

THIS RUN EXECUTED 12/07/79

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

C
T1      10 YEAR PROFILE, 10 YEAR FLOW EQUAL TO 11,085 CFS
T2      STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS
T3         GRAND RIVER , ONEIDA

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   0.0          0.0       0.0       0.    788.130     0.0

J2  NPROF     IPLOT     PREVS     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

    150.000   201.000     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0

NC      0.079     0.079     0.035     0.100     0.300     0.0       0.0       0.0       0.0       0.0
QT      5.000 11085.000 17200.000 20100.000 27765.000 20100.000     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

X1    202.000    15.000   182.000   410.000     0.0       0.0       0.0       0.0       0.0       0.0
GR    802.300     0.0     791.700    63.000   789.800   100.000   787.100   165.000   783.900   180.000
GR    781.600   182.000   779.600   200.000   778.900   250.000   778.600   300.000   778.100   350.000
GR    779.600   400.000   781.600   410.000   792.300   425.000   797.300   440.000   802.300   470.000

X1    101.000    17.000  1991.000  2308.000   250.000   350.000   300.000     0.0       0.0       0.0
GR    828.800  1648.000   820.900  1766.000   801.500  1886.000   781.700  1991.000   780.000  2000.000
GR    779.200  2000.000   777.900  2040.000   778.000  2098.000   777.600  2140.000   777.000  2194.000
GR    776.800  2228.000   776.800  2268.000   791.600  2308.000   795.800  2340.000   813.900  2400.000
GR    822.000  2426.000   826.200  2486.000     0.0       0.0       0.0       0.0       0.0       0.0

          CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

X1    101.250    25.000  2083.370  2390.070   355.000   275.000   313.000     0.0       0.0       0.0
X4      6.000   784.640  2065.680   783.830  2071.580   783.020  2077.480   786.630  2395.970   788.120
X4   2401.900   789.610  2407.770     0.0       0.0       0.0       0.0       0.0       0.0       0.0
GR    797.820  1989.000   797.820  1989.000   792.640  2012.590   788.950  2036.180   785.450  2059.780
GR    782.210  2083.370   779.010  2106.960   778.360  2130.550   778.050  2154.140   778.230  2177.740
GR    778.290  2201.330   778.130  2224.920   777.930  2248.510   777.690  2272.100   777.470  2295.700
GR    777.440  2319.290   777.490  2342.880   777.730  2366.470   785.140  2390.070   791.090  2413.660
GR    794.220  2437.250   794.220  2437.250   794.220  2437.250   794.220  2437.250   794.220  2437.250

X1    101.500    25.000  2082.160  2384.920   355.000   275.000   312.000     0.0       0.0       0.0
X4      5.000   784.170  2047.220   781.930  2070.510   785.770  2390.720   787.020  2396.520   788.270
X4   2402.300     0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0       0.0
GR    794.150  1989.000   794.150  1989.000   788.290  2012.290   785.420  2035.580   782.910  2058.870
GR    780.950  2082.160   779.010  2105.450   778.470  2128.740   778.180  2152.030   778.490  2175.320
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GR	778.030	2315.050	778.190	2338.340	778.540	2361.630	784.520	2384.920	789.530	2408.210
GP	792.650	2431.500	792.650	2431.500	794.220	2431.500	794.220	2431.500	794.220	2431.500
X1	101.750	25.000	2057.960	2379.780	355.000	275.000	313.000	0.0	0.0	0.0
X4	5.000	782.900	2023.480	781.130	2006.470	784.920	2385.480	785.940	2391.180	786.960
X4	2396.900	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	792.650	1981.370	790.470	1989.000	783.930	2011.990	781.880	2038.970	780.370	2057.960
GR	779.690	2080.950	779.000	2103.930	778.570	2126.920	778.310	2149.910	778.750	2172.890
GR	778.920	2195.880	778.900	2218.870	778.770	2241.850	778.600	2264.840	778.430	2287.830
GR	778.630	2310.820	778.880	2333.800	779.350	2356.790	783.900	2379.780	787.960	2402.760
GP	791.070	2425.750	791.070	2425.750	792.650	2425.750	792.650	2425.750	792.650	2425.750
X1	102.000	19.000	2000.000	2350.000	355.000	275.000	312.000	0.0	0.0	0.0
X4	18.000	786.210	1990.100	785.620	1991.200	785.030	1992.300	784.440	1993.400	783.850
X4	1994.500	783.260	1995.600	783.670	1996.700	782.080	1997.800	781.490	1998.900	780.860
X4	2357.000	781.820	2364.000	782.780	2371.000	783.740	2378.000	784.700	2385.000	785.660
X4	2392.000	786.620	2399.000	787.580	2406.000	788.540	2413.000	0.0	0.0	0.0
GR	847.200	1436.000	822.700	1714.000	803.000	1768.000	796.800	1989.000	780.900	2000.000
GR	780.000	2004.000	777.600	2048.000	779.000	2102.000	778.400	2106.000	779.200	2178.000
GR	779.300	2222.000	778.900	2286.000	779.900	2350.000	789.500	2420.000	791.700	2678.000
GR	815.000	2736.000	830.100	2772.000	843.200	2798.000	844.900	2876.000	0.0	0.0

CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

X1	102.250	21.000	2009.210	2292.160	355.000	293.000	320.000	0.0	0.0	0.0
X4	5.000	785.960	1994.100	783.860	1999.200	782.260	2004.300	783.610	2322.470	784.660
X4	2342.700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	792.650	1971.700	787.120	1989.000	780.660	2009.210	778.900	2029.420	778.240	2049.630
GR	778.410	2069.840	778.560	2090.050	778.250	2110.260	778.080	2130.470	778.520	2150.680
GR	778.750	2170.890	778.980	2191.100	779.090	2211.320	779.060	2231.530	779.040	2251.740
GR	779.520	2271.950	780.950	2292.160	782.110	2312.370	785.160	2332.580	788.200	2352.790
GP	792.650	2382.370	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	102.500	21.000	2006.740	2255.050	355.000	292.000	320.000	0.0	0.0	0.0
X4	5.000	785.950	1993.440	784.550	1997.880	783.150	2002.320	783.190	2263.920	785.550
X4	2281.700	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	794.310	1969.250	787.450	1989.000	781.750	2006.740	779.470	2024.470	778.460	2042.210
GR	778.390	2059.950	778.120	2077.680	777.810	2095.420	777.720	2113.160	778.030	2130.890
GR	778.260	2148.630	778.680	2166.370	778.980	2184.100	779.070	2201.840	779.160	2219.580
GR	779.420	2237.320	782.330	2255.050	784.050	2272.790	787.040	2290.530	790.020	2308.260
GR	794.310	2326.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	102.750	21.000	2004.260	2217.950	355.000	293.000	320.000	0.0	0.0	0.0
X4	5.000	785.550	1992.800	785.310	1996.600	784.070	2000.400	784.840	2225.580	787.450
X4	2240.800	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	796.720	1968.180	787.770	1989.000	782.830	2004.260	780.030	2019.530	779.070	2034.790
GR	778.380	2050.050	777.690	2065.320	777.380	2080.580	777.360	2095.840	777.540	2111.110
GR	777.780	2126.370	778.380	2141.630	778.870	2156.890	779.080	2172.160	779.280	2187.420
GR	780.120	2202.680	783.700	2217.950	785.990	2233.210	788.910	2248.470	791.840	2263.740
GR	796.720	2279.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

300 FEET DOWNSTREAM OF DAM

X1	103.000	12.000	2000.000	2161.000	355.000	292.000	320.000	0.0	0.0	0.0
X4	0.000	798.200	1964.000	784.500	1989.000	788.800	2186.500	805.500	2233.500	0.0
GR	810.300	1950.000	788.100	1978.000	780.900	2000.000	776.900	2046.000	777.100	2090.000
GR	776.700	2116.000	779.700	2156.000	783.100	2161.000	794.500	2212.000	816.600	2255.000
GR	840.200	2315.000	840.000	2353.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	103.100	0.0	0.0	0.0	300.000	300.000	300.000	0.0	0.0	0.0

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO 202.000

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	CLOB	OCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TOC	ICONT	CORAR	TOPWID	ENDST
202.00	10.03	788.13	0.0	788.13	788.56	0.43	0.0	0.0	781.60
11085.	58.	10996.	31.	63.	2077.	30.	0.	.0	781.60
0.0	0.92	5.29	1.03	0.079	0.035	0.079	0.0	778.10	140.21
0.000819	0.	0.	0.	0	0	0	0.0	278.95	419.15
*SECNO 101.000									
101.00	11.74	788.54	0.0	0.0	788.72	0.18	0.14	0.02	781.30
11085.	00.	10995.	0.	124.	3193.	0.	19.	.2.	791.60
0.02	0.73	3.44	0.0	0.079	0.035	0.079	0.035	776.80	1954.72
0.000296	250.	300.	350.	2	0	0	0.0	345.02	2299.73
*SECNO 101.250									

CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

101.25	11.19	788.63	0.0	0.0	788.82	0.19	0.09	0.00	782.21
11085.	123.	10949.	13.	147.	3131.	24.	83.	.5.	785.14
0.05	0.84	3.50	0.54	0.079	0.035	0.079	0.035	777.44	2038.32
0.000308	355.	313.	275.	2	0	0	0.0	365.60	2403.92
*SECNO 101.500									
101.50	10.78	788.73	0.0	0.0	788.92	0.19	0.10	0.00	780.95
11085.	310.	10745.	26.	309.	3034.	41.	47.	7.	784.52
0.07	1.02	3.54	0.64	0.079	0.035	0.079	0.035	777.95	2010.55
0.000323	355.	312.	275.	0	0	0	0.0	393.90	2404.45
*SECNO 101.750									
SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	CLOB	OCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TOC	ICONT	CORAR	TOPWID	ENDST
101.75	10.54	788.85	0.0	0.0	789.02	0.17	0.10	0.00	780.37
11085.	399.	10638.	48.	356.	3145.	69.	92.	10.	783.90
0.10	1.13	3.38	0.69	0.079	0.035	0.079	0.035	778.31	1994.73
0.000304	355.	313.	275.	1	0	0	0.0	414.53	2409.26
*SECNO 102.000									
102.00	11.37	788.97	0.0	0.0	789.11	0.14	0.08	0.00	780.90
11085.	57.	10745.	283.	88.	3502.	296.	119.	14.	778.90
0.13	0.65	3.07	0.95	0.079	0.035	0.079	0.035	777.60	1959.58
0.000242	355.	312.	275.	1	0	0	0.0	456.45	2416.04

*SECNO 102.250

CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

102.25	10.93	789.01	0.0	0.0	789.22	0.20	0.09	0.02	780.66
11085.	113.	10621.	351.	109.	2869.	310.	145.	17.	780.95
0.15	1.04	3.70	1.13	0.079	0.035	0.079	0.035	778.08	1983.08
0.000306	355.	320.	293.	2	0	0	0.0	375.12	2358.20

*SECNO 102.500

102.50	11.37	789.09	0.0	0.0	789.36	0.27	0.13	0.02	781.25
11085.	83.	10791.	202.	84.	2540.	181.	167.	19.	782.33
0.18	1.10	4.25	1.12	0.079	0.035	0.079	0.035	777.72	1984.25
0.000452	355.	320.	292.	1	0	0	0.0	318.53	2302.78

*SECNO 102.750

102.75	11.83	789.19	0.0	0.0	789.56	0.38	0.17	0.03	782.83
11085.	71.	10912.	101.	62.	2200.	93.	186.	21.	783.70
0.19	1.15	4.95	1.09	0.079	0.035	0.079	0.035	777.36	1985.07
0.000609	355.	320.	293.	2	0	0	0.0	264.84	2249.91

*SECNO 103.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HI	OLOSS	BANK ELEV
Q	ELOB	OCH	QBOB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOB	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

300 FEET DOWNSTREAM OF DAM

103.00	12.38	789.28	0.0	0.0	789.85	0.57	0.23	0.06	780.90
11085.	190.	10807.	184.	106.	1256.	85.	202.	23.	783.10
0.21	1.64	6.15	1.22	0.079	0.035	0.079	0.035	776.90	1976.51
0.000878	355.	320.	292.	2	0	0	0.0	212.13	2188.64

*SECNO 103.100

103.10	12.67	789.57	0.0	0.0	790.11	0.54	0.25	0.00	780.90
11085.	182.	10789.	114.	113.	1802.	94.	216.	24.	783.10
0.22	1.61	5.99	1.22	0.079	0.035	0.079	0.035	776.90	1976.15
0.000802	300.	300.	300.	2	0	0	0.0	213.77	2189.92

THIS RUN EXECUTED 12/07/79

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

T1      50 YEAR PROFILE, 50 YEAR FLOW EQUAL TO 17,200 CFS
T2      STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS
T3      GRAND  RIVER , ONEIDA

J1  ICHECK    IDO      NINV     IDIR     SIRT     METRIC   HVINS    Q        WSEL     EQ

    -10.       3.       0.       0.   0.0          0.0      0.0      0.    790.880    0.0

J2  NPROF     IPLOT    PREVS    XSECV    XSECH    FN       ALLDC    IBW      CHNTM    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 202.000
   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

   202.00    12.78   790.88     0.0    790.88   791.47     0.59     0.0      0.0.    781.60
   17200.     311.   16811.      78.     266.    2704.      60.      0.       .0.     781.60
     0.0      1.17     6.22     1.29    0.079    0.035    0.079    0.0     778.10    78.97
 0.000794      0.       0.       0.       0        0        0      0.0     344.04   423.01

*SECNO 101.000
   101.00    14.58   791.38     0.0      0.0.   791.64     0.26     0.14     0.03    781.30
   17200.     237.   16963.       0.     248.    4080.       0.      .25.      .2.     791.60
     0.02     0.95     4.16     0.0    0.079    0.035    0.079    0.035   776.80   1939.68
 0.000322     250.     300.     350.       2        0        0      0.0     367.73   2307.40

*SECNO 101.250

          CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

   101.25    14.04   791.48     0.0      0.0.   791.74     0.27     0.10     0.00    782.21
   17200.     333.   16801.      67.     302.    4003.      80.      57.       .5.     785.14
     0.04     1.10     4.20     0.80    0.079    0.035    0.079    0.035   777.44   2020.03
 0.000320     355.     313.     275.       2        0        0      0.0     396.54   2416.57

*SECNO 101.500
   101.50    13.63   791.58     0.0      0.0    791.85     0.26     0.10     0.00    780.95
   17200.     684.   16408.     108.     529.    3896.     122.      .89.      .8.     784.52
     0.06     1.29     4.21     0.89    0.079    0.035    0.079    0.035   777.95   1999.22
 0.000327     355.     312.     275.       0        0        0      0.0     424.27   2423.49
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SECNO Q TIME SLOPE	DEPTH ELOB VLOB XLOBI	CWSEL OCH VCH XLCH	CRTWS 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
101.75	13.40	791.71	0.0	0.0	791.95	0.24	0.10	0.00	780.37
17200.	756.	16276.	168.	552.	4069.	183.	123.	11.	783.90
0.09	1.37	4.00	0.92	0.079	0.035	0.079	0.035	778.31	1984.66
0.000302	355.	313.	275.	2	0	0	0.0	441.09	2425.75
*SECNO 102.000									
102.00	14.24	791.84	0.0	0.0	792.04	0.19	0.08	0.00	780.90
17200.	190.	16320.	690.	261.	4512.	820.	160.	16.	778.90
0.11	0.73	3.62	0.84	0.079	0.035	0.079	0.035	777.60	1920.22
0.000240	355.	312.	275.	2	0	0	0.0	758.13	2678.35
*SECNO 102.250									
CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS									
102.25	13.79	791.87	0.0	0.0	792.16	0.29	0.09	0.03	780.46
17200.	208.	16226.	726.	167.	3677.	525.	167.	20.	780.95
0.13	1.26	4.41	1.38	0.079	0.035	0.079	0.035	778.08	1974.14
0.000354	355.	320.	293.	2	0	0	0.0	403.03	2377.18
*SECNO 102.500									
102.50	14.21	791.93	0.0	0.0	792.31	0.39	0.13	0.03	781.35
17200.	210.	16498.	483.	159.	3242.	336.	226.	22.	782.33
0.15	1.37	5.09	1.44	0.079	0.035	0.079	0.035	777.72	1976.11
0.000468	355.	320.	292.	2	0	0	0.0	340.04	2316.15
*SECNO 102.750									
102.75	14.64	792.00	0.0	0.0	792.53	0.54	0.17	0.04	782.83
17200.	190.	16712.	298.	127.	2804.	203.	252.	25.	783.70
0.16	1.49	5.96	1.47	0.079	0.035	0.079	0.035	777.36	1977.28
0.000600	355.	320.	293.	2	0	0	0.0	286.95	2264.23
*SECNO 103.000									
SECNO Q TIME SLOPE	DEPTH ELOB VLOB XLOBI	CWSEL OCH VCH XLCH	CRTWS 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
300 FEET DOWNSTREAM OF DAM									
103.00	15.13	792.03	0.0	0.0	792.87	0.84	0.25	0.09	780.90
17200.	379.	16505.	316.	175.	2109.	178.	272.	27.	783.10
0.18	2.16	7.50	1.77	0.079	0.035	0.079	0.035	776.90	1973.04
0.000967	355.	320.	292.	2	0	0	0.0	227.92	2200.96
*SECNO 103.100									
103.10	15.46	792.36	0.0	0.0	793.16	0.80	0.28	0.00	780.90
17200.	391.	16475.	334.	184.	2252.	192.	260.	28.	783.10
0.19	2.13	7.32	1.74	0.079	0.035	0.079	0.035	776.90	1972.63
0.000891	300.	300.	300.	2	0	0	0.0	229.78	2202.41

THIS RUN EXECUTED 12/07/79

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

T1       100  YEAR  PROFILE, 100  YEAR  FLOW  EQUAL  TO 20,100 CFS
T2       STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS.
T3       GRAND RIVER , ONEIDA

J1  ICHECK     INQ       NINV      IDIR      SIRI      METRIC    HVINS     Q         WSEL      EQ

     -10.       4.        0.        0.  0.0          0.0       0.0       0.   791.990    0.0

J2  NPROF      IPLOT     PREVS     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 202.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   0         CLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

   202.00     13.89    791.99     0.0     791.99    792.64     0.65      0.0       0.0     781.60
   20100.      520.    19476.     105.      392.     2957.      76.       0.        .0.     781.60
     0.0       1.33      6.59     1.38     0.079     0.035    0.079     0.0      778.10     61.28
 0.000791       0.        0.       0.        0         0         0       0.0      363.29    424.57

*SECNO 101.000
   101.00     15.72    792.52     0.0       0.0     792.82     0.30      0.15      0.04    781.70
   20100.      323.    19776.      1.       310.     4442.       3.       .28.       .2.     791.60
     0.02      1.04      4.45     0.20     0.079     0.035    0.079     0.035    776.80   1933.61
 0.000330      250.      300.     350.        2         0         0       0.0      381.40   2315.02

*SECNO 101.250
            CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

   101.25     15.18    792.62     0.0       0.0     792.93     0.30      0.10      0.00    782.21
   20100.      455.    19538.     106.      378.     4355.     115.       .63.       .5.     785.14
     0.04      1.20      4.49     0.92     0.079     0.035    0.079     0.035    777.44   2012.70
 0.000327      355.      313.     275.        2         0         0       0.0      412.50   2425.21

*SECNO 101.500
   101.50     14.78    792.73     0.0       0.0     793.03     0.30      0.10      0.00    780.95
   20100.      880.    19054.     166.      627.     4244.     171.       .98.       .8.     784.52
     0.06      1.40      4.49     0.97     0.079     0.035    0.079     0.035    777.95   1994.66
 0.000332      355.      312.     275.        0         0         0       0.0      436.84   2431.50
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3280 CROSS SECTION 101.75 EXTENDED 0.22 FEET

SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TOC	ICONT	CORAR	TOPWID	ENDST
101.75	14.56	792.87	0.0	0.0	793.13	0.27	0.10	0.00	780.37
20100.	941.	19412.	247.	639.	4441.	236.	136.	12.	783.90
0.08	1.47	4.26	1.05	0.079	0.035	0.079	0.035	778.31	1981.37
0.000305	355.	313.	275.	2	0	0	0.0	444.38	2425.75
*SECNO 102.000									
102.00	15.41	793.01	0.0	0.0	793.22	0.21	0.08	0.01	780.90
20100.	282.	18762.	1056.	364.	4922.	1206.	178.	16.	779.90
0.10	0.77	3.81	0.88	0.079	0.035	0.079	0.035	777.60	1904.26
0.000238	355.	312.	275.	2	0	0	0.0	777.01	2681.27
*SECNO 102.250									
3280 CROSS SECTION 102.25 EXTENDED 0.37 FEET									
CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS									
102.25	14.94	793.02	0.0	0.0	793.35	0.32	0.09	0.03	780.66
20100.	324.	18846.	930.	239.	4004.	628.	220.	20.	780.95
0.12	1.36	4.71	1.48	0.079	0.035	0.079	0.035	778.08	1971.70
0.000359	355.	320.	293.	2	0	0	0.0	410.67	2382.37
*SECNO 102.500									
102.50	15.36	793.08	0.0	0.0	793.51	0.44	0.13	0.03	781.35
20100.	291.	19167.	642.	197.	3527.	409.	253.	23.	782.33
0.14	1.48	5.43	1.57	0.079	0.035	0.079	0.035	777.72	1972.80
0.000477	355.	320.	292.	2	0	0	0.0	348.09	2320.90
*SECNO 102.750									
102.75	15.77	793.13	0.0	0.0	793.74	0.61	0.18	0.05	782.83
20100.	258.	19220.	821.	159.	3047.	258.	280.	25.	783.70
0.16	1.62	6.37	1.63	0.079	0.035	0.079	0.035	777.36	1974.13
0.000655	355.	320.	293.	2	0	0	0.0	293.65	2267.78
*SECNO 103.000									
SECNO	DEPTH	CWSEL	CRTWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTA	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	TOC	ICONT	CORAR	TOPWID	ENDST
300 FEET DOWNSTREAM OF DAM									
103.00	16.20	793.14	0.0	0.0	794.11	0.97	0.26	0.11	780.90
20100.	448.	19170.	442.	206.	2578.	226.	303.	27.	783.10
0.17	2.37	8.06	1.96	0.079	0.035	0.079	0.035	776.90	1971.64
0.001005	355.	320.	292.	2	0	0	0.0	234.28	2205.92
*SECNO 103.100									
103.10	16.58	793.08	0.0	0.0	794.40	0.92	0.29	0.00	780.90

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    0.18      2.32      7.86      1.93     0.079     0.035     0.079     0.035    776.90   1971.21
 0.000928     300.      300.      300.         2         0         0       0.0    236.24   2207.45


                                                                                  THIS RUN EXECUTED   12/07/79
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*****************************************************

T1       500 YEAR PROFILE. 500 YEAR FLOW EQUAL TO 27,765 CFS
T2       STARTING WATER SURFACE FROM DOWNSTREAM COMPUTATIONS
T3          GRAND RIVER , ONEIDA

J1  ICHECK     INO       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      EQ

     -10.        5.        0.        0.   0.0          0.0       0.0       0.    794.560     0.0

J2  NPROF     IPLOT     PREVS     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 202.000
   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

   202.00    16.46    794.56      0.0     794.56    795.37      0.81      0.0       0.0     781.60
   27765.    1256.    26301.      208.      722.     3543.      122.       0.        0.      781.60
     0.0      1.74      7.42      1.71     0.079     0.035     0.079     0.0      778.10     46.00
 0.000790      0.        0.        0.         0         0         0       0.0     385.78    431.78

*SECNO 101.000
   101.00    18.36    795.16      0.0       0.0     795.56      0.40      0.15      0.04    781.70
   27765.     596.    27144.       25.      481.     5280.       48.       35.        3.      791.60
     0.02      1.24      5.14      0.51     0.079     0.035     0.079     0.035    776.80   1919.60
 0.000350     250.      300.      350.         2         0         0       0.0     415.54   2335.15

*SECNO 101.250
3280 CROSS SECTION     101.25 EXTENDED       1.06 FEET


          CROSS SECTIONS 101.25 THRU 101.75 ARE INTERPOLATED SECTIONS

   101.25    17.84    795.28      0.0       0.0     795.67      0.40      0.11      0.00    782.21
   27765.     848.    26655.      261.      582.     5169.      231.       77.        6.      785.14
     0.03      1.46      5.16      1.13     0.079     0.035     0.079     0.035    777.44   2000.59
 0.000343     355.      313.      275.         2         0         0       0.0     436.66   2437.25

*SECNO 101.500
3280 CROSS SECTION     101.50 EXTENDED       1.24 FEET
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  27765.    1447.   25946.     372.     871.    5051.     295.     121.      .9.    784.52
    0.05     1.66     5.14     1.26    0.079    0.035    0.079    0.035   777.95   1989.00
0.000345     355.     312.     275.        1        0        0      0.0   442.50   2431.50

*SECNO 101.750
3280 CROSS SECTION     101.75 EXTENDED       2.89 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

  101.75    17.23   795.54      0.0       0.0    795.89      0.35      0.10      0.00   780.37
  27765.    1456.   25826.     484.      844.    5303.      359.      168.       12.    783.90
    0.07     1.72     4.87     1.35    0.079    0.035    0.079    0.035   778.31   1981.37
0.000314     355.     313.     275.        2        0        0      0.0   444.38   2425.75

*SECNO 102.000
  102.00    18.13   795.73      0.0       0.0    795.98      0.25      0.08      0.01   780.90
  27765.     603.   24896.    2266.      675.    5873.     2116.      222.       17.    779.90
    0.09     0.89     4.24     1.07    0.079    0.035    0.079    0.035   777.60   1867.16
0.000232     355.     312.     275.        2        0        0      0.0   820.88   2688.03

*SECNO 102.250
3280 CROSS SECTION     102.25 EXTENDED       3.06 FEET

          CROSS SECTIONS 102.25 THRU 102.75 ARE INTERPOLATED SECTIONS

  102.25    17.62   795.70      0.0       0.0    796.13      0.42      0.09      0.05   780.66
  27765.     546.   25696.    1524.      339.    4763.      869.      275.       21.    780.95
    0.11     1.61     5.39     1.75    0.079    0.035    0.079    0.035   778.08   1971.70
0.000374     355.     320.     293.        2        0        0      0.0   410.67   2382.37

*SECNO 102.500
3280 CROSS SECTION     102.50 EXTENDED       1.43 FEET

  102.50    18.02   795.74      0.0       0.0    796.31      0.57      0.14      0.05   781.35
  27765.     515.   26133.    1117.      294.    4188.      595.      315.       24.    782.33
    0.12     1.75     6.24     1.88    0.079    0.035    0.079    0.035   777.72   1969.25
0.000500     355.     320.     292.        2        0        0      0.0   356.75   2326.00

*SECNO 102.750
  102.75    18.40   795.76      0.0       0.0    796.56      0.80      0.19      0.03   782.83
  27765.     475.   26488.     801.      248.    3609.      400.      350.       26.    783.70
    0.14     1.92     7.34     2.00    0.079    0.035    0.079    0.035   777.36   1966.83
0.000693     355.     320.     293.        2        0        0      0.0   309.18   2276.01

*SECNO 103.000
  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

          300  FEET  DOWNSTREAM  OF  DAM
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103.00	18.80	795.70	0.0	0.0	796.98	1.29	0.28	0.15	780.90
27765.	800.	26109.	856.	283.	2390.	353.	378.	38.	783.10
0.15	2.83	9.36	2.42	0.079	0.035	0.079	0.035	776.90	1968.41
0.001095	355.	320.	292.	2	0	0	0.0	245.93	2210.35

*SECND.103.100

103.10	19.18	796.08	0.0	0.0	797.31	1.22	0.32	0.01	780.90
27765.	817.	26058.	894.	295.	2852.	374.	402.	30.	783.10
0.16	2.77	9.14	2.39	0.079	0.035	0.079	0.035	776.90	1967.93
0.001013	300.	300.	300.	2	0	0	0.0	247.17	2215.10

THIS RUN EXECUTED 12/07/79

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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

GRAND RIVER , ONETIA

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
202.000	0.0	0.0	0.0	778.10	11085.00	788.13	0.0	788.56	8.19	5.29	2169.66	3873.21
202.000	0.0	0.0	0.0	778.10	17200.00	790.88	0.0	791.47	7.94	6.22	3030.41	6102.13
202.000	0.0	0.0	0.0	778.10	20100.00	791.99	0.0	792.60	7.91	6.59	3424.62	7145.55
202.000	0.0	0.0	0.0	778.10	27765.00	794.56	0.0	795.37	7.90	7.42	4386.64	9879.02
101.000	300.00	0.0	0.0	776.80	11085.00	788.58	0.0	788.72	2.96	3.48	3317.43	6446.47
101.000	300.00	0.0	0.0	776.80	17200.00	791.38	0.0	791.64	3.22	4.16	4328.22	9586.45
101.000	300.00	0.0	0.0	776.80	20100.00	792.52	0.0	792.82	3.30	4.45	4755.81	11058.18
101.000	300.00	0.0	0.0	776.80	27765.00	795.16	0.0	795.56	3.50	5.14	5808.54	14841.16
101.250	313.00	0.0	0.0	777.44	11085.00	788.63	0.0	788.82	3.08	3.50	3303.14	6317.03
101.250	313.00	0.0	0.0	777.44	17200.00	791.48	0.0	791.74	3.20	4.20	4384.92	9619.32
101.250	313.00	0.0	0.0	777.44	20100.00	792.62	0.0	792.93	3.27	4.49	4848.58	11121.85
101.250	313.00	0.0	0.0	777.44	27765.00	795.28	0.0	795.67	3.43	5.16	5981.73	14982.98
101.500	312.00	0.0	0.0	777.95	11085.00	788.73	0.0	788.92	3.23	3.54	3383.17	6464.65
101.500	312.00	0.0	0.0	777.95	17200.00	791.58	0.0	791.85	3.27	4.21	4546.61	9506.36
101.500	312.00	0.0	0.0	777.95	20100.00	792.73	0.0	793.03	3.32	4.49	5041.37	11030.93
101.500	312.00	0.0	0.0	777.95	27765.00	795.40	0.0	795.78	3.45	5.14	6216.57	14955.97
101.750	313.00	0.0	0.0	778.31	11085.00	788.85	0.0	789.02	3.04	3.38	3570.28	6353.69
101.750	313.00	0.0	0.0	778.31	17200.00	791.71	0.0	791.95	3.02	4.00	4804.32	9900.34
101.750	313.00	0.0	0.0	778.31	20100.00	792.87	0.0	793.13	3.05	4.26	5316.12	11518.51
101.750	313.00	0.0	0.0	778.31	27765.00	795.58	0.0	795.89	3.14	4.87	6506.17	15659.32
102.000	312.00	0.0	0.0	777.60	11085.00	788.97	0.0	789.11	2.42	3.07	3889.01	7120.79
102.000	312.00	0.0	0.0	777.60	17200.00	791.84	0.0	792.04	2.46	3.62	5593.48	11096.57
102.000	312.00	0.0	0.0	777.60	20100.00	793.01	0.0	793.22	2.38	3.81	6491.73	13037.10
102.000	312.00	0.0	0.0	777.60	27765.00	795.73	0.0	795.98	2.32	4.24	8664.45	18223.02
102.250	320.00	0.0	0.0	778.08	11085.00	789.01	0.0	789.22	3.06	3.70	3288.38	5955.93
102.250	320.00	0.0	0.0	778.08	17200.00	791.87	0.0	792.16	3.54	4.41	4399.27	9146.17
102.250	320.00	0.0	0.0	778.08	20100.00	793.02	0.0	793.35	3.59	4.71	4870.80	10605.91
102.250	320.00	0.0	0.0	778.08	27765.00	795.70	0.0	796.13	3.74	5.39	5971.96	14348.16
102.500	320.00	0.0	0.0	777.72	11085.00	789.09	0.0	789.36	4.52	4.25	2804.50	5214.12
102.500	320.00	0.0	0.0	777.72	17200.00	791.93	0.0	792.31	4.68	5.09	3737.26	7908.92
102.500	320.00	0.0	0.0	777.72	20100.00	793.08	0.0	793.51	4.77	5.43	4132.30	9201.33
102.500	320.00	0.0	0.0	777.72	27765.00	795.74	0.0	796.31	5.00	6.24	5076.38	12411.51

SECNO	XLOB	ELTRD	ELLC	FLMIN	Q	CWSEL	CRITWS	EG	10K*S	VCH	AREA	.01K
102.750	320.00	0.0	0.0	777.36	11085.00	789.19	0.0	789.56	6.09	4.95	2358.82	4492.79
102.750	320.00	0.0	0.0	777.36	17200.00	792.00	0.0	792.53	6.40	5.96	3134.03	6201.46
102.750	320.00	0.0	0.0	777.36	20100.00	793.13	0.0	793.74	6.55	6.37	3464.34	7255.12
102.750	320.00	0.0	0.0	777.36	27765.00	795.76	0.0	796.56	6.93	7.34	4257.50	10549.67
103.000	320.00	0.0	0.0	776.90	11085.00	789.28	0.0	789.85	8.78	6.15	1947.57	3741.85
103.000	320.00	0.0	0.0	776.90	17200.00	792.03	0.0	792.87	9.67	7.50	2553.29	5532.00
103.000	320.00	0.0	0.0	776.90	20100.00	793.18	0.0	794.11	10.05	8.06	2809.53	6339.25
103.000	320.00	0.0	0.0	776.90	27765.00	795.70	0.0	796.98	10.95	9.36	3426.14	8391.68
103.100	300.00	0.0	0.0	776.90	11085.00	789.57	0.0	790.11	8.02	5.99	2008.56	3913.67
103.100	300.00	0.0	0.0	776.90	17200.00	792.36	0.0	793.16	8.91	7.32	2627.66	5763.54
103.100	300.00	0.0	0.0	776.90	20100.00	793.48	0.0	794.40	9.28	7.86	2890.12	6598.51
103.100	300.00	0.0	0.0	776.90	27765.00	796.08	0.0	797.31	10.13	9.14	3520.74	8722.02

GRAND RIVER , ONEIDA

SUMMARY PRINTOUT TABLE 150

SECNO	D	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
202.000	11085.00	788.13	0.0	0.0	0.0	278.95	0.0
202.000	17200.00	790.88	2.75	0.0	0.0	344.04	0.0
202.000	20100.00	791.99	1.11	0.0	0.0	363.29	0.0
202.000	27765.00	794.56	2.57	0.0	0.0	385.78	0.0
101.000	11085.00	788.54	0.0	0.41	0.0	345.02	300.00
101.000	17200.00	791.38	2.84	0.50	0.0	367.73	300.00
101.000	20100.00	792.52	1.14	0.53	0.0	381.40	300.00
101.000	27765.00	795.16	2.64	0.60	0.0	415.54	300.00
101.250	11085.00	788.63	0.0	0.09	0.0	365.60	313.00
101.250	17200.00	791.48	2.84	0.10	0.0	396.54	313.00
101.250	20100.00	792.62	1.15	0.10	0.0	412.50	313.00
101.250	27765.00	795.28	2.65	0.11	0.0	436.66	313.00
101.500	11085.00	788.73	0.0	0.10	0.0	393.90	312.00
101.500	17200.00	791.58	2.85	0.11	0.0	424.27	312.00
101.500	20100.00	792.73	1.15	0.11	0.0	436.84	312.00
101.500	27765.00	795.40	2.66	0.12	0.0	442.50	312.00
101.750	11085.00	788.85	0.0	0.12	0.0	414.53	313.00
101.750	17200.00	791.71	2.86	0.13	0.0	441.09	313.00
101.750	20100.00	792.87	1.16	0.13	0.0	444.38	313.00
101.750	27765.00	795.54	2.68	0.15	0.0	444.38	313.00
102.000	11085.00	788.97	0.0	0.12	0.0	456.45	312.00
102.000	17200.00	791.84	2.88	0.13	0.0	758.13	312.00
102.000	20100.00	793.01	1.17	0.14	0.0	777.01	312.00
102.000	27765.00	795.73	2.72	0.19	0.0	820.88	312.00
102.250	11085.00	789.01	0.0	0.05	0.0	375.12	320.00
102.250	17200.00	791.87	2.86	0.03	0.0	403.03	320.00
102.250	20100.00	793.02	1.16	0.01	0.0	410.67	320.00
102.250	27765.00	795.70	2.68	-0.03	0.0	410.67	320.00
102.500	11085.00	789.09	0.0	0.08	0.0	318.53	320.00
102.500	17200.00	791.93	2.84	0.06	0.0	340.04	320.00
102.500	20100.00	793.08	1.15	0.05	0.0	348.09	320.00
102.500	27765.00	795.74	2.66	0.03	0.0	356.75	320.00
102.750	11085.00	789.19	0.0	0.10	0.0	264.84	320.00
102.750	17200.00	792.00	2.81	0.07	0.0	286.95	320.00
102.750	20100.00	793.13	1.14	0.06	0.0	293.65	320.00
102.750	27765.00	795.76	2.63	0.03	0.0	309.18	320.00
103.000	11085.00	789.28	0.0	0.09	0.0	212.13	320.00
103.000	17200.00	792.03	2.75	0.04	0.0	227.92	320.00
103.000	20100.00	793.14	1.11	0.01	0.0	234.28	320.00
103.000	27765.00	795.70	2.56	-0.06	0.0	245.93	320.00
103.100	11085.00	789.57	0.0	0.29	0.0	213.77	300.00
103.100	17200.00	792.36	2.79	0.33	0.0	229.78	300.00
103.100	20100.00	793.49	1.13	0.34	0.0	236.24	300.00
103.100	27765.00	796.08	2.60	0.38	0.0	247.17	300.00

SUMMARY OF ERRORS

FLOOD INSURANCE ZONE DATA FOR GRAND RIVER , ONEIDA

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10%	2%	0.2%
202.000	0.	-3.86	-1.11	2.57
101.000	300.	-3.98	-1.14	2.68
101.250	613.	-3.99	-1.15	2.65
101.500	925.	-4.00	-1.15	2.66
101.750	1238.	-4.02	-1.16	2.68
102.000	1550.	-4.05	-1.17	2.72
102.250	1870.	-4.01	-1.16	2.68
102.500	2190.	-3.98	-1.15	2.66
102.750	2510.	-3.95	-1.14	2.63
103.000	2830.	-3.86	-1.11	2.56
103.100	3130.	-3.92	-1.13	2.60
WEIGHTED AVG FOR REACH		-3.97	-1.14	2.65

FHF FOR THE REACH = 040 WITH 100.00 OF THE REACH WITHIN 1.0 FEET
ZONE FOR THE REACH = A 8

00BREAK00

1) COUNTY: Eaton Rapids

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Spring Brook

4) DOCUMENT TYPE: 10, 50, 100, 500 yr.

00BREAK00

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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      EATON RAPIDS
T2      10 YEAR FLOW
T3      SPRING ERCOK
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RECEIVED
JAN 13 1981
WATER MANAGEMENT

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	0.000000	0.00	0.0	0.	869.600	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	.070	.070	.045	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	585.000	975.000	1240.000	1820.000	1240.000	0.000	0.000	0.000	0.000

VALLEY SECTION (A)

X1	22.800	20.000	2020.000	2092.000	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	0.000	0.000	0.000
GR	870.000	1200.000	867.600	1538.000	868.300	1638.000	868.900	1678.000	869.600	1784.000
GR	868.700	1892.000	870.200	2000.000	871.000	2008.000	871.300	2014.000	869.900	2020.000
GR	865.000	2032.000	864.300	2044.000	863.600	2056.000	864.000	2072.000	865.200	2080.000
GR	868.700	2090.000	870.300	2092.000	870.300	2192.000	870.300	2290.000	871.300	2404.000
X1	22.900	28.000	2008.000	2080.000	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	0.000	0.000	0.000
GR	870.000	1100.000	867.600	1538.000	868.300	1638.000	869.300	1742.000	869.500	1836.000
GR	869.000	1938.000	872.900	2000.000	874.200	2008.000	873.100	2008.000	869.600	2014.000
GR	867.200	2016.000	865.300	2024.000	864.700	2032.000	865.800	2040.000	866.000	2042.000
GR	866.100	2044.000	866.100	2048.000	866.100	2056.000	866.600	2064.000	867.700	2072.000
GR	869.600	2074.000	873.100	2080.000	873.700	2080.000	872.800	2090.000	872.200	2148.000
GR	874.000	2248.000	874.400	2296.000	874.900	2342.000	0.000	0.000	0.000	0.000

X1	23.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	14.000	2000.000	872.900	0.000	2008.000	874.200	0.000	2016.000	874.600	867.200
BT	2024.000	874.900	871.900	2032.000	875.000	873.600	2040.000	875.100	874.300	2042.000
BT	875.200	874.400	2044.000	875.100	874.400	2048.000	875.000	874.300	2056.000	874.800
BT	873.500	2064.000	874.300	871.500	2072.000	874.100	867.700	2080.000	873.700	0.000
BT	2090.000	872.800	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

UPSTREAM FACE OF PEDESTRIAN BRIDGE (B)

X1	23.100	0.000	0.000	0.000	12.000	12.000	12.000	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	14.000	2000.000	872.900	0.000	2008.000	874.200	0.000	2016.000	874.600	867.200
BT	2024.000	874.900	871.900	2032.000	875.000	873.600	2040.000	875.100	874.300	2042.000
BT	875.200	874.400	2044.000	875.100	874.400	2048.000	875.000	874.300	2056.000	874.800
BT	873.500	2064.000	874.300	871.500	2072.000	874.100	867.700	2080.000	873.700	0.000
BT	2090.000	872.800	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	23.200	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
X1	23.500	7.000	2120.000	2270.000	370.000	370.000	370.000	0.000	0.000	0.000
GR	869.800	2000.000	869.000	2120.000	865.000	2120.000	865.000	2270.000	869.000	2270.000
GR	870.000	2300.000	875.000	2320.000	0.000	0.000	0.000	0.000	0.000	0.000

VALLEY SECTION - OLD R.R. GRADE (C)

X1	24.000	17.000	2000.000	2117.000	930.000	930.000	930.000	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	875.800	1585.000	875.700	1690.000	875.600	1794.000	875.400	1900.000	874.900	2000.000
GR	869.600	2000.000	869.000	2000.000	866.900	2016.000	865.900	2034.000	866.700	2058.000
GR	866.500	2076.000	867.400	2092.000	870.000	2117.000	876.300	2118.000	876.000	2196.000
GR	876.000	2291.000	876.000	2384.000	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	1500.000	2270.000

VALLEY SECTION (D)

X1	24.500	14.000	2000.000	2070.000	980.000	675.000	750.000	0.000	0.000	0.000
GR	875.000	1250.000	870.000	1400.000	869.500	1500.000	868.200	1700.000	868.200	1775.000
GR	869.000	1950.000	869.000	2000.000	866.000	2020.000	866.000	2045.000	868.700	2070.000
GR	868.200	2090.000	870.000	2220.000	872.000	2350.000	874.000	2390.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	1900.000	2480.000

MOORE BUSINESS FORMS INC. 27

VALLEY SECTION (E)

X1	25.000	21.000	2284.000	2376.000	950.000	650.000	540.000	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	871.000	1400.000	867.600	1500.000	871.000	1600.000	877.000	1700.000	884.000	1800.000
GR	887.600	1900.000	884.000	1970.000	871.300	2000.000	870.000	2005.000	868.700	2096.000
GR	866.100	2250.000	869.000	2284.000	867.700	2328.000	869.900	2376.000	881.300	2420.000
GR	885.000	2448.000	889.100	2480.000	889.200	2572.000	888.600	2654.000	881.900	2762.000
GR	878.000	2900.000	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

MOORE BUSINESS FORMS INC 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
**************************************************

T1      EATON RAPIDS
T2      50 YEAR FLOW
T3      SPRING BROOK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       3.        0.        0.  0.000000      0.00      0.0        0.   869.600     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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MOORE BUSINESS FORMS INC 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
*****************************************************

T1       EATON RAPIDS
T2       100 YEAR FLOW
T3       SPRING BROOK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.        4.        0.        0.  0.000000      0.00       0.0        0.   869.600     0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     3.000     0.000    -1.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
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MOORE BUSINESS FORMS, INC 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
**************************************************

T1      EATON RAPIDS
T2      500 YEAR FLOW
T3      SPRING ERCOK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       5.        0.        0.  0.000000      0.00      0.0       0.   869.600     0.000
J2  NPRCF      IPLCT     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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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

SPRING BROOK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22.800	0.00	0.00	0.00	863.60	585.00	869.60	0.00	869.65	4.55	1.87	312.92	274.34
22.800	0.00	0.00	0.00	863.60	975.00	869.60	0.00	869.75	12.63	3.12	312.92	274.34
22.800	0.00	0.00	0.00	863.60	1240.00	869.60	0.00	869.84	20.43	3.96	312.92	274.34
22.800	0.00	0.00	0.00	863.60	1820.00	869.60	0.00	870.13	44.01	5.82	312.92	274.34
22.900	100.00	0.00	0.00	864.70	585.00	869.63	0.00	869.75	14.83	2.83	206.97	151.93
22.900	100.00	0.00	0.00	864.70	975.00	869.68	0.00	870.01	39.74	4.66	209.40	154.66
22.900	100.00	0.00	0.00	864.70	1240.00	869.73	0.00	870.26	61.38	5.83	212.62	158.28
22.900	100.00	0.00	0.00	864.70	1820.00	869.92	0.00	870.94	112.76	8.12	224.08	171.40
23.000	1.00	872.80	874.40	864.70	585.00	869.61	0.00	869.76	20.08	3.03	192.82	130.55
23.000	1.00	872.80	874.40	864.70	975.00	869.64	0.00	870.03	54.95	5.03	193.79	131.53
23.000	1.00	872.80	874.40	864.70	1240.00	869.67	0.00	870.29	87.22	6.36	195.02	132.77
23.000	1.00	872.80	874.40	864.70	1820.00	869.73	0.00	871.04	178.72	9.18	198.33	136.14
23.100	12.00	872.80	874.40	864.70	585.00	869.62	0.00	869.77	3.94	3.03	193.26	294.74
23.100	12.00	872.80	874.40	864.70	975.00	869.67	0.00	870.06	10.61	4.99	195.28	299.33
23.100	12.00	872.80	874.40	864.70	1240.00	869.72	0.00	870.34	16.53	6.27	197.74	304.96
23.100	12.00	872.80	874.40	864.70	1820.00	869.92	0.00	871.13	31.38	8.82	206.38	324.91
23.200	1.00	0.00	0.00	864.70	585.00	869.65	0.00	869.77	11.61	2.82	207.58	171.69
23.200	1.00	0.00	0.00	864.70	975.00	869.74	0.00	870.07	29.61	4.57	213.49	179.17
23.200	1.00	0.00	0.00	864.70	1240.00	869.86	0.00	870.35	43.41	5.62	220.52	188.19
23.200	1.00	0.00	0.00	864.70	1820.00	870.35	0.00	871.17	63.68	7.27	250.45	228.07
23.500	370.00	0.00	0.00	865.00	585.00	869.83	0.00	869.84	.61	.80	786.61	750.55
23.500	370.00	0.00	0.00	865.00	975.00	870.21	0.00	870.23	1.28	1.22	898.39	862.58
23.500	370.00	0.00	0.00	865.00	1240.00	870.53	0.00	870.57	1.64	1.44	997.31	969.58
23.500	370.00	0.00	0.00	865.00	1820.00	871.41	0.00	871.46	1.99	1.75	1263.94	1290.84
24.000	930.00	0.00	0.00	865.90	585.00	869.93	0.00	869.98	6.30	1.82	321.20	233.11
24.000	930.00	0.00	0.00	865.90	975.00	870.41	0.00	870.51	10.38	2.59	377.04	302.58
24.000	930.00	0.00	0.00	865.90	1240.00	870.78	0.00	870.92	11.68	2.95	420.99	362.80
24.000	930.00	0.00	0.00	865.90	1820.00	871.69	0.00	871.87	12.02	3.45	527.20	524.94

MOORE BUSINESS FORMS INC 27

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
24.500	750.00	0.00	0.00	866.00	585.00	870.21	0.00	870.22	1.68	1.06	1176.74	451.64
24.500	750.00	0.00	0.00	866.00	975.00	870.81	0.00	870.82	1.87	1.25	1626.96	713.39
24.500	750.00	0.00	0.00	866.00	1240.00	871.22	0.00	871.23	1.79	1.31	1943.16	925.80
24.500	750.00	0.00	0.00	866.00	1820.00	872.14	0.00	872.16	1.49	1.36	2655.97	1490.86
25.000	540.00	0.00	0.00	866.10	585.00	870.38	0.00	870.39	2.73	.91	815.66	354.05
25.000	540.00	0.00	0.00	866.10	975.00	871.00	0.00	871.02	3.42	1.24	1049.31	527.56
25.000	540.00	0.00	0.00	866.10	1240.00	871.41	0.00	871.43	3.55	1.40	1204.50	658.10
25.000	540.00	0.00	0.00	866.10	1820.00	872.31	0.00	872.33	3.39	1.64	1550.24	989.03

MOORE BUSINESS FORMS INC 27

SPRING BROOK

SUMMARY PRINTOUT TABLE 150

SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.800	585.00	869.60	0.00	0.00	0.00	70.39	0.00
22.800	975.00	869.60	0.00	0.00	0.00	70.39	0.00
22.800	1240.00	869.60	0.00	0.00	0.00	70.39	0.00
22.800	1820.00	869.60	0.00	0.00	0.00	70.39	0.00
22.900	585.00	869.63	0.00	.03	0.00	60.12	100.00
22.900	975.00	869.68	.05	.08	0.00	60.26	100.00
22.900	1240.00	869.73	.05	.13	0.00	60.45	100.00
22.900	1820.00	869.92	.19	.32	0.00	61.09	100.00
23.000	585.00	869.61	0.00	-.01	0.00	60.07	1.00
23.000	975.00	869.64	.03	-.03	0.00	60.14	1.00
23.000	1240.00	869.67	.03	-.06	0.00	60.23	1.00
23.000	1820.00	869.73	.07	-.18	0.00	60.47	1.00
23.100	585.00	869.62	0.00	.01	0.00	60.10	12.00
23.100	975.00	869.67	.05	.03	0.00	60.25	12.00
23.100	1240.00	869.72	.05	.06	0.00	60.43	12.00
23.100	1820.00	869.92	.19	.18	0.00	61.06	12.00
23.200	585.00	869.65	0.00	.02	0.00	60.16	1.00
23.200	975.00	869.74	.10	.07	0.00	60.49	1.00
23.200	1240.00	869.86	.11	.13	0.00	60.89	1.00
23.200	1820.00	870.35	.49	.43	0.00	62.55	1.00
23.500	585.00	869.83	0.00	.18	0.00	294.92	370.00
23.500	975.00	870.21	.37	.46	0.00	300.82	370.00
23.500	1240.00	870.53	.33	.68	0.00	302.13	370.00
23.500	1820.00	871.41	.88	1.07	0.00	305.64	370.00
24.000	585.00	869.93	0.00	.10	0.00	116.37	930.00
24.000	975.00	870.41	.48	.20	0.00	117.07	930.00
24.000	1240.00	870.78	.38	.25	0.00	117.12	930.00
24.000	1820.00	871.69	.91	.27	0.00	117.27	930.00
24.500	585.00	870.21	0.00	.28	0.00	733.64	750.00
24.500	975.00	870.81	.59	.40	.59	770.00	750.00
24.500	1240.00	871.22	.41	.43	1.00	770.00	750.00
24.500	1820.00	872.14	.93	.45	1.93	770.00	750.00
25.000	585.00	870.38	0.00	.17	0.00	374.33	540.00
25.000	975.00	871.00	.62	.20	.62	379.11	540.00
25.000	1240.00	871.41	.41	.19	1.03	382.09	540.00
25.000	1820.00	872.31	.90	.16	1.93	387.68	540.00

NCR BUSINESS FORMS

FLOOD INSURANCE ZONE DATA FOR SPRING BROOK

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
22.800	0.	0.00	0.00	0.00
22.900	100.	-.10	-.05	.19
23.000	101.	-.05	-.03	.07
23.100	113.	-.10	-.05	.19
23.200	114.	-.21	-.11	.49
23.500	484.	-.70	-.33	.88
24.000	1414.	-.85	-.38	.91
24.500	2164.	-1.00	-.41	.93
25.000	2704.	-1.03	-.41	.90
WEIGHTED AVG FOR REACH		-.79	-.34	.84

FHF FOR THE REACH = 010 WITH 95.8 PERCENT OF THE REACH WITHIN .5 FEET
ZONE FOR THE REACH = A 2

MOORE BUSINESS FORMS INC 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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MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: Eaton Rapids

2) STUDY NAME: City of Eaton Rapids

3) WATERCOURSE: Spring Brook

4) DOCUMENT TYPE: 100 yr Encroached

00BREAK00

THIS RUN EXECUTED 05/19/81

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**WES2*RELEASE*DATED*NOV*78*UPDATED**AUG1977*******
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
*************************************************
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T1 EATON RAPIDS
T2 ENCROACHED RUN
T3 SPRING BROOK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	6.	0.	0.	0.0	0.0	0.0	0.	869.600	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 22.800

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 869.90 ELREA= 870.30

VALLEY SECTION (A)

22.80	6.00	869.60	0.0	869.60	869.84	0.24	0.0	0.0	869.90
1240.	0.	1240.	0.	0.	313.	0.	0.	0.	870.30
0.0	0.0	3.96	0.0	0.070	0.045	0.070	0.0	863.60	2020.73
0.002043	0.	0.	0.	0	0	0	0.0	70.39	2091.12

*SECNO 22.900

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.20 ELREA= 873.70

22.90	5.03	869.73	0.0	0.0	870.26	0.53	0.33	0.09	874.20
1240.	0.	1240.	0.	0.	213.	0.	1.	0.	873.70
0.00	0.0	5.83	0.0	0.070	0.045	0.070	0.045	864.70	2013.78
0.006141	100.	100.	100.	2	0	0	0.0	60.44	2074.22

*SECNO 23.000

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 872.80 MAX ELLC= 874.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 874.20 ELREA= 873.70

23.00	4.91	869.61	0.0	0.0	870.32	0.71	0.01	0.05	874.20
1240.	0.	1240.	0.	0.	184.	0.	1.	0.	873.70
0.00	0.0	6.74	0.0	0.070	0.045	0.070	0.044	864.70	2013.78

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 0.009881        1.        1.        1.        2        0        0   -21.66    60.05  2074.02

*SECNO 23.100
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  872.80 MAX ELLC=  874.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      874.20 ELREA=      873.70

                 UPSTREAM FACE OF PEDESTRIAN BRIDGE (B)

    23.10      4.98    869.68      0.0       0.0    870.36      0.68      0.04      0.00    874.20
    1240.        0.     1240.        0.        0.      187.        0.        1.        0.    873.70
     0.01       0.0      6.62      0.0     0.070     0.020     0.070     0.041    864.70   2013.86
 0.001843       12.       12.       12.         2         0         0    -22.51     60.28   2074.14

*SECNO 23.200
   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       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TCPWID      ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      874.20 ELREA=      873.70

    23.20      5.21    869.91      0.0       0.0    870.39      0.48      0.00      0.02    874.20
    1240.        0.     1240.        0.        0.      224.        0.        1.        0.    873.70
     0.01       0.0      5.54      0.0     0.070     0.040     0.070     0.041    864.70   2013.46
 0.004151        1.        1.        1.         2         0         0       0.0     61.08   2074.54

*SECNO 23.500
3280 CROSS SECTION      23.50 EXTENDED       0.76 FEET

    23.50      5.57    870.57      0.0       0.0    870.60      0.03      0.17      0.04    869.00
    1240.       41.     1190.        9.      140.      835.       33.        6.        2.    869.00
     0.08       0.30      1.43      0.28     0.070     0.040     0.070     0.040    865.00   2000.00
 0.000160       370.      370.      370.         2         0         0       0.0    302.26   2302.26

*SECNO 24.000
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      874.90 ELREA=      870.00

                 VALLEY SECTION - OLD R.R. GRADE (C)

    24.00      4.91    870.81      0.0       0.0    870.94      0.13      0.32      0.03    874.90
    1240.        0.     1240.        0.        0.      424.        0.       21.        6.    870.00
     0.17       0.0      2.92      0.01     0.070     0.040     0.070     0.040    865.90   2000.00
 0.001141       930.      930.      930.         2         0         0       0.0    117.13   2117.13

*SECNO 24.500
3470 ENCROACHMENT STATIONS=     1700.0     2150.0  TYPE=      1  TARGET=      450.000
                 VALLEY SECTION (D)

    24.50      5.33    871.33      0.0    871.33    871.35      0.02      0.40      0.01    869.00
    1240.       576.      514.      151.      829.      309.      221.       39.       12.    868.70
     0.37       0.69      1.66      0.8     0.070     0.040     0.070     0.039    866.00   1700.00
 0.000277       980.      750.      67         0         0         0       0.0    450.00   2150.00
```

*SECNO 25.000

3470 ENCROACHMENT STATIONS= 1900.0 2480.0 TYPF= 1 TARGET= 580.000

VALLEY SECTION (E)

25.00	5.46	871.56	0.0	871.56	871.58	0.02	0.23	0.00	869.00
1240.	871.	368.	2.	983.	274.	5.	64.	20.	869.90
0.59	0.89	1.34	0.32	0.070	0.040	0.070	0.036	866.10	1999.38
0.000305	950.	540.	650.	2	0	0	0.0	383.04	2382.42

MOORE BUSINESS FORMS INC 23

THIS RUN EXECUTED 05/19/81

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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

SPRING BROOK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22.800	0.0	0.0	0.0	863.60	1240.00	869.60	0.0	869.84	20.43	3.96	312.92	274.35
22.800	0.0	0.0	0.0	863.60	1240.00	869.60	0.0	869.84	20.43	3.96	312.92	274.35
22.900	100.00	0.0	0.0	864.70	1240.00	869.73	0.0	870.26	61.41	5.83	212.58	158.23
22.900	100.00	0.0	0.0	864.70	1240.00	869.73	0.0	870.26	61.41	5.83	212.58	158.23
23.000	1.00	872.80	874.40	864.70	1240.00	869.61	0.0	870.32	98.81	6.74	183.95	124.74
23.000	1.00	872.80	874.40	864.70	1240.00	869.61	0.0	870.32	98.81	6.74	183.95	124.74
23.100	12.00	872.80	874.40	864.70	1240.00	869.68	0.0	870.36	18.43	6.62	187.28	288.81
23.100	12.00	872.80	874.40	864.70	1240.00	869.68	0.0	870.36	18.43	6.62	187.28	288.81
23.200	1.00	0.0	0.0	864.70	1240.00	869.91	0.0	870.39	41.51	5.54	223.81	192.47
23.200	1.00	0.0	0.0	864.70	1240.00	869.91	0.0	870.39	41.51	5.54	223.81	192.47
23.500	370.00	0.0	0.0	865.00	1240.00	870.57	0.0	870.60	1.60	1.43	1006.80	980.21
23.500	370.00	0.0	0.0	865.00	1240.00	870.57	0.0	870.60	1.60	1.43	1006.80	980.21
24.000	930.00	0.0	0.0	865.90	1240.00	870.81	0.0	870.94	11.41	2.92	424.02	367.11
24.000	930.00	0.0	0.0	865.90	1240.00	870.81	0.0	870.94	11.41	2.92	424.02	367.11
24.500	750.00	0.0	0.0	866.00	1240.00	871.33	0.0	871.35	2.78	1.66	1359.10	744.36
24.500	750.00	0.0	0.0	866.00	1240.00	871.33	0.0	871.35	2.78	1.66	1359.10	744.36
25.000	540.00	0.0	0.0	866.10	1240.00	871.56	0.0	871.58	3.05	1.34	1262.61	709.96
25.000	540.00	0.0	0.0	866.10	1240.00	871.56	0.0	871.58	3.05	1.34	1262.61	709.96

SPRING BROOK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
22.800	1240.00	869.60	0.0	0.0	0.0	70.39	0.0
22.800	1240.00	869.60	0.0	0.0	0.0	70.39	0.0
22.900	1240.00	869.73	0.0	0.13	0.0	60.44	100.00
22.900	1240.00	869.73	0.0	0.13	0.0	60.44	100.00
23.000	1240.00	869.61	0.0	-0.12	0.0	60.05	1.00
23.000	1240.00	869.61	0.0	-0.12	0.0	60.05	1.00
23.100	1240.00	869.68	0.0	0.07	0.0	60.28	12.00
23.100	1240.00	869.68	0.0	0.07	0.0	60.28	12.00
23.200	1240.00	869.91	0.0	0.23	0.0	61.08	1.00
23.200	1240.00	869.91	0.0	0.23	0.0	61.08	1.00
23.500	1240.00	870.57	0.0	0.66	0.0	302.26	370.00
23.500	1240.00	870.57	0.0	0.66	0.0	302.26	370.00
24.000	1240.00	870.81	0.0	0.24	0.0	117.13	930.00
24.000	1240.00	870.81	0.0	0.24	0.0	117.13	930.00
24.500	1240.00	871.33	0.0	0.52	0.0	450.00	750.00
24.500	1240.00	871.33	0.0	0.52	0.0	450.00	750.00
25.000	1240.00	871.56	0.0	0.23	0.0	383.04	540.00
25.000	1240.00	871.56	0.0	0.23	0.0	383.04	540.00

SUMMARY OF ERRORS

MOORE BUSINESS FORMS, INC 23

FLOODWAY DATA, SPRING BROOK
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
22,800	70.	313.	4.0	869.6	869.6	0.0
22,900	60.	213.	5.8	869.7	869.7	0.0
23.000	60.	184.	6.7	869.6	869.6	0.0
23.100	60.	187.	6.6	869.7	869.7	0.0
23.200	61.	224.	5.5	869.9	869.9	0.0
23.500	302.	1007.	1.2	870.6	870.6	0.0
24.000	117.	424.	2.9	870.8	870.8	0.0
24.500	450.	1359.	0.9	871.3	871.3	0.0
25.000	363.	1263.	1.0	871.6	871.6	0.0

MOORE BUSINESS FORMS INC 23

THIS RUN EXECUTED 05/19/81

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

MOORE BUSINESS FORMS INC 23

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Spring Brook at Eaton Rapids

3) WATERCOURSE: Spring Brook

4) DOCUMENT TYPE: report

00BREAK00

CAUTION: This report was compiled for an earlier submittal than the one approved on Jan. 13, 1981. New rating charts + calculations may supersede those within this report. Charts + Calcs for that submittal are in Grand Rivers packet

HYDRAULIC ANALYSIS REPORT

SPRING BROOK AT EATON RAPIDS

EATON COUNTY

Prepared by

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

September, 1980

INTRODUCTION

The flood insurance study for the City of Eaton Rapids consists of analyzing the Grand River and one of its tributaries, Spring Brook. This report will describe the hydraulic calculations performed in analyzing the Spring Brook within the corporate boundaries of the City of Eaton Rapids. The Grand River portion of the study is included in a separate report. The entire reach of the Spring Brook from its confluence with the Grand River upstream to its confluence with Booth Drain was analyzed in detail. Included in this analysis was the portion of river carrying flow from both the Spring Brook and Grand River to feed the small hydro plant.

Structure data and stream cross sections were taken by Commonwealth survey crews in January of 1979. The flood discharge values (10, 50, 100, and 500-year recurrence intervals) were obtained from the hydrology report for Spring Brook. This report was prepared by Commonwealth Associates in January of 1980, and approved by the DNR on April 8, 1980. Contour information was obtained from the aerial topographic survey maps for Eaton Rapids with 2-foot contour intervals prepared by Abrams Aerial Survey Corporation.

The above data was analyzed by Commonwealth Associates Inc., Jackson, Michigan under the supervision of Project Manager V. Danushkodi, P.E.

METHOD OF ANALYSIS

The water surface profile was computed and plotted at various cross sections using the HEC-2 computer program. The cross sections were taken at hydraulic structures and at representative locations along the river reach where changes occurred in slope or cross sectional area. Where an abrupt change occurred in the channel several cross sections were taken to accurately describe the transition. Hydraulic structures were analyzed using the Normal Bridge Routine Option of the HEC-2 program.

VARIABLES AND COEFFICIENTS

Manning's cofefficient of roughness "n" depends on several factors such as: 1) type and amount of vegetation, 2) channel configuration and stage, 3) material through which the channel is constructed, and 4) channel meandering. Without an in-depth study of these factors, an "n" value can only be estimated. The method used in estimating the roughness coefficient for this study is described in the preface, Supplement B of the "Guide for Selecting Roughness Coefficient

"n" Values for Channels," United States Department of Agriculture - Soil Conservation Service, December, 1963. To confirm that the calculated coefficients were reasonable, the values obtained were compared with photographs taken at the time of the field survey.

Manning's Roughness Coefficient

For natural channel	.045
For bridge channels	.018
For overbanks	.060 - .080

The loss coefficients (contraction and expansion and special bridge routine) were all obtained from the Application of the HEC-2 Bridge Routines. The calculations for the value XKOR are included with this report.

Coefficients for Natural Channels

Contraction	0.10
Expansion	0.30

Coefficients for Bridges

Contraction	0.30
Expansion	0.50

Special Bridge Coefficients

Loss coefficient*	XKOR

*See Calculations Appendix B

HIGH WATER MARKS

No recorded high water marks were available for the Spring Brook floods.

STARTING CONDITIONS

The starting water surface elevation for all four flows on the Spring Brook was taken as the mean annual flood elevation for the Grand River at the confluence of the two rivers. A review of the hydrology reports indicated the drainage area for the Grand River (574.2 sq. miles) was significantly higher than the drainage area for Spring Brook (86 sq. miles). From this fact the assumption was made the rivers were not in coincidence and peak flows on Spring Brook were not matched by corresponding high flows on the Grand River.

SEE

ATTACHED COMMENTS

Immediately upstream (300 feet ±) of its confluence with the Grand River the Spring Brook passes under Main Street through three separate channels. All three channels are controlled by gates used to regulate the water surface upstream of Main Street. A conversation with Don Cady (operator of the Smithville hydro-plant) indicated only two of the channels were actually in use at the present time.

1. North Channel - the gate is closed and is not used. The gate is old and rusted and has not been removed in years. The channel was analyzed with the gate closed.

2. Center Channel - feeds the "Mix" hydro-plant. The gates on the west side of Main Street are always open. The gates for the plant are regulated but will be opened during floods. The channel was analyzed with the gate open.

3. South Channel - The gate is the primary means of controlling the upstream water surface. The gate is entirely open during major floods. The channel was analyzed with the gate open.

The separate analysis for the channels required the computation of the stage-discharge relationship for the three branches. From the stage-discharge data a rating curve was plotted (see Appendix A) and starting water surfaces above Main Street were interpolated from the graph.

SPECIAL PROBLEMS AND CONSIDERATIONS

Only two problems or special considerations were encountered during the Spring Brook study. The first problem concerned the starting water surface as previously discussed. The second problems concerned the flows to be used once the Spring Brook merged with the Grand River Bypass.

The flows for the Spring Brook above Section 22.3 were taken from the hydrology report. Below Section 22.3 the combined Spring Brook - Grand River Bypass flows for the Spring Brook 100-year level were calculated in the following way:

1. As mentioned earlier the Grand River was assumed at mean annual flow when the Spring Brook peaked at its 100-year level. The mean annual flow of the Grand River above the Spring Brook was determined from a flow frequency: discharge curve (see Appendix B).

SEE ATTACHED COMMENTS

2. A stage-discharge rating curve for the Grand River and Grand River Bypass was developed for the Grand River analysis of the Eaton Rapids study (see Appendix B). The mean annual flow for the Grand River above Spring Brook was entered on the rating table and a flow for the Grand River Bypass was determined.

3. The Bypass flow, 350 cfs, was added to each of the Spring Brook recurrence interval flows to obtain the flows for the Spring Brook - Bypass channel.

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.

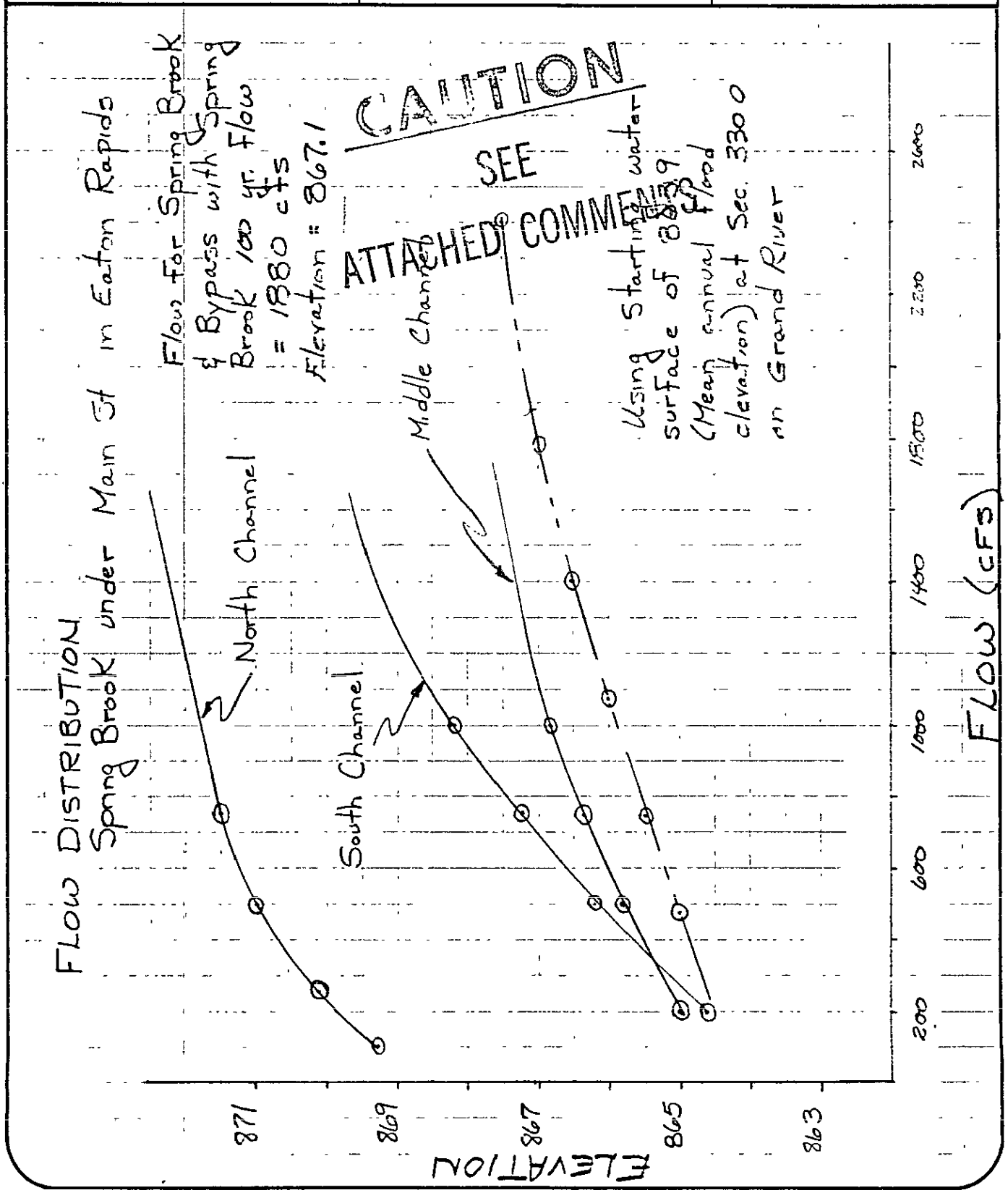
APPENDIX A

(STARTING WATER SURFACE ELEVATION)

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)	BOOK NO.



APPENDIX B

(CALCULATIONS)

	~~VDanushkodi~~
	~~RDLandis~~
✓	FILE FEMA II/Eaton Rapids

Gilbert/Commonwealth

Jackson Office

ROUTING COPY

March 21, 1980

Mrs. Hope Meyers Croskey, Engineer
Hydrologic Studies Unit
Water Management Division
Michigan Department of Natural Resources
Stevens T. Mason Building
Box 30028
Lansing, Michigan 48909

Dear Mrs Croskey:

Subject: FIS Eaton Rapids
Hydrology of Spring Brook

We have revised our flood flow estimates for Spring Brook at Eaton Rapids based on the revised drainage area obtained from you.

We request your approval of the flows for Spring Brook at Eaton Rapids listed below:

Drainage Area (Square Miles)	Flows (cfs) for 10-Yr	50-Yr	100-Yr	500-Yr
86.0	585	975	1,240	1,820

Thank you.

Very truly yours,

R. F. Nilsen, P.E.
Project Manager

VD/lft

CC: Dan Morgan, Michigan DNR

Route: ~~VDanushkodi,~~ RDLandis,
File: FEMA II/Eaton Rapids

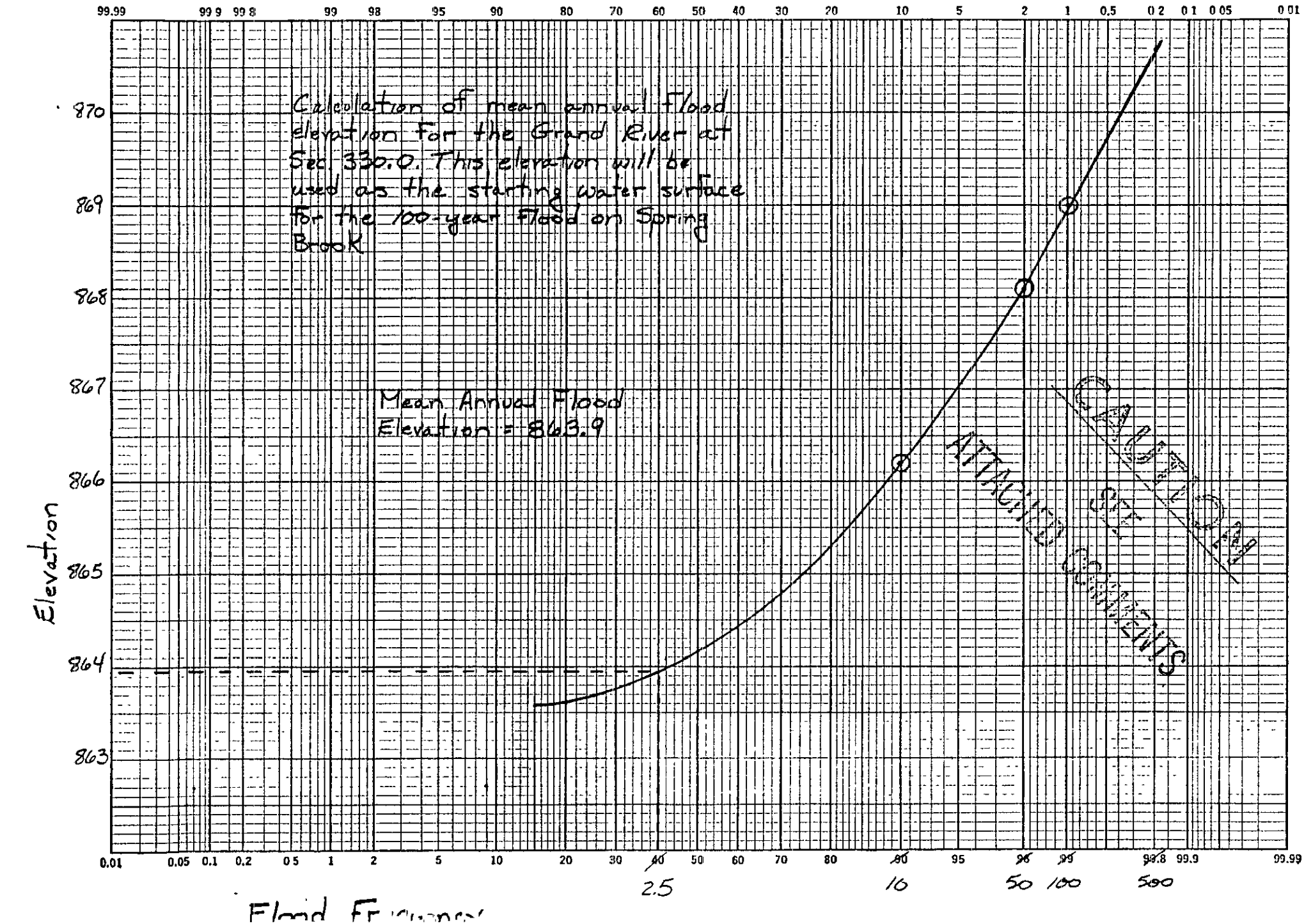
CA-12-876

K+E PROBABILITY 46 8003
X 90 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO

Mean Annual Flood Elevation – Grand River at Sec. 330.0

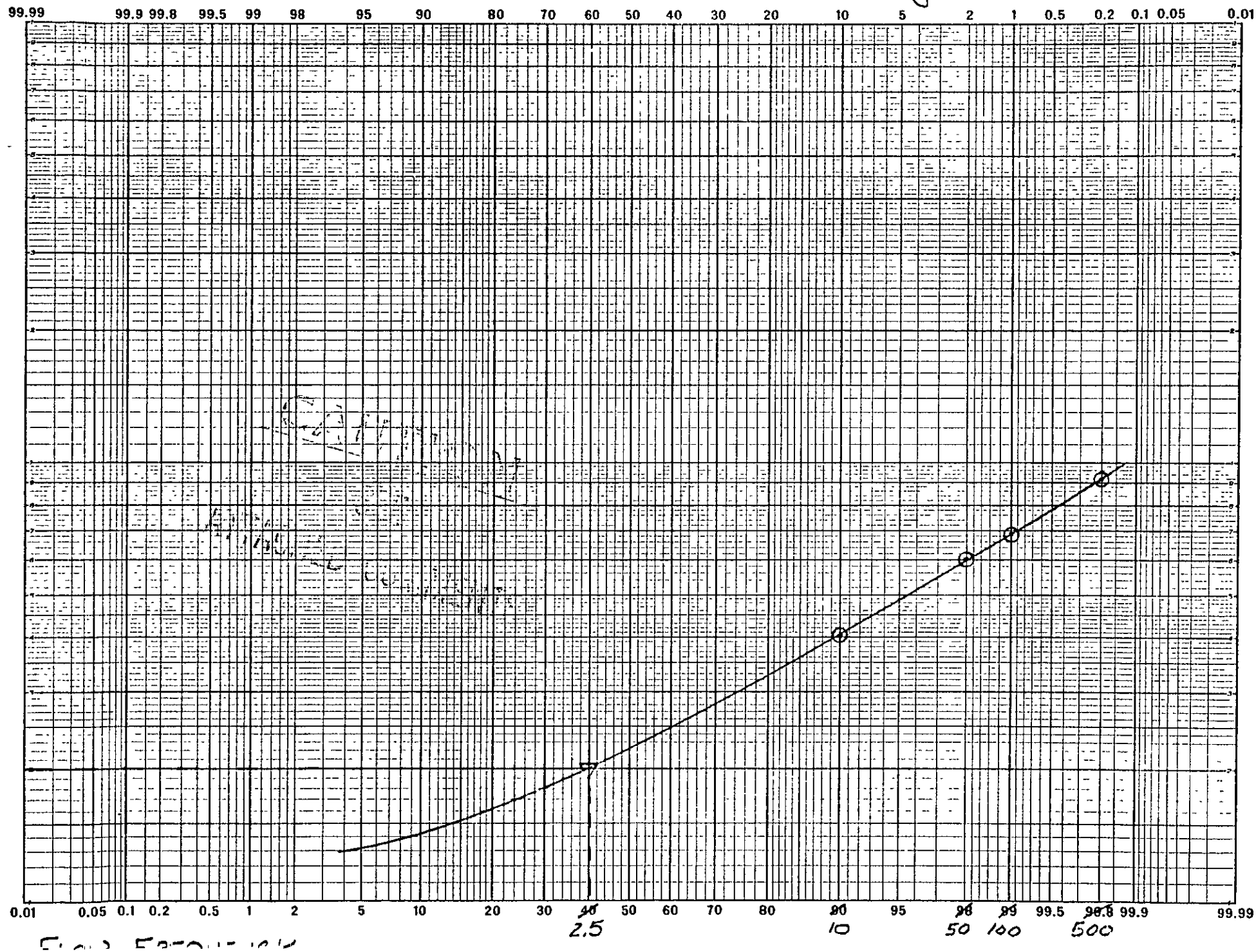
Calculation of mean annual flood elevation for the Grand River at Sec. 330.0. This elevation will be used as the starting water surface for the 100-year flood on Spring Brook

Mean Annual Flood Elevation = 863.9



NO 3128 LOGARITHMIC PROBABILITY DESIGNED BY HAZEN WHIPPLE & FULLER
codex GRAPH PAPER IN STOCK DIRECT FROM CODEX BOOK CO INC NORWOOD MASS 02062
PRINTED IN U S A

Mean Annual Flow - Grand River Above Spring Brook



APPENDIX C

(PROFILES)

Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading, PA/Jackson, MI

CALCULATION SHEET

REV.

CLIENT/OWNER		FILING CODE
		JOB NO.
CALC. BY/DATE	SUBJECT	SHEET OF
REVIEW BY/DATE		BOOK NO.

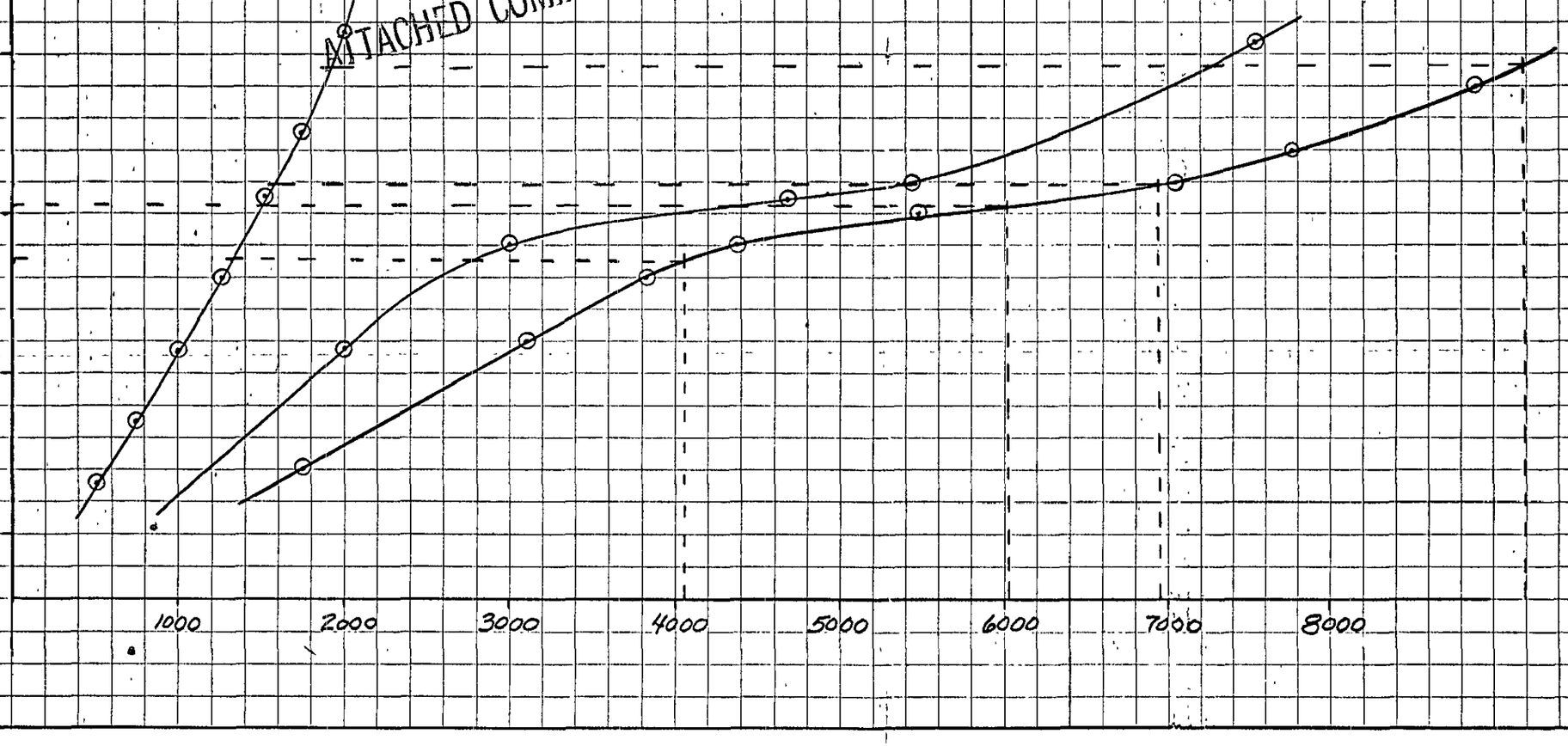
DIVISION OF FLOW
Grand River and Grand River Bypass into Spring Brook

Note: 1) Starting water surface from Grand River 100 year level at Section 330.0 — plotted points are final elevations computed at the dividing point of the Grand River and the Bypass (Sec 402.0)

2) Existing bridge was used at Knight St. over Spring Brook

	Total	Channel	Bypass
10 year -	4050	2750	1300 *
50 year -	6020	4520	1500 *
100 year -	6930	5380	1550 *
500 year -	9190	7340	1850 *
Mean Annual -	2000	1360	640

CAUTION
SEE
ATTACHED COMMENTS



*Spring Brook mean annual flow estimated at 350 cfs. Downstream of Sec. 41.8 must add 350 to the listed Flow.

APPENDIX D

(CROSS SECTION PLOTS)

CROSS SECTION REFERENCE

Cross Section ID in Profile/Table	Sec. No. in HEC-2 Program	Description
A	21.7	Valley Section
B	21.8	Valley Section 200 feet downstream of Knight Street
C	22.1	Upstream face of Knight Street bridge
D	22.3	Valley Section
E	22.8	Valley Section
F	23.1	Upstream face of pedestrian bridge
G	24.0	Valley Section at old railroad crossing
H	24.5	Valley Section
I	25.0	Valley Section

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Village of Dimondale

3) WATERCOURSE: Murray Drain

4) DOCUMENT TYPE: 100 yr natural

00BREAK00

```
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    29JUN93    TIME   14:01:56 *                                    *          (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
1
   29JUN93      14:01:56                                                                                  PAGE    1

                                                                                THIS RUN EXECUTED 29JUN93    14:01:56
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

T1      FLOODPLAIN INFO FOR VILLAGE OF DIMONDALE   100-YEAR
T2      XSEC INFO FROM 2-FT TOPO
T3      MURRAY DRAIN  OVERLAND TYPE FLOW      12-INCH PIPE NEGLECTED

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                                        .015                          140.      857.

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

                  -1.

NC      .12       .12       .12   .1        .3
X1   10.00    9.        70.       138.
GR   866.               864.      18.       862.      40.       860.      51.       858.      58.
GR   856.     70.       854.      120.      856.      138.      862.      180.

X1   12.65    9.        182.      203.      260.      250.      265.
GR   866.               864.      71.       862.      167.      860.      182.      858.      194.
GR   860.     203.      862.      211.      864.      240.      866.      305.

X1   13.45    9.        140.      161.      80.       70.       80.
GR   866.               864.      72.       862.      125.      860.      140.      858.5     150.
GR   860.     161.      862.      172.      864.      224.      866.      277.

NC   .06      .06       .06
X1   16.05    9.        110.      299.      260.      260.      260.
X3                                                          250
```

```
GR   868.            866.      26.       864.      73.       862.      110.      860.      168.
GR   862.    299.    864.      367.      866.      402.      868.      456.

X1   17.45   7.      114.      193.      105.      180.      140.
X3
GR   866.            864.      39.       862.      114.      860.5     155.      862.      193.
GR   864.    400.    866.      613.

X1   16.45       6       115       380       100       100       100
X3                           140                 320
GR   866.                 864       38        862       115       861.1     270       862       380
GR   864.       540.
1
   29JUN93     14:01:56                                                                          PAGE    2


X1   20.45   8.      209.      377.      255.      170.      200.
X3                           160                 300
GR   868.            866.      51.       864.      109.      862.      209.      861.5     290.
GR   862.    377.    864.      425.      866.      650.

SB           5.46    2.8                 2.                  4.91                861.5     861.5
X1   21.15   6.      65.       68.       70.       70.       70.
X2           1.      862.5     865.
BT   4.      0.      868.                150.      866.                280.      865.
BT   320.    865.3
GR   866.            864.      60.       862.      65.       862.      68.       864.      73.
GR   866.    600.
1
   29JUN93     14:01:56                                                                          PAGE    3

    SECNO     DEPTH     CWSEL     CRIWS     WSELV     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     ESTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*PROF 1

CCHV=     .100 CEHV=     .300
*SECNO 10.000
    10.000      2.20    856.20      .00    857.00    856.25      .05      .00      .00    856.00
     140.9       .0     139.9       .0       .1      81.7       .1       .0       .0    856.00
       .00       .33      1.71      .33      .120      .120      .120     .000    854.00     68.79
   .014992        0.        0.        0         0         0         7      .00     70.63    139.41


*SECNO 12.650
    12.650      3.06    861.06      .00      .00    861.20      .14     4.92      .03    860.00
     140.0       5.2     132.0      2.8       4.2      43.3      2.3       .4       .3    860.00
       .02      1.24      3.05     1.22      .120      .120      .120     .000    858.00    174.04
   .023684       260.      265.      250.        3         0         0      .00     33.20    207.24


*SECNO 13.450

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93

    13.450      3.53    862.03      .00      .00    862.06      .05      .87      .01    860.00
     140.0      15.5     113.2     11.3      15.5      58.4     11.4       .5       .4    860.00
       .04     -1.00      1.94      .99      .120      .120      .120     .000    858.50    174.12
```

.006330	80.	80.	70.	3	0	0	.00	48.74	172.36

*SECNO 16.050

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.11

3470 ENCROACHMENT STATIONS= .0 250.0 TYPE= 1 TARGET= 249.999

16.050	2.33	862.33	.00	.00	862.34	.01	.25	.00	862.00
140.0	.2	139.8	.0	1.1	218.1	.0	1.4	1.0	100000.00
.13	.15	.64	.00	.060	.060	.000	.000	860.00	103.73
.000375	260.	260.	260.	4	0	0	.00	146.27	250.00

*SECNO 17.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .37

1

29JUN93 14:01:56 PAGE 4

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
17.450	1.93	862.43	.00	.00	862.46	.03	.11	.01	862.00
140.0	1.6	134.0	4.4	3.5	93.1	9.5	2.0	1.4	862.00
.18	.46	1.44	.46	.060	.060	.060	.000	860.50	97.91
.002712	105.	140.	180.	2	0	0	.00	139.49	237.40

*SECNO 18.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 2.07

3470 ENCROACHMENT STATIONS= 140.0 320.0 TYPE= 1 TARGET= 180.000

18.450	1.47	862.57	.00	.00	862.58	.01	.12	.00	100000.00
140.0	.0	140.0	.0	.0	206.2	.0	2.3	1.8	100000.00
.22	.00	.68	.00	.000	.060	.000	.000	861.10	140.00
.000635	100.	100.	100.	1	0	0	.00	180.00	320.00

*SECNO 20.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .48

3470 ENCROACHMENT STATIONS= 160.0 300.0 TYPE= 1 TARGET= 140.000

20.450	1.29	862.79	.00	.00	862.82	.03	.23	.01	862.00
140.0	10.8	129.2	.0	15.6	96.8	.0	3.1	2.5	100000.00
.26	.70	1.33	.00	.060	.060	.000	.000	861.50	169.54
.002724	255.	200.	170.	2	0	0	.00	130.46	300.00

SPECIAL BRIDGE

SS	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	5.46	2.80	.00	2.00	.00	4.91	.00	861.50	861.50

*SECNO 21.150

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 4.47

PRESSURE AND WEIR FLOW, Weir Submergence Based on TRAPEZOIDAL Shape

1
29JUN93 14:01:56 PAGE 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

EGPRS	EGLWC	HJ	QWEIR	QFR	BAREA	TRAPEZOID AREA	ELLC	ELTRD	WEIRLN
931.72	885.62	.00	112.	29.	5.	2.	862.50	865.00	136.
21.150	3.74	865.74	.00	.00	865.74	.00	2.93	.00	862.00
140.0	19.4	7.8	112.8	59.2	11.2	413.6	3.5	3.1	862.00
.33	.33	.70	.27	.060	.060	.060	.000	862.00	7.73
.000136	70.	70.	70.	0	0	10	.00	524.33	532.07

1
29JUN93 14:01:56 PAGE 6

THIS RUN EXECUTED 29JUN93 14:01:57

****
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

MURRAY DRAIN OVERLAND T

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10**KS	VCH	AREA	.01K
	10.000	.00	.00	.00	854.00	140.00	858.20	.00	858.25	149.92	1.71	82.01	11.43
	12.650	265.00	.00	.00	858.00	140.00	861.06	.00	861.20	236.84	3.05	49.76	9.10
*	13.450	80.00	.00	.00	858.50	140.00	862.03	.00	862.08	63.30	1.94	85.33	17.60
*	16.050	260.00	.00	.00	860.00	140.00	862.33	.00	862.34	3.75	.64	219.20	72.30
*	17.450	140.00	.00	.00	860.50	140.00	862.43	.00	862.46	27.12	1.44	106.12	26.88
*	18.450	100.00	.00	.00	861.10	140.00	862.57	.00	862.58	6.35	.88	206.19	55.54
*	20.450	200.00	.00	.00	861.50	140.00	862.79	.00	862.82	27.24	1.33	112.35	26.82

MURRAY DRAIN OVERLAND T

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.000	140.00	856.20	.00	.00	-.50	70.63	.00
	12.650	140.00	861.06	.00	4.86	.00	33.20	265.00
*	13.450	140.00	862.03	.00	.97	.00	48.74	80.00
*	16.050	140.00	862.33	.00	.30	.00	146.27	260.00
*	17.450	140.00	862.43	.00	.09	.00	139.49	140.00
*	18.450	140.00	862.57	.00	.14	.00	180.00	100.00
*	20.450	140.00	862.79	.00	.22	.00	130.46	200.00
*	21.150	140.00	865.74	.00	2.95	.00	524.33	70.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 13.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 16.050 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 18.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 21.150 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
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    30JUN93    TIME   08:31:01 *                                    *          (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
1
   30JUN93      08:31:01                                                                                  PAGE    1

                                                                                THIS RUN EXECUTED 30JUN93    08:31:01
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************

 T1      FLOODPLAIN INFO FOR VILLAGE OF DIMONDALE   100-YEAR
 T2      XSEC INFO FROM 2-FT TOPO
 T3      MURRAY DRAIN  OVERLAND TYPE FLOW      12-INCH PIPE NEGLECTED

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                                          .015                          140.      857.

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

                    -1.


 NC      .12       .12       .12   .1        .3
 X1   10.00    9.        70.       138.
 GR   866.               864.      18.       862.      40.       860.      51.       858.      58.
 GR   856.     70.       854.      120.      856.      138.      862.      180.

 X1   12.65    9.        182.      203.      260.      250.      265.
 GR   866.               864.      71.       862.      167.      860.      182.      858.      194.
 GR   860.     203.      862.      211.      864.      240.      866.      305.

 X1   13.45    9.        140.      161.      80.       70.       80.
 GR   866.               864.      72.       862.      125.      860.      140.      859.5     150.
 GR   860.     161.      862.      172.      864.      224.      866.      277.

 NC   .1       .035      .035
 X1   16.05    9.        168.      299.      260.      260.      260.
 X3                                                                  250
```

```
GR   868.              866.      26.       864.      73.       862.      110.      860.      168.
GR   862.    299.      864.      367.      866.      402.      868.      456.

X1   17.45   7.        155.      193.      105.      180.      140.
X3
GR   866.              864.      39.       862.      114.      860.5     155.      862.      193.
XR   864.    400.      866.      613.

X1   18.45        6       270       380       100       100       100
X3                                 140                 320
GR   866.                 864       38       862       115      861.1       270       862       380
GR   864.       540.
1
   30JUN93     08:31:01                                                                          PAGE    2


X1   20.45   8.        290.      377.      255.      170.      200.
X3                                 160                 300
GR   868.              866.      51.       864.      109.      862.      209.      861.5     290.
GR   862.    377.      864.      425.      866.      650.

SB           5.46      2.8                 2.                  4.91                  861.5     861.5
X1   21.15   6.        65.       68.       70.       70.       70.
X2                     1.        862.5     865.
BT   4.      0.        868.                150.      866.                 280.      865.
BT   320.    865.3
GR   866.              864.      60.       862.      65.       862.      68.       864.      73.
GR   866.    600.


1
   30JUN93     08:31:01                                                                          PAGE    3

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS     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=     .100 CEHV=     .300
*SECNO 10.000
    10.000     2.20    856.20      .00    857.00    856.25      .05       .00       .00    856.00
     140.0       .0     139.9       .0        .1      81.7       .1        .0        .0    856.00
       .00      .33      1.71      .33      .120      .120      .120      .000    854.00     68.79
   .014992       0.        0.        0.         0         0         7       .00     70.63    139.41


*SECNO 12.650
    12.650     3.06    861.06      .00       .00    861.20      .14      4.92       .03    860.00
     140.0      5.2     132.0      2.8       4.2      43.3      2.3        .4        .3    860.00
       .02     1.24      3.05     1.22      .120      .120      .120      .000    858.00    174.04
   .023684     260.      265.     250.         3         0         0       .00     33.20    207.24


*SECNO 13.450

3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE,  KRATIO =  1.93

    13.450     3.53    862.03      .00       .00    862.08      .05       .97       .01    860.00
     140.0     15.5     113.2     11.3      15.5      58.4     11.4        .5        .4    860.00
       .04     1.[illegible]      1.84      [illegible]      .120      .120      .000    858.50    124.12
```

.006330	50.	80.	70.	3	0	0	.00	48.74	172.86

#SECNO 16.050

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 5.13

3470 ENCROACHMENT STATIONS= .0 250.0 TYPE= 1 TARGET= 249.999

16.050	2.25	862.25	.00	.00	862.26	.01	.18	.00	860.00
140.0	19.5	120.5	.0	73.2	133.4	.0	1.4	1.0	100000.00
.13	.27	.90	.00	.100	.035	.000	.000	860.00	105.33
.000241	260.	260.	260.	4	0	0	.00	144.67	250.00

#SECND 17.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .27

1

30JUN93 08:31:01 PAGE 4

SECNO	DEPTH	CWSEL	CRIWS	WSELV	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
17.450	1.79	862.29	.00	.00	862.36	.07	.08	.02	860.50
140.0	37.8	99.1	3.1	44.5	39.7	4.5	1.8	1.4	862.00
.14	.85	2.49	.68	.100	.035	.035	.000	860.50	102.91
.003254	105.	140.	180.	2	0	0	.00	120.70	220.61

#SECND 18.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 1.95

3470 ENCROACHMENT STATIONS= 140.0 320.0 TYPE= 1 TARGET= 180.000

18.450	1.40	862.50	.00	.00	862.51	.02	.15	.01	861.10
140.0	58.0	82.0	.0	132.4	59.6	.0	2.1	1.7	100000.00
.17	.44	1.38	.00	.100	.035	.000	.000	861.10	140.00
.000855	100.	100.	100.	2	0	0	.00	180.00	320.00

#SECND 20.450

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .45

3470 ENCROACHMENT STATIONS= 160.0 300.0 TYPE= 1 TARGET= 140.000

20.450	1.35	862.85	.00	.00	862.90	.05	.37	.01	861.50
140.0	100.1	39.9	.0	106.8	13.2	.0	3.0	2.6	100000.00
.21	.94	3.03	.00	.100	.035	.000	.000	861.50	166.65
.004143	255.	200.	170.	2	0	0	.00	133.35	300.00

SPECIAL BRIDGE

SB XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	5.46	2.80	.00	2.00	.00	4.91	.00	861.50	861.50

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = 6.62

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
931.78	886.78	.00	112.	29.	5.	2.	862.50	865.00	137.
21.150	3.74	865.74	.00	.00	865.74	.00	2.85	.00	862.00
140.0	7.5	8.6	124.0	59.3	11.2	414.0	3.5	3.1	862.00
.28	.13	.76	.30	.100	.035	.035	.000	862.00	7.71
.000056	70.	70.	70.	0	0	10	.00	524.58	532.29

THIS RUN EXECUTED 30JUN93 08:31:02

****
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

MURRAY DRAIN OVERLAND T

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	10.000	.00	.00	.00	854.00	140.00	856.20	.00	856.25	149.92	1.71	82.01	11.43
	12.650	265.00	.00	.00	858.00	140.00	861.06	.00	861.20	236.84	3.05	49.76	9.10
*	13.450	80.00	.00	.00	858.50	140.00	862.03	.00	862.08	63.30	1.94	85.33	17.60
*	16.050	260.00	.00	.00	860.00	140.00	862.25	.00	862.26	2.41	.90	206.59	90.23
*	17.450	140.00	.00	.00	860.50	140.00	862.29	.00	862.36	32.54	2.49	86.78	24.54
*	18.450	100.00	.00	.00	861.10	140.00	862.50	.00	862.51	8.55	1.38	191.92	47.88
*	20.450	200.00	.00	.00	861.50	140.00	862.85	.00	862.90	41.43	3.03	119.96	21.75

MURRAY DRAIN OVERLAND T

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.000	140.00	856.20	.00	.00	-.80	70.63	.00
	12.650	140.00	861.06	.00	4.86	.00	33.20	265.00
*	13.450	140.00	862.03	.00	.97	.00	48.74	80.00
*	16.050	140.00	862.25	.00	.22	.00	144.67	260.00
*	17.450	140.00	862.29	.00	.04	.00	120.70	140.00
*	18.450	140.00	862.50	.00	.21	.00	180.00	100.00
*	20.450	140.00	862.85	.00	.35	.00	133.35	200.00
*	21.150	140.00	865.74	.00	2.89	.00	524.58	70.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 13.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 16.050 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 17.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 18.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 20.450 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 21.150 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

THIS RUN EXECUTED 05/12/92 22:38:18

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**********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION 1.1
**********************************************

T1      FLOODPLAIN INFO FOR VILLAGE OF DIMONDALE   100-YEAR
T2      XSEC INFO FROM 2-FT TOPO
T3      MURRAY DRAIN  OVERLAND TYPE FLOW      12-INCH PIPE NEGLECTED

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        0.        0.        0.   .015000       .00        .0      230.   857.000      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      .000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000


NC      .120      .120      .120      .100      .300      .000      .000      .000      .000      .000
X1    10.000    9.000    70.000   138.000      .000      .000      .000      .000      .000      .000
GR   866.000      .000   864.000    18.000   862.000    40.000   860.000    51.000   858.000    58.000
GR   856.000    70.000   854.000   120.000   856.000   138.000   862.000   180.000      .000      .000

X1    12.650    9.000   182.000   203.000   260.000   250.000   265.000      .000      .000      .000
GR   866.000      .000   864.000    71.000   862.000   167.000   860.000   182.000   858.000   194.000
GR   860.000   203.000   862.000   211.000   864.000   240.000   866.000   305.000      .000      .000

X1    13.450    9.000   140.000   161.000    80.000    70.000    80.000      .000      .000      .000
GR   866.000      .000   864.000    72.000   862.000   125.000   860.000   140.000   858.500   150.000
GR   860.000   161.000   862.000   172.000   864.000   224.000   866.000   277.000      .000      .000

NC      .060      .060      .060      .000      .000      .000      .000      .000      .000      .000
X1    16.050    9.000   110.000   299.000   260.000   260.000   260.000      .000      .000      .000
GR   868.000      .000   866.000    26.000   864.000    73.000   862.000   110.000   860.000   168.000
GR   862.000   299.000   864.000   367.000   866.000   402.000   868.000   456.000      .000      .000

X1    17.450    7.000   114.000   193.000   105.000   180.000   140.000      .000      .000      .000
GR   866.000      .000   864.000    39.000   862.000   114.000   861.000   155.000   862.000   193.000
GR   864.000   400.000   866.000   613.000      .000      .000      .000      .000      .000      .000

X1    20.450    8.000   209.000   377.000   355.000   270.000   300.000      .000      .000      .000
GR   868.000      .000   866.000    51.000   864.000   109.000   862.000   209.000   861.500   290.000
GR   862.000   377.000   864.000   425.000   866.000   650.000      .000      .000      .000      .000

SB      .000    5.460     2.800      .000     2.000      .000     4.910      .000   861.500   861.500
X1    21.150    6.000    65.000    68.000    70.000    70.000    70.000      .000      .000      .000
X2      .000      .000     1.000   862.500   865.000      .000      .000      .000      .000      .000
BT     4.000      .000   868.000      .000   150.000   866.000      .000   280.000   865.000      .000
BT   320.000   865.300      .000      .000      .000      .000      .000      .000      .000      .000
GR   866.000      .000   864.000    60.000   862.000    65.000   862.000    68.000   864.000    73.000
GR   866.000   600.000      .000      .000      .000      .000      .000      .000      .000      .000
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EJ      .000      .000      .000      .000      .000      .000      .000      .000      .000      .000
1
  05/12/92    22:38:18                                                                          PAGE    3


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 10.000
     10.00     2.61   856.61      .00   857.00   856.68      .07      .00      .00   856.00
      230.       1.      228.       1.       1.     110.       1.       0.       0.   856.00
       .00      .68     2.08      .68     .120     .120     .120     .000   854.00    66.33
    .015032       0.       0.       0.        0        0        6      .00    75.95   142.28
0
 #SECNO 12.650
     12.65     3.62   861.62      .00      .00   861.82      .20     5.10      .04   860.00
      230.      17.      204.       9.      10.      55.       5.       1.       0.   860.00
       .02     1.71     3.72     1.69     .120     .120     .120     .000   858.00   169.87
    .025604      260.      265.      250.        3        0        0      .00    39.60   209.47
0
 #SECNO 13.450
     13.45     4.18   862.68      .00      .00   862.74      .06      .91      .01   860.00
      230.      38.      163.      29.      31.      72.      24.       1.       0.   860.00
       .03     1.23     2.26     1.18     .120     .120     .120     .000   858.50   107.00
    .006534       80.       80.       70.        3        0        0      .00    82.66   189.66
0
 #SECNO 16.050
     16.05     2.93   862.93      .00      .00   862.93      .01      .19      .01   862.00
      230.       2.      225.       4.       8.     365.      15.       2.       1.   862.00
       .15      .24       .62      .24     .060     .060     .060     .000   860.00    92.81
    .000258      260.      260.      260.        4        0        0      .00   237.80   330.60
0
 #SECNO 17.450
     17.45     1.99   862.99      .00      .00   863.02      .03      .08      .01   862.00
      230.      14.      179.      37.      19.     118.      51.       3.       2.   862.00
       .18      .73     1.52      .73     .060     .060     .060     .000   861.00    76.68
    .002195      105.      140.      180.        2        0        0      .00   219.31   295.99
0
 #SECNO 20.450
     20.45     1.81   863.31      .00      .00   863.32      .01      .29      .00   862.00
      230.      19.      203.       9.      43.     262.      20.       5.       4.   862.00
       .29      .43       .77      .43     .060     .060     .060     .000   861.50   143.66
    .000542      355.      300.      270.        2        0        0      .00   264.70   408.36
0
1
  05/12/92    22:38:18                                                                          PAGE    4


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
       .00      5.46      2.80       .00      2.00       .00      4.91       .00    861.50    861.50
```

*SECNO 21.150
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1049.35	877.90	.00	204.	28.	5.	2.	862.50	865.00
21.15	3.97	865.97	.00	.00	865.97	.00	2.66	.00	862.00
230.	31.	11.	189.	73.	12.	528.	6.	5.	862.00
.34	.42	.88	.36	.060	.060	.060	.000	862.00	.79
.000201	70.	70.	70.	0	0	11	.00	592.30	593.08

0
1

THIS RUN EXECUTED 05/12/92 22:38:25

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION 1.1
****

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Village of Dimondale

3) WATERCOURSE: Murray Drain

4) DOCUMENT TYPE: report

00BREAK00

To: Files
From: Bruce Menerey
Date: 6/29/93

Re: Floodplain Information
Murray Drain
Village of Dimondale
Eaton County

Based on revised discharges, the 100-year flood elevations have been determined to vary from 862.1 at Pine Street extended, to 862.9, 100 feet west of Creyts Road, 865.7 up stream of Creyts.

A change in the delineation is not warranted. Although the elevations could be used by the Village for regulation.

Drainage area is less than 2 square miles.

Background

In May 1992 a proposed revision was submitted to the Federal Emergency Management Agency. (See 5/6/92 memo). The flood elevations estimated were based upon flood flows that were very conservative.

A home owner on the West side of Creyts has expressed concern over the flood elevation that was shown on the map provided to the Village (elevation of 864). I agreed to review the analysis to see if any adjustments were needed.

Hydrology

The drainage area delineation and land uses used in the SCS methodology were reviewed. It was felt that the original assumptions were very conservative, and the Q_{100} could be lowered.

Instead of assuming the majority of the drainage area was bare plowed ground, it was felt a cropped land use was more appropriate. The Q_{100} was estimated to be 140 cfs (t_c = 5.87, $\overline{SRO}$ = 2.80, CN ~ 79).

Hydraulics

The original model was modified by inserting XSEC 18.45, cut from the topo map, and adding some encroachments to smooth the flow lines.

As before: (1) The 12-inch drain was ignore, as its capacity is only about 5 cfs (2) A single "n" value was used for the entire cross section in the downstream portion of the analysis.

In XSEC 16+05 through 20+45, a portion (~⅓) of the area is maintained as lawn, the other portion is field. The "n" values have been estimated to be .1 for the field, and .035 for the lawn.

Results

Following are the estimated 100-YR Elevations

XSEC	ELE
12+65	861.2
13+45	862.1
16+05	862.3
17+45	862.4
18+45	862.5
20+45	862.9
21+15	865.7

To: Files

From: Bruce Menerey

date: 5/6/92

Re: Floodplain Information
Map Maintenance
Murray Drain
Village of Dimondale
Eaton County

The 100-year floodplain for Murray Drain is estimated to range from 861 at Pine Street extended, to 864 downstream of Creyts Road to 866 upstream of Creyts Road.

Attached is a suggested revision to the FIRM.

Background

The Village of Dimondale clerk contact our office regarding the FIRM, which was felt to be in error. The primary concern was Murray Drain.

Based upon a field trip, and 2-foot topography it is apparent, the map needs to be revised.

Murray Drain is "enclosed" by a 12-inch tile which starts east of Creyts and ends about 1500 feet west of Creyts. During runoff events, the capacity of the tile is exceeded and overland flow occurs between the old railroad grade to the natural stream channel.

In the past, Creyts Road has been topped by about 1 foot or so of water. (Per Mr. Robert Ramont, 464 Creyts). Murray Drain has a drainage area of about 1 mi^2 at Creyts Road, most of which is plowed fields. What appears to happen is water ponds behind the old Railroad grade until it infiltrates. The worst case scenario would be back-to-back rain storms, or snow melt followed by a rainstorm. Such scenarios would result in the railroad grade would be topped and overland flow will occur.

Hydrology

The Q_{100} was estimated using the SCS hydrology as adapted by MDNR. A couple of assumptions were made:

(1) Flow will top the existing old Railroad grade east of Creyts. (During early spring the depression will be filled with snow melt runoff).

(2) The agricutural lands will be plowed (i.e bare ground). Which would have been the case in 1975, when Creyts Road was topped.

The Q_{100} was estimated to be 230 cfs (t_c = 5.87 hrs, S.R.O. = 3.55, CN = 88).

Hydraulics

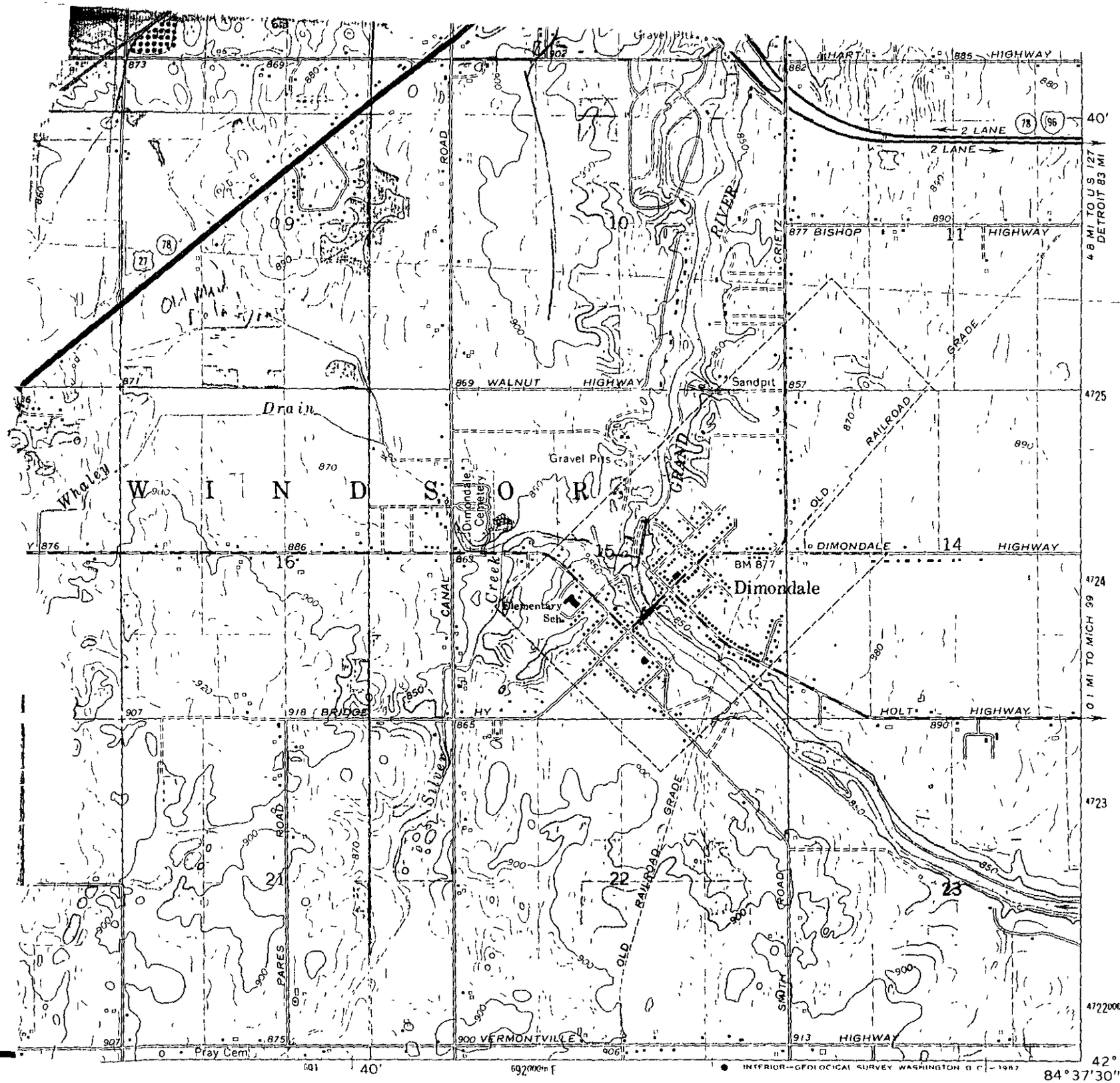
To estimate the 100-year floodplain elevations for the Murray Drain, cross sections were "cut" from the Village's 2-foot topography. The profile was begun about 200-feet downstream of Pine Street extended.

The "12 inch" drain was ignored in estimating the floodplain elevations.

There isn't really a channel and overbank through this

area. A single "n" value was used for each cross section. Due to the shallow depth of flow, the "n"'s were increased.

The stage computed upstream of Creyts appears to be consistent with past events.



Gravel Pits
HART HIGHWAY
2 LANE
2 LANE
40'
4.8 MI TO U.S. 127
DETROIT 83 MI
BISHOP HIGHWAY
CRIETZ
RIVER
GRAND
ROAD
WALNUT HIGHWAY
Sandpit
Drain
Whaley
W I N D S O R
Gravel Pits
Dimondale Cemetery
OLD RAILROAD GRADE
DIMONDALE HIGHWAY
BM 877
Dimondale
Elementary Sch.
CANAL
Creek
BRIDGE HY
HOLT HIGHWAY
Silver
PARES ROAD
OLD RAILROAD GRADE
SMITH ROAD
VERMONTVILLE HIGHWAY
Pray Cem.
40'
INTERIOR—GEOLOGICAL SURVEY WASHINGTON D.C.—1987
42°37'30"
84°37'30"

T-24 NW

BY BEM DATE 6/29/93 FILE NO. _____

WATERCOURSE MURRAY DRAIN -DIMONDALE COUNTY EATON

DRAINAGE AREA .74 mi² RECURRENCE INTERVAL _____

FLOW TYPE	LENGTH	ELE (FT)	SLOPE(%)	VEL(fps)	tc(hrs)
OVERLAND	2100	893-890	.14	.18	3.22
WATERWAY	4200	890-880	.24	.59	1.99
WATERWAY	2300	880-865	.65	.97	.66

Total tc, hrs. = 5.87

SOILS GROUP	%	sq.mi.	LAND USE Type	%	sq.mi.	CN	Hr. RF= Adj RF= R.O.	Hr. sq.mi.-in.	24 Hr. RF= 5.0 Adj RF= 5.0 R.O.	24 Hr. sq.mi.-in.
A	2	.015	CROPS	100	.015	67			180	.027
B	58	.429	WOODS	3.5	.015	60			1.30	.020
			RES.	3.5	.015	68			1.88	.028
			CROPS	93	.399	78			2.71	1.081
C	39	.289	WOODS	22	.064	73			228	.146
			RES.	6	.017	79			2.80	.048
			CROPS	72	.208	85			3.37	.701
D	1	.007	WOODS	90	.006	79			280	.017
			CROPS	10	.001	89			3.77	.004
			Total sq.mi.-in.							2.07
			Avg. R.O., in.							
			Comp. CN							
			Qp, cfs/sq.mi-in.						64.6	
			Q (R.O. x Qp)						134	
			Adj factor							
			Q 100						140	

Figure 7.8 - SCS Methodology Form

Use Q_{100} ~ 140 cfs

atercourse Murray Drain DA .78 mi² Basin 14 #

by Date Quad T24NW, T24NE File #

Sec. 14/15 T 3N R 3W County Eaton Township Village of Dimondale

Flow type	Length (ft.)	Δ ele (ft.)	Slope (%)	Vel (fps)	t_c (hrs)
OVERLAND	2100	893-890	.14	.18	3.22
WATERWAY	9200	890-880	.24	.59	1.99
WATERWAY	2300	880-865	.65	.97	.66

Recurrence Interval:

Total t_c, hrs = 5.87 hrs

Hr. | I24-100

RF = " | RF = 5.0 "

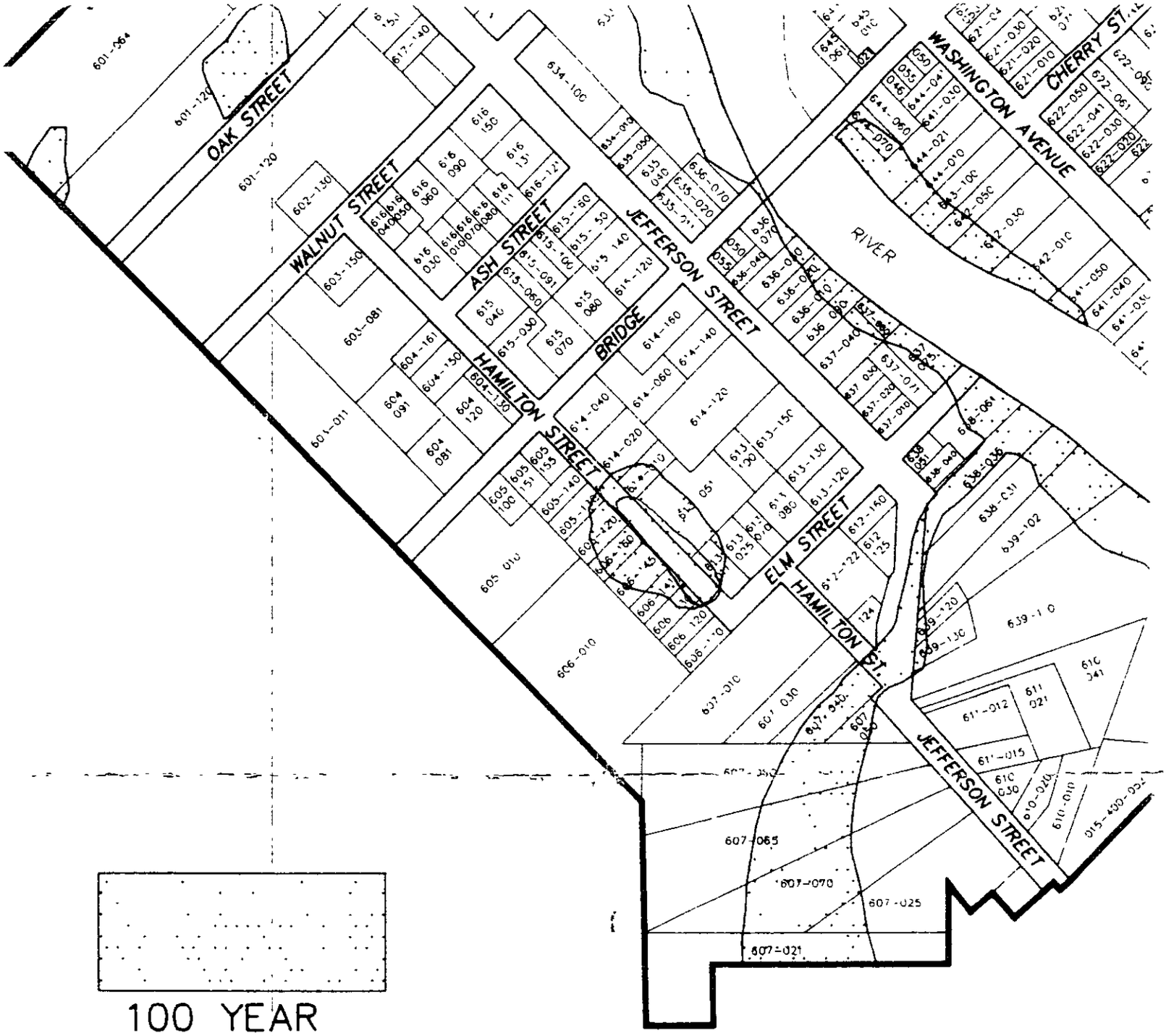
Adj RF = " | Adj RF = 5.0"

	SOILS			LAND USE							
	GROUP	%	mi²	TYPE	%	mi²	CN	R.O.	mi²-in	R.O.	mi²-in
	A										
Soil Map	B	59	.572	WOODS		.02	60			1.301	.026
				RES		.02	68			1.88	.038
				Newly Graded		.532	89			3.77	2.006
☒ County	C	37	.359	WOOD		.08	73			2.28	.182
				RES		.02	79			2.80	.056
				Newly		.259	93			4.20	1.088
☐ State	D	4	.039	WOODS-FAIR	25	.01	79			2.80	.027
				Newly Graded	75	.029	95			4.42	.128

☒ Land Use based on Orthophoto

Total mi²-in			3.55
Avg. R.O., in.			
Comp CN			
Q_p cfs/mi²/in			64.6
Q cfs			230
Adj factor	x		x
Q		Q_{100}=	

A-69



100 YEAR
FLOODPLAIN

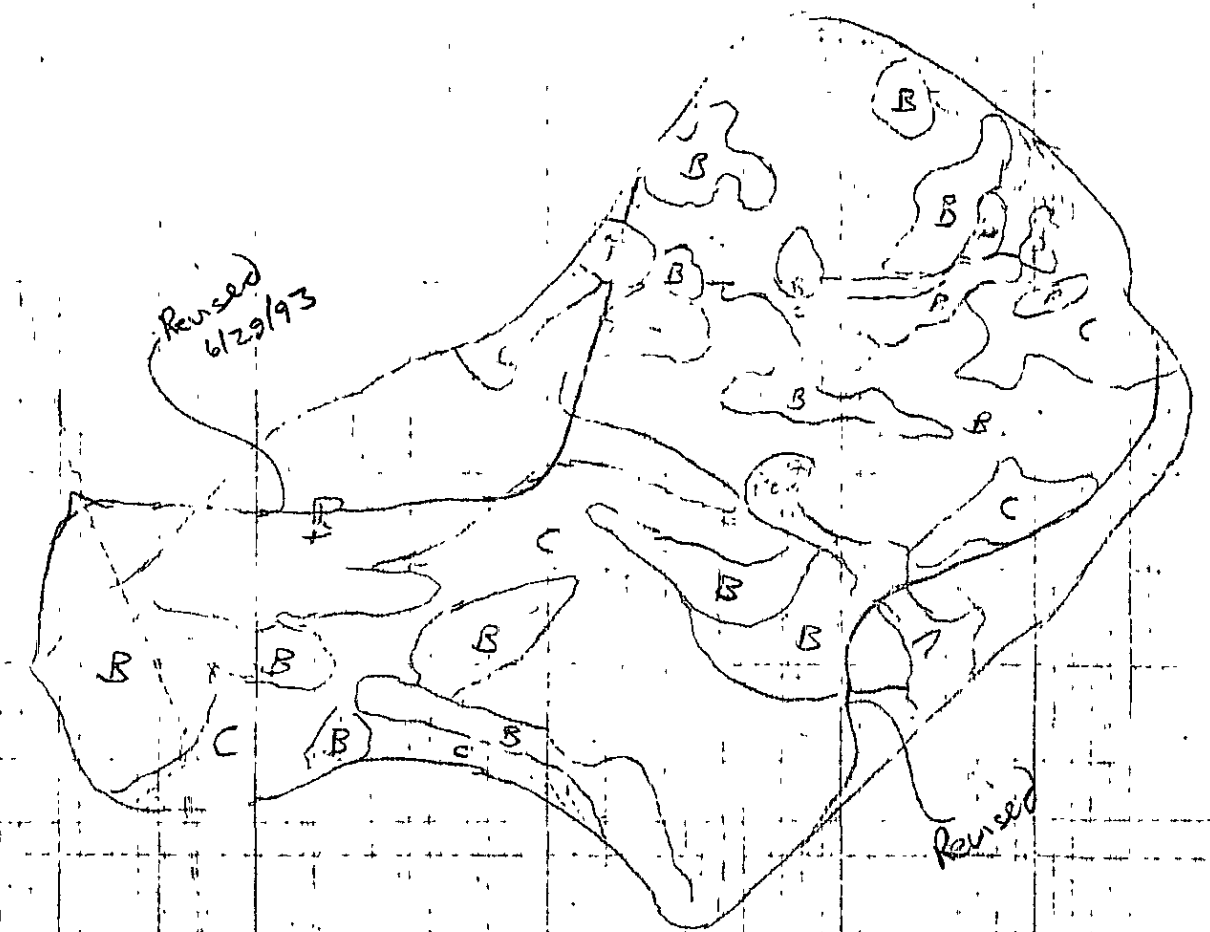
VILLA
DIMO
FLOODW

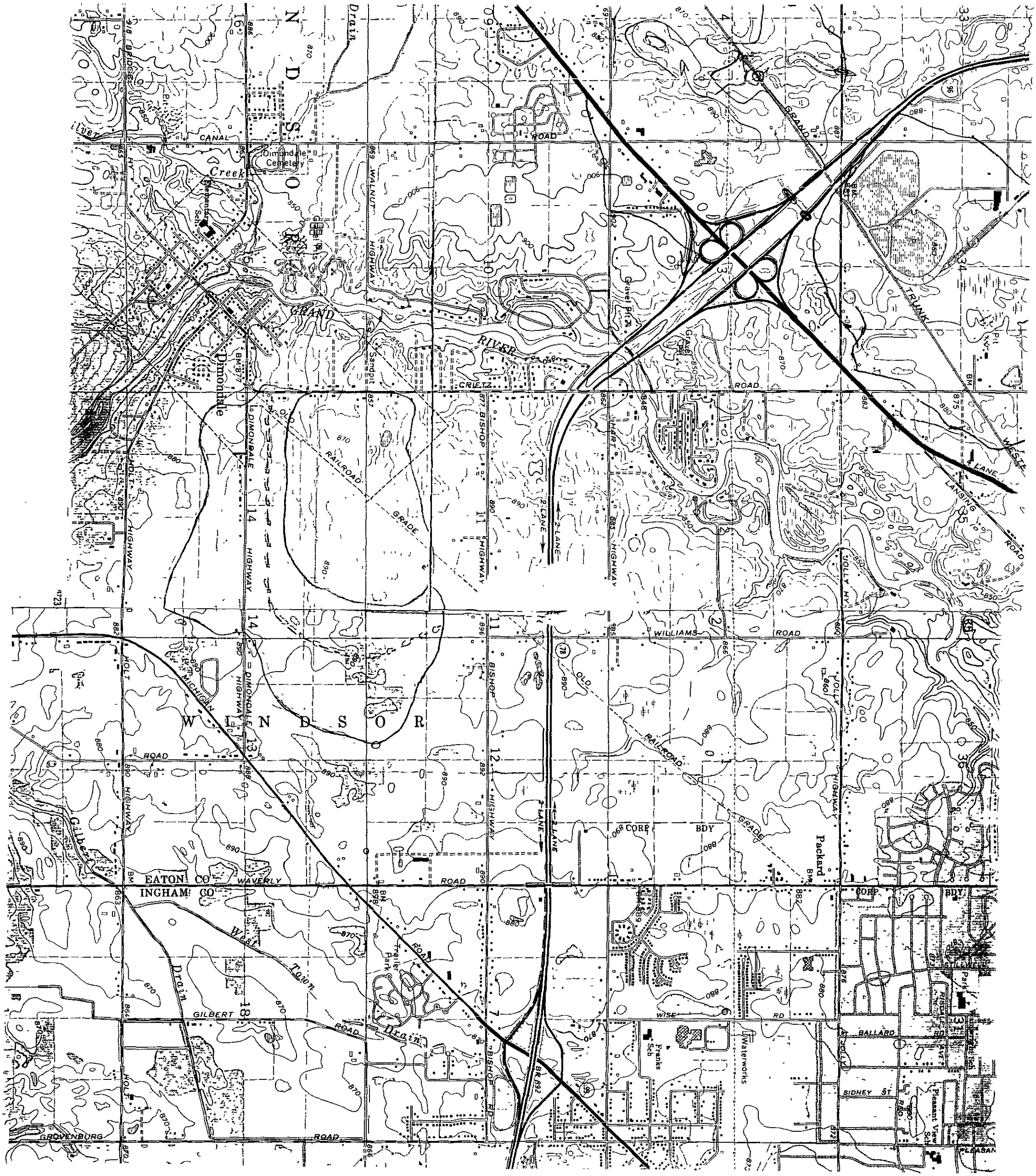
GRAPHIC SCALE

(IN FEET)

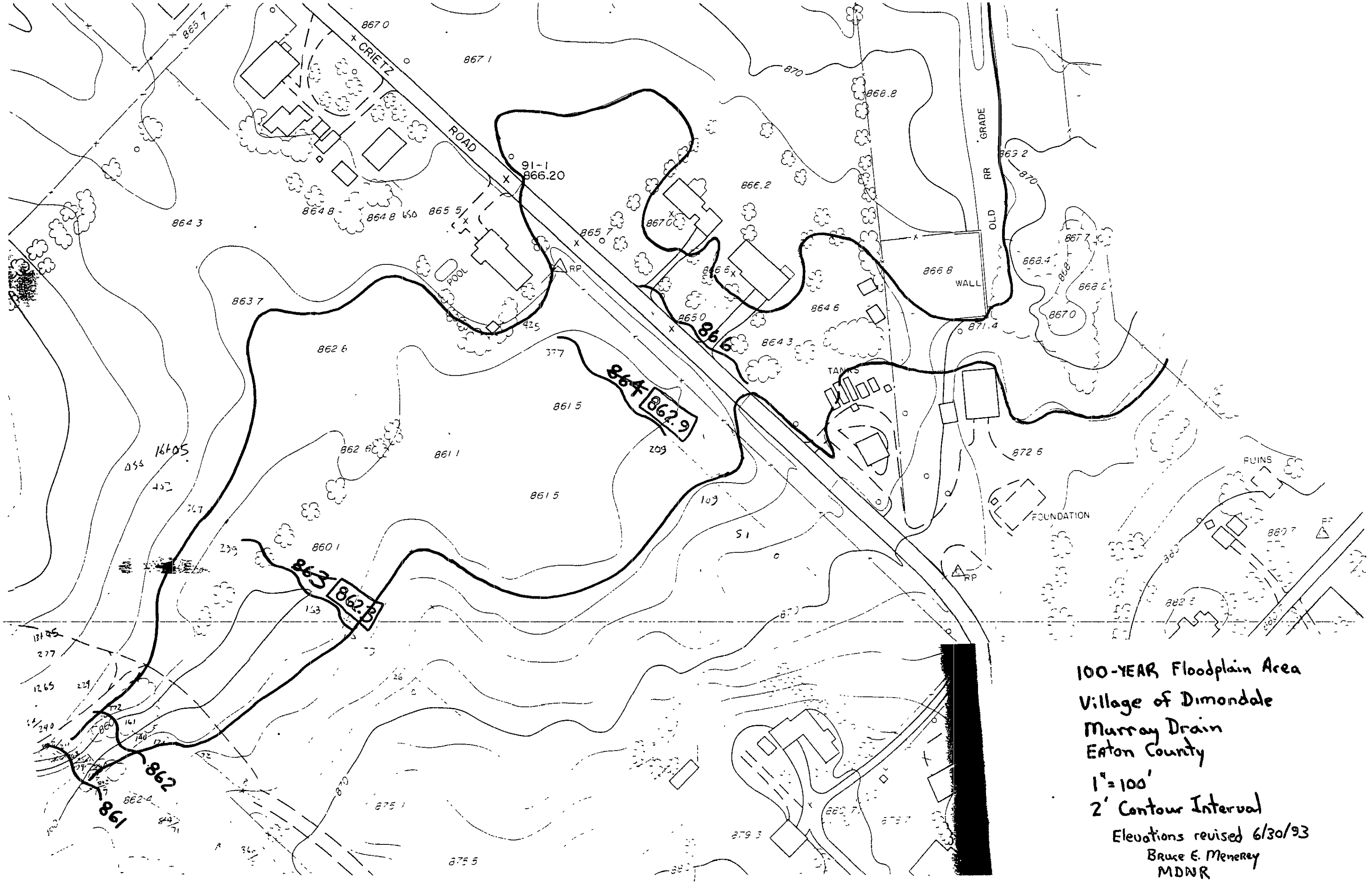
DATE: 4/20/1992

2	22	40-A	3
58	760	800 B	59
39	474	500. C	37
1.	12	17 - D	1

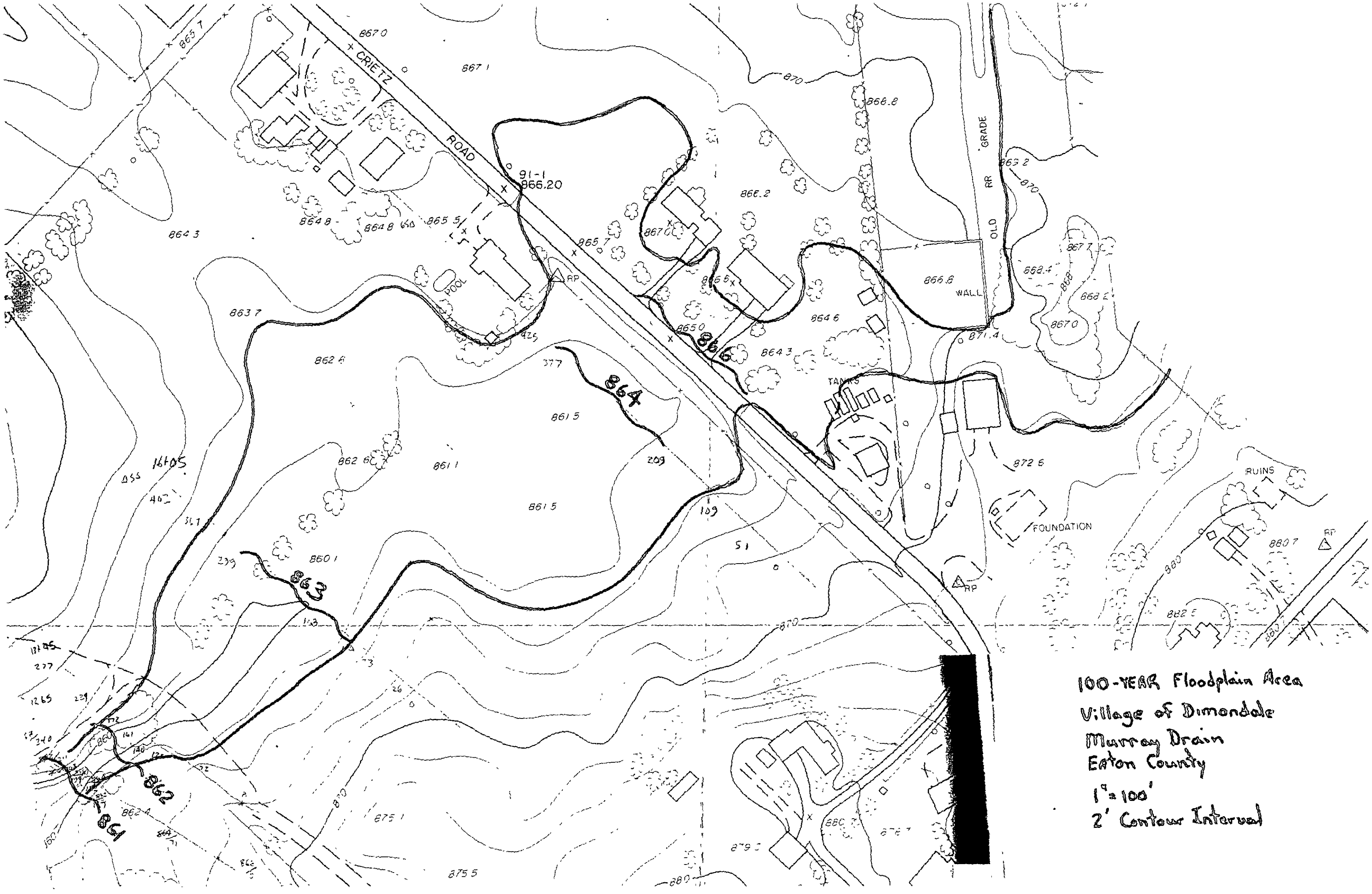




Dimondale Cemetery
Creek
CANAL
ROAD
GRAND
RIVER
Dimondale
CRIETZ
ROAD
WALNUT
HIGHWAY
BISHOP
HIGHWAY
DIMONDALE
HIGHWAY
HOLT
HIGHWAY
RAILROAD
GRADE
2 LANE
HART
HIGHWAY
JOLLY
HIGHWAY
WILLIAMS
ROAD
TRUNK
LANSING
ROAD
WESTE
4 LANE
W I N D S O R
MICHIGAN
ROAD
HOLT
HIGHWAY
DIMONDALE
HIGHWAY
BISHOP
HIGHWAY
OLD
RAILROAD
GRADE
CORP
BDY
Packard
EATON CO
INGHAM CO
WAVERLY
ROAD
West
Town
Drain
Trailer Park
GILBERT
ROAD
Drain
BISHOP
RD
WISE
RD
Franks Sch
Waterworks
BALLARD
RD
SIDNEY ST
Pleasant View Sch
GROVENBURG
ROAD



100-YEAR Floodplain Area
Village of Dimondale
Murray Drain
Eaton County
1" = 100'
2' Contour Interval
Elevations revised 6/30/93
Bruce E. Menerey
MDNR


CRIETZ ROAD
91-1
866.20
RP
POOL
OLD RR GRADE
WALL
TANKS
FOUNDATION
RUINS
866
864
863
862
861
100-YEAR Floodplain Area
Village of Dimondale
Murray Drain
Eaton County
1" = 100'
2' Contour Interval

1) COUNTY: Eaton

2) STUDY NAME: Village of Dimondale

3) WATERCOURSE: Old Maid Drain

4) DOCUMENT TYPE: 10-yr natural

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

C
T1      VILLAGE OF DIMONDALE ^ WINDSOR TWP., FIA, JOB A17284^ A17286
T2      10 YEAR FLOOD
T3      OLD MAID DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        0.         2.         0.         0.    .001927       0.00       0.0        0.    838.500     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      .080       .080       .050       .300       .500      0.000      0.000      0.000      0.000      0.000
QT     4.000   440.000   670.000   865.000  1170.000      0.000      0.000      0.000      0.000      0.000

X1      .900     12.000    480.000    502.000      0.000      0.000      0.000      0.000      1.190      0.000
GR   839.000      0.000    840.000     78.000    840.000    178.000    838.000    323.000    836.000    476.000
GR   835.000    480.000    833.800    492.000    835.000    502.000    836.000    508.000    838.000    560.000
GR   850.000    640.000    851.000    661.000      0.000      0.000      0.000      0.000      0.000      0.000

X1      .910      0.000      0.000      0.000     50.000     50.000     50.000      0.000      .100       0.000

        STARTING WATER SURFACE BY SLOPE-AREA

        FIELD SECTION

        SECTION A

X1     1.000      3.000      3.000      0.000     50.000     50.000     50.000      0.000      .100       0.000

X1     1.900     18.000   1053.000   1075.000    943.000    858.000    993.000      0.000     2.300      0.000
GR   854.000      0.000    849.700    200.000    849.000    400.000    844.300    600.000    842.700    800.000
GR   839.700    900.000    839.900   1000.000    839.900   1045.000    838.400   1045.000    838.200   1045.000
GR   836.200   1053.000    834.800   1067.000    838.200   1075.000    838.400   1075.000    840.100   1075.000
GR   841.000   1100.000    850.500   1200.000    854.000   1275.000      0.000      0.000      0.000      0.000

X1     2.000     18.000   1053.000   1075.000     50.000     50.000     50.000      0.000     2.400      0.000
GR   854.000      0.000    849.700    200.000    849.000    400.000    844.300    600.000    842.700    800.000
GR   839.700    900.000    839.900   1000.000    839.900   1045.000    838.400   1045.000    838.200   1045.000
GR   836.200   1053.000    834.800   1067.000    838.200   1075.000    838.400   1075.000    840.100   1075.000
GR   841.000   1100.000    850.500   1200.000    854.000   1275.000      0.000      0.000      0.000      0.000

        FARM LANE BRIDGE, WOODEN SUPERSTRUCTURE, GRAVEL ROADWAY
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```
        SECTION B
X1      2.100       0.000       3.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000
BT     12.000       0.000     356.400       0.000     200.000     852.100       0.000     400.000     851.400       0.000
BT    600.000     846.700       0.000     800.000     845.100       0.000     900.000     842.100       0.000    1000.000
BT    842.300       0.000    1046.000     842.300     840.800    1076.000     842.500     840.800    1100.000     843.400
BT      0.000    1200.000     852.900       0.000    1275.000     856.400       0.000       0.000       0.000       0.000

X1      2.400       0.000       0.000       0.000      12.000      12.000      12.000       0.000       0.000       0.000
BT     12.000       0.000     856.400       0.000     200.000     852.100       0.000     400.000     851.400       0.000
BT    600.000     846.700       0.000     800.000     845.100       0.000     900.000     842.100       0.000    1000.000
BT    842.300       0.000    1046.000     842.300     840.800    1076.000     842.500     840.800    1100.000     843.400
BT      0.000    1200.000     852.900       0.000    1275.000     856.400       0.000       0.000       0.000       0.000

        SECTION C
X1      2.500       0.000       0.000       0.000       1.000       1.000       1.000       0.000       0.000       0.000

X1      2.600       0.000       0.000       0.000      50.000      50.000      50.000       0.000       .010        0.000

        FIELD SECTION, D/S OF CONFLUENCE WITH SILVER CREEK

        SECTION D
X1      3.000      14.000     307.000     322.000     843.000     743.000     793.000       0.000      12.030       0.000
GR    847.800       0.000     840.700     100.000     832.300     165.000     831.400     200.000     826.900     300.000
GR    828.600     307.000     325.300     311.000     830.600     322.000     830.800     352.000     830.200     387.000
GR    836.200     400.000     839.100     500.000     842.600     600.000     846.800     654.000       0.000       0.000
NC      .060        .070        .045       0.000       0.000       0.000       0.000       0.000       0.000       0.000
QT      4.000     205.000     295.000     345.000     440.000       0.000       0.000       0.000       0.000       0.000

        U/S OF CONFLUENCE WITH SILVER CREEK, SECNO 4. REPEATED

X1      3.900       8.000     320.800     325.200     142.000     242.000     192.000       0.000      12.000       0.000
GR    846.800       0.000     840.100     100.000     832.500     200.000     831.400     300.000     826.000     320.800
GR    826.000     325.200     832.300     329.000     831.900     400.000       0.000       0.000       0.000       0.000

X1      4.000       8.000     320.800     325.200      50.000      50.000      50.000       0.000      12.170       0.000
X3      0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
GR    846.800       0.000     840.100     100.000     832.500     200.000     831.400     300.000     826.000     320.800
GR    826.000     325.200     832.300     329.000     831.900     400.000       0.000       0.000       0.000       0.000
NC      .020        .020        .023       0.000       0.000       0.000       0.000       0.000       0.000       0.000

        DRIVEWAY CULVERT, 60 IN. CMP (1/2 IN.), PAVED ROADWAY

        SECTION E
X1      4.100       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       0.000       0.000       0.000       0.000       0.000       0.000       0.000
BT     10.000       0.000     359.000       0.000     100.000     852.900       0.000     200.000     844.700       0.000
BT    300.000     844.300       0.000     320.800     844.500     838.200     320.800     844.500     842.600     325.200
BT    844.500     842.600     325.200     844.500     838.200     329.000     844.600       0.000     400.000     844.600
BT      0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
```

X1	4.400	0.000	0.000	0.000	14.000	14.000	14.000	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	359.000	0.000	100.000	852.900	0.000	200.000	844.700	0.000
BT	300.000	844.300	0.000	320.800	844.500	839.100	320.800	844.500	843.500	325.200
BT	844.500	843.500	325.200	844.500	839.100	329.000	844.600	0.000	400.000	844.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.080	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	4.600	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.370	0.000
NH	5.000	.035	133.000	.090	191.000	.050	215.000	.090	255.000	.050
NH	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FIELD SECTION

SECTION F

X1	5.000	14.000	191.000	215.000	182.000	202.000	192.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000
GR	849.200	0.000	846.800	100.000	835.600	133.000	832.500	190.000	830.300	191.000
GR	827.800	203.000	830.300	215.000	832.800	221.000	833.200	255.000	837.700	286.000
GR	832.900	319.000	332.600	430.000	836.000	500.000	838.000	600.000	0.000	0.000
X1	5.100	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.470	0.000
X3	0.000	0.000	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000
X1	5.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.890	0.000
X3	0.000	0.000	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000
X1	5.300	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.890	0.000
X3	0.000	0.000	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000
NH	5.000	.035	500.000	.080	572.000	.045	576.000	.080	600.000	.050
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.900	17.000	567.000	584.000	188.000	188.000	188.000	0.000	10.940	0.000
GR	847.300	0.000	847.200	100.000	846.800	200.000	845.600	400.000	842.200	500.000
GR	839.500	567.000	836.700	570.000	835.500	572.000	834.400	574.000	835.500	576.000
GR	836.700	578.000	836.200	584.000	837.800	584.000	837.800	600.000	844.000	700.000
GR	844.600	800.000	846.600	900.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	567.000	.060	572.000	.050	576.000	.060	600.000	.050
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CANAL ROAD, CMP (2 IN.) ARCH, 96 X 56 IN., PAVED ROADWAY

SECTION G

X1	6.000	17.000	570.000	578.000	130.000	130.000	130.000	0.000	12.170	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.000	856.000	0.000
GR	847.300	0.000	847.200	100.000	846.800	200.000	845.600	400.000	842.200	500.000
GR	839.500	567.000	836.700	570.000	835.500	572.000	834.400	574.000	835.500	576.000
GR	836.700	578.000	836.200	584.000	837.800	584.000	837.800	600.000	844.000	700.000

GR	844.600	801.000	846.600	900.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.040	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.789	2.900	0.000	8.000	0.000	34.640	0.000	846.870	846.570

SECTION H

X1	6.400	17.000	559.000	567.000	65.000	65.000	65.000	0.000	12.170	0.000
X2	0.000	0.000	1.000	851.200	856.000	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	856.200	856.200	0.000
BT	18.000	0.000	860.900	0.000	100.000	860.100	0.000	200.000	859.500	0.000
BT	400.000	857.600	0.000	500.000	856.500	0.000	556.000	856.100	0.000	559.000
BT	856.100	849.200	561.000	856.000	850.400	563.000	856.000	851.500	565.000	856.000
BT	850.400	567.000	856.000	849.200	571.000	856.000	0.000	575.000	856.000	0.000
BT	600.000	856.400	0.000	700.000	857.700	0.000	800.000	858.600	0.000	900.000
BT	860.100	0.000	1000.000	862.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.200	0.000	845.500	100.000	842.900	200.000	842.900	400.000	842.800	500.000
GR	838.500	556.000	837.000	559.000	835.800	561.000	834.700	563.000	835.800	565.000
GR	837.000	567.000	838.500	571.000	843.900	575.000	844.230	600.000	846.300	700.000
GR	846.100	800.000	847.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	6.600	0.000	0.000	0.000	35.000	65.000	50.000	0.000	.470	0.000
X3	0.000	0.000	0.000	509.000	0.000	617.000	0.000	0.000	0.000	0.000

X1	6.900	10.000	74.000	85.000	70.000	110.000	90.000	0.000	11.750	0.000
GR	846.300	0.000	841.200	69.000	836.900	74.000	836.300	75.800	836.300	80.200
GR	836.900	85.000	841.000	100.000	845.500	200.000	846.900	300.000	847.100	400.000

SENEY DRIVE, 60 ON. CMP (2 IN.), PAVED ROADWAY

SECTION I

X1	7.000	10.000	74.000	85.000	35.000	65.000	50.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.300	0.000	841.200	69.000	836.900	74.000	836.300	75.800	836.300	80.200
GR	836.900	85.000	841.000	100.000	845.500	200.000	846.900	300.000	847.100	400.000
SB	0.000	3.280	3.020	0.000	5.000	0.000	19.050	0.000	849.770	848.470

SECTION J

X1	7.400	10.000	67.000	82.000	55.000	55.000	55.000	0.000	12.170	0.000
X2	0.000	0.000	1.000	854.200	856.800	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	210.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	859.100	0.000	54.000	857.400	0.000	67.000	857.000	0.000
BT	71.800	856.900	849.800	71.800	856.900	854.200	76.200	856.800	854.200	76.200
BT	856.800	849.800	82.000	856.800	0.000	100.000	857.000	0.000	200.000	857.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.900	0.000	842.500	54.000	837.900	67.000	837.600	71.800	837.600	76.200
GR	837.900	82.000	840.800	100.000	844.600	200.000	846.900	300.000	847.100	400.000

FIELD SECTION

SECTION K

X1	8.000	18.000	266.000	279.000	122.000	122.000	122.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	240.000	0.000	300.000	0.000	0.000	0.000	0.000

GR	848.700	0.000	846.400	100.000	845.000	142.500	845.000	142.500	841.700	242.500
GR	841.700	242.500	841.700	260.000	838.200	266.000	836.500	272.500	838.200	279.000
GR	844.700	290.000	844.700	300.000	844.700	332.500	844.700	332.500	843.200	422.500
GR	843.200	422.500	846.900	500.000	847.100	600.000	0.000	0.000	0.000	0.000
X1	8.100	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.640	0.000
NH	5.000	.050	981.000	.090	994.800	.040	1001.200	.090	1021.000	.050
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.900	15.000	986.000	1010.000	656.000	706.000	706.000	0.000	12.030	0.000
GR	849.200	0.000	847.200	200.000	846.600	400.000	846.900	600.000	846.230	960.000
GR	846.000	981.000	841.900	986.000	839.200	994.800	839.200	1001.200	841.900	1010.000
GR	845.700	1021.000	845.830	1080.000	848.100	1400.000	850.000	1600.000	851.700	1800.000
NH	5.000	.050	981.000	.090	994.800	.040	1001.200	.090	1021.000	.050
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DRIVEWAY BRIDGE, 8 X 6.5 FT. CMP (1/2 IN.) ARCH, GRAVEL ROADWAY

SECTION L

X1	9.000	15.000	986.000	1010.000	50.000	50.000	50.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.200	0.000	847.200	200.000	846.600	400.000	846.900	600.000	846.230	960.000
GR	846.000	981.000	841.900	986.000	839.200	994.800	839.200	1001.200	841.900	1010.000
GR	845.700	1021.000	845.830	1080.000	848.100	1400.000	850.000	1600.000	851.700	1800.000
SB	0.000	1.646	3.000	0.000	8.000	0.000	41.283	0.000	851.370	851.370

SECTION M

X1	9.400	0.000	0.000	0.000	19.000	19.000	19.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	857.800	857.900	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	960.000	0.000	1100.000	0.000	0.000	0.000	0.000
BT	10.000	960.000	858.400	0.000	981.000	858.200	0.000	986.000	858.300	0.000
BT	994.800	858.500	851.400	994.800	858.500	857.800	1001.200	858.500	857.800	1001.200
BT	858.500	851.400	1010.000	858.200	0.000	1021.000	857.900	0.000	1100.000	858.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1015.000	.090	1030.000	.040	1037.000	.090	1050.000	.040
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	17.000	1030.000	1037.000	33.000	33.000	33.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	921.000	0.000	1150.000	0.000	0.000	0.000	0.000
X4	2.000	857.100	974.000	860.100	1093.000	0.000	0.000	0.000	0.000	0.000
GR	861.400	0.000	859.400	200.000	858.700	400.000	859.100	600.000	857.800	800.000
GR	856.900	900.000	856.000	993.000	856.200	1015.000	854.200	1030.000	854.200	1030.000
GR	852.400	1033.000	853.400	1037.000	853.400	1037.000	854.200	1040.000	858.700	1050.000
GR	860.100	1200.000	860.300	1400.000	862.200	1600.000	863.900	1800.000	0.000	0.000
NC	.025	.025	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DRIVEWAY BRIDGE, CONCRETE SUPERSTRUCTURE, R.R. TIE WINGWALLS

GRAVEL ROADWAY

SECTION N

X1	10.010	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	921.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	10.000	974.000	857.100	0.000	993.000	858.000	0.000	1015.000	858.200	0.000
BT	1030.000	858.400	854.200	1030.000	858.400	857.900	1037.000	858.700	858.200	1037.000
BT	358.700	853.400	1040.000	858.700	0.000	1050.000	858.700	0.000	1093.000	860.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.090	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	924.000	0.000	1147.000	0.000	0.000	0.000	0.000
BT	18.000	0.000	861.400	0.000	200.000	859.400	0.000	400.000	858.700	0.000
BT	600.000	859.100	0.000	800.000	857.800	0.000	900.000	856.900	0.000	993.000
BT	858.000	0.000	1015.000	858.200	0.000	1030.000	858.400	854.200	1030.000	858.400
BT	857.900	1037.000	858.700	858.200	1037.000	858.700	853.400	1040.000	858.700	0.000
BT	1050.000	858.700	0.000	1200.000	860.100	0.000	1400.000	860.300	0.000	1600.000
BT	862.200	0.000	1800.000	863.900	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1015.000	.090	1030.000	.040	1040.000	.090	1050.000	.040
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.100	19.000	1030.000	1040.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	924.000	0.000	1147.000	0.000	0.000	0.000	0.000
GR	861.400	0.000	859.400	200.000	858.700	400.000	859.100	600.000	857.800	800.000
GR	856.900	900.000	858.000	993.000	855.700	1015.000	854.200	1030.000	854.200	1030.000
GR	852.400	1033.000	853.400	1037.000	853.400	1037.000	854.200	1040.000	858.700	1050.000
GR	860.100	1200.000	860.300	1400.000	862.200	1600.000	863.900	1800.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FIELD SECTION, D/S OF CONFLUENCE OF WHALEY DRAIN

SECTION 0

X1	11.000	15.000	903.000	919.000	192.000	192.000	192.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	800.000	0.000	1700.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	848.300	200.000	846.500	400.000	846.900	600.000	847.600	800.000
GR	847.100	888.000	842.100	903.000	841.100	910.000	842.100	919.000	846.500	927.000
GR	847.100	1000.000	847.900	1100.000	848.100	1300.000	850.000	1500.000	851.700	1700.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Village of Diamondale

3) WATERCOURSE: Old Maid Drain

4) DOCUMENT TYPE: 100-yr: Natural

00BREAK00

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

T1      VILLAGE OF DIMONDALE ^ WINDSOR TWP., FIA, JOB A1728L^ A17286
T2      100 YEAR FLOOD
T3      OLD MAID DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       0.         4.         0.         0.    .001927       0.00       0.0        0.    840.000    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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*PROF 3

CCHV=     .300  CEHV=     .500
*SECNO  .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       XNF        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

      .90       5.01     840.00       0.00     840.00     840.09       .09       0.00       0.00     836.19
     865.       372.       341.       152.       314.        97.       116.         0.         0.     836.19
      0.00       1.18       3.52       1.30       .080       .050       .080      0.000     834.99     264.27
  .001954         0.         0.         0.          0          0          0       0.00     301.13     565.40

*SECNO  .910
      .91       5.01     840.10       0.00       0.00     840.19       .09        .10        .00     836.29
     865.       372.       342.       152.       313.        97.       116.         1.         0.     836.29
      .01       1.19       3.52       1.31       .080       .050       .080       .049     835.09     264.44
  .001960         50.        50.        50.          0          0          0       0.00     300.94     565.38

*SECNO  1.000

        STARTING WATER SURFACE BY SLOPE-AREA

        FIELD SECTION

        SECTION A

      1.00       5.01     840.20       0.00       0.00     840.29       .09        .10        .00     836.39
     865.       372.       342.       151.       313.        97.       116.         1.         1.     836.39
      .01       1.19       3.53       1.31       .080       .050       .080       .049     835.19     264.60
  .001966         50.        50.        50.          0          0          0       0.00     300.77     565.37

*SECNO  1.900
     1.90       5.89     842.99       0.00       0.00     843.37       .38       2.94        .14     838.50
     365.       248.       614.         3.       171.       106.         5.        10.         6.     842.40
      .07       1.45       5.77        .61        .080       .050       .080       .051     837.10     866.67
  .005371       943.       993.       858.          2          0          0       0.00     225.00    1091.67

*SECNO  2.000
   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       XNF        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST

      2.00       6.17     843.37       0.00       0.00     843.63       .26        .22        .04     838.60
     865.       298.       550.         7.       221.       112.        10.        10.         7.     842.50
      .08       1.35       4.99        .65        .080       .050       .080       .051     837.20     857.80
  .003733         50.        50.        50.          3          0          0       0.00     241.26    1099.06

*SECNC 2.100
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3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 842.10 MAX ELLC= 841.80

FARM LANE BRIDGE, WOODEN SUPERSTRUCTURE, GRAVEL ROADWAY

SECTION B

2.10	6.36	843.56	0.00	0.00	843.68	.12	.01	.04	838.60
865.	554.	289.	22.	246.	81.	15.	10.	7.	842.50
.08	2.25	3.58	1.43	.080	.050	.080	.051	837.20	851.43
.011675	1.	1.	1.	3	0	0	-48.63	250.22	1101.65

*SECNO 2.400

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 842.10 MAX ELLC= 840.80

2.40	6.51	843.71	0.00	0.00	843.80	.09	.12	.01	838.60
865.	572.	265.	27.	278.	84.	20.	10.	7.	842.50
.08	2.06	3.15	1.41	.080	.050	.080	.051	837.20	846.31
.008562	12.	12.	12.	2	0	0	-48.63	256.96	1103.27

*SECNO 2.500

SECTION C

2.50	6.47	843.67	0.00	0.00	843.85	.17	.00	.04	838.60
865.	348.	504.	14.	283.	119.	19.	10.	7.	842.50
.08	1.23	4.23	.74	.080	.050	.080	.051	837.20	847.50
.002482	1.	1.	1.	2	0	0	0.00	255.40	1102.90

*SECNO 2.600

2.60	6.62	843.83	0.00	0.00	843.97	.14	.11	.01	838.61
865.	367.	481.	17.	313.	122.	23.	11.	7.	842.51
.08	1.18	3.93	.75	.080	.050	.080	.051	837.21	842.79
.002075	50.	50.	50.	2	0	0	0.00	261.60	1104.38

*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	IDONT	CORAR	TOPWID	ENDST

FIELD SECTION, D/S OF CONFLUENCE WITH SILVER CREEK

SECTION D

3.00	7.82	845.15	0.00	0.00	845.20	.05	1.20	.03	840.63
865.	444.	226.	195.	349.	81.	173.	21.	11.	842.63
.22	1.27	2.78	1.13	.080	.050	.080	.050	837.33	176.79
.001115	843.	793.	743.	2	0	0	0.00	216.51	393.31

*SECNO 3.900
3280 CROSS SECTION 3.90 EXTENDED 1.41 FEET

U/S OF CONFLUENCE WITH SILVER CREEK, SECNO 4. REPEATED

3.90	7.31	845.31	0.00	0.00	845.34	.03	.14	.01	838.00
345.	213.	80.	52.	236.	32.	102.	23.	12.	838.00
.26	.90	2.49	.51	.060	.045	.070	.050	838.00	189.33
.000400	142.	192.	242.	2	0	0	0.00	210.67	400.00

*SECNO 4.000
3280 CROSS SECTION 4.00 EXTENDED 1.27 FEET

4.00	7.16	845.33	0.00	0.00	845.37	.04	.02	.00	838.17
345.	211.	95.	48.	218.	32.	91.	23.	13.	838.17
.27	.97	2.71	.53	.060	.045	.070	.050	838.17	191.20
.000486	50.	50.	50.	1	0	0	0.00	208.80	400.00

*SECNO 4.100
3280 CROSS SECTION 4.10 EXTENDED 1.26 FEET

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 844.30 MAX ELLC= 842.60

DRIVEWAY CULVERT, 60 IN. CMP (1/2 IN.) , PAVED ROADWAY

SECTION E

4.10	7.15	845.32	0.00	0.00	845.38	.06	.00	.01	838.17
345.	192.	26.	127.	105.	13.	63.	23.	13.	838.17
.27	1.83	1.93	2.00	.020	.023	.020	.050	838.17	191.32
.000902	1.	1.	1.	0	0	0	-156.57	208.68	400.00

*SECNO 4.400
3280 CROSS SECTION 4.40 EXTENDED 1.27 FEET

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 844.30 MAX ELLC= 843.50

4.40	7.17	845.34	0.00	0.00	845.39	.05	.01	.00	838.17
345.	190.	35.	120.	116.	17.	65.	23.	13.	838.17
.27	1.64	2.01	1.84	.020	.023	.020	.050	838.17	191.24
.000693	14.	14.	14.	1	0	0	-141.54	208.76	400.00

*SECNO 4.500
3280 CROSS SECTION 4.50 EXTENDED 1.27 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	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	IDONT	CORAR	TOPWID	ENDST
4.50	7.17	845.34	0.00	0.00	845.39	.05	.00	.00	838.17
345.	187.	101.	57.	218.	32.	91.	23.	13.	838.17
.27	.86	3.19	.63	.080	.045	.070	.050	838.17	191.14
.000673	1.	1.	1.	0	0	0	0.00	208.85	400.00

*SECNO 4.600
3280 CROSS SECTION 4.60 EXTENDED .93 FEET

4.60	6.82	845.36	0.00	0.00	845.46	.09	.04	.02	838.54
345.	183.	118.	44.	174.	30.	66.	24.	13.	838.54
.28	1.05	3.93	.67	.080	.045	.070	.050	838.54	195.67
.001094	50.	50.	50.	1	0	0	0.00	204.33	400.00

1490 NH CARD USED
*SECNO 5.000
3280 CROSS SECTION 5.00 EXTENDED 7.59 FEET

3470 ENCROACHMENT STATIONS= .0 286.0 TYPE= 1 TARGET= 285.999

FIELD SECTION

SECTION F

5.00	5.62	845.59	0.00	0.00	845.73	.14	.25	.02	842.47
345.	4.	325.	16.	10.	105.	25.	25.	14.	842.47
.30	.43	3.10	.62	.090	.050	.090	.049	839.97	173.16
.001571	182.	192.	202.	2	0	0	0.00	83.33	256.49

*SECNO 5.100
3280 CROSS SECTION 5.10 EXTENDED 7.18 FEET

3470 ENCROACHMENT STATIONS= .0 286.0 TYPE= 1 TARGET= 285.999

5.10	5.22	845.66	0.00	0.00	845.84	.19	.09	.02	842.94
345.	2.	334.	9.	4.	95.	11.	25.	14.	842.94
.30	.43	3.52	.82	.090	.050	.090	.049	840.44	180.58
.002297	50.	50.	50.	0	0	0	0.00	58.49	239.07

*SECNO 5.200

3470 ENCROACHMENT STATIONS= .0 286.0 TYPE= 1 TARGET= 285.999

5.20	4.00	846.33	0.00	0.00	846.74	.41	.78	.11	844.83
345.	0.	342.	3.	1.	66.	3.	25.	14.	844.83
.31	.68	5.18	1.16	.090	.050	.090	.049	842.33	190.32
.009108	200.	200.	200.	2	0	0	0.00	28.28	218.60

*SECNO 5.300

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

3470 ENCROACHMENT STATIONS= .0 286.0 TYPE= 1 TARGET= 285.999

5.30	3.85	848.07	0.00	0.00	848.53	.46	1.77	.02	846.72
345.	0.	342.	3.	0.	63.	2.	25.	14.	846.72
.32	.70	5.47	1.19	.090	.050	.090	.049	844.22	190.38
.009695	200.	200.	200.	2	0	0	0.00	27.88	218.26

1490 NH CARD USED
*SECNO 5.900

5.90	4.86	850.20	0.00	0.00	850.49	.29	1.90	.05	850.44
345.	0.	245.	100.	0.	50.	46.	26.	14.	848.74
.34	0.00	4.89	2.46	.090	.076	.067	.048	845.34	567.26
.010597	188.	188.	188.	2	0	0	0.00	56.23	623.49

1490 NH CARD USED
*SECNO 6.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELFEA= 856.00

CANAL ROAD, CMP (2 IN.) ARCH, 96 X 56 IN., PAVED ROADWAY

SECTION G

5.00	5.36	851.93	0.00	0.00	853.53	1.61	2.39	.65	848.87
345.	0.	345.	0.	0.	34.	0.	26.	14.	848.87
.34	0.00	10.17	0.00	.090	.059	.067	.048	846.57	570.00
.039362	130.	130.	130.	2	0	0	0.00	8.00	578.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.79	2.90	0.00	8.00	0.00	34.64	0.00	846.87	846.57

*SECNO 6.400

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.22	853.84	0.00	2.	340.	35.	35.	851.20	856.00

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

SECTION H

6.40	8.75	855.62	0.00	0.00	856.11	.50	2.58	0.00	849.17
345.	0.	345.	0.	0.	61.	0.	26.	14.	849.17
.34	0.00	5.66	0.00	.040	.035	.040	.048	846.67	559.00
.002618	65.	65.	65.	2	0	0	0.00	8.09	567.09

*SECNO 6.600

3470 ENCROACHMENT STATIONS= 509.0 617.0 TYPE= 1 TARGET= 108.000

6.60	8.90	856.24	0.00	0.00	856.27	.03	.02	.14	849.64
345.	184.	120.	41.	172.	62.	33.	26.	14.	849.64
.35	1.07	1.93	1.23	.040	.035	.040	.048	847.34	509.00
.000163	35.	50.	65.	2	0	0	0.00	65.78	574.78

*SECNO 6.900

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
6.90	8.22	856.27	0.00	0.00	856.29	.02	.01	.00	848.65
345.	58.	134.	152.	102.	88.	221.	27.	14.	848.65
.38	.57	1.52	.69	.040	.035	.040	.047	848.05	24.12
.000081	70.	90.	110.	2	0	0	0.00	154.04	178.16

*SECNO 7.000

SENEY DRIVE, 60 ON. CMP (2 IN.), PAVED ROADWAY

SECTION I

7.00	7.80	856.27	0.00	0.00	856.29	.02	.01	.00	849.07
345.	53.	146.	146.	82.	84.	184.	27.	15.	849.07
.39	.65	1.74	.79	.040	.035	.040	.047	848.47	29.72
.000114	35.	50.	65.	0	0	0	0.00	139.24	168.96

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.28	3.02	0.00	5.00	0.00	19.05	0.00	849.77	848.47

*SECNO 7.400

3280 CROSS SECTION 7.40 EXTENDED 10.77 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

872.97	857.59	0.00	239.	107.	19.	22.	854.20	856.80	

3470 ENCROACHMENT STATIONS= .0 210.0 TYPE= 1 TARGET= 209.999

SECTION J

7.40	8.10	857.87	0.00	0.00	857.87	.01	1.58	0.00	850.07
345.	55.	101.	189.	134.	120.	424.	28.	15.	850.07
.42	.41	.84	.44	.040	.035	.040	.047	849.77	14.71
.000025	55.	55.	55.	0	0	7	0.00	195.29	210.00

*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 11.77 FEET

3470 ENCROACHMENT STATIONS= 240.0 300.0 TYPE= 1 TARGET= 60.000

FIELD SECTION

SECTION K

8.00	9.19	857.86	0.00	0.00	857.89	.03	.01	.01	850.37
345.	110.	190.	46.	114.	109.	57.	29.	15.	850.37
.44	.96	1.75	.81	.040	.035	.040	.047	848.67	240.00
.000105	122.	122.	122.	1	0	0	0.00	60.00	300.00

*SECNO 8.100
3280 CROSS SECTION 8.10 EXTENDED 10.16 FEET

8.10	8.59	857.90	0.00	0.00	857.92	.01	.02	.01	851.01
345.	138.	134.	74.	265.	101.	197.	32.	16.	851.01
.52	.52	1.33	.37	.040	.035	.040	.046	849.31	139.69
.000067	235.	235.	235.	2	0	0	0.00	322.45	462.14

1490 NH CARD USED
*SECNO 8.900

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	XLOEL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.90	6.77	858.00	0.00	0.00	858.07	.07	.13	.03	853.93
345.	9.	307.	29.	10.	139.	37.	38.	20.	853.93
.62	.85	2.22	.78	.090	.075	.083	.044	851.23	981.04
.001433	656.	706.	706.	2	0	0	0.00	118.68	1099.72

1490 NH CARD USED
*SECNO 9.000

DRIVEWAY BRIDGE, 8 X 6.5 FT. CMP (1/2 IN.) ARCH, GRAVEL ROADWAY

SECTION L

9.00	6.70	858.07	0.00	0.00	858.14	.07	.07	.00	854.07
345.	8.	311.	26.	10.	137.	32.	38.	20.	854.07
.62	.86	2.27	.82	.090	.076	.086	.044	851.37	981.12
.001517	50.	50.	50.	2	0	C	0.00	108.98	1090.10

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	EDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.65	3.00	0.00	8.00	0.00	41.28	0.00	851.37	851.37

*SECNO 9.400
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
859.86	858.14	0.00	153.	192.	41.	51.	857.80	857.90

3470 ENCROACHMENT STATIONS= 950.0 1100.0 TYPE= 1 TARGET= 140.000

SECTION M

9.40	7.21	858.58	0.00	0.00	858.62	.04	.48	0.00	854.07
345.	12.	276.	58.	18.	149.	77.	38.	20.	854.07
.63	.64	1.85	.75	.082	.075	.068	.044	851.37	960.00
.000920	19.	19.	19.	2	0	4	0.00	140.00	1100.00

1490 NH CARD USED
*SECNO 10.000

3470 ENCROACHMENT STATIONS= 921.0 1150.0 TYPE= 1 TARGET= 229.000

10.00	6.19	858.59	0.00	0.00	858.68	.10	.03	.03	854.20
345.	161.	143.	41.	144.	39.	36.	38.	20.	853.40
.63	1.12	3.69	1.16	.059	.090	.090	.044	852.40	921.00
.001155	33.	33.	33.	2	0	C	0.00	128.75	1049.75

*SECNO 10.010

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 857.10 MAX ELLC= 858.20

3470 ENCROACHMENT STATIONS= 921.0 1150.0 TYPE= 1 TARGET= 229.000

DRIVEWAY BRIDGE, CONCRETE SUPERSTRUCTURE, R.R. TIE WINGWALLS

GRAVEL ROADWAY

SECTION N

10.01	6.13	858.53	0.00	0.00	858.74	.21	.00	.06	854.20

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      345.      178.      167.        0.       82.       35.        0.       38.       20.    853.40
       .63      2.16      4.78      0.00      .025      .020      .025      .044    852.40    921.00
  .001675        1.        1.        1.         2         0         0    -69.72    128.63   1049.63


*SECNO 10.090
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AFCB      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=  856.90 MAX ELLC=  858.20


3470 ENCROACHMENT STATIONS=      924.0     1147.0  TYPE=      1  TARGET=      223.000
     10.09      6.15    858.55      0.00      0.00    858.77       .22       .02       .00    854.20
      345.      175.      170.        0.       80.       35.        0.       38.       20.    853.40
       .63      2.19      4.85      0.00      .025      .020      .025      .044    852.40    924.00
  .001722       13.       13.       13.         0         0         0    -69.98    125.67   1049.67


1490 NH CARD USED
*SECNO 10.100

3470 ENCROACHMENT STATIONS=      924.0     1147.0  TYPE=      1  TARGET=      223.000
     10.10      6.35    853.75      0.00      0.00    858.82       .06       .00       .05    854.20
      345.      176.      153.       16.       179.       55.       23.       38.       20.    854.20
       .63       .98      2.81       .70      .063      .040      .090      .044    852.40    924.00
  .000667         1.        1.        1.         2         0         0      0.00    131.95   1055.95


*SECNO 11.000
3280 CROSS SECTION      11.00 EXTENDED       7.16 FEET


3470 ENCROACHMENT STATIONS=      860.0     1700.0  TYPE=      1  TARGET=      900.000

        FIELD SECTION, D/S OF CONFLUENCE OF WHALEY DRAIN


        SECTION 0

     11.00      5.59    858.86      0.00      0.00    859.00       .14       .15       .04    854.27
      345.       48.      259.       29.       32.       81.       21.       39.       21.    854.27
       .65      1.51      3.30      1.33      .050      .040      .050      .044   -853.27    889.22
  .000989       192.      192.      192.         2         0         0      0.00     61.34    950.56
```

00BREAK00

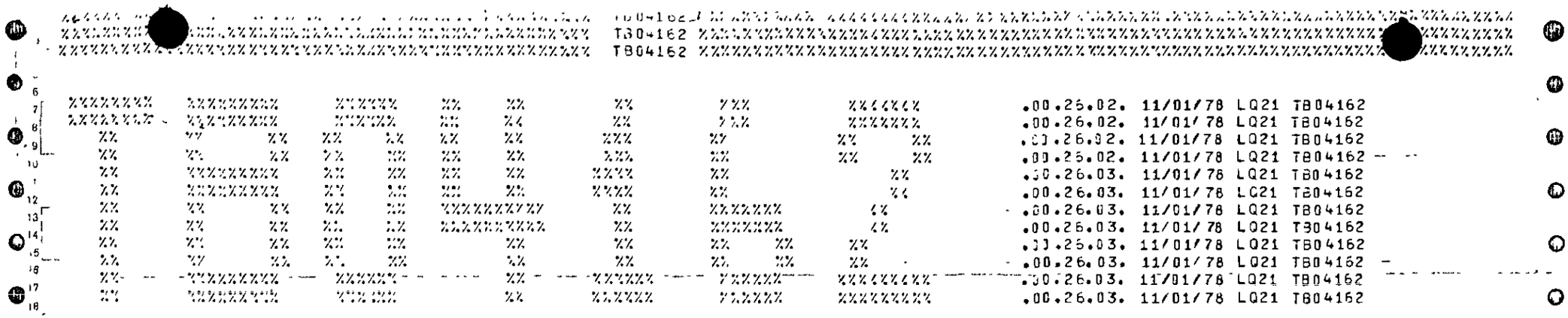
1) COUNTY: Eaton

2) STUDY NAME: Village of Dimondale

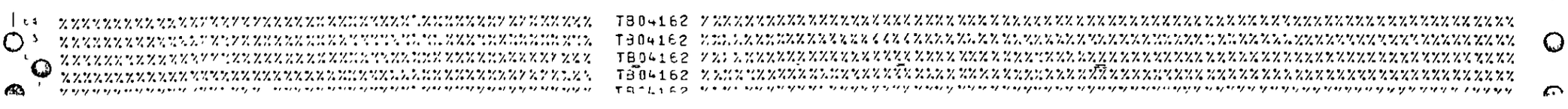
3) WATERCOURSE: Old Maid Drain

4) DOCUMENT TYPE: ~~Feo~~ Encroached

00BREAK00



OMD
FLOODWAY RUN
FINAL
11/1/78



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

C
T1      VILLAGE OF DIMONDALE * WINDSOR TWP., FIA, JOB A17284* A17286
T2      100 YEAR FLOW, NATURAL FLOODWAY
T3      OLD MAID DRAIN

J1. ICHECK    INQ       NINV      IDIR      STPT      METRIC    HVINS     Q         WSEL      FQ

     0.        2.        1.        1.  0.000003     3.00      0.0       0.   840.000    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       .080      .030      .050      .300      .500      0.000     0.000     0.000     0.000     0.000
QT      2.000   865.000   865.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     1.400     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1       .900    12.000   460.000   502.000     0.000     0.000     0.000     0.000     1.190     0.000
GR    839.000     0.000   840.000    73.000   840.000   178.000   838.000   323.000   836.000   476.000
GR    835.000   480.000   833.600   492.000   835.000   502.000   836.000   508.000   838.000   560.000
GR    850.000   640.000   851.000   661.000     0.000     0.000     0.000     0.000     0.000     0.000

X1       .910     0.000     0.000     0.000    50.000    50.000    50.000     0.000      .100     0.000

        STARTING WATER SURFACE BY SLOPE-AREA

        FIELD SECTION

        SECTION A

X1      1.000     0.000     0.000     0.000    50.000    50.000    50.000     0.000      .100     0.000

X1      1.900    18.000  1053.000  1075.000   943.000   858.000   993.000     0.000     2.300     0.000
GR    854.000     0.000   849.700   200.000   849.000   400.000   844.300   600.000   842.700   800.000
GR    839.700   900.000   839.900  1000.000   839.900  1045.000   838.400  1045.000   838.200  1045.000
GR    836.200  1053.000   834.600  1067.000   838.200  1075.000   838.400  1075.000   840.100  1075.000
GR    841.000  1100.000   850.500  1200.000   854.000  1275.000     0.000     0.000     0.000     0.000

X1      2.000    18.000  1053.000  1075.000    50.000    50.000    50.000     0.000     2.400     0.000
GR    854.000     0.000   849.700   200.000   849.000   400.000   844.300   600.000   842.700   800.000
GR    839.700   900.000   839.900  1000.000   839.900  1045.000   838.400  1045.000   838.200  1045.000
GR    836.200  1053.000   834.800  1067.000   838.200  1075.000   838.400  1075.000   840.100  1075.000
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 GR    841.000   1100.000    850.500   1200.000    854.000   1275.000      0.000      0.000      0.000      0.000

       FARM LANE BRIDGE, WOODEN SUPERSTRUCTURE, GRAVEL ROADWAY

       SECTION B

 X1      2.100      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
 BT     12.000      0.000    856.400      0.000    200.000    852.100      0.000    400.000    851.400      0.000
 BT     600.000    946.700      0.000    800.000    845.100      0.000    300.000    842.100      0.000   1000.000
 BT     842.300      0.000   1046.000    842.300    840.800   1076.000    842.500    840.800   1100.000    843.400
 BT       0.000   1200.000    852.900      0.000   1275.000    856.400      0.000      0.000      0.000      0.000

 X1      2.400      0.000      0.000      0.000     12.000     12.000     12.000      0.000      0.000      0.000
 BT     12.000      0.000    856.400      0.000    200.000    852.100      0.000    400.000    851.400      0.000
 BT     600.000    946.700      0.000    800.000    845.100      0.000    300.000    842.100      0.000   1000.000
 BT     842.300      0.000   1046.000    842.300    840.800   1076.000    842.500    840.800   1100.000    843.400
 BT       0.000   1200.000    852.900      0.000   1275.000    856.400      0.000      0.000      0.000      0.000

       SECTION C

 X1      2.500      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

 X1      2.600      0.000      0.000      0.000     50.000     50.000     50.000      9.000      .010      0.000

       FIELD SECTION, D/S OF CONFLUENCE WITH SILVER CREEK

       SECTION D

 X1      3.000     14.000    307.000    322.000    843.000    743.000    793.000      0.000     12.030      0.000
 GR    847.300      0.000    e25.700    1e8.000    832.300    185.000    831.400    200.000    824.900    300.000
 GR    828.600    307.000    825.300    311.000    830.600    322.000    830.800    352.000    830.200    387.000
 GR    836.200    400.000    839.100    500.000    842.600    600.000    846.800    654.000      0.000      0.000
 NC       .150       .070       .045       .050       .050       0.000      0.000      0.000      0.000      0.000
 QT      2.000    345.000    345.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

       U/S OF CONFLUENCE WITH SILVER CREEK, SECND 4. REPEATED

 X1      3.900      8.000    320.e00    325.200    142.000    242.000    192.000      0.000     12.000      0.000
 GR    e46.800      0.000    e40.1.0    1e0.000    832.e30    200.000    831.400    340.000    826.001    320.800
 GR    826.000    325.200    e32.300    329.000    831.900    400.000      0.000      0.000      0.000      0.000

 X1      4.000      8.000    320.e10    325.201     50.000     50.000     50.000      0.000     12.170      0.000
 X3      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
 GR    846.800      0.000    840.100    100.000    832.500    200.000    831.400    300.000    826.000    320.800
 GR    826.000    325.200    832.300    329.000    831.300    400.000      0.000      0.000      0.000      0.000
 NC       .020       .020       .023       0.000      0.000      0.000      0.000      0.000      0.000      0.000

       DRIVEWAY CULVERT, 61 IN. CMP (1/2 IN.) , PAVED ROADWAY

       SECTION E

 X1      4.100      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      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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BT	10.000	0.000	859.000	0.000	100.000	852.900	0.000	200.000	844.700	0.000
BT	300.000	844.300	0.000	320.800	844.500	838.200	320.800	844.500	842.600	325.200
BT	844.500	842.600	325.200	844.500	838.200	329.000	344.600	0.000	400.000	844.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.400	0.000	0.000	0.000	14.000	14.000	14.000	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	859.000	0.000	100.000	852.900	0.000	200.000	844.700	0.000
BT	300.000	844.300	0.000	320.800	844.500	839.100	320.800	844.500	843.500	325.200
BT	844.500	843.500	325.200	844.500	839.100	329.000	344.600	0.000	400.000	844.600
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.090	.070	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	4.600	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.370	0.000
NH	5.000	.035	133.000	.090	191.000	.050	215.000	.030	255.000	.050
NH	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FIELD SECTION

SECTION F

X1	5.000	10.000	131.000	215.000	182.000	202.000	192.000	0.000	12.170	0.000
GR	849.200	0.000	846.800	100.000	835.600	133.000	332.500	190.600	830.300	191.000
GR	827.200	203.000	830.300	215.000	832.300	221.000	833.200	255.000	837.700	286.000
X1	5.100	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.470	0.000
X3	0.000	0.000	0.000	0.000	0.000	286.000	0.000	0.000	0.000	0.000
X1	5.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.690	0.000
X1	5.300	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.690	0.000
NH	5.000	.035	500.000	.080	572.000	.045	576.000	.080	600.000	.050
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5.900	17.000	567.000	584.000	188.000	188.000	133.000	0.000	10.940	0.000
GR	847.300	0.000	847.200	100.000	846.300	200.000	345.500	400.000	842.200	500.000
GR	839.500	567.000	836.700	570.000	835.500	572.000	534.400	574.000	839.500	576.000
GR	836.700	570.000	836.200	584.000	837.300	584.000	337.800	600.000	844.000	700.000
GR	844.300	800.000	846.500	900.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.035	567.000	.060	572.000	.050	576.000	.060	600.000	.050
NH	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	4.100	.100	839.900	0.000	0.000	0.000	0.000	0.000

CANAL ROAD, CMP (2 IN.) ARCH, 96 X 56 IN., PAVED ROADWAY

SECTION G

X1	6.000	17.000	570.000	573.000	130.000	130.000	130.000	0.000	12.170	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.000	856.000	0.000
GR	847.300	0.000	847.200	100.000	846.300	200.000	345.600	400.000	842.200	500.000

GR	839.500	567.000	836.700	570.000	835.500	572.000	834.400	574.000	835.500	576.000
GR	836.700	578.000	836.200	584.000	837.300	584.000	837.800	600.000	844.000	700.000
GR	844.500	800.900	846.810	900.100	0.000	0.000	0.000	0.000	0.000	0.000
MC	.040	.040	.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.700	2.900	0.000	8.000	0.000	34.640	0.000	846.670	846.570

SECTION H

X1	6.400	17.000	559.000	567.000	65.000	65.000	55.000	0.000	12.170	0.000
X2	0.000	0.000	1.000	851.200	856.000	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	856.200	856.200	0.000
BT	18.000	0.000	850.900	0.000	100.000	660.100	0.000	200.000	859.500	0.000
BT	400.000	857.600	0.000	500.000	856.300	0.000	555.000	856.100	0.000	559.000
BT	856.100	843.200	561.000	855.000	850.400	563.000	855.000	351.500	565.000	856.000
BT	850.400	567.000	856.000	843.200	571.000	856.000	0.000	575.000	856.000	0.000
BT	600.000	856.400	0.000	700.000	857.700	0.000	300.000	858.300	0.000	900.000
BT	860.100	0.000	1000.000	852.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.200	0.000	845.500	100.000	842.300	200.000	842.900	400.000	842.800	500.000
GR	838.500	556.000	837.000	553.000	835.500	561.000	834.700	563.000	835.800	565.000
GR	837.000	567.000	838.500	571.000	843.300	575.000	844.230	600.000	846.300	700.000
GR	846.100	900.000	847.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	6.600	0.000	0.000	0.000	35.000	55.000	50.000	0.000	.470	0.000
X3	0.000	0.000	0.000	559.000	0.000	617.000	0.000	0.000	0.000	0.000

X1	6.900	10.000	74.000	65.000	70.000	110.000	90.000	0.000	11.750	0.000
GR	846.300	0.000	841.200	69.000	836.900	74.000	836.300	75.800	836.300	80.200
GR	836.500	65.000	841.000	100.000	845.500	200.000	846.900	300.000	847.100	400.000

SEWER DRIVE, 60 DN. CMP (2 IN.), PAVED ROADWAY

SECTION I

X1	7.300	10.000	74.000	65.000	35.000	65.000	50.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.300	0.000	841.200	69.000	836.900	74.000	836.300	75.800	836.300	80.200
GR	836.500	65.000	841.000	100.000	845.500	200.000	846.900	300.000	847.100	400.000
SB	0.000	3.200	3.020	0.000	5.000	0.000	19.050	0.000	849.770	848.470

SECTION J

X1	7.400	10.000	67.000	82.000	35.000	55.000	35.000	0.000	12.170	0.000
X2	0.000	0.000	1.000	854.200	856.600	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	210.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	839.100	0.000	54.000	857.400	0.000	67.000	857.000	0.000
BT	71.300	856.900	849.600	71.000	856.900	854.200	75.200	856.800	854.200	76.200
BT	856.300	849.500	82.000	856.500	0.000	100.000	857.000	0.000	200.000	857.700
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	846.900	0.000	842.500	54.000	837.000	67.000	837.600	71.600	837.600	76.200
GR	837.900	52.000	840.600	100.000	844.500	200.000	846.900	300.000	847.100	400.000

FIELD SECTION

SECTION K

X1	8.900	16.000	266.000	279.000	122.000	122.000	122.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	240.000	0.000	300.000	0.000	0.000	0.000	0.000
GR	838.700	0.000	846.400	100.000	845.000	142.500	845.000	142.500	841.700	242.500
GR	841.700	242.500	841.700	260.000	838.200	266.000	836.500	272.500	838.200	279.000
GR	844.700	290.000	844.700	300.000	844.700	332.500	844.700	332.500	843.200	422.500
GR	843.200	422.500	846.900	500.000	847.100	600.000	0.000	0.000	0.000	0.000
ET	0.000	4.000	1.410	0.000	0.300	0.000	0.000	0.000	0.000	0.000
X1	8.100	0.000	0.000	0.000	235.000	235.000	235.000	0.000	.640	0.000
NH	5.000	.050	981.000	.090	994.300	.040	1131.200	.090	1021.000	.050
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.900	15.000	986.000	1010.000	656.000	706.000	706.000	0.000	12.031	0.000
GR	849.200	0.000	847.200	200.000	846.600	400.000	846.900	600.000	846.230	960.000
GR	846.000	981.000	841.900	986.000	839.200	994.800	839.200	1001.200	841.900	1010.000
GR	845.700	1021.000	845.830	1060.000	848.100	1400.000	850.000	1600.000	851.700	1800.000
NH	5.000	.050	981.000	.090	994.300	.040	1131.200	.090	1021.000	.050
NH	1800.000	0.000	0.000	0.000	0.300	0.000	0.000	0.000	0.000	0.000

DRIVEWAY BRIDGE, 8 X 6.5 FT. CMP (1/2 IN.) ARCH, GRAVEL ROADWAY

SECTION L

X1	8.000	15.000	986.000	1010.000	50.000	50.000	50.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	849.200	0.000	847.200	200.000	846.600	400.000	846.900	600.000	846.230	960.000
GR	846.000	981.000	841.900	986.000	839.200	994.800	839.200	1001.200	841.900	1010.000
GR	845.700	1021.000	845.830	1060.000	848.100	1400.000	850.000	1600.000	851.700	1800.000
SB	0.000	1.646	3.000	0.000	8.000	0.000	41.233	0.000	851.370	851.370
ET	0.000	-.100	4.100	960.000	1100.000	0.000	0.000	0.000	0.000	0.000

SECTION M

X1	9.400	0.000	0.000	0.000	19.000	19.000	19.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	857.800	857.900	0.000	0.000	0.000	0.000	0.000
BT	10.000	960.000	858.400	0.000	951.000	858.200	0.000	986.000	858.300	0.000
BT	994.800	855.500	851.410	994.800	858.500	857.800	1131.200	858.500	857.600	1001.200
BT	858.500	851.400	1010.000	858.200	0.000	1021.000	857.900	0.000	1100.000	858.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1015.000	.090	1131.000	.040	1137.000	.090	1050.000	.040
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.000	17.000	1033.000	1037.000	33.000	33.000	33.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	921.000	0.000	1150.000	0.000	0.000	0.000	0.000
X4	2.000	857.100	974.000	860.100	1033.000	0.000	0.000	0.000	0.000	0.000
GR	861.400	0.000	859.400	200.000	858.750	400.000	859.100	600.000	857.600	800.000
GR	856.900	900.000	858.000	993.000	858.200	1015.000	854.200	1030.000	854.200	1030.000
GR	852.400	1033.000	853.400	1037.000	853.400	1037.000	854.200	1040.000	858.700	1050.000
GR	860.100	1200.000	861.300	1400.000	862.230	1600.000	863.900	1800.000	0.000	0.000
NC	.025	.025	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000

DRIVEWAY BRIDGE, CONCRETE SUPERSTRUCTURE, R.R. TIE WINGWALLS

GRAVEL ROADWAY

SECTION N

X1	10.010	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	921.000	0.000	1150.000	0.000	0.000	0.000	0.000
BT	10.000	974.000	857.100	0.000	933.000	858.000	0.000	1015.000	858.200	0.000
BT	1040.000	854.400	854.200	1030.000	858.400	857.900	1037.000	858.700	858.200	1037.000
BT	858.700	853.400	1040.000	858.700	0.000	1050.000	858.700	0.000	1093.000	860.100
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.090	0.000	0.000	0.000	13.000	13.000	13.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	924.000	0.000	1147.000	0.000	0.000	0.000	0.000
BT	10.000	0.000	861.400	0.000	230.000	859.400	0.000	400.000	858.700	0.000
BT	600.000	854.100	0.000	800.000	857.800	0.000	900.000	856.900	0.000	993.000
BT	858.000	0.000	1017.000	858.200	0.000	1030.000	858.400	854.200	1030.000	858.400
BT	857.900	1037.000	858.700	858.200	1037.000	858.700	853.400	1040.000	858.700	0.000
BT	1040.000	854.700	0.000	1200.000	860.100	0.000	1400.000	860.300	0.000	1600.000
BT	862.200	0.000	1600.000	863.900	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	.050	1015.000	.090	1930.000	.040	1143.000	.090	1050.000	.040
NH	1800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.100	19.000	1030.000	1040.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	924.000	0.000	1147.000	0.000	0.000	0.000	0.000
GR	861.400	0.000	859.400	200.000	858.700	400.000	859.100	600.000	857.800	800.000
GR	856.900	900.000	858.000	943.000	855.700	1015.000	854.200	1030.000	854.200	1030.000
GR	852.400	1033.000	853.400	1037.000	853.400	1037.000	854.200	1040.000	858.700	1050.000
GR	860.100	1200.000	861.300	1400.000	862.200	1600.000	863.900	1800.000	0.000	0.000
NC	.050	.050	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000

FIELD SECTION, 3/5 OF CONFLUENCE OF WHALEY DRAIN

SECTION O

X1	11.000	15.000	913.000	919.000	192.000	192.000	192.000	0.000	12.170	0.000
X3	0.000	0.000	0.000	800.000	0.000	1700.000	0.000	0.000	0.000	0.000
GR	850.000	0.000	842.300	200.000	846.600	400.000	846.900	600.000	847.600	800.000
GR	847.100	889.000	842.100	913.000	841.100	910.000	842.100	919.000	846.503	927.000
GR	847.100	1000.000	847.900	1100.000	846.100	1300.000	850.000	1500.000	851.700	1700.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

*PROF 1

CCHV= .300 CEHV= .500

*SECNO .900

SECNO	DEPTH	CWSEL	CRITS	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
.90	5.01	840.00	0.00	840.00	840.39	.09	0.00	0.00	836.19
865.	372.	341.	152.	314.	97.	116.	0.	0.	836.19
0.00	1.18	3.52	1.30	.060	.050	.080	0.000	834.39	264.27
.001954	0.	0.	0.	0	0	0	0.00	301.13	565.40

*SECNO .910

.91	5.01	840.10	0.00	0.00	840.19	.09	.10	.00	836.29
865.	372.	342.	152.	313.	97.	116.	1.	0.	836.29
.01	1.19	3.52	1.31	.060	.050	.080	.049	835.09	264.44
.001960	50.	50.	50.	0	0	0	0.00	301.34	565.36

*SECNO 1.000

STARTING WATER SURFACE BY SLOPE-AREA

FIELD SECTION

SECTION A

1.00	5.01	840.29	0.00	0.00	840.29	.09	.10	.00	836.39
865.	372.	342.	151.	313.	97.	116.	1.	1.	836.39
.01	1.19	3.53	1.31	.060	.050	.080	.049	835.19	264.60
.001966	50.	50.	50.	0	0	0	0.00	300.77	565.37

*SECNO 1.900

1.90	5.89	842.99	0.00	0.00	843.37	.38	2.94	.14	838.50
865.	248.	514.	3.	171.	106.	5.	10.	5.	842.40
.07	1.45	5.77	.61	.060	.050	.080	.051	837.10	866.67
.005371	943.	993.	658.	2	0	0	0.00	225.00	1091.67

*SECNO 2.000

SECNO	DEPTH	CWSEL	CRITS	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
2.00	6.17	843.37	0.00	0.00	843.63	.26	.22	.04	838.60
865.	298.	560.	7.	221.	112.	10.	10.	7.	842.50
.08	1.35	4.99	.65	.060	.050	.080	.051	837.20	857.80
.003733	50.	50.	50.	3	0	0	0.00	241.26	1099.06

*SECNO 2.100

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 842.10 MAX ELLC= 840.80

FARM LANE BRIDGE, WOODEN SUPERSTRUCTURE, GRAVEL ROADWAY

SECTION B

2.10	6.36	843.51	0.00	0.00	843.68	.12	.01	.14	838.50
865.	554.	289.	22.	246.	81.	15.	10.	7.	842.50
.08	2.25	3.68	1.43	.080	.050	.080	.051	837.20	851.43
.911675	1.	1.	1.	3	0	0	-48.63	250.22	1101.65

*SECNO 2.410

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 842.10 MAX ELLC= 840.80

2.40	6.51	843.71	0.00	0.00	843.80	.09	.12	.01	838.60
865.	572.	269.	27.	278.	84.	20.	10.	7.	842.50
.08	2.06	3.15	1.41	.080	.050	.080	.051	837.20	846.31
.006562	12.	12.	12.	2	0	0	-48.63	256.96	1103.27

*SECNO 2.500

SECTION C

2.50	6.47	843.67	0.00	0.00	843.85	.17	.00	.04	838.60
865.	348.	504.	14.	283.	119.	19.	10.	7.	842.50
.08	1.23	4.23	.74	.080	.050	.080	.051	837.20	847.50
.002482	1.	1.	1.	2	0	1	0.00	255.40	1102.90

*SECNO 2.600

2.60	6.62	843.83	0.00	0.00	843.97	.14	.11	.01	838.61
865.	367.	481.	17.	313.	122.	23.	11.	7.	842.51
.08	1.18	3.93	.79	.080	.050	.080	.051	837.21	842.79
.002079	50.	50.	50.	2	0	0	0.00	251.60	1104.38

*SECNO 3.000

SECNO	DEPTH	QWSEL	ORIFS	WSELK	EG	HV	HL	O_OSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	E.MIN	SSTA
SLOPE	XLOEL	XLCH	XLOER	ITRIAL	IOC	ICONT	COPAR	TOPWID	ENDST

FIELD SECTION, D/S OF CONFLUENCE WITH SILVER CREEK

SECTION D

3.00	7.82	845.15	0.00	0.00	845.20	.05	1.20	.03	840.63
865.	444.	226.	195.	349.	81.	173.	21.	11.	842.63
.22	1.27	2.78	1.13	.080	.050	.080	.050	837.33	176.79
.001115	843.	793.	743.	2	0	0	0.00	216.51	393.31

*SECNO 3.900
3280 CROSS SECTION 3.90 EXTENDED 1.41 FEET

U/S OF CONFLUENCE WITH SILVER CREEK,- SECNO 4. REPEATED

3.90	7.31	845.31	0.00	0.00	845.34	.03	.14	.01	838.00
345.	213.	60.	52.	236.	32.	102.	23.	12.	838.00
.26	.90	2.49	.51	.060	.045	.070	.050	838.00	189.33
.000400	142.	192.	242.	2	0	0	0.00	211.67	400.00

*SECNO 4.000
3280 CROSS SECTION 4.00 EXTENDED 1.27 FEET

4.00	7.16	845.33	0.00	0.00	845.37	.04	.02	.30	838.17
345.	211.	65.	48.	215.	32.	91.	23.	13.	838.17
.27	.97	2.71	.53	.060	.045	.070	.050	838.17	191.20
.000486	50.	50.	50.	1	0	0	0.00	208.80	400.00

*SECNO 4.100
3280 CROSS SECTION 4.10 EXTENDED 1.26 FEET

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 844.30 MAX ELLC= 842.60

DRIVEWAY CULVERT, 60 IN. CMP (1/2 IN.) , PAVED ROADWAY

SECTION E

4.10	7.16	845.32	0.00	0.00	845.38	.06	.00	.01	838.17
345.	192.	26.	127.	105.	13.	63.	23.	13.	838.17
.27	1.83	1.93	2.00	.020	.023	.020	.050	838.17	191.32
.000902	1.	1.	1.	0	0	0	-156.57	208.58	400.00

*SECNO 4.400
3280 CROSS SECTION 4.40 EXTENDED 1.27 FEET

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 844.30 MAX ELLC= 843.50

4.40	7.17	845.34	0.00	0.00	845.39	.05	.01	.00	838.17
345.	190.	35.	120.	116.	17.	65.	23.	13.	838.17
.27	1.64	2.01	1.84	.020	.023	.020	.050	838.17	191.24
.000693	14.	14.	14.	1	0	0	-141.54	208.76	400.00

*SECNO 4.500
3280 CROSS SECTION 4.50 EXTENDED 1.27 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	O.BSS	BANK ELEV
Q	CLOB	QCH	QROC	ALOB	ACH	ARCH	VOL	TWA	LEFT/RIGHT

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	E.MIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.50	7.17	845.34	0.00	0.00	845.39	.05	.00	.00	838.17
345.	187.	101.	57.	218.	32.	91.	23.	13.	838.17
.27	.86	3.19	.63	.080	.045	.070	.050	838.17	191.14
.000673	1.	1.	1.	0	0	0	0.00	218.86	400.00

*SECNO 4.600
3280 CROSS SECTION - - 4.60 EXTENDED .93 FEET - - -

1490 NH CARD USED
*SECNO 5.900

5.90	4.86	850.20	0.00	0.00	850.49	.29	1.90	.05	850.44
345.	0.	245.	100.	0.	50.	0.	26.	14.	848.74
.34	0.00	4.69	2.48	.090	.076	.067	.048	846.34	557.26
.010597	188.	188.	188.	2	0	0	0.00	56.23	623.49

1490 NH CARD USED
*SECNO 6.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 856.00 ELREA= 856.00

CANAL ROAD, CMP (2 IN.) ARCH, 96 X 56 IN., PAVED ROADWAY

SECTION G

6.00	5.36	851.93	0.00	0.00	853.53	1.61	2.39	.66	848.87
345.	0.	345.	0.	0.	34.	0.	26.	14.	848.87
.34	0.00	10.17	0.00	.090	.059	.067	.048	846.57	570.00
.039362	130.	130.	130.	2	0	0	0.00	3.00	578.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	FOLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.79	2.90	0.00	0.00	0.00	34.64	0.00	846.87	846.57

*SECNO 6.400

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	EL_C	ELTRD
856.22	853.84	0.00	2.	340.	35.	35.	851.20	856.00

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

SECTION H

6.40	8.75	855.62	0.11	0.00	856.11	.51	2.58	0.00	849.17
345.	0.	345.	0.	0.	61.	0.	26.	14.	849.17
.34	0.00	5.66	0.00	.040	.035	.040	.046	846.87	559.00
.002688	65.	65.	65.	2	3	0	0.00	8.00	567.00

*SECNO 6.600

```
3470 ENCROACHMENT STATIONS=      509.0      617.0  TYPE=      1  TARGET=      103.000
     6.60      8.90    856.24      0.00      0.00    856.27       .03       .02       .14    849.64
     345.      184.     120.       41.      172.       62.       33.       26.       14.    849.64
      .35      1.07     1.93      1.23      .040      .035      .040      .048    847.34    509.00
  .000163       35.      50.       65.         2         0         0      0.00     55.78    574.78

*SECNO 6.900
   SECNO     DEPTH     CWSEL     CPIPS     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     COPAR     TOPWID     ENDST

     6.90      8.22    856.27      0.00      0.00    856.29       .02       .01       .00    848.65
     345.       58.     134.      152.      102.       58.      221.       27.       14.    848.65
      .38       .57     1.52       .69      .040      .035      .040      .047    848.05     24.12
  .000081       70.      90.      110.         2         0         0      0.00    154.04    178.16

*SECNO 7.000

        SENEY DRIVE, 60 DN. CMP (2 IN.), PAVED ROADWAY

        SECTION I

     7.00      7.80    856.27      0.00      0.00    856.29       .02       .01       .00    849.07
     345.       53.     146.      146.       82.       84.      184.       27.       15.    849.07
      .39       .65     1.74       .79      .040      .035      .040      .047    848.47     29.72
  .000114       35.      50.       65.         0         0         0      0.00    139.24    168.96

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      FDLEN     BWC       BWP       BAREA     SS        ELCHJ     ELCHD
     0.00      3.28      3.02      0.00      5.00      0.00     19.05      0.00    849.77    848.47

*SECNO 7.400
3280 CROSS SECTION      7.40 EXTENDED      10.77 FEET

PRESSURE AND WEIR FLOW

 EGPPS      EGLWC      H3        QWEIR      QPP       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   872.97    857.59     0.00      239.      107.       19.       22.      854.20    856.80

3470 ENCROACHMENT STATIONS=         .0      210.0  TYPE=      1  TARGET=      209.999

        SECTION J

     7.40      8.10    857.87      0.00      0.00    857.87       .01      1.58      0.00    850.07
     345.       55.     121.      189.      134.      120.      424.       28.       15.    850.07
      .42       .41      .84       .44      .040      .035      .040      .047    849.77     14.71
  .000025       55.      55.       55.         0         0         7      0.00    195.29    210.00
```

*SECNO 8.000
3280 CROSS SECTION 8.00 EXTENDED 10.77 FEET

3470 ENCROACHMENT STATIONS= 240.0 300.0 TYPE= 1 TARGET= 50.000

FIELD SECTION

SECTION K

8.00	8.19	857.86	0.00	0.00	857.89	.03	.01	.01	850.37
345.	110.	190.	46.	114.	109.	37.	29.	15.	850.37
.44	.36	1.75	.61	.040	.035	.040	.047	848.37	240.00
.000105	122.	122.	122.	1	0	0	0.00	50.00	300.00

*SECNO 8.100
3280 CROSS SECTION 8.10 EXTENDED 10.16 FEET

8.10	8.59	857.90	0.00	0.00	857.92	.01	.02	.01	851.01
345.	138.	134.	74.	265.	101.	197.	32.	15.	851.01
.52	.52	1.33	.37	.040	.035	.040	.046	849.31	139.69
.000067	235.	235.	235.	2	0	0	0.00	322.45	462.14

1490 NH CARD USED
*SECNO 8.900

SECNO	DEPTH	QWSEL	QFRS	WSELK	ES	HV	HL	Q.DSS	BANK ELEV
Q	QLOB	QCH	QROL	ALOB	ACH	AROB	VOL	TRA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	E.MIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CGRAV	TOPWID	ENDST

8.90	6.77	858.00	0.00	0.00	858.07	.07	.13	.03	853.93
345.	9.	307.	29.	10.	139.	37.	38.	20.	853.93
.62	.85	2.22	.78	.090	.075	.083	.044	851.23	981.04
.001433	696.	706.	706.	2	0	0	0.00	113.68	1099.72

1490 NH CARD USED
*SECNO 9.000

DRIVEWAY BRIDGE, 8 X 6.5 FT. CMP (1/2 IN.) ARCH, GRAVEL ROADWAY

SECTION L

9.00	6.70	858.07	0.00	0.00	858.14	.07	.07	.00	854.07
345.	8.	311.	26.	10.	137.	32.	38.	20.	854.07
.62	.85	2.27	.82	.090	.076	.066	.044	851.37	951.12
.001517	50.	50.	50.	2	0	0	0.00	108.98	1090.10

SPECIAL BRIDGE

SB	XK	XKOR	DOFQ	ROUGH	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.65	3.44	0.00	8.00	0.00	41.28	0.00	851.37	851.37

*SECNO 9.400
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTFD
859.86	858.14	0.00	153.	132.	41.	51.	857.80	857.90

3470 ENCROACHMENT STATIONS= 910.0 1100.0 TYPE= 1 TARGET= 140.000

SECTION M

9.40	7.21	858.54	0.00	0.00	858.62	.04	.48	0.00	854.07
345.	12.	276.	38.	18.	149.	77.	38.	21.	854.07
.63	.54	1.45	.75	.352	.075	.068	.044	831.37	960.00
.000920	19.	19.	19.	2	0	4	0.00	140.00	1100.00

1430 NH CARD USED
*SECNO 10.000

3470 ENCROACHMENT STATIONS= 921.0 1150.0 TYPE= 1 TARGET= 223.000

10.00	6.13	858.53	0.00	0.00	858.68	.10	.03	.03	854.20
345.	161.	143.	41.	144.	39.	36.	36.	20.	853.40
.63	1.12	3.69	1.16	.059	.090	.091	.044	832.40	921.00
.001155	33.	33.	33.	2	0	0	0.00	128.75	1049.75

*SECNO 10.010

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD= 857.10 MAX ELLC= 858.20

3470 ENCROACHMENT STATIONS= 921.0 1150.0 TYPE= 1 TARGET= 223.000

DRIVEWAY BRIDGE, CONCRETE SUPERSTRUCTURE, R.R. TIE WINGWALLS

GRAVEL ROADWAY

SECTION N

10.01	6.13	858.53	0.00	0.00	858.74	.21	.00	.06	854.20
345.	173.	157.	0.	82.	35.	0.	38.	21.	853.40
.63	2.16	4.78	0.00	.025	.020	.025	.044	832.40	921.00
.001575	1.	1.	1.	2	0	0	-69.72	128.63	1049.63

*SECNO 10.050

SECNO	DEPTH	QWSEL	QFIXS	WSELX	EG	HV	HL	J.OSS	BANK ELEV
Q	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	IOC	ICONT	COPAR	TOPWID	ENDST

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3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  856.90 MAX ELLO=  858.20

3470 ENCROACHMENT STATIONS=     924.0     1147.0  TYPE=     1  TARGET=     223.000
    10.09      6.15    856.55      0.00      0.00    858.77      .22       .02       .00    854.20
      345.       175.      170.        0.       80.       35.        0.       38.       20.     853.40
      .63       2.19      4.85      0.00      .025      .020      .025      .044    352.40    924.00
  .001722        13.       13.       13.         0         0         0    -69.98    125.57   1049.67

1490 NH CARD USED
*SECNO 10.100

3470 ENCROACHMENT STATIONS=     924.0     1147.0  TYPE=     1  TARGET=     223.000
    10.10      6.35    856.75      0.00      0.00    858.82      .06       .00       .05    854.20
      345.       176.      153.       16.       179.       55.       23.       38.       20.     854.20
      .63        .98      2.81       .70      .063      .040      .090      .044    352.40    924.00
  .000667          1.        1.        1.         2         0         0      0.00    131.95   1055.95

*SECNO 11.000
3280 CROSS SECTION      11.00 EXTENDED      7.16 FEET


3470 ENCROACHMENT STATIONS=     500.0     1700.0  TYPE=     1  TARGET=     900.000

        FIELD SECTION, D/S OF CONFLUENCE OF WHALEY DRAIN


        SECTION 0

    11.00      5.59    858.01      0.00      0.00    859.00      .14       .15       .04    854.27
      345.       48.      269.       29.       32.       31.       21.       39.       21.     854.27
      .65       1.51      3.31      1.33      .052      .040      .150      .044    353.27    889.22
  .000909       192.      192.      192.         2         0         0      0.00     51.34    950.56
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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 --    VILLAGE OF DIMONDALL ^ WINDSOR TWP., FIA, JOB A17284^ A17286
T2       100 YEAR FLOOD, ENCROACHED FLOODWAY
T3       OLD MAID DRAIN

J1  ICHECK    INQ       NINV      IDIF      STPT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.  0.000000      0.00       0.0        0.   640.100     0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     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=    .300 CEHV=    .500
*SECNO .900
 2800 NAT Q1=    195.70  WSEL=    840.00  ENC Q1=    195.70  WSEL=    840.10  RATIO=    .0000
 NAT Q1=    210.  RATIOS LOB,CH,ROB=    .4406    .3820    .1773  WSEL=    840.10
   SECNO     DEPTH     CWSEL     CPIKS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      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=     349.0     537.2  TYPE=     4  TARGET=        .068
      .90      5.11    840.10     0.00    840.00    840.20      .10      0.00      0.00    836.19
     865.      377.      355.     134.      278.       99.      89.        0.        0.    836.19
     0.00      1.36      3.56     1.50      .080      .050     .080     0.000    834.99    349.02
  .001960        0.        0.       0.         0         0        0      0.00    138.21    537.22

*SECNO .910
 2800 NAT Q1=    195.38  WSEL=    840.10  ENC Q1=    195.38  WSEL=    840.20  RATIO=  0.0000
 NAT Q1=    210.  RATIOS LOB,CH,ROB=    .4404    .3823    .1773  WSEL=    840.20

3470 ENCROACHMENT STATIONS=     349.2     537.2  TYPE=     4  TARGET=        .066
      .91      5.11    840.20     0.00    840.10    840.30      .10      .11       .00    836.29
     865.      376.      356.     133.      276.       99.      89.        1.        0.    836.29
      .01      1.36      3.59     1.50      .080      .050     .080     .049    835.09    349.20
  .001981       50.       50.      50.         0         0        0      0.00    137.96    537.18

*SECNO 1.900
 2800 NAT Q1=    195.03  WSEL=    840.20  ENC Q1=    195.03  WSEL=    840.30  RATIO=  0.0000
 NAT Q1=    209.  RATIOS LOB,CH,ROB=    .4402    .3825    .1773  WSEL=    840.30

3470 ENCROACHMENT STATIONS=     349.4     537.1  TYPE=     4  TARGET=        .068

        STARTING WATER SURFACE BY SLOPE-AREA


        FIELD SECTION


        SECTION A

     1.00      5.11    840.30     0.00    840.20    840.40      .10      .10       .00    836.39
     865.      376.      356.     133.      276.       99.      89.        1.        0.    836.39
      .01      1.36      3.60     1.51      .080      .050     .080     .049    835.19    349.41
  .001985       50.       50.      50.         0         0        0      0.00    137.72    537.13


*SECNO 1.900
 2800 NAT Q1=    116.03  WSEL=    842.39  ENC Q1=    116.03  WSEL=    843.09  RATIO=    .0000
 NAT Q1=    126.  RATIOS LOB,CH,ROB=    .3077    .6375    .0048  WSEL=    843.09

3470 ENCROACHMENT STATIONS=     922.1    1075.0  TYPE=     4  TARGET=        .062
     1.90      6.02    843.12     0.00    842.49    843.50      .36      2.96       .14    838.50
     865.      209.      626.       0.      148.      109.       0.        9.        .    842.40
      .07      1.62      5.74     0.00      .080      .050     .080     .051    837.10    922.13
  .005369       943.      993.     658.         2         0        0      0.00    152.87   1075.00
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*SECNO 2.000
 2800 NAT Q1=     141.57  WSEL=     843.37  END Q1=     141.57  WSEL=     843.47  RATIO=    .0000
 NAT Q1=     151.  RATIOS LOB,CH,ROB=    .3648    .6250    .0102  WSEL=     843.47
   SECNO     DEPTH     CWSEL     CHIKS     WSELK     EG        HV        HL        0.OSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBP     IPRIAL    IDC       ICONT     COPAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      911.8     1075.0  TYPE=      4  TARGET=          .055
     2.00      6.30    843.50      0.00    843.37    843.76       .26       .22       .04    838.60
     865.      298.      567.        0.      200.      115.        0.        9.        4.    842.50
      .07      1.49      4.91      0.00      .080      .050      .080      .051    837.20    911.76
  .003706       50.       50.       50.         2         0         0      0.00    153.24   1075.00

*SECNO 2.100
 2800 NAT Q1=      80.05  WSEL=     843.56  END Q1=      80.05  WSEL=     843.66  RATIO=    .0000
 NAT Q1=      59.  RATIOS LOB,CH,ROB=    .6547    .3157    .0296  WSEL=     843.66

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  842.10 MAX ELLC=  840.80

3470 ENCROACHMENT STATIONS=      899.1     1075.0  TYPE=      4  TARGET=          .098

        FARM LANE BRIDGE, WOODEN SUPERSTRUCTURE, GRAVEL ROADWAY

        SECTION B

     2.10      6.47    843.67      0.00    843.56    843.80       .13       .01       .04    838.60
     865.      567.      298.        0.      231.       84.        0.        9.        4.    842.50
      .07      2.45      3.57      0.00      .080      .050      .080      .051    837.20    899.09
  .011373        1.        1.        1.         2         0         0    -48.63    175.91   1075.00

*SECNO 2.400
 2800 NAT Q1=      93.48  WSEL=     843.71  END Q1=      93.48  WSEL=     843.81  RATIO=    .0000
 NAT Q1=     103.  RATIOS LOB,CH,ROB=    .6732    .2911    .0357  WSEL=     843.81

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  842.10 MAX ELLC=  840.80

3470 ENCROACHMENT STATIONS=      893.3     1075.0  TYPE=      4  TARGET=          .091
     2.40      6.63    843.83      0.00    843.71    843.93       .10       .12       .01    838.60
     865.      592.      273.        0.      263.       87.        0.        9.        4.    842.50
      .06      2.25      3.15      0.00      .080      .050      .080      .051    837.20    893.34
  .008441       12.       12.       12.         2         0         0    -48.63    131.66   1075.00

*SECNO 2.500
 2800 NAT Q1=     173.61  WSEL=     843.67  END Q1=     173.61  WSEL=     843.77  RATIO=    .0000
 NAT Q1=     135.  RATIOS LOB,CH,ROB=    .4183    .5632    .0184  WSEL=     843.77

3470 ENCROACHMENT STATIONS=      899.6     1075.0  TYPE=      4  TARGET=          .062

        SECTION C
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     2.50      6.60    843.80      0.00    843.67    843.97       .17       .00       .03    838.50
     865.      357.      508.        0.      261.      122.        0.        9.        4.    842.50
      .08      1.37      4.17      0.00      .080      .050      .080      .051    837.20    899.61
  .002523        1.        1.        1.         2         0         0      0.00    175.39   1075.00


*SECNO 2.600
 2800 NAT Q1=     189.87  WSEL=     843.83  ENC Q1=     189.87  WSEL=     843.93  RATIO=    .0000
 NAT Q1=     202.  RATIOS LOB,CH,ROB=    .4395    .5383    .0222  WSEL=     843.93

3470 ENCROACHMENT STATIONS=      895.1     1075.0  TYPE=      4  TARGET=          .059
     2.60      6.74    843.95      0.00    843.83    844.09       .14       .12       .01    838.61
     865.      381.      484.        0.      291.      125.        0.       10.        5.    842.51
      .08      1.31      3.86      0.00      .080      .050      .080      .051    837.21    895.12
  .002123       50.       50.       50.         2         0         0      0.00    179.88   1075.00


*SECNO 3.000
 2800 NAT Q1=     259.06  WSEL=     845.15  ENC Q1=     259.06  WSEL=     845.25  RATIO=    .0000
 NAT Q1=     274.  RATIOS LOB,CH,ROB=    .5153    .2553    .2289  WSEL=     845.25
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        BLOSS    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


3470 ENCROACHMENT STATIONS=      202.2      384.0  TYPE=      4  TARGET=          .055

        FIELD SECTION, D/S OF CONFLUENCE WITH SILVER CREEK


        SECTION D

     3.00      7.94    845.27      0.00    845.15    845.32       .05      1.20       .03    840.63
     865.      447.      233.      165.      336.       83.      163.       19.        3.    842.63
      .21      1.33      2.73      1.13      .080      .050      .080      .050    837.33    202.20
  .001094      843.      793.      743.         2         0         0      0.00    131.79    383.98


*SECNO 3.900
 2800 NAT Q1=     172.42  WSEL=     845.31  ENC Q1=     172.42  WSEL=     845.41  RATIO=    .0000
 NAT Q1=     134.  RATIOS LOB,CH,ROB=    .5195    .2223    .1582  WSEL=     845.41
3280 CROSS SECTION       3.90 EXTENDED       1.52 FEET


3470 ENCROACHMENT STATIONS=      220.7      385.3  TYPE=      4  TARGET=          .054

        D/S OF CONFLUENCE WITH SILVER CREEK, SECNO 4. REPEATED

     3.90      7.43    845.43      0.00    845.31    845.46       .03       .13       .01    838.00
     345.      217.       82.       47.      224.       33.       86.       21.        9.    838.00
      .25       .97      2.50       .53      .060      .045      .070      .050    838.00    220.70
  .000397      142.      192.      242.         1         0         0      0.00    164.55    385.25


*SECNO 4.000
 2800 NAT Q1=     156.55  WSEL=     845.33  ENC Q1=     156.55  WSEL=     845.43  RATIO=    .0000
 NAT Q1=     167.  RATIOS LOB,CH,ROB=    .6154    .2375    .1472  WSEL=     845.43
3280 CROSS SECTION       4.00 EXTENDED       1.38 FEET
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3470 ENCROACHMENT STATIONS=      224.3      364.9  TYPE=      4  TARGET=          .050
     4.00      7.28    845.45      0.00    845.33    845.49      .04       .02       .00    838.17
     345.      215.       67.       44.      206.       32.       79.       21.        9.     838.17
      .26      1.04      2.70       .55      .064      .045      .070      .050    838.17    224.29
  .000475       50.       50.       50.         0         0         0      0.00    150.61    384.90

*SECNO 4.100
 2800 NAT Q1=    114.86  WSEL=     845.32  END Q1=     114.86  WSEL=     845.42  RATIO=  0.0000
 NAT Q1=     135.  RATIOS LOB,CH,ROB=    .5661    .0675    .3664  WSEL=     845.42
3280 CROSS SECTION       4.10 EXTENDED       1.37 FEET


3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  844.30 MAX ELLC=  842.60

3470 ENCROACHMENT STATIONS=      218.1      331.2  TYPE=      4  TARGET=          .147

        DRIVEWAY CULVERT, 60 IN. CMP (1/2 IN.) , PAVED ROADWAY

        SECTION E

     4.10      7.26    845.43      0.00    845.32    845.50      .06       .00       .01    838.17
     345.      200.       27.      118.      102.       14.       56.       21.        9.     838.17
      .26      1.96      1.92      2.13      .020      .023      .020      .050    838.17    218.13
  .000850        1.        1.        1.         1         0         0   -145.77    153.06    381.19

*SECNO 4.400
 2800 NAT Q1=     131.02  WSEL=     845.34  END Q1=     131.02  WSEL=     845.44  RATIO=    .0000
 NAT Q1=     155.  RATIOS LOB,CH,ROB=    .5602    .0900    .3497  WSEL=     845.44
3280 CROSS SECTION       4.40 EXTENDED       1.38 FEET


3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  844.30 MAX ELLC=  843.50

3470 ENCROACHMENT STATIONS=      221.0      378.3  TYPE=      4  TARGET=          .155
     4.40      7.29    845.44      0.00    845.34    845.51      .06       .01       .00    838.17
     345.      197.       37.      111.      110.       15.       55.       21.        9.     838.17
      .26      1.30      2.04      2.01      .020      .023      .020      .050    838.17    221.02
  .000652       14.       14.       14.         1         0         0   -129.04    157.24    378.26

*SECNO 4.500
 2800 NAT Q1=     132.98  WSEL=     845.34  END Q1=     132.98  WSEL=     845.44  RATIO=    .0000
 NAT Q1=     142.  RATIOS LOB,CH,ROB=    .5458    .2793    .1750  WSEL=     845.44
3280 CROSS SECTION       4.50 EXTENDED       1.39 FEET

   SECNO     DEPTH     CWSEL     CFIRS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
   Q         CLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLCHL     XLCH      XLCHR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST
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3470 ENCROACHMENT STATIONS=      227.7      386.6  TYPE=     4  TARGET=          .053
     4.50     7.29    845.46      0.00    845.34    845.51       .06       .00       .00    838.17
     345.      169.      102.       53.      203.       32.       82.       21.        9.    838.17
      .26       .93      3.19       .65      .080      .045      .070      .050    838.17    227.68
  .000662        1.        1.        1.         0         0         0      0.00    158.97    386.65

*SECNO 4.600
 2800 NAT Q1=     104.29  WSEL=     845.36  ENC Q1=     104.29  WSEL=     845.46  RATIO=  0.0000
 NAT Q1=     112.  RATIOS LOB,CH,RCB=    .5334----.3274----.1392--WSEL=     845.46
3280 CROSS SECTION       4.60 EXTENDED       1.05 FEET


3470 ENCROACHMENT STATIONS=      244.7      381.3  TYPE=     4  TARGET=          .066
     4.60      6.94    845.48      0.00    845.36    845.57       .10       .04       .02    838.54
     345.      165.      120.       40.      157.       31.       56.       22.        9.    838.54
      .27      1.18      3.92       .72      .080      .045      .070      .050    838.54    244.66
  .001064       50.       50.       50.         1         0         0      0.00    135.55    381.33

1490 NH CARD USED
*SECNO 5.000
 2800 NAT Q1=      87.04  WSEL=     845.59  ENC Q1=      87.04  WSEL=     845.59  RATIO=    .0000
 NAT Q1=      91.  RATIOS LOB,CH,RCB=    .0144    .9331    .0525  WSEL=     845.59

3470 ENCROACHMENT STATIONS=      191.0      218.4  TYPE=     4  TARGET=          .046

        FIELD SECTION


        SECTION F

     5.00      5.74    845.71      0.00    845.59    845.86       .15       .26       .03    842.47
     345.        0.      337.        8.        0.      108.        9.       23.        9.    842.47
      .29      0.00      3.12       .95      .090      .050      .090      .049    839.97    191.00
  .001812      152.      192.      202.         0         0         0      0.00     27.44    218.44

*SECNO 5.100

3470 ENCROACHMENT STATIONS=         .0      286.0  TYPE=     1  TARGET=      285.999
     5.10      5.35    845.79      0.00    845.56    845.97       .17       .10       .01    842.94
     345.        2.      332.       10.        6.       96.       15.       23.       10.    842.94
      .29       .43      3.38       .71      .090      .050      .090      .049    840.44    178.08
  .002025       50.       50.       50.         1         0         0      0.00     72.55    250.62

*SECNO 5.200
 2800 NAT Q1=      38.32  WSEL=     846.33  ENC Q1=      40.22  WSEL=     845.43  RATIO=  -.0498
 NAT Q1=      41.  RATIOS LOB,CH,RCB=    .0011    .9587    .0101  WSEL=     846.43

3470 ENCROACHMENT STATIONS=      191.0      215.0  TYPE=     4  TARGET=          .011
     5.20      4.07    846.40      0.00    846.33    846.81       .40       .72       .12    844.83
     345.        0.      345.        0.        0.       68.        0.       23.       10.    844.83
      .30      0.00      5.09      0.00      .090      .090      .090      .049    842.33    191.00
  .008256      200.      200.      200.         2         0         0      0.00     24.00    215.00
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*SECNO 5.300
 2800 NAT Q1=      35.04  WSEL=     848.07  ENC Q1=      36.88  WSEL=     848.17  RATIO=  -.0526
 NAT Q1=      37.  RATIOS LOB,CH,ROB=    .0010    .9904    .3086  WSEL=     843.17
   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      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBF     ITPIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      191.0      215.0  TYPE=      4  TARGET=          .010
     5.30      3.95    846.17      0.00    848.07    848.61       .44      1.76       .02    846.72
     345.        0.      345.        0.        0.       65.        0.       23.       10.    846.72
      .31      0.00      5.35      0.00      .090      .090      .090      .048    844.22    191.00
  .009670      200.      200.      200.         1         0         0      0.00     24.00    215.00


1490 NH CARD USED
*SECNO 5.900
 2800 NAT Q1=      33.51  WSEL=     850.20  ENC Q1=      33.51  WSEL=     850.30  RATIO=    .0000
 NAT Q1=      36.  RATIOS LOB,CH,ROB=  0.0000    .6920    .3080  WSEL=     850.30

3470 ENCROACHMENT STATIONS=      567.0      604.8  TYPE=      4  TARGET=          .072
     5.90      4.93    850.27      0.00    850.20    850.59       .33      1.95       .03    850.44
     345.        0.      250.       65.        0.       51.       31.       24.       10.    848.74
      .33      0.00      5.06      2.75      .090      .076      .072      .048    845.34    567.19
  .011129      188.      188.      188.         2         0         0      0.00     37.66    604.85


1490 NH CARD USED
*SECNO 6.000
3280 CROSS SECTION       6.00 EXTENDED       5.47 FEET


3301 HV CHANGED MORE THAN HVING


3470 ENCROACHMENT STATIONS=         .1      599.9  TYPE=      1  TARGET=      899.800

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELEA=       356.00 ELEA=       856.00


        CANAL ROAD, CMP (2 IN.) ARCH, 96 X 56 IN., PAVED ROADWAY


        SECTION G

     6.00      5.49    852.06      0.00    851.93    853.57      1.51      2.39       .59    848.87
     345.        0.      345.        0.        0.       35.        0.       24.       10.    848.87
      .33      0.00      9.86      0.00      .090      .059      .072      .048    846.57    570.00
  .035938      130.      130.      130.         2         0         0      0.00      3.00    578.00


SPECIAL BRIDGE

SB  XK        XKOR      COFD      POLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      2.79      2.50      0.00      8.00      0.00      34.64     0.00    846.87    846.57

*SECNO 6.400
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3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	CWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.36	853.88	0.00	5.	338.	35.	35.	851.20	856.00

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

SECTION H

6.40	8.82	855.69	0.00	855.62	856.16	.49	2.61	0.00	849.17
345.	0.	345.	0.	0.	62.	0.	24.	10.	849.17
.33	0.00	5.60	0.00	.040	.035	.040	.048	8+5.87	559.00
.002616	65.	65.	65.	2	0	0	0.00	8.00	567.00

*SECNO 6.600

3470 ENCROACHMENT STATIONS= 509.0 617.0 TYPE= 1 TARGET= 103.000

6.60	8.56	856.30	0.00	856.24	856.34	.03	.02	.14	849.64
345.	185.	119.	40.	176.	63.	34.	24.	10.	849.64
.34	1.06	1.90	1.21	.0+0	.035	.040	.048	8+7.34	509.00
.000156	35.	50.	65.	2	0	0	0.00	65.33	574.83

*SECNO 6.900

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	J-LOSS	BANK ELEV
Q	QLOB	QCH	QLOB	ALOB	XCH	ARea	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	E.MIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	CRIAL	IDC	ICONT	CUPAR	TOPWID	ENDST
6.90	8.28	856.33	0.00	856.27	856.35	.02	.01	.00	848.65
345.	59.	133.	153.	165.	59.	227.	25.	10.	848.65
.37	.55	1.49	.86	.0-0	.035	.040	.047	8+8.15	23.24
.000077	70.	90.	110.	2	0	0	0.00	156.35	179.60

*SECNO 7.000

SENEY DRIVE, 60 ON, CMP (2 LN.), PAVED ROADWAY

SECTION I

7.00	7.86	856.33	0.00	856.27	856.36	.02	.01	.00	849.07
345.	54.	144.	147.	85.	85.	190.	25.	11.	849.07
.38	.64	1.70	.77	.04E	.035	.041	.047	848.47	28.85
.000108	35.	50.	65.	0	0	0	0.00	141.55	170.39

SPECIAL BRIDGE

SB	XK	YKOR	COFQ	FDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.28	3.02	0.00	5.00	0.00	19.05	0.00	849.77	848.47

*SECNO 7.400
3280 CROSS SECTION 7.40 EXTENDED 10.78 FEET

PRESSURE AND WEIR FLOW

EGPFS	EGLWC	HB	LWEIR	QPF	BAREA	TRAPEZOID AREA	ELLO	ELTRD
873.04	857.66	1.00	241.	105.	19.	22.	854.20	856.80

3470 ENCROACHMENT STATIONS= .0 210.0 TYPE= 1 TARGET= 209.999

SECTION J

7.40	8.10	857.87	0.00	857.87	857.86	.01	1.52	0.00	850.07
345.	55.	101.	169.	155.	120.	425.	26.	11.	850.07
.41	.41	.04	.44	.040	.035	.040	.047	849.77	14.68
.000025	55.	55.	55.	1	0	7	0.00	195.34	210.00

*SECNO 6.000
3280 CROSS SECTION 6.00 EXTENDED 10.77 FEET

3470 ENCROACHMENT STATIONS= 240.0 300.0 TYPE= 1 TARGET= 60.000

FIELD SECTION

SECTION K

6.00	8.19	857.86	0.00	857.86	857.89	.03	.01	.01	850.37
345.	110.	109.	66.	114.	109.	57.	27.	11.	850.37
.43	.96	1.75	.60	.040	.035	.040	.047	848.57	240.00
.000104	122.	122.	122.	1	0	0	0.00	0.00	300.00

*SECNO 6.100
2900 NAT Q1= 422.70 WSEL= 857.90 END Q1= 422.70 WSEL= 858.00 RATIO= 0.0000
NAT Q1= 450. RATIOS LOB,CH,ROB= .4032 .3716 .2252 WSEL= 858.00
3280 CROSS SECTION 5.10 EXTENDED 10.16 FEET

3470 ENCROACHMENT STATIONS= 196.0 420.0 TYPE= 4 TARGET= .050

8.10	8.59	857.91	0.00	857.91	857.92	.02	.02	.00	851.01
345.	139.	140.	66.	212.	101.	163.	29.	12.	851.01
.51	.65	1.39	.41	.040	.035	.040	.046	849.31	195.98
.000673	235.	235.	235.	2	5	0	0.00	228.02	423.99

1490 NH CARD USED
*SECNO 5.900
2900 NAT Q1= 91.12 WSEL= 856.00 END Q1= 91.12 WSEL= 858.10 RATIO= 0.0000

```
NAT Q1=      95.  RATIOS LOB,CH,ROB=    .0256    .8740    .1034  WSEL=     858.11
  SECNO     DEPTH     CWSEL     CFLRS     WSELK     ES        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     XLOSL     XLCH      XLOSR     ITRIAL    IDC       ICONT     COPAP     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      985.6     1032.3  TYPE=      4  TARGET=          .044
     8.90      6.78    858.01      0.00    858.00    858.09       .06       .14       .03    853.93
     345.        0.      318.       27.        2.      139.       27.       34.       14.    853.93
      .59       .33      2.29       .98      .090      .075      .066      .044    851.23    985.61
  .001525      656.      706.      706.         2         0         0      0.00     46.74   1032.35


1490 NH CARD USED
*SECNO 9.000
 2800 NAT Q1=      88.57  WSEL=     858.07  END Q1=      88.57  WSEL=     858.17  RATIO=  0.0000
 NAT Q1=      92.  RATIOS LOB,CH,ROB=    .0249    .8860    .0890  WSEL=     858.17

3470 ENCROACHMENT STATIONS=      985.5     1019.7  TYPE=      4  TARGET=          .041

        DRIVEWAY BRIDGE, 8 X 6.5 FT. CMP   (1/2 IN.) ARCH, GRAVEL ROADWAY


        SECTION L

     9.00      6.72    858.09      0.00    858.07    858.17       .08       .08       .00    854.07
     345.        1.      320.       24.        2.      137.       23.       35.       14.    854.07
      .60       .38      2.33      1.07      .090      .076      .090      .044    851.37    985.52
  .001600       50.       50.       50.         0         0         0      0.00     34.18   1019.70


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      POLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.65      3.00      0.00      8.00      0.00      41.28      0.00    851.37    851.37

*SECNO 9.400
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3        QWEIR      QFP       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                  AREA
  859.37    858.17      0.00      155.      191.       41.        51.      857.80    857.90


3470 ENCROACHMENT STATIONS=      960.0     1100.0  TYPE=      1  TARGET=      140.000

        SECTION M

     9.40      7.21    858.56      0.00    858.58    858.63       .04       .46      0.00    854.07
     345.       12.      275.       56.       19.      149.       77.       35.       14.    854.07
      .60       .64      1.84       .75      .082      .075      .068      .044    851.37    960.00
  .000915       19.       19.       19.         2         0         4      0.00    140.00   1100.00


1490 NH CARD USED
*SECNO 10.000
```

```
3470 ENCROACHMENT STATIONS=     921.0     1150.0  TYPE=     1  TARGET=     223.000
    10.00      6.19    858.69     0.00    858.69    858.69      .11       .03       .03    854.20
      345.      161.      142.       1.      144.       39.       36.       35.       14.     853.40
       .61      1.12      3.66      1.      .059      .090      .090      .044    852.40    921.00
  .001148       33.       33.       33.         2         0         0      0.00    128.76   1049.76

*SECNO 10.010

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  857.10 MAX ELLO=  858.20

3470 ENCROACHMENT STATIONS=     921.0     1150.0  TYPE=     1  TARGET=     223.000

         DRIVEWAY BRIDGE, CONCRETE SUPERSTRUCTURE, R.R. TIE WINGWALLS

         GRAVEL ROADWAY

         SECTION N

    10.01      6.14    858.54     0.00    858.53    858.74      .21       .00       .15    854.20
      345.      178.      167.        0.       83.       35.        0.       35.       14.     853.40
       .61      2.16      4.73      0.00      .025      .020      .025      .044    852.40    921.00
  .001654         1.        1.        1.         2         0         0    -69.80    128.64   1049.64

*SECNO 10.090
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   O         OLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TRA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     ALOCL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  856.90 MAX ELLO=  858.20

3470 ENCROACHMENT STATIONS=     924.0     1147.0  TYPE=     1  TARGET=     223.000
    10.09      6.16    858.56     0.00    858.55    858.77      .22       .02       .10    854.20
      345.      175.      170.        0.       80.       35.        0.       35.       14.     853.40
       .61      2.13      4.82      0.0       .025      .020      .025      .044    852.40    924.00
  .001781       13.       13.       13.         0         0         0    -70.06    128.58   1049.68

1490 NH CARD USED
*SECNO 10.100

3470 ENCROACHMENT STATIONS=     924.0     1147.0  TYPE=     1  TARGET=     223.000
    10.10      6.36    858.78     0.00    858.75    858.82      .08       .00       .05    854.20
      345.      176.      153.       16.      174.       55.       23.       35.       14.     854.20
       .61       .98      2.8        .69      .063      .040      .090      .044    852.40    924.00
  .000665         1.        1.        1.         2         0         0      0.00    132.13   1056.13

*SECNO 11.000
3230 CROSS SECTION      11.08 EXTENDED      7.17 FEET
```

3470 ENCROACHMENT STATIONS= 800.0 1700.0 TYPE= 1 TARGET= 900.000

FIELD SECTION, D/S OF CONFLUENCE OF WHALEY DRAIN

SECTION 0

11.00	9.60	858.07	0.00	858.86	859.00	.14	.15	.84	854.27
345.	48.	259.	29.	32.	82.	21.	36.	15.	854.27
.63	1.51	3.30	1.33	.350	.340	.050	.044	853.27	889.21
.000908	192.	- 192.	-192.	2	- 0	- 0	0.00	31.53	950.75

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CODE -  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

OLD MAID DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLOB	CLTP0	ELLO	ELMIN	Q	QWSEL	QRIWS	EG	10K*S	VCH	AREA	.01K
.900	0.00	0.00	0.00	834.99	865.00	840.00	0.00	840.09	19.54	3.52	527.14	195.70
.900	0.00	0.00	0.00	834.99	865.00	840.10	0.00	840.20	19.60	3.58	466.07	195.39
.910	50.00	0.00	0.00	835.09	865.00	840.10	0.00	840.19	19.60	3.52	526.44	195.38
.910	50.00	0.00	0.00	835.09	865.00	840.20	0.00	840.30	19.81	3.59	464.19	194.37
1.000	50.00	0.00	0.00	835.19	865.00	840.20	0.00	840.29	19.66	3.53	525.80	195.08
1.000	50.00	0.00	0.00	835.19	865.00	840.30	0.00	840.40	19.85	3.60	463.58	194.15
1.900	993.00	0.00	0.00	837.10	865.00	842.99	0.00	843.37	53.71	5.77	282.05	115.03
1.900	993.00	0.00	0.00	837.10	865.00	843.12	0.00	843.50	53.69	5.74	257.02	119.06
2.000	50.00	0.00	0.00	837.20	865.00	843.37	0.00	843.63	37.33	4.99	344.09	141.57
2.000	50.00	0.00	0.00	837.20	865.00	843.50	0.00	843.76	37.06	4.91	315.11	142.10
2.100	1.00	842.10	840.80	837.20	865.00	843.56	0.00	843.68	116.75	3.56	342.45	80.05
2.100	1.00	842.10	840.80	837.20	865.00	843.67	0.00	843.80	113.73	3.57	314.55	81.11
2.400	12.00	842.10	840.80	837.20	865.00	843.71	0.00	843.80	35.62	3.15	381.42	93.49
2.400	12.00	842.10	840.80	837.20	865.00	843.83	0.00	843.93	34.41	3.15	349.62	94.15
2.500	1.00	0.00	0.00	837.20	865.00	843.67	0.00	843.85	24.82	4.23	420.90	173.61
2.500	1.00	0.00	0.00	837.20	865.00	843.80	0.00	843.97	25.23	4.17	382.95	172.20
2.600	50.00	0.00	0.00	837.21	865.00	843.83	0.00	843.97	20.75	3.93	457.44	189.37
2.600	50.00	0.00	0.00	837.21	865.00	843.95	0.00	844.09	21.23	3.88	415.69	187.72
3.000	793.00	0.00	0.00	837.33	865.00	845.15	0.00	845.28	11.15	2.76	603.19	259.06
3.000	793.00	0.00	0.00	837.33	865.00	845.27	0.00	845.32	10.94	2.79	582.71	261.52
3.900	192.00	0.00	0.00	838.00	345.00	845.31	0.00	845.34	4.00	2.43	370.25	172.42
3.900	192.00	0.00	0.00	838.00	345.00	845.43	0.00	845.45	3.97	2.50	344.30	173.19
4.000	50.00	0.00	0.00	838.17	345.00	845.33	0.00	845.37	4.86	2.71	340.46	156.55
4.000	50.00	0.00	0.00	838.17	345.00	845.45	0.00	845.49	4.75	2.70	317.10	153.30
4.100	1.00	844.30	842.60	838.17	345.00	845.32	0.00	845.33	9.02	1.93	181.95	114.96
4.100	1.00	844.30	842.60	838.17	345.00	845.43	0.00	845.50	8.50	1.92	171.57	119.36

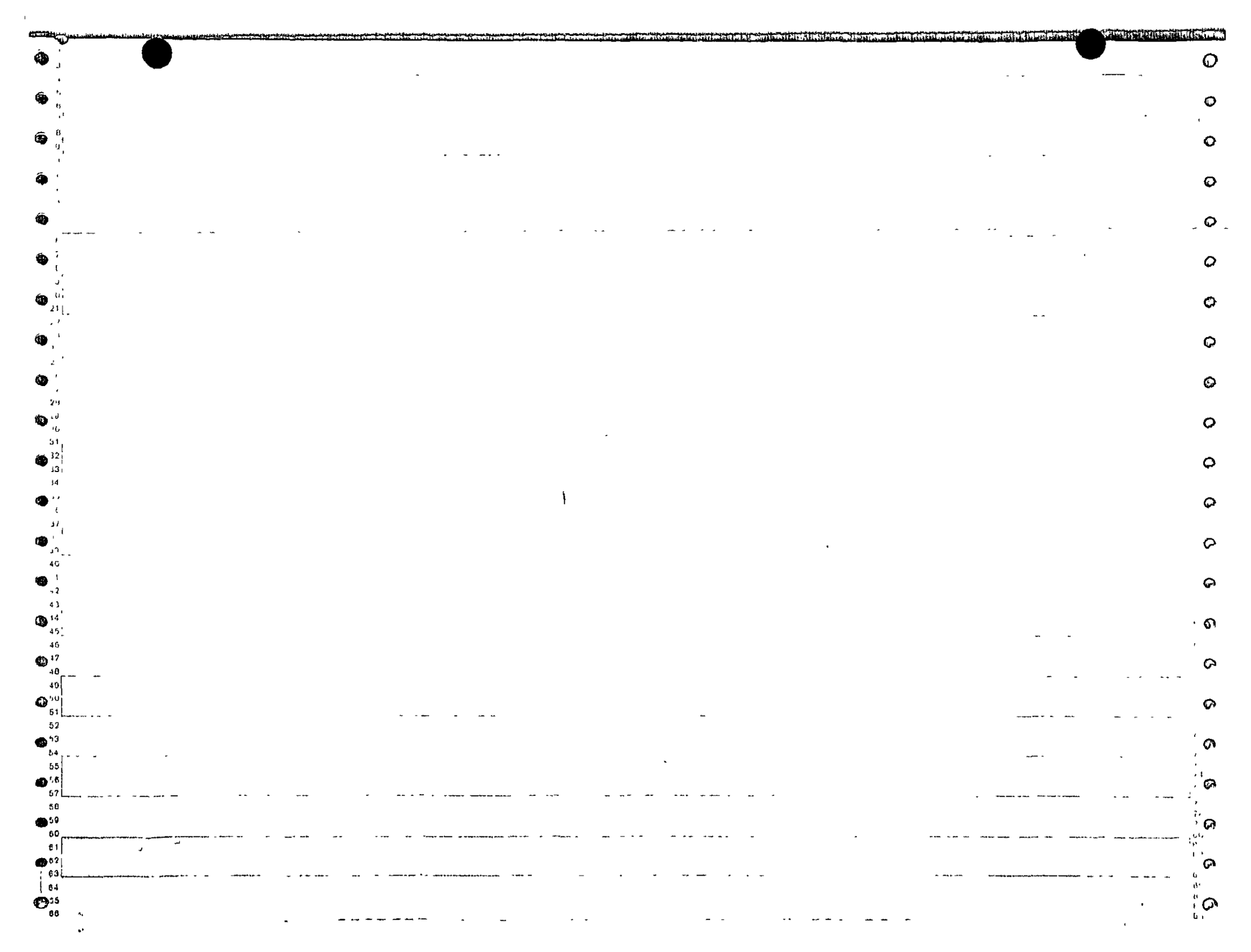
SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.400	14.00	844.30	843.50	838.17	345.00	845.34	0.00	845.39	6.93	2.01	198.33	131.02
4.400	14.00	844.30	843.50	838.17	345.00	845.46	0.00	845.51	6.82	2.04	183.12	132.18
4.500	1.00	0.00	0.00	838.17	345.00	845.34	0.00	845.39	6.73	3.19	341.39	132.98
4.500	1.00	0.00	0.00	838.17	345.00	845.46	0.00	845.51	6.62	3.19	316.94	134.14
4.600	50.00	0.00	0.00	838.54	345.00	845.36	0.00	845.46	10.94	3.93	270.28	104.29
4.600	50.00	0.00	0.00	838.54	345.00	845.48	0.00	845.57	10.64	3.92	243.67	105.74
5.000	192.00	0.00	0.00	839.97	345.00	845.59	0.00	845.73	15.71	3.10	140.01	87.04
5.000	192.00	0.00	0.00	839.97	345.00	845.71	0.00	845.85	18.12	3.12	116.61	81.05
5.100	50.00	0.00	0.00	840.44	345.00	845.66	0.00	845.84	22.97	3.52	109.83	71.99
5.100	50.00	0.00	0.00	840.44	345.00	845.79	0.00	845.97	20.25	3.36	118.73	76.57
5.200	200.00	0.00	0.00	842.33	345.00	846.33	0.00	846.74	81.08	5.18	69.17	38.32
5.200	200.00	0.00	0.00	842.33	345.00	846.40	0.00	846.81	82.56	5.09	67.78	37.97
5.300	200.00	0.00	0.00	844.22	345.00	848.07	0.00	848.53	96.95	5.47	65.21	35.14
5.300	200.00	0.00	0.00	844.22	345.00	848.17	0.00	848.61	86.70	5.35	64.50	35.08
5.900	188.00	0.00	0.00	845.34	345.00	850.20	0.00	850.49	105.97	4.89	90.59	33.51
5.900	188.00	0.00	0.00	845.34	345.00	850.27	0.00	850.59	111.29	5.06	82.34	32.70
6.000	130.00	0.00	0.00	846.57	345.00	851.93	0.00	853.53	393.62	10.17	33.93	17.39
6.000	130.00	0.00	0.00	846.57	345.00	852.06	0.00	853.67	359.38	9.86	35.00	18.20
6.400	65.00	856.00	851.20	846.87	345.00	855.62	0.00	855.11	26.88	5.66	60.99	65.55
6.400	65.00	856.00	851.20	846.87	345.00	855.69	0.00	856.18	26.16	5.60	61.61	67.45
6.500	50.00	0.00	0.00	847.34	345.00	856.24	0.00	856.27	1.63	1.93	267.60	270.03
6.500	50.00	0.00	0.00	847.34	345.00	856.30	0.00	856.34	1.56	1.90	271.91	276.48
6.900	90.00	0.00	0.00	848.05	345.00	856.27	0.00	856.29	.81	1.52	411.15	383.79
6.900	90.00	0.00	0.00	848.05	345.00	856.33	0.00	856.35	.77	1.49	421.19	393.91
7.000	50.00	0.00	0.00	848.47	345.00	856.27	0.00	856.29	1.14	1.74	350.45	323.73
7.000	50.00	0.00	0.00	848.47	345.00	856.33	0.00	856.35	1.08	1.70	359.49	332.59
7.400	55.00	856.80	854.20	849.77	345.00	857.87	0.00	857.87	.25	.84	678.68	694.75
7.400	55.00	856.80	854.20	849.77	345.00	857.87	0.00	857.88	.25	.84	679.40	695.74
8.000	122.00	0.00	0.00	848.67	345.00	857.86	0.00	857.89	1.05	1.75	279.48	337.49
8.000	122.00	0.00	0.00	848.67	345.00	857.86	0.00	857.89	1.04	1.75	279.69	337.83
8.100	235.00	0.00	0.00	849.31	345.00	857.90	0.00	857.92	.67	1.33	562.38	422.70
8.100	235.00	0.00	0.00	849.31	345.00	857.90	0.00	857.92	.73	1.39	475.66	403.71
8.900	706.00	0.00	0.00	851.23	345.00	858.00	0.00	858.07	14.33	2.22	186.15	91.12
8.900	706.00	0.00	0.00	851.23	345.00	858.01	0.00	858.09	15.25	2.29	167.54	86.33
9.000	50.00	0.00	0.00	851.37	345.00	858.07	0.00	858.14	15.17	2.27	176.39	88.57
9.000	50.00	0.00	0.00	851.37	345.00	858.09	0.00	858.17	16.00	2.33	161.87	86.24
9.400	19.00	857.90	857.80	851.37	345.00	858.58	0.00	858.62	9.20	1.85	244.65	113.74
9.400	19.00	857.90	857.80	851.37	345.00	858.59	0.00	858.63	9.15	1.84	245.29	114.02

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10.000	33.00	0.00	0.00	852.40	345.00	858.59	0.00	858.68	11.55	3.69	217.95	101.50
10.000	33.00	0.00	0.00	852.40	345.00	858.59	0.00	858.69	11.48	3.68	218.55	101.34
10.010	1.00	857.10	858.20	852.40	345.00	858.53	0.00	858.74	16.75	4.73	117.09	84.28
10.010	1.00	857.10	858.20	852.40	345.00	858.54	0.00	858.74	16.54	4.75	117.73	84.33
10.090	13.00	856.90	858.20	852.40	345.00	858.55	0.00	858.77	17.22	4.85	114.96	83.13
10.090	13.00	856.90	858.20	852.40	345.00	858.56	0.00	858.77	17.01	4.82	115.57	83.54
10.100	1.00	0.00	0.00	852.40	345.00	858.75	0.00	858.82	6.67	2.81	257.17	133.63
10.100	1.00	0.00	0.00	852.40	345.00	858.76	0.00	858.82	6.65	2.80	257.40	133.78
11.000	192.00	0.00	0.00	853.27	345.00	858.86	0.00	859.00	9.09	3.30	134.58	114.45
11.000	192.00	0.00	0.00	853.27	345.00	858.87	0.00	859.00	9.08	3.30	134.68	114.52

OLD MAID DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	WSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.900	865.00	840.00	0.00	0.00	0.00	301.13	0.00
.900	865.00	840.10	.10	0.00	.10	188.21	0.00
.910	865.00	840.10	0.00	.10	0.00	300.94	50.00
.910	865.00	840.20	.10	.10	.10	187.96	50.00
1.000	865.00	840.20	0.00	.10	0.00	300.77	50.00
1.000	865.00	840.30	.10	.10	.10	187.72	50.00
1.900	865.00	842.99	0.00	2.80	0.00	225.00	993.00
1.900	865.00	843.12	.13	2.82	.13	152.87	993.00
2.000	865.00	843.37	0.00	.37	0.00	241.26	50.00
2.000	865.00	843.50	.13	.38	.13	163.24	50.00
2.100	865.00	843.56	0.00	.19	0.00	250.22	1.00
2.100	865.00	843.67	.12	.17	.12	175.91	1.00
2.400	865.00	843.71	0.00	.15	0.00	256.96	12.00
2.400	865.00	843.83	.12	.15	.12	181.66	12.00
2.500	865.00	843.67	0.00	-.04	0.00	255.40	1.00
2.500	865.00	843.80	.12	-.03	.12	175.39	1.00
2.600	865.00	843.83	0.00	.15	0.00	261.60	50.00
2.600	865.00	843.95	.12	.15	.12	179.88	50.00
3.000	865.00	845.15	0.00	1.33	0.00	216.51	793.00
3.000	865.00	845.27	.12	1.32	.12	181.79	793.00
3.900	345.00	845.31	0.00	.16	0.00	210.67	192.00
3.900	345.00	845.43	.12	.16	.12	164.55	192.00
4.000	345.00	845.33	0.00	.02	0.00	208.80	50.00
4.000	345.00	845.45	.12	.02	.12	160.61	50.00
4.100	345.00	845.32	0.00	-.01	0.00	208.68	1.00
4.100	345.00	845.43	.11	-.01	.11	163.06	1.00
4.400	345.00	845.34	0.00	.02	0.00	208.76	14.00
4.400	345.00	845.46	.11	.02	.11	157.24	14.00
4.500	345.00	845.34	0.00	-.00	0.00	208.86	1.00
4.500	345.00	845.46	.12	.00	.12	156.97	1.00
4.600	345.00	845.36	0.00	.02	0.00	214.33	50.00
4.600	345.00	845.48	.11	.02	.11	136.66	50.00
5.000	345.00	845.59	0.00	.22	0.00	83.33	192.00
5.000	345.00	845.71	.12	.23	.12	27.44	192.00
5.100	345.00	845.66	0.00	.07	0.00	58.49	50.00
5.100	345.00	845.78	.12	.08	.12	72.55	50.00



SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	CLCH
5.200	345.00	848.33	0.00	.67	0.00	28.28	200.00
5.200	345.00	846.40	.08	.61	.06	24.00	200.00
5.300	345.00	848.07	0.00	1.75	0.00	27.88	200.00
5.300	345.00	848.17	.09	1.78	.09	24.00	200.00
5.900	345.00	850.20	0.00	2.12	0.00	56.23	188.00
5.900	345.00	850.27	.07	2.10	.07	37.66	188.00
6.000	345.00	851.93	0.00	1.73	0.00	8.00	130.00
6.000	345.00	852.06	.14	1.80	.14	8.00	130.00
6.400	345.00	855.62	0.00	3.69	0.00	8.00	65.00
6.400	345.00	855.69	.08	3.63	.08	8.01	65.00
6.600	345.00	856.24	0.00	.62	0.00	65.78	50.00
6.600	345.00	856.30	.07	.61	.07	65.83	50.00
6.900	345.00	856.27	0.00	.03	0.00	154.04	90.00
6.900	345.00	856.33	.06	.03	.06	156.35	90.00
7.000	345.00	856.27	0.00	.00	0.00	139.24	50.00
7.000	345.00	856.33	.06	.00	.06	141.55	50.00
7.400	345.00	857.87	0.00	1.60	0.00	195.29	55.00
7.400	345.00	857.87	.00	1.54	.00	195.34	55.00
8.000	345.00	857.36	0.00	-.01	0.00	60.01	122.00
8.000	345.00	857.36	.00	-.01	.00	60.00	122.00
8.100	345.00	857.30	0.00	.04	0.00	322.45	235.00
8.100	345.00	857.90	.00	.04	.00	228.02	235.00
8.900	345.00	858.00	0.00	.10	0.00	118.68	706.00
8.900	345.00	858.01	.01	.11	.01	46.74	706.00
9.000	345.00	858.07	0.00	.07	0.00	108.98	30.00
9.000	345.00	858.09	.02	.08	.02	34.18	30.00
9.400	345.00	858.58	0.00	.51	0.00	140.00	19.00
9.400	345.00	858.58	.00	.50	.00	140.00	19.00
10.000	345.00	858.59	0.00	.01	0.00	128.75	33.00
10.000	345.00	858.59	.00	.01	.00	128.76	33.00
10.010	345.00	858.53	0.00	-.05	0.00	128.63	1.00
10.010	345.00	858.54	.01	-.05	.01	128.64	1.00
10.090	345.00	858.55	0.00	.02	0.00	125.67	13.00
10.090	345.00	858.56	.01	.02	.01	125.68	13.00
10.100	345.00	858.75	0.00	.20	0.00	131.95	1.00
10.100	345.00	858.76	.00	.20	.00	132.13	1.00
11.000	345.00	858.86	0.00	.11	0.00	61.34	192.00
11.000	345.00	858.87	.00	.11	.00	61.53	192.00

SUMMARY OF ERRORS

FLOODWAY DATA, OLD MAID DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.900	153.	466.	1.9	840.1	840.0	.1
.910	158.	464.	1.9	840.2	840.1	.1
1.000	158.	464.	1.9	840.3	840.2	.1
1.900	153.	257.	3.4	843.1	843.0	.1
2.000	163.	315.	2.7	843.5	843.4	.1
2.100	176.	315.	2.7	843.7	843.6	.1
2.400	182.	350.	2.5	843.8	843.7	.1
2.500	175.	383.	2.3	843.8	843.7	.1
2.600	180.	416.	2.1	843.9	843.8	.1
3.000	182.	583.	1.5	845.3	845.2	.1
3.900	165.	344.	1.0	845.4	845.3	.1
4.000	161.	317.	1.1	845.4	845.3	.1
4.100	163.	172.	2.0	845.4	845.3	.1
4.400	157.	183.	1.9	845.4	845.3	.1
4.500	159.	317.	1.1	845.4	845.3	.1
4.600	137.	244.	1.4	845.5	845.4	.1
5.000	27.	117.	3.0	845.7	845.6	.1
5.100	73.	119.	2.9	845.8	845.7	.1
5.200	24.	68.	5.1	846.4	846.3	.1
5.300	24.	65.	5.3	848.2	848.1	.1
5.900	38.	82.	4.2	850.3	850.2	.1
6.000	8.	35.	9.9	852.0	851.9	.1
6.400	6.	62.	5.6	855.7	855.6	.1
6.600	66.	272.	1.3	856.3	856.2	.1
6.900	156.	421.	.6	856.4	856.3	.1
7.000	142.	359.	1.0	856.4	856.3	.1
7.400	195.	679.	.5	857.9	857.9	0.0
8.000	60.	230.	1.2	857.9	857.9	0.0
8.100	228.	479.	.7	857.9	857.9	0.0
8.900	47.	161.	2.1	858.0	858.0	0.0
9.000	34.	162.	2.1	858.1	858.1	0.0
9.400	140.	245.	1.4	858.6	858.6	0.0
10.000	129.	219.	1.6	858.6	858.6	0.0
10.010	129.	116.	2.9	858.5	858.5	0.0
10.090	126.	116.	3.0	858.5	858.5	0.0
10.100	132.	257.	1.3	858.6	858.6	0.0
11.000	62.	139.	2.6	858.9	858.9	0.0

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


00.28.10..000038 PAGES PRINT. 0:177. LINES PRINT. FOR $ 001.97 AT RG2.
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00BREAK00

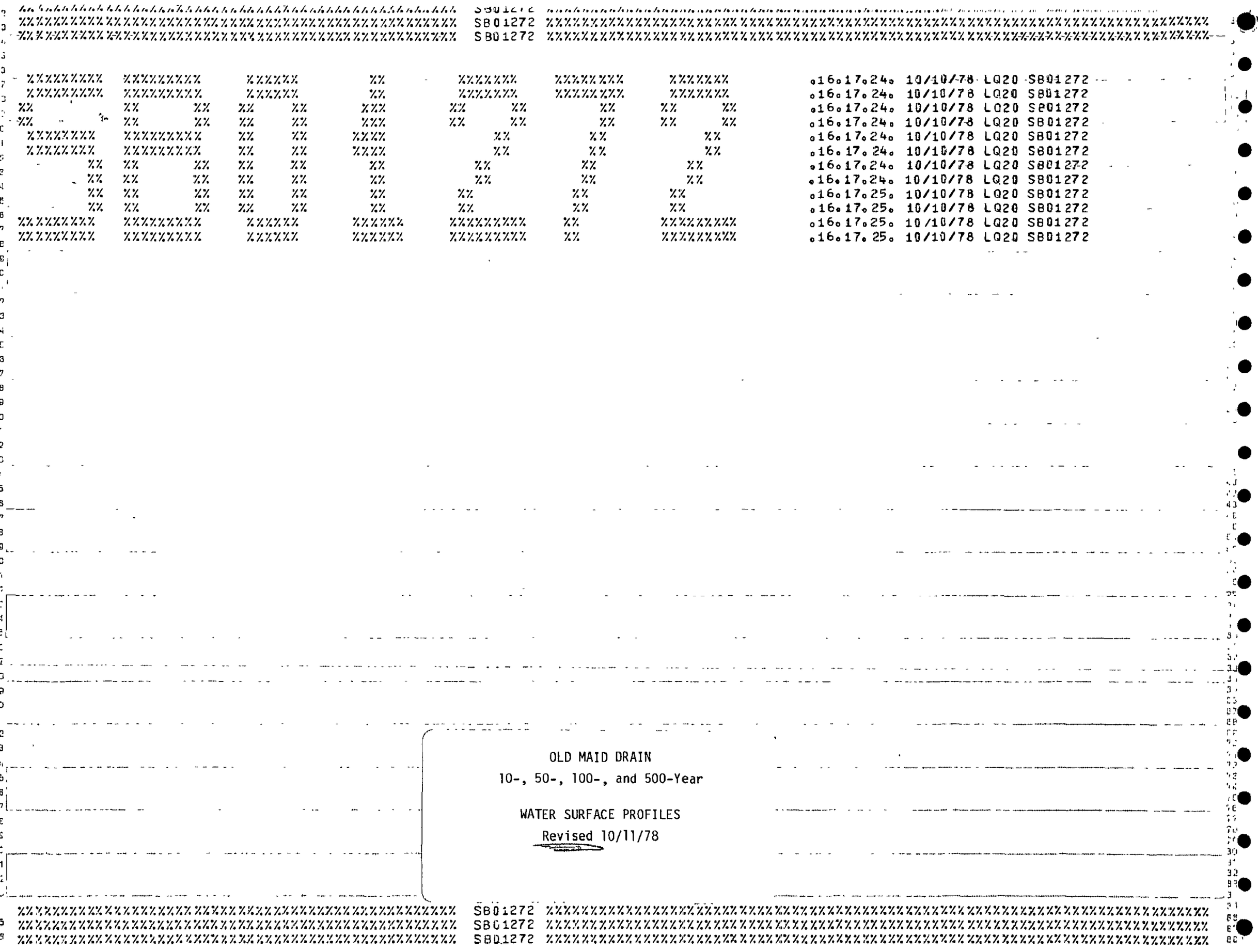
1) COUNTY: Eaton

2) STUDY NAME: Village of Dimondale

3) WATERCOURSE: Old Maid Drain

4) DOCUMENT TYPE: Summary

00BREAK00


OLD MAID DRAIN
10-, 50-, 100-, and 500-Year
WATER SURFACE PROFILES
Revised 10/11/78

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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

OLD MAID DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
.900	0.00	0.00	0.00	834.99	440.00	839.18	0.00	839.26	19.00	3.03	307.31	100.93
.900	0.00	0.00	0.00	834.99	670.00	839.67	0.00	839.75	19.26	3.32	431.33	152.66
.900	0.00	0.00	0.00	834.99	865.00	840.00	0.00	840.09	19.54	3.52	527.14	195.70
.900	0.00	0.00	0.00	834.99	1170.00	840.46	0.00	840.55	19.34	3.74	676.97	266.08
.910	50.00	0.00	0.00	835.09	440.00	839.28	0.00	839.36	19.16	3.04	306.13	100.52
.910	50.00	0.00	0.00	835.09	670.00	839.76	0.00	839.85	19.37	3.32	430.31	152.22
.910	50.00	0.00	0.00	835.09	865.00	840.10	0.00	840.19	19.60	3.52	526.44	195.38
.910	50.00	0.00	0.00	835.09	1170.00	840.56	0.00	840.65	19.42	3.75	675.77	265.52
1.000	50.00	0.00	0.00	835.19	440.00	839.37	0.00	839.46	19.30	3.04	305.06	100.16
1.000	50.00	0.00	0.00	835.19	670.00	839.86	0.00	839.95	19.48	3.33	429.39	151.82
1.000	50.00	0.00	0.00	835.19	865.00	840.20	0.00	840.29	19.66	3.53	525.80	195.08
1.000	50.00	0.00	0.00	835.19	1170.00	840.65	0.00	840.75	19.49	3.75	674.66	265.00
1.900	993.00	0.00	0.00	837.10	440.00	842.03	0.00	842.34	45.99	4.64	105.31	64.88
1.900	993.00	0.00	0.00	837.10	670.00	842.64	0.00	843.02	53.18	5.46	205.11	91.88
1.900	993.00	0.00	0.00	837.10	865.00	842.99	0.00	843.37	53.71	5.77	282.05	118.03
1.900	993.00	0.00	0.00	837.10	1170.00	843.43	0.00	843.81	54.23	6.15	386.52	158.88
2.000	50.00	0.00	0.00	837.20	440.00	842.29	0.00	842.56	39.80	4.42	119.04	69.75
2.000	50.00	0.00	0.00	837.20	670.00	843.02	0.00	843.27	35.58	4.65	266.18	112.33
2.000	50.00	0.00	0.00	837.20	865.00	843.37	0.00	843.63	37.33	4.99	344.09	141.57
2.000	50.00	0.00	0.00	837.20	1170.00	843.81	0.00	844.07	37.92	5.32	457.73	190.01
2.100	1.00	842.10	840.80	837.20	440.00	842.02	0.00	842.84	489.35	7.46	64.60	19.89
2.100	1.00	842.10	840.80	837.20	670.00	843.14	0.00	843.30	181.77	4.12	242.90	49.70
2.100	1.00	842.10	840.80	837.20	865.00	843.56	0.00	843.68	116.75	3.58	342.45	80.05
2.100	1.00	842.10	840.80	837.20	1170.00	844.01	0.00	844.12	89.77	3.40	461.87	123.49
2.400	12.00	842.10	840.80	837.20	440.00	843.19	0.00	843.25	70.03	2.58	253.23	52.58
2.400	12.00	842.10	840.80	837.20	670.00	843.39	0.00	843.48	101.34	3.23	300.60	66.55
2.400	12.00	842.10	840.80	837.20	865.00	843.71	0.00	843.80	85.62	3.15	381.42	93.48
2.400	12.00	842.10	840.80	837.20	1170.00	844.13	0.00	844.22	74.56	3.15	492.14	135.50
2.500	1.00	0.00	0.00	837.20	440.00	843.18	0.00	843.26	12.50	2.81	299.44	124.43
2.500	1.00	0.00	0.00	837.20	670.00	843.36	0.00	843.52	22.61	3.88	342.43	140.91
2.500	1.00	0.00	0.00	837.20	865.00	843.67	0.00	843.85	24.82	4.23	420.90	173.61
2.500	1.00	0.00	0.00	837.20	1170.00	844.08	0.00	844.27	27.41	4.67	529.18	223.46

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2.600	50.00	0.00	0.00	837.21	440.00	843.25	0.00	843.33	11.52	2.72	313.33	129.66
	2.600	50.00	0.00	0.00	837.21	670.00	843.50	0.00	843.63	19.02	3.62	373.90	153.62
	2.600	50.00	0.00	0.00	837.21	865.00	843.83	0.00	843.97	20.75	3.93	457.44	189.87
	2.600	50.00	0.00	0.00	837.21	1170.00	844.25	0.00	844.41	22.88	4.34	572.28	244.60
	3.000	793.00	0.00	0.00	837.33	440.00	844.15	0.00	844.19	9.64	2.26	395.59	141.74
	3.000	793.00	0.00	0.00	837.33	670.00	844.74	0.00	844.78	10.60	2.57	514.91	205.84
	3.000	793.00	0.00	0.00	837.33	865.00	845.15	0.00	845.20	11.15	2.78	603.19	259.16
	3.000	793.00	0.00	0.00	837.33	1170.00	845.69	0.00	845.74	11.96	3.07	723.16	338.29
	3.900	192.00	0.00	0.00	838.00	205.00	844.29	0.00	844.34	6.10	2.78	162.99	83.00
	3.900	192.00	0.00	0.00	838.00	295.00	844.88	0.00	844.92	5.36	2.76	280.91	127.48
	3.900	192.00	0.00	0.00	838.00	345.00	845.31	0.00	845.34	4.00	2.49	370.25	172.42
	3.900	192.00	0.00	0.00	838.00	440.00	845.86	0.00	845.89	3.27	2.36	488.64	243.27
	4.000	50.00	0.00	0.00	838.17	205.00	844.31	0.00	844.38	7.17	2.97	141.20	76.54
	4.000	50.00	0.00	0.00	838.17	295.00	844.90	0.00	844.96	6.57	3.02	252.70	115.06
	4.000	50.00	0.00	0.00	838.17	345.00	845.33	0.00	845.37	4.86	2.71	340.46	156.55
	4.000	50.00	0.00	0.00	838.17	440.00	845.88	0.00	845.91	3.93	2.55	455.08	222.60
*	4.100	1.00	844.30	842.60	838.17	205.00	844.89	844.89	844.97	25.93	2.95	91.04	40.26
*	4.100	1.00	844.30	842.60	838.17	295.00	844.85	844.85	845.07	68.77	4.76	83.13	35.57
	4.100	1.00	844.30	842.60	838.17	345.00	845.32	0.00	845.38	9.02	1.93	181.95	114.86
	4.100	1.00	844.30	842.60	838.17	440.00	845.88	0.00	845.91	2.97	1.24	298.48	255.10
	4.400	14.00	844.30	843.50	838.17	205.00	844.96	0.00	845.01	10.83	2.35	120.42	62.31
	4.400	14.00	844.30	843.50	838.17	295.00	845.09	0.00	845.15	12.85	2.62	146.26	82.30
	4.400	14.00	844.30	843.50	838.17	345.00	845.34	0.00	845.39	6.93	2.01	198.33	131.02
	4.400	14.00	844.30	843.50	838.17	440.00	845.88	0.00	845.92	2.59	1.34	314.09	273.20
	4.500	1.00	0.00	0.00	838.17	205.00	844.98	0.00	845.01	4.04	2.38	264.04	101.99
	4.500	1.00	0.00	0.00	838.17	295.00	845.10	0.00	845.16	7.02	3.18	288.79	111.32
	4.500	1.00	0.00	0.00	838.17	345.00	845.34	0.00	845.39	6.73	3.19	341.39	132.98
	4.500	1.00	0.00	0.00	838.17	440.00	845.88	0.00	845.92	5.48	3.02	456.54	187.99
	4.600	50.00	0.00	0.00	838.54	205.00	844.99	0.00	845.05	6.70	2.96	193.97	79.18
	4.600	50.00	0.00	0.00	838.54	295.00	845.12	0.00	845.22	11.55	3.94	219.71	86.82
	4.600	50.00	0.00	0.00	838.54	345.00	845.36	0.00	845.46	10.94	3.93	270.28	104.29
	4.600	50.00	0.00	0.00	838.54	440.00	845.90	0.00	845.97	8.53	3.65	380.74	150.67
	5.000	192.00	0.00	0.00	839.97	205.00	845.13	0.00	845.20	8.51	2.12	106.90	70.26
	5.000	192.00	0.00	0.00	839.97	295.00	845.35	0.00	845.48	14.33	2.86	121.34	77.93
	5.000	192.00	0.00	0.00	839.97	345.00	845.59	0.00	845.73	15.71	3.10	140.01	87.04
	5.000	192.00	0.00	0.00	839.97	440.00	846.07	0.00	846.23	16.15	3.38	183.58	109.50
	5.100	50.00	0.00	0.00	840.44	205.00	845.17	0.00	845.26	12.81	2.41	90.57	57.27
	5.100	50.00	0.00	0.00	840.44	295.00	845.42	0.00	845.58	20.88	3.22	98.94	64.56
	5.100	50.00	0.00	0.00	840.44	345.00	845.66	0.00	845.84	22.97	3.52	109.83	71.99
	5.100	50.00	0.00	0.00	840.44	440.00	846.14	0.00	846.36	23.71	3.86	146.64	90.36
	5.200	200.00	0.00	0.00	842.33	205.00	845.60	0.00	845.88	80.49	4.21	49.44	22.85
	5.200	200.00	0.00	0.00	842.33	295.00	846.06	0.00	846.43	84.10	4.92	61.66	32.17
	5.200	200.00	0.00	0.00	842.33	345.00	846.33	0.00	846.74	81.08	5.18	69.17	38.32
	5.200	200.00	0.00	0.00	842.33	440.00	846.79	0.00	847.28	77.28	5.61	82.67	50.05

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.300	200.00	0.00	0.00	844.22	205.00	847.37	0.00	847.68	99.68	4.49	46.20	20.53
5.300	200.00	0.00	0.00	844.22	295.00	847.85	0.00	848.25	97.21	5.14	58.82	29.92
5.300	200.00	0.00	0.00	844.22	345.00	848.07	0.00	848.53	96.95	5.47	65.21	35.04
5.300	200.00	0.00	0.00	844.22	440.00	848.48	0.00	849.04	96.99	6.01	76.61	44.68
5.900	188.00	0.00	0.00	845.34	205.00	849.46	0.00	849.76	123.23	4.71	53.65	18.47
5.900	188.00	0.00	0.00	845.34	295.00	849.95	0.00	850.25	112.33	4.86	77.52	27.83
5.900	188.00	0.00	0.00	845.34	345.00	850.20	0.00	850.49	105.97	4.39	90.59	33.51
5.900	188.00	0.00	0.00	845.34	440.00	850.63	0.00	850.90	92.03	4.84	116.96	45.87
6.000	130.00	0.00	0.00	846.57	205.00	851.32	0.00	852.09	220.05	7.08	28.95	13.82
6.000	130.00	0.00	0.00	846.57	295.00	851.77	0.00	853.04	321.27	9.03	32.67	16.46
6.000	130.00	0.00	0.00	846.57	345.00	851.93	0.00	853.53	393.62	10.17	33.93	17.39
6.000	130.00	0.00	0.00	846.57	440.00	852.22	852.22	854.51	531.24	12.17	36.17	19.09
6.400	65.00	856.00	851.20	846.87	205.00	852.28	0.00	852.83	47.15	5.99	34.25	29.85
6.400	65.00	856.00	851.20	846.87	295.00	854.40	0.00	854.91	31.38	5.75	51.29	52.66
6.400	65.00	856.00	851.20	846.87	345.00	855.62	0.00	856.11	26.88	5.66	60.99	66.55
6.400	65.00	856.00	851.20	846.87	440.00	856.65	0.00	856.66	.47	1.12	887.85	638.94
6.600	50.00	0.00	0.00	847.34	205.00	852.89	0.00	853.06	13.81	3.87	73.96	55.16
6.600	50.00	0.00	0.00	847.34	295.00	855.03	0.00	855.09	3.21	2.43	188.97	164.59
6.600	50.00	0.00	0.00	847.34	345.00	856.24	0.00	856.27	1.63	1.93	267.60	270.09
6.600	50.00	0.00	0.00	847.34	440.00	856.64	0.00	856.68	2.01	2.22	294.58	310.60
6.900	90.00	0.00	0.00	848.05	205.00	853.07	0.00	853.16	4.81	2.64	101.57	93.48
6.900	90.00	0.00	0.00	848.05	295.00	855.08	0.00	855.11	1.61	1.93	253.41	232.30
6.900	90.00	0.00	0.00	848.05	345.00	856.27	0.00	856.29	.81	1.52	411.15	383.79
6.900	90.00	0.00	0.00	848.05	440.00	856.68	0.00	856.70	.95	1.70	477.59	451.82
7.000	50.00	0.00	0.00	848.47	205.00	853.09	0.00	853.20	7.03	3.02	87.83	77.31
7.000	50.00	0.00	0.00	848.47	295.00	855.08	0.00	855.13	2.32	2.22	210.86	193.80
7.000	50.00	0.00	0.00	848.47	345.00	856.27	0.00	856.29	1.14	1.74	350.45	323.79
7.000	50.00	0.00	0.00	848.47	440.00	856.68	0.00	856.71	1.32	1.94	411.00	383.63
7.400	55.00	856.80	854.20	849.77	205.00	857.28	0.00	857.28	.14	.60	564.92	547.23
7.400	55.00	856.80	854.20	849.77	295.00	857.71	0.00	857.71	.20	.76	648.06	653.64
7.400	55.00	856.80	854.20	849.77	345.00	857.87	0.00	857.87	.25	.84	678.68	694.75
7.400	55.00	856.80	854.20	849.77	440.00	858.04	0.00	858.05	.35	1.02	713.22	742.29
8.000	122.00	0.00	0.00	848.67	205.00	857.27	0.00	857.29	.53	1.18	243.81	281.69
8.000	122.00	0.00	0.00	848.67	295.00	857.70	0.00	857.73	.84	1.55	269.71	321.67
8.000	122.00	0.00	0.00	848.67	345.00	857.86	0.00	857.89	1.05	1.75	279.48	337.49
8.000	122.00	0.00	0.00	848.67	440.00	858.03	0.00	858.08	1.55	2.15	289.13	353.48
8.100	235.00	0.00	0.00	849.31	205.00	857.29	0.00	857.30	.48	1.07	384.18	295.68
8.100	235.00	0.00	0.00	849.31	295.00	857.74	0.00	857.75	.60	1.24	509.94	382.12
8.100	235.00	0.00	0.00	849.31	345.00	857.90	0.00	857.92	.67	1.33	562.38	422.70
8.100	235.00	0.00	0.00	849.31	440.00	858.10	0.00	858.11	.85	1.53	625.53	475.99
8.900	706.00	0.00	0.00	851.23	205.00	857.36	0.00	857.40	7.81	1.54	147.72	73.36
8.900	706.00	0.00	0.00	851.23	295.00	857.83	0.00	857.88	12.01	2.00	167.84	85.12
8.900	706.00	0.00	0.00	851.23	345.00	858.00	0.00	858.07	14.33	2.22	186.15	91.12
8.900	706.00	0.00	0.00	851.23	440.00	858.22	0.00	858.31	18.88	2.59	217.31	101.27

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.000	50.00	0.00	0.00	851.37	205.00	857.40	0.00	857.44	8.40	1.58	143.56	70.74
9.000	50.00	0.00	0.00	851.37	295.00	857.89	0.00	857.95	12.66	2.03	162.65	82.90
9.000	50.00	0.00	0.00	851.37	345.00	858.07	0.00	858.14	15.17	2.27	178.39	88.57
9.000	50.00	0.00	0.00	851.37	440.00	858.31	0.00	858.41	19.79	2.64	209.93	98.90
9.400	19.00	857.90	857.80	851.37	205.00	857.31	0.00	857.62	194.40	4.52	45.35	14.70
9.400	19.00	857.90	857.80	851.37	295.00	858.45	0.00	858.48	7.77	1.68	225.98	105.80
9.400	19.00	857.90	857.80	851.37	345.00	858.58	0.00	858.62	9.20	1.85	244.65	113.74
9.400	19.00	857.90	857.80	851.37	440.00	858.78	0.00	858.84	11.95	2.14	273.01	127.30
10.000	33.00	0.00	0.00	852.40	205.00	857.64	0.00	857.81	17.57	4.02	109.41	48.91
10.000	33.00	0.00	0.00	852.40	295.00	858.45	0.00	858.54	10.37	3.44	200.42	91.63
10.000	33.00	0.00	0.00	852.40	345.00	858.59	0.00	858.68	11.55	3.69	217.95	101.50
10.000	33.00	0.00	0.00	852.40	440.00	858.79	0.00	858.91	13.94	4.16	244.87	117.86
10.010	1.00	857.10	858.20	852.40	205.00	857.37	856.06	858.08	13.85	6.79	32.07	55.08
10.010	1.00	857.10	858.20	852.40	295.00	858.36	0.00	858.63	15.08	5.10	98.84	75.96
10.010	1.00	857.10	858.20	852.40	345.00	858.53	0.00	858.74	16.75	4.78	117.09	84.28
10.010	1.00	857.10	858.20	852.40	440.00	858.77	0.00	858.94	18.04	4.44	144.85	103.59
10.090	13.00	856.90	858.20	852.40	205.00	857.40	856.04	858.10	13.59	6.75	32.08	55.61
10.090	13.00	856.90	858.20	852.40	295.00	858.38	0.00	858.65	15.57	5.18	96.72	74.76
10.090	13.00	856.90	858.20	852.40	345.00	858.55	0.00	858.77	17.22	4.85	114.96	83.13
10.090	13.00	856.90	858.20	852.40	440.00	858.79	0.00	858.97	18.51	4.50	142.83	102.28
10.100	1.00	0.00	0.00	852.40	205.00	858.26	0.00	858.30	4.64	2.20	194.59	95.21
10.100	1.00	0.00	0.00	852.40	295.00	858.67	0.00	858.72	5.40	2.50	247.02	126.90
10.100	1.00	0.00	0.00	852.40	345.00	858.75	0.00	858.82	6.67	2.81	257.17	133.63
10.100	1.00	0.00	0.00	852.40	440.00	858.92	0.00	859.00	8.77	3.28	280.46	148.55
11.000	192.00	0.00	0.00	853.27	205.00	858.34	0.00	858.41	4.92	2.26	112.99	92.41
11.000	192.00	0.00	0.00	853.27	295.00	858.76	0.00	858.87	7.22	2.90	129.00	109.82
11.000	192.00	0.00	0.00	853.27	345.00	858.86	0.00	859.00	9.09	3.30	134.58	114.45
11.000	192.00	0.00	0.00	853.27	440.00	859.06	0.00	859.26	12.53	3.97	149.22	124.32

OLD MAID DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.900	440.00	839.18	0.00	0.00	.68	236.18	0.00
.900	670.00	839.67	.49	0.00	.17	274.78	0.00
.900	865.00	840.00	.33	0.00	0.00	301.13	0.00
.900	1170.00	840.46	.46	0.00	-.54	358.64	0.00
.910	440.00	839.28	0.00	.10	0.00	235.67	50.00
.910	670.00	839.76	.49	.10	0.00	274.49	50.00
.910	865.00	840.10	.33	.10	0.00	300.94	50.00
.910	1170.00	840.56	.46	.10	0.00	358.12	50.00
1.000	440.00	839.37	0.00	.10	0.00	235.20	50.00
1.000	670.00	839.86	.49	.10	0.00	274.22	50.00
1.000	865.00	840.20	.34	.10	0.00	300.77	50.00
1.000	1170.00	840.65	.46	.10	0.00	357.63	50.00
1.900	440.00	842.63	0.00	2.65	0.00	43.24	993.00
1.900	670.00	842.64	.61	2.78	0.00	233.03	993.00
1.900	865.00	842.99	.35	2.80	0.00	225.00	993.00
1.900	1170.00	843.43	.44	2.78	0.00	249.42	993.00
2.000	440.00	842.29	0.00	.26	0.00	128.50	50.00
2.000	670.00	843.02	.73	.38	0.00	220.64	50.00
2.000	865.00	843.37	.35	.37	0.00	241.26	50.00
2.000	1170.00	843.81	.44	.37	0.00	261.65	50.00
2.100	440.00	842.02	0.00	-.26	0.00	30.00	1.00
2.100	670.00	843.14	1.12	.13	0.00	227.55	1.00
2.100	865.00	843.56	.41	.19	0.00	250.22	1.00
2.100	1170.00	844.01	.45	.21	0.00	270.35	1.00
2.400	440.00	843.19	0.00	1.17	0.00	230.31	12.00
2.400	670.00	843.39	.20	.24	0.00	242.56	12.00
2.400	865.00	843.71	.32	.15	0.00	256.96	12.00
2.400	1170.00	844.13	.42	-.12	0.00	275.21	12.00
2.500	440.00	843.18	0.00	-.01	0.00	229.67	1.00
2.500	670.00	843.36	.18	-.03	0.00	240.84	1.00
2.500	865.00	843.67	.32	-.04	0.00	255.40	1.00
2.500	1170.00	844.08	.41	-.04	0.00	273.36	1.00
2.600	440.00	843.25	0.00	.07	0.00	233.34	50.00
2.600	670.00	843.50	.25	.14	0.00	247.19	50.00
2.600	865.00	843.83	.33	.15	0.00	261.60	50.00
2.600	1170.00	844.25	.42	.17	0.00	280.19	50.00
3.000	440.00	844.15	0.00	.91	0.00	203.24	793.00
3.000	670.00	844.74	.58	1.24	0.00	211.45	793.00
3.000	865.00	845.15	.41	1.33	0.00	216.51	793.00
3.000	1170.00	845.69	.54	1.44	0.00	223.22	793.00
3.900	205.00	844.29	0.00	.13	0.00	177.94	192.00
3.900	295.00	844.88	.60	.14	0.00	205.01	192.00
3.900	345.00	845.31	.43	.16	0.00	210.67	192.00

3.300	440.00	845.36	.55	.18	0.00	217.94	192.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.000	205.00	844.31	0.01	.03	0.00	141.20	50.00
4.000	295.00	844.90	.59	.02	0.00	203.19	50.00
4.000	345.00	845.33	.42	.02	0.00	208.80	50.00
4.000	440.00	845.88	.55	.02	0.00	215.90	50.00
4.100	205.00	844.89	0.00	.57	0.00	202.86	1.00
4.100	295.00	844.85	-.04	-.06	0.00	202.34	1.00
4.100	345.00	845.32	.47	-.01	0.00	208.68	1.00
4.100	440.00	845.88	.56	-.00	0.00	215.91	1.00
4.400	205.00	844.96	0.00	.07	0.00	203.79	14.00
4.400	295.00	845.09	.13	.24	0.00	205.45	14.00
4.400	345.00	845.34	.26	.02	0.00	208.76	14.00
4.400	440.00	845.88	.54	.01	0.00	215.94	14.00
4.500	205.00	844.98	0.00	.02	0.00	203.93	1.00
4.500	295.00	845.10	.12	.01	0.00	205.52	1.00
4.500	345.00	845.34	.24	-.00	0.00	208.86	1.00
4.500	440.00	845.88	.54	-.00	0.00	215.99	1.00
4.600	205.00	844.99	0.00	.01	0.00	195.49	50.00
4.600	295.00	845.12	.13	.02	0.00	201.05	50.00
4.600	345.00	845.36	.24	.02	0.00	204.33	50.00
4.600	440.00	845.90	.54	.02	0.00	211.32	50.00
5.000	205.00	845.13	0.00	.14	0.00	53.07	192.00
5.000	295.00	845.35	.22	.23	0.00	76.17	192.00
5.000	345.00	845.59	.23	.22	0.00	83.33	192.00
5.000	440.00	846.07	.49	.17	0.00	95.64	192.00
5.100	205.00	845.17	0.00	.04	0.00	30.86	50.00
5.100	295.00	845.42	.25	.07	0.00	36.06	50.00
5.100	345.00	845.66	.24	.07	0.00	58.49	50.00
5.100	440.00	846.14	.48	.07	0.00	85.32	50.00
5.200	205.00	845.60	0.00	.43	0.00	26.21	200.00
5.200	295.00	846.06	.45	.64	0.00	27.51	200.00
5.200	345.00	846.33	.27	.67	0.00	28.28	200.00
5.200	440.00	846.79	.47	.65	0.00	29.61	200.00
5.300	205.00	847.37	0.00	1.77	0.00	25.86	200.00
5.300	295.00	847.85	.48	1.79	0.00	27.21	200.00
5.300	345.00	848.07	.23	1.75	0.00	27.88	200.00
5.300	440.00	848.48	.41	1.69	0.00	29.02	200.00
5.900	205.00	849.45	0.00	2.09	0.00	43.48	188.00
5.900	295.00	849.95	.50	2.11	0.00	52.08	188.00
5.900	345.00	850.20	.25	2.12	0.00	56.23	188.00
5.900	440.00	850.63	.43	2.14	0.00	68.16	188.00
6.000	205.00	851.32	0.00	1.86	0.00	8.00	130.00
6.000	295.00	851.77	.46	1.82	0.00	8.00	130.00
6.000	345.00	851.93	.15	1.73	0.00	8.00	130.00
6.000	440.00	852.22	.29	1.59	0.00	8.00	130.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.400	205.00	852.28	0.00	.96	0.00	8.00	65.00
6.400	295.00	854.40	2.13	2.63	0.00	8.00	65.00
6.400	345.00	855.62	1.21	3.69	0.00	8.00	65.00
6.400	440.00	856.65	1.04	4.44	0.00	473.76	65.00
6.600	205.00	852.89	0.00	.61	0.00	39.08	50.00
6.600	295.00	855.03	2.15	.63	0.00	64.89	50.00
6.600	345.00	856.24	1.20	.62	0.00	65.78	50.00
6.600	440.00	856.64	.40	-.01	0.00	73.74	50.00
6.900	205.00	853.07	0.00	.19	0.00	39.91	90.00
6.900	295.00	855.08	2.00	.04	0.00	111.58	90.00
6.900	345.00	856.27	1.19	.03	0.00	154.04	90.00
6.900	440.00	856.68	.41	.04	0.00	168.76	90.00
7.000	205.00	853.09	0.00	.02	0.00	30.39	50.00
7.000	295.00	855.08	1.99	.00	0.00	96.99	50.00
7.000	345.00	856.27	1.19	.00	0.00	139.24	50.00
7.000	440.00	856.68	.41	.00	0.00	154.01	50.00
7.400	205.00	857.28	0.00	4.18	0.00	188.00	55.00
7.400	295.00	857.71	.43	2.63	0.00	193.36	55.00
7.400	345.00	857.87	.16	1.60	0.00	195.29	55.00
7.400	440.00	858.04	.17	1.36	0.00	197.45	55.00
8.000	205.00	857.27	0.00	-.00	0.00	60.00	122.00
8.000	295.00	857.70	.43	-.01	0.00	60.00	122.00
8.000	345.00	857.86	.15	-.01	0.00	60.00	122.00
8.000	440.00	858.03	.17	-.01	0.00	60.00	122.00
8.100	205.00	857.29	0.00	.02	0.00	234.44	235.00
8.100	295.00	857.74	.45	.03	0.00	314.01	235.00
8.100	345.00	857.90	.16	.04	0.00	322.45	235.00
8.100	440.00	858.10	.19	.07	0.00	332.35	235.00
8.900	205.00	857.36	0.00	.07	0.00	38.13	706.00
8.900	295.00	857.83	.46	.09	0.00	83.28	706.00
8.900	345.00	858.00	.17	.10	0.00	118.68	706.00
8.900	440.00	858.22	.22	.12	0.00	167.05	706.00
9.000	205.00	857.40	0.00	.04	0.00	37.68	50.00
9.000	295.00	857.89	.48	.06	0.00	47.06	50.00
9.000	345.00	858.07	.19	.07	0.00	108.98	50.00
9.000	440.00	858.31	.24	.09	0.00	156.44	50.00
9.400	205.00	857.31	0.00	-.10	0.00	37.32	19.00
9.400	295.00	858.45	1.14	.56	0.00	140.00	19.00
9.400	345.00	858.58	.13	.51	0.00	140.00	19.00
9.400	440.00	858.78	.20	.47	0.00	140.00	19.00
10.000	205.00	857.64	0.00	.34	0.00	94.99	33.00
10.000	295.00	858.45	.81	.00	0.00	128.44	33.00
10.000	345.00	858.59	.14	.01	0.00	128.75	33.00
10.000	440.00	858.79	.21	.01	0.00	131.87	33.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10.010	205.00	857.37	0.00	-.27	0.00	47.34	1.00
10.010	295.00	858.36	.99	-.09	0.00	128.26	1.00
10.010	345.00	858.53	.17	-.05	0.00	128.63	1.00
10.010	440.00	858.77	.23	-.03	0.00	136.03	1.00
10.090	205.00	857.40	0.00	.03	0.00	46.68	13.00
10.090	295.00	858.38	.98	.01	0.00	125.29	13.00
10.090	345.00	858.55	.17	.02	0.00	125.67	13.00
10.090	440.00	858.79	.24	.02	0.00	135.24	13.00
10.100	205.00	858.26	0.00	.86	0.00	125.02	1.00
10.100	295.00	858.67	.41	.29	0.00	125.95	1.00
10.100	345.00	858.75	.08	.20	0.00	131.95	1.00
10.100	440.00	858.92	.17	.13	0.00	149.67	1.00
11.000	205.00	858.34	0.00	.08	0.00	35.61	192.00
11.000	295.00	858.76	.42	.09	0.00	48.69	192.00
11.000	345.00	858.86	.10	.11	0.00	61.34	192.00
11.000	440.00	859.06	.20	.14	0.00	86.10	192.00

SUMMARY OF ERRORS

CAUTION SECNO= 4.100 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.100 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4.100 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 4.100 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 4.100 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 6.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

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**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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16.20.48..000059 PAGES PRINT. 003930 LINES PRINT. FOR $ 003.24 AT RG2.

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Delhi & Windsor Twp

3) WATERCOURSE: Gilbert Drain

4) DOCUMENT TYPE: 100 yr natural & Floodway

00BREAK00

.03.20.49. 10/31/78 LQ21 TB96165
.03.20.49. 10/31/78 LQ21 TB96165
.03.20.49. 10/31/78 LQ21 TB96165
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.03.20.49. 10/31/78 LQ21 TB96165
.03.20.49. 10/31/78 LQ21 TB96165
.03.20.50. 10/31/78 LQ21 TB96165
.03.20.50. 10/31/78 LQ21 TB96165

GILBERT DRAIN
FLOOD WAY RUN
10/31/78
FINAL

void upstream of Secno 8.2

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**********
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********
C
T1      FIA STUDY - WINDSOR AND DELHI TWPS, JOB NOS 17286A,17285A.
T2      100 YEAR FLOW, NATURAL FLOODWAY
T3      GILBERT DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       2.        0.        0.  0.000000      0.00      0.0       0.    847.370     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      .100      .100      .045      .300      .500     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
QT     2.000   685.000   685.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

        STARTING WATER SURFACE BY SLOPE-AREA

        SECTION A, SURVEYED VALLEY SECTION

X1      1.000    10.000   231.000   252.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    856.700     0.000   851.100    22.000   847.500    84.000   845.600   200.000   846.000   231.000
GR    843.400   234.000   842.900   240.000   843.400   246.000   844.900   252.000   856.700   307.000
NC      .035      .100      .045     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1      1.100     0.000     0.000     0.000    62.000    62.000    62.000     0.000      .640     0.000
ET      0.000     4.100     4.100   163.000   197.000     0.000     0.000     0.000     0.000     0.000

X1      1.900     9.000   175.000   185.000   130.000   130.000   130.000     0.000     -.510     0.000
GR    857.400     0.000   848.500   100.000   846.000   175.000   846.000   175.000   845.400   180.000
GR    846.000   185.000   846.000   185.000   860.800   213.000   861.400   300.000     0.000     0.000

X1      1.950     0.000     0.000     0.000    25.000    25.000    25.000     0.000      .260     0.000
X3      0.000     0.000     0.000   169.000     0.000   191.000     0.000     0.000     0.000     0.000

X1      2.000     9.000   175.000   185.000    24.000    24.000    24.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   854.300   854.300     0.000
GR    857.400     0.000   848.600   100.000   846.000   175.000   846.000   175.000   845.400   180.000
GR    846.000   185.000   846.000   185.000   860.800   213.000   861.400   300.000     0.000     0.000
NC      .025      .025      .026     0.000     0.000     0.000     0.000     0.000     0.001     0.000
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D/S FACE, JARVIS HIGHWAY

X1	2.010	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	854.300	854.300	0.000
BT	9.000	0.000	857.400	0.000	100.000	854.300	0.000	175.000	854.300	846.000
BT	175.000	854.300	852.900	185.000	854.300	852.900	185.000	854.300	846.000	200.000
BT	854.600	0.000	213.800	860.800	0.000	300.000	351.400	0.000	0.000	0.000

SECTION B

JARVIS HIGHWAY, CONCRETE BOX CULVERT, 45 DEGREE WINGWALLS, GRAVEL ROAD

X1	2.090	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	854.300	854.300	0.000
NC	.110	.110	.070	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.100	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	854.300	854.300	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2.200	0.000	0.000	0.000	75.000	75.000	75.000	0.000	.110	0.000

SECTION C, SURVEYED VALLEY SECTION

X1	3.000	9.000	160.000	190.000	1465.000	1465.000	1465.000	0.000	0.000	0.000
GR	861.600	0.000	858.600	100.000	853.500	160.000	352.000	165.000	847.900	174.000
GR	852.000	183.000	854.100	190.000	860.800	330.000	854.500	350.000	0.000	0.000
QT	2.000	630.000	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3.900	13.000	206.000	240.000	637.000	637.000	637.000	0.000	-.150	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	873.700	0.000	865.900	100.000	858.300	206.000	352.750	220.250	851.380	221.620
GR	850.000	223.000	851.380	224.380	852.750	225.750	357.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000
X1	4.000	13.000	220.250	225.750	50.000	50.000	50.000	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	873.700	0.000	865.900	100.000	858.300	206.000	352.750	220.250	851.380	221.620
GR	850.000	223.000	851.380	224.380	852.750	225.750	357.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000
NC	.035	.035	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, FARM LANE 5.5 FT. DIAM. CMP (2 IN.), 26 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

X1	4.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	873.700	0.000	100.000	865.900	0.000	206.000	858.300	0.000
BT	220.250	857.900	852.750	221.620	857.300	854.120	223.000	857.800	855.500	224.380
BT	857.770	854.120	225.750	857.740	852.750	240.000	857.400	0.000	300.000	855.700
BT	0.000	400.000	863.500	0.000	500.000	868.600	0.000	600.000	873.700	0.000

SECTION D, U/S FACE,FARM LANE

X1	4.090	0.000	0.000	0.000	24.000	24.000	24.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	873.700	0.000	100.000	865.900	0.000	206.000	856.300	0.000
BT	220.250	857.900	853.250	221.620	857.800	854.620	223.000	857.300	856.000	224.380
BT	857.770	854.620	225.750	857.740	853.250	240.000	357.400	0.000	300.000	855.700
BT	0.000	400.000	863.500	0.000	500.000	868.600	0.000	600.000	873.700	0.000
NC	.110	.110	.070	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	4.100	13.000	206.000	240.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	873.700	0.000	865.900	100.000	858.300	206.000	853.250	220.250	851.380	221.620
GR	850.500	223.000	851.880	224.380	853.250	225.750	857.400	240.000	855.700	300.000
GR	863.500	400.000	868.600	500.000	873.700	600.000	0.000	0.000	0.000	0.000
X1	4.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.040	0.000
X1	4.900	12.000	175.000	213.000	796.000	796.000	796.000	0.000	-.040	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.500	100.000	858.300	175.000	353.950	187.250	852.580	188.620
GR	851.200	190.000	852.560	191.380	853.950	192.750	358.000	213.000	862.600	300.000
GR	864.600	400.000	866.600	460.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.010	.300	.500	0.000	0.000	0.000	0.000	0.000

D/S FACE, FARM LANE, 5.5 FT. DIAM. CMP (1/2 IN.),24 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

X1	5.000	12.000	175.000	213.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.500	100.000	858.900	175.000	853.950	187.250	852.580	188.620
GR	851.200	190.000	852.560	191.380	853.950	192.750	858.000	213.000	862.600	300.000
GR	864.600	400.000	866.600	460.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.157	2.900	0.000	5.500	0.000	23.750	0.000	851.500	851.200

SECTION E, U/S FACE, FARM LANE

X1	5.090	0.000	0.000	0.000	22.000	22.000	22.000	0.000	.300	0.000
X2	0.000	0.000	1.010	857.000	858.300	0.000	0.000	0.000	0.000	0.000
BT	12.000	0.000	866.500	0.000	100.000	863.600	0.000	175.000	856.900	0.000
BT	187.250	858.700	854.250	188.620	858.700	855.620	190.000	858.700	857.000	191.380
BT	858.700	855.620	192.750	858.600	854.250	213.000	858.000	0.000	300.000	862.600
BT	0.000	400.000	864.500	0.000	460.000	866.600	0.000	0.000	0.000	0.000
X1	5.100	12.000	175.000	213.000	50.000	50.000	50.000	0.000	.040	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.600	0.000	863.500	100.000	858.300	175.000	354.250	187.250	852.380	188.620
GR	851.500	190.000	852.560	191.380	854.250	192.750	858.000	213.000	862.600	300.000
GR	864.600	400.000	866.600	460.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION F, SURVEYED VALLEY SECTION

X1	6.000	12.000	276.000	315.000	1019.000	1019.000	1019.000	0.000	0.000	0.000
GR	865.300	0.000	861.000	100.000	859.200	200.000	852.000	240.000	858.000	276.000
GR	854.400	280.000	852.300	291.000	854.400	300.000	859.900	315.000	861.300	400.000
GR	863.300	500.000	865.300	600.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	6.900	12.000	300.000	346.000	189.000	189.000	139.000	0.000	-.290	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	866.700	0.000	865.300	100.000	863.500	200.000	862.100	300.000	855.700	313.000
GR	854.700	314.000	853.700	315.000	854.700	316.000	855.700	317.000	862.600	346.000
GR	865.500	400.000	866.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION G, U/S FACE, DRIVEWAY CULVERT, 4 FT. DIAM. BOILER PLATE PIPE

SANDBAG WINGWALLS, PAVED ROADWAY

X1	7.000	12.000	300.000	346.000	50.000	50.000	50.000	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	866.700	0.000	865.300	100.000	863.500	200.000	862.100	300.000	855.700	313.000
GR	854.700	314.000	853.700	315.000	854.700	316.000	855.700	317.000	862.600	346.000
GR	865.500	400.000	866.700	500.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.035	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	277.000	500.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.570	3.040	0.000	4.000	0.000	12.566	0.000	853.700	853.700

SECTION H, U/S FACE, DRIVEWAY CULVERT

X1	7.100	0.000	0.000	0.000	23.000	23.000	23.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	857.700	862.000	0.000	0.000	0.000	0.000	0.000
BT	12.000	277.000	862.350	0.000	277.000	862.350	0.000	277.000	862.350	0.000
BT	300.000	862.000	0.000	313.000	862.000	855.700	314.000	862.000	856.700	315.000
BT	862.000	357.700	316.000	862.000	856.700	317.000	852.000	855.700	346.000	862.600
BT	0.000	400.000	865.500	0.000	500.000	866.700	0.000	0.000	0.000	0.000
NC	.040	.035	.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	7.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	.380	0.000
ET	0.000	4.100	4.100	930.000	1250.000	0.000	0.000	0.000	0.000	0.000

X1	8.000	25.000	1091.000	1097.000	8.000	258.000	158.000	.876	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.300	900.000	862.300	1000.000	862.500	1033.000	852.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.600	1094.000	855.500	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	868.400	1700.000	871.000	1900.000
GR	873.500	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.020	.020	.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, WAVERLY ROAD, 4 BY 6 FT. CMP ARCH (2 IN.), 50 FT. LONG

EXTENDING INLET, PAVED ROADWAY

X1	8.010	25.000	1091.000	1097.000	1.000	1.000	1.000	.876	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.875	0.000
X3	0.000	0.000	0.000	930.000	0.000	1250.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	876.400	0.000	176.000	873.000	0.000	412.000	867.400	0.000

BT	600.000	864.800	0.000	800.000	863.000	0.000	900.000	862.500	0.000	1000.000
BT	862.500	0.000	1033.000	862.500	0.000	1073.000	862.500	0.000	1091.000	862.500
BT	856.600	1092.500	862.500	858.100	1094.000	862.500	859.600	1095.500	862.600	858.100
BT	1097.000	862.600	856.600	1128.000	862.600	0.000	1300.000	863.900	0.000	1500.000
BT	866.900	0.000	1541.000	867.400	0.000	1700.000	858.400	0.000	1900.000	871.000
BT	0.000	2000.000	873.000	0.000	2200.000	874.000	0.000	2400.000	874.400	0.000
BT	2600.000	875.400	0.000	2700.000	876.400	0.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	862.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.600	1094.000	855.500	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	858.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000

SECTION I, U/S FACE, WAVERLY ROAD

X1	8.090	25.000	1091.000	1097.000	58.000	58.000	58.000	.375	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.876	0.000
X3	0.000	0.000	0.000	930.000	0.000	1250.000	0.000	0.000	0.000	0.000
BT	25.000	0.000	876.400	0.000	176.000	873.000	0.000	412.000	867.400	0.000
BT	600.000	864.800	0.000	800.000	863.300	0.000	900.000	862.800	0.000	1000.000
BT	862.500	0.000	1033.000	862.500	0.000	1058.000	862.500	855.700	1059.500	862.500
BT	857.200	1061.000	862.500	858.700	1062.500	862.500	857.200	1064.000	862.500	855.700
BT	1073.000	862.500	0.000	1128.000	862.600	0.000	1300.000	863.900	0.000	1500.000
BT	866.900	0.000	1541.000	867.400	0.000	1700.000	858.400	0.000	1900.000	871.000
BT	0.000	2000.000	873.000	0.000	2200.000	874.000	0.000	2400.000	874.000	0.000
BT	2600.000	875.400	0.000	2700.000	876.400	0.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	862.500	1073.000	856.600	1091.000
GR	855.600	1092.500	855.600	1094.000	855.500	1095.500	856.600	1097.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	858.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.125	.125	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8.100	25.000	1058.000	1064.000	1.000	1.000	1.000	.376	0.000	0.000
X3	0.000	0.000	0.000	897.000	0.000	1217.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	855.700	1058.000	854.700	1059.500
GR	854.700	1061.000	854.700	1062.500	855.700	1064.000	862.500	1073.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	858.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
X1	8.200	25.000	1058.000	1064.000	75.000	25.000	50.000	.375	-.160	0.000
X3	0.000	0.000	0.000	897.000	0.000	1217.000	0.000	0.000	0.000	0.000
GR	876.400	0.000	873.000	176.000	867.400	412.000	864.800	600.000	863.300	800.000
GR	862.800	900.000	862.500	1000.000	862.500	1033.000	855.700	1058.000	854.700	1059.500
GR	854.700	1061.000	854.700	1062.500	855.700	1064.000	862.500	1073.000	862.600	1128.000
GR	863.900	1300.000	866.900	1500.000	867.400	1541.000	858.400	1700.000	871.000	1900.000
GR	873.000	2000.000	874.000	2200.000	874.400	2400.000	875.400	2600.000	876.400	2700.000
NC	.125	.125	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	1156.140	1536.010	0.000	0.000	0.000	0.000	0.000
X1	9.000	20.000	1721.000	1758.000	245.000	20.000	170.000	.788	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.300	400.000	859.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.500	2400.000	874.300	2600.000
NC	.020	.020	.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

ET	0.000	4.100	4.100	1156.390	1536.010	0.000	0.000	0.000	0.000	0.000

D/S FACE, HOLT HIGHWAY, 8 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

SANDBAG WING WALLS, PAVED ROADWAY

X1	9.010	20.000	1738.600	1745.400	1.000	1.000	1.000	.738	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.788	0.000
BT	19.000	0.000	872.100	0.000	200.000	871.300	0.000	400.000	870.500	0.000
BT	600.000	869.500	0.000	800.000	868.700	0.000	1000.000	868.000	0.000	1200.000
BT	866.300	0.000	1400.000	864.700	0.000	1600.000	863.600	0.000	1668.000	863.400
BT	0.000	1721.000	863.400	0.000	1738.600	863.500	853.900	1738.600	863.500	858.900
BT	1745.400	863.500	858.900	1745.400	863.600	853.900	2000.000	864.500	0.000	2200.000
BT	868.200	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000

SECTION J, U/S FACE, HOLT HIGHWAY

X1	9.090	20.000	1738.600	1745.400	101.000	101.000	101.000	.788	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.788	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	872.100	0.000	200.000	871.300	0.000	400.000	870.500	0.000
BT	600.000	869.500	0.000	800.000	868.700	0.000	1000.000	868.000	0.000	1200.000
BT	866.300	0.000	1400.000	864.700	0.000	1600.000	863.600	0.000	1668.000	863.400
BT	0.000	1721.000	863.400	0.000	1738.600	863.500	853.900	1738.600	863.500	858.900
BT	1745.400	863.500	858.900	1745.400	863.600	853.900	2000.000	864.500	0.000	2200.000
BT	868.200	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.050	.050	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1600.000	.060	1664.000	.050	1671.400	.050	1721.000	.040
NH	2800.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9.100	20.000	1664.600	1671.400	1.000	1.000	1.000	.788	0.000	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	863.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000

X1	9.200	20.000	1664.600	1671.400	50.000	50.000	50.000	.738	.130	0.000
X3	0.000	0.000	0.000	1300.000	0.000	2000.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	863.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	2.000	255.000	255.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9.900	16.000	311.000	357.000	137.000	507.000	337.000	0.000	-.130	0.000

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GR    868.300      0.000    865.500    100.000    862.000    200.000    861.200    300.000    860.900    311.000
GR    857.500    331.500    856.200    332.800    855.000    334.000    856.200    335.200    857.500    336.500
GR    861.200    357.000    861.200    400.000    863.700    500.000    863.900    700.000    866.700    800.000
GR    868.300    900.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     11.000     16.000    331.500    336.500     50.000     50.000     50.000      0.000      0.000      0.000
GR    868.300      0.000    865.500    100.000    862.000    200.000    861.200    300.000    860.900    311.000
GR    857.500    331.500    856.200    332.800    855.000    334.000    856.200    335.200    857.500    336.500
GR    861.200    357.000    861.200    400.000    863.700    500.000    863.900    700.000    866.700    800.000
GR    868.300    900.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC       .030       .030       .023      0.000      0.000      0.000      0.000      0.000      0.000      0.000

      SECTION K, D/S FACE, FARM LANE, 5 FT. DIAM. CMP (1/2 IN ), 24 FT. LONG

      EXTENDING INLET, GRAVEL ROADWAY

X1     11.010      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
BT     14.000      0.000    868.300      0.000    100.000    865.500      0.000    200.000    862.100      0.000
BT    300.000    861.200      0.000    311.000    860.900      0.000    331.500    861.000    857.500    332.800
BT    861.100    858.800    334.000    861.100    860.000    335.200    861.100    858.300    336.500    861.100
BT    857.500    357.000    861.200      0.000    400.000    861.200      0.000    500.000    863.700      0.000
BT    700.000    863.900      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

      U/S FACE, FARM LANE

X1     11.090      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       .060       .060       .050      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     11.100      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000

X1     11.200      0.000      0.000      0.000     50.000     50.000     50.000      0.000     -.010      0.000

X1     11.900     20.000    416.000    462.000   1375.000   1575.000   1475.000      0.000      .010      0.000
X3      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    873.800      0.000    869.700    100.000    865.800    200.000    862.400    300.000    862.600    400.000
GR    862.600    416.000    856.200    438.500    855.400    439.800    854.500    441.000    855.400    442.200
GR    856.200    443.500    863.200    462.000    863.300    500.000    866.300    600.000    868.300    700.000
GR    869.500    800.000    870.300    900.000    871.200   1000.000    872.100   1100.000    873.800   1200.000

X1     12.000     20.000    438.500    443.500     50.000     50.000     50.000      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    873.800      0.000    869.700    100.000    865.800    200.000    862.400    300.000    862.800    400.000
GR    862.600    416.000    856.200    438.500    855.400    439.800    854.500    441.000    855.400    442.200
GR    856.200    443.500    863.200    462.000    863.300    500.000    866.300    600.000    868.300    700.000
GR    869.500    800.000    870.800    900.000    871.200   1000.000    872.100   1100.000    873.800   1200.000
NC       .030       .030       .24      0.000      0.000      0.000      0.000      0.000      0.000      0.000

      SECTION L, D/S FACE, FARM LANE, 3.5 BY 5 FT. CMP ARCH (1/2 IN.)

      EXTENDING INLET, GRAVEL ROADWAY

X1     12.010      0.000      0.000      0.000      1.000      1.000      1.000      0.000      0.000      0.000
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X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	20.000	0.000	873.800	0.000	100.000	869.700	0.000	200.000	865.800	0.000
BT	300.000	862.400	0.000	400.000	862.800	0.000	416.000	862.600	0.000	438.500
BT	862.600	856.200	439.600	862.500	857.100	441.000	852.600	858.000	442.200	862.700
BT	857.100	443.500	862.700	856.200	462.000	863.200	0.000	500.000	863.300	0.000
BT	600.000	866.300	0.000	700.000	868.300	0.000	800.000	869.500	0.000	900.000
BT	870.800	0.000	1000.000	871.200	0.000	1100.000	872.000	0.000	1200.000	873.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE, FARM LANE CULVERT

X1	12.090	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	.060	.060	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X1	12.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NH	5.000	.040	1276.000	.125	1300.000	.060	1304.000	.125	1321.000	.040
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	12.900	18.000	1300.000	1304.000	606.000	606.000	606.000	0.000	0.000	0.000
GR	864.000	0.000	864.000	1076.000	863.700	1176.000	864.000	1276.000	856.500	1300.000
GR	855.500	1301.000	854.500	1302.000	855.500	1303.000	856.500	1304.000	864.000	1321.000
GR	864.000	1376.000	864.400	1476.000	865.200	1576.000	865.700	1676.000	866.500	1776.000
GR	867.500	1876.000	868.600	1976.000	869.100	2026.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.000	18.000	1300.000	1304.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	864.000	0.000	864.000	1076.000	863.700	1176.000	864.000	1276.000	856.500	1300.000
GR	855.000	1300.500	854.500	1302.000	855.000	1303.500	856.500	1304.000	864.000	1321.000
GR	864.000	1376.000	864.400	1476.000	865.200	1576.000	865.700	1676.000	866.500	1776.000
GR	867.500	1876.000	868.600	1976.000	869.100	2026.000	0.000	0.000	0.000	0.000
NC	.025	.025	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000

SECTION M, D/S FACE, GILBERT ROAD, 4 FT. DIAM. CMP (1/2 IN.), 63 FT LONG

EXTENDING INLET, PAVED ROADWAY

X1	13.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	1076.000	864.000	0.000	1176.000	863.700	0.000	1276.000	864.000	0.000
BT	1300.000	864.000	856.500	1300.500	864.000	858.000	1302.000	864.000	858.500	1303.500
BT	864.000	858.000	1304.000	864.000	856.500	1321.000	864.000	0.000	1376.000	864.000
BT	0.000	1476.000	864.400	0.000	1576.000	865.200	0.000	1676.000	865.700	0.000
BT	1776.000	866.500	0.000	1876.000	867.500	0.000	1976.000	868.600	0.000	2026.000
BT	869.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000

U/S FACE, GILBERT ROAD

X1	13.090	0.000	0.000	0.000	61.000	61.000	61.000	0.000	.300	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000

NH	5.000	.035	1276.000	.125	1300.000	.060	1304.000	.125	1321.000	.035
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.200	0.000	0.000	0.000	50.000	50.000	50.000	.997	.200	0.000
NC	.100	.100	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	2.000	265.000	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.490	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION N, SURVEYED VALLEY SECTION

X1	14.000	20.000	1355.000	1370.000	748.000	748.000	748.000	0.000	0.000	0.000
GR	870.000	0.000	864.500	1000.000	864.500	1100.000	864.700	1200.000	864.600	1300.000
GR	864.000	1322.000	861.100	1344.000	858.900	1355.000	858.400	1362.000	858.900	1370.000
GR	861.100	1380.000	862.000	1400.000	861.800	1500.000	862.200	1600.000	862.100	1700.000
GR	862.000	1800.000	861.600	1900.000	866.100	2000.000	868.100	2100.000	869.200	2200.000
X1	15.000	14.000	1029.000	1033.000	1777.000	727.000	1727.000	0.000	0.000	0.000
GR	866.300	1012.000	860.600	1029.000	859.500	1030.000	858.600	1031.000	859.600	1032.000
GR	860.600	1033.000	865.200	1043.000	867.200	1100.000	863.000	1300.000	863.600	1600.000
GR	864.800	2000.000	864.400	2400.000	866.300	2800.000	871.200	3200.000	0.000	0.000

SECTION O, U/S FACE, FARM LANE, 4 FT. DIAM. CMP (1/2 IN.),46 FT. LONG

GRAVEL ROADWAY

X1	15.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	5.000	1029.000	865.700	860.600	1030.000	865.700	861.600	1031.000	865.600	862.600
BT	1032.000	865.600	861.610	1033.000	865.500	860.600	0.000	0.000	0.000	0.000

U/S FACE, FARM LANE

X1	15.090	0.000	0.000	0.000	44.000	44.000	44.000	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	15.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
NC	.100	.070	.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION P, FABRICATED FROM SECTION Q AND U.S.G.S. MAPS

X1	16.900	9.000	10.000	14.000	1238.000	1238.000	1238.000	0.000	0.000	0.000
GR	866.500	0.000	859.900	10.000	858.160	12.000	859.900	14.000	862.800	115.000
GR	862.700	315.000	863.100	515.000	863.200	715.000	870.000	1900.000	0.000	0.000
QT	2.000	175.000	175.010	0.001	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	1000.000	2200.000	0.000	0.000	0.000	0.000	0.000

D/S FACE, GROVENBURG ROAD, 4 FT. DIAM. CMP (1/2 IN.), 76 FT. LONG

EXTENDING INLET, PAVED ROADWAY

X1	17.000	21.000	1690.000	1694.000	362.000	1122.000	700.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.900	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	850.000	1678.000	859.900	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	860.500	1708.000
GR	862.800	1800.000	862.700	2000.000	863.100	2200.000	863.200	2400.000	865.500	2600.000
GR	870.700	2700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.125	.125	.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.175	3.000	0.000	4.000	0.000	12.570	0.000	858.700	857.900

SECTION Q, U/S FACE GROVENBURG ROAD

X1	17.100	0.000	0.000	0.000	78.000	78.000	78.000	0.000	.800	0.000
X2	0.000	0.000	1.000	862.700	865.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
BT	10.000	1000.000	867.700	0.000	1600.000	865.800	0.000	1678.000	865.700	0.000
BT	1690.000	865.700	860.700	1691.000	865.700	862.000	1692.000	865.700	862.700	1693.000
BT	865.700	862.000	1694.000	865.700	860.700	1708.000	865.700	0.000	2200.000	865.800
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	17.200	15.000	1690.000	1694.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1020.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.900	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	850.000	1678.000	859.900	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	866.000	3000.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION R, SURVEYED VALLEY SECTION

X1	18.000	18.000	431.000	468.000	1481.000	1481.000	1431.000	0.000	0.000	0.000
GR	870.100	0.000	865.100	100.000	865.500	200.000	856.000	300.000	865.500	400.000
GR	865.700	431.000	861.100	444.000	859.000	450.000	861.100	455.000	865.600	468.000
GR	866.600	500.000	865.900	700.000	866.200	900.000	865.600	1100.000	866.000	1300.000
GR	867.600	1500.000	869.500	1700.000	870.700	1800.000	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=    .300 CEHV=    .500
*SECNO 1.000
   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      XLOER     ITRIAL    IDC       ICONT     COPAR     TOPWID     ENDST


         STARTING WATER SURFACE BY SLOPE-AREA


         SECTION A, SURVEYED VALLEY SECTION

      1.00      4.47    847.37      0.00    847.37    847.80      .43      0.00      0.00    846.00
       685.      181.      485.       20.      140.      78.      14.       0.        0.     844.90
       0.00      1.30      6.21      1.37      .100      .045     .100     0.000   842.90     97.34
    .006633        0.        0.        0.         0         0        0     0.00    155.17    263.51


*SECNO 1.100
      1.10      4.42    847.96      0.00      0.00    848.15      .19      .28       .07    846.64
       685.      341.      331.       13.      134.      77.      14.       0.        0.     845.54
        .01      2.54      4.29       .94      .035      .045     .100      .044    343.54     99.64
    .003207        62.       62.       62.         2         0        0     0.00    163.69    263.33


*SECNO 1.900

3301 HV CHANGED MORE THAN HVINS

   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      XLOER     ITRIAL    IDC       ICONT     COPAR     TOPWID     ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      163.0      197.0  TYPE=      1  TARGET=      34.000
      1.90      3.63    848.52    848.52      0.00    849.99      1.48       .83       .64    845.49
       685.      339.      325.       21.       34.      33.       9.        1.        1.     845.49
        .01     10.03      9.76      2.44      .035      .045     .100      .045    344.89    163.00
    .018219      130.      130.      130.         4        15        0     0.00     27.73    190.73


*SECNO 1.950
   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      XLOER     ITRIAL    IDC       ICONT     COPAR     TOPWID     ENDST


3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
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3470 ENCROACHMENT STATIONS=     169.0      191.0  TYPE=      1  TARGET=       22.000
     1.95      4.20    849.35    849.35      0.00    851.10      1.75       .47       .14    845.75
     685.       212.      437.       35.       21.       39.       12.        1.        1.    845.75
      .01     10.14     11.23      2.93      .035      .045      .100      .044     3.3.15    169.00
  .019554       25.       25.       25.        20         8         0      0.00     22.00    191.00

*SECNO 2.000

3301 HV CHANGED MORE THAN HVINS

   SECNO     DEPTH     CWSEL     CRWS      WSELK     EG        HV        HL        LOSS   BANK ELEV
   Q         QLOB      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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA=      854.30 ELREA=      854.30

     2.80      5.54    850.94    850.94      0.00    853.59      2.65       .57       .45    846.00
     685.        0.       685.        0.        0.       52.        3.        1.        1.    846.00
      .01      0.00     13.06      0.00      .035      .045      .100      .044    845.40    175.00
  .029803       24.       24.       24.        20        11         1      0.00     10.00    185.00

*SECNO 2.010

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

         D/S FACE, JARVIS HIGHWAY

     2.01      6.65    852.05      0.00      0.00    853.86      1.81       .01       .25    846.00
     685.        0.       685.        0.        0.       64.        0.        1.        1.    846.00
      .01      0.00     10.76      0.00      .025      .028      .025      .044    845.40    175.00
  .006499         1.        1.        1.         5         0         0   -34.65     10.00    185.00

*SECNO 2.090

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

         SECTION B

         JARVIS HIGHWAY, CONCRETE BOX CULVERT, 45 DEGREE WINGWALLS,GRAVEL ROAD
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     2.09      6.97    852.37      0.00      0.00    854.01      1.64       .10       .05    846.00
     685.        0.      685.        0.        0.       67.        0.        1.        1.    846.00
      .01      0.00     10.26      0.00      .025      .028      .025      .043    845.40    175.00
  .005687       17.       17.       17.         0         0         0    -38.29     10.00    185.00

*SECNO 2.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       854.30 ELREA=       854.30

     2.10      7.02    852.42      0.00      0.00    854.03      1.62       .01       .01    846.00
     685.        0.      685.        0.        0.       67.        0.        1.        1.    846.00
      .01      0.00     10.20      0.00      .110      .070      .110      .043    845.40    175.00
  .035780        1.        1.        1.         2         0         0      0.00     10.00    185.00

*SECNO 2.200

3301 HV CHANGED MORE THAN HVINS

     2.20      9.06    854.57      0.00      0.00    854.58       .01       .07       .48    846.11
     685.      524.      126.       36.      731.       88.       68.        2.        1.    846.11
      .04       .72      1.44       .53      .110      .070      .110      .049    845.51     33.47
  .000263       75.       75.       75.         2         0         0      0.00    157.53    201.00

*SECNO 3.000
   SECNO     DEPTH     CWSEL     CPINS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


        SECTION C, SURVEYED VALLEY SECTION

     3.00      7.61    855.51      0.00      0.00    855.86       .35      1.11       .17    853.50
     685.       29.      641.       16.       24.      131.       16.       19.        5.    854.10
      .12      1.22      4.90       .97      .110      .070      .110      .066    847.90    136.45
  .008238     1465.     1465.     1465.         4         0         0      0.00     76.56    213.01

*SECNO 3.900
     3.90      8.90    858.75      0.00      0.00    858.83       .08      2.89       .08    858.15
     630.        1.      390.      240.        2.      144.      206.       23.        6.    857.25
      .21       .32      2.71      1.16      .110      .070      .110      .067    849.85    197.72
  .002768      637.      637.      637.         3         0         0      0.00    143.23    340.95

*SECNO 4.000
     4.00      8.90    858.90      0.00      0.00    858.99       .09       .16       .00    852.75
     630.       85.      162.      363.       51.       41.      262.       24.        7.    852.75
      .21      1.68      3.91      1.46      .110      .070      .110      .067    850.00    197.59
  .003653       50.       50.       50.         2         0         0      0.00    143.48    341.07

*SECNO 4.010

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  855.70 MAX ELLC=  855.50
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D/S FACE, FARM LANE 5.5 FT. DIAM. CMP (2 IN.), 26 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

4.01	8.90	858.90	0.00	0.00	859.00	.09	.00	.00	852.75
630.	17.	43.	570.	14.	21.	226.	24.	7.	852.75
.21	1.19	2.03	2.52	.035	.033	.035	.067	350.00	197.53
.001368	1.	1.	1.	0	0	0	-92.45	143.59	341.12

*SECNO 4.090

3370 NORMAL BRIDGE,NRO= 13 MIN ELTRD= 855.70 MAX ELLC= 856.00

SECTION 0, U/S FACE,FARM LANE

4.09	8.42	858.92	0.00	0.00	859.07	.15	.05	.03	853.25
630.	12.	63.	555.	8.	21.	175.	24.	7.	853.25
.22	1.48	2.94	3.17	.035	.033	.035	.067	351.50	204.32
.002859	24.	24.	24.	2	0	0	-82.57	130.55	334.87

CCHV= .100 CEHV= .300
*SECNO 4.100

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	I_OSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.10	8.51	859.01	0.00	0.00	859.08	.07	.00	.01	858.30
630.	1.	367.	262.	4.	138.	218.	24.	7.	857.40
.22	.36	2.66	1.20	.110	.070	.110	.067	351.50	196.12
.002796	1.	1.	1.	2	0	0	0.00	146.30	342.42

*SECNO 4.200

4.20	8.61	859.15	0.00	0.00	859.21	.07	.13	.00	858.34
630.	2.	352.	266.	5.	141.	228.	24.	7.	857.44
.22	.37	2.56	1.17	.110	.070	.110	.067	850.54	194.70
.002509	50.	50.	50.	0	0	0	0.00	149.01	343.72

*SECNO 4.900

4.90	9.74	860.90	0.00	0.00	861.00	.10	1.77	.01	856.86
630.	20.	547.	63.	33.	202.	81.	31.	9.	857.96
.31	.61	2.71	.78	.110	.070	.110	.067	851.15	142.54
.001990	796.	796.	796.	2	0	0	0.00	125.96	268.50

CCHV= .300 CEHV= .500
*SECNO 5.000

D/S FACE, FARM LANE, 5.5 FT. DIAM. CMP (1/2 IN.),24 FT. LONG

EXTENDING INLET, GRAVEL ROADWAY

5.00	9.80	861.00	0.00	0.00	861.10	.10	.10	.00	858.90

630.	21.	543.	56.	35.	204.	36.	31.	9.	858.00
.32	.60	2.65	.77	.110	.070	.110	.067	851.20	141.34
.001873	50.	50.	50.	0	0	0	0.00	128.58	269.92

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.16	2.90	0.00	5.50	0.00	23.76	0.00	851.50	851.20

*SECNO 5.090
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.55	861.40	0.00	569.	56.	24.	30.	857.00	858.00

SECTION E, U/S FACE, FARM LANE

5.09	9.57	861.07	0.00	0.00	861.18	.11	.09	0.00	859.20
630.	17.	555.	58.	28.	195.	73.	31.	10.	858.30
.32	.62	2.84	.80	.110	.070	.110	.067	851.50	145.12
.002272	22.	22.	22.	2	0	0	0.00	120.31	265.43

*SECNO 5.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	LOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	9.66	861.20	0.00	0.00	851.29	.09	.10	.01	858.94
630.	25.	531.	74.	41.	204.	94.	31.	10.	858.04
.33	.62	2.61	.78	.110	.070	.110	.067	851.54	138.93
.001807	50.	50.	50.	2	0	0	0.00	133.84	272.77

*SECNO 6.000

SECTION F, SURVEYED VALLEY SECTION

6.00	9.80	862.10	0.00	0.00	862.12	.03	.81	.02	858.00
630.	151.	429.	50.	350.	273.	143.	44.	16.	859.90
.56	.43	1.57	.35	.110	.070	.110	.068	852.30	74.43
.000449	1019.	1019.	1019.	3	0	0	0.00	365.53	439.97

*SECNO 6.900

6.90	8.80	862.21	0.00	0.00	862.41	.20	.21	.09	851.81
630.	2.	628.	0.	5.	175.	0.	46.	16.	862.31
.58	.34	3.58	0.00	.110	.070	.110	.068	853.41	271.08
.005272	189.	189.	189.	2	0	0	0.00	74.52	345.60

*SECNO 7.000

SECTION G, D/S FACE, DRIVEWAY CULVERT,4 FT. DIAM. BOILER PLATE PIPE

SANDBAG WINGWALLS, PAVED ROADWAY

7.00	8.61	862.31	0.00	0.00	862.53	.22	.11	.01	862.10
630.	0.	630.	0.	2.	167.	0.	47.	17.	862.60
.58	.32	3.70	0.00	.035	.030	.035	.068	853.70	285.08
.001130	50.	50.	50.	2	0	0	0.00	59.69	344.78

SPECIAL BRIDGE

SB	XK	XKOR	DOFD	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.57	3.04	0.00	4.00	0.00	12.57	0.00	853.70	853.70

*SECNO 7.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	43	CWEIR	QPR	BAREA	TRAPEZOID AREA	ELLO	ELTRD
923.59	862.53	0.00	533.	103.	13.	16.	857.70	862.00

3470 ENCROACHMENT STATIONS= 277.0 500.0 TYPE= 1 TARGET= 223.000

SECTION H, U/S FACE, DRIVEWAY CULVERT

7.10	10.16	863.86	0.00	0.00	863.95	.09	1.42	0.00	862.10
630.	36.	586.	8.	37.	238.	15.	47.	17.	862.60
.58	.98	2.47	.55	.035	.030	.035	.067	853.70	277.00
.000310	23.	23.	23.	2	0	0	0.00	32.40	369.40

*SECNO 7.200

SECNO	DEPTH	CWSEL	CRITWS	WSELK	EG	HV	HL	BLOSS	BANK ELEV
D	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	CORAR	TOPWID	ENDST
7.20	9.79	863.87	0.00	0.00	863.97	.10	.02	.01	862.48
630.	40.	586.	4.	69.	221.	7.	47.	17.	862.98
.59	.58	2.66	.49	.040	.030	.035	.067	854.08	200.90
.000398	50.	50.	50.	2	0	0	0.00	151.63	362.52

*SECNO 8.000

3470 ENCROACHMENT STATIONS= 814.7 1095.0 TYPE= 1 TARGET= 320.000

8.00	8.39	863.99	0.00	0.00	864.03	.04	.04	.02	855.60
630.	237.	123.	270.	251.	43.	219.	48.	17.	856.60
.62	.94	2.67	1.23	.040	.030	.035	.066	855.60	814.58
.000241	8.	158.	258.	2	0	0	0.00	230.32	1095.00

*SECNO 8.010

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3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  859.60

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000

        O/S FACE, WAVERLY ROAD, 4 BY 6 FT. CMP ARCH (2 IN.), 60 FT. LONG

        EXTENDING INLET, PAVED ROADWAY

      8.01      8.39   863.99      0.00      0.00   864.04      .05       .00       .00   856.60
      630.      394.      20.      215.      204.      19.      137.      48.       17.    856.60
       .62      1.93     1.04      1.57      .020      .033      .020      .066   855.60   814.68
  .000421        1.       1.        1.         0         0         0  -151.31   280.32  1095.00

*SECNO 8.090

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  858.70

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000

        SECTION I, U/S FACE, WAVERLY ROAD

      8.09      8.41   864.01      0.00      0.00   864.06      .05       .02       .00   856.60
      630.      399.       9.      222.      206.       8.      140.      49.       18.    856.60
       .63      1.94     1.11      1.59      .020      .033      .020      .066   855.60   814.68
  .000419        58.      58.       58.         0         0         0  -162.63   280.32  1095.00

*SECNO 8.100

3470 ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
      8.10      9.24   863.94      0.00      0.00   864.14      .21       .00       .08   855.70
      630.      242.      262.      126.      263.       47.      183.      49.       18.    855.70
       .63       .92      5.5       .6        .125      .045      .125      .066   854.70   785.77
  .001778        1.       1.        1.         2         0         0      0.00   280.32  1066.09

*SECNO 8.200
   SECNO     DEPTH     CWSEL     CRITS     WSELK     EG        HV        HL        LOSS   BANK ELEV
   Q         QLOB      QCH       QROE      ALOB      ACH       ARCH      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROE      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOER     ITRIAL    IOC       IOCVT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
      8.20      9.57   864.11      0.00      0.00   864.24      .14       .08       .02   855.54
      630.      252.      233.      145.      310.       49.      227.      49.       18.    855.54
       .63       .81      4.76      .64       .125      .045      .125      .065   854.54   785.77
  .001243        75.      50.       25.         2         0         0      0.00   280.32  1066.09

*SECNO 9.000

3235 SLOPE TOO STEEP,EXCEEDS       .10

   SECNO     DEPTH     CWSEL     CRITS     WSELK     EG        HV        HL        LOSS   BANK ELEV
   Q         QLOB      QCH       QROE      ALOB      ACH       ARCH      VOL       TWA   LEFT/RIGHT
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    TIME      VLOB      VCH       VROB      XNL       KNCH      XNR       WTN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOER     ITRIAL    IOC       ICONT     CORAR     TOPWID     ENDST

3685 20 TRIALS ATTEMPTED WSLL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     910.7     1209.9  TYPE=     1  TARGET=     379.870
     9.00      1.38    865.33    865.33     0.00    865.71      .38       .88       .12100000.00
     630.      630.       0.        0.      129.       0.        0.       51.       19. 100000.00
      .65      4.93      0.00      0.00      .125      .050      .125      .064    853.95   1040.31
   .205322     245.      170.       20.       20        17        0      0.00    159.61   1209.91

*SECNO 9.010

3370 NORMAL BRIDGE,NRO= 19 MIN ELTRD=  863.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=     911.4     1209.9  TYPE=     1  TARGET=     379.020

         O/S FACE, HOLT HIGHWAY, 5 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

         SANDBAG WING WALLS, PAVED ROADWAY

     9.01      1.59    865.56      0.00      0.00    865.76      .23       .01       .04100000.00
     630.      630.       0.        0.      165.       0.        0.       51.       19. 100000.00
      .65      3.82      0.00      0.00      .020      .032      .020      .064    853.95   1020.09
   .002609       1.        1.        1.         0         0         0     -.00    133.82   1209.91

*SECNO 9.030

3370 NORMAL BRIDGE,NRO= 19 MIN ELTRD=  863.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=    1063.4     1536.0  TYPE=     1  TARGET=     600.000

         SECTION J, U/S FACE, HOLT HIGHWAY

     9.09     11.94    865.84      0.00      0.00    865.84      .01       .01       .07    853.90
     630.      398.       20.       212.      561.       39.      306.       52.       20.    853.90
      .69       .71       .52       .69      .020      .032      .020      .064    853.90   1063.39
   .000038      101.      101.      101.         2         0         0   -138.82    472.62   1536.01

CCHV=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 9.100

3470 ENCROACHMENT STATIONS=    1063.4     1536.0  TYPE=     1  TARGET=     600.000
     9.10     12.33    865.83      0.00      0.00    865.84      .01       .00       .00    853.50
     630.      277.       99.       253.      503.       66.      497.       52.       20.    853.50
      .69       .55      1.50       .51      .040      .040      .040      .064    853.50   1053.33
   .000060       1.        1.        1.         0         0         0      0.00    472.62   1536.01

*SECNO 9.200
    SECNO     DEPTH     CWSEL     CRITS     WSELK     EG        HV        HL        LOSS    BANK ELEV
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    Q          QLOB       QCH        QROL       ALOB       ACH        ARDP       VOL        TWA    LEFT/RIGHT
    TIME .     VLOB       VCH        VPDP       XNL        XNCH       XNR        WTN        E_MIN       SSTA
    SLOPE      XLOBL      XLCH       XLOLR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=     1024.0     1575.4  TYPE=      1  TARGET=      700.000
        9.20      12.21     865.84       0.00       0.00     865.85       .01        .00        .00     853.63
         630.       269.       102.       259.       487.       65.       519.       53.        20.     853.63
          .71        .55       1.56        .50        .040       .040       .040       .064    853.63  1024.01
    .000066        50.        50.        50.          0          0          0       0.00    551.39  1575.40


 *SECNO 9.900
        9.90      10.98     865.85       0.00       0.00     865.85       .00        .01        .00     860.77
         255.       82.        66.       107.       721.       324.      1075.       66.        25.     861.07
         1.41        .11        .20        .10        .060       .050       .060       .063    854.87    82.58
    .000004       137.       337.       507.          0          0          0       0.00    591.98    774.56


 *SECNO 11.000
       11.00      10.85     865.85       0.00       0.00     865.85       .00        .00        .00     857.50
         255.       111.       11.       133.       828.       48.       1153.       68.        26.     857.50
         1.52        .13        .23        .12        .060       .050       .060       .063    855.00    87.31
    .000005        50.        50.        50.          0          0          0       0.00    582.51    769.83


 *SECNO 11.010

 3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=   860.90 MAX ELLC=   860.00

          SECTION K, D/S FACE, FARM LANE, 5 FT. DIAM. CMP (1/2 IN ), 24 FT. LONG

          EXTENDING INLET, GRAVEL ROADWAY

       11.01      10.85     865.85       0.00       0.00     865.85       .00        .00        .00     857.50
         255.       111.         5.       139.       781.        36.      1116.       68.        26.     857.50
         1.52        .14        .14        .12        .030       .023       .030       .063    855.00    87.37
    .000001         1.         1.         1.          0          0          0     -94.46    582.41    769.77


 *SECNO 11.090

 3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=   860.90 MAX ELLC=   860.00

          U/S FACE, FARM LANE

       11.09      10.85     865.85       0.00       0.00     865.85       .00        .00        .00     857.50
         255.       111.         5.       139.       781.        36.      1116.       69.        26.     857.50
         1.57        .14        .14        .12        .030       .023       .030       .063    855.00    87.37
    .000001        22.        22.        22.          0          0          0     -94.46    582.41    769.78


 *SECNO 11.100
    SECNO      DEPTH      QWSEL      CRIWS      WSELK      EG         HV         HL         DLOSS    BANK ELEV
    Q          QLOB       QCH        QROL       ALOB       ACH        ARDP       VOL        TWA    LEFT/RIGHT
    TIME       VLOB       VCH        VPDP       XNL        XNCH       XNR        WTN        E_MIN       SSTA
    SLOPE      XLOBL      XLCH       XLOLP      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST
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    11.10     10.85    865.85      0.00      0.00    865.85       .00       .00       .00    857.50
     255.      111.       11.      133.      827.       48.     1153.       69.       26.     857.50
     1.57       .13       .23       .12      .060      .050      .060      .063    855.00     87.37
  .000005        1.        1.        1.         0         0         0      0.00    682.41    769.78

*SECNO 11.200
    11.20     10.86    865.85      0.00      0.00    865.85       .00       .00       .00    857.49
     255.      111.       11.      133.      830.       48.     1157.       72.       27.     857.49
     1.68       .13       .23       .12      .060      .050      .060      .062    854.99     87.00
  .000005        50.       50.       50.         0         0         0      0.00    683.13    770.14

*SECNO 11.900
    11.90     11.35    865.86      0.00      0.00    865.87       .00       .01       .00    862.61
     255.      103.      122.       30.      551.      311.      207.      124.       45.     863.21
     3.13       .19       .39       .15      .050      .050      .060      .060    854.51    198.70
  .000015     1375.     1475.     1575.         0         0         0      0.00    386.32    585.02

*SECNO 12.000
    12.00     11.37    865.87      0.00      0.00    865.87       .00       .00       .00    856.20
     255.      159.       27.       69.      699.       52.      323.      126.       46.     856.20
     3.18       .23       .51       .21      .060      .050      .060      .060    854.50    198.34
  .000017        50.       50.       50.         0         0         0      0.00    387.15    585.49

*SECNO 12.010

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00

        SECTION L, D/S FACE, FARM LANE, 3.5 BY 5 FT. CMP ARCH (1/2 IN.)

        EXTENDING INLET, GRAVEL ROADWAY

    12.01     11.37    865.87      0.00      0.00    865.87       .00       .00       .00    856.20
     255.      185.        7.       63.      627.       25.      263.      126.       46.     856.20
     3.19       .33       .28       .24      .030      .024      .030      .060    854.50    198.33
  .000009        1.        1.        1.         0         0         0   -159.90    387.18    585.51

*SECNO 12.090
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    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     COPAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00

        U/S FACE, FARM LANE CULVERT

    12.09     11.37    865.87      0.00      0.00    865.87       .00       .00       .00    856.20
     255.      185.        7.       63.      627.       25.      263.      126.       46.     856.20
     3.21       .29       .28       .24      .030      .024      .030      .060    854.50    198.32
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 .000009      24.      24.      24.        0        0        0  -159.90   337.20   585.52

*SECNO 12.100
    12.10    11.37   865.87     0.00     0.00   865.87      .00      .00      .00   856.20
     255.     159.      27.      69.     699.      52.     323.     126.      46.    856.20
     3.21      .23      .51      .21     .060     .050     .060     .060   854.50   198.32
 .000017       1.       1.       1.        0        0        0     0.00   337.19   585.51

*SECNO 12.200
    12.20    11.37   865.87     0.00     0.00   865.87      .00      .00      .00   856.20
     255.     159.      27.      69.     699.      52.     323.     127.      47.    856.20
     3.27      .23      .51      .21     .050     .050     .060     .060   854.50   198.30
 .000017      50.      50.      50.        0        0        0     0.00   337.24   585.54

1490 NH CARD USED
*SECNO 12.900

3470 ENCROACHMENT STATIONS=    1000.0    2026.0  TYPE=     1  TARGET=    1025.000
    12.90    11.38   865.88     0.00     0.00   865.88      .00      .01      .00   856.50
     255.     147.      15.      92.     683.      42.     519.     143.      54.    856.50
     4.06      .22      .37      .16     .051     .060     .052     .059   854.50  1000.00
 .000016     606.     606.     606.        0        0        0     0.00   698.06  1698.06

*SECNO 13.000

3470 ENCROACHMENT STATIONS=    1000.0    2026.0  TYPE=     1  TARGET=    1025.000
    13.00    11.38   865.88     0.00     0.00   865.88      .00      .00      .00   856.50
     255.     147.      16.      92.     683.      44.     519.     145.      55.    856.50
     4.13      .22      .36      .16     .051     .060     .052     .059   854.50  1000.00
 .000016      50.      50.      50.        0        0        0     0.00   698.18  1698.18

*SECNO 13.010
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROE     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROE     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOER    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  863.70 MAX ELLC=  858.50

3470 ENCROACHMENT STATIONS=    1000.0    2026.0  TYPE=     1  TARGET=    1025.000

        SECTION M, U/S FACE, GILBERT ROAD, 4 FT. DIAM. CMP (1/2 IN.), 63 FT LONG

        EXTENDING INLET, PAVED ROADWAY

    13.01    11.38   865.88     0.00     0.00   865.88      .00      .00      .00   856.50
     255.     155.       4.      96.     593.      20.     455.     145.      55.    856.50
     4.13      .26      .23      .21     .025     .024     .025     .059   854.50  1000.00
 .000008       1.       1.       1.        0        0        0  -177.75   698.19  1698.19

*SECNO 13.090
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3370 NORMAL BRIDGE,NRO= 17 MIN CLTRD= 863.70 MAX ELLC= 858.80

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

U/S FACE, GILBERT ROAD

13.09	11.08	865.88	0.00	0.00	865.88	.00	.00	.00	856.80
255.	160.	6.	69.	507.	20.	346.	146.	56.	856.80
4.19	.32	.30	.26	.025	.024	.025	.059	854.80	1000.00
.000014	61.	51.	61.	0	0	0	-170.40	651.61	1651.61

1490 NH CARD USED
*SECNO 13.100

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

13.10	11.08	865.88	0.00	0.00	865.88	.00	.00	.00	856.80
255.	152.	17.	56.	593.	42.	407.	146.	56.	856.80
4.19	.26	.41	.21	.047	.060	.050	.059	854.80	1000.00
.000022	1.	1.	1.	0	0	0	0.00	651.53	1651.53

*SECNO 13.200

3470 ENCROACHMENT STATIONS= 1000.0 2026.0 TYPE= 1 TARGET= 1026.000

13.20	10.88	865.88	0.00	0.00	865.88	.00	.00	.00	857.00
255.	153.	21.	61.	528.	41.	341.	147.	57.	857.00
4.23	.29	.50	.24	.049	.060	.053	.058	855.00	1000.00
.000033	50.	50.	50.	0	0	0	0.00	656.95	1606.95

*SECNO 14.000

SECTION N, SURVEYED VALLEY SECTION

14.00	7.49	865.89	0.00	0.00	865.89	.00	.01	.00	858.90
265.	36.	25.	214.	707.	109.	2293.	182.	72.	858.90
6.38	.05	.23	.09	.100	.060	.100	.059	858.40	750.29
.000006	748.	748.	748.	1	0	0	0.00	1237.20	1997.49

*SECNO 15.000

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	O_OSS	BANK ELEV
Q	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	IOC	ICONT	CORAR	TOPWID	ENDST
15.00	7.30	865.90	0.00	0.00	865.90	.00	.01	.00	860.60
265.	5.	8.	252.	42.	25.	2466.	240.	104.	860.50
8.60	.13	.32	.10	.100	.060	.100	.064	858.60	1013.17
.000022	1777.	1727.	727.	1	0	0	0.00	1615.84	2717.39

*SECNO 15.010

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 855.50 MAX ELLC= 862.60

SECTION O, D/S FACE, FARM LANE, 4 FT. DIAM. CMP (1/2 IN.),46 FT. LONG

GRAVEL ROADWAY

15.01	7.30	865.90	0.00	0.00	865.90	.00	.00	.00	860.60
265.	0.	1.	264.	2.	9.	2426.	240.	104.	860.60
8.60	.02	.11	.11	.100	.060	.100	.064	858.60	1013.20
.000026	1.	1.	1.	0	0	0	-81.45	1503.17	2715.45

*SECNO 15.090

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 5 MIN ELTRD= 865.60 MAX ELLC= 862.60

U/S FACE, FARM LANE

15.09	7.30	865.90	0.00	0.00	865.90	.00	.00	.00	860.60
265.	0.	1.	264.	2.	9.	2428.	242.	105.	860.60
8.71	.02	.11	.11	.100	.060	.100	.064	858.60	1013.19
.000025	44.	44.	44.	0	0	0	-81.45	1503.49	2715.58

*SECNO 15.100

3265 DIVIDED FLOW

15.10	7.30	865.90	0.00	0.00	865.90	.00	.00	.00	860.60
265.	5.	8.	252.	42.	25.	2453.	242.	105.	860.60
8.71	.13	.32	.10	.100	.060	.100	.064	858.60	1013.19
.000022	1.	1.	1.	0	0	0	0.00	1503.51	2715.70

*SECNO 16.900

SECTION P, FABRICATED FROM SECTION Q AND U.S.G.S. MAPS

16.90	7.75	865.91	0.00	0.00	855.91	.00	.01	.00	859.90
265.	2.	2.	261.	27.	28.	2898.	320.	145.	859.90
12.54	.06	.03	.09	.100	.120	.070	.070	858.16	.88
.000065	1238.	1238.	1238.	1	0	0	0.00	1133.07	1188.95

*SECNO 17.000

SECNO	DEPTH	QWSEL	CRITS	WSELK	EG	HV	HL	XLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBP	ITRIAL	IDC	ICONT	COPAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

D/S FACE, GROVENBURG ROAD, 4 FT. DIAM. CMP (1/2 IN.), 78 FT. LONG

EXTENDING INLET, PAVED ROADWAY

17.00	8.01	865.91	0.00	0.00	865.91	.00	.00	.00	859.90
175.	104.	1.	70.	3054.	28.	1711.	393.	170.	859.90
19.26	.03	.03	.04	.100	.120	.071	.072	857.90	1000.00
.000001	362.	700.	1122.	0	0	0	0.00	1200.00	2200.00

SPECIAL BRIDGE

SB	XK	XKOR	DOFD	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.18	3.00	0.00	4.00	0.00	12.57	0.00	858.70	857.90

*SECNO 17.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
875.47	866.71	0.00	162.	13.	13.	16.	862.70	865.70

3470 ENCROACHMENT STATIONS= 1010.0 2200.0 TYPE= 1 TARGET= 1200.000

SECTION Q, U/S FACE GROVENBURG ROAD

17.10	7.26	865.96	0.00	0.00	865.96	.00	.05	0.00	860.70
175.	122.	2.	51.	2530.	25.	1327.	400.	172.	860.70
19.74	.05	.06	.04	.125	.080	.125	.072	858.70	1000.00
.000003	78.	78.	78.	0	0	0	0.00	1200.00	2200.00

*SECNO 17.200

3470 ENCROACHMENT STATIONS= 1020.0 2200.0 TYPE= 1 TARGET= 1130.000

17.20	8.06	865.96	0.00	0.00	865.96	.00	.00	.00	859.90
175.	94.	1.	60.	3011.	28.	2469.	406.	173.	859.90
20.17	.03	.05	.03	.125	.080	.125	.072	857.90	1020.00
.000001	50.	50.	50.	0	0	0	0.00	1130.00	2200.00

*SECNO 18.000

3265 DIVIDED FLOW

SECTION R, SURVEYED VALLEY SECTION

18.00	6.96	865.96	0.00	0.00	865.97	.02	.00	.00	865.70
175.	24.	145.	6.	128.	132.	59.	505.	206.	865.60
20.61	.19	1.10	.10	.125	.080	.125	.073	859.00	82.72
.000691	1481.	1481.	1481.	0	0	0	0.00	746.31	1281.89

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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      FIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2      100 YEAR FLOW, ENCROACHED FLOODWAY
T3      GILBERT DRAIN

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       3.        0.        0.  0.000000      0.00      0.0       0.    847.470   0.000
J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     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=    .300 CEHV=    .500
*SECNO 1.000
 2800 NAT Q1=      84.11  WSEL=    847.37  ENC Q1=      84.11  WSEL=    847.47  RATIO=    .0000
 NAT Q1=     90.  RATIOS LOB,CH,ROB=    .2801    .5303    .0296  WSEL=    847.47
   SECNO     DEPTH     CWSEL     CRITS     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       E.MIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     162.7     252.8  TYPE=     4  TARGET=        .066

        STARTING WATER SURFACE BY SLOPE-AREA

        SECTION A, SURVEYED VALLEY SECTION

     1.00      4.57    847.47      0.00    847.37    847.91       .44      0.00      0.00    846.00
     685.      190.      495.        0.      110.      80.         0.        0.        0.     844.90
     0.00      1.73      6.19      0.00      .100      .045      .100     0.000    842.90    162.71
  .007383        0.        0.        0.         0         0         0      0.00     89.29    252.00

*SECNO 1.100
 2800 NAT Q1=     120.95  WSEL=    847.96  ENC Q1=     120.95  WSEL=    848.05  RATIO=    .0000
 NAT Q1=     131.  RATIOS LOB,CH,ROB=    .5173    .4634    .0193  WSEL=    848.05

3470 ENCROACHMENT STATIONS=     162.1     252.0  TYPE=     4  TARGET=        .080
     1.10      4.52    848.06      0.00    847.96    848.28       .22       .30       .07    846.64
     685.      355.      330.        0.      138.      79.         0.        0.        0.     845.54
      .00      3.30      4.17      0.00      .035      .045      .100      .044    843.54    162.10
  .003392        62.       62.       62.         2         0         0      0.00     89.90    252.00

*SECNO 1.900

3301 HV CHANGED MORE THAN HVINS

   SECNO     DEPTH     CWSEL     CRITS     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       E.MIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     153.0     197.0  TYPE=     1  TARGET=       34.000
     1.90      3.63    848.52    848.52    848.99      1.48       .86       .63    845.49
     685.      339.      325.       21.       34.       33.         9.        1.        0.     845.49
      .01     10.03      9.76      2.44      .035      .045      .100      .045    844.89    163.00
  .018218       130.      130.      130.         3        15         0      0.00     27.73    190.73

*SECNO 1.950
   SECNO     DEPTH     CWSEL     CRITS     WSELK     EG        HV        HL        BLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
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    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       MTN       ELMIN     SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      169.0      191.0  TYPE=      1  TARGET=       22.000
       1.95      4.20    849.35    849.35    849.35    851.10      1.75       .47       .14    845.75
       685.       212.      437.       35.       21.       39.       12.        1.        0.     845.75
        .01     10.14     11.23      2.93      .035      .045      .100      .044    845.15    169.00
   .019554       25.       25.       25.        20         8         0      0.00     22.00    191.00

 *SECNO 2.000

 3301 HV CHANGED MORE THAN HVINS

    SECNO     DEPTH     CWSEL     QPINS     WSELK     EG        HV        HL        O.BSS    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

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

       2.00      5.54    850.94    850.94    850.94    853.59      2.65       .57       .45    846.00
       685.        0.      685.        0.        0.       52.        0.        1.        0.     846.00
        .01      0.00     13.06      0.00      .035      .045      .100      .044    845.40    175.00
   .029803       24.       24.       24.        20        11         0      0.00     10.00    185.00

 *SECNO 2.010

 3301 HV CHANGED MORE THAN HVINS

 3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      854.30 ELREA=      854.30

          D/S FACE, JARVIS HIGHWAY

       2.01      6.65    852.05      0.00    852.05    853.86      1.81       .01       .25    846.00
       685.        0.      685.        0.        0.       64.        0.        1.        0.     846.00
        .01      0.00     10.78      0.00      .025      .028      .025      .044    845.40    175.00
   .006499         1.        1.        1.         8         0         1    -34.65     10.00    185.00

 *SECNO 2.090

 3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  854.30 MAX ELLC=  852.90
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3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,EL.EA=      854.30 ELREA=      854.33

        SECTION B

        JARVIS HIGHWAY, CONCRETE BOX CULVERT, 45 DEGREE WINGWALLS,GRAVEL ROAD

     2.09      6.97    852.37      0.00    852.37    854.01      1.64      .10       .05    846.00
     685.        0.      685.        0.        0.       67.        0.       1.         0.    846.00
      .01      0.00     10.28      0.00      .025      .028      .025      .043    845.40    175.00
  .005687       17.      17.       17.          0         0         0   -38.29     10.00    185.00

*SECNO 2.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,EL.EA=      854.30 ELREA=      854.33

     2.10      7.02    852.42      0.00    852.42    854.03      1.62      .01       .01    846.00
     685.        0.      685.        0.        0.       67.        0.       1.         0.    846.00
      .01      0.00     10.20      0.00      .110      .070      .110      .043    845.40    175.00
  .035780         1.        1.        1.         2         0         0      0.00     10.00    185.00

*SECNO 2.200
 2800 NAT Q1=     422.36  WSEL=     854.57  END Q1=     422.36  WSEL=     854.67  RATIO=     .0000
 NAT Q1=     433.  RATIOS LOB,CH,ROB=    .7652    .1324    .0524  WSEL=     854.67

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=       68.0      193.0  TYPE=       4, TARGET=         .026
     2.20      9.06    854.57      0.00    854.57    854.58       .01       .07       .48    846.11
     685.      528.      129.       28.      679.       88.       51.        2.         0.    846.11
      .03       .78      1.47       .55      .110      .070      .110      .049    845.51     67.98
  .000276       75.       75.       75.         2         0         0      0.00    125.01    192.99

*SECNO 3.000
 2800 NAT Q1=      75.47  WSEL=     855.51  END Q1=      75.47  WSEL=     855.61  RATIO=  0.0000
 NAT Q1=      79.  RATIOS LOB,CH,ROB=    .0460    .9276    .0263  WSEL=     855.51
   SECNO     DEPTH     CWSEL     CPIMS     WSELK     EG        HV        HL        O_OSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       HTN       E.MIN      SSTA
   SLOPE     XLOEL     XLCH      XLOER     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      154.9      191.0  TYPE=       4  TARGET=         .047

        SECTION C, SURVEYED VALLEY SECTION

     3.00      7.65    855.55      0.00    855.51    855.93       .39      1.17       .19    853.50
     685.       15.      669.        1.        9.       132.        1.        18.         3.    854.10
      .11      1.57      5.06       .88       .110      .070      .110      .066    847.90    154.87
  .008688      1465.     1465.     1465.         3         0         0      0.00     36.11    190.98

*SECNO 3.900
 2800 NAT Q1=     119.74  WSEL=     856.75  END Q1=     119.74  WSEL=     858.85  RATIO=     .0000
 NAT Q1=     127.  RATIOS LOB,CH,ROB=    .0018    .6094    .3888  WSEL=     858.35
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3470 ENCROACHMENT STATIONS=     206.0     308.8  TYPE=     4  TARGET=        .054
     3.90      9.03    858.83     0.00   858.75   858.96      .08      2.94      .09   858.15
      630.        0.      404.      226.       0.      149.     175.       21.       4.    857.25
       .20      0.00      2.72      1.29     .110     .070     .110      .067   349.85   206.00
  .002746       637.      637.      637.        2        0        0      0.00   112.77   308.77

*SECNO 4.000
 2800 NAT Q1=     104.24  WSEL=    858.90  ENC Q1=     104.24  WSEL=    859.00  RATIO=    .0000
 NAT Q1=     110.  RATIOS LOB,CH,ROB=    .1356    .2494    .6150  WSEL=    859.33

3470 ENCROACHMENT STATIONS=     210.7     316.0  TYPE=     4  TARGET=        .051
     4.00      9.03    859.03     0.00   858.90   859.12      .09      .16      .00   852.75
      630.       75.      164.      391.      42.      42.     248.       21.       4.    852.75
       .20      1.78      3.90      1.57     .110     .070     .110      .067   350.00   210.70
  .003542       50.       50.       50.        0        0        0      0.00   135.28   315.98

*SECNO 4.010
 2800 NAT Q1=     170.32  WSEL=    858.90  ENC Q1=     170.32  WSEL=    859.00  RATIO=    .0000
 NAT Q1=     183.  RATIOS LOB,CH,ROB=    .0305    .0663    .9032  WSEL=    859.00

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  855.70 MAX ELLC=  855.50

3470 ENCROACHMENT STATIONS=     220.3     317.0  TYPE=     4  TARGET=        .071

         O/S FACE, FARM LANE  5.5 FT. DIAM. CMP (2 IN.), 26 FT. LONG

         EXTENDING INLET, GRAVEL ROADWAY

     4.01      9.02    859.02     0.00   858.90   859.14      .11      .00      .01   852.75
      630.        0.       36.      594.       0.       22.     215.       21.       4.    852.75
       .20      0.00      1.66      2.77     .035     .033     .035      .067   550.00   220.25
  .001366          1.        1.        1.        1        0        0   -55.75    36.73   316.98

*SECNO 4.090
 2800 NAT Q1=     117.83  WSEL=    858.92  ENC Q1=     117.83  WSEL=    859.02  RATIO=  0.0000
 NAT Q1=     129.  RATIOS LOB,CH,ROB=    .0232    .0948    .8821  WSEL=    859.02

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  855.70 MAX ELLC=  856.00

3470 ENCROACHMENT STATIONS=     220.3     311.4  TYPE=     4  TARGET=        .088

         SECTION D, U/S FACE,FARM LANE

     4.09      8.53    859.03     0.00   858.92   859.22      .18      .05      .03   853.25
      630.        0.       54.      576.       0.       22.     154.       22.       4.    853.25
       .20      0.00      2.47      3.52     .035     .033     .035      .067   850.50   220.25
  .002933         24.       24.       24.        2        0        0   -49.44    31.18   311.43

CCHV=    .100 CEHV=    .300
*SECNO 4.100
 2800 NAT Q1=     119.14  WSEL=    859.01  ENC Q1=     119.14  WSEL=    859.11  RATIO=    .0000
 NAT Q1=     126.  RATIOS LOB,CH,ROB=    .0027    .5748    .4225  WSEL=    859.11
   SECNO     DEPTH     CWSEL     CRITS     WSELK      EG        HV        HL        LOSS   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       XLOER      ITRIAL     IOC        ICONT      COPAR      TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=      206.0      310.7  TYPE=      4  TARGET=          .052
       4.10       8.65    859.15       0.00    859.01    859.23       .08        .00        .01    858.30
        630.         0.       379.       251.        0.       143.       189.       22.         4.    857.40
         .20       0.00      2.66       1.33       .110       .070       .110       .067    851.50    206.00
     .002747         1.         1.         1.          2          0          0       0.00    104.69    310.69


 *SECNO 4.200
  2800 NAT Q1=     125.79  WSEL=     859.15  ENC Q1=     125.79  WSEL=     859.25  RATIO=     .0000
  NAT Q1=     132.  RATIOS LOB,CH,ROB=     .0035     .5676     .4289  WSEL=     859.25

 3470 ENCROACHMENT STATIONS=      206.0      311.9  TYPE=      4  TARGET=          .050
       4.20       8.75    859.29       0.00    859.15    859.36       .07        .13        .00    858.34
        630.         0.       373.       257.        0.       146.       198.       22.         4.    857.44
         .21       0.00      2.56       1.29       .110       .070       .110       .067    851.54    206.00
     .002487        50.        50.        50.          1          0          0       0.00    105.92    311.92


 *SECNO 4.900
  2800 NAT Q1=     141.23  WSEL=     860.90  ENC Q1=     141.23  WSEL=     861.00  RATIO=     .0000
  NAT Q1=     147.  RATIOS LOB,CH,ROB=     .0349     .8594     .1057  WSEL=     861.00

 3470 ENCROACHMENT STATIONS=      169.2      235.6  TYPE=      4  TARGET=          .041
       4.90       9.86    861.02       0.00    860.90    861.13       .11       1.75        .01    858.86
        630.         9.       565.        56.        11.       206.        54.       28.         6.    857.96
         .30        .79      2.74       1.04       .110       .070       .110       .067    851.16    169.22
     .001967        796.       796.       796.          1          0          0       0.00     53.79    235.01


 CCHV=     .300 CEHV=     .500
 *SECNO 5.000
  2800 NAT Q1=     145.57  WSEL=     861.00  ENC Q1=     145.57  WSEL=     861.10  RATIO=     .0000
  NAT Q1=     151.  RATIOS LOB,CH,ROB=     .0368     .8544     .1088  WSEL=     861.10

 3470 ENCROACHMENT STATIONS=      167.4      236.7  TYPE=      4  TARGET=          .035

         D/S FACE, FARM LANE, 5.5 FT. DIAM. CMP (1/2 IN.),24 FT. LONG


         EXTENDING INLET, GRAVEL ROADWAY

       5.00       9.92    861.12       0.00    861.00    861.22       .10        .10        .00    858.90
        630.         12.       558.        60.        15.       208.        59.       28.         6.    858.00
         .30        .80      2.68       1.02       .110       .070       .110       .067    851.20    167.40
     .001858        50.        50.        50.          0          0          0       0.00     53.23    236.63


 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       ROLEN      BWU        BWP        BAREA      SS         ELCHU      ELCHD
       0.00       2.16       2.90       0.00       5.50       0.00      23.76       0.00    851.50     851.20


 *SECNO 5.090
  2830 NAT Q1=     132.16  WSEL=     861.07  ENC Q1=     132.16  WSEL=     861.17  RATIO=  0.0000
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 NAT Q1=    138.  RATIOS LOB,CH,ROB=    .0301    .3725    .0973  WSEL=     861.17
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=     170.9     233.3  TYPE=     4  TARGET=         .040

        SECTION E, U/S FACE, FARM LANE

      5.09      9.70    861.20      0.00    861.07    861.31       .12       .04       .01    859.20
       630.       6.       573.       51.       6.       200.       48.       28.       6.     858.30
        .30       .77      2.66      1.07      .110      .070      .110      .067    351.50    170.87
   .0022+1        22.       22.       22.         0         0         9      0.00     52.39    233.26


*SECNO 5.100
 2800 NAT Q1=    148.21  WSEL=     861.20  ENC Q1=     148.21  WSEL=     861.30  RATIO=    .0000
 NAT Q1=     154.  RATIOS LOB,CH,ROB=    .0434    .8349    .1217  WSEL=     861.30
   SECNO     DEPTH     CWSEL     CRWS      WSELK     EG        HV        HL        OLOSS     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      XLOER     ITRIAL    IDC       ICONT     COPAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     166.4     237.9  TYPE=     4  TARGET=         .040
      5.10      9.78    861.32      0.00    861.20    861.42       .10       .10       .01    858.94
       630.       15.      548.       67.       18.       208.       65.       28.       6.     858.04
        .31       .82      2.63      1.03      .110      .070      .110      .067    351.54    166.39
   .001780        50.       50.       50.         2         0         6      0.00     71.51    237.89


*SECNO 6.000
 2800 NAT Q1=    297.42  WSEL=     862.10  ENC Q1=     297.42  WSEL=     862.20  RATIO=    .0000
 NAT Q1=     311.  RATIOS LOB,CH,ROB=    .2497    .6647    .0856  WSEL=     862.20

3470 ENCROACHMENT STATIONS=     124.0     367.3  TYPE=     4  TARGET=         .045

        SECTION F, SURVEYED VALLEY SECTION

      6.00      9.92    862.22      0.00    862.10    862.24       .03       .80       .02    856.00
       630.      151.      437.       42.      321.      277.       98.       40.       10.     859.90
        .54       .47      1.56       .43      .110      .070      .110      .068    352.30    123.95
   .000443      1019.     1019.     1019.         2         0         0      0.00    243.30    367.26


*SECNO 6.900
 2800 NAT Q1=     86.76  WSEL=     862.21  ENC Q1=      89.79  WSEL=     862.31  RATIO=   -.0349
 NAT Q1=      90.  RATIOS LOB,CH,ROB=    .0054    .9946    .0000  WSEL=     862.31

3470 ENCROACHMENT STATIONS=     300.0     346.0  TYPE=     4  TARGET=         .035
      6.90      8.92    862.33      0.00    862.21    862.52       .19       .20       .08    861.81
       630.       0.       630.       0.        0.       181.       0.        42.       11.     862.31
        .55      0.00      3.46      0.00      .110      .070      .110      .068    353.41    300.00
   .004950       189.      189.      189.         2         0         0      0.00     46.00    346.00


*SECNO 7.000
 2800 NAT Q1=    187.39  WSEL=     862.31  ENC Q1=     194.60  WSEL=     862.41  RATIO=   -.0385
 NAT Q1=     195.  RATIOS LOB,CH,ROB=    .0021    .9979  0.0000  WSEL=     862.41

3470 ENCROACHMENT STATIONS=     300.0     346.0  TYPE=     4  TARGET=         .002
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SECTION G, D/S FACE, DRIVEWAY CULVERT,4 FT. DIAM. BOILER PLATE PIPE

SANOBAG WINGWALLS, PAVED ROADWAY

7.00	8.72	862.42	0.00	862.31	862.63	.21	.10	.01	862.10
630.	0.	630.	0.	0.	172.	0.	42.	11.	862.60
.56	0.00	3.67	0.00	.035	.030	.035	.068	853.70	300.00
.001050	50.	50.	50.	2	0	0	0.00	45.25	345.25

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWR	BAREA	SS	ELCHU	ELCHD
	0.00	1.57	3.14	0.00	4.00	0.00	12.57	0.00	853.70	853.70

*SECNO 7.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
923.70	862.63	0.00	536.	100.	13.	16.	857.70	862.00

3470 ENCROACHMENT STATIONS= 277.0 500.0 TYPE= 1 TARGET= 223.000

SECTION H, U/S FACE, DRIVEWAY CULVERT

7.10	10.17	863.87	0.00	863.86	863.95	.09	1.32	0.00	862.10
630.	36.	586.	8.	37.	238.	15.	42.	11.	862.60
.56	.98	2.46	.55	.035	.030	.035	.067	853.70	277.00
.000308	23.	23.	23.	2	0	8	0.00	92.56	359.55

*SECNO 7.200
2800 NAT Q1= 315.88 WSEL= 863.87 END Q1= 315.88 WSEL= 863.97 RATIO= .0000
NAT Q1= 332. RATIOS LOB,CH,ROB= .0752 .9175 .0073 WSEL= 863.97

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	ENOST

3470 ENCROACHMENT STATIONS= 280.1 346.0 TYPE= 4 TARGET= .048

7.20	9.79	863.67	0.00	863.87	863.98	.11	.02	.01	862.48
630.	22.	608.	0.	25.	221.	0.	42.	11.	862.98
.57	.87	2.75	0.00	.040	.030	.035	.067	854.08	280.13
.000437	50.	50.	50.	1	0	0	0.00	65.87	346.00

*SECNO 8.000

3470 ENCROACHMENT STATIONS= 814.7 1095.0 TYPE= 1 TARGET= 320.000

8.00	8.41	864.01	0.00	853.99	854.05	.04	.05	.02	856.60
630.	238.	122.	271.	254.	43.	222.	44.	11.	856.60
.60	.94	2.84	1.22	.040	.030	.035	.066	855.60	814.68
.000235	8.	158.	258.	2	0	0	0.00	280.32	1095.00

```
*SECNO 8.010

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  859.60

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000

        D/S FACE, WAVERLY ROAD, 4 BY 6 FT. CMP ARCH (2 IN.), 60 FT. LONG

        EXTENDING INLET, PAVED ROADWAY

     8.01     8.41   864.01     0.00   863.99   864.06      .05      .00      .00   856.60
      630.     393.      20.     217.     207.      20.     140.      44.      11.    856.60
       .60     1.90     1.02     1.54     .020     .033     .020     .066   855.60   814.68
  .000399       1.       1.       1.        0        0        0  -151.31   230.32  1095.00

*SECNO 8.090

3370 NORMAL BRIDGE,NRD= 25 MIN ELTRD=  862.50 MAX ELLC=  858.70

3470 ENCROACHMENT STATIONS=     814.7    1095.0  TYPE=     1  TARGET=     320.000

        SECTION I, U/S FACE, WAVERLY ROAD

     8.09     8.43   864.03     0.00   864.01   864.08      .05      .02      .00   856.60
      630.     398.       9.     223.     209.       8.     143.      44.      12.    856.60
       .60     1.91     1.09     1.56     .020     .033     .021     .066   855.60   814.68
  .000398      58.      56.      58.        0        0        0  -162.63   230.32  1095.00

*SECNO 8.100

3470 ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
     8.10     9.26   863.96     0.00   863.94   864.16      .21      .00      .08   855.70
      630.     243.     250.     127.     266.      47.     186.      44.      12.    855.70
       .60      .91     5.50      .65      .125     .045     .125     .066   854.70   785.77
  .001736       1.       1.       1.        2        0        0     0.00   230.32  1066.09

*SECNO 8.200
   SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        O.OSS    BANK ELEV
   Q         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     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     785.8    1066.1  TYPE=     1  TARGET=     320.000
     8.20     9.58   864.12     0.00   864.11   864.26      .13      .08      .02   855.54
      630.     253.     232.     145.     312.      49.     230.      45.      12.    855.54
       .61      .81     4.72      .63      .125     .045     .125     .069   854.54   785.77
  .001223      75.      50.      25.        2        0        0     0.00   230.32  1066.09

*SECNO 9.000
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3235 SLOPE TOO STEEP,EXCEEDS       .10

   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       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID      ENDST


3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     910.7     1209.9  TYPE=      1  TARGET=      379.870
      9.00      1.38    865.33    865.33    865.33    865.71       .38       .87       .12100000.00
      630.      630.        0.        0.      126.        0.        0.       46.       13. 100000.00
       .62      4.93      0.00      0.00      .125      .050      .125      .064    353.95   1040.32
  .205450      245.      170.       20.        20        17         0      0.00    169.59   1209.91


*SECNO 9.010

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  853.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=     911.4     1209.9  TYPE=      1  TARGET=      379.020

        D/S FACE, HOLT HIGHWAY, 5 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG


        SANDBAG WING WALLS, PAVED ROADWAY

      9.01      1.59    865.54      0.00    865.54    865.76       .23       .01       .05100000.00
      630.      630.        0.        0.      165.        0.        0.       46.       13. 100000.00
       .62      3.82      0.00      0.00      .020      .032      .020      .064    353.95   1020.10
  .002609         1.        1.        1.         0         0         0      -.00    189.82   1209.91


*SECNO 9.090

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  863.40 MAX ELLC=  858.90

3470 ENCROACHMENT STATIONS=    1063.4     1536.0  TYPE=      1  TARGET=      600.000

        SECTION J, U/S FACE, HOLT HIGHWAY

      9.09     11.94    865.84      0.00    865.84    865.84       .01       .01       .07    853.90
      630.      398.       20.       212.      561.       39.      306.       47.       14.    853.90
       .66       .71       .52       .69      .020      .032      .020      .064    853.90   1063.39
  .000038      101.      101.      101.         2         0         0   -138.82    472.62   1536.01


CCHV=     .100 CEHV=     .300
1490 NH CARD USED
*SECNO 9.100

3470 ENCROACHMENT STATIONS=    1063.4     1536.0  TYPE=      1  TARGET=      600.000
      9.10     12.33    865.83      0.00    865.83    865.84       .01       .00       .00    853.50
      630.      277.       99.       253.      503.       66.      497.       47.       14.    853.50
       .66       .55      1.50       .51      .040      .040      .040      .064    353.50   1063.39
  .000060         1.        1.        1.         0         0         0      0.00    472.62   1536.01
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*SECNO 9.200
   SECNO     DEPTH     CWSEL     CRITS     WSELK     EG        HV        HL        O.JSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     .EFT/RIGHT
   TIME      VLOB      VCH       VROS      XNL       XNCH      XNR       WTN       E.4IN       SSTA
   SLOPE     XLOBL     XLCH      XLOER     ITRIAL    IOC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=     1024.0     1575.4  TYPE=      1  TARGET=      700.000
      9.20     12.21    865.84      0.00    865.84    865.85      .01       .00       .00    853.63
       630.      269.      102.      259.      487.       65.      520.       49.       14.     853.63
        .68       .55      1.56       .50      .040      .040      .040      .064    853.63  1024.01
   .000066       50.       50.       50.         0         0         0      0.00    551.39  1575.40


*SECNO 9.900
 2800 NAT Q1=    1316.71  WSEL=     865.85  END Q1=    1316.71  WSEL=     865.95  RATIO=     .0000
 NAT Q1=    1374.  RATIOS LOB,CH,ROB=    .3236    .2536    .4228  WSEL=     865.95

3470 ENCROACHMENT STATIONS=      158.8      694.9  TYPE=      4  TARGET=         .041
      9.90     10.98    865.85      0.00    865.85    865.85      .00       .01       .00    860.77
       255.      81.       69.      106.      626.      323.      983.       51.       19.     861.07
      1.33       .13       .21       .11      .060      .050      .060      .063    854.87   158.84
   .000004      137.      337.      567.         0         0         0      0.00    536.05   694.89


*SECNO 11.000
 2800 NAT Q1=    1193.64  WSEL=     865.85  END Q1=    1193.64  WSEL=     865.95  RATIO=     .0000
 NAT Q1=    1249.  RATIOS LOB,CH,ROB=    .4324    .0417    .5259  WSEL=     865.95

3470 ENCROACHMENT STATIONS=      162.4      690.9  TYPE=      4  TARGET=         .044
     11.00     10.85    865.85      0.00    865.85    865.85      .00       .00       .00    857.50
       255.      110.       11.      134.      735.       48.     1057.       63.       19.     857.50
      1.43       .15       .24       .13      .060      .050      .060      .063    855.00   162.41
   .000006       50.       50.       50.         0         0         0      0.00    523.45   690.86


*SECNO 11.010
 2800 NAT Q1=    2118.92  WSEL=     865.85  END Q1=    2118.92  WSEL=     865.95  RATIO=     .0000
 NAT Q1=    2228.  RATIOS LOB,CH,ROB=    .4339    .0196    .5465  WSEL=     865.95

3370 NORMAL BRIDGE,NRD= 14 MIN E.TRD=  860.90 MAX ELLO=  860.00


3470 ENCROACHMENT STATIONS=      162.8      691.4  TYPE=      4  TARGET=         .049

        SECTION K, D/S FACE, FARM LANE, 5 FT. DIAM. CMP (1/2 IN ), 24 FT. LONG


        EXTENDING INLET, GRAVEL ROADWAY

     11.01     10.85    865.85      0.00    865.85    865.85      .00       .00       .00    857.50
       255.      111.        5.      139.      590.       36.     1031.       63.       19.     857.50
      1.43       .16       .15       .13      .030      .023      .030      .063    855.00   162.78
   .000002        1.        1.        1.         0         0         1    -92.49    528.60   691.38


*SECNO 11.090
 2800 NAT Q1=    2118.98  WSEL=     865.85  END Q1=    2118.98  WSEL=     865.95  RATIO=  0.0000
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 NAT Q1=   2228.  RATIOS LOB,CH,ROB=   .4339   .0196   .5465  WSEL=    865.95
3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  860.90 MAX ELLO=  860.00

3470 ENCROACHMENT STATIONS=     162.8     691.4  TYPE=     4  TARGET=        .049
        U/S FACE, FARM LANE
    11.09    10.85   865.85     0.00   865.85   865.85      .00      .00      .00   857.50
      255.      111.       5.      139.      690.       36.     1031.      64.      19.    857.50
     1.48      .16      .15      .13      .030      .023      .030      .063   355.00   162.77
  .000002       22.       22.       22.         0         0         0   -92.49   528.62   691.39

*SECNO 11.100
 2800 NAT Q1=   1192.82  WSEL=    865.85  ENC Q1=   1192.82  WSEL=    865.95  RATIO=   .0000
 NAT Q1=   1249.  RATIOS LOB,CH,ROB=   .4324   .0417   .5259  WSEL=    865.95
   SECNO     DEPTH     CWSEL     CHNS      WSELK     EG        HV        HL        QLOSS    BANK ELEV
   0         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TRA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       E.MIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IOC       ICONT     COPAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     162.7     690.4  TYPE=     4  TARGET=        .045
    11.10    10.85   865.85     0.00   865.85   865.85      .00      .00      .00   857.50
      255.      110.      11.      134.      734.       48.     1055.      64.      19.    857.50
     1.48      .15      .24      .13      .060      .050      .060      .062   355.00   162.75
  .000005        1.        1.        1.         0         0         0      0.00   527.61   690.35

*SECNO 11.200
 2800 NAT Q1=   1198.49  WSEL=    865.85  ENC Q1=   1198.49  WSEL=    865.95  RATIO=   .0000
 NAT Q1=   1255.  RATIOS LOB,CH,ROB=   .4323   .0416   .5262  WSEL=    865.95

3470 ENCROACHMENT STATIONS=     162.5     691.6  TYPE=     4  TARGET=        .045
    11.20    10.86   865.85     0.00   865.85   865.85      .00      .00      .00   857.49
      255.      110.      11.      134.      736.       48.     1070.      66.      20.    857.49
     1.58      .15      .24      .12      .060      .050      .060      .062   354.99   162.50
  .000005       50.       50.       50.         0         0         0      0.00   528.15   690.65

*SECNO 11.900
 2800 NAT Q1=    660.60  WSEL=    865.86  ENC Q1=    660.60  WSEL=    865.95  RATIO=   .0000
 NAT Q1=    693.  RATIOS LOB,CH,ROB=   .4097   .4683   .1220  WSEL=    865.95

3470 ENCROACHMENT STATIONS=     262.2     519.7  TYPE=     4  TARGET=        .046
    11.90    11.36   865.87     0.00   865.86   865.87      .00      .01      .00   862.61
      255.      102.      127.       26.      483.      312.      144.      113.       33.    863.21
     2.91      .21      .41      .18      .060      .050      .060      .060   354.51   262.19
  .000016     1375.     1475.     1575.         0         0         0      0.00   257.51   519.69

*SECNO 12.000
 2800 NAT Q1=    625.75  WSEL=    865.87  ENC Q1=    625.75  WSEL=    865.97  RATIO=   .0000
 NAT Q1=    656.  RATIOS LOB,CH,ROB=   .6261   .1016   .2722  WSEL=    865.97

3470 ENCROACHMENT STATIONS=     260.8     521.2  TYPE=     4  TARGET=        .046
    12.00    11.37   865.87     0.00   865.87   865.87      .00      .00      .00   856.20
      255.      161.       28.       66.      633.       52.      261.      114.       34.    856.20
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     2.95       .25       .53       .25      .060      .050      .060      .060    854.50    260.79
  .000018       50.       50.       50.         0         0         0      0.00    260.44    521.23


*SECNO 12.010
 2800 NAT Q1=     848.65  WSEL=     865.87  ENC Q1=     848.65  WSEL=     865.97  RATIO=  0.0000
 NAT Q1=     903.  RATIOS LOB,CH,ROB=    .7236    .0265    .2499  WSEL=     865.97

3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00


3470 ENCROACHMENT STATIONS=     259.2     523.2  TYPE=     4  TARGET=        .060

         SECTION L, D/S FACE, FARM LANE, 3.5 BY 5 FT. CMP ARCH (1/2 IN.)


         EXTENDING INLET, GRAVEL ROADWAY

     12.01     11.37    865.87      0.00    865.87    865.87       .00       .00       .00    856.20
       255.      189.        7.       59.      564.       25.      205.      114.       34.     856.20
      2.96       .33       .30       .29      .030      .024      .030      .060    854.50    259.20
  .000010         1.        1.        1.         0         0         0   -159.90    253.95    523.15


*SECNO 12.090
 2800 NAT Q1=     848.77  WSEL=     865.87  ENC Q1=     848.77  WSEL=     865.97  RATIO=    .0000
 NAT Q1=     903.  RATIOS LOB,CH,ROB=    .7236    .0265    .2499  WSEL=     865.97
   SECNO     DEPTH     CWSEL     CHANS     WSELK     EG        HV        HL        O.DSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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= 20 MIN ELTRD=  862.40 MAX ELLC=  858.00


3470 ENCROACHMENT STATIONS=     259.2     523.2  TYPE=     4  TARGET=        .060

         U/S FACE, FARM LANE CULVERT

     12.09     11.37    865.87      0.00    865.87    865.87       .00       .00       .00    856.20
       255.      189.        7.       59.      564.       25.      205.      115.       34.     856.20
      2.98       .33       .30       .29      .030      .024      .030      .060    854.50    259.20
  .000010        24.       24.       24.         0         0         0   -159.90    253.95    523.15


*SECNO 12.100
 2800 NAT Q1=     625.98  WSEL=     865.87  ENC Q1=     625.98  WSEL=     865.97  RATIO=    .0000
 NAT Q1=     656.  RATIOS LOB,CH,ROB=    .6261    .1016    .2722  WSEL=     865.97

3470 ENCROACHMENT STATIONS=     261.7     521.3  TYPE=     4  TARGET=        .046
     12.10     11.37    865.87      0.00    865.87    865.87       .00       .00       .00    856.20
       255.      161.       28.       66.      633.       52.      261.      115.       34.     856.20
      2.98       .25       .53       .25      .060      .050      .060      .060    854.50    260.71
  .000018         1.        1.        1.         0         0         0      0.00    253.62    521.33


*SECNO 12.200
 2800 NAT Q1=     626.20  WSEL=     865.87  ENC Q1=     626.20  WSEL=     865.97  RATIO=  0.0000
 NAT Q1=     656.  RATIOS LOB,CH,ROB=    .6262    .1016    .2723  WSEL=     865.97
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3470 ENCROACHMENT STATIONS=      260.7      521.3  TYPE=      4  TARGET=          .046
    12.20     11.37    865.87      0.00    865.87    865.87       .00       .00       .00    856.20
      255.      161.       28.       66.      633.       52.      262.      116.       34.    856.20
     3.03       .25       .53       .25      .060      .050      .060      .060    854.50    260.69
  .000018       50.       50.       50.         )         0         (      0.00    260.64    521.34


1490 NH CARD USED
*SECNO 12.900
 2800 NAT Q1=     639.71  WSLL=     865.88  ENC Q1=     639.71  WSEL=     865.98  RATIO=  0.0000
 NAT Q1=    1852.  RATIOS LOB,CH,ROB=    .8397    .0213    .1390  WSEL=     865.98
3280 CROSS SECTION      12.90 EXTENDED       1.87 FEET


3470 ENCROACHMENT STATIONS=      326.0     1304.0  TYPE=      4  TARGET=          .655
    12.90     11.38    865.88      0.00    865.88    865.88       .00       .01       .00    856.50
      255.      246.        9.        0.     1003.       41.        0.      130.       39.    856.50
     3.72       .24       .22      0.00      .045      .060      .052      .059    854.50    826.00
  .000020      606.      606.      606.         0         0         0      0.00    478.00   1304.00

*SECNO 13.000
 2800 NAT Q1=     640.42  WSLL=     865.88  ENC Q1=     640.42  WSEL=     865.98  RATIO=  -.0000
 NAT Q1=    1853.  RATIOS LOB,CH,ROB=    .8397    .0214    .1390  WSEL=     865.98
3280 CROSS SECTION      13.00 EXTENDED       1.88 FEET


3470 ENCROACHMENT STATIONS=      525.8     1304.0  TYPE=      4  TARGET=          .654
    13.00     11.38    865.88      0.00    865.88    865.88       .00       .01       .00    856.50
      255.      246.        9.        0.     1012.       44.        0.      131.       40.    856.50
     3.78       .24       .21      0.00      .043      .060      .052      .059    854.50    825.83
  .000020       50.       50.       50.         0         0         0      0.00    473.17   1304.00

*SECNO 13.010
 2800 NAT Q1=     911.76  WSEL=     865.88  ENC Q1=     911.76  WSEL=     865.98  RATIO=  0.0000
 NAT Q1=    2853.  RATIOS LOB,CH,ROB=    .8591    .0057    .1352  WSEL=     865.98
3280 CROSS SECTION      13.01 EXTENDED       1.88 FEET

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        O_LOSS    BANK ELEV
   Q         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    IOC       ICONT     CORAR     TOPWID     ENDST


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  863.70 MAX ELLC=  858.50

3470 ENCROACHMENT STATIONS=      540.9     1304.0  TYPE=      4  TARGET=          .680

         SECTION M, D/S FACE, GILBERT ROAD, 4 FT. DIAM. CMP (1/2 IN.), 63 FT LONG

         EXTENDING INLET, PAVED ROADWAY

    13.01     11.38    865.88      0.00    865.88    865.88       .00       .01       .00    856.50
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     255.      252.        3.        0.      894.       20.        0.      131.       40.    856.50
     3.78       .28       .17      0.00       .025      .024       .025      .059    854.50    840.85
  .000009        1.        1.        1.         0         0          0  -113.99    433.15   1304.00


*SECNO 13.090
 2800 NAT Q1=     678.33  WSEL=    865.88  ENC Q1=     678.33  WSEL=    865.98  RATIO=    .0000
 NAT Q1=    2163.  RATIOS LOB,CH,ROB=    .8674    .0075    .1250  WSEL=    865.98
3230 CROSS SECTION      13.09 EXTENDED       1.58 FEET


3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  863.70 MAX ELLC=  858.80

3470 ENCROACHMENT STATIONS=     662.8    1304.0  TYPE=      4  TARGET=        .586

        U/S FACE, GILBERT ROAD

    13.09     11.08   865.88      0.00   865.88   865.88      .00       .00       .00    856.80
     255.      250.        5.        0.      725.       20.        0.      132.       41.    856.80
     3.83       .35       .24      0.00       .025      .024       .025      .059    854.80    862.75
  .000017       61.       61.       61.         0         0          0  -109.19    441.25   1304.00


1490 NH CARD USED
*SECNO 13.100
 2800 NAT Q1=     544.66  WSEL=    865.88  ENC Q1=     544.66  WSEL=    865.98  RATIO=    .0000
 NAT Q1=    1604.  RATIOS LOB,CH,ROB=    .8477    .0236    .1288  WSEL=    865.98
3280 CROSS SECTION      13.10 EXTENDED       1.58 FEET


3470 ENCROACHMENT STATIONS=     548.4    1304.0  TYPE=      4  TARGET=        .660
    13.10     11.08   865.88      0.00   865.88   865.88      .00       .00       .00    856.80
     255.      244.       11.        0.      534.       42.        0.      132.       41.    856.80
     3.83       .29       .25      0.00       .044      .060      .049      .059    854.80    848.36
  .000028        1.        1.        1.         0         0          0      0.00    455.64   1304.00


*SECNO 13.200
 2800 NAT Q1=     443.60  WSEL=    865.88  ENC Q1=     443.60  WSEL=    865.98  RATIO=    .0000
 NAT Q1=    1306.  RATIOS LOB,CH,ROB=    .8484    .0279    .1237  WSEL=    865.98
3280 CROSS SECTION      13.20 EXTENDED       1.38 FEET


3470 ENCROACHMENT STATIONS=     560.4    1300.1  TYPE=      4  TARGET=        .660
    13.20     10.86   865.88      0.00   865.88   865.88      .00       .00       .00    857.00
     255.      242.       13.        0.      722.       41.        0.      133.       41.    857.00
     3.67       .34       .32      0.00       .045      .060      .052      .058    855.00    860.40
  .000043       50.       50.       50.         0         0          0      0.00    433.68   1300.09


*SECNO 14.000
 2800 NAT Q1=    1072.77  WSEL=    865.89  ENC Q1=    1072.77  WSEL=    865.99  RATIO=    .0000
 NAT Q1=    1124.  RATIOS LOB,CH,ROB=    .1424    .0915    .7661  WSEL=    865.99

3470 ENCROACHMENT STATIONS=    1017.6    1920.1  TYPE=      4  TARGET=        .046

        SECTION N, SURVEYED VALLEY SECTION
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    14.00      7.49    865.89      0.00    865.89    865.89       .00       .01       .00    858.30
      265.       32.      26.       207.      531.      109.     2171.      164.       53.    858.90
     5.85       .06       .24       .10       .10       .06       .10       .09    858.40   1017.63
  .000007       748.      748.      748.         0         0         0      0.00    902.50   1920.12

*SECNO 15.000
 2800 NAT Q1=     563.75  WSEL=     865.90  ENC Q1=     563.75  WSEL=     866.03  RATIO=    .0000
 NAT Q1=     611.  RATIOS LOB,CH,ROB=    .0196    .0284    .9518  WSEL=     866.00

3265 DIVIDED FLOW

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


3470 ENCROACHMENT STATIONS=     1029.0     2399.8  TYPE=      4  TARGET=         .077
    15.00      7.30    865.90      0.00    865.90    865.90       .00       .01       .00    860.60
      265.        0.        6.      259.        0.       25.     2233.      214.       75.    860.60
     7.84       0.00       .22       .12       .10       .06       .10       .06    858.60   1029.00
  .000026      1777.     1727.      727.         0         0         0      0.00   1272.79   2399.80

*SECNO 15.010
 2800 NAT Q1=     524.41  WSEL=     865.90  ENC Q1=     524.41  WSEL=     866.00  RATIO=    .0000
 NAT Q1=     575.  RATIOS LOB,CH,ROB=    .0002    .0035    .9963  WSEL=     866.00

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  865.60 MAX ELLC=  862.60

3470 ENCROACHMENT STATIONS=     1029.0     2350.3  TYPE=      4  TARGET=         .088

        SECTION O, D/S FACE, FARM LANE, 4 FT. DIAM. CMP (1/2 IN.),46 FT. LONG

        GRAVEL ROADWAY

    15.01      7.30    865.90      0.00    865.90    865.90       .00       .00       .00    860.60
      265.        0.        1.      264.        0.        9.     2124.      214.       75.    860.60
     7.84       0.00       .09       .12       .10       .06       .10       .06    858.60   1029.00
  .000030         1.        1.        1.         0         0         0    -41.15   1222.73   2350.34

*SECNO 15.090
 2800 NAT Q1=     524.94  WSEL=     865.90  ENC Q1=     524.94  WSEL=     866.00  RATIO=    .0000
 NAT Q1=     575.  RATIOS LOB,CH,ROB=    .0002    .0035    .9963  WSEL=     866.00

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD=  5 MIN ELTRD=  865.60 MAX ELLC=  862.60

3470 ENCROACHMENT STATIONS=     1029.0     2350.5  TYPE=      4  TARGET=         .088
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U/S FACE, FARM LANE

15.09	7.31	865.91	0.00	865.90	865.91	.00	.00	.00	860.60
265.	0.	1.	264.	0.	9.	2126.	216.	76.	860.60
7.94	0.00	.09	.12	.100	.060	.100	.064	858.60	1029.00
.000030	44.	44.	44.	0	0	0	-41.15	1222.93	2350.46

*SECNO 15.100
2800 NAT Q1= 559.71 WSEL= 865.90 ENC Q1= 559.71 WSEL= 865.01 RATIO= .0000
NAT Q1= 611. RATIOS LOB,CH,ROB= .0198 .0284 .9518 WSEL= 866.33

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1029.0 2385.4 TYPE= 4 TARGET= .094

15.10	7.31	865.91	0.00	865.90	865.91	.00	.00	.00	860.60
265.	0.	6.	259.	0.	25.	2273.	216.	76.	860.60
7.94	0.00	.22	.12	.100	.060	.100	.064	858.60	1029.00
.000027	1.	1.	1.	0	0	0	0.01	1257.87	2385.38

*SECNO 16.900
2800 NAT Q1= 1245.65 WSEL= 865.91 ENC Q1= 1245.65 WSEL= 865.01 RATIO= .0000
NAT Q1= 1311. RATIOS LOB,CH,ROB= .0060 .0080 .9860 WSEL= 866.31

3470 ENCROACHMENT STATIONS= 10.0 857.8 TYPE= 4 TARGET= .050

SECTION P, FABRICATED FROM SECTION Q AND U.S.G.S. MAPS

16.90	7.75	865.92	0.00	865.91	865.92	.00	.01	.00	859.90
265.	0.	1.	264.	0.	28.	2398.	285.	106.	859.90
11.33	0.00	.05	.10	.100	.120	.070	.070	858.16	10.00
.000005	1238.	1236.	1238.	0	0	0	0.00	847.84	857.84

*SECNO 17.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROE	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROE	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOER	ITRIAL	IDC	ICONT	COPAR	IOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

D/S FACE, GROVENBURG ROAD, 4 FT. DIAM. CMP (1/2 IN.), 78 FT. LONG

EXTENDING INLET, PAVED ROADWAY

17.00	8.02	865.92	0.00	865.91	865.92	.00	.01	.00	859.90
175.	104.	1.	70.	3060.	28.	1716.	354.	127.	859.90
18.09	.03	.03	.04	.100	.120	.070	.072	857.90	1000.00
.000001	362.	700.	1122.	0	0	0	0.00	1200.00	2200.00

SPECIAL BRIDGE

SB	XK	XKOR	DOFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.18	3.00	0.00	4.00	0.00	12.57	0.00	858.70	857.90

*SECNO 17.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELRD
875.48	866.72	0.00	163.	12.	13.	16.	862.70	865.70

3470 ENCROACHMENT STATIONS= 1000.0 2200.0 TYPE= 1 TARGET= 1200.000

SECTION Q, U/S FACE GROVENBURG ROAD

17.10	7.27	865.97	0.00	865.96	865.97	.00	.05	0.00	860.70	
175.	122.	2.	51.	2534.	25.	1329.	361.	129.	860.70	
18.56	.05	.08	.04	.125	.080	.125	.072	858.70	1000.00	
.000003	78.	78.	78.	0	0	9	0.00	1200.00	2200.00	

*SECNO 17.200

3470 ENCROACHMENT STATIONS= 1020.0 2200.0 TYPE= 1 TARGET= 1180.000

17.20	8.07	865.97	0.00	865.96	865.97	.00	.01	.00	859.90	
175.	94.	1.	60.	3014.	28.	2472.	367.	130.	859.90	
19.00	.03	.05	.03	.125	.080	.125	.072	857.90	1020.00	
.000001	50.	50.	50.	0	0	0	0.00	1180.00	2200.00	

*SECNO 18.000
2800 NAT Q1= 66.55 WSEL= 865.96 ENC Q1= 66.55 WSEL= 866.03 RATIO= .0000
NAT Q1= 74. RATIOS LOB,CH,ROB= .1666 .7746 .0587 WSEL= 866.35

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 133.6 1004.3 TYPE= 4 TARGET= .105

SECTION R, SURVEYED VALLEY SECTION

18.00	6.96	865.96	0.00	865.95	865.98	.02	.00	.01	865.70	
175.	17.	158.	0.	92.	132.	5.	465.	157.	865.60	
13.37	.18	1.20	.07	.125	.080	.125	.073	353.00	133.55	
.000823	1481.	1481.	1481.	2	0	0	0.00	408.42	1004.28	

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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

GILBERT DRAIN

SUMMARY PRINTOUT TABLE  150
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	SECNO	XLCH	CLTRD	CLLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1.000	0.00	0.00	0.00	842.90	685.00	847.37	0.00	847.80	66.33	6.21	231.71	84.11
	1.000	0.00	0.00	0.00	842.90	685.00	847.47	0.00	847.91	73.83	6.19	189.58	79.72
	1.100	62.00	0.00	0.00	843.54	685.00	847.96	0.00	848.15	32.07	4.29	225.17	120.95
	1.100	62.00	0.00	0.00	843.54	685.00	848.06	0.00	848.28	33.92	4.17	186.82	117.61
*	1.900	130.00	0.00	0.00	844.89	685.00	848.52	848.52	849.99	182.19	9.76	75.77	50.75
*	1.900	130.00	0.00	0.00	844.89	685.00	848.52	848.52	849.99	182.18	9.76	75.77	50.75
*	1.950	25.00	0.00	0.00	845.15	685.00	849.35	849.35	851.10	135.54	11.23	71.95	48.99
*	1.950	25.00	0.00	0.00	845.15	685.00	849.35	849.35	851.10	135.54	11.23	71.95	48.99
*	2.000	24.00	0.00	0.00	845.40	685.00	850.94	850.94	853.59	298.03	13.06	52.43	39.68
*	2.000	24.00	0.00	0.00	845.40	685.00	850.94	850.94	853.59	298.03	13.06	52.43	39.68
	2.010	1.00	854.30	852.90	845.40	685.00	852.05	0.00	853.86	64.99	10.78	63.53	84.97
	2.010	1.00	854.30	852.90	845.40	685.00	852.05	0.00	853.86	64.99	10.78	63.53	84.97
	2.090	17.00	854.30	852.90	845.40	685.00	852.37	0.00	854.01	56.87	10.28	66.62	90.83
	2.090	17.00	854.30	852.90	845.40	685.00	852.37	0.00	854.01	56.87	10.28	66.62	90.83
	2.100	1.00	0.00	0.00	845.40	685.00	852.42	0.00	854.03	357.80	10.20	67.15	36.21
	2.100	1.00	0.00	0.00	845.40	685.00	852.42	0.00	854.03	357.80	10.20	67.15	36.21
	2.200	75.00	0.00	0.00	845.51	685.00	854.57	0.00	854.58	2.63	1.44	886.58	422.36
	2.200	75.00	0.00	0.00	845.51	685.00	854.57	0.00	854.58	2.76	1.47	817.19	412.18
	3.000	1465.00	0.00	0.00	847.90	685.00	855.51	0.00	855.86	82.38	4.90	170.53	75.47
	3.000	1465.00	0.00	0.00	847.90	685.00	855.55	0.00	855.93	86.88	5.06	142.95	73.49
	3.900	637.00	0.00	0.00	849.85	630.00	858.75	0.00	858.83	27.68	2.71	352.25	119.74
	3.900	637.00	0.00	0.00	849.85	630.00	858.88	0.00	858.96	27.46	2.72	324.01	120.23
	4.000	50.00	0.00	0.00	850.00	630.00	858.90	0.00	858.93	36.53	3.91	353.61	104.24
	4.000	50.00	0.00	0.00	850.00	630.00	859.03	0.00	859.12	35.42	3.90	332.74	105.96
	4.010	1.00	855.70	855.50	850.00	630.00	858.90	0.00	859.00	13.68	2.03	261.75	170.32
	4.010	1.00	855.70	855.50	850.00	630.00	859.02	0.00	859.14	13.66	1.66	236.51	170.48

SECNO	XLOH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4.090	24.00	855.70	856.00	850.50	630.00	858.92	0.00	859.07	28.59	2.94	204.85	117.33
4.090	24.00	855.70	856.00	850.50	630.00	859.03	0.00	859.22	29.33	2.47	185.42	116.32
4.100	1.00	0.00	0.00	850.50	630.00	859.01	0.00	859.08	27.96	2.66	359.01	119.14
4.100	1.00	0.00	0.00	850.50	630.00	859.15	0.00	859.23	27.47	2.66	331.39	120.20
4.200	50.00	0.00	0.00	850.54	630.00	859.15	0.00	859.21	25.09	2.56	373.95	125.79
4.200	50.00	0.00	0.00	850.54	630.00	859.29	0.00	859.36	24.87	2.56	344.21	126.32
4.900	796.00	0.00	0.00	851.16	630.00	860.90	0.00	861.00	19.90	2.71	316.10	141.23
4.900	796.00	0.00	0.00	851.16	630.00	861.02	0.00	861.13	19.67	2.74	272.22	142.06
5.000	50.00	0.00	0.00	851.20	630.00	861.00	0.00	861.10	18.73	2.65	325.65	145.57
5.000	50.00	0.00	0.00	851.20	630.00	861.12	0.00	861.22	18.58	2.68	282.36	146.14
5.090	22.00	858.00	857.00	851.50	630.00	861.07	0.00	861.18	22.72	2.84	296.14	132.16
5.090	22.00	999999.00	0.00	851.50	630.00	861.20	0.00	861.31	22.41	2.86	255.69	133.09
5.100	50.00	0.00	0.00	851.54	630.00	861.20	0.00	861.29	18.07	2.61	338.91	148.21
5.100	50.00	0.00	0.00	851.54	630.00	861.32	0.00	861.42	17.80	2.63	291.97	149.31
6.000	1019.00	0.00	0.00	852.30	630.00	862.10	0.00	862.12	4.49	1.57	765.78	297.42
6.000	1019.00	0.00	0.00	852.30	630.00	862.22	0.00	862.24	4.43	1.58	697.00	299.34
6.900	189.00	0.00	0.00	853.41	630.00	862.21	0.00	862.41	52.72	3.58	181.25	86.76
6.900	189.00	0.00	0.00	853.41	630.00	862.33	0.00	862.52	49.50	3.48	180.86	89.54
7.000	50.00	0.00	0.00	853.70	630.00	862.31	0.00	862.53	11.30	3.78	168.09	187.39
7.000	50.00	0.00	0.00	853.70	630.00	862.42	0.00	862.63	10.50	3.67	171.60	194.42
7.100	23.00	862.00	857.70	853.70	630.00	863.86	0.00	863.95	3.10	2.47	288.98	357.81
7.100	23.00	862.00	857.70	853.70	630.00	863.87	0.00	863.95	3.08	2.46	289.75	358.95
7.200	50.00	0.00	0.00	854.08	630.00	863.87	0.00	863.97	3.98	2.66	296.65	315.88
7.200	50.00	0.00	0.00	854.08	630.00	863.87	0.00	863.98	4.37	2.75	245.96	301.53
8.000	158.00	0.00	0.00	855.60	630.00	863.99	0.00	864.03	2.41	2.87	512.40	405.65
8.000	158.00	0.00	0.00	855.60	630.00	864.01	0.00	864.05	2.35	2.84	518.31	411.20
8.010	1.00	862.50	859.60	855.60	630.00	863.99	0.00	864.04	4.21	1.04	361.13	307.07
8.010	1.00	862.50	859.60	855.60	630.00	864.01	0.00	864.06	3.99	1.02	367.04	315.36
8.090	58.00	862.50	858.70	855.60	630.00	864.01	0.00	864.06	4.19	1.11	353.87	307.76
8.090	58.00	862.50	858.70	855.60	630.00	864.03	0.00	864.08	3.98	1.09	359.60	315.90
8.100	1.00	0.00	0.00	854.70	630.00	863.94	0.00	864.14	17.78	5.55	493.11	149.39
8.100	1.00	0.00	0.00	854.70	630.00	863.96	0.00	864.15	17.36	5.50	499.30	151.22
8.200	50.00	0.00	0.00	854.54	630.00	864.11	0.00	864.24	12.43	4.76	586.39	178.56
8.200	50.00	0.00	0.00	854.54	630.00	864.12	0.00	864.26	12.23	4.72	590.93	180.17
* 9.000	170.00	0.00	0.00	863.95	630.00	865.33	865.33	865.71	2053.22	0.00	127.87	13.30
* 9.000	170.00	0.00	0.00	863.95	630.00	865.33	865.33	865.71	2054.50	0.00	127.84	13.30
9.010	1.00	863.40	858.90	863.95	630.00	865.54	0.00	865.76	26.09	0.00	164.76	123.34
9.010	1.00	863.40	858.90	863.95	630.00	865.54	0.00	865.76	26.09	0.00	164.76	123.33

SECNO	XLOB	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9.090	101.00	863.40	858.90	853.90	530.00	865.84	0.00	865.84	.38	.52	906.68	1016.76
9.090	101.00	863.40	858.90	853.90	630.00	865.84	0.00	865.84	.38	.52	906.71	1016.80
9.100	1.00	0.00	0.00	853.50	530.00	865.83	0.00	865.84	.60	1.50	1066.17	812.57
9.100	1.00	0.00	0.00	853.50	630.00	865.83	0.00	865.84	.60	1.50	1066.19	812.59
9.200	50.00	0.00	0.00	853.63	530.00	865.84	0.00	865.85	.66	1.56	1072.18	776.15
9.200	50.00	0.00	0.00	853.63	530.00	865.84	0.00	865.85	.66	1.56	1072.21	776.18
9.900	337.00	0.00	0.00	854.87	255.00	865.85	0.00	865.85	.04	.20	2120.04	1316.71
9.900	337.00	0.00	0.00	854.87	255.00	865.85	0.00	865.85	.04	.21	1933.06	1261.76
11.000	50.00	0.00	0.00	855.00	255.00	865.85	0.00	865.85	.05	.23	2028.95	1193.64
11.000	50.00	0.00	0.00	855.00	255.00	865.85	0.00	865.85	.05	.24	1849.55	1144.43
11.010	1.00	860.90	860.00	855.00	255.00	865.85	0.00	865.85	.01	.14	1933.47	2118.92
11.010	1.00	860.90	860.00	855.00	255.00	865.85	0.00	865.85	.02	.15	1757.18	2023.59
11.090	22.00	860.90	860.00	855.00	255.00	865.85	0.00	865.85	.01	.14	1933.51	2118.98
11.090	22.00	860.90	860.00	855.00	255.00	865.85	0.00	865.85	.02	.15	1757.23	2023.74
11.100	1.00	0.00	0.00	855.00	255.00	865.85	0.00	865.85	.05	.23	2027.95	1192.82
11.100	1.00	0.00	0.00	855.00	255.00	865.85	0.00	865.85	.05	.24	1847.74	1143.68
11.200	50.00	0.00	0.00	854.99	255.00	865.85	0.00	865.85	.05	.23	2034.89	1198.49
11.200	50.00	0.00	0.00	854.99	255.00	865.85	0.00	865.85	.05	.24	1854.37	1149.22
11.900	1475.00	0.00	0.00	854.51	255.00	865.86	0.00	865.87	.15	.39	1069.05	660.50
11.900	1475.00	0.00	0.00	854.51	255.00	865.87	0.00	865.87	.16	.41	937.99	636.08
12.000	50.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.17	.51	1074.47	625.75
12.000	50.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.18	.53	946.11	601.45
12.010	1.00	862.40	858.00	854.50	255.00	865.87	0.00	865.87	.09	.28	914.81	849.65
12.010	1.00	862.40	858.00	854.50	255.00	865.87	0.00	865.87	.10	.30	793.29	805.34
12.090	24.00	862.40	858.00	854.50	255.00	865.87	0.00	865.87	.09	.28	914.89	849.77
12.090	24.00	862.40	858.00	854.50	255.00	865.87	0.00	865.87	.10	.30	793.33	805.38
12.100	1.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.17	.51	1074.77	625.98
12.100	1.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.18	.53	946.58	601.70
12.200	50.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.17	.51	1075.07	626.20
12.200	50.00	0.00	0.00	854.50	255.00	865.87	0.00	865.87	.18	.53	946.92	601.99
12.900	606.00	0.00	0.00	854.50	255.00	865.88	0.00	865.88	.16	.37	1243.18	639.71
12.900	606.00	0.00	0.00	854.50	255.00	865.88	0.00	865.88	.20	.22	1049.64	573.09
13.000	50.00	0.00	0.00	854.50	255.00	865.88	0.00	865.88	.16	.36	1245.89	640.42
13.000	50.00	0.00	0.00	854.50	255.00	865.88	0.00	865.88	.20	.21	1055.06	577.20
13.010	1.00	863.70	858.50	854.50	255.00	865.88	0.00	865.88	.08	.23	1068.15	911.76
13.010	1.00	863.70	858.50	854.50	255.00	865.88	0.00	865.88	.09	.17	913.03	836.18
13.090	61.00	863.70	858.80	854.80	255.00	865.88	0.00	865.88	.14	.30	872.61	678.33
13.090	61.00	863.70	858.80	854.80	255.00	865.88	0.00	865.88	.17	.24	744.32	612.82

SECNO	XLOB	ELTRD	ELLC	ELMIN	Q	WSEL	CRIWS	EG	1VKPS	VCH	AREA	.01K
13.100	1.00	0.00	0.00	854.80	255.00	865.88	0.00	865.88	.22	.41	1042.75	544.56
13.100	1.00	0.00	0.00	854.80	255.00	865.88	0.00	865.88	.28	.25	876.26	483.70
13.200	50.00	0.00	0.00	855.00	255.00	865.88	0.00	865.88	.33	.58	910.34	443.60
13.200	50.00	0.00	0.00	855.00	255.00	865.88	0.00	865.88	.43	.32	763.24	388.37
14.000	748.00	0.00	0.00	858.40	265.00	865.89	0.00	865.89	.06	.23	3108.29	1072.77
14.000	748.00	0.00	0.00	858.40	265.00	865.89	0.00	865.89	.07	.24	2810.53	1030.22
15.000	1727.00	0.00	0.00	858.60	265.00	865.90	0.00	865.90	.22	.32	2533.32	563.75
15.000	1727.00	0.00	0.00	858.60	265.00	865.90	0.00	865.90	.26	.22	2257.98	518.53
15.010	1.00	865.60	862.60	858.60	265.00	865.90	0.00	865.90	.26	.11	2437.11	524.41
15.010	1.00	865.60	862.60	858.60	265.00	865.91	0.00	865.90	.30	.09	2133.49	483.39
15.090	44.00	865.60	862.60	858.60	265.00	865.90	0.00	865.90	.25	.11	2438.83	524.34
15.090	44.00	865.60	862.60	858.60	265.00	865.91	0.00	865.91	.30	.09	2135.04	483.39
15.100	1.00	0.00	0.00	858.60	265.00	865.91	0.00	865.90	.22	.32	2520.45	559.71
15.100	1.00	0.00	0.00	858.60	265.00	865.91	0.00	865.91	.27	.22	2227.93	511.42
16.900	1238.00	0.00	0.00	858.16	265.00	865.91	0.00	865.91	.05	.08	2952.88	1245.65
16.900	1238.00	0.00	0.00	858.16	265.00	865.92	0.00	865.92	.05	.05	2615.34	1190.71
17.000	700.00	0.00	0.00	857.90	175.00	865.91	0.00	865.91	.01	.03	4792.83	2077.45
17.000	700.00	0.00	0.00	857.90	175.00	865.92	0.00	865.92	.01	.03	4804.08	2085.52
17.100	78.00	865.70	862.70	858.70	175.00	865.96	0.00	865.96	.03	.08	3881.88	1048.88
17.100	78.00	865.70	862.70	858.70	175.00	865.97	0.00	865.97	.03	.08	3888.13	1051.57
17.200	50.00	0.00	0.00	857.90	175.00	865.96	0.00	865.96	.01	.05	5507.98	1841.02
17.200	50.00	0.00	0.00	857.90	175.00	865.97	0.00	865.97	.01	.05	5514.12	1844.39
18.000	1481.00	0.00	0.00	859.00	175.00	865.96	0.00	865.97	6.91	1.10	319.69	66.55
18.000	1481.00	0.00	0.00	859.00	175.00	865.96	0.00	865.96	8.23	1.20	229.06	60.98

GILBERT DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	X_CH
	1.000	685.00	847.37	0.00	0.00	0.00	166.17	0.00
	1.000	685.00	847.47	.10	0.00	.10	89.29	0.00
	1.100	685.00	847.96	0.00	.59	0.00	163.69	62.00
	1.100	685.00	848.06	.10	.59	.10	89.90	62.00
*	1.900	685.00	848.52	0.00	.55	0.00	27.73	130.00
*	1.900	685.00	848.52	.00	.46	.00	27.73	130.00
*	1.950	685.00	849.35	0.00	.83	0.00	22.00	25.00
*	1.950	685.00	849.35	-.00	.83	-.00	22.00	25.00
*	2.000	685.00	850.94	0.00	1.60	0.00	10.00	24.00
*	2.000	685.00	850.94	.00	1.60	.00	10.00	24.00
	2.010	685.00	852.05	0.00	1.11	0.00	10.00	1.00
	2.010	685.00	852.05	-.00	1.11	-.00	10.00	1.00
	2.090	685.00	852.37	0.00	.32	0.00	10.00	17.00
	2.090	685.00	852.37	-.00	.32	-.00	10.00	17.00
	2.100	685.00	852.42	0.00	.05	0.00	10.00	1.00
	2.100	685.00	852.42	-.00	.05	-.00	10.00	1.00
	2.200	685.00	854.57	0.00	2.15	0.00	167.53	75.00
	2.200	685.00	854.57	.00	2.15	.00	125.01	75.00
	3.000	685.00	855.51	0.00	.94	0.00	76.56	1465.00
	3.000	685.00	855.55	.04	.98	.04	36.11	1465.00
	3.900	630.00	858.75	0.00	3.24	0.00	143.23	537.00
	3.900	630.00	858.88	.13	3.33	.13	102.77	537.00
	4.000	630.00	858.90	0.00	.15	0.00	143.48	50.00
	4.000	630.00	859.03	.13	.15	.13	105.28	50.00
	4.010	630.00	858.90	0.00	-.00	0.00	143.59	1.00
	4.010	630.00	859.02	.12	-.01	.12	96.73	1.00
	4.090	630.00	858.92	0.00	.02	0.00	130.55	24.00
	4.090	630.00	859.03	.11	.01	.11	91.18	24.00
	4.100	630.00	859.01	0.00	.09	0.00	146.30	1.00
	4.100	630.00	859.15	.14	.12	.14	104.69	1.00
	4.200	630.00	859.15	0.00	.14	0.00	149.01	50.00
	4.200	630.00	859.29	.14	.14	.14	105.92	50.00
	4.900	630.00	860.90	0.00	1.75	0.00	125.96	796.00
	4.900	630.00	861.02	.12	1.73	.12	65.79	796.00
	5.000	630.00	861.00	0.00	.10	0.00	128.56	50.00
	5.000	630.00	861.12	.12	.10	.12	69.29	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.090	630.00	861.07	0.00	.07	0.00	120.31	22.00
5.090	630.00	861.20	.12	.07	.12	62.39	22.00
5.100	630.00	861.20	0.00	.13	0.00	133.84	50.00
5.100	630.00	861.32	.12	.13	.12	71.51	50.00
6.000	630.00	862.10	0.00	.90	0.00	365.53	1019.00
6.000	630.00	862.22	.12	.89	.12	243.30	1019.00
6.900	630.00	862.21	0.00	.12	0.00	74.52	189.00
6.900	630.00	862.33	.12	.12	.12	46.00	189.00
7.000	630.00	862.31	0.00	.09	0.00	59.69	50.00
7.000	630.00	862.42	.11	.09	.11	45.25	50.00
7.100	630.00	863.86	0.00	1.55	0.00	92.40	23.00
7.100	630.00	863.87	.01	1.44	.01	92.56	23.00
7.200	630.00	863.87	0.00	.01	0.00	161.63	50.00
7.200	630.00	863.87	.00	.01	.00	65.87	50.00
8.000	630.00	863.99	0.00	.13	0.00	280.32	158.00
8.000	630.00	864.01	.02	.14	.02	280.32	158.00
8.010	630.00	863.99	0.00	-.00	0.00	280.32	1.00
8.010	630.00	864.01	.02	-.00	.02	280.32	1.00
8.090	630.00	864.01	0.00	.02	0.00	280.32	58.00
8.090	630.00	864.03	.02	.02	.02	280.32	58.00
8.100	630.00	863.94	0.00	-.08	0.00	280.32	1.00
8.100	630.00	863.96	.02	-.07	.02	280.32	1.00
8.200	630.00	864.11	0.00	.17	0.00	280.32	50.00
8.200	630.00	864.12	.02	.17	.02	280.32	50.00
* 9.100	630.00	865.33	0.00	1.23	0.00	169.61	170.00
* 9.000	630.00	865.33	-.00	1.21	-.00	169.59	170.00
9.010	630.00	865.54	0.00	.20	0.00	189.82	1.00
9.010	630.00	865.54	.00	.20	.00	189.82	1.00
9.090	630.00	865.84	0.00	.30	0.00	472.62	101.00
9.090	630.00	865.84	.00	.30	.00	472.62	101.00
9.100	630.00	865.83	0.00	-.00	0.00	472.62	1.00
9.100	630.00	865.83	.00	-.00	.00	472.62	1.00
9.200	630.00	865.84	0.00	.00	0.00	551.39	50.00
9.200	630.00	865.84	.00	.00	.00	551.39	50.00
9.900	255.00	865.85	0.00	.02	0.00	691.98	337.00
9.900	255.00	865.85	.00	.02	.00	536.05	337.00
11.000	255.00	865.85	0.00	.00	0.00	682.51	50.00
11.000	255.00	865.85	.00	.00	.00	528.45	50.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.010	255.00	865.85	0.00	-.00	0.00	682.41	1.00
11.010	255.00	865.85	.00	-.00	.00	528.60	1.00
11.090	255.00	865.85	0.00	.00	0.00	682.41	22.00
11.090	255.00	865.85	.00	.00	.00	528.62	22.00
11.100	255.00	865.85	0.00	.00	0.00	682.41	1.00
11.100	255.00	865.85	.00	.00	.00	527.61	1.00
11.200	255.00	865.85	0.00	.00	0.00	683.13	50.00
11.200	255.00	865.85	.00	.00	.00	528.15	50.00
11.900	255.00	865.86	0.00	.01	0.00	386.32	1475.00
11.900	255.00	865.87	.00	.01	.00	257.51	1475.00
12.000	255.00	865.87	0.00	.00	0.00	387.15	50.00
12.000	255.00	865.87	.00	.00	.00	260.44	50.00
12.010	255.00	865.87	0.00	-.00	0.00	387.18	1.00
12.010	255.00	865.87	.00	-.00	.00	263.95	1.00
12.090	255.00	865.87	0.00	.00	0.00	387.20	24.00
12.090	255.00	865.87	.00	.00	.00	263.96	24.00
12.100	255.00	865.87	0.00	.00	0.00	387.19	1.00
12.100	255.00	865.87	.00	.00	.00	260.62	1.00
12.200	255.00	865.87	0.00	.00	0.00	387.24	50.00
12.200	255.00	865.87	.00	.00	.00	260.64	50.00
12.900	255.00	865.88	0.00	.01	0.00	698.06	606.00
12.900	255.00	865.86	.00	.01	.00	478.01	606.00
13.000	255.00	865.86	0.00	.00	0.00	698.18	50.00
13.000	255.00	865.86	.00	.00	.00	478.17	50.00
13.010	255.00	865.88	0.00	-.00	0.00	698.19	1.00
13.010	255.00	865.88	.00	-.00	.00	463.15	1.00
13.090	255.00	865.86	0.00	.00	0.00	651.61	51.00
13.090	255.00	865.86	.00	.00	.00	441.25	51.00
13.100	255.00	865.86	0.00	.00	0.00	651.53	1.00
13.100	255.00	865.88	.00	.00	.00	455.64	1.00
13.200	255.00	865.86	0.00	.00	0.00	606.96	50.00
13.200	255.00	865.86	.00	.00	.00	439.68	50.00
14.000	255.00	865.89	0.00	.01	0.00	1237.20	748.00
14.000	265.00	865.89	.01	.01	.01	902.50	748.00
15.000	265.00	865.90	0.00	.01	0.00	1605.84	1727.00
15.000	265.00	865.90	.01	.01	.01	1272.79	1727.00
15.010	265.00	865.90	0.00	.00	0.00	1603.17	1.00
15.010	265.00	865.90	.01	.00	.01	1222.73	1.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
15.090	265.00	865.90	0.00	.00	0.00	1603.49	44.00
15.090	265.00	865.91	.01	.00	.01	1222.93	44.00
15.100	265.00	865.90	0.00	.00	0.00	1603.51	1.00
15.100	265.00	865.91	.01	.00	.01	1257.87	1.00
16.900	265.00	865.91	0.00	.01	0.00	1188.07	1238.00
16.900	265.00	865.92	.01	.01	.01	847.84	1238.00
17.000	175.00	865.91	0.00	.00	0.00	1200.00	700.00
17.000	175.00	865.92	.01	.00	.01	1200.00	700.00
17.100	175.00	865.96	0.00	.05	0.00	1200.00	78.00
17.100	175.00	865.97	.01	.05	.01	1200.00	78.00
17.200	175.00	865.96	0.00	.00	0.00	1180.00	50.00
17.200	175.00	865.97	.01	.00	.01	1180.01	50.00
18.000	175.00	865.96	0.00	-.01	0.00	746.31	1481.00
18.000	175.00	865.96	.00	-.01	.00	408.42	1481.00

SUMMARY OF ERRORS

CAUTION SECNO= 1.900 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.900 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.900 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.900 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 1.950 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.950 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.950 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 1.950 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1.950 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 1.950 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 2.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 9.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9.000 PROFILE= 1 SLOPE TOO STEEP
CAUTION SECNO= 9.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9.000 PROFILE= 2 SLOPE TOO STEEP

FLOODWAY DATA, GILBERT DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	89.	190.	3.6	847.5	847.4	.1
1.100	90.	187.	3.7	848.1	848.0	.1
1.900	28.	76.	9.0	848.5	848.5	0.0
1.950	22.	72.	9.5	849.3	849.3	0.0
2.000	10.	52.	13.1	850.9	850.9	0.0
2.010	10.	64.	10.8	852.1	852.1	0.0
2.090	10.	67.	10.3	852.4	852.4	0.0
2.100	10.	67.	10.2	852.4	852.4	0.0
2.200	125.	817.	.6	854.6	854.6	0.0
3.000	36.	143.	4.8	855.5	855.5	0.0
3.900	103.	324.	1.9	858.9	858.8	.1
4.000	105.	333.	1.9	859.0	858.9	.1
4.010	97.	237.	2.7	859.0	858.9	.1
4.090	91.	185.	3.4	859.0	858.9	.1
4.100	105.	331.	1.9	859.1	859.0	.1
4.200	106.	344.	1.8	859.2	859.1	.1
4.900	66.	272.	2.3	861.0	860.9	.1
5.000	69.	262.	2.2	861.1	861.0	.1
5.090	62.	258.	2.5	861.2	861.1	.1
5.100	72.	292.	2.2	861.3	861.2	.1
6.000	243.	697.	.9	862.2	862.1	.1
6.900	46.	181.	3.5	862.3	862.2	.1
7.000	45.	172.	3.7	862.4	862.3	.1
7.100	93.	290.	2.2	863.9	863.9	0.0
7.200	66.	246.	2.6	863.9	863.9	0.0
8.000	280.	516.	1.2	864.0	864.0	0.0
8.010	280.	367.	1.7	864.0	864.0	0.0
8.090	280.	360.	1.8	864.0	864.0	0.0
8.100	280.	499.	1.3	863.9	863.9	0.0
8.200	280.	591.	1.1	864.1	864.1	0.0
9.000	170.	128.	4.9	865.3	865.3	0.0
9.010	190.	165.	3.8	865.5	865.5	0.0
9.090	473.	907.	.7	865.8	865.8	0.0
9.100	473.	1066.	.6	865.8	865.8	0.0
9.200	551.	1072.	.6	865.8	865.8	0.0
9.900	536.	1933.	.1	865.9	865.9	0.0
11.000	528.	1851.	.1	865.9	865.9	0.0
11.010	529.	1757.	.1	865.9	865.9	0.0
11.090	529.	1757.	.1	865.9	865.9	0.0
11.100	528.	1846.	.1	865.9	865.9	0.0
11.200	528.	1854.	.1	865.9	865.9	0.0
11.900	258.	936.	.3	865.9	865.9	0.0
12.000	260.	941.	.3	865.9	865.9	0.0
12.010	264.	793.	.3	865.9	865.9	0.0
12.090	264.	793.	.3	865.9	865.9	0.0
12.100	261.	947.	.3	865.9	865.9	0.0
12.200	261.	947.	.3	865.9	865.9	0.0
12.900	478.	1050.	.2	865.9	865.9	0.0
13.000	478.	1055.	.2	865.9	865.9	0.0
13.010	463.	913.	.3	865.9	865.9	0.0

FLOODWAY DATA, GILBERT DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
13.090	441.	744.	.3	865.9	865.9	0.0
13.100	456.	876.	.3	865.9	865.9	0.0
13.200	440.	763.	.3	865.9	865.9	0.0
14.000	902.	2811.	.1	865.9	865.9	0.0
15.000	1371.	2256.	.1	865.9	865.9	0.0
15.010	1321.	2133.	.1	865.9	865.9	0.0
15.090	1321.	2135.	.1	865.9	865.9	0.0
15.100	1356.	2226.	.1	865.9	865.9	0.0
16.900	848.	2615.	.1	865.9	865.9	0.0
17.000	1200.	4604.	.0	865.9	865.9	0.0
17.100	1200.	3866.	.0	866.0	866.0	0.0
17.200	1180.	5514.	.0	866.0	866.0	0.0
18.000	871.	229.	.8	866.0	866.0	0.0

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**********
  HEC2 RELEASE DATED NOV 78 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********
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03.24.17..000057 PAGES PRINT. 002916 LINES PRINT. FOR $ 003.22 AT HG2.

GILBERT DRAIN
FLOODWAY REVISIONS
POST FIA SUBMITTAL

Scenes 8.2 — end

10/31/18

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

T1      FIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2      100 YEAR NATURAL FLOODWAY
T3      GILBERT DRAIN

J1  ICHECK    INQ       NINV      IDIR     STRT     METRIC    HVINS     Q       WSEL      FD

      0.        2.        0.        0.  0.000000     0.00      0.0       0.   864.110    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

    130.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

J5  LPRNT     NUMSEC                  ********REQUESTED SECTION NUMBERS********

    -10.000   -10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      .125      .125      .045      .300      .500      0.000     0.000     0.000     0.000     0.000
QT     2.000   630.000   630.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     8.200    25.000  1058.000  1064.000    75.000    25.000    50.000      .876     -.160     0.000
X3     0.000     0.000     0.000   897.000     0.000  1217.000     0.000     0.000     0.000     0.000
GR   876.400     0.000   873.000   176.000   867.400   412.000   864.800   600.000   863.300   300.000
GR   862.800   900.000   862.500  1000.000   862.500  1033.000   855.700  1059.000   854.700  1059.500
GR   854.700  1061.000   854.700  1062.500   855.700  1064.000   862.500  1073.000   862.600  1128.000
GR   863.900  1300.000   866.900  1500.000   867.400  1541.000   868.400  1700.000   871.000  1900.000
GR   873.000  2000.000   874.000  2200.000   874.400  2400.000   875.400  2600.000   876.400  2700.000
NC      .125      .125      .050     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     9.000    20.000  1721.000  1758.000   245.000    20.000   170.000      .788     0.000     0.000
X3     0.000     0.000     0.000  1350.000     0.000  1950.000     0.000     0.000     0.000     0.000
GR   872.100     0.000   871.300   200.000   870.500   400.000   869.500   600.000   868.700   800.000
GR   868.000  1000.000   866.300  1200.000   864.700  1400.000   863.600  1600.000   863.400  1668.000
GR   863.400  1721.000   853.900  1738.600   853.900  1738.600   853.900  1745.400   853.900  1745.400
GR   863.600  1758.000   864.500  2000.000   868.200  2200.000   871.600  2400.000   874.300  2800.000
NC      .020      .020      .032     0.000     0.000    -0.000     0.000     0.000     0.000     0.000

X1     9.010    20.000  1738.600  1745.400     1.000     1.000     1.000      .788     0.000     0.000
X2     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     .788     0.000
X3     0.000     0.000     0.000  1350.000     0.000  1950.000     0.000     0.000     0.000     0.000
BT    19.000     0.000   872.100     0.000   200.000   871.300     0.000   400.000   870.100     0.000
BT   600.000   869.500     0.000   800.000   868.700     0.000  1000.000   868.000     0.000  1200.000
BT   866.300     0.000  1400.000   864.700     0.000  1600.000   863.600     0.000  1668.000   863.400
BT     0.000  1721.000   863.400     0.000  1738.600   863.500   853.900  1738.600   863.500   858.900
BT  1745.400   863.500   858.900  1745.400   863.500   853.900  [illegible]
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BT	869.[illegible]	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
X1	9.090	20.000	1738.600	1745.400	101.000	101.000	101.000	.788	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	.788	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
BT	19.000	0.000	872.100	0.000	200.000	871.300	0.000	400.000	870.500	0.000
BT	600.000	869.500	0.000	800.000	868.700	0.000	1000.000	868.000	0.000	1200.000
BT	866.300	0.000	1400.000	864.700	0.000	1600.000	863.600	0.000	1668.000	863.400
BT	0.000	1721.000	863.400	0.000	1738.600	863.500	853.900	1738.600	863.500	853.900
BT	1745.400	863.500	858.900	1745.400	863.500	853.900	2000.000	864.500	0.000	2200.000
BT	868.200	0.000	2400.000	871.600	0.000	2800.000	874.300	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1668.000
GR	863.400	1721.000	853.900	1738.600	853.900	1738.600	853.900	1745.400	853.900	1745.400
GR	863.600	1758.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.060	.060	.050	.100	.300	0.000	0.000	0.000	0.000	0.000
NH	5.000	.040	1600.000	.060	1664.000	.050	1671.400	.060	1721.000	.040
NH	2000.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.100	20.000	1664.600	1671.400	1.000	1.000	1.000	.788	0.000	0.000
X3	0.000	0.000	0.000	1350.000	0.000	1950.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	853.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
X1	9.200	20.000	1664.600	1671.400	50.000	50.000	50.000	.788	.130	0.000
X3	0.000	0.000	0.000	1300.000	0.000	2000.000	0.000	0.000	0.000	0.000
GR	872.100	0.000	871.300	200.000	870.500	400.000	869.500	600.000	868.700	800.000
GR	868.000	1000.000	866.300	1200.000	864.700	1400.000	863.600	1600.000	863.400	1644.000
GR	853.500	1664.600	853.500	1664.600	853.500	1671.400	853.500	1671.400	853.300	1682.000
GR	863.400	1721.000	864.500	2000.000	868.200	2200.000	871.600	2400.000	874.300	2800.000
NC	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	255.000	255.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9.900	16.000	311.000	357.000	137.000	507.000	337.000	0.000	-.130	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	868.300	0.000	865.500	100.000	862.000	200.000	861.200	300.000	860.900	311.000
GR	857.500	331.500	856.200	332.300	855.000	334.000	856.200	345.200	857.500	336.500
GR	861.200	357.000	861.200	400.000	863.700	500.000	864.900	700.000	866.700	800.000
GR	868.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11.000	16.000	331.300	336.500	50.000	50.000	50.000	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	868.300	0.000	865.500	100.000	862.000	200.000	861.200	300.000	860.900	311.000
GR	857.500	331.500	856.200	332.300	855.000	334.000	856.200	345.200	857.500	336.500
GR	861.200	357.000	861.200	400.000	863.700	500.000	864.900	700.000	866.700	800.000
GR	868.300	900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.030	.030	.023	0.000	0.000	0.000	0.000	0.000	0.000	0 000
X1	11.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	862.100	0.000	100.000	862.500	1.000	200.000	862.100	0.000

BT	300.000	0.000	1.200	0.000	311.000	860.900	0.000	331.500	861.000	857.500	332.800
DT	861.100	858.800	334.000	361.100	860.000	335.200	861.100	858.800	336.500	361.100	
BT	857.500	357.000	861.200	0.000	400.000	861.200	0.000	500.000	863.700	0.000	
BT	700.000	863.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	11.090	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	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	11.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000	
X1	11.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	-.010	0.000	
X1	11.900	20.000	416.000	462.000	1375.000	1575.000	1475.000	0.000	.010	0.000	
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
GR	873.800	0.000	869.700	100.000	865.800	200.000	862.400	300.000	862.800	400.000	
GR	862.600	416.000	856.200	438.500	855.400	439.800	854.500	441.000	855.400	442.200	
GR	856.200	443.500	863.200	462.000	863.300	500.000	866.300	600.000	868.300	700.000	
GR	862.500	800.000	870.200	900.000	871.200	1000.000	872.100	1100.000	873.800	1200.000	
X1	12.000	20.000	416.000	462.000	50.000	50.000	50.000	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	873.800	0.000	869.700	100.000	865.800	200.000	862.400	300.000	862.800	400.000	
GR	862.600	416.000	856.200	438.500	855.400	439.800	854.500	441.000	855.400	442.200	
GR	856.200	443.500	863.200	462.000	863.300	500.000	866.300	600.000	868.300	700.000	
GR	869.500	800.000	870.800	900.000	871.200	1000.000	872.100	1100.000	873.800	1200.000	
NC	.030	.030	.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	12.010	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	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
BT	20.000	0.000	873.800	0.000	100.000	869.700	0.000	200.000	865.800	0.000	
DT	400.000	862.400	0.000	400.000	862.800	0.000	416.000	862.600	0.000	438.500	
BT	862.600	856.200	439.800	862.600	857.100	441.000	862.600	858.000	442.200	862.700	
BT	857.100	443.500	862.700	856.200	462.000	363.200	0.000	500.000	864.300	0.000	
BT	600.000	864.300	0.000	700.000	868.300	0.000	800.000	869.500	0.000	900.000	
BT	870.800	0.000	1000.000	871.200	0.000	1100.000	872.000	0.000	1200.000	873.600	
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	12.090	0.000	0.000	0.000	24.000	24.000	24.000	0.000	0.000	0.000	
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000	
NC	.060	.060	.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
X1	12.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000	
X1	12.200	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000	
NH	5.000	.040	1276.000	.125	1300.000	.040	1304.000	.125	1321.000	.040	
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
EF	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000	
X1	12.900	18.000	1300.000	1304.000	606.000	607.000	606.000	0.000	0.000	0.000	
GR	864.000	0.000	854.000	1076.000	863.700	1176.000	864.000	1276.000	866.500	1300.000	
GR	855.500	1401.000	354.500	1302.000	855.500	1303.000	856.500	1304.000	574.000	1321.000	
GR	864.000	1376.000	864.400	1476.000	865.200	1576.000	865.700	1676.000	866.500	1776.000	
GR	867.500	1876.000	868.400	1976.000	869.100	2026.000	0.000	0.000	0.000	0.000	

LI	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.000	18.000	1300.000	1304.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	864.000	0.000	864.000	1076.000	863.700	1176.000	864.000	1276.000	856.500	1300.000
GR	855.500	1301.000	854.500	1302.000	855.500	1303.000	856.500	1304.000	864.000	1321.000
GR	864.000	1326.000	864.400	1476.000	865.200	1576.000	865.200	1676.000	866.500	1726.000
GR	867.500	1876.000	868.600	1976.000	869.100	2076.000	0.000	0.000	0.000	0.000
NC	.025	.025	.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.010	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	17.000	1076.000	864.000	0.000	1176.000	863.700	0.000	1276.000	864.000	0.000
BI	1300.000	864.000	856.500	1301.000	864.000	857.500	1302.000	864.000	858.500	1303.000
BT	864.000	852.500	1304.000	864.000	856.500	1321.000	864.000	0.000	1326.000	864.000
BT	0.000	1476.000	864.400	0.000	1576.000	865.200	0.000	1676.000	865.700	0.000
BT	1776.000	866.500	0.000	1876.000	867.500	0.000	1976.000	868.600	0.000	2026.000
BT	869.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.090	0.000	0.000	0.000	61.000	61.000	61.000	0.000	.300	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	.035	1276.000	.125	1300.000	.060	1304.000	.125	1321.000	.035
NH	2026.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	15.100	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	1000.000	2026.000	0.000	0.000	0.000	0.000	0.000
X1	13.200	0.000	0.000	0.000	50.000	50.000	50.000	.997	.200	0.000
NC	.100	.100	.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	2.000	265.000	265.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	14.000	20.000	1355.000	1370.000	748.000	748.000	748.000	0.000	0.000	0.000
GR	870.000	0.000	864.600	1000.000	864.600	1100.000	864.700	1200.000	864.600	1300.000
GR	864.000	1322.000	861.100	1344.000	858.900	1355.000	858.400	1362.000	858.900	1370.000
GR	861.100	1380.000	862.000	1400.000	861.800	1500.000	863.200	1600.000	862.100	1700.000
GR	862.000	1800.000	861.800	1900.000	866.000	2000.000	868.100	2100.000	869.200	2200.000
X1	15.000	23.000	1029.000	1033.000	1777.000	727.000	1727.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
GR	871.200	0.000	870.900	100.000	865.700	200.000	860.000	300.000	860.600	400.000
GR	866.200	500.000	864.600	600.000	862.900	700.000	865.000	900.000	864.300	1012.000
GR	860.200	1029.000	859.600	1030.000	858.600	1031.000	859.600	1032.000	860.000	1033.000
GR	865.200	1043.000	867.200	1100.000	863.000	1300.000	863.600	1600.000	864.200	2000.000
GR	864.400	2400.000	866.300	2800.000	871.200	3200.000	0.000	0.000	0.000	0.000
X1	15.010	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	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
BI	23.000	0.000	871.200	0.000	100.000	870.900	0.000	200.000	865.700	0.000
BT	300.000	860.000	0.000	400.000	860.600	0.000	500.000	866.200	0.000	600.000
BT	864.600	0.000	700.000	862.900	0.000	900.000	865.000	0.000	1012.000	864.300
BI	0.000	1029.000	865.700	860.600	1030.000	865.700	861.600	1031.000	860.600	862.000
BT	1032.000	865.600	861.600	1033.000	865.600	860.600	1013.000	859.200	0.000	1100.000
BI	867.200	0.000	1300.000	863.000	0.000	1600.000	863.600	0.000	2000.000	864.600
BT	0.000	2400.000	864.400	0.000	2800.000	866.300	0.000	3200.000	871.200	0.000

X1	15.090	0.000	0.000	0.000	44.000	44.000	44.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
X1	15.100	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	1012.000	0.000	3200.000	0.000	0.000	0.000	0.000
NC	.100	.070	.120	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	16.900	9.000	10.000	14.000	1238.000	1238.000	1238.000	0.000	0.000	0.000
GR	866.500	0.000	859.900	10.000	858.160	12.000	859.900	14.000	862.800	115.000
GR	862.700	315.000	863.100	515.000	863.200	715.000	870.000	1900.000	0.000	0.000
QT	2.000	175.000	175.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	1060.000	2200.000	0.000	0.000	0.000	0.000	0.000
X1	17.000	21.000	1690.000	1694.000	362.000	1122.000	700.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.900	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	860.000	1678.000	859.900	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	858.300	1700.000
GR	862.800	1800.000	862.700	2000.000	863.100	2200.000	863.200	2400.000	865.500	2600.000
GR	870.700	2700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.125	.125	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SR	0.000	3.175	3.000	0.000	4.000	0.000	12.570	0.000	858.700	857.900
X1	17.100	0.000	0.000	0.000	78.000	78.000	78.000	0.000	.000	0.000
X2	0.000	0.000	1.000	862.700	862.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1000.000	0.000	2200.000	0.000	0.000	0.000	0.000
BT	10.000	1000.000	867.700	0.000	1600.000	865.800	0.000	1678.000	865.700	0.000
BT	1690.000	865.700	860.700	1691.000	865.200	862.000	1672.000	865.700	862.700	1693.000
BT	865.700	862.000	1694.000	865.700	860.700	1708.000	865.700	0.000	2200.000	865.800
BI	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	17.200	15.000	1690.000	1694.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	1020.000	0.000	2200.000	0.000	0.000	0.000	0.000
GR	867.500	0.000	862.500	200.000	862.100	400.000	862.400	600.000	862.700	800.000
GR	862.400	1000.000	862.400	1200.000	860.300	1600.000	860.000	1678.000	859.700	1690.000
GR	858.900	1691.000	857.900	1692.000	858.900	1693.000	859.900	1694.000	858.300	1700.000
QT	2.000	175.000	175.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	18.000	19.000	431.000	468.000	1481.000	1481.000	1481.000	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	870.100	0.000	865.100	100.000	865.500	200.000	866.000	400.000	865.500	400.000
GR	865.700	431.000	861.100	444.000	859.000	450.000	861.100	455.000	865.600	468.000
GR	866.600	500.000	865.700	700.000	864.200	900.000	865.600	1100.000	864.000	1300.000
GR	867.600	1500.000	869.500	1700.000	870.700	1800.000	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

****

HEGS RELEASE DATED NOV 76 UPDATED AUG1977

ERROR CURR - 01,02

MODIFICATION 50,51,52,53

****

T1 EIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2 100 YEAR ENCROACHED FLOODWAY
T3 GILBERT DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	0.000000	0.00	0.0	0.	864.110	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 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

GILBERT DRAIN

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10XIS	VCH	AREA	VOLR
8.200	50.00	0.00	0.00	854.54	630.00	864.11	0.00	864.25	12.42	4.76	586.74	178.77
8.200	50.00	0.00	0.00	854.54	630.00	864.11	0.00	864.25	12.42	4.76	586.74	178.77
9.000	170.00	0.00	0.00	853.90	630.00	864.31	0.00	864.45	11.73	3.07	361.74	186.91
9.000	170.00	0.00	0.00	853.90	630.00	864.31	0.00	864.45	11.73	3.07	361.74	186.91
9.010	1.00	863.40	858.90	853.90	630.00	864.31	0.00	864.45	26.51	3.69	223.51	122.35
9.010	1.00	863.40	858.90	853.90	630.00	864.31	0.00	864.45	26.51	3.69	223.51	122.35
9.090	101.00	863.40	858.90	853.90	630.00	864.56	0.00	864.63	9.53	2.27	321.86	204.06
9.090	101.00	863.40	858.90	853.90	630.00	864.56	0.00	864.63	9.53	2.27	321.86	204.06
9.100	1.00	0.00	0.00	853.50	630.00	864.56	0.00	864.63	3.25	3.25	479.85	349.42
9.100	1.00	0.00	0.00	853.50	630.00	864.56	0.00	864.63	3.25	3.25	479.85	349.42
9.200	50.00	0.00	0.00	853.63	630.00	864.57	0.00	864.65	3.88	3.52	430.84	319.70
9.200	50.00	0.00	0.00	853.63	630.00	864.57	0.00	864.65	3.88	3.52	430.84	319.70
9.900	337.00	0.00	0.00	854.87	255.00	864.68	0.00	864.68	.12	.32	1356.93	733.11
9.900	337.00	0.00	0.00	854.87	255.00	864.68	0.00	864.68	.13	.34	1210.39	697.27
11.000	50.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.15	.38	1278.68	648.21
11.000	50.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.17	.41	1168.16	615.14
11.010	1.00	860.90	860.00	855.00	255.00	864.68	0.00	864.68	.06	.25	1179.84	1064.07
11.010	1.00	860.90	860.00	855.00	255.00	[illegible]	0.00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

11.090	22.00	860.90	860.00	855.00	255.00	864.68	0.00	864.68	.06	.25	1179.96	1064.21
11.090	22.00	860.70	860.00	855.00	255.00	864.68	0.00	864.68	.06	.27	1039.74	1001.78
11.100	1.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.16	.39	1273.18	644.75
11.100	1.00	0.00	0.00	855.00	255.00	864.68	0.00	864.68	.17	.41	1127.59	612.01
11.200	50.00	0.00	0.00	854.99	255.00	864.68	0.00	864.68	.15	.38	1279.58	648.78
11.200	50.00	0.00	0.00	854.99	255.00	864.68	0.00	864.68	.17	.40	1133.69	615.92
11.900	1475.00	0.00	0.00	854.51	255.00	864.71	0.00	864.72	.46	.61	685.33	374.34
11.900	1475.00	0.00	0.00	854.51	255.00	864.72	0.00	864.72	.51	.64	582.66	358.69

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRITWS	EG	IORTS	VCH	AREA	.01K
12.000	50.00	0.00	0.00	854.50	255.00	864.72	0.00	864.72	.46	.61	670.71	377.83	
12.000	50.00	0.00	0.00	854.50	255.00	864.72	0.00	864.73	.50	.64	587.54	361.01	
12.010	1.00	862.40	858.00	854.50	255.00	864.72	0.00	864.72	.45	.61	511.08	330.83	
12.010	1.00	862.40	858.00	854.50	255.00	864.72	0.00	864.73	.52	.66	437.42	353.16	
12.090	24.00	862.40	858.00	854.50	255.00	864.72	0.00	864.72	.45	.61	511.36	331.15	
12.090	24.00	862.40	858.00	854.50	255.00	864.72	0.00	864.73	.52	.66	437.49	353.27	
12.100	1.00	0.00	0.00	854.50	255.00	864.72	0.00	864.72	.45	.61	671.28	378.20	
12.100	1.00	0.00	0.00	854.50	255.00	864.72	0.00	864.73	.50	.64	588.14	361.32	
12.200	50.00	0.00	0.00	854.50	255.00	864.72	0.00	864.72	.45	.61	672.08	378.72	
12.200	50.00	0.00	0.00	854.50	255.00	864.73	0.00	864.73	.50	.63	589.15	362.00	
12.900	606.00	0.00	0.00	854.50	255.00	864.77	0.00	864.77	1.66	1.12	566.00	198.68	
12.900	606.00	0.00	0.00	854.50	255.00	864.78	0.00	864.79	2.44	.74	476.25	163.32	
13.000	50.00	0.00	0.00	854.50	255.00	864.77	0.00	864.78	1.60	1.10	573.59	201.87	
13.000	50.00	0.00	0.00	854.50	255.00	864.79	0.00	864.80	2.35	.73	403.59	166.31	
13.010	1.00	863.70	858.50	854.50	255.00	864.77	0.00	864.78	1.57	.90	395.53	203.58	
13.010	1.00	863.70	858.50	854.50	255.00	864.79	0.00	864.80	2.13	.73	320.77	174.81	
13.090	61.00	863.70	858.80	854.80	255.00	864.78	0.00	864.80	5.92	1.75	255.72	104.83	
13.090	61.00	863.70	858.80	854.80	255.00	864.80	0.00	864.83	9.30	1.55	193.37	83.60	
13.100	1.00	0.00	0.00	854.80	255.00	864.79	0.00	864.80	3.15	1.51	428.15	143.61	
13.100	1.00	0.00	0.00	854.80	255.00	864.82	0.00	864.83	4.97	1.03	360.01	115.98	
13.200	50.00	0.00	0.00	855.00	255.00	864.80	0.00	864.82	5.33	1.94	345.77	110.41	
13.200	50.00	0.00	0.00	855.00	255.00	864.85	0.00	864.87	8.68	1.38	303.02	86.55	
14.000	748.00	0.00	0.00	858.40	265.00	864.86	0.00	864.86	.19	.37	1942.97	512.66	
14.000	748.00	0.00	0.00	858.40	265.00	864.91	0.00	864.91	.20	.37	1758.32	594.56	
15.000	1727.00	0.00	0.00	858.60	265.00	864.90	0.00	864.90	2.24	.90	1064.94	172.94	
15.000	1727.00	0.00	0.00	858.60	265.00	864.95	0.00	864.95	1.95	.84	1175.07	189.08	
15.010	1.00	860.00	862.60	858.60	265.00	864.90	0.00	864.91	3.93	.40	1004.34	154.93	
15.010	1.00	860.00	862.60	858.60	265.00	864.95	0.00	864.95	2.62	.37	1064.63	166.90	
15.090	11.00	860.00	862.60	858.60	265.00	864.92	0.00	864.92	2.81	.39	1020.17	158.00	
15.090	44.00	860.00	862.60	858.60	265.00	864.96	0.00	864.96	2.44	.37	1078.46	169.59	
15.100	1.00	0.00	0.00	858.60	265.00	864.92	0.00	864.92	2.15	.33	1083.53	180.2	

	15.100	1.00	0.00	0.00	858.60	265.00	864.96	0.00	864.96	1.69	.93	1142.69	192.60
	16.900	1238.00	0.00	0.00	858.16	265.00	864.97	0.00	864.97	.16	.13	1899.20	665.16
	16.900	1238.00	0.00	0.00	858.16	265.00	865.01	0.00	865.01	.17	.09	1684.90	638.28
	17.000	700.00	0.00	0.00	857.90	175.00	864.97	0.00	864.97	.02	.04	3654.01	1330.49
	17.000	700.00	0.00	0.00	857.90	175.00	865.02	0.00	865.02	.02	.01	3709.21	1363.43
	17.100	78.00	865.70	862.70	858.70	175.00	865.91	0.00	865.91	.03	.09	3823.17	1024.02
	17.100	78.00	865.70	862.70	858.70	175.00	865.91	0.00	865.91	.03	.09	3824.58	1024.42

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	TOPWID	VCH	AREA	.9IN
	17.200	50.00	0.00	0.00	857.90	175.00	865.91	0.00	865.91	.01	.05	5450.20	1209.42
	17.200	50.00	0.00	0.00	857.90	175.00	865.91	0.00	865.91	.01	.05	5451.66	1810.17
	18.000	1481.00	0.00	0.00	859.00	175.00	865.91	0.00	865.92	7.68	1.15	285.93	63.10
	18.000	1481.00	0.00	0.00	859.00	175.00	865.90	0.00	865.93	9.14	1.24	207.14	57.90

GILBERT DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8.200	630.00	864.11	0.00	0.00	0.00	280.32	50.00
	8.200	630.00	864.11	0.00	0.00	0.00	280.72	50.00
	9.000	630.00	864.31	0.00	.20	0.00	377.90	170.00
	9.000	630.00	864.31	0.00	.20	0.00	377.90	170.00
	9.010	630.00	864.31	0.00	.00	0.00	378.16	1.00
	9.010	630.00	864.31	0.00	.00	0.00	378.16	1.00
	9.090	630.00	864.56	0.00	.25	0.00	413.73	101.00
	9.090	630.00	864.56	0.00	.25	0.00	413.73	101.00
	9.100	630.00	864.56	0.00	.00	0.00	413.98	1.00
	9.100	630.00	864.56	0.00	.00	0.00	413.98	1.00
	9.200	630.00	864.57	0.00	.01	0.00	423.68	50.00
	9.200	630.00	864.57	0.00	.01	0.00	423.38	50.00
	9.900	255.00	864.68	0.00	.11	0.00	613.21	337.00
	9.900	255.00	864.68	.00	.11	.00	456.02	337.00
	11.000	255.00	864.69	0.00	.00	0.00	604.95	50.00
	11.000	255.00	864.69	.00	.00	.00	442.66	50.00
	11.010	255.00	864.68	0.00	-.00	0.00	604.36	1.00
	11.010	255.00	864.68	.00	-.00	.00	438.26	1.00
	11.090	255.00	864.69	0.00	.00	0.00	604.37	22.60
	11.090	255.00	864.68	.00	.00	.00	434.55	22.60
	11.100	255.00	864.68	0.00	.00	0.00	604.36	1.00
	11.100	255.00	864.68	.00	.00	.00	443.10	1.00

11.200	255.00	864.68	0.00	.00	0.00	605.04	50.00
11.200	255.00	864.68	.00	.00	.00	434.49	50.00
11.900	255.00	864.71	0.00	.03	0.00	314.21	1475.00
11.900	255.00	864.72	.01	.04	.01	210.22	1475.00
12.000	255.00	864.72	0.00	.00	0.00	315.28	50.00
12.000	255.00	864.72	.01	.00	.01	212.44	50.00
12.010	255.00	864.72	0.00	-.00	0.00	315.34	1.00
12.010	255.00	864.72	.00	-.00	.00	210.69	1.00
12.090	255.00	864.72	0.00	.00	0.00	315.39	24.00
12.090	255.00	864.72	.00	.00	.00	212.69	24.00
12.100	255.00	864.72	0.00	.00	0.00	315.40	1.00
12.100	255.00	864.72	.01	.00	.01	212.69	1.00
12.200	255.00	864.72	0.00	.00	0.00	315.55	50.00
12.200	255.00	864.73	.01	.00	.01	212.88	50.00

12.900	255.00	864.77	0.00	.05	0.00	520.61	606.00
12.900	255.00	864.78	.02	.05	.02	411.71	606.00
13.000	255.00	864.77	0.00	.01	0.00	522.43	50.00
13.000	255.00	864.78	.02	.01	.02	417.52	50.00
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13.010	255.00	864.78	.02	-.00	.02	396.70	1.00
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13.100	255.00	864.79	0.00	.01	0.00	486.39	1.00
13.100	255.00	864.80	.03	.02	.03	302.70	1.00
13.200	255.00	864.80	0.00	.01	0.00	449.32	50.00
13.200	255.00	864.85	.05	.03	.05	431.60	50.00
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14.000	255.00	864.91	.05	.06	.05	582.79	748.00
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15.000	255.00	864.95	.05	.04	.05	1334.13	1727.00
15.010	255.00	864.90	0.00	.00	0.00	1322.74	1.00
15.010	255.00	864.95	.05	.00	.05	1334.93	1.00
15.090	255.00	864.92	0.00	.01	0.00	1325.05	34.00
15.090	255.00	864.96	.04	.01	.04	1337.71	34.00
15.100	255.00	864.92	0.00	.00	0.00	1326.26	1.00
15.100	255.00	864.96	.04	.00	.04	1338.06	1.00
15.200	255.00	864.97	0.00	.05	0.00	1020.33	1200.00
15.200	255.00	865.01	.05	.05	.05	731.60	1200.00
17.0	255.00	864.97	0.00	.00	0.00	1200.00	700.00

17.000	175.00	865.02	.05	.00	.05	1200.00	700.00
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17.100	175.00	865.91	.00	.90	.00	1200.00	78.00
17.200	175.00	865.91	0.00	.00	0.00	1180.00	50.00
17.200	175.00	865.91	.00	.00	.00	1180.00	50.00
18.000	175.00	865.91	0.00	-.01	0.00	637.11	1481.00
18.000	175.00	865.90	.00	-.01	-.00	294.90	1481.00

SUMMARY OF ERRORS

FLOODWAY DATA; GILBERT DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE	
8.200	380.	587.	1.1	864.1	864.1	0.0	
9.000	378.	362.	1.7	864.3	864.3	0.0	
9.010	378.	224.	2.8	864.3	864.3	0.0	
J — 9.090	414.	322.	2.0	864.6	864.6	0.0	
9.100	414.	400.	1.3	864.6	864.6	0.0	
9.200	423.	431.	1.5	864.6	864.6	0.0	
9.900	455.	1210.	.2	864.7	864.7	0.0	
11.000	443.	1138.	.2	864.7	864.7	0.0	
K — 11.010	437.	1040.	.2	864.7	864.7	0.0	
11.090	437.	1040.	.2	864.7	864.7	0.0	
11.100	433.	1123.	.2	864.7	864.7	0.0	
11.200	434.	1134.	.2	864.7	864.7	0.0	
11.900	210.	583.	.4	864.7	864.7	0.0	
12.000	212.	586.	.4	864.7	864.7	0.0	
L — 12.010	219.	437.	.6	864.7	864.7	0.0	
12.090	219.	437.	.6	864.7	864.7	0.0	
12.100	213.	508.	.4	864.7	864.7	0.0	
12.200	213.	589.	.4	864.7	864.7	0.0	
12.900	412.	475.	.5	864.8	864.8	0.0	
13.000	418.	484.	.5	864.8	864.8	0.0	
M — 13.010	356.	421.	.8	864.8	864.8	0.0	
13.090	300.	192.	1.3	864.8	864.8	0.0	
13.100	393.	360.	.7	864.8	864.8	0.0	
13.200	432.	306.	.9	864.8	864.8	0.0	
N — 14.000	567.	1755.	.2	864.9	864.9	0.0	
15.000	1499.	1125.	.2	864.9	864.9	0.0	
O — 15.010	1500.	1065.	.2	864.9	864.9	0.0	
15.090	1502.	1070.	.2	864.9	864.9	0.0	
15.100	1502.	1143.	.2	864.9	864.9	0.0	
P — 15.500	733.	1438.	.2	865.0	865.0	0.0	
17.000	1700.	5209.	.0	865.0	865.0	0.0	
Q — 17.100	1700.	5025.	.0	865.9	865.9	0.0	
17.200	1190.	5452.	.0	865.9	865.9	0.0	
R — 18.000	1334.	207.	.8	865.9	865.9	0.0	

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  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
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READY 10.57.03
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00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Windsor & Delhi Twp

3) WATERCOURSE: Gilbert Drain

4) DOCUMENT TYPE: report

00BREAK00

SNELL ENVIRONMENTAL GROUP, INC.

Windsor and Delhi Townships

Flood Insurance Study
Gilbert Drain

Hydraulic Analysis Report

Snell Environmental Group

Engineering · Planning · Research

LETTER OF TRANSMITTAL

RECEIVED
AUG 0 8 1978
WATER MANAGEMENT

DATE	JOB NO.
8/4/78	17285A & 17286A

ATTENTION: Sam M. Nalluswami, P.E.

RE: Windsor Township & Delhi Township

Flood Insurance Studies

Gilbert 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

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SIGNED: Sam M. Nalluswami
Project Coordinator

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 Guter • William J Bandy, Jr • Joseph A Badra • Alan D Godfrey • Virgil W Langworthy
CABLE SNELL TELEX 229458

GILBERT DRAIN

HYDRAULIC ANALYSIS REPORT

TABLE OF CONTENTS

1. INTRODUCTION

2. FLOOD FLOWS

3. METHOD OF ANALYSIS

4. VARIABLES AND COEFFICIENTS

    4.1 Bridge Coefficients

5. HIGH WATER MARKS

6. STARTING CONDITIONS

7. SPECIAL PROBLEMS

REFERENCES

Appendix A Cross-Section Description Table

Appendix B Bridge Notes and Sketches

Appendix C Calculations

Appendix D Water Surface Profile

Appendix E Map Delineating Floodway & Flood Fringe

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

Gilbert Drain is a small ungaged stream in Windsor and Delhi Townships, Eaton and Ingham Counties, Michigan. The detailed hydraulic analysis was performed for a 2.80 mile reach, extending from the Grand River to the headwaters. 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 results were reviewed and approved by the Michigan Deaprtment of Natural Resources, Water Management Division. Table 1 gives a summary of the flows as used in this analysis.

TABLE 1

REACH	Q (cfs) 10-yr.	50-yr.	100-yr.	500-yr.
u/s of Grovenburg Road	110	150	175	220
Gilbert Road to Grovenburg Road	150	225	265	340
Confluence West Town Drain to Gilbert Road	145	210	255	350
Survey Section 3 to confluence West Town Drain	370	530	630	835
Grand River to Survey Section 3	400	575	685	900

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 U.S.G.S. 10-foot contour interval maps. The field cross-sections were repeated as required. Cross-section locations were chosen from field inspection, review of U.S.G.S. 10-foot contour interval 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
0.030 - 0.120	1. Channel
0.035 - 0.040	2. Lawns
0.040 - 0.050	3. Cropland
0.045 - 0.070	4. Meadows
0.100 - 0.125	5. Woods and Brush
0.020 - 0.025	6. Paved Roadways
0.025 - 0.030	7. Gravel Roadways

The contraction and expansion coefficients used were 0.3 and 0.5 respectively, in the lower reaches where transitions are abrupt. Upstream of Holt Highway the floodway expands and transitions became more gradual. Accordingly, the contraction and expansion coefficients were reduced to 0.1 and 0.3 respectively. 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

As Gilbert Drain has no gaging station, calibration of the hydraulic model was impossible. Accordingly, no high water marks were sought or obtained.

6. STARTING CONDITIONS

As the watershed of Grand River is several orders of magnitude larger than that of Gilbert Drain, the storms causing a flood of particular probability

were considered independent events in each watershed. Accordingly, the Gilbert Drain hydraulic model was started at normal depth rather than flood elevations on the Grand River. Normal depth was calculated using the slope-area method and adjusting the input water elevation until the calculated slope matched the existing slope in Gilbert Drain. This starting elevation was compared to starting at critical depth. The water surface profile started at critical depth converged by SECNO 1.9.

7. SPECIAL PROBLEMS

The Driveway culvert, Sections G and H, was made of boiler plate. The inlet has a lip of approximately 1/2 inch. Data on the entrance loss coefficient, Ke, could not be found. Considering the available data an entrance loss coefficient of 0.5 was chosen. It is believed that the proper coefficient is equal to or less than this value.

The Jarvis Highway culvert was modelled as normal bridge. At the d/s face and two sections within 50' d/s were at critical depth. The normal bridge results were compared to results from hand calculations assuming inlet control. The normal bridge routine gave higher energy losses.

The 50-, 100-, and 500-year flows will completely submerge the Holt Highway stream crossing. Accordingly, the Holt Highway culvert, Section V, was modeled as normal bridge. The normal bridge routine, however, resulted in an unreasonable water surface for the 10-year flow. The special bridge routine was used for the 10-year flow. The results from the special bridge routine were input into the multiple profile run with an X5 card. A copy of the special bridge computer output is included in Appendix C.

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

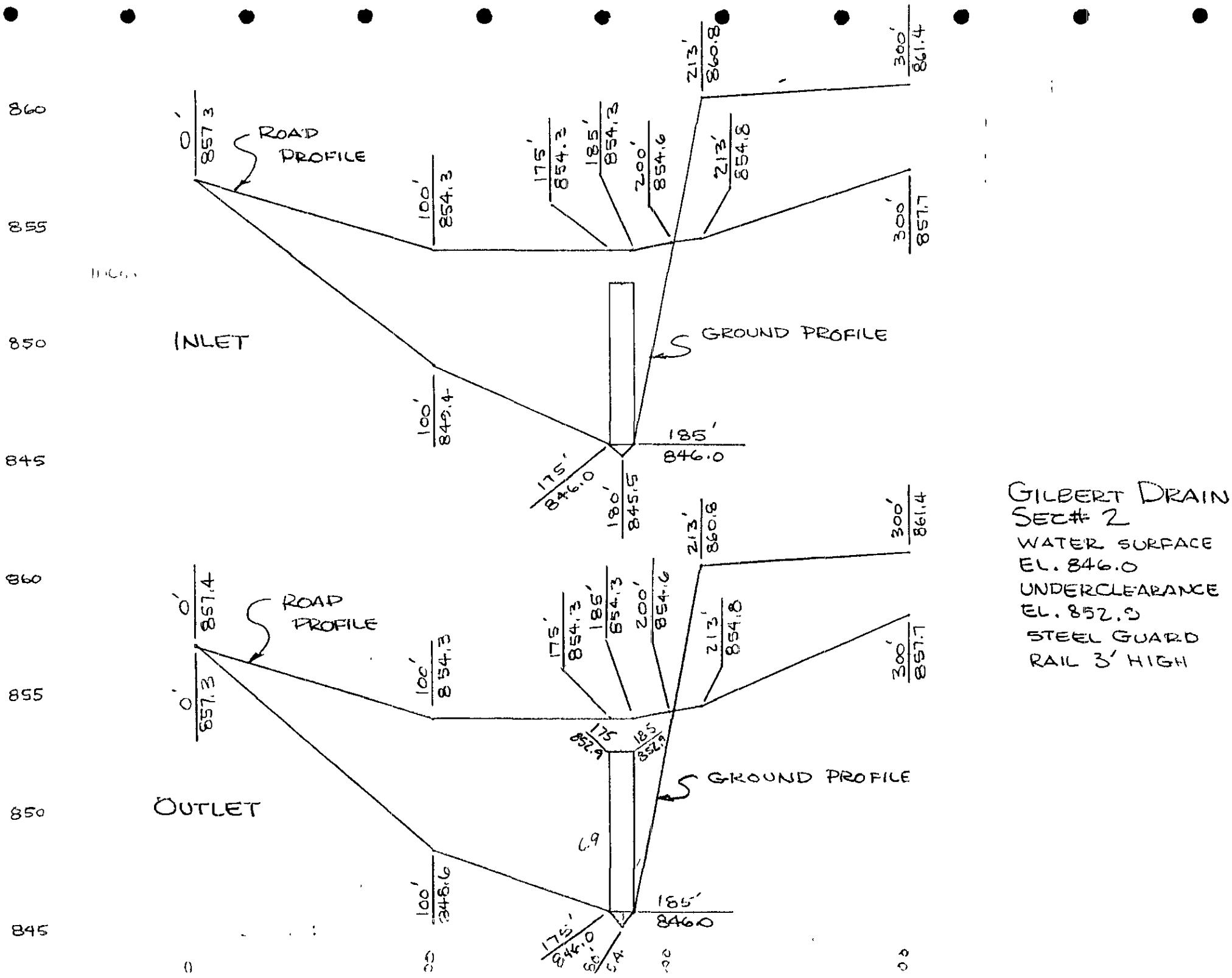
Cross-Section	SECNO	Description
A	1.	Surveyed valley section
	1.1	Section A repeated, raised 0.64 feet
	1.9	Section B repeated, without BT cards, lowered 0.33 ft.
	1.91	Section B repeated without BT cards, lowered 0.16 ft. Jarvis Highway
	2.00	Section B repeated without BT cards, 1 ft. d/s of Jarvis Highway
	2.01	Section B repeated, d/s face of Jarvis Highway
B	2.09	Surveyed bridge section, u/s face of Jarvis Highway
	2.10	Section B repeated without BT cards, 1 ft. u/s of Jarvis Highway
	2.2	Section B repeated without BT cards, raised 0.11 ft.
C	3.0	Surveyed valley section
	3.9	Section D repeated without BT cards, lowered 0.14 ft.
	4.0	Section D repeated without BT cards, 1 ft. d/s of farm lane
	4.01	Section D repeated, d/s face of farm lane culvert
D	4.09	Surveyed bridge section u/s face of farm lane culvert
	4.1	Section D repeated without BT cards, 1 ft. u/s of farm lane culvert
	4.2	Section D repeated without BT cards, raised 0.04 ft.
	4.9	Section E repeated without BT cards, lowered 0.04 ft.
	5.0	Section E repeated without BT cards, d/s face of farm lane culvert
E	5.09	Surveyed bridge section, u/s face of farm lane culvert
	5.1	Section E repeated without BT cards, raised 0.03 ft.
F	6.0	Surveyed valley section

	6.9	Section G repeated without BT cards, lowered 0.17 ft.
G	7.0	Surveyed bridge section, d/s face of driveway culvert
H	7.1	Surveyed bridge section, u/s face of driveway culvert
	7.2	Section H repeated without BT cards, raised 0.38 ft.
	8.0	Section I repeated without BT cards, 1 ft. d/s of Wavery Road
	8.01	Section I repeated, d/s face of Waverly Road
I	8.09	Surveyed bridge section, u/s face of Waverly Road
	8.1	Section I repeated without BT cards, 1 ft. u/s of Waverly Road
	8.2	Section I repeated without BT cards, lowered 0.16 ft.
	9.0	Section J repeated without BT cards, 1 ft. d/s of Holt Highway
	9.01	Section J repeated, d/s face of Holt Highway
J	9.09	Surveyed bridge section, u/s face of Holt Highway
	9.1	Section J repeated without BT cards, 1 ft. u/s of Holt Highway
	9.2	Section J repeated without BT cards
	9.9	Section K repeated without BT cards, lowered 0.3 ft.
	11.	Section K repeated without BT cards, 1 ft. d/s of farm lane culvert
K	11.01	Surveyed bridge section, d/s face of farm lane culvert
	11.09	Section K repeated, u/s face of farm lane culvert
	11.1	Section K repeated, without BT cards, 1 ft. u/s of farm lane culvert
	11.2	Section K repeated without BT cards, lowered 0.01 ft.
	11.9	Section L repeated without BT cards, raised 0.01 ft.
	12.0	Section L repeated without BT cards, 1 ft. d/s of farm lane culvert

L	12.01	Surveyed bridge section, d/s face of farm lane culvert
	12.09	Section L repeated, u/s face of farm lane culvert
	12.1	Section L repeated, without BT cards, 1 ft. u/s of farm lane culvert
	12.2	Section L repeated without BT cards
	12.9	Section M repeated without BT cards
	13.0	Section M repeated without BT cards, 1 ft. d/s of Gilbert Road
M	13.01	Surveyed bridge section, d/s face of Gilbert Road
	13.09	Section M repeated, u/s face of Gilbert Road
	13.1	Section M repeated, without BT cards, 1 ft. u/s of Gilbert Road
	13.2	Section M repeated without BT cards, raised 0.2 ft.
N	14.0	Surveyed valley section
	15.0	Section O repeated without BT cards, 1 ft. d/s of farm lane culvert
O	15.01	Surveyed bridge section, d/s of face farm lane culvert
	15.09	Section O repeated, u/s face of farm lane culvert
	15.1	Section O repeated, 1 ft. u/s of farm lane culvert
P	16.9	Fabricated section, channel from Section Q
	17.0	Section Q repeated without BT cards, d/s face of Grovenburg Road culvert
Q	17.1	Surveyed bridge section with additional points from U.S.G.S. map
	17.2	Fabricated section, channel from Section Q
R	18.0	Surveyed valley section

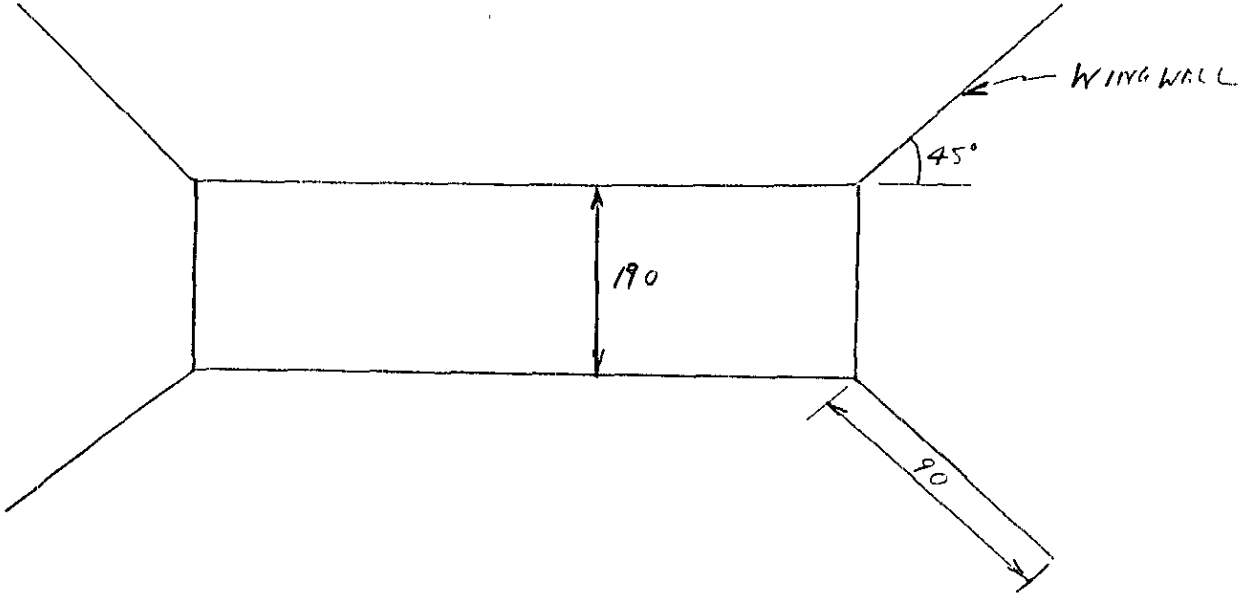
APPENDIX B

BRIDGE NOTES AND SKETCHES

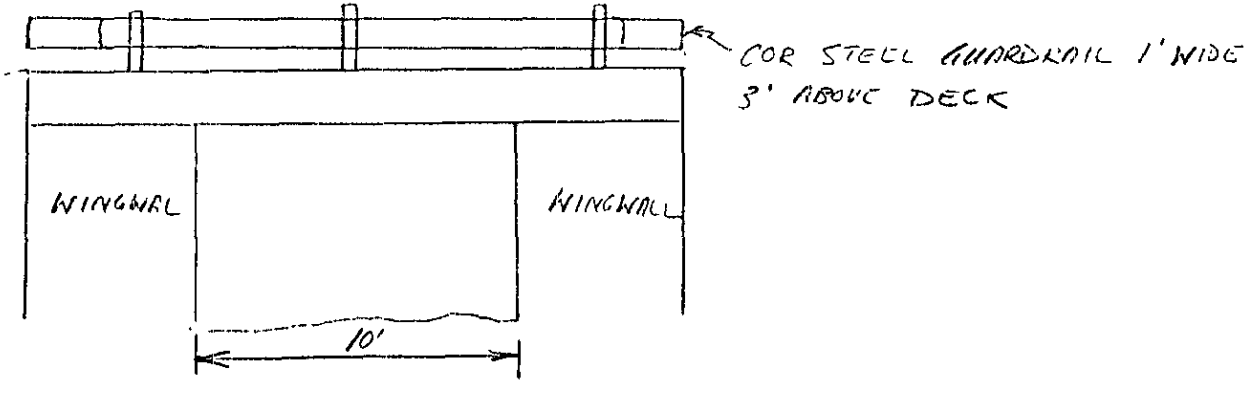


GILBERT DRAIN
SEC# 2
WATER SURFACE
EL. 846.0
UNDERCLEARANCE
EL. 852.9
STEEL GUARD
RAIL 3' HIGH

B.S. #2



Jarvis Hwy



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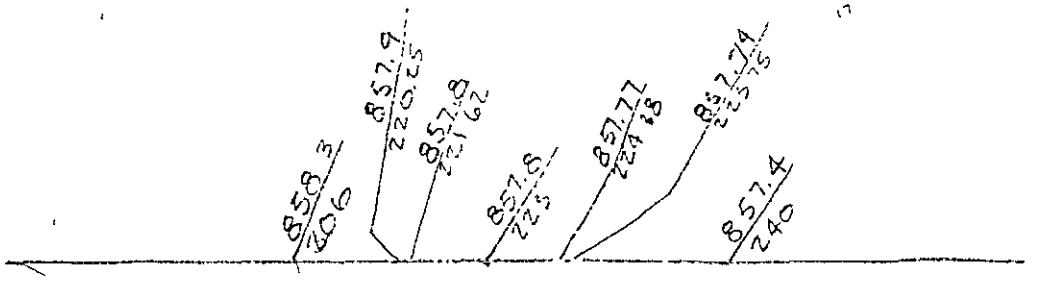
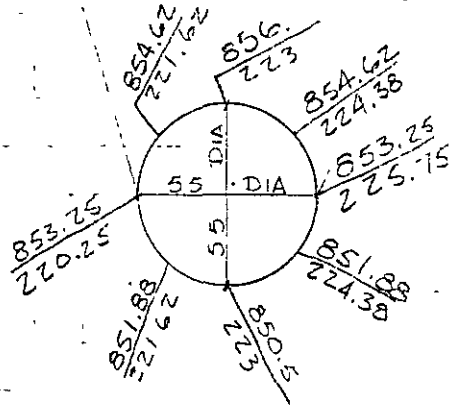
SUBJECT Gilbert Drain # 4

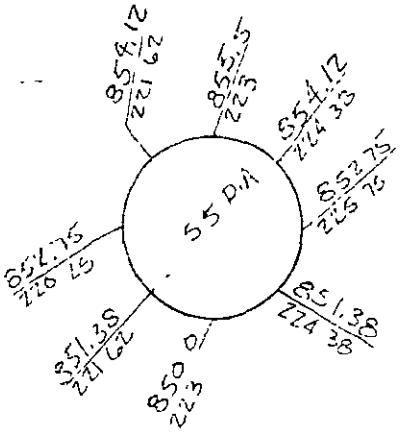
JOB NUMBER
SHEET NO. OF
COMP. BY DATE
CHK'D. BY DATE





Inlet

Farm Lane Culvert



outlet

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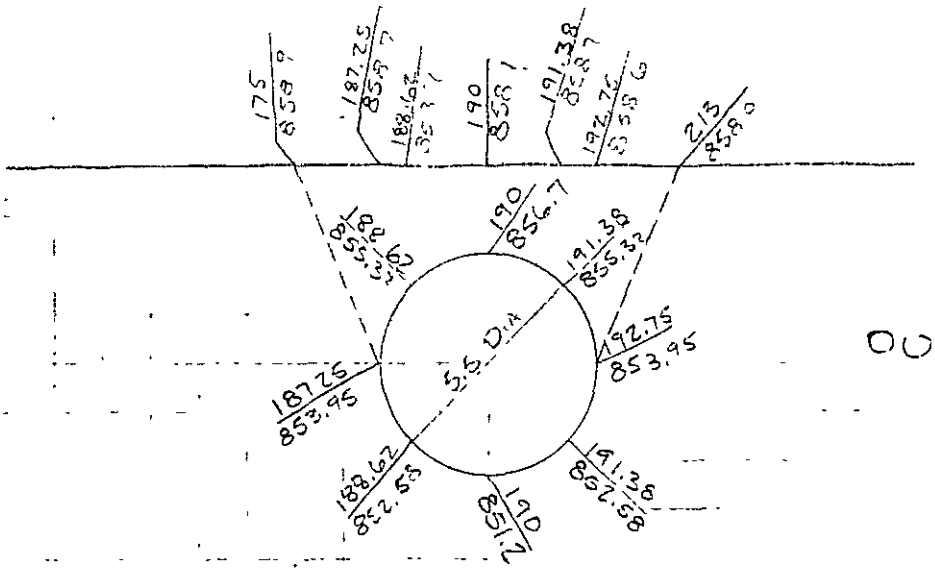
SUBJECT Sect # 5

JOB NUMBER

SHEET NO. OF

COMP. BY DATE

CHK'D. BY DATE



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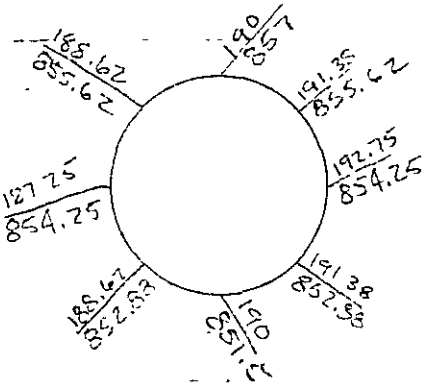

Inlet

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SUBJECT Gilbert Drain #7

JOB NUMBER

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COMP. BY DATE

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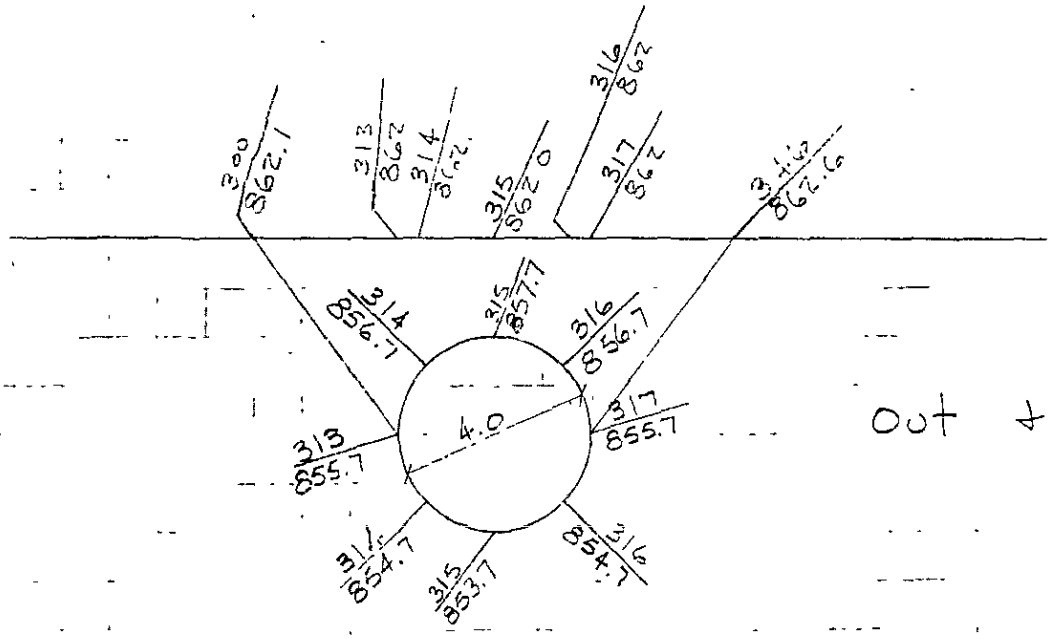

Out + In

Driveway Culvert

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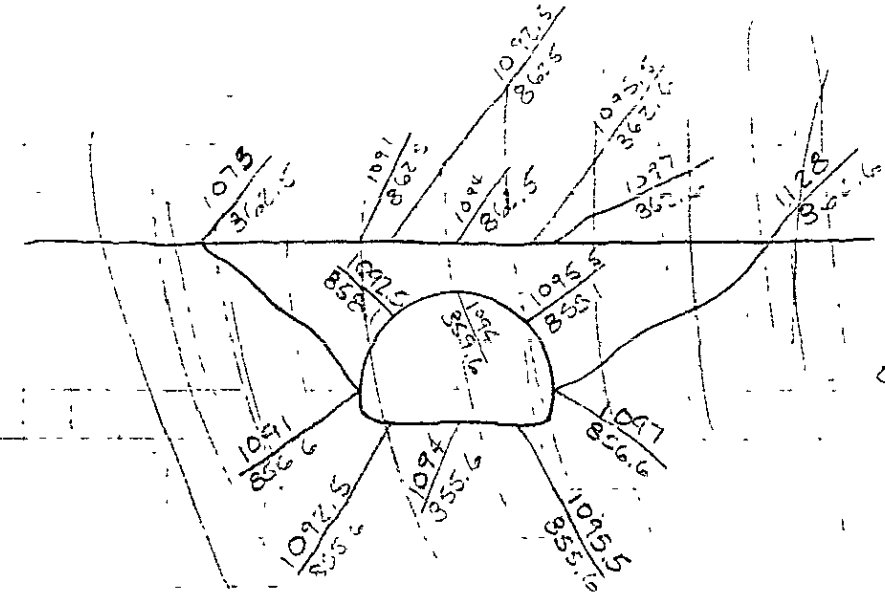
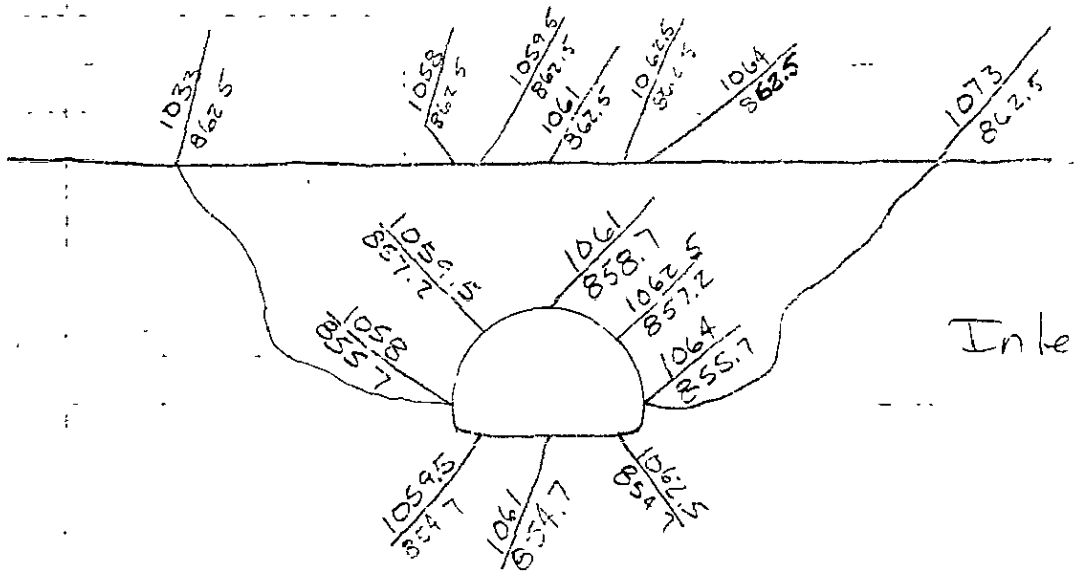
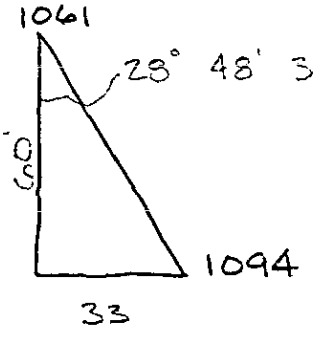
CHK'D. BY DATE



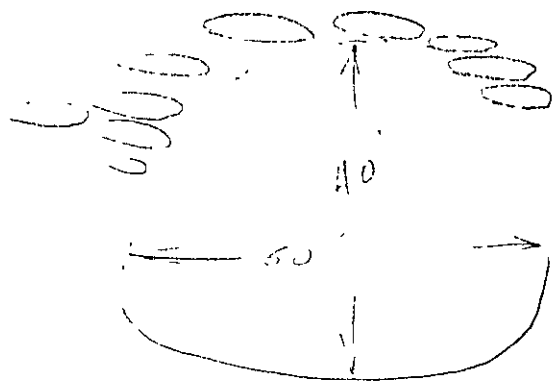


Downey Road



.876

B.S. #8

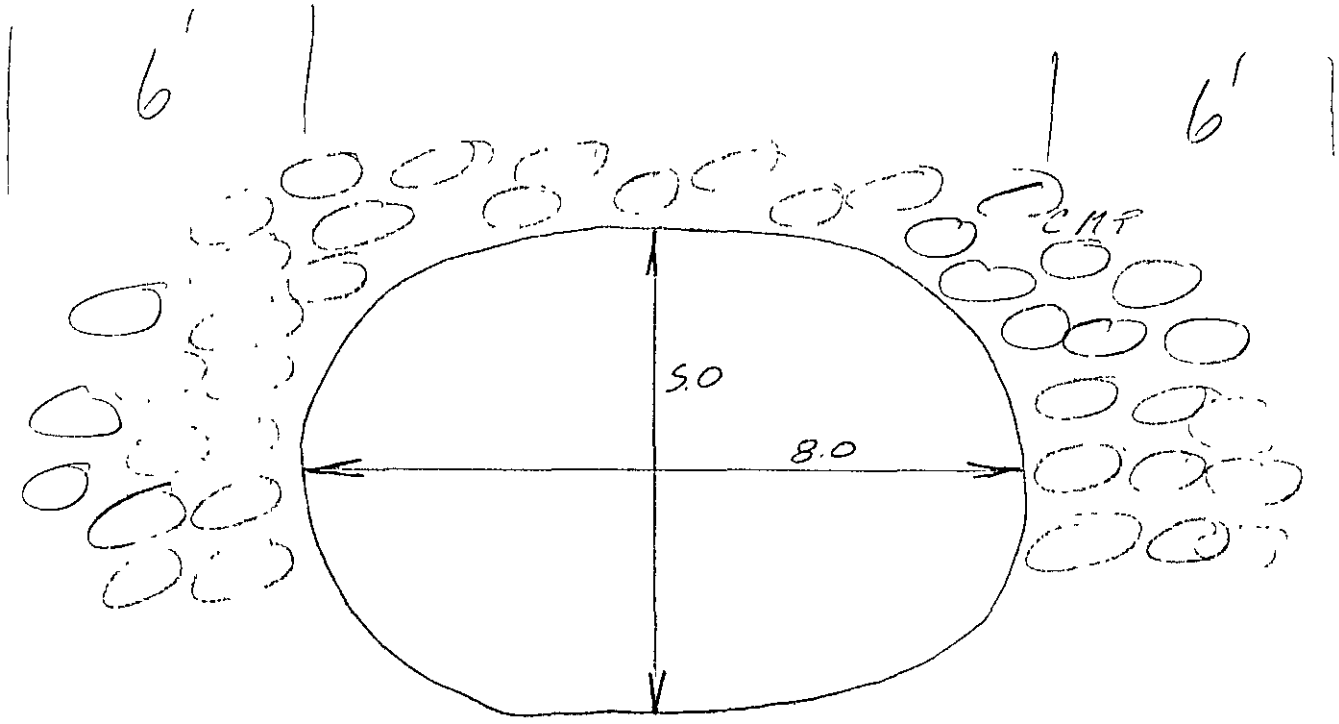


C.M.P.

SANDBAGS SURROUND CULVERT

60' of C.M.P.

B.S. #9



101' of CMP.

Walt Hoag

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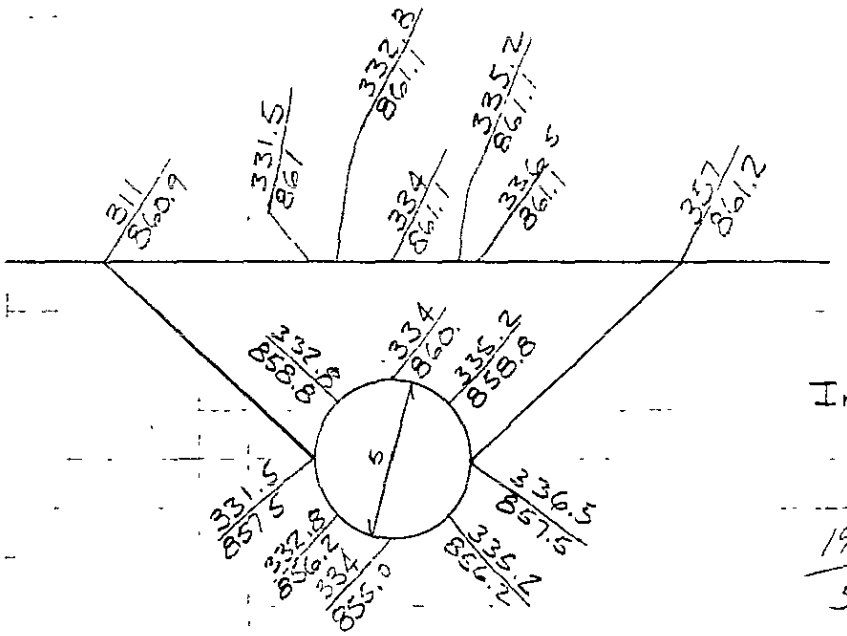
SUBJECT Gilbert Drain #11

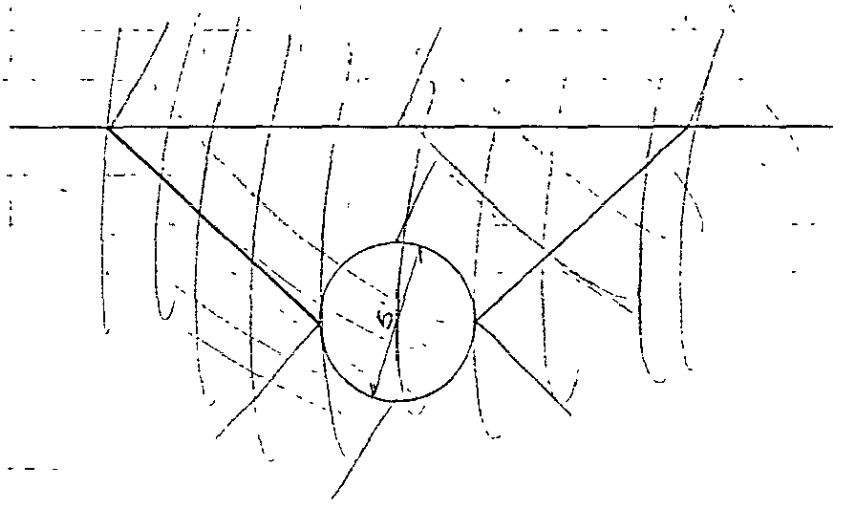
JOB NUMBER

SHEET NO. OF

COMP. BY DATE

CHK'D. BY DATE





Inlet + outlet

1964 / 5. = BWC

3.93 ft. = BWC

Farm Lane Culvert

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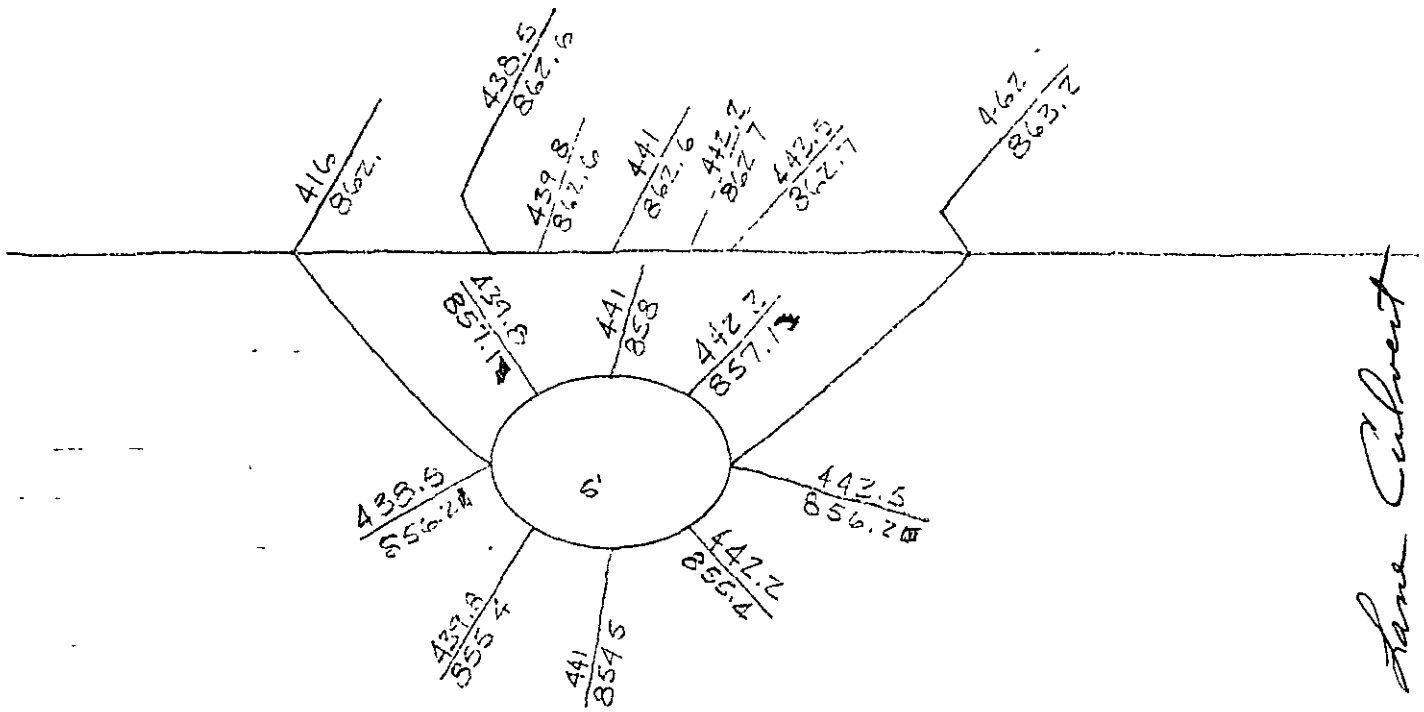
SUBJECT Gilbert Drain #12

JOB NUMBER 35-5-6322
SHEET NO. ____ OF ____
COMP. BY ____ DATE ____
CHK'D. BY ____ DATE ____



Farm Lane Culvert

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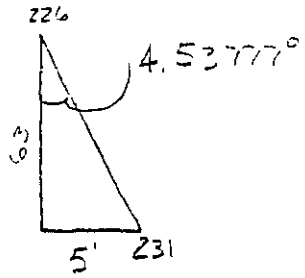
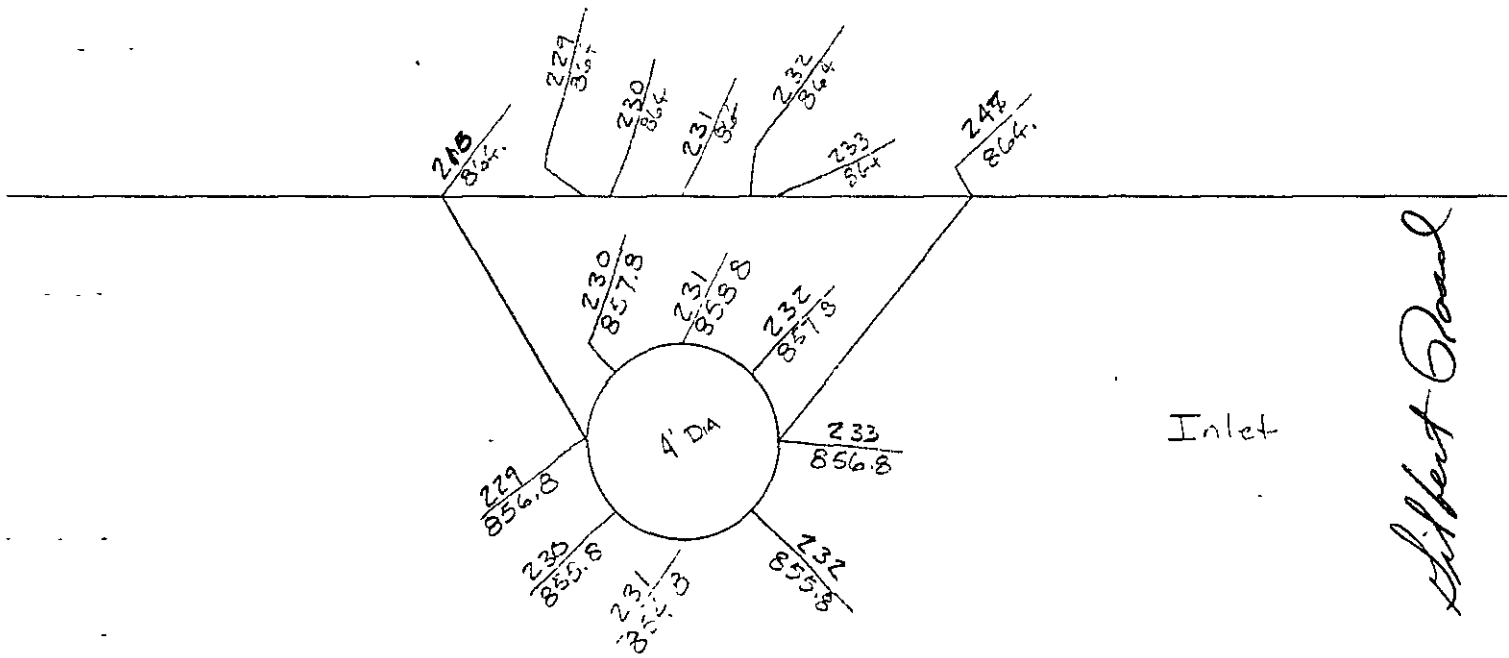
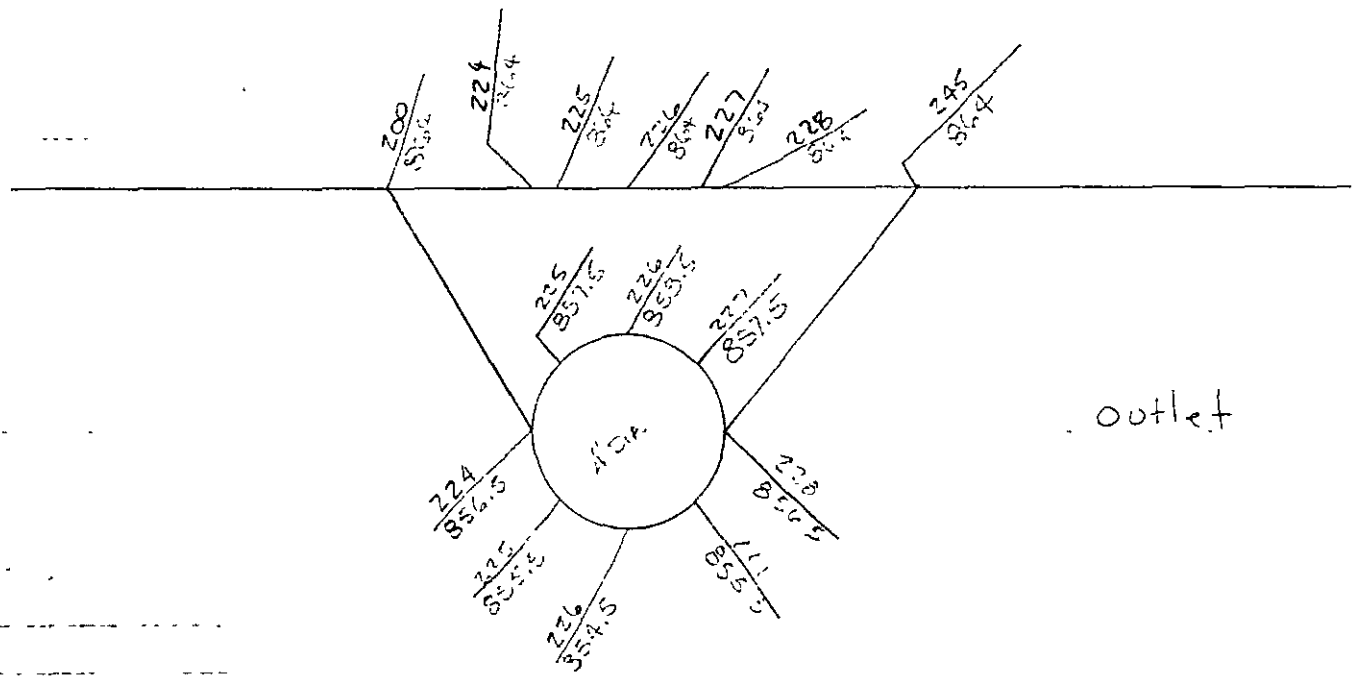
SUBJECT Section # 13
Gilbert Drain

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

.997 S.F.







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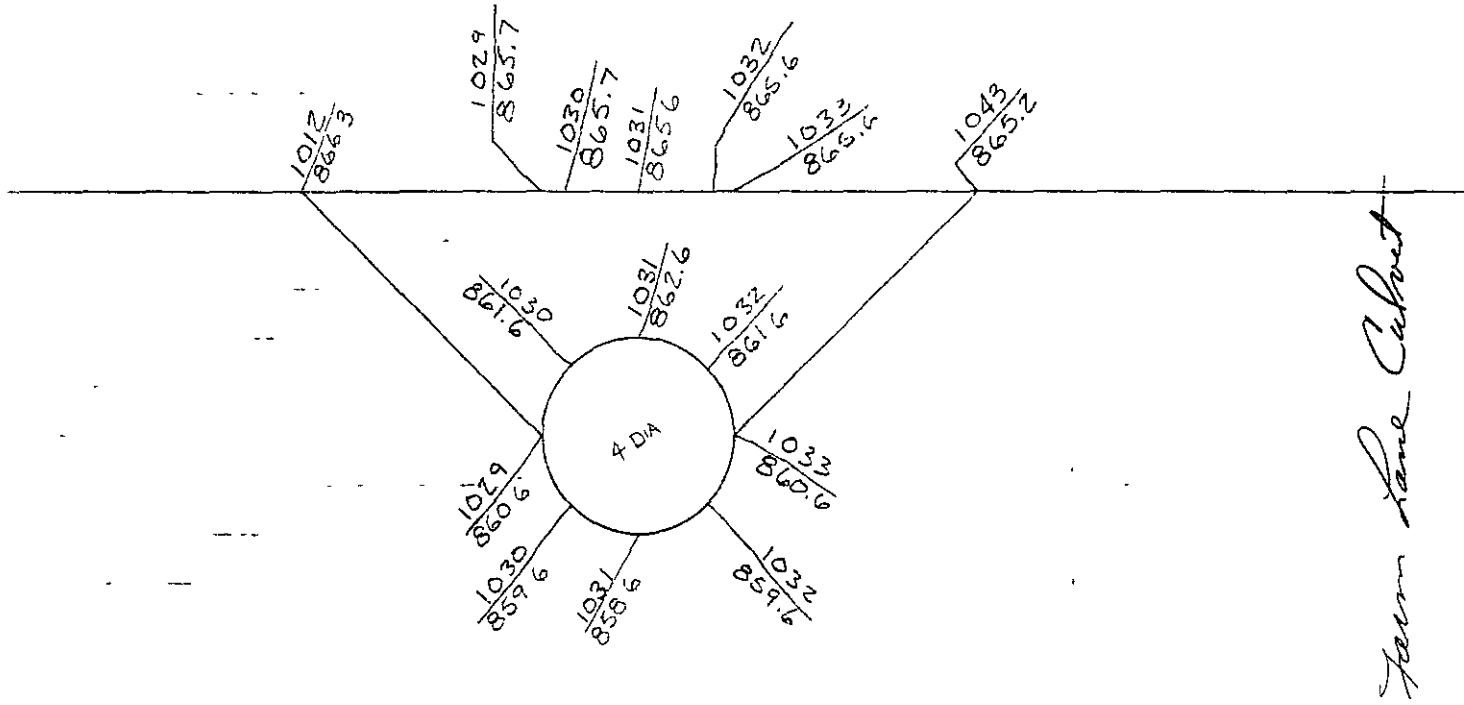
SUBJECT Gilbert Drain
Section #: 15

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



Farm Lane Culvert

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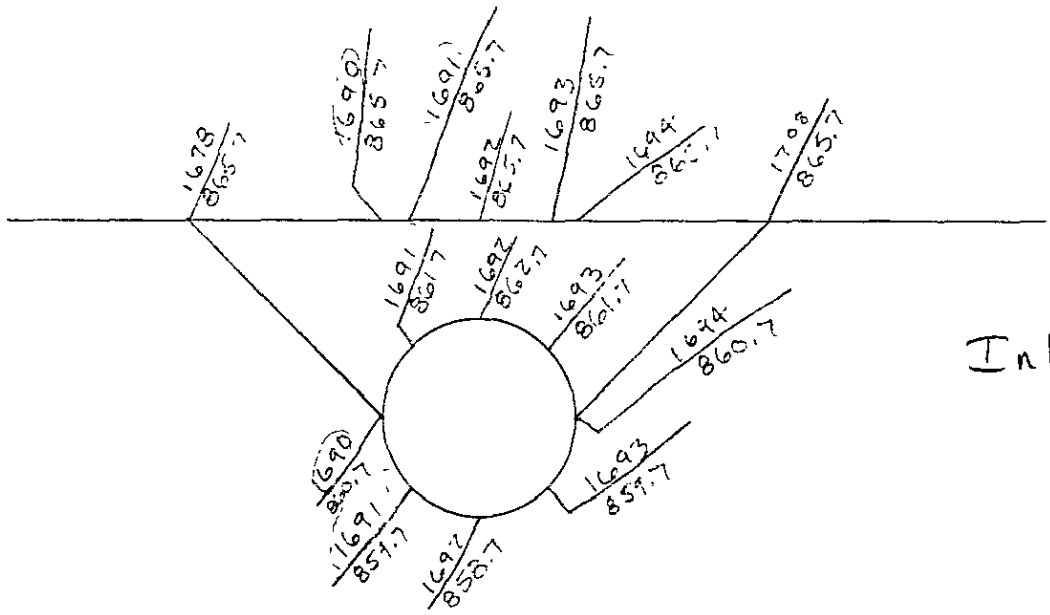
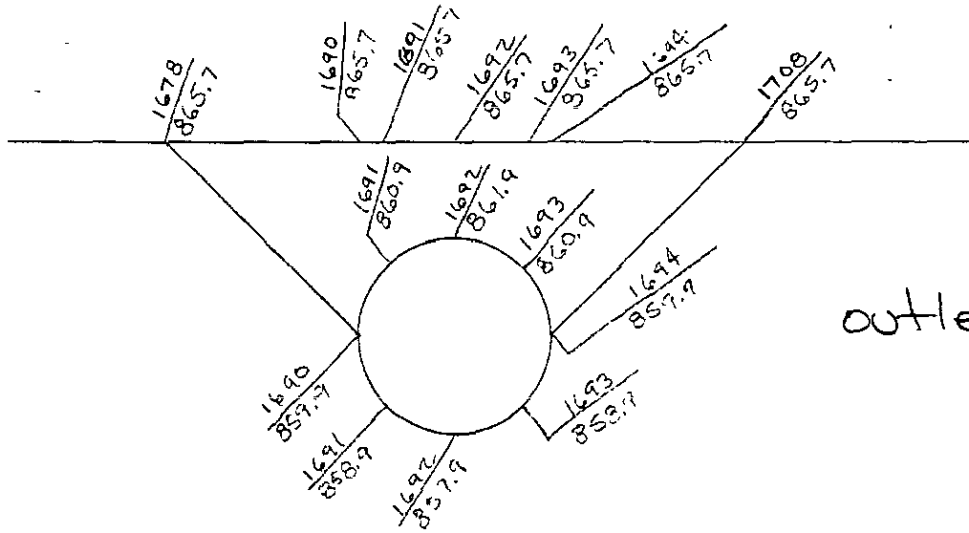
SUBJECT Gilbert Drain
17

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



Inlet



outlet

Assembly Road

APPENDIX C

CALCULATIONS

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

B.S. #2

CONCRETE BOX CULVERT - 10' WIDE
19' LONG

$n = 0.015$ SIDES & TOP

$n = 0.045$ BOTTOM

$n = \sqrt{\dfrac{23.8(0.015)^2 + 10.1(0.045)^2}{33.9}} = 0.0276$ (WEIGHTED BE EINSTEIN & PALOVSKI METHOD)

AREA = 72 FT^2

$WP = \underbrace{23.8}_{\text{SIDES \& TOP}} + \underbrace{10.1}_{\text{BOTTOM}} = 33.9$ FT.

$XKOR = 1. + k_e + k_f$

$k_e = 0.4$ $\qquad R = 72/33.9 = 2.124$

$k_f = \dfrac{29.1(0.0276)^2 \cdot 19.}{(2.124)^{4/3}} = 0.154$

$XKOR = 1.554$

$\dfrac{V^2}{2g} A = H$

$\dfrac{\left(\frac{685}{72}\right)^2}{64.4} \times 1.554 = H$

$2.1841 = H$

$\dfrac{850.94}{853.12} = \text{FT. W}$

$= EG.$

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

B.S. #2

BOX CULVERT, 6.9' HIGH, 10' WIDE
CONCRETE, WING WALLS AT 90°

INLET CONTROL (100 YR FLOW)

$g = 9/B = 685./10. = 68.5$

$\frac{HW}{D} = 1.32 \Rightarrow$ from pg 5-21 HYDRAULICS CIRCULAR #5

$HW = 6 * 1.32 = 7.92$ (height of energy grade)

853.92

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

B.S. #4

5.5' ϕ CMP (½") CULVERT, 26' LONG
EXTENDING INLET, ½" CORROGATIONS

$\Sigma K_{OR} = 1. + K_e + K_f$

$K_e = 0.9$

$K_f = \frac{29.1 (0.0233)^2 26}{(1.375)^{4/3}} = 0.269$

AREA = 23.76 ft^2
W.P. = 17.28
R = 1.375

$\Sigma K_{OR} = 2.169$

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SUBJECT _____ JOB NUMBER _____
SHEET NO. _____ OF _____
COMP. BY KJJ DATE 7/24/78
CHK'D. BY _____ DATE _____

B. S. #5

24' LONG 5.5' Ø C.M.P.
n = 0.0237 (assuming ½" CORRUGATIONS)
AREA = 23.76 FT²
W.P. = 17.28 FT
R = 1.375 FT

$\Sigma KOR = 1. + K_e + K_f$

$K_e = 0.9$ (assumed PROJECTING)

$K_f = \frac{29.1 (0.0237)^2 24.}{(1.375)^{4/3}} = 0.257$

$\Sigma KOR = 2.157$

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

B.S. #7

24' LONG, 4' ϕ BOILER PLATE PIPE
$n = 0.010$
AREA = 12.566 FT^2
W.P. = 14.566 FT
$R = 1.00$ FT

$XKOR = 1. + K_e + K_f$

$K_e = 0.5$

$$K_f = \frac{29.1\,(0.01)^2\,24}{(1.00)^{4/3}} = 0.07$$

$XKOR = 1.57$

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

B.S. #8

60' LONG, 4'X6' CMP ARCH (STANDARD SIZE 6.08'X 4.58')
n = 0.0328 (2" CORRUGATIONS)
AREA = 22.1
W.P. = 9.46
R = 2.336

$XKOR = 1 + K_e * K_f$

$K_e = 0.9$ (PROJECTING PIPE)

$K_f = \frac{29.81 (0.0328)^2 60.}{(2.336)^{4/3}} = 0.606$

XKOR = 2.506

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

B.S. #9

101' LONG, 8.' X 5' CMP ARCH
(ASSUME STANDARD SIZE OF 7.93' X 5.6')

$n = 0.0320$ (2" CORRUGATIONS)
AREA = 35.4
W.P. = 11.82
$R = 2.99$
$XKOR = 1. + K_e + K_f$

$K_e = 0.5$

$K_f = \frac{29.1 (0.032)^2 101.}{(2.99)^{4/3}} = 0.697$

$XKOR = 2.197$

```
**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  EPROP CORE -  01,02
  MODIFICATION -  50,51,52,53
**********************************************

C
T1      FIA STUDY - WINDSOR AND DELHI TWP.S, JOB NO.S 17286A,17285A.
T2      10 YEAR FLOW
T3      GILBERT DRAIN

J1  ICHECK     INQ        NINV       IDIR       STPT       METRIC     HVINS      Q          WSEL       FQ

        0.         0.         0.         0.  0.000000       0.00       0.0      370.    863.630      0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      0.000      0.000     -1.000      0.000      0.000      0.030      0.000      0.000      0.000      0.000

NC       .125       .125       .050       .300       .500       0.000      0.000      0.000      0.000      0.000

         HOLT HIGHWAY, D/S FACE, 8 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

         SANDBAG WINGWALLS, PAVED ROADWAY

X1      9.000     20.000   1721.000   1758.000    245.000     20.000    170.000       .788      0.000      0.000
X3      0.000      0.000      0.000   1350.000      0.000   1950.000      0.000      0.000      0.000      0.000
GR    872.100      0.000    871.300    200.000    870.500    400.000    869.500    600.000    868.700    800.000
GR    868.000   1000.000    866.300   1200.000    864.700   1400.000    863.600   1600.000    863.400   1668.000
GR    863.400   1721.000    853.900   1738.600    853.900   1738.600    853.900   1745.400    853.900   1745.400
GR    863.600   1758.000    864.500   2000.000    868.200   2200.000    871.600   2400.000    874.300   2800.000
NC       .020       .020       .032      0.000      0.000      0.000      0.000      0.000      0.000      0.000
SB     0.000      2.197      3.030      0.000      8.000      0.000     35.400      0.000    953.500    953.900

         SECTION J, D/S FACE, HOLT HIGHWAY

X1      9.000     20.000   1738.600   1745.400    101.000    101.000    101.000       .788      0.000      0.000
X2      0.000      0.000      1.000    858.900    863.400      0.000      0.000      0.000       .788      0.000
X3      0.000      0.000      0.000   1350.000      0.000   1950.000      0.000      0.000      0.000      0.000
BT     19.000      0.000    872.100      0.000    200.000    871.300      0.000    400.000    870.500      0.000
BT    600.000    869.500      0.000    800.000    868.700      0.000   1000.000    868.000      0.000   1200.000
BT    866.300      0.000   1400.000    864.700      0.000   1600.000    863.600      0.000   1668.000    863.400
BT      0.000   1721.000    863.400      0.000   1738.600    863.500    853.900   1738.600    863.500    858.900
BT   1745.400    863.500    858.900   1745.400    863.500    853.900   2000.000    864.500      0.000   2200.000
BT    868.200      0.000   2400.000    871.600      0.000   2800.000    874.300      0.000      0.000      0.000
GR    872.100      0.000    871.300    200.000    870.500    400.000    869.500    600.000    868.700    800.000
GR    868.000   1000.000    866.300   1200.000    864.700   1400.000    863.600   1600.000    863.400   1668.000
GR    863.400   1721.000    853.900   1738.600    853.900   1738.600    853.900   1745.400    853.900   1745.400
GR    863.600   1758.000    864.500   2000.000    868.200   2200.000    871.600   2400.000    874.300   2800.000
EJ      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
```

*PPOF 1

CCHV= .300 CEHV= .500
*SECNO 9.000

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

3470 ENCROACHMENT STATIONS= 1063.4 1536.0 TYPE= 1 TARGET= 600.000

HOLT HIGHWAY, D/S FACE, 8 BY 5 FT. CMP ARCH (2 IN.), 101 FT. LONG

SANDBAG WINGWALLS, PAVED ROADWAY

9.00	9.73	863.63	0.00	863.63	863.70	.07	0.00	0.00	863.40
370.	2.	368.	0.	17.	170.	0.	0.	0.	863.60
0.00	.10	2.17	.00	.125	.050	.125	0.000	853.90	1256.02
.000682	245.	170.	20.	0	0	0	0.00	135.11	1391.13

SPECIAL BRIDGE

SB	XK	XKOP	COFQ	RDLEN	BNC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	3.03	0.00	8.00	0.00	35.40	0.00	953.50	953.90

*SECNO 9.090
PRESS FLOW BECAUSE EGLWC OF 963.30 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
867.36	963.30	0.00	244.	128.	35.	-757.	858.90	863.40

3470 ENCROACHMENT STATIONS= 1063.4 1536.0 TYPE= 1 TARGET= 600.000

SECTION J, U/S FACE, HOLT HIGHWAY

9.09	10.14	864.04	0.00	0.00	864.07	.03	.37	0.00	853.90
370.	170.	107.	93.	144.	54.	73.	1.	0.	853.90
.02	1.18	1.97	1.27	.020	.032	.020	.032	853.90	1197.26
.000086	101.	101.	101.	2	0	6	0.00	280.78	1478.04

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B.S. #17

4' ϕ CMP (1/2"), 78' LONG, EXTENDING INLET

AREA = 12.57
W.P = 12.57
R = 1.
n = 0.0237

XKOR

$K_e = 0.9$

$K_f = \frac{29.1 (0.0237)^2 \, 78}{1^{4/3}} = 1.275$

XKOR = 3.175

00BREAK00

1) COUNTY: Eaton

2) STUDY NAME: Windsor Twp & Village of Dimondale

3) WATERCOURSE: Old Maid Drain

4) DOCUMENT TYPE: report

00BREAK00

SNELL ENVIRONMENTAL GROUP, INC.

Windsor Township and Village of Dimondale

Flood Insurance Study Old Maid Drain

Hydraulic Analysis Report

RECEIVED
AUG 1 1978
WATER MANAGEMENT

Snell Environmental Group
Engineering · Planning · Research

LETTER OF TRANSMITTAL

DATE	JOB NO.
8/1/78	17284A & 17286A
ATTENTION: Sam M. Nalluswami, P.E.	
RE: Windsor Township & Vill. of Dimondale	
Flood Insurance Studies	
Old Maid 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	8/1/78		Hydraulic Analysis Report
1	8/1/78		Computer Printout File

THESE ARE TRANSMITTED as checked below:

☒ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit ____ copies for distribution
☐ As requested ☐ Returned for corrections ☐ Return ____ corrected prints
☐ For review and comment ☐ _____
☐ FOR BIDS USE _____ 19____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS: _____

COPY TO: SEG File No. 17284A & 17286A

SIGNED: Sam M. Nalluswami
Project Coordinator

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 Gufer • William J Bandy, Jr • Joseph A Badra • Alan D Godfrey • Virgil W Langworthy
CABLE SNELL TELEX 229458

OLD MAID DRAIN

HYDRAULIC ANALYSIS REPORT

TABLE OF CONTENTS

1. INTRODUCTION
2. FLOOD FLOWS
3. METHOD OF ANALYSIS
4. VARIABLES AND COEFFICIENTS
   - 4.1 Bridge Coefficients
5. HIGH WATER MARKS
6. STARTING CONDITIONS
7. SPECIAL PROBLEMS

REFERENCES

Appendix A — Cross-Section Description Table

Appendix B — Bridge Notes and Sketches

Appendix C — Calculations

Appendix D — Water Surface Profile

Appendix E — Map Delineating Floodway & Flood Fringe

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

Old Maid Drain is a small ungaged stream in Windsor Township and the Village of Dimondale, Eaton County, Michigan. The detailed hydraulic analysis was performed for a 0.90 mile reach, extending from the Grand River to the confluence with Whaley Drain. 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 results were reviewed and approved by the Michigan Department of Natural Resources, Water Management Division. Table 1 gives a summary of the flows as used in this analysis.

Qp OK RCS 9/11/78

TABLE 1

Reach	Q (cfs) 10-year	50-year	100-year	500-year
Grand River to Confluence with Silver Creek	440	690	865	1170
U/S Silver Creek to end of study	205	295	345	440

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. The field cross-sections were repeated as required. Cross-section locations were chosen from field inspection, review of U.S.G.S. 10-foot contour interval 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
0.02 - 0.033	1. Culverts (CMP)
0.035 - 0.050	2. Channel
0.030 - 0.035	3. Lawns
0.040 - 0.050	4. Cropland
0.045 - 0.060	5. Meadows
0.070 - 0.090	6. Woods and Brush

The contraction and expansion coefficients used were 0.3 and 0.5 respectively. 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

As Old Maid Drain has no gaging station, calibration of the hydraulic model was impossible. Accordingly, no high water marks were sought or obtained.

6. STARTING CONDITIONS

As the watershed of Grand River is several orders of magnitude larger than that of Old Maid Drain, the storms causing a flood of particular probability were considered independent events in each watershed. Accordingly, normal depth was used rather than flood elevations on the Grand River. Normal depth was calculated using the slope-area method and adjusting the input water elevation until the calculated slope matched the existing slope in Old Maid Drain. This starting elevation was compared to starting at critical depth. The water surface profile started at critical depth converged within 0.03 ft. at SECNO 3.00.

7. SPECIAL PROBLEMS

After coding and debugging the survey data, it was discovered that an incorrect benchmark elevation had been used in many of the cross sections. To correct this error the BT cards were recoded and the GR cards raised using the ninth field of the X1 card.

Bridge section 4 for the 100-year flow was controlled by friction losses. To properly model this it was coded as a normal bridge. On the lower flows for the 10- and 50-year floods the downstream face goes to critical depth. This behavior is thought to imply that weir flow controls. As the model is for the 100-year flow, this problem was not explored.

The IPLOT routine of HEC-2 goes into an infinite loop on certain encroached cross-sections. This problem was eliminated by manually encroaching the sections on the GR cards. This was only for the IPLOT run and not for the multiple profile run, however, no differences in the 100-year water surface profile were observed.

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

APPENDIX A

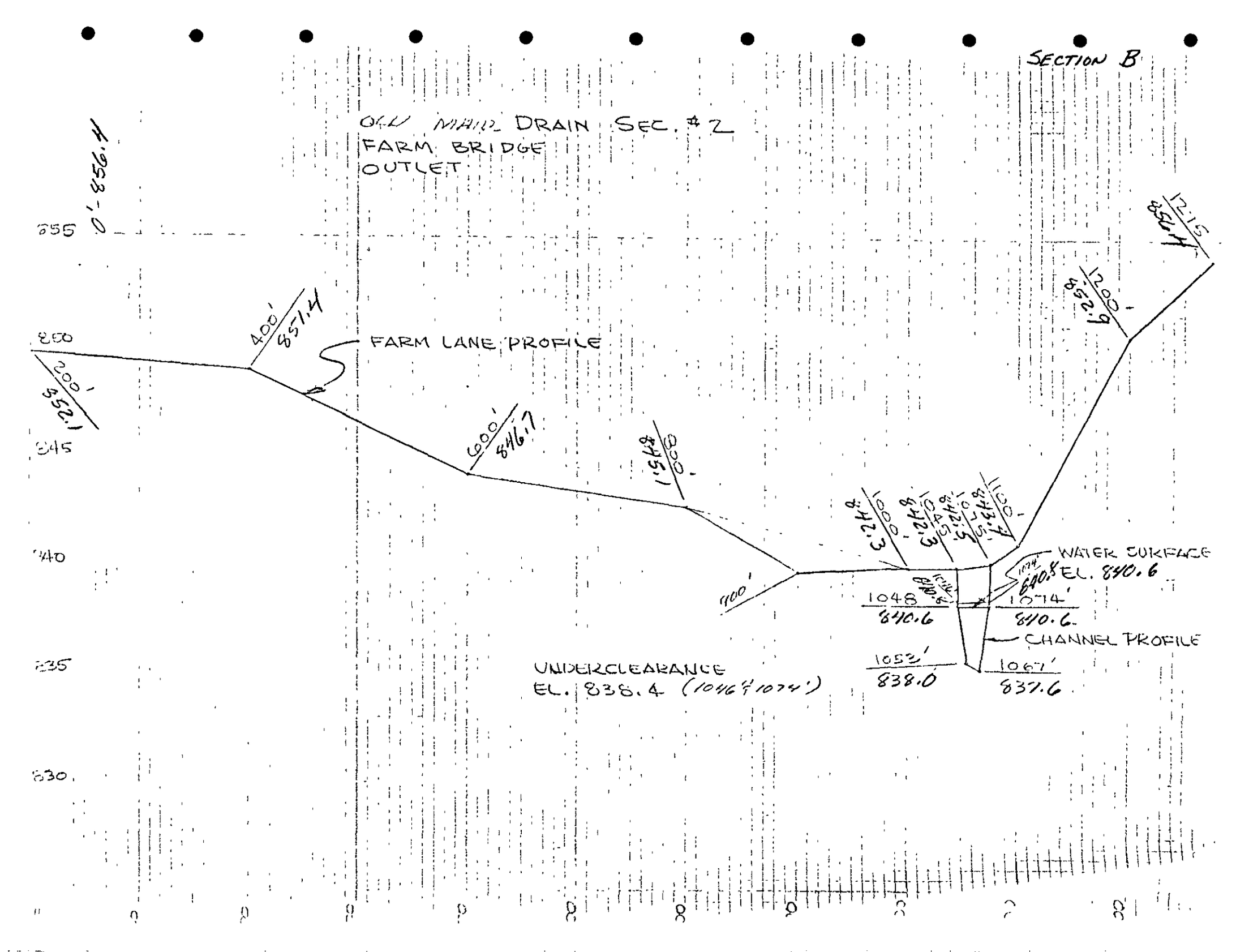
CROSS SECTION DESCRIPTION TABLE

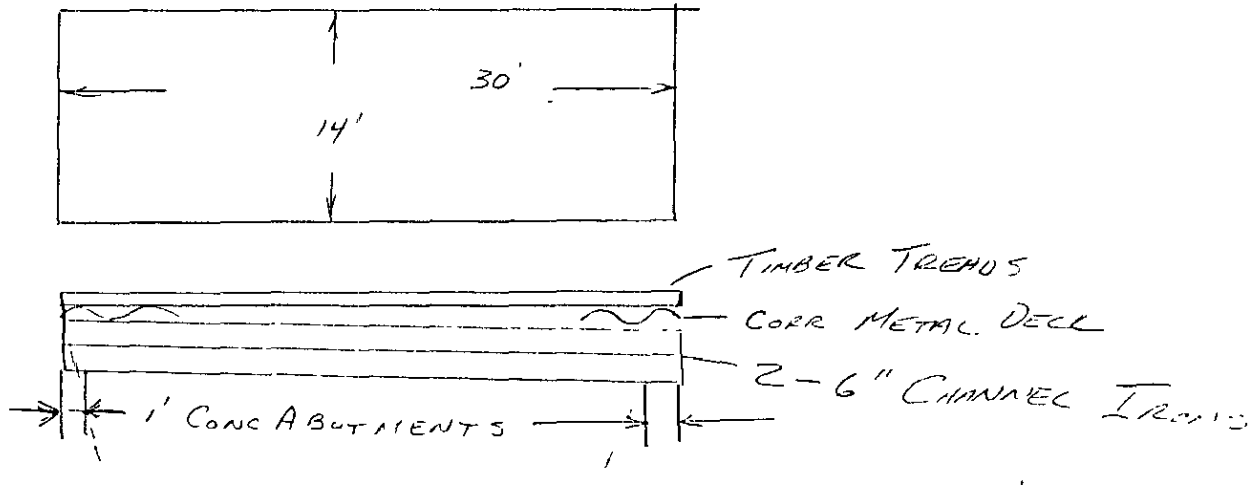
Cross-Section	SECNO	DESCRIPTION
	0.90	Section A repeated, lowered 0.20 ft., used to converge to normal depth
	0.91	Section A repeated, lowered 0.10 ft., used to converge to normal depth
A	1.00	Surveyed valley section, starting cross-section
	1.90	Section B repeated, lowered 0.10 ft.
	2.00	Repeat of Section B without BT cards
B	2.10	Surveyed bridge section at Farm Lane Bridge, D/S face
	2.40	U/S face of Farm Lane Bridge
C	2.50	Repeat of Section B without BT cards, 1 ft. U/S of Bridge
	2.60	Repeat of Section C, raised 0.01 ft.
D	3.00	Surveyed valley section
	3.90	Repeat of Section E without BT cards, lowered 0.17 ft.
	4.00	Repeat of Section E without BT cards
E	4.10	Surveyed bridge section at driveway culvert, D/S face
	4.40	Repeat of Section E, U/S face of driveway culvert
	4.50	Repeat of Section E without BT cards
	4.60	Repeat of Section E without BT cards
F	5.00	Surveyed valley section
	5.10	Repeat of Section F, raised 0.47 ft.
	5.20	Repeat of Section F, raised 2.36 ft.
	5.30	Repeat of Section F, raised 4.25 ft.
	5.90	Repeat of Section G, lowered 1.23 ft.
G	6.00	Surveyed bridge section at Canal Road, D/S face, no BT cards

H	6.40	Surveyed bridge section at Canal Road
	6.60	Repeat of Section H, raised 0.47 ft., no BT cards
	6.90	Repeat of Section I, lowered 0.42 ft.
I	7.00	Surveyed bridge section at Seney Road, D/S Face, no BT cards
J	7.40	Surveyed bridge section at Seney Road, U/S face
K	8.00	Surveyed valley section
	8.10	Repeat of Section K, raised 0.64 ft.
	8.90	Repeat of Section L, lowered 0.14 ft.
L	9.00	Surveyed bridge section at driveway culvert, D/S face, no BT cards
M	9.40	Surveyed bridge section at driveway culvert, U/S face
	10.00	Repeat of Section N, no BT cards
N	10.01	Surveyed bridge section at driveway bridge, D/S face
	10.09	Repeat of Section N, U/S face
	10.10	Repeat of Section N, no BT cards
O	11.00	Surveyed valley section

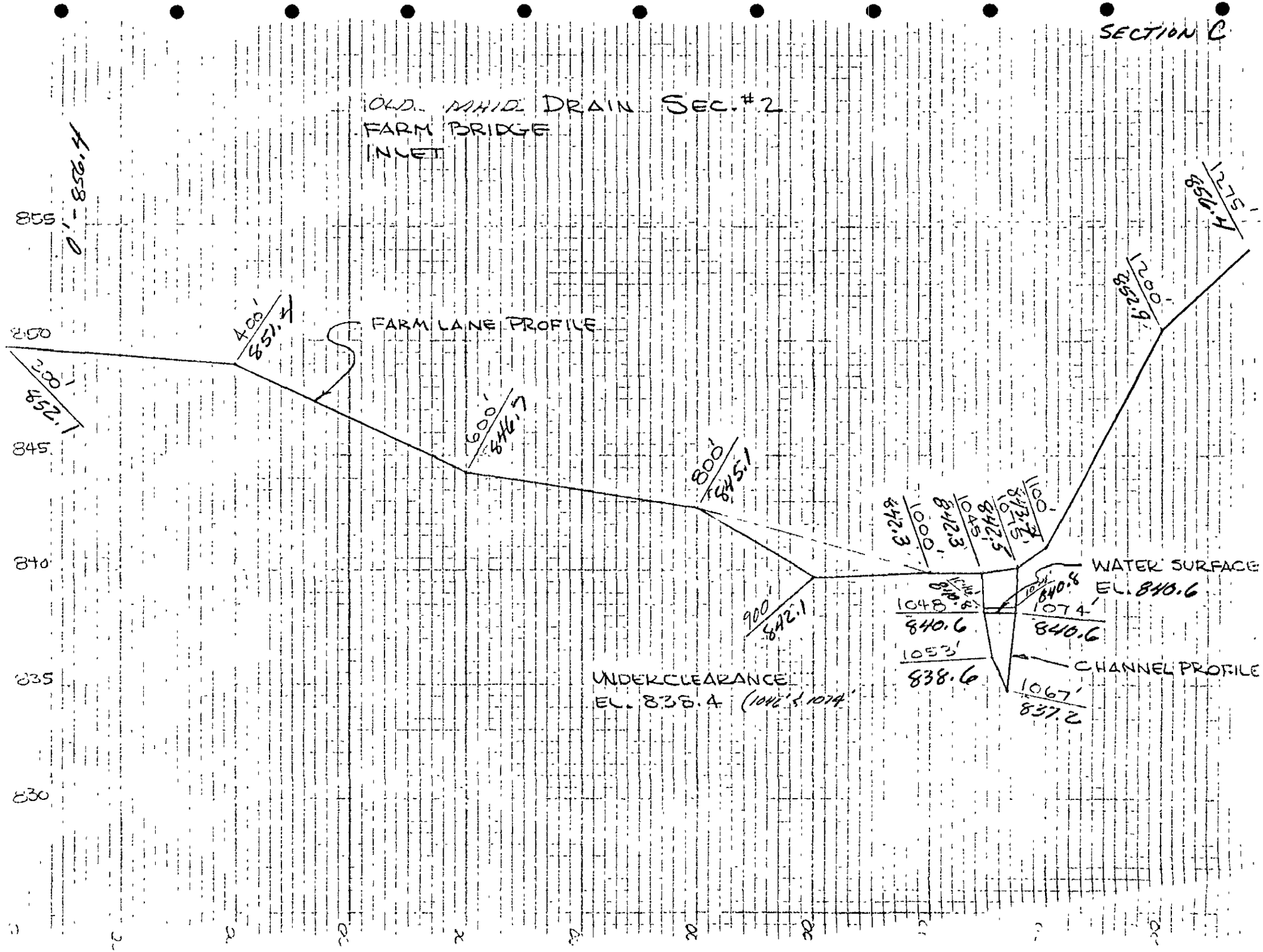
APPENDIX B

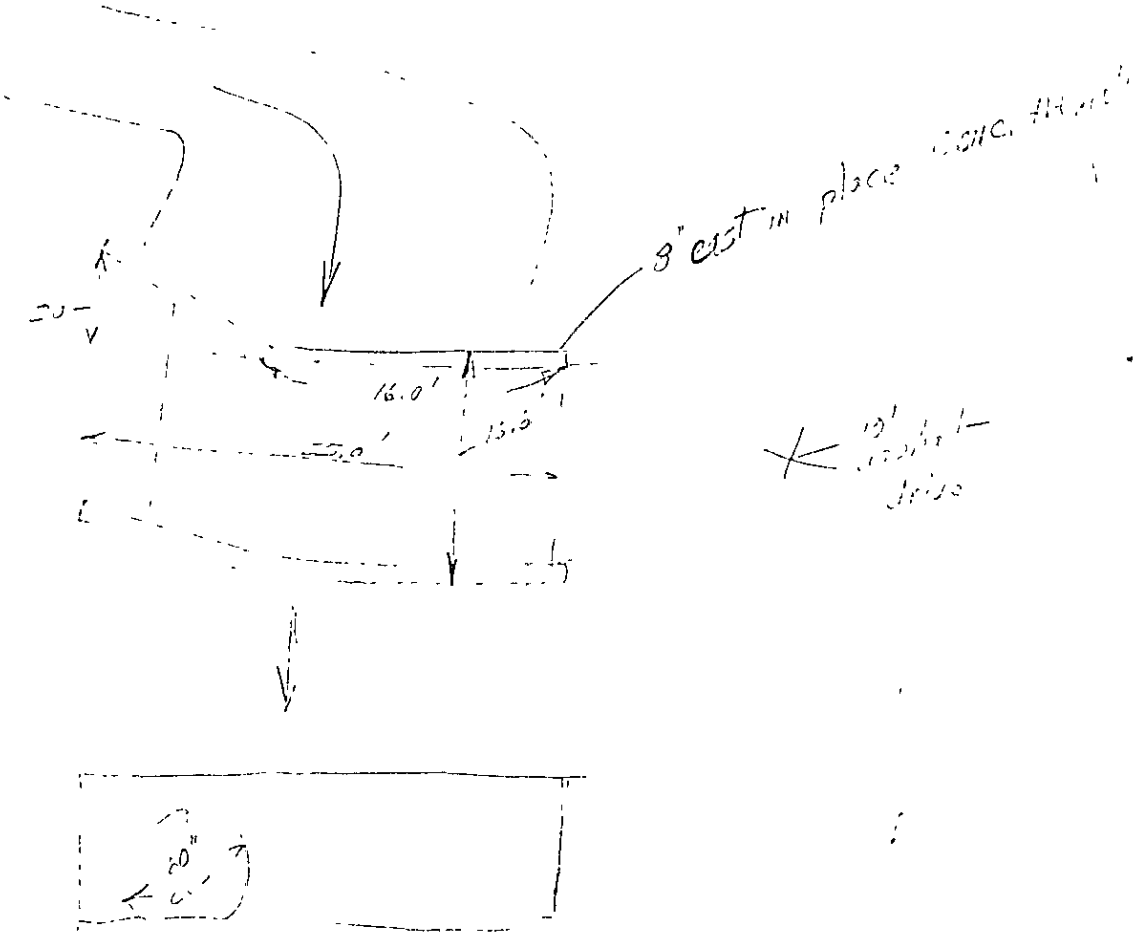
BRIDGE NOTES AND SKETCHES


SECTION B
OLD MAIN DRAIN SEC. #2
FARM BRIDGE
OUTLET
0'-856.4
855
850
845
840
835
830
200'
852.1
400'
851.4
FARM LANE PROFILE
600'
846.7
800'
845.1
900'
1000'
842.3
1045'
842.3
1075'
842.5
1100'
843.4
1200'
852.9
1215
856.4
WATER SURFACE
EL. 840.6
1048
840.6
1074'
840.6
CHANNEL PROFILE
1053'
838.0
1067'
837.6
UNDERCLEARANCE
EL. 838.4 (1046' & 1074')



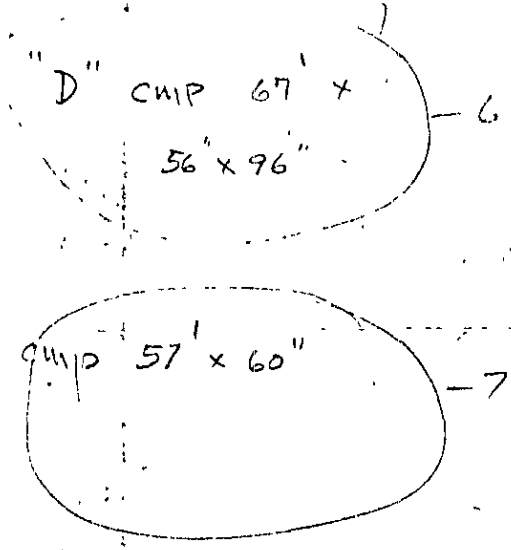
SECTIONS BB C


SECTION C
OLD MAID DRAIN SEC. #2
FARM BRIDGE
INLET
0' - 856.4
855
850
845
840
835
830
200'
852.1
400'
851.4
FARM LANE PROFILE
600'
846.7
800'
845.1
900'
842.1
1000'
842.3
1045'
842.3
1075'
842.5
1100'
843.7
1200'
852.9
1275'
856.4
WATER SURFACE
EL. 840.6
1048'
840.6
1074'
840.6
1053'
838.6
1067'
837.2
CHANNEL PROFILE
UNDERCLEARANCE
EL. 838.4 (1046' & 1074'

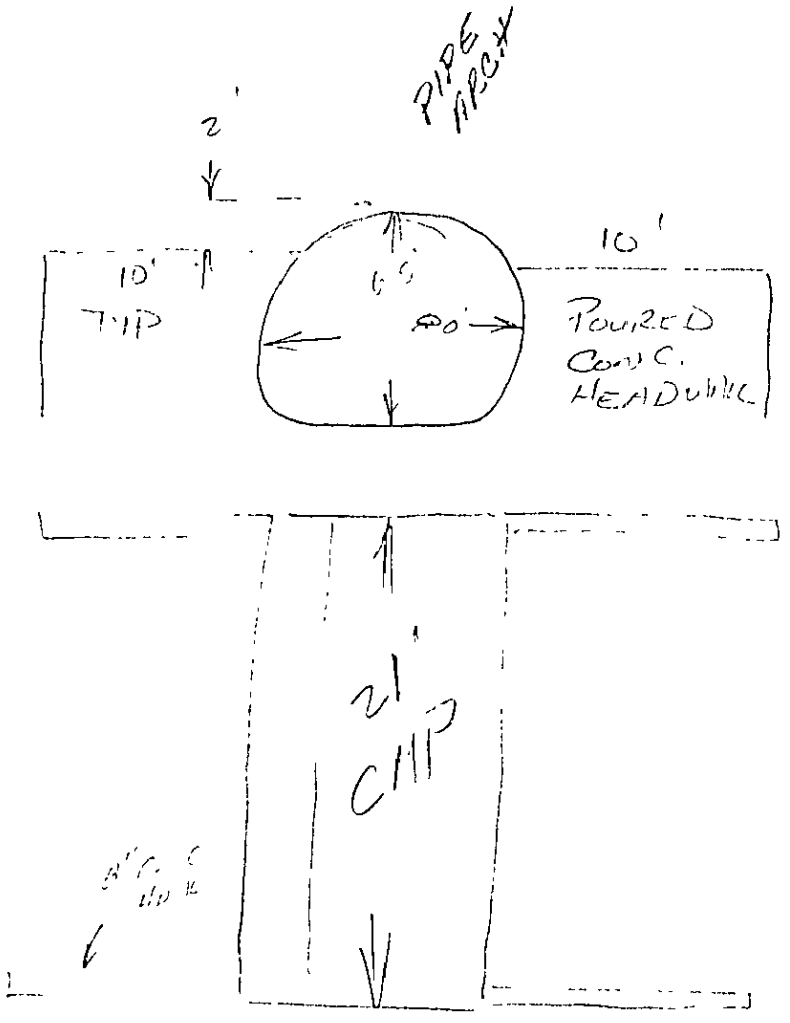


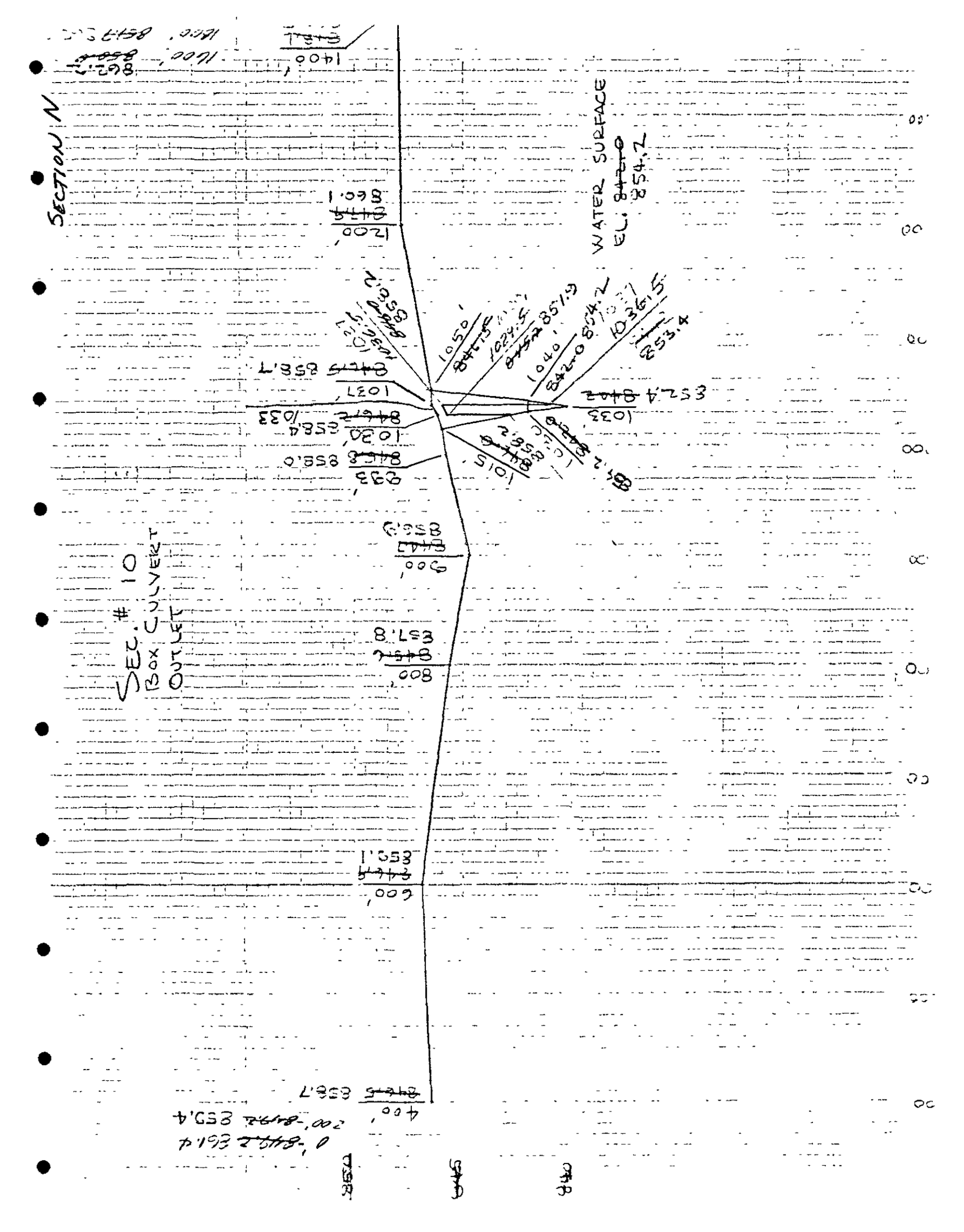
SECTION E

SECTIONS G, H, I, & J



SECTIONS L & M



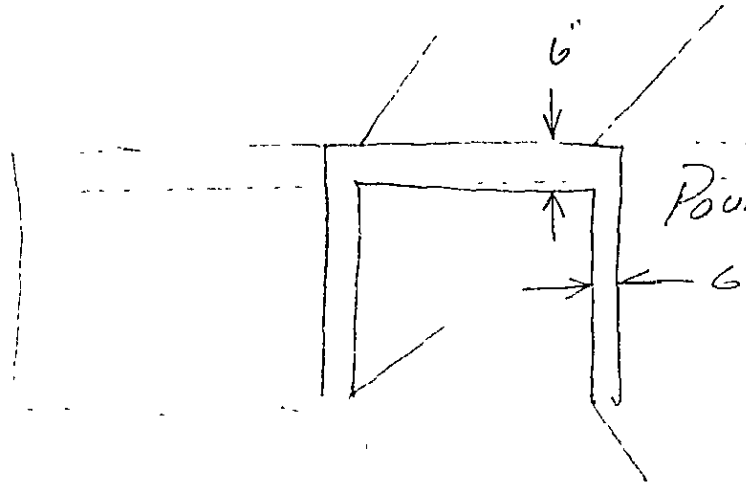

SECTION N
SEC. # 10
BOX CULVERT
OUTLET
WATER SURFACE
EL. 854.2
1400'
1200'
1050'
1040'
1037'
1033'
1030'
1015'
1000'
800'
400'
853.4
852.4
858.7
858.4
858.0
853.4

SECTION AV

WATER SURFACE
EL. 854.2

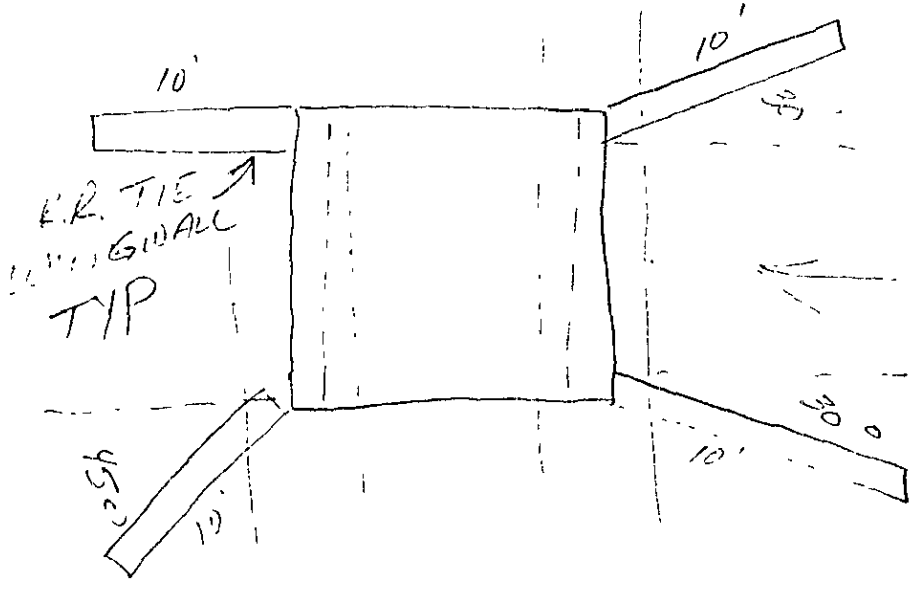
SEC. # 10
BOX CULVERT
INLET

SECTION N



POURED CONC
BOX CULVERT
(NO BOTTOM)

11
4



1035

APPENDIX C

CALCULATIONS

Snell Environmental Group
Engineering · Planning · Research
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SUBJECT HYDRAULICS
MUD LAKE DRAIN
VILLAGE OF DIMONDALE & WINDSOR TWP

JOB NUMBER A17284 & A17286
SHEET NO. ____ OF ____
COMP. BY KEJ DATE 6/15/78
CHK'D. BY ____ DATE ____

B.S. #9

appear 7.5' ϕ

8.' X 6.5' CMP (EXISTING DIMENSIONS)
APPEARS TO BE A SQUASHED CIRCULAR CMP CULVERT

LENGTH = 21'
AREA = 41.283'
WP = 23.'
n = 0.0228

$XKOR = 1. + k_e + k_f$

0.03 N

$k_e = 0.5$

0.287 $R = \frac{41.283}{23.} = 1.795$

$k_f = \frac{29.1\,(0.0228)^2\,21.}{(1.795)^{4/3}} = 0.144$

XKOR = 1.646

1.787

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SUBJECT Hydraulics
Old Mad Drain
Village of Dimondale & Windsor Twp.

JOB NUMBER A17204 & A17286
SHEET NO. ____ OF ____
COMP. BY ____ DATE ____
CHK'D. BY ____ DATE ____

B.S. #7 Seeney Drive

60" ϕ CMP
57' LONG
~~AREA = 19.05 FT²~~
WP = 15.708 FT
n = 0.0328

19.64

πR^2
$(\pi)(2.5)^2 = 19.635 ft^2$

$XKOR = 1. + k_e + k_f$

$k_e = 0.9$

$P = 19.05 / 15.708 = 1.213$
1.25

$k_f = \frac{29.1 (0.0328)^2 57}{(1.213)^{4/3}} = 1.380$

1.328

$1.347 = R^{4/3}$

$XKOR = 3.28$

3.23

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SUBJECT HYDRAULICS
OLD MAID DRAIN
VILLAGE OF DUNDEE & WINDSOR TWP.

JOB NUMBER A17284 & A17296
SHEET NO. ____ OF ____
COMP. BY ____ DATE ____
CHK'D. BY ____ DATE ____

B.S. #6 CANNAL ROAD

96" x 56" C.M.P. ARCH
67' LONG
$n = 0.0228$
$A = 34.64 \Rightarrow 0.9 *$ AREA OF ROUND PIPE ϕ 64"
W.P. = 21.99

$XKOR = 1.0 + k_e + k_f$

$k_e = 0.7$

$R = 34.64 / 21.99$

$k_f = \dfrac{29.1 (0.0228)^2 67}{(1.575)^{4/3}} = 0.553$

0.032
0.03 11
1.092

$XKOR = 2.253$